

IBM



# Infoprint Transforms from AFP for z/OS

*Version 2.1*



IBM



# Infoprint Transforms from AFP for z/OS

*Version 2.1*

**Note:**

Before using this information and the product it supports, read the information in "Notices" on page 251.

This edition applies to Version 2 Release 1 of these products:

- IBM Infoprint Transform for AFP to HP PCL for z/OS (program number 5655-P19)
- IBM Infoprint Transform for AFP to Adobe PDF for z/OS (program number 5655-P20)
- IBM Infoprint Transform for AFP to Adobe PostScript for z/OS (program number 5655-P21)

This edition applies to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces G550-0444-02.

**Internet**

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## About this publication

This publication describes Version 2 Release 1 (V2.1) of these products:

- IBM® Infoprint® Transform for AFP™ to HP PCL for z/OS® (program number 5655-P19)
- IBM Infoprint Transform for AFP to Adobe® PDF for z/OS (program number 5655-P20)
- IBM Infoprint Transform for AFP to Adobe PostScript® for z/OS (program number 5655-P21)

With these products, you can transform documents from Advanced Function Presentation™ (AFP) format to:

- HP Printer Control Language (PCL)
- Adobe Portable Document Format (PDF)
- Adobe PostScript

Together, these transform products replace the equivalent features of IBM z/OS Infoprint Server Transforms Version 1 Release 1 (5697-F51).

The transforms require Infoprint Server, which is a separately priced feature of z/OS. The transforms run on all supported releases of z/OS.

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## Who should read this publication

This publication is for anyone who needs to transform AFP documents, system programmers who customize the transform products, administrators responsible for maintaining the Infoprint Server Printer Inventory, and diagnosticians who must diagnose transform errors.

Readers should be familiar with Infoprint Server, AFP, z/OS UNIX® System Services, and z/OS job control language (JCL).

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## How to read syntax diagrams

This section explains the general notations that this publication uses in syntax diagrams. For ease of reading, this publication breaks some examples into several lines. However, when you enter a command, enter it all on one line. Do not press Enter until you have typed the entire command.

This notation:	Means:	You enter:	For example:	
			This publication shows:	You enter:
Apostrophes	String	As shown	SEND '123'	SEND '123'
Bold	Keyword	As shown	<b>CLASS</b>	CLASS
Braces	List of items	The braces and one or more items from the list	{GT10 GT12}	{GT10 GT12}
Brackets	Optional item	One item or no items	aopstop [now]	aopstop

This notation:	Means:	You enter:	For example:	
			This publication shows:	You enter:
Comma	Separator	As shown	DISPLAY C,K	DISPLAY C,K
Ellipsis	Repeatable item	One or more items	<i>filename ...</i>	file1 file2
Lowercase	Item the system defines	As shown, in lowercase	lp	lp
Lowercase italics	Variable item	A value for the item	MOUNT <i>devnum</i>	MOUNT A30
Parentheses	List of items	The parentheses and one or more items from the list	(GT10,GT12)	(GT10,GT12)
Special characters	Various symbols	As shown	%filter-options	%filter-options
Underline	Default	The item, or you can omit it	K T <u>REF</u>	K T
Uppercase	Item the system defines	As shown, in uppercase	PRMODE	PRMODE
Vertical bar	UNIX pipe (the output of the first is input to the second)	As shown	ls   lp	ls   lp
Vertical bar in braces	Required choice	One item	{NOW FOREVER}	FOREVER
Vertical bar in brackets	Optional choice	One item or no items	[PORTNO PRTQUEUE]	PORTNO

## Where to find more information

This section describes where to find related information.

### Web sites

These Web sites contain related information:

This site:	Contains:
<a href="http://www.ibm.com">http://www.ibm.com</a>	Downloads, including: <ul style="list-style-type: none"> <li>• Infoprint Port Monitor</li> <li>• AFP Viewer plug-in</li> <li>• AFP Printer Driver</li> <li>• <b>lprafp</b> command</li> </ul>
<a href="http://www.ibm.com/systems/z/os/zos/">http://www.ibm.com/systems/z/os/zos/</a>	Information about z/OS
<a href="http://www.ibm.com/systems/z/os/zos/bkserv/">http://www.ibm.com/systems/z/os/zos/bkserv/</a>	z/OS documentation, including: <ul style="list-style-type: none"> <li>• All z/OS publications</li> <li>• Updates from APARs and PTFs</li> </ul>
<a href="http://www.ibm.com/redbooks">http://www.ibm.com/redbooks</a>	IBM redbooks, including a publication for Infoprint Server
<a href="http://www.ibm.com/systems/z/os/zos/features/unix/">http://www.ibm.com/systems/z/os/zos/features/unix/</a>	Information about z/OS UNIX System Services

## Preventive Service Planning information

Before installing Infoprint transforms, you should review the current Preventive Service Planning (PSP) information, also called the *PSP bucket*. You should also periodically review the current PSP information.

The PSP upgrade IDs and subsets are:

*Table 1. PSP upgrade IDs and subsets*

Transform	Upgrade ID	Subset
IBM Infoprint Transform for AFP to HP PCL	5655P19	HXFR220, HXFR221
IBM Infoprint Transform for AFP to Adobe PDF	5655P20	HXFR220, HXFR223
IBM Infoprint Transform for AFP to Adobe PostScript	5655P21	HXFR220, HXFR222

To obtain the current PSP bucket, contact the IBM Support Center or use z/OS SoftwareXcel (IBMLink). If you obtained z/OS as part of a CBPDO, HOLDDATA and PSP information is included on the CBPDO tape. However, this information might not be current if the CBPDO tape was shipped several weeks prior to installation.

## Publications and other information

This section lists related publications and other information that can help you use Infoprint Server, Infoprint Transforms V2, and other IBM transform products. For publications for all z/OS products, see *z/OS Information Roadmap*.

*Table 2. Publications for Infoprint Server and other IBM transform products*

Publication	Form number
<i>z/OS Infoprint Server Introduction</i> Introduces Infoprint Server. This publication contains printing scenarios that show how you can use Infoprint Server in your installation.	S544-5742
<i>z/OS Infoprint Server Customization</i> Describes customization tasks for Infoprint Server. This publication describes Infoprint Server environment variables, configuration files, startup procedures, how to write exit routines and filter programs, and how to use the Infoprint Server API.	S544-5744
<i>z/OS Infoprint Server Operation and Administration</i> Describes operators procedures and administrative tasks for Infoprint Server. This publication describes how to start and stop Infoprint Server and how operators can use Infoprint Central. It describes how administrators can create entries in the Printer Inventory using either ISPF panels or the Printer Inventory Definition Utility (PIDU) program and define NetSpool printer LUs to VTAM®.	S544-5745

Table 2. Publications for Infoprint Server and other IBM transform products (continued)

Publication	Form number
<p><i>z/OS Infoprint Server User's Guide</i></p> <p>Describes user tasks for Infoprint Server. This publication describes how to submit print jobs from remote systems (including Windows® systems), the local z/OS system, and Virtual Telecommunications Access Method (VTAM) applications. It describes z/OS UNIX commands; the AOPPRINT JCL procedure; the AOPBATCH program; DD and OUTPUT JCL parameters that Infoprint Server supports; and how to download and install the Infoprint Port Monitor for Windows.</p>	S544-5746
<p><i>z/OS Infoprint Server Messages and Diagnosis</i></p> <p>Describes messages from Infoprint Server. This publication also describes how to use Infoprint Server tracing facilities to diagnose and report errors.</p>	G544-5747
<p><i>Infoprint XT Extender for z/OS</i></p> <p>Describes how to customize and use Infoprint XT Extender for z/OS.</p>	G544-5878

Table 3. Publications for Infoprint Transforms V2

Publication	Form number
<p><i>Infoprint Transforms to AFP for z/OS</i></p> <p>Describes IBM Infoprint Transforms to AFP V2.2 for z/OS. This publication describes using transforms, customizing transforms, administering transforms, diagnosing errors, messages, and migrating from Infoprint Server Transforms V1.1.</p>	G550-0443
<p><i>Infoprint Transforms from AFP for z/OS</i></p> <p>Describes V2.1 of these IBM products:</p> <ul style="list-style-type: none"> <li>• Infoprint Transform for AFP to HP PCL for z/OS</li> <li>• Infoprint Transform for AFP to Adobe PDF for z/OS</li> <li>• Infoprint Transform for AFP to Adobe PostScript for z/OS</li> </ul> <p>This publication describes using transforms, customizing transforms, administering transforms, diagnosing errors, messages, and migrating from Infoprint Server Transforms V1.1.</p>	G550-0444
<p><i>z/OS Open Cryptographic Services Facility Application Programming</i></p> <p>Describes the Open Cryptographic Services Facility (OCSF). This publication explains how to set up OCSF.</p>	SC24-5899

Table 4. Licensed program specifications for Infoprint Transforms V2

Licensed program specification	Form number
IBM Infoprint Transforms to AFP for z/OS	G550-0445
IBM Infoprint Transform for AFP to HP PCL for z/OS	G550-0446
IBM Infoprint Transform for AFP to Adobe PDF for z/OS	G550-0492
IBM Infoprint Transform for AFP to Adobe PostScript for z/OS	G550-0493

*Table 5. Program directories for Infoprint Transforms V2*

<b>Program directory</b>	<b>Form number</b>
IBM Infoprint Transforms to AFP for z/OS	GI11-4317
IBM Infoprint Transform for AFP to HP PCL for z/OS	GI10-0277
IBM Infoprint Transform for AFP to Adobe PDF for z/OS	GI10-0279
IBM Infoprint Transform for AFP to Adobe PostScript for z/OS	GI10-0280
IBM Infoprint Coaxial Printer Support for z/OS	GI10-0278



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## How to send your comments to IBM

We appreciate your input on this publication. Feel free to comment on the clarity, accuracy, and completeness of the information or give us any other feedback that you might have.

Use one of the following methods to send us your comments:

1. Send an e-mail to [printpub@infoprint.com](mailto:printpub@infoprint.com)
2. Visit the Contact z/OS Web page at <http://www.ibm.com/servers/eserver/zseries/zos/webqs.html>
3. Mail the comments to the following address:  
IBM Corporation  
6300 Diagonal Hwy 002J  
Boulder, CO 80301-9270  
U.S.A.

Include the following information:

- Your name and address
- Your e-mail address
- Your telephone or fax number
- The publication title and order number:  
Infoprint Transforms from AFP V2.1 for z/OS  
G550-0444-03
- The topic and page number related to your comment
- The text of your comment.

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 submit.

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## If you have a technical problem

Do not use the feedback methods listed above. Instead, do one of the following:

- Contact your IBM service representative
- Call IBM technical support
- Visit the IBM zSeries support Web page at <http://www.ibm.com/servers/eserver/support/zseries/>.



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## Summary of changes

### Summary of changes for G550-0444-03

This publication contains information previously presented in G550-0444-02. It contains information about functions that have been added in these APARs and PTFs:

Table 6. APARs and corresponding PTFs for G550-0444-03

APAR	afp2pcl PTF	afp2ps PTF	afp2pdf PTF
OA26935	UA47862	UA47863	UA47864
OA30483	UA53492	UA53493	UA53494
OA33290	UA58340	UA58341	UA58342
OA34417	UA58340	UA58341	UA58342

### New information

- There is a new table of supported bar codes. See “Supported objects and controls” on page 7.
- There are new environment variables, AOP\_FAIL\_ON\_IMAGE\_ERROR and AOP\_ASSUME\_RIDIC\_UNPAD, which control how IOCA image errors are handled. See “Environment variables for the AFP to PCL transform” on page 60, “afp2pdf—Transform AFP data to PDF data” on page 26, and “Environment variables for the AFP to PostScript transform” on page 98.
- There is a new environment variable, AOP\_OFFSET\_JOGGING, which controls how offset stacking requests in the medium map are handled. See “Environment variables for the AFP to PCL transform” on page 60 and “Environment variables for the AFP to PostScript transform” on page 98.
- There is a new environment variable, AOP\_SIMULATE\_240\_DPI, which controls how 300 DPI fonts are converted to 240 DPI fonts by the transforms. See “Environment variables for the AFP to PCL transform” on page 60, “afp2pdf—Transform AFP data to PDF data” on page 26, and “Environment variables for the AFP to PostScript transform” on page 98.
- New messages, AOX1206I, AOX1860I, AOX1861I, and AOX1862I have been added. See “Messages” on page 141.
- New sections on migrating to enhanced image error handling, support for MMR unpadded images, and offset stacking have been added. See Chapter 7, “Migrating from Infoprint Server Transforms V1.1,” on page 241.

### Changed information

- Message AOX1541W has been changed to AOX1541I to match the actual message issued.
- The description of these messages has changed: AOX1532W, AOX1533W, AOX1534W, AOX1535I, AOX1536I, AOX1537I, AOX1538W, AOX1542I, AOX1543W, AOX1549W, AOX1550W, AOX1551W, AOX1597I, AOX1598I, AOX1599I, AOX1663I, AOX1801I, AOX1802I, AOX1803I, AOX1804I, AOX1805I, and AOX1806I. See “Messages” on page 141.

- Changed PTF numbers for required software. See “Software requirements” on page 5.
- The environment variable AOP\_PJL is now supported in the AFP to PostScript transform. See “Environment variables for the AFP to PostScript transform” on page 98.

#### Deleted information

- “SAP R/3, using the Infoprint Server SAP Output Management System (OMS)” has been removed as a Job submission methods that can authenticate z/OS user IDs. See “Setting up security for AFP resource libraries” on page 107.
- Removed support for z/OS V1R8 and earlier. See “Software requirements” on page 5.

The “Readers’ Comments - We’d Like to Hear from You” section at the back of this publication has been replaced with a new section “How to send your comments to IBM”. The hardcopy mail-in form has been replaced with a page that provides information appropriate for submitting readers comments to IBM.

Technical changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.

#### Summary of changes for G550-0444-02

This publication contains information previously presented in G550-0444-01. It contains information about functions that have been added in these DOC APARs and PTFs:

- DOC APAR OA23474
- PTF BA24951 (AFP to PCL transform)
- PTF CA24951 (AFP to PDF transform)
- PTF DA24951 (AFP to PostScript transform)

#### New information

- The AFP to PDF and AFP to PostScript transforms now let you specify the resolution used to print images. For information about:
  - The `-r` command line option, see “afp2pdf—Transform AFP data to PDF data” on page 26 and “afp2ps—Transform AFP data to PostScript data” on page 31.
  - The AOP\_RESOLUTION environment variable, see “Environment variables for the AFP to PDF transform” on page 75 and “Environment variables for the AFP to PostScript transform” on page 98.
  - The `-r` filter option, see “AFP to PDF transform filter” on page 120 and “AFP to PostScript transform filter” on page 128.
  - Migration from V1 of the transforms, see “Scaling images” on page 243.
- A limitation has been added that the AFP to PCL, AFP to PDF, and AFP to PostScript transforms do not support these AFP structured fields: BMG, EMG, and IMG. See “Limitations for the AFP to PCL transform” on page 9, “Limitations for the AFP to PDF transform” on page 15, and “Limitations for the AFP to PostScript transform” on page 19.

#### Changed information

- The statement that the AFP to PCL, AFP to PDF, and AFP to PostScript transforms support UTF-16 fonts has been removed because the transforms do not support UTF-16 fonts.
- The description of message AOX1700W has been changed. See “Messages” on page 141.

### **Summary of changes for G550-0444-01**

This publication contains information previously presented in G550-0444-00. It contains information about functions that have been added in PTF UA23230.

### **New information**

- A limitation concerning PDF documents in AFP object containers has been added to all the transforms. See “Limitations for the AFP to PCL transform” on page 9, “Limitations for the AFP to PDF transform” on page 15, “Limitations for the AFP to PostScript transform” on page 19.
- Information about how to continue parameter fields in JCL has been added, and the AOPBATCH examples now show how to specify job attributes in the PARM parameter. See “AOPBATCH example” on page 41.
- The transforms now support the DATAACK JCL parameter. See “Using JCL to transform and print AFP documents” on page 42.
- A tip has been added to the AOP\_PJL environment variable to set the value to no when you use IP PrintWay™ extended mode. The AOP\_PJL -> no environment variable is shown in all examples. See “Environment variables for the AFP to PCL transform” on page 60.
- The transforms now support the **print-error-reporting** job attribute in the -j option of the transform commands. See Chapter 2, “Using transforms,” on page 21. The transforms also now support the **Print error reporting** field in the printer definition. See “Specifying AFP resources and resource libraries” on page 132.
- Messages AOX0180W, AOX0391W, and AOX1746W have been added. See “Messages” on page 141.

### **Deleted information**

- Message AOX1915I has been deleted. See “Messages” on page 141.

This publication contains terminology, maintenance, and editorial changes, including changes to improve consistency and retrievability. Technical changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.



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## Chapter 1. Introduction

This chapter introduces Version 2 Release 1 (V2.1) of these products:

- IBM Infoprint Transform for AFP to HP PCL for z/OS (program number 5655-P19)
- IBM Infoprint Transform for AFP to Adobe PDF for z/OS (program number 5655-P20)
- IBM Infoprint Transform for AFP to Adobe PostScript for z/OS (program number 5655-P21)

These products provide data-stream transforms that let you transform documents from Advanced Function Presentation (AFP) format to other formats that you can print on non-AFP printers or view with Adobe Acrobat. You can transform documents from AFP format to:

- HP Printer Control Language (PCL)
- Adobe Portable Document Format (PDF)
- Adobe PostScript

Documents in AFP format can contain:

- Mixed Object Document Content Architecture™ for Presentation (MO:DCA-P) data.
- Line data, which can be traditional line data or record-format line data. An AFP page definition is required to provide data placement and presentation information.
- Extensible Markup Language (XML) data. An AFP page definition is required to provide data placement and presentation information.

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### What is different?

These transform products are newer versions of IBM z/OS Infoprint Server Transforms Version 1 Release 1. They replace the AFP to PCL, AFP to PDF, and AFP to PostScript features.

The main new things that you can do in the newer version of the transforms from AFP are:

- Transform AFP documents to a newer version of PDF
- Create encrypted PDF documents that only authorized users can open
- Create PDF documents that contain bookmarks and links to Internet addresses
- Transform AFP documents that contain:
  - Enhanced N\_UP formatting
  - FS45 image objects
  - Two-dimensional, PLANET, Japan Postal, and Australian Postal bar codes
- Transform record-format line data, a type of line data that is formatted using an AFP record format page definition
- Transform XML data that is formatted using an AFP page definition
- Format documents for printing on custom paper sizes

---

## Transform names and levels

The names of the transforms from AFP and the levels of data streams that they create are:

<b>This transform:</b>	<b>Transforms AFP to these levels:</b>
AFP to PCL	PCL 5, 5e, or 5c
AFP to PDF	PDF 1.4
AFP to PostScript	PostScript Language Level 3

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## Using transforms with Infoprint Server

This section describes how you can use the transforms together with Infoprint Server to meet your printing needs. It describes these scenarios:

- Printing AFP documents on PCL printers
- E-mailing AFP documents as encrypted PDF documents

### Printing AFP documents on PCL printers

A bank creates its loan applications in AFP format for printing on high-speed AFP printers. The company also wants to print these documents at their branch offices. However, the printers at their branch offices can print only PCL data.

Here is how the company can use the AFP to PCL transform together with Infoprint Server to meet its requirement:

1. A batch application running on z/OS creates an AFP document in an output data set on the JES spool. The application's JCL directs the output data set to Infoprint Server to be printed on a PCL printer in the branch office.
2. Infoprint Server determines that the AFP document must be transformed into PCL format before printing and calls the AFP to PCL transform.
3. The AFP to PCL transform uses AFP resources, such as a form definition, fonts, and images from AFP resource libraries, to convert the AFP data to PCL format.
4. Infoprint Server transmits the PCL document over the TCP/IP network to the PCL printer.

Figure 1 shows how to print an AFP document on a PCL printer.

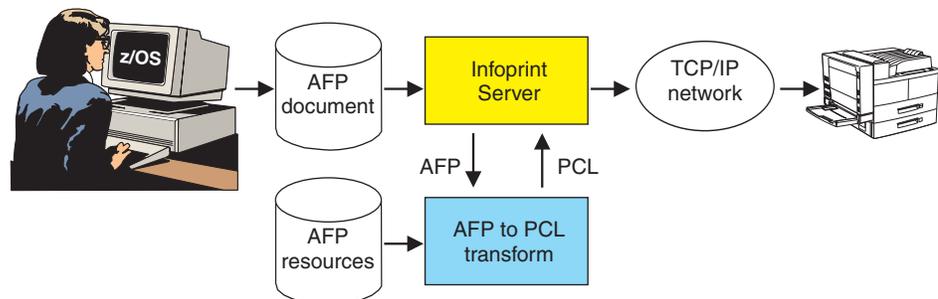


Figure 1. Printing AFP documents on PCL printers

## E-mailing AFP documents as encrypted PDF documents

A hospital creates test results in AFP format. A nurse needs to send a patient's test results to the doctor as a PDF document that only the doctor can read and print. To ensure privacy, the PDF document must be encrypted when sent over the TCP/IP network.

Here is how the company can use the AFP to PDF transform together with Infoprint Server to meet its requirement:

1. A batch application running on z/OS creates an AFP document in an output data set on the JES spool. The application's JCL directs the output data set to Infoprint Server to be sent to the doctor's e-mail address.
2. Infoprint Server determines that the AFP document must be transformed into PDF format and calls the AFP to PDF transform.
3. The AFP to PDF transform uses AFP resources, such as a form definition, fonts, and images from AFP resource libraries, to convert the AFP data to PDF format.
4. The transform determines that the PDF document must be encrypted. It calls z/OS Cryptographic Services to encrypt the PDF data, and it associates the doctor's password with the PDF document so that only the doctor can use Adobe Acrobat to open the document.
5. Infoprint Server sends the encrypted PDF document as an e-mail attachment over the TCP/IP network to the doctor's e-mail address.
6. The doctor uses Adobe Acrobat to open the PDF document with his password. From Adobe Acrobat, the doctor can print the PDF document. The doctor can also detach the PDF document from the e-mail and save it for future reference.

Figure 2 shows how to e-mail an AFP document as an encrypted PDF document.

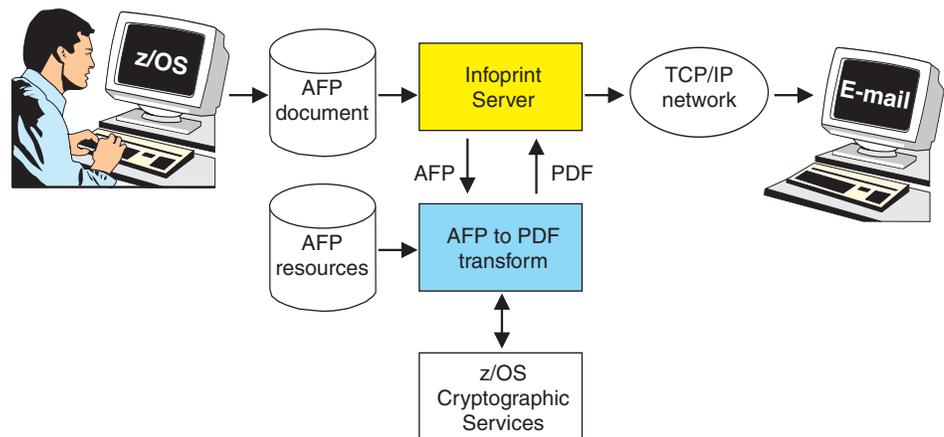


Figure 2. E-mailing AFP documents as encrypted PDF documents

---

## Methods for transforming documents

You can use either of these methods to transform AFP documents:

### z/OS UNIX transform commands

z/OS UNIX System Services users can use transform commands to convert documents from AFP format to another format without printing the documents. You can run the transform commands from the z/OS UNIX command line, or you can use the Infoprint Server AOPBATCH program to run them.

You might want to transform documents without printing them in these situations:

- You intend to print a document many times. In this case, it is more efficient to transform the document once and print the output than to transform the document every time you print it.
- You want to present a document on the Web as a PDF document.

You can use these transform commands:

<b>afp2pcl</b>	For AFP to PCL
<b>afp2pdf</b>	For AFP to PDF
<b>afp2ps</b>	For AFP to PostScript

The input AFP document and the output document can be in an MVS™ data set or in a z/OS UNIX file.

For example, to transform the AFP document `myfile.afp` to a PostScript document named `myfile.ps`, enter:

```
afp2ps -o myfile.ps myfile.afp
```

### Printer definitions

The administrator can specify transform filters in printer definitions in the Infoprint Server Printer Inventory. When you do this, Infoprint Server automatically calls the appropriate transform filter before it prints the document or sends it to an e-mail destination. You use this method when you want to transform and print (or e-mail) documents but not save the transformed output.

For example, suppose that the administrator has configured a printer definition named “myprinter” to use the AFP to PCL transform filter. You can use the z/OS UNIX **lp** command to transform and print an AFP document using this printer definition. Or, you can transform and print the output of a batch job using this printer definition. For example:

- To transform and print the AFP document in file `myfile.afp`, enter this z/OS UNIX command:

```
lp -d myprinter myfile.afp
```

- To transform and print the AFP document created by a batch program, submit this JCL:

```
//MYJOB JOB ...
//STEP1 EXEC PGM=USERA
//OUTDS1 OUTPUT CLASS=P,FSSDATA='printer=myprinter'
//DD1 DD SYSOUT=(,),OUTPUT=*.OUTDS1
```

This example assumes that Infoprint Server processes output data sets in output class P.

---

## Specifying transform options

You can use transform options to tell the transforms how you want the data to be transformed from AFP. You can use these methods to specify transform options:

### Transform configuration file

The administrator can specify some transform options in the transform configuration file `aopxfd.conf`. For example, the administrator can tell the AFP to PCL and AFP to PostScript transforms to create color output by specifying the `AOP_COLOR` environment variable in the transform

configuration file. And, the administrator can specify a default page definition in the AOP\_PAGDEF environment variable.

The administrator can create separate classes of a transform with different transform options in each class. For example, the administrator could create a separate transform class for printers that can print color documents. The administrator names and defines the transform classes in the transform configuration file. To use a transform class that the administrator has defined:

- The administrator can specify the name of the transform class in the **-c** transform option in the printer definition.
- The job submitter can specify the name of the transform class in the **-c** transform command option.

### Transform command options

You can specify some transform options on the transform commands. For example, when you enter the **afp2pdf** command, you can specify option **-c transformclass** to tell the transform the name of a transform class to use.

When you transform and print documents, you can specify transform command options in the **filter-options** job attribute. For example, when you enter the **lp** command, you can specify the **-c** option in the **filter-options** job attribute.

### Job attributes and OUTPUT JCL parameters

You can specify some transform options with Infoprint Server job attributes. For example, you can use the **page-definition** job attribute to tell the transform which page definition to use to format line-data and XML documents. You can specify job attributes on the transform commands, on the **lp** command, and when you submit print jobs from some remote systems. For example, you can specify job attributes when you use the Infoprint Port Monitor for Windows.

Many job attributes have corresponding parameters on the OUTPUT JCL statement. For example, the PAGEDEF parameter of the OUTPUT statement is equivalent to the **page-definition** job attribute. If you need to specify a job attribute that does not have a corresponding parameter on the OUTPUT statement, you can submit the print output from a batch job to the Print Interface subsystem.

For information about how to specify Infoprint Server job attributes and how to use the Print Interface subsystem, see *z/OS Infoprint Server User's Guide*.

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## Software requirements

The transforms run on all supported releases of z/OS.

This additional IBM software beyond the z/OS base elements is required:

- z/OS Infoprint Server
- AFP Font Collection Version 1 (5648-113) or Version 2 (5648-B33), which contains 300-pel raster fonts and outline fonts. (If your installation has only 240-pel font libraries, you can use the AOXCF30 program to scale 240-pel single-byte or double-byte fonts to 300-pel fonts.)
- Sonoran Equivalent Fonts PRPQ 8A5061 (5799-FLK) if documents contain Sonoran Serif or Sonoran Sans Serif fonts.

- An AFP page definition, form definition, and font for formatting transform error messages.
- AFP resources that are not included inline in the AFP documents.
- AFP to PCL transform:
  - PTF UA47862
  - PTF UA53492
  - PTF UA58340
- AFP to PDF transform:
  - The Open Cryptographic Services Facility (OCSF), with the Security Level 3 Feature installed, is required to encrypt PDF documents. OCSF is part of z/OS Cryptographic Services. The use of 128-bit encryption is export-controlled by the United States Government.
  - Adobe Acrobat 5.0 (or later), or a comparable PDF viewer, to view the PDF documents.
  - PTF UA47863
  - PTF UA53493
  - PTF UA58341
- AFP to PostScript transform:
  - PTF UA47864
  - PTF UA53494
  - PTF UA58342

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## Performance considerations

Transforming documents from the document format in which they were created to another document format uses more system resources than printing the documents on printers that support the original document format.

The impact on system and network resources varies depending on items such as:

- Print volume
- Content of documents being transformed
- Current utilization of the system and network resources

The throughput of the transform varies depending on items such as:

- Document format created
- Size, density, and complexity of the AFP documents

When the AFP to PDF transform encrypts PDF documents, the additional processing might require more system resources and degrade throughput.

In addition, transformed documents are sometimes larger than the original documents.

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## AFP to PCL transform

The AFP to PCL transform creates PCL 5, 5e, or 5c output. The transform can create monochrome or color output. You can print the PCL output on printers that support PCL 5, 5e, or 5c. A printer that supports PCL 5c is required to print color output.

The AFP to PCL transform converts AFP resources (resources can be inline in the AFP documents or in AFP resource libraries) into PCL format and includes them in the PCL data stream. In addition, the transform converts AFP formatting options, such as paper size and duplexing, to PCL commands. The interpretation of these PCL commands depends on your printer, and unpredictable results can occur if the AFP document requests formatting options that are not installed in the PCL printer.

The AFP to PCL transform uses 300-pel raster fonts (single-byte and double-byte). The transform includes all raster fonts in the PCL data stream to make sure they are available. The transform can map single-byte outline fonts to equivalent 300-pel raster fonts. Font-mapping supports single-byte fonts provided in the IBM AFP Font Collection (program number 5648-B33). The administrator can customize font-mapping to add custom fonts.

The administrator can specify transform options in the transform configuration file, such as the output page size, how to map AFP input tray numbers to paper sizes and PCL tray numbers, and whether to produce monochrome or color output.

## Supported objects and controls

The AFP to PCL transform supports:

### MO:DCA-P objects:

- BCOCA™:

Table 7. Bar codes that AFP to PCL transform supports

Code	Bar code type
X'01'	Code 39 (3-of-9 Code), AIM USS-39
X'02'	MSI (modified Plessey code)
X'03'	UPC/CGPC—Version A
X'05'	UPC/CGPC—Version E
X'06'	UPC—Two-digit Supplemental (Periodicals)
X'07'	UPC—Five-digit Supplemental (Paperbacks)
X'08'	EAN-8 (includes JAN-short)
X'09'	EAN-13 (includes JAN-standard)
X'0A'	Industrial 2-of-5
X'0B'	Matrix 2-of-5
X'0C'	Interleaved 2-of-5, AIM USS-I 2/5
X'0D'	Codabar, 2-of-7, AIM USS-Codabar
X'11'	Code 128, AIM USS-128
X'16'	EAN Two-digit Supplemental
X'17'	EAN Five-digit Supplemental
X'18'	POSTNET
X'1A'	RM4SCC
X'1B'	Japan Postal Bar Code
X'1C'	Data Matrix (2D bar code)
X'1D'	MaxiCode (2D bar code)
X'1E'	PDF417 (2D bar code)

Table 7. Bar codes that AFP to PCL transform supports (continued)

Code	Bar code type
X'1F'	Australia Post Bar Code
X'21'	Code 93

- FOCA:
  - Single-byte (SBCS) fonts:
    - 300-pel raster fonts, fixed metrics, and relative metrics.
    - The transform can map AFP outline fonts to equivalent raster fonts.
  - Double-byte (DBCS) fonts:
    - 300-pel raster fonts, fixed metrics, and relative metrics. However, DBCS raster fonts are not supported in XML or record-mode line data.
    - AFP outline fonts are not supported.
- GOCA: All functions.
- IM: All functions, in single and double dot, in all rotations.
- IOCA:
  - FS45 tiled and uncompressed image objects except: Tile Set Color parameter, Include Tile parameter, Referencing Tile structure, IOCA Tile Resource structure.
  - Uncompressed, compressed MMR, G3, G4, RL4, ABIC (non-concatenated), JPEG baseline and extended.
  - IDE 1-8, 24 (lookup table).
- Object containers for PDF documents and for GIF, JFIF, JPEG, PDF, and TIFF image objects. PDF documents must be at the PDF 1.4 level. (Adobe Acrobat 5.x creates PDF 1.4 documents.) In addition, PDF documents can only contain one page.
- PTOCA1, PTOCA2.

**AFP resources:**

- Page definitions, including conditional processing, record format page definitions, and XML page definitions.
- Form definitions, including basic N\_UP processing, enhanced N\_UP processing, and offset stacking.
- Overlays.
- Page segments.
- User resource libraries.  
The job submitter must have RACF<sup>®</sup> authorization to read all AFP resource libraries that the transform uses. For more information, see “Setting up security for AFP resource libraries” on page 107.

**Line data:**

- Carriage control (ANSI, machine).
- Table reference characters.
- Shift out/shift in DBCS data - SOS1, SOSI2, and SOSI3 options.
- Mixed line data and AFP records (including IDM, IMM).
- Record-format line data.

**XML data:**

- XML data encoded in EBCDIC (code page 500), ASCII (code page 850), or UTF-8. The XML data encoding must match the encoding scheme defined in the page definition.

## Limitations for the AFP to PCL transform

This section lists the items in the AFP architecture that the AFP to PCL transform does not currently support. Because the AFP architecture and PSF continue to be enhanced with new functional capabilities, this list might be incomplete after the publication date. IBM suggests that you test how your AFP applications print on your non-AFP printers to make sure the output is acceptable.

- Begin master environment group (BMG).
- End master environment group (EMG).
- Include Page (IPG).
- 4-state bar codes (also called Intelligent Mail Barcode or IMB).
- Internal copy groups.
- Invoke master environment group (IMG).
- Map Color Attribute Table (MCA).
- Map Media Type (MMT).
- Map Page (MPG).
- Medium Finishing Control (MFC).
- Preprocess Presentation Object (PPO).
- Presentation Fidelity Control (PFC).
- SOSI4 for DBCS data.

The transform does not support these fonts:

- DBCS fonts in XML and record-format line data.
- DBCS outline fonts.
- OpenType fonts.
- TrueType fonts.
- UTF-16 fonts.
- Outline fonts. However, the transform can map single-byte outline fonts to raster fonts.

**Tip:** The transform cannot scale outline fonts. Therefore, the page definition you use for line-data and XML documents must specify a RATIO of 100 or omit the RATIO keyword.

Other limitations include:

- The transform might create bar codes that are larger or smaller than the same bar codes printed on AFP printers. The transform creates bar codes with a resolution of 300 pels per inch. Even though the size of bar codes might be different, the bar codes will scan properly.
- The transform does not check all AFP structured fields in the AFP documents for validity. PSF might check additional structured fields for validity when it prints the AFP documents. Therefore, do not use the AFP to PCL transform to determine if PSF can print an AFP document.
- PDF documents in AFP object containers can only contain one page, and the PDF documents must be at the PDF 1.4 level. (Adobe Acrobat 5.x creates PDF 1.4 documents.)

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## AFP to PDF transform

The AFP to PDF transform creates PDF 1.4 output. The transform always creates color output if the AFP document contains color images. You can use Adobe Acrobat 5.0 (or later), or a comparable PDF viewer, to view and print the PDF documents.

The AFP to PDF transform converts AFP resources (resources can be inline in the AFP documents or in AFP resource libraries) into PDF format and includes them in the PDF data stream.

The transform does not include some AFP formatting options (such as copies, duplex, input and output bins, finishing, and jogging) in the PDF document. When you print PDF documents, you can use the printer driver options to select options such as copies, duplex, and so on.

The AFP to PDF transform can use 300-pel raster fonts (single-byte and double-byte) and AFP outline fonts (single-byte only). The transform includes all raster fonts in the PDF document to make sure they are available. The administrator can tell the transform whether to include outline fonts or only the names of outline fonts in the PDF document. Including only the names of outline fonts reduces the size of PDF documents.

The transform can map single-byte 300-pel raster fonts to equivalent outline fonts. Outline fonts provide superior viewing and printing. Font-mapping supports the Expanded Core Fonts feature of IBM AFP Font Collection (program number 5648-B33), which provides single-byte fonts in both raster and outline formats. The administrator can customize font-mapping to add custom fonts.

The transform can scale images to either 300 or 600 pels per inch. You can specify the resolution that is suitable for the printer, or you can request that the printer scale images to the resolution of the printer.

The administrator can specify transform options in the transform configuration file, such as the output page size, image resolution, whether to create enhanced PDF documents (enhanced PDF documents are easier to view and navigate), and whether to encrypt PDF documents.

## Creating enhanced PDF documents

The AFP to PDF transform can create PDF documents that are easier to view and navigate. The transform can:

- Create PDF bookmarks to help readers navigate through PDF documents. Adobe Acrobat displays PDF bookmarks in its navigation pane. For example, if the AFP document contains a table of contents, the transform converts it to a set of PDF bookmarks.
- Create PDF links to let readers jump to another location in a PDF document or to a Web site. For example, if the AFP document contains references to other locations, the transform converts them to PDF links. If the AFP document contains references to Web sites, the transform converts them to URLs that link to the Web sites.
- Optimize PDF documents for fast viewing from the Web. This means that Adobe Acrobat can display the first page of the PDF document before the entire document has been loaded from a Web site or a network.

- Rotate PDF documents for easier viewing. For example, some pages (such as those that contain tables) might require the PDF document to be turned sideways to be read. You can select auto-rotation so that each page is rotated in the same direction as the first character on the page.

## Encrypting PDF documents

The AFP to PDF transform can encrypt PDF documents. Encrypting PDF documents provides enhanced security for sensitive documents that you send over a TCP/IP network.

In addition, the transform can associate user and owner passwords with encrypted PDF documents to prevent unauthorized access, and it can restrict copying, updating, and printing of encrypted PDF documents. For example, a nurse could use the transform to encrypt a patient's test results and send them to the doctor in a PDF document that only the doctor can open and print.

### Encryption methods

You can use either or both of these methods to encrypt PDF documents:

- **Encrypting with passwords:**

When you use this method:

- You can associate a *user password* with the PDF document. The user password lets someone open an encrypted PDF document. A user password is optional. However, it prevents unauthorized users from opening PDF documents.

**Tip:** In Adobe Acrobat, the user password is called an *open password*.

- You can associate an *owner password* with the PDF document. The owner password lets someone open an encrypted PDF document and bypass restrictions. An owner password is optional. However, it is required to restrict actions in PDF documents.

**Tip:** In Adobe Acrobat, the owner password is called a *permissions password*.

- You can restrict actions in the PDF document, or you can allow all actions. Adobe Acrobat prevents users from doing restricted actions unless the user knows the owner password.
- You can select the level of encryption:
  - A high level of encryption (a 128-bit encryption key) provides enhanced security.
  - A low level of encryption lets you send encrypted PDF documents to countries that do not use a high level of encryption or to users with Adobe Acrobat 3.0 - 4.x.

- **Encrypting without passwords:**

When you use this method:

- Anyone can open the PDF document because no user password is associated with it.
- The transform generates an owner password that it uses to restrict actions in the PDF document. Because this owner password is secret, no one can use it to bypass restrictions.
- You must restrict at least one action in the encrypted PDF document.
- The transform uses a low level of encryption (a 40-bit encryption key). You cannot select the level of encryption.

**Tip:** You might want to encrypt PDF documents without passwords so that the administrator does not need to maintain a password database.

## Specifying user and owner passwords

For security reasons, job submitters cannot specify user and owner passwords during job submission, and administrators cannot specify passwords in printer definitions. Instead, job submitters and administrators specify user and owner identifiers.

The administrator can decide what identifiers to use. For example, identifiers can be z/OS user IDs, e-mail addresses, or a combination of different types of identifiers. Identifiers can contain any combination of 1-256 letters, numbers, blanks, and special characters.

The administrator must write a Password exit that returns a password to the transform for each user and owner identifier. The Password exit can obtain these passwords from a password database. The password database can be in any format that your Password exit can use. For information, see “Writing a Password exit” on page 88.

Job submitters can specify user and owner identifiers in job attributes **pdf-user-identifier** and **pdf-owner-identifier**. For example, you can specify this **afp2pdf** command:

```
afp2pdf -j "pdf-user-identifier=SMITH pdf-owner-identifier=LEE"  
        -o myfile.pdf myfile.afp
```

As an alternative, the administrator can specify user and owner identifiers in printer definitions. For an example, see “Example -- ISPF Processing panel for the AFP to PDF transform” on page 127.

## Restricting actions

When you encrypt PDF documents with or without passwords, you can restrict copying, updating, and printing in the PDF documents. Adobe Acrobat does not permit users to do the restricted actions when they open the PDF document. However, users who open the PDF document with the owner password bypass restrictions.

In Adobe Acrobat, actions that are restricted are not available. For example, if you restrict printing, the Adobe Acrobat “Print” menu action is not available. To fully understand what menu actions Adobe Acrobat makes not available when you restrict an action, open the PDF document that the transform creates and check what actions Adobe Acrobat has made not available. PDF viewers other than Adobe Acrobat might interpret restricted actions in different ways.

You can restrict slightly different sets of actions when you encrypt documents with and without passwords. In addition, the way you specify restricted actions differs.

**Encrypting with passwords:** When you encrypt PDF documents with passwords, job submitters can specify the restricted actions in the **pdf-protect** job attribute. For example, you can specify this **afp2pdf** command:

```
afp2pdf -j "pdf-user-identifier=SMITH pdf-owner-identifier=LEE  
        pdf-protect={copy print update}" -o myfile.pdf myfile.afp
```

For information about the **pdf-protect** job attribute, see “Job attributes for encrypting PDF documents” on page 37.

As an alternative, the administrator can specify restricted actions in printer definitions. For an example, see “Example -- ISPF Processing panel for the AFP to PDF transform” on page 127.

The transform clears these bits in the encryption dictionary's P entry for each restricted action, depending on whether you select a high (128-bit) or low (40-bit) level of encryption:

<b>Restricted action:</b>	<b>Bits:</b>
<b>copy</b>	5 and 10 (high encryption) 5 (low encryption)
<b>print</b>	3 and 12 (high encryption) 3 (low encryption)
<b>update</b>	4, 6, 9, and 11 (high encryption) 4 and 6 (low encryption)

For more information about bits in the encryption dictionary, see the Adobe *PDF Reference*, which is available on the Adobe Web site ([www.adobe.com](http://www.adobe.com)).

**Encrypting without passwords:** When you encrypt PDF documents without passwords, the administrator must specify restricted actions in the AOP\_PROTECT environment variable in the transform configuration file. For example, the administrator could create a transform class called “nomodify” that restricts users from modifying the PDF documents. To do this, the administrator would specify this environment variable for the transform class:

```
AOP_PROTECT -> "modify"
```

For information about the AOP\_PROTECT environment variable, see “Environment variables for the AFP to PDF transform” on page 75.

When you encrypt PDF documents without passwords, job submitters cannot specify restricted actions. However, job submitters can submit transform jobs to the transform class that has the restrictions they want. For example, you can specify this **afp2pdf** command:

```
afp2pdf -c nomodify -o myfile.pdf myfile.afp
```

As an alternative, the administrator can specify a transform class that restricts actions in printer definitions.

The transform clears these bits in the encryption dictionary's P entry for each restricted action:

<b>Restricted action:</b>	<b>Bit:</b>
<b>modify</b>	4
<b>print</b>	3
<b>select</b>	5

For more information about bits in the encryption dictionary, see the Adobe *PDF Reference*, which is available on the Adobe Web site ([www.adobe.com](http://www.adobe.com)).

## Supported objects and controls

The AFP to PDF transform supports:

### MO:DCA-P objects:

- Link Logical Element (LLE) and Tag Logical Element (TLE) structured fields.
- BCOCA:

Table 8. Bar codes that AFP to PDF transform supports

Code	Bar code type
X'01'	Code 39 (3-of-9 Code), AIM USS-39
X'02'	MSI (modified Plessey code)
X'03'	UPC/CGPC—Version A
X'05'	UPC/CGPC—Version E
X'06'	UPC—Two-digit Supplemental (Periodicals)
X'07'	UPC—Five-digit Supplemental (Paperbacks)
X'08'	EAN-8 (includes JAN-short)
X'09'	EAN-13 (includes JAN-standard)
X'0A'	Industrial 2-of-5
X'0B'	Matrix 2-of-5
X'0C'	Interleaved 2-of-5, AIM USS-I 2/5
X'0D'	Codabar, 2-of-7, AIM USS-Codabar
X'11'	Code 128, AIM USS-128
X'16'	EAN Two-digit Supplemental
X'17'	EAN Five-digit Supplemental
X'18'	POSTNET
X'1A'	RM4SCC
X'1B'	Japan Postal Bar Code
X'1C'	Data Matrix (2D bar code)
X'1D'	MaxiCode (2D bar code)
X'1E'	PDF417 (2D bar code)
X'1F'	Australia Post Bar Code
X'21'	Code 93

- FOCA:
  - Single-byte (SBCS) fonts:
    - 300-pel raster fonts, fixed metrics, and relative metrics.
    - AFP outline fonts.
  - Double-byte (DBCS) fonts:
    - 300-pel raster fonts, fixed metrics, and relative metrics. However, DBCS raster fonts are not supported in XML or record-mode line data.
    - AFP outline fonts are not supported.
- GOCA: All functions.
- IM: All functions, in single and double dot, in all rotations.
- IOCA:
  - FS45 tiled and uncompressed image objects except: Tile Set Color parameter, Include Tile parameter, Referencing Tile structure, IOCA Tile Resource structure.
  - Uncompressed, compressed MMR, G3, G4, RL4, ABIC (non-concatenated), JPEG baseline and extended.
  - IDE 1-8, 24 (lookup table).

- Object containers for PDF documents and for GIF, JFIF, JPEG, and TIFF image objects. PDF documents must be at the PDF 1.4 level. (Adobe Acrobat 5.x creates PDF 1.4 documents.) In addition, PDF documents can only contain one page.
- PTOCA1, PTOCA2.

#### **AFP resources**

- Page definitions, including conditional processing, record format page definitions, and XML page definitions.
- Form definitions, including basic N\_UP processing and enhanced N\_UP processing.
- Overlays.
- Page segments.
- User resource libraries.

The job submitter must have RACF authorization to read all AFP resource libraries that the transform uses. For more information, see “Setting up security for AFP resource libraries” on page 107.

#### **Line data:**

- Carriage control (ANSI, machine).
- Table reference characters.
- Shift out/shift in DBCS data - SOS1, SOSI2, and SOSI3 options.
- Mixed line data and AFP records (including IDM, IMM).
- Record-format line data.

#### **XML data:**

- XML data encoded in EBCDIC (code page 500), ASCII (code page 850), or UTF-8. The XML data encoding must match the encoding scheme defined in the page definition.

## **Limitations for the AFP to PDF transform**

This section lists the items in the AFP architecture that the AFP to PDF transform does not currently support. Because the AFP architecture and PSF continue to be enhanced with new functional capabilities, this list might be incomplete after the publication date. IBM suggests that you test how your AFP applications print on your non-AFP printers to make sure the output is acceptable.

- Begin master environment group (BMG).
- End master environment group (EMG).
- Include Page (IPG).
- 4-state bar codes (also called Intelligent Mail Barcode or IMB).
- Internal copy groups.
- Invoke master environment group (IMG).
- Map Color Attribute Table (MCA).
- Map Media Type (MMT).
- Map Page (MPG).
- Medium Finishing Control (MFC).
- Offset jogging specified in the form definition.
- Preprocess Presentation Object (PPO).
- Presentation Fidelity Control (PFC).
- SOSI4 for DBCS data.

- The transform cannot scale outline fonts. Therefore, the page definition you use for line-data and XML documents must specify a RATIO of 100 or omit the RATIO keyword.
- The IBM Document Composition Facility (DCF) program produces AFP documents that contain BookMaster® fonts (this is the default). Because BookMaster fonts do not have equivalent outline fonts, the transform cannot map them to outline fonts. To improve the readability of the documents with Adobe Acrobat, IBM recommends that you use these two DCF options when you create AFP documents:
  - @COREFNT(YES)
  - @BOOKFNT(3)

These options tell DCF to create AFP documents that use raster fonts in the AFP Font Collection instead of BookMaster fonts. All raster fonts in the AFP Font Collection have outline equivalents.

The transform does not support these fonts:

- DBCS fonts in record-format or XML data.
- DBCS outline fonts.
- OpenType fonts.
- TrueType fonts.
- UTF-16 fonts.

Limitations of viewing and searching with Adobe Acrobat:

- Text that has been generated using AFP GOCA output graphic characters cannot be found.
- To preserve the output fidelity of a document, corresponding placement of characters is done in the PDF output document, which can result in additional “space” characters in a character string. This restricts the operation of the Adobe find function.
- The AFP representation of a code page might not match its ASCII representation. This can cause problems searching, especially with raster fonts.
- The printed output might be smaller or larger than expected. For example, the output might be 90% of the original size if the **Fit to Page** or **Fit to paper** option is selected in the Adobe Acrobat Print dialog. To solve this problem, deselect the option.
- Transformed PDF images might look different from the original AFP image, depending on your monitor and printer.
- The transform uses the AFP font encoding to create the PDF document. The characters contained in the document might not be the same as the ASCII character mapping available on the keyboard used for PDF viewing.
- The actual appearance of raster fonts can differ from the printed output. For example, some characters might not be aligned on the character baseline. The appearance might change as higher magnification levels are chosen in Adobe Acrobat.
- In some versions of Acrobat you might need to select **Use Greek text below xx pixels** to see all output.
- PDF documents contains a unique page number identification that is assigned during the creation of the PDF document. This page number might not correspond to the page numbers used in the AFP input document.

Other limitations include:

- The transform might create bar codes that are larger or smaller than the same bar codes printed on AFP printers. The transform creates bar codes with a resolution of 300 pels per inch. Even though the size of bar codes might be different, the bar codes will scan properly.
- The transform does not check all AFP structured fields in the AFP documents for validity. PSF might check additional structured fields for validity when it prints the AFP documents. Therefore, do not use the AFP to PDF transform to determine if PSF can print an AFP document.
- The transform formats all output for the size of the paper in the first input tray selected.
- PDF documents in AFP object containers can only contain one page, and the PDF documents must be at the PDF 1.4 level. (Adobe Acrobat 5.x creates PDF 1.4 documents.)

---

## AFP to PostScript transform

The AFP to PostScript transform creates PostScript Language Level 3 output. The transform can create monochrome or color output. You can print the PostScript output on printers that support PostScript Language Level 3.

The AFP to PostScript transform converts all AFP resources (resources can be inline in the AFP documents or in AFP resource libraries) into PostScript format and includes them in the PostScript data stream. In addition, the transform converts formatting options in the AFP document, such as paper size and duplexing, to corresponding PostScript commands. The interpretation of these commands depends on your printer, and unpredictable results can occur if the AFP document requests formatting options that are not installed in the PostScript printer.

The AFP to PostScript transform can use 300-pel raster fonts (single-byte and double-byte) and AFP outline fonts (single-byte only). The transform includes all fonts in the PostScript data stream to make sure they are available.

The transform can map single-byte 300-pel raster fonts to equivalent outline fonts. Outline fonts provide superior viewing and printing. Font-mapping supports single-byte fonts provided in the IBM AFP Font Collection (program number 5648–B33). You can customize font-mapping to add custom fonts. For more information, see “Adding fonts for font-mapping” on page 111.

The transform can scale images to either 300 or 600 pels per inch. You can specify the resolution that is suitable for the printer, or you can request that the printer scale images to the resolution of the printer.

The administrator can specify transform options in the transform configuration file, such as the output page size, image resolution, how to map AFP input tray numbers to paper sizes and PostScript tray numbers, and whether to produce monochrome or color output.

## Supported objects and controls

The AFP to PostScript transform supports:

### MO:DCA-P objects:

- BCOCA:

Table 9. Bar codes that AFP to PostScript transform supports

Code	Bar code type
X'01'	Code 39 (3-of-9 Code), AIM USS-39
X'02'	MSI (modified Plessey code)
X'03'	UPC/CGPC—Version A
X'05'	UPC/CGPC—Version E
X'06'	UPC—Two-digit Supplemental (Periodicals)
X'07'	UPC—Five-digit Supplemental (Paperbacks)
X'08'	EAN-8 (includes JAN-short)
X'09'	EAN-13 (includes JAN-standard)
X'0A'	Industrial 2-of-5
X'0B'	Matrix 2-of-5
X'0C'	Interleaved 2-of-5, AIM USS-I 2/5
X'0D'	Codabar, 2-of-7, AIM USS-Codabar
X'11'	Code 128, AIM USS-128
X'16'	EAN Two-digit Supplemental
X'17'	EAN Five-digit Supplemental
X'18'	POSTNET
X'1A'	RM4SCC
X'1B'	Japan Postal Bar Code
X'1C'	Data Matrix (2D bar code)
X'1D'	MaxiCode (2D bar code)
X'1E'	PDF417 (2D bar code)
X'1F'	Australia Post Bar Code
X'21'	Code 93

- FOCA:
  - Single-byte (SBCS) fonts:
    - 300-pel raster fonts, fixed metrics, and relative metrics.
    - AFP outline fonts.
  - Double-byte (DBCS) fonts:
    - 300-pel raster fonts, fixed metrics, and relative metrics. However, DBCS raster fonts are not supported in XML or record-mode line data.
    - AFP outline fonts are not supported.
- GOCA: All functions.
- IM: All functions, in single and double dot, in all rotations.
- IOCA:
  - FS45 tiled and uncompressed image objects except: Tile Set Color parameter, Include Tile parameter, Referencing Tile structure, IOCA Tile Resource structure.
  - Uncompressed, compressed MMR, G3, G4, RL4, ABIC (non-concatenated), JPEG baseline and extended.
  - IDE 1-8, 24 (lookup table).

- Object containers for PDF documents and for GIF, JFIF, JPEG, and TIFF image objects. PDF documents must be at the PDF 1.4 level. (Adobe Acrobat 5.x creates PDF 1.4 documents.) In addition, PDF documents can only contain one page.
- PTOCA1, PTOCA2.

**AFP resources:**

- Page definitions, including conditional processing, record format page definitions, and XML page definitions.
- Form definitions, including basic N\_UP processing, enhanced N\_UP processing, and offset stacking.
- Overlays.
- Page segments.
- User resource libraries.

The job submitter must have RACF authorization to read all AFP resource libraries that the transform uses. For more information, see “Setting up security for AFP resource libraries” on page 107.

**Line data:**

- Carriage control (ANSI, machine).
- Table reference characters.
- Shift out/shift in DBCS data - SOS1, SOSI2, and SOSI3 options.
- Mixed line data and AFP records (including IDM, IMM).
- Record-format line data.

**XML data:**

- XML data encoded in EBCDIC (code page 500), ASCII (code page 850), or UTF-8. The XML data encoding must match the encoding scheme defined in the page definition.

## Limitations for the AFP to PostScript transform

This section lists the items in the AFP architecture that the AFP to PostScript transform does not currently support. Because the AFP architecture and PSF continue to be enhanced with new functional capabilities, this list might be incomplete after the publication date. IBM suggests that you test how your AFP applications print on your non-AFP printers to make sure the output is acceptable.

- Begin master environment group (BMG).
- End master environment group (EMG).
- Include Page (IPG).
- 4-state bar codes (also called Intelligent Mail Barcode or IMB).
- Internal copy groups.
- Invoke master environment group (IMG).
- Map Color Attribute Table (MCA).
- Map Media Type (MMT).
- Map Page (MPG).
- Medium Finishing Control (MFC).
- Preprocess Presentation Object (PPO).
- Presentation Fidelity Control (PFC).
- SOSI4 for DBCS data.
- TrueType and OpenType fonts in AFP documents.

- UTF-16 fonts.
- The transform cannot scale outline fonts. Therefore, the page definition you use for line-data and XML documents must specify a RATIO of 100 or omit the RATIO keyword.

The transform does not support these fonts:

- DBCS fonts in record-format or XML data.
- DBCS outline fonts.
- OpenType fonts.
- TrueType fonts.
- UTF-16 fonts.

Other limitations include:

- The transform might create bar codes that are larger or smaller than the same bar codes printed on AFP printers. The transform creates bar codes with a resolution of 300 pels per inch. Even though the size of bar codes might be different, the bar codes will scan properly.
- The transform does not check all AFP structured fields in the AFP documents for validity. PSF might check additional structured fields for validity when it prints the AFP documents. Therefore, do not use the AFP to PostScript transform to determine if PSF can print an AFP document.
- PDF documents in AFP object containers can only contain one page, and the PDF documents must be at the PDF 1.4 level. (Adobe Acrobat 5.x creates PDF 1.4 documents.)

---

## Chapter 2. Using transforms

This chapter describes the z/OS UNIX transform commands that you can use, and the JCL parameters that the transforms use when you submit a batch job.

The transform commands let you convert files from one format to another without printing the files.

For the levels of the data stream files that the transform commands create, see “Transform names and levels” on page 2.

The sections in this chapter are:

- “afp2pcl—Transform AFP data to PCL data” on page 21
- “afp2pdf—Transform AFP data to PDF data” on page 26
- “afp2ps—Transform AFP data to PostScript data” on page 31
- “Job attributes for encrypting PDF documents” on page 37
- “Transforming data with the AOPBATCH program” on page 39
- “Using JCL to transform and print AFP documents” on page 42

---

### afp2pcl—Transform AFP data to PCL data

#### Format

```
afp2pcl [-c transformclass] [-F tracefile] [-i inputcodepage] [-j jobattributes]...  
[-o outputfile] [-T traceoptions] [inputfile ...]
```

#### Description

The **afp2pcl** command converts an Advanced Function Presentation (AFP) data file into a Printer Control Language (PCL) data stream file.

Error messages related to errors in the input data stream are written at the end of the output document.

#### Options

**-c** *transformclass*

Specifies the name of a transform class that your administrator has defined. The transform class determines options such as:

- Defaults for page formatting options, such as the default page definition, form definition, and font
- Resource libraries

You do not always have to specify a transform class. If you do need to specify one, however, ask your administrator for the name of a transform class suitable for the printer and the type of job.

**-F** *tracefile*

Specifies the file in which to store the trace. This option should only be used as instructed by IBM service personnel. For information about this option, see “Trace options” on page 138.

### **-i** *inputcodepage*

This option applies only when you transform line data. If you specify this option for AFP data, it is ignored.

This option identifies the code page to which line data is converted before it is transformed. Specify a code page that corresponds to the coded fonts specified in the page definition or in the **chars** job attribute.

To transform line data that is already encoded in the code page that corresponds to the coded fonts, do *not* specify this option. If this option is not specified, line data is not converted before it is transformed. For example, to transform a line data document that specifies coded fonts in the **chars** job attribute and currently prints correctly on an AFP printer, do *not* specify this option.

You must specify this option to correctly transform documents encoded in code pages that do not correspond to the code page for the coded fonts. This is most likely to occur when you transform an ASCII file.

In the **-i** option, you must specify an IBM-supplied or custom code page that the `iconv` utility supports. For code page information, see *z/OS XL C/C++ Programming Guide*. To find the AFP code page for each character set, see *IBM AFP Fonts: Font Summary for AFP Font Collection*. The AFP code page and the name of the code pages that `iconv` uses are different. Be careful to specify the `iconv` code page value. For example, if you specify one of these coded fonts in the **chars** job attribute, specify **-i IBM-500**:

Coded font	AFP code page	iconv code page
40D0, 40F0, 40E0, 4100	T1V10500	IBM-500
60D9 (default font)	T1V10500	IBM-500

**Note:** When you specify this option, also make sure that the code page specified in the **document-codepage** job attribute correctly identifies the code page in which the input document is encoded. If you do not specify the **document-codepage** attribute, the default is the code page of the locale, which is usually an EBCDIC code page.

### **-j** *jobattributes*

Specifies an option, that is, one or more attribute value assignments in the format *attribute=value*, separated by spaces. You can specify **-j** multiple times. If job attributes are repeated, the last value specified for the attribute is used.

- If a value contains spaces, enclose the value in single or double quotation marks:

```
attribute='value with spaces'  
attribute="value with spaces"
```

- If an option contains spaces or characters that might be interpreted by the shell (such as `$ & ( ) > < | ' "`), enclose the option in single or double quotation marks:

```
-j 'attribute1=value1 attribute2=value2'  
-j "attribute='value with spaces'"  
-j "attribute=value(1)"
```

For information about how the shell interprets special characters, see *z/OS UNIX System Services User's Guide*.

- If both value and option require quotation marks, do either of these:

- Use two pairs of double quotation marks and place a backslash before each quotation mark that surrounds the value:  
-j "attribute=\"value with spaces\""
- Use different quotation marks around the option and value. For example:  
-j 'attribute="value with spaces"'  
-j "attribute='value with spaces'"

Instead of entering a string of attributes on the command line, you can store attributes and values in a file. You use a special attribute called `attributes` to specify the file.

You can specify any of these attributes, which apply to all files to be transformed with the command:

carriage-control-type	chars	document-codepage
document-format	duplex	form-definition
input-tray-number	output-bin-number	overlay-back
overlay-front	page-definition	print-error-reporting
resource-library	shift-out-shift-in	table-reference-characters
x-image-shift-back	x-image-shift-front	y-image-shift-back
y-image-shift-front		

For more information about the attributes, see *z/OS Infoprint Server User's Guide*.

#### **-o** *outputfile*

Specifies the output path and file into which the transform output (that is, PCL data) is written. The transform overwrites any existing data in the output file. If you do not specify an output file, the result is written to standard output (STDOUT).

To specify an MVS data set, such as a sequential or partitioned data set, precede the data set name with `//`. When you specify a fully qualified name, two sets of quotation marks are required. For example, `///'hlq.PDS(MYDOC)'` or `///'hlq.SEQDS'`. When you specify a partially qualified name, you only need one set of quotation marks. For example, `///PDS(MYDOC)` or `///SEQDS`.

If you specify an MVS data set, you might need to allocate the data set before you run this command, especially when you transform a large document. Allocate a data set that is large enough to hold the output data stream. The size of the output data stream depends on the complexity of the document. Allocate the output data set with these characteristics:

- Record format: VB
- Record length: 1024 or larger is recommended

#### **-T** *traceoptions*

Specifies the trace options. This should only be used as instructed by IBM service personnel. For information about this option, see "Trace options" on page 138.

**Tip:** You can use the **filter-options** job attribute with, for example, the **lp** command to pass the **-c transformclass** and **-i inputcodepage** options to the transform. For information about the **filter-options** job attribute, see *z/OS Infoprint Server User's Guide*.

## Operand

### *inputfile*

Specifies an input file to be transformed. If you specify more than one input file name, the **afp2pcl** command concatenates the files. The results are written to a single output file (if one is specified in **-o**) or to standard output.

If you do not specify an input file, or if you specify a dash (-) for the file name, **afp2pcl** uses standard input.

To specify an MVS data set, precede the data set name with **//**. When you specify a fully qualified name, two sets of quotation marks are required. For example, `///hlq.PDS(MYDOC)'` or `///hlq.SEQDS'`. When you specify a partially qualified name, you only need one set of quotation marks. For example, `///PDS(MYDOC)'` or `///SEQDS'`.

## Usage notes

- If you specify multiple values of the same option, except for **-j**, the transform uses the last value that you specified.
- When transforming line data in UNIX files that contain ANSI or no carriage control characters, you must specify **document-format=line**. If the data has ANSI control characters, also specify **carriage-control-type=ansi**.

## Examples -- afp2pcl

### Transform an AFP file, specifying a transform class and output file

To transform the AFP file `myfile.afp` into a PCL file, using the `us` transform class, and write a file called `myfile.pcl`, enter:

```
afp2pcl -c us -o myfile.pcl myfile.afp
```

### Transform an MVS data set, specifying a form definition

To transform the MVS data set `USERX.AFP(MYFILE)` into a PCL file, using the form definition `F1CP0110`, and write a file called `myfile.pcl`, enter:

```
afp2pcl -j "form-def=f1cp0110" -o myfile.pcl ///USERX.AFP(MYFILE)'
```

### Transform an AFP file, specifying a form definition and a resource library

To transform the AFP file `myfile.afp` into a PCL file, using the form definition `F1CP0110` that contains references to user-supplied AFP resources, and write a file called `myfile.pcl`, enter this command on one line:

```
afp2pcl -j "form-def=f1cp0110 res-lib={lib1.pseglib lib3.private}"  
-o myfile.pcl myfile.afp
```

### Transform and print an MVS data set, specifying a form definition and a resource library

To transform the MVS data set `PROD.AFPOUT(JOB1)` into a PCL file, using the form definition `F1CP0110` that contains references to user-supplied AFP resources, and print the output, enter this command on one line:

```
afp2pcl -j "form-def=f1cp0110 res-lib={lib1.pseglib lib3.private}"  
///PROD.AFPOUT(JOB1)' | lp
```

### Transform a job using redirection

To transform the AFP file `input.afp` into the PCL output file called `output.pcl`, enter:

```
afp2pcl < input.afp > output.pcl
```

**Note:** You can use redirection operators only with UNIX files.

### Transform multiple files and concatenate the output

To transform the AFP files `input.01.afp`, `input.02.afp`, ... `input.xx.afp` into one PCL output file called `output.pcl`, enter:

```
afp2pcl -o output.pcl input.01.afp input.02.afp ... input.xx.afp
```

### Transform a UNIX file to an MVS data set

To transform the line data file `input.line` into an MVS PCL output data set called `hlq.OUTPUT.PCL(MYDOC)`, enter:

```
afp2pcl -j doc-format=line -o "'/hlq.OUTPUT.PCL(MYDOC)'" input.line
```

### Transform an MVS data set, writing the output to a UNIX file

To transform the MVS data set `HLQ.INPUT.LINE(MYDOC)` into an output file called `output.pcl`, enter:

```
afp2pcl -o output.pcl "'/hlq.INPUT.LINE(MYDOC)'"
```

### Transform line data, specifying a form definition and a page definition

To transform line data in file `myfile.line` that contains ANSI carriage control characters into a PCL file, using the form definition `F1CP0110` and page definition `P1P06362`, and write a file called `myfile.pcl`, enter this command on one line:

```
afp2pcl -j "form-def=f1cp0110 page-def=p1p06362 c-c-t=a doc-format=line"
-o myfile.pcl myfile.line
```

### Transform line data, specifying a form definition and fonts

To transform the line data file `myfile.line` containing machine carriage control characters and table reference characters into a PCL file, using the form definition `F1CP0110`, and write a file called `myfile.pcl`, enter this command on one line:

```
afp2pcl -j "form-def=f1cp0110 c-c-t=m t-r-c=yes chars={60D8 60D0}"
-o myfile.pcl myfile.line
```

## Environment variables

The `afp2pcl` command uses these environment variables:

- |                |  |
|----------------|--|
| <b>AOPCONF</b> | Names the Infoprint Server configuration file. This variable takes precedence over the user-specific configuration file ( <code>\$HOME/.aopconf</code> ) and the system default configuration file ( <code>/etc/Printsrv/aopd.conf</code> ). For more information about the configuration file, see <i>z/OS Infoprint Server Customization</i> . |
| <b>LIBPATH</b> | The path used to locate dynamic link libraries (DLLs).   |
| <b>NLSPATH</b> | Names the directory paths that the <code>afp2pcl</code> command searches for message catalogs.   |

For information about setting and using environment variables, see *z/OS UNIX System Services User's Guide*.

## Files

### `$HOME/.aopconf`

Contains the user-specific Infoprint Server configuration file. This file takes precedence over `/etc/Printsrv/aopd.conf`.

**/etc/Printsrv/aopd.conf**

Contains the system default Infoprint Server configuration file.

For the format of the configuration file, see *z/OS Infoprint Server Customization*.

## Exit values

- 0 The data was transformed successfully. However, the output document might contain error messages related to errors in the input data stream.
- >0 An error occurred. No output document was created.

---

## afp2pdf—Transform AFP data to PDF data

### Format

```
afp2pdf [-c transformclass] [-F tracefile] [-i inputcodepage] [-j jobattributes]...  
[-o outputfile] [-r resolution] [-T traceoptions] [inputfile]
```

### Description

The **afp2pdf** command converts an Advanced Function Presentation (AFP) data file into an Adobe Portable Document Format (PDF) data stream file for printing or e-mailing.

Error messages related to errors in the input data stream are written at the end of the output document.

### Options

**-c** *transformclass*

Specifies the name of a transform class that your administrator has defined. The transform class determines options such as:

- The characteristics of the printer, such as whether it supports color
- The size of paper in each input tray, such as letter, ledger, A4, B4, B5, or a custom paper size
- Defaults for page formatting options, such as the default page definition, form definition, and font
- Resource libraries
- Whether PDF encryption is enabled

You do not always have to specify a transform class. If you do need to specify one, however, ask your administrator for the name of a transform class suitable for the printer and the type of job.

**-F** *tracefile*

Specifies the file in which to store the trace. This should only be used as instructed by IBM service personnel. For information about this option, see “Trace options” on page 138.

**-i** *inputcodepage*

This option applies only when you transform line data. If you specify this option for AFP data, it is ignored.

This option identifies the code page to which line data is converted before it is transformed. Specify a code page that corresponds to the coded fonts specified in the page definition or in the **chars** job attribute.

To transform line data that is already encoded in the code page that corresponds to the coded fonts, do *not* specify this option. If this option is not specified, line data is not converted before it is transformed. For example, to transform a line data document that specifies coded fonts in the **chars** job attribute and currently prints correctly on an AFP printer, do *not* specify this option.

You must specify this option to correctly transform documents encoded in code pages that do not correspond to the code page for the coded fonts. This is most likely to occur when you transform an ASCII file.

In the **-i** option, you must specify an IBM-supplied or custom code page that the **iconv** utility supports. For code page information, see *z/OS XL C/C++ Programming Guide*. To find the AFP code page for each character set, see *IBM AFP Fonts: Font Summary for AFP Font Collection*. The AFP code page and the name of the code pages that **iconv** uses are different. Be careful to specify the **iconv** code page value. For example, if you specify one of these coded fonts in the **chars** job attribute, specify **-i IBM-500**:

Coded font	AFP code page	iconv code page
40D0, 40F0, 40E0, 4100	T1V10500	IBM-500
60D9 (default font)	T1V10500	IBM-500

**Note:** When you specify this option, also make sure that the code page specified in the **document-codepage** job attribute correctly identifies the code page in which the input document is encoded. If you do not specify the **document-codepage** attribute, the default is the code page of the locale, which is usually an EBCDIC code page.

#### **-j** *jobattributes*

Specifies an option, that is, one or more attribute value assignments in the format *attribute=value*, separated by spaces. You can specify **-j** multiple times. If job attributes are repeated, the last value specified for the attribute is used.

- If a value contains spaces, enclose the value in single or double quotation marks:

```
attribute='value with spaces'
attribute="value with spaces"
```

- If an option contains spaces or characters that might be interpreted by the shell (such as **\$ & ( ) > < | ' "**), enclose the option in single or double quotation marks:

```
-j 'attribute1=value1 attribute2=value2'
-j "attribute='value with spaces'"
-j "attribute=value(1)"
```

For information about how the shell interprets special characters, see *z/OS UNIX System Services User's Guide*.

- If both value and option require quotation marks, do either of these:
  - Use two pairs of double quotation marks and place a backslash before each quotation mark that surrounds the value:

```
-j "attribute=\"value with spaces\""
```

- Use different quotation marks around the option and value. For example:

```
-j 'attribute="value with spaces"'
-j "attribute='value with spaces'"
```

Instead of entering a string of attributes on the command line, you can store attributes and values in a file. You use a special attribute called `attributes` to specify the file.

You can specify any of these attributes, which apply to all files to be transformed with the command:

<code>carriage-control-type</code>	<code>chars</code>	<code>document-codepage</code>
<code>document-format</code>	<code>duplex</code>	<code>form-definition</code>
<code>input-tray-number</code>	<code>output-bin-number</code>	<code>overlay-back</code>
<code>overlay-front</code>	<code>page-definition</code>	<code>pdf-encryption-level</code>
<code>pdf-owner-identifier</code>	<code>pdf-protect</code>	<code>pdf-user-identifier</code>
<code>print-error-reporting</code>	<code>resource-library</code>	<code>shift-out-shift-in</code>
<code>table-reference-characters</code>	<code>x-image-shift-back</code>	<code>x-image-shift-front</code>
<code>y-image-shift-back</code>	<code>y-image-shift-front</code>	

For more information about the attributes, see *z/OS Infoprint Server User's Guide*. For information about the attributes beginning with "`pdf-`", see "Job attributes for encrypting PDF documents" on page 37.

**-o** *outputfile*

Specifies the output path and file into which the transform output (that is, PDF data) is written. The transform overwrites any existing data in the output file. If you do not specify an output file, the result is written to standard output (STDOUT).

To specify an MVS data set, such as a sequential or partitioned data set, precede the data set name with `//`. When you specify a fully qualified name, two sets of quotation marks are required. For example, `'''hlq.PDS(MYDOC)'''` or `'''hlq.SEQDS'''`. When you specify a partially qualified name, you only need one set of quotation marks. For example, `'''PDS(MYDOC)'''` or `'''SEQDS'''`.

If you specify an MVS data set, you might need to allocate the data set before you run this command, especially when you transform a large document. Allocate a data set that is large enough to hold the output data stream. The size of the output data stream depends on the complexity of the document. Allocate the output data set with these characteristics:

- Record format: VB
- Record length: 1024 or larger is recommended

**-r** *resolution*

Specifies the resolution used to print images in the document. If you specify a resolution, the transform scales all images in the document to this resolution. Specify the correct resolution for the printer on which you intend to print. Values are:

**300**

The transform scales images to 300 pels per inch.

**600**

The transform scales images to 600 pels per inch.

**input**

The transform does not scale images. The printer scales the images to the resolution of the printer.

The default resolution is the resolution defined by the administrator for the transform class (in the `AOP_RESOLUTION` environment variable) or in the printer definition (in the `-r` filter option). If the administrator does not

specify a default, the default is 300. The **-r** option specified on the transform command overrides the AOP\_RESOLUTION environment variable.

**Tips:**

1. Some printers do not scale images well. If you specify **input**, and the images do not print well, specify the resolution of the printer.
2. The **-r** option does not affect text or bar codes. The transform always creates 300-pel bar codes.

**-T traceoptions**

Specifies the trace options. This should only be used as instructed by IBM service personnel. For information about this option, see "Trace options" on page 138.

**Tip:** You can use the **filter-options** job attribute with, for example, the **lp** command to pass the **-c transformclass** and **-i inputcodepage** options to the transform. For information about the **filter-options** job attribute, see *z/OS Infoprint Server User's Guide*.

## Operand

*inputfile*

Specifies an input file to be transformed. If you specify more than one input file name, the **afp2pdf** command will fail.

If you do not specify an input file, or if you specify a dash (-) for the file name, **afp2pdf** uses standard input.

To specify an MVS data set, precede the data set name with **//**. When you specify a fully qualified name, two sets of quotation marks are required. For example, `"/'/hlq.pds(MYDOC)'"` or `"/'/hlq.seqds'"`. When you specify a partially qualified name, you only need one set of quotation marks. For example, `"/'/pds(MYDOC)'"` or `"/'/seqds'"`.

## Usage notes

- If you specify multiple values of the same option, except for **-j**, the transform uses the last value that you specified.
- When transforming line data in UNIX files that contain ANSI or no carriage control characters, you must specify **document-format=line**. If the data has ANSI control characters, also specify **carriage-control-type=ansi**.

## Examples -- afp2pdf

### Transform an AFP file, specifying a transform class and output file

To transform the AFP file `myfile.afp` into a PDF file, using the `us` transform class, and write a file called `myfile.pdf`, enter:

```
afp2pdf -c us -o myfile.pdf myfile.afp
```

### Transform an MVS data set, specifying a form definition

To transform the MVS data set `USERX.AFP(MYFILE)` into a PDF file, using the form definition `F1C10110`, and write a file called `myfile.pdf`, enter:

```
afp2pdf -j "form-def=f1c10110" -o myfile.pdf "/'/USERX.AFP(MYFILE)'"
```

## Transform an AFP file, specifying a form definition and a resource library

To transform the AFP file `myfile.afp` into a PDF file, using the form definition `F1C10110` that contains references to user-supplied AFP resources, and write a file called `myfile.pdf`, enter this command on one line:

```
afp2pdf -j "form-def=f1c10110 res-lib={lib1.pseglib lib3.private}"  
        -o myfile.pdf myfile.afp
```

## Transform a job using redirection

To transform the AFP file `input.afp` into the PDF output file called `output.pdf`, enter:

```
afp2pdf < input.afp > output.pdf
```

**Note:** You can use redirection operators only with UNIX files.

## Transform a UNIX file to an MVS data set

To transform the line data file `input.line` into an MVS PDF output data set called `HLQ.OUTPUT.PDF(MYDOC)`, enter:

```
afp2pdf -j doc-format=line -o "'/HLQ.OUTPUT.PDF(MYDOC)'" input.line
```

## Transform an MVS data set, writing the output to a UNIX file

To transform the MVS data set `hlq.INPUT.LINE(MYDOC)` into an output file called `output.pdf`, enter:

```
afp2pdf -o output.pdf "'/HLQ.INPUT.LINE(MYDOC)'"
```

## Transform line data, specifying a form definition and a page definition

To transform the line data file `myfile.line` that contains ANSI carriage control characters into a PDF file, using the form definition `F1C10110` and page definition `P1P06362`, and write a file called `myfile.pdf`, enter this command on one line:

```
afp2pdf -j "form-def=f1c10110 page-def=p1p06362 c-c-t=a doc-format=line"  
        -o myfile.pdf myfile.line
```

## Transform line data for viewing in landscape orientation

To transform the line data file `myfile.line` that contains ANSI carriage control characters into a PDF file that you can view with Adobe Acrobat Reader in the landscape direction, enter this command on one line:

```
afp2pdf -j "form-def=f101011a page-def=p1a06462 c-c-t=a doc-format=line"  
        -o myfile.pdf myfile.line
```

## Transform line data, specifying a form definition, a page definition, and fonts

To transform the line data file `myfile.line` containing machine carriage control characters and table reference characters into a PDF file, using the form definition `F1C10110` and page definition `F1P06362`, and write a file called `myfile.pdf`, enter this command on one line:

```
afp2pdf -j "form-def=f1c10110 page-def=p1p06362 c-c-t=m t-r-c=yes chars={60D8 60D0}"  
        -o myfile.pdf myfile.line
```

## Transform line data, specifying a page definition and print offset

To transform the line data file `myfile.line` containing machine carriage control characters into a PDF file, using the page definition `P1P06362`, positioning the output 24 millimeters (approximately one inch) from the left edge of the paper, and write a file called `myfile.pdf`, enter this command on one line:

```
afp2pdf -j "page-def=p1p06362 c-c-t=m x-image-shift-front=24" -o myfile.pdf  
myfile.line
```

## Transform an AFP file, encrypting the PDF document and specifying restrictions

To transform the AFP file `myfile.afp` into a PDF file, encrypting the PDF document and specifying that the user cannot print or change the encrypted PDF document, and write a file called `myfile.pdf`, enter this command on one line:

```
afp2pdf -j "pdf-owner-identifier='Nurse-Lee' pdf-user-identifier='Dr-Smith'
pdf-protect={print modify}" -o myfile.pdf myfile.afp
```

## Environment variables

The `afp2pdf` command uses these environment variables:

- AOPCONF** Names the Infoprint Server configuration file. This variable takes precedence over the user-specific configuration file (`$HOME/.aopconf`) and the system default configuration file (`/etc/Printsrv/aopd.conf`). For more information about the configuration file, see *z/OS Infoprint Server Customization*.
- LIBPATH** The path used to locate dynamic link libraries (DLLs).
- NLSPATH** Names the directory paths that the `afp2pdf` command searches for message catalogs.

For information about setting and using environment variables, see *z/OS UNIX System Services User's Guide*.

## Files

### `$HOME/.aopconf`

Contains the user-specific Infoprint Server configuration file. This file takes precedence over `/etc/Printsrv/aopd.conf`.

### `/etc/Printsrv/aopd.conf`

Contains the system default Infoprint Server configuration file.

For the format of the configuration files, see *z/OS Infoprint Server Customization*.

## Exit values

- 0 The data was transformed successfully. However, the output document might contain error messages related to errors in the input data stream.
- >0 An error occurred. No output document was created.

---

## afp2ps—Transform AFP data to PostScript data

### Format

```
afp2ps [-c transformclass] [-F tracefile] [-i inputcodepage] [-j jobattributes]...
```

```
[-o outfile] [-r resolution] [-T traceoptions] [inputfile ...]
```

### Description

The `afp2ps` command converts an Advanced Function Presentation (AFP) data file into a PostScript data stream file.

Error messages related to errors in the input data stream are written at the end of the output document.

## Options

### **-c** *transformclass*

Specifies the name of a transform class that your administrator has defined. The transform class determines options such as:

- The characteristics of the printer, such as whether it supports color
- The size of paper in each input tray, such as letter, ledger, A4, B4, B5, or a custom paper size
- Defaults for page formatting options, such as the default page definition, form definition, and font
- Resource libraries

You do not always have to specify a transform class. If you do need to specify one, however, ask your administrator for the name of a transform class suitable for the printer and the type of job.

### **-F** *tracefile*

Specifies the file in which to store the trace. This should only be used as instructed by IBM service personnel. For information about this option, see “Trace options” on page 138.

### **-i** *inputcodepage*

This option applies only when you transform line data. If you specify this option for AFP data, it is ignored.

This option identifies the code page to which line data is converted before it is transformed. Specify a code page that corresponds to the coded fonts specified in the page definition or in the **chars** job attribute.

To transform line data that is already encoded in the code page that corresponds to the coded fonts, do *not* specify this option. If this option is not specified, line data is not converted before it is transformed. For example, to transform a line data document that specifies coded fonts in the **chars** job attribute and currently prints correctly on an AFP printer, do *not* specify this option.

You must specify this option to correctly transform documents encoded in code pages that do not correspond to the code page for the coded fonts. This is most likely to occur when you transform an ASCII file.

In the **-i** option, you must specify an IBM-supplied or custom code page that the **iconv** utility supports. For code page information, see *z/OS XL C/C++ Programming Guide*. To find the AFP code page for each character set, see *IBM AFP Fonts: Font Summary for AFP Font Collection*. The AFP code page and the name of the code pages that **iconv** uses are different. Be careful to specify the **iconv** code page value. For example, if you specify one of these coded fonts in the **chars** job attribute, specify **-i IBM-500**:

Coded font	AFP code page	iconv code page
40D0, 40F0, 40E0, 4100	T1V10500	IBM-500
60D9 (default font)	T1V10500	IBM-500

**Note:** When you specify this option, also make sure that the code page specified in the **document-codepage** job attribute correctly identifies the code page in which the input document is encoded. If you do not specify the **document-codepage** attribute, the default is the code page of the locale, which is usually an EBCDIC code page.

### **-j** *jobattributes*

Specifies an option, that is, one or more attribute value assignments in the format *attribute=value*, separated by spaces. You can specify **-j** multiple times. If job attributes are repeated, the last value specified for the attribute is used.

- If a value contains spaces, enclose the value in single or double quotation marks:

```
attribute='value with spaces'  
attribute="value with spaces"
```

- If an option contains spaces or characters that might be interpreted by the shell (such as \$ & ( ) > < | ' " ), enclose the option in single or double quotation marks:

```
-j 'attribute1=value1 attribute2=value2'  
-j "attribute='value with spaces'"  
-j "attribute=value(1)"
```

For information about how the shell interprets special characters, see *z/OS UNIX System Services User's Guide*.

- If both value and option require quotation marks, do either of these:
  - Use two pairs of double quotation marks and place a backslash before each quotation mark that surrounds the value:

```
-j "attribute=\"value with spaces\""
```

- Use different quotation marks around the option and value. For example:

```
-j 'attribute="value with spaces"'  
-j "attribute='value with spaces'"
```

Instead of entering a string of attributes on the command line, you can store attributes and values in a file. You use a special attribute called *attributes* to specify the file.

You can specify any of these attributes, which apply to all files to be transformed with the command:

carriage-control-type	chars	document-codepage
document-format	duplex	form-definition
input-tray-number	output-bin-number	overlay-back
overlay-front	page-definition	print-error-reporting
resource-library	shift-out-shift-in	table-reference-characters
x-image-shift-back	x-image-shift-front	y-image-shift-back
y-image-shift-front		

For more information about the attributes, see *z/OS Infoprint Server User's Guide*.

### **-o** *outputfile*

Specifies the output path and file into which the transform output (that is, PostScript data) is written. The transform overwrites any existing data in the output file. If you do not specify an output file, the result is written to standard output (STDOUT).

To specify an MVS data set, such as a sequential or partitioned data set, precede the data set name with *//*. When you specify a fully qualified name, two sets of quotation marks are required. For example, `"//hlq.PDS(MYDOC)'"` or `"//hlq.SEQDS'"`. When you specify a partially qualified name, you only need one set of quotation marks. For example, `"//PDS(MYDOC)"` or `"//SEQDS"`.

If you specify an MVS data set, you might need to allocate the data set before you run this command, especially when you transform a large document. Allocate a data set that is large enough to hold the output data stream. The size of the output data stream depends on the complexity of the document. Allocate the output data set with these characteristics:

- Record format: VB
- Record length: 1024 or larger is recommended

**-r** *resolution*

Specifies the resolution used to print images in the documents. If you specify a resolution, the transform scales all images in the document to this resolution. Specify the correct resolution for the printer on which you intend to print. Values are:

**300**

The transform scales images to 300 pels per inch.

**600**

The transform scales images to 600 pels per inch.

**input**

The transform does not scale images. The printer scales the images to the resolution of the printer.

The default resolution is the resolution defined by the administrator for the transform class (in the AOP\_RESOLUTION environment variable) or in the printer definition (in the **-r** filter option). If the administrator does not specify a default, the default is 300. The **-r** option specified on the transform command overrides the AOP\_RESOLUTION environment variable.

**Tips:**

1. Some printers do not scale images well. If you specify **input**, and the images do not print well, specify the resolution of the printer.
2. The **-r** option does not affect text or bar codes. The transform always creates 300-pel bar codes.

**-T** *traceoptions*

Specifies the trace options. This should only be used as instructed by IBM service personnel. For information about this option, see "Trace options" on page 138.

**Tip:** You can use the **filter-options** job attribute with, for example, the **lp** command to pass the **-c transformclass** and **-i inputcodepage** options to the transform. For information about the **filter-options** job attribute, see *z/OS Infoprint Server User's Guide*.

## Operand

*inputfile*

Specifies an input file to be transformed. If you specify more than one input file name, the **afp2ps** command concatenates the files. The results are written to a single output file (if one is specified in **-o**) or to standard output.

If you do not specify an input file, or if you specify a dash (-) as the file name, **afp2ps** uses standard input.

To specify an MVS data set, precede the data set name with // . When you specify a fully qualified name, two sets of quotation marks are required.

For example, `///hlq.pds(MYDOC)'` or `///hlq.seqds'`. When you specify a partially qualified name, you only need one set of quotation marks. For example, `///pds(MYDOC)"` or `///seqds"`.

## Usage notes

- If you specify multiple values of the same option, except for `-j`, the transform uses the last value that you specified.
- When transforming line data in UNIX files that contain ANSI or no carriage control characters, you must specify `document-format=line`. If the data has ANSI control characters, you must also specify `carriage-control-type=ansi`.

## Examples -- afp2ps

### Transform an AFP file, specifying a transform class and output file

To transform the AFP file `myfile.afp` into a PostScript file, using the `us` transform class, and write a file called `myfile.ps`, enter:

```
afp2ps -c us -o myfile.ps myfile.afp
```

### Transform an MVS data set, specifying a form definition

To transform the MVS data set `USERX.AFP(MYFILE)` into a PostScript file, using the form definition `F1CP0110`, and write a file called `myfile.ps`, enter:

```
afp2ps -j "form-def=f1cp0110" -o myfile.ps ///USERX.AFP(MYFILE)'
```

### Transform an AFP file, specifying a form definition and a resource library

To transform the AFP file `myfile.afp` into a PostScript file, using the form definition `F1CP0110` that contains references to user-supplied AFP resources, and write a file called `myfile.ps`, enter this command on one line:

```
afp2ps -j "form-def=f1cp0110 res-lib={lib1.pseglib lib3.private}"  
-o myfile.ps myfile.afp
```

### Transform and print an MVS data set, specifying a form definition and a resource library

To transform the MVS data set `PROD.AFPOUT(JOB1)` into a PostScript file, using the form definition `F1CP0110` that contains references to user-supplied AFP resources, and print the output, enter this command on one line:

```
afp2ps -j "form-def=f1cp0110 res-lib={lib1.pseglib lib3.private}"  
///PROD.AFPOUT(JOB1)'" | lp
```

### Transform a job using redirection

To transform the AFP file `input.afp` into the PostScript output file called `output.ps`, enter:

```
afp2ps < input.afp > output.ps
```

**Note:** You can use redirection operators only with UNIX files.

### Transform multiple files and concatenate the output

To transform the AFP files `input.01.afp`, `input.02.afp`, ... `input.xx.afp` into one PostScript output file called `output.ps`, enter:

```
afp2ps -o output.ps input.01.afp input.02.afp ... input.xx.afp
```

### Transform a UNIX file to an MVS data set

To transform the line data file `input.line` into an MVS PostScript output data set called `hlq.OUTPUT.PS(MYDOC)`, enter:

```
afp2ps -j doc-format=line -o "'hlq.OUTPUT.PS(MYDOC)'" input.line
```

### Transform an MVS data set, writing the output to a UNIX file

To transform the MVS data set *hlq.INPUT.LINE(MYDOC)*, where *hlq* is your user ID, into a PostScript output file called *output.ps*, enter:

```
afp2ps -o output.ps "'hlq.INPUT.LINE(MYDOC)'"
```

### Transform line data, specifying a form definition and a page definition

To transform the line data file *myfile.line* that contains ANSI carriage control characters into a PostScript file, using the form definition *F1CP0110* and page definition *P1P06362*, and write a file called *myfile.ps*, enter this command on one line:

```
afp2ps -j "form-def=f1cp0110 page-def=p1p06362 c-c-t=a doc-format=line"
-o myfile.ps myfile.line
```

### Transform line data, specifying a page definition and fonts

To transform the line data file *myfile.line* containing machine carriage control characters and table reference characters into a PostScript file, using the page definition *P1P06362*, and write a file called *myfile.ps*, enter this command on one line:

```
afp2ps -j "page-def=p1p06362 c-c-t=m t-r-c=yes chars={60D8 60D0}" -o myfile.ps
myfile.line
```

### Transform line data, specifying a page definition and print offset

To transform the line data file *myfile.line* containing machine carriage control characters into a PostScript file, using the page definition *P1P06362*, positioning the output approximately 1 inch from the left edge of the paper, and write a file called *myfile.ps*, enter this command on one line:

```
afp2ps -j "page-def=p1p06362 c-c-t=m x-image-shift-front=24" -o myfile.ps
myfile.line
```

## Environment variables

The **afp2ps** command uses these environment variables:

- |                |  |
|----------------|--|
| <b>AOPCONF</b> | Names the Infoprint Server configuration file. This variable takes precedence over the user-specific configuration file ( <b>\$HOME/.aopconf</b> ) and the system default configuration file ( <b>/etc/Printsrv/aopd.conf</b> ). For more information about the configuration file, see <i>z/OS Infoprint Server Customization</i> . |
| <b>LIBPATH</b> | The path used to locate dynamic link libraries (DLLs).   |
| <b>NLSPATH</b> | Names the directory paths that the <b>afp2ps</b> command searches for message catalogs.  |

For information about setting and using environment variables, see *z/OS UNIX System Services User's Guide*.

## Files

### **\$HOME/.aopconf**

Contains the user-specific Infoprint Server configuration file. This file takes precedence over **/etc/Printsrv/aopd.conf**.

### **/etc/Printsrv/aopd.conf**

Contains the system default Infoprint Server configuration file.

For the format of the configuration files, see *z/OS Infoprint Server Customization*.

## Exit values

- 0 The data was transformed successfully. However, the output document might contain error messages related to errors in the input data stream.
- >0 An error occurred. No output document was created.

---

## Job attributes for encrypting PDF documents

This section describes the job attributes that you can use to encrypt PDF documents with the AFP to PDF transform. Encrypting a PDF document protects it from unauthorized access. For example, a nurse encrypts a patient's test results with the transform and e-mails them to the doctor as a PDF document that only the doctor can read.

For a description of other Infoprint Server job attributes, see *z/OS Infoprint Server User's Guide*.

### pdf-encryption-level

This **single-valued** attribute specifies the level of encryption used to encrypt PDF documents. A high level of encryption provides enhanced security. However, some users might not be able to open PDF documents that use a high level of encryption.

#### Allowed values

You can enter one of these fixed values:

**bits40** A low level of encryption (a 40-bit encryption key) is used. Select this value if you e-mail PDF documents to countries that do not use 128-bit encryption, or for Adobe Acrobat Reader 3.0 - 4.x.

**bits128** A high level of encryption (a 128-bit encryption key) is used. Select this value for sensitive PDF documents.

#### Default value

bits128

### pdf-owner-identifier

This **single-valued** attribute specifies the identifier of the owner of an encrypted PDF document. The owner identifier is associated with a password that is stored in a separate database. An owner password is required to restrict actions with the **pdf-protect** attribute.

#### Allowed values

You can enter a text string of 1 - 256 characters. You can enter any combination of letters, numbers, blanks, and special characters that the Password exit allows. Your administrator sets up the Password exit. This text string might be case-sensitive, depending on the Password exit. If the text string you specify contains blanks or special characters (such as @ \$ & ( ) > < | ' " #), enclose the text string in single or double quotation marks. For example:

```
-j "pdf-owner-identifier='Nurse-Lee@hospital.com'"
```

If the string contains double quotation marks, enclose the string in single quotation marks.

## Default value

The owner identifier that the administrator has specified in the printer definition. If none is specified, there is no default.

## Usage guidelines

- The transform encrypts a PDF document when a user identifier, an owner identifier, or both is specified. Encrypting a PDF document protects it from unauthorized access.
- In most cases, the user and owner identifiers should be different because the passwords must be different.

## pdf-protect

This **multi-valued** attribute specifies one or more actions that users cannot do on encrypted PDF documents.

### Allowed values

You can enter one or more fixed values to restrict actions. If you specify more than one value, separate the values with spaces and enclose the list of values in braces {}. For example:

```
-j "pdf-protect=all"  
-j "pdf-protect={copy update}"
```

Value:	Actions users cannot do:
<b>all</b>	<ul style="list-style-type: none"><li>• All actions (copy, print, update)</li></ul>
<b>copy</b>	<ul style="list-style-type: none"><li>• Copy or extract content to another document</li><li>• Extract content for accessibility</li></ul>
<b>print</b>	<ul style="list-style-type: none"><li>• Print at low resolution (150 dpi)</li><li>• Print at high resolution</li></ul>
<b>update</b>	<ul style="list-style-type: none"><li>• Change the document</li><li>• Assemble the document (insert, delete, rotate pages)</li><li>• Add comments</li><li>• Fill in form fields or sign</li><li>• Create template pages</li></ul>

## Default value

The value that the administrator has specified in the printer definition. If none is specified, no actions are restricted.

## pdf-user-identifier

This **single-valued** attribute specifies the identifier of the user of an encrypted PDF document. The user identifier is associated with a password that is stored in a separate database. The user enters the user password when opening the encrypted PDF document.

### Allowed values

You can enter a text string of 1 - 256 characters. You can enter any combination of letters, numbers, blanks, and special characters that the Password exit allows. Your administrator sets up the Password exit. This text string might be case-sensitive, depending on the Password exit. If the text string you specify contains blanks or special characters (such as @ \$ & ( ) > < | ' " #), enclose the text string in single or double quotation marks. For example:

```
-j "pdf-user-identifier='Dr-Smith@hospital.com'"
```

If the string contains double quotation marks, enclose the string in single quotation marks.

### Default value

The user identifier that the administrator has specified in the printer definition. If none is specified, any user can open the PDF document without a password.

### Usage guidelines

- The transform encrypts a PDF document when a user identifier, an owner identifier, or both is specified. Encrypting a PDF document protects it from unauthorized access.
- In most cases, the user and owner identifiers should be different because the passwords must be different.

---

## Transforming data with the AOPBATCH program

This section describes how to use the Infoprint Server AOPBATCH program to run the transform commands.

The AOPBATCH program lets you submit a batch job to transform data from AFP. Infoprint Server provides the AOPBATCH program in SYS1.LINKLIB.

### AOPBATCH parameters

The AOPBATCH parameters are the name of the transform command, followed by transform options and arguments, in this format:

```
EXEC PGM=AOPBATCH,PARM='/transform_name transform_options'
```

- / The optional slash indicates that the PARM data that follows is input to AOPBATCH. If you omit the initial slash, your PARM data might be interpreted as C++ run-time options. You *must* include the initial slash if any of the PARM data itself includes a slash. For example, if the transform name is /mylib/afp2ps, specify: PARM='/mylib/afp2ps ...'.

#### *transform\_name*

The name of an executable transform program that resides in a z/OS UNIX file. The name of the transform program is case-sensitive. You can specify one of these command names: **afp2pcl**, **afp2pdf**, **afp2ps**.

If the transform program does not reside in one of the directories specified in the PATH environment variable, also specify the pathname. You can use the STDENV DD statement to set the PATH environment variable if the default value set by AOPBATCH is not suitable. For information about the defaults set for environment variables, see “AOPBATCH DD statements” on page 40.

#### *transform\_options*

Options and arguments accepted by the transform. For a description of each, see “afp2pcl—Transform AFP data to PCL data” on page 21, “afp2pdf—Transform AFP data to PDF data” on page 26, or “afp2ps—Transform AFP data to PostScript data” on page 31.

You must specify the transform input data set or file as a transform argument, and you must specify the **-o** transform option to identify where you want the transform to write its output. (This is because the transform cannot write its output to standard output and cannot read input from standard input.) To identify the transform input and output data set or file, you can specify either a DD statement name or a data set or file name. You must specify a DD statement name if you want to write the transform output to an MVS data set that does not already exist.

Specify the names of DD statements to the transform in this format:

```
//DD:DDname
```

The name of the DD statement is *DDname*.

When you specify an MVS data set name in the **-o** option, code two slashes before the data set name and enclose the data set name in two sets of single quotation marks if you specify a fully qualified data set name. If you do *not* enclose the data set name in quotation marks, a high-level qualifier is added to the name you specify:

- If you are running under TSO (batch or interactive), the TSO user prefix is appended.
- If you are running under MVS batch or IMS (batch or online), the RACF user ID is appended.
- If your system does not use RACF, a high-level qualifier is not added.

For examples of different ways to specify transform input and output data sets and files, see “AOPBATCH example” on page 41.

## AOPBATCH DD statements

The AOPBATCH JCL procedure accepts these standard DD statements:

### STDENV

Specifies environment variables for use by the transform. You can specify the environment variables in-stream in the JCL, in an MVS data set, or in a UNIX file. Specify the environment variables in the format *variable=value*, with one environment variable per line or record. Sequence numbers in columns 73 - 80 in data specified with the STDENV DD statement are ignored and *not* treated as part of the data.

If you omit the STDENV DD statement or do not specify one of the environment variables, AOPBATCH sets these default values, which are suitable for running Infoprint Server programs if your installation installed Infoprint Server files in the default directories:

```
PATH=/usr/lpp/Printsrv/bin:/bin:/usr/bin
LIBPATH=/usr/lpp/Printsrv/lib:/lib:/usr/lib
NLSPATH=/usr/lpp/Printsrv/%L/%N:/usr/lpp/Printsrv/En_US/%N:/usr/lib/nls/msg/%L/%N
```

AOPBATCH also sets the HOME environment variable to the user's home directory and sets the LOGIN variable to the user ID.

**Note:** Do *not* specify the `_BPX_SHAREAS` environment variable. AOPBATCH will set it appropriately.

### STDERR

Specifies the system output data set where error messages are to be written. The data set can be an MVS data set or a UNIX file. The transforms do not write messages related to errors in the input data stream in this data set. Instead, the transforms write these messages at the end of the output document.

### STDOUT

Specifies the system output data set where informational messages are to be written. The data set can be an MVS data set or a UNIX file.

You can also include DD statements to specify MVS data sets that contain input data to be transformed, the transformed output, or job attributes that are input to the transform.

**Rules:**

- Do not use DD names STDIN, STDOUT, or STDERR to specify the transform input and output data sets. Instead, use other DD names, such as INPUT and OUTPUT, which are used in the example.
- If you have not added the Language Environment® run-time library (CEE.SCEERUN) or the C++ run-time library (CBC.SCLBDLL) to the system LNKLST, specify these data sets in a STEPLIB DD statement.
- You can concatenate input data sets that have the same data format; for example, PostScript data or AFP data. However, you *cannot* concatenate data sets that contain PDF data.
- If you want to write the output data stream to an MVS data set, allocate and catalog the data set before you run AOPBATCH, or include a DD statement in the AOPBATCH job to allocate the data set. Allocate a data set with these characteristics:
  - Record format: VB
  - Record length: 1024 or larger is recommended
  - Disposition: SHR or OLD overwrites any existing data in the data set; MOD appends the output to any existing data. MOD is the default.

The MVS output data set must be large enough to hold the output data stream. The size of the output data stream depends on the size and complexity of the document.

**AOPBATCH example**

This example shows how to use the AOPBATCH procedure to transform data. For additional AOPBATCH examples, see *z/OS Infoprint Server User's Guide*.

The transform input is in an MVS data set and transform output is written to a UNIX file. The AFP to PDF transform reads the AFP input from data set HLQ.INPUT.AFP and writes PDF output to file **/tmp/output.pdf**.

```
//AOPBATCH JOB ...
//TRANSFRM EXEC PGM=AOPBATCH,PARM='/afp2pdf -o /tmp/output.pdf -j "form
//              -definition=F1CP0110" '''HLQ.INPUT.AFP''''
//STDOUT DD SYSOUT=*
//STDERR DD SYSOUT=*
```

**Continuing parameter fields in JCL**

To continue a parameter field:

1. Interrupt the field after a complete parameter or subparameter, including the comma that follows it, at or before column 71.
2. Code // in columns 1 and 2 of the following statement.
3. Code a blank character in column 3 of the following statement.
4. Continue the interrupted parameter or field beginning in any column from 4 through 16.

To continue a parameter that is enclosed in apostrophes:

1. Extend the parameter to column 71. Do not code an apostrophe in column 71.
2. Code // in columns 1 and 2 of the following statement.
3. Continue the parameter in column 16 of the following statement even if this splits the parameter.

## Exit values

AOPBATCH returns the exit code of the spawned process. If AOPBATCH cannot execute the program, it returns RC=4. If a transform command fails, it returns RC=1.

---

## Using JCL to transform and print AFP documents

This section describes the parameters on the DD and OUTPUT JCL statements that the transforms use. These JCL parameters apply to output data sets that Infoprint Server automatically transforms from AFP format to another format.

Many of these JCL parameters have corresponding job attributes. For example, the PAGEDEF parameter of the OUTPUT JCL statement is equivalent to the **page-definition** job attribute.

If you need to specify job attributes that do not have corresponding JCL parameters, you can submit the output data set to the Print Interface subsystem. When you do that, you can specify job attributes on the SUBSYS parameter of the OUTPUT JCL statement. For an example of how to use the subsystem, see “Transform an AFP document to PDF format, specifying encryption job attributes” on page 52. For more information about the subsystem, see *z/OS Infoprint Server User’s Guide*.

Figure 3 summarizes the JCL parameters. All parameters are optional.

For more information about JCL parameters, see *z/OS MVS JCL Reference*.

### DD JCL Statement:

```
CHARS=(font_name1[,font_name2][,font_name3][,font_name4])
DCB
FCB=fc_name
UCS=font_name
```

### OUTPUT JCL Statement:

```
CHARS=(font_name1[,font_name2][,font_name3][,font_name4])
DATAACK={BLOCK | UNBLOCK | BLKCHAR | BLKPOS}
DUPLEX={NO | NORMAL | TUMBLE}
FCB=fc_name
FORMDEF=form_definition_name
INTRAY=nnn
OFFSETXB=nnnn[.mmm]unit
OFFSETXF=nnnn[.mmm]unit
OFFSETYB=nnnn[.mmm]unit
OFFSETYF=nnnn[.mmm]unit
OUTBIN=1-65 535
OVERLAYB=overlay_name
OVERLAYF=overlay_name
PAGEDEF=page_definition_name
PRMODE={SOSI1 | SOSI2 | SOSI3}
TRC={YES | NO}
UCS=font_name
USERLIB=(library_name[,...])
```

Figure 3. Summary of JCL parameters

In most cases, transforms interpret the parameters in the same way as PSF for z/OS does, so that you can use the same JCL that you use when the output is printed on AFP printers that PSF controls. These parameters have different characteristics when used with these transforms:

- **CHARS:** If the page definition used to print the job is the system default page definition and the page definition specifies a font, the transforms do not use the font specified in the CHARS parameter. Instead, the transforms use the font in the page definition. PSF, on the other hand, uses the font specified in the CHARS parameter.
- **DCB=RECFM:** When transforming XML data, if the RECFM subparameter indicates that the data set contains carriage control characters, the transforms do not transform the first character of each record. PSF, on the other hand, ignores the RECFM subparameter and always prints the first character of each XML record. Typically, XML data sets do not contain carriage control characters. Therefore, when printing XML data, do not specify a record format that indicates carriage controls.
- **INTRAY:** The transforms use default input tray 1. PSF, on the other hand, uses the printer's default source.

The parameters you can specify are:

**CHARS**=(*font\_name1*[[*font\_name2*][*font\_name3*][*font\_name4*])

Specifies the 4-character member name of the coded font that you want to use to print a data set that contains line data. You can specify up to four fonts.

*font\_name*

Specifies the name of a coded font (in a font library) containing 4 or fewer characters, not including the prefix.

**Tip:** Some coded fonts have 6-character names, not counting the prefix. For these coded fonts, see *IBM AFP Fonts: Font Summary for AFP Font Collection* for the 4-character alternate coded font name.

When you uses CHARS to specify the member name, do not include the 2-character prefix of the coded-font name (X0 through XG).

Coded fonts that can be used with the CHARS parameter are supplied with the IBM AFP Font Collection. The fonts you specify must reside in a font library assigned to the transform in the transform configuration file or in a user library specified with the USERLIB JCL parameter, or else they must be inline with the data set. For details about available fonts and the naming conventions, see *IBM AFP Fonts: Font Summary for AFP Font Collection*.

If you specify more than one font with the JCL CHARS parameter, you must use the TRC parameter to tell these transforms which font to use for each line of data.

Raster fonts are used unless the administrator has requested font mapping to outline fonts and your font name is in the font mapping table.

If the page definition specifies fonts, the transforms ignore the CHARS parameter.

**Default:** The transforms use the first value found in this order:

1. The font specified in the page definition.
2. The font specified in the UCS JCL parameter.

3. The font specified in the printer definition.
4. The default page definition if IP PrintWay basic mode processes the data set. However, JES does not provide a default page definition if you use IP PrintWay extended mode or the Print Interface subsystem.
5. The font specified in the Infoprint Server transform configuration file.
6. Font X060D9.

**Examples:**

```
//DD1 DD CHARS=(GT10,GT12)
```

or

```
//OUTDS OUTPUT CHARS=(GT10,GT12)
```

**DATAACK={BLOCK | UNBLOCK | BLKCHAR | BLKPOS}**

Specifies whether to include or omit invalid-character and print-positioning error messages at the end of the transform output.

**BLOCK**

The transform omits error messages related to invalid-character and print-positioning errors.

**UNBLOCK**

The transform includes error messages related to invalid-character and print-positioning errors.

**BLKCHAR**

The transform omits error messages related to invalid-character errors. Print-positioning error messages are included.

**BLKPOS**

The transform omits error messages related to print-positioning errors. Invalid-character error messages are included.

**Default:** The transforms use the first value found in this order:

1. The value specified in the **Print error reporting** field in the printer definition.
2. If no value is specified in the printer definition, the default is BLOCK.

**Example:**

```
//OUTDS OUTPUT DATAACK=UNBLOCK
```

**DCB**

**RECFM**

Specifies the record format of the data set, including whether the data set contains carriage control characters.

**OPTCD=J**

Specifies whether the print data set contains table reference characters (TRCs). This is the same as **TRC=YES**. For more information, see the TRC parameter on page 50.

**DUPLEX={NO | NORMAL | TUMBLE}**

Specifies whether printing is to be done on both sides of each sheet.

**NO** The job is printed only on the front side of each sheet.

**NORMAL**

The job is printed on both sides of the sheet so that the top of side 1 is the top of side 2 (for side binding).

## TUMBLE

The job is printed on both sides of the sheet so that the top of side 1 is the bottom of side 2 (for top binding).

**Tip:** The administrator can limit the value that you can specify in this parameter. If you specify a value that is not allowed, the data set might not print.

**Default:** The transforms use the first value found in this order:

1. The duplex option specified in the printer definition
2. The duplex option specified in the form definition

**Example:**

```
//OUTDS OUTPUT DUPLEX=NORMAL
```

**FCB=*fc\_name***

Specifies the 1 to 4 character name of the page definition. The transforms add the prefix P1 to the FCB name you specify. Therefore, do not specify the prefix P1.

You can also specify the name of the page definition in the PAGEDEF parameter. If you specify both the FCB and the PAGEDEF parameters, the transforms ignore the FCB parameter. For more information, see the PAGEDEF parameter.

**FORMDEF=*form\_definition\_name***

Specifies the member name (from 1 to 6 alphanumeric or national characters) of the form definition you want to use. Omit the system prefix, F1, from the name. These transforms add F1 to the member name you specify.

You can store the form definition that you use in any of these places:

- In a system library assigned to these transforms
- In a user library referred to in the printer definition
- In a user library referred to in your JCL
- Inline in the print data set

**Using form definitions from a user library:** You can instruct these transforms to select a form definition from your user library rather than from a system library assigned to these transforms. To use a form definition from a user library:

- Refer to the user library containing the form definition in your JCL. For details, see the USERLIB parameter.
- Specify the name of the form definition in the JCL FORMDEF parameter.

**Using inline form definitions:** To use an inline form definition:

- Include the inline form definition in the print data set.
- If you specify the FORMDEF parameter, make sure that the name of the inline form definition matches the form definition name that you specified, or else specify FORMDEF=DUMMY. If you do not specify the FORMDEF parameter, these transforms select the first inline form definition in the print data set.
- Make sure that the data set is identified as containing carriage control characters.

You can include more than one inline form definition in a print data set, and you can change the form definition name in the JCL for different printing jobs to test different form definitions. If the name of an inline

form definition does not match the FORMDEF name specified in the JCL, these transforms use the form definition from the resource library that matches the name in the JCL.

**Default:** The transforms use the first value found in this order:

1. The form definition specified in the printer definition
2. The first inline form definition
3. The form definition specified in the Infoprint Server transform configuration file
4. Form definition F1CP0111

**Example:** To specify F1USER10 as the form definition, enter:

```
//OUTDS OUTPUT FORMDEF=USER10
```

#### **INTRAY=nnn**

Specifies the 1 to 3 decimal digit number from 1 to 255 that identifies the tray from which paper is to be selected. These transforms map this tray number to the tray number of the PCL or PostScript printer, using tray-mapping values specified by the administrator in the transform configuration file. For more information about tray mapping, see input-tray-number in *z/OS Infoprint Server User's Guide*.

The value you specify for this attribute overrides any input tray selection in the AFP data stream or in the form definition.

**Default:** The transforms use the first value found in this order:

1. The input tray specified in the printer definition
2. The input tray selected in the AFP data stream
3. The input tray specified in the form definition
4. Tray 1

**Example:**

```
//OUTDS OUTPUT INTRAY=4
```

#### **OFFSETXB=nnnn[.mmm]unit**

Specifies the X offset of the logical page origin to the right of the physical page origin on the back side of a double-sided sheet.

For unit, specify one of these units:

<b>Unit</b>	<b>Meaning</b>
<b>IN</b>	Specifies a unit of inches
<b>CM</b>	Specifies a unit of centimeters
<b>MM</b>	Specifies a unit of millimeters
<b>PELS</b>	Specifies a unit of picture elements (1/240 inch)
<b>POINTS</b>	Specifies a unit of points (1/72 inch)

**Note:** If you specify the unit as PELS or POINTS, you must specify the value as a whole number with no decimal point.

**Default:** The transforms use the first value found in this order:

1. The offset specified in the printer definition
2. The offset specified in the form definition

**OFFSETXF=nnnn[.mmm]unit**

Specifies the X offset of the logical page origin to the right of the physical page origin on the front of the sheet.

For unit, specify one of these:

**IN** Specifies a unit of inches

**CM** Specifies a unit of centimeters

**MM** Specifies a unit of millimeters

**PELS** Specifies a unit of picture elements (1/240 inch)

**POINTS**

Specifies a unit of points (1/72 inch)

**Note:** If you specify the unit as PELS or POINTS, you must specify the value as a whole number with no decimal point.

**Default:** The transforms use the first value found in this order:

1. The offset specified in the printer definition
2. The offset specified in the form definition

**OFFSETYB=nnnn[.mmm]unit**

Specifies the Y offset of the logical page origin below the physical page origin on the back side of a double-sided sheet.

For unit, specify one of these:

**IN** Specifies a unit of inches

**CM** Specifies a unit of centimeters

**MM** Specifies a unit of millimeters

**PELS** Specifies a unit of picture elements (1/240 inch)

**POINTS**

Specifies a unit of points (1/72 inch)

**Note:** If you specify the unit as PELS or POINTS, you must specify the value as a whole number with no decimal point.

**Default:** The transforms use the first value found in this order:

1. The offset specified in the printer definition
2. The offset specified in the form definition

**OFFSETYF=nnnn[.mmm]unit**

Specifies the offset in the Y direction of the logical page origin below the physical page origin on the front of the sheet.

For unit, specify one of these:

**IN** Specifies a unit of inches

**CM** Specifies a unit of centimeters

**MM** Specifies a unit of millimeters

**PELS** Specifies a unit of picture elements (1/240 inch)

**POINTS**

Specifies a unit of points (1/72 inch)

**Note:** If you specify the unit as PELS or POINTS, you must specify the value as a whole number with no decimal point.

**Default:** The transforms use the first value found in this order:

1. The offset specified in the printer definition
2. The offset specified in the form definition

**Example:** This example sets the page origin to .5 inches, 1.1 inches on the front side, and 1.5 inches, 1.1 inches on the back side:

```
//OUTDS OUTPUT OFFSETXF=0.5IN,OFFSETYF=1.1IN,  
//          OFFSETXB=1.5IN,OFFSETYB=1.1IN
```

**OUTBIN=1-65 535**

Specifies the 1 to 5 decimal digit identifier of the output bin into which Infoprint Server will place a print job. If the printer does not support the selection of an output bin, the job is stacked in the default output bin for the printer.

When you print on a PCL or PostScript printer, instead of on an AFP printer, specify the output bin number of the PCL or PostScript printer. The value you specify for this parameter overrides any output bin that the form definition specifies.

**Default:** The transforms use the first value found in this order:

1. The output bin specified in the printer definition
2. The output bin selected in the AFP data stream
3. The output bin specified in the form definition

**Example:**

```
//OUTDS OUTPUT OUTBIN=4
```

**OVERLAYB=overlay\_name**

Specifies the member name (from 1 to 8 alphanumeric or national characters) of a medium overlay to be placed on the back side of each sheet in a two-sided job, in addition to overlays from other sources. Specify the complete name of the overlay member because these transforms do not add an O1 prefix.

**Default:** The transforms use the first value found in this order:

1. The overlay specified in the printer definition
2. The overlay specified in the form definition

**OVERLAYF=overlay\_name**

Specifies the member name (from 1 to 8 alphanumeric or national characters) of a medium overlay to be placed on the front side of each sheet, in addition to overlays from other sources. Specify the complete name of the overlay member because these transforms do not add an O1 prefix.

**Default:** The transforms use the first value found in this order:

1. The overlay specified in the printer definition
2. The overlay specified in the form definition

**Example:** This example requests overlay O1FOVLY be placed on the front side of each sheet and overlay O1BOVLY be placed on the back side of each sheet:

```
//OUTDS OUTPUT OVERLAYF=O1FOVLY,OVERLAYB=O1BOVLY
```

**PAGEDEF=page\_definition\_name**

Specifies the member name (from 1 to 6 alphanumeric or national

characters) of the page definition you want to use. When you specify the name in the JCL, omit the system prefix, P1. These transforms add it automatically.

If a PAGEDEF parameter is not coded in your JCL, these transforms use the page definition specified in the printer definition. If no page definition is specified in the printer definition, these transforms use the page definition in the Infoprint Server transform configuration file.

You can store the page definition that you use in any of these places:

- In a system library assigned to these transforms
- In a user library referred to in the printer definition
- In a user library referred to in your JCL
- Inline in the print data set

**Using page definitions from a user library:** You can instruct these transforms to select a page definition from your user library rather than from a system library assigned to these transforms. To use a page definition from a user library:

- Include in your JCL a reference to the user library that contains the page definition.
- Specify the name of the page definition in the JCL PAGEDEF parameter of your JCL.

**Using inline page definitions:** To use an inline page definition:

- Include the inline page definition in the print data set.
- If you specify the PAGEDEF parameter, make sure that the name of the inline page definition matches the name of the page definition name that you specified, or else specify PAGEDEF=DUMMY.
- If you do not specify the PAGEDEF parameter, these transforms select the first inline page definition in the print data set, unless a JES default page definition exists.
- If a page definition resource is included inline with the data, make sure to identify the data set as containing carriage control characters.

You can include more than one inline page definition in a print data set, and you can change the page definition name in the JCL on different printing jobs to test different page definitions. If, however, the name of an inline page definition does not match the PAGEDEF name specified in the JCL, these transforms use the page definition from the resource library that matches the name in the JCL.

**Default:** The transforms use the first value found in this order:

1. The page definition specified in the PAGEDEF parameter.
2. The page definition specified in the FCB parameter.
3. The page definition specified in the printer definition.
4. The FCB value specified in the printer definition.
5. The default page definition if IP PrintWay basic mode processes the data set. However, JES does not provide a default page definition if you use IP PrintWay extended mode or the Print Interface subsystem.
6. The first inline page definition.
7. The page definition specified in the Infoprint Server transform configuration file.
8. Page definition P1P08682.

**Example:** In this example, P1USER10 is the page definition name:

```
//OUTDS OUTPUT PAGEDEF=USER10
```

**PRMODE={SOSI1 | SOSI2 | SOSI3}**

Specifies the type of data in the print data set and whether these transforms must do optional processing of the data.

**SOSI1**

Specifies that each shift-out, shift-in code is converted to a blank and a Set Coded Font Local text control.

**SOSI2**

Specifies that each shift-out, shift-in code is converted to a Set Coded Font Local text control.

**SOSI3**

Specifies that the shift-in code is converted to a Set Coded Font Local text control and two blanks. A shift-out code is converted to a Set Coded Font Local text control.

JES uses values in the PRMODE parameter for job routing. These transforms ignore all values except SOSI1, SOSI2, and SOSI3, which they use to format data sets that contain both single-byte and double-byte fonts.

When you use the SOSI process, remember that:

- For the process to work correctly, you must specify two fonts in the CHARS parameter or in a page definition font list. The first font must be the single-byte font, and the second font must be the double-byte font.
- IBM recommends that you do not mix SOSI codes and TRCs in the same job.

**Default:**

- If the Print Interface subsystem processes the data set, the value in the printer definition is used. If none is specified in the printer definition, JES provides a default value. However, the transforms do not use the JES default value.
- If the Print Interface subsystem does not process the data set, JES provides a default value.

**Example:**

```
//OUTDS OUTPUT CHARS=(font_name1,font_name2),PRMODE=SOSI1
```

**TRC={YES | NO}**

Specifies whether the print data set contains table reference characters (TRCs). This is the same as the DCB=OPTCD=J parameter.

In line data, you can use different fonts on different lines of a file by specifying TRCs at the beginning of each line after the carriage control characters, if any are present.

**Examples:**

```
//OUTDS OUTPUT CHARS=(GT10,GT12),TRC=YES
//DD2 DD CHARS=(GT10,GT12),DCB=OPTCD=J
```

When you use table reference characters, remember that:

- If the TRC=YES and the page definition does not identify fonts, you must specify fonts with the CHARS parameter.
- The order in which the fonts are specified in the CHARS parameter establishes which number is assigned to each associated TRC. For example, the TRCs for the fonts in the preceding example are zero for *font\_name1* and one for *font\_name2*.

- If you do not specify TRC=YES, but your line data contains a TRC as the first character of each line (or the second character if carriage control characters are used), the TRC is not used as a font identifier, but is printed as a text character.
- IBM recommends that you do not mix SOSI codes and TRCs in the same job.

#### UCS=*font\_name*

Serves as another way to select a font. When a CHARS parameter is not specified, you can specify the universal character set (UCS) parameter to select one font. If the page definition specifies a font, the UCS parameter is ignored.

#### Example:

```
//DD1 DD UCS=GT10
```

#### USERLIB=(*library\_name*[,...])

Specifies the name of 1 to 8 cataloged MVS data sets (user libraries) containing AFP resources for processing the data set. The transforms dynamically allocate these data sets and search for resources in them in the order specified on the USERLIB statement. If the transforms find no resources, they search the system libraries defined in the Infoprint Server transform configuration file. The libraries you specify can contain any AFP resources: fonts, page segments, overlays, page definitions, form definitions, or object container resources.

#### Notes:

1. The user who starts the Infoprint Server daemons must have RACF authorization to read the AFP user resource libraries. For more information, see the AFP security information in *z/OS Infoprint Server Customization*.
2. If Infoprint Server uses the IP PrintWay basic mode resubmit for filtering function to transform data from AFP format to PCL, PostScript, or PDF format, the AFP user resource libraries must have universal read access. This is because the resubmit for filtering function does not, by default, use the job submitter's user ID to check RACF authorization to the AFP user resource libraries. If you do not want to grant universal read access to the AFP user resource libraries, use one of these methods to transform and print the data set because these methods do not use the resubmit for filtering function:
  - Print Interface subsystem
  - AOPPRINT JCL procedure
  - z/OS UNIX lp command
3. If you must use the IP PrintWay basic mode resubmit for filtering function, your administrator can set the AOPRESUBMITUSER environment variable to let the resubmit for filtering function use the job submitter's user ID to check RACF authorization. However, IBM recommends that you do not use the AOPRESUBMITUSER environment variable. For information about the AOPRESUBMITUSER variable, see *z/OS Infoprint Server Customization*.

**Default:** The transforms use the first value found in this order:

1. Resource libraries specified in the printer definition
2. Resource libraries specified in the Infoprint Server transform configuration file or, if no library is specified, a hard-coded default resource library

**Example:** In this example, the USERLIB parameter tells the transforms to search the libraries specified for AFP resources.

```
//OUTDS OUTPUT USERLIB=(USER.IMAGES,USER.AFP.RESOURCES)
```

## Examples -- Using JCL to transform AFP documents

These examples show the JCL you can use to transform AFP documents to:

- PCL format and print the PCL documents
- PDF format and e-mail the PDF documents

### Transform an AFP document to PCL format and print it

This example shows how to transform an AFP document to PCL format and print the transformed output on a PCL printer. It assumes that:

- Printer definition `pc11` exists in the Infoprint Server Printer Inventory with these characteristics:
  - The IP PrintWay LPR, direct-sockets, or IPP protocol is selected.
  - The AFP to PCL transform is specified.
- IP PrintWay prints output data sets in JES output class P.

```
//PCLJOB JOB ...
//STEP1 EXEC PGM=USERA
//OUTDS1 OUTPUT CLASS=P,FSSDATA='printer=pc11',
//      FORMDEF=MYDEF,USERLIB=USERX.MYLIB
//DD1 DD SYSOUT=(,),OUTPUT=*.OUTDS1,DSNAME=MYFILE
```

### Transform an AFP document to PDF format and e-mail it

This example shows how to transform an AFP document to PDF format and send it to an e-mail address. This example shows how to specify JCL parameters for e-mailing the document (`MAILTO`, `MAILFROM`, `REPLYTO`, and `MAILFILE`). For information about these JCL parameters, see *z/OS Infoprint Server User's Guide*.

This example assumes that:

- Printer definition `mail` exists in the Infoprint Server Printer Inventory with these characteristics:
  - The e-mail protocol is selected.
  - The AFP to PDF transform is specified.
  - (Optional) A PDF user identifier, owner identifier, and protected actions are specified. If a user or owner identifier is specified, the AFP to PDF transform encrypts the PDF document and restricts any protected actions.
- IP PrintWay prints output data sets in JES output class P.

```
//MAILJOB JOB ...
//STEP1 EXEC PGM=USERA
//OUTDS1 OUTPUT CLASS=P,FSSDATA='printer=mail',
//      FORMDEF=MYDEF,MAILTO='user@xyz.com',
//      MAILFROM='John Sender',REPLYTO='secretary@xyz.com',
//      MAILFILE='July report',TITLE='Monthly Report'
//DD1 DD SYSOUT=(,),OUTPUT=*.OUTDS1
```

### Transform an AFP document to PDF format, specifying encryption job attributes

This example shows how to transform an AFP document to PDF format and mail it to an e-mail address using the Print Interface subsystem. The Print Interface subsystem lets you specify job attributes that you cannot specify in JCL parameters, such as the job attributes used to encrypt PDF documents.

This example shows how to specify:

- The SUBSYS JCL parameter, with job attributes used to encrypt the PDF document (**pdf-owner-identifier**, **pdf-user-identifier**, **pdf-protect**)
- JCL parameters used to e-mail the PDF document (MAILTO, MAILFROM, REPLYTO, MAILFILE, TITLE)

For information about these JCL parameters, see *z/OS Infoprint Server User's Guide*.

This example assumes that:

- Printer definition mail exists in the Infoprint Server Printer Inventory with these characteristics:
  - The e-mail protocol is selected.
  - The AFP to PDF transform is specified.
- The name of the Print Interface subsystem is AOP1.

```
//SUBSJOB JOB ...
//STEP1 EXEC PGM=IEBGENER
//OUTDS1 OUTPUT FORMDEF=MYDEF,MAILTO='CEO@xyz.com',
//      MAILFROM='John Sender',REPLYTO='secretary@xyz.com',
//      MAILFILE='July report',TITLE='Monthly Report'
//SYSUT2 DD SUBSYS=(AOP1,'mail','pdf-owner-identifier=john pdf-user-i
//      dentifier=ceo pdf-protect={copy update}'),
//      OUTPUT=*.OUTDS1
//SYSIN DD DUMMY
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD DISP=SHR,DSN=USERX.DATA(JULY)
```

**Tip:** The SYSUT2 DD statement shows how to continue a value within quotation marks on the next line. To continue the value, end typing in column 71 and continue typing the value in column 16 of the next line.



---

## Chapter 3. Customizing transforms

This chapter describes how to customize the transforms.

The sections in this chapter are:

- “Customizing the AFP to PCL transform” on page 55
- “Customizing the AFP to PDF transform” on page 69
- “Customizing the AFP to PostScript transform” on page 93

---

### Customizing the AFP to PCL transform

To customize the AFP to PCL transform, do the tasks listed in this table. Required tasks are required by all installations. Optional tasks are required only if the listed condition applies to your installation.

Task	Condition	See page
Specifying transform options	Required	55
Setting up security for AFP resource libraries	Required	107
Adding paper sizes	Optional: If you have custom paper sizes	108
Adding fonts for font-mapping	Optional: If you have custom fonts	111
Scaling 240-pel to 300-pel fonts	Optional: If you have only 240-pel fonts	113

### Specifying transform options

You must create at least one transform entry in the Infoprint Server transform configuration file (**aopxfd.conf**) for the AFP to PCL transform. In the transform entry, you can specify:

- Environment variables that control the transform
- Attributes that control how the Infoprint Server Transform Manager manages the transform

For information about how to create and edit the Infoprint Server transform configuration file, see “Creating the transform configuration file (**aopxfd.conf**)” in *z/OS Infoprint Server Customization*. After you update the transform configuration file, you must restart the Infoprint Server Transform Manager.

**Tip:** After you restart the Transform Manager, check for error messages in the transform's **stderr** file. If you find any error messages, fix the errors and restart the Transform Manager. For more information about how to find the transform message logs, see “Finding the transform stderr file” on page 137.

### Transform classes

If you want to specify different transform options for different printers, you can create different classes of the AFP to PCL transform. For example, you could create classes for printers that print on different paper sizes.

For each transform class, you must create a separate transform entry. You select a name for the transform class in the transform entry (see the **transform** attribute).

To use a transform class, job submitters must specify the class name as an option (-c) on the **afp2pcl** transform command or in the **filter-options** job attribute, and administrators must specify the class name as a filter option (-c) in the printer definition. For example, these z/OS UNIX commands use the "eu" transform class:

```
afp2pcl -c eu -o myfile.pcl myfile.afp
lp -d myprinter -o "filter-options='-c eu'" myfile.afp
```

**Tip:** The sample transform configuration file, `/usr/lpp/Printsrv/samples/aopxfd.conf`, shows examples of transform entries with different transform classes. Also, see "Examples -- Transform configuration file entries for the AFP to PCL transform" on page 68.

## Font-mapping options

The AFP to PCL transform uses only 300-pel raster fonts (single-byte and double-byte fonts). The transform can map single-byte outline fonts to equivalent 300-pel raster fonts. Double-byte outline fonts are not supported.

To map outline fonts to raster fonts, the transform uses an internal font-mapping table that supports the Expanded Core Fonts feature of IBM AFP Font Collection V2, which provides single-byte fonts in both raster and outline formats. If the input document uses an outline font and the transform cannot find an equivalent raster font in the font-mapping table, the transform writes an error message and stops transforming the document. You can customize the font-mapping table to add custom fonts used by your installation. For information, see "Adding fonts for font-mapping" on page 111.

Use this environment variable to control font-mapping in the transform configuration file:

AOP\_FONTMAP:

- The **yes** option (default) enables font-mapping. You should enable font-mapping because the AFP to PCL transform cannot use outline fonts.
- The **no** option disables font-mapping.

## Default AFP resources

AFP resources are collections of data and control information that the transforms use to create PCL documents. You can specify default AFP resources (such as a default font, form definition, and page definition) in the transform configuration file and in printer definitions. AFP resources specified in a printer definition override default resources specified in the transform entry. If only a few printers use different default AFP resources, you might want to specify these default AFP resources in the printer definitions.

In most situations, you should specify the same default AFP resources that your AFP printers use. These default resources are specified either in the PSF startup procedures (in the PRINTDEV statements) or, if PSF is configured to obtain PRINTDEV values from the Printer Inventory, in the PSF FSA definitions in the Printer Inventory.

Use these environment variables to specify default AFP resources in the transform configuration file:

- AOP\_CHARS: The default font used for transform error messages and for line data and AFP data that does not specify another font.

- AOP\_FORMDEF: The default form definition used when no other form definition is specified.
- AOP\_PAGEDDEF: The default page definition used when no other page definition is specified.

**Search hierarchy for form definitions:** The transform uses this hierarchy to select the name of the form definition:

1. The form definition specified in the **form-definition** job attribute or FORMDEF JCL parameter.
2. The form definition specified in the **Form definition** field in the printer definition.
3. The first inline form definition.
4. The form definition specified in the AOP\_FORMDEF environment variable in the transform configuration file.
5. Form definition F1CP0111. This default is coded in the transform.

**Tips:**

1. If form definition name **dummy** is specified, the transform uses the first inline form definition.
2. After the transform determines the name of the form definition, the transform first searches for the form definition inline in the data set, and then searches in the user and system resource libraries.

**Search hierarchy for page definitions:** The transform uses this hierarchy to select the name of the page definition:

1. The page definition specified in the **page-definition** job attribute or the PAGEDDEF or FCB JCL parameter. (The PAGEDDEF parameter overrides the FCB parameter.)
2. The default page definition supplied by JES to IP PrintWay basic mode. (See Tips.)
3. The page definition specified in the **Page definition** field in the printer definition.
4. The first inline page definition.
5. The page definition specified in the AOP\_PAGEDDEF environment variable in the transform configuration file.
6. Page definition P1P08682. This default is coded in the transform.

**Tips:**

1. If page definition name **dummy** is specified, the transform uses the first inline page definition.
2. After the transform determines the name of the page definition, the transform first searches for the page definition inline in the data set, and then searches in the user and system resource libraries.
3. JES supplies a default page definition for batch jobs submitted to IP PrintWay basic mode with OUTPUT and DD JCL statements. If you want to use the default page definition specified in the transform configuration file, you can request that JES not supply a default page definition to the IP PrintWay basic mode FSA. For more information about the JES initialization parameters to do this, see *z/OS Infoprint Server Customization*.

**Search hierarchy for the default font:** The transform uses this hierarchy to select a font for line data and AFP data that does not specify a font:

1. The font named in the page definition.
2. The font specified in the **chars** job attribute or the CHARS or UCS JCL parameter. (The CHARS JCL parameter overrides the UCS parameter.)
3. The default font supplied by JES to IP PrintWay basic mode. (See Tip.)
4. The font specified in the **Character set** field in the printer definition.
5. The font specified in the AOP\_CHARS environment variable in the transform configuration file. The transform prefixes X0 to the font named in the variable if you do not specify a prefix.
6. Font X060D9. This default is coded in the transform.

**Tip:** JES supplies a default font for jobs submitted to IP PrintWay basic mode with OUTPUT and DD JCL statements. If you want to use the default font specified in the transform configuration file, you can request that JES not supply a default font to the IP PrintWay basic mode FSA. For more information about the JES initialization parameters to do this, see *z/OS Infoprint Server Customization*.

**Search hierarchy for the message font:** The transform uses this hierarchy to select a font used for transform error messages:

1. The font named in the page definition specified in the AOP\_MSGPAGEDEF environment variable.
2. The font specified in the AOP\_CHARS environment variable in the transform configuration file. The transform prefixes X0 to the font named in the variable if you do not specify a prefix.
3. Font X060D9. This default is coded in the transform.

### AFP system resources libraries

In the transform entry, you can specify from 1 to 8 AFP system resource libraries for fonts, page definitions, form definitions, page segments, and overlays. You can specify from 1 to 8 AFP user resource libraries in printer definitions.

In most situations, you should specify the same AFP system resource libraries in the transform configuration file as you currently specify in your PSF startup procedures. If only a few printers require different resource libraries, you can specify those libraries in the printer definitions for the printers.

Use these environment variables to specify system resource libraries in the transform configuration file:

- AOP\_FONTLIB: The names of 1 to 8 system font libraries.
- AOP\_FORMDEFLIB: The names of 1 to 8 system form definition libraries.
- AOP\_OVERLAYLIB: The names of 1 to 8 system overlay libraries.
- AOP\_PAGEDEFLIB: The names of 1 to 8 system page definition libraries.
- AOP\_PAGESEGLIB: The names of 1 to 8 system page segment libraries.

AFP user resource libraries can be specified in job attributes, JCL parameters, and in the printer definition.

The transforms use this hierarchy when searching AFP resource libraries:

1. User resource libraries specified in the **resource-library** job attribute or USERLIB JCL parameter.

2. Default user resource libraries specified in the **Resource library** field in the printer definition. These libraries are searched only when the job submitter does not specify any user resource libraries (see step 1).
3. System resource libraries specified in environment variables in the transform configuration file.
4. Default system resource libraries that are hard-coded in the transform. These libraries are searched only if no system resource libraries are specified in the transform configuration file (see step 3).

## Format of an AFP to PCL transform entry

The format of an AFP to PCL transform entry in the transform configuration file (`aopxfd.conf`) is:

```
transform afp2pcl[_transformclass]
  start-command = afp2pcl
  [ environment = {name -> value [ name -> value]... } ]
  [ maximum-active = number ]
  [ maximum-idle-time = seconds ]
  [ minimum-active = number ]
;
```

**transform afp2pcl***[\_transformclass]*

This statement indicates the beginning of a transform entry.

**afp2pcl**

The name of the transform.

*transformclass*

The name of an optional transform class. Specify from 1 to 63 characters, including letters, numbers, or special characters. The name of the transform class is case-sensitive.

**Default:** No transform class.

**Example:** transform afp2pcl\_us

**start-command = afp2pcl**

The name of the transform daemon. If the transform daemon is not in a directory identified in the PATH environment variable specified in the **aopstart** EXEC, specify the full directory path name of the daemon. (The **afp2pcl** daemon is installed in `/usr/lpp/Printsrv/bin`.) This attribute is required.

**Default:** None.

**Example:** start-command = /usr/lpp/Printsrv/bin/afp2pcl

**environment = {name -> value [name -> value]... }**

Environment variables that specify transform options. Enclose the entire set of environment variables in braces. The values in these environment variables override environment variables with the same name that are set in the **aopstart** EXEC. If a value contains special characters or spaces, enclose the value in single or double quotation marks.

For information about the environment variables you can specify, see "Environment variables for the AFP to PCL transform" on page 60.

**Default:** None.

**Example:**

```
environment = {AOP_COLOR -> yes}
```

**maximum-active = number**

The maximum number of transform daemons that the Transform Manager

activates concurrently. Specify a number greater than 0 and greater than or equal to the number specified in the **minimum-active** attribute. For more information, see “Format of a transform entry” in *z/OS Infoprint Server Customization*.

**Default:** No maximum number. Transform daemons are started when needed.

**maximum-idle-time = seconds**

The number of seconds before the Transform Manager shuts down an idle transform daemon and system resources are freed. Specify a number greater than 0. For more information, see “Format of a transform entry” in *z/OS Infoprint Server Customization*.

**Default:** Idle transform daemons are not shut down.

**minimum-active = number**

The minimum number of transform daemons that the Transform Manager activates concurrently. Specify a number less than or equal to the number specified in the **maximum-active** attribute. For more information, see “Format of a transform entry” in *z/OS Infoprint Server Customization*.

**Default:** minimum-active = 0

## Environment variables for the AFP to PCL transform

You can specify environment variables to:

- Specify default AFP resources, such as the default form definition and page definition.
- Specify AFP system resource libraries.
- Select transform functions, such as whether to create color output.
- Name the paper sizes in AFP input trays, and map AFP input tray IDs to PCL input trays.

You can specify these environment variables. All environment variables are optional.

### \_BPX\_JOBNAME

The job name for this transform. When you assign a different job name to each class of transform, the operator can manage the transform daemons more effectively. Specify a job name of 1 to 8 alphanumeric characters. Incorrect job names are ignored. For more information about the \_BPX\_JOBNAME variable, see *z/OS UNIX System Services Planning*.

**Default:** The job name is AOPXFD.

**Example:** environment = {\_BPX\_JOBNAME -> AFP2PCLD}

### AOP\_ASSUME\_RIDIC\_UNPAD

Indicates whether all G4 MMR (Modified Modified READ (ITU-TSS T.6 Group 4 two-dimensional coding standard for facsimile)) images are unpadding RIDIC. In some IOCA images the RECID incorrectly states that the encoding is RIDIC when it is actually unpadding RIDIC. If the RECID for the G4 MMR image specifies RIDIC, but the width of the image is not padded with zeros, set AOP\_ASSUME\_RIDIC\_UNPAD-> yes.

Valid values are:

- |            |   |
|------------|---|
| <b>yes</b> | Ignore the G4 MMR RECID setting and process all G4 MMR images as unpadding. |
| <b>no</b>  | Decode G4 MMR images as specified in the RECID.                             |

**Default:** AOP\_ASSUME\_RIDIC\_UNPAD -> no

**Example:** environment = {AOP\_ASSUME\_RIDIC\_UNPAD -> yes}

### AOP\_CHARS

The default coded font. The transform uses this font to format error messages unless the page definition specified in the AOP\_MSGPAGEDEF variable names a font. The transforms also use this font for (1) line data when no other font is specified in the page definition used to print the document and (2) AFP data when no other font is specified in the AFP data stream.

Specify the 1 to 4 character coded font name. You can specify the X0 or XZ prefix of the coded font name. If you do not specify a prefix, the transform adds an X0 prefix. Some coded fonts have 6-character names, not counting the X0 or XZ prefix. For these fonts, use the 4-character alternate coded font name. For font names and alternate font names, see *IBM AFP Fonts: Font Summary for AFP Font Collection*.

#### Rules:

- Specify only one default coded font in this environment variable.
- Specify a raster font because the AFP to PCL transform requires raster fonts.
- The font you specify, or default font X060D9, must exist in one of the AFP font libraries so that the transform can write error messages in the output.
- The code page associated with this coded font must be an EBCDIC code page.

**Tip:** You might want to specify the same font as the resident font in the AFP printer to which output is usually printed.

**Default:** AOP\_CHARS -> 60d9 (This is font X060D9 because the transform adds prefix X0.)

**Example:** environment = {AOP\_CHARS -> 60d8}

### AOP\_COLOR

Indicates whether the transform is to produce color output. Specify **yes** if the printer supports color. Valid values are:

**yes** The transform produces color output.

**no** The transform does color simulation.

**Default:** AOP\_COLOR -> no

**Example:** environment = {AOP\_COLOR -> yes}

### AOP\_CUTSHEET

Indicates whether the transform is to prepare the output for printing on a cutsheet printer. Valid values are:

**yes** The output is to be printed on a cutsheet printer. Therefore, the transform uses the cutsheet specification in the form definition to determine whether to send medium orientation information to the printer. For more information about the cutsheet specification in the form definition, see the description of the CUTSHEET command in *IBM Page Printer Formatting Aid: User's Guide*.

**Tip:** Select this option if your output is incorrectly printing in the down direction on a cutsheet printer.

**no** The output is not to be printed on a cutsheet printer. Therefore, the transform always sends medium orientation information to the printer.

**Default:** AOP\_CUTSHEET -> no

**Example:** environment = {AOP\_CUTSHEET -> no}

## AOP\_FAIL\_ON\_IMAGE\_ERROR

Indicates whether the transform continues to process the document when the transform cannot decode an IOCA image because of certain compression padding errors. Some compression algorithms cause unpadded RIDIC images to be read as padded RIDIC by the transform.

Valid values are:

**yes** If the transform cannot decode an IOCA image, it issues a message and stops processing the document.

**no** If the transform cannot decode an IOCA image, it issues a message, stops processing the image, and continues with the next MO:DCA™ statement.

### retrycont

If the transform cannot decode a G4 MMR (Modified Modified READ (ITU-TSS T.6 Group 4 two-dimensional coding standard for facsimile)) image, it tries to process the image again as unpadded RIDIC (if the RECID indicates RIDIC) or as RIDIC (if the RECID indicates unpadded RIDIC). If the transform still cannot decode the G4 MMR image, or if the image is not a G4 MMR image, the transform issues an error message, stops processing the image, and continues with the next MO:DCA statement.

### retryfail

If the transform cannot decode a G4 MMR (Modified Modified READ (ITU-TSS T.6 Group 4 two-dimensional coding standard for facsimile)) image, it tries to process the image again as unpadded RIDIC (if the RECID indicates RIDIC) or as RIDIC (if the RECID indicates unpadded RIDIC). If the transform still cannot decode the G4 MMR image, or if the image is not a G4 MMR image, the transform issues a message and stops processing the document.

**Default:** AOP\_FAIL\_ON\_IMAGE\_ERROR -> yes

**Example:** environment = {AOP\_FAIL\_ON\_IMAGE\_ERROR -> no}

## AOP\_FONTLIB

The AFP system resource libraries that contain fonts. Specify 1 to 8 data set names. Separate each name with a space. Libraries are searched in the order listed.

Specify the AFP 300-pel raster and outline font libraries used by your installation:

- Specify AFP 300-pel raster font libraries because the AFP to PCL transform requires raster fonts.
- Specify AFP outline font libraries if data to be transformed refers to outline fonts.

**Default:** AOP\_FONTLIB -> "sys1.font300 sys1.fontoln"

### Examples:

```
environment={AOP_FONTLIB -> "sys1.font300 \  
sys1.fontoln inst.font300"}
```

The backslash in this example indicates that the text within the quotation marks continues on the next line.

```
environment={AOP_FONTLIB -> "sys1.font300"}
```

#### **AOP\_FONTMAP**

Indicates whether the transform maps outline fonts to AFP raster fonts. Because the AFP to PCL transform requires raster fonts, you should specify AOP\_FONTMAP -> yes (default). Valid values are:

**yes** The transform maps fonts.

**no** The transform does not map fonts.

**Default:** AOP\_FONTMAP -> yes

**Example:** environment = {AOP\_FONTMAP -> no}

#### **AOP\_FORMDEF**

The default form definition used to format the input data stream. Specify the 1 to 8 character form definition name, with or without the F1 prefix. If you omit the F1 prefix, the transform adds it.

The transform uses this form definition only if no other form definition is specified.

**Default:** AOP\_FORMDEF -> F1CP0110

**Example:** environment = {AOP\_FORMDEF -> F1CP0111}

#### **AOP\_FORMDEFLIB**

The AFP system resource libraries that contain form definitions. Specify from 1 to 8 data set names. Separate each name with a space. Libraries are searched in the order listed.

**Default:** AOP\_FORMDEFLIB -> "sys1.fdeflib"

**Example:** environment = {AOP\_FORMDEFLIB -> "sys1.fdeflib inst.fdeflib"}

#### **AOP\_MSGFORMDEF**

The form definition used to format transform error messages. Specify the 1 to 8 character form definition name, with or without the F1 prefix. If you omit the F1 prefix, the transform adds it. This form definition must be located in one of the libraries specified in the AOP\_FORMDEFLIB variable.

**Default:** AOP\_MSGFORMDEF -> F1CP0110

**Example:** environment = {AOP\_MSGFORMDEF -> F1CP0111}

#### **AOP\_MSGPAGEDEF**

The page definition used to format transform error messages. Specify the 1 to 8 character page definition name, with or without the P1 prefix. If you omit the P1 prefix, the transform adds it. This page definition must be located in one of the libraries specified in the AOP\_PAGEDEFLIB variable. The transform formats messages for the first paper size defined in the AOP\_PAPER variable.

**Recommendation:** Use page definition P1P08682 for letter size paper, and page definition P1Q09182 for A4 paper.

**Default:** AOP\_MSGPAGEDEF -> P1P08682

**Example:** environment = {AOP\_MSGPAGEDEF -> P1P06362}

#### **AOP\_OFFSET\_JOGGING**

Indicates how the transform supports offset stacking (also called jogging).

Offset stacking is requested in the form definition (medium map). If the form

|  
|  
|

definition requests offset stacking, the transform can offset, shift, or rotate each subset in the output depending on the printer support. Valid values are:

- imm** The transform offsets the output by specifying a PCL Job Separation command for each subset. This PCL command toggles the printer output bin between two positions. Printers that support this PCL command include HP LaserJet III Si, Xerox DocuPrint 180, and similar printers.
- no** The transform ignores offset stacking requested in the form definition.
- rotate** The transform rotates the output by creating a new printer job for each subset and specifying the PCL DEFAULT JOBOFFSET=ROTATE command for the job. Printers that support this PCL command include some Ricoh® printers.
- shift** The transform shifts the output by creating a new printer job for each subset and specifying the PCL DEFAULT JOBOFFSET=SHIFT command for the job. Printers that support this PCL command include some Ricoh printers.
- yes | on**  
The transform offsets the output by creating a new printer job for each subset and specifying the PCL DEFAULT JOBOFFSET=ON command for the job. (Value "yes" is the same as "on".)

**Rule:** If you specify rotate, shift, yes, or on, the printer must support PCL commands. In addition, you must specify the AOP\_PJL -> yes environment variable.

If you specify AOP\_PJL -> yes and use the IP PrintWay extended mode Direct Sockets protocol to send documents to the printer, do not select the "Record pages printed for accounting" and "Restart printing after last successful page" options in the printer definition for the printer. This is because a PCL JOB command in the document can conflict with the PCL JOB command that IP PrintWay adds to the document to track the number of pages that print successfully.

**Recommendation:** Specify the IMM option if the printer supports it.

**Default:** AOP\_OFFSET\_JOGGING -> no

**Example:** environment = {AOP\_OFFSET\_JOGGING -> imm}

**Note:** If you specify rotate, shift, yes, or on, fonts are sent to the printer again for each new printer job, which can adversely affect performance. In addition, other documents might print between the printer jobs.

#### **AOP\_OVERLAYLIB**

The AFP system resource libraries that contain overlays. Specify from 1 to 8 data set names. Separate each name with a space. Libraries are searched in the order listed.

**Default:** AOP\_OVERLAYLIB -> "sys1.overlib"

**Example:** environment = {AOP\_OVERLAYLIB -> "sys1.overlib inst.overlib"}

#### **AOP\_PAGEDDEF**

The default page definition used to format line data and create PCL output. Specify the 1 to 8 character page definition name, with or without the P1 prefix. If you omit the P1 prefix, the transform adds it. The transform uses this page definition only if no other page definition is specified.

**Recommendation:** Use page definition P1P08682 for letter size paper, and page definition P1Q09182 for A4 paper.

**Default:** AOP\_PAGEDEF -> P1P08682

**Example:** environment = {AOP\_PAGEDEF -> P1Q09182}

#### AOP\_PAGEDEFLIB

The AFP system resource libraries that contain page definitions. Specify from 1 to 8 data set names. Separate each name with a space. Libraries are searched in the order listed.

**Default:** AOP\_PAGEDEFLIB -> "sys1.pdeflib"

**Example:** environment = {AOP\_PAGEDEFLIB -> "sys1.pdeflib inst.pdeflib"}

#### AOP\_PAGESEGLIB

The AFP system resource libraries that contain page segments. Specify from 1 to 8 data set names. Separate each name with a space.

**Default:** AOP\_PAGESEGLIB -> "sys1.pseglib"

**Example:** environment = {AOP\_PAGESEGLIB -> "sys1.pseglib inst.pseglib"}

#### AOP\_PAPER

The name of the paper that is typically installed in each AFP input tray. The transform formats the PCL output for the paper in the AFP input tray ID the document selects.

The position (1 through 9) of each paper name represents the number of the AFP input tray. The 10th position represents any AFP input tray number greater than 9.

You can specify from 1 to 10 paper names. Separate each name with a space. If you specify fewer than 10 paper names, the transform sends an error message and uses the default tray number. To avoid an error message, specify 10 tray IDs.

For more information about the paper names you can specify and how to add custom paper names, see "Adding paper sizes" on page 108.

Valid paper names and their sizes (width x height) are:

Paper Name	Size
<b>a3</b>	292.25 x 413.25 mm
<b>a4</b>	210 x 297 mm
<b>a4ee</b>	210 x 297 mm
<b>a5</b>	148.3 x 210 mm
<b>b4</b>	250 x 353 mm
<b>b5</b>	176 x 250 mm
<b>c5</b>	162 x 229 mm (6.48 x 9.16 in.)
<b>com10</b>	4.125 x 9.5 in. (104.8 x 241.3 mm)
<b>dl</b>	110 x 220 mm (4.4 x 8.8 in)
<b>executive</b>	7.25 x 10.5 in (185 x 267 mm)
<b>ledger</b>	11 x 17 in (279 x 432 mm)
<b>legal</b>	8.5 x 14.0 in (216 x 356 mm)
<b>letter</b>	8.5 x 11.0 in (216 x 279 mm)
<b>letteree</b>	8.5 x 11.0 in (216 x 279 mm)
<b>monarch</b>	3.875 x 7.5 in. (98.4 x 190.5 mm)

#### Tips:

1. Use the **a4ee** and **letteree** paper names when the printer is configured to print edge-to-edge. However, if the printer does not support edge-to-edge

printing, documents created for edge-to-edge printing have the outside 50 pels, approximately 4 millimeters, of output cut off.

2. Some printers do not support the PCL back side Offset Registration command. In this case, you might be able to configure the printer to print edge-to-edge and use the **a4ee** or **letteree** paper name.

**Default:** AOP\_PAPER -> "letter letter letter letter letter letter letter letter letter letter"

**Example:**

```
environment = {AOP_PAPER -> "letter legal letteree letter \  
letter letter letter letter letter letter"}
```

The backslash in this example indicates that the text within the quotation marks continues on the next line.

If the document to be transformed specifies:

- AFP input tray 1, the transform formats the output for letter size paper.
- AFP input tray 2, the transform formats the output for legal size paper.
- AFP input tray 3, the transform formats the output for letteree size paper.
- AFP input tray M or any other tray, the transform formats the output for letter size paper.

### AOP\_PJL

Indicates whether the printer accepts all PCL 5 commands, including PJL commands. All printers that support PCL 5 support PJL commands. Some printers that support only PCL 4 do not support PJL commands. Sometimes, a printer that does not support PJL commands prints a smiley face where a PJL command occurs in the data stream or prints the PJL command on the first page. Valid values are:

**yes** The printer accepts PJL commands.

**no** The printer does not accept PJL commands. Therefore, the AFP to PCL transform does not create PJL commands.

**Default:** AOP\_PJL -> yes

**Example:** environment = {AOP\_PJL -> no}

**Tip:** If you use IP PrintWay extended mode, specify AOP\_PJL -> no because a PJL JOB command in the document can conflict with the PJL JOB command that IP PrintWay adds to the document to track the number of pages that print successfully.

### AOP\_POSITIONING\_METHOD

Indicates how the transform is to position GOCA characters. For information about GOCA character positioning, see *Data Stream and Objects Architectures: Graphics Object Content Architecture for Advanced Function Presentation Reference*, S544-5498.

Valid values are:

**cell** The transform scales the GOCA characters using the cell size in the GOCA data stream, with a default cell size of (1,1) graphic units. Characters are scaled using the maximum baseline extent in the y direction and the maximum character increment in the x direction. The printed output from the transform is similar to the output on older IBM AFP printers, such as the IBM 3812 printer.

**Tip:** This positioning method can cause undesirable output if the GOCA data stream does not specify a cell size and the transform uses the default cell size. In this case, specify either the SCALE or FONT method.

**font** Positions the characters like normal text using the font size in the GOCA data stream. Characters are not scaled, and the cell size in the GOCA data stream is ignored. The printed output will be similar to the output on most newer AFP printers. This positioning method is likely to produce the most readable output.

**scale** Scales the GOCA characters using the cell size in the GOCA data stream, with a default cell size of (140,230) graphic units. Characters are scaled using 0.6 of the point size in both the x and y directions. The scaled characters are proportionately spaced and positioned 10% over the baseline. The printed output from the transform is similar to the output on IBM AFP printers with "GCS=CHAR SCALE" selected, such as the IBM Infoprint 40 printer.

**Default:** AOP\_POSITIONING\_METHOD -> cell

**Example:** environment = {AOP\_POSITIONING\_METHOD -> font}

#### AOP\_SIMULATE\_240\_DPI

Indicates whether character size recalculation is performed on 300 dpi fixed metric fonts.

IBM AFP 300 dpi fonts are typically supplied in a relative metric format instead of fixed metric. If the transform finds fixed metrics for 300 dpi fonts it assumes they were converted from 240 dpi fonts and recalculates character size to compensate for a rounding error. If the 300 dpi fixed metric fonts were not converted from 240 dpi, the transform introduces a positioning error when recalculating the character size. Setting AOP\_SIMULATE\_240\_DPI to NO prevents the transform from recalculating the character size and prevents the positioning error.

Valid values are:

**yes** The transform recalculates character size to compensate for presumed rounding errors in 300 DPI<sup>®</sup> raster fonts.

**no** No character size recalculation is done.

**Default:** AOP\_SIMULATE\_240\_DPI -> yes

**Example:** environment = {AOP\_SIMULATE\_240\_DPI -> no}

#### AOP\_TRAYID

A mapping of AFP input tray numbers to PCL tray IDs. The position (1 - 9) of each PCL tray ID corresponds to the AFP tray number. The 10th position corresponds to all AFP input tray numbers greater than 9.

Specify 1 to 10 PCL tray IDs, separating each number with a space. Number 0 (zero) indicates that an input tray is not installed in the printer. If the input document requests an input tray that is not installed, the transform writes an error message in the output file and uses printer tray 1.

PCL tray IDs usually mean:

PCL tray 1: Feed paper from a printer-specific tray.

PCL tray 2: Feed paper from manual input.

PCL tray 3: Feed envelope from manual input.

PCL tray 4: Feed paper from lower tray.

PCL tray 5: Feed paper from optional paper source.

PCL tray 6: Feed envelope from optional envelope source.

The AFP to PCL transform codes the PCL tray ID specified in AOP\_TRAYID in the PCL Paper Source command. For more information about PCL tray IDs, see the description of the Paper Source command in Hewlett Packard's PCL documentation. Because the implementation of paper tray IDs can vary from printer to printer, also see the documentation for your printer.

**Rule:** Specify a non-zero value in the first position. This is because the transform uses tray 1 as the default tray.

**Tips:**

- PCL tray IDs do not match the tray numbers embossed on the actual printer trays.
- If the usual PCL tray IDs do not work, specify different tray IDs in the AOP\_TRAYID variable until the printer selects paper from the desired paper tray.

**Default:** AOP\_TRAYID -> "1 4 0 0 0 0 0 0 2"

**Example:**

```
environment = {AOP_TRAYID -> "1 4 1 1 1 1 1 1 2"}
```

If the document to be transformed specifies:

- AFP input tray 1, the transform uses PCL tray ID 1.
- AFP input tray 2, the transform uses PCL tray ID 4.
- AFP input tray 3 through 9, the transform uses PCL tray ID 1.
- AFP input tray M or any other input tray greater than 9, the transform uses PCL tray ID 2.

## Examples -- Transform configuration file entries for the AFP to PCL transform

This section shows sample transform entries in the Infoprint Server transform configuration file (**aopxfd.conf**) for the AFP to PCL transform.

**Print on letter and legal size paper:** This transform entry can be used for printers that print on letter and legal size paper. To use this entry, do not specify a transform class.

```
transform afp2pcl
start-command = afp2pcl
maximum-active = 2
maximum-idle-time = 300 # 5 minutes
minimum-active = 1
environment = {
  _BPX_JOBNAME -> AFP2PCLD
  AOP_CHARS -> 60d9
  AOP_COLOR -> no
  AOP_CUTSHEET -> yes
  AOP_FONTLIB -> "sys1.font300"
  AOP_FONTMAP -> yes
  AOP_FORMDEF -> F1CP0110
  AOP_FORMDEFLIB -> "sys1.fdeflib"
  AOP_MSGFORMDEF -> F1CP0110
  AOP_MSGPAGEDEF -> P1P08682
  AOP_OVERLAYLIB -> "sys1.overlib"
  AOP_PAGEDEF -> P1P08682
  AOP_PAGEDEFLIB -> "sys1.pdeflib"
  AOP_PAGESEGLIB -> "sys1.pseglib"
  AOP_PAPER ->
```

```

"letter legal letteree letter letter letter letter letter letter"
AOP_PJL -> no
AOP_POSITIONING_METHOD -> cell
AOP_TRAYID -> "1 4 1 1 1 1 1 1 1 2"
}
;

```

**Print on A3, A4, and C5 paper:** This transform entry can be used for printers that print on A3, A4, and C5 paper. This transform entry creates transform class "eu". To use this transform class, specify the class in the -c transform option as shown in these two examples:

```

afp2pcl -c eu -o myfile.pcl myfile.afp
lp -o "filter-options='-c eu'" -d myprinter myfile.afp

```

```

transform afp2pcl_eu
start-command = afp2pcld
maximum-active = 2
maximum-idle-time = 300 # 5 minutes
minimum-active = 1
environment = {
  AOP_CHARS -> 60d9
  AOP_COLOR -> no
  AOP_CUTSHEET -> yes
  AOP_FONTLIB -> "sys1.font300"
  AOP_FONTMAP -> yes
  AOP_FORMDEF -> F1CP0110
  AOP_FORMDEFLIB -> "sys1.fdeflib inst.fdeflib"
  AOP_MSGFORMDEF -> F1CP0110
  AOP_MSGPAGEDEF -> P1P08682
  AOP_OVERLAYLIB -> "sys1.overlib inst.overlib"
  AOP_PAGEDEF -> P1P08682
  AOP_PAGEDEFLIB -> "sys1.pdeflib inst.pdeflib"
  AOP_PAGESEGLIB -> "sys1.pseglib inst.pseglib"
  AOP_PAPER -> "a4 a3 a4ee a4 a4 a4 a4 a4 a4 c5"
  AOP_PJL -> no
  AOP_POSITIONING_METHOD -> cell
  AOP_TRAYID -> "1 4 1 1 1 1 1 1 1 2"
}
;

```

---

## Customizing the AFP to PDF transform

To customize the AFP to PDF transform, do the tasks listed in this table. Required tasks are required by all installations. Optional tasks are required only if the listed condition applies to your installation.

Task	Condition	See page
Specifying transform options	Required	70
Setting up security for AFP resource libraries	Required	107
Customizing OCSF	Optional: To encrypt PDF documents	87
Writing a Password exit	Optional: To encrypt PDF documents with passwords	88
Adding paper sizes	Optional: If you have custom paper sizes	108
Adding fonts for font-mapping	Optional: If you have custom fonts	111
Scaling 240-pel to 300-pel fonts	Optional: If you have only 240-pel fonts	113

## Specifying transform options

You must create at least one transform entry in the Infoprint Server transform configuration file (**aopxfd.conf**) for the AFP to PDF transform. In the transform entry, you can specify:

- Environment variables that control the transform
- Attributes that control how the Infoprint Server Transform Manager manages the transform

For information about how to create and edit the Infoprint Server transform configuration file, see “Creating the transform configuration file (**aopxfd.conf**)” in *z/OS Infoprint Server Customization*. After you update the transform configuration file, you must restart the Infoprint Server Transform Manager.

**Tip:** After you restart the Transform Manager, check for error messages in the transform’s **stderr** file. If you find any error messages, fix the errors and restart the Transform Manager. For more information about how to find the transform message logs, see “Finding the transform stderr file” on page 137.

### Transform classes

If you want to specify different sets of transform options for different uses, you can create different classes of the AFP to PDF transform. For example, you might create a separate class for documents that require encryption.

For each transform class, you must create a separate transform entry. You select a name for the transform class in the transform entry (see the **transform** attribute).

To use a transform class, job submitters must specify the class name as an option (-c) on the **afp2pdf** transform command or in the **filter-options** job attribute, and administrators must specify the class name as a filter option (-c) in the printer definition. For example, these z/OS UNIX commands use the “encrypt” transform class:

```
afp2pdf -c encrypt -o myfile.pdf myfile.afp
lp -d myprinter -o "filter-options='-c encrypt'" myfile.afp
```

**Tip:** The sample transform configuration file, */usr/lpp/Printsrv/samples/aopxfd.conf*, shows examples of transform entries with different transform classes. Also, see “Examples -- Transform configuration file entries for the AFP to PDF transform” on page 86.

### Font-mapping options

The AFP to PDF transform can use 300-pel raster fonts (single-byte or double-byte) and AFP outline fonts (single-byte only). In addition, the transform can map single-byte 300-pel raster fonts to equivalent outline fonts. Outline fonts provide superior viewing and printing. Double-byte outline fonts are not supported.

To map raster fonts to outline fonts, the transform uses an internal font-mapping table that supports the Expanded Core Fonts feature of IBM AFP Font Collection V2, which provides single-byte fonts in both raster and outline formats. If the input document uses a raster font that does not have an equivalent outline font in the font-mapping table, the transform uses the raster font. You can customize the font-mapping table to add custom fonts used by your installation. For information, see “Adding fonts for font-mapping” on page 111.

Use these environment variables to control font-mapping in the transform configuration file:

- AOP\_FONTMAP:
  - The **yes** option (default) enables font-mapping. You should enable font-mapping because outline fonts provide superior viewing and printing.
  - The **no** option disables font-mapping. If your installation has not installed outline font libraries, you can disable font-mapping to avoid error messages. If the transform does not find an outline font in the system font libraries, the transform automatically disables font-mapping for the raster font. However, the transform writes an error message in the transform error log once for each missing outline font.
- AOP\_OUTLINES:
  - The **yes** option (default) causes the transform to include outline fonts in the output data.
  - The **builtin** option causes the transform to include only the names of outline fonts in the PDF document.

**Tip:** Select the **builtin** if you want to reduce the size of your PDF documents.

### Enhanced PDF options

The AFP to PDF transform lets you select options that enhance viewing and navigation in PDF documents. To select these options, use these environment variables:

- AOP\_INDEX: Creates bookmarks in PDF documents for improved navigation.
- AOP\_INDEX\_LANG: Specifies the code page for the language for converting text in bookmarks.
- AOP\_LINEARIZE: Optimizes PDF documents for fast viewing from the Web.
- AOP\_LINKS: Creates links in PDF documents for improved navigation.
- AOP\_ROTATE\_PDF: Specifies how to rotate PDF documents for easier viewing.

### PDF encryption options

The AFP to PDF transform can encrypt PDF documents. For an overview of encryption, see “Encrypting PDF documents” on page 11.

Use these environment variables to specify encryption options in the transform configuration file:

- AOP\_ENCRYPT: Enables encryption.
 

When you enable encryption, the transform encrypts documents if either of these conditions is met:

  - The job submitter specifies a user or owner identifier in a job attribute, or submits a print job to a printer definition that specifies a user or owner identifier.
  - The AOP\_PROTECT environment variable is specified in the AFP to PDF transform class.
- AOP\_PASSWORD\_EXIT: The name of your Password exit and optional arguments. The transform calls this exit to obtain PDF owner and user passwords when an owner or user identifier is specified.
 

This environment variable is used if encryption is enabled and a user or owner identifier is specified. Otherwise it is ignored.
- AOP\_PROTECT: The actions to be restricted in all PDF documents when no identifiers are specified. You can restrict copying, printing, and updating PDF documents.
 

This environment variable is ignored if either a user or owner identifier is specified.

**Tip:** Consider specifying the AOP\_PROTECT environment variable in a separate transform class. Use this transform class only for documents you want to restrict actions on. You might want to set up several transform classes with different restrictions. For example, you could set up a class that restricts printing PDF documents, and another class that restricts changing PDF documents.

## Default AFP resources

AFP resources are collections of data and control information that the transforms use to create PDF documents. You can specify default AFP resources (such as a default font, form definition, and page definition) in the transform configuration file and in printer definitions. AFP resources specified in a printer definition override default resources specified in the transform entry. If only a few printers use different default AFP resources, you might want to specify these default AFP resources in the printer definitions.

In most situations, you should specify the same default AFP resources that your AFP printers use. These default resources are specified either in the PSF startup procedures (in the PRINTDEV statements) or, if PSF is configured to obtain PRINTDEV values from the Printer Inventory, in the PSF FSA definitions in the Printer Inventory.

Use these environment variables to specify default AFP resources in the transform configuration file:

- AOP\_CHARS: The default font used for transform error messages and for line data and AFP data that does not specify another font.
- AOP\_FORMDEF: The default form definition used when no other form definition is specified.
- AOP\_PAGDEF: The default page definition used when no other page definition is specified.

**Search hierarchy for form definitions:** The transform uses this hierarchy to select the name of the form definition:

1. The form definition specified in the **form-definition** job attribute or FORMDEF JCL parameter.
2. The form definition specified in the **Form definition** field in the printer definition.
3. The first inline form definition.
4. The form definition specified in the AOP\_FORMDEF environment variable in the transform configuration file.
5. Form definition F1CP0111. This default is coded in the transform.

### Tips:

1. If form definition name **dummy** is specified, the transform uses the first inline form definition.
2. After the transform determines the name of the form definition, the transform first searches for the form definition inline in the data set, and then searches in the user and system resource libraries.

**Search hierarchy for page definitions:** The transform uses this hierarchy to select the name of the page definition:

1. The page definition specified in the **page-definition** job attribute or the PAGEDEF or FCB JCL parameter. (The PAGEDEF parameter overrides the FCB parameter.)

2. The default page definition supplied by JES to IP PrintWay basic mode. (See Tips.)
3. The page definition specified in the **Page definition** field in the printer definition.
4. The first inline page definition.
5. The page definition specified in the AOP\_PAGDEF environment variable in the transform configuration file.
6. Page definition P1P08682. This default is coded in the transform.

**Tips:**

1. If page definition name **dummy** is specified, the transform uses the first inline page definition.
2. After the transform determines the name of the page definition, the transform first searches for the page definition inline in the data set, and then searches in the user and system resource libraries.
3. JES supplies a default page definition for batch jobs submitted to IP PrintWay basic mode with OUTPUT and DD JCL statements. If you want to use the default page definition specified in the transform configuration file, you can request that JES not supply a default page definition to the IP PrintWay basic mode FSA. For more information about the JES initialization parameters to do this, see *z/OS Infoprint Server Customization*.

**Search hierarchy for the default font:** The transform uses this hierarchy to select a font for line data and AFP data that does not specify a font:

1. The font named in the page definition.
2. The font specified in the **chars** job attribute or the CHARS or UCS JCL parameter. (The CHARS JCL parameter overrides the UCS parameter.)
3. The default font supplied by JES to IP PrintWay basic mode. (See Tip.)
4. The font specified in the **Character set** field in the printer definition.
5. The font specified in the AOP\_CHARS environment variable in the transform configuration file. The transform prefixes X0 to the font named in the variable if you do not specify a prefix.
6. Font X060D9. This default is coded in the transform.

**Tip:** JES supplies a default font for jobs submitted to IP PrintWay basic mode with OUTPUT and DD JCL statements. If you want to use the default font specified in the transform configuration file, you can request that JES not supply a default font to the IP PrintWay basic mode FSA. For more information about the JES initialization parameters to do this, see *z/OS Infoprint Server Customization*.

**Search hierarchy for the message font:** The transform uses this hierarchy to select a font used for transform error messages:

1. The font named in the page definition specified in the AOP\_MSGPAGEDEF environment variable.
2. The font specified in the AOP\_CHARS environment variable in the transform configuration file. The transform prefixes X0 to the font named in the variable if you do not specify a prefix.
3. Font X060D9. This default is coded in the transform.

## AFP system resources libraries

In the transform entry, you can specify from 1 to 8 AFP system resource libraries for fonts, page definitions, form definitions, page segments, and overlays. You can specify from 1 to 8 AFP user resource libraries in printer definitions.

In most situations, you should specify the same AFP system resource libraries in the transform configuration file as you currently specify in your PSF startup procedures. If only a few printers require different resource libraries, you can specify those libraries in the printer definitions for the printers.

Use these environment variables to specify system resource libraries in the transform configuration file:

- AOP\_FONTLIB: The names of 1 to 8 system font libraries
- AOP\_FORMDEFLIB: The names of 1 to 8 system form definition libraries
- AOP\_OVERLAYLIB: The names of 1 to 8 system overlay libraries
- AOP\_PAGEDEFLIB: The names of 1 to 8 system page definition libraries
- AOP\_PAGESEGLIB: The names of 1 to 8 system page segment libraries

AFP user resource libraries can be specified in job attributes, JCL parameters, and in the printer definition.

The transforms use this hierarchy when searching AFP resource libraries:

1. User resource libraries specified in the **resource-library** job attribute or USERLIB JCL parameter.
2. Default user resource libraries specified in the **Resource library** field in the printer definition. These libraries are searched only when the job submitter does not specify any user resource libraries (see step 1).
3. System resource libraries specified in environment variables in the transform configuration file.
4. Default system resource libraries that are hard-coded in the transform. These libraries are searched only if no system resource libraries are specified in the transform configuration file (see step 3).

## Format of an AFP to PDF transform entry

The format of an AFP to PDF transform entry in the transform configuration file (**aopxfd.conf**) is:

```
transform afp2pdf[_transformclass]
  start-command = afp2pdf
  [ environment = {name -> value [ name -> value]... } ]
  [ maximum-active = number ]
  [ maximum-idle-time = seconds ]
  [ minimum-active = number ]
;
```

**transform afp2pdf[\_transformclass]**

This statement indicates the beginning of a transform entry.

**afp2pdf**

The name of the transform.

*transformclass*

The name of an optional transform class. Specify from 1 to 63 characters, including letters, numbers, or special characters. The name of the transform class is case-sensitive.

**Default:** No transform class.

**Example:** transform afp2pdf\_encrypt

**start-command = afp2pdfd**

The name of the transform daemon. If the transform daemon is not in a directory identified in the PATH environment variable specified in the **aopstart** EXEC, specify the full directory path name of the daemon. (The **afp2pdfd** daemon is installed in **/usr/lpp/Printsrv/bin.**) This attribute is required.

**Default:** None.

**Example:** start-command = /usr/lpp/Printsrv/bin/afp2pdfd

**environment = {name -> value [name -> value]... }**

Environment variables that specify transform options. Enclose the entire set of environment variables in braces. The values in these environment variables override environment variables with the same name that are set in the **aopstart** EXEC. If a value contains special characters or spaces, enclose the value in single or double quotation marks

For information about the environment variables you can specify, see "Environment variables for the AFP to PDF transform."

**Default:** None.

**Example:**

environment = {AOP\_ENCRYPT -> yes}

**maximum-active = number**

The maximum number of transform daemons that the Transform Manager activates concurrently. Specify a number greater than 0 and greater than or equal to the number specified in the **minimum-active** attribute. For more information, see "Format of a transform entry" in *z/OS Infoprint Server Customization*.

**Default:** No maximum number. Transform daemons are started when needed.

**maximum-idle-time = seconds**

The number of seconds before the Transform Manager shuts down an idle transform daemon and system resources are freed. Specify a number greater than 0. For more information, see "Format of a transform entry" in *z/OS Infoprint Server Customization*.

**Default:** Idle transform daemons are not shut down.

**minimum-active = number**

The minimum number of transform daemons that the Transform Manager activates concurrently. Specify a number less than or equal to the number specified in the **maximum-active** attribute. For more information, see "Format of a transform entry" in *z/OS Infoprint Server Customization*.

**Default:** minimum-active = 0

## Environment variables for the AFP to PDF transform

You can specify environment variables to:

- Specify default AFP resources, such as the default form definition and page definition.
- Specify AFP system resource libraries.
- Select transform functions, such as whether to enable encryption.
- Name the paper sizes in AFP input trays.

You can specify these environment variables. All environment variables are optional.

#### **\_BPX\_JOBNAME**

The job name for this transform. When you assign a different job name to each class of transform, the operator can manage the transform daemons more effectively. Specify a job name of 1 to 8 alphanumeric characters. Incorrect job names are ignored. For more information about the `_BPX_JOBNAME` variable, see *z/OS UNIX System Services Planning*.

**Default:** The job name is AOPXFD.

**Example:** environment = {`_BPX_JOBNAME -> AFP2PDFD`}

#### **AOP\_ANNOTATIONS**

Indicates whether the transform is to produce annotations in the PDF document. The transform can create an annotation on each page. The annotation contains printing instructions such as "Normal duplex Front side". For more information about annotations, see the online help provided with Adobe Acrobat. Valid values are:

**yes** The transform produces annotations.

**no** The transform does not produce annotations.

**Default:** AOP\_ANNOTATIONS -> yes

**Example:** environment = {AOP\_ANNOTATIONS -> no}

#### **AOP\_ASSUME\_RIDIC\_UNPAD**

Indicates whether all G4 MMR (Modified Modified READ (ITU-TSS T.6 Group 4 two-dimensional coding standard for facsimile)) images are unpadded RIDIC. In some IOCA images the RECID incorrectly states that the encoding is RIDIC when it is actually unpadded RIDIC. If the RECID for the G4 MMR image specifies RIDIC, but the width of the image is not padded with zeros, set AOP\_ASSUME\_RIDIC\_UNPAD-> yes.

Valid values are:

**yes** Ignore the G4 MMR RECID setting and process all G4 MMR images as unpadded.

**no** Decode G4 MMR images as specified in the RECID.

**Default:** AOP\_ASSUME\_RIDIC\_UNPAD -> no

**Example:** environment = {AOP\_ASSUME\_RIDIC\_UNPAD -> yes}

#### **AOP\_CHARS**

The default coded font. The transform uses this font to format error messages unless the page definition specified in the AOP\_MSGPAGEDEF variable names a font. The transforms also use this font for (1) line data when no other font is specified in the page definition used to format the document and (2) AFP data when no other font is specified in the AFP data stream.

Specify the 1 to 4 character coded font name. You can specify the X0 or XZ prefix of the coded font name. If you do not specify a prefix, the transform adds an X0 prefix. Some coded fonts have 6-character names, not counting the X0 or XZ prefix. For these fonts, use the 4-character alternate coded font name. For font names and alternate font names, see *IBM AFP Fonts: Font Summary for AFP Font Collection*.

If the default font is a raster font (indicated by the X0 prefix), the transform maps it to an outline font if AOP\_FONTMAP -> yes.

**Rules:**

- Specify only one default coded font in this environment variable.
- The font you specify, or default font X060D9, must exist in one of the AFP font libraries so that the transform can write error messages in the output. The coded font member for a raster font, for example X060D9, must exist in an AFP font library specified to the transform, even if the transform maps raster to outline fonts.
- The code page associated with this coded font must be an EBCDIC code page.

**Tips:**

- You might want to specify the same font as the resident font in the AFP printer to which output is usually printed.
- Specify an outline font because outline fonts provide higher quality output for printing and viewing.

**Default:** AOP\_CHARS -> 60d9 (This is font X060D9 because the transform adds prefix X0.)

**Example:** environment = {AOP\_CHARS -> 60d8}

**AOP\_CUTSHEET**

Indicates whether the transform is to prepare the output for printing on a cutsheet printer. Valid values are:

**yes** The output is to be printed on a cutsheet printer. Therefore, the transform uses the cutsheet specification in the form definition to determine whether to send medium orientation information to the printer. For more information about the cutsheet specification in the form definition, see the description of the CUTSHEET command in *IBM Page Printer Formatting Aid: User's Guide*.

**Tip:** Select this option if your output is incorrectly printing in the down direction on a cutsheet printer.

**no** The output is not to be printed on a cutsheet printer. Therefore, the transform always sends medium orientation information to the printer.

**Default:** AOP\_CUTSHEET -> no

**Example:** environment = {AOP\_CUTSHEET -> no}

**AOP\_ENCRYPT**

Indicates whether you want the transform to encrypt documents.

**Rule:** Before setting AOP\_ENCRYPT -> yes, you must customize the Open Cryptographic Services Facility (OCSF). If OCSF is not customized, transform requests fail. For information, see "Customizing OCSF" on page 87.

**yes** The transform encrypts documents if (1) the transform request specifies a user or owner identifier or (2) the AOP\_PROTECT environment variable is specified.

**no** The transform does not encrypt documents. Transform requests that specify user or owner identifiers fail.

**Default:** AOP\_ENCRYPT -> no

**Example:** environment = {AOP\_ENCRYPT -> yes}

**AOP\_FAIL\_ON\_IMAGE\_ERROR**

Indicates whether the transform continues to process the document when the transform cannot decode an IOCA image because of certain compression padding errors. Some compression algorithms cause unpadded RIDIC images to be read as padded RIDIC by the transform.

Valid values are:

**yes** If the transform cannot decode an IOCA image, it issues a message and stops processing the document.

**no** If the transform cannot decode an IOCA image, it issues a message, stops processing the image, and continues with the next MO:DCA statement.

**retrycont**

If the transform cannot decode a G4 MMR (Modified Modified READ (ITU-TSS T.6 Group 4 two-dimensional coding standard for facsimile)) image, it tries to process the image again as unpadded RIDIC (if the RECID indicates RIDIC) or as RIDIC (if the RECID indicates unpadded RIDIC). If the transform still cannot decode the G4 MMR image, or if the image is not a G4 MMR image, the transform issues an error message, stops processing the image, and continues with the next MO:DCA statement.

**retryfail**

If the transform cannot decode a G4 MMR (Modified Modified READ (ITU-TSS T.6 Group 4 two-dimensional coding standard for facsimile)) image, it tries to process the image again as unpadded RIDIC (if the RECID indicates RIDIC) or as RIDIC (if the RECID indicates unpadded RIDIC). If the transform still cannot decode the G4 MMR image, or if the image is not a G4 MMR image, the transform issues a message and stops processing the document.

**Default:** AOP\_FAIL\_ON\_IMAGE\_ERROR -> yes

**Example:** environment = {AOP\_FAIL\_ON\_IMAGE\_ERROR -> no}

**AOP\_FLATE**

Indicates whether the transform is to use the Adobe Flate compression algorithm to compress the output. Valid values are:

**yes** The transform produces compressed output.

**no** The transform does not produce compressed output. However, throughput is higher.

**Default:** AOP\_FLATE -> yes

**Example:** environment = {AOP\_FLATE -> yes}

**AOP\_FONTLIB**

The AFP system resource libraries that contain fonts. Specify 1 to 8 data set names. Separate each name with a space. Libraries are searched in the order listed.

Specify the AFP 300-pel raster and outline font libraries used by your installation:

- Specify AFP 300-pel raster font libraries if either (1) AOP\_CHARS specifies a raster font or (2) documents to be transformed reference raster fonts and AOP\_FONTMAP-> no.
- Specify AFP outline font libraries if either (1) data to be transformed references outline fonts or (2) AOP\_FONTMAP -> yes.

**Default:** AOP\_FONTLIB -> "sys1.font300 sys1.fontln"

**Examples:**

```
environment={AOP_FONTLIB -> "sys1.font300 \  
sys1.fontln inst.font300"}
```

The backslash in this example indicates that the text within the quotation marks continues on the next line.

```
environment={AOP_FONTLIB -> "sys1.font300"}
```

**AOP\_FONTMAP**

Indicates whether the transform maps AFP raster fonts to outline fonts. Although the AFP to PDF transform can use either raster or outline fonts, outline fonts provide higher quality output for printing and viewing. Valid values are:

**yes** The transform maps fonts.

**no** The transform does not map fonts.

**Tip:** Enable font-mapping because outline fonts provide higher quality output for viewing and printing.

**Default:** AOP\_FONTMAP -> yes

**Example:** environment = {AOP\_FONTMAP -> yes}

**AOP\_FORMDEF**

The default form definition used to format the input data stream and create PDF output. Specify the 1 to 8 character form definition name, with or without the F1 prefix. If you omit the F1 prefix, the transform adds it.

The transform uses this form definition only if no other form definition is specified.

**Default:** AOP\_FORMDEF -> F1CP0110

**Example:** environment = {AOP\_FORMDEF -> F1CP0111}

**AOP\_FORMDEFLIB**

The AFP system resource libraries that contain form definitions. Specify from 1 to 8 data set names. Separate each name with a space. Libraries are searched in the order listed.

**Default:** AOP\_FORMDEFLIB -> "sys1.fdeflib"

**Example:** environment = {AOP\_FORMDEFLIB -> "sys1.fdeflib inst.fdeflib"}

**AOP\_INDEX**

Indicates whether the transform is to create PDF bookmarks in the PDF document when the input AFP document contains Tag Logical Elements (TLE) structured fields. For example, a table of contents in an AFP document can be converted to a set of PDF bookmarks. Adobe Acrobat Reader displays PDF bookmarks in its navigation pane. For more information about bookmarks, see the online help provided with Adobe Acrobat. Valid values are:

**yes** The transform creates bookmarks in the PDF document.

**no** The transform does not create bookmarks in the PDF document.

**Default:** AOP\_INDEX -> no

**Example:** environment = {AOP\_INDEX -> yes}

## AOP\_INDEX\_LANG

The default code page the transform uses to translate text in the PDF bookmarks. This code page is used for line-data documents and when the AFP Begin Document structured field in an AFP document does not contain a document language. Valid values are:

Code page	Description
037	USA, Canada, Australia, New Zealand
273	Austria, Germany
274	Belgium
275	Brazil
277	Denmark, Norway
278	Finland, Sweden
280	Italy
281	Japan Latin
282	Portugal
284	Spain, Latin America
285	UK
297	France
500	International
871	Iceland

**Default:** AOP\_INDEX\_LANG -> 037

**Example:** environment = {AOP\_INDEX\_LANG->500}

## AOP\_LINEARIZE

Indicates whether the transform is to linearize PDF documents so that they can be viewed faster from the Web. This function is especially important for large PDF documents that can take a long time to download. In Adobe Acrobat online help, this function is called *optimization* and *Fast Web View*. Adobe Acrobat Reader displays the first page of a linearized PDF document before the entire document has been loaded from a Web site. For more information about optimization, see the online help provided with Adobe Acrobat. Valid values are:

- yes** The transform optimizes the PDF document for fast viewing from the Web.
- no** The transform does not optimize the PDF document for fast viewing from the Web.

**Tip:** When you select linearization, the transform uses additional memory because the entire PDF document is kept in memory while it is being linearized.

**Default:** AOP\_LINEARIZE -> no

**Example:** environment = {AOP\_LINEARIZE -> yes}

## AOP\_LINKS

Indicates whether the transform is to create links in the PDF document when the input AFP document contains Link Logical Elements (LLE) structured fields. If the Object Classification Triplet in the LLE indicates an executable program link, the transform creates a Uniform Resource Locator (URL) in the PDF document. Valid values are:

- yes** The transform creates links in the PDF document.
- no** The transform does not create links in the PDF document.

**Default:** AOP\_LINKS -> no

**Example:** environment = {AOP\_LINKS -> yes}

#### **AOP\_MSGFORMDEF**

The form definition used to format transform error messages. Specify the 1 to 8 character form definition name, with or without the F1 prefix. If you omit the F1 prefix, the transform adds it. This form definition must be located in one of the libraries specified in the AOP\_FORMDEFLIB variable.

**Default:** AOP\_MSGFORMDEF -> F1CP0110

**Example:** environment = {AOP\_MSGFORMDEF -> F1CP0111}

#### **AOP\_MSGPAGEDEF**

The page definition used to format transform error messages. Specify the 1 to 8 character page definition name, with or without the P1 prefix. If you omit the P1 prefix, the transform adds it. This page definition must be located in one of the libraries specified in the AOP\_PAGEDEFLIB variable. The transform formats messages for the first paper size defined in the AOP\_PAPER variable.

**Recommendation:** Use page definition P1P08682 for letter size paper, and page definition P1Q09182 for A4 paper.

**Default:** AOP\_MSGPAGEDEF -> P1P08682

**Example:** environment = {AOP\_MSGPAGEDEF -> P1P06362}

#### **AOP\_OUTLINES**

The type of processing the transform does for outline fonts. Valid values are:

##### **builtin**

The transform includes only the names of outline fonts in the PDF output. Outline fonts themselves are not included in the output. When the PDF output is viewed or printed, the PDF driver (for example, Adobe Acrobat or a PDF printer) maps the requested typeface to an equivalent typeface. This option produces smaller output files than when fonts are included in the output. However, differences in output appearance can result due to the mapping done by the PDF driver. For example, font spacing might be different, and if you use special characters or if you use characters or glyphs that are unknown to the PDF driver, these characters will not be visible.

**yes** The transform includes outline fonts in the PDF output. This option provides better output fidelity than the **builtin** option. However, each typeface increases the size of the PDF output file by approximately 110K.

**Default:** AOP\_OUTLINES -> yes

**Example:** environment = {AOP\_OUTLINES -> builtin}

#### **AOP\_OVERLAYLIB**

The AFP system resource libraries that contain overlays. Specify from 1 to 8 data set names. Separate each name with a space. Libraries are searched in the order listed.

**Default:** AOP\_OVERLAYLIB -> "sys1.overlib"

**Example:** environment = {AOP\_OVERLAYLIB -> "sys1.overlib inst.overlib"}

#### **AOP\_PAGEDEF**

The default page definition used to format line data. Specify the 1 to 8 character page definition name, with or without the P1 prefix. If you omit the P1 prefix, the transform adds it. The transform uses this page definition only if no other page definition is specified.

**Recommendation:** Use page definition P1P08682 for letter size paper, and page definition P1Q09182 for A4 paper.

**Default:** AOP\_PAGEDEF -> P1P08682

**Example:** environment = {AOP\_PAGEDEF -> P1Q09182}

#### **AOP\_PAGEDEFLIB**

The AFP system resource libraries that contain page definitions. Specify from 1 to 8 data set names. Separate each name with a space. Libraries are searched in the order listed.

**Default:** AOP\_PAGEDEFLIB -> "sys1.pdeflib"

**Example:** environment = {AOP\_PAGEDEFLIB -> "sys1.pdeflib inst.pdeflib"}

#### **AOP\_PAGESEGLIB**

The AFP system resource libraries that contain page segments. Specify from 1 to 8 data set names. Separate each name with a space.

**Default:** AOP\_PAGESEGLIB -> "sys1.pseglib"

**Example:** environment = {AOP\_PAGESEGLIB -> "sys1.pseglib inst.pseglib"}

#### **AOP\_PAPER**

The name of the paper that is typically installed in each AFP input tray. The transform formats the PDF output for the paper in the first AFP input tray ID the document selects.

The position (1 through 9) of each paper name represents the number of the AFP input tray. The 10th position represents any AFP input tray number greater than 9.

You can specify from 1 to 10 paper names. Separate each name with a space. If you specify fewer than 10 paper names, the transform sends an error message and uses the default tray number. To avoid an error message, specify 10 tray IDs.

For more information about the paper names you can specify and how to add custom paper names, see "Adding paper sizes" on page 108.

Valid paper names and their sizes (width x height) are:

<b>Paper Name</b>	<b>Size</b>
<b>a3</b>	292.25 x 413.25 mm
<b>a4</b>	210 x 297 mm
<b>a4ee</b>	210 x 297 mm
<b>a5</b>	148.3 x 210 mm
<b>b4</b>	250 x 353 mm
<b>b5</b>	176 x 250 mm
<b>c5</b>	162 x 229 mm (6.48 x 9.16 in.)
<b>com10</b>	4.125 x 9.5 in. (104.8 x 241.3 mm)
<b>dl</b>	110 x 220 mm (4.4 x 8.8 in)
<b>executive</b>	7.25 x 10.5 in (185 x 267 mm)
<b>ledger</b>	11 x 17 in (279 x 432 mm)
<b>legal</b>	8.5 x 14.0 in (216 x 356 mm)
<b>letter</b>	8.5 x 11.0 in (216 x 279 mm)
<b>letteree</b>	8.5 x 11.0 in (216 x 279 mm)
<b>monarch</b>	3.875 x 7.5 in. (98.4 x 190.5 mm)

**Tip:** Use the **a4ee** and **letteree** paper names when the printer is configured to print edge-to-edge. However, if the printer does not support edge-to-edge

printing, documents created for edge-to-edge printing have the outside 50 pels, approximately 4 millimeters, of output cut off.

**Default:** AOP\_PAPER -> "letter letter letter letter letter letter letter letter letter letter"

**Example:**

```
environment = {AOP_PAPER -> "letter legal letteree letter \  
letter letter letter letter letter letter"}
```

The backslash in this example indicates that the text within the quotation marks continues on the next line.

If the document to be transformed specifies:

- AFP input tray 1, the transform formats the output for letter size paper.
- AFP input tray 2, the transform formats the output for legal size paper.
- AFP input tray 3, the transform formats the output for letteree size paper.
- AFP input tray M or any other tray, the transform formats the output for letter size paper.

**AOP\_PASSWORD\_EXIT**

The name of the Password exit and optional arguments. The transform calls the Password exit to obtain PDF owner and user passwords for encryption when a user identifier or owner identifier is specified.

Specify the full path name of the Password exit unless it is in a directory named in the LIBPATH environment variable. Also, specify any optional arguments that your Password exit accepts.

A sample Password exit is provided in **/usr/lpp/Printsrv/lib/aoppdfexit.dll**. This sample exit accepts the name of the password database as an optional argument (if none is specified, the sample exit uses **/etc/Printsrv/aoppdfexit.db**). For information about the sample Password exit, see "Writing a Password exit" on page 88.

**Default:** AOP\_PASSWORD\_EXIT -> "/usr/lpp/Printsrv/lib/aoppdfexit.dll"

**Example:** In this example, the argument is the name of the sample password database that the transform provides.

```
environment = {AOP_PASSWORD_EXIT -> "/usr/lpp/Printsrv/lib/aoppdfexit.dll \  
/usr/lpp/Printsrv/samples/aoppdfexit.db"}
```

The backslash in this example indicates that the text within the quotation marks continues on the next line.

**AOP\_POSITIONING\_METHOD**

Indicates how the transform is to position GOCA characters. For information about GOCA character positioning, see *Data Stream and Objects Architectures: Graphics Object Content Architecture for Advanced Function Presentation Reference*, S544-5498.

Valid values are:

- cell** The transform scales the GOCA characters using the cell size in the GOCA data stream, with a default cell size of (1,1) graphic units. Characters are scaled using the maximum baseline extent in the y direction and the maximum character increment in the x direction. The printed output from the transform is similar to the output on older IBM AFP printers, such as the IBM 3812 printer.

**Tip:** This positioning method can cause undesirable output if the GOCA data stream does not specify a cell size and the transform uses the default cell size. In this case, specify either the SCALE or FONT method.

**font** Positions the characters like normal text using the font size in the GOCA data stream. Characters are not scaled, and the cell size in the GOCA data stream is ignored. The printed output will be similar to the output on most newer AFP printers. This positioning method is likely to produce the most readable output.

**scale** Scales the GOCA characters using the cell size in the GOCA data stream, with a default cell size of (140,230) graphic units. Characters are scaled using 0.6 of the point size in both the x and y directions. The scaled characters are proportionately spaced and positioned 10% over the baseline. The printed output from the transform is similar to the output on IBM AFP printers with "GCS=CHAR SCALE" selected, such as the IBM Infoprint 40 printer.

**Default:** AOP\_POSITIONING\_METHOD -> cell

**Example:** environment = {AOP\_POSITIONING\_METHOD -> font}

### AOP\_PROTECT

The actions the transform is to restrict in all PDF documents when the transform job does not specify either a user or owner identifier.

The transform encrypts the PDF documents and restricts the specified actions. However, the encrypted PDF documents do not have user passwords. This means that anyone can read them without a password. The transform uses a low level of encryption (a 40-bit encryption key).

If a transform job specifies a user or owner identifier, the transform ignores this variable and encrypts the PDF document using the passwords associated with the identifiers. It restricts the actions specified in the **pdf-protect** job attribute or in the printer definition.

Valid values are:

Value:	Actions users cannot do:
<b>select</b>	<ul style="list-style-type: none"> <li>• Copy or extract content to another document</li> <li>• Extract content for accessibility</li> </ul>
<b>print</b>	<ul style="list-style-type: none"> <li>• Print at low resolution (150 dpi)</li> <li>• Print at high resolution</li> </ul>
<b>modify</b>	<ul style="list-style-type: none"> <li>• Change the document</li> <li>• Assemble the document (insert, delete, rotate pages)</li> <li>• Create template pages</li> </ul>

**Default:** None

**Example:** environment = {AOP\_PROTECT -> "select print modify"}

### AOP\_RESOLUTION

The resolution used to print images. If you specify a resolution, the transform scales all images, if necessary, to the resolution before sending them to the printer. Specify the correct resolution for the printers.

The **-r** option specified on the transform command or for the transform filter in the printer definition overrides this environment variable.

Valid values are:

- 300** The transform scales images to 300 pels per inch.
- 600** The transform scales images to 600 pels per inch.
- input** The transform does not scale images. The printer scales images to the resolution of the printer.

**Tips:**

1. Some printers do not scale images well. If you specify **input**, and the images do not print well, specify the resolution of the printer.
2. The **AOP\_RESOLUTION** environment variable does not affect text or bar codes. The transform always creates 300-pel bar codes.

**Default:** **AOP\_RESOLUTION** -> 300

**Example:** environment = {**AOP\_RESOLUTION** -> **input**}

**AOP\_ROTATE\_PDF**

Indicates how the transform is to rotate PDF documents. For example, some pages (such as those that contain tables) might require the PDF document to be turned sideways to be read. Valid values are:

- no** The rotation in the form definition is used (**PRESENT** keyword).
- auto** The rotation on each page is the same as the direction of the first character on the page.
- 0** The PDF document is not rotated.
- 90** The entire PDF document is rotated 90 degrees.
- 180** The entire PDF document is rotated 180 degrees.
- 270** The entire PDF document is rotated 270 degrees.

**Tip:** Rotating PDF documents can change the way the PDF documents print. If PDF documents do not print correctly using the **no** value, try the **0** value.

**Default:** **AOP\_ROTATE\_PDF** -> **no**

**Example:** environment = {**AOP\_ROTATE\_PDF** -> **auto**}

**AOP\_SIMULATE\_240\_DPI**

Indicates whether character size recalculation is performed on 300 dpi fixed metric fonts.

IBM AFP 300 dpi fonts are typically supplied in a relative metric format instead of fixed metric. If the transform finds fixed metrics for 300 dpi fonts it assumes they were converted from 240 dpi fonts and recalculates character size to compensate for a rounding error. If the 300 dpi fixed metric fonts were not converted from 240 dpi, the transform introduces a positioning error when recalculating the character size. Setting **AOP\_SIMULATE\_240\_DPI** to **NO** prevents the transform from recalculating the character size and prevents the positioning error.

Valid values are:

- yes** The transform recalculates character size to compensate for presumed rounding errors in 300 DPI raster fonts.
- no** No character size recalculation is done.

**Default:** **AOP\_SIMULATE\_240\_DPI** -> **yes**

**Example:** environment = {**AOP\_SIMULATE\_240\_DPI** -> **no**}

## AOP\_TRAYID

Indicates whether an AFP tray number is valid. The position (1 - 9) of each value corresponds to the AFP tray number. The 10th position corresponds to all AFP input tray numbers greater than 9. Valid values are:

- 1 The AFP tray number is valid.
- 0 The AFP tray number is not valid. If the AFP document requests this tray, the transform writes an error message.

**Tip:** To avoid transform error messages, either omit this variable or specify the default value.

**Default:** AOP\_TRAYID -> "1 1 1 1 1 1 1 1 1 1"

### Example:

```
environment = {AOP_TRAYID -> "1 1 1 1 1 1 1 1 1 1"}
```

## Examples -- Transform configuration file entries for the AFP to PDF transform

This section shows sample transform entries in the Infoprint Server transform configuration file (**aopxfd.conf**) for the AFP to PDF transform.

**Enhance viewing of PDF documents:** This transform entry enables transform options that enhance viewing of PDF documents. The environment variables to enable these functions are shown in **bold** text. For more information about these environment variables, see "Enhanced PDF options" on page 71.

```
transform afp2pdf
start-command = afp2pdfd
minimum-active = 1
maximum-active = 2
maximum-idle-time = 300 # 5 minutes
environment = {
  _BPX_JOBNAME -> AFP2PDFD
  AOP_ANNOTATIONS -> yes
  AOP_CHARS -> 60D9
  AOP_CUTSHEET -> yes
  AOP_ENCRYPT -> no
  AOP_FLATE -> yes
  AOP_FONTLIB -> "sys1.font300 sys1.fonto1n"
  AOP_FONTMAP -> yes
  AOP_FORMDEF -> F1CP0110
  AOP_FORMDEFLIB -> "sys1.fdeflib"
  AOP_INDEX -> yes
  AOP_INDEX_LANG -> 037
  AOP_LINEARIZE -> yes
  AOP_LINKS -> yes
  AOP_MSGFORMDEF -> F1CP0110
  AOP_MSGPAGEDEF -> P1P08682
  AOP_OUTLINES -> yes
  AOP_OVERLAYLIB -> "sys1.overlib"
  AOP_PAGEDEF -> P1P08682
  AOP_PAGEDEFLIB -> "sys1.pdeflib"
  AOP_PAGESEGLIB -> "sys1.pseglib"
  AOP_PAPER ->
    "letter letter letter letter letter letter letter letter letter letter"
  AOP_POSITIONING_METHOD -> cell
  AOP_ROTATE_PDF -> auto
  AOP_TRAYID -> "1 1 1 1 1 1 1 1 1 1"
}
```

**Encrypt PDF documents:** This transform entry enables encryption and also restricts actions in all PDF documents. The environment variables used for

encryption are shown in **bold** text. For more information about these environment variables, see “PDF encryption options” on page 71.

This transform entry creates transform class “encrypt”. To use this transform class, specify the class in the **-c** transform option as shown in these two examples:

```
afp2pdf -c encrypt -o myfile.pdf myfile.afp
lp -o "filter-options='-c encrypt'" -d myprinter myfile.afp

transform afp2pdf_encrypt
start-command = afp2pdfd
minimum-active = 1
maximum-active = 2
maximum-idle-time = 300 # 5 minutes
environment = {
  _BPX_JOBNAME -> AFP2PDFD
  AOP_ANNOTATIONS -> yes
  AOP_CHARS -> 60D9
  AOP_CUTSHEET -> no
  AOP_ENCRYPT -> yes
  AOP_FLATE -> yes
  AOP_FONTLIB -> "sys1.font300 sys1.fonto1n"
  AOP_FONTMAP -> yes
  AOP_FORMDEF -> F1CP0110
  AOP_FORMDEFLIB -> "sys1.fdeflib"
  AOP_INDEX -> yes
  AOP_INDEX_LANG -> 037
  AOP_LINEARIZE -> yes
  AOP_LINKS -> yes
  AOP_MSGFORMDEF -> F1CP0110
  AOP_MSGPAGEDEF -> P1P08682
  AOP_OUTLINES -> yes
  AOP_OVERLAYLIB -> "sys1.overlib"
  AOP_PAGEDEF -> P1P08682
  AOP_PAGEDEFLIB -> "sys1.pdeflib"
  AOP_PAGESEGLIB -> "sys1.pseglib"
  AOP_PAPER ->
    "letter letter letter letter letter letter letter letter letter"
  AOP_PASSWORD_EXIT -> -> "/usr/lpp/Printsrv/lib/aopdfexit.dll"
  AOP_PROTECT -> "modify print select"
  AOP_POSITIONING_METHOD -> cell
  AOP_ROTATE_PDF -> no
  AOP_TRAYID -> "1 1 1 1 1 1 1 1 1 1"
}
;
```

## Customizing OCSF

To encrypt PDF documents, you must install and customize Open Cryptographic Services Facility (OCSF) with the Security Level 3 feature of OCSF. OCSF is part of z/OS Cryptographic Services.

To install and configure OCSF, follow the instructions in “Chapter 1. Configuring and Getting Started” in *z/OS Open Cryptographic Services Facility Application Programming*.

OCSF requires that the user ID that starts Infoprint Server daemons have READ access to these profiles in the RACF FACILITY class:

- BPX.SERVER
- CDS.CSSM
- CDS.CSSM.CRYPTO
- CDS.CSSM.DATALIB

Users who start Infoprint Server must be members of the AOPOPER RACF group, or have a UID of 0. (AOPOPER is the default group name for Infoprint Server operators. However, your installation can assign a different name to this group.) Therefore, you should give the AOPOPER group READ access to these profiles. If someone with a user ID of 0 who is not a member of the AOPOPER group can start Infoprint Server (for example, using the **aopstart** command), you must also give this user READ access to the profiles.

**Example:** These RACF commands give the AOPOPER group READ access to the required profiles, and refreshes the FACILITY class:

```
PERMIT BPX.SERVER CLASS(FACILITY) ACCESS(READ) ID(AOPOPER)
PERMIT CDS.CSSM CLASS(FACILITY) ACCESS(READ) ID(AOPOPER)
PERMIT CDS.CSSM.CRYPTO CLASS(FACILITY) ACCESS(READ) ID(AOPOPER)
PERMIT CDS.CSSM.DATALIB CLASS(FACILITY) ACCESS(READ) ID(AOPOPER)
SETROPTS RACLIST(FACILITY) REFRESH
```

## Writing a Password exit

To encrypt PDF documents with passwords, you must write a Password exit. The Password exit provides passwords to the AFP to PDF transform.

**Tip:** To encrypt PDF documents without passwords, you do not need to write a Password exit. For information, see “PDF encryption options” on page 71.

The types of PDF passwords are:

### User password

Lets someone open an encrypted PDF document. A user password is optional. If a user password is not specified, anyone can open the encrypted PDF document.

### Owner password

Lets you restrict actions in an encrypted PDF document. The owner password also lets someone open an encrypted PDF document and bypass restrictions. An owner password is optional. However, it is required to restrict actions.

The Password exit can do these functions:

- **Provide user and owner passwords:**

The AFP to PDF transform passes one or two identifiers to the Password exit as input -- a user identifier and an owner identifier. (The Password exit is called only when at least one identifier is specified.) Typically, job submitters specify these identifiers in job attributes. However, the administrator can also specify identifiers in printer definitions.

Your installation can decide what identifiers to use. For example, identifiers can be z/OS user IDs, e-mail addresses, or a combination of different types of identifiers. See “Input to the Password exit” on page 89 for rules pertaining to identifiers.

The Password exit must return a password for each identifier that is passed as input to the exit. See “Output from the Password exit” on page 90 for rules pertaining to passwords.

To map identifiers to passwords, your Password exit can use a password database in any format. For example, your Password exit can use a password database that already exists for other purposes. Or, you could create a password database that only your Password exit uses.

**Tip:** Your Password exit can return a password even when an identifier is not specified as input. For example, your Password exit could provide a default owner password when no owner identifier is specified.

- **(Optional) Specify restricted actions:**

The AFP to PDF transform passes a list of restricted actions to the Password exit as input. The job submitter specifies the restricted actions in a job attribute, or the administrator can specify them in the printer definition. If no restricted actions have been specified for a job, the default is not to restrict actions. This default is passed to the exit.

Your Password exit can change the restricted actions. However, if your Password exit restricts actions, it must also return an owner password.

**Programming considerations:**

- The Password exit must be program-controlled.
- The Password exit runs with UID 0.
- Do not send a long-term explicit or implied WAIT in the Password exit.
- The Password exit runs in 31-bit addressing mode, in problem state.
- Code the Password exit to be reentrant.
- Programming exceptions cause Infoprint Server to abend so test your Password exit carefully. An ESTAE is in effect while the exit is running.
- Future maintenance might require that you recompile the exit.

**Input to the Password exit**

- Arguments (optional): You can define arguments in the AOP\_PASSWORD\_EXIT environment variable in the transform configuration file. For example, you might want to pass the name of the password database as an argument to your Password exit.
- User identifier (optional): The user identifier. This identifier can be specified either in the **pdf-user-identifier** job attribute or in the **User identifier** field in the printer definition. Although the user identifier is optional, the transform calls the Password exit only if a user identifier or owner identifier is specified.
- Owner identifier (optional): The owner identifier. This identifier can be specified either in the **pdf-owner-identifier** job attribute or in the **Owner identifier** field in the printer definition. Although the owner identifier is optional, the transform calls the Password exit only if a user identifier or owner identifier is specified.
- Protected actions (optional): A list of actions that are to be restricted in the PDF document. These restricted actions can be specified either in the **pdf-protect** job attribute or in the **Protected actions** field in the printer definition. For information about the values in this list, see the description of the **pdf-protect** job attribute in “Job attributes for encrypting PDF documents” on page 37.

**Rules for identifiers:**

- The identifier can contain any combination of 1-256 letters, numbers, blanks, and special characters.
- The identifier is passed to the exit in EBCDIC representation (IBM-1047 code page).
- The identifier is passed to the exit with the same case as it was specified. However, your password exit could ignore the identifier's case. The sample Password exit does not ignore the identifier's case.

## Output from the Password exit

- User password (optional): The password for the user identifier.
- Owner password (optional): The password for the owner identifier.
- Protected actions: A list of actions that are to be restricted in the PDF document. For information about the actions that can be protected, see the description of the **pdf-protect** job attribute in “Job attributes for encrypting PDF documents” on page 37.

### Rules for passwords:

- Passwords can be 1 to 256 characters.
- Adobe Acrobat allows passwords that contain blanks or special characters. However, if you use the sample Password exit, passwords cannot contain blanks or the pound sign (#).
- If a user identifier or owner identifier is input to the Password exit, it must return a password for the identifier or the job fails.
- If your Password exit returns a list of protected actions, it must also return an owner password or the job fails.
- The user and owner passwords must not be the same.
- Passwords must be in ASCII representation because PDF viewers expect ASCII passwords. For example, use ASCII code page ISO8859-1.

## Sample Password exit

IBM provides a sample Password exit and sample password database:

- **/usr/lpp/Printsrv/lib/aoppdfexit.dll**: This sample Password exit looks up passwords in the sample password database and returns a password for each identifier that is passed to it as input. It does not change the restricted actions. The sample Password exit accepts the name of the password database as an argument. If no argument is specified for the sample exit in the `AOP_PASSWORD_EXIT` environment variable, the exit looks for the database in **/etc/Printsrv/aoppdfexit.db**.
- **/usr/lpp/Printsrv/samples/aoppdfexit.db**: A sample password database that maps identifiers to passwords. To use the sample database with the sample exit, copy it to **/etc/Printsrv/aoppdfexit.db** because the sample exit looks for the password database in that location.

IBM provides the source code for the sample Password exit (**aoppdfexit.dll**) in these files:

- **/usr/lpp/Printsrv/samples/aoppdfexit.h**: A header file that contains declarations and interface descriptions.  
**Rule:** Do not change the contents of this file.
- **/usr/lpp/Printsrv/samples/aoppdfexit.c**: The source code for the sample Password exit.

## Steps for writing and installing a Password exit

1. Modify file **/usr/lpp/Printsrv/samples/aoppdfexit.c**, which contains the source code for the sample Password exit.  
File **/usr/lpp/Printsrv/samples/aoppdfexit.h** contains declarations and interface descriptions.
2. Link your Password exit as a dynamic link library (DLL). Follow instructions in **/usr/lpp/Printsrv/samples/aoppdfexit.h**.

- 
3. Mark the UNIX file or MVS data set that contains your Password exit program-controlled. If the Password exit is in a UNIX file, use the z/OS UNIX **extattr** command to do this.

**Example:**

```
exattr +p /etc/Printsrv/mypdfexit.dll
```

**Tip:** To use the **+p** option of the **extattr** command, you must have at least READ access to the BPX.FILEATTR.PROGCTL FACILITY class profile.

---

4. Set the permissions so that the file is owned and executable by UID 0 and with no group or other permissions.

**Example:**

```
su
chown 0 /etc/Printsrv/mypdfexit.dll
chmod 700 /etc/Printsrv/mypdfexit.dll
```

**Tip:** To use the **chown** command, you must have an effective UID of 0. You can use the **su** command to switch to an effective UID of 0 if you are permitted to the BPX.SUPERUSER profile in the FACILITY class in RACF.

---

5. Specify the name of the Password exit and optional arguments in the AOP\_PASSWORD\_EXIT environment variable in the transform configuration file, **aopxfd.conf**. For information, see “Environment variables for the AFP to PDF transform” on page 75.

**Example:**

```
environment = {AOP_PASSWORD_EXIT -> "/etc/Printsrv/mypdfexit.dll"}
```

**Tip:** To edit the transform configuration file, you must have an effective UID of 0.

---

6. If you switched to an effective UID of 0 in step 4, switch back to your own user ID.

**Example:**

```
exit
```

---

7. Restart the Transform Manager to pick up the changes to the transform configuration file and to load your Password exit. For example, use the AOPSTOP and AOPSTART JCL procedures to stop and restart the Transform Manager:

```
START AOPSTOP,OPTIONS='-d xfd'
START AOPSTART
```

---

**Rule:** If you modify the Password exit in the future, restart the Transform Manager to reload it.

## Steps for writing a Password database

1. Create the password database. If you want to use the sample password database, copy it from **/usr/lpp/Printsrv/samples/aoppdfexit.db** to another directory and follow instructions in the sample database to add the user identifiers, owner identifiers, and passwords for your installation.

**Example:**

```
su
cp /usr/lpp/Printsrv/samples/aopdfexit.db /etc/Printsrv/aopdfexit.db
```

**Tip:** To copy the sample password database, you must have an effective UID of 0. You can use the **su** command to switch to an effective UID of 0 if you are permitted to the BPX.SUPERUSER profile in the FACILITY class in RACF.

---

2. Set the z/OS UNIX permissions of the database so that it is owned by UID 0 and with no group or other permissions.

**Example:**

```
su
chown 0 /etc/Printsrv/mypdfexit.db
chmod 700 /etc/Printsrv/mypdfexit.db
```

**Tip:** To use the **chown** command, you must have an effective UID of 0. You can use the **su** command to switch to an effective UID of 0 if you are permitted to the BPX.SUPERUSER profile in the FACILITY class in RACF.

---

3. (Optional) If your password exit accepts the name of the password database as an argument, specify the argument in the AOP\_PASSWORD\_EXIT environment variable in the transform configuration file, **aopxfd.conf**.

**Example:**

```
environment = {AOP_PASSWORD_EXIT -> "/etc/Printsrv/mypdfexit.dll \
/etc/Printsrv/mypdfexit.db"}
```

The backslash in this example indicates that the text within the quotation marks continues on the next line.

**Tip:** To edit the transform configuration file, you must have an effective UID of 0.

---

4. If you switched to an effective UID of 0 in step 1 or step 2, switch back to your own user ID.

**Example:**

```
exit
```

---

5. If you modified the transform configuration file, restart the Transform Manager to pick up the changes. For example, use the AOPSTOP and AOPSTART JCL procedures to stop and restart the Transform Manager:

```
START AOPSTOP,OPTIONS='-d xfd'
START AOPSTART
```

---

**Tip:** If you modify the Password database without changing the transform configuration file, you do not need to restart the Transform Manager.

---

## Customizing the AFP to PostScript transform

To customize the AFP to PostScript transform, do the tasks listed in this table. Required tasks are required by all installations. Optional tasks are required only if the listed condition applies to your installation.

Task	Condition	See page
Specifying transform options	Required	93
Setting up security for AFP resource libraries	Required	107
Adding paper sizes	Optional: If you have custom paper sizes	108
Adding fonts for font-mapping	Optional: If you have custom fonts	111
Scaling 240-pel to 300-pel fonts	Optional: If you have only 240-pel fonts	113

### Specifying transform options

You must create at least one transform entry in the Infoprint Server transform configuration file (**aopxfd.conf**) for the AFP to PostScript transform. In the transform entry, you can specify:

- Environment variables that control the transform
- Attributes that control how the Infoprint Server Transform Manager manages the transform.

For information about how to create and edit the Infoprint Server transform configuration file, see “Creating the transform configuration file (**aopxfd.conf**)” in *z/OS Infoprint Server Customization*. After you update the transform configuration file, you must restart the Infoprint Server Transform Manager.

**Tip:** After the Transform Manager starts, check for error messages in the transform's **stderr** file. If you find any error messages, fix the errors and restart the Transform Manager. For more information about how to find the transform message logs, see “Finding the transform stderr file” on page 137.

### Transform classes

If you need to specify different transform options for different printers, you can create different classes of the AFP to PostScript transform. For example, you could create classes for printers that print on different paper sizes.

For each transform class, you must create a separate transform entry. You select a name for the transform class in the transform entry (see the **transform** attribute).

To use a transform class, job submitters must specify the class name as an option (-c) on the **afp2ps** transform command or in the **filter-options** job attribute, and administrators must specify the class name as a filter option (-c) in the printer definition. For example, these z/OS UNIX commands use the “eu” transform class:

```
afp2ps c eu -o myfile.ps myfile.afp
lp -d myprinter -o "filter-options='-c eu'" myfile.afp
```

**Tip:** The sample transform configuration file, **/usr/lpp/Printsrv/samples/aopxfd.conf**, shows examples of transform entries with different transform classes. Also, see “Examples -- Transform configuration file entries for the AFP to PostScript transform” on page 106.

## Font-mapping options

The AFP to PostScript transform can use 300-pel raster fonts (single-byte or double-byte) and AFP outline fonts (single-byte only). The transform can map single-byte 300-pel raster fonts to equivalent outline fonts. Outline fonts provide superior viewing and printing. Double-byte outline fonts are not supported.

To map raster fonts to outline fonts, the transform uses an internal font-mapping table that supports the Expanded Core Fonts feature of IBM AFP Font Collection V2, which provides single-byte fonts in both raster and outline formats. If the input document uses a raster font that does not have an equivalent outline font in the font-mapping table, the transform uses the raster font. You can customize the font-mapping table to add custom fonts used by your installation. For information, see “Adding fonts for font-mapping” on page 111.

Use this environment variable to control font-mapping in the transform configuration file:

AOP\_FONTMAP:

- The **yes** option (default) enables font-mapping. You should enable font-mapping because outline fonts provide superior viewing and printing.
- The **no** option disables font-mapping. If your installation has not installed outline font libraries, you can disable font-mapping to avoid error messages. If the transform does not find an outline font in the system font libraries, the transform automatically disables font-mapping for the raster font. However, the transform writes an error message in the transform error log once for each missing outline font.

## Default AFP resources

AFP resources are collections of data and control information that the transforms use to create PostScript documents. You can specify default AFP resources (such as a default font, form definition, and page definition) in the transform configuration file and in printer definitions. AFP resources specified in a printer definition override default resources specified in the transform entry. If only a few printers use different default AFP resources, you might want to specify these default AFP resources in the printer definitions.

In most situations, you should specify the same default AFP resources that your AFP printers use. These default resources are specified either in the PSF startup procedures (in the PRINTDEV statements) or, if PSF is configured to obtain PRINTDEV values from the Printer Inventory, in the PSF FSA definitions in the Printer Inventory.

Use these environment variables to specify default AFP resources in the transform configuration file:

- AOP\_CHARS: The default font used for transform error messages and for line data and AFP data that does not specify another font.
- AOP\_FORMDEF: The default form definition used when no other form definition is specified.
- AOP\_PAGEDDEF: The default page definition used when no other page definition is specified.

**Search hierarchy for form definitions:** The transform uses this hierarchy to select the name of the form definition:

1. The form definition specified in the **form-definition** job attribute or FORMDEF JCL parameter.

2. The form definition specified in the **Form definition** field in the printer definition.
3. The first inline form definition.
4. The form definition specified in the AOP\_FORMDEF environment variable in the transform configuration file.
5. Form definition F1CP0111. This default is coded in the transform.

**Tips:**

1. If form definition name **dummy** is specified, the transform uses the first inline form definition.
2. After the transform determines the name of the form definition, the transform first searches for the form definition inline in the data set, and then searches in the user and system resource libraries.

**Search hierarchy for page definitions:** The transform uses this hierarchy to select the name of the page definition:

1. The page definition specified in the **page-definition** job attribute or the PAGEDEF or FCB JCL parameter. (The PAGEDEF parameter overrides the FCB parameter.)
2. The default page definition supplied by JES to IP PrintWay basic mode. (See Tips.)
3. The page definition specified in the **Page definition** field in the printer definition.
4. The first inline page definition.
5. The page definition specified in the AOP\_PAGEDEF environment variable in the transform configuration file.
6. Page definition P1P08682. This default is coded in the transform.

**Tips:**

1. If page definition name **dummy** is specified, the transform uses the first inline page definition.
2. After the transform determines the name of the page definition, the transform first searches for the page definition inline in the data set, and then searches in the user and system resource libraries.
3. JES supplies a default page definition for batch jobs submitted to IP PrintWay basic mode with OUTPUT and DD JCL statements. If you want to use the default page definition specified in the transform configuration file, you can request that JES not supply a default page definition to the IP PrintWay basic mode FSA. For more information about the JES initialization parameters to do this, see *z/OS Infoprint Server Customization*.

**Search hierarchy for fonts:** The transform uses this hierarchy to select a font for line data and AFP data that does not specify a font:

1. The font named in the page definition.
2. The font specified in the **chars** job attribute or the CHARS or UCS JCL parameter. (The CHARS JCL parameter overrides the UCS parameter.)
3. The default font supplied by JES to IP PrintWay basic mode. (See Tip.)
4. The font specified in the **Character set** field in the printer definition.
5. The font specified in the AOP\_CHARS environment variable in the transform configuration file. The transform prefixes X0 to the font named in the variable if you do not specify a prefix.
6. Font X060D9. This default is coded in the transform.

**Tip:** JES supplies a default font for jobs submitted to IP PrintWay basic mode with OUTPUT and DD JCL statements. If you want to use the default font specified in the transform configuration file, you can request that JES not supply a default font to the IP PrintWay basic mode FSA. For more information about the JES initialization parameters to do this, see *z/OS Infoprint Server Customization*.

**Search hierarchy for the message font:** The transform uses this hierarchy to select a font for transform error messages:

1. The font named in the page definition specified in the AOP\_MSGPAGEDEF environment variable.
2. The font specified in the AOP\_CHARS environment variable in the transform configuration file. The transform prefixes X0 to the font named in the variable if you do not specify a prefix.
3. Font X060D9. This default is coded in the transform.

### **AFP system resources libraries**

In the transform entry, you can specify from 1 to 8 AFP system resource libraries for fonts, page definitions, form definitions, page segments, and overlays. You can specify from 1 to 8 AFP user resource libraries in printer definitions.

In most situations, you should specify the same AFP system resource libraries in the transform configuration file as you currently specify in your PSF startup procedures. If only a few printers require different resource libraries, you can specify those libraries in the printer definitions for the printers.

Use these environment variables to specify system resource libraries in the transform configuration file:

- AOP\_FONTLIB: The names of 1 to 8 system font libraries.
- AOP\_FORMDEFLIB: The names of 1 to 8 system form definition libraries.
- AOP\_OVERLAYLIB: The names of 1 to 8 system overlay libraries.
- AOP\_PAGEDEFLIB: The names of 1 to 8 system page definition libraries.
- AOP\_PAGESEGLIB: The names of 1 to 8 system page segment libraries.

AFP user resource libraries can be specified in job attributes, JCL parameters, and in the printer definition.

The transforms use this hierarchy when searching AFP resource libraries:

1. User resource libraries specified in the **resource-library** job attribute or USERLIB JCL parameter.
2. Default user resource libraries specified in the **Resource library** field in the printer definition. These libraries are searched only when the job submitter does not specify any user resource libraries (see step 1).
3. System resource libraries specified in environment variables in the transform configuration file.
4. Default system resource libraries that are hard-coded in the transform. These libraries are searched only if no system resource libraries are specified in the transform configuration file (see step 3).

### **Format of an AFP to PostScript transform entry**

The format of an AFP to PostScript transform entry in the transform configuration file (**aopxfd.conf**) is:

```

transform afp2ps[_transformclass]
  start-command = afp2psd
  [ environment = {name -> value [ name -> value]... } ]
  [ maximum-active = number ]
  [ maximum-idle-time = seconds ]
  [ minimum-active = number ]
;

```

**transform afp2ps**[\_transformclass]

This statement indicates the beginning of a transform entry.

**afp2ps**

The name of the transform.

*transformclass*

The name of an optional transform class. Specify from 1 to 63 characters, including letters, numbers, or special characters. The name of the transform class is case-sensitive.

**Default:** No transform class.

**Example:** transform afp2ps\_us

**start-command = afp2psd**

The name of the transform daemon. If the transform daemon is not in a directory identified in the PATH environment variable specified in the **aopstart** EXEC, specify the full directory path name of the daemon. (The **afp2psd** daemon is installed in **/usr/lpp/Printsrv/bin.**) This attribute is required.

**Default:** None.

**Example:** start-command = /usr/lpp/Printsrv/bin/afp2psd

**environment = {name -> value [name -> value]... }**

Environment variables that specify transform options. Enclose the entire set of environment variables in braces. The values in these environment variables override environment variables with the same name that are set in the **aopstart** EXEC. If a value contains special characters or spaces, enclose the value in single or double quotation marks.

For information about the environment variables you can specify, see “Environment variables for the AFP to PostScript transform” on page 98.

**Default:** None.

**Example:**

```
environment = {AOP_COLOR -> yes}
```

**maximum-active = number**

The maximum number of transform daemons that the Transform Manager activates concurrently. Specify a number greater than 0 and greater than or equal to the number specified in the **minimum-active** attribute. For more information, see “Format of a transform entry” in *z/OS Infoprint Server Customization*.

**Default:** No maximum number. Transform daemons are started when needed.

**maximum-idle-time = seconds**

The number of seconds before the Transform Manager shuts down an idle transform daemon and system resources are freed. Specify a number greater than 0. For more information, see “Format of a transform entry” in *z/OS Infoprint Server Customization*.

**Default:** Idle transform daemons are not shut down.

**minimum-active = number**

The minimum number of transform daemons that the Transform Manager activates concurrently. Specify a number less than or equal to the number specified in the **maximum-active** attribute. For more information, see "Format of a transform entry" in *z/OS Infoprint Server Customization*.

**Default:** minimum-active = 0

## Environment variables for the AFP to PostScript transform

You can specify environment variables to:

- Specify default AFP resources, such as the default form definition and page definition.
- Specify AFP system resource libraries.
- Select transform functions, such as whether to create color output.
- Name the paper sizes in AFP input trays, and map AFP input tray IDs to PostScript input trays.

You can specify these environment variables. All environment variables are optional.

### **\_BPX\_JOBNAME**

The job name for this transform. When you assign a different job name to each class of transform, the operator can manage the transform daemons more effectively. Specify a job name of 1 to 8 alphanumeric characters. Incorrect job names are ignored. For more information about the `_BPX_JOBNAME` variable, see *z/OS UNIX System Services Planning*.

**Default:** The job name is AOPXFD.

**Example:** environment = {`_BPX_JOBNAME -> AFP2PSD`}

### **AOP\_ASSUME\_RIDIC\_UNPAD**

Indicates whether all G4 MMR (Modified Modified READ (ITU-TSS T.6 Group 4 two-dimensional coding standard for facsimile)) images are unpadding RIDIC. In some IOCA images the RECID incorrectly states that the encoding is RIDIC when it is actually unpadding RIDIC. If the RECID for the G4 MMR image specifies RIDIC, but the width of the image is not padded with zeros, set `AOP_ASSUME_RIDIC_UNPAD-> yes`.

Valid values are:

**yes** Ignore the G4 MMR RECID setting and process all G4 MMR images as unpadding.

**no** Decode G4 MMR images as specified in the RECID.

**Default:** `AOP_ASSUME_RIDIC_UNPAD -> no`

**Example:** environment = {`AOP_ASSUME_RIDIC_UNPAD -> yes`}

### **AOP\_CHARS**

The default coded font. The transforms use this font to format error messages unless the page definition specified in the `AOP_MSGPAGEDEF` variable names a font. The transforms also use this font for (1) line data when no other font is specified in the page definition used to print the document and (2) AFP data when no other font is specified in the AFP data stream.

If this environment variable is not specified, the default font is X060D9. The default font you specify, or font X060D9, must exist in one of the AFP font libraries so that the transform can write error messages in the output.

Specify the 1 to 4 character coded font name. You can specify the X0 or XZ prefix of the coded font name. If you do not specify a prefix, the transform adds an X0 prefix. Some coded fonts have 6-character names, not counting the X0 or XZ prefix. For these fonts, use the 4-character alternate coded font name. For font names and alternate font names, see *IBM AFP Fonts: Font Summary for AFP Font Collection*.

If the default font is a raster font (indicated by the X0 prefix), the transform maps it to an outline font if AOP\_FONTMAP -> yes.

**Rules:**

- Specify only one default coded font in this environment variable.
- The font you specify, or default font X060D9, must exist in one of the AFP font libraries so that the transform can write error messages in the output. The coded font member for a raster font, for example X060D9, must exist in an AFP font library specified to the transform, even if the transform maps raster to outline fonts.
- The code page associated with this coded font must be an EBCDIC code page.

**Tips:**

- You might want to specify the same font as the resident font in the AFP printer to which output is usually printed.
- Specify an outline font because outline fonts provide higher quality output for printing and viewing.

**Default:** AOP\_CHARS -> 60d9 (This is font X060D9 because the transform adds prefix X0.)

**Example:** environment = {AOP\_CHARS -> 60d8}

**AOP\_COLOR**

Indicates whether the transform is to produce color output. Specify **yes** if the printer supports color. Valid values are:

**yes** The transform produces color output.

**no** The transform does color simulation.

**Default:** AOP\_COLOR -> no

**Example:** environment = {AOP\_COLOR -> yes}

**AOP\_CUTSHEET**

Indicates whether the transform is to prepare the output for printing on a cutsheet printer. Valid values are:

**yes** The output is to be printed on a cutsheet printer. Therefore, the transform uses the cutsheet specification in the form definition to determine whether to send medium orientation information to the printer. For more information about the cutsheet specification in the form definition, see the description of the CUTSHEET command in *IBM Page Printer Formatting Aid: User's Guide*.

**Tip:** Select this option if your output is incorrectly printing in the down direction on a cutsheet printer.

**no** The output is not to be printed on a cutsheet printer. Therefore, the transform always sends medium orientation information to the printer.

**Default:** AOP\_CUTSHEET -> no

**Example:** environment = {AOP\_CUTSHEET -> no}

### AOP\_FAIL\_ON\_IMAGE\_ERROR

Indicates whether the transform continues to process the document when the transform cannot decode an IOCA image because of certain compression padding errors. Some compression algorithms cause unpadded RIDIC images to be read as padded RIDIC by the transform.

Valid values are:

**yes** If the transform cannot decode an IOCA image, it issues a message and stops processing the document.

**no** If the transform cannot decode an IOCA image, it issues a message, stops processing the image, and continues with the next MO:DCA statement.

#### retrycont

If the transform cannot decode a G4 MMR (Modified Modified READ (ITU-TSS T.6 Group 4 two-dimensional coding standard for facsimile)) image, it tries to process the image again as unpadded RIDIC (if the RECID indicates RIDIC) or as RIDIC (if the RECID indicates unpadded RIDIC). If the transform still cannot decode the G4 MMR image, or if the image is not a G4 MMR image, the transform issues an error message, stops processing the image, and continues with the next MO:DCA statement.

#### retryfail

If the transform cannot decode a G4 MMR (Modified Modified READ (ITU-TSS T.6 Group 4 two-dimensional coding standard for facsimile)) image, it tries to process the image again as unpadded RIDIC (if the RECID indicates RIDIC) or as RIDIC (if the RECID indicates unpadded RIDIC). If the transform still cannot decode the G4 MMR image, or if the image is not a G4 MMR image, the transform issues a message and stops processing the document.

**Default:** AOP\_FAIL\_ON\_IMAGE\_ERROR -> yes

**Example:** environment = {AOP\_FAIL\_ON\_IMAGE\_ERROR -> no}

### AOP\_FONTLIB

The AFP system resource libraries that contain fonts. Specify 1 to 8 data set names. Separate each name with a space. Libraries are searched in the order listed.

Specify the AFP 300-pel raster and outline font libraries used by your installation:

- Specify AFP 300-pel raster font libraries if either (1) you specify a raster font in the AOP\_CHARS environment variable or (2) documents to be transformed reference raster fonts and you specify AOP\_FONTMAP-> no.
- Specify AFP outline font libraries if either (1) data to be transformed references outline fonts or (2) you specify AOP\_FONTMAP -> yes.

**Default:** AOP\_FONTLIB -> "sys1.font300 sys1.fontln"

**Examples:**

```
environment={AOP_FONTLIB -> "sys1.font300 \  
  sys1.font01n inst.font300"}
```

The backslash in this example indicates that the text within the quotation marks continues on the next line.

```
environment={AOP_FONTLIB -> "sys1.font300"}
```

### **AOP\_FONTMAP**

Indicates whether the transform maps AFP raster fonts to outline fonts. Valid values are:

**yes** The transform maps fonts.

**no** The transform does not map fonts.

**Tip:** Enable font-mapping because outline fonts provide higher quality output for viewing and printing.

**Default:** AOP\_FONTMAP -> yes

**Example:** environment = {AOP\_FONTMAP -> no}

### **AOP\_FORMDEF**

The default form definition used to format the input data stream. Specify the 1 to 8 character form definition name, with or without the F1 prefix. If you omit the F1 prefix, the transform adds it.

The transform uses this form definition only if no other form definition is specified.

**Default:** AOP\_FORMDEF -> F1CP0110

**Example:** environment = {AOP\_FORMDEF -> F1CP0111}

### **AOP\_FORMDEFLIB**

The AFP system resource libraries that contain form definitions. Specify from 1 to 8 data set names. Separate each name with a space. Libraries are searched in the order listed.

**Default:** AOP\_FORMDEFLIB -> "sys1.fdeflib"

**Example:** environment = {AOP\_FORMDEFLIB -> "sys1.fdeflib inst.fdeflib"}

### **AOP\_MSGFORMDEF**

The form definition used to format transform error messages. Specify the 1 to 8 character form definition name, with or without the F1 prefix. If you omit the F1 prefix, the transform adds it. This form definition must be located in one of the libraries specified in the AOP\_FORMDEFLIB variable.

**Default:** AOP\_MSGFORMDEF -> F1CP0110

**Example:** environment = {AOP\_MSGFORMDEF -> F1CP0111}

### **AOP\_MSGPAGEDEF**

The page definition used to format transform error messages. Specify the 1 to 8 character page definition name, with or without the P1 prefix. If you omit the P1 prefix, the transform adds it. This page definition must be located in one of the libraries specified in the AOP\_PAGEDFLIB variable. The transform formats messages for the first paper size defined in the AOP\_PAPER variable.

**Recommendation:** Use page definition P1P08682 for letter size paper, and page definition P1Q09182 for A4 paper.

**Default:** AOP\_MSGPAGEDEF -> P1P08682

**Example:** environment = {AOP\_MSGPAGEDEF -> P1P06362}

## AOP\_OFFSET\_JOGGING

Indicates how the transform supports offset stacking (also called jogging). Offset stacking is requested in the form definition (medium map). If the form definition requests offset stacking, the transform can offset, shift, or rotate each subset in the output depending on the printer support. The printer must support PJI commands.

Valid values are:

- no** The transform ignores offset stacking requested in the form definition.
- rotate** The transform rotates the output by creating a new printer job for each subset and specifying the PJI DEFAULT JOBOFFSET=ROTATE command for the job. Printers that support this PJI command include some Ricoh printers.
- shift** The transform shifts the output by creating a new printer job for each subset and specifying the PJI DEFAULT JOBOFFSET=SHIFT command for the job. Printers that support this PJI command include some Ricoh printers.
- yes | on**  
The transform offsets the output by creating a new printer job for each subset and specifying the PJI DEFAULT JOBOFFSET=ON command for the job. (Value "yes" is the same as "on".)

**Rule:** If you specify rotate, shift, yes, or on, the printer must support PJI commands. In addition, you must specify the AOP\_PJI -> yes environment variable.

If you specify AOP\_PJI -> yes and use the IP PrintWay extended mode Direct Sockets protocol to send documents to the printer, do not select the "Record pages printed for accounting" and "Restart printing after last successful page" options in the printer definition for the printer. This is because a PJI JOB command in the document can conflict with the PJI JOB command that IP PrintWay adds to the document to track the number of pages that print successfully.

**Default:** AOP\_OFFSET\_JOGGING -> no

**Example:** environment = {AOP\_OFFSET\_JOGGING -> yes}

**Note:** If you specify rotate, shift, yes, or on, fonts are sent to the printer again for each new printer job, which can adversely affect performance. In addition, other documents might print between the printer jobs.

## AOP\_OVERLAYLIB

The AFP system resource libraries that contain overlays. Specify from 1 to 8 data set names. Separate each name with a space. Libraries are searched in the order listed.

**Default:** AOP\_OVERLAYLIB -> "sys1.overlib"

**Example:** environment = {AOP\_OVERLAYLIB -> "sys1.overlib inst.overlib"}

## AOP\_PAGEDEF

The default page definition used to format line data. Specify the 1 to 8 character page definition name, with or without the P1 prefix. If you omit the P1 prefix, the transform adds it. The transform uses this page definition only if no other page definition is specified.

**Recommendation:** Use page definition P1P08682 for letter size paper, and page definition P1Q09182 for A4 paper.

**Default:** AOP\_PAGEDEF -> P1P08682

**Example:** environment = {AOP\_PAGEDEF -> P1Q09182}

### AOP\_PAGEDEFLIB

The AFP system resource libraries that contain page definitions. Specify from 1 to 8 data set names. Separate each name with a space. Libraries are searched in the order listed.

**Default:** AOP\_PAGEDEFLIB -> "sys1.pdeflib"

**Example:** environment = {AOP\_PAGEDEFLIB -> "sys1.pdeflib inst.pdeflib"}

### AOP\_PAGESEGLIB

The AFP system resource libraries that contain page segments. Specify from 1 to 8 data set names. Separate each name with a space.

**Default:** AOP\_PAGESEGLIB -> "sys1.pseglib"

**Example:** environment = {AOP\_PAGESEGLIB -> "sys1.pseglib inst.pseglib"}

### AOP\_PAPER

The name of the paper that is typically installed in each AFP input tray. The transform formats the PostScript output for the paper in the AFP input tray ID the document selects.

The position (1 through 9) of each paper name represents the number of the AFP input tray. The 10th position represents any AFP input tray number greater than 9.

You can specify from 1 to 10 paper names. Separate each name with a space. If you specify fewer than 10 paper names, the transform sends an error message and uses the default tray number.

For more information about the paper names you can specify and how to add custom paper names, see "Adding paper sizes" on page 108.

Valid paper names and their sizes (width x height) are:

Paper Name	Size
a3	292.25 x 413.25 mm
a4	210 x 297 mm
a4ee	210 x 297 mm
a5	148.3 x 210 mm
b4	250 x 353 mm
b5	176 x 250 mm
c5	162 x 229 mm (6.48 x 9.16 in.)
com10	4.125 x 9.5 in. (104.8 x 241.3 mm)
dl	110 x 220 mm (4.4 x 8.8 in)
executive	7.25 x 10.5 in (185 x 267 mm)
ledger	11 x 17 in (279 x 432 mm)
legal	8.5 x 14.0 in (216 x 356 mm)
letter	8.5 x 11.0 in (216 x 279 mm)
letteree	8.5 x 11.0 in (216 x 279 mm)
monarch	3.875 x 7.5 in. (98.4 x 190.5 mm)

**Tip:** Use the **a4ee** and **letteree** paper names when the printer is configured to print edge-to-edge. However, if the printer does not support edge-to-edge printing, documents created for edge-to-edge printing have the outside 50 pels, approximately 4 millimeters, of output cut off.

**Default:** AOP\_PAPER -> "letter letter letter letter letter letter letter letter letter letter"

**Example:**

```
environment = {AOP_PAPER -> "letter legal letteree letter \
letter letter letter letter letter letter"}
```

The backslash in this example indicates that the text within the quotation marks continues on the next line.

If the document to be transformed specifies:

- AFP input tray 1, the transform formats the output for letter size paper.
- AFP input tray 2, the transform formats the output for legal size paper.
- AFP input tray 3, the transform formats the output for letteree size paper.
- AFP input tray M or any other tray, the transform formats the output for letter size paper.

**AOP\_PJL**

Indicates whether the printer accepts all PCL 5 commands, including PJL commands. All printers that support PCL 5 support PJL commands. Some printers that support only PCL 4 do not support PJL commands. Sometimes, a printer that does not support PJL commands prints a smiley face where a PJL command occurs in the data stream or prints the PJL command on the first page. Valid values are:

- yes** The printer accepts PJL commands.
- no** The printer does not accept PJL commands. Therefore, the AFP to PostScript transform does not create PJL commands.

**Default:** AOP\_PJL -> no

**Example:** environment = {AOP\_PJL -> yes}

**Tip:** If you use IP PrintWay extended mode, specify AOP\_PJL -> no because a PJL JOB command in the document can conflict with the PJL JOB command that IP PrintWay adds to the document to track the number of pages that print successfully.

**AOP\_POSITIONING\_METHOD**

Indicates how the transform is to position GOCA characters. For information about GOCA character positioning, see *Data Stream and Objects Architectures: Graphics Object Content Architecture for Advanced Function Presentation Reference*, S544-5498.

Valid values are:

- cell** The transform scales the GOCA characters using the cell size in the GOCA data stream, with a default cell size of (1,1) graphic units. Characters are scaled using the maximum baseline extent in the y direction and the maximum character increment in the x direction. The printed output from the transform is similar to the output on older IBM AFP printers, such as the IBM 3812 printer.

**Tip:** This positioning method can cause undesirable output if the GOCA data stream does not specify a cell size and the transform uses the default cell size. In this case, specify either the SCALE or FONT method.

- font** Positions the characters like normal text using the font size in the GOCA data stream. Characters are not scaled, and the cell size in the GOCA data stream is ignored. The printed output will be similar to the

output on most newer AFP printers. This positioning method is likely to produce the most readable output.

**scale** Scales the GOCA characters using the cell size in the GOCA data stream, with a default cell size of (140,230) graphic units. Characters are scaled using 0.6 of the point size in both the x and y directions. The scaled characters are proportionately spaced and positioned 10% over the baseline. The printed output from the transform is similar to the output on IBM AFP printers with "GCS=CHAR SCALE" selected, such as the IBM Infoprint 40 printer.

**Default:** AOP\_POSITIONING\_METHOD -> cell

**Example:** environment = {AOP\_POSITIONING\_METHOD -> font}

### AOP\_RESOLUTION

The resolution used to print images. If you specify a resolution, the transform scales all images, if necessary, to the resolution before sending them to the printer. Specify the correct resolution for the printers.

The **-r** option specified on the transform command or for the transform filter in the printer definition overrides this environment variable.

Valid values are:

**300** The transform scales images to 300 pels per inch.

**600** The transform scales images to 600 pels per inch.

**input** The transform does not scale images. The printer scales images to the resolution of the printer.

#### Tips:

1. Some printers do not scale images well. If you specify **input**, and the images do not print well, specify the resolution of the printer.
2. The AOP\_RESOLUTION environment variable does not affect text or bar codes. The transform always creates 300-pel bar codes.

**Default:** AOP\_RESOLUTION -> 300

**Example:** environment = {AOP\_RESOLUTION -> input}

### AOP\_SIMULATE\_240\_DPI

Indicates whether character size recalculation is performed on 300 dpi fixed metric fonts.

IBM AFP 300 dpi fonts are typically supplied in a relative metric format instead of fixed metric. If the transform finds fixed metrics for 300 dpi fonts it assumes they were converted from 240 dpi fonts and recalculates character size to compensate for a rounding error. If the 300 dpi fixed metric fonts were not converted from 240 dpi, the transform introduces a positioning error when recalculating the character size. Setting AOP\_SIMULATE\_240\_DPI to NO prevents the transform from recalculating the character size and prevents the positioning error.

Valid values are:

**yes** The transform recalculates character size to compensate for presumed rounding errors in 300 DPI raster fonts.

**no** No character size recalculation is done.

**Default:** AOP\_SIMULATE\_240\_DPI -> yes

**Example:** environment = {AOP\_SIMULATE\_240\_DPI -> no}

### AOP\_TRAYID

A mapping of AFP input tray numbers to PostScript tray IDs. The position (1 - 9) of each PostScript tray ID corresponds to the AFP tray number. The 10th position corresponds to all AFP input tray numbers greater than 9.

Specify 1 to 10 PostScript tray numbers, separating each number with a space. Number 0 (zero) indicates that an input tray is not installed in the printer. If the input document requests an input tray that is not installed, the transform writes an error message in the output file and uses printer tray 1.

The 10th position is reserved for the manual input tray. That is, if the AFP document selects tray M (manual) or any tray greater than 9, the transform maps the tray to the manual input tray on the PostScript printer regardless of the PostScript tray number you specify in the 10th position.

**Tip:** Specify the ID used by the PostScript printer to select each tray. This value, minus 1, corresponds to an entry in the **Priority** array in the **InputAttributes** dictionary for the PostScript printer. Printer-specific values are described in the PostScript PPD file for the printer.

**Default:** AOP\_TRAYID -> "1 2 0 0 0 0 0 0 2"

#### **Example:**

```
environment = {AOP_TRAYID -> "1 4 1 1 1 1 1 1 1 1"}
```

If the AFP document specifies:

- AFP input tray 1, the transform uses PostScript tray 1.
- AFP input tray 2, the transform uses PostScript tray 4.
- AFP input tray 3 through 9, the transform uses PostScript tray ID 1.
- AFP input tray M or any tray greater than 9, the transform uses the manual input tray.

## **Examples -- Transform configuration file entries for the AFP to PostScript transform**

This section shows sample transform entries in the Infoprint Server transform configuration file (**aopxfd.conf**) for the AFP to PostScript transform.

**Print on letter and legal size paper:** This transform entry can be used for printers that print on letter and legal size paper. To use this entry, do not specify a transform class.

```
transform afp2ps
start-command = afp2psd
minimum-active = 1
maximum-active = 2
maximum-idle-time = 300 # 5 minutes
environment = {
  _BPX_JOBNAME -> AFP2PSD
  AOP_CHARS -> 60d9
  AOP_COLOR -> no
  AOP_CUTSHEET -> yes
  AOP_FONTLIB -> "sys1.font300"
  AOP_FONTMAP -> yes
  AOP_FORMDEF -> F1CP0110
  AOP_FORMDEFLIB -> "sys1.fdeflib"
  AOP_MSGFORMDEF -> F1CP0110
  AOP_MSGPAGEDEF -> P1P08682
  AOP_OVERLAYLIB -> "sys1.overlib"
  AOP_PAGEDEF -> P1P08682
  AOP_PAGEDEFLIB -> "sys1.pdeflib"
```

```

AOP_PAGESEGLIB -> "sys1.pseglib"
AOP_PAPER ->
"letter legal letteree letter letter letter letter letter letter"
AOP_POSITIONING_METHOD -> cell
AOP_TRAYID -> "1 4 1 1 1 1 1 1 2"

}
;

```

**Print on A3, A4, and C5 paper:** This transform entry can be used for printers that print on A3, A4, and C5 paper. This transform entry creates transform class “eu”. To use this transform class, specify the class in the `-c` transform option as shown in these two examples:

```

afp2ps -c eu -o myfile.ps myfile.afp
lp -o "filter-options='-c eu'" -d myprinter myfile.afp

```

```

transform afp2ps_eu
start-command = afp2psd
minimum-active = 1
maximum-active = 2
maximum-idle-time = 300 # 5 minutes
environment = {
  _BPX_JOBNAME -> AFP2PSD
  AOP_CHARS -> 60d9
  AOP_COLOR -> no
  AOP_CUTSHEET -> yes
  AOP_FONTLIB -> "sys1.font300"
  AOP_FONTMAP -> yes
  AOP_FORMDEF -> F1CP0110
  AOP_FORMDEFLIB -> "sys1.fdeflib"
  AOP_MSGFORMDEF -> F1CP0110
  AOP_MSGPAGEDEF -> P1P08682
  AOP_OVERLAYLIB -> "sys1.overlib"
  AOP_PAGEDEF -> P1P08682
  AOP_PAGEDEFLIB -> "sys1.pdeflib"
  AOP_PAGESEGLIB -> "sys1.pseglib"
  AOP_PAPER -> "a4 a3 a4ee a4 a4 a4 a4 a4 c5"
  AOP_POSITIONING_METHOD -> cell
  AOP_TRAYID -> "1 4 1 1 1 1 1 1 2"
}
;

```

---

## Setting up security for AFP resource libraries

This section describes the RACF access that is required for AFP *system resource libraries* and *user resource libraries*.

- System resource libraries are libraries specified in the transform configuration file.
- User resource libraries are libraries specified in the (1) **Resource library** field in the printer definition, (2) `USERLIB` parameter of the `OUTPUT JCL` statement, or (3) **resource-library** job attribute.

This RACF access is required:

- The user ID that starts Infoprint Server must have RACF `READ` access to all system resource libraries and user resource libraries that the transform uses. Users who start Infoprint Server must be members of the `AOOPER` RACF group, or have a UID of 0. (`AOOPER` is the default group name for Infoprint Server operators. However, your installation can assign a different name to this group.) Therefore, you should give the `AOOPER` group `READ` access to the resource libraries. If someone with a user ID of 0 who is not a member of the

AOPOPER group can start Infoprint Server (for example, using the **aopstart** command), you must also give this user READ access to the resource libraries.

- Job submitters must have RACF READ access to all user AFP resource libraries that are specified in the printer definition, JCL statements, or job attributes.

In addition, job submitters must use a job submission method that authenticates their z/OS user IDs so that Infoprint Server can use the user ID to check RACF access to the resource libraries. Job submission methods that can authenticate z/OS user IDs include:

- **lp**, **afp2pcl**, **afp2pdf**, and **afp2ps** commands
- Windows SMB protocol
- AOPPRINT and AOPBATCH JCL procedures
- z/OS JCL that submits a print job to the Infoprint Server subsystem
- z/OS JCL that submits a print job to IP PrintWay extended mode

Job submitters who use other job submission methods, such as the Infoprint Port Monitor for Windows, can only use user AFP resource libraries that have universal READ access.

**Tips:**

- To limit access to AFP resources, your installation should use the AOPSTART JCL procedure (instead of the **aopstart** command) to start Infoprint Server. This is because you can associate one user ID with the AOPSTART JCL procedure, and this user ID can be the sole member of the AOPOPER group.
- Specify the RACF NOTIFY parameter in the RACF profiles for AFP resource libraries so that you can receive RACF messages when a user does not have READ access to an AFP resource library. Infoprint Server writes a message (AOP092E) to the common message log and job submitter (if the job submission method allows messages to be returned) when the user does not have READ access to the AFP resource libraries. However, Infoprint Server suppresses RACF messages for failed access checks if you do not request RACF notification in the RACF NOTIFY parameter (on the RDEFINE or RALTER command).

---

## Adding paper sizes

Table 10 summarizes the paper names and sizes that all the transforms support. You can specify these paper names in the AOP\_PAPER environment variable in the transform configuration file.

Most values in the table are expressed in 300 dots per inch (dpi). (To convert values to inches, divide the values by 300.) The origin of the X (width) and Y (height) coordinates is the top, left corner of the page.

*Table 10. Paper names and dimensions*

Paper name	Paper size (in or mm)	Paper size (300 dpi)	Printable area origin (300 dpi)	Printable area size (300 dpi)	Logical page origin (300 dpi)	Logical page size (300 dpi)	PCL paper type ID
a3	292.25 x 413.25 mm	3507,4960	50,50	3407,4860	71,0	3365,4960	27
a4	210 x 297 mm	2480,3507	50,50	2380,3407	71,0	2338,3507	26
a4ee*	210 x 297 mm	2480,3507	0,0	2480,3507	0,0	2480,3507	26
a5	148.3 x 210 mm	1748,2480	50,50	1648,2380	71,0	1606,2480	25

Table 10. Paper names and dimensions (continued)

Paper name	Paper size (in or mm)	Paper size (300 dpi)	Printable area origin (300 dpi)	Printable area size (300 dpi)	Logical page origin (300 dpi)	Logical page size (300 dpi)	PCL paper type ID
b4	250 x 353 mm	3035,4299	50,50	2935,4199	71,0	2893,4299	46
b5	176 x 250 mm	2149,3035	50,50	2049,2935	71,0	2007,3035	45
c5	162 x 229 mm (6.48 x 9.16 in.)	1913,2704	50,50	1813,2604	71,0	1771,2704	91
com10	4.125 x 9.5 in. (104.8 x 241.3 mm)	1237,2850	50,50	1137,2750	75,0	1087,2850	81
dl	110 x 220 mm (4.4 x 8.8 in)	1299,2598	50,50	1199,2498	71,0	1157,2598	90
executive	7.25 x 10.5 in (185 x 267 mm)	2175,3150	50,50	2075,3050	75,0	2025,3150	1
ledger	11 x 17 in (279 x 432 mm)	3300,1500	50,50	3200,5000	75,0	3150,5100	6
legal	8.5 x 14.0 in (216 x 356 mm)	2550,4200	50,50	2450,4100	75,0	2400,4200	3
letter	8.5 x 11.0 in (216 x 279 mm)	2550,3300	50,50	2450,3200	75,0	2400,3300	2
letteree*	8.5 x 11.0 in (216 x 279 mm)	2550,3300	0,0	2550,3300	0,0	2550,3300	2
monarch	3.87 x 7.5 in (98.4 x 190.5 mm)	1162,2250	50,50	1062,2150	75,0	1012,2250	80

\* Use the **a4ee** and **letteree** paper names when the printer is configured for edge-to-edge printing. However, if the printer does not support edge-to-edge printing, documents created for edge-to-edge printing have the outside 50 pels, approximately 4 millimeters, of output cut off.

The table columns mean:

- **Paper name:** The paper name, which you specify in the AOP\_PAPER environment variable.
- **Paper size (in or mm):** The size in inches or millimeters of the entire media. The transforms use this value as the logical page to determine the area of the page that can be toned or printed.
- **Paper size (300 dpi):** The size in 300 dots per inch (dpi) of the entire media. The transforms use this value as the logical page to determine the area of the page that can be toned or printed.
- **Printable area origin (dpi):** The X (width) and Y (height) coordinates of the top left corner of the printable area in relation to the physical medium.
- **Printable area size (dpi):** The area of the page that can be toned or printed.
- **Logical page origin (dpi):** The X (width) and Y (height) coordinates of the top left corner of the logical page in relation to the physical medium.
- **Logical page size (300 dpi):** The area of the page that can be addressed (positioned by the printer). The AFP to PCL transform uses this value.
- **PCL paper type ID:** The paper type identifier assigned by PCL and used to select this paper name.

**Tip:** If the job submitter specifies logical-page dimensions that are different from the paper dimensions, the transforms use the user-specified logical-page dimensions. Therefore, the transforms can create output that attempts to print

outside of the paper dimensions. In this case, loss of output data and unpredictable formatting results can occur. Job submitters can specify the size of the logical page in the AFP input data stream and in a page definition (for line data input).

You can add a new paper size to the paper sizes that the transforms support. For example, you could add a paper that you name “folio” for 8.5 in x 5.5 in paper. To add a new paper size, you must add an entry with the name and dimensions of the new paper size to the AOPPAPER table.

**Steps for customizing the AOPPAPER table:**

1. Copy the source code for the AOPPAPER table from SYS1.SAMPLIB(AOXPAPER) to a different data set.

---

2. To add a new paper size, code the PAPERGEN macro in AOXPAPER. In the PAPERGEN macro, you must specify:
  - The name of the paper entry. The name can contain 1 to 8 letters or numbers.
  - The width and length of the physical page in 300 dpi (dots per inch).
  - The origin (x and y coordinates) of the printable area in 300 dpi.
  - The width and length of the printable area in 300 dpi. The printable area is typically smaller than the size of the physical medium because many printers cannot print edge-to-edge.
  - The origin (x and y coordinates) of the logical page. Only the AFP to PCL transform uses this value.
  - The width and length of the logical page. Typically, the width of the logical page is equal to the width of the physical page minus 71 dots (at 300 DPI) at each end for European page formats or minus 75 dots for US page formats, and the length of the logical page is equal to the length of the physical page. Only the AFP to PCL transform uses this value.
  - The PCL paper type ID. See your printer manufacturer's documentation. Only the AFP to PCL transform uses this value.

---

3. Assemble and link the modified AOXPAPER module, and install the AOPPAPER table using SMP/E. IBM provides these sample usermods to install the AOPPAPER table. For instructions about installing the usermod, see the comments in the sample job.

Transform	Sample usermod
AFP to PCL	SYS1.SAMPLIB(AOXPCLPJ )
AFP to PDF	SYS1.SAMPLIB(AOXPDPFJ)
AFP to PostScript	SYS1.SAMPLIB(AOXPSPJ)

4. Specify the new paper name in the AOP\_PAPER environment variable in the transform configuration file.

---

5. Restart the Transform Manager. For example, use the AOPSTOP and AOPSTART procedures to stop and restart the Transform Manager:

```
START AOPSTOP,OPTIONS='-d xfd'  
START AOPSTART
```

---

## Adding fonts for font-mapping

The transforms use an internal font-mapping table to do the font-mapping function. This font-mapping table supports all single-byte character sets included in Expanded Core Fonts feature of the IBM AFP Font Collection V2 (program number 5648–B33), which are provided in both raster and outline formats.

The default font-mapping table is suitable for most installations. However, you might need to modify the table for these conditions:

- **All transforms:** If you have custom fonts in both raster and outline format, and you want the transform to substitute one font for another, you can add an entry in the table for each custom font.
- **AFP to PDF and AFP to PostScript transforms:** If you do not have AFP outline fonts for some character sets, you can delete the entries for these fonts from the table to avoid error messages. However, it is not necessary to delete the font entries. If the transform cannot find an outline font in the font libraries, it writes a warning message (AOX1109W CZxxxx FONTLIB MEMBER NOT FOUND) to the transform's **stderr** log and uses the raster font. You can ignore this message.

**Limitations:** These limitations apply to font-mapping:

- **All transforms:** You can map fonts only if positions 3-6 of the character set name for the outline and raster font are identical.
- **AFP to PCL transform:**
  - The font-mapping table does not support mapping asymmetric AFP outline fonts to raster fonts. Asymmetric AFP outline fonts are fonts that are anamorphically scaled in the Map Coded Font (MCF) structured field.
  - When a request to map an AFP outline font to a raster font results in the selection of a non-decimal point size, the font is mapped to the equivalent raster within one point size. If the corresponding raster font cannot be selected, the document is not transformed.

## Sample font-mapping table

Figure 4 on page 112 shows a portion of the default font-mapping table provided in SYS1.SAMPLIB(AOXFONTS). This table is identical to the default font-mapping table that the transforms use.

```

PSSFONTS CSECT
*
* TRANSLATE TABLE FROM AND TO RASTER/SCALE FONTS
* THE SMALLEST VALUES MUST COME FIRST
*
      DC C'B20C'      SPECIALS BOOKMASTER
      DC C'B200'     LATIN1  BOOKMASTER
      DC C'B30C'     SPECIALS BOOKMASTER ITALIC
      DC C'B300'     LATIN1  BOOKMASTER ITALIC
:
:
      DC C'6208'     KATAKANA GOTHIC
      DC C'7200'     LATIN1  PRESTIGE
      DC C'7300'     LATIN1  PRESTIGE ITALIC
      DC C'7400'     LATIN1  PRESTIGE BOLD
      DC C'8400'     LATIN1  BOLDFACE
      DC C'920A'     OCR A
      DC C'920B'     OCR B
      DC AL4(-1)                    TERMINATOR
*
      END

```

Figure 4. Sample font-mapping table — SYS1.SAMPLIB(AOXFONTS)

## Steps for modifying the font-mapping table

To modify the font-mapping table:

1. Edit the font-mapping entries in the default font-mapping table provided in SYS1.SAMPLIB(AOXFONTS). Do these steps when you add or delete an entry:
  - To add a font entry, specify positions 3 through 6 of the outline and raster character-set name. For example, this table shows the character set names for the Latin1 Gothic Text font and the value to specify in the font-mapping table:

Character set name of raster font	Character set name of outline font	Value in font-mapping table
C06200xx	CZ6200	C'6200'

The transforms use only a portion of the font character-set name to map fonts (that is, the type family, typeface, code page category, and complement), which are positions 3 through 6 of the character set name. You do not need to include a separate entry for each point size. The transforms select the appropriate point size based on the input font.

- Make sure that all entries in the table are in ascending order, with the smallest hexadecimal EBCDIC values first. For example, you would specify these fonts in the order shown:

```

C'420P'
C'4200'

```

The hexadecimal EBCDIC value of C'420P' (X'F4F2F0D7') is smaller than C'4200' (X'F4F2F0F0').

- Do *not* change the CSECT name (PSSFONTS) of the font table.

**Tip:** Unexpected output results can occur if the font metrics of the source input font do not reflect the target font metrics.

2. Replace the font-mapping table in each transform that you want to use this table. In most situations, all transforms can use the same font-mapping table. IBM provides these sample usermods to replace the font-mapping table. For instructions about installing the usermod, see the comments in the sample job.

Transform	Sample usermod
AFP to PCL	SYS1.SAMPLIB(AOX2PCLJ)
AFP to PDF	SYS1.SAMPLIB(AOX2PDFJ)
AFP to PostScript	SYS1.SAMPLIB(AOX2PSJ)

3. Restart the Transform Manager. For example, use the AOPSTOP and AOPSTART procedures to stop and restart the Transform Manager:

```
START AOPSTOP,OPTIONS='-d xfd'  
START AOPSTART
```

4. Check for error messages in the transform's **stderr** file. If you find any error messages, fix the errors and restart the Transform Manager. For more information about how to find the transform message logs, see "Finding the transform stderr file" on page 137.

---

## Scaling 240-pel to 300-pel fonts

The AOXCF30 font-conversion program lets you scale (that is, convert) your single-byte and double-byte, bounded-box, 240-pel fonts to 300-pel fonts. This program places the scaled fonts into a partitioned data set, which you can then use with the transform.

You must scale 240-pel fonts to 300-pel fonts if you do not already have 300-pel fonts and either of these conditions applies:

- You use the AFP to PCL transform. This transform requires 300-pel raster fonts.
- You use the AFP to PDF or AFP to PostScript transform, AFP documents reference raster fonts, and you do not have outline fonts.

If you have previously scaled your 240-pel fonts using the PSF-supplied APSRCF30 program (required for the IBM 4028 printer), you do not need to use the AOXCF30 program to scale them again. Because IBM Core Interchange raster fonts are shipped in both 240-pel and 300-pel resolutions, you do not need to convert them. Outline fonts are resolution-independent and do not need to be converted.

The AOXCF30 program converts a 240-pel raster font to a close approximation of the font at 300-pel resolution. However, IBM does not guarantee the quality of the resulting character pattern when using this program.

Specific fixed pitch fonts require the replacement of box characters. These are supplied in the AOX.SAOXCF30 library.

## Using the AOXCF30 program

To use the AOXCF30 program:

1. Define a new font library for 300-pel fonts if one does not already exist. SYS1.FONT300 is the recommended name for your 300-pel system font library. You can use the existing 240-pel font library as a model. However, the 300-pel font library requires approximately 30% more space than the 240-pel font library.
- 

2. Create a list of 240-pel fonts that require conversion.

Only the character set members, whose file names start with C0, are converted with AOXCF30. However, you can also specify coded font members, whose file names start with X0, and code page members, whose file names start with T0. The coded fonts and code pages are copied to the output file without conversion.

---

3. Modify the JCL supplied in SYS1.SAMPLIB(AOXCF30J).

Specify an entry in the JCL for each font member to be converted. The sample JCL is shipped with two dummy entries:

```
//C0XXXXXX EXEC PROC=SCALE,NAME=C0xxxxxx  
//C0YYYYYY EXEC PROC=SCALE,NAME=C0yyyyyy
```

Duplicate these statements for each font that is to be converted.

For example, specify:

```
C0A055A0  
  EXEC PROC=SCALE,NAME=C0A055A0  
C0A055B0 EXEC PROC=SCALE,NAME=C0A055B0
```

Figure 5 on page 115 shows a portion of SYS1.SAMPLIB(AOXCF30J).

---

4. Submit the JCL to run the AOXCF30 program.

This program can use a large amount of CPU resources, especially if you run it on a smaller S/370 processor. To run the AOXCF30 program, you should have a minimum region size of 5 MB.

---

## DD statements used by the AOXCF30 program

Do not convert the Bar Code or Optical Character Recognition fonts (program number 5688-021). The conversion process usually distorts the font, making it unreadable by an optical scanning device. Check all the JCL for this font before running the AOXCF30 program.

The AOXCF30 program uses these DD statements:

DD name	Description
SYSPRINT	Program log and error message output
SYSUT1	Input font library, including data set and member name
SYSUT2	Output font library, including data set and member name
FONTB300	Box character source library, which is supplied with the AOXCF30 program

## Parameters used by the AOXCF30 program

You can specify these parameters to the AOXCF30 program in the PARM1 parameter.

Parameter	Description
BOX	Indicates that substitution of box characters will be done (default)
NOBOX	Indicates that substitution of box characters will <i>not</i> be done

Box-character substitution is done with fixed-pitch fonts. When the BOX parameter is specified, the AOXCF30 program replaces box characters in the font with characters from the supplied AOX.SAOXCF30 library. To disable this substitution, specify the NOBOX parameter. For example, specify NOBOX when you scale custom built fonts, such as logo fonts.

## Sample JCL for the AOXCF30 program

Figure 5 shows JCL provided in SYS1.SAMPLIB(AOPCF30J).

```

//*****
//* LICENSED MATERIALS - PROPERTY OF IBM
//* 5697-B51
//* (C) COPYRIGHT IBM CORP. 2000
//* AFP TRANSFORM (C) COPYRIGHT I-DATA INTERNATIONAL 1990,2000
//*
//* AOXCF30 PROGRAM
//*
//* CONVERTS SBCS AND DBCS BOUNDED BOX FONTS FROM 240 TO 300 DPI
//* USING A PROC INVOCATION OF THE AOXCF30 FONT SCALING PROGRAM.
//* THE SUPPLIED PROC STATEMENTS ARE PROVIDED AS A SAMPLE ONLY, AND
//* SHOULD BE TAILORED TO MATCH INSTALLATION REQUIREMENT FOR
//* SCALING OF FONTS TO 300 DPI.
//*
//* BOX DRAWING CHARACTERS LOCATED IN FONTS CAN BE REPLACED USING
//* THE BOX PARAMETER, AND SUPPLIED BOX DRAW CHARACTERS (FONTB300)
//*
//* PARM='BOX' USE SUPPLIED BOX CHARACTER SET (DEFAULT)
//* PARM='NOBOX' DO NOT USE THE SUPPLIED BOX CHARACTER SET
//*
//* S2 EXEC PROC=SCALE,NAME=C0XXXXXX,PARM='BOX'
//* (FONT IMAGE MEMBER NAME)
//*
//*****
//SCALE PROC HLQ=AOX,NAME=,PARM1=BOX
//S1 EXEC PGM=AOXCF30,REGION=5120K,PARM='&PARM1'
//SYSPRINT DD SYSOUT=*
//* SYSUT1 IS THE INPUT 240 DPI FONT LIBRARY
//SYSUT1 DD DISP=SHR,DSN=SYS1.FONTLIBB(&NAME.)
//* SYSUT2 IS THE OUTPUT 300 DPI FONT LIBRARY
//SYSUT2 DD DISP=SHR,DSN=SYS1.FONT300(&NAME.)
//FONTB300 DD DISP=SHR,DSN=&HLQ..SAOXCF30
// PEND
//
//
//C0XXXXXX EXEC PROC=SCALE,NAME=C0xxxxxx
//C0YYYYYY EXEC PROC=SCALE,NAME=C0yyyyyy
```

Figure 5. Sample JCL to run the AOXCF30 font-scaling program — SYS1.SAMPLIB(AOXCF30J)

## AOXCF30 return codes

The AOXCF30 program detects each of the errors listed in this section and places the return code for it in register 15. The return code prints on the screen when you use the AOXCF30 EXEC. When an error occurs, the font-conversion program might create an incomplete output file, which you should discard.

Code	Description
4	The AOXCF30 program could not locate the box character member. Make sure that the FONTB300 DD name correctly specifies the SAOXCF30 library.
20	The AOXCF30 program could not open the output data set, or an I/O error occurred while writing to the output data set.
28	The AOXCF30 program could not open the input data set.
32	The font named in the input data set is not valid. Make sure that the input font member is a valid 240-pel bounded box.
44	An unexpected end-of-file occurred on the input data set. Make sure that the input data is not corrupted.
88	Insufficient storage was available for program execution.
100	The AOXCF30 program could not write to the SYSPRINT data set.

---

## Chapter 4. Administering transforms

This chapter describes how Infoprint Server administrators can set up printer definitions in the Infoprint Server Printer Inventory so that Infoprint Server automatically transforms documents from AFP format to other data formats before sending the documents to printers or e-mail destinations.

Do the tasks listed in this table. Required tasks are required by all installations that want to use the transform. Optional tasks are required only if the listed condition applies to your installation.

Task	Condition	See page
Requesting the AFP to PCL transform	Required	117
Requesting the AFP to PDF transform	Required	120
Requesting the AFP to PostScript transform	Required	128
Specifying AFP resources and resource libraries	Optional: To specify AFP attributes	132

---

### Requesting the AFP to PCL transform

This section describes how to set up printer definitions for PCL printers so that Infoprint Server automatically calls the AFP to PCL transform.

#### AFP to PCL transform filter

In the printer definitions for PCL printers, you can specify the AFP to PCL transform filter and associate it with the line-data, MO:DCA-P, and XML data formats. (A filter is a program that modifies the input data before it is sent to the printer or e-mail destination.) When you associate the transform filter with these data formats, Infoprint Server automatically calls the AFP to PCL transform when it processes documents with these formats.

**Tip:** If you run IP PrintWay basic mode, you must also select the resubmit for filtering function in the printer definition. IP PrintWay basic mode calls transform filters only when you select the IP PrintWay resubmit for filtering function.

Table 11 shows the filter name and filter options that you can specify in the **Filter** field of a printer definition.

Table 11. AFP to PCL filter name and filter options

Field name (PIDU attribute)	Filter name	Filter options
Filter (filters)	afp2pcl.dll	[%filter-options] [-c transformclass] [-i inputcodepage] [-F tracefile] [-T traceoptions]

The filter options mean:

#### %filter-options

Causes options that are specified in the **filter-options** job attribute to be passed to the transform.

You can type the **%filter-options** option in any position relative to the other filter options. If you specify filter options to the right of **%filter-options**, those options override the same options specified in the **filter-options** job attribute.

**-c transformclass**

Specifies the name of a transform class that is defined in the transform configuration file, **aopxfd.conf**. The name is case-sensitive. The job submitter can also specify this option in the **filter-options** job attribute.

**-i inputcodepage**

This option applies only to the **Line data** data format. If you specify this option for any other data formats, it is ignored.

This option identifies the code page to which line data is converted before it is transformed. Specify a code page that corresponds to the coded fonts that the transform uses to transform the line data. (Coded fonts can be specified in the page definition, in the **chars** job attribute or CHARS JCL parameter, and in the **Character sets** field of the printer definition.)

To transform line data that is already encoded in the code page that corresponds to the coded fonts, do *not* specify this option. When this option is not specified, line data is not converted from one code page to another before it is transformed. For example, to transform line-data documents that specify coded fonts (for example, in the CHARS JCL parameter) and currently print correctly on an AFP printer, do *not* specify this option.

You *must* specify this option to correctly transform documents that are encoded in code pages that do not correspond to the code page for the coded fonts. This is most likely to occur when the Print Interface LPD receives print requests with a print command of **r** in the LPD control file. Print command **r** indicates that the file contains ANSI carriage control characters (FORTRAN carriage control) and is, therefore, line data.

To determine the code page to specify, first determine the AFP code page for each character set. For AFP code pages, see *IBM AFP Fonts: Font Summary for AFP Font Collection*. Then determine the name of the corresponding code page that IBM provides and that the iconv utility supports. For valid code page names, see *z/OS XL C/C++ Programming Guide*.

The AFP code page and the name of the code pages that iconv uses are different. For example, if the coded fonts in this table are specified (for example, in the CHARS JCL parameter), specify the IBM-500 code page in the **-i** option: **-i IBM-500**.

Coded font	AFP code page	iconv code page
40D0, 40F0, 40E0, 4100	T1V10500	IBM-500
60D9 (default font)	T1V10500	IBM-500

When you specify this option, also make sure that the code page specified in the **Document code page** field of the printer definition identifies the code page in which input documents are encoded. (See the ISPF help for information about the **Document code page** field.) A job submitter can also specify a document code page for a specific print job in the **document-codepage** job attribute.

**Tip:** When you specify this option, you might need to create a separate printer definition for use only by those applications that require the `-i` option and code page conversion.

**-F tracefile -T traceoptions**

These options trace the transforms. Your IBM service representative might ask you to specify these options to help IBM diagnose problems. These options can also be specified in the **filter-options** job attribute. For an explanation of these options, see “Finding the transform stderr file” on page 137.

## Steps for editing printer definitions for the AFP to PCL transform

To edit printer definitions, you can use either Infoprint Server ISPF panels or the Printer Inventory Definition Utility (PIDU) program. This section describes how to use the ISPF panels. For information about the PIDU program, see “Using the PIDU program to manage the Printer Inventory” in *z/OS Infoprint Server Operation and Administration*.

**Before you begin:** You must be authorized to edit the Printer Inventory:

- z/OS V1R4: You must have READ access to the AOPADMIN profile in the RACF FACILITY class.
- z/OS V1R5 and later: You must have UPDATE access to the AOP.ADMINISTRATOR profile in the RACF PRINTSRV class.

### Steps for editing printer definitions:

1. (Optional) Create a Processing component. If you need to specify the AFP to PCL transform in a large number of printer definitions, a component can simplify administration. If you need to change your transform filter in the future, you can make the change in your Processing component.

---
2. On the Processing panel of either the printer definition or the component, select the **Line data**, **MO:DCA-P**, and **XML** data formats.

---
3. Next to both data formats, specify the **afp2pcl.dll** filter and filter options in the **Filter** field. Type the absolute pathname if the filter is not in a directory named in the LIBPATH environment variable. For filter options, see “AFP to PCL transform filter” on page 117.

---
4. If you run IP PrintWay basic mode, select the **Resubmit for filtering** field. IP PrintWay extended mode ignores this field because it calls transforms directly. (IP PrintWay extended mode was introduced in z/OS V1R5.) For more information about this field, see “Resubmitting documents to Print Interface for filtering” in *z/OS Infoprint Server Operation and Administration*.

---
5. (Optional) If you created a Processing component, specify the name of the Processing component in the **Component name** field on the IP PrintWay printer definition panel. Do this in all printer definitions to which the transform applies.

After you include a Processing component, check the Processing panel in the printer definition to make sure the transform is specified correctly. You might

need to remove (space over) any filters that are specified on the Processing panel of the printer definition itself. If any filters are specified in the printer definition, the filters specified in the component are not used.

**Tip:** If you remove the **aopfiltr.so** or **lpd\_compat.so** filter for the **Text** data format from the **Filter** field of the printer definition, be sure to specify the same filter in the Processing component. (Print Interface uses these filters.)

---

## Example -- ISPF Processing panel for the AFP to PCL transform

This ISPF panel shows how to specify the AFP to PCL transform in a printer definition. Only a portion of the Processing panel is shown.

```
Processing
Printer definition name . pcl1
:
Supported data formats and associated filters:
Data format: Filter:
/ Line data  afp2pcl.dll -c eu %filter-options          (extend)
/ MO:DCA-P  afp2pcl.dll -c eu %filter-options          (extend)
- PostScript
/ Text      aopfiltr.so                                (extend)
/ PCL
- PDF
- SAP
/ XML      afp2pcl.dll -c eu %filter-options          (extend)
- Other
/ Resubmit for filtering
:
:
```

Explanation of fields:

- The **Line data**, **MO:DCA-P**, and **XML** data formats are selected because the **afp2pcl.dll** filter can transform these data formats to PCL format. The transform options are:
  - The **-c** filter option causes the transform to use the **eu** transform class, which is defined in the transform configuration file.
  - The **%filter-options** filter option lets the job submitter override the transform class because it is specified to the right of the **-c** filter option.
- The **Text** and **PCL** data formats are selected because the printer can accept these data formats without any transform. The **aopfiltr.so** filter is specified for **Text** data because Print Interface uses this filter.
- The **Resubmit for filtering** field is selected so that IP PrintWay basic mode calls Print Interface to transform documents submitted from batch applications.

---

## Requesting the AFP to PDF transform

This section describes how to set up printer definitions for e-mail destinations so that Infoprint Server automatically calls the AFP to PDF transform.

### AFP to PDF transform filter

In the printer definitions for PDF printers or e-mail destinations, you can specify the AFP to PDF transform filter and associate it with the line-data, MO:DCA-P, and

XML data formats. (A filter is a program that modifies the input data before it is sent to the printer or e-mail destination.) When you associate the transform filter with these data formats, Infoprint Server automatically calls the AFP to PDF transform when it processes documents with these data formats.

**Tip:** If you run IP PrintWay basic mode, you must also select the resubmit for filtering function in the printer definition. IP PrintWay basic mode calls transform filters only when you select the IP PrintWay resubmit for filtering function.

Table 12 shows the filter name and filter options that you can specify in the **Filter** field of a printer definition.

Table 12. AFP to PDF filter name and filter options

Field name (PIDU attribute)	Filter name	Filter options
Filter (filters)	afp2pdf.dll	[%filter-options] [-c <i>transformclass</i> ] [-i <i>inputcodepage</i> ] [-F <i>tracefile</i> ] [-r <i>resolution</i> ] [-T <i>traceoptions</i> ]

The filter options mean:

**%filter-options**

Causes options that are specified in the **filter-options** job attribute to be passed to the transform.

You can type the **%filter-options** option in any position relative to the other filter options. If you specify filter options to the right of **%filter-options**, those options override the same options specified in the **filter-options** job attribute.

**-c transformclass**

Specifies the name of a transform class that is defined in the transform configuration file, **aopxfd.conf**. The name is case-sensitive. The job submitter can also specify this option in the **filter-options** job attribute.

**-i inputcodepage**

This option applies only to the **Line data** data format. If you specify this option for any other data formats, it is ignored.

This option identifies the code page to which line data is converted before it is transformed. Specify a code page that corresponds to the coded fonts that the transform uses to transform the line data. (Coded fonts can be specified in the page definition, in the **chars** job attribute or CHARS JCL parameter, and in the **Character sets** field of the printer definition.)

To transform line data that is already encoded in the code page that corresponds to the coded fonts, do *not* specify this option. When this option is not specified, line data is not converted from one code page to another before it is transformed. For example, to transform line-data documents that specify coded fonts (for example, in the CHARS JCL parameter) and currently print correctly on an AFP printer, do *not* specify this option.

You *must* specify this option to correctly transform documents that are encoded in code pages that do not correspond to the code page for the coded fonts. This is most likely to occur when the Print Interface LPD receives print requests with a print command of **r** in the LPD control file. Print command **r** indicates that the file contains ANSI carriage control characters (FORTRAN carriage control) and is, therefore, line data.

To determine the code page to specify, first determine the AFP code page for each character set. For AFP code pages, see *IBM AFP Fonts: Font Summary for AFP Font Collection*. Then determine the name of the corresponding code page that IBM provides and that the iconv utility supports. For valid code page names, see *z/OS XL C/C++ Programming Guide*.

The AFP code page and the name of the code pages that iconv uses are different. For example, if the coded fonts in this table are specified (for example, in the CHARS JCL parameter), specify the IBM-500 code page in the **-i** option: **-i IBM-500**.

Coded font	AFP code page	iconv code page
40D0, 40F0, 40E0, 4100	T1V10500	IBM-500
60D9 (default font)	T1V10500	IBM-500

When you specify this option, also make sure that the code page specified in the **Document code page** field of the printer definition identifies the code page in which input documents are encoded. (See the ISPF help for information about the **Document code page** field.) A job submitter can also specify a document code page for a specific print job in the **document-codepage** job attribute.

**Tip:** When you specify this option, you might need to create a separate printer definition for use only by those applications that require the **-i** option and code page conversion.

**-r** Specifies the resolution used to print images in the documents. If you specify a resolution, the transform scales all images in the document to this resolution. Specify the correct resolution for the printer on which the document will be printed. Valid values are:

**300**

The transform scales images to 300 pels per inch.

**600**

The transform scales images to 600 pels per inch.

**input**

The transform does not scale images. The printer scales the images to the resolution of the printer.

The default resolution is the resolution defined for the transform class (in the AOP\_RESOLUTION environment variable) or, if none is specified, 300.

**Tips:**

1. Some printers do not scale images well. If you specify **input**, and the images do not print well, specify the resolution of the printer.
2. The **-r** option does not affect text or bar codes. The transform always creates 300-pel bar codes.

**-F tracefile -T traceoptions**

These options trace the transforms. Your IBM service representative might ask you to specify these options to help IBM diagnose problems. These options can also be specified in the **filter-options** job attribute. For an explanation of these options, see "Finding the transform stderr file" on page 137.

## PDF encryption options

In the printer definition, you can specify options that the AFP to PDF transform uses when it encrypts PDF documents with passwords. The transform encrypts PDF documents with passwords when you specify a user identifier or owner identifier in the printer definition or when the job submitter specifies one of these identifiers in job attributes.

**Tip:** If no user identifier or owner identifier is specified, the transform does not use any of the other encryption options in the printer definition.

Values specified in job attributes override the same values in the printer definition. For example, the **pdf-user-identifier** job attribute overrides the **User identifier** field in the printer definition.

Table 13 describes the printer definition fields (and the corresponding PIDU attributes) that let you specify encryption options. For a description of the PIDU attributes, see “Printer attributes for encrypting PDF documents” on page 124.

Table 13. PDF encryption fields in the printer definition

Field name (PIDU attribute)	Description	Default
Encryption level (pdf-encryption-level)	<p>The level of encryption used to encrypt PDF documents. A high level of encryption provides enhanced security and lets you restrict more actions on PDF documents. However, some users might not be able to open PDF documents that use a high level of encryption. You can select:</p> <p><b>Low (40-bit key)</b> A low level of encryption (a 40-bit encryption key) is used. Select this value if you e-mail PDF documents to countries that do not use 128-bit encryption, or for users with Adobe Acrobat Reader 3.0 - 4.x.</p> <p><b>High (128-bit key)</b> A high level of encryption (a 128-bit encryption key) is used. Select this value for sensitive PDF documents.</p>	High (128-bit key).
Owner identifier (pdf-owner-identifier)	<p>The identifier of the owner of an encrypted PDF document. The owner identifier is associated with a password that is stored in a separate database. An owner password is required to restrict actions in the <b>Protected actions</b> field.</p> <p>You can enter from 1 - 256 characters, with any combination of letters, numbers, blanks, and special characters that the Password exit allows. This text string might be case-sensitive, depending on the Password exit.</p> <p><b>Tip:</b> In most cases, the user and owner identifiers should be different because the user and owner passwords must be different.</p>	None.

Table 13. PDF encryption fields in the printer definition (continued)

Field name (PIDU attribute)	Description	Default
Protected actions (pdf-protect)	<p>The actions that are restricted in encrypted PDF documents:</p> <p><b>Copy</b> Users cannot:</p> <ul style="list-style-type: none"> <li>• Copy or extract content to another document</li> <li>• Extract content for accessibility</li> </ul> <p><b>Print</b> Users cannot:</p> <ul style="list-style-type: none"> <li>• Print at low resolution (150 dpi)</li> <li>• Print at high resolution</li> </ul> <p><b>Update</b> Users cannot:</p> <ul style="list-style-type: none"> <li>• Change the document</li> <li>• Assemble (insert, rotate, and delete pages)</li> <li>• Add comments</li> <li>• Fill in form fields or sign</li> <li>• Create template pages</li> </ul>	No actions are restricted.
User identifier (pdf-user-identifier)	<p>The identifier of the user of an encrypted PDF document. The user identifier is associated with a password that is stored in a separate database. The user password is required to open encrypted PDF documents.</p> <p>You can enter from 1 - 256 characters, with any combination of letters, numbers, blanks, and special characters that the Password exit allows. This text string might be case-sensitive, depending on the Password exit.</p> <p><b>Tip:</b> In most cases, the user and owner identifiers should be different because the user and owner passwords must be different.</p>	None. Anyone can open the PDF documents without a password.

## Printer attributes for encrypting PDF documents

This section describes the printer attributes related to encryption that you can specify in the **processing** and **printer** object classes when you use the Printer Inventory Definition Utility (PIDU) to create or edit printer definitions. For information about PIDU and the other Infoprint Server printer attributes you can specify, see "Using the PIDU program to manage the Printer Inventory" in *z/OS Infoprint Server Operation and Administration*.

### pdf-encryption-level

This **single-valued** attribute specifies the level of encryption used to encrypt PDF documents. A high level of encryption provides enhanced security. However, some users might not be able to open PDF documents that use a high level of encryption.

**Allowed values:** You can enter one of these fixed values:

**bits40** A low level of encryption (a 40-bit encryption key) is used. Select this value if you e-mail PDF documents to countries that do not use 128-bit encryption, or for users with Adobe Acrobat Reader 3.0 - 4.x.

**bits128**

A high level of encryption (a 128-bit encryption key) is used. Select this value for sensitive PDF documents.

**Default value:** bits128

## pdf-owner-identifier

This **single-valued** attribute specifies the identifier of the owner of an encrypted PDF document. The owner identifier is associated with a password that is stored in a separate database. An owner password is required to restrict actions with the **pdf-protect** attribute.

**Allowed values:** You can enter a text string of 1 - 256 characters. You can enter any combination of letters, numbers, blanks, and special characters that the Password exit allows. This text string might be case-sensitive, depending on the Password exit. If the text string you specify contains blanks or special characters (such as @ \$ & ( ) > < | ' " #), enclose the text string in single or double quotation marks. For example:

```
pdf-owner-identifier='Nurse-Lee@hospital.com'
```

If the string contains double quotation marks, enclose the string in single quotation marks.

**Default value:** None.

### Usage guidelines:

- The transform encrypts a PDF document when you specify a user identifier, an owner identifier, or both. Encrypting a PDF document protects it from unauthorized access.
- In most cases, the user and owner identifiers should be different because the user and owner passwords must be different.

## pdf-protect

This **multi-valued** attribute specifies one or more actions that users cannot do on encrypted PDF documents.

**Allowed values:** You can enter one or more fixed values to restrict actions. If you specify more than one value, separate the values with spaces and enclose the list of values in braces {}. For example:

```
-j "pdf-protect=all"  
-j "pdf-protect={copy update}"
```

Value:	Actions users cannot do:
all	<ul style="list-style-type: none"><li>• All actions (copy, print, update)</li></ul>
copy	<ul style="list-style-type: none"><li>• Copy or extract content to another document</li><li>• Extract content for accessibility</li></ul>
print	<ul style="list-style-type: none"><li>• Print at low resolution (150 dpi)</li><li>• Print at high resolution</li></ul>
update	<ul style="list-style-type: none"><li>• Change the document</li><li>• Assemble the document (insert, delete, rotate pages)</li><li>• Add comments</li><li>• Fill in form fields or sign</li><li>• Create template pages</li></ul>

**Default value:** None.

## pdf-user-identifier

This **single-valued** attribute specifies the identifier of the user of an encrypted PDF document. The user identifier is associated with a password that is stored in a separate database. The user enters the user password when opening the encrypted PDF document.

**Allowed values:** You can enter a text string of 1 - 256 characters. You can enter any combination of letters, numbers, blanks, and special characters that the Password exit allows. This text string might be case-sensitive, depending on the Password exit. If the text string you specify contains blanks or special characters (such as @ \$ & ( ) > < | ' " #), enclose the text string in single or double quotation marks. For example:

```
pdf-user-identifier='Dr-Smith@hospital.com'
```

If the string contains double quotation marks, enclose the string in single quotation marks.

**Default value:** None.

### Usage guidelines:

- The transform encrypts a PDF document when you specify a user identifier, an owner identifier, or both. Encrypting a PDF document protects it from unauthorized access.
- In most cases, the user and owner identifiers should be different because the user and owner passwords must be different.

## Steps for editing printer definitions for the AFP to PDF transform

To edit printer definitions, you can use either Infoprint Server ISPF panels or the Printer Inventory Definition Utility (PIDU) program. This section describes how to use the ISPF panels. For information about the PIDU program, see “Using the PIDU program to manage the Printer Inventory” in *z/OS Infoprint Server Operation and Administration*.

**Before you begin:** You must be authorized to edit the Printer Inventory:

- z/OS V1R4: You must have READ access to the AOPADMIN profile in the RACF FACILITY class.
- z/OS V1R5 and later: You must have UPDATE access to the AOP.ADMINISTRATOR profile in the RACF PRINTSRV class.

### Steps for editing printer definitions:

1. (Optional) Create a Processing component. If you need to specify the AFP to PDF transform in a large number of printer definitions, a component can simplify administration. If you need to change your transform filter in the future, you can make the change in your Processing component.

---
2. On the Processing panel of either the printer definition or the component, select the **Line data**, **MO:DCA-P**, and **XML** data formats.

---

3. Next to both data formats, specify the **afp2pdf.dll** filter and filter options in the **Filter** field. Type the absolute pathname if the filter is not in a directory named in the LIBPATH environment variable. For filter options, see “AFP to PDF transform filter” on page 120.

---
4. If you run IP PrintWay basic mode, select the **Resubmit for filtering** field. IP PrintWay extended mode ignores this field because it calls transforms directly. (IP PrintWay extended mode was introduced in z/OS V1R5.) For more information about this field, see “Resubmitting documents to Print Interface for filtering” in *z/OS Infoprint Server Operation and Administration*.

---
5. (Optional) On the Processing panel, specify any of these fields used for encrypting PDF documents:
  - **User identifier**
  - **Owner identifier**
  - **Encryption level**
  - **Protected actions**For information about these fields, see “PDF encryption options” on page 123.

---
6. (Optional) If you created a Processing component, specify the name of the Processing component in the **Component name** field on the IP PrintWay printer definition panel. Do this in all printer definitions to which the transform applies.

After you include a Processing component, check the Processing panel in the printer definition to make sure the transform is specified correctly. You might need to remove (space over) any filters that are specified on the Processing panel of the printer definition itself. If any filters are specified in the printer definition, the filters specified in the component are not used.

**Tip:** If you remove the **aopfiltr.so** or **lpd\_compat.so** filter for the **Text** data format from the **Filter** field of the printer definition, be sure to specify the same filter in the Processing component. (Print Interface uses these filters.)

---

## Example -- ISPF Processing panel for the AFP to PDF transform

This ISPF panel shows how to specify the AFP to PDF transform in a printer definition. Only a portion of the Processing panel is shown.

```

Processing

Printer definition name . mail
:

Supported data formats and associated filters:
Data format: Filter:

/ Line data  afp2pdf.dll -c encrypt %filter-options (extend)
/ MO:DCA-P   afp2pdf.dll -c encrypt %filter-options (extend)
- PostScript
/ Text       aopfiltr.so (extend)
- PCL
/ PDF
- SAP
/ XML       afp2pdf.dll -c encrypt %filter-options (extend)
- Other
/ Resubmit for filtering

AFP to PDF Transform Encryption:
User identifier . Dr-Smith@hospital.com (extend)
Owner identifier. Nurse-Lee@hospital.com (extend)
Encryption level 2 1. Low (40-bit key) 2. High (128-bit key)
Protected actions:
  Restrict print . . . 2 1. Yes 2. No
  Restrict copy . . . 1 1. Yes 2. No
  Restrict update . . 1 1. Yes 2. No
:

```

Explanation of fields:

- The **Line data**, **MO:DCA-P**, and **XML** data formats are selected because the **afp2pdf.dll** filter can transform these data formats to PDF format. The transform options are:
  - The **-c** filter option causes the transform to use the **encrypt** transform class, which is defined in the transform configuration file.
  - The **%filter-options** filter option lets the job submitter override the transform class because it is specified to the right of the **-c** filter option.
- The **Text** and **PDF** data formats are selected because the e-mail destination can accept these data formats. The **aopfiltr.so** filter is specified for **Text** data because Print Interface uses this filter.
- The **Resubmit for filtering** field is selected so that IP PrintWay basic mode calls Print Interface to transform documents submitted from batch applications.
- The **User identifier** and **Owner identifier** fields specify user and owner identifiers for the PDF encryption function.
- The **Encryption level** field selects the high encryption option.
- The **Protected actions** field restricts all actions except for printing in encrypted PDF documents.

---

## Requesting the AFP to PostScript transform

This section describes how to set up printer definitions for PostScript printers so that Infoprint Server automatically calls the AFP to PostScript transform.

### AFP to PostScript transform filter

In the printer definitions for PostScript printers, you can specify the AFP to PostScript transform filter and associate it with the line-data, MO:DCA-P, and XML data formats. (A filter is a program that modifies the input data before it is sent to

the printer or e-mail destination.) When you associate the transform filter with these data formats, Infoprint Server automatically calls the AFP to PostScript transform when it processes documents with these data formats.

**Tip:** If you run IP PrintWay basic mode, you must also select the resubmit for filtering function in the printer definition. IP PrintWay basic mode calls transform filters only when you select the IP PrintWay resubmit for filtering function.

Table 14 shows the filter name and filter options that you can specify in the **Filter** field of a printer definition.

Table 14. AFP to PostScript filter name and filter options

Field name (PIDU attribute)	Filter name	Filter options
Filter (filters)	afp2ps.dll	[%filter-options] [-c <i>transformclass</i> ] [-i <i>inputcodepage</i> ] [-F <i>tracefile</i> ] [-r <i>resolution</i> ] [-T <i>traceoptions</i> ]

The filter options mean:

**%filter-options**

Causes options that are specified in the **filter-options** job attribute to be passed to the transform.

You can type the **%filter-options** option in any position relative to the other filter options. If you specify filter options to the right of **%filter-options**, those options override the same options specified in the **filter-options** job attribute.

**-c transformclass**

Specifies the name of a transform class that is defined in the transform configuration file, **aopxfd.conf**. The name is case-sensitive. The job submitter can also specify this option in the **filter-options** job attribute.

**-i inputcodepage**

This option applies only to the **Line data** data format. If you specify this option for any other data formats, it is ignored.

This option identifies the code page to which line data is converted before it is transformed. Specify a code page that corresponds to the coded fonts that the transform uses to transform the line data. (Coded fonts can be specified in the page definition, in the **chars** job attribute or CHARS JCL parameter, and in the **Character sets** field of the printer definition.)

To transform line data that is already encoded in the code page that corresponds to the coded fonts, do *not* specify this option. When this option is not specified, line data is not converted from one code page to another before it is transformed. For example, to transform line-data documents that specify coded fonts (for example, in the CHARS JCL parameter) and currently print correctly on an AFP printer, do *not* specify this option.

You *must* specify this option to correctly transform documents that are encoded in code pages that do not correspond to the code page for the coded fonts. This is most likely to occur when the Print Interface LPD receives print requests with a print command of **r** in the LPD control file. Print command **r** indicates that the file contains ANSI carriage control characters (FORTRAN carriage control) and is, therefore, line data.

To determine the code page to specify, first determine the AFP code page for each character set. For AFP code pages, see *IBM AFP Fonts: Font Summary for AFP Font Collection*. Then determine the name of the corresponding code page that IBM provides and that the iconv utility supports. For valid code page names, see *z/OS XL C/C++ Programming Guide*.

The AFP code page and the name of the code pages that iconv uses are different. For example, if the coded fonts in this table are specified (for example, in the CHARS JCL parameter), specify the IBM-500 code page in the **-i** option: **-i IBM-500**.

Coded font	AFP code page	iconv code page
40D0, 40F0, 40E0, 4100	T1V10500	IBM-500
60D9 (default font)	T1V10500	IBM-500

When you specify this option, also make sure that the code page specified in the **Document code page** field of the printer definition identifies the code page in which input documents are encoded. (See the ISPF help for information about the **Document code page** field.) A job submitter can also specify a document code page for a specific print job in the **document-codepage** job attribute.

**Tip:** When you specify this option, you might need to create a separate printer definition for use only by those applications that require the **-i** option and code page conversion.

**-r** Specifies the resolution used to print images in the documents. If you specify a resolution, the transform scales all images in the document to this resolution. Specify the correct resolution for the printer on which the document will be printed. Valid values are:

**300**

The transform scales images to 300 pels per inch.

**600**

The transform scales images to 600 pels per inch.

**input**

The transform does not scale images. The printer scales the images to the resolution of the printer.

The default resolution is the resolution defined for the transform class (in the AOP\_RESOLUTION environment variable) or, if none is specified, 300.

**Tips:**

1. Some printers do not scale images well. If you specify **input**, and the images do not print well, specify the resolution of the printer.
2. The **-r** option does not affect text or bar codes. The transform always creates 300-pel bar codes.

**-F tracefile -T traceoptions**

These options trace the transforms. Your IBM service representative might ask you to specify these options to help IBM diagnose problems. These options can also be specified in the **filter-options** job attribute. For an explanation of these options, see "Finding the transform stderr file" on page 137.

## Steps for editing printer definitions for the AFP to PostScript transform

To edit printer definitions, you can use either Infoprint Server ISPF panels or the Printer Inventory Definition Utility (PIDU) program. This section describes how to use the ISPF panels. For information about the PIDU program, see “Using the PIDU program to manage the Printer Inventory” in *z/OS Infoprint Server Operation and Administration*.

**Before you begin:** You must be authorized to edit the Printer Inventory:

- z/OS V1R4: You must have READ access to the AOPADMIN profile in the RACF FACILITY class.
- z/OS V1R5 and later: You must have UPDATE access to the AOP.ADMINISTRATOR profile in the RACF PRINTSRV class.

### Steps for editing printer definitions:

1. (Optional) Create a Processing component. If you need to specify the AFP to PostScript transform in a large number of printer definitions, a component can simplify administration. If you need to change your transform filter in the future, you can make the change in your Processing component.

---
2. On the Processing panel of either the printer definition or the component, select the **Line data**, **MO:DCA-P**, and **XML** data formats.

---
3. Next to both data formats, specify the **afp2ps.dll** filter and filter options in the **Filter** field. Type the absolute pathname if the filter is not in a directory named in the LIBPATH environment variable. For filter options, see “AFP to PostScript transform filter” on page 128.

---
4. If you run IP PrintWay basic mode, select the **Resubmit for filtering** field. IP PrintWay extended mode ignores this field because it calls transforms directly. (IP PrintWay extended mode was introduced in z/OS V1R5.) For more information about this field, see “Resubmitting documents to Print Interface for filtering” in *z/OS Infoprint Server Operation and Administration*.

---
5. (Optional) If you created a Processing component, specify the name of the Processing component in the **Component name** field on the IP PrintWay printer definition panel. Do this in all printer definitions to which the transform applies.

After you include a Processing component, check the Processing panel in the printer definition to make sure the transform is specified correctly. You might need to remove (space over) any filters that are specified on the Processing panel of the printer definition itself. If any filters are specified in the printer definition, the filters specified in the component are not used.

**Tip:** If you remove the **aopfiltr.so** or **lpd\_compat.so** filter for the **Text** data format from the **Filter** field of the printer definition, be sure to specify the same filter in the Processing component. (Print Interface uses these filters.)

---

## Example -- ISPF Processing panel for the AFP to PostScript transform

This ISPF panel shows how to specify the AFP to PostScript transform in a printer definition. Only a portion of the Processing panel is shown.

```
Processing
Printer definition name . postscript1
:
Supported data formats and associated filters:
Data format: Filter:
/ Line data afp2ps.dll -c eu %filter-options (extend)
/ MO:DCA-P afp2ps.dll -c eu %filter-options (extend)
/ PostScript _____ (extend)
/ Text aopfiltr.so (extend)
- PCL _____ (extend)
- PDF _____ (extend)
- SAP _____ (extend)
/ XML afp2ps.dll -c eu %filter-options (extend)
- Other _____ (extend)
/ Resubmit for filtering
:
```

Explanation of fields:

- The **Line data**, **MO:DCA-P**, and **XML** data formats are selected because the **afp2ps.dll** filter can transform these data formats to PostScript format. The transform options are:
  - The **-c** filter option causes the transform to use the **eu** transform class, which is defined in the transform configuration file.
  - The **%filter-options** filter option lets the job submitter override the transform class because it is specified to the right of the **-c** filter option.
- The **Text** and **PostScript** data formats are selected because the printer can accept these data formats. The **aopfiltr.so** filter is specified for **Text** data because Print Interface uses this filter.
- The **Resubmit for filtering** field is selected so that IP PrintWay basic mode calls Print Interface to transform documents submitted from batch applications.

---

## Specifying AFP resources and resource libraries

In the printer definition, you can specify AFP resources (such as the form definition, page definition, and font) and AFP user resource libraries. In addition, you can specify other AFP options (such as the type of duplexing).

AFP resources, resource libraries, and AFP options can be specified in other ways:

- You can specify AFP resources, AFP user resource libraries, and other AFP options in Infoprint Server job attributes and OUTPUT statement (JCL) parameters. Values specified in job attributes and OUTPUT parameters override the same values in the printer definition. For example, the **form-definition** job attribute and the FORMDEF JCL parameter override the the **Form definition** field in the printer definition.
- You can specify AFP resources in the transform configuration file. The AFP resources specified in the printer definition override the same resources specified in the transform configuration file.

- You can specify AFP system resource libraries in the transform configuration file. The transform searches the AFP user resource libraries specified in the printer definition before searching the AFP system resource libraries specified in the transform configuration file.

Table 15 describes the printer definition fields (and the corresponding PIDU attributes). For a description of the PIDU attributes, see *z/OS Infoprint Server Operation and Administration*.

Table 15. AFP fields in the printer definition

Field name (PIDU attribute)	Description	Default
Carriage control type (carriage-control-type)	The type of carriage controls in the document (none, ANSI, machine).	Infoprint Server automatically detects the type of carriage controls. Therefore, in most cases, leave this field blank.
Character sets (character-sets)	One to four coded font names. The transforms use this font for line data when no font is specified in the page definition. X0 is prefixed to the font.	The font in the transform configuration file or the system default font X060D9. (See Note 2.)
Duplex (duplex)	The duplexing option (simplex, normal, tumble) used to format output and control printing on PCL and PostScript printers. (See Note 1.)  <b>Tip:</b> Also select the duplex option in the <b>Duplex supported</b> field.	The duplex value in the form definition.
Form definition (form-definition)	The form definition used to format line-data and AFP documents. If <b>dummy</b> is specified, the first inline form definition.	The first inline form definition. If none exists, the form definition in the transform configuration file or F1CP0110.
Image shift x-direction back (x-image-shift-back)	The offset in the x direction for the back side of a page. (See Note 1.)	The offset value in the form definition.
Image shift x-direction front (x-image-shift-front)	The offset in the x direction for the front side of a page. (See Note 1.)	The offset value in the form definition.
Image shift y-direction back (x-image-shift-back)	The offset in the y direction for the back side of a page. (See Note 1.)	The offset value in the form definition.
Image shift y-direction front (y-image-shift-front)	The offset in the y direction for the front side of a page. (See Note 1.)	The offset value in the form definition.
Input tray (input-tray-number)	The input tray number on the AFP printer. The transforms map this number to the printer tray number using mapping values specified in the AOP_TRAYID environment variable in the transform configuration file. (See Note 1.)	The offset value in the form definition.
Output bin (output-bin-number)	The output bin number on the AFP printer. This attribute does not apply to the AFP to PDF transform. (See Note 1.)	The offset value in the form definition.
Overlay back (overlay-back)	The overlay for the back side of each page, used in addition to overlays named in the form definition.	None.
Overlay front (overlay-front)	The overlay for the front side of each page, used in addition to overlays named in the form definition.	None.

Table 15. AFP fields in the printer definition (continued)

Field name (PIDU attribute)	Description	Default
Page definition (page-definition)	The default page definition for line-data documents. If <b>dummy</b> is specified, the first inline page definition.	The first inline page definition. If none exists, the page definition in the transform configuration file or P1P08682. (See Note 2.)
Print error reporting (print-error-reporting)	Indicates whether to include or omit error messages for character and position errors.	The transform omits the error messages.
Resource library (resource-library)	Libraries that contain AFP resources, such as fonts, page segments, form definitions, and page definitions. The transforms search these libraries before searching resource libraries named in the transform configuration file.  <b>Tip:</b> The user ID that starts Infoprint Server daemons must have read access to these libraries. See “Setting up security for AFP resource libraries” on page 107.	None.
Table reference characters (table-reference-characters)	Indication of whether the document contains table reference characters (TRCs).	No TRCs.
<p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>Some values, such as duplex, can be specified in the form definition. The value in the printer definition overrides the value in the form definition even if the form definition was specified by the job submitter. Therefore, if you want the transform to use the value specified in a user-specified form definition, leave the field in the printer definition blank and specify a form definition that contains the desired value. For example, if you want to specify duplex as the default, but do not want the duplex default to override the value in a user-specified form definition, do this: <ul style="list-style-type: none"> <li>Leave the <b>Duplex</b> field blank.</li> <li>Specify a form definition that contains the duplex option, such as F1CP0111, in the <b>Form definition</b> field.</li> </ul> </li> <li>If JES provides a default font and page definition to IP PrintWay basic mode, the font and page definition specified in the printer definition or transform configuration file are not used. When you define the IP PrintWay basic mode functional subsystem (FSS), you can request that JES not provide a default font and page definition. For more information, see <i>z/OS Infoprint Server Customization</i>.</li> </ol>		

## Editing printer definitions to specify AFP options

To edit printer definitions, you can use either Infoprint Server ISPF panels or the Printer Inventory Definition Utility (PIDU) program. This section describes how to use the ISPF panels. For information about the PIDU program, see “Using the PIDU program to manage the Printer Inventory” in *z/OS Infoprint Server Operation and Administration*.

**Before you begin:** You must be authorized to edit the Printer Inventory:

- z/OS V1R4: You must have READ access to the AOPADMIN profile in the RACF FACILITY class.
- z/OS V1R5 and later: You must have UPDATE access to the AOP.ADMINISTRATOR profile in the RACF PRINTSRV class.

Use the Infoprint Server ISPF panels to edit the printer definition for a printer or e-mail destination. On the Allocation panel, specify any of these fields. For information about these fields, see “Specifying AFP resources and resource libraries” on page 132:

- Carriage control type
- Character sets
- Duplex
- Form definition
- Image shift x-direction back, Image shift x-direction front, Image shift y-direction back, Image shift y-direction front
- Input tray
- Output bin
- Overlay back, Overlay front
- Page definition
- Resource library
- Table reference characters

### Example -- ISPF Allocation panel for AFP transforms

This ISPF panel shows how to specify AFP resources in a printer definition. This example applies to all the AFP transforms. Only a portion of the Allocation panel is shown.

```

Allocation
Printer definition name . pc11 _____
:
Resource Related Values:
Form definition . F1CP0111
Character sets . _____
Overlay front . . _____ Back . . _____
Input tray . . . _____
Output bin . . . _____
Page definition . P1P06362
Resource library. _____ (extend)
:
Image shift x-direction front . . _____ Back . . _____
y-direction front . . _____ Back . . _____
Error Reporting Values:
Print error reporting. . _ 1. None 2. All 3. Character 4. Position
:
Other Values:
:
Duplex . . . . . _ 1. Simplex 2. Duplex 3. Tumble
:
_ Table reference characters
:

```

Explanation of fields:

- The transforms use default form definition F1CP0111.
- The transforms use default page definition P1P06362.



---

## Chapter 5. Diagnosing errors

This chapter describes the diagnostic facilities that the transforms provide.

---

### Submitting APARs

Report any difficulties using the transforms to your IBM Support Center. If an APAR is required, the Support Center can tell you where to send the required diagnostic information.

When submitting an APAR, use the component ID **5697F5102**.

---

### Using error messages

If problems are encountered during program operation, the transforms produce error messages.

The error messages might print on a separate message page with the output, might be saved in the transform's **stderr** file, or might print on the user or system console, depending on the severity and nature of the error, according to these guidelines:

- **Print formatting errors:**

These error messages describe print formatting or job-related errors. The transforms usually write these messages in the output file on a page after the transformed output.

- **Transform errors:**

These error messages indicate problems with the transforms or with transform configuration, so they are directed to the system administrator. The transforms write these messages to the transform's **stderr** file.

---

### Finding the transform stderr file

You can find a transform's **stderr** file in the directory named *base-directory/xfd*, where *base-directory* is determined by the value of the **base-directory** attribute in the Infoprint Server configuration file, **aopd.conf**. The default base directory is named */var/Printsrv*.

The **stderr** file-naming convention is:

*transform[\_class].#.stderr*

<i>transform</i>	Specifies the transform name, which is defined in the Infoprint Server Transform Manager configuration file, <b>aopxfd.conf</b> . For example, <b>afp2pcl</b> .
<i>class</i>	Specifies the transform class, which is specified in the <b>-c</b> option when the transform is called. Transform classes are defined in the Infoprint Server Transform Manager configuration file, <b>aopxfd.conf</b> .
<b>#</b>	A unique number that the transform assigns. This number is incremented each time a new transform is started.

The transforms let you redirect **stderr** output with the **-F** transform option. For information about the **-F** option, see “Trace options.”

**Tip:** To read the transform's **stderr** file, you must be a member of the AOPADMIN group. For information about how to establish security for Infoprint Server administrators, see *z/OS Infoprint Server Customization*.

---

## Running traces

This section describes how to run a trace of a transform. The service representative in the IBM Support Center might ask you to run a trace to aid in diagnosing a problem. If so, the representative will tell you how and where to send the trace information. You do not have to interpret the trace. Send it to your service representative.

You can run a trace of a transform in these ways:

**In a printer definition:**

Use the **Filter** field in a printer definition.

Run the job that you want to trace, and then either remove the trace options or specify a different trace file name in the **-F** option before you run the next job. This is because the trace file that you specify in the **-F** option must not already exist. For more information about the **-F** option, see “Trace options.”

**In the filter-options job attribute:**

Use the **filter-options** job attribute specified with the **lp** command, or use any other job-submission method that lets you specify Infoprint Server job attributes (such as when you submit a job using the Infoprint Port Monitor).

**On the transform command:**

Use the **afp2pcl**, **afp2pdf**, or **afp2ps** command.

With each of these methods, you can use the trace options that are explained in “Trace options.”

For examples, see “Examples of running traces” on page 139.

## Trace options

These trace options let you run a trace of a transform and specify where you want the trace information written:

**-F** *tracefile*

Specifies the name of the file where the transform writes all messages and trace information. If you specify this option without the **-T** option, the transform writes all messages to this file, but no trace information.

When you specify this option, the transform does not write messages to the output data set or to the **stderr** file. The file name can contain up to 120 characters and can include an extension.

**Tip:** The file you specify must not already exist. If it exists, the transform fails.

The trace file is created in a directory with this format:

*base-directory/xfd/transform[\_class].#.d*

*base-directory*

Specifies the Infoprint Server base directory, which is determined by the value of the **base-directory** attribute in the Infoprint Server configuration file, **aopd.conf**. The default base directory is **/var/Printsrv**.

*transform*

Specifies the transform name, which is defined in the Infoprint Server Transform Manager configuration file, **aopxfd.conf**.

*class*

Specifies the transform class, which is specified in the **-c** option when the transform is called. Transform classes are defined in the Infoprint Server Transform Manager configuration file, **aopxfd.conf**.

# A unique number that the transform assigns. This number is incremented each time a new transform is started.

**Tip:** To read the trace file, you must be a member of the AOPADMIN group. For information about how to establish security for Infoprint Server administrators, see *z/OS Infoprint Server Customization*.

**Example:** **-F** myfile.trace

**Default:** The trace is appended to the transformed output. No separate trace file is produced. The **stderr** output is directed to the **stderr** file.

**-T** *traceoptions*

Specifies the type of trace you want. To request more than one type of trace, specify the **-T** option multiple times. Allowed values are:

<b>all</b>	All trace options (generates a lot of output)
<b>allocate</b>	File and memory allocations
<b>flow</b>	Program flow information
<b>io</b>	Input output trace
<b>trans</b>	Internal transform

**Example:** **-T** allocate **-T** io

**Default:** No tracing is done.

## Examples of running traces

### 1. In a printer definition:

This example shows how to run a trace of the AFP to PCL transform in the Processing section of a printer definition. Only a portion of the ISPF panel is shown. The trace is written to file **/var/Printsrv/xfd/afp2pcl.0.d/myfile.trace**.

```

Processing
:
Supported data formats and associated filters:
Data format:  Filter:

/ Line data  afp2pcl.dll %filter-options -F myfile.trace -T all (extend)
/ MO:DCA-P  afp2pcl.dll %filter-options -F myfile.trace -T all (extend)
- PostScript _____ (extend)
/ Text      _____ (extend)
/ PCL       _____ (extend)
- PDF       _____ (extend)
- SAP       _____ (extend)
/ XML       afp2pcl.dll %filter-options -F myfile.trace -T all (extend)
- Other     _____ (extend)

:

```

**2. In the filter-options job attribute:**

This example shows how to run a trace using the **lp** command. In this example, printer definition **myprinter** specifies the AFP to PCL transform (**afp2pcl**). The transform writes the trace and **stderr** output to file **/var/Printsrv/xfd/afp2pcl\_us.0.d/myfile.trace**.

```
lp -d myprinter -o "filter-options='-T io -F myfile.trace'" myfile.afp
```

**3. On the transform command:**

This example shows how to run a trace on a transform command. In this example, the AFP to PostScript transform (**afp2ps**) writes a full trace and **stderr** output for file **myfile.afp** to file **/var/Printsrv/xfd/afp2ps.0.d/myfile.trace**.

```
afp2ps -d myprinter -T all -F myfile.trace myfile.afp
```

---

## Chapter 6. Messages

This chapter describes the messages related to the transforms that come from Infoprint Server and from the transforms.

For information about all the messages from Infoprint Server, see *z/OS Infoprint Server Messages and Diagnosis*.

The messages from the transforms are included in the user's output file if possible. However, if the transform cannot write the message to the output file, the message is sent to the transform error log and a message is sent telling the user that there is a message in the error log. See "Finding the transform stderr file" on page 137 for information about the error log.

---

### Message format

The messages have this format:

*AOxnmnt*

**AOP** Identifies messages from Infoprint Server

**AOX** Identifies messages from the transforms

*nnn* The message number

*t* One-character type code:

Type code	Meaning
<b>E</b>	An error occurred.
<b>I</b>	Information message.
<b>W</b>	A warning situation occurred.

*message\_text*

The text of the message.

---

### Messages

**AOP2300E** Infoprint Server found an error in OCSF. The return code is *code*.

**Explanation:** The z/OS Open Cryptographic Services Facility (OCSF) did not start or had an error. In the message text, *code* is the return code. The required RACF authorization might not be set up correctly.

The format of the return code is X'03xyyyy':

- The *x* value is one of these:
  - 00 - CSSM\_Init call failed (this is the most common return code)
  - 01 - CSSM\_ListModules call failed
  - 02 - There are no CSPs installed
  - 03 - There is no proper CSP installed
  - 04 - CSSM\_ModuleAttach call failed
  - 05 - CSSM\_CSP\_CreateDigestContext call failed
  - 06 - CSSM\_DigestDataInit call failed
  - 07 - CSSM\_DigestDataUpdate call failed

- 08 - CSSM\_DigestDataFinal call failed
- 09 - CSSM\_DeleteContext call failed
- 0A - CSSM\_ModuleDetach call failed
- 0B - CSSM\_CSP\_CreateSymmetricContext call failed
- 0C - CSSM\_EncryptDataInit call failed
- 0D - CSSM\_EncryptDataUpdate call failed
- 0E - CSSM\_EncryptDataFinal call failed

- The *y* value is listed in "OCSF errors" in *z/OS Open Cryptographic Services Facility Application Programming*.

**System action:** The transform request fails. No output is produced or sent to the printer.

**User response:** Contact your system programmer. Resubmit the request after the problem is corrected.

**System programmer response:** Make sure that the required RACF authorization is set up correctly. Verify that the transform is allowed to use OCSF and that

OCSF is correctly installed and customized. For more information, see “Customizing OCSF” on page 87.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PDF

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOP2302E** The highest encryption level that the operating system allows is *number-bit*. To use encryption, it must allow at least 128-bit encryption.

**Explanation:** You cannot encrypt PDF documents on this operating system because it does not allow the required 128-bit encryption. The transform requires that the Open Cryptographic Services Facility (OCSF) support 128-bit encryption even if the user requests 40-bit encryption. In the message text, *number* is the encryption level.

**System action:** The transform request fails. No output is produced or sent to the printer.

**User response:** Contact your system programmer. Resubmit the request after the problem is corrected.

**System programmer response:** Verify that the OCSF is correctly customized. For more information, see “Customizing the AFP to PDF transform” on page 69.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PDF

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOP2304E** To use PDF encryption, set the environment variable **AOP\_ENCRYPT** to **Yes** in the transform configuration file.

**Explanation:** The **AOP\_ENCRYPT** environment variable in the transform configuration file (**aopxfd.conf**) is not set, or is set to no. To encrypt PDF documents, it must be set to yes.

**System action:** The transform request fails. No output is produced or sent to the printer.

**User response:** Contact your system programmer. Resubmit the request after the problem is corrected.

**System programmer response:** Set the environment variable **AOP\_ENCRYPT** to yes in the transform configuration file (**aopxfd.conf**). For more information,

see “Customizing the AFP to PDF transform” on page 69.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PDF

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOP2305E** Add the password for the owner identifier *identifier* to the Password exit *exit*.

**Explanation:** The user submitted a print job and specified the owner identifier to encrypt the PDF document, but the Password exit did not return the associated password. In the message text, *identifier* is the owner identifier and *exit* is the name of the Password exit.

**System action:** The transform request fails. No output is produced or sent to the printer.

**User response:** Contact your system programmer. Resubmit the request after the problem is corrected.

**System programmer response:** Make sure that the Password exit returns a password for this identifier. For more information, see “Writing a Password exit” on page 88.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PDF

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOP2306E** Add the password for the user identifier *identifier* to the Password exit *exit*.

**Explanation:** The user submitted a print job and specified the user identifier to encrypt the PDF document, but the Password exit did not return the associated password. In the message text, *identifier* is the user identifier and *exit* is the name of the Password exit.

**System action:** The transform request fails. No output is produced or sent to the printer.

**User response:** Contact your system programmer. Resubmit the request after the problem is corrected.

**System programmer response:** Make sure that the Password exit returns a password for this identifier. For more information, see “Writing a Password exit” on page 88.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PDF

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOP2307E To select protected actions for PDF encryption, specify the owner password.**

**Explanation:** An owner password is required to restrict actions in encrypted PDF documents.

**System action:** The transform request fails. No output is produced or sent to the printer.

**User response:** Specify an owner identifier in the **pdf-owner-identifier** job attribute, or ask the administrator to specify an owner identifier in the printer definition. Then resubmit the request.

**System programmer response:** If the Password exit restricts actions, make sure that it returns an owner password. For more information, see "Writing a Password exit" on page 88.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PDF

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOP2308E Change either the owner password or the user password. The passwords must be different.**

**Explanation:** You specified the same identifier for both the owner and the user. They cannot be the same.

**System action:** The transform request fails. No output is produced or sent to the printer.

**User response:** Change either the owner identifier or the user identifier and resubmit the request.

**System programmer response:** Make sure that the Password exit returns different passwords for the owner and the user. For more information, see "Writing a Password exit" on page 88.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PDF

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOP2309E The Password exit, *exit*, did not load correctly. The *dllload* function failed with error: *error*.**

**Explanation:** The Password exit might be missing, might be spelled incorrectly, or might not be program-controlled. In the message text, *exit* is the name of the Password exit and *error* gives more detailed information about the possible problem.

**System action:** The transform request fails. No output is produced or sent to the printer.

**User response:** Contact your system programmer. Resubmit the request after the problem is corrected.

**System programmer response:** Make sure that the Password exit has been created, is spelled correctly in the **AOP\_PASSWORD\_EXIT** environment variable in the transform configuration file (**aopxfd.conf**), and is program-controlled. For more information, see "Writing a Password exit" on page 88. If there is more information in *error* in the message text, try to correct that problem.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PDF

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOP2310E The *function* function in the Password exit, *exit*, is incorrect. The *dllqueryfn* function failed with error: *error*.**

**Explanation:** One or more of the required functions (*init*, *pwquery*, *term*) are not specified correctly or are missing in the Password exit. In the message text, *function* is the required function, *exit* is the name of the Password exit, and *error* gives more detailed information about the possible problem.

**System action:** The transform request fails. No output is produced or sent to the printer.

**User response:** Contact your system programmer. Resubmit the request after the problem is corrected.

**System programmer response:** Make sure that the Password exit contains the required functions (*init*, *pwquery*, *term*). For more information, see "Writing a Password exit" on page 88. If there is more information in *error* in the message text, try to correct that problem.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PDF

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0000E Option *option* argument missing**

**Explanation:** An expected argument for an AFP transform option was not supplied.

**System action:** The AFP transform did not process the transform request. No output was generated.

**User response:** Make sure that the required argument options are supplied and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0001E Option *option* is not valid**

**Explanation:** An AFP transform option was not valid.

**System action:** The AFP transform did not process the transform request. No output was generated.

**User response:** Make sure that the requested option is valid and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0002E MODCA, LINE, XML or OTHER expected**

**Explanation:** You attempted to transform an incorrect data format. This transform can transform documents that contain MO:DCA-P, line data, or XML data. If Infoprint Server detects an unknown data format, the data format is considered "other", and the transform attempts to transform the data.

**System action:** The AFP transform did not process the print request. No output was generated.

**User response:** Specify the correct transform command for the input document. Also, ask the administrator to make sure the transform is specified for the correct data formats in the printer definition. Resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0003E Attribute *attribute* is not supported**

**Explanation:** Infoprint Server does not support the specified attribute. There might be a mismatch between the transform version and Infoprint Server. In the message text, *attribute* is the unsupported attribute.

**System action:** The AFP transform did not process the transform request. No output was generated.

**User response:** Contact your system programmer. Resubmit the request after the problem is corrected.

**System programmer response:** Make sure to apply all required Infoprint Server maintenance.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0004E Input buffer too long**

**Explanation:** An internal AFP transform error has occurred.

**System action:** The AFP transform did not process the transform request. No output was generated.

**User response:** Contact an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0005E Write Failed** *socket error*

**Explanation:** An internal AFP transform error has occurred on the named socket write call.

**System action:** The AFP transform did not process the transform request. No output was generated.

**User response:** Contact an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0006E Read Failed** *socket error*

**Explanation:** An internal AFP transform error has occurred on the named socket read call.

**System action:** The AFP transform did not process the transform request. No output was generated.

**User response:** Contact an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0008E Unexpected end of data**

**Explanation:** An internal AFP transform error has occurred.

**System action:** The AFP transform will not process the transform request, and no output was produced.

**User response:** Contact IBM with information about this error condition.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0009E Only one inputfile may be specified.**

**Explanation:** Multiple AFP files were specified as input to the **afp2pdf** command line transform.

**System action:** The request is not completed.

**User response:** Resubmit the request with only one input file.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0010E Transform failed. See transform error log for additional information**

**Explanation:** The transform detected an error while transforming data from one format to another. The transform was not able to write the error message in the output file. The transform wrote the error message in the transform error log.

**System action:** The request is not completed.

**User response:** Contact your system programmer. Resubmit the request after the problem is corrected.

**System programmer response:** Correct the problem reported in the transform error log. See "Finding the transform stderr file" on page 137 for information about the error log.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0011W OCSF FAILED TO START. RETURN CODE** *code*

**Explanation:** The z/OS Open Cryptographic Services Facility (OCSF) did not start. In the message text, *code* is the return code, which identifies a possible installation error.

The format of the return code is X'xxxxyyy':

- For the *x* value X'0100', the *y* value is X'0000'.
- For the *x* value X'0101', the *y* value is listed in the return codes from **init\_sub** in “Using preinitialization services” in *z/OS Language Environment Programming Guide*.
- For the *x* value X'0102', the *y* value is listed in the return codes from **call\_sub** in “Using preinitialization services” in *z/OS Language Environment Programming Guide*.
- For the *x* value X'0103', the *y* value is listed in the return codes from **term** in “Using preinitialization services” in *z/OS Language Environment Programming Guide*.
- For the *x* value X'03zz', the *z* value is one of these:
  - 00 - CSSM\_Init call failed
  - 01 - CSSM\_ListModules call failed
  - 02 - There are no CSPs installed
  - 03 - There is no proper CSP installed
  - 04 - CSSM\_ModuleAttach call failed
  - 05 - CSSM\_CSP\_CreateDigestContext call failed
  - 06 - CSSM\_DigestDataInit call failed
  - 07 - CSSM\_DigestDataUpdate call failed
  - 08 - CSSM\_DigestDataFinal call failed
  - 09 - CSSM\_DeleteContext call failed
  - 0A - CSSM\_ModuleDetach call failed
  - 0B - CSSM\_CSP\_CreateSymmetricContext call failed
  - 0C - CSSM\_EncryptDataInit call failed
  - 0D - CSSM\_EncryptDataUpdate call failed
  - 0E - CSSM\_EncryptDataFinal call failed

The *y* value is listed in “OCSF errors” in *z/OS Open Cryptographic Services Facility Application Programming*.

**System action:** The transform continues processing, but PDF encryption is not enabled.

**User response:** Contact your system programmer. Resubmit the request after the problem is corrected.

**System programmer response:** Verify that the transform is allowed to use OCSF and that OCSF is correctly installed and customized. For more information, see “Customizing OCSF” on page 87.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PDF

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0044I** DYNALLOC RC *rc* ON PRINTER *text*  
INFO CODE *info* DSN *dataset*

**Explanation:** An error occurred when a data stream transform attempted to dynamically allocate a data set. In the message text, *rc* and *info* are codes returned by

the MVS DYNALLOC macro, and *dataset* is the name of the data set that could not be dynamically allocated.

If you are using the AFP to PCL, AFP to PostScript, or AFP to PDF transform, you might receive this message because one of the AFP resource libraries used by the transform is not available. The transforms use AFP resource libraries named in the AOP\_FONTLIB, AOP\_FORMDEFLIB, AOP\_PAGEDEFLIB, AOP\_PAGESEGLIB, and AOP\_OVERLAYLIB environment variables in the transform configuration file (*/etc/Printsrv/aopxfd.conf*). If one of these environment variables is not defined in the transform configuration file, the transform uses the default libraries documented in *z/OS Infoprint Server Customization*.

**System action:** Generation of the output ends.

**User response:** Look up the *info* code in *z/OS MVS Programming: Authorized Assembler Services Guide*, and do the suggested corrective actions to resolve this problem. If an AFP resource library is not available in your installation, notify your system programmer that this error occurred.

**System programmer response:** Specify the correct AFP resource libraries in the transform configuration file. If you omit one of the environment variables for AFP resource libraries, make sure the default resource libraries exist.

After you change the transform configuration file, restart the Infoprint Server Transform Manager using these *z/OS UNIX* commands:

```
aopstop -d xfd  
aopstart
```

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0049I** INCORRECT CPC FOUND IN  
CODEPAGE *code page*

**Explanation:** The code page control (CPC) record is missing a value, or contains a value that is not valid. For information about what is specified on the CPC, see *Font Object Content Architecture Reference*.

**System action:** AFP transform attempted to use default values to print the font that referred to the incorrect code page. This might cause your output to look different than expected.

**User response:** Fix the incorrect code page and verify that the supplied code page is valid.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX0081I** FONT *font name* REDUCED BY  
*value/1440* IN

**Explanation:** A request was made to map an outline font containing a non-integer point size to an equivalent raster font. Raster fonts are not available in non-integer point sizes. The outline font will therefore be mapped to a smaller raster font. The reduction in font point size is indicated (represented in 1/1440 inch).

**System action:** The supplied font resource will look different in the output than in the original file.

**User response:** If you want to make sure of document fidelity when printing documents containing AFP outline fonts on PCL printers, choose AFP outline fonts that contain integer point size values.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0082I** SEND OUTLINE CALLED *fontname*  
*codepage*

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0083I** RECORD *name* NOT FOUND

**Explanation:** The input record *name* was not found in the current page definition.

**System action:** Processing continues.

**User response:** Correct the name.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0084I** WRONG GRAPHICS TRIPLET *triplet*

**Explanation:** The wrong graphic triplet was found in the current page definition.

**System action:** Processing continues.

**User response:** Verify the page definition. If no errors are found, contact an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0085I** DUPLEX OPTION CHANGED FROM  
ONE MMC TO NEXT MMC

**Explanation:** The duplex option changed between MMCs in the form definition.

**System action:** Processing continues.

**User response:** Verify the form definition. If no errors are found, contact an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0086I** N\_UP OPTION CHANGED FROM  
ONE MMC TO NEXT MMC

**Explanation:** The N\_UP option changed between MMCs in the form definition.

**System action:** Processing continues.

**User response:** Verify the form definition. If no errors are found, contact an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0087I   SIMPLEX REQUESTED FOR DUPLEX  
          ENHANCED N\_UP**

**Explanation:** You requested simplex processing on the transform command line, but the form definition specified enhanced N\_UP duplex.

**System action:** Processing continues in duplex.

**User response:** Specify duplex processing when you use the transform.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0088I   SCAN FDEF ENTERED MEDIUM MAP  
          mediummap**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0089I   SCAN FDEF TERMINATED. INVOKE  
          mediummap**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0091I   LINE DATA IN PAGE MODE**

**Explanation:** A line data record was found between a Begin Page structured field and an End Page structured field.

**System action:** Processing continues without the record.

**User response:** Verify the input data set.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0092W   INVALID ID *id* in MEDIUM OVERLAY  
          name**

**Explanation:** The overlay *name* is mapped with an ID greater than 127.

**System action:** Processing ends.

**User response:** Verify the form definition.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0093I MEDIUM OVERLAY *name* INCLUDED  
NEGATIVE**

**Explanation:** An overlay is included with a negative placement.

**System action:** Processing continues. Parts of the overlay outside the printable area might be lost.

**User response:** Move the overlay down or to the right.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0102W BAD REPLY *value1* from *value2***

**Explanation:** An error occurred in the transform daemon. This message indicates a possible logic error.

**System action:** The transform daemon terminates.

**User response:** Notify your system programmer that this error occurred.

**System programmer response:** Resubmit the job and obtain a trace of the transform. Then contact your service representative in the IBM Support Center, or use your electronic link with IBM service for assistance.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0178W ENCRYPTION RECORD IS TOO  
SHORT**

**Explanation:** The data set contains an encryption record that is not long enough. There might be a problem with the encryption environment variables in the transform configuration file (**aopxfd.conf**), with the customization of the z/OS Open Cryptographic Services Facility (OCSF), or with the Password exit.

**System action:** The transform or print request fails.

**User response:** Contact your system programmer. Resubmit the request after the problem is corrected.

**System programmer response:** Make sure that the encryption environment variables in the transform configuration file (**aopxfd.conf**) are set, that the OCSF is correctly customized, and that the Password exit is correct. For more information, see "Customizing the AFP to PDF transform" on page 69.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PDF

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0179I ENCRYPTION RECORD IS NOT  
VALID**

**Explanation:** The data set contains an encryption record that has a Begin Document or a Begin Named Page Group structured field with an encryption triplet containing unsupported values. There might be a problem with the encryption environment variables in the transform configuration file (**aopxfd.conf**), with the customization of the z/OS Open Cryptographic Services Facility (OCSF), or with the Password exit.

**System action:** The transform continues, but the data is not encrypted.

**User response:** Contact your system programmer. Resubmit the request after the problem is corrected.

**System programmer response:** Make sure that the encryption environment variables in the transform configuration file (**aopxfd.conf**) are set, that the OCSF is correctly customized, and that the Password exit is correct. For more information, see "Customizing the AFP to PDF transform" on page 69.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PDF

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0180W INVALID RETURN ON TRAY  
REQUEST**

**Explanation:** The AOP\_TRAYID environment variable is not correct. This environment variable contains the tray IDs that the transform uses for each AFP tray ID.

**System action:** The transform class cannot process any transform requests.

**Operator response:** Notify your system programmer that this error occurred.

**User response:** Notify your system programmer that this error occurred. Resubmit the transform command or print job after the problem is corrected.

**System programmer response:** Correct the AOP\_TRAYID environment variable in the Infoprint Server transform configuration file, **aopxfd.conf**. Make sure that a non-zero tray ID is specified in the first position in the AOP\_TRAYID environment variable. Then restart the Infoprint Server Transform Manager daemon.

For information about the AOP\_TRAYID environment variable, see "Environment variables for the AFP to PCL transform" on page 60. For information about how to edit the **aopxfd.conf** file, see *z/OS Infoprint Server Customization*.

**Problem determination:** Not applicable.

**Source:** Infoprint Transforms to AFP for z/OS

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0314W START OF STORAGE CHAIN  
DESTROYED FOR *name***

**Explanation:** This is a severe program error message.

**System action:** Program operation might be impacted.

**User response:** Contact an IBM service representative.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX0315W END OF STORAGE CHAIN  
DESTROYED FOR *name***

**Explanation:** This is a severe program error message.

**System action:** Program operation might be impacted.

**User response:** Contact an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0316W START OF STORAGE CHAIN  
DESTROYED FOR *name***

**Explanation:** This is a severe program error message.

**System action:** Program operation might be impacted.

**User response:** Contact an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0317W END OF STORAGE CHAIN  
DESTROYED FOR *name***

**Explanation:** This is a severe program error message.

**System action:** Program operation might be impacted.

**User response:** Contact an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0322I MORE THAN *nnnn* FONTS IN USE**

**Explanation:** There are too many fonts being used in the print job.

**System action:** Printing of this job is interrupted.

**User response:** Verify that the document does not use more than the allowed number of fonts (127 PCL4 printers, 512 PCL5 printers, 127 DBCS fonts).

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0323I MORE THAN *nnnn* OVERLAY IN USE**

**Explanation:** There are too many overlays being used in the print job.

**System action:** Printing of this job is interrupted.

**User response:** Verify that the document does not use more than 255 overlays.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX0350I SEQUENCE INDICATOR OUT OF RANGE IN DATA MATRIX BARCODE**

**Explanation:** The sequence indicator or total number of structured-append symbols in a DATA MATRIX barcode is out of range.

**System action:** The barcode will not be written.

**User response:** Verify that the sequence indicator and the total symbols are correct.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX0351I LESS THAN 7 BYTES ESCAPE FOUND IN DATA MATRIX BARCODE**

**Explanation:** An escape code is less than 7 bytes long (a “\” [backslash] and 6 digits).

**System action:** The barcode will not be written.

**User response:** Verify that the input data to the DATA MATRIX barcode symbols is correct.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0352I NON NUMERIC *cc* FOUND IN DATA MATRIX BARCODE**

**Explanation:** An escape code contained a non-numeric character *cc*.

**System action:** The barcode will not be written.

**User response:** Verify that the input data to the DATA MATRIX barcode symbols is correct.

**System programmer response:** None.

**Problem determination:** Not applicable.

---

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0353I DATA MATRIX SYMBOL TOO LARGE**

**Explanation:** There is more data in the input than the DATA MATRIX symbol can contain.

**System action:** The barcode will not be written.

**User response:** Reduce the amount of input data to the DATA MATRIX barcode symbols.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0354I MAXICODE MODE OUT OF RANGE**

**Explanation:** The MAXICODE mode parameter is out of range. 2 to 6 is allowed.

**System action:** The barcode will not be written.

**User response:** Correct the mode parameter.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0355I SEQUENCE INDICATOR OUT OF RANGE IN *maxicode***

**Explanation:** The sequence indicator or total number of structured-append symbols in a MAXICODE barcode is out of range.

**System action:** The barcode will not be written.

**User response:** Verify that the sequence indicator and the total symbols are correct.

---

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0356I MAXICODE SYMBOL TOO LARGE**

**Explanation:** There is more data in the input than the MAXICODE symbol can contain.

**System action:** The barcode will not be written.

**User response:** Reduce the amount of input data to the MAXICODE barcode symbols.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0357I LESS THAN 7 BYTES ESCAPE FOUND IN MAXICODE**

**Explanation:** An escape code is less than 7 bytes long (a “\” [backslash] and 6 digits).

**System action:** The barcode will not be written.

**User response:** Verify that the input data to the MAXICODE barcode symbols is correct.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0358I NON NUMERIC cc FOUND IN DATA MAXICODE**

**Explanation:** An escape code contained a non-numeric character *cc*.

**System action:** The barcode will not be written.

**User response:** Verify that the input data to the MAXICODE barcode symbols is correct.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0359I MAXICODE STRUCTURED CARRIER MESSAGE OUT OF RANGE**

**Explanation:** The structured carrier message in mode 2 or mode 3 is incorrect.

**System action:** The barcode will not be written.

**User response:** Verify that the input data to the MAXICODE barcode symbols structured carrier message is correct.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0360I Hex dump of structured carrier data**

**Explanation:** A hexadecimal dump of the structured carrier message that was incorrect.

**System action:** Information-only message.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0362I    WRONG NUMBER OF CHARACTERS  
PER ROWS IN PDF417 BARCODE**

**Explanation:** The number of characters per row is out of range in a PDF417 barcode. The valid range is 1 to 30.

**System action:** The barcode will not be written.

**User response:** Verify that the input data to the PDF417 barcode symbol is correct.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0363I    WRONG NUMBER OF ROWS IN  
PDF417 BARCODE**

**Explanation:** The number of rows is out of range in a PDF417 barcode. The valid range is 3 to 90. The default is 255.

**System action:** The barcode will not be written.

**User response:** Verify that the input data to the PDF417 barcode symbol is correct.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0364I    SECURITY LEVEL OUT OF RANGE IN  
PDF417 BARCODE**

**Explanation:** The security level is out of range in a PDF417 barcode. The valid range is 0 to 8.

**System action:** The barcode will not be written.

**User response:** Verify that the input data to the PDF417 barcode symbol is correct.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0365I    NO DATA IN PDF417 BARCODE**

**Explanation:** No data is specified in a PDF417 barcode.

**System action:** The barcode will not be written.

**User response:** Verify that the input data to the PDF417 barcode symbol is correct.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0366I    MACRO DATA ERROR dddddddd IN  
PDF417 BARCODE**

**Explanation:** Incorrect macro data was found in a PDF417 barcode. *ddddddd* is the start of the incorrect data.

**System action:** The barcode will not be written.

**User response:** Verify that the input data to the PDF417 barcode symbol is correct.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0367I    LESS THAN 4 BYTES ESCAPE FOUND  
IN PDF417 BARCODE**

**Explanation:** An escape code is less than 4 bytes long (a "\ " [backslash] and 3 digits).

**System action:** The barcode will not be written.

**User response:** Verify that the input data to the PDF417 barcode symbols is correct.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0368I NON NUMERIC *cc* FOUND IN PDF417 BARCODE**

**Explanation:** An escape code contained a non-numeric character *cc*.

**System action:** The barcode will not be written.

**User response:** Verify that the input data to the PDF417 barcode symbols is correct.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0369I PDF417 BARCODE ESCAPE TOO LARGE *value***

**Explanation:** An escape code *value* is too large. The valid range is 0 to 928.

**System action:** The barcode will not be written.

**User response:** Verify that the input data to the PDF417 barcode symbols is correct.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0370I WRONG MACRO TEXT *cc* FOUND IN PDF417 BARCODE**

**Explanation:** A binary value *cc* was found in macro text mode.

**System action:** The barcode will not be written.

**User response:** Verify that the input data to the PDF417 barcode symbols is correct.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0371I PDF417 CODES *code***

**Explanation:** A dump of the PDF417 barcode data.

**System action:** Trace flow information message.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0372I Hex dump of data matrix data**

**Explanation:** A hexadecimal dump of data matrix data.

**System action:** Trace flow information message.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0373I Hex dump of maxicode data**

**Explanation:** A hexadecimal dump of data maxicode.

**System action:** Trace flow information message.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0383W TRIPLET IN TLE IS NOT VALID**

**Explanation:** A Tag Logical Element (TLE) triplet contains a length field that is not valid.

**System action:** The print job ends.

**User response:** Correct the TLE triplet and resubmit the job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0384W TRIPLET IN BNG IS NOT VALID**

**Explanation:** A Begin Named Page Group (BNG) triplet contains a length field that is not valid.

**System action:** The print job ends.

**User response:** Correct the BNG triplet and resubmit the job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0385W TRIPLET IN TLE IS TOO LONG**

**Explanation:** A Tag Logical Element (TLE) attribute value triplet is not short enough.

**System action:** The print job ends.

**User response:** Correct the TLE triplet and resubmit the job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0386I UNSUPPORTED SOURCE NAME TRIPLET *xx* in LLE**

**Explanation:** A Link Logical Element (LLE) source name triplet is not supported. In the message text, *xx* is the name of the triplet.

**System action:** Processing continues but the triplet is ignored.

**User response:** Correct the triplet and resubmit the job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0387I UNSUPPORTED TARGET NAME TRIPLET *xx* in LLE**

**Explanation:** A Link Logical Element (LLE) target name triplet is not supported. In the message text, *xx* is the name of the triplet.

**System action:** Processing continues but the triplet is ignored.

**User response:** Correct the triplet and resubmit the job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0388W WRONG NUMBER FOUND IN  
OBJECT CONTAINER DATA**

**Explanation:** A non-digit was encoded in an object container data size.

**System action:** Processing ends.

**User response:** Correct the object container data size or verify that the container is the type that the Include Object requested, and resubmit the job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0389W /MediaBox NOT FOUND IN PDF**

**Explanation:** The string “/MediaBox” was missing from a PDF object container.

**System action:** Processing ends.

**User response:** Correct the object container data or verify that the container is the type that the Include Object requested, and resubmit the job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0390W %%BoundingBox: NOT FOUND IN  
EPS**

**Explanation:** The string “%%BoundingBox” was missing from an EPS object container.

**System action:** Processing ends.

**User response:** Correct the object container data or verify that the container is the type that the Include Object requested, and resubmit the job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0391W OBJECT CONTAINER *object container*  
CANNOT BE PROCESSED**

**Explanation:** The object container in the AFP document contains an object that the transform cannot process. For example, if the object container contains a PDF document, the PDF document might be encrypted, compressed, or corrupted. Or, the PDF document might be at a level that the transform does not support. In the message text, *object container* is the name of the object container that the transform cannot process.

**System action:** The transform stops processing and does not produce any output for the object container or for any data that follows the object container.

**User response:** Correct the AFP object container. Resubmit the request after the problem is corrected.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0551I INVALID NUMBER IN BIN *nnnnnn***

**Explanation:** The transform **aopxfd.conf** AOP\_TRAYID value contains a numeric value that is not valid.

**System action:** The transform continues using the default for the named value.

**System programmer response:** Correct the value in the transform configuration file, **aopxfd.conf**. Then stop the Transform Manager daemon using the **aopstop -d xfd** command, and restart it using the **aopstart** command. For information about the format of the **aopxfd.conf** file, see Chapter 3, “Customizing transforms,” on page 55 or see the **man** page for the **aopxfd.conf** file.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0580I OPEN ICDS FAILED**

**Explanation:** An internal program error was encountered during AFP transform initialization.

**System action:** The AFP transform ends.

**User response:** Contact an IBM service representative with information about this error condition.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0585I INVALID CHARS OPTION *chars***

**Explanation:** The CHARS option has an incorrect value.

**System action:** Processing continues using the default value.

**User response:** Correct the value of the CHARS option.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0885I *bin* OUT OF RANGE**

**Explanation:** The value of the AOP\_TRAYID *bin* subparameter is not valid.

**System action:** The transform continues using the default AOP\_TRAYID value.

**System programmer response:** Correct the transform subparameter to include a valid AFP\_TRAYID value.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX0925I PAPER *paper name* NOT FOUND**

**Explanation:** The transform does not recognize the requested paper name in the AOP\_PAPER variable in the transform configuration file. The paper name might be incorrect in the AOP\_PAPER variable, in the AOPPAPER table, or in the PAPERGEN macro in the AOXPAPER module. In the message text, *paper name* is the name of the requested paper.

**System action:** The transform uses the A4 paper size.

**User response:** Notify your system programmer that this error occurred.

**System programmer response:** Correct the paper name specified in the AOP\_PAPER variable in the transform configuration file, **aopxfd.conf**. Then stop the Transform Manager daemon using the **aopstop -d xfd** command, and restart it using the **aopstart** command. For information about the format of the **aopxfd.conf** file, see Chapter 3, "Customizing transforms," on page 55 or see the **man** page for the **aopxfd.conf** file.

If you added a new paper size in the AOPPAPER table, make sure the paper name in the PAPERGEN macro is correct in the AOXPAPER module. For information about customizing the AOPPAPER table, see "Adding paper sizes" on page 108.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1003I PS/PCL/PDF TRANSFORM VERSION *version***

**Explanation:** Indicates the version level of the transform.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1059I ALLOCATE USERLIB ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1063W DYNALLOC RC = cccc FOR DATASET  
data set**

**Explanation:** An internal processing error occurred during dynamic allocation for the user library data set *data set*. See error reason code from the SVC 99 macro (DYNALLOC). You can find this information in *z/OS MVS Programming: Authorized Assembler Services Guide*.

**System action:** A severe program error has occurred.

**User response:** Make sure that the named data set exists and that it contains the correct DCB attributes (Variable Blocked or Machine). If this is the case, contact an IBM service representative with a description of the problem.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1064I DDNAME = ddname FOR DATASET  
dataset**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1065I CONCATENATE RC cccc**

**Explanation:** An error occurred during data set concatenation for a requested user library. The return code supplied in the message contains additional details regarding this error. See the error reason code from the SVC 99 macro (DYNALLOC). You can find this information in *z/OS MVS Programming: Authorized Assembler Services Guide*.

**System action:** A severe program error has occurred.

**User response:** Contact an IBM service representative with a description of the problem.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1066I ALLOCATE USERLIB TERMINATED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1067I DEALLOCATE USERLIB ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1068I DECONCATENATE FAILED RC cccc**

**Explanation:** An error occurred during data set deconcatenation for a user library. The return code supplied in the message contains additional details regarding this error. See the error reason code from the SVC 99 macro (DYNALLOC). You can find this information in *z/OS MVS Programming: Authorized Assembler Services Guide*.

**System action:** A severe program error has occurred.

**User response:** Contact an IBM service representative with a description of the problem.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1069I DEALLOC RC cccc FOR DDNAME ddname**

**Explanation:** An internal processing error has occurred during deallocation for ddname *ddname*. The return code supplied in the message contains additional details regarding this error. See the error reason code from the SVC 99 macro (DYNALLOC). You can find this information in *z/OS MVS Programming: Authorized Assembler Services Guide*.

**System action:** A severe program error has occurred.

**User response:** Contact an IBM service representative with a description of the problem.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1070I DEALLOCATE USERLIB TERMINATED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1086W INVALID INPUT FILE**

**Explanation:** Incorrect input data was encountered. The input file did not contain a valid MO:DCA begin structured field.

**System action:** The supplied input file will not be processed.

**User response:** Verify that a valid input file is specified. Resubmit the print job if necessary.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1088I INVALID MPO STRUCTURED FIELD**

**Explanation:** An error in the MO:DCA Map Page Overlay (MPO) structured field was found.

**System action:** The supplied MPO will not be used.

**User response:** An error was encountered in the MO:DCA MPO structured field. Verify that this structured field is coded correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

---

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1089W DATA FOLLOWED CONSTANT FORM  
IN *formdef***

**Explanation:** An error occurred when processing a form definition *formdef* containing constant form data. A constant form has been specified in a copy group where data is also present.

**System action:** Print job ends.

**User response:** Correct the data set or form definition so that no print records are sent on the same page where the constant form is printed.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1090I *command* UNEXPECTED RECORD IN  
MAIN**

**Explanation:** Unexpected or unknown record or command was detected in the input data by the primary processing routine (MAIN).

**System action:** Processing continues, but the named data record is ignored.

**User response:** Verify that the input data has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1091W WRONG LENGTH IN INVOKE DATA  
MAP**

**Explanation:** The length field specified on the MO:DCA Invoke Data Map does not match the actual field length. The structured field length indicated was less than zero or greater than eight.

**System action:** Processing of the current transform ends.

**User response:** Make sure that the member that received the error is valid and has not been corrupted or destroyed.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1092W WRONG LENGTH IN INVOKE  
MEDIUM MAP**

**Explanation:** The length field specified on the MO:DCA Invoke Medium Map does not match the actual field length. The structured field length indicated was less than zero or greater than eight.

**System action:** Processing of the current transform ends.

**User response:** Make sure that the member that received the error is valid and has not been corrupted or destroyed.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1093W INVALID UNITS IN PAGE  
DESCRIPTOR**

**Explanation:** An incorrect unit base value was identified in an overlay or page segment resource.

**System action:** The job referring to the named resource will not be printed.

**User response:** The named resource type is corrupted and cannot be used for printing. Use the IO transform trace option to determine the resource type of the failing resource.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1094W** CONSTANT FORM FOLLOWED BY DATA

**Explanation:** An error occurred when processing a form definition containing constant form data. A constant form has been specified in a copy group where data is also present.

**System action:** The constant form was not processed correctly.

**User response:** Correct the data set or form definition so that no print records are sent on the same page where the constant form is printed. Include NOP records or other methods to make sure that data is not printed on the same page as the constant form.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1102I** SHORT RECORD FOUND. LENGTH *length*

**Explanation:** An error was encountered processing MO:DCA data. A MO:DCA structured field was processed that was fewer than nine bytes.

**System action:** The output job producing the error is ended and processing continues.

**User response:** Validate that the print output containing MO:DCA (X'5A') records has not been corrupted and that records are at least nine bytes in length (X'5A' plus eight bytes).

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1103I** CC = *cc*

**Explanation:** This message identifies the structured field that is being processed.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1104I** CMD = *command* LENGTH = *length*

**Explanation:** This message identifies the structured field that is being processed.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1105I** *hexadecimal data*

**Explanation:** This message contains hexadecimal data dumped by message AOX1104I.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1106I** *member* FOUND IN USERLIB

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1109W** *member library* **MEMBER NOT FOUND**

**Explanation:** An AFP resource could not be found in the AFP resource library. In the message text, *member* is the name of the AFP resource and *library* is the name of the AFP resource library.

**System action:** Processing ends.

**System programmer response:** Verify that the named AFP resource is in the correct library. Verify that the AFP resource library is specified in the transform configuration file, **aopxfd.conf**. For information about the transform configuration file, see Chapter 3, "Customizing transforms," on page 55.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1111I** *member ddname* **OPENED FOR READ**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1112I** **RECFM =** *recfm* **LRECL =** *lrecl* **BLKSIZE**  
**=** *blksize*

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1113W** *data set member* **INVALID RECORD**  
**FORMAT**

**Explanation:** The named data set member cannot be used as a print resource because the data set does not have a valid record format.

**System action:** The output job producing the error is ended and processing continues.

**User response:** Correct the incorrect data set containing the print resource. Make sure that the data set attributes (RECFM) are set correctly. Allowable record formats are: V or VBM.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1114W** *data set member* **INPUT FILE NOT**  
**FOUND**

**Explanation:** An expected data member could not be found.

**System action:** The output job producing the error is ended and processing continues.

**User response:** Validate that all input data and resources have been supplied.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1116I** *member ddname* **CLOSED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1118I** **NOTE CALLED**

**Explanation:** The **note** macro has started recording for a data set.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1120I** **POINT CALLED**

**Explanation:** The **point** macro has started repositioning an input data set.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1123W** *data set member* **READ FAILED**

**Explanation:** The named data set member contained an incorrect record format.

**System action:** The output job producing the error is ended and processing continues.

**User response:** Validate that the input data record format is acceptable and that the input data has not been corrupted.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1128I** **PREVIOUS LOG DATA IS LOST DUE TO WRAP**

**Explanation:** The printer log data set has been wrapped. Information recorded earlier has been deleted.

**System action:** Processing continues.

**User response:** None.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1280I** **CMD=** *command* **LENGTH=** *length*

**Explanation:** Structured field command from note or point. In the message text:

*command*

Is the name of the command.

*length*

Is the length of the command.

**Notes:** Information-only message identifying the structured field being processed.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1206I** TOO MANY RESOURCES IN RESOURCE LIST

**Explanation:** The document being transformed contains more than 2,000 inline resources.

**System action:** The transform processes the first 2,000 inline resources and ignores the remaining inline resources.

**User response:** If the transform output is not correct, remove some inline resources from the document and resubmit the transform request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1281I** *hexadecimal data*

**Explanation:** Hexadecimal dump information from AOX1280.

**Notes:** See AOX1280 for additional details.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1282I** ERROR FOUND IN TAG

**Explanation:** An error was found in an XML start tag or end tag.

**System action:** Processing continues.

**User response:** Correct the input file and resubmit the job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1283I** END TAG DO NOT MATCH START TAG

**Explanation:** An XML end tag does not match the start tag.

**System action:** Processing continues.

**User response:** Correct the input file and resubmit the job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1284I** VARIABLE *variable* NOT FOUND

**Explanation:** The *variable* is not defined.

**System action:** Processing continues and the whole *variable* name is printed.

**User response:** Correct the input file and resubmit the job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1285I** INVALID DIGIT *value*

**Explanation:** An incorrect digit *value* was encoded in an XML number.

**System action:** Processing continues and the whole incorrect number is printed.

**User response:** Correct the input file and resubmit the job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1286I** INVALID HEX DIGIT *value*

**Explanation:** An incorrect hex digit value was encoded in an XML number.

**System action:** Processing continues and the whole incorrect hex number is printed.

**User response:** Correct the input file and resubmit the job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1287I** TAG

**Explanation:** Trace of an XML tag value.

**Notes:** This message is followed by a AOX1290 hex dump of the tag.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1288I** DATA

**Explanation:** Trace of an XML data value.

**Notes:** This message is followed by a AOX1290 hex dump of the data.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1289I** ATTRIBUTE

**Explanation:** Trace of an XML attribute value.

**Notes:** This message is followed by a AOX1290 hex dump of the attributes.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1290I** *hexadecimal data*

**Explanation:** Hexadecimal dump information from AOX1287, AOX1288, or AOX1289.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1291I** UNSUPPORTED XML ENCODING  
*value*

**Explanation:** A page definition contains XML encoding that is not supported.

**System action:** Processing of the current transform ends.

**User response:** The transform does not support UTF-16 encoding. Use single-byte encoding.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1310I PRINTER TYPE *type* VERSION *xxx***

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1311I PRINTER TYPE *type* VERSION *xxx,yyy***

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1312I PRINTER PART NUMBER *nnnnnnnn***

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1313I NON QUERIED INTERFACE**

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1314I ICDS LEVEL 4 SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1315I ICDS LEVEL 3 SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.  
**Problem determination:** Not applicable.  
**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript  
**Module:** Not applicable.  
**Routing code:** Not applicable.  
**Descriptor code:** Not applicable.  
**Automation:** Not applicable.

---

**AOX1316I ICDS LEVEL 1 SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.  
**System action:** Processing continues.  
**User response:** None.  
**System programmer response:** None.  
**Problem determination:** Not applicable.  
**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript  
**Module:** Not applicable.  
**Routing code:** Not applicable.  
**Descriptor code:** Not applicable.  
**Automation:** Not applicable.

---

**AOX1317I RESOURCE SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.  
**System action:** Processing continues.  
**User response:** None.  
**System programmer response:** None.  
**Problem determination:** Not applicable.  
**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript  
**Module:** Not applicable.  
**Routing code:** Not applicable.  
**Descriptor code:** Not applicable.  
**Automation:** Not applicable.

---

**AOX1318I LEVEL 3 SCALEABLE FONT SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.  
**System action:** Processing continues.  
**User response:** None.  
**System programmer response:** None.

**Problem determination:** Not applicable.  
**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript  
**Module:** Not applicable.  
**Routing code:** Not applicable.  
**Descriptor code:** Not applicable.  
**Automation:** Not applicable.

---

**AOX1319I LEVEL 4 SCALEABLE FONT SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.  
**System action:** Processing continues.  
**User response:** None.  
**System programmer response:** None.  
**Problem determination:** Not applicable.  
**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript  
**Module:** Not applicable.  
**Routing code:** Not applicable.  
**Descriptor code:** Not applicable.  
**Automation:** Not applicable.

---

**AOX1320I NO AFP SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.  
**System action:** Processing continues.  
**User response:** None.  
**System programmer response:** None.  
**Problem determination:** Not applicable.  
**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript  
**Module:** Not applicable.  
**Routing code:** Not applicable.  
**Descriptor code:** Not applicable.  
**Automation:** Not applicable.

---

**AOX1321I DUPLEX SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.  
**System action:** Processing continues.  
**User response:** None.  
**System programmer response:** None.  
**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1322I    ORIENTATION SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1323I    GRAPHICS SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1324I    GRAPHICS OVERLAY SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1325I    COPY SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1326I    BIN SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1327I    NO JOG SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### **AOX1328I JOG SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### **AOX1329I BINARY SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### **AOX1330I INFO SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

---

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### **AOX1333I OUTBIN SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### **AOX1334I TYPE 1 FONT SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### **AOX1335I COLOR SUPPORT**

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

---

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### AOX1336I JPEG SUPPORT

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### AOX1337I COLOR SPACE SUPPORT

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### AOX1338W TOO MANY 24 BIT COLORS IN USE

**Explanation:** An attempt to print a graphic object boundary line containing more than 128 extended colors failed. A maximum of 128 extended colors is supported.

**System action:** Printing of the current job ends.

**User response:** Reduce the color complexity of the print resource containing the graphic object boundary line and resubmit it.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### AOX1339I COLOR RASTER SUPPORT

**Explanation:** This message is sent in response to a query. It indicates specific product features.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### AOX1355I LINK SUPPORT

**Explanation:** Indicates specific interface product features such as microcode level, printer support, and other features.

**Notes:** Information-only message.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### AOX1357W JPEG READ BUFFER UNDERFLOW

**Explanation:** An error was found reading a JPEG image. Instead of data, a marker was found. The JPEG image might be corrupted. There might be a problem with the encryption environment variables in the

transform configuration file (**aopxfd.conf**), with the customization of the z/OS Open Cryptographic Services Facility (OCSF), or with the Password exit.

**System action:** Processing of the current transform ends.

**User response:** Contact your system programmer. Resubmit the request after the problem is corrected.

**System programmer response:** Correct the JPEG and resubmit the job. Make sure that the encryption environment variables in the transform configuration file (**aopxfd.conf**) are set, that the OCSF is correctly customized, and that the Password exit is correct. For more information, see "Customizing the AFP to PDF transform" on page 69.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PDF

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### AOX1359I NO OVERLAY ROTATE SUPPORT

**Explanation:** Indicates specific interface product features such as microcode level, printer support, and other features.

**Notes:** Information-only message.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### AOX1370I ICDS INPUT

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### AOX1371I *hexadecimal data*

**Explanation:** This message contains hexadecimal data dumped by message AOX1370I.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### AOX1372I RESPONSE RECEIVED

**Explanation:** This message is returned as a response to a trace request (HEX).

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### AOX1373I *hexadecimal data*

**Explanation:** This message contains hexadecimal data dumped by message AOX1372I.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1374I ICDS OUT LENGTH**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1375I hexadecimal data**

**Explanation:** This message contains hexadecimal data dumped by message AOX1374I.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1376I GETPARM cccc text**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

---

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1377I GETPARM cccc NOT FOUND**

**Explanation:** An internal program error has occurred during processing.

**System action:** Processing continues.

**User response:** Contact an IBM service representative with a description of the problem.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1378I ERROR RETURNED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1379I VALUE RETURNED value**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

---

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1380I VALUE RETURNED** *value*

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1381I VALUE RETURNED** *value*

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1382I NEXTPARM** *cccc text*

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1383I NO MORE RETURNED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1384I CHANGE SET TO** *cccc text* **GROUP**  
*group*

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1390I MORE THAN 255 OVERLAYS IN USE**

**Explanation:** More than 255 overlays are being used in the print job.

**System action:** Printing of this job ends.

**User response:** Verify that the document does not use more than 255 overlays.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1392I HIGH MEMORY REQUESTED BY *id***

**Explanation:** Request *id* for memory has been received.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1393I INSUFFICIENT REGION FOR JOB**

**Explanation:** The maximum address space is too small for processing the transform.

**System action:** Processing of the AFP transform ends.

**User response:** Increase the size of the maximum address space. Change either the MAXASSIZE parameter in the BPXPRMxx member of SYS1.PARMLIB, or associate the maximum address space size with the user ID that started Infoprint Server. For more information about increasing the region size, see *z/OS Infoprint Server Customization*.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1394I STORAGE ALLOCATED AT *address*  
LENGTH *length* CALLED BY *id***

**Explanation:** This information-only message defines the virtual storage allocated during processing. The 8-byte hexadecimal *address* is the storage location, *length* is the range allocated, and *id* is the request for allocation.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1395I LONG STORAGE ALLOCATED AT  
*address* LENGTH *length* CALLED BY *id***

**Explanation:** This information-only message defines the virtual storage allocated during processing. The 8-byte hexadecimal *address* is the storage location, *length* is the range allocated, and *id* is the request for allocation.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1396I WRONG FREEMAIN AT ADDR  
*xxxxxxx* CALLED BY *module***

**Explanation:** An internal transform error occurred.

**System action:** Processing of job continues.

**User response:** Retry the print job. If this error persists, do a transform trace (with the ALL option), and report this error to an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1397I STORAGE RELEASED AT *address*  
LENGTH *length* CALLED BY *id***

**Explanation:** This information-only message defines the virtual storage released during processing. The 8-byte hexadecimal *address* is the storage location, *length* is the range allocated, and *id* is the request for release.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1398I STORAGE RELEASED AT *address*  
LENGTH *length* CALLED BY *id***

**Explanation:** This information-only message defines the virtual storage released during processing. The 8-byte hexadecimal *address* is the storage location, *length* is the range allocated, and *id* is the request for release.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1399I LONG STORAGE RELEASED AT  
*address* LENGTH *length* CALLED BY *id***

**Explanation:** This information-only message defines the virtual storage released during processing. The 8-byte hexadecimal *address* is the storage location, *length* is the range allocated, and *id* is the request for release.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1449I ZERO FOUND IN TIFF IMAGE  
RESOLUTION TAG *tag***

**Explanation:** A value of zero was found in a TIFF tag 11A or 11B tag.

**System action:** Printing of the current print job continues. The resolution is 150 dots per inch.

**User response:** Correct the input file.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1500I EOD ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1501I EOD TERMINATED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1502I BGP ENTERED. PAGE *page***

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1503I BIN *nn* NOT ON PRINTER**

**Explanation:** The selected paper bin *nn* is not installed in the printer.

**System action:** Paper bin 1 will be used.

**User response:** Verify that the paper bin selected using the BIN command is available in the target printer. Adjust the BIN command specification accordingly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1504I BGP TERMINATED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

---

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1505I EPG ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1506I *nn* CHARACTERS OUTSIDE LOGICAL PAGE ON PAGE *pp***

**Explanation:** The placement of character data was outside the logical page.

**System action:** The characters outside the defined logical page for page number *pp* will not be printed. Processing continues.

**User response:** Verify that the defined logical page size (specified in the MO:DCA input) matches the supplied data. Adjust the input data or corresponding page and form definition where required.

**Tip:** You can suppress this message by specifying the **print-error-reporting** job attribute and the DATAACK JCL parameter.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

---

**AOX1507I** *nnn* RULERS OUTSIDE LOGICAL PAGE ON PAGE *pp*

**Explanation:** Presentation Text Draw rule commands placed one or more rules (*nnn*) outside the logical page.

**System action:** *nnn* draw rules will not be printed. Processing continues.

**User response:** Make sure that the logical page area matches the input data placement.

**Tip:** You can suppress this message by specifying the **print-error-reporting** job attribute and the DATAACK JCL parameter.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1508I** *nnn* NEGATIVE RULER REMOVED ON PAGE *pp*

**Explanation:** One or more draw rule commands contained a negative page coordinate, (that is, the print position is outside of the page area) and was removed on page number *pp*.

**System action:** *nnn* draw rules will not be printed. Processing continues.

**User response:** Remove the rule or adjust the rule position so that it can be printed.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1509I** *nnn* NEGATIVE RULER FOUND ON PAGE *pp*

**Explanation:** One or more (*nnn*) presentation text draw rule commands contained a negative page coordinate on page *pp* (that is, the print position is outside of the page area). The draw rule commands have been modified to permit printing of a portion of the rule.

**System action:** The portion of the rule that can be placed on the page is printed and the remainder of the rule is removed. Processing continues.

**User response:** Use the offset value supplied in the form definition, or the JCL OFFSET x and y values, and x and y image-shift job attributes to readjust the entire page position.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1510I** END PAGE CALLED WITH NO PAGE ACTIVE

**Explanation:** An internal processing error was encountered.

**System action:** Processing of this print job continues.

**User response:** If this problem persists, contact an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1511I** *nnn* IMAGE OUTSIDE LOGICAL PAGE ON PAGE *pp*

**Explanation:** Write image commands placed the image outside the logical page.

**System action:** The number of image lines indicated (*nnn*) will not be printed.

**User response:** Make sure that the logical page area matches the input data placement.

**Tip:** You can suppress this message by specifying the **print-error-reporting** job attribute and the DATAACK JCL parameter.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1512I** *mm* **NEGATIVE IMAGE FOUND ON PAGE *pp***

**Explanation:** The print position of an image is outside of the page area.

**System action:** The portion of the image that can be placed on the page is printed and the remainder of the image is deleted. Processing continues.

**User response:** Use the OFFSET x and y values to readjust the entire page position.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1513I** *mm* **IMAGE ADJUSTED ON PAGE *pp***

**Explanation:** An image print position was outside the page area on page *pp*. The image was adjusted so a portion of the image could be printed.

**System action:** A partial image is produced at the requested location. Processing continues.

**User response:** Use the OFFSET x and OFFSET y values to readjust the entire page.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1514I** **EPG TERMINATED, CONTINUE = *mm***

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

---

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1515I** **BIM ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1516I** **IMAGE ORIENTATION *orient* NOT SUPPORTED**

**Explanation:** A specified image orientation value is not supported. Valid values are 0, 90, 180 and 270.

**System action:** The image data will be printed using 0-degree orientation.

**User response:** Correct the input image orientation value and resubmit the job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1517I** **IMAGE SCALE FACTOR *nnnn* NOT SUPPORTED**

**Explanation:** The image scale factor specified (*nnnn*) is not supported. The only supported values are 03E8 and 07D0.

**System action:** The image data will be printed using a scale factor of 03E8. Double pel image data will be printed as single pel image.

**User response:** Correct the input image scale factor and resubmit the job.

---

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1518I IMAGE START** *xxxxxxx* **LENGTH =**  
*xxxxxxx*

**Explanation:** The IM image routine has started processing at the specified address for a length *xxxxxxx*.

**Notes:** Information-only message.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1519I PAGE SIZE** *xsize ysize*

**Explanation:** This information-only message displays the logical page size.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1520I PAGE OFFSET** *xoffset yoffset*

**Explanation:** This information-only message displays the logical page offset.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1521I IMAGE START** *xorigin yorigin*

**Explanation:** This information-only message displays the image origin.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1522I IMAGE CELL** *xsize ysize*

**Explanation:** This information-only message displays the image cell size.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1523I IMAGE REPEAT** *xrepeat yrepeat*

**Explanation:** This information-only message displays the image cell repeat value.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1524W UNEXPECTED END OF FILE IN IMAGE**

**Explanation:** A premature end of file indicator was encountered in an input IOCA image.

**System action:** Processing of this job ends.

**User response:** Verify that the image data is not corrupted and resubmit the print job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1525I BIM TERMINATED RC *rc***

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1526W *command* UNEXPECTED RECORD IN IMAGE**

**Explanation:** Unexpected or unknown record or command was detected in the named resource type.

**System action:** Processing continues but the named data record is ignored.

**User response:** Verify that the input data has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1527I INSUFFICIENT STORAGE FOR IMAGE CELLS**

**Explanation:** Insufficient virtual storage was available for the page segment image processing. An image cell is encountered that exceeds 64K.

**System action:** Processing of the current transform ends.

**User response:** Regenerate the input image using a smaller image cell size and resubmit the print job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1528I INVALID IMAGE LENGTH**

**Explanation:** A MO:DCA image raster data structured field contained an incorrect length value.

**System action:** Processing of the current transform ends.

**User response:** Verify that the image data is valid and, if required, recreate the input image data.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1529I IMAGE WRITTEN**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1530I BIO ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1531I BIO TERMINATED RC *rc***

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1532W INVALID OUTPUT OPTION *option***

**Explanation:** An IOCA output image option was not valid. The range of supported options is: **position and trim, point to pel, point to double pel, center and trim**, and **scale to fit**.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR environment variable in the Infoprint Server transform configuration file (**aopxfd.conf**) determines the system action. If the variable is not specified, the transform stops processing the document.

**User response:** Modify the IOCA output image option to match one of the supported values and resubmit the print job if necessary.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1533W WRONG IMAGE DATA *xx***

**Explanation:** IOCA Image data was processed with errors. The one byte IOCA structured field *xx* is not supported. The supported range of values are: **begin image, begin image control, image size, image encoding parameter, image element size, image lookup table, band parameter, end of image contents, IDD structure parameter, and end image**.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR environment variable in the Infoprint Server transform configuration file (**aopxfd.conf**) determines the system action. If the variable is not specified, the transform stops processing the document.

**User response:** Verify that the input data contains valid and supported IOCA image data and resubmit the print job if necessary.

**System programmer response:** None.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1534W STRUCTURED FIELD MISSING**

**Explanation:** An expected structured field construct was missing.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR environment variable in the Infoprint Server transform configuration file (**aopxfd.conf**) determines the system action. If the variable is not specified, the transform stops processing the document.

**User response:** Verify that the input datastream has not been corrupted and resubmit the print job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1535I IMAGE SIZE LENGTH TOO SMALL**

**Explanation:** An error was encountered when attempting to print image data. There was less image data than expected.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR environment variable in the Infoprint Server transform configuration file (**aopxfd.conf**) determines the system action. If the variable is not specified, the transform stops processing the document.

**User response:** Validate that the input has not been corrupted.

| **System programmer response:** If the RECID for the G4 MMR image specifies RIDIC, but the width of the image is not padded with zeros, set the AOP\_ASSUME\_RIDIC\_UNPAD-> yes environment variable in the Infoprint Server transform configuration file (**aopxfd.conf**). Then restart the Infoprint Server Transform Manager and resubmit the transform request.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1536I IMAGE ENCODING SIZE LENGTH TOO SMALL**

**Explanation:** An IOCA image length field does not match the length of the MO:DCA image. The length value specified from in an image is incorrect.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR environment variable in the Infoprint Server transform configuration file (**aopxfd.conf**) determines the system action. If the variable is not specified, the transform stops processing the document.

**User response:** Verify that valid image data has been used.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1537W INVALID IDE *nn* RECEIVED**

**Explanation:** An IOCA Image Data Element lookup table processed is not supported. Valid IDE values are 1 and 8.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR environment variable in the Infoprint Server transform configuration file (**aopxfd.conf**) determines the system action. If the variable is not specified, the transform stops processing the document.

**User response:** Verify that the Image Data Element lookup table is supported.

| **System programmer response:** If the RECID for the G4 MMR image specifies RIDIC, but the width of the image is not padded with zeros, set the AOP\_ASSUME\_RIDIC\_UNPAD-> yes environment variable in the Infoprint Server transform configuration file (**aopxfd.conf**). Then restart the Infoprint Server Transform Manager and resubmit the transform request.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1538W INVALID END SEGMENT IN IO IMAGE**

**Explanation:** A MO:DCA IOCA image resource contains an incorrect end segment structured field, or the structured field length does not match the supplied data.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR environment variable in the Infoprint Server transform configuration file (**aopxfd.conf**) determines the system action. If the variable is not specified, the transform stops processing the document.

**User response:** Verify that the IOCA image is not corrupted and resubmit the print job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1539W UNSUPPORTED IMAGE  
COMPRESSION** *type*

**Explanation:** The transform does not support the type of image compression found in the input data stream. In the message text, *type* is a code that indicates the type of image compression. For an explanation of the code, see *IOCA Reference*.

If *type* value is 83, the input data stream might contain an IOCA Color Plus image object (IOCA FS45), which the transform does not support.

**System action:** Printing of the current data set is ended

**User response:** Where possible, resubmit the print job using an alternate IOCA image compression algorithm.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1541I INVALID OBJECT ORIENTATION  
FOUND** *xxxx*

**Explanation:** An unsupported orientation specification was detected in an IOCA image object.

**System action:** The IOCA image will not be printed.

**User response:** Verify that the orientation you want to print is supported.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1542I WRONG IMAGE** *xxxx*

**Explanation:** IOCA Image data was processed with errors. The IOCA image beginning with the hexadecimal string *xxxx* is in error because the value received is not supported. X'FEB8' means the Include Tile parameter. Supported values are: **image data**, **image band data**, **image picture data**, and **image sub-sampling**.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR  
| environment variable in the Infoprint Server transform  
| configuration file (**aopxfd.conf**) determines the system  
| action. If the variable is not specified, the transform  
| stops processing the document.

**User response:** Verify that the input data used is correct and resubmit the print job.

**System programmer response:** None.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1543W ERRORS FOUND IN MR ENCODING**

**Explanation:** Errors in IOCA image modified read encoding were encountered.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR  
| environment variable in the Infoprint Server transform  
| configuration file (**aopxfd.conf**) determines the system  
| action. If the variable is not specified, the transform  
| stops processing the document.

**User response:** Verify that the defined IOCA image is correct and the data is not corrupted.

| **System programmer response:** If the RECID for the  
| G4 MMR image specifies RIDIC, but the width of the  
| image is not padded with zeros, set the  
| AOP\_ASSUME\_RIDIC\_UNPAD-> yes environment  
| variable in the Infoprint Server transform configuration  
| file (**aopxfd.conf**). Then restart the Infoprint Server  
| Transform Manager and resubmit the transform  
| request.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1544W UNEXPECTED END OF FILE IN IMAGE**

**Explanation:** A premature end of file indicator was encountered in an input IOCA image block.

**System action:** Processing of this print job ends.

**User response:** Verify that the IOCA image data is not corrupted and resubmit the print job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1545I BIO TERMINATED RC *rc***

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1546I *data* UNEXPECTED RECORD IN IO IMAGE**

**Explanation:** An unexpected record or MO:DCA command (*data*) was detected in the IOCA image.

**System action:** Processing continues without the named IOCA image.

**User response:** Verify that the IOCA image has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1547W INVALID UNITS IN IO**

**Explanation:** An incorrect unit base value was identified in an IOCA image.

**System action:** The job referring to the IOCA image will not be printed. AFP transform processing continues.

**User response:** The IOCA image is corrupted and cannot be used for printing.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1548W EXT1D FOUND**

**Explanation:** The extension ID found in an MMR compressed image is not supported.

**System action:** Processing of the image ends.

**User response:** The MMR extension ID is not supported.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1549W EXT2D FOUND**

**Explanation:** The extension ID found in an MMR compressed image is not supported.

**System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR environment variable in the Infoprint Server transform configuration file (**aopxfd.conf**) determines the system action. If the variable is not specified, the transform stops processing the document.

**User response:** The MMR extension ID is not supported.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### AOX1550W NEGATIVE RUN FOUND

**Explanation:** An incorrect MMR compressed image has been detected.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR  
| environment variable in the Infoprint Server transform  
| configuration file (**aopxfd.conf**) determines the system  
| action. If the variable is not specified, the transform  
| stops processing the document.

**User response:** The MMR image is not valid.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### AOX1551W EXCESSIVE RUN FOUND

**Explanation:** An incorrect MMR compressed image has been detected.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR  
| environment variable in the Infoprint Server transform  
| configuration file (**aopxfd.conf**) determines the system  
| action. If the variable is not specified, the transform  
| stops processing the document.

**User response:** The MMR image is not valid.

| **System programmer response:** If the RECID for the  
| G4 MMR image specifies RIDIC, but the width of the  
| image is not padded with zeros, set the  
| AOP\_ASSUME\_RIDIC\_UNPAD-> yes environment  
| variable in the Infoprint Server transform configuration  
| file (**aopxfd.conf**). Then restart the Infoprint Server  
| Transform Manager and resubmit the transform  
| request.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### AOX1552I IMAGE COMPRESS = xx

**Explanation:** The transform trace program sends this message to describe IO image processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### AOX1553I OUTPUT OPTIONS = xx

**Explanation:** The transform trace program sends this message to describe IO image processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

#### AOX1554I IDE OPTIONS = xx

**Explanation:** The transform trace program sends this message to describe IO image processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1555I INPUT SIZE = size X= xxxxx Y= yyyyyy**

**Explanation:** The transform trace program sends this message to describe IO image processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1556I OBJECT ORIGIN = xxxxxxxx yyyyyyyy**

**Explanation:** The transform trace program sends this message to describe IO image processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1557I OBJECT SIZE = xxxxxxxx yyyyyyyy**

**Explanation:** The transform trace program sends this message to describe IO image processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1558I IMAGE SIZE = xxxxxxxx yyyyyyyy**

**Explanation:** The transform trace program sends this message to describe IO image processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1559I OBJECT ORIGIN IN DOTS = xxxxxxxx yyyyyyyy**

**Explanation:** The transform trace program sends this message to describe IO image processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1560I OBJECT SIZE IN DOTS = xxxxxxxx yyyyyyyy**

**Explanation:** The transform trace program sends this message to describe IO image processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1561I** IMAGE SIZE IN DOTS = *xx*

**Explanation:** The transform trace program sends this message to describe IO image processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1562I** ORIENT = *orientation*

**Explanation:** The transform trace program sends this message to describe IO image processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1563I** MIN X,Y = *xxxxxxx yyyyyyyy*

**Explanation:** The transform trace program sends this message to describe IO image processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1564I** MAX X,Y = *xxxxxxx yyyyyyyy*

**Explanation:** The transform trace program sends this message to describe IO image processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1565I** DR ENTERED

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1566W** INVALID GDD TRIPLET *triplet*

**Explanation:** An unknown MO:DCA Graphic Data Descriptor triplet was detected. The structured field was not recognized.

**System action:** Processing continues without this resource.

**User response:** Verify that the graphic object has been generated correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1567I** PICTURE LEFT VALUE IS NEGATIVE -  
*value*

**Explanation:** An attempt was made to position an image value outside of the page area. The extent of position outside the printable area is indicated in pels.

**System action:** Processing continues. Part of the image data will be deleted.

**User response:** Move the image data to the right of the page, or reduce the image X offset placement value and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1568I** PICTURE TOP VALUE IS NEGATIVE  
*value*

**Explanation:** An attempt was made to position an image value outside of the page area. The extent of position outside the printable area is indicate in pels.

**System action:** Processing continues. Part of the image data will be deleted.

**User response:** Move the image data down the page, or reduce the image Y offset placement value and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1569W** INVALID PARAMETER IN GDD SET  
DEFAULT

**Explanation:** An incorrect parameter was specified in the MO:DCA GDD set default structured field contained in a graphic object.

**System action:** Processing continues without this resource.

**User response:** Verify that the graphic object has been generated correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1570W** INVALID OUTPUT OPTION *option*

**Explanation:** A GOCA graphic output option *option* is not supported. Supported values are: **scale to fit**, **position and trim**, and **center and trim**.

**System action:** The supplied graphic object will not be printed.

**User response:** An error was found in the specification of a graphic object. Use a different GOCA output option and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1571W** WRONG GRAPHIC DATA *data*

**Explanation:** A MO:DCA graphic data structured field contained an unacceptable value.

**System action:** The supplied graphic object will not be printed.

**User response:** An error was encountered in the specification of a graphic data structured field. Validate that the graphic object has been generated correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1572W** WRONG GRAPHIC DATA *data*

**Explanation:** A MO:DCA graphic data structured field contained an unacceptable value.

**System action:** The supplied graphic object will not be printed.

**User response:** An error was encountered in the specification of a graphic data structured field. Validate that the graphic object has been generated correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1573W** INVALID OBJECT ORIENTATION  
FOUND *orientation*

**Explanation:** An orientation error in a supplied image was encountered.

**System action:** The supplied image will not be used.

**User response:** Make sure that the orientation value is 0, 90, 180, or 270.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1574W** UNEXPECTED END OF FILE IN  
GRAPH

**Explanation:** A premature end of file indicator was encountered in an graphic object.

**System action:** Processing of this print ends.

**User response:** Verify that the graphic data is not corrupted and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1575I** *command* UNEXPECTED RECORD IN  
GRAPHIC OBJECT

**Explanation:** Unexpected or unknown record or command was detected in the graphic object.

**System action:** Processing continues, but the named data record is ignored.

**User response:** Verify that the resource has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1576W** INVALID UNITS IN GOCA

**Explanation:** A GOCA object contained an incorrect unit base value.

**System action:** The job ends.

**User response:** Correct the supplied GOCA object.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1577I** DR TERMINATED RC *rc*

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.  
**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript  
**Module:** Not applicable.  
**Routing code:** Not applicable.  
**Descriptor code:** Not applicable.  
**Automation:** Not applicable.

---

**AOX1578I OUTPUT OPTIONS = xx**  
**Explanation:** The transform trace program sends this message to describe GOCA processing.  
**System action:** Processing continues.  
**User response:** None.  
**System programmer response:** None.  
**Problem determination:** Not applicable.  
**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript  
**Module:** Not applicable.  
**Routing code:** Not applicable.  
**Descriptor code:** Not applicable.  
**Automation:** Not applicable.

---

**AOX1579I OBJECT ORIGIN = xxxxxxxx yyyyyyyy**  
**Explanation:** The transform trace program sends this message to describe GOCA processing.  
**System action:** Processing continues.  
**User response:** None.  
**System programmer response:** None.  
**Problem determination:** Not applicable.  
**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript  
**Module:** Not applicable.  
**Routing code:** Not applicable.  
**Descriptor code:** Not applicable.  
**Automation:** Not applicable.

---

**AOX1580I OBJECT CONTS = xxxxxxxx yyyyyyyy**  
**Explanation:** The transform trace program sends this message to describe GOCA processing.  
**System action:** Processing continues.  
**User response:** None.  
**System programmer response:** None.  
**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript  
**Module:** Not applicable.  
**Routing code:** Not applicable.  
**Descriptor code:** Not applicable.  
**Automation:** Not applicable.

---

**AOX1581I OBJECT SIZE = xxxxxxxx yyyyyyyy**  
**Explanation:** The transform trace program sends this message to describe GOCA processing.  
**System action:** Processing continues.  
**User response:** None.  
**System programmer response:** None.  
**Problem determination:** Not applicable.  
**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript  
**Module:** Not applicable.  
**Routing code:** Not applicable.  
**Descriptor code:** Not applicable.  
**Automation:** Not applicable.

---

**AOX1582I X SIZE = size**  
**Explanation:** The transform trace program sends this message to describe GOCA processing.  
**System action:** Processing continues.  
**User response:** None.  
**System programmer response:** None.  
**Problem determination:** Not applicable.  
**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript  
**Module:** Not applicable.  
**Routing code:** Not applicable.  
**Descriptor code:** Not applicable.  
**Automation:** Not applicable.

---

**AOX1583I Y SIZE = size**  
**Explanation:** The transform trace program sends this message to describe GOCA processing.  
**System action:** Processing continues.  
**User response:** None.  
**System programmer response:** None.  
**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1584I** X,Y SIZE = xxxxxx yyyyyyy

**Explanation:** The transform trace program sends this message to describe GOCA processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1585I** X,Y IN UNITS = xxxxxx yyyyyyy

**Explanation:** The transform trace program sends this message to describe GOCA processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1586I** OBJECT ORIGIN IN DOTS = xxxxxx  
yyyyyy

**Explanation:** The transform trace program sends this message to describe GOCA processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1587I** OBJECT SIZE IN DOTS = xxxxxx  
yyyyyy

**Explanation:** The transform trace program sends this message to describe GOCA processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1588I** ORIENT = *orientation*

**Explanation:** The transform trace program sends this message to describe GOCA processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1589I** MIN X,Y = xxxxxx yyyyyyy

**Explanation:** The transform trace program sends this message to describe GOCA processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1590I** MAX X,Y = xxxxxx yyyyyyy

**Explanation:** The transform trace program sends this message to describe GOCA processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1591W** LINE MISSING IN DRCHARS

**Explanation:** An internal program error has occurred.

**System action:** Processing continues.

**User response:** Contact an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1592W** GOCA CHARACTER TOO LARGE

**Explanation:** A graphic character contained in a graphic object contained a size value that exceeded character set.

**System action:** Processing continues.

**User response:** Correct the graphic object.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1593I** CHARACTER SET *font code page*  
CANNOT BE SCALED

**Explanation:** An attempt was made to scale a character set in GOCA Graphics processing, but the character set cannot be scaled.

**System action:** The program continues without the named font.

**User response:** Scaling of characters in AFP GOCA (graphic) resources is not supported. The named character set and font were not scaled.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1594I** MORE THAN *mmm* IN DRAWING

**Explanation:** A graphic object contained too many line draw commands in a graphic area.

**System action:** Processing continues.

**User response:** The graphic area is too complex to print.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1595I** DR VECTORS WRITTEN

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1596I INVALID TYPE OF EXTERNAL ALGORITHM**

**Explanation:** An IOCA image object contains an incorrect external encoding algorithm. Only compression and recording algorithms are supported.

**System action:** Processing of the current transform ends.

**User response:** Remove the IOCA object from the input document and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1597I UNSUPPORTED JPEG ALGORITHM xx**

**Explanation:** An IOCA image object contains an unsupported JPEG encoding algorithm of type xx. The transforms support all JPEG encoding except differential encoding.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR  
| environment variable in the Infoprint Server transform  
| configuration file (**aopxfd.conf**) determines the system  
| action. If the variable is not specified, the transform  
| stops processing the document.

**User response:** Remove the IOCA object from the input document and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1598I JPEG ALGORITHM EXPECTED**

**Explanation:** An external algorithm has been received, but it is not a JPEG algorithm.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR  
| environment variable in the Infoprint Server transform  
| configuration file (**aopxfd.conf**) determines the system  
| action. If the variable is not specified, the transform  
| stops processing the document.

**User response:** Examine any other messages sent as a result of this condition. Remove the JPEG object from the input document and resubmit the transform or print request.

**System programmer response:** None.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1599I RECORDING ALGORITHM NOT SUPPORTED**

**Explanation:** A JPEG encoded image object contains an unsupported JPEG recording algorithm.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR  
| environment variable in the Infoprint Server transform  
| configuration file (**aopxfd.conf**) determines the system  
| action. If the variable is not specified, the transform  
| stops processing the document.

**User response:** Remove the JPEG object from the input document and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1600I PSEG ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1602I PSEG TERMINATED RC** *rc*

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1603I** *command* **UNEXPECTED RECORD FOUND IN PAGESEG** *page segment*

**Explanation:** Unexpected or unknown record or command was detected in the page segment.

**System action:** Processing continues, but the named data record is ignored.

**User response:** Verify that the page segment is not corrupted.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1604I IOB ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

---

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1605I INVALID TRIPLET LENGTH FOUND**

**Explanation:** An unknown MO:DCA Data Descriptor triplet was detected. The structured field cannot be recognized.

**System action:** Processing continues without this resource.

**User response:** Verify that the AFP object has been generated correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1606I IOB TERMINATED RC** *rc*

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1607W INVALID UNITS IN IO**

**Explanation:** An incorrect unit base value was identified in an IOCA image.

**System action:** The job referring to the named resource will not be printed and was marked as unprintable.

**User response:** The IOCA image is corrupted and cannot be used for printing.

**System programmer response:** None.

**Problem determination:** Not applicable.

---

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1608I UNSUPPORTED OBJECT** *type*

**Explanation:** An unsupported AFP Include Object type was detected. The unsupported object type is *type*. Supported include object type identifiers are: include page segments, overlays, GOCA, BCOCA, image, and include other.

**System action:** Printing of the current data set continues.

**User response:** Remove the unsupported object from the input document and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1609W INCLUDE OBJECT STRUCTURE TOO SHORT**

**Explanation:** A processing error was encountered. A MO:DCA **Include Object** structured field contains data less than 26 bytes long.

**System action:** The output job producing the error is ended and processing continues.

**User response:** Validate that the print output contains a valid AFP **Include Object** structured field and resubmit the job if necessary.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1610I** *command* **UNEXPECTED RECORD FOUND IN OBJECT** *object*

**Explanation:** An unexpected AFPDS command was detected in an include object.

**System action:** Processing continues and the command is ignored.

**User response:** Verify that the resource has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1611I BARCODE ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1612W INVALID UNITS IN BARCODE**

**Explanation:** A bar code object contained an incorrect unit base value.

**System action:** The job ends.

**User response:** Correct the supplied bar code object.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1613W INVALID BDD RECORD**

**Explanation:** Expected data is missing in the Bar code Data Descriptor (BDD) Record.

**System action:** The bar code is ignored and processing continues.

**User response:** Correct the error in the bar code and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1614W UNKNOWN BARCODE *number***

**Explanation:** Bar code type *number* is not supported.

**System action:** This bar code type will not be printed.

**User response:** Verify that the bar code type is specified correctly and resubmit the transform or print request if required.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1615I BARCODE TERMINATED RC *rc***

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1616I *command* UNEXPECTED RECORD FOUND IN BARCODE**

**Explanation:** Unexpected or unknown record or command was detected in the bar code.

**System action:** Processing continues, but the named data record is ignored.

**User response:** Verify that the bar code has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1617W CHARACTER NOT VALID *character* IN 3 OF 9 BARCODE**

**Explanation:** Supplied bar code data is incorrect. The range of valid data depends on the bar code type.

**System action:** The bar code is ignored and processing continues.

**User response:** Correct the bar code data and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1618W INVALID MODIFIER IN 3 OF 9 BARCODE**

**Explanation:** An incorrect bar code modifier has been detected.

**System action:** Processing continues without the bar code.

**User response:** Verify that the bar code has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1619W CHARACTER NOT VALID *character* IN CODABAR BARCODE**

**Explanation:** Supplied bar code data is incorrect. The range of valid data depends on the bar code type.

**System action:** The bar code is ignored and processing continues.

**User response:** Correct the bar code data and resubmit the transform or print request as required.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1620W INVALID MODIFIER IN CODABAR BARCODE**

**Explanation:** An incorrect bar code modifier has been detected.

**System action:** Processing continues without the bar code.

**User response:** Verify that the bar code has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1621W CHARACTER NOT VALID *character* IN CODE128**

**Explanation:** Supplied bar code data is incorrect. The range of valid data depends on the bar code type.

**System action:** The bar code is ignored and processing continues.

**User response:** Correct the bar code data and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1622W CHARACTER NOT VALID *value* IN CODE128 CODE A**

**Explanation:** Supplied bar code data is incorrect. The range of valid data depends on the bar code type.

**System action:** The bar code is ignored and processing continues.

**User response:** Correct the bar code data and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1623W CHARACTER NOT VALID *character* IN CODE128 CODE B**

**Explanation:** Supplied bar code data is incorrect. The range of valid data depends on the bar code type.

**System action:** The bar code is ignored and processing continues.

**User response:** Correct the bar code data and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

---

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1624I INVALID MODIFIER IN CODE128**

**Explanation:** An incorrect bar code modifier has been detected.

**System action:** Processing continues without the bar code.

**User response:** Verify that the bar code has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1625W CHARACTER NOT VALID IN MSI BARCODE**

**Explanation:** Supplied bar code data is incorrect. The range of valid data depends on the bar code type.

**System action:** The bar code is ignored and processing continues.

**User response:** Correct the bar code data and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1626W INVALID MODIFIER IN MSI BARCODE**

**Explanation:** An incorrect bar code modifier has been detected.

**System action:** Processing continues without the bar code.

**User response:** Verify that the bar code has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1627W MODULUS 11 RESULT IS 10**

**Explanation:** An incorrect bar code checksum has been detected. If you scan this barcode, the result will be incorrect.

**System action:** No checksum value was generated for the named bar code. Processing continues.

**User response:** Verify that the length of bar code data is correct and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1628W CHARACTER NOT VALID IN 2/5 INDUSTRIAL BARCODE**

**Explanation:** Supplied bar code data is incorrect. The range of valid data depends on the bar code type.

**System action:** The bar code is ignored and processing continues.

**User response:** Correct the bar code data and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1629W INVALID MODIFIER IN 2/5 INDUSTRIAL BARCODE**

**Explanation:** An incorrect bar code modifier has been detected.

**System action:** Processing continues without the bar code.

**User response:** Verify that the bar code has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1630W CHARACTER NOT VALID IN 2/5 INTERLEAVED BARCODE**

**Explanation:** Supplied bar code data is incorrect. The range of valid data depends on the bar code type.

**System action:** The bar code is ignored and processing continues.

**User response:** Correct the bar code data and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1631W INVALID MODIFIER IN 2/5 INTERLEAVED BARCODE**

**Explanation:** An incorrect bar code modifier has been detected.

**System action:** Processing continues without the bar code.

**User response:** Verify that the bar code has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1632W CHARACTER NOT VALID IN 2/5 MATRIX BARCODE**

**Explanation:** Supplied bar code data is incorrect. The range of valid data depends on the bar code type.

**System action:** The bar code is ignored and processing continues.

**User response:** Correct the bar code data and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1633W INVALID MODIFIER IN 2/5 MATRIX BARCODE**

**Explanation:** An incorrect bar code modifier has been detected.

**System action:** Processing continues without the bar code.

**User response:** Verify that the bar code has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1634W CHARACTER NOT VALID IN EAN/UPC 2 BARCODE**

**Explanation:** Supplied bar code data is incorrect. The range of valid data depends on the bar code type.

**System action:** The bar code is ignored and processing continues.

**User response:** Correct the bar code data and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1635W INVALID MODIFIER IN EAN/UPC 2 BARCODE**

**Explanation:** An incorrect bar code modifier has been detected.

**System action:** Processing continues without the bar code.

**User response:** Verify that the bar code has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1636W WRONG LENGTH IN EAN/UPC 2 BARCODE**

**Explanation:** The specified bar code data length is incorrect.

**System action:** The bar code is ignored and processing continues.

**User response:** Make sure that the length specified in the bar code is correct and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1637W CHARACTER NOT VALID IN EAN/UPC 5 BARCODE**

**Explanation:** Supplied bar code data is incorrect. The range of valid data depends on the bar code type.

**System action:** The bar code is ignored and processing continues.

**User response:** Correct the bar code data and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1638W INVALID MODIFIER IN EAN/UPC 5 BARCODE**

**Explanation:** An incorrect bar code modifier has been detected.

**System action:** Processing continues without the bar code.

**User response:** Verify that the bar code has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1639W WRONG LENGTH IN EAN/UPC 5 BARCODE**

**Explanation:** The specified bar code data length is incorrect.

**System action:** The bar code is ignored and processing continues.

**User response:** Make sure that the length specified in the bar code is correct and resubmit the transform or print request.

**System programmer response:** None.  
**Problem determination:** Not applicable.  
**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript  
**Module:** Not applicable.  
**Routing code:** Not applicable.  
**Descriptor code:** Not applicable.  
**Automation:** Not applicable.

---

**AOX1640W CHARACTER NOT VALID IN UPC A BARCODE**

**Explanation:** Supplied bar code data is incorrect. The range of valid data depends on the bar code type.  
**System action:** The bar code is ignored and processing continues.  
**User response:** Correct the bar code data and resubmit the transform or print request.  
**System programmer response:** None.  
**Problem determination:** Not applicable.  
**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript  
**Module:** Not applicable.  
**Routing code:** Not applicable.  
**Descriptor code:** Not applicable.  
**Automation:** Not applicable.

---

**AOX1641W INVALID MODIFIER IN UPC A BARCODE**

**Explanation:** An incorrect bar code modifier has been detected.  
**System action:** Processing continues without the bar code.  
**User response:** Verify that the bar code has not been corrupted and has been created correctly.  
**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1642W WRONG LENGTH IN UPC A BARCODE**

**Explanation:** The specified bar code data length is incorrect.  
**System action:** The bar code is ignored and processing continues.  
**User response:** Make sure that the length specified in the bar code is correct and resubmit the transform or print request.

**System programmer response:** None.  
**Problem determination:** Not applicable.  
**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript  
**Module:** Not applicable.  
**Routing code:** Not applicable.  
**Descriptor code:** Not applicable.  
**Automation:** Not applicable.

---

**AOX1643W INVALID UPC-E CODE *text***

**Explanation:** The bar code UPC-E code cannot be generated due to a bar code data error.  
**System action:** The bar code is ignored and processing continues.  
**User response:** Verify that the UPC-E bar code data has been specified correctly and resubmit the transform or print request.  
**System programmer response:** None.  
**Problem determination:** Not applicable.  
**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript  
**Module:** Not applicable.  
**Routing code:** Not applicable.  
**Descriptor code:** Not applicable.  
**Automation:** Not applicable.

---

**AOX1644W CHARACTER NOT VALID IN UPC E BARCODE**

**Explanation:** Supplied bar code data is incorrect. The range of valid data depends on the bar code type.  
**System action:** The bar code is ignored and processing continues.  
**User response:** Correct the bar code data and resubmit the transform or print request.  
**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1645W INVALID MODIFIER IN UPC E BARCODE**

**Explanation:** An incorrect bar code modifier has been detected.  
**System action:** Processing continues without the bar code.  
**User response:** Verify that the bar code has not been corrupted and has been created correctly.  
**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1646W WRONG LENGTH IN UPC E  
BARCODE**

**Explanation:** The specified bar code data length is incorrect.

**System action:** The bar code is ignored and processing continues.

**User response:** Make sure that the length specified in the bar code is correct and resubmit the transform or print request.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1647W CHARACTER NOT VALID IN EAN 13  
BARCODE**

**Explanation:** Supplied bar code data is incorrect. The range of valid data depends on the bar code type.

**System action:** The bar code is ignored and processing continues.

**User response:** Correct the bar code data and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1648W INVALID MODIFIER IN EAN 13  
BARCODE**

**Explanation:** An incorrect bar code modifier has been detected.

**System action:** Processing continues without the bar code.

**User response:** Verify that the bar code has not been corrupted and has been created correctly.

**System programmer response:** None.

---

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1649W WRONG LENGTH IN EAN 13  
BARCODE**

**Explanation:** The specified bar code data length is incorrect.

**System action:** The bar code is ignored and processing continues.

**User response:** Make sure that the length specified in the bar code is correct and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1650W CHARACTER NOT VALID IN EAN 8  
BARCODE**

**Explanation:** Supplied bar code data is incorrect. The range of valid data depends on the bar code type.

**System action:** The bar code is ignored and processing continues.

**User response:** Correct the bar code data and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

---

**AOX1651W INVALID MODIFIER IN EAN 8  
BARCODE**

**Explanation:** An incorrect bar code modifier has been detected.

**System action:** Processing continues without the bar code.

**User response:** Verify that the bar code has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1652W WRONG LENGTH IN EAN 8  
BARCODE**

**Explanation:** The specified bar code data length is incorrect.

**System action:** The bar code is ignored and processing continues.

**User response:** Make sure that the length specified in the bar code is correct and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1653W INTERNAL ERROR IN DRAW01 *data***

**Explanation:** An internal program error has occurred during bar code processing.

**System action:** Processing of bar codes was ended.

**User response:** transform or print request. If this error persists, do a transform trace (with the ALL option), and report this error to an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

---

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1654W INTERNAL ERROR IN DRAW02 *data***

**Explanation:** An internal program error has occurred during bar code processing.

**System action:** Processing of bar codes was ended.

**User response:** Retry the transform or print request. If this error persists, do a transform trace (with the ALL option), and report this error to an IBM service representative.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1655W INTERNAL ERROR IN DRAW09 *data***

**Explanation:** An internal program error has occurred during bar code processing.

**System action:** Processing of bar codes was ended.

**User response:** Retry the transform or print request. If this error persists, do a transform trace (with the ALL option), and report this error to an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1656W INTERNAL ERROR IN DRAW0A *data***

**Explanation:** An internal program error has occurred during bar code processing.

**System action:** Processing of bar codes was ended.

**User response:** Retry the transform or print request. If this error persists, do a transform trace (with the ALL option), and report this error to an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

---

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1657W INTERNAL ERROR IN DRAW0B** *data*

**Explanation:** An internal program error has occurred during bar code processing.

**System action:** Processing of bar codes was ended.

**User response:** Retry the transform or print request. If this error persists, do a transform trace (with the ALL option), and report this error to an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1658W INTERNAL ERROR IN DRAW0C** *data*

**Explanation:** An internal program error has occurred during bar code processing.

**System action:** Processing of bar codes was ended.

**User response:** Retry the transform or print request. If this error persists, do a transform trace (with the ALL option), and report this error to an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1659W INTERNAL ERROR IN DRAW18** *data*

**Explanation:** An internal program error has occurred during bar code processing.

**System action:** Processing of bar codes was ended.

**User response:** Retry the transform or print request. If this error persists, do a transform trace (with the ALL option), and report this error to an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1660W BARCODE OUTSIDE LOGICAL PAGE ON PAGE** *pp*

**Explanation:** Draw Barcode commands placed the bar code outside the logical page.

**System action:** The bar code on the indicated page will not be printed.

**User response:** Make sure that the logical page area matches the input data placement.

**Tip:** You can suppress this message by specifying the **print-error-reporting** job attribute and the **DATAACK JCL** parameter.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1661W CHARACTER NOT VALID IN RM4SCC BARCODE**

**Explanation:** The character specified in the Royal Mail 4SCC bar code is not valid.

**System action:** The bar code on the indicated page will not be printed.

**User response:** Make sure that the encoding information for the requested bar code is correct and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1662W INTERNAL ERROR IN DRAW1A**  
*character*

**Explanation:** The character (*character*) specified in the bar code is not valid.

**System action:** Processing of bar codes ends.

**User response:** Resubmit transform or print request. If this error persists, do an AFP transform trace (ALL), and report this error to an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1663I EXTERNAL ALGORITHM LENGTH ERROR**

**Explanation:** A JPEG image object contains an encoding length error.

**System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR environment variable in the Infoprint Server transform configuration file (**aopxfd.conf**) determines the system action. If the variable is not specified, the transform stops processing the document.

**User response:** Correct the error and resubmit the transform or print request.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1664W INVALID OBJECT ORIENTATION FOUND IN BCOCA** *orientation*

**Explanation:** A bar code object contains an unsupported orientation specification.

**System action:** The bar code is printed with 0-degree rotation.

**User response:** Verify that the orientation you want to print is supported.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1665I EPG TERMINATED RC** *rc*

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1666W CHARACTER NOT VALID IN POSTNET BARCODE**

**Explanation:** Supplied barcode data information is incorrect. (The range of valid data depends on the barcode type.)

**System action:** The named barcode is ignored and processing continues.

**User response:** Correct the incorrect barcode data and resubmit the transform or print request as required.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1667W INVALID MODIFIER IN POSTNET  
BARCODE**

**Explanation:** An incorrect barcode modifier has been detected.

**System action:** Processing continues without the named barcode.

**User response:** Verify that the barcode resource has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1668W CHARACTER NOT VALID IN *planet*  
BARCODE**

**Explanation:** Supplied barcode data information is incorrect. (The range of valid data depends on the barcode type.)

**System action:** The named barcode is ignored and processing continues.

**User response:** Correct the incorrect barcode data and resubmit the transform or print request as required.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1669W INVALID LENGTH IN *planet*  
BARCODE**

**Explanation:** An incorrect barcode modifier has been detected.

**System action:** Processing continues without the named barcode.

**User response:** Verify that the barcode resource has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

---

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1670I CTB ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1671I CTB TERMINATED RC *rc***

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1672I *command* UNEXPECTED RECORD IN  
PRESENTATION TEXT**

**Explanation:** Unexpected or unknown record or command was detected in the presentation text.

**System action:** Processing continues, but the named data record is ignored.

**User response:** Verify that the presentation text data is not corrupted.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

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**AOX1673W SOSI FONT NOT FOUND**

**Explanation:** A shift-in shift-out command was specified but the named font could not be found. No font has been supplied with the print job for the requested shift operation.

**System action:** Processing continues without the font resource.

**User response:** Verify that a font has been supplied for the shift operation, either in the page definition, or by using the CHARS option.

**System programmer response:** If this font is located in a system resource library, specify the resource library in the transform configuration file. For information about the transform configuration file, see Chapter 3, "Customizing transforms," on page 55.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1674I INVALID TEXT CONTROL SEQUENCE FOUND *nnnn***

**Explanation:** A MO:DCA Text control structured field in the input data stream contains an incorrect command sequence or length field less than two.

**System action:** Processing continues but ignores the PTOCA record.

**User response:** Correct the incorrect input member.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1675I FONT NUMBER *nnn* NOT FOUND**

**Explanation:** The specified PTOCA Set Coded Font Local font ID*nnn* could not be found. The named font cannot be mapped.

**System action:** Font number *nnn* will not be used. Printing continues with the default font.

**User response:** An incorrect MO:DCA MCF command

has been encountered that refers to a font that has not been mapped. Verify that the document has been created correctly.

**System programmer response:** If this font is located in a system resource library, specify the resource library in the transform configuration file. For information about the transform configuration file, see Chapter 3, "Customizing transforms," on page 55.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1676I FONT NUMBER *nnn* NOT FOUND IN TABLE**

**Explanation:** An internal program error has occurred.

**System action:** The data will be printed with the previously selected font.

**User response:** Run an AFP transform trace (ALL), and report this problem to an IBM service representative.

**System programmer response:** Contact an IBM service representative.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1677W SECTION ID *nn* IS NOT DEFINED**

**Explanation:** There was a **map coded font** request, but a double-byte font section ID was not found in the font.

**System action:** The print job is ended and processing continues.

**User response:** Verify that the section ID*nn* is contained in the supplied double-byte font.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1678I** PRINTER ID *id* INTERN ID *id*

**Explanation:** This internal message is for information only.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1679W** NEGATIVE CHARACTER REMOVED  
ON PAGE *pp* DUE TO VALUE OF *-nnn*  
DOTS

**Explanation:** A character placed outside of the page area was removed on page number *pp* and will not be printed.

**System action:** The character is removed and processing continues.

**User response:** Remove the characters, or adjust the placement of characters so they can be printed.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1681I** FDEF ENTERED MEDIUM MAP *map*

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1682W** FORMDEF IS MISSING IN PARM

**Explanation:** The MO:DCA Invoke Data Map structured field was included in the input data stream. However, a form definition was not supplied to the transform.

**System action:** Processing of the current transform ends.

**User response:** Make sure that the form definition including the required copy group data map is supplied to the transform program.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1683W** INVALID PAGE POSITION TYPE 2  
FOUND

**Explanation:** An incorrect page position command was detected in a form definition.

**System action:** Processing continues using page position 0,0.

**User response:** Correct the form definition.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1684W** INVALID MPO STRUCTURED FIELD  
*rrrr llll*

**Explanation:** A MO:DCA map page overlay structured field is not valid (that is, a length field does not match the supplied data). The length of the MPO triplet was *rrrr*, and a value of *llll* was expected.

**System action:** Processing continues.

**User response:** Adjust the MO:DCA MPO structured field length and rerun the job.

**System programmer response:** None.

**Problem determination:** Not applicable.

---

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1685W MEDIUM MAP *mapname* NOT FOUND  
IN *formdef***

**Explanation:** The specified medium map could not be found in the form definition *formdef*.

**System action:** Processing of the current transform ends.

**User response:** Check that the correct form definition has been supplied and that the medium map is contained in the form definition.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1686I FDEF TERMINATED. *member mapname*  
ACTIVE RC *rc***

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1687W INVALID MAP MEDIUM OVERLAY  
LENGTH IN FORMDEF**

**Explanation:** A MO:DCA map medium overlay contains a length field that does not match the supplied data.

**System action:** Processing continues.

**User response:** Adjust the MO:DCA MMO structured field and rerun the print job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1688I *command* UNEXPECTED RECORD  
FOUND IN FORMDEF *form definition***

**Explanation:** Unexpected or unknown record or command was detected in the form definition.

**System action:** Processing continues, but the named data record is ignored.

**User response:** Verify that the resource has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1689I LINE ENTERED AT LINE *nnn*  
NEWPAGE = *yes/no***

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1690W INVOKE1 TRUE**

**Explanation:** A severe program logic error has occurred.

**System action:** Processing ends.

**User response:** Contact an IBM service representative.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1691I SENDLINE, ARG = xx**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1692I COND b0 b1 medium mmac datamap dmac**

**Explanation:** The transform trace program sends this message to indicate the progress of a conditional processing scan.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1693I MATCH FOUND ON LINE *nnn***

**Explanation:** A conditional processing search argument has been satisfied on line *nnn*.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1694I SCANDOC ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1695I SCANDOC TERMINATED.  
CONDITION IS TRUE.**

**Explanation:** Conditional processing is completed. The set conditions have been met.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1696I SCANDOC TERMINATED**

**Explanation:** Conditional processing is completed. The set conditions have not been met.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1697I INVOKE CALLED IMM = *mapname*  
IDM = *dataname***

**Explanation:** This information-only message indicates that the specified medium map and data map have been activated as a result of conditional processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1698I INVOKE DATA MAP ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1699I INVOKE MEDIUM MAP ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1700W CONSTANT FORM AFTER  
CONDITIONAL INVOCATION OF  
*formdef***

**Explanation:** This message is due to a logic error in the transform code. The maintenance for the transform is down-level.

**System action:** Transform of the document ends.

**User response:** Notify the system programmer of this error. Submit the print or transform request again after the problem is corrected.

**System programmer response:** Apply the PTF for APAR OA21961.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1701I LINE TERMINATED AT LINE *line***

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1702I BARCODE ID *id* NOT FOUND**

**Explanation:** The bar code line check references an unknown bar code ID.

**System action:** This bar code type will not be printed.

**User response:** Verify that the bar code type is specified correctly. Resubmit the print job if necessary.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1703I TOP OF FORM ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1704I MCF ENTERED. FONT *fontname* codepage  
AS *nmn***

**Explanation:** The Map Coded Font processing routine has been invoked for the named font using the named code page. *nmn* is the internal ID assigned to the font.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1705W INVALID FONT CONTROL FOUND IN  
FONT *font***

**Explanation:** An AFPDS font control command in the input data stream contains an incorrect unit base.

**System action:** Processing of the current transform ends.

**User response:** Correct the unit base in the font reference.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1706W RELATIVE FONT CONTROL TOO  
SMALL IN FONT *font***

**Explanation:** Expected data is missing in the relative font FNC record.

**System action:** Processing of the current transform ends.

**User response:** Correct the error in the font and resubmit the print job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1707W THERE IS NO RASTER IN FONT *font***

**Explanation:** The named font does not contain any character raster. This font cannot be used for printing.

**System action:** Processing of the current transform ends.

**User response:** Select other fonts that contain a raster pattern in the font.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1711I** **WRONG RESOLUTION FOUND IN FONT** *font RES resolution*

**Explanation:** The resolution of font *font* is not 300 pels.

**System action:** Processing continues.

**User response:** Make sure that the named font has a resolution of 300 pels (X'0BB8', in 1/10 inch).

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1712W** *command* **UNEXPECTED RECORD IN FONT** *font*

**Explanation:** Unexpected or unknown record or command was detected in the font.

**System action:** Processing continues, but the named data record is ignored.

**User response:** Verify that the font has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1713W** *command* **UNEXPECTED RECORD IN CODE PAGE** *code page*

**Explanation:** Unexpected or unknown record or command was detected in the code page.

**System action:** Processing continues, but the named data record is ignored.

**User response:** Verify that the code page has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1714I** **CHARACTER** *character id* **NOT FOUND IN FONT** *font WITH code page*

**Explanation:** The character ID named was not in the specified font.

**System action:** The transform used a substitute character for *character id*. The substitute character, which is used for unprintable characters, is defined in font *font*. Processing continues.

**User response:** Verify that the font and code page combination is valid and all required characters are current in the font.

**Tip:** You can suppress this message by specifying the **print-error-reporting** job attribute and the **DATAACK JCL** parameter.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1715I** **FONT** *codepage charset* **AS** *nmn* **ACTIVE**

**Explanation:** A coded font has been generated from the named code page and character set. *nmn* is the internal ID assigned to the coded font.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1716I REMOTE FONT** *codepage charset AS nnn*  
**ACTIVE**

**Explanation:** A coded font has been generated from the named code page and character set. *nnn* is the internal ID assigned to the coded font.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1717I MCF TERMINATED RC** *rc*

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1718W ORIENTATION** *orientation* **NOT FOUND**  
**IN FONT** *font*

**Explanation:** A request to use font *font* with orientation *orientation* failed because the font does not contain this orientation.

**System action:** Printing of the indicated job ends.

**User response:** Verify the specified font resource is available in the requested orientation.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1719I MCF1 ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1720W INVALID SECTION** *x* **IN FONT** *font*  
*name code page*

**Explanation:** An incorrect section ID was contained in the named font used with the supplied code page.

**System action:** The output job producing the error is ended and processing continues.

**User response:** Check that the font resource is not corrupted or incorrect for use with the print job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1721W INVALID BLANK FONT NAME  
FOUND IN MAP CODED FONT**

**Explanation:** An incorrect MO:DCA MCF structured field was specified.

**System action:** The output job producing the error is ended and processing continues.

**User response:** Check that the MO:DCA MCF structured field refers to a valid font and is not blank or truncated.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1722I MCF1 TERMINATED RC *rc***

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1723W *command* UNEXPECTED RECORD IN  
CODED FONT *font***

**Explanation:** Unexpected or unknown record or command was detected in the font.

**System action:** Processing continues, but the named data record is ignored.

**User response:** Verify that the font has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

---

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1724W MORE THAN *mmm* FONTS IN USE**

**Explanation:** Too many fonts are being used for this job. You can have 127 fonts with PCL4 printers, 512 fonts with PCL5 printers, and at most 127 DBCS fonts.

**System action:** Printing of this job is interrupted.

**User response:** Verify that the document does not use more than the allowed number of fonts.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1725I MCF2 ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1726W INVALID MCF2 TRIPLET *mmm***

**Explanation:** An unknown MO:DCA Map Coded Font 2 triplet was detected. The structured field cannot be recognized.

**System action:** Processing continues without this font.

**User response:** Verify that the font has been generated correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

---

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1727W CPGID xxx NOT FOUND IN TABLE**

**Explanation:** A code page identifier could not be found internally in the program.

**System action:** Processing continues without this code page.

**User response:** Use another code page or supply the named code page.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1728W FGID xx NOT FOUND IN TABLE**

**Explanation:** A font identifier could not be found internally in the program.

**System action:** Processing continues without this font.

**User response:** Use another font or supply the named font.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1729W INVALID FULLY QUALIFIED NAME  
xxx**

**Explanation:** An incorrect MCF2 qualifier was detected. The MCF Triplet X'02' was expected containing a code page, font name, or coded font name.

**System action:** Processing ends.

**User response:** Verify that the type 2 coded font is valid and not corrupted.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1730I MCF2 TERMINATED RC rc**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1731I MAP OVLY ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1732W MORE THAN xxx OVERLAYS IN USE**

**Explanation:** The document used more than 255 overlays.

**System action:** The job ends.

**User response:** Make sure that the document uses fewer than 255 overlays.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1733I MAP OVLY TERMINATED RC *rc***

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1734I LOAD OVLY ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1735I OVERLAY *overlayname* LOADED AS *nnn***

**Explanation:** The named overlay has been loaded with internal overlay number *nnn*.

**System action:** Processing continues.

---

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1736W OVERLAY FONT *font* NOT FOUND**

**Explanation:** A font specified in an overlay could not be found in a supplied font library or user library.

**System action:** The job ends.

**User response:** The named font from the overlay input could not be found. Add the font to a defined library, or add the missing library.

**System programmer response:** If this font is located in a system resource library, specify the resource library in the transform configuration file. For information about the transform configuration file, see Chapter 3, "Customizing transforms," on page 55.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1738I LOAD OVERLAY TERMINATED RC *rc***

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

---

**AOX1740W INVALID UNITS IN PAGE  
DESCRIPTOR**

**Explanation:** An incorrect unit base value was identified in an overlay or page segment resource.

**System action:** The job referring to the named resource will not be printed.

**User response:** The named resource type is corrupted and cannot be used for printing. Use the IO transform trace option to determine the resource type of the failing resource.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1741W *command* UNEXPECTED RECORD  
FOUND IN OVERLAY *overlay***

**Explanation:** Unexpected or unknown record or command was detected in the overlay.

**System action:** Processing continues, but the named data record is ignored.

**User response:** Verify that the overlay has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1742W COPY OVERLAY ID *xxxx* NOT  
MAPPED**

**Explanation:** The document attempted to use an Include Page Overlay or Floating Overlay that had not previously been mapped.

**System action:** Processing continues without the named overlay.

**User response:** Make sure that the specified overlay is available to the print job and resubmit the job.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1743I COPY OVERLAY *overlayname*  
ACTIVATED, ID = *nnn***

**Explanation:** The named overlay has been activated with internal ID *nnn*.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1744I PAGE OVERLAY *name* NOT MAPPED**

**Explanation:** The document attempted to use an Include Page Overlay or Floating Overlay overlay that had not previously been mapped.

**System action:** Processing continues without the named overlay.

**User response:** Make sure that the specified overlay is available to the print job and resubmit the job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1745I PAGE OVERLAY *overlayname*  
ACTIVATED, ID = *nnn***

**Explanation:** The named page overlay has been activated with internal ID *nnn*.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1746W INVALID FONT NAME MAP IN**  
*fontname*

**Explanation:** The technology format in an outline font in the AFP input data stream is not valid, or the transform does not support it. In the message text, *fontname* is the name of the font.

**System action:** The transform ends.

**User response:** Change the font in the AFP input data stream to an AFP outline font. Then retry the transform or print request.

---

**AOX1748I PDEF ENTERED DATA MAP = map**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1749W NO MEMORY FOR CCP RECORDS**

**Explanation:** Insufficient storage was available for conditional processing records (CCP). A maximum of 32K might be used for conditional processing records.

**System action:** Conditional data will not be processed.

**User response:** Reduce the complexity of the conditional processing operations and resubmit the print job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

---

**Automation:** Not applicable.

---

**AOX1750W INVALID UNITS IN PAGE**  
**DESCRIPTOR**

**Explanation:** An incorrect unit base value was identified in an overlay or page segment resource.

**System action:** The job referring to the named resource will not be printed.

**User response:** The named resource type is corrupted and cannot be used for printing. Use the IO transform trace option to determine the resource type of the failing resource.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1752W INVALID TRIPLETS LENGTH FOUND**

**Explanation:** An incorrect length value was detected on a MO:DCA triplet. The command cannot be recognized.

**System action:** Processing continues without this resource.

**User response:** See the additional program messages that might identify this resource. Verify that the resource has been generated correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1753W INVALID MPO STRUCTURED FIELD**  
*field data*

**Explanation:** An error in the MO:DCA Map Page Overlay (MPO) structured field was encountered.

**System action:** The supplied MPO will not be used.

**User response:** Verify that the MO:DCA MPO structured field is coded correctly.

---

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1754W DATA MAP** *mapname* NOT FOUND IN *pagedefinition*

**Explanation:** The MO:DCA data map *mapname* could not be found in the input data stream page definition.

**System action:** Processing of the current transform ends.

**User response:** Make sure that the Data Map *mapname* specified is supplied in the page definition and is accessible.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1755I PDEF TERMINATED** *pdefname datamap*  
ACTIVE RC = *rc*

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1756W command UNEXPECTED RECORD**  
FOUND IN PAGEDEF

**Explanation:** Unexpected or unknown record or command was detected in the page definition.

**System action:** Processing continues, but the named data record is ignored.

**User response:** Verify that the page definition has not been corrupted and has been created correctly.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1757W TYPE 1 FONT** *font* NOT SUPPORTED  
BY PRINTER

**Explanation:** An attempt to print using an outline font has been rejected. The font was not found, or the transform does not support outline fonts.

**System action:** The document will not be printed.

**User response:** Make sure that the correct AFP transform and printer is being used with printing of AFP outline fonts. The AFP to PCL transform does not support outline fonts. Ask your system administrator to enable mapping of outline to raster fonts for the AFP to PCL transform. If an equivalent raster font is not available for this outline font, either print the document on a printer that supports scalable fonts (for example, PostScript or PDF output), or change the original document to eliminate references to outline fonts.

The input data might use an outline font that is anamorphically scaled in the Map Coded Font structured field. Check the Map Coded Font structured field.

**System programmer response:** Enable font mapping for the AFP to PCL transform in the AOP\_FONTMAP variable in the transform configuration file. For information about the format of the **aopxfd.conf** file, see Chapter 3, "Customizing transforms," on page 55 or see the **man** page for the **aopxfd.conf** file.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1769I POINT SIZE OF 0 ENCODED FOR FONT** *fontname codename*

**Explanation:** A point size of 0 was found for font *fontname codename*. In the message text:

*fontname*

Is the name of the font.

*codename*

Is the name of the code page.

**System action:** A point size of 10 will be used.

**User response:** Correct the input file.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1772W TYPE *y* EXPECTED *x* FOUND**

**Explanation:** An include object belongs to a different type than the type specified. Type *y* was requested, but the object type is *x*.

**System action:** Processing ends.

**User response:** Examine and correct the include object statement in the output file to make sure that the specified object type matches the actual object data. Resubmit the print job if necessary.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1773W UNKNOWN OBJECT**

**Explanation:** An unknown object container type was encountered.

**System action:** Processing ends.

**User response:** Make sure that the AFP transform supports the object type. Convert the object to a supported format if necessary and resubmit the print job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1774I OC ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1775W WRONG CDD LENGTH**

**Explanation:** An incorrect length on a data description was encountered during object container processing.

**System action:** The current object container is processed.

**User response:** The Container data description field must be 12 bytes long. Make sure that the supplied Object container does not contain an error on the data descriptor and resubmit the print job if necessary.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1776I OC TERMINATED RC *rc***

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1777I JFIF OBJECT ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1778I SCANNING JFIF MARKER *xx***

**Explanation:** The transform trace program sends this message to indicate the progress of JFIF image processing.

**System action:** Processing continues.

**User response:** None.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1779I UNSUPPORTED JFIF MARKER *x***

**Explanation:** An unsupported JFIF (or JPEG) marker type was encountered.

**System action:** Processing of the current JFIF object ends.

**User response:** The requested marker type is not supported by transform. Specify an alternate marker type that is supported.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1780I JFIF VERSION *version***

**Explanation:** Indicates the JFIF version level.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1781I ADOBE VERSION *version***

**Explanation:** The transform trace program sends this internal message.

**System action:** Processing continues.

**User response:** None.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1782I QUANT TABLE *q***

**Explanation:** The transform trace program sends this internal message.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1783I SAMPLES IN SOS *x* DO NOT MATCH SOF *y***

**Explanation:** An error has occurred during JFIF (or JPEG) file processing due to a mismatch of JFIF values.

**System action:** Processing of the current JFIF object ends.

**User response:** Correct the encoding error in the supplied JFIF image and resubmit the print job if necessary.

---

**System programmer response:** None.  
**Problem determination:** Not applicable.  
**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript  
**Module:** Not applicable.  
**Routing code:** Not applicable.  
**Descriptor code:** Not applicable.  
**Automation:** Not applicable.

---

**AOX1784I NON INTEGER FILL FOUND**

**Explanation:** A JFIF image contains incorrect subsampling values.

**System action:** Processing ends.

**User response:** Correct the encoding error in the supplied JFIF image and resubmit the print job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1785I HUFFMAN TABLE *h***

**Explanation:** The transform trace program sends this internal message during image processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1786I INVALID LENGTH IN HUFFMAN TABLE**

**Explanation:** An incorrect length in a Huffman encoding table was detected during image processing.

**System action:** Processing of the current image object ends.

**User response:** The image being processed contains an encoding error. Use the transform trace function to determine the name of the image in error. Correct the input image (JFIF, JPEG, or TIFF) and resubmit the print job if necessary.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1787I UNEXPECTED EOF**

**Explanation:** An unexpected end-of-file indicator was detected during image processing.

**System action:** Processing of the current image object ends.

**User response:** The image being processed contains an encoding error. Correct the input image (JFIF, JPEG, or TIFF) and resubmit the print job if necessary.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1788I INVALID LENGTH IN MARKER**

**Explanation:** An incorrect length in an image marker was detected during image processing.

**System action:** Processing of the current image object ends.

**User response:** The image being processed contains an incorrect marker length. Use the transform trace function to determine the name of the image in error. Correct the input image (JFIF, JPEG, or TIFF) and resubmit the print job if necessary.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1789I JFIF OBJECT TERMINATED RC *rc***

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1790I TIFF OBJECT ENTERED**

**Explanation:** The transform trace program sends this message to indicate the progress of TIFF image processing.

**System action:** Processing continues.

**User response:** None.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1791I READING TIFF TAG *tag***

**Explanation:** The transform trace program sends this message to indicate the progress of TIFF image processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1792I IFD TAG *tag* TYPE *type* NR *nr* VALUE *nnnn***

**Explanation:** The transform trace program sends this message to indicate the progress of TIFF image processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1793I ERROR FOUND IN TIFF OBJECT**

**Explanation:** An error was detected during TIFF image processing.

**System action:** Processing of the current image object ends.

**User response:** Use the transform trace function to determine more information about this error.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1794I TIFF OBJECT TERMINATED RC *rc***

**Explanation:** The transform trace program sends this message to indicate the progress of TIFF image processing.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1795I** *hexadecimal and ascii data*

**Explanation:** This message contains hexadecimal and ASCII dump data.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1796I** **COMPONENT NOT FOUND IN TABLE**  
*id*

**Explanation:** The start of JPEG scanning has encountered the undefined component *id*.

**System action:** Printing of the document ends.

**User response:** Verify that the JPEG image is valid.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1797W** **INVALID OBJECT ORIENTATION**  
**FOUND IN PTOCA** *orientation*

**Explanation:** A presentation text object contains an unsupported orientation.

**System action:** The presentation text object is printed with 0-degree rotation.

**User response:** Verify that the orientation you want to print is supported.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1798W** **INVALID OBJECT ORIENTATION**  
**FOUND IN BEGIN DATA MAP**  
*orientation*

**Explanation:** A data map contains an unsupported orientation.

**System action:** The data is printed with 0-degree rotation.

**User response:** Verify that the orientation you want to print is supported.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1800I** **UNSUPPORTED COLOR TABLE**

**Explanation:** An unsupported request for a color table was detected during color image processing.

**System action:** Processing of the current image object ends.

**User response:** The requested color table structured field is not supported.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1801I** **UNSUPPORTED NUMBER OF BANDS**

**Explanation:** An unsupported request for a number of bands was detected during color image processing.

**System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR environment variable in the Infoprint Server transform configuration file (**aopxfd.conf**) determines the system action. If the variable is not specified, the transform stops processing the document.

**User response:** The requested command is not supported.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1802I UNSUPPORTED NUMBER OF SAMPLES IN BAND**

**Explanation:** An unsupported request for a number of samples in color band processing was detected in a color image.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR environment variable in the Infoprint Server transform configuration file (**aopxfd.conf**) determines the system action. If the variable is not specified, the transform stops processing the document.

**User response:** The requested command is not supported.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1803I UNSUPPORTED COLOR SPACE *n***

**Explanation:** An unsupported request for a color space was detected in a color image.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR environment variable in the Infoprint Server transform configuration file (**aopxfd.conf**) determines the system action. If the variable is not specified, the transform stops processing the document.

**User response:** Request a supported color space. The transforms support RGB, CRB, CMYK, CIELAB, and printer-specific color spaces only.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1804I UNSUPPORTED NUMBER OF SAMPLES**

**Explanation:** An unsupported request for a number of samples in color processing was detected in a color image.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR environment variable in the Infoprint Server transform configuration file (**aopxfd.conf**) determines the system action. If the variable is not specified, the transform stops processing the document.

**User response:** Correct the command to request an integer number of samples.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1805I ONLY 8,8,8 SAMPLE SUPPORTED IN COLOR *n***

**Explanation:** An unsupported request for a number of samples in color processing was detected in a color image.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR environment variable in the Infoprint Server transform configuration file (**aopxfd.conf**) determines the system action. If the variable is not specified, the transform stops processing the document.

**User response:** The requested number of sample requests is not supported. This message indicates the number of samples that are supported and accompanies message AOX1804.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1806I ERROR FOUND IN SUBSAMPLE RATIOS STRUCTURE**

**Explanation:** An unsupported request for a number of sub-samples was detected in a color image. The number of subsamples must be the same as the number of samples.

| **System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR environment variable in the Infoprint Server transform configuration file (**aopxfd.conf**) determines the system action. If the variable is not specified, the transform stops processing the document.

**User response:** Correct the image input and resubmit the print job if required.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1807W OBJECT AREA TOO LARGE**

**Explanation:** An error was detected in processing an object area that exceeds the supported area size.

**System action:** Processing of the current object ends.

**User response:** The largest object area that can be processed is 20 × 30 inches. Reduce the size of the object area to match this value and resubmit the print job if required.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1808I JFIF MARKER FOUND IN PICTURE *nm***

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1809I LZW CODE ERROR CODE *nm A0 nnnn* OLDPCODE *oooo***

**Explanation:** An error has been detected in LZW encoding in a supplied image.

**System action:** Processing of the current image object ends.

**User response:** Make sure that the image has not been corrupted or altered. Use the transform trace function to identify the name of the image in error. Correct the image input and resubmit the print job if required.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1810I SAMPLE/PIXEL 1, BITS/SAMPLE *n***

**Explanation:** The transform trace program sends this information-only message.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1811I SAMPLE/PIXEL 3, BITS/SAMPLE *x y z***

**Explanation:** The transform trace program sends this information-only message.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1812I COLOR SPACE *c***

**Explanation:** The transform trace program sends this information-only message.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1813I COLOR PALETTE IN USE**

**Explanation:** The transform trace program sends this information-only message.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1814I SUB SAMPLE (*xx,yy*) FILL (*aa,bb*)**

**Explanation:** The transform trace program sends this information-only message.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1815I DOC ENTERED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1816I DOC TERMINATED RC *rc***

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1820W OPEN FAILED *cccc, code***

**Explanation:** An attempt to open a file in the z/OS UNIX file system failed. The command *cccc* ended with error code *code*.

**System action:** Use of the z/OS UNIX file system is not possible. The print job ends, and processing continues.

**User response:** To identify the cause of this error, examine the return code from the z/OS UNIX file system command using *z/OS UNIX System Services Messages and Codes*.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1821W CLOSE FAILED** *cccc, code*

**Explanation:** An attempt to close a file in the z/OS UNIX file system failed. The command ended with the decimal return code *cccc* and hexadecimal reason code *code*.

**System action:** Use of the z/OS UNIX file system is not possible. The print job ends, and processing continues.

**User response:** To identify the cause of this error, examine the return code from the z/OS UNIX file system command using *z/OS UNIX System Services Messages and Codes*.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1825I SAMPLE/PIXEL 4, BITS/SAMPLE** *a,b,c,d*

**Explanation:** The transform trace program sends this information-only message.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1826W WRONG LENGTH IN JAPAN POST BARCODE**

**Explanation:** The specified barcode data length is incorrect.

**System action:** The named barcode is ignored and processing continues.

**User response:** Make sure that the length specified in the named barcode is correct and resubmit the print job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1827W CHARACTER NOT VALID IN JAPAN POST BARCODE**

**Explanation:** The character specified in the Japan mail barcode is not valid.

**System action:** The barcode on the page will not be printed.

**User response:** Make sure that the encoding information for the requested barcode is correct and resubmit the print job as required.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1828W WRONG LENGTH IN AUSTRALIA POST BARCODE**

**Explanation:** The specified barcode data length is incorrect.

**System action:** The named barcode is ignored and processing continues.

**User response:** Make sure that the length specified in the named barcode is correct and resubmit the print job.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1829W CHARACTER NOT VALID IN AUSTRALIA POST BARCODE**

**Explanation:** The character specified in the Australia mail barcode is not valid.

**System action:** The barcode on the page will not be printed.

**User response:** Make sure that the encoding information for the requested barcode is correct and resubmit the print job as required.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1830I GIF OBJECT ENTERED**

**Explanation:** Internal trace information message indicating GIF image processing.

**Notes:** Information-only message.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1831I GIF OBJECT TERMINATED RC *rc***

**Explanation:** Internal trace information message indicating end of GIF image processing.

**Notes:** Information-only message.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1832W CHARACTER NOT VALID *value* IN CODE 93 BARCODE**

**Explanation:** The specified barcode information is not correct. The valid range depends on the type of barcode. In the message text, *value* is the character that is not valid.

**System action:** The specified barcode is ignored and the print job is processed.

**User response:** Correct the barcode information and resubmit the print job if required.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1850W UNSUPPORTED NUMBER OF SAMPLES IN JFIF**

**Explanation:** A JPEG image contains another number of components than 1 or 3.

**System action:** The document ends.

**User response:** Regenerate the JPEG image with one or 3 components.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1851I EPS OBJECT ENTERED**

**Explanation:** Internal trace information message indicating EPS image processing.

**Notes:** Information-only message.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1852I EPS OBJECT TERMINATED RC** *rc*

**Explanation:** Internal trace information message indicating end of JFIF image processing.

**Notes:** Information-only message.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1853W NO SUPPORT FOR EPS OBJECT CONTAINERS**

**Explanation:** An object container containing EPS was sent to a printer that does not support EPS containers.

**System action:** The print job fails.

**User response:** Redirect the job to a printer that supports EPS.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1854I PDF OBJECT ENTERED**

**Explanation:** Internal trace information message indicating EPS image processing.

**Notes:** Information-only message.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1855I PDF OBJECT TERMINATED RC** *rc*

**Explanation:** Internal trace information message indicating end of JFIF image processing.

**Notes:** Information-only message.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1856W NO SUPPORT FOR PDF OBJECT CONTAINERS**

**Explanation:** An object container containing PDF was sent to a printer that does not support PDF containers.

**System action:** The print job fails.

**User response:** Redirect the job to a printer that supports PDF.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1857I EPS OBJECT CONTAINER SUPPORT**

**Explanation:** Internal trace information message indicating that the printer supports object containers containing EPS.

**Notes:** Information-only message.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1858I PDF OBJECT CONTAINER SUPPORT**

**Explanation:** Internal trace information message indicating that the printer supports object containers containing PDF.

**Notes:** Information-only message.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1859I ERROR FOUND IN GIF OBJECT**

**Explanation:** An error occurred during GIF image processing.

**System action:** Processing of the current object ends.

**User response:** The GIF being processed contains an error. For information about tracing the transform, see Chapter 5, "Diagnosing errors," on page 137.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1860I ERROR FOUND IN IMAGE,  
RETRYING**

**Explanation:** An error was detected during image processing.

This message is only shown when trace is on. This message is issued when AOP\_FAIL\_ON\_IMAGE\_ERROR is set to RETRYCONT or RETRYFAIL and an error is found while rendering the image.

**System action:** Processing continues.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1861I VSIZE DOES NOT MATCH ACTUAL  
NUMBER OF LINES IN IMAGE**

**Explanation:** The number of lines specified in the VSIZE parameter of a G4 MMR encoded image does not equal the number of lines found rendering the image.

**System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR environment variable in the Infoprint Server transform configuration file (aopxfd.conf) determines the system action. If the variable is not specified, the transform stops processing the document.

**User response:** Verify that the IOR specifies the correct image type.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1862I INVALID MMR CODE**

**Explanation:** An unknown code was found during rendering of a G4 MMR encoded image.

**System action:** The AOP\_FAIL\_ON\_IMAGE\_ERROR environment variable in the Infoprint Server transform configuration file (aopxfd.conf) determines the system action. If the variable is not specified, the transform stops processing the document.

**System programmer response:** None.

**User response:** Verify that the IPD specifies the correct image type.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1900W ACCEPT RC *cccc* REASON *code***

**Explanation:** An error occurred during an I/O operation in the z/OS UNIX file system. The command ended with the decimal return code *cccc* and hexadecimal reason code *code*.

**System action:** Use of the z/OS UNIX file system is not possible. The print job ends, and processing continues.

**User response:** To identify the cause of this error, examine the return code from the z/OS UNIX file system command using *z/OS UNIX System Services Messages and Codes*.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1901I READFILE CALLED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1902I READFILE TERMINATED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1903I DELETE FILE CALLED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1904I DELETE FILE TERMINATED**

**Explanation:** The transform trace program sends this message to indicate its progress.

**System action:** Processing continues.

**User response:** None.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1905W DELETE RC *cccc* REASON *code***

**Explanation:** An error occurred during an I/O operation in the z/OS UNIX file system. The command ended with the decimal return code *cccc* and hexadecimal reason code *code*.

**System action:** Use of the z/OS UNIX file system is not possible. The print job ends, and processing continues.

**User response:** To identify the cause of this error, examine the return code from the z/OS UNIX file system command using *z/OS UNIX System Services Messages and Codes*.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1906W OPENW RC cccc REASON code**

**Explanation:** An error occurred during an I/O operation in the z/OS UNIX file system. The command ended with the decimal return code *cccc* and hexadecimal reason code *code*.

**System action:** Use of the z/OS UNIX file system is not possible. The print job ends, and processing continues.

**User response:** To identify the cause of this error, examine the return code from the z/OS UNIX file system command using *z/OS UNIX System Services Messages and Codes*.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1907W OPENR RC cccc REASON code**

**Explanation:** An error occurred during an I/O operation in the z/OS UNIX file system. The command ended with the decimal return code *cccc* and hexadecimal reason code *code*.

**System action:** Use of the z/OS UNIX file system is not possible. The print job ends, and processing continues.

**User response:** To identify the cause of this error, examine the return code from the z/OS UNIX file system command using *z/OS UNIX System Services Messages and Codes*.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1908W MKDIR RC cccc REASON code**

**Explanation:** An error occurred during an I/O operation in the z/OS UNIX file system. The command ended with the decimal return code *cccc* and hexadecimal reason code *code*.

**System action:** Use of the z/OS UNIX file system is not possible. The print job ends, and processing continues.

**User response:** To identify the cause of this error, examine the return code from the z/OS UNIX file system command using *z/OS UNIX System Services Messages and Codes*.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1909W CLOSE RC cccc REASON code**

**Explanation:** An error occurred during an I/O operation in the z/OS UNIX file system. The command ended with the decimal return code *cccc* and hexadecimal reason code *code*.

**System action:** Use of the z/OS UNIX file system is not possible. The print job ends, and processing continues.

**User response:** To identify the cause of this error, examine the return code from the z/OS UNIX file system command using *z/OS UNIX System Services Messages and Codes*.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1910W WRITE RC cccc REASON code**

**Explanation:** An error occurred during an I/O operation in the z/OS UNIX file system. The command ended with the decimal return code *cccc* and hexadecimal reason code *code*.

**System action:** Use of the z/OS UNIX file system is not possible. The print job ends, and processing continues.

**User response:** To identify the cause of this error, examine the return code from the z/OS UNIX file system command using *z/OS UNIX System Services Messages and Codes*.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1911W READ RC *cccc* REASON *code***

**Explanation:** An error occurred during an I/O operation in the z/OS UNIX file system. The command ended with the decimal return code *cccc* and hexadecimal reason code *code*.

**System action:** Use of the z/OS UNIX file system is not possible. The print job ends, and processing continues.

**User response:** To identify the cause of this error, examine the return code from the z/OS UNIX file system command using *z/OS UNIX System Services Messages and Codes*.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1912W SEEK RC *cccc* REASON *code***

**Explanation:** An error occurred during an I/O operation in the z/OS UNIX file system. The command ended with the decimal return code *cccc* and hexadecimal reason code *code*.

**System action:** Use of the z/OS UNIX file system is not possible. The print job ends, and processing continues.

**User response:** To identify the cause of this error, examine the return code from the z/OS UNIX file system command using *z/OS UNIX System Services Messages and Codes*.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1913W READ RC *cccc* REASON *code***

**Explanation:** An error occurred during an I/O operation in the z/OS UNIX file system. The command ended with the decimal return code *cccc* and hexadecimal reason code *code*.

**System action:** Use of the z/OS UNIX file system is not possible. The print job ends, and processing continues.

**User response:** To identify the cause of this error, examine the return code from the z/OS UNIX file system command using *z/OS UNIX System Services Messages and Codes*.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1914W WRITE RC *cccc* REASON *code***

**Explanation:** An error occurred during an I/O operation in the z/OS UNIX file system. The command ended with the decimal return code *cccc* and hexadecimal reason code *code*.

**System action:** Use of the z/OS UNIX file system is not possible. The print job ends, and processing continues.

**User response:** To identify the cause of this error, examine the return code from the z/OS UNIX file system command using *z/OS UNIX System Services Messages and Codes*.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1916W AOX SHUTDOWN COMPLETE**

**Explanation:** The transform has ended after an abend or a configuration error.

**System action:** Processing ends.

**User response:** If you receive this message after an abend, see message AOX1998W.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1917W RETURN TRUE ERROR READ**

**Explanation:** An error occurred in reading from **stdin**.

**System action:** Processing ends.

**User response:** To identify the cause of this error, examine the return code from the z/OS UNIX file system command using *z/OS UNIX System Services Messages and Codes*.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1918W PROBLEMS WITH FILE *filename***

**Explanation:** An error occurred during an I/O operation in the z/OS UNIX file system. The file in error is *filename*.

**System action:** Processing ends.

**User response:** To identify the cause of this error, examine the return code from the z/OS UNIX file system command using *z/OS UNIX System Services Messages and Codes*.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

---

**AOX1920I GETMAIN FAILED *message***

**Explanation:** The transform was unable to obtain storage for the printer log.

**System action:** Printing continues, but error information is sent to the printer or **stderr** output. No log data is recorded.

**User response:** Analyze the **stderr** output and relevant printer logs and error information to determine the cause of the failure. Try to increase the region size for the transform. Contact an IBM service representative if a program error is found.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1921I OPEN FAILED *return code* REASON *rrrr***

**Explanation:** An I/O error in the z/OS UNIX file system occurred when the transform opened the log file. The command ended with the decimal return code *return code* and hexadecimal reason code *rrrr*.

**System action:** Printing continues, but error information is sent to the printer or **stderr** output. No log data is recorded.

**User response:** Look up the return code in *z/OS UNIX System Services Messages and Codes* to determine the cause of this error.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1922I WRITE FAILED *return code* REASON *rrrr***

**Explanation:** An I/O error in the z/OS UNIX file system occurred while the transform was writing to the log file. The command ended with the decimal return code *return code* and hexadecimal reason code *rrrr*.

**System action:** Printing continues, but error information is sent to the printer or **stderr** output. No log data is recorded.

**User response:** Look up the return code in *z/OS UNIX System Services Messages and Codes* to determine the cause of this error.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1923I CLOSE FAILED *return code* REASON *rrrr***

**Explanation:** An I/O error in the z/OS UNIX file system occurred when the transform closed the log file. The command ended with the decimal return code

return code and hexadecimal reason code *rrrr*.

**System action:** Printing continues, but error information is sent to the printer or **stderr** output. No log data is recorded.

**User response:** Look up the return code in *z/OS UNIX System Services Messages and Codes* to determine the cause of this error.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1925I WRITE STDERR FAILED** *return code*  
**REASON** *reason code*

**Explanation:** An I/O error in the z/OS UNIX file system occurred while the transform was writing to **stderr**. The command ended with the decimal return code *return code* and hexadecimal reason code *reason code*.

**System action:** Printing continues, but error information is lost.

**User response:** Look up the return code in *z/OS UNIX System Services Messages and Codes* to determine the cause of this error.

**System programmer response:** None.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1930W ENCRYPTION RECORD MUST BE THE FIRST RECORD**

**Explanation:** The first record contained printable data instead of the encryption record. This message indicates a possible logic error.

**System action:** The print job ends.

**User response:** Contact your system programmer. Resubmit the request after the problem is corrected.

**System programmer response:** Resubmit the job and obtain a trace of the transform. Then contact your

service representative in the IBM Support Center, or use your electronic link with IBM service for assistance.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PDF

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1932W NO ENCRYPTION IS ALLOWED**

**Explanation:** The encryption record was coded for 40-bit encryption or 128-bit encryption, but the **AOP\_ENCRYPT** environment variable in the transform configuration file (**aopxfd.conf**) is set to No.

**System action:** Processing ends.

**User response:** Contact your system programmer. Resubmit the request after the problem is corrected.

**System programmer response:** If encryption should be allowed, set the environment variable **AOP\_ENCRYPT** to Yes in the transform configuration file (**aopxfd.conf**). For more information, see "Customizing the AFP to PDF transform" on page 69.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PDF

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

**AOX1998W MODULE** *module*, **ABEND CODE** *code*  
**REASON** *xxxxxxxxxx*

**AFP TRANSFORM VERSION** = *version*  
**PS/PCL/PDF TRANSFORM VERSION** *vvvvvv*  
**PSW**=*xxxxxxxx xxxxxxxx*,  
**START**=*xxxxxxxx*, **OFFSET**=*xxxxxxxx*  
**GENERAL REGISTERS R0..R15**  
**REG 0 - 3** *reg0 reg1 reg2 reg3*  
**REG 4 - 7** *reg4 reg5 reg6 reg7*  
**REG 8 - 11** *reg8 reg9 reg10 reg11*  
**REG 12 - 15** *reg12 reg13 reg14 reg15*  
**ABEND OCCURRED** *abc*

**Explanation:** A program abend occurred for the AFP transform.

If the abend code is X'18' (decimal 0024), the format of the reason code is X'xxxxyyyy':

- For the *x* value X'0100', the *y* value is X'0000'.

- For the *x* value X'0101', the *y* value is listed in the return codes from **init\_sub** in “Using preinitialization services” in *z/OS Language Environment Programming Guide*.
- For the *x* value X'0102', the *y* value is listed in the return codes from **call\_sub** in “Using preinitialization services” in *z/OS Language Environment Programming Guide*.
- For the *x* value X'0103', the *y* value is listed in the return codes from **term** in “Using preinitialization services” in *z/OS Language Environment Programming Guide*.
- For the *x* value X'03zz', the *z* value is one of these:
  - 00 - CSSM\_Init call failed
  - 01 - CSSM\_ListModules call failed
  - 02 - There are no CSPs installed
  - 03 - There is no proper CSP installed
  - 04 - CSSM\_ModuleAttach call failed
  - 05 - CSSM\_CSP\_CreateDigestContext call failed
  - 06 - CSSM\_DigestDataInit call failed
  - 07 - CSSM\_DigestDataUpdate call failed
  - 08 - CSSM\_DigestDataFinal call failed
  - 09 - CSSM\_DeleteContext call failed
  - 0A - CSSM\_ModuleDetach call failed
  - 0B - CSSM\_CSP\_CreateSymmetricContext call failed
  - 0C - CSSM\_EncryptDataInit call failed
  - 0D - CSSM\_EncryptDataUpdate call failed
  - 0E - CSSM\_EncryptDataFinal call failed

The *y* value is listed in “OCSF errors” in *z/OS Open Cryptographic Services Facility Application Programming*.

**System action:** The AFP transform ends.

**User response:** Contact your system programmer.

**System programmer response:** Analyze the **stderr** output, relevant printer logs, abend code, and error information to determine the cause of the failure. Contact an IBM service representative if a program error is found. If the abend code is X'18' (decimal 0024), make sure that the required RACF authorization is set up correctly. Verify that the transform is allowed to use OCSF and that OCSF is correctly installed and customized. For more information, see “Customizing OCSF” on page 87.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

## User abend codes

The transforms can send a user abend with these codes:

---

### 0023

**Explanation:** SVC 35 (WTO) failed.

**System action:** The transform sends message AOX1925W and ends abnormally. The Infoprint Server Transform Manager attempts to restart the transform when the next transform request is received.

**System programmer response:** Capture the dump, save the abend information from the operator console, and contact your service representative in the IBM Support Center, or use your electronic link with IBM service for assistance.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.

---

### 0024

**Explanation:** A program abend occurred for the AFP transform. For more information and the possible values, see message AOX1998W.

**System action:** The transform sends message AOX1998W and ends abnormally. The Infoprint Server Transform Manager attempts to restart the transform when the next transform request is received.

**System programmer response:** Make sure that the required RACF authorization is set up correctly. Verify that the transform is allowed to use OCSF and that OCSF is correctly installed and customized. For more information, see “Customizing OCSF” on page 87. In addition, analyze the **stderr** output, relevant printer logs, abend code, and error information to determine the cause of the failure. Capture the dump, save the abend information from the operator console, and contact your service representative in the IBM Support Center, or use your electronic link with IBM service for assistance.

**Problem determination:** Not applicable.

**Source:** Infoprint Transform for AFP to PCL, PDF, or PostScript

**Module:** Not applicable.

**Routing code:** Not applicable.

**Descriptor code:** Not applicable.

**Automation:** Not applicable.



---

## Chapter 7. Migrating from Infoprint Server Transforms V1.1

This chapter describes how to migrate from Infoprint Server Transforms V1.1 to Infoprint Transforms from AFP V2.1.

No actions are required when you migrate from Infoprint Server Transforms V1.1. However, you must take action if you want to use some of the new functions in Infoprint Transforms from AFP V2.1. The next sections describe the steps you need to take to use the new functions.

---

### Additional MO:DCA and line-data support

You can now transform AFP documents with:

- Form definitions that use enhanced N\_UP.
- Form definitions that specify offset stacking (AFP to PCL and AFP to PostScript transforms)
- Two-dimensional, PLANET, Japan Postal, and Australian Postal bar codes. However, other bar codes are not supported. For information about supported bar codes, see Table 7 on page 7. For information about bar codes, see *Bar Code Object Content Architecture™*, S544-3766.
- IOCA FS45 tiled and uncompressed image objects. However, the IOCA FS45 Tile Set Color parameter, Include Tile parameter, Referencing Tile structure, and IOCA Tile Resource structure are not supported. For information about IOCA FS45, see *Image Object Content Architecture Reference*, SC31-6805-05.
- PDF and GIF object containers.
- Record-format line data. However, only single-byte fonts are supported.

You do not need to take any action to use this new support.

---

### XML data streams

The transforms can now transform Extensible Mark-up Language (XML) documents. The XML documents can be encoded in EBCDIC (code page 500), ASCII (code page 850), or UTF-8. A page definition is required to provide the data placement and presentation information.

To transform and print XML documents, the administrator must associate the transform with both the line data and XML data formats in the printer definition. See Chapter 4, “Administering transforms,” on page 117.

---

### Custom paper sizes

The transforms can now format output documents for printing on custom paper sizes in addition to the paper sizes they support by default (such as letter, A4, and so on). For example, if you want to print on paper that is 8.5 in x 5.5 in, you can create a paper named “folio” and add it to the transforms.

To use custom paper sizes:

1. Add the paper sizes to the AOPPAPER table. For information, see “Adding paper sizes” on page 108.

---

2. Specify the name of the custom paper in the AOP\_PAPER environment variable in the transform configuration file.

---

3. Restart the Transform Manager. For example, use the AOPSTOP and AOPSTART JCL procedures to stop and restart the Transform Manager:

```
START AOPSTOP,OPTIONS='-d xfd'  
START AOPSTART
```

---

---

## Enhanced PDF documents

The AFP to PDF transform can now create PDF documents that are easier to navigate and view. The transform provides these new environment variables so that you can create enhanced PDF documents:

- **AOP\_INDEX:** Creates bookmarks in PDF documents for improved navigation. Bookmarks are created when the AFP document contains Tag Logical Elements (TLE) structured fields.
- **AOP\_INDEX\_LANG:** Specifies the language for converting text in bookmarks.
- **AOP\_LINEARIZE:** Optimizes PDF documents for fast viewing from the Web.
- **AOP\_LINKS:** Creates links in PDF documents for improved navigation. Links are created when the AFP document contains Link Logical Elements (LLE) structured fields.
- **AOP\_ROTATE\_PDF:** Specifies how to rotate PDF documents for easier viewing.

To use these new functions, you specify the environment variables in the Infoprint Server configuration file. For information, see “Specifying transform options” on page 70.

---

## PDF encryption

The AFP to PDF transform can now encrypt PDF documents. Encrypting PDF documents provides enhanced security for sending PDF documents over a network. In addition, you can associate user and owner passwords with encrypted PDF documents to prevent unauthorized access, and you can restrict users from modifying, printing, and doing other actions when they open encrypted PDF documents.

The transform now supports these new job attributes:

- **pdf-encryption-level:** The level of encryption.
- **pdf-owner-identifier:** An optional owner identifier. The transform passes this identifier to the Password exit, which provides the owner password.
- **pdf-protect:** The actions, such as modifying or printing, that you want to restrict in encrypted PDF documents.
- **pdf-user-identifier:** An optional user identifier. The transform passes this identifier to the Password exit, which provides the user password.

The transform now supports new environment variables:

- **AOP\_ENCRYPT:** Enables encryption.
- **AOP\_PASSWORD\_EXIT:** The name of your installation's Password exit.

- **AOP\_PROTECT**: The actions (such as modifying and printing) that are restricted in PDF documents when no passwords are specified.

The transform also provides a sample Password exit and password database. The Password exit provides passwords to the transform. (For security reasons, job submitters cannot specify passwords during job submission.)

To use PDF encryption:

1. Install and customize the Open Cryptographic Services Facility feature of z/OS. See “Customizing OCSF” on page 87.

---
2. (Optional) Write a Password exit. Also, create a password database or use an existing one. See “Writing a Password exit” on page 88.  
This step is required if you want to associate passwords with the encrypted PDF documents.

---
3. Enable encryption and specify encryption options in environment variables. See “Specifying transform options” on page 70.

---
4. (Optional) Update printer definitions to specify encryption options. See “Requesting the AFP to PDF transform” on page 120.  
This step is required if job submitters cannot specify Infoprint Server job attributes when they submit a print job.

---
5. Use the **afp2pdf** command to create an encrypted PDF document, or submit a print job to create an encrypted PDF document and send it to an e-mail destination. Specify encryption options in job attributes or submit the print job to a printer definition that contains encryption options. See “Job attributes for encrypting PDF documents” on page 37.

---

---

## Scaling images

In V1, the AFP to PDF and AFP to PostScript transforms scaled all images to 300 pels per inch. In V2.1, the transforms can scale images to 300 pels (default) or 600 pels per inch, or they can let the printer scale images to the resolution of the printer. You can now control how these transforms scale images.

To control how the transforms scale images, do one or more of these actions:

1. Add the **AOP\_RESOLUTION** environment variable in the AFP to PDF and AFP to PostScript transform entries in the Infoprint Server transform configuration file, **aopxfd.conf**. Then restart the Infoprint Server Transform Manager to pick up the changes. For example, use these MVS commands to run the AOPSTOP and AOPSTART JCL procedures:

```
START AOPSTOP,OPTIONS='-d xfd'  
START AOPSTART
```

**Tip:** In V1, the transforms ignore this environment variable. Therefore, you can add the environment variable before you install the V2 transforms.

---

2. Specify the **-r** option on the **afp2pdf** and **afp2ps** commands.
3. Specify the **-r** filter option for the **afp2pdf.dll** and **afp2ps.dll** filters in the printer definitions.

---

## Enhanced image error handling

In V1, the transforms stop processing when some IOCA image errors occur. In V2.1, the transforms can issue a message and continue processing the rest of the document when some IOCA image errors occur.

To continue processing the document when IOCA image errors occur:

1. Apply the fix for APAR OA30483.
2. Add the **AOP\_FAIL\_ON\_IMAGE\_ERROR** environment variable in the AFP to PCL, AFP to PostScript, and AFP to PDF transform entries in the Infoprint Server transform configuration file, **aopxfd.conf**.
3. Restart Infoprint Server Transform Manager.

**Tip:** In V1, the transforms ignore this environment variable. Therefore, you can add the environment variable before you install V2 transforms or apply the APAR.

---

## Support MMR unpadded images

In V1, the transforms cannot process unpadded G4 MMR images that are incorrectly marked as RIDIC. If a G4 MMR image is not padded, the transforms issue a message and stop processing the document. Some images might be processed but result in incorrect images. In V2.1, you can tell the transforms to process all G4 MMR images as unpadded images.

To process G4 MMR unpadded images:

1. Apply the fix for APAR OA30483.
2. Add the **AOP\_ASSUME\_RIDIC\_UNPAD-> yes**, **AOP\_FAIL\_ON\_IMAGE\_ERROR-> retrycont**, or **AOP\_FAIL\_ON\_IMAGE\_ERROR-> retryfail** environment variable in the AFP to PCL, AFP to PostScript, and AFP to PDF transform entries in the Infoprint Server transform configuration file, **aopxfd.conf**.
3. Restart Infoprint Server Transform Manager.

**Tip:** In V1, the transforms ignore this environment variable. Therefore, you can add the environment variable before you install V2 transforms or apply the APAR.

---

## Offset stacking

The AFP to PCL and AFP to PostScript transforms now support offset stacking (also called jogging). The AFP to PDF transform does not support offset stacking because PDF has no device controls.

Offset stacking is requested in the form definition (medium map).

To control how the transforms handle offset stacking:

1. Apply the fix for APAR OA33290.

---

2. Add the AOP\_OFFSET\_JOGGING environment variable in the AFP to PCL and AFP to PostScript transform entries in the Infoprint Server transform configuration file, **aopxfd.conf**.

---

3. Restart the Infoprint Server Transform Manager to pick up the changes.

---



---

## Appendix A. Accessibility

Publications for this product are offered in Adobe Portable Document Format (PDF) and should be compliant with accessibility standards. If you experience difficulties when using PDF files, you may view the information through the z/OS Internet Library Web site or the z/OS Information Center. If you continue to experience problems, send an e-mail to [mhvrcfs@us.ibm.com](mailto:mhvrcfs@us.ibm.com) or write to:

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Department H6MA, Building 707  
2455 South Road  
Poughkeepsie, NY 12601-5400  
U.S.A.

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully. The major accessibility features in z/OS enable users to:

- 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 z/OS. Consult the assistive technology documentation for specific information when using such products to access z/OS interfaces.

---

### Keyboard navigation of the user interface

Users can access z/OS user interfaces using TSO/E or ISPF. Refer to *z/OS TSO/E Primer*, *z/OS TSO/E User's Guide*, and *z/OS ISPF User's Guide Vol I* for information about accessing TSO/E and ISPF interfaces. These guides describe how to use TSO/E and ISPF, including the use of keyboard shortcuts or function keys (PF keys). Each guide includes the default settings for the PF keys and explains how to modify their functions.

---

### z/OS information

z/OS information is accessible using screen readers with the BookServer or Library Server versions of z/OS books in the Internet library at:

<http://www.ibm.com/systems/z/os/zos/bkserv/>



## Appendix B. Environment variables

Table 16 lists all the environment variables the transforms use and indicates which transforms support the variable. For information about these environment variables, see:

- “Environment variables for the AFP to PCL transform” on page 60
- “Environment variables for the AFP to PDF transform” on page 75
- “Environment variables for the AFP to PostScript transform” on page 98

Table 16. Environment variables that transforms support

Environment variable	AFP to PCL transform	AFP to PDF transform	AFP to PostScript transform
_BPX_JOBNAME	Yes	Yes	Yes
AOP_ANNOTATIONS	No	Yes	No
AOP_ASSUME_RIDIC_UNPAD	Yes	Yes	Yes
AOP_CHARS	Yes	Yes	Yes
AOP_COLOR	Yes	No	Yes
AOP_CUTSHEET	Yes	Yes	Yes
AOP_ENCRYPT	No	Yes	No
AOP_FAIL_ON_IMAGE_ERROR	Yes	Yes	Yes
AOP_FLATE	No	Yes	No
AOP_FONTLIB	Yes	Yes	Yes
AOP_FONTMAP	Yes	Yes	Yes
AOP_FORMDEF	Yes	Yes	Yes
AOP_FORMDEFLIB	Yes	Yes	Yes
AOP_INDEX	No	Yes	No
AOP_INDEX_LANG	No	Yes	No
AOP_LINEARIZE	No	Yes	No
AOP_LINKS	No	Yes	No
AOP_MSGFORMDEF	Yes	Yes	Yes
AOP_MSGPAGEDEF	Yes	Yes	Yes
AOP_OFFSET_JOGGING	Yes	No	Yes
AOP_OUTLINES	No	Yes	No
AOP_OVERLAYLIB	Yes	Yes	Yes
AOP_PAGEDEF	Yes	Yes	Yes
AOP_PAGEDEFLIB	Yes	Yes	Yes
AOP_PAGESEGLIB	Yes	Yes	Yes
AOP_PAPER	Yes	Yes	Yes
AOP_PASSWORD_EXIT	No	Yes	No
AOP_PJL	Yes	No	Yes
AOP_POSITIONING_METHOD	Yes	Yes	Yes
AOP_PROTECT	No	Yes	No

Table 16. Environment variables that transforms support (continued)

<b>Environment variable</b>	<b>AFP to PCL transform</b>	<b>AFP to PDF transform</b>	<b>AFP to PostScript transform</b>
AOP_ROTATE_PDF	No	Yes	No
AOP_RESOLUTION	No	Yes	Yes
AOP_SIMULATE_240_DPI	Yes	Yes	Yes
AOP_TRAYID	Yes	Yes	Yes

---

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