

4.7.0

*Print Services Facility Version 4 Release  
7.0 for z/OS*



References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM® operates. Any reference to an IBM product, program, or service is not intended to state or imply that only IBM 's product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any of IBM 's intellectual property rights may be used instead of the IBM product, program, or service.

Any other documentation with respect to this licensed program, including any documentation referenced herein, is provided for reference purposes only and does not extend or modify these specifications.

© **Copyright International Business Machines Corporation .**

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

---

# Chapter 1. Licensed Program Specifications

Print Services Facility Version 4 Release 8 Modification 0 for z/OS® (PSF) provides device and resource-management support for Advanced Function Presentation (AFP) printers.

PSF also supports printing on z/OS-attached printers from an AIX® operating system by using the AFP Upload feature of PSF for z/OS.

PSF supports remote printing on AIX, Linux®, and Windows operating systems by using one of these programs:

- The AFP Download Plus feature of PSF for z/OS
- The Download for z/OS feature of PSF for z/OS
- A distributed print function or workstation print manager product that is running on a Windows print server

PSF communicates between the Job Entry Subsystem (JES) and the printer to provide access to AFP printer functions. When PSF is processing line printer data, it uses instructions in an external print resource, called a *page definition*, to format the print lines into pages. A form definition resource is used to place the formatted pages on the media and to select media options.

PSF processes print jobs from applications that produce fully composed page output. Applications that produce fully composed page output contain both the output data and the formatting instructions for each page in the same records. PSF accepts data for a page in any valid sequence, processes the data, and creates the commands to drive the printers.

PSF does formatting outside the application program, providing output formatting that is independent of the application program. Changes to the application program need not affect formatting, and formatting changes need not affect the application.

For more information about z/OS print and output software, see [z/OS Print Management Software](http://www.ibm.com/systems/z/os/zos/printsoftware) ([www.ibm.com/systems/z/os/zos/printsoftware](http://www.ibm.com/systems/z/os/zos/printsoftware)).

---

## Optional Features

Several optional, separately priced features are available with PSF.

**Note:** The optional Compatibility Fonts feature of PSF is no longer a feature in PSF 4.8.0. The z/OS Font Collection, a base element of z/OS V2.5 and later, replaces the Compatibility Fonts feature.

These optional features are available with PSF 4.8.0:

### AFP Conversion and Indexing Facility

AFP Conversion and Indexing Facility (ACIF) formats line data and XML data according to instructions in a page definition and converts it into an AFP data stream file. ACIF can be used to index the print file to identify individual groups of pages, such as a single customer's bank statement. ACIF also supports enhanced indexing capabilities. Using ACIF, a programmer can archive information and resources that are needed to print the job in system libraries and then retrieve them for printing or viewing. A PSF base license is not required to order ACIF.

### AFP Download Plus

AFP Download Plus accepts line data, XML data, or Mixed Object Document Content Architecture (MO:DCA) data from the JES spool; transforms, if required, the data into Mixed Object Document Content Architecture for Presentation (MO:DCA-P); packages all resources and job attributes inline with the print file for printing the job; and, as an option, encodes the file before sending it to the receiving system. You can use AFP Download Plus to send output from a z/OS system to a receiver system for printing, emailing, or faxing with:

- Another PSF for z/OS system
- An AIX, Linux, or Windows print server

AFP Download Plus uses TCP/IP to send data sets from the JES spool to receiver systems. A cooperating receiver that runs on another system receives the data sets.

### **AFP Upload**

AFP Upload receives print data from AIX and places it on the JES spool for printing on any printer that is supported by PSF for z/OS. Jobs that are submitted to AFP Upload can contain any type of data stream that the print server can transform to MO:DCA-P, except XML.

### **Download for z/OS**

Download for z/OS sends data, without transforming it, from a z/OS system to a remote system for archiving with Content Manager OnDemand or for printing with:

- Another PSF for z/OS system that is running AFP Download Plus
- An AIX, Linux, or Windows print server

Download for z/OS uses TCP/IP to send data sets from the JES spool to remote systems. A cooperating server that is running on the remote system receives the data sets.

## **Specified Operating Environment**

---

### **Hardware Requirements**

PSF operates on IBM processors capable of supporting the operating systems listed in [“Software Requirements”](#) on page 3.

### **Printer Requirements**

To determine supported printer functions and microcode level, you can use the display printer information function in PSF. For more information, see *PSF for z/OS: Customization*, S550-0427. To determine which functions your printer supports, you can also see the documentation for the printer.

### **ACIF Requirements**

To use the ACIF feature of PSF, the hardware requirements are the same as those required by PSF for z/OS.

### **AFP Download Plus Requirements**

To use the AFP Download Plus feature of PSF, the hardware requirements are the same as those that are required by:

- IBM Content Manager OnDemand for Multiplatforms Version 10.5 or later (5724-J33)
- PSF 4.8.0 for z/OS (5655-M32)

### **AFP Upload Requirements**

To use the AFP Upload feature of PSF, the hardware requirements on the AIX system are:

- Hardware to support SNA communications between the z/OS and AIX systems (no additional hardware is required to support TCP/IP communications).
- Hardware that is required by the print server.
- 8 MB<sup>1</sup> of hard disk and 5 MB of memory for each upload queue.

### **Download for z/OS Requirements**

To use the Download for z/OS feature of PSF, the hardware requirements are the same as those that are required by:

---

<sup>1</sup> MB = Megabytes. When referring to storage capacity, 2 to the twentieth power; 1048576 in decimal notation.

- IBM Content Manager OnDemand for Multiplatforms Version 10.5 or later (5724-J33)
- PSF 4.8.0 for z/OS (5655-M32)

## Software Requirements

Before installing PSF, the z/OS Version 2.5 or later (5650-ZOS) operating system is required with supported levels of JES2 or JES3.

To install PSF, the SMP/E element of z/OS is required.

## Communication Server Requirements

These functions of the z/OS Communications Server are required, depending on printer attachments:

- SNA Services for SNA-attached printers
- IP Services for TCP/IP-attached printers

## RACF Requirements

Resource Access Control Facility (RACF®), part of the Security Server feature of z/OS, is required for optional RACF protection for user libraries and for print security labeling.

## AFP Download Plus Requirements

To use the AFP Download Plus feature of PSF, the software requirements on the receiving system are one of these:

- IBM Content Manager OnDemand for Multiplatforms Version 10.5 or later (5724-J33)
- PSF 4.8.0 for z/OS (5655-M32)
- An AIX, Linux, or Windows print server

## AFP Upload Requirements

To use the AFP Upload for AIX feature of PSF, the software requirements on the AIX system are:

- AIX Version 7.2 or later (5765-G98)
- InfoPrint Manager for AIX
- Communications Server for AIX Version 6.4 (5765-E51) for printing on SNA-attached printers

## Download for z/OS Requirements

To use the Download for z/OS feature of PSF, the software requirements on the remote system are one of these:

- IBM Content Manager OnDemand for Multiplatforms Version 10.5 or later (5724-J33)
- PSF 4.8.0 for z/OS (5655-M32) with the AFP Download Plus feature
- An AIX, Linux, or Windows print server

## PPFA Requirements

Page Printer Formatting Aid (PPFA) requires program temporary fixes (PTFs) to support some PSF functions; however, not all new functions are supported.

## Licensed Program Materials Availability

Restricted materials: No. This licensed program is available without source licensed program materials. It is available in object code.

## Supplemental Terms

---

### Designated Machine Identification

Designated Machine Identification Required: Yes

### Testing Period

None

### Satisfaction Guarantee

IBM provides a two-month unconditional guarantee for any reason for basic licenses. IBM will credit the price paid. The guarantee period starts 1) 10 days after IBM ships the program or 2) on the day IBM authorizes the customer to make an Additional License copy.

### Installation or Location License

A separate license is required for each designated machine on which the licensed program materials are used. An installation or location license cannot be used.

### Use-Based Charges and Usage Restriction

- Usage License applies: Limited
- Usage License Restriction: Usage is limited by the usage tier that is specified in “Usage Tiers” on page 5. Tiers are determined based on the cumulative point value of the printers installed. You can use the point counting tool in PSF to determine your usage tier. For information about using the point counting tool, see *PSF for z/OS: Customization*, S550-0427.

### Categories and Printer Points

The price you pay for a PSF for z/OS V4R8 software license depends on the number of printers PSF is driving and the speed of those printers. Printers are categorized and points are assigned to them based on the printer's published maximum rated impressions per minute (IPM). The printer manufacturer's documentation indicating maximum rated speed may be used to place the printer in the proper category. Where no manufacturer's documentation is available, customers should contact their printer sales representative to obtain information on the printer's rated speed.

Printers with maximum speeds rated in lines-per-minute (LPM), characters-per-second (CPS), or inches-per-second (i.e., label printers) all fall into Category 1. These printers do not accumulate points toward the total PSF point value. Any number of printers in Category 1 can be driven with a PSF Tier 1 license. Except for Category 1, each category has a point value assigned that applies to each of the printer listed for that Printer Speed. Use [Table 1 on page 4](#) to determine the category and points for each attached printer.

- For *continuous forms printers*, the speed rated in impressions-per-minute (IPM) is the maximum capacity of industry standard 8½ inches (length) by *n* inches (width) pages per minute.
- For *continuous forms duplex capable printers*, the maximum speed of each printer engine is used to determine the point category and both engines count towards total point value.

Table 1. Printer categories, speeds, and points		
Category	Printer Speed (IPM)	Printer Points
1	All Impact Printers	0
2	0–62	1
3	63–105	6

<i>Table 1. Printer categories, speeds, and points (continued)</i>		
<b>Category</b>	<b>Printer Speed (IPM)</b>	<b>Printer Points</b>
<b>4</b>	106–150	12
<b>5</b>	151–400	20
<b>6</b>	401–700	40
<b>7</b>	701–1000	55
<b>8</b>	1001+	65

## Usage Tiers

After point values are determined for the printers driven by PSF, the total point value per PSF license must be calculated by multiplying the number of printers of each type by their respective point values. This cumulative point value represents the usage level for a particular PSF license and is used to select a PSF usage tier. Select a tier from [Table 2 on page 5](#) with a point range that includes the calculated cumulative point value.

<i>Table 2. Pricing tiers based on printer points</i>	
<b>PSF Usage Tier</b>	<b>Printer Point Range</b>
<b>1</b>	Up to 5 points
<b>2</b>	Up to 9 points
<b>3</b>	Up to 14 points
<b>4</b>	Up to 20 points
<b>5</b>	Up to 30 points
<b>6</b>	Up to 46 points
<b>7</b>	Up to 66 points
<b>8</b>	Up to 86 points
<b>9</b>	Up to 151 points
<b>10</b>	Up to 301 points
<b>11</b>	Up to 601 points
<b>12</b>	602 or more points

If the customer exceeds the maximum number of points specified by the usage tier they have, the customer must obtain the appropriate tier for the license

**Note:** A tool is available to help determine the printers being driven by a PSF license. You can use the point counting tool shipped with PSF for z/OS to determine the correct usage tier. For information about using the point counting tool, see *PSF for z/OS: Customization*, S550-0427.

## Type and Duration of Program Services

Program service, including an IBM Support Center, will be available until discontinued by IBM with a minimum of 12 months written notice.

## Authorization for Copy and Use on Home or Portable Computer

Not permitted for PSF 4.8.0 for z/OS.

## Softcopy Publications

To support authorized use of PSF 4.8.0 for z/OS, printed copies of the displayable or source material can be made if the copyright notice and any other legend of ownership is reproduced on each copy or partial copy.

PSF for z/OS publications are available as PDF files on the [IBM Documentation \(www.ibm.com/docs/en/zos\)](http://www.ibm.com/docs/en/zos).

## Warranty

---

This program is warranted as specified in the IBM license.

Licensed Program Specifications may be updated from time to time and such updates may constitute a change in specifications.

Following the discontinuance of all program services, this program will be provided "As is" as specified in the IBM license.

## Trademarks

---

IBM, the IBM logo, and ibm.com are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available at [Copyright and Trademark information \(www.ibm.com/legal/copytrade.shtml\)](http://www.ibm.com/legal/copytrade.shtml).

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Windows is a trademark of Microsoft Corporation in the United States, other countries, or both.







Product Number: 5655-M32

G550-0431-05

