



Licensed Program Specifications

Print Services Facility for OS/390 Licensed Program Specifications Version 3, Release 1.0 Program Number 5655-B17

PSF for OS/390 Product Description

Print Services Facility Version 3 Release 1 Modification 0 for OS/390, hereafter referred to as PSF, provides device and resource-management support for the following IBM printers:

- IBM 3112 Page Printer Model 001
- IBM 3116 Page Printer Models 001, 002, 003
- IBM 3124 (Japan only)
- IBM 3130 Advanced Function Printer Models 01S, 02S, 02D, 03S
- IBM 3160-001 Advanced Function Printer
- IBM 3160-002 InfoPrint 60
- IBM 3300 InfoPrint 3000
- IBM 3800 Printing Subsystem Models 3, 6, 8
- IBM 3812 Page Printer Model 2
- IBM 3816 Page Printer Models 01S, 01D
- IBM 3820 Page Printer
- IBM 3825 Page Printer
- IBM 3827 Page Printer
- IBM 3828 Advanced Function MICR Printer
- IBM 3829 Advanced Function Printer
- IBM 3831 Page Printer Model 001 (Japan only)
- IBM 3835 Page Printer Models 001
- IBM 3835 Advanced Function Printer Model 002
- IBM 3900 Advanced Function Printer Model 001
- IBM 3900 Advanced Function Standard Duplex Printing System Models D01 and D02
- IBM 3900 Advanced Function Wide Duplex Printing System Models DW1 and DW2
- IBM 3900 Wide Advanced Function Printer Models 0W1, 0W3
- IBM 3912 Page Printer Model NS1
- IBM 3916 Page Printer Model NS1
- IBM 3930 Page Printer Models 02S, 02D
- IBM 3935 Advanced Function Printer Model 001
- IBM 4000 InfoPrint 4000
- IBM LaserPrinter 4028 Models AS1, NS1
- IBM 4224 Printer Models 201, 202, 2C2, 2E2, 2E3
- IBM 4230 Printer Models 202, 211, 513 ¹
- IBM 4234 Printer Models 07, 011
- IBM 4312 Network Printer 12
- IBM 4317 Network Printer 17
- IBM 4320 InfoPrint 20
- IBM 4324 Network Printer 24
- IBM 4332 InfoPrint 32
- IBM 4370 InfoPrint 62
- IBM 6400 Line Matrix Printer Models 004, 008, 012
- IBM 6408 Line Matrix Printer Model CTA
- IBM 6412 Line Matrix Printer Model CTA

PSF also supports printing on MVS-attached and OS/390-attached printers from OS/2 and AIX systems, using one of the following programs:

- The AFP Upload feature of PSF for OS/390
- The APS Connect product for WARP Server (5639-A62)
- The Upload-n-Print function of PSF for OS/2 (5622-551)

PSF supports remote printing on OS/2 and AIX systems, using one of the following programs:

- The Distributed Print Function (DPF) of PSF for OS/2 (5622-551)
- The PSF Direct function of PSF for OS/2 (5622-551)
- The APS Connect product for WARP Server (5639-A62)
- The PSF Direct feature of InfoPrint Manager for AIX (5648-A35)
- The PSF Direct feature of PSF for AIX (5765-505)
- The Download for OS/390 feature

¹ PSF supports this printer only in 4224 emulation mode.

For information on the printers supported on OS/2 and AIX systems, including non-IPDS printers, refer to the following publications:

- *IBM Print Services Facility for OS/2: License Information*, G544-3769
- *IBM Print Services Facility for AIX: Licensed Program Specifications*, G544-3815
- *InfoPrint Manager for AIX Administrator's Guide*, S544-5595

Also, visit the web site www.printers.ibm.com

For information about the functions supported by each printer, refer to one of the following publications:

- *AFP: Printer Summary*, G544-3135
- The *Introduction and Planning Guide* for each printer

Note: The following functions are not supported when printing through the Distributed Print Function of PSF for OS/2:

- Attachment to a microfilm device
- Attachment to a printer in automatic resolution mode
- Attachment to a printer that supports N_UP (the N_UP function will be disabled by PSF)
- Attachment to a printer that supports extended overlays or page segments (the extended overlay or page segment function will be disabled by PSF)
- Attachment to a printer that supports the X'84' triplet on the Activate Resource IPDS command (the X'84' triplet support will be disabled by PSF)
- Attachment to a printer in cut sheet emulation mode (the cut sheet emulation function will be disabled by PSF)
- Outline fonts
- Resident fonts

PSF communicates between the job entry subsystem (JES) and the printer to provide access to Advanced Function Presentation (AFP) printer functions. When processing line printer data, PSF 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 performs formatting capabilities 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.

The following optional features are available with PSF.

AFP Upload Feature

When used in conjunction with InfoPrint Manager on an RS/6000, AFP Upload allows you to submit a file to InfoPrint Manager for printing on any printer supported by PSF for OS/390. InfoPrint Manager can upload files of any type that it can convert to a MO:DCA-P data stream.

Download for OS/390 Feature

Download for OS/390 allows you to send output from an OS/390 system to a remote system for printing with InfoPrint Manager for AIX or for archiving with EDMSuite OnDemand. Download for OS/390 uses TCP/IP to send data sets from the JES spool to remote systems. A cooperating server running on the remote system receives the data sets.

IP PrintWay Feature

IP PrintWay automatically routes JES2 or JES3 print data from your MVS or OS/390 system to printers in your TCP/IP network. No changes to your application programs are required.

NetSpool Feature

NetSpool allows you to send output from most VTAM applications (such as CICS and IMS) to the JES spool for printing or distribution using JES, PSF, or IP PrintWay, without modifying application code.

AFP Conversion and Indexing Facility

AFP Conversion and Indexing Facility (ACIF) formats System/390 line data according to instructions in a page definition and converts it into an AFP data stream file. ACIF can also be used to index the print file to identify individual groups of pages, such as a single customer's bank statement. Using ACIF, a programmer can archive information and resources needed to print the job in system libraries and then retrieve them for printing or viewing.

Fonts

240-pel and 300-pel compatibility fonts are available for PSF. These fonts are described in *Licensed Program Specifications for Advanced Function Printing: Compatibility Fonts Available with Print Services Facility and Print Management Facility*, G544-3645.

IBM Font Collection Version 2 (5648-B33) includes recommended fonts for use with PSF V3.1.0 and contains euro support.

Publications

PSF for OS/390 and other AFP publications are available in online format on the CD-ROM *PSF for OS/390 Collection Kit*, SK2T-9267.

Year 2000 Ready

This IBM product, when used in accordance with its associated documentation, is capable of correctly processing, providing, and/or receiving date data within and between the twentieth and twenty-first centuries, provided that all products (for example, hardware, software, and firmware) used with this IBM product properly exchange accurate date data with it.

Machine Requirements

PSF operates on IBM processors capable of supporting the operating systems listed in "Programming Requirements."

Printer Requirements

To determine which functions your printer supports consult your printer documentation. To determine which microcode levels are required, contact your IBM hardware customer engineer.

AFP Upload Requirements

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

- Hardware to support SNA communications between the OS/390 and AIX systems (no additional hardware is required to support TCP/IP communications)
- Hardware required by InfoPrint Manager
- 8MB² of hard disk and 5MB of memory for each upload queue

Download for OS/390 Requirements

To use the Download for OS/390 feature of PSF, the machine requirements on the AIX system are the same as those required by:

- InfoPrint Manager for AIX Version 2.1.0 or higher (5648-A35) or InfoPrint Manager for AIX Version 3.1 or higher (5648-B34)
- EDMSuite OnDemand for AIX Version 2.2 or higher (5622-662)

Programming Requirements

Before installing PSF, the operating environment must be at, or above, the following levels:

- Operating System:
One of the following is required, with any level of JES2 or JES3 that is supported in that environment:
 - MVS/ESA SP JES2 Version 5.2.2 or higher (5655-068), or MVS/ESA SP JES3 Version 5.2.2 or higher (5655-069)
 - OS/390 Version 1.1 or higher (5645-001), or OS/390 Version 2.4 or higher (5647-A01)
- DFSMS/MVS Version 1.2 (5695-DF1) or DFSMS element of OS/390 Version 1 (5645-001) or DFSMS element of OS/390 Version 2 (5647-A01)

² MB. Mega bytes. When referring to storage capacity, 2 to the twentieth power; 1 048 576 in decimal notation.

To install PSF, one of the following is required:

- SMP/E Version 1.8.1 (5668-949) with PTF UR49485 or higher
- SMP/E element of OS/390 Version 1 (5645-001) Release 2 with PTF UR48837 or Release 3 with PTF UR48840
- SMP/E element of OS/390 Version 2 (5647-A01) Release 4 with PTF UR48840 or Release 5 or higher

ACF/VTAM Requirements

ACF/Virtual Telecommunications Access Method Version 4.3 or higher (5695-117) is required for the following:

- Printing on all 3820 printers, channel- and SDLC-attached
- Printing on SNA Token ring-attached printers
- DPF and PSF Direct
- NetSpool feature

Both ACF/Virtual Telecommunications Access Method Version 4.3 or higher (5695-117) and ACF/Network Control Program Version 4.3.1 or higher (5668-854) (which is integrated into most processors) are required for the following:

- Printing on SNA-attached printers
- Printing on OS/2 or AIX printers, using DPF or PSF Direct

RACF Requirements

RACF Version 2.2 or higher (5695-039) is required for optional RACF protection for user libraries and for print security labelling.

TCP/IP Requirements

Printing on TCP/IP-attached printers requires any one of the following:

- TCP/IP Version 3.2 (5655-HAL) with APARs PQ07866, PQ13154, and PQ17052, or higher
- eNetwork Communication Server (5647-A01) element of OS/390 Version 2.5 with APARs PQ13154 and PQ17052, or higher
- eNetwork Communication Server (5647-A01) element of OS/390 Version 2.6 with APAR PQ17052, or higher

AFP Upload Requirements

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

- AIX Version 4.1.3 or higher (5765-393)
- IBM PSF for AIX Version 2.1 or higher (5765-505), with APAR IX57887
- SNA Server/6000 Version 2.1.x (for AIX Version 3.2.5) (for printing on SNA-attached printers)
- SNA Server/6000 Version 2.2.x (for AIX Version 4.x) (for printing on SNA-attached printers)
- SNA Server/6000 Version 3.1.x (for AIX Version 4.x SMP) (for printing on SNA-attached printers)

Download for OS/390 Requirements

To use the Download for OS/390 feature of PSF, the programming requirements on the remote system are:

- InfoPrint Manager for AIX Version 2.1.0 or higher (5648-A35) or InfoPrint Manager for AIX Version 3.1 or higher (5648-B34)
- EDMSuite OnDemand for AIX Version 2.2 or higher (5622-662)

PPFA/370 Requirements

PPFA/370 continues to be enhanced to support new PSF functions. As new functions are added, APARs are often required to run the newest functions. To learn the latest functions supported by PPFA/370 and their requirements, visit the IBM Printing Services Company web site at www.printers.ibm.com. From the home page, you can select to review new functions of IBM Printing Services Company software products.

Extensions to Authorized Use

The user is authorized to make verbatim copies of all or part of the IBM-supplied compatibility fonts. IBM-supplied compatibility fonts may be used and distributed within the user's organization; however, machine-readable IBM-supplied compatibility fonts may not be distributed outside the user's organization or country where the original copy was acquired.

Licensed Program Materials Availability

This licensed program contains no restricted materials. The program is available only in object code without source licensed program materials.

Supplemental Terms

Testing Period

- Basic License: 2 months
- DSLO License: Not applicable

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.

Usage License

- Usage License applies: Limited
- Usage License Restriction: Usage is limited by the usage tier specified in the Supplement. Tiers are determined based on the cumulative point value of the printers installed.

Printer Categories

PSF Version 3.1 is priced in Cumulative Block Tiers. The PSF tier is determined based on the number of printers PSF will be driving and the impressions-per-minute rated speed of those printers. Printer points are assigned to each printer, then accumulated. The total number of points indicates the appropriate PSF price tier.

The following defines the ranges of printer speeds and the points assigned to each printer category:

Category	Rated Printer Speed (IPM)	Printer Points
1	0– 10	.25
2	11– 20	.75
3	21– 45	1.50
4	46– 70	6.00
5	71–100	9.00
6	101–150	12.00
7	151+	20.00

Duplex printing systems count as two machines. Each engine counts as 12 or 20 points depending upon its rated speed.

For continuous forms printers that can print multiple logical pages on a single form, the printer speed should be calculated as the number of impressions per minute for a single 11 inch x 8.5 inch form (landscape).

Pricing Tiers

After point values have been 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 and accumulating both the IBM and non-IBM printer results. This cumulative point value represents the usage level for a particular PSF license and is used to select a PSF usage tier (listed below). Usage tiers are additive: to order tier 8, tiers 1–7 must also be ordered or already installed.

Tier	Allowable Point Range
1	0– 4.99
2	5– 8.99
3	9– 13.99
4	14– 19.99
5	20– 29.99
6	30– 45.99
7	46– 65.99
8	66– 85.99
9	86– 150.99
10	151– 300.99
11	301– 600.99
12	601–2000.99
	2001+ special bid

If the customer exceeds the maximum number of points specified by the usage tier in the Supplement, the customer must obtain the appropriate pricing feature for the license.

Type and Duration of Program Services

Central Service, including the IBM Support Center, will be available until discontinued by IBM after a minimum of 6 month's written notice.

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.

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