

# IBM Print Software: Hints, Tips and Short Subjects



## Useful Gems for Infoprint Server, Transforms, PSF and ACIF

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# Infoprint Server

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- ▶ The Infoprint Server Printer Inventory keeps all of the printer definitions, print file status, spool dataset allocation, transform data
- ▶ If there is a problem with Infoprint Server or it's communication with JES, the Inventory can be corrupted
  - The effect of the corrupted Inventory may not be immediately obvious
- ▶ Even if you back up the Unix file system that contains the Inventory (/var/Printsrv), you may have saved a bad inventory
  - When Support suggests restoring the Inventory you may be restoring a corrupted version
  - A separate backup of the Inventory will allow you to get Infoprint Server up quickly and painlessly.

- ▶ You can back up the Inventory using the Infoprint Server PIDU command
  - PIDU (Printer Inventory Definition Utility) is the inventory maintenance utility
  - PIDU will create a text version of the Inventory
  - The PIDU command can be run daily as a scheduled job
    - in batch from JCL (recommended)
    - or as a cron job in Unix
  - ✓ See Steps for backing up the Printer Inventory to an HFS or zFS file in Chapter 3. Customizing the Printer Inventory Manager of the Infoprint Server Customization book
  - See *Chapter 19. Using the PIDU program to manage the Printer Inventory* in the Infoprint Server Operation and Administration book, S544-5745

## ► From Batch:

```
//AOPPIDU JOB ...  
//PIDU EXEC PGM=AOPBATCH,PARM='pidu'  
//STDIN DD *  
    export "//'HOWARDT.PIDU.GDG(+1) '";  
//STDOUT DD SYSOUT=*  
//STDERR DD SYSOUT=*  
//STDENV DD *  
PATH=/usr/mylib/Printsrv/bin  
LIBPATH=/usr/mylib/Printsrv/lib  
NLSPATH=/usr/mylib/Printsrv/%L/%N:/usr/mylib/Printsrv/En_US/  
%N  
/*
```

## ► From Unix command line;

```
pidu -c " export inventory.export ; "
```

## ► Do it...Level 2 will thank you!

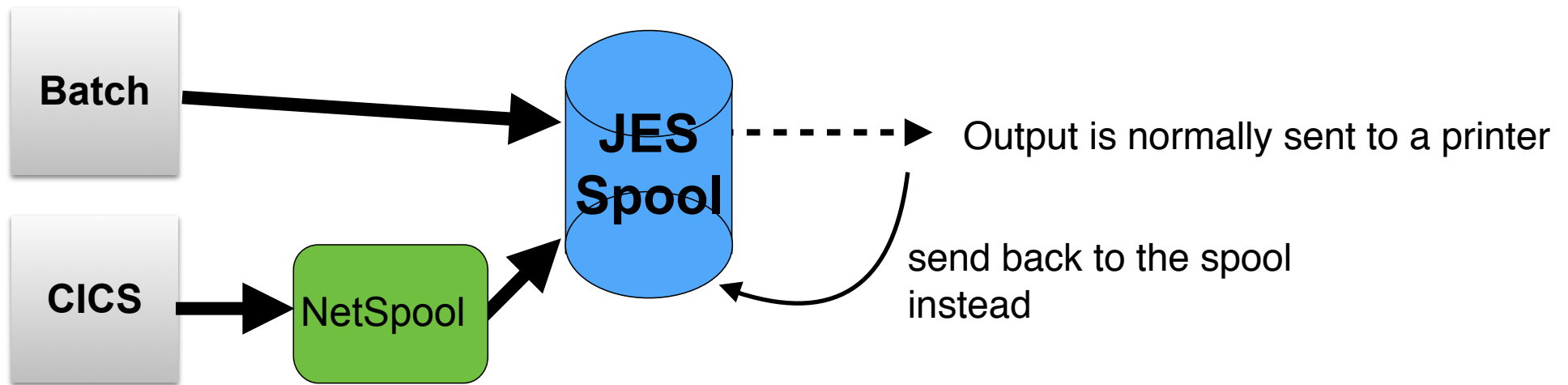
- ▶ IP PrintWay Extended Mode has been around since z/OS 1.5 in 2004
- ▶ Basic mode
  - will not be enhanced
  - is much less efficient
  - can't take advantage of newer technologies and performance improvements
  - more difficult to manage
  - No common message log
  - No Infoprint Central
- ▶ If you're still running Basic Mode IP PrintWay it's time to migrate!

- ▶ Steps for migration are in the Customization book, *Appendix G. Migrating from IP PrintWay basic mode to extended mode*
- ▶ An overview, though somewhat out-of-date, can be found in *Migration to Infoprint Server for z/OS 1.5 and 1.6*, SHARE Session 2710 March 1, 2005 (yes, it's been that long!)
- ▶ It's bit of work, but you'll be glad you did it

- ▶ Most Infoprint Server Printer Definitions are for sending output to a printer. However, here are some things the book doesn't mention:
  - Redirect output so you can inspect a file or save it
  - Send output to a remote print server
  - Transform output, leaving the transformed file on the spool
  - Write your own transform or process
- ▶ The following examples show notation from PIDU, but they can all be coded using the ISPF Printer Definition Panels
  - See the chapter *Using the PIDU program to manage the Printer Inventory* in the Administration book



- ▶ Normally, output from batch or CICS or IMS is sent to a TCP/IP-connected remote printer
- ▶ If you're troubleshooting a problem and need to see what the output looks like, it usually is on spool for only a few seconds



- ▶ Create a printer definition that selects the job and performs any needed processing, like a transform:

```
filters = {line -> "afpxps.dll -cus -r300 %filter-options-j'page-  
def=P1V06483 form-def=F1A00010 chars=60D8' "}
```

- ▶ Route the output to a PSF printer definition  
(no, it's not really PSF, but the output will be written to spool)

```
print-queue-name = HOLD_JOB #PSF printer definition  
printer-ip-address = bldpdevn.bldev.infoprint.com  
#IP address of the z/OS system
```

- ▶ The PSF printer definition looks like:

```
create printer HOLD-JOB  
hold=yes  
printer-type = PSF-mvs  
output-class = T #a held class
```

- ▶ The output, in this example, translated, will be in  
Held CLASS T

- ▶ Remote Print Servers such as InfoPrint Manager, Ricoh Process Director or ContentManager OnDemand can process files sent using and LPR Printer Definition
- ▶ Line-data files can be variable-length, so the receiver expects a 16-bit length to precede the record
- ▶ The receiver also likes to get attributes such as PAGEDEF= and CHARS= from the // OUTPUT JCL card
- ▶ In the printer definition, specify  
**lpr-mode = to-remote-psf**
- ▶ The output will have record lengths for each record and the LPR control file will contain file parameters in a form the receiver understands



- ▶ IP PrintWay Extended Mode uses z/OS Unicode Conversion Services
  - When you specify document-codepage = and printer-codepage= in a printer definition, conversion services is invoked
- ▶ If you are using an Email Printer Definition, the email is passed to Unix sendmail
  - On z/OS, sendmail expects EBCDIC text and automatically translates it to ASCII
  - If you specify a different document and printer codepage, sendmail still thinks the file is EBCDIC and translates it to garbage
- ▶ Specify printer-codepage using an EBCDIC codepage (IBM-1047) so no double translation is done

- ▶ Because Infoprint Server is largely a Unix Services system, file permission are important
- ▶ If you install Infoprint Server with SMP on your test system and then move it to another system, you must be careful to preserve the correct permissions
  - Don't just copy Infoprint Server. Use an appropriate command or utility
    - Use DFDSS to copy the entire filesystem **or**
    - Use the copytree exec in /samples/copytree (z/OS UNIX System Services Command Reference, SA23-2280)
- ▶ If you write your own filters, be sure to set the filter command APF authorized and Program-controlled

- ▶ Infoprint Server consolidates messages in the Common Message Log
  - Messages not in the Common Message Log
    - stderr
    - IP PrintWay Basic Mode
  - Log utilities and locations
    - aoplogu
    - System Logger
- ▶ System Logger is the best way to retain and find messages
  - See z/OS 2.1  
IBM Print Products Latest Status and New Features, Share Session 14662, March 2014

# Print Services Facility

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- ▶ AFP Outline fonts first shipped in 1995 in AFP Font Collection V1
  - Installed into SYS1.FONTOLN
- ▶ InfoPrint Fonts, 2002, replaced the AFP Font Collection
  - Outline fonts installed in SYS1.SFNTILIB
- ▶ In z/OS 2.1, z/OS Font Collection introduced as a new base element
  - Updated and more complete version of previous font products
  - No-charge base element
  - Uses same dataset name as InfoPrint Fonts for outlines, SYS1.SFNTILIB



## ► Steps to take:

- If you are still using or referencing the AFP Font Collection outline font dataset, update references from SYS1.FONTOLN to SYS1.SFNTILIB where appropriate
  - Contains the all the outline fonts found in SYS1.FONTOLN
  - SYS1.SFNTILIB replaces SYS1.FONTOLN
    - ✓ Same or updated versions of older outline fonts
    - ✓ Added Euro symbol
    - ✓ Extended Code Pages
      - Multiple encodings in a single code page
      - Unicode UTF-16 and EBCDIC or ASCII
      - Optionally may map a code point to one or more Unicode values
      - Can contain user-defined characters
  - If you don't want to change the references in PSF PROCs and other places, delete or rename SYS1.FONTOLN and create an alias for SYS1.SFNTILIB of SYS1.FONTOLN

- ▶ PSF has always been able to backspace/forwardspace a job
  - No, not the paper...what prints on the paper
  - Alignment, jam recovery, reprint
  - Operator can issue \$B PRTnnnn / \$F PRTnnnn commands
  - Channel-attached printers can respond immediately,  
**but**  
TCP/IP-attached printers the command is embedded in the data stream
    - The printer will not see the command until it has received and parsed through the data stream
    - Many pages may be printed before the command is seen and acted on
    - Can use the printer's clear buffer command
      - ✓ On the printer console
      - ✓ Stop the printer, clear buffer, issue \$B or \$F command, start the printer
      - ✓ Time-consuming, annoys the printer operator

- ▶ Need a way to get the command to the printer immediately
- ▶ SNMP back-channel allows PSF↔Printer communication independent of the print data stream
  - Used in workstation print servers for a long time
  - Now in PSF!
  - Much faster command turnaround
  - Currently supported for Ricoh/InfoPrint/IBM devices:

510x	2751
4100	2710
4000	2709
3300	1380

## ► Locating Downloaded Print files

- Download for z/OS and AFP Download Plus run as JES Functional Subsystems
- Send files to Download Receiver in InfoPrint Manager, Ricoh Process Director, or IBM Content Manager OnDemand
- Usually you want the remote system to process these files
  - However, you may require some custom processing before printing or archiving
- The file naming scheme for AFP Download Plus is documented in S550-0433, *Appendix A. Syntax for file names*
- The file naming scheme for Download for z/OS is documented in Download Plus, S550-0429, Chapter 3, *Locating transmitted files on remote file systems*

- ▶ PSF can write FSS, FSA, and print job messages to the Infoprint Server common message log.
  - The common message log links the messages to their respective objects with a log name so an operator can view the messages in Infoprint Central.
  - With the common message log function, operators can also use Infoprint Central to:
    - Search for print jobs and view the properties for each job.
    - Release held print jobs, delete jobs, change the priority of jobs, and move jobs (as long as PSF has not started processing the jobs).
- ▶ In the FSS definition in the Printer Inventory, select log messages
- ▶ See Common message log in the PSF Customization book, *Chapter 7. Using the Infoprint Server Printer Inventory*

ACIF

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- ▶ ACIF optionally collects resources by type (fonts, overlays, page segments, FORMDEFs, object containers)
- ▶ Fonts are handled a bit differently (fonts are always different!)
  - Fonts may be different font types (raster, outline, TrueType Fonts) or different resolutions
    - ACIF does not know the type needed for a certain printer or application
    - It uses the font list (Map Coded Font or Map Data Resource structured field)
    - If you want to collect fonts in the ACIF Resource Group file (RESOBJDD), specify:
      - ✓ RESTYPE=FONT...
      - ✓ Optionally, MCF2REF=CF



- ▶ MCF2REF=CF causes ACIF to collect coded font files (X0 or XZ)
  - Coded fonts are small files that name the character set(s) and code page(s) used for the font
    - ACIF defaults to including the code page/character set files, but not the coded font
      - ✓ Use MCF2REF=CF to include the coded font file in the resource group and name it in the Map Coded Font 2 structured field
- ▶ Which font will I get?
  - ACIF searches the library list specified in the FONTLIB= control statement
    - The first font matching the name is used, regardless of resolution
    - Specify the desired resolution by naming the libraries with that resolution





- ▶ How do I know the resolution? Isn't there an easier way?
  - You need to know what kind printer it will print on
  - Fortunately, modern printers will print either 240- or 300-pel rasters, even on the same page
    - Requires a printer setting: resolution AUTO
  - The best solution is to change the application to use AFP Outline fonts or, best, TrueType Fonts
    - Both are resolution-independent
    - Characters look their best at any printer resolution
    - You need fewer fonts because the printer will scale the font sizes as needed
    - Most printers made after 2003 support TrueType Fonts (OpenType), which are industry-standard font files (not AFP fonts)
      - ✓ Contain Unicode character maps instead of code pages



- ▶ Infoprint Server Operation and Administration, SA38-0693-00
- ▶ Infoprint Server Customization, SA38-0691-00
- ▶ Print Services Facility for z/OS Customization, S550-0427
- ▶ AFP Conversion and Indexing Facility User's Guide, S550-0436
- ▶ IBM Print Software Hints, Tips, and Short Subjects-- Useful Gems for Infoprint Server, Transforms, PSF and ACIF, <http://www.share.org/d/do/9284>

# Questions?

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