



# Infoprint Server V1R12 Update

**SHARE 2011 Anaheim, CA**

**Session 8467**

**February 28, 2011**

**Howard Turetzky**

**InfoPrint Solutions Company**

**[howard.turetzky@infoprint.com](mailto:howard.turetzky@infoprint.com)**



# Agenda

- \* Infoprint Server overview
- \* New function Infoprint Server V1R12
- \* New function Infoprint Server V1R11
- \* Migrating to Infoprint Server V1R12
- \* APARs of interest
- \* Where to find more information

# What is Infoprint Server?

- \* Print Interface
  - \* Accepts print requests from z/OS UNIX System Services and from remote systems in your network, and allocates output data sets on the JES spool for printing on local or remote printers.
- \* Printer Inventory
  - \* Provides a single set of printer definitions that all the components of Infoprint Server use.
  - \* Contains printer customization information that Print Services Facility (PSF) uses.
- \* IP PrintWay™
  - \* Transmits output data sets from the JES2 or JES3 spool to remote printers in a TCP/IP network or SNA network.
- \* NetSpool™
  - \* Intercepts print output from VTAM applications and allocates output data sets on the JES2 or JES3 spool for printing on local or remote printers.

# What is Infoprint Server?

- \* Infoprint Central
  - \* A Web-based application that lets help desk operators and other authorized users or job submitters work with print jobs (output data sets) on the JES spool, printers controlled by IP PrintWay extended mode or PSF, and NetSpool logical units.
  - \* Lets operators see system status and printer definitions.
- \* Windows Client
  - \* Infoprint Port Monitor for Windows, which transmits documents and job attributes to Infoprint Server from Windows applications.
- \* Transform Interface
  - \* Communicates with transform products that IBM and the InfoPrint Solutions Company provide. Transforms convert data from one format to another. For example, from PDF to AFP format, or from AFP to PCL format.

# New in Infoprint Server V1R12

- \* Improved support for multiple output data sets in an output group
- \* Infoprint Central enhancements
- \* IP PrintWay Response Notification exit
- \* Workload prioritization

# V1R12 PrintWay Extended Improved Support for Multiple Output Datasets in an Output Group

- ✱ IP PrintWay extended mode will be able to process a greater number of documents in the same print job (JES output group).
- ✱ Jobs that create a large number of output data sets (up to approximately 32,640 data sets, the maximum number of active jobs allowed by the job entry subsystem (JES2 or JES3)) in the same output group.
- ✱ Infoprint Central will let authorized users see information about all the documents (output data sets) in an Infoprint Server print job, up to a limit specified by the administrator.

# V1R12 Infoprint Central Enhancements

- ✱ New capabilities when you use the Infoprint Server job view in Infoprint Central
  - ✱ Display information about all documents in a print job.  
For example, you will see the name and size of each document.
  - ✱ You can limit how many print jobs and documents Infoprint Central displays

# V1R12 IP PrintWay extended mode Response Notification Exit Enhancement

- ✱ IP PrintWay extended mode will support the same Response Notification exit that IP PrintWay basic mode supports.
- ✱ The Response Notification exit will let you take an action based on the status of the transmission of an output data set to a printer. For example, the exit can send a message to the operator's console when a transmission to a printer fails.



# V1R12 Workload enhancements

- ✱ Workload prioritization
  - ✱ Infoprint Server will give higher priority to processing existing print jobs than to receiving new print jobs. This change is expected to improve throughput of existing print jobs.
- ✱ Support for large workloads
  - ✱ Infoprint Server will support a greater number of jobs active in the system at one time, up to the maximum that JES currently allows.

# V1R11 New Function

- \* LPD support for files larger than 2 GB
  - \* Available in z/OS V1R9 and higher with APAR OA28795/PTF UA49583 (Note that this is a PE APAR that is fixed in OA30768 UA51893.)
- \* Infoprint Central performance improvement
  - \* Available in z/OS V1R11 with APAR OA28194/PTF UA49217
- \* Infoprint Port Monitor V3.0
  - \* Available in z/OS V1R8 and higher with APAR OA33750/PTF UA56647.
- \* AFP Download Plus support
  - \* Available on V1R8 and higher if you also use Print Services Facility for z/OS AFP Download Plus 4.2.0 or higher, with these APARs/PTFs: OA27068 UA44914 UA44915 Related PSF 4.2.0 for z/OS APARs: OA24124 and OA24125

# V1R11 LPD

## Support for files larger than 2 GB

- \* The Infoprint Server Line Printer Daemon (LPD) can now receive files larger than 2 GB.
- \* To support files larger than 2 GB, the Infoprint Server API can now return a document size value greater than 2 GB.
- \* Available in z/OS V1R9 and higher with APAR OA28795/PTF UA49583 (Note that this is a PE APAR that is fixed in OA30768 UA51893.)

# V1R11 LPD

## Support for files larger than 2 GB migration

- \* No migration actions required for LPD to receive files larger than 2 GB
- \* Migration actions required for any programs that use the Infoprint Server API
  - \* Needed if files can be larger than 2 GB and the program that uses the API queries document size.

# V1R11

## Infoprint Central performance improvement

- \* Infoprint Central enhancement for job name searches
  - \* Exploitation of JES2 and JES3 APPC Jobname SSI function on JES V1R11 and higher to improve searches in Infoprint Central
  - \* Allows Infoprint Central to filter jobs by transaction job names or job numbers, so that these job searches will be performed more efficiently
  - \* Requires either JES3 at the R11 level or JES2 in z11 mode
    - \* To activate z11 mode on JES2: \$ACTIVATE command
- \* Available in z/OS V1R11 with APAR OA28194/PTF UA49217

# V1R11 Infoprint Port Monitor V3.0.2

- \* Version 3.0.2 of Infoprint Port Monitor for Windows runs on later Windows platforms and provides additional support:
  - \* Runs on Windows Server 2003, Windows Server 2008, Windows Vista (Business Edition, Enterprise Edition), Windows XP and **Windows 7** (32-bit only).
  - \* Supports Windows Terminal Services (which allow users to access applications and data on a remote computer over a network) and Windows fast user switching (which allows users to switch between user accounts on a single PC without quitting applications and logging out).
  - \* Note: Infoprint Port Monitor 2.0.6 is supported on Windows Server 2003 or Windows XP. It also runs on Windows 98, 2000, NT, and Millennium Edition (Me). However, IBM no longer supports the Infoprint Port Monitor on these systems because Microsoft no longer supports these operating systems.
- \* Available for z/OS V1R8 and higher with APAR 33750/PTF UA56647.

# Migrating to Infoprint Server V1R12

## Increase Printer Inventory Space

- \* Before installing z/OS V1R12
  - \* Increase space in the Printer Inventory file system
  - \* Run the IBM Health Check ZOSMIGV1R12\_INFOPRINT\_INVSIZE. (APAR OA32093)
  - \* Run the df command to display the current utilization of the Printer Inventory file system. Printer Inventory files are located in the Infoprint Server base directory. The default base directory name is /var/Printsrv

The free space required is 200% of the sum of the Version 1 Printer Inventory and historical Printer Inventory files (master.db, jestoken.db, pwjestoken.db, hinv/hinv.db, and logdb/log.db).

If the “Capacity” is greater than 33%, increase the size of the file system.

Example:

```
df -P /var/Printsrv
```

```
Filesystem    512-blocks Used Available Capacity Mounted on OE17A.S1.VAR
64800    54184    10616    84% /DEVE/var
```

- \* To increase the size of the file system, use the z/OS UNIX zfsadm grow (zFS) or confighfs (HFS) command.

Tip: Set the aggrfull (zFS) or FSFULL (HFS) file system option so that warning messages are issued if the Infoprint Server base directory (/var/Printsrv) is getting full.

# Migrating to Infoprint Server V1R12

## Fallback Considerations

- \* Remove Version 2 Printer Inventory files at fallback
  - \* V1 and V2 Inventory files can co-exist.
  - \* If you fall back, then IPL V1R12 again, the system will re-create the V2 Inventory if you removed it before the IPL.
    - \* You will then automatically pick up any Inventory changes from the prior release.
      - \* Run the IBM Health Checker for z/OS check `INFOPRINT_V2DB_CHECK`.



# Migrating to Infoprint Server V1R12

## Upgrade JAVA

- \* Upgrade Java support for IPP Server
  - \* If you use the Internet Printing Protocol (IPP) Server in Infoprint Server, it requires Java V6.0 in V1R12
    - \* `start-daemons={ippd...}`
  - \* Install IBM 31-bit SDK for z/OS, Java 2 Technology Edition, V6 (5655-R31).
  - \* Edit aopstart EXEC to update the directory path specified in the JAVA\_HOME environment variable
    - \* If you use Infoprint Central (which uses the z/OS HTTP Server), update the JAVA\_HOME variable in httpd.envvars
    - \* If you installed Java V6.0 in the default Java directories, you don't need to specify JAVA\_HOME.

# Migrating to Infoprint Server V1R12 Before First V1R12 IPL

- \* Remount the /var/Printsrv directory from the z/OS V1R11 or V1R10 system on the z/OS V1R12 system.
  - \* The /var/Printsrv directory contains the Printer Inventory as well as other Infoprint Server files.
  - \* After you start Infoprint Server on the new system, back up the Inventory using pidu export command
- \* Configure the Infoprint Server environment variables (for example, AOPCONF, PATH, LIBPATH, NLSPATH, MANPATH) in /etc/profile.
- \* If you modified aopd.conf, copy it to the new /etc/Printsrv/aopd.conf
- \* If you modified the **aopstart** EXEC, copy it to the new system
- \* Copy any IP PrintWay, Print Interface and NetSpool exits and filter to the new system.
  - \* You don't need to recompile them
- \* For Infoprint Central, copy the z/OS HTTP Server configuration and environment variables to the new system

# Migrating to Infoprint Server V1R12

## Upgrade XML for Infoprint Central

- \* If you use Infoprint Central you will need to install V1.10 of the XML Toolkit
  - \* Install IBM XML Toolkit for z/OS V1.10 (5655-J51).
  - \* Specify the XML Toolkit for z/OS V1.10 libraries in the LIBPATH environment variable in your z/OS IBM HTTP Server environment variables file (default location is /etc/httpd.envvars). After z/OS V1R12 is installed, Infoprint Central requires the XML Toolkit for z/OS V1.10 libraries:
    - \* LIBPATH: change /usr/lpp/ixm/IBM/xml4c-5\_6/lib to /usr/lpp/ixm/IBM/xml4c-5\_7/lib
    - \* LIBPATH: change /usr/lpp/ixm/IBM/xslt4c-1\_10/lib to /usr/lpp/ixm/IBM/xslt4c-1\_11/lib
    - \* ICU\_DATA: You can remove this variable because XML no longer uses this variable.
  - \* Restart the z/OS IBM HTTP Server to pick up the changes to the environment variables file.

# Migrating to Infoprint Server V1R12

Optionally Migrate from IP PrintWay Basic to Extended mode

- ✱ IP PrintWay Extended Mode provides better performance and new features.
- ✱ Basic mode is no longer enhanced
- ✱ See *z/OS Infoprint Server Customization*, Appendix F. Migrating from IP PrintWay basic mode to extended mode for details on migrating to IP PrintWay Extended Mode.

# Migrating to Infoprint Server V1R12 After First V1R12 IPL

- ✱ When migrating to z/OS V1R12 Infoprint Server, you must run the **aopsetup** shell script to establish the correct file permissions for Infoprint Server directories and files.
- ✱ Run the aopsetup shell script from an rlogin shell, from an OMVS session, or with the BPXBATCH command.
  - ✱ Specify the names of the RACF groups that you defined for Infoprint Server operators and administrators as arguments to aopsetup.
  - ✱ For example, if you defined group AOPOPER for operators and group AOPADMIN for administrators, enter:

```
/usr/lpp/Printsrv/bin/aopsetup AOPOPER AOPADMIN
```

- ✱ You must run aopsetup from a user ID with a UID of 0.

# Migrating to Infoprint Server V1R12

## Remove Version 1 Printer Inventory Files

- \* In z/OS V1R12, the format of the Infoprint Server Printer Inventory files has changed from Version 1 to Version 2 format.
- \* When you start Infoprint Server in z/OS V1R12, Infoprint Server reformats the Version 1 Printer Inventory files and creates Version 2 Printer Inventory files.
- \* The Version 1 Printer Inventory files are not removed so that if you need to fall back to the previous z/OS release, Infoprint Server can use the Version 1 Printer Inventory files.
- \* After you have fully deployed z/OS V1R12 **and are sure that you will not need to fall back** to the previous z/OS release, you can remove the Version 1 Printer Inventory files to free up space in the Infoprint Server base directory.
- \* Version 1 files have a “db” extension. The default base directory is /var/Printsrv.

# V1R11 Infoprint Port Monitor V3.0.2 Migration Actions

- ✱ Download Infoprint Port Monitor V3.0 to one of the supported Windows systems from one of these locations:
  - ✱ Download from Web at:  
[http://www.ibm.com/support/docview.wss?  
rs=727&uid=psd1P1000597](http://www.ibm.com/support/docview.wss?rs=727&uid=psd1P1000597)
  - ✱ Use a file transfer program (such as ftp), to download (in binary) file /usr/lpp/Printsrv/win/En\_US/aopwin.msi.

# V1R11 AFP Download Plus support

- \* Infoprint Server administrators can now create Print Services Facility (PSF) functional subsystem (FSS) and functional subsystem application (FSA) definitions in the Printer Inventory for AFP Download Plus, using the new ISPF panel for AFP Download Plus FSA definitions
- \* The Infoprint Server migration program (aopmig) can migrate AFP Download Plus configuration information from PSF startup procedures to the Printer Inventory.
- \* Infoprint Central lets operators work with AFP Download Plus senders that are defined in the Printer Inventory. Operators can do a limited set of PSF printer actions: start, stop, change forms and other job-selection criteria, ping, view printer properties, and see messages from Infoprint Central.
- \* Available in z/OS V1R8 and higher with these APARs/PTFs:
  - \* APAR OA22697/PTF UA37619
  - \* APAR OA22673/PTF UA38345
  - \* APAR OA23077/PTF UA39898



# New in Infoprint Server V1R11

# V1R11 AFP Download Plus support

- \* New PSF printer attributes in the Printer Inventory for AFP Download Plus PSF FSA definitions:
  - \* send-messages-on-failure=all | generic-only
  - \* send-separator-pages=yes | no
- \* Can be specified in both the Infoprint Server ISPF panels and the Infoprint Server Printer Inventory Definition Utility (PIDU)
- \* The Infoprint Server migration program (aopmig) supports the new attributes when it migrates PSF start up procedures to the Printer Inventory, and Infoprint Central displays the new attributes when you view information for an AFP Download Plus sender.
- \* Available on V1R8 and higher if you also use Print Services Facility for z/OS AFP Download Plus 4.2.0 or higher, with these APARs/PTFs:
  - \* OA27068 UA44914 UA44915
  - \* Related PSF 4.2.0 for z/OS APARs: OA24124 and OA24125

# V1R11 Printer Inventory for PSF

- \* The “Printer Inventory for PSF” function lets PSF customers who have not purchased an Infoprint Server license use the Infoprint Server Printer Inventory.
- \* PSF administrators can now create PSF functional subsystem (FSS) and functional subsystem application (FSA) definitions in the Printer Inventory using the Infoprint Server ISPF panels or the Printer Inventory Definition Utility (PIDU) program, and can use the Infoprint Server migration program to migrate printer configuration information from PSF startup procedures to the Printer Inventory.
- \* Available for z/OS V1R8 and higher with these APARs/PTFs:
  - \* APAR OA22697/PTF UA37619
  - \* APAR OA22673/PTF UA38345

# Notable Infoprint Server APARs

- \* OA33104/UA52677
  - \* Infoprint server, like Communications Manager (TCP/IP), requires OMVS in order to run. If OMVS is shutdown while Infoprint Server is running, an ABEND0D6 occurs.
- \* OA32759/UA49583 (HIPER)
  - \* The Infoprint Server Line Printer Daemon ( LPD ) ( AOPLPD ) incorrectly sends a NACK ( negative response ) and ends the connection when the LPR client sends leading zeros in the file size.
- \* OA35095/UA58977 (HIPER)
  - \* The final job status shown in Infoprint Central for jobs that are no longer on the JES spool is sometimes incorrect for multi-document jobs

# Other notable Infoprint Server APARs

- \* OA33293/UA56237 (HIPER)
  - \* in a busy system, sometimes Infoprint Server begins to process documents, then erroneously detects that the documents are no longer in the system and does not print them. The documents remain on the JES spool
- \* OA34740/UA57918 (HIPER)
  - \* IP PrintWay sends jobs to a PjL printer or via the direct sockets attachment, for multi-document jobs the output may be incorrect. The problem occurs when data set grouping is concatenate job or automatic dataset grouping has been selected.
- \* OA33627/UA55602 (HIPER)
  - \* If Infoprint Server is not enabled when DFS starts, an unhandled condition occurs ( ABEND0C4 ) in the stubbed Infoprint Server Application Interface code ( aopapi.dll ).

# Other notable Infoprint Server APARs

- \* OA30768 UA51893
  - \* Excessive CPU consumption by Infoprint Server daemon AOPD.  
After applying PTF UA49583, sometimes AOPD starts using an abnormal amount of CPU time. This high CPU consumption occurs when most of the jobs on the spool are in a "failed" state. This can occur when print jobs are routed to a printer that is offline.
  - \* Fix for PE APAR OA28795
- \* OA30162 UA51488
  - \* Support for IP PrintWay LPR protocol sending jobs > 2GB
- \* OA29385 UA48890
  - \* Migration to XML Toolkit 1.9 (HXML190) for Infoprint Central, since XML Toolkit 1.8 is not supported on z/OS 1.11.
  - \* XML Toolkit 1.9 is supported on z/OS 1.8 - z/OS 1.11.
  - \* Note: starting in z/OS 1.10, the XML Toolkit will no longer contain the previous two levels.

# Other notable Infoprint Server APARs

- \* OA29744 UA50069
  - \* Add JES JOBNAME to Infoprint Server PJI JOBNAME when either "Record pages printed for accounting" or "Restart printing after last successful page" is selected in the Protocol section of the printer definition, so that the original sysout data set and user who submitted the job are now identified, along with a more readable time stamp.
  - \* Makes output identification easier when many users print on the same printer.
  - \* Example:  
AOP BLDPDEVE.YYUND.YYUND.STC18767.D0000103.TESTING 1  
08/27/09 12:39:37 PM
  - \* V1R8 and higher

# Where to go for more information

- \* Our publications can be found at the IBM Publications Center: <http://www.elink.ibm.link.ibm.com/publications/servlet/pbi.wss>
- \* Infoprint Server publications (z/OS V1R8.0-V1R12.0)
  - \* z/OS Infoprint Server Customization (S544-5744-11)
  - \* z/OS Infoprint Server Introduction (S544-5742-10)
  - \* z/OS Infoprint Server Messages and Diagnosis (G544-5747-10)
  - \* z/OS Infoprint Server Operation and Administration (S544-5745-11)
  - \* z/OS Infoprint Server Printer Inventory for PSF (S510-7703-02)
  - \* z/OS Infoprint Server User's Guide (S544-5746-10)
- \* ABCs of z/OS System Programming Volume 7 (SG24-6987)
- \* z/OS Migration (GA22-7499)