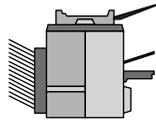
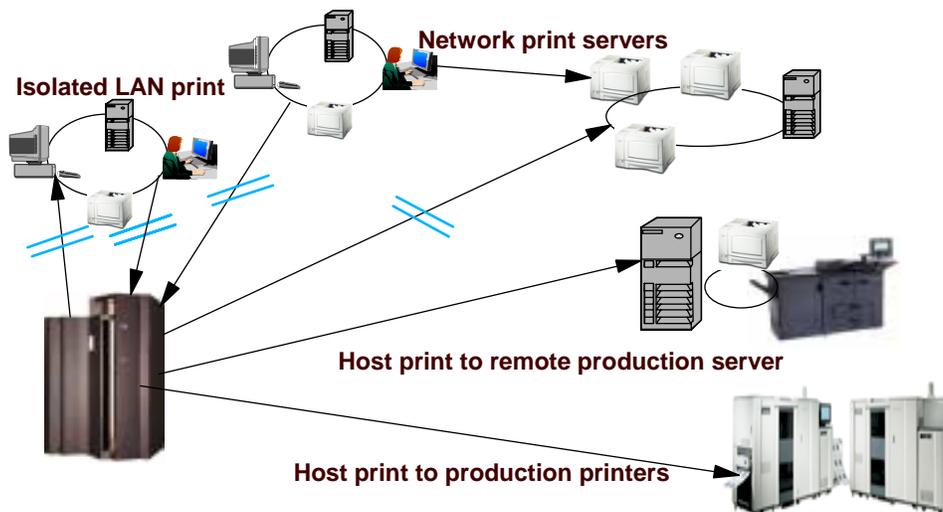


Infoprint Server for OS/390 and z/OS Version 1 Releases 1 to 5

Infoprint Server Enhancements



Infoprint Server for OS/390 and z/OS



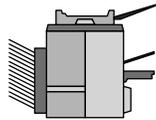
LAN applications and users can't access host printers

Host applications can't output to LAN printers

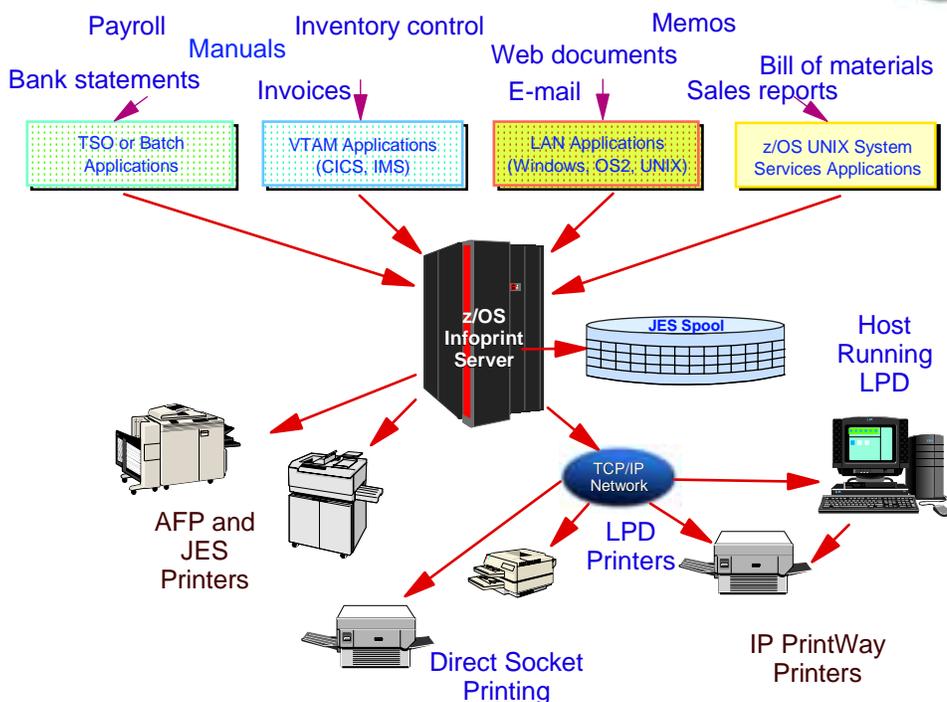
Multiple points of management = unmanaged environment (z/OS 1.5)

Infoprint Server of z/OS and OS/390

Infoprint Server Overview



z/OS Infoprint Server

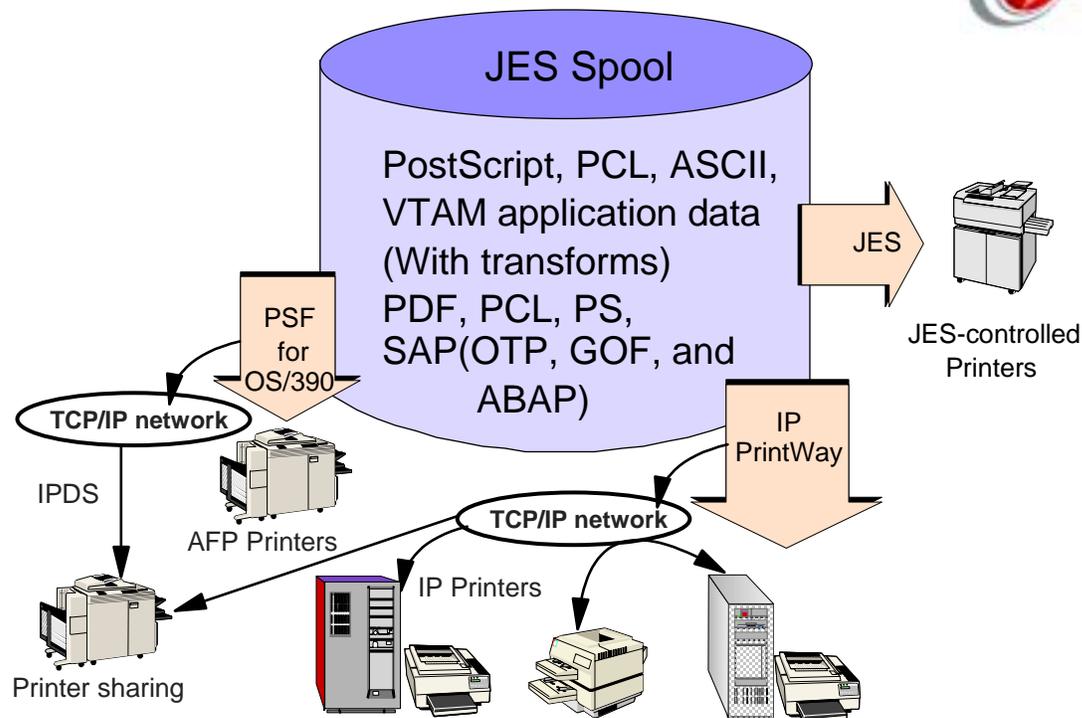


Advantages of Infoprint Server



- ❑ Connects network users to z/OS printers/print services
- ❑ Connects z/OS-based UNIX or Linux applications to z/OS printers and print services - including AFP printers
- ❑ Connects VTAM applications (CICS and IMS) to network printers over TCP/IP
- ❑ Sends print jobs to ASCII printers from any z/OS user or application over TCP/IP or Internet Printing Protocol(IPP)
- ❑ Connects VTAM-controlled coax printers to the same print services that support ASCII printing
- ❑ Converts AFP output to PDF for distribution as e-mail
- ❑ Controls print with JES spool - single point of management
- ❑ Consolidates print workload onto z/OS in a single, integrated enterprise server solution!
- ❑ Can result in a lower overall cost of distributed print

Data Streams on JES Spool

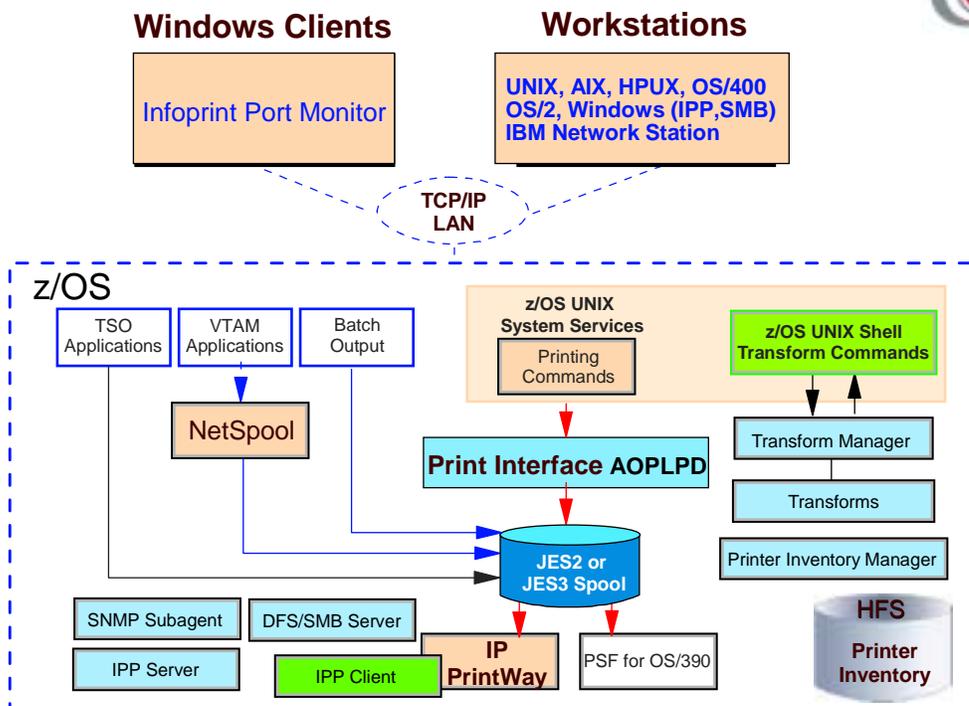


User Access to Infoprint Server

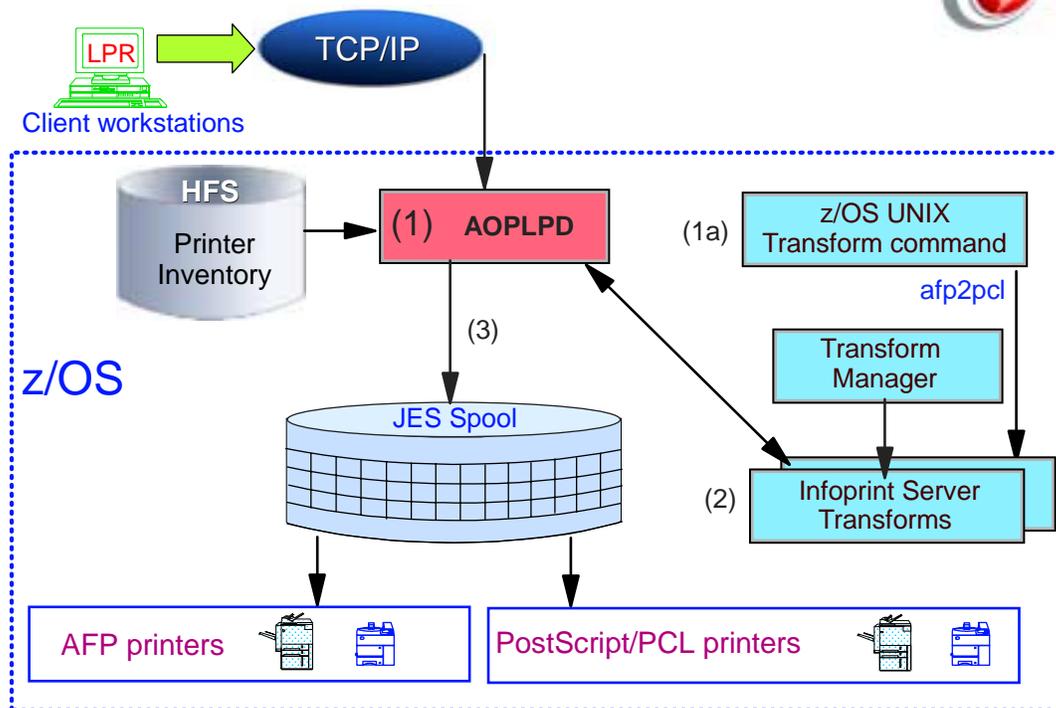


- ❑ Workstation users - (lpr command) - (IPP)
- ❑ Windows workstation users
 - lpr command - Native Windows SMB - Infoprint Port Monitor - IPP
- ❑ TSO/E - VM users - (lpr command)
- ❑ Users submitting batch JCL
 - AOPPRINT JCL EXEC - Standard JCL
- ❑ z/OS UNIX System Services users
 - lp command
- ❑ VTAM Application users
 - NetSpool
- ❑ SAP R/3

Infoprint Server Components



Datastream Transforms Overview



Infoprint Server Transforms

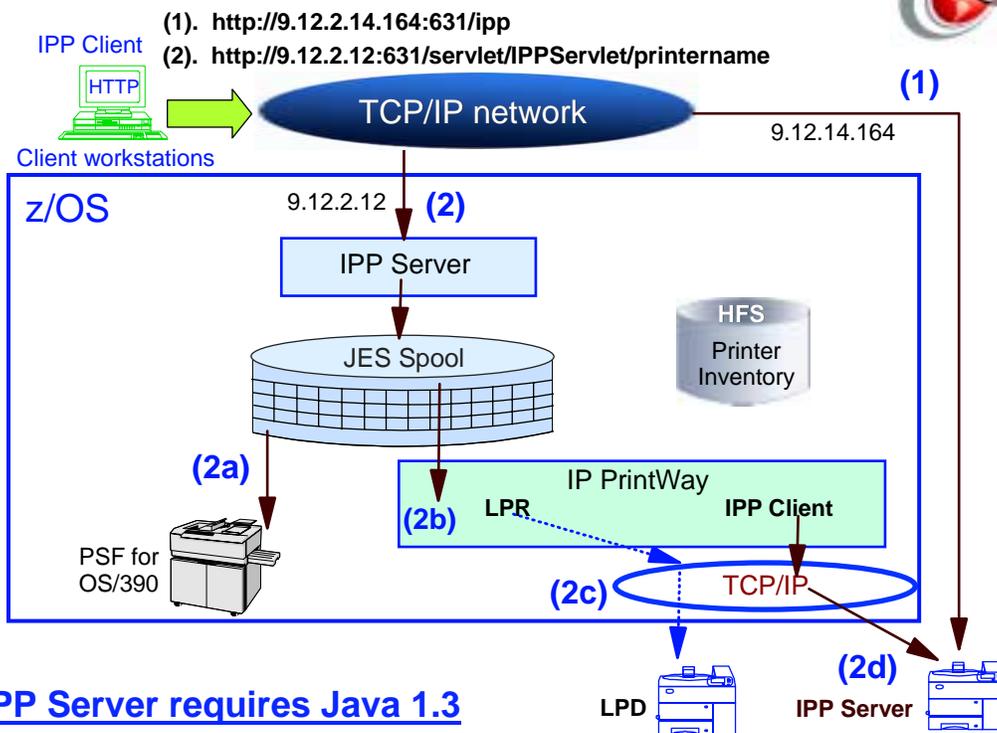
- ❑ **Provided Transforms:**
 - PCL5 to MO:DCA (AFPDS)
 - PostScript L1, L2, L3 to MO:DCA (AFPDS)
 - PDF to MO:DCA (AFPDS)
 - SAP OTF and ABAP to MO:DCA (AFPDS)
- ❑ **Infoprint Server Transforms**
 - Licensed program product (5697-F51)
 - AFP to PDF, PCL5, and PostScript
- ❑ **z/OS UNIX shell commands:**
 - pcl2afp - ps2afp - pdf2afp - sap2afp
 - afp2pdf - afp2pcl - afp2ps

Infoprint Server

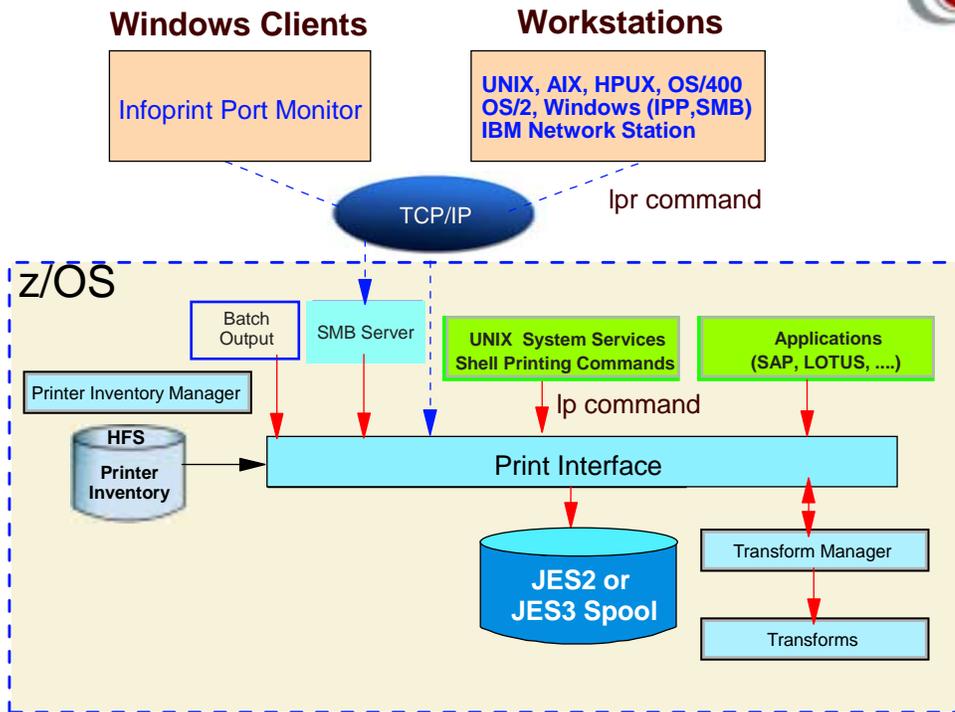


- ❑ XML Extender for z/OS (5655-J66)
 - Transforms XML to AFP
 - Supported on OS/390 V2R10 and all z/OS Releases

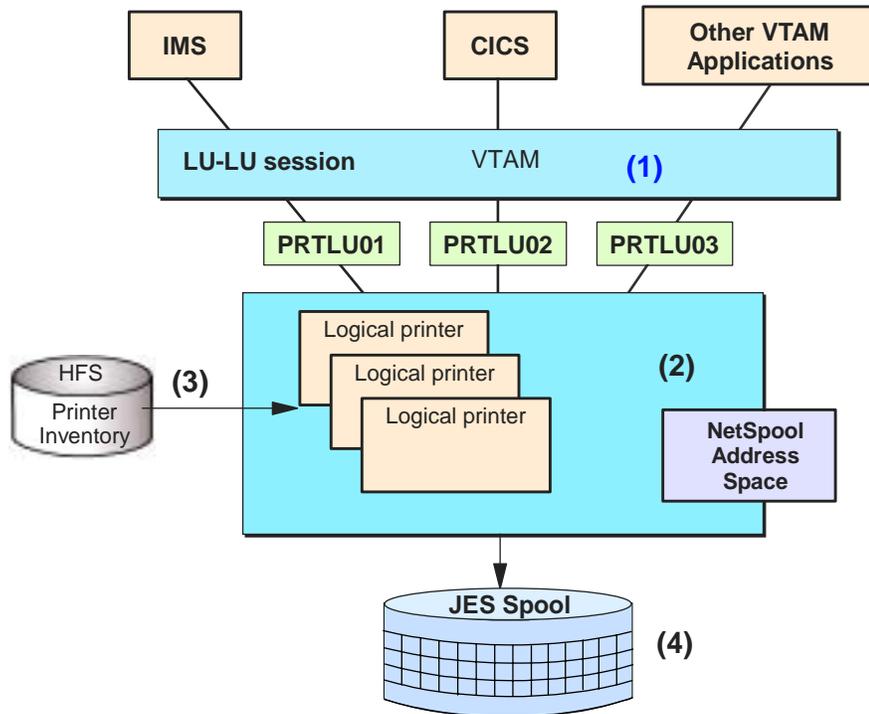
Internet Printing Protocol (IPP)



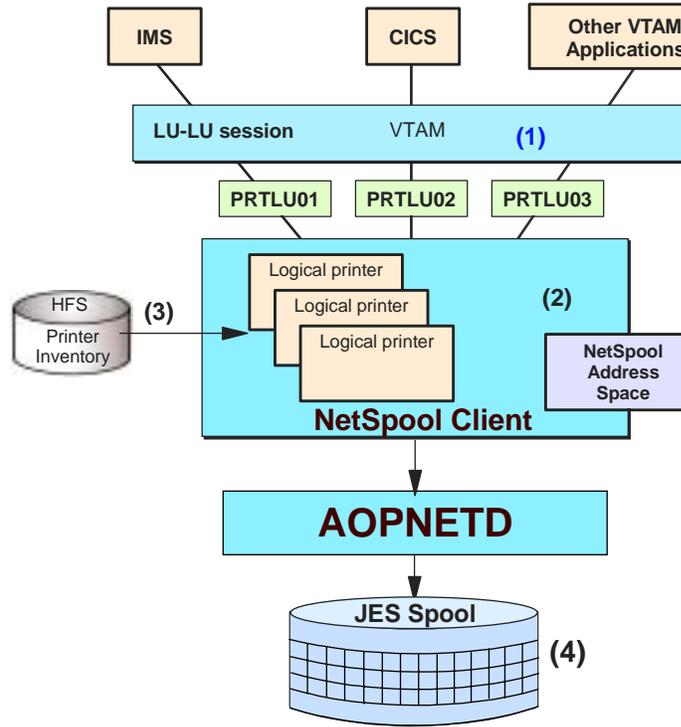
Infoprint Server - Print Interface



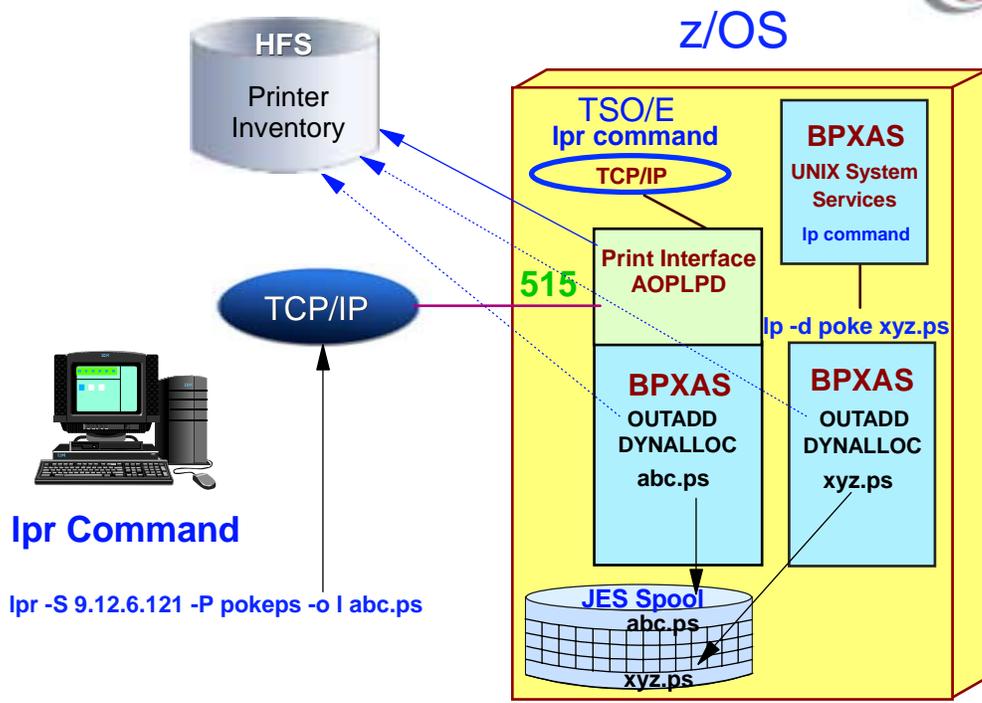
NetSpool Overview



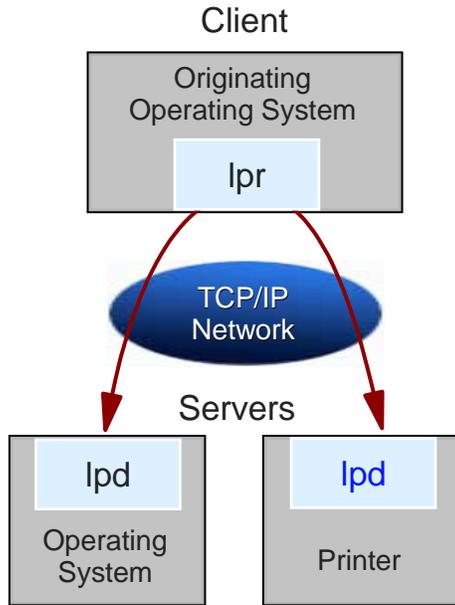
NetSpool Overview - z/OS V1R5



Print Interface Processing Requests

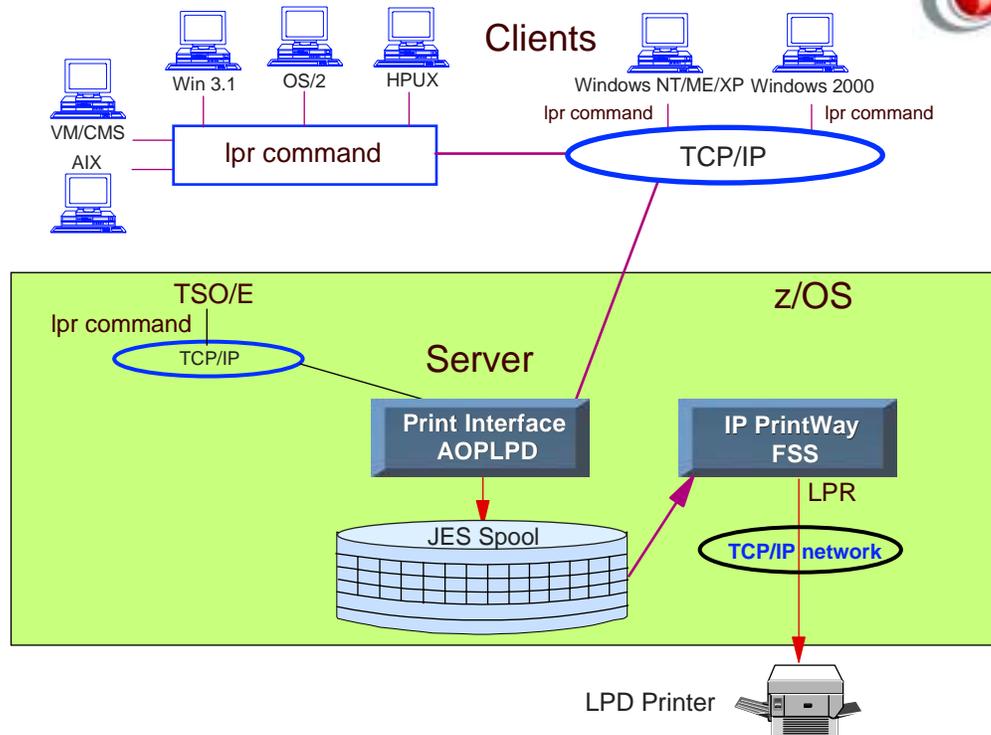


TCP/IP Printing - RFC1179

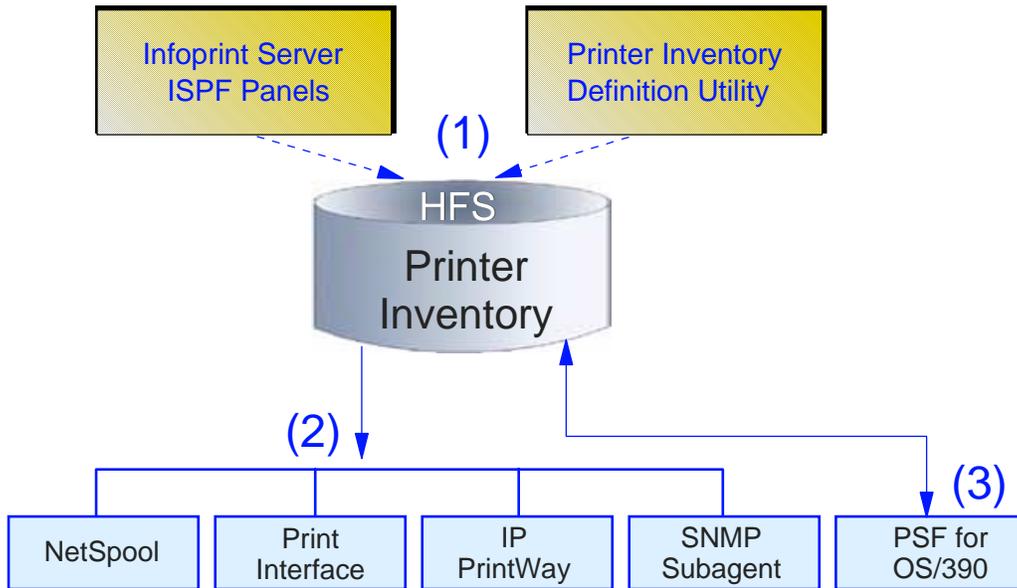


- ❑ lpr - command that requests printing
 - Standard lpr has required attributes:
 - file name, IP address, queue name
 - lpr command sends print data to a lpd via TCP/IP
- ❑ lpd - line print daemon is a destination
 - A daemon waits for the lpr command to be invoked
 - lpd receives the print data and sends it to a print queue
- ❑ lpd can reside in software or in printer hardware

Infoprint Server LPR-LPD Support



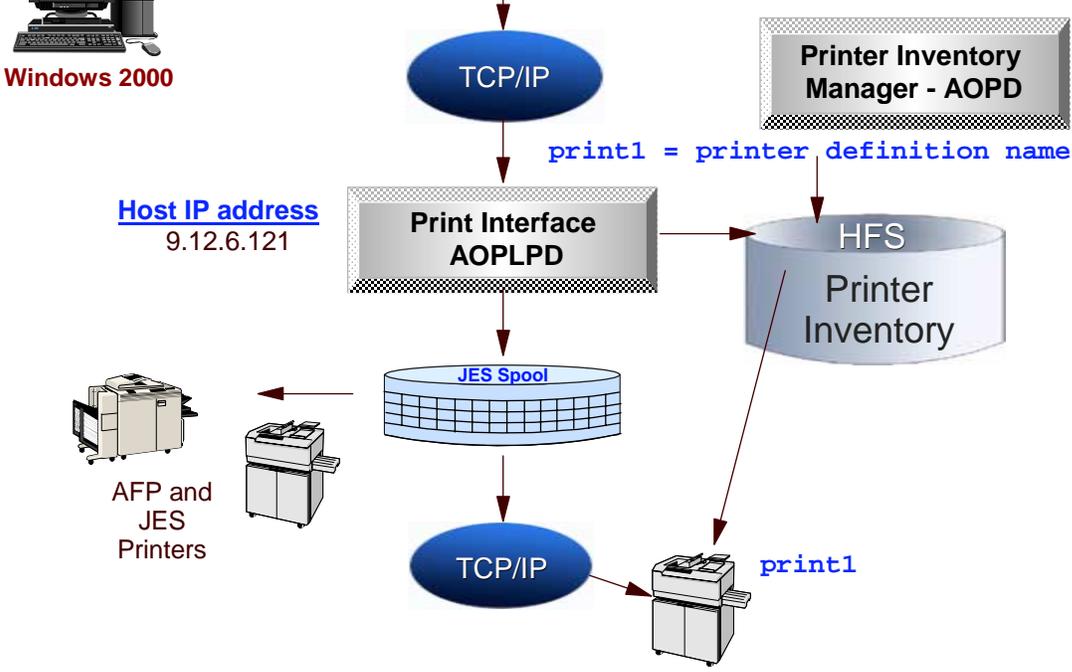
Printer Inventory Manager



Printer Inventory Example



```
lpr -S 9.12.6.121 -P print1 -o 1 filename
```



Enhancements in z/OS V1R5



- ❑ Common Message Log
- ❑ New daemons
- ❑ IPP Server now supports Java 1.4
- ❑ Security Enhancements
 - Read-only access to the printer inventory
 - Control access to Infoprint Central functions
 - New profiles in RACF PRINTSRV class
- ❑ IP PrintWay - miscellaneous enhancements
 - SMF Type 6 enhancements
 - IP PrintWay support for large files > 2 GB
 - IPv6 support
- ❑ NetSpool enhancements
- ❑ E-mail enhancements

Infoprint Server Component IP PrintWay

IP PrintWay Update with z/OS Version 1 Release 5



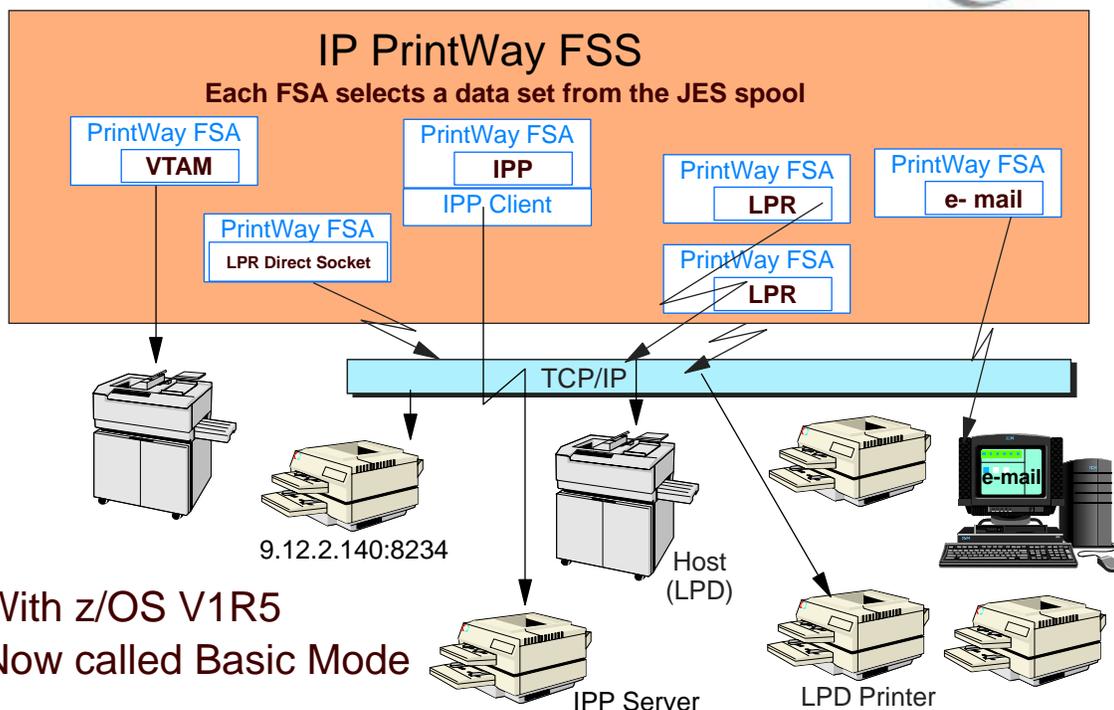
IP PrintWay Extended Mode - z/OS V1R5



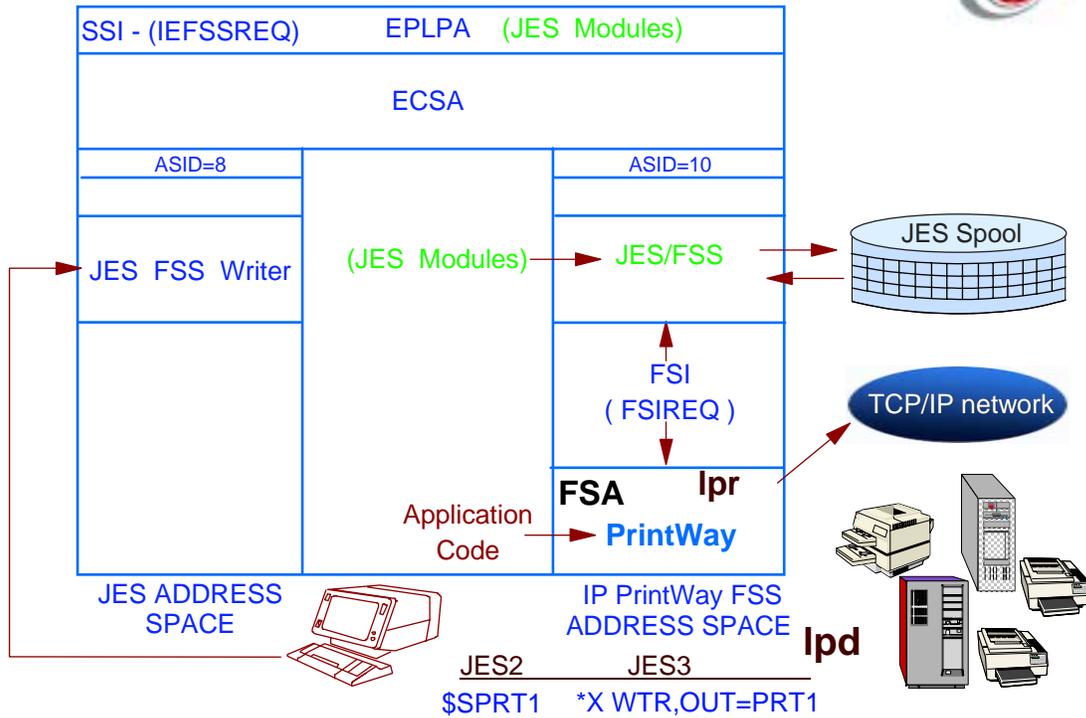
2 modes for IP PrintWay

- ❑ IP PrintWay Extended Mode: (1)
 - Uses the Process Sysout API (SAPI) to:
 - Obtain jobs from the JES spool and send them to remote TCP/IP-attached printers and e-mail destinations
- ❑ Provides better control of work selection criteria
- ❑ Enables administrators to more easily:
 - Cancel the currently printing job
 - Stop and restart printing to a printer
 - Restart retained jobs
- ❑ IP PrintWay Basic Mode (FSS): - Current mode (2)

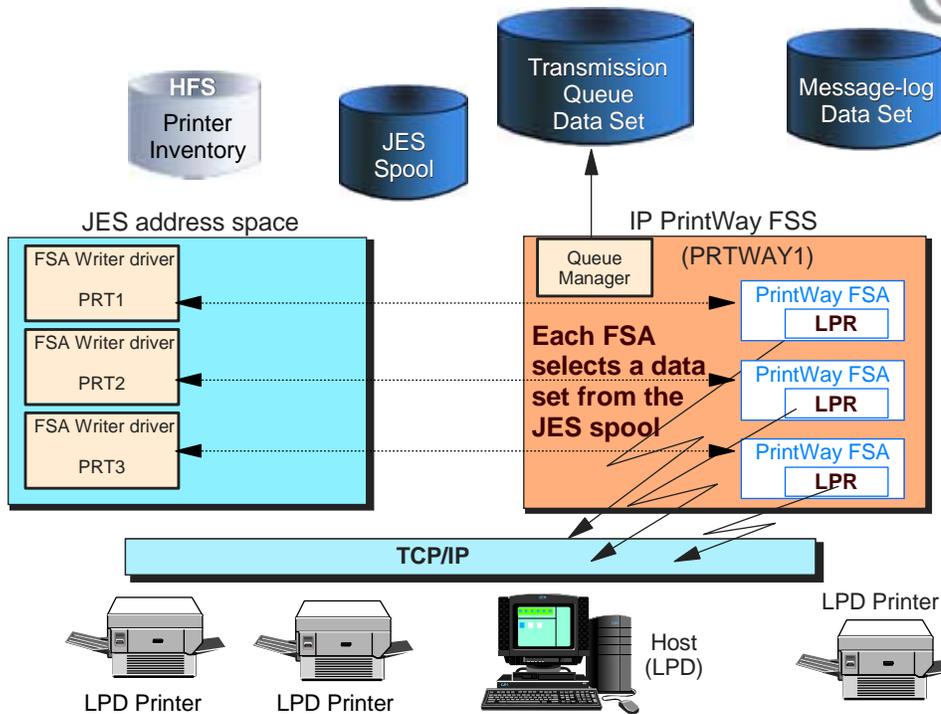
Infoprint Server IP PrintWay Printing



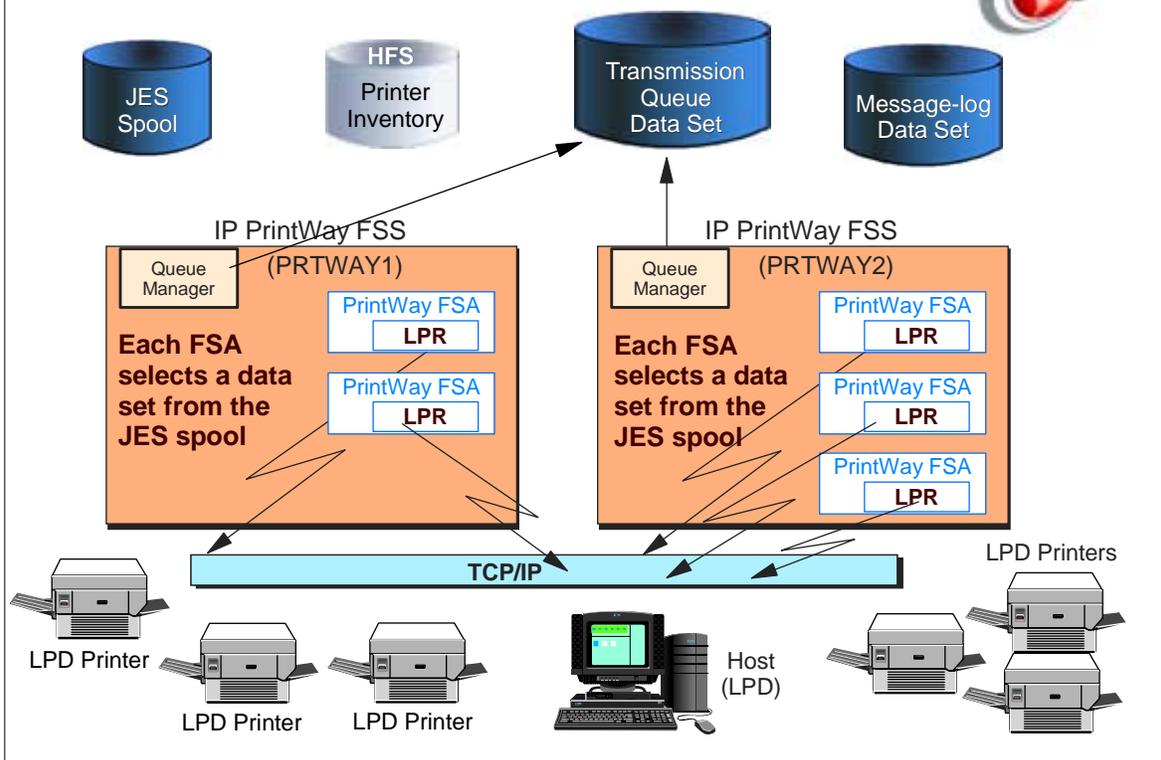
Starting IP PrintWay FSS



IP Printway and JES (Infoprint Server)



IP PrintWay FSS Address Spaces



JES Definitions for IP PrintWay

JES2

FSS(PRTWAY1) PROC=ANFWPROC

PRT1 FSS=PRTWAY1,MODE=FSS,START=NO,TRKCELL=YES,WS=(Q),CL=J

PRT2 FSS=PRTWAY1,MODE=FSS,START=NO,TRKCELL=YES,WS=(Q),CL=J

PRT3 FSS=PRTWAY1,MODE=FSS,START=NO,TRKCELL=YES,WS=(Q),CL=J

JES3

FSSDEF,TYPE=WTR,FSSNAME=PRTWAY1,PNAME=ANFWPROC,

DEVICE,DTYPE=PRTAFF1,JNAME=PRT1,FSSNAME=PRTWAY1,

JUNIT=(,SC50,UR,,,SC49,UR),MODE=FSS,WC=(J),WS=(CL)

DEVICE,DTYPE=PRTAFF1,JNAME=PRT2,FSSNAME=PRTWAY1,

JUNIT=(,SC50,UR,,,SC49,UR),MODE=FSS,WC=(J),WS=(CL)

DEVICE,DTYPE=PRTAFF1,JNAME=PRT3,FSSNAME=PRTWAY1,

JUNIT=(,SC50,UR,,,SC49,UR),MODE=FSS,WC=(J),WS=(CL)

With z/OS V1R5 - Not required with Extended Mode

IP PrintWay Extended Mode



- ❑ Using IP PrintWay extended mode, you can
 - Manage all IP PrintWay printers and print jobs from the web using Infoprint Central
 - Redirect print jobs from one printer to another
 - Delete and hold jobs that IP PrintWay extended mode is currently processing
 - Retain any number of print jobs, up to the limits of the size of the JES spool
 - Call data stream transforms and other filters directly without resubmit for filtering
 - Process print jobs larger than 2 gigabytes

Extended Mode Advantages



- ❑ Better Performance
- ❑ Increased reliability
- ❑ Improved usability
- ❑ New printer management functions
- ❑ New print job management functions
- ❑ All messages written to common message log
- ❑ Automatically detect data format and verify job will print on selected printer

Extended Mode vs. Basic Mode



❑ Extended Mode

- Uses SAPI
- New in z/OS V1R5
- Runs as daemon - outd
- Uses printer inventory and common message log for control
- Job selection defined in printer inventory
- Managed using Infoprint Central
- Writes temporary files to /var/Printsrv/printway
- Transforms invoked directly without double spooling

❑ Basic Mode

- Uses FSI
- Original IP PrintWay mode
- Runs as started task
- Uses queue file and message data set for control
- Work selection defined in JES
- Managed using ISPF panels
- Writes temporary files to hiperspace
- Uses resubmit for filtering

Infoprint Server Configuration File



/etc/Printsrv/aopd.conf

```
# default aopd configuration
lpd-port-number = 515
start-daemons  = { lpd ippd xfd outd }
base-directory  = /var/Printsrv
ascii-codepage  = ISO8859-1
ebcdic-codepage = IBM-1047
job-prefix      = PS
ipp-port-number = 631
inventory       = AOP1
```

outd starts extended mode daemons (z/OS V1R5)

Other Changes to AOPD.CONF



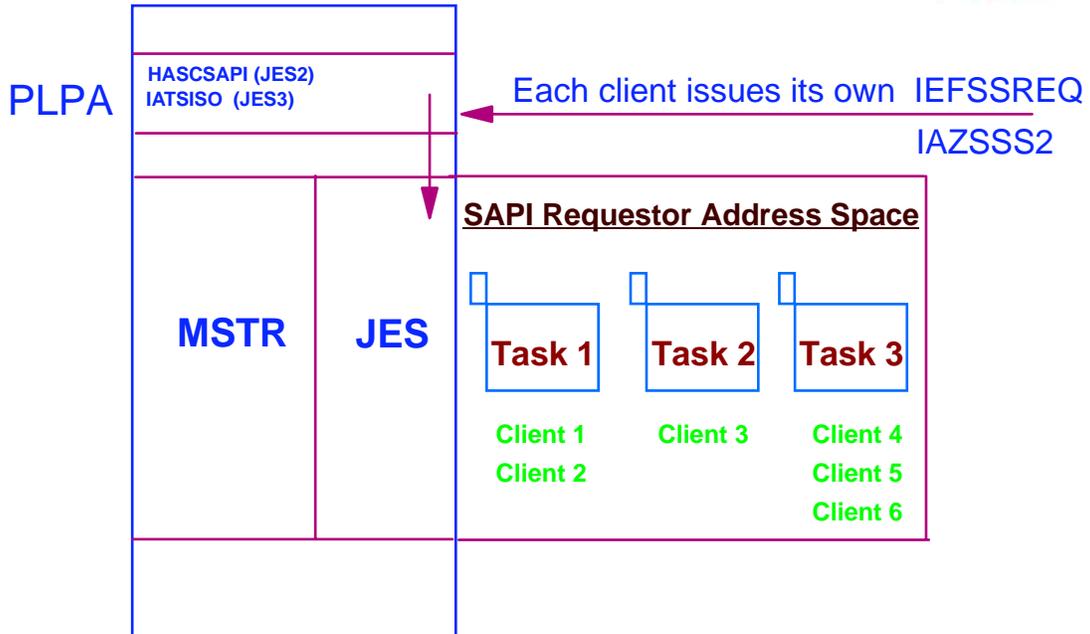
- ❑ Changes to start-daemons in aopd.conf
 - **netd** - starts the NetSpool daemon **aopnetd**
 - **outd** - starts the IP PrintWay extended mode daemons **aopoutd** and **aopwsmd**
 - **ssid** - starts the Infoprint Central daemon **aopssid**
- ❑ New attributes in aopd.conf configurationfile:
 - log-retention - how long to retain messages and historical information
 - max-historical-inventory-size - limits the size of the /var/Printsrv/hinv directory
 - smf-recording - specifies whether IP PrintWay extended mode is to write SMF type 6 records

/var/Printsrv Directory

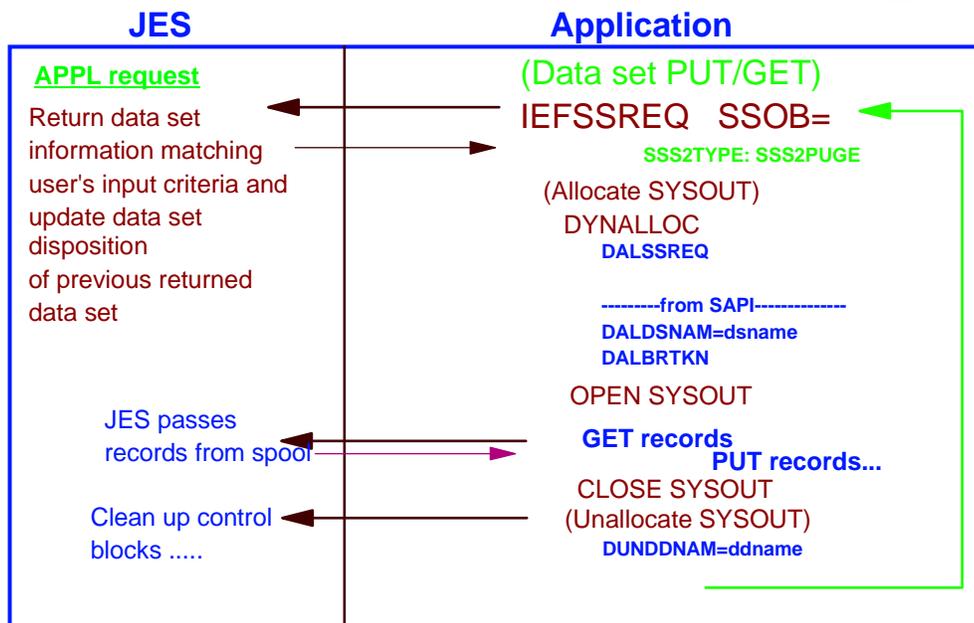


- ❑ Significantly larger space requirements
 - Mount a separate file system at /var/Printsrv mount point
- ❑ New subdirectories:
 - /var/Printsrv/hinv - contains internal historical information
 - /var/Printsrv/logdb - contains internal log information
 - /var/Printsrv/logs - Contains internal representation of common message log
 - /var/Printsrv/printway - contains temporary data files used by
- ❑ IP PrintWay
 - /var/Printsrv/searchdb - contains internal search information

SAPI Design



Client Request to JES



Printer Inventory - Selection Rules



- ISPF panels to set job selection rules
- Create job selection rules based on:
 - DEST - CLASS - FORMS - CREATOR - WRITER
 - DEST IP Address: Include, Exclude, Ignore
- Set up security profile for controlling job selection rules
- Enable SMF recording for Type 6 records

Benefits of using SAPI



- Provide better control of work selection criteria
- Improve performance
- No defining of FSA printers to JES
- Currently, selected data sets may not be modified using SDSF because printway has acquired and owns the job
- Current implementation allows a limited number of FSA's within an FSS
- Eliminate duplicate work currently done in Print Interface and Printway

IP PrintWay Support for E-mail

E-mail Protocol - Enhancement made to z/OS V1R2 Release of Infoprint Server



Infoprint Server Sendmail Support



```
//ROGERSZ    JOB    (POK,999),MSGCLASS=A,NOTIFY=ROGERS
//PRINT      EXEC  PGM=IEBGENER
//SYSPRINT   DD    SYSOUT=A
//SYSUT2     DD    SYSOUT=J,DEST=EMAIL10
//SYSUT1     DD    DISP=SHR,DSN=ROGERS.SAPI.LIST3820
//SYSIN      DD    DUMMY
//
```

Processing Options for EMAIL10



```
AOPIPDRR                               Processing
Command ==> _____

Printer definition name . EMAIL10 _____ AFP output

Document code page . . _____
Printer code page . . . IBM-1047 _____

Print Interface Supported Data Formats and Associated Filters:
Data format:  Filter:
/ Line data   afp2pdf.dll %filter-options _____ (extend)
/ MO:DCA-P    afp2pdf.dll %filter-options _____ (extend)
- PostScript  _____ (extend)
/ Text        aopfiltr.so _____ (extend)
- PCL         _____ (extend)
- PDF         _____ (extend)
- SAP         _____ (extend)
- Other       _____ (extend)

/ Resubmit for filtering

SCS Conversion:
Margins: Top . . . _____ Bottom . . _____ Left . . _____ Right . . _____
Line length . . . _____ Page length . . _____
Tabs:  Vertical . . _____ (extend)
       Horizontal . . _____ (extend)
```

AFP output

More: +

Send to Print Interface
for transform to PDF

e-mail Protocol Panel



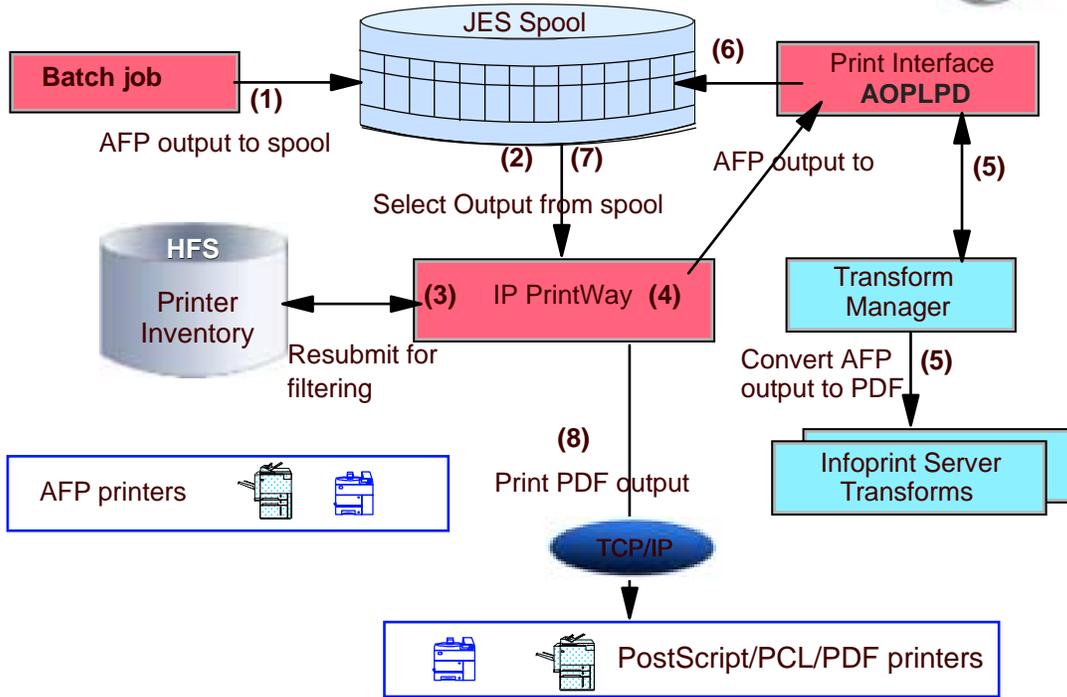
The addresses of the e-mail recipients. You can specify real e-mail addresses or alias names that are defined to sendmail. An alias name represents one or more e-mail addresses. This field is required in a printer definition with the e-mail protocol. To extend the length of this field, place your cursor on the word "extend" and press Enter.

```
Add                               E-mail Protocol
Command ==> _____

Printer definition name . EMAIL10 _____

E-mail addresses . . paulroge@us.ibm.com,rconway@us.ibm.com,haimo@us. (extend)
```

Flow for Batch Output



Data received at Lotus Notes ID

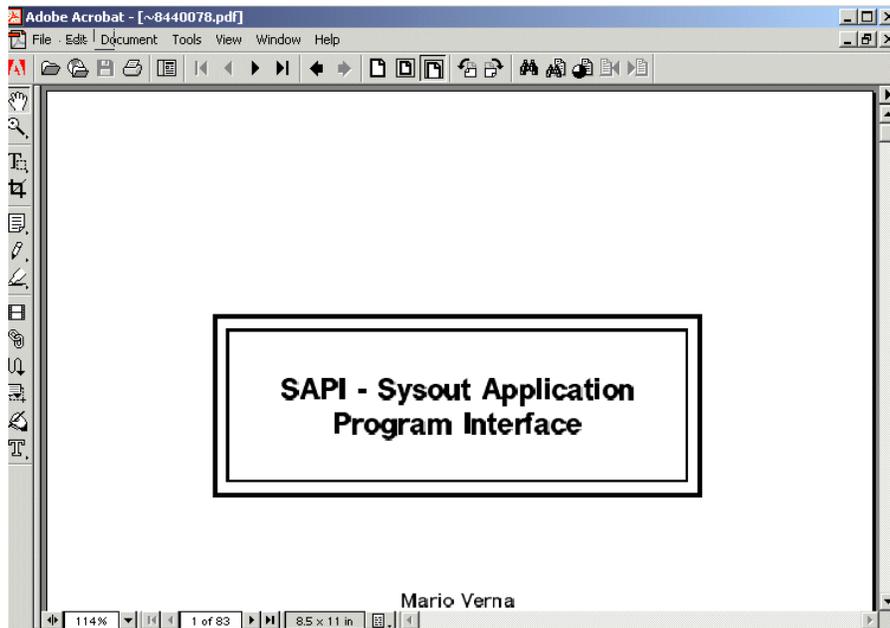


ROGERS@WTSC430E.ITSO.IBM.COM on 06/12/2002 02:45:28 PM

To: Paul Rogers/Poughkeepsie/IBM@IBMUS
 cc:
 Subject: WTSCPLX9.ROGERS.ROGERSZ.JOB29203.D000000A.?

 - #0000A##.pdf

Adobe Acrobat Reader



z/OS V1R5 Support for E-mail Protocol



- ❑ Provide the capability for the end user to control how a file is sent to an E-mail destination
- ❑ Provide job attributes and JCL keywords for the following functions:
 - Recipient ("To")
 - Copy Recipient ("CC")
 - Blind Copy Recipient ("BCC")
 - Sender ("From")
 - Reply-to address
 - Attachment name

Sending a Job to an E-mail Destination



```
//PW  OUTPUT MAILTO=username
      'username@domainname'
      (username,'username@domainname',...)
//    MAILFROM=sendername
      'sender name'
//    REPLYTO=username
      'username@domainname'
//    MAILFILE=nameofattachment
      'name of attachment'
//    MAILCC=username
      'username@domainname'
      (username,'username@domainname',...)
//    MAILBCC=username
      'username@domainname'
      (username,'username@domainname')
```

Specifying New JCL Keywords



| JCL Keyword | Characteristics | Symbolic Key |
|-------------|--------------------------------------------------|--------------|
| MAILBCC | 1- 32 value fields Each value 1-60 characters | x'0049' |
| MAILCC | 1- 32 value fields Each value 1-60 characters | x'004A' |
| MAILFILE | 1 value of 1-60 characters | x'004B' |
| MAILFROM | 1 value of 1-60 characters | x'004C' |
| MAILTO | 1- 32 value fields Each value 1-60 characters | x'004D' |
| REPLYTO | 1 value of 1-60 characters | x'004E' |

Creating an Alias File



- ❑ Create a file using the name defined by your administrator, for example create file
 - OUTPUT statement: MAILTO=branches
- ❑ /etc/aliases file:
 - branches: "include:/u/myuserid/branches.list"
- ❑ /u/myuserid/branches.list file:
 - branch01@xyz.com,branch02@xyz.com,
 - ...
 - branch56@xyz.com,branch57@xyz.com

E-mail Enhancements Rollback



- ❑ Support in BCP (new JCL keywords) - Infoprint Server
 - Rollback to z/OS V1R2 planned
 - BCP PTFs UA01836, UA01837, UA01838
 - Infoprint Server APARs
 - OW55583 - IP PrintWay
 - OA04343 - Print Interface

New // OUTPUT Keywords - z/OS V1R5



- ❑ **PRINTER=** (Specify a specific Infoprint printer)
 - //OUTP OUTPUT PRINTER='myprinter'
- ❑ **PRTATTRS=** (Specify job attributes)
 - //OUTP OUTPUT PRTATTRS='attributename=value'
- ❑ **Note: Currently FSSDATA= does both functions**
 - Use PRTATTRS for end-user data
 - Use FSSDATA for application data
 - PRINTER= takes precedence over FSSDATA=

Infoprint Server Printer Processing



- ❑ **Temporary files are created when:**
 - LPR protocol
 - IPP or direct-sockets protocol
 - AND printer definition specifies either:
 - Copies
 - Maximum document size
- ❑ **In these cases, IP PrintWay has to read the entire file before it can begin processing**
 - Reads entire file into a hiperspace (Max size is 2 GB)
- ❑ **With z/OS V1R5**
 - Temporary files now stored in subdirectory under /var
 - /var/Printsrv/printway

Preview of Infoprint Server z/OS V1R5

z/OS V1R5 Infoprint Server; Infoprint Central



Infoprint Central Overview



❑ **Problem Statement / Need Addressed:**

- Managing distributed print is a difficult, frustrating task
 - End users can't find their output
 - Print queues get backed up and jobs don't print
- Multiple customers requested print management functions from Infoprint Server

❑ **Solution:**

- Web-based user interface to perform help desk tasks related to print management
 - Manage printers
 - Obtain status of print jobs
 - Diagnose printing problems

Infoprint Central Overview



- ❑ Using Infoprint Central, the user can
 1. Check printer's status
 2. Control printer - start, stop, space, interrupt
 3. See jobs queued to printer
 4. Redirect printer's queue to another printer
 5. View all Infoprint Server messages for a printer or job
 6. Determine status of print jobs
 7. Reroute job to another printer
 8. Delete, hold, release jobs
 9. Start and stop NetSpool LUs

Infoprint Central Advantages



- ❑ Single point of control for print management on z/OS
- ❑ No installation required on client workstation
- ❑ Easy to use - "Point and click"
- ❑ Reduces training required for help desk operators
- ❑ Allows end users to check status of their own print jobs

Infoprint Central Usage & Invocation

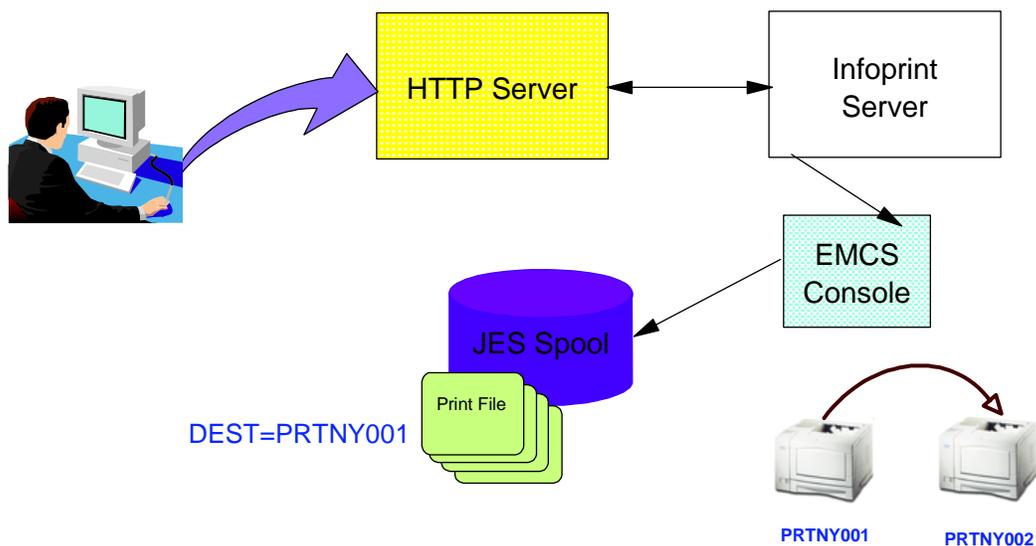


- ❑ **Infoprint Central** is invoked by:
 - Accessing URL in web browser

- ❑ For English version
 - `http://hostname:port/Infoprint/En_US/IPS.html`
 - hostname - host name of the z/OS system where the HTTP Server is running
 - port - port number where the HTTP Server receives requests
 - Can omit the port number if using default port 80

- ❑ For Japanese version
 - `http://hostname:port/Infoprint/Ja_JP/IPS.html`

Infoprint Central and Infoprint Server



EMCS Console for Infoprint Central



- Used to issue commands and receive responses
 - JES2 commands
 - JES3 commands
 - MVS MODIFY and VARY commands
- Receives responses only to commands issued by Infoprint Server
- Console name configurable in aopd.conf file
 - Default name based on printer inventory name
- AUTH=ALL
- Issues commands on system where Infoprint Server is running

IP PrintWay Extended Mode



- Manage all IP PrintWay printers/jobs from the Web
- Ping IP PrintWay printers
- View a printer's web page
 - See if printer is out of paper or toner
- Start/stop printing to IP PrintWay-controlled printers
- Cancel/hold/delete print jobs currently processing
- Restart retained print jobs immediately
- Change priority of a print job that IP PrintWay has already selected from the spool to print
- Move print jobs from one IP PrintWay printer to another IP PrintWay printer, including the print job that is currently processing
- View all messages in the common message log for selected printers or print jobs

Look at Printer Home Page



Printer Home Page

Printer Not Ready

Operator Panel Message

Error
200 Paper Jam. Follow the instructions on the operator panel.

| Printer Status | | Capabilities |
|-----------------|--------------------|-------------------------|
| Name: | IBM Infoprint 2105 | Maximum speed: 111 |
| IP address: | 3.33.86.51 | Maximum resolution: 600 |
| E-mail address: | net3et | Duplex installed: Yes |
| Location: | 0039-0 Lab | IPCD installed: Yes |
| Contact: | | PQ installed: Yes |
| Jobs waiting: | 1 | PCL installed: Yes |
| Toner: | OK | Stapler installed: Yes |
| | | Finish installed: Yes |

| Tray | Status | Size | Type | Form Name |
|------|--------|-------------------------|-------|-----------|
| 1 | OK | 8 1/2 x 11 Long Edge | Plain | FORel3 |
| 2 | OK | 8 1/2 x 14 Sheet Edge | Plain | None |
| 3 | OK | A4 Long Edge | Plain | None |
| 4 | Empty | 8 1/2 x 11 Long Edge | Plain | FORel3 |
| 5 | OK | 8 1/2 x 8 1/2 Long Edge | Plain | None |
| 6 | OK | A4 Long Edge | Plain | None |

Ping Target Printer



Pinging target printer... - Web Page Dialog

The test of the printer connection returned the following information.

| Connection status | Command | Response |
|-------------------|---------|------------------------------------------------------------------------------------------|
| | Ping | OS V194: Pinging host franky.pens.boulder.ibm.com [10.10.10.10]: Ping request timed out. |

OK Help

Redirect Printer



Redirect IP Print/Way Printer -- Web Page Dialog

Enter either the printer definition name or the host name for the alternate printer. If you enter a host name, also enter either a print queue name or port number.

Redirect to:

Printer Definition

Host name or IP address

Stop a Printer



Stop Printer -- Web Page Dialog

Select the action to take for any print job that might be processing.

Complete the current print job

Delete the current print job

Move Print Job



Move Print Job -- Web Page Dialog

Enter either the printer definition name or the host name for the new printer. If you enter a host name, also enter either a print queue name or port number.

Move print job to:

Printer Definition

Host name or IP address

Working with Printers



Work with Printers ?

Select whether you want to work with IP PrintWay printers, PPSF printers, or both types of printers. Then enter one or more values to limit the number of printers displayed.

IP PrintWay Printers

PPSF Printers

Both

Show only exact matches

| Printer name | Location | Host name or IP address | Queue or port |
|----------------------|----------------------|-------------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |

Done My Computer

IP PrintWay and PSF Printers



Infoprint Web Central - Microsoft Internet Explorer

Address: C:\2004\InfoprintCentral\PrintGUI.html

Back to search

IP PrintWay Printers (3)

| Name | Status | Location | Active job count | Class | Host Name or IP Address | Port name | Port number | Form ID |
|-----------------|------------|----------------|------------------|-------|-------------------------|-----------|-------------|---------|
| dept40C | Processing | Boulder E:9-12 | 3 | | 9.99.96.99 | optra | | |
| dept123.dept124 | Idle | Boulder E:9-12 | 0 | | 9.99.96.51 | optra | | |
| dept450 | Stopped | Boulder E:9-12 | 0 | | | optra | | |

PSF Printers (3)

| Name | Status | Location | Active job count | Class | Host Name or IP Address | Port number | UI Name | DEST | CLASS |
|--------|------------|-----------------|------------------|---------|----------------------------|-------------|---------|--------|-------|
| PRT101 | Processing | BLDR_BLD3_E9-12 | 1 | Channel | 9.99.2.200 | | | PRT101 | |
| PRT102 | Stopped | BLDR_BLD3_T4-20 | 0 | TCP/IP | deve.pernn.boulder.ibm.com | | | PRT102 | |
| PRT103 | Processing | BLDR_BLD3_A6-9 | 0 | TCP/IP | | | | PRT103 | |

Working with Print Jobs



Work with Print Jobs

Select whether you want to work with Infoprint Server or JES print jobs. Then enter one or more values to limit the number of jobs displayed.

Infoprint Server Print Jobs
 JES Print Jobs
 Show only exact matches

| Job name | Job ID | Owner | Submitted to: | Submitted within |
|----------|--------|-------|---------------|------------------|
| | | | | Hours |
| DEST | CLASS | FORMS | WRITER | |
| | | | | |

Find Clear Save

Look at Printer Definitions



Find Printer Definitions

Select whether you want to find printer pool definitions as well as printer definitions. Then enter one or more values to limit the number of printer definitions displayed.

Include printer pool definitions Show only exact matches

| Printer definition name | Location | DEST | CLASS | FORMS |
|-------------------------|----------|------|-------|-------|
| | | | | |

Find Clear Save

IP PrintWay Job Selection Rules



System Status
Infoprint Server system level information

Last refresh: 6/25/2002 9:32AM

- System Daemons and Tasks
- IP PrintWay Job Selection Rules**

The job selection rules defined in the Printer Inventory. IP PrintWay only selects print jobs whose properties match all of the criteria in a started job selection rule.

IP PrintWay Job Selection Rules (3)

| All | Stop | Name | Select to P | DEST | CLASS | FORMS | WCLASS | Queue | Queue security profile | Describe |
|--------------------------|--------------------------|---------------|-------------|--------|-------|-------|--------|-------|------------------------|----------|
| <input type="checkbox"/> | <input type="checkbox"/> | !NIGHT_SHIFT1 | Stopped | ignore | | | | | OPR | Select |
| <input type="checkbox"/> | <input type="checkbox"/> | !NIGHT_SHIFT2 | Started | ignore | | | | | SECTEST1 | Select |
| <input type="checkbox"/> | <input type="checkbox"/> | !DAY_SHIFT | Started | ignore | | | | | OPR2 | Select |

Display System Status - Daemons/Tasks



System Status
Infoprint Server system level information

Last refresh: 6/25/2002 9:32AM

System Daemons and Tasks

The status of Infoprint Server daemons and NetSpool started tasks.

Printer Inventory ADP1

| Component | Daemon or task name | Defined | Status |
|---------------------------|---------------------------------------------|---------|---------|
| Printer Inventory Manager | Printer inventory daemon (aopcd) | Auto | Started |
| | Message logging daemon (aoplogd) | Auto | Started |
| Print Interface | Line printer daemon (aoplpd) | Yes | Stopped |
| | IPP Server daemon (aoppd) | No | |
| | Print interface subsystem daemon (aopsubd) | No | |
| IP PrintWay | Output daemon (aopoid) | Yes | Started |
| | Job selection daemon (aopwsmd) | Auto | Stopped |
| Transform Manager | Transform manager daemon (aopiftd) | No | |
| SNMP Subagent | SNMP subagent daemon (aopsnmpd) | No | |
| Infoprint Central | Command daemon (aopssd) | Yes | Started |
| | Inventory search database daemon (aopssdbd) | Auto | Stopped |
| | Historical job daemon (aopshnd) | Auto | Stopped |

Print Job Information



Infoprint Web Central - Microsoft Internet Explorer

Address: C:\2002\InfoprintCentral\bin\jdi\jdi.html

Infoprint Server Print Job Information
Select an action, or expand a section to see information about the print job.

Back to Work with Print Jobs - Refresh Infoprint Server Print Job Information

Last refresh: 6/25/2002 9:32AM

- Properties
- Documents
- Printer
- Printer Definition

Print Job Properties



The screenshot shows the 'Infoprint Server Print Job Properties' page in a Microsoft Internet Explorer browser. The page title is 'Infoprint Server Print Job Properties' and it includes a sub-header: 'Expand the sections to see the properties of the print job. You can change properties in the Printer Selection section.' Below this, there are navigation links: 'Back to Work with Print Jobs', 'Back to Infoprint Server Print Job Information', and 'Refresh Infoprint Server Print Job Properties'. A timestamp indicates 'Last refresh: 6/25/2002 9:32AM'. A vertical sidebar on the left contains expandable sections: General Properties, Printer Selection, Status, Documents, Notification, General Processing, AFP Resources, and AFP Processing.

Print Jobs



The screenshot shows the 'Infoprint Server Print Jobs (6)' page in a Microsoft Internet Explorer browser. It displays a table with columns for Job ID, Job name, Status, Owner, Printer definition, Server/Queue name, Printer, and Submit time. The table contains six rows of job data.

| Job ID | Job name | Status | Owner | Printer definition | Server/Queue name | Printer | Submit time |
|-----------|----------|-----------------------|------------|--------------------|-------------------|---------|---------------------|
| X082233 | HOUSTON | Spooling | HOUSTON | dept123 | | | 6 July 2002 16:20:0 |
| X082244 | WASHNGT | Completed with errors | WASHINGTON | dept123 | | | 5 July 2002 16:20:0 |
| STC030345 | JEFFERSO | Held | JEFFERSON | deptABC | | | 5 July 2002 16:20:0 |
| STC030442 | JEFFERSO | Held | JEFFERSON | deptABC | | | 7 July 2002 16:20:0 |
| PS123456 | HOUSTON | Pending | HOUSTON | deptABC | | | 4 July 2002 16:20:0 |
| PS123456 | WASHNGT | Pending | WASHINGTON | deptABC | | | 7 July 2002 16:20:0 |

Print Jobs with Job History



Back to search

Infoprint Server Print Jobs (6)

| Job ID | Job name | Status | Owner | Printer Definition | NetSpool Name | Printer | Submission |
|----------|------------|-----------------------|------------|--------------------|---------------|---------|----------------------|
| 1082233 | HOUSTON | Spooling | HOUSTON | dept123 | | | 6 July 2002 16:20:00 |
| 1082244 | WASHINGTON | Completed with errors | WASHINGTON | dept123 | | | 5 July 2002 16:20:00 |
| STC00345 | JEFFERSON | Held | JEFFERSON | deptABC | | | 5 July 2002 16:20:00 |
| STC00442 | JEFFERSON | Held | JEFFERSON | deptABC | | | 7 July 2002 16:20:00 |
| PS122456 | HOUSTON | Pending | HOUSTON | deptABC | | | 4 July 2002 16:20:00 |
| PS122466 | WASHINGTON | Pending | WASHINGTON | deptABC | | | 7 July 2002 16:20:00 |

Infoprint Server Print Job History (2)

| Job ID | Job name | Status | Completion time | Owner | Printer Definition | NetSpool Name | Printer | Submit |
|---------|----------|------------------------|-----------------------|---------|--------------------|---------------|---------|---------|
| 1084233 | HOUSTON | Completed with errors | 15 July 2002 16:20:00 | HOUSTON | deptABC | | | 15 July |
| 1084203 | HOUSTON | Completed successfully | 14 July 2002 16:20:00 | HOUSTON | deptABC | | | 1 July |

Printer Definition Properties



Infoprint Web Central - Microsoft Internet Explorer

Address: C:\202\InfoprintCentral\enb231.html

Printer Definition Properties

Printer Definition Properties

Back to First Printer Definition > Back to Printer Definition Information > Refresh Printer Definition Properties

Last refresh: 8/25/2002 9:32AM

- General Properties
- Allocation
- NetSpool End Of File Rules
- NetSpool Options
- IP PrintWay Options
- Processing
- Protocol

IP PrintWay Printer Information



The screenshot shows a Microsoft Internet Explorer browser window displaying the 'IP PrintWay Printer Information' page. The browser's address bar shows the local path 'C:\2004\InfoprintCentral\PrintOut.htm'. The page title is 'IP PrintWay Printer Information' with a help icon. Below the title, there is a navigation bar with 'Back to Work with Printers >' and 'Refresh IP PrintWay Printer Information'. A status bar indicates 'Last refresh: 6/25/2002 9:32AM'. A toolbar contains several icons, including a play button, a stop button, and a refresh button. Below the toolbar, there is a list of expandable sections: 'Properties', 'Print Job Queue', 'Printer Definitions', and 'Printer's Web Page'. A note at the bottom states 'Use this link to obtain additional printer status. Not all printers support this function.' and includes a link 'Launch the printer's web page'. The browser's status bar at the bottom shows 'My Computer'.

Working with NetSpool LUs



The screenshot shows a web page titled 'Work with NetSpool Logical Units'. The page has a header with the title and a help icon. Below the header, there is a text input field for 'Name:' and a checkbox labeled 'Show only exact matches'. Below the input field, there are three buttons: 'Find', 'Clear', and 'Save'. The page is otherwise blank. The browser's status bar at the bottom shows 'Done'.

NetSpool LUs



Address: C:\2002\InfoprintCentral\html\LU.html

Back to search

NetSpool Logical Units (1)

| LU | Name | Status | Session status | LU type | Printer definition | Printer pool definition | End of file method | Primary LU | LU classes |
|----|-------|---------|----------------|---------|--------------------|-------------------------|--------------------|------------|------------|
| | NBLU1 | Started | Inactive | Type 0 | deptABC | | End of chain | HOUSTON | |

NetSpool LU Information



Address: C:\2002\InfoprintCentral\html\LU.html

NetSpool Logical Unit Information

Select an action, or expand a section to see information about the NetSpool logical unit.

[Back to Work with NetSpool Logical Units](#) > [Refresh NetSpool Logical Unit LU Information](#)

Last refresh: 6/25/2002 9:32AM

Properties

The properties of the NetSpool logical unit (LU).

| | |
|-------------------------|--------------|
| Name | NBLU1 |
| Status | Started |
| Session status | Inactive |
| LU type | Type 0 |
| Printer definition | deptABC |
| Printer pool definition | |
| End of file method | End of chain |
| Primary LU | HOUSTON |
| LU classes | |

Update to AOPD.CONF



- ❑ Specify name of the extended MCS console
 - Default console name is AOPAOP1C
 - Default name AOPnnnnC
 - nnnn is the name of the Printer Inventory
 - console-name = INFOPRT
- ❑ Specify how long to keep information on historical jobs
 - Limits historical print jobs and messages that Infoprint Central can display
 - log-retention = 2
- ❑ Specify maximum size of historical inventory (optional)
 - Limits the size of the historical inventory
 - max-historical-inventory-size = 80

Infoprint Central Security Considerations



- ❑ What you can protect:
 - Who can use Infoprint Central
 - Which printers a user can control
 - IP PrintWay extended mode printers
 - PSF printers
 - Which jobs a user can see
 - What actions the user can perform
 - On jobs
 - On printers
 - Who can start and stop
 - Printers
 - Job selection rules
 - NetSpool LUs
 - Who can display status of Infoprint Server daemons

New RACF Class - PRINTSRV



- ❑ First exploited for Infoprint Server in z/OS V1R5
- ❑ General resource class
- ❑ Profile names up to 64 characters
- ❑ Ensure PRINTSRV class is active and profiles in storage:
 - SETROPTS CLASSACT(PRINTSRV) RACLIST(PRINTSRV)

Read-only Access to Printer Inventory



- ❑ AOP.ADMINISTRATOR profile in PRINTSRV class
 - READ access
 - Can use Infoprint Central
 - Can browse Printer Inventory using ISPF panels
 - UPDATE access
 - Can make changes to Printer Inventory
 - For print administrators
 - PERMIT AOP.ADMINISTRATOR CLASS(PRINTSRV) ID(AOPADMIN) ACCESS(UPDATE)
- ❑ PRINTSRV class is checked first
 - If AOP.ADMINISTRATOR profile exists
 - It will be used for access checking
 - If AOP.ADMINISTRATOR profile not defined
 - AOPADMIN profile in FACILITY class will be checked
 - Compatibility with previous releases

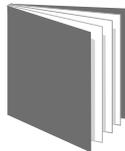
User Access to Infoprint Central



- ❑ Two requirements for access to Infoprint Central
 - RACF user ID and password
 - Unauthenticated users not allowed access
 - Must be defined as z/OS UNIX users
 - TSO segment not required
 - Read access to Printer Inventory
 - Permitted to AOP.ADMINISTRATOR profile with READ or higher access
 - - or -
 - UACC(READ) for AOP.ADMINISTRATOR profile
- ❑ Users can be given access to perform certain tasks, or to specific jobs or printers

Infoprint Server z/OS V1R5

Infoprint Server Common Log



Common Message Log Overview



- ❑ Using the Infoprint Server common message log, the help desk operator can:
 - Use Infoprint Central to view all messages for print jobs
 - Use Infoprint Central to view all messages about a particular printer
- ❑ Using the Infoprint Server common message log, the print administrator can:
 - Extract all messages within a specific time period to a file using the aoplogu utility

Infoprint Server Job Log



| Time | Source | Message |
|--------------------------|-------------|------------------------------------------------------------------------------------------|
| Mon Jul 28 30:18:28 2003 | Information | AOP3419I IP PrintWay held the document on the JES spool. |
| Mon Jul 28 30:18:28 2003 | Information | AOP3006I IP PrintWay accepted the request to hold the print job. |
| Mon Jul 28 30:18:28 2003 | Information | AOP3407I IP PrintWay held the print job on the printer's queue. |
| Mon Jul 28 30:18:10 2003 | Information | AOP3411I IP PrintWay released the print job on the printer. |
| Mon Jul 28 30:18:09 2003 | Information | AOP3204I IP PrintWay received the document from JES. |
| Mon Jul 28 30:17:13 2003 | Information | AOP3402I IP PrintWay added the print job to the printer's queue. |
| Mon Jul 28 30:17:13 2003 | Information | AOP3403I IP PrintWay removed the print job from the printer's queue. |
| Mon Jul 28 30:17:12 2003 | Information | AOP3009I IP PrintWay accepted the request to move the print job to printer [prn:/logh... |

IP PrintWay Printer Log



| Date | Source | Message |
|--------------------------|-------------|---------------------------------------------------------------------------------------|
| Mon Jul 26 10:45:59 2003 | Information | AOP3403 IP PrintWay added the print job to the printer's queue. |
| Mon Jul 26 10:45:59 2003 | Information | AOP3403 IP PrintWay added the print job to the printer's queue. |
| Mon Jul 26 10:45:59 2003 | Information | AOP3403 IP PrintWay added the print job to the printer's queue. |
| Mon Jul 26 10:45:59 2003 | Information | AOP3403 IP PrintWay added the print job to the printer's queue. |
| Mon Jul 26 10:45:59 2003 | Information | AOP3403 IP PrintWay added the print job to the printer's queue. |
| Mon Jul 26 10:45:59 2003 | Information | AOP3510 IP PrintWay restored this printer. Print jobs are no longer redirected to job |
| Mon Jul 26 10:45:59 2003 | Information | AOP3024 IP PrintWay accepted the restore request to stop redirecting this printer to: |
| Mon Jul 26 10:45:44 2003 | Information | AOP3508 IP PrintWay redirected this printer to printer ipr.offghorn.penn.boulder.bv |
| Mon Jul 26 10:45:44 2003 | Information | AOP3403 IP PrintWay removed the print job from the printer's queue. |
| Mon Jul 26 10:45:44 2003 | Information | AOP3403 IP PrintWay removed the print job from the printer's queue. |

Common Message Log Implementation



- ❑ Common message log is disabled by default
- ❑ Common message log will be used if:
 - Infoprint Central daemon is started
 - `start-daemons = { ssid }`
 - Number of days of messages to keep is specified
 - `log-retention=x`
- ❑ Components still write messages to same locations as before
- ❑ Common message log not used by:
 - IP PrintWay basic mode
 - Infoprint Server transforms

log-retention in AOPD.CONF



- ❑ How many days of information to keep:
 - Messages kept in common message log
 - Historical print jobs in historical inventory
- ❑ Defaults:
 - When ssid is not in start-daemons list
 - log-retention = 0
 - When ssid is in start-daemons list
 - log-retention = 1
 - Example: keep information for 2 days of jobs
 - log-retention = 2

Log Utility - aoplogu



- ❑ Allows print administrator to look at common message log for a period of time
 - Can specify begin and end times
 - aoplogu -b [[[YY:]MM:]DD:]hh:]mm -e [[[YY:]MM:]DD:]hh:]mm
 - Example: Look at message log from 14:15 to 14:45
 - aoplogu -b 14:15 -e 14:45
 - Can also specify duration for most recent activity
 - aoplogu -l [[[YY:]MM:]DD:]hh:]mm
 - Example: Look at messages for last 10 minutes
 - aoplogu -l 10