IBM

Installing the SAP R/3 Print Feature (4/29/99)

IBM Infoprint Manager 3.1 for AIX

Installing the SAP R/3 Print Feature

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With few changes, you can configure SAP R/3 Release 3 to send both PS and PCL output data directly to Infoprint Manager. Also, you can configure SAP R/3 to transform SAP output into AFP output to take advantage of all the features of AFP printing.

If you are running SAP R/3 Release 4, you can configure the system to use the SAP certified Output Management System (OMS) interface to send all data streams to Infoprint Manager and receive event notification for print jobs back to the R/3 system.

The following procedures help you install the SAP R/3 option so that you can print using Infoprint Manager for AIX, Version 3.1.

Configure for Printing PCL and PostScript with SAP R/3 Release 3 on AIX

Configure for Printing ABAP and OTF with SAP R/3 Release 3 on AIX

Configure for Printing with SAP R/3 Release 4 (Enhanced Status) on AIX

Configure for Installing Infoprint when SAP Runs on HP-UX or Sun Servers

Note: At a minimum, on every system on which you will be running the SAP Transform (Infoprint AIX servers and SAP R/3 application servers), you must have the following installed:

- bos.loc.adt.iconv (Language Converter Development Toolkit)

Configure for Printing PCL and PostScript with SAP R/3 Release 3

If you have a SAP R/3 system running on a non-AIX UNIX operating system, refer to

SAP R/3 systems running on AIX work best with Infoprint Manager when these installations are configured to use our **ipm_print** command. However, because the standard SAP host spool print command is a typical **lp** command and Infoprint Manager includes a gateway for standard UNIX print commands, you can integrate your SAP R/3 Release 3 system with Infoprint Manager by defining the host printer name of your R/3 device to be an Infoprint Manager logical destination. SAP will get better feedback concerning the status of jobs if you use the Infoprint Manager **ipm_print** command.

Installing Infoprint Options for SAP R/3

You must install the following wherever a Spool Work Process resides that will make print requests for Infoprint Manager logical printers:

1. The AIX Client (on page 8) from the Infoprint Installer. The Infoprint Manager AIX client includes the Infoprint Manager command line and the gateway for the standard UNIX print commands.

2. The SAP Print Feature from the Infoprint Installer instructions that are contained on both the web pages and the "Installing Infoprint Manager Control on Your AIX System" PDF file. The Infoprint Manager SAP feature includes the **ipm_print** command.

   Note: You must install the AIX Client before you install the SAP R/3 Print Feature. If you install the SAP R/3 Print Feature first, the AIX Client will overwrite the **SAP Print Feature**.

Selecting a SAP Print Command

There are two potential print commands that SAP R/3 installations using Infoprint Manager might want to use for submitting print commands. The following topic presents both commands, with their relative strengths and weaknesses.

Using the Infoprint ipm_print Command for Printing PostScript or PCL

The Infoprint Manager **ipm_print** command provides more accurate SAP job information to Infoprint Manager. For example, each SAP userid can be used to track a job through the system. The corresponding **ipm_query** command allows Infoprint Manager to provide more accurate job status to SAP: a job is not identified as complete until it actually prints or is deleted from the print queue. You can also use the **ipm_print** jobs to fax jobs from SAP.

To use these print commands, update these three parameters in the **Instance Profile Management for Experts (Change)** window:

```
# rspo/host_spool parms

rspo/host_spool/print=ipm_print -P &P -F &F -O '&O' -o
'&o' -R '&R' -C &C -Y '&Y' -T '&T' -D '&D' -t '&t'

rspo/host_spool/query=ipm_query -P&P

rspo/host_spool/answer_format=lpstat
```

Using the AIX qprt Command

The AIX **qprt** command is the standard SAP R/3 print command. Using this command allows you to send jobs to both standard AIX queues and Infoprint Manager printers. This print option is limited because you cannot use the Infoprint Manager Fax option or have the userid of the job creator associated with the job.

To use this print command, update these three parameters in the **Instance Profile Management for Experts (Change)** window:

```
# rspo/host_spool parms

rspo/host_spool/print=qprt -dp -P&P -Bnn -N&C -r -R14 -X850 &F

rspo/host_spool/query=lpq -l -P&P

rspo/host_spool/answer_format=lpstat
```

Updating the SAP Profile to Activate the SAP Print Command

Edit the profile of the application server where the spool work process runs by doing the following on the SAP R/3 graphical user interface:

1. Enter `RZ10` in the OK-Code field.

2. From the **Instance Profile Management for Experts** window, select the appropriate profile and click on the **Choose** push-button.

3. From the SAP R/3 window, use the scroll bar to go to each parameter (`rspo/host_spool/print, rspo/host_spool/query,` and `rspo/host_spool/answer_format`) and update the parameters with the command that you decided to use from the preceding section.

4. Once you have notified other SAP R/3 application users, click on the **Save** folder and restart the R/3 application.

Once you have completed these procedures, you can create devices to print either PostScript or PCL from your SAP R/3 Release 3 system, using Infoprint Manager to drive the printer(s). Use the procedure for Devices that Use Infoprint Manager and SAP R/3 with Access Method L from the "Printing from SAP R/3 Procedures" PDF file.

Installing Infoprint when SAP Runs on HP-UX or Sun Servers

SAP R/3 installations that run on non-AIX UNIX systems work best with Infoprint Manager when these installations are configured to invoke commands remotely on the Infoprint AIX server. For an alternative method of submitting jobs from non-AIX SAP R/3 application servers that provides no feedback to the SAP servers, see <u>Defining Devices that Use Infoprint Manager for Access Method U</u> from the "Printing from SAP R/3 Procedures" PDF file.

To use the SAP feature of Infoprint Manager 3.1 with a SAP R/3 system running on a non-AIX UNIX system, you must install the SAP feature on the Infoprint AIX server and perform the following tasks:

1. <u>Configuring the Infoprint AIX Server</u>

2. <u>Configuring the SAP System Server(s)</u>

If you are printing Output Text Format (OTF) data, ensure that you have installed the <u>fonts</u> (see page 10) necessary for printing on the Infoprint AIX server.

Configuring the Infoprint AIX Server

Use the following procedure to configure the AIX server that has already installed Infoprint Manager Version 3 Release 1 with the SAP Print Feature:

1. Add a user called `sapuser`.

   Note that this user does not have to be part of any special groups.

2. Authorize the `sapuser` userid to issue remote commands by adding the following entry to the **/etc/hosts.equiv** file: `+ sapuser`.

3. Authorize all remote servers running the SAP R/3 application to specify remote commands on the Infoprint AIX server as `sapuser` by performing the following procedure:

   1. Add an **.rhosts** file with permissions of 600 to the **/home/sapuser** directory.

   2. Edit the **.rhosts** file and add a line for each non-AIX server running a SAP R/3 application with a plus (+) sign appended to it.

If a Domain Name Server is being used, just specify the fully-qualified name to the **.rhosts** file as shown below:

/home/sapuser/.rhosts: `sol.penn.boulder.ibm.com +`

If a Domain Name Server is **not** being used, you must also add the host name and its IP address to the **/etc/hosts** file as show below:

/home/sapuser/.rhosts: `sol.penn.boulder.ibm.com +`

/etc/hosts: `172.16.8.10` `sol.penn.boulder.ibm.com`

> **Note:** For added accountability among SAP systems and print jobs, you can create separate AIX users for each SAP system or SAP R/3 application server. Follow the three steps specified in this topic to create additional users (like `sapuser`) that are mapped to each application server from which you will be using Infoprint Manager to print.

For more information about using the **rsh** and **rcp** commands to connect to the Infoprint AIX server and send files between servers, refer to your AIX Operating System documentation.

Configuring the SAP System Server(s)

Use the following procedure to configure remote server(s) (HP-UX or SUN) running the SAP R/3 application so you can print with Infoprint Manager Version 3 Release 1:

1. Obtain access to each non-AIX server running SAP R/3 and log on.

2. Verify that you can **ping** the Infoprint AIX server by hostname:

   `ping -c 3 `*`hostname`*

   where *hostname* is the unqualified name for the Infoprint AIX server, such as `nwser`.

   If the response shows that a good communication path exists, you will see the following:

   ```
   ----tcpip_addr PING Statistics----
   3 packets transmitted, 3 packets received, 0% packet loss
   round-trip min/avg/max = 7/7/7 ms
   ```

3. If you cannot ping the Infoprint AIX server by hostname, edit the **/etc/hosts** file and add the hostname and IP address of the Infoprint AIX server:

/etc/hosts: `9.99.11.109` `nwser`

4. Create a small directory named **/usr/lpp/pd/bin**:

   ```
   mkdir /usr/lpp/pd/bin
   ```

5. If your SAP R/3 installation is a Release 4 system, use the file transfer protocol (FTP) of your choice to copy the **/usr/lpp/pd/bin/ipm.omdesc** file from the Infoprint AIX server to at least one of the SAP R/3 servers running the SAP R/3 application.

   This file contains the SAP Infoprint Manager Output Management System (OMS) definition that is loaded into the SAP R/3 System. Ensure that the file is readable by the *sys*admin (where *sys* is the three-character SAP system name) on the SAP R/3 application system.

6. From the **/usr/lpp/pd/bin** directory on the Infoprint AIX server, edit each of the files specified below (2 for SAP R/3 Release 3; 5 for SAP R/3 Release 4) so they specify the name of the user (sapuser) and hostname where Infoprint Manager is running. For the secondary qualifier (*sys*), use the name of the system where your SAP applications are running, either **sun** for SUN or **hp** for Hewlett-Packard.

SAP R/3 R 3 Files on the Infoprint AIX Server
ipm_print.*sys*
ipm_query.*sys*

SAP R/3 R 4 Files on the Infoprint AIX Server
ipm_submit.*sys*
ipm_job_cancel.*sys*
ipm_job_query.*sys*
ipm_dev_ query.*sys*
startcbd.*sys*

7. Use the FTP of your choice to move the files that you edited in step six above (two or five, depending upon the Release of SAP R/3) from the Infoprint AIX server to the non-AIX SAP server. For the secondary qualifier (*sys*), use the name of the system where your SAP applications are running, either **sun** for SUN or **hp** for Hewlett-Packard.

   Note: For SAP R/3 Release 3, move the two files to each SAP R/3 application server running a spool work process (SWP). For SAP R/3 Release 4, move the five files to all SAP R/3 application servers.

8. If running with SAP R/3 Release 4 applications, rename each **startcbd.***sys* file where *sys* is either **sun** or **hp**, to **startcbd**:

mv startcbd.sun startcbd

mv startcbd.hp startcbd

9. Ensure that each file copied in step 7 is executable.

10. If your applications run SAP R/3 Release 4, follow the Access Method E instructions for installing SAP R/3, beginning at <u>Define a SAP User for the OMS Callback Daemon</u> on page 21.

   If your applications run SAP R/3 Release 3, rename the **ipm_print**.*sys* file to **ipm_print** and the **ipm_query**.*sys* file to ipm_query. Then, follow the directions for either <u>Defining Output Devices that Use Infoprint Manager for Access Method L</u> or <u>Defining Devices for Printing ABAP and OTF on SAP R/3 Release 3</u>, from the "Printing from SAP R/3 Procedures" PDF file.

Installing and Configuring the AIX Client

To prepare for installing the Infoprint AIX client on your AIX system using the Infoprint Installer, do the following:

1. Log into the AIX system as **root**.

2. Open an aixterm or dtterm window.

3. Insert the Infoprint Manager CD-ROM into the CD-ROM reader.

4. At the AIX command prompt, type **cd /** and press **Enter**.

5. Type **ls cdrom**, **ls -al**, and press **Enter**.

6. If the message:

   ```
   The file cdrom does not exist
   ```
   displays, you must create a directory for the CD-ROM; type **mkdir /cdrom** and press **Enter**.

   If there is already a cdrom directory, no message displays; you do not have to create a directory.

7. Type **mount -v cdrfs -r /dev/cdn /cdrom** where **cdn** is the identifier of your CD-ROM drive. Press **Enter**.

8. At the AIX command prompt (as **root**), type **cd** and press **Enter**.

9. Type **ksh** and press **Enter**.

10. Decide whether you want to invoke the Infoprint Installer with or without the graphical user interface (GUI). If you use the GUI, you will be prompted to select options for the AIX client. If your AIX workstation does not support the GUI, you must specify options on the command line.

Using the Installer GUI

1. Type **/cdrom/setup -c** and press **Enter**. The `Infoprint Installer` window displays.

   - Select the language you want from the **Preferred Language:** list if you want a language other than U.S. English for the rest of the Infoprint Installer screens.

   - Select the **Set AIX Locale** check box if you want to set your AIX system to the same language as you just selected for the Infoprint Installer.

Notes:

(1) The text you see in the remaining screens during installation will be in the language you just selected.

(2) If the language you selected is not the same as the server language, the server must run in English.

(3) If you selected the **Set AIX Locale** check box, your system locale will change once you have logged off and back on or shut down and restart the AIX system after completing the installation of Infoprint .

2. Click on **Next >>**. You will now see several screens to allow you to configure your Infoprint AIX client.

Using the AIX Command Line

Type **/cdrom/setup -C -n** *ServerName* **-p** *PortNumber* and press **Enter**.

locale

is the locale of the AIX client. The default is **en_US** (U.S. English). If this locale is not the same as the server locale, the server locale must be **en_US**.

ServerName

is the name of the Infoprint server to which this AIX client will submit jobs. To determine the name of your server, type hostname at the AIX command line.

PortNumber

is the port where the Infoprint server is running. By default, Infoprint Manager uses 6874 as the default port number for servers. You may want to verify which port numbers are being used by your AIX system by viewing the list in the **/etc/services** file.

Remember that you must shut down and restart the system after completing the install of Infoprint Manager.

Installing Infoprint Fonts for Printing with the SAP Transform

To print output from the **sap2afp** transform, you must install the Gothic fonts that are specified in the **fonts.tab** configuration file of the **/usr/lpp/psf/sap2afp** directory, as well as the required code pages. You can obtain these resources from the AFP Font Collection CD-ROM that is provided with Infoprint Manager.

To load the fonts that are required to transform OTF or ABAP data from SAP R/3 on an Infoprint Manager system, use the following procedure:

1. Load the CD-ROM for the AFP Font Collection into the CD-ROM drive on your RS/6000 server.

2. Create a mount point from which to add fonts from this CD-ROM by typing `smitty cdrfs` from the AIX command line and taking the following path: **CDROM File Systems -- Add a CDROM File System**.

3. Select **F4** to set the **DEVICE name** field to the system-generated name (usually **cd0**).

4. For the **MOUNT POINT** field, specify `/cdrom`.

5. Press the **F10** key to exit SMIT.

6. From the AIX command line, mount the CD-ROM to your RS/6000 by specifying:

   ```
   mount /cdrom

   cd /cdrom
   ```

7. From the AIX command line, specify `smitty install_latest`.

8. For the **INPUT device /directory for software** field, specify `/cdrom/aix`

9. To ensure that you install the correct fonts without over writing any existing resources on your system, specify `no` for the **COMMIT software updates?** field and `yes` for the **SAVE replaced files?** field.

10. Specify the **F4** key to list all font options.

11. Use the **F7** key to select the following four options:

- **afpfonts.bookmstr**

- **afpfonts.compats**

- **afpfonts.codepage**

- **afpfonts.ocr**

12. To install the fonts, press **Enter**.

    Note: These fonts should take approximately 43 MB on your RS/6000.

13. Verify that the fonts cited in your **fonts.tab** configuration file have been installed.

14. Infoprint Manager installs these fonts in the **/usr/lpp/afpfonts** directory.

15. To remove the IBM AFP Font Collection CD-ROM, specify the following at the AIX command line:

    ```
    unmount /cdrom
    ```

    Then you can remove the CD-ROM from your CD-ROM drive.

Configure for Printing ABAP and OTF with SAP R/3 Release 3

To print the ABAP and OTF data streams as AFP output, you must install the following:

1. The AIX Client (see page 8) from the Infoprint Installer. This feature needs to be installed wherever a Spool Work Process resides that will make print requests for Infoprint Manager logical printers.

2. The SAP Print Feature from the Infoprint Installer instructions that are contained on both the web pages and the "Installing Infoprint Manager Control on Your AIX System" PDF file. The SAP Print Feature option needs to be installed on your AIX Infoprint server, as well as on your SAP R/3 Application server. Ensure that you install the SAP fonts (see page 10) and configure the sap2afp transform (see page 17) on either the Infoprint AIX server or the SAP application server, depending upon where you decide to run the **sap2afp** transform. For a description of how the **sap2afp** transform can be run, refer to the individual command descriptions in the SAP Custom Print Command Options topic on page 13.

Note: You must install the AIX Client before you install the SAP R/3 Print Feature. If you install the SAP R/3 Print Feature first, the AIX Client will overwrite the **SAP Print Feature**.

Once these options have been correctly installed, you can configure your SAP R/3 application server to print both ABAP and OTF data by completing the following tasks in the order listed:

- Activating Access Method Z

- Defining an Output Device Type

Activating Access Method Z

SAP Access Methods are the means the SAP spool system uses to pass output to the host spool system. They tell the Spool Work Process what is to be done with the final output data stream. Access Method Z is a spool exit that allows you to output ABAP and OTF data for the Infoprint SAP (**sap2afp**) transform.

To activate Access Method **Z** with the R/3 spool exit, use the following procedure:

1. From the R/3 main menu, access the **Reporting** pull-down menu by selecting the Tools main menu and then selecting the **System**-- **Services**--**Reporting** path or typing /nSA38 in the **ok-Code** field.

2. From the **ABAP/4: Execute Program** window, specify **RSPO0049** for the **Program** field and press the **EXECUTE** button once.

   This process makes Access Method **Z** available on R/3.

3. Once Access Method **Z** is available on R/3, you must edit the profile of the application server where the spool work process runs by:

   1. From R/3, enter **RZ10** in the ok-Code field. This choice produces a list of all profiles on your R/3 system.

   2. From the **Instance Profile Management for Experts** window, select the appropriate profile and click on the **Choose** push-button.

   3. From the SAP R/3 window, use the scroll bar to go to the end of the file and add one of the set of options described in SAP Custom Print Command Options (page 13) at the bottom of the window.

   4. Once you have notified other SAP R/3 application users, click on the **Save** folder and restart the R/3 application.

SAP Custom Print Command Options

There are three potential print commands that SAP R/3 installations using Infoprint Manager might want to use for submitting print commands. The following topic presents each command, with its relative strengths and weaknesses.

Using the Infoprint ipm_print Command for Printing ABAP or OTF

The Infoprint Manager **ipm_print** command provides more complete SAP job information to Infoprint Manager. For example, each SAP userid can be used to track a job through the system. The corresponding **ipm_query** command allows Infoprint Manager to provide more accurate job status to SAP: a job is not identified as complete until it actually prints or is deleted from the print queue. **ipm_print** also allows you to provide box shading values to OTF jobs.

When you use **ipm_print**, the job is submitted to Infoprint Manager and the **sap2afp** transform is run when the job is scheduled to the printer, instead of before the job is spooled. In other words, the transform runs on the Infoprint AIX server, not on the SAP application server.

You do not have to specify a value in the **printer.tab** configuration file and need to perform less maintenance. For example, you can add devices to your SAP system and not have to modify anything on the SAP application server.

However, you can specify only one **defcp.tab** configuration file (the default conversion table for converting ASCII characters into EBCDIC characters) for printing ABAP jobs, no matter how many SAP application servers you use.

To use this print command:

1. Specify these three lines at the bottom of the **Instance Profile Management for Experts (Change)** window:


```
# Access Method Z Spool Exit Parameters

rspo/host_spool/custom_print=ipm_print -P &P -F &F -O
'&O' -o '&o' -R '&R' -C &C -Y '&Y' -T '&T' -D '&D' -t
'&t'

rspo/host_spool/custom_query=ipm_query -P&P
```


2. Once you have completed this task, return to step 3 of the

Using the Infoprint sap2afp Command

The Infoprint Manager **sap2afp** Command invokes the transform directly and the transform then submits the job to Infoprint Manager. Using this option allows you to provide box shading values to OTF jobs and have a SAP userid associated with a job to track that job through the system. In addition, you can specify more than a single **defcp.tab** configuration file (the default conversion table for converting ASCII characters into EBCDIC characters) for printing ABAP jobs by installing different instances of the transform on different SAP application servers. For example, you could specify one code page on an application server where English data is printed and another code page on an application server where German data is printed.

This print option does require you to specify a value in the **printer.tab** configuration file and requires more maintenance of all the <u>configuration files</u> on page 17. For example, you must update the printer.tab file every time you either add or delete an R/3 AFP printer.

To use this print command:

1. Specify these three lines at the bottom of the **Instance Profile Management for Experts (Change)** window:

```
# Access Method Z Spool Exit Parameters

rspo/host_spool/custom_print=/usr/lpp/psf/bin/sap2afp -d &S -f
&F -g

rspo/host_spool/custom_query=/usr/lpp/psf/bin/sap2afp -d &S -q
```

2. Map each R/3 output device to an IBM Infoprint Manager logical printer through the **/usr/lpp/psf/sap2afp/printer.tab** configuration file.

   Because SAP R/3 Release 3 restricts the names of Output Devices to four characters, the printer.tab configuration file allows you to map R/3 Output Devices to more meaningfully named devices.

The **printer.tab** file uses the following keyword-value pairs:

Dest

Specifies the four-character R/3 Output Device.

System

Specifies the operating system from which **sap2afp** output is printed. You can specify either `AIX` or `AIX system`.

Queue

Specifies the name of the IBM Infoprint Manager logical printer.

Node

Specifies the IP address of the target operating system. The content (a maximum of 15 bytes) is not used. You must specify a value for **Node**, but it is used only when **System=OS/2**.

The following provides a sample **printer.tab** configuration file. Note that you can include comments in lines preceded by two slashes (//):

```
// Printer table

// Format: DEST=SPRT System=AIX Queue=pcl4039 Node=192.9.200.220

// Note: The Node parameter is not used for entries where
the

// System field is AIX or MVS, but you must still enter a
value.

Dest=MVSP System=MVS Queue=pcl4039 Node=192.9.200.220

Dest=AIX1 System=AIX Queue=pcl4029 Node=192.9.200.116

Dest=AIX2 System=AIX Queue=PSF4039 Node=192.9.200.220

Dest=OS2P System=OS2 Queue=OS2AFP Node=192.9.201.66

Dest=OS2 System=OS2 Queue=OS2AFP Node=192.9.201.66
```

If you have defined an R/3 AFP printer called AFPT, you could map this printer to the IBM Infoprint Manager logical printer psf3116 by adding the following line to the **printer.tab** configuration file.

```
Dest=AFPT System=AIX Queue=psf3116 Node=0.0.0.0
```

3. Once you have completed this task, return to step 3 of the procedure on page 12.

Using the AIX qprt Command

The AIX **qprt** Command is the standard SAP R/3 print command. Using this option allows you to send jobs to both standard AIX queues and Infoprint Manager printers. This print option is limited because you cannot use the Infoprint Manager Fax option, provide box shading values to OTF jobs, or have the userid of the job creator associated with the job.

Specify these three lines in the **Instance Profile Management for Experts (Change)** window:

```
# Access Method Z Spool Exit Parameters

rspo/host_spool/custom_print=qprt -dp -P&P -Bnn -N&C -r -R14 -
X850 &F

rspo/host_spool/custom_query=lpq -l -P&P
```

Once you have completed this task, return to step 3 of the procedure on page 12.

Configuring the SAP R/3 Transform

To install the **sap2afp** transform, you must install the SAP Print Feature, using the Infoprint Installer. Follow the directions provided with the Using the Infoprint Installer. Remember to select the **SAP Print Feature** on the Infoprint Installer.

The SAP Transform includes two types of files:

- An executable named **sap2afp**, which converts Output Text Format (OTF) data into MO:DCA-P output data and Advanced Business Application Programming (ABAP) list format data into line data. This file is installed in the **/usr/lpp/psf/bin** directory.

- Configuration files that are installed in the **/usr/lpp/psf/sap2afp** directory.

Configuration File	Purpose	Use
barcode.tab	Provides list of valid SAP bar codes.	OTF data only
xxxxyyyy.tab	Maps ASCII code pages to EBCDIC code pages.	OTF data only
fonts.tab	Provides a list of raster fonts with the appropriate character set and code page.	OTF data only
image.tab	Defines the dither matrix for half-tone color print jobs.	OTF data only
printer.tab	Maps four-character SAP printer name to an Infoprint logical printer. **Note:** Unless you are invoking the **sap2afp** transform directly from the SAP R/3 system, you do not need this configuration file. You invoke the transform if you are on a SAP R/3 Release 3 system and have chosen the Infoprint **sap2afp** print command, rather than the **ipm_print** command or the **qprt** print command, as your SAP Custom Print Command Option (see page 13).	ABAP/OTF

Configuration File	Purpose	Use
defcp.tab	Converts ASCII into EBCDIC characters.	ABAP data only
pagedef.tab	Defines the form definition (PAPER TYPE) used, as well as the page definition and fonts for jobs that go through ACIF.	ABAP/OTF

Bar Codes Supported by the Infoprint SAP Transform

Some SAP R/3 applications require that data is printed as a bar code. All the bar codes that can be specified in SAP R/3 are printable in AFP output. If OTF specifies bar code data, the **sap2afp** transform converts it into Bar Code Object Content Architecture (BCOCA) data, which is understood directly bar codes by the control unit of the AFP printer.

BCOCA is supported by the following printers:

- IBM 3112 Page Printer

- IBM 3116 Page Printer

- IBM 3130 Advanced Function Printer

- IBM 3160 Advanced Function Printer

- IBM Infoprint 60 Printer

- IBM 3812 Page Printer

- IBM 3816 Page Printer

- IBM 3900-OW1 Advanced Function Printer

- IBM 3900-OW3 Advanced Function Printer

- IBM 3900 Advanced Function Duplex Printing System, Models D01, D02

- IBM 3900 Advanced Function Wide Duplex Printing System, Models DW1, DW2

- IBM 3912 Page Printer

- IBM 3916 Page Printer

- IBM 3930 Page Printer

- IBM 3935 Advanced Function Printer

- IBM Infoprint 4000 Printer

- IBM LaserPrinter 4028

- Network Printer 12 (NP 12)

- Network Printer 17 (NP 17)

- Network Printer 24 (NP 24)

- Any printers that accept the Printer Control Language (PCL) PCL4, PCL5, or PCL5c data streams

Printing with SAP R/3 Release 4 (Enhanced Status)

SAP R/3 Release 4 provides support to more closely integrate an external Output Management System (OMS). Infoprint Manager is a SAP-certified OMS that provides synchronous functions for submitting jobs, canceling jobs, querying jobs, and querying devices, as well as asynchronous event information. The Infoprint SAP Callback daemon collects and delivers these events to the R/3 system.

SAP R/3 Release 4 allows you to print all data streams through Access Method **E**. While you can still use Access Method **L** to print PCL and PostScript output from SAP R/3 Release 4, you will not have access to the enhanced status reporting that is made available by defining Infoprint Manager as an Output Management System through Access Method **E**. Access Method **Z** is available, but not supported in SAP R/3 Release 4. Because the SAPGOF device type allows the output of both ABAP and OTF data with Access Method **E**, Access Method **Z** is no longer necessary in SAP R/3 Release 4. Since Infoprint Manager 3.1 invokes the **sap2afp** transform at the Infoprint physical printer, Access Method **E** allows you to receive enhanced status reporting while processing both ABAP and OTF print jobs.

To install and configure Infoprint Manager as a SAP R/3 OMS when SAP R/3 is running on an AIX operating system, use the following procedures in sequence:

Note: This procedure presumes that you have already installed and configured Infoprint Manager on a separate AIX server. An SAP OMS interface restriction requires that your Infoprint server (**pdserver**) name be no longer than nine characters.

1. Installing the AIX Client and the SAP Feature on SAP System Server(s)

2. Defining a SAP User for the OMS Callback Daemon on the SAP System Server(s)

3. Deciding Where to Run the SAP Callback Daemon

4. Defining the Infoprint Manager OMS to SAP R/3 on the SAP System Server(s)

5. Installing the SAP R/3 Print Feature and the SAP Fonts on the Infoprint AIX Server

6. Configuring the SAP Callback Daemon

7. Starting the SAP Callback Daemon

To install and configure Infoprint Manager as a SAP R/3 OMS when SAP R/3 is running on other UNIX operating systems, follow the procedures described in the topic Installing Infoprint when SAP Runs on HP-UX or Sun Servers

Installing the AIX Client and the SAP Feature on the SAP System Server

Use the Infoprint Installer instructions that are contained on both the web pages and the "Installing Infoprint Manager Control on Your AIX System" PDF file to install the AIX client (see page 8) and the SAP Print feature on every AIX server where any SAP application server will issue OMS commands. If you have configured your SAP R/3 installation to use alternate servers, you must repeat these installation tasks on the alternate servers.

Note: You must install the AIX Client before you install the SAP R/3 Print Feature. If you install the SAP R/3 Print Feature first, the AIX Client will overwrite the SAP feature.

Defining a User for the OMS Callback Daemon on the SAP System Server

Because the OMS callback daemon must logon to the SAP system and its external management interface (XMI) to make RFC requests, you must define a user for it. Regardless of where the callback daemon runs, you will need this user information when you Define the Infoprint Manager OMS to SAP R/3 on page 22.

To define a user for the Infoprint Manager Callback daemon, choose the following path on the SAP R/3 graphical user interface:

Tools > Administration > User maintenance > Users

The user should be a CPIC type and requires XOMI permissions to log into the CCMS system management XOM application programming interface. These authorizations can be provided in the S_XMI_XOM_A profile. For assistance, see your SAP Systems Administrator. Remember to record the user, password, and client for later use (see table on page 25).

Note that if you ever change or modify this SAP user, remember to make the changes to the **SAP configuration** pane on the **Spool Admin.: Real Output Management (Change)** window, and the **rc.iprsap** file in the **/etc** directory on the Infoprint AIX server where the SAP callback daemon is running.

Deciding where to Run the SAP Callback Daemon

Each SAP R/3 system using the Infoprint Manager Callback support needs to have one callback daemon running. The SAP Callback daemon can run on the Infoprint AIX server or on a SAP R/3 application server (as long as that server is running on an AIX operating system). If you choose to run the SAP Callback daemon on an SAP R/3 application server running on AIX, then you must configure that application server into the Infoprint Manager cell (DCE) or as an Infoprint secondary server (non-DCE).

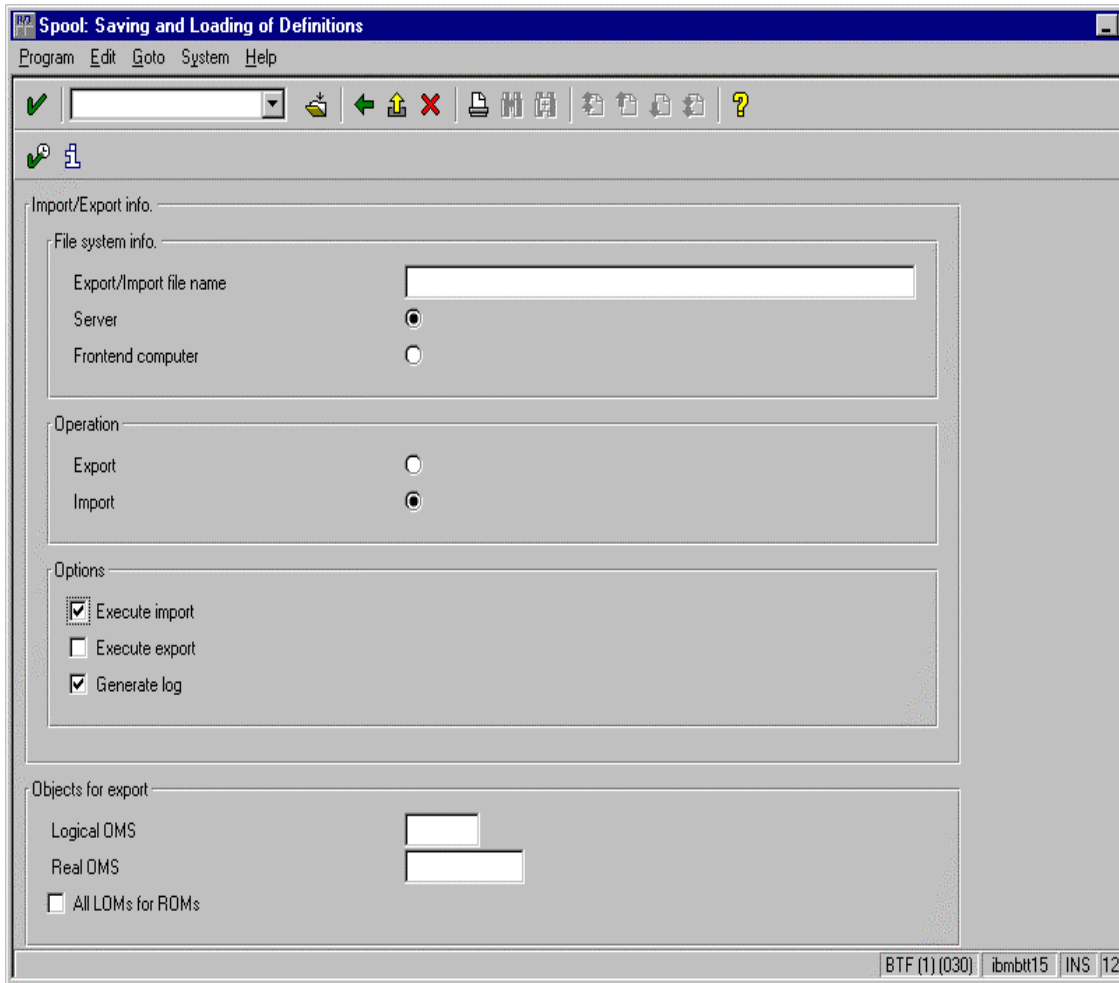## Defining the Infoprint Manager OMS to SAP R/3 on the SAP System Server(s)

Infoprint Manager provides a configuration file to assist in defining Infoprint Manager as an OMS on your R/3 system. This procedure will define Infoprint Manager as the Real Output Management System (ROMS) on this page for your SAP R/3 installation, as well as defining a Logical Output Management System (LOMS) on page 27 so you can define Access Method E devices in SAP R/3.

Defining a Real Output Management System

Use the following procedure to define a Real Output Management System for SAP R/3:

1. Log onto your SAP R/3 Release 4 system.

2. Import the configuration file by entering transaction SA38.

3. From the **ABAP: Execute Program** window, specify RSPOXOMS in the **Program** field and click on the **execute** (checkmark) icon.

4. From the **Spool: Saving and Loading of Definitions** window shown below, specify /usr/lpp/pd/bin/ipm.omsdesc in the **Export/Import file name** field, ensure that the **Operation** pane is set to *Import*, the **File system info** pane is set to *Server*, and check both the **Execute import** and **Generate log** options in the **Options** pane.

    Once you have set these options, click on the **Execute** (checkmark with a clock) icon.

5. Running the report displays a list of the ROMS and LOMS that have been imported into the system.

6. To complete the necessary definitions, specify the `spad` transaction.

7. From the **Spool Administration: Initial Screen** window, click on the **Extended admin** push-button (**f6** key) and select the **Real OMS** push-button from the **Output management systems** pane to obtain a list of the Real Output Management Systems (ROMS) available on your SAP application server.

   You should now see `IBM IPM` listed.

8. From the **Spool Admin.: List of Real Output Management Systems** window, select the `IBM IPM` ROM and click on the **Choose** (checkmark with a clock or **f2** key) icon.

9. From the **Spool Admin.: Real Output Management (Display)** window, click the **Change** (red pencil **f8** key) icon.

10. From the **Spool Admin.: Real Output Management System (Change)** window displayed below, select an **Initialization instance.** The initialization instance is the instance that starts the callback daemon. The initialization instance you select depends upon where you decided where to run the callback daemon in [Decide Where to Run the SAP Callback Daemon](#) on page 30.

   - If you have a non-AIX SAP R/3 application server, you can specify any Initialization instance value.

   - If you have an AIX SAP R/3 application server and choose to run the callback daemon on the Infoprint AIX server, leave the **Initialization instance** field blank.

   - If you have an AIX SAP R/3 application server and you chose to run the callback daemon on one of those application servers, pick that particular application server as the initialization instance.

   You specify an initialization instance value by moving your cursor to the arrow point down on the left side of the field and clicking on a value from the list of all active SAP R/3 application servers.

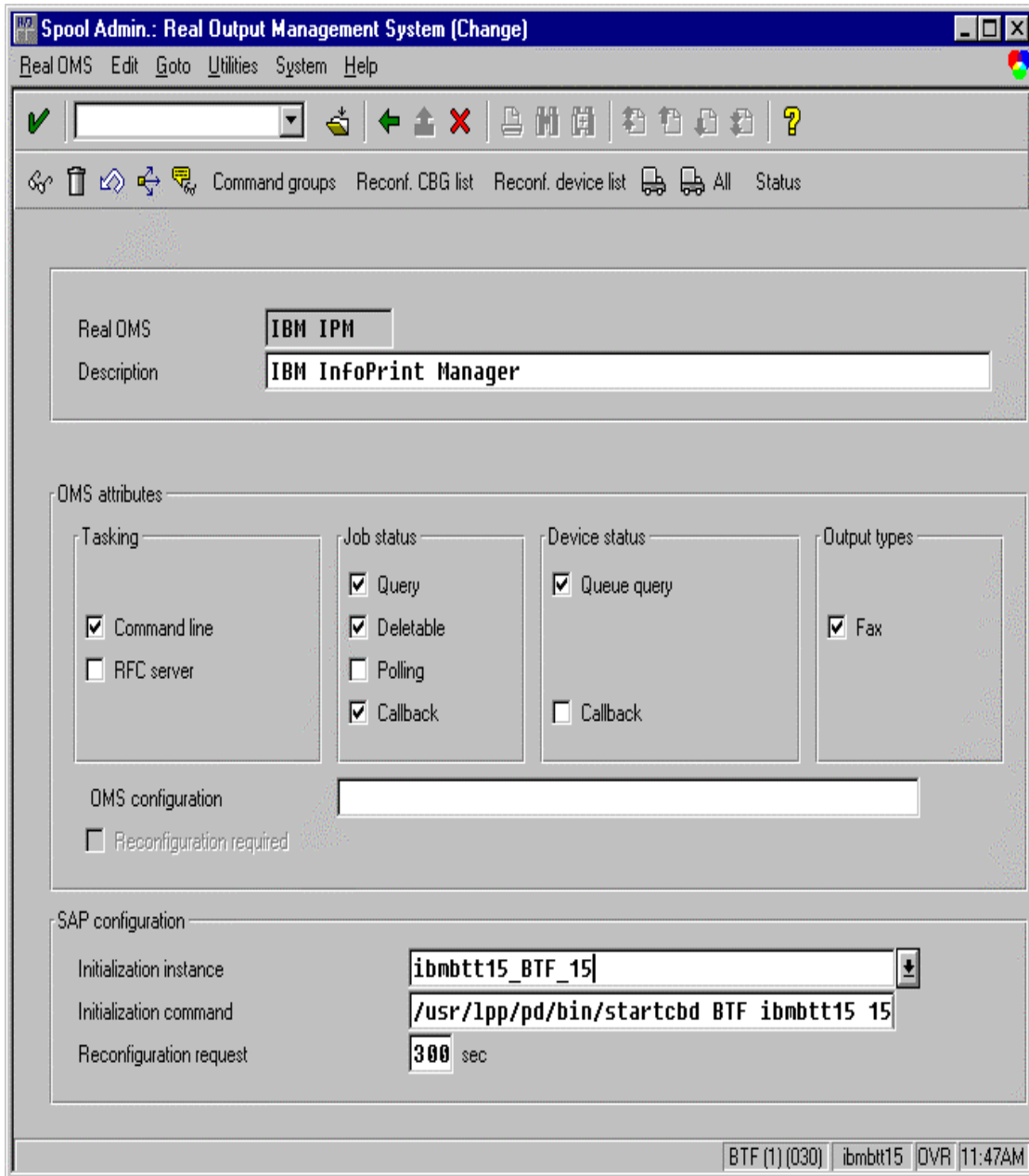11. Specify an **Initialization command** value by moving your cursor to the field where you will see this text-string:

   ```
   /usr/lpp/pd/bin/startcbd <SystemName> <Host Name> <InstanceID> <User>
   <Client> <Password> <Language>
   ```

   Replace the generic values inside the angle brackets with variables like those displayed in the table that follows. The table displays the variables grouped into three components: **Command to Start the Callback Daemon**; **SAP R/3 Instance Where the Callback Daemon Logs On**; and the **Callback Daemon Userid information**. All variables in the table are examples and will differ from values that you specify, unless otherwise noted. The **Spool Admin.: Real Output Management System (Change)** window displayed just beneath the table uses these example variables.

Initialization command Field	Variables
Command to Start the Callback Daemon	
fully-qualified path for the command	*/usr/lpp/pd/bin/startcbd* **Note:** This value is hard-coded and may not be modified.
SAP R/3 Instance Where Callback Daemon Logs On	
<SystemName> Three-character system name	*BTF*
<Host Name>	*ibmbtt15*
<InstanceID>	*15*
Callback Daemon User ID Information	
<User>	*ibm* **Note:** This value and the two that follow were originally defined when you created a SAP userid for the OMS Callback daemon (see page 21).
<Client>	*030*
<Password>	*newname*
<Language>	*En*

Note: The resulting text string is the same that you will specify in the **startcbd** command when you

Note: Do not change any of the attributes specified in the **OMS attributes** pane above.

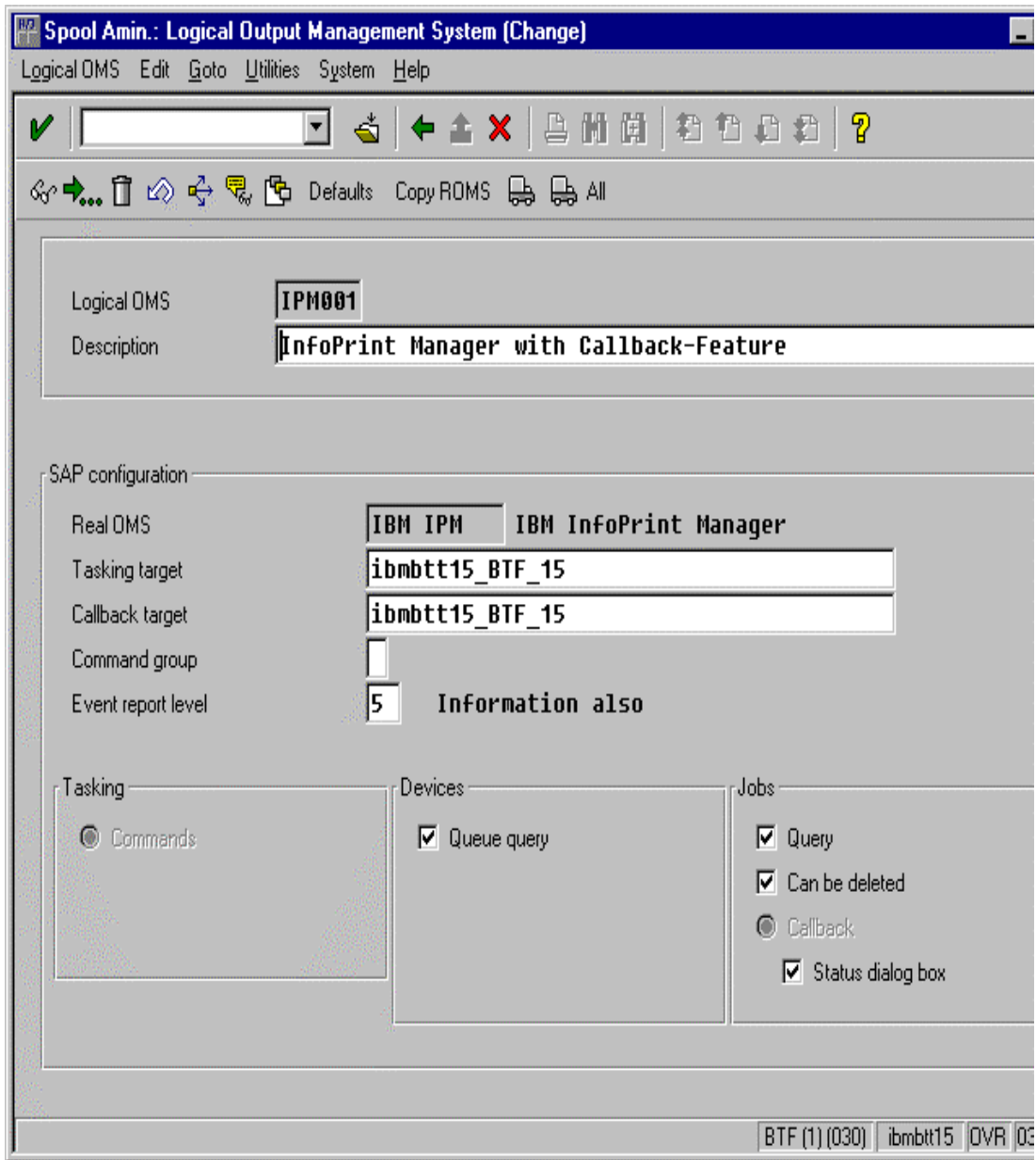12. Save this information by clicking on the folder icon (or specifying the **Ctrl** + **S** keys).

Defining a Logical Output Management System

Use the following procedure to define a Logical Output Management System for SAP R/3:

1. From the SAP R/3 graphical user interface, complete the Logical Output Management System (LOMS) definitions by specifying the `spad` transaction.

2. From the **Spool Administration: Initial Screen** window, click on the **Extended admin** push-button (**f6** key) and select the **Logical OMS** push-button from the **Output management systems** pane to obtain a list of the Logical Output Management Systems (LOMS) available on your installation.

3. From the **Spool Admin.: List of Logical Output Management Systems** window, select the `IPM001` LOMS and click on the **Choose** (checkmark with a clock or **f2** key) icon.

4. From the **Spool Admin.: Logical Output Management (Display)** window, click the **Change** (red pencil **f8** key) icon.

5. From the **Spool Admin.: Logical Output Management (Change)** window displayed below, specify a value from the list of all active SAP application servers for both the **Tasking target** field and the **Callback target** field in the format: *hostname_systemname_instanceID*, such as `ibmbtt15_BTF_15`.

   The **Tasking target** field, specifies where the commands are invoked, while the **Callback target** field specifies where the asynchronous callbacks are delivered.
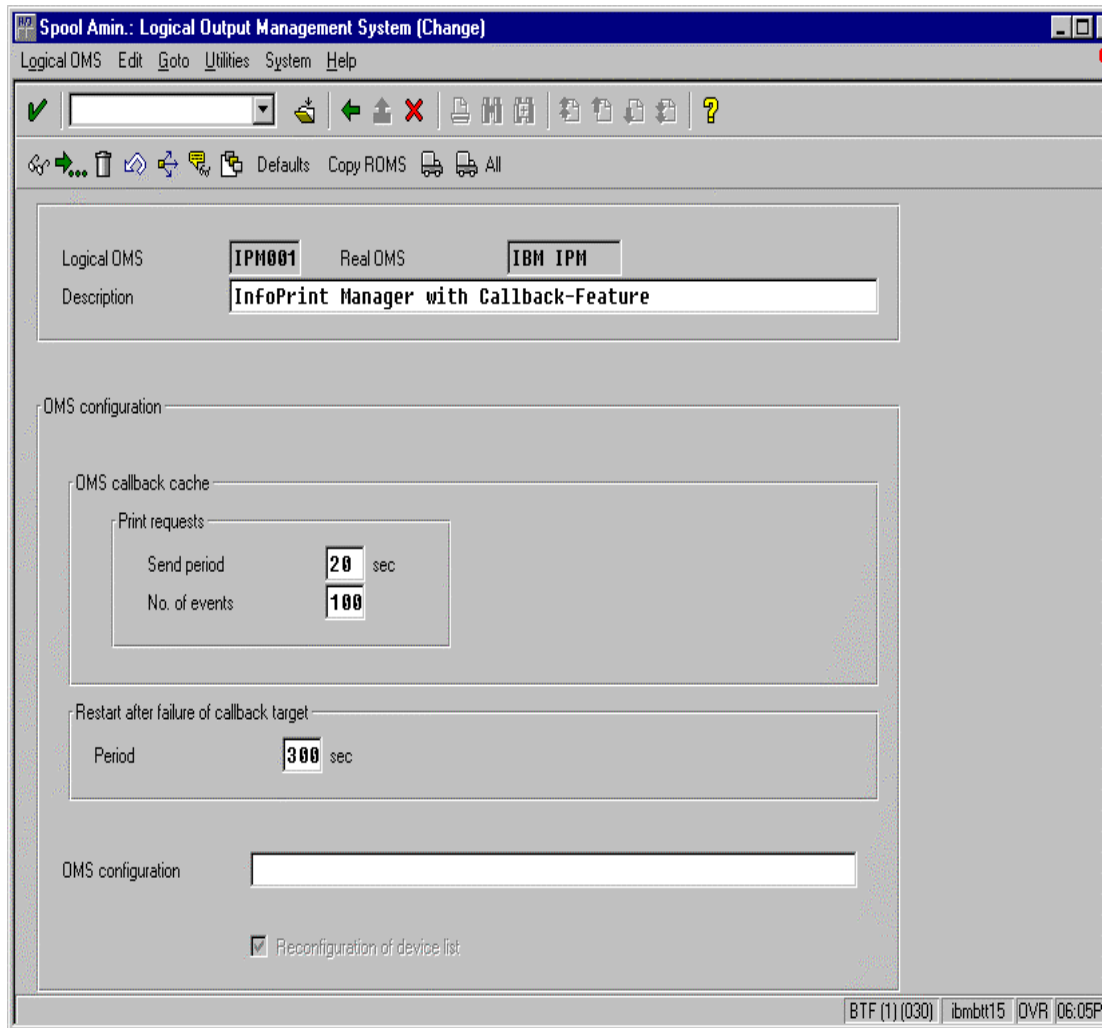
   In addition, you should specify a value for the **Event report level** field in the **SAP configuration** pane. Use the downward arrow to determine the message level you want (1 is the least and 5 is the most).

Spool Amin.: Logical Output Management System (Change)

Logical OMS   Edit   Goto   Utilities   System   Help

Defaults   Copy ROMS   All

Logical OMS   **IPM001**
Description   **InfoPrint Manager with Callback-Feature**

SAP configuration

Real OMS   **IBM IPM   IBM InfoPrint Manager**
Tasking target   **ibmbtt15_BTF_15**
Callback target   **ibmbtt15_BTF_15**
Command group
Event report level   **5   Information also**

Tasking
○ Commands

Devices
☑ Queue query

Jobs
☑ Query
☑ Can be deleted
○ Callback
☑ Status dialog box

BTF (1) (030)   ibmbtt15   OVR   03

6. To ensure that users on your SAP R/3 system receive pop-up windows for both problem and completion notification messages about a job's status, check the **Status dialog box** field in the **Jobs** pane.

Note: Until SAP R/3 Release 4.5B, the pop-up message is always reported only to users in the client where the OMS callback daemon has logged on. You defined this client when you Defined a User for the OMS Callback Daemon on page 21. In SAP R/3 Release 4.5B, SAP delivers asynchronous pop-ups to users who are logged onto any SAP client.

7. Save this information by clicking on the **Save** (open folder) icon, or specifying the **Ctrl** + **S** keys.

8. From the top of the window, click on the **Next screen** (right-facing green arrow) icon, or specifying the **f5** key.

9. From this panel (displayed below), you can specify how often (**Send period** field) in seconds or how many (**No. of events** field) notification events the Infoprint Manager callback daemon should collect before delivery to the SAP R/3 system. In other words, the callback daemon will only deliver events for jobs on printers associated with this LOMS if it has collected x number, or x seconds have passed since the last delivery.

Installing the SAP R/3 Print Feature and the SAP Fonts on the Infoprint AIX Server

If you have chosen to run the SAP Callback daemon on the Infoprint AIX server, or if you are printing Output Text Format (OTF) data, you must install the SAP R/3 Print feature on the Infoprint AIX server, if you have not already done so. Perform this task by using the Infoprint Installer instructions that are contained on both the web pages and the "Installing Infoprint Manager Control on Your AIX System" PDF file. Also, if you are printing Output Text Format (OTF) data, ensure that you have configured the configuration files that are described in Configuring the SAP R/3 Transform on page 17, and installed the fonts (see page 10) necessary for printing on the Infoprint AIX server.

Configuring the SAP Callback Daemon

Each SAP R/3 system using the Infoprint Manager Callback support needs to have one callback daemon running. The SAP Callback daemon can run on the Infoprint AIX server or on a SAP R/3 application server (as long as that server is running on an AIX operating system). If you choose to run the SAP Callback daemon on an SAP R/3 application server running on AIX, then you must configure that application server into the Infoprint Manager cell (DCE) or as an Infoprint secondary server (non-DCE). Based on where you decide to run this process, perform **only one** of the following tasks.

Running on the Infoprint AIX Server

You can run the SAP callback daemon on the Infoprint AIX server instead of on the SAP R/3 application server. To ensure that the SAP daemon (**sapcbd**) is restarted automatically whenever the system it is running on is restarted, specify the following from the AIX command line:

```
mkitab "rciprsap:2:once:/etc/rc.iprsap.out 2&1 # Autostart of Infoprint
sapcbd"
```

Note that starting additional SAP Callback daemons does not require you to perform this step again.

Running on the SAP R/3 Application Server

If you choose to run the SAP Callback daemon on an SAP R/3 application server, use either the procedure for using a non-DCE version of Infoprint Manager, or the procedure for using a DCE version of Infoprint Manager, depending upon your installation.

To configure the callback daemon to run with the non-DCE version of Infoprint Manager, do the following:

1. From the Infoprint AIX server, open the Infoprint SMIT interface by typing either "smit" or "smitty" (for the ASCII interface) .

2. Click **InfoPrint Utilities --> Configure Secondary Servers (NFS) --> Link From Primary Server to Secondary Server**. Enter the requested information about the SAP application server, treating the SAP application server as if it were a secondary server.

3. On the SAP system, log on as root user and type the following command:

   `/usr/lpp/InfoPrint/install/bin/link2prim.ksh -ph prim_srvr_hostname`

   (If name resolution services (DNS or NIS) are not in use, append -a `prim_srvr_ip_addr` to the command, where `prim_srvr_hostname` is the host name of the primary system and `prim_srvr_ip_addr` is the IP address of the primary system.

4. From the AIX command line, enter the following command:
   `/usr/lpp/Infoprint/install/bin/sapcfg.ksh`

5. Answer the questions as prompted.

   If your network is not using name resolution services (like DNS), then you must enter the primary server's IP address (instead of host name) when prompted to **Enter primary server host name** by the **sapcfg.ksh** script.

To configure the callback daemon to run with the DCE version of Infoprint Manager, do the following:

1. Ensure that you have installed the DCE client code.

2. From the AIX command line, enter the following command:
   `/usr/lpp/Infoprint/install/bin/sapcfg.ksh -d`

3. Answer the questions as prompted.

   If your network is not using name resolution services (like DNS), then you must enter the primary server's IP address (instead of host name) when prompted to **Enter primary server host name** by the **sapcfg.ksh** script.

Starting the SAP Callback Daemon

To start the SAP Callback daemon (regardless of whether you have installed it on the SAP System that you selected in step 10 of [Defining a Real Output Management System](#) (see Page 24) or on the [Infoprint AIX server](#) on page 30), you must run the **/etc/rc.iprsap** file from the AIX command line.

From the AIX command line, access the **rc.iprsap** file in the **/etc** directory. Edit the file and copy the commented **startcbd** command at the top of the file (`/usr/lpp/pd/bin/startcbd <SystemName> <Host Name> <InstanceID> <User> <Client> <Password> <Language>`) and specify the same values that you entered for the initialization command on the **Spool Admin.: Real Output Management System (Change)** window.

Once you have saved and exited the file, run the SAP Callback daemon from the command line by specifying:

```
/etc/rc.iprsap
```

If the callback daemon has started correctly, you should see the following response:

```
0 Successfully\started\SAPCBD
```

If you receive any other message, the daemon has not started correctly. To resolve the problem, refer to the **/var/pd/sapcbd.***sysname***/error.log** file (where *sysname* is the SAP R/3 system name to which the SAP callback daemon is delivering events), correct the problems cited, and try to start the Callback daemon again. If it still does not start correctly, contact your Printing Systems Company technical support representative.

Now that you have finished defining the Infoprint Manager OMS to your SAP R/3 Release 4 system, you can begin to define devices so you can [print from SAP R/3](#) with Infoprint Manager from the "Printing from SAP R/3 Procedures" PDF file.