



Automated Document Factory Administrator Guide

Version 2.0

Overview of Infoprint Workflow ADF

Installation and updates

Download configuration

Configuring the Infoprint Workflow ADF system

Managing devices

Managing jobs

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About this book

This book contains administrator information about the components of Automated Document Factory (InfoPrint Workflow) that run on AIX. It describes installing, configuring, managing, and backing up InfoPrint Workflow.

Who should read this book

This book is for experienced AIX and DB2 database administrators.

Reading syntax diagrams

Read the diagrams from left-to-right, top-to-bottom, following the main path line. Each diagram begins on the left with double arrowheads (>>) and ends on the right with two arrowheads facing each other (><). If a diagram is longer than one line, each line to be continued ends with a single arrowhead (>) and the next line begins with a single arrowhead.

A word that is not in italics is an operand or value that you must spell exactly as shown. On AIX, you must enter it in the case shown.

OPERAND

If an initial dash is part of the operand, as is normal for AIX flags, there is a break in the line before the dash. You must type the dash.

-flag

A word in *italics* is a variable. Where you see a variable in the syntax, you must replace it with one of its allowable names or values, as defined in the text.

variable

Required operands and values appear on the main path line. You must code required operands and values.

REQUIRED_OPERAND

If several mutually exclusive required operands or values exist, they are stacked vertically in alphanumeric order.

{REQUIRED_OPERAND_1 | REQUIRED_OPERAND_2}

Optional operands and values appear below the main path line. You can choose not to code optional operands and values.

OPTIONAL_OPERAND

If several mutually exclusive optional operands or values exist, they are stacked vertically in alphanumeric order below the main path line.

{OPTIONAL_OPERAND_1 | OPTIONAL_OPERAND_2}

Default operands and values appear above the main path line. If you omit the operand entirely, the default is used.

DEFAULT

An arrow returning to the left above an operand or value on the main path line means that the operand or value can be repeated. A symbol on the arrow means that each operand or value must be separated from the next by that symbol (in this example, a comma).

, REPEATABLE_OPERAND

Some diagrams contain syntax fragments, which serve to break up diagrams that are too long, too complex, or too repetitious. Syntax fragment names are in mixed case and are shown in the diagram. The fragment is placed either below the main diagram or in a separate description.

Syntax Fragment

1ST_OPERAND :2ND_OPERAND :3RD_OPERAND

Conventions used in this book

The following conventions are used in this book:

- Computer input and output are printed in a monospace font.
- The following terms are printed in **bold text**:
 - AIX keywords, such as commands and file names, that must be coded as shown.
 - The names of graphical user interface (GUI) controls, such as buttons or menu items.
 - The names of computer keys, such as **ENTER**.
- Within an example of computer input, **bold monospaced text** indicates a value that either can be changed or has been changed. For example, `DEST=PRO2` indicates that you can either type `DEST=PRO2` or replace `PRO2` with a value more appropriate to your installation, for example, `DEST=CPC`.
- z/OS keywords, such as JCL statements and parameters, are printed in UPPER CASE.
- Variable data is printed in *italics*. In actual use, specific data replaces the variable. For example, `/IPW/jobs/job_id` represents `/IPW/jobs/001234`.
- A vertical bar between commands acts as a pipe. It indicates that the output from the first command becomes the input to the second command. For example, the following command sequence: `ls -l * | more` means that first the `ls` command outputs a list of files. This list then becomes the input to the `more` command, which displays the list one screen at a time.
- An arrow (`->`) means that you should select a menu item from a menu. For example, **Volume Group** `->` **Add a Volume Group** means that you should select **Add a Volume Group** from the **Volume Group** menu.
- A backslash (`\`) at the end of the line in an example means that the command continues on the next line. Type both example lines on the same command line. Do not press **ENTER** between them. Do not type the backslash. For example, these two lines:

```
db2 connect to ipwdb user ipw using \  
ipwpassword
```

mean that you should type this command:

```
db2 connect to ipwdb user ipw using ipwpassword
```

Reading syntax diagrams

Read the diagrams from left-to-right, top-to-bottom, following the main path line. Each diagram begins on the left with double arrowheads (`>>`) and ends on the right with two arrowheads facing each other (`><`). If a diagram is longer than one line, each line to be continued ends with a single arrowhead (`>`) and the next line begins with a single arrowhead.

Related information

This book provides information about InfoPrint Workflow and is provided with InfoPrint Workflow:

- *InfoPrint Workflow User's Guide*

This book provides information about the AFPIndexer and is provided with the AFPIndexer:

- *AFPIndexer User's Guide*

You can download the following books from the IBM Publications Center (Need to get URL for these...)

These books provide information about DB2:

- *DB2 UDB Administration Guide: Planning*, SC09-4822
- *DB2 UDB Administration Guide: Implementation*, SC09-4820
- *DB2 UDB Administration Guide: Performance*, SC09-4821
- *DB2 UDB Command Reference*, SC10-3725
- *DB2 UDB Message Reference: Volume 1*, GC09-4840
- *DB2 UDB Message Reference: Volume 2*, GC09-4841
- *DB2 UDB SQL Reference, Volume 1*, SC09-4844
- *DB2 UDB SQL Reference, Volume 2*, SC09-4845
- *DB2 UDB Application Development Guide: Programming Client Applications*, SC09-4826
- *DB2 UDB Application Development Guide: Programming Server Applications*, SC09-4827
- *DB2 UDB Data Movement Utilities Guide and Reference*, SC09-4830
- *DB2 UDB System Monitor Guide and Reference*, SC09-4847
- *DB2 UDB Data Recovery and High Availability Guide and Reference*, SC09-4831

The following books provide general information about JCL:

- *OS/390: MVS JCL User's Guide*, GC28-1758, explains the job control tasks that are coded in JCL.
- *OS/390: MVS JCL Reference*, GC28-1757, describes all JCL statements and parameters in detail.

These books provide information about Download for z/OS:

- *Print Services Facility for OS/390 & z/OS: Download for OS/390*, S544-5624, describes the JCL for running Download for z/OS.
- *Print Services Facility for OS/390 & z/OS: Messages and Code*, G544-5627, explains the messages and codes that Download for z/OS issues.

This book provides information about AIX commands:

- *AIX: Quick Reference*, SC23-2529

These books provide information about Infoprint Manager for AIX:

- *Infoprint Manager for AIX: Getting Started*, S544-5817

-
- *Infoprint Manager: Reference, S544-5475*

This book provides information about AFP Upload:

- *IBM Print Services Facility for AIX: AFP Upload Configuration Guide Using TCP/IP, S544-5423-01*

These books provide information about the AFP architecture:

- *Data Stream and Object Architectures: Mixed Object Document Content Architecture Reference, SC31-6802*
- *Bar Code Object Document Content Architecture Reference, S544-3766*

1. Overview of Infoprint Workflow ADF

- **Compatibility**
- **System components**
- **ADF Administrator**
- **Basic Terms**
- **z/OS data files**
- **Process overview**
- **Operational states**
- **Directory structure**

InfoPrint WorkFlow Automated Document Factory (ADF) lets you:

- Identify mailpieces
- Extract groups of mailpieces from a download job
- Segment jobs by size
- Track files, jobs, and mailpieces
- Search for job and document processing history
- Verify the production of printed materials
- Obtain job accounting records
- Monitor Service Level Agreement (SLA) performance
- Manage printers
- Manage multiple output sites
- Load balance jobs between sites
- Define new job types

This chapter:

- Provides an overview of the InfoPrint Workflow application
- Describes the primary system components of InfoPrint Workflow
- Lists, defines, and describes operational states
- Describes the z/OS data files that make up the input to InfoPrint Workflow
- Describes the AIX directory structure for InfoPrint Workflow

Compatibility

InfoPrint Workflow server complies with Internet Protocol IPv6, assuming all required components are configured for IPv6 support as documented at [System components, p. 15](#)

System components

InfoPrint Workflow and its related components run on two or more logical partitions (LPARs) spread across multiple IBM eServer pSeries AIX systems. The LPARs are an InfoPrint Workflow server and one or more print management servers. InfoPrint Workflow is a client/server system. The following list defines the primary components and their functions.

InfoPrint Workflow client

The client runs the InfoPrint Workflow interface on PCs. The PC requirements are: Microsoft Windows 7 for Workstations, configured with Java Runtime Environment (JRE) 1.6.0 and a 1024x768 resolution graphics display with at least 256 colors.

InfoPrint Workflow server

The InfoPrint Workflow server is configured with AIX 6.1, Database 2 (DB2) 9.7, and Java 1.6.0

The port location the server listens on is defined in the `~/config/ipw_java.cfg` file

Sample default definition

```
#
# The port number on which the GUI server accepts connections.
#
server.port=60610
```

Storage server

Stores the DB2 database and associated InfoPrint Workflow-operations files.

IBM DB2 database

Stores and manages the InfoPrint Workflow data. DB2 is installed on the InfoPrint Workflow server.

InfoPrint Workflow print manager

Interfaces between InfoPrint Workflow and the printers. It is installed on the print management servers. The InfoPrint Workflow print manager uses these programs:

- IBM Infoprint Manager for AIX and some of its components
- A print supervisor program, **psup**
- SAMBA, which allows an AIX server to provide file and print sharing to clients using the Server Message Block (SMB) protocol

The main components that are outside of InfoPrint Workflow but that work with it are:

IBM z/OS

Contains the z/OS data files that are downloaded to InfoPrint Workflow using Download for z/OS.

↓ Note

z/OS superseded the OS/390 operating system, which superseded MVS. The older names are still heard.

Print Services Facility (PSF) for z/OS

A program that manages and controls the input data stream and output data stream required by supported IBM page printers. PSF combines print data with other resources and printing controls to produce AFP output. Download for z/OS is a separately orderable IBM feature available with PSF for z/OS.

AFP Conversion and Indexing Facility (ACIF)

An optional program that runs on the InfoPrint Workflow server. It indexes files downloaded from z/OS and converts some of the file names to AFP format.

↓ **Note**

ACIF is available in two versions: standard ACIF and Enhanced ACIF (a superset of standard ACIF). For more information, see [Configuring ACIF use, p. 32](#).

AFPIndexer

An optional service offering that generates AFP documents with page and group tag-level elements (TLEs) from AFP files and control files.

Printers

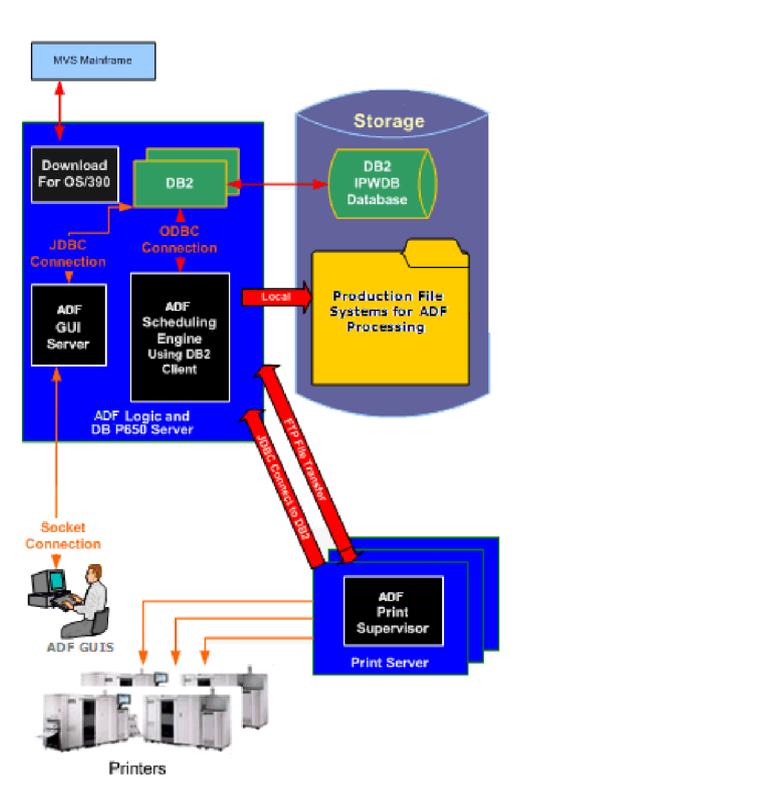
Print the jobs.

Inserters

Insert statements, checks, and other enclosures into mailpieces. Some inserters have inline mail meters.

[InfoPrint Workflow components, p. 17](#) shows how the InfoPrint Workflow components operate.

InfoPrint Workflow components



- The InfoPrint Workflow server runs InfoPrint Workflow and the DB2 database.
- The print management servers (three in this example) run **psup** and Infoprint Manager.

The InfoPrint Workflow server mounts the production file systems natively. The print management servers mount them through NFS file sharing. This means that during printing, AFP transfers data between the servers one page at a time.

ADF Administrator

The Infoprint Workflow ADF Administrator needs a general high level knowledge and access to people with specific knowledge of the following areas:

AIX and UNIX

- Editing files
- Creating users and groups
- Managing file systems and directories
- Monitoring processes
- Backing up and recovering the system

DB2

- Installing DB2 and DB2 clients
- Understanding DB2 instances
- Using DB2 Configuration Assistance, Control Center and Command Center
- Accessing databases and tables
- Understanding SQL
- Backing up and recovering the systemDB2

Networking

- Networking printers, clients, and the Infoprint Workflow ADF server
- Understanding the basics of ports
- Understanding network security
- Installing file sharing between AIX and Windows

Printers

- Understanding printer workloads and how they affect network and storage use
- Accessing printers on the network
- Defining printers and printer capabilities
- Using Infoprint Manager

Miscellaneous Skills

- Installing the JAVA Runtime Environment
- Sharing storage
- Understanding RAID storage

Basic Terms

A *job* is any unit of work that moves through the workflow process. A job can contain one or more mailpieces or documents. There are several kinds of jobs:

Download Job

A *download job* is a printable file that is received from z/OS

Extract Job

extract job is a group of mailpieces from one download job that have similar characteristics. For each download job, the types of mailpiece groups are:

Standard A set of mailpieces that is being printed (extracted) for the first time.

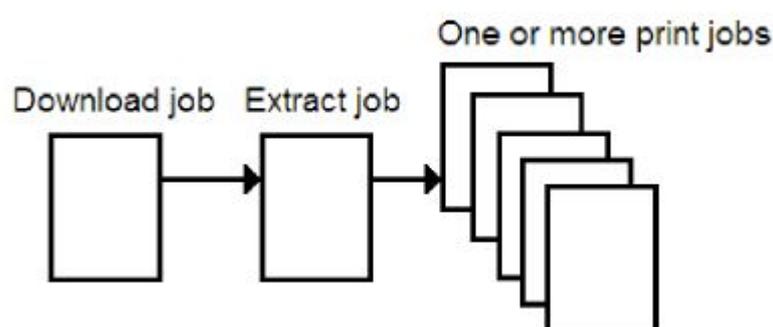
Reprint A set of mailpieces that is being reprinted to correct insertion errors or damage.

Print Job

A *print job* is a file that is submitted to a printer

The figure below shows the relationships between the different kinds of jobs.

Job Relationships



A *mailpiece, document, or package* is a collection of printed sheets that is collected, inserted, and mailed as a single unit.

When you *track* a job or a mailpiece, you monitor it as it moves through the blocks in the workflow process and you intervene as necessary until each one is completed and ready to be mailed. For example, you might need to reprint a job if the print quality is not acceptable.

The types of tracking *paths* in the workflow process are:

Job-level tracking

Files are downloaded from z/OS and printed. You check the entire job for quality. You can reprint the entire job, if necessary. The job goes through only a few blocks in the workflow process. For example, it is not indexed or extracted. A download job that is tracked at the job level is called a *job-level tracking job*.

Piece-level tracking

Files are downloaded from z/OS, indexed, extracted, printed, and inserted. You check each mailpiece for quality. You can reprint individual mailpieces, if necessary. Each mailpiece goes through all the blocks in the workflow process, except that it goes through only one insertion or sealing block.

A *job type* identifies a Download for z/OS file with characteristics about how Infoprint Workflow ADF should process the file into a job and through the workflow.

The type of sheets are:

Insertion sheet

A single piece of paper from any document that an inserter inserts into a mailing envelope. Unless explicitly stated otherwise, inserter sheet is the common unit of measure for attributes and operations that call for sheets. An inserter sheet can be printed on one side of the paper (*simplex*) or on both sides of the paper (*duplex*). A simplex inserter sheet holds one page of information. A duplex inserter sheet holds two pages of information (front and back).

Printer sheet

A single piece of paper that is either:

- The part of a roll of wide-web printer paper that the printer recognizes as a single piece of paper.
- A single piece of cut-sheet paper, such as an 8½×11 inch sheet

A printer sheet can be printed on one side of the paper (*simplex*) or on both sides of the paper (*duplex*). A printer sheet can hold one inserter sheet (*1-up*) or two inserter sheets (*2-up*).

z/OS data files

z/OS data files are downloaded to InfoPrint Workflow with the Download for z/OS program. The data files that InfoPrint Workflow receives from z/OS consist of line data, mixed-mode data, or Advanced Function Presentation (AFP) data.

Line data and mixed-mode data files can be converted to AFP data files with the optional AFP Conversion and Indexing Facility (ACIF).

When InfoPrint Workflow receives a data file, it assigns a job ID and job attributes based on the z/OS JCL parameters.

The z/OS data files are also called download jobs.

Process overview

Each site-specific view of the Summary window of the InfoPrint Workflow interface provides a high-level view of the process. Green arrows (light gray in a black and white illustration) show the path of the job-level tracking process; blue arrows (dark gray) show the path of the piece-level tracking process.

Summary window (site view)

Stages and states

Each stage in the process is illustrated in the workflow. For each stage, the Summary window displays the number of jobs in the following operational states:

Ready

The job has entered the process block, but no processing has been done. The job is in the Ready state of the first step in the process block.

Processing

The system is successfully processing the job. Operational states for processing are determined by the active process. For example, during the Print process, the job may be in one of the following operational states: Held, Pending, Queued, Scheduled, Spooling, or Printing.

Error

The job has encountered an error in processing. It is in the Error state.

For more information about the steps in each process stage, see [Steps in the workflow process, p. 153](#).

InfoPrint Workflow divides the print and delivery process into manageable stages. It tracks the units of work, called jobs, through each block. Each block comprises one or more steps. As a job passes through each step, it changes state.

The process stages in the workflow process and the general functions they manage are:

Operational stages

This workflow stage:	Manages these general functions:
Receive Print	Receives data files that were downloaded from z/OS. Identifies them as download jobs based on job type characteristics. Converts line and mixed-mode data to AFP. Classifies a download job as a job-level tracking job
Production Planning	The allocation of various resources in the joint production of similar jobs
Extract	Combines mailpieces into groups based on identical characteristics so they can be formed into print jobs. Creates print jobs for groups of mailpieces. Inserts a bar code in each print job
Print	Controls the scheduling of print jobs
Quality	Records quality information about print jobs
Manual Insertion	Tracks print jobs that have been sent for manual insertion
Machine Insertion	Tracks print jobs that have been sent to one or more inserters for inserting
Verify	Reconciles jobs and identifies any mailpieces that need to be reprinted
Dispatch	Tracks jobs that have been reconciled and are ready for sorting and mailing
Retain	Temporarily keeps all files and database information associated with download jobs and print jobs

Operational states

Each job moves through several states during the workflow process.

Not all states apply to all process stages, or to all steps within a block. In general, the main states of jobs in InfoPrint Workflow process stages are:

Job states

State	Explanation
Complete	The job has successfully complete the workflow process stage
Duplicate	The job has the same document date and job type as another download job in the system
Error	The job has an error or an interruption and cannot be processed
Hold	A user has indicated that the job should not be processed immediately, or the device is not ready to process jobs
Pending	The print job is waiting for printer assignment based on several conditions, such as the availability of a printer, the priority of the print job, and the size of the queue for a printer
Printing	The print job is currently being printed and so far has no errors or interruptions
Processing	The job is currently in a block or step and is being processed
Queued	The print job has been placed in the queue for a printer
Ready	The job is ready to be processed by the system
Scheduled	The print job is in queue for processing
Waiting	The job is waiting to be placed in queue
Working	Manual processing of the job has started
ZerolIndexed Pages	The print file has no pages that can be indexed

Directory structure

[Infoprint Workflow directory structure, p. 22](#) shows the Infoprint Workflow directory structure. The base directory for Infoprint Workflow code is the directory specified by the IPW_HomeDir system setting. By default, this is user **ipw**'s home directory (`/home/ipwd1`). The base directory for Infoprint Workflow data is the directory specified by the IPW_DataDir system setting. By default, this is `/IPW/ipwd1/IPW`).

If a system setting is shown in the first column, the directory in the second column is the default value of that system setting. If no system setting is shown, the directory is fixed. If the name of a system setting in italics appears as part of the directory name, it is replaced with the value of the system setting. For example, if the value of IPW_HomeDir is `/home/ipw`, then `IPW_HomeDir/client` resolves to `/home/ipw/client`.

Infoprint Workflow directory structure

System Setting	Directory	Contents
<i>Base directories</i>		
IPW_HomeDir	<code>/home/ipw</code>	The root path for the Infoprint Workflow code base.

System Setting	Directory	Contents
IPW_DataDir	/IPW/ipw/IPW	The file system allotted to Infoprint Workflow.
<i>Code directories</i>		
	<i>IPW_HomeDir</i> /ipwv3aix	Infoprint Workflow Version 3 server code.
	<i>IPW_HomeDir</i> /ipwv3aix/Project	Code specific to the Infoprint Workflow server.
	<i>IPW_HomeDir</i> /client	Infoprint Workflow client code. Client PCs connect to this directory over the network. System and customer documentation is stored in this directory.
	<i>IPW_HomeDir</i> /bin	Executable modules that are not part of Infoprint Workflow (Korn shell, Java, Perl, C, and so on). This includes modules called from Infoprint Workflow scripts as well as stand-alone modules, for example, ipw_start and ipw_stop .
	<i>IPW_HomeDir</i> /build	Scripts and DB2 files for building and initializing the database, client, and server.
	<i>IPW_HomeDir</i> /psup	Code specific to the print supervisor.
	<i>IPW_HomeDir</i> /utilities	Utilities, for example, submit_test_job .
<i>Data directories</i>		
	<i>IPW_DataDir</i> /job/ job_id	All files associated with a given job are stored in the <i>job_id</i> subdirectory, where <i>job_id</i> is the six-digit job ID (from 100000 to 999999).
IPW_DownloadDir	<i>IPW_DataDir</i> /download	Files downloaded from z/OS.
DB_DataDir	IPW/ipw/db2	DB2 data files.
<i>Log directories</i>		
IPW_LogsDir	<i>IPW_HomeDir</i> /logs	Infoprint Workflow log files.
DB_LogDir	<i>IPW_DataDir</i> /db2_ logs	DB2 logs for DB2 transaction control and recovery.

2. Installation and updates

- Installing AFPIndexer
- Updating InfoPrint Workflow

Installing AFPIndexer

The AFPIndexer is an optional feature of InfoPrint Workflow that generates AFP documents with page-level and group-level Tag Logical Elements (TLEs) from AFP files and control files. You use it when you create new job types.

To install or update the AFPIndexer:

1. Download the AFPIndexer to a Windows workstation. The AFPIndexer file is called `AFPIndexer_vxxx_WIN32.ZIP`, where `xxx` is the version number. As of August 2006, the current version number is 042.
 1. Enter the following command: `ftp IP_address` where `IP_address` is the Internet Protocol (IP) address of the AIX system from which you want to download the AFPIndexer.
 2. When prompted for a user ID, log in as user **ipw** with the password `password`
 3. Set the mode to binary: `binary`
 4. Change to the source directory on the host system: `cd build/server/src`
 5. Display all versions of the file: `dir AFPIndexer_v*_WIN32.ZIP` You will see a listing of file names with a three-digit number in place of the asterisk. The highest number indicates the most recent version of AFPIndexer.
 6. Enter the following command: `get AFPIndexer_vxxx_WIN32.ZIP` where `xxx` is the version number.
 7. When the `AFPIndexer_vxxx_WIN32.ZIP` file is completely downloaded, enter the following command: `quit`
2. Unzip `AFPIndexer_vxxx_WIN32.ZIP` to the directory where you want to install the AFPIndexer. Preserve the directory structure of the files.
3. Optionally, create a shortcut to `BuILDICT.exe` on your desktop.
4. To start the program, double-click either of these:
 - The icon for `BuILDICT.exe` in Windows Explorer
 - The shortcut to `BuILDICT.exe` that you created on your desktop.

Updating InfoPrint Workflow

The process for applying updates to InfoPrint Workflow depends on the element being updated and the nature of the update. Read the associated readme file before you start to apply an update. Follow the instructions in that file.

Keep in mind:

- Before you update InfoPrint Workflow, quiesce the system and flush all active work. All jobs do not have to be completed, but they should be in ready states rather than processing states.
- **psup** is installed locally on each print management server, so you must apply updates to **psup** as many times as you have print management servers, once on each server.

- When you update the InfoPrint Workflow server, the client code may require a synchronous update. This means that when you update the server on the production LPARs, you may need to update the client code which resides on the server, and that all clients may need to relaunch the application.

Site-specific instructions may be provided in your build documentation.

3. Download configuration

- JCL requirements for downloading jobs
- Configuring Download for z/OS
- Configuring ACIF use

JCL requirements for downloading jobs

To process jobs, InfoPrint Workflow depends on an IBM program that runs on z/OS (sometimes called by the names of its predecessors, MVS and OS/390). This program, Download for z/OS, transmits the data files and the Job Control Language (JCL) for a job from z/OS to the InfoPrint Workflow server on an AIX system.

InfoPrint Workflow uses options from Download for z/OS setup and the downloaded JCL parameters to determine how to process the data. For example, the owning site and the type of data can be determined from the Download for z/OS destination. You can also use the JobType_JCLParms system setting to specify up to four JCL parameters that determine the InfoPrint Workflow job type that is used for the job. For more information, see [Assigning job types, p. 74](#).

InfoPrint Workflow also uses an IBM program that runs on the InfoPrint Workflow AIX server to convert non-Advanced Function Presentation (AFP) jobs to AFP. This program, AFP Conversion and Indexing Facility (ACIF), converts files from line-mode or mixed-mode data format to Mixed Object Document Content Architecture Presentation (MO:DCA-P), an AFP data stream. To convert the files, ACIF uses parameters that can be transmitted in a job's JCL during the Download process.

Note

ACIF is available in two versions, standard ACIF and Enhanced ACIF, which is a superset of standard ACIF. For more information, see [Configuring ACIF use, p. 32](#).

InfoPrint Workflow uses the IBM AFPInder program to group individual documents within an AFP file and to create Tag Logical Elements (TLEs), for example, the account number for each document.

This chapter describes the JCL statements and parameters required to run Download for z/OS and ACIF with jobs in InfoPrint Workflow.

Specifying InfoPrint Workflow destinations

In order for Download for z/OS to route jobs to InfoPrint Workflow, you must modify the JCL to specify an InfoPrint Workflow destination.

To specify an InfoPrint Workflow destination:

1. Select an InfoPrint Workflow destination from [Infoprint Workflow destinations, p. 27](#):

Infoprint Workflow destinations

Destination (z/OS routing code)	Download port (z/OS and AIX)	Files	Site
AFP1	56000	AFP print files	1
AFP2	56002	AFP print files	2

Destination (z/OS routing code)	Download port (z/OS and AIX)	Files	Site
ST1	56004	Non-AFP line-data or mixed-mode data print files	1
ST2	56006	Non-AFP line-data or mixed-mode data print files	2

Note

The port numbers shown are defaults. You can use different port numbers, but they must match the port numbers specified as values of the IPW_DownloadPorts system settings.

Different destinations are necessary to specify the SEND_REC_LENGTH parameter correctly in the routing-control data set for each printer defined to Download for z/OS.

- On the JCL OUTPUT statement, specify the destination in the DEST parameter and any parameters that are used to determine the InfoPrint Workflow job type, for example:
//PRINT OUTPUT CLASS=P,DEST=DFW,PAGEDEF=2573

Note

Download processing prefixes **P1** to the value of the PAGEDEF parameter.

- Modify the DD statement that specifies the SYSOUT parameter so that it refers to the OUTPUT statement that specifies the InfoPrint Workflow destination, for example:
//SYSUT2 DD SYSOUT=(,),OUTPUT=(*.PRINT)

An example of the JCL with both the OUTPUT statement and the SYSOUT DD statement is:

```
//PRINT OUTPUT CLASS=P,DEST=C370,PAGEDEF=2567
//SYSUT2 DD SYSOUT=(, ),OUTPUT=(*.PRINT)
```

Specifying ACIF job parameters

When non-AFP data is downloaded to AIX, InfoPrint Workflow needs certain parameters to be specified for ACIF to convert the files to AFP. You can specify these parameters in the JCL or, in some cases, as job type attributes.

Parameters that you can specify include the following:

Page definition name

Specify the PAGEDEF= or FCB= parameter on the JCL OUTPUT statement or the job type attribute Job.PageDef. If you specify both, the values should match. If they do not match, the JCL parameters override the Job.PageDef attribute.

Form definition name

Specify the FORMDEF= parameter on the JCL OUTPUT statement or the job type attribute Job.FormDef. If you specify both, the values should match. If they do not match, the FORMDEF parameter overrides the Job.FormDef attribute.

Font list

Specify a font list in the page definition or the CHARS= parameter on the JCL OUTPUT statement. If you specify both, the page definition overrides the CHARS parameter.

Table reference character

Specify the TRC= parameter on the JCL OUTPUT statement. The InfoPrint Workflow default is TRC=NO.

Carriage control

Specify the DCB=RECFM= parameter on the JCL DD statement:

A

ANSI carriage controls exist. This is the InfoPrint Workflow default.

M

Machine carriage controls exist.

Additional parameters

Specify additional parameters in either of these ways:

- On the job type attribute RunACIF.Parm.DD.*acifparm*, where *acifparm* is the name of the ACIF parameter.
- In an ACIF control file specified by the job attribute Job.ACIFControlFile. This control file must be in the directory specified by the ControlParm.PathName system setting. To change system settings, see [Working with system settings, p. 36](#).

For example, the following JCL specifies the TRC, CHARS, and PAGEDEF parameters:

```
/* BCBSTX FLAT MATCH PCS
//AFPDS OUTPUT CLASS=M,DEST=C370,TRC=YES,
//          CHARS=(GT10,GT12,GT15,GT20),
//          PAGEDEF=5226M
```

Configuring Download for z/OS

This chapter contains the JES initialization statements, startup procedures, and routing-control data sets that you must code to configure Download for z/OS to work with InfoPrint Workflow.

Follow the instructions for configuring Download for z/OS in *Print Services Facility for OS/390 & z/OS: Download for OS/390*. Substitute the code in this chapter for the examples in those instructions.

This chapter also describes the changes that printer operators can make to this configuration.

Download for z/OS printers

Download for z/OS runs as at least one JES functional subsystem (FSS). Within each Download for z/OS FSS, a functional subsystem application (FSA) receives jobs from the JES spool, assigns default printing options, and routes the jobs to an output destination—in this case, an InfoPrint Workflow server. Because a Download for z/OS FSS looks like a printer driver FSS to the JES spool, a Download for z/OS FSS is called a *printer*. For each printer, you must code:

- An FSS definition

- An FSA definition (also called a JES printer definition)
- A startup procedure (also called a printer procedure)
- A routing-control data set

[Infoprint Workflow ADF destinations, p. 30](#) lists the destinations associated with the printers that you must define to process print files. You can specify the printer names according to your own conventions. The ports and destination names are used by InfoPrint Workflow and should remain as specified.

Infoprint Workflow ADF destinations

Destination (z/OS routing code)	Download port (z/OS and AIX)	Files	Site
AFP1	56000	AFP print files	1
AFP2	56002	AFP print files	2
ST1	56004	Non-AFP line-data or mixed-mode data print files	1
ST2	56006	Non-AFP line-data or mixed-mode data print files	2

Note

The port numbers shown are defaults. You can use different port numbers, but they must match the port numbers specified as values of the IPW_DownloadPorts system settings.

PRTnnnn: Print files

This section shows sample JCL for setting up printers.

Keep in mind:

- Items in *italics* are variables. You must replace them with the appropriate values for your installation.
- Items in **bold** are possible values for variables. You may copy them or replace them, as appropriate.

FSS definition

```
FSSDEF(FSS56000) PROC=PSF 56000 /* AFP print files*/
```

FSA definition (JES printer definition)

```

/*****                               /* AFP print files
PRT(nnnn) FSS=FSS56000,           /*
      MODE=FSS,                       /*
      ROUTECDE=(AFP1),                 /* ROUTE CODES TO SELECT
      CLASS=(P,R),                     /* APPLICABLE SYSOUT CLASSES
      LIMIT=(0,*),                   /* NO LIMIT, SMALL OR LARGE JOBS
*/
*/
*/
*/
*/
*/

```

```

CKPTMODE=SEC,          /* */
CKPTSEC=30,           /* */
PRESELCT=NO,          /* SELECT ONLY 1 JOB AT A TIME */
START=NO,             /* AUTOMATICALLY START THE PRINTER? */
PRMODE=(LINE ),      /* */
WS=(R/),             /* SELECT ON ROUTECDE */
TRKCELL=YES,         /* */
UCS=0                 /* */

```

Startup procedure (printer procedure)

```

//PSF56000 PROC
/* AFP print files
//IPW56000 EXEC PGM=APSKAFPD,REGION=5M,TIME=NOLIMIT
//ROUTFILE DD DSN=route_file_name,DISP=SHR
//SYSUDUMP DD SYSOUT=X
//PRT56000 CNTL
//PRT56000 PRINTDEV TRACE=NO /* CREATE INTERNAL TRACE ENTRIES */
//PRT56000 ENDCNTL
/*

```

Routing-control data set

```

/***** AFP print files *****/
DEST=AFP1,
SEND_REC_LENGTH=YES,
IPADDR=nnn.nnn.nnn.nnn, /* IPW ADF AIX IPWLPAR IP address */
PORTNUM=56000 ,
RETRYNUM=5,
RETRYINTV=30;

```

Download printer job selection

After the configuration of Download for z/OS is complete, it is best not to change it. When possible, printer operators should change the job class and destination to match the FSA definition for the printer, rather than changing the printer to match the job. If necessary, however, operators can change the values of the following parameters of the PRT(*nnnn*) statement in the FSA definition for any printer:

- The CLASS parameter specifies the output classes that this printer processes.
- The ROUTECDE parameter specifies the destinations that this printer processes.

Warning: The ROUTECDE value must match the DEST value in the routing-control data set. Because only system administrators can change the routing-control data set, operators should not change the ROUTECDE parameter unless a system administrator makes the corresponding change.

- The WS parameter specifies the work selection criteria for each printer. The initial value, WS=(R/), indicates that the printer selects data sets with the destination specified by the ROUTECDE parameter.

It is not possible to change the START=NO parameter, which specifies that the printer should not start automatically at JES initialization. However, operators can start and stop printers as necessary to control the flow of jobs to InfoPrint Workflow.

Configuring ACIF use

InfoPrint Workflow can use either of two versions of ACIF: standard ACIF or Enhanced ACIF, which is a superset of standard ACIF.

In choosing which version to use, consider these points:

- By default, InfoPrint Workflow uses Enhanced ACIF.
 - If you use DB2 Content Manager OnDemand (CMOD) for Multiplatforms, InfoPrint Workflow must use Enhanced ACIF.
 - Infoprint Manager for AIX includes the standard version of ACIF. It also supports Enhanced ACIF.
 - If InfoPrint Workflow and Infoprint Manager use different versions of ACIF, a copy of a job submitted directly to Infoprint Manager may be slightly different than a copy of the same job processed by InfoPrint Workflow. Therefore, you may want to change the version used by one of these programs.
1. Determine the version of ACIF that InfoPrint Workflow uses.
 1. Log on to AIX as the user that owns the instance of InfoPrint Workflow.
 2. From the command line, enter this command:`arsacif -h`
If the response is `acif`, InfoPrint Workflow uses standard ACIF. If it is `arsacif`, it uses Enhanced ACIF.
 2. To change the version of ACIF that InfoPrint Workflow uses, set the value of the system setting **ACIF_Executable** to **acif** for ACIF or **arsacif** for Enhanced ACIF. For instructions, see [Working with system settings, p. 36](#).
 3. To configure Infoprint Manager to use Enhanced ACIF:
 1. Locate the standard ACIF module. It is usually in the `/usr/lpp/psf/bin` directory, but your system may vary.`whence acif`
 2. Change to the directory where the standard module is located.
 3. Rename the standard ACIF module:`mv acif save_acif`
 4. Locate the Enhanced ACIF module. One place where it may be is the `/home/ipw/bin` directory; but again, your system may vary.`whence arsacif`
 5. Create a link to the enhanced ACIF module:`ln -s /home/ipw/bin/arsacif acif`

4. Configuring the InfoPrint Workflow ADF system

- Starting and stopping InfoPrint Workflow
- Working with system settings
- GUI Server Configuration
- PSUP Server Configuration
- Managing SLA holidays
- Viewing administrative information

Starting and stopping InfoPrint Workflow

This chapter describes the commands used to start and stop these applications:

- DB2
- InfoPrint Workflow Java GUI server
- InfoPrint Workflow **RunSteps** (part of the InfoPrint Workflow server)
- Download for z/OS
- Simple Network Management Protocol (SNMP) Device Monitor
- The print supervisor (**psup**)

These commands are Korn shell scripts that reside in the `~ipw/bin` directory. You must have **root** authority to issue these commands.

ipw_start command

Use the **ipw_start** command to start InfoPrint Workflow and related applications.

Syntax

```
ipw_start -f -g -i -m -n -P -p server1:server2:... -u-s
```

Flags

-f

Start SFTP Poller

-g

Start the GUI server.

-i

Start IPW RunSteps.

-m

Start Download for OS/390..

-P

Start local PSUP

-pservername

Starts **psup** on the specified servers. Separate server names with colons.

-u

Start USPS PostalOne! poller (PostalOneStatusReceiptManager)

-s

Starts the SNMP Device Monitor.

If you do not specify at least one flag, **ipw_start** automatically starts the GUI server, Runsteps, PSUP and PostalOne

IPW_START_OPTIONS environment variable

Use the **IPW_START_OPTIONS** environment variable in the .profile file to specify which parameters automatically are included with ipw_start or ipw_stop commands. The syntax is:

```
export IPW_START_OPTIONS="-giP"
```

Operations

Applications are started in this order:

1. DB2
2. Report table replication
3. InfoPrint Workflow Java GUI server
4. InfoPrint Workflow **RunSteps**
5. Download for z/OS
6. SNMP Device Monitor
7. **psup**

Return codes**0**

The command completed successfully.

1

Some modules were not started because they were already active.

>1

A fatal error occurred.

ipw_stop command

Use the **ipw_stop** command to stop InfoPrint Workflow and related applications.

Syntax

```
ipw_stop -f -g -h -i -m -p server1:server2:... -s -P-u
```

Flags

-f

Stop SFTP poller

-g

Stop GUI server

-h

Print this message and exit.

-i

Stop IPW (RunSteps).

-m

Stop Download for OS/390.

-pserver1:server2:...

Stops **psup** on the specified servers. Separate server names with colons.

-s

Stop SNMP Device Monitor.

-P

Stop local PSUP.

-u

Stop USPS PostalOne! poller (PostalOneStatusReceiptManager).

If you do not specify at least one flag, **ipw_stop** will stop the RunSteps, GUI server, PSUP and USPS PostalOne processes.

Operations

Applications are stopped in this order:

1. InfoPrint Workflow **RunSteps**
2. InfoPrint Workflow Java GUI server
3. Download for z/OS
4. SNMP Device Monitor
5. **psup**
6. Report table replication
7. DB2

Return codes

0

The command completed successfully.

1

Some modules did not stop in a reasonable amount of time.

>1

A fatal error occurred.

Working with system settings

System settings control some of the Automated Document Factory InfoPrint Workflow features, functions, and operations. Upon installation, the system designates read-only status for selected system settings. Although an Administrator may change other system settings, it is important for you to understand how those changes impact operations. Once the initial configuration value (default value) is modified, there is no way to restore the setting.

Most system settings are preset to appropriate values, but you may want to change the following system settings:

ACIF_Executable

The version of ACIF that you want to run. Specify **acif** to invoke ACIF or **arsacif** to invoke Enhanced ACIF.



For help in choosing between ACIF and Enhanced ACIF, see [Configuring ACIF use, p. 32](#).

AFPResourceDir

The directory where AFP resources are stored.

ControlParm.PathName

The base path for files referenced by the **control_parm_value** field in the **ipw.control_parms** table. Among these files are the ACIF control file and the AFPindexer control file.

DefaultMaxSheetCount

Specifies a default maximum sheet count per print job.

DefaultPassword

The reset value for client interface user passwords.

IPW_DownloadPorts

Paired list of Download ports and corresponding behavior options. Update this only after stopping InfoPrint Workflow using the **ipw_stop -m** command. Separate pair values using a space (for example, 8001:AFP 8002:NON_AFP).

IPW_StatisticsRetainDays

The number of days that Service Level Agreement (SLA), job, and print statistics files are retained.

JobLevelTracking.Dispatch.AutoJobLevelTracking.ManualInsert.Auto JobLevelTracking.Quality.AutoJobLevelTracking.Verify.Auto

Specifies if the system automatically moves jobs in these steps to the Working state. If not, the corresponding steps in the job-level tracking process require user intervention.

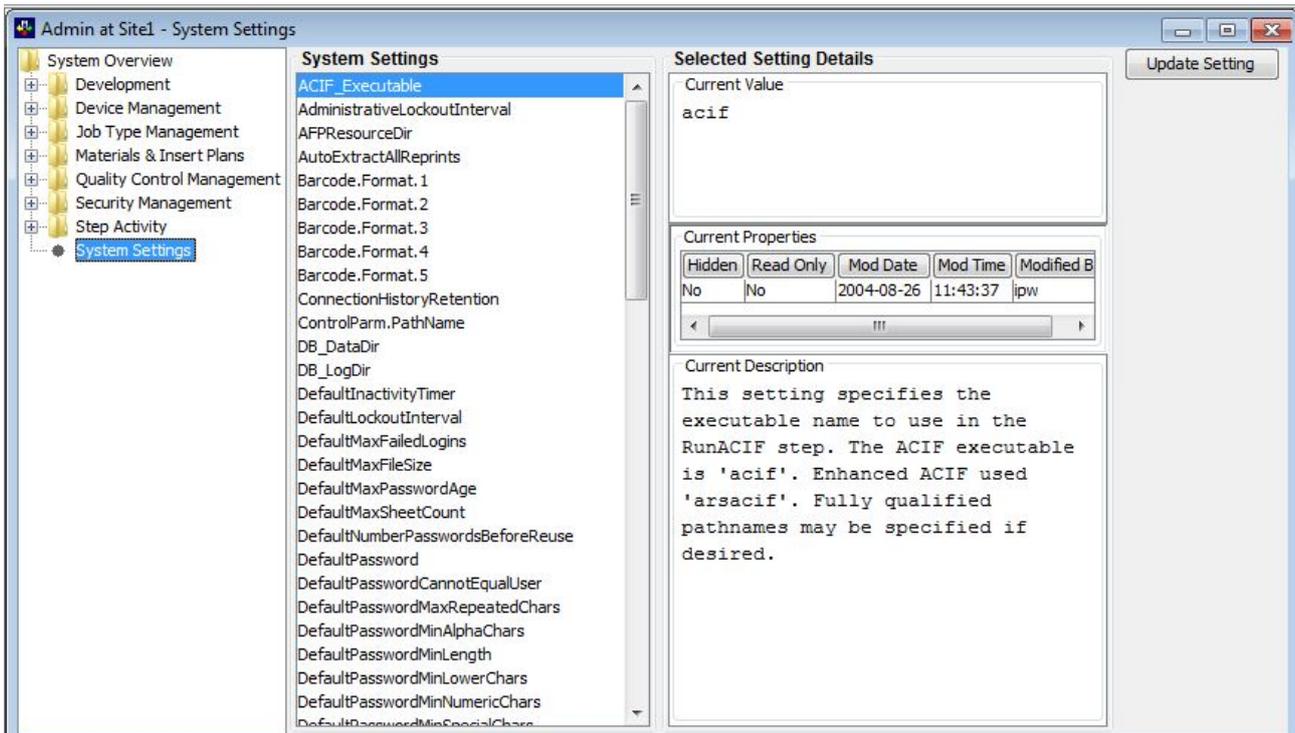
PieceLevelTracking.Dispatch.AutoPieceLevelTracking.FileControlledInsert.Auto PieceLevelTracking.ManualInsert.AutoPieceLevelTracking.Quality.Auto PieceLevelTracking.Verify.Auto

Specifies if the system automatically moves jobs in these steps to the Working state. If not, the corresponding steps in the piece-level tracking process require user intervention.

To modify a system setting:

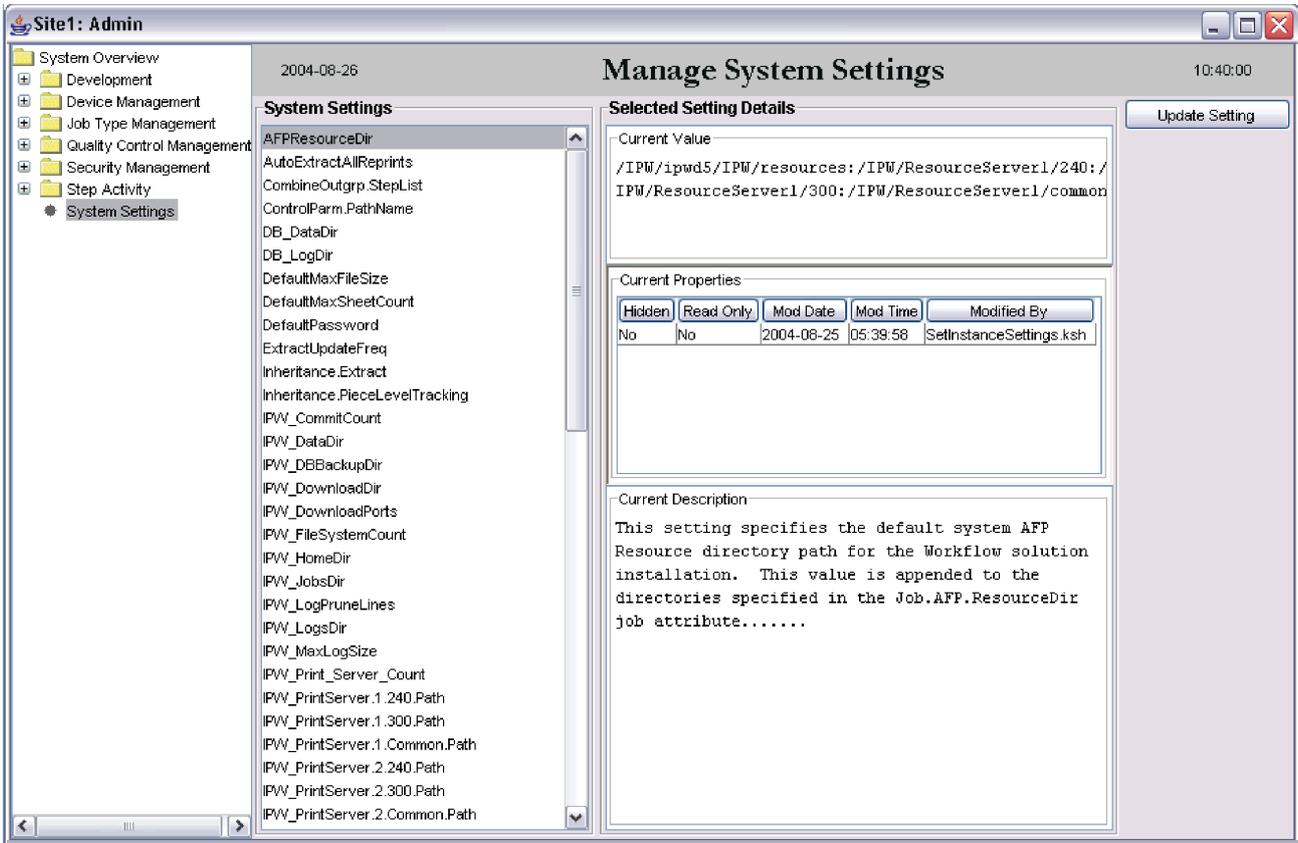
1. From System Actions in any view of the main window, click **Administration**. You see the Administration window.

Administration window



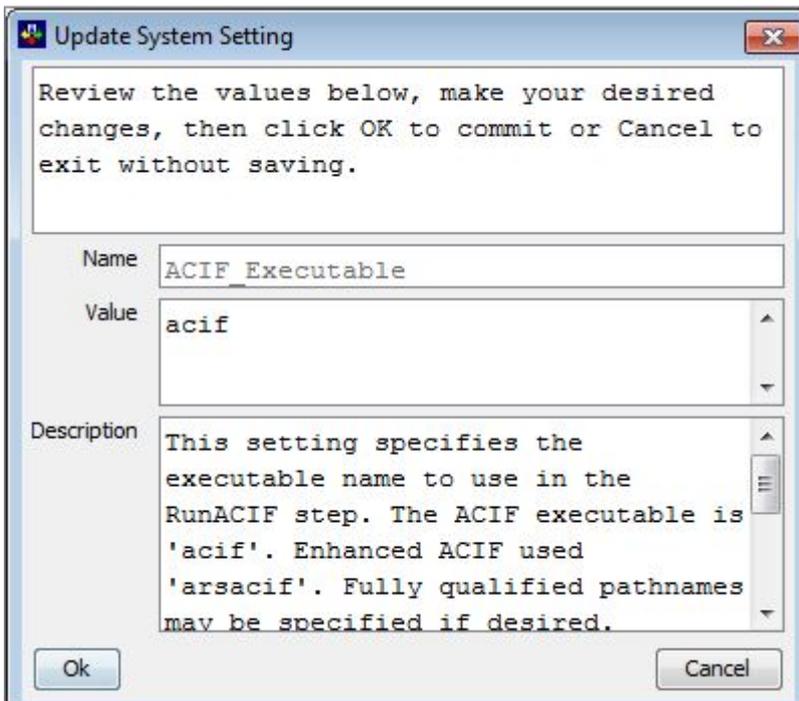
2. From the System Overview menu, select **System Settings**. You see the System Settings window.

System Settings window



- From the System Settings list, select the system setting you want to modify.
You cannot update read-only settings (the **Read-Only** column in Current Properties is set to **Yes**).
- Click **Update Setting**. You see the Update System Setting window:

Update System Setting window



5. In these fields, type the changes you want to make:

Value

The value of the system setting.

Description

The description of the system setting.

6. Click **OK**. You see the Manage System Settings window with the changed system setting.

GUI Server Configuration

This section describes the fields used to define the setup for the GUI server..

The configuration file is defined in the `~/config/ipw_java.cfg` file

The fields in the GUI server configuration are:

GUI server configuration file settings

Field	Default value	Description
server.port	55555	The port number on which the GUI server accepts connections. Set to an available port.
server.name		Indicates the server name or other text to show (e.g. instance ID) in the lower left status box in the GUI.

Field	Default value	Description
server.highlight	#c0c0ff	Indicates the color of the lower left status box in the GUI.
com.ibm.aiw.client.base.ListQueryRequest	com.ibm.aiw.server.support.ListQueryServer	Client to Server class mappings
com.ibm.aiw.client.base.TableQueryRequest	com.ibm.aiw.server.support.TableQueryServer	Client to Server class mappings
com.ibm.aiw.client.base.ValueQueryRequest	com.ibm.aiw.server.support.ValueQueryServer	Client to Server class mappings
database.name	ipwdb	The DB2 client database alias
database.userid		Set to the database user ID. When not defined will try to connect with the current userid
database.password		The password for the userid above.
database.connections	4	The number of allowed connections to the database
log.directory	.	Path for server log, error log, and trace log.
log.managed_externally	false	Defines if the log is managed externally by the admin.
log.normal.name	ipwServer.log	The name of the log
log.normal.size	409600	Defines the maximum log size
log.normal.count	2	
log.error.name	ipwServer.error.log	The name of the error log
log.error.size	102400	Defines the maximum error log size
log.error.count	2	
log.trace.name	ipwServer.error.log	The name of the trace log
log.trace.size	102400	Defines the maximum trace log size
log.trace.count	2	
query.path		If not defined no query files are loaded
query.extension	.qry	Defines the query file extension
query.directory	.	Defines the query directory

Field	Default value	Description
query.refresh	-1 (no refresh)	Defines how often to check for changes to the query files and reload them.
server.enable.ssl	OFF	When 'ON' the keystore must exist at \$HOME/templates/mylpwKeystore.jks
trace.database.selects	ON	Defines if tracing is turned on for the database
trace.database.updates	ON	
trace.database.inserts	ON	
trace.database.deletes	ON	
trace.communication.level	1	Communication tracing 0=off, 1=requests, 2=request messages
user.validation		Used to override the default validation class
user.2.validation		Used to override the default validation class for dual login

PSUP Server Configuration

This section describes the fields used to define the setup for the PSUP server.

The configuration file is defined in the `~/config/snmp.conf` file

The fields in the PSUP server configuration are:

GUI server configuration file settings

Field	Default value	Description
database.name	ipwdb	The DB2 client database alias
database.userid		Set to the database user ID. When not defined will try to connect with the current userid
database.password		The password for the userid above.
database.connections	4	The number of allowed connections to the database
log.directory	.	Path for database log files
log.managed_externally	FALSE	Log management: TRUE - another program will manage logs, size and count are

Field	Default value	Description
		ignored. FALSE - manage logs. size and count are honored. This is the default value.
port.command	50751	Defines the port to listen for shutdown commands
port.services	50851	Defines the port to initialize SNMP services
standard_log.name	log.txt	Name of the log file
standard_log.size	409600	Defines the log maximum size
standard_log.count	2	
error_log.name	error.txt	Defines the error log name
error_log.size	102400	Defines the maximum error log size
error_log.count	2	
trace_log.name	trace.txt	The name of the trace log
trace_log.size	409600	Defines the maximum trace log size
trace_log.count	2	
printer_log.size	100000	Defines the maximum printer log size
printer_log.count	1	
printer_poll_interval	30	Printer poll interval is defined in seconds
database_ssync_poll	1	Database poll interval is defined in minutes
stop.file	stop.stop	
message.retention	7.	Device message retention period in days
manage_segments.enabled	TRUE	Default = TRUE
manage_segments.poll	8	Poll interval is defined in minutes
manage_segments.include_aged_seglists	TRUE	Default = TRUE
manage_segments.seglist_age_limit	336	Age limit period in days

Managing SLA holidays

The SLA type category includes common types such as daily, default, none and test. Additional types may include types to adjust for three-day weekends, common Holidays, and Corporate Holidays. In some instances, job types may be used to define working weekends, where jobs are processed but not received.

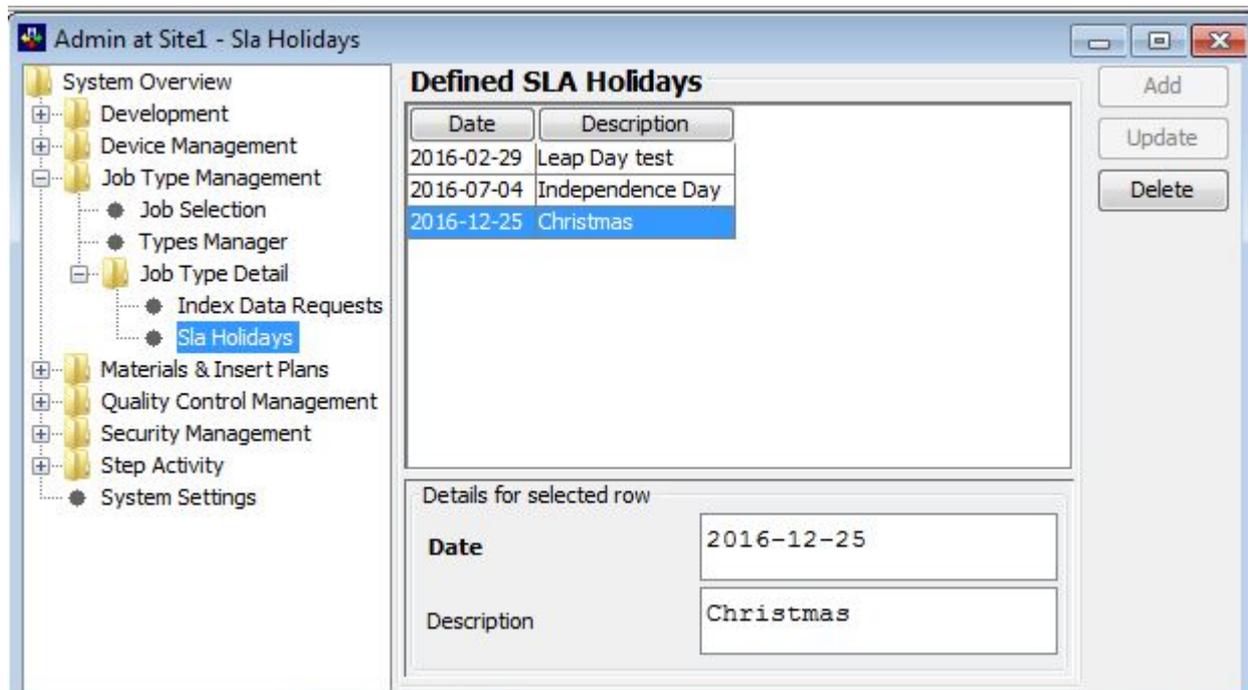
↓ Note

SLA types are system settings that are the same for jobs of all types.

To manage holidays, you use the SLA Type Management window. To access this window:

1. From System Actions in any view of the main window, click **Administration**. You see the System Overview window ([System Overview window, p. 45](#)).
2. Select **Job Type Management** → **Job Type Detail** → **Sla Holidays** from the System Overview menu.

Manage SLA Holidays window



Adding SLA holidays

To add an SLA holiday:

1. Open the Manage SLA Holidays window ([Manage SLA Holidays window, p. 43](#)).
2. In Details for Selected Row, type values in the following fields:

Date

The date of the new holiday in the format *yyyy-mm-dd*, for example, 2015-07-05 for July 5, 2015.

Description

The name of the new holiday.

When you enter a value in either of these fields, the **Add** button is activated.

3. Click **Add**. You see the SLA Type Management window with the new holiday.

Changing SLA holidays

To change an SLA holiday:

1. Open the Manage SLA Holidays window ([Manage SLA Holidays window, p. 43](#)).
2. In Defined SLA Holidays, select the holiday that you want to change.
3. Make your changes In Details for Selected Row.
The **Update** button is activated.
4. Click **Update**.
You see the Manage SLA Holidays window with the changed holiday.

Deleting SLA holidays

To delete an SLA holiday:

1. Open the Manage SLA Holidays window ([Manage SLA Holidays window, p. 43](#)).
2. In Defined SLA Holidays, select the holiday that you want to delete.
3. Click **Delete**.
You see the Manage SLA Holidays window with the holiday deleted.

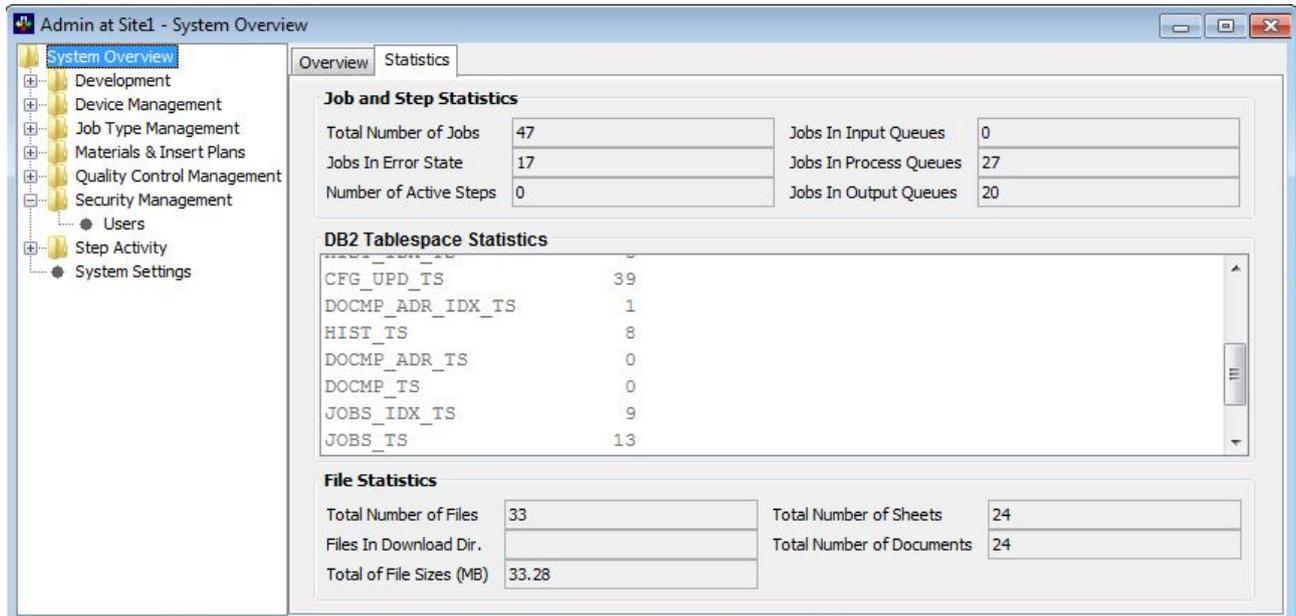
Viewing administrative information

This chapter explains how to work with the following administrative information:

- Overview statistics for jobs, steps, and files
- Active steps
- Step history

To view administrative information, you use the Admin windows. To access these windows, click **Administration** from any view of the Summary window. You see the System Overview window, which contains a tree that allows you to open other Admin windows.

System Overview window



Viewing overview statistics for jobs, steps, and files

You view overview statistics when you want to see statistical information about the workflow process and the jobs in it.

To view overview statistics for jobs, steps, and files:

- From any view of the main window, click **Administration**. The Admin window that opens is the System Overview window ([System Overview window, p. 45](#)).
- From any Administration window, select **System Overview** from the list and then select the Statistics tab.

The fields in the System Overview window are:

Total Number of Jobs	The total number of jobs that are currently in the workflow system.
Jobs in Error State	The number of jobs in the Error state.
Number of Active Steps	The number of steps that are currently processing.
Jobs in Input Queues	The number of jobs that are ready to be processed in a step. This field is for use by technical support.
Jobs in Process Queues	The number of jobs that are currently being processed.
Jobs in Output Queues	The number of jobs that are scheduled for output in a step. This field is for use by technical support.

DB2 Table Space Statistics	For each database managed space, lists each DB2 table space and the percentage used.
Total Number of Files	The total number of <i>File.Count</i> files that are currently in the workflow process.
Files in Download Dir.	The number of files that are currently in the download directory. Some of these files may be error jobs that could not be successfully submitted after downloading.
Total of File Sizes (MB)	The total size, in megabytes, of all the <i>File.Bytes</i> files that are currently in the workflow process.
Total Number of Sheets	The total number of sheets in all the files that are currently in the workflow process.
Total Number of Documents	The total number of documents in all the files that are currently in the workflow process. A summary <i>xx?xx</i> in the <i>Job.TotalDocs</i> attribute.

Viewing active steps

You view the active steps when you want to see the steps that are currently active and running in the workflow process.

To view the active steps:

1. From any view of the main window, click **Administration**.
2. From the tree at the left, select **Step Activity** → **Active Steps**.
You see the Active Steps window:

Active Steps window

Node Name	Step Number	Step Name	Process Id	Start Time
ipw6e46	9459127	ExportDocInfo	1724510	2016-02-25 10:06:47.31927

The fields in the Active Steps window are:

Node Name	The node where the step was processed.
Step Number	The sequence number of the step.
Step Name	The name of the step in the workflow process.

Process ID	The process number by which the operating system identifies the step.
Start Time	The time the step started.

Viewing step history

When you want to diagnose problems, you view the step history, which lists steps that have run in the workflow process with a non-zero return code.

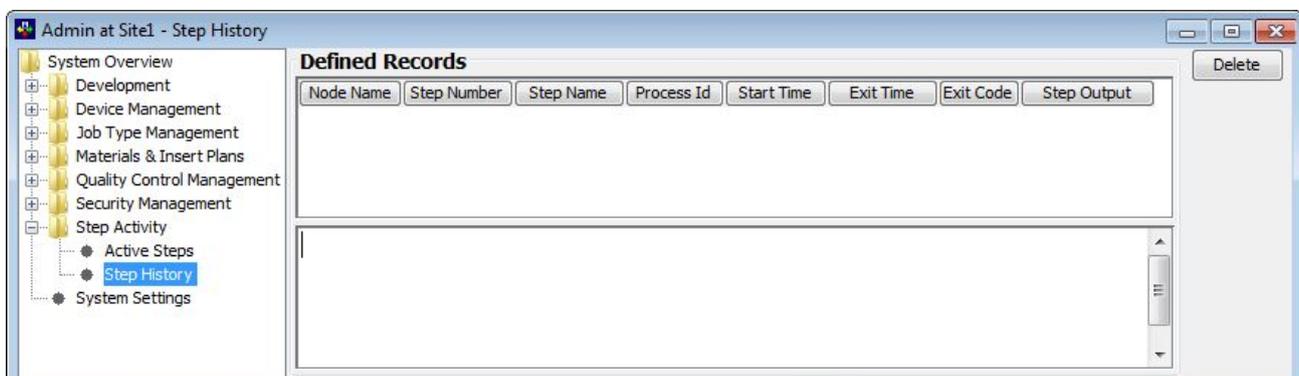
Note

- To use the step history information to help you diagnose problems, you must have a detailed understanding of InfoPrint Workflow processing.
- The step history stores only recent steps. For older information, or for more details, refer to the InfoPrint Workflow log files stored in the directory specified in the system setting, *IPW_LogsDir* and also in a subdirectory of the directory defined in the system setting, *IPW_JobsDir*.

To view the step history:

- From any view of the main window, click **Administration**.
- From the tree at the left, select **Step Activity** → **Step History**.
You see the View Step History window:

View Step History window



The fields in the View Step History window are:

Node Name	The node where the step was processed.
Step Number	The sequence number of the step.
Step Name	The name of the step in the workflow process.
Process ID	The process number by which the operating system identifies the step.
Start Time	The time the step started.
Exit Time	The time the step ended.

Exit Code	A code indicating the status of the step when it ended.
Step Output	The full text of output from the step. To view this entire field, scroll to the right.

5. Managing devices

- Managing printers
- Managing forms

Managing printers

This chapter explains how to:

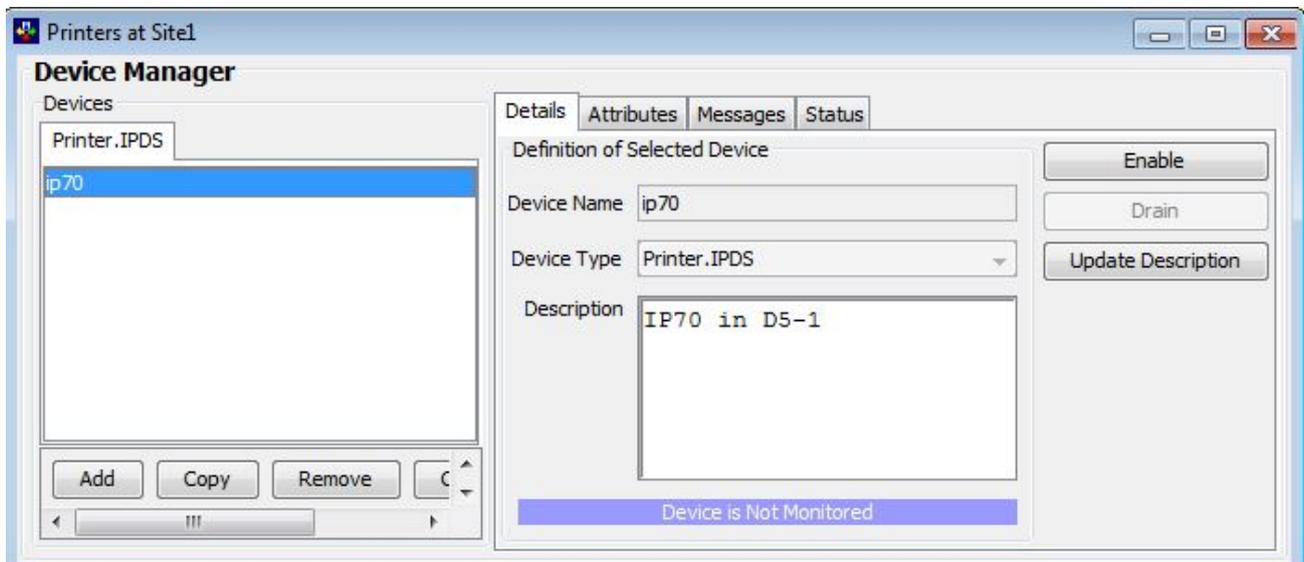
- Add, copy, and delete printers
- Configure a duplex printer as two simplex printers
- Enable and disable printers
- View and change device details
- View and change printer attributes
- View printer messages
- View printer status and history
- Switch printers between z/OS and InfoPrint Workflow

To do the tasks in this chapter, you use the Device Manager window. To open this window, use either of these methods:

- From System Actions in any view of the main window, click **Printers**.
- From the System Overview menu, select **Device Management** → **Devices**.

The Device Manager window contains a tabbed list of devices and a second set of tabs:

Device Manager window



Adding IPDS printers

To add a new Intelligent Printer Data Stream (IPDS) printer that you want to use with InfoPrint Workflow:

1. From the Device Manager window, select **Add**.
You see the Add Device window:

Add Device window (Printer.IPDS view)

2. Type a value in the **Device Name** field. For auxiliary printers, this field must match the queue name that the AIX administrator set up. This name must begin with a letter; assigning a numeric value as the first character renders the assigned name inoperable.
3. In the Device Type field, select **Printer.IPDS**.
4. Type or select values in these fields:

Description

A description of the IPDS printer.

Server Name

The host name of the print server.

Printer Port

The port number of the printer. Use one of these:

5001

For duplex

5001

For dual simplex engine 1

5002

For dual simplex engine 2

Printer IP Address

The Internet Protocol (IP) address of the IPDS printer.

Class

A sequence of job class letters that are currently assigned to this device. Job classes are used for organizing groups of similar jobs and for prioritizing and assigning jobs to devices. A job class matches a device class if either the job class or the device class is equal to the special ANY wildcard indicator (*), or if the job class letter occurs in the sequence of device class letters. For example, job class B occurs in device class ABCM.

Form

The default medium or form currently loaded on the printer.

Is Duplex?

Whether the printer is a duplex printer. A *duplex* printer can print on both sides of a sheet of paper, in contrast to a *simplex* printer, which can print on only one side.

Has Cutter?

Whether the printer has a cutter attached. A *cutter* is device for cutting sheets of paper.

2-Up?

Whether the printer is configured to print two inserter sheets (2-up) on a printer sheet.

Is Continuous?

Whether the printer uses continuous feed paper, such as a roll of wide-web printer paper on an Infoprint 4000.

NPRO Seconds

The number of seconds that InfoPrint Workflow waits before issuing an NPRO to the printer.

Minimum Sheets Required

The minimum number of sheets that InfoPrint Workflow tries to keep queued to the printer.

Maximum Sheets Allowed

The maximum number of sheets of paper that InfoPrint Workflow can keep queued to the printer. A value of 0 means that any number is allowed.

IPDS Resolution

Use the default value, `Automatic`.

Concurrent Sheets

Use the default value, `500`.

MICR Loaded

Use the default value, `No`.

5. Click **OK**.
You see the Device Manager window with the added IPDS printer.
6. To change the attributes for the IPDS printer, see [Viewing and changing device attributes, p. 56](#).

Adding other printers

To add a new non-IPDS printer that you want to use with InfoPrint Workflow:

1. From the Device Manager window, select **Add**. You see the Add Device window.
2. Type a value in the **Device Name** field. For auxiliary printers, this field must match the queue name that the AIX administrator set up. This name must begin with a letter; assigning a numeric value as the first character renders the assigned name inoperable.
3. In the Device Type field, select **Printer.LPR** from the drop list.
The Add Device window changes to show the fields for non-IPDS printers.

Add Device window (Printer view)

The screenshot shows the 'Add Device' dialog box with the following fields and values:

- Device Name:** (Empty text box)
- Device Type:** Printer.LPR (Selected in dropdown)
- Description:** (Empty text area)
- Server Name:** (Empty text box)
- LPR Server Name:** (Empty text box)
- LPR Queue Name:** (Empty text box)
- SNMP Monitored:** No (Selected in dropdown)

4. Type or select values in these fields:

Description

A description of the printer.

Server Name

The server name, exactly matches the results of the UNIX hostname command

LPR Server Name

Specifies the name of the LPR print server

LPR Queue Name

specifies the name of the LPR print queue

SNMP Monitored

Default = No

 **Note**

If value is set to Yes: The port locations for SNMP are defined in the `~/config/snmp.conf` file

Sample default definitions:

```
#####
# misc
#####
# define the port to listen for shutdown commands on
port.command=50751
# define the port to initialize SNMP services
port.services=50851
```

5. Click **OK**. You see the Device Manager window with the added printer.
6. To change the attributes for the printer, see [Viewing and changing device attributes, p. 56](#).

Copying devices

You copy a device when you want to copy the information that you have set up for one device to another device.

To copy a device:

1. From the Devices list in the Device Manager window, select the tab for the device type that you want to copy.
2. Select the device that you want to copy.
3. Select **Copy**. You see the appropriate view of the Add Device window.
4. In the **Device Name** field, type a name for the new device.
5. Type or select any changes in the appropriate fields.
6. Select **OK**. You see the Device Manager window with the copied device.
7. To change the attributes for the device, see [Viewing and changing device attributes, p. 56](#).

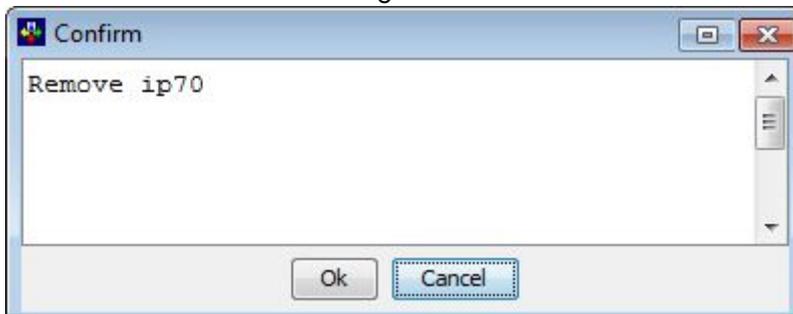
Deleting devices

You delete a device when you want to permanently remove it from InfoPrint Workflow. In order to do this, the device must be disabled and no jobs can be processing or printing on it (see [Enabling and disabling printers, p. 55](#)).

To remove a printer:

1. From the Devices list in the Device Manager window, select the tab for the device type that you want to delete.
2. Select the device that you want to delete.
3. Select **Remove**.

You see a confirmation message:



4. Select one of these:
 - **OK** to delete the selected device permanently. You see the Device Manager window without the device.
 - **Cancel** to cancel the removal. You see the Device Manager window with the device still listed.

Configuring a duplex printer as two simplex printers

If you have a duplex printer that can be physically configured as two simplex printers, create three printer devices to represent it.

1. Add a printer to represent the duplex printer. Set the value of **Is Duplex?** to **Yes** and **Printer Port** to **5001**.
2. Copy the duplex printer to represent the first simplex printer engine. Set the value of **Is Duplex?** to **No** and **Printer Port** to **5001**.
3. Copy the simplex printer that you created in the previous step to represent the second simplex printer engine. Set the value of **Is Duplex?** to **No** and **Printer Port** to **5002**.
4. To use these printer devices:
 - When the printer is physically configured as a duplex printer, disable the simplex printer devices and enable the duplex printer device.
 - When the printer is physically configured as a simplex printer, disable the duplex printer device and enable the simplex printer devices.

Enabling and disabling printers

You enable a printer when you want InfoPrint Workflow to send print jobs to it. You disable a printer when you do not want print jobs sent to it.

To enable or disable a printer:

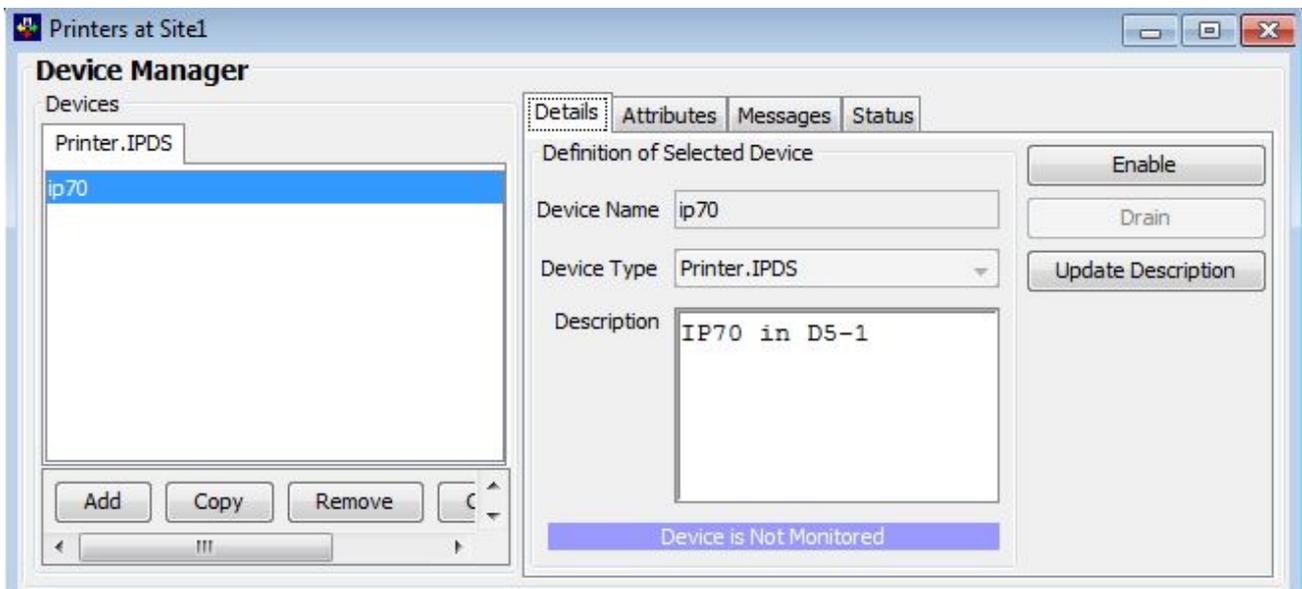
1. From the Devices list in the Device Manager window, select the **Printer.IPDS** or **Printer** tab.
2. Select the printer. You see the printer listed in the Details tab.
3. Select one of these:
 - **Enable** to enable the printer.
 - **Drain** to finish printing the jobs that are queued to the printer, then disable the printer.

Viewing and changing device details

To view the details about a device:

1. From the Devices list in the Device Manager window, select the tab for the device type.
2. Select the device.
3. Select the Details tab:

Details tab



The fields in Definition of Selected Device are:

Device Name	The name of the device.
Device Type	The device type.
Description	The description of the device.

The state of the device is displayed at the bottom of the tab; for example, Not Monitored, Printing, or Out of Toner.

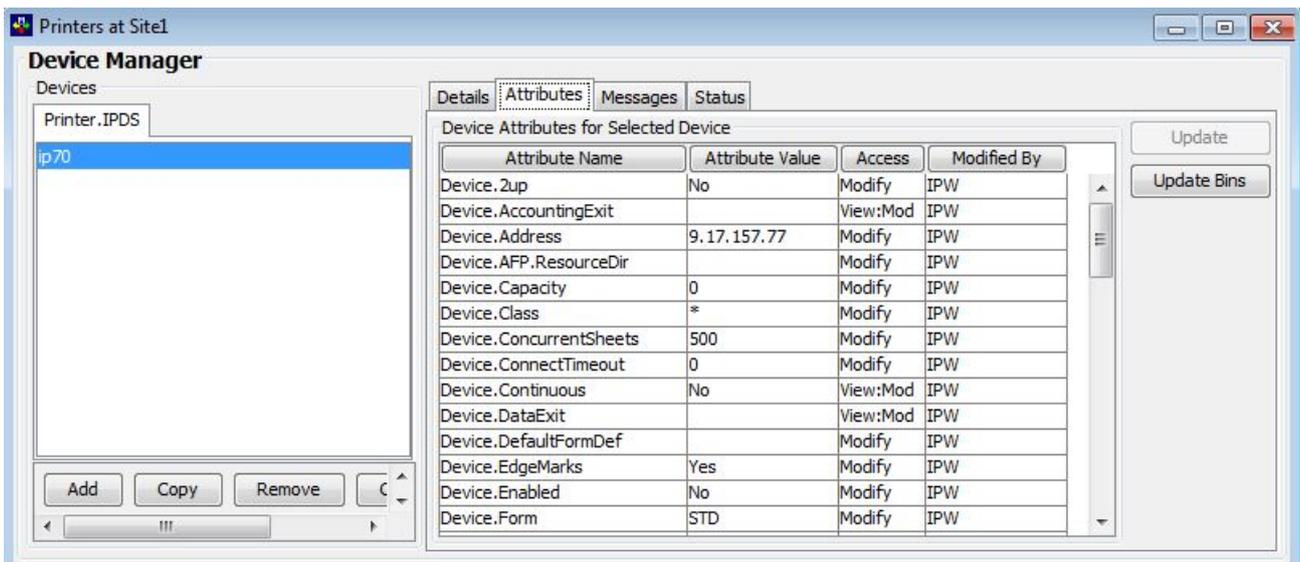
4. To change the details about the selected device, type new information in the **Description** field.
5. Select **Update Description**. You see the Details tab with the changed printer details.

Viewing and changing device attributes

To change a device attribute:

1. From the Devices list in the Device Manager window, select the tab for the device type (**Printer** or **Printer.IPDS**).
2. Select the device.
3. Select the **Attributes** tab.

Attributes tab of Device Manager window



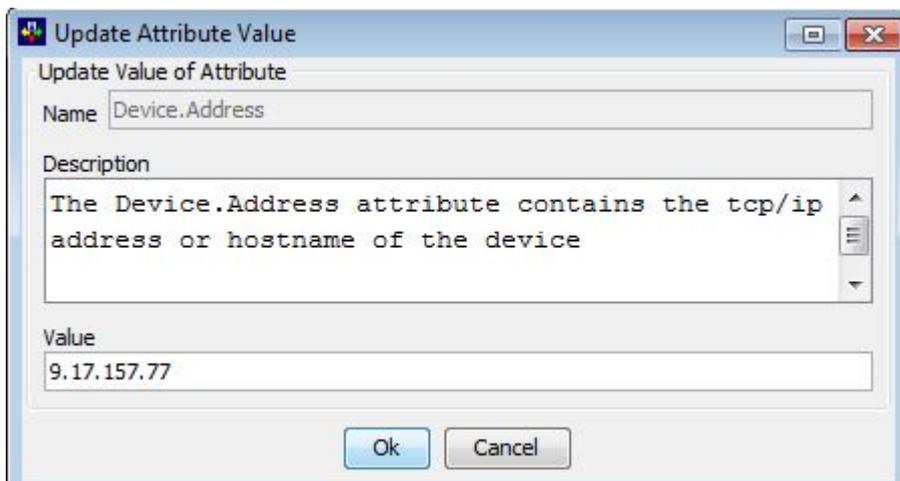
The columns in the Attributes tab are:

Attribute Name	The name of the attribute.
Attribute Value	The value of the attribute.

Access	<p>The type of access for the attribute:</p> <p>View You can view the attribute, but not change it.</p> <p>Modify You can change the attribute.</p> <p>None Operators cannot view the attribute in the Job Manager window. You can view it in this window, but not change it.</p> <p>View:Mod Operators can view the attribute in the Job Manager window. You can change it in this window.</p> <p>None:Mod Operators cannot view the attribute in the Job Manager window. You can change it in this window.</p>
Modified By	The ID of the user who last modified the attribute.

4. Select the attribute that you want to change.
5. Select **Update**.
You see the Update Attribute Value window.

Update Attribute Value window



The window shows the description of the selected attribute. For printers, the most commonly used attributes that you can modify and their values include:

Attribute name	Format or value
Device.2Up	Yes or No
Device.ConcurrentSheets	Number
Device.Continuous	Yes or No

Attribute name	Format or value
Device.Enabled	Yes or No
Device.Form	The default medium or form loaded on the device
Device.HasCutter	Yes or No
Device.IsDuplex	Yes or No

6. In the **Value** field, type or select a new value.
7. Select **OK**. You see the Attributes tab with the changed value.

Site owner and sites served

When a device is first created, the attributes Device.Site.Owner and Device.Sites.Served are set to the user site value for the user creating the device.

Device.Site.Owner

This value represents the physical location of the device and is not intended to change.

Device.Sites.Served

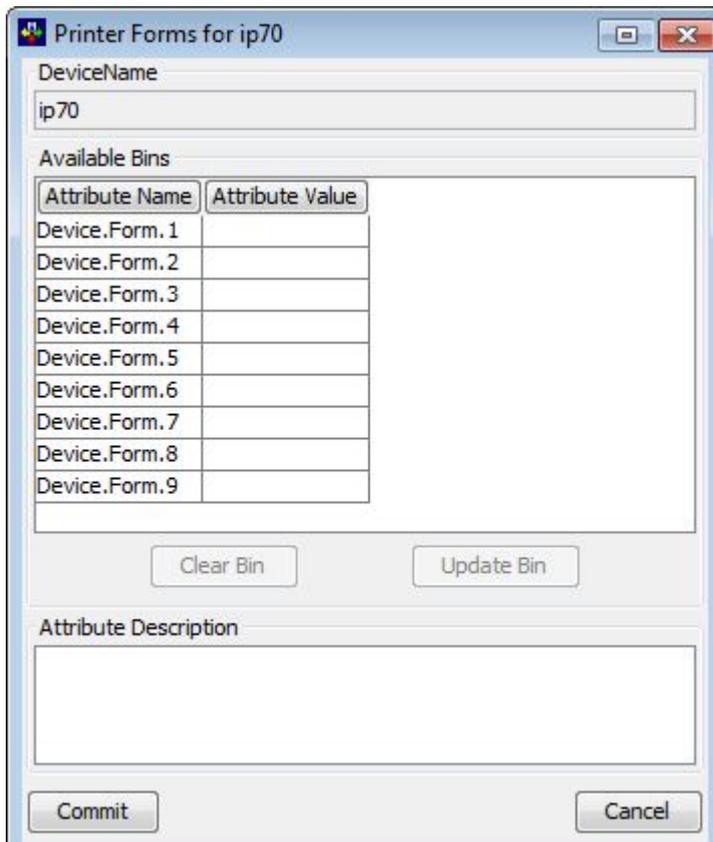
This value can change in the case of a disaster recovery scenario.

Form attributes

The Device.Form.*n* attributes indicate the medium or form that is loaded in each bin of the printer. To change these attributes:

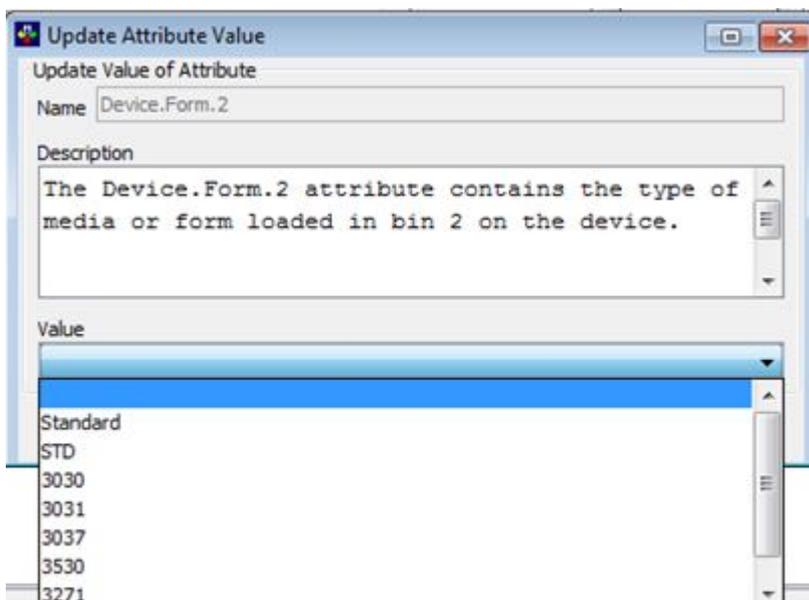
1. On the Attributes tab of the Device Manager window ([Attributes tab of Device Manager window, p. 56](#)), click **Update Bins**.
You see the Update Bins window.

Update Bins window



2. In Available Bins, select a Device.Form.*n* attribute.
3. To indicate that a new form has been loaded in the corresponding bin:
 1. Click **Update Bin**.
You see the Update Attribute Value window.

Update Attribute Value window



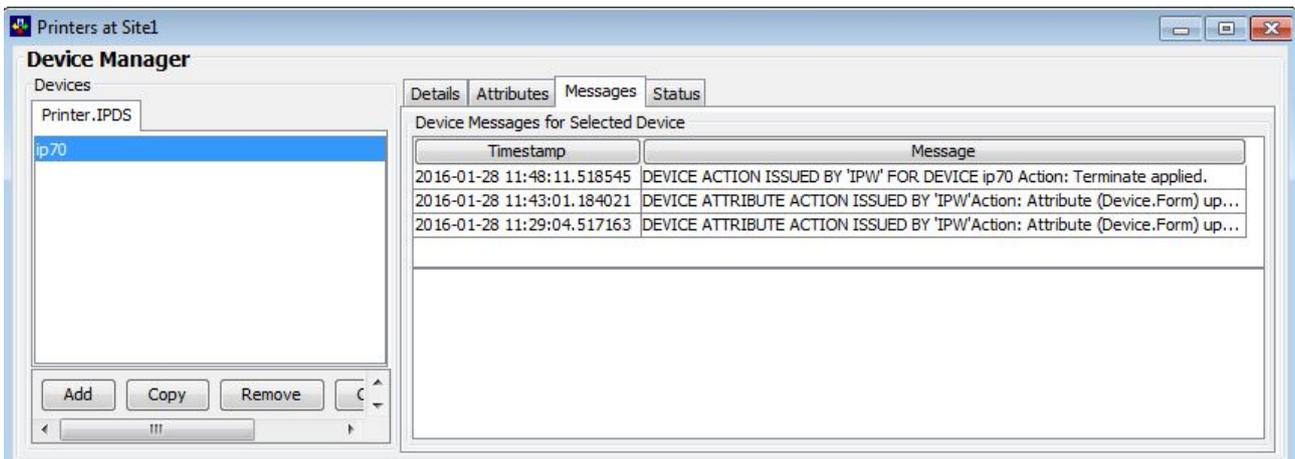
2. In the **Value** drop-down list, select the form name.
3. Click **OK**. You see the Update Bins window with the changed value.
4. To indicate that a bin is empty, click **Clear Bin**. You see a blank attribute value.
5. To save your changes, click **Commit**.

Viewing device messages

To view device messages:

1. From the Devices list in the Device Manager window, select the tab for the device type.
2. Select the device.
3. Select the **Messages** tab.

Messages tab of Device Manager window



4. To view the entire text of a message, select the message. The full text appears at the bottom of the Messages tab.

Viewing device status and history

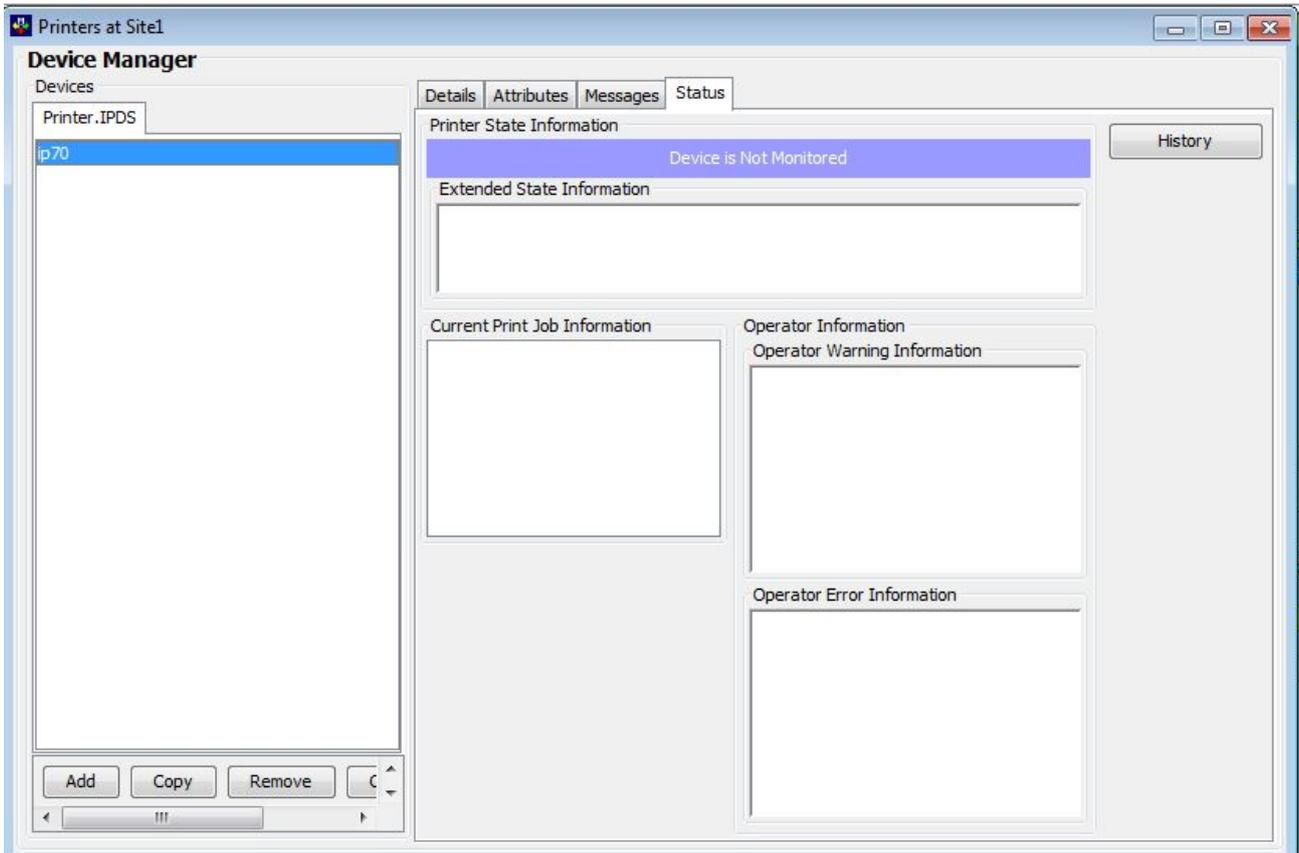
To view device status:

1. From the Devices list in the Device Manager window, select the tab for the device type.
2. Select the device.
3. Select the **Status** tab.

Note

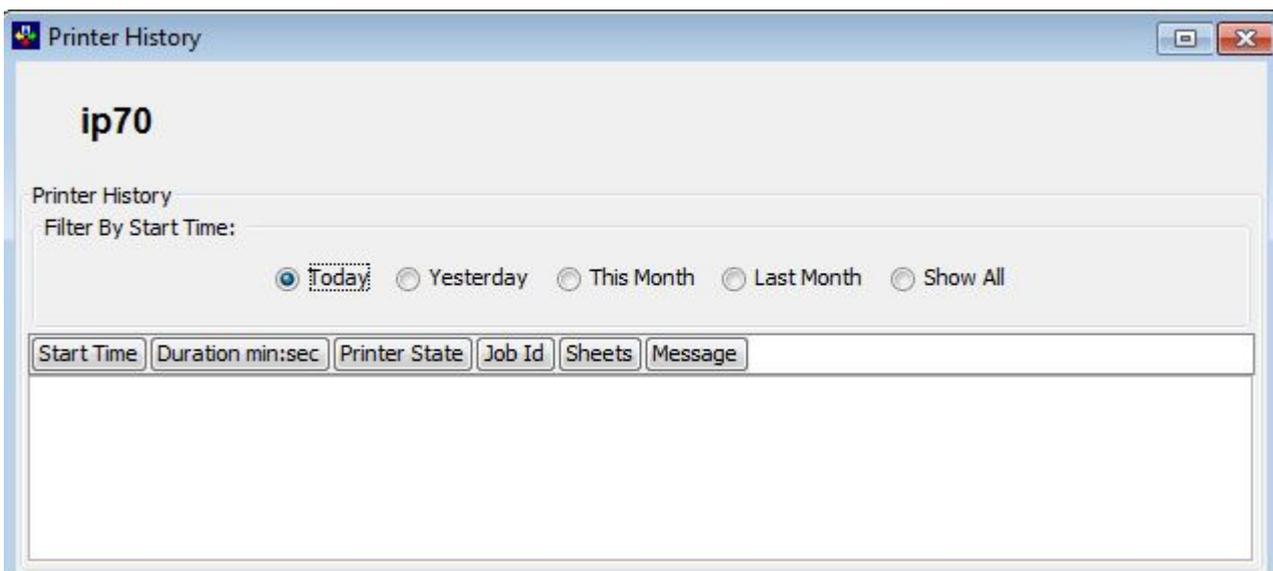
Printer status and History data depends upon a printer having the SNMP monitor capability and you must have SNMP monitoring turned on in the printer

Status tab



- To view the device history, click **History**.

Printer History window



The columns in the Printer History window are:

Start Time	The date and time that the device status changed.
Duration min:sec	The number of minutes and seconds that the device was in that status.
Printer State	<p>A code indicating the device state:</p> <p>1 Not monitored</p> <p>2 Not communicating</p> <p>3 Idle</p> <p>4 Printing</p> <p>5 Warming up</p> <p>6 Jammed</p> <p>7 Out of paper</p> <p>8 Out of toner</p> <p>9 Requesting service</p> <p>10 Off-line</p> <p>11 Opened</p> <p>12 Unknown</p>
Job ID	The ID of the job that was being processed when the device status changed.
Sheets	The number of sheets that had been printed in the current job when the printer status changed.
Message	The message that was issued when the device status changed. To view the full text of any message at the bottom of the window, select the message.

5. In Filter by Start Time, select a radio button to set the period for which status is displayed.

Switching printers

You can switch a printer between being connected directly to z/OS and being connected directly to InfoPrint Workflow.

Be careful: To do these tasks, you must be experienced with printing from z/OS.

From z/OS to InfoPrint Workflow

To switch a printer from z/OS to InfoPrint Workflow:

1. From the z/OS console:
 1. Drain the printer.
 2. Wait until the printer completes printing the jobs.
2. From the printer console:
 1. Make the printer Not Ready.
 2. If needed, change the plex mode (such as simplex to duplex).
 3. Set the printer for 2-up printing.
 4. Make the printer Ready.
3. From InfoPrint Workflow:
 1. Verify that the plex mode for the printer is correct (see [Viewing and changing device attributes, p. 56](#)).
4. Enable the printer (see [Enabling and disabling printers, p. 55](#)).

The printer is now available for InfoPrint Workflow printing.

From InfoPrint Workflow to z/OS

To switch a printer from InfoPrint Workflow to z/OS:

1. From InfoPrint Workflow:
 1. Drain the printer (see [Enabling and disabling printers, p. 55](#)).
 2. Wait until the printer completes printing the jobs.
 3. Verify that the printer is disabled (see [Viewing and changing device attributes, p. 56](#)).
2. From the printer console:
 1. Make the printer Not Ready.
 2. If needed, change the plex mode (such as simplex to duplex).
 3. Set the printer for 1-up or 2-up printing.

4. Make the printer Ready.
3. From the z/OS console, start the printer.

The printer is now available for z/OS printing.

Managing forms

This chapter explains how to add and delete forms.

To do the tasks in this chapter, you use the Defined Form Entries window. To access this window:

1. From System Actions in any view of the main window, click **Administration**. You see the System Overview window.

System Overview Statistics window

The screenshot shows the 'Admin at Site1 - System Overview' window. The left sidebar contains a tree view with the following items: System Overview (selected), Development, Device Management, Job Type Management, Materials & Insert Plans, Quality Control Management, Security Management, Users, Step Activity, and System Settings. The main area is divided into three sections:

- Job and Step Statistics:**

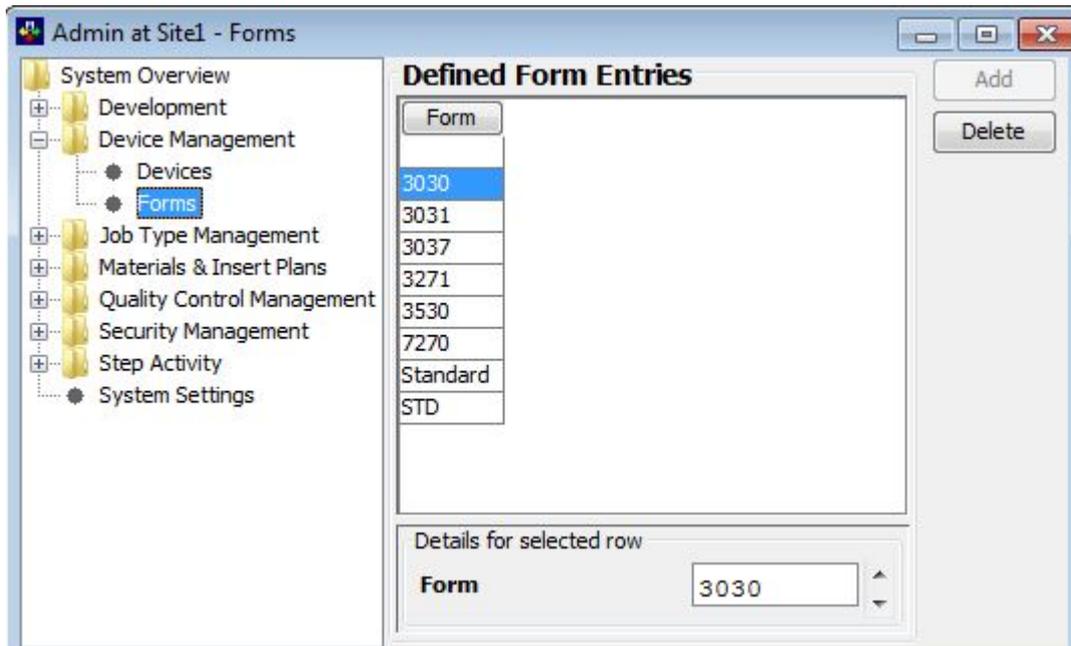
Total Number of Jobs	47	Jobs In Input Queues	0
Jobs In Error State	17	Jobs In Process Queues	27
Number of Active Steps	0	Jobs In Output Queues	20
- DB2 Tablespace Statistics:**

CFG_UPD_TS	39
DOCMP_ADR_IDX_TS	1
HIST_TS	8
DOCMP_ADR_TS	0
DOCMP_TS	0
JOBS_IDX_TS	9
JOBS_TS	13
- File Statistics:**

Total Number of Files	33	Total Number of Sheets	24
Files In Download Dir.		Total Number of Documents	24
Total of File Sizes (MB)	33.28		

2. Select **Device Management** → **Forms** from the System Overview menu.

Defined Form Entries window



Adding forms

To add a new form to the list of forms available for printing jobs:

1. In Details for Selected Row at the bottom of the Defined Form Entries window, type the name of the new form in the **Form** field. The **Add** button is activated.
2. Click **Add**.

Deleting forms

To remove a form from the list of forms available for printing jobs:

1. In the Defined Form Entries window, select the form that you want to delete.
2. Click **Delete**.

6. Managing jobs

- Managing types and attributes
- Assigning job types
- Updating job attributes
- Moving a job to another process, step, or state
- Moving a job to another site
- Managing header and trailer sheets
- Managing bar codes

Managing types and attributes

This chapter describes types and attributes. It explains how to:

- Add, copy, or delete type definitions
- Modify type relationships
- Test a new or changed type
- View, add, delete, copy or modify type attributes

Type management

The Type Management system uses categories, types, and attributes to define and direct the flow of work through the system. Categories comprise one or more related types. You can modify, add, change and delete types within each category but the category names themselves are static.

Each type includes a set of related attributes. The type definition, or the overall set of attributes associated with the type, designates job characteristics and processing options. For similar jobs with differing elements, attributes within the type definition may be substituted. In this relationship, the primary type is referred to as the supertype and the substituted definition as the subtype. Job processing may depend on elements of the supertype and elements of the subtype.

Create type definitions to specify processing options for a variety of work such as the assignment of forms, envelope size rules, stuffing options, and barcode designations. A complete list of attributes, attribute values and definitions are provided in this document.

Working with types

This section describes how to modify, add, copy, delete and test type definitions. The procedures outlined in this section apply to all type categories except Service Level Agreement (SLA), which is described in [Managing SLA holidays, p. 43](#).

Modifying a type relationship

To copy a type:

1. From the window ([Type Attributes window, p. 71](#)), select the type that you want to modify.
2. Select **Change Parent** from the context menu. You see the Change Parent window.
3. In the Parent field, select a name from the list.

4. Click **OK**. You see the Job window with the new type selected.
5. To change the attributes for the new type, see [Modifying attributes in type definitions, p. 71](#).

Adding new type definitions

To add a type definition:

1. From the Job Type Management window ([Type Attributes window, p. 71](#)), select **Add** using the context menu from the Type list. You see the Add New Type window.
2. In the Type Name field, type the name of the new type.
3. Click **OK**. You see the new type in the Select a Type panel. The new type includes default values for all attributes.
4. To change the attribute definitions for the new type, see [Modifying attributes in type definitions, p. 71](#). If no attributes display in the new type definition, there is an error in configuration. Refer to [<reference>](#) for more information.

Copying type definitions

Use the following procedure to copy all attributes from one type to a new type. To copy a type:

1. From the Job Type Management window ([Type Attributes window, p. 71](#)), select the type that you want to copy.
2. Select **Copy** from the context menu. You see the Copy Existing Type window.
3. In the New Type Name field, type a unique name of the new type.
4. To create a subtype of an existing type, select a value from the Parent Type field.
5. Click **OK**. You see the Job Type Management window with the new type selected. The new type has the same values for all attributes as the type that you copied.
6. To change the attributes for the new type, see [Modifying attributes in type definitions, p. 71](#).

Deleting type definitions

To delete a type:

1. From the Job window ([Type Attributes window, p. 71](#)), select the type that you want to delete.
2. Select **Delete** from the context menu. A confirmation window displays.
3. Click **OK**. The system removes the type definition from the list.

Testing type definitions

To test a new or changed type:

1. Download any new resources that the type requires to the InfoPrint Workflow server.
2. Create sample data for the type.
3. If your sample data is line data, convert it to AFP format.

4. If the AFP data file is large, you can create a smaller file.
 1. Type the following command sequence to determine the number of pages in the file: `afpdmp -d filename | grep BPG | wc`
 The **afpdmp** command converts the AFP data stream to a format that the **grep** command can read. The **grep** command finds all the BPG structured fields, which mark the beginning of a page. The **wc** command counts them.
 2. Type the following command to create a smaller file: `afpsplit -f skip_pages -p include_pages -o output_file input_file`
 The **-f** flag indicates the number of pages to skip before starting the smaller file. This flag is optional: if you omit it, the smaller file starts on page 1. The **-p** flag indicates the number of pages to copy to the smaller file. This flag is optional: if you omit it, the smaller file contains all pages from the starting point to the end of the file.
 For example, suppose you have a large sample file called `/IPW/jobs/123456/123456.0.RunAFPIndexer.Unindexed`. You want to create a smaller file that contain pages 21 through 40 of the large file and call it `/IPW/jobs/123456/123456.1.RunAFPIndexer.Unindexed`. You should type the following command:
`afpsplit -f 20 -p 20 -o /IPW/jobs/123456/123456.0.RunAFPIndexer.Unindexed \ /IPW/jobs/123456/123456.1.RunAFPIndexer.Unindexed`
5. FTP the sample data to the Windows workstation where the AFPIndexer is installed.
6. If you want to create new TLEs:
 1. Follow the instructions in *AFPIndexer User's Guide* to use the AFPIndexer to create an `.ict` control file from the sample data.
 For an example, see [Processing files with AFPIndexer, p. 103](#).

 **Note**

- In the AFPIndexer GUI, use the **HOME** key to go to the beginning of the file and the **END** key to go to the end of the file.
- If you need to debug the AFPIndexer, you can create a human-readable debug file. You need a copy of the `.ict` file that you created when you first ran the AFPIndexer.

On the AIX command line type the following command: `/home/ipw/bin/indexAFP -c filename.control -i filename.Unindexed \ -f filename.Debug`

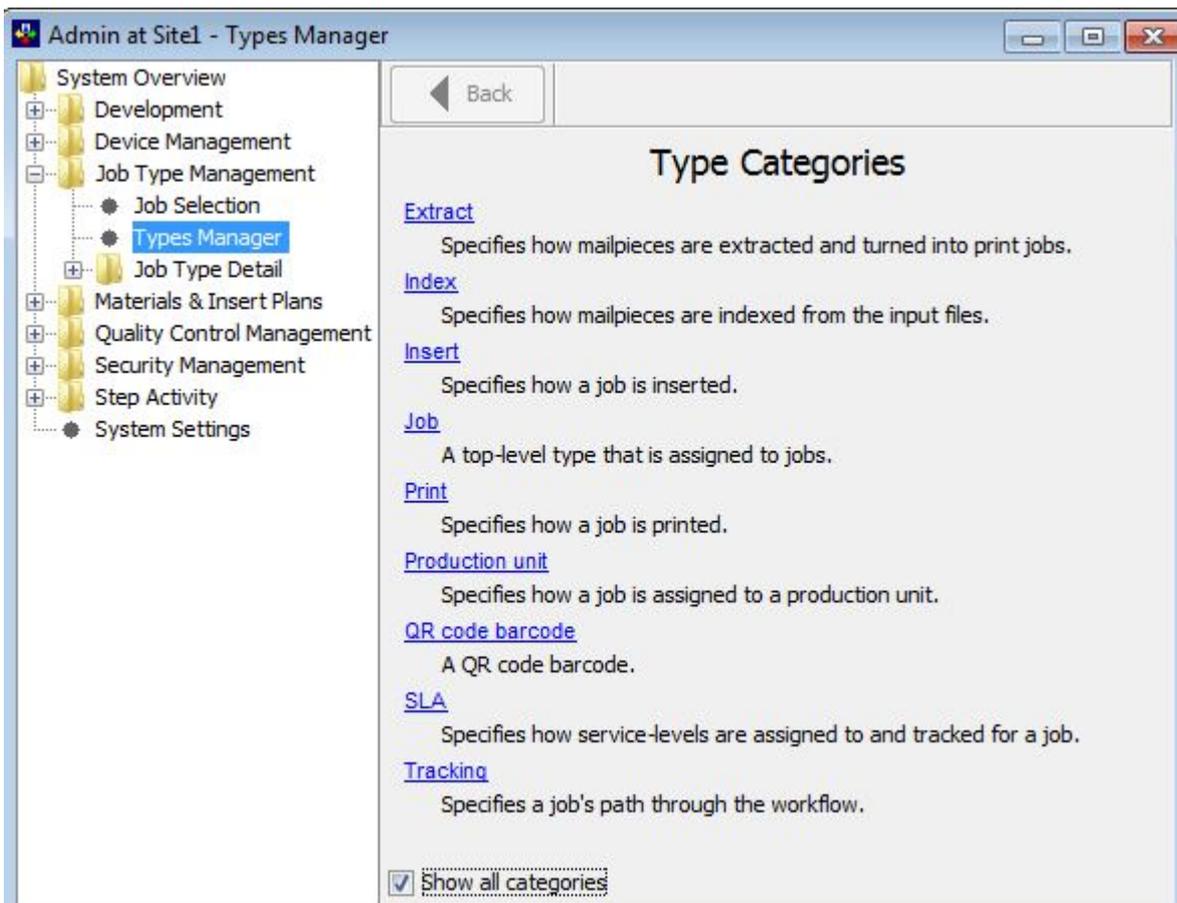
You can then edit the debug file to see the index fields and the page numbers where the data was found.

2. Copy the control file to the directory on the AIX server specified by the ControlPath.ParmName system setting.
 3. In the Index subtype, change the value of the Job.IndexControlFileName attribute to point to the new control file.
7. Run a test job.

Working with type attributes

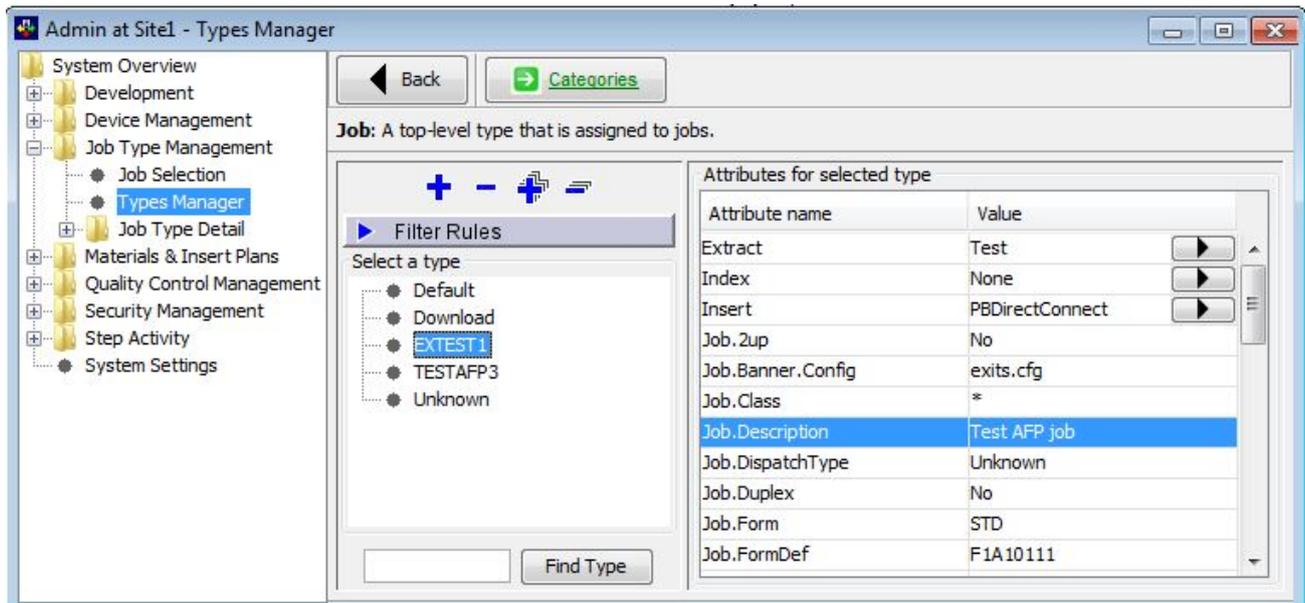
To open the Types Manager window, from the System Overview menu select **Job Type Management** → **Types Manager**.

Types Manager window



Select **Job**.

Type Attributes window



Adding attributes to type definitions

Each type definition includes any number of attributes. Attributes may be added, modified or deleted in existing type definitions. You cannot add new attributes to the global attribute set and you cannot modify attribute names. Note that the global attribute set is a predefined set of all attributes available on the system.

Add attributes to existing types when creating a dynamic, static type definition.

To add an attribute to an existing type definition:

1. From the Types Manager window ([Type Attributes window, p. 71](#)), select the type name from the type definition list.
2. Right-click and select **Add Attributes** from the context menu. The Add Type Attributes window displays.
3. Select the attribute to add to the type definition. Use the Shift or CTRL key to select multiple attributes.
4. Click **OK**. The system adds the attribute to the type definition.
5. Define the value of the new attribute.

Modifying attributes in type definitions

To change a type attribute:

1. From the Types Manager window ([Type Attributes window, p. 71](#)), select the type.
2. Select the attribute you want to change.
3. Double-click the attribute you want to update. You see the Update window. The window shows the current setting of the selected attribute.

4. Type or select a new value.
5. Click **OK**. You see the Attribute window with the changed value.

Deleting attributes from type definitions

You may want to delete type attributes when you create a limited, alternate type definition, for example, to be used during testing. The limited type definition

To delete a type:

1. From the Type Manager window ([Type Attributes window, p. 71](#)), select the attribute you want to delete.
2. Select **Delete** from the context menu. You see a confirmation message.
3. Click **OK**. The system removes the attribute from the type definition.

Commingling

Commingling has become the common term referring to the process of combining output job files. Historically IPW has been limited to processing similar mailpieces that originate in different input files as separate print jobs; input files could be split, but the segments could not be consolidated with those having similar characteristics. Customers can realize a variety of advantages by combining job files. A larger pool of documents with common characteristics affords greater efficiency, such as fewer (albeit larger) processing jobs (resulting in decreased start and stop time on printers and inserters, fewer setups) and increased densities for postage, sortation and inserter throughput. Even though the desirable advantages of commingling have been long understood, clarifying the complexities in the business rules surrounding commingling and resource availability required to address underlying IPW architectural limitations have, until recently, prevented real progress in implementation of a fully-functional solution. The operational and functional goal of the commingling design is to provide enough flexibility to configure and control which files to combine in the most simple, effective and efficient manner possible. The solution must include restrictions to ensure incompatible documents cannot be inadvertently combined, resulting in erroneous, ineffective or broken processes. For example, a document printed on the wrong form has incompatible insert material, resulting in an inefficient postal grouping or sort. Furthermore, the solution requires that the internal consistencies of IPW be satisfied such that documents continue to be accurately traced to their source, tracked against their respective Service Level Agreements (SLAs), and accurately reflected in reports. Other internal aspects include reprint grouping implications and the ability to “undo” a commingled job.

Configuration

The commingling implementation provides for configuring job types to be eligible for commingling. Jobs set up for commingling do not have to be combined—that is, job eligibility for combining does not force combining. The Job.ReadyWorkProcess attribute has the values Extract or Planning. Set the attribute to PLANNING to make a job type eligible for commingling. Set the attribute to EXTRACT so that document groups defined during the download process are created in the extract process. Creating an assigned type attribute as opposed to a staged process within the workflow, the design allows for design extensibility as processes or steps evolve. This design also maintains backward compatibility with existing installations.

Processing and Workflow Interface

The commingling process effectively runs as an additional process between the Indexing and Extract workflow processes. Commingling jobs display in the interface process block, Production Planning, where the work is held until an operator selects the work to combine and release. From that point, the jobs progress to Extract process. If a job is not set up for commingling, it moves directly into and through the Extract process as it does today. Note that the workflow interface represents that all jobs progress through the Production Planning process. Jobs not configured for Planning, however, (JobReadyWorkProcess = Extract) pass directly from Receive Print to Extract—effectively bypassing Production Planning.

Selecting the Production Planning process block displays the Production Planning window, as shown in the following illustration. The Production Planning window contains a summary line for each document grouping, and a line for each planning job within the group. Multiple planning jobs may be created from a single download job. By default, planning jobs are created from documents based on differences in enclosure type and dispatch type. Planning-job groups are formed by customer-specific criteria established and implemented using an adaptable configurator. It is possible for a single planning job to be eligible for combining with multiple groups based on various criteria, thus a job may appear multiple times in the Production Planning window. A sample grouping criterion is as follows: each job is assigned a key that is a concatenation of the job's production unit name, production unit cycle, form, insert plan name (if file controlled insert is used), dispatch type, and enclosure type. Each unique key forms a group containing all jobs with that key. Jobs are not assigned to multiple groups. The operator selects (highlights) one or more jobs within a group for combining and clicks GO. The system then combines the documents from the selected jobs for collective processing, creating an extract job for the combined documents. Although there is no configurable auto-release for commingling, customer-specific auto-release processing requirements may be implemented

Commingled job characteristics

In the case where the combined jobs have different attributes, such as Production Unit, Job Type, SLA times, etc., the combined Extract inherits the values of the first planning job listed in the Production Planning interface.

Document Groupings

It is important to note that the grouping configuration process is not externalized to users. The customer and the project design team (architect and technical lead) establish the grouping characteristics to prevent commingling of incompatible jobs (such as, print forms/materials, SLAs, insert materials and plans, etc.). Once established in the project requirements phase, the system consistently applies grouping rules to all jobs set up for commingling. A key aspect of this solution is the definition of the document groupings.

Following the download process, documents are grouped according to enclosure and dispatch types. For download jobs that are eligible for combining based on the enclosure and dispatch type, similarly-typed documents are grouped, resulting in the creation of a planning job. In the Production Planning window, these jobs are then grouped according to the configuration as defined by the job attributes.

Reprints

The commingled-job reprint process occurs in one of two ways: during the print planning process, or during the extract process. Which process is used is determined by the job attribute Reprint.ConsolidateReprints. When set to YES, the system creates reprint jobs in the planning process which are, in turn, eligible for combining. When set to NO, the system creates reprint jobs in the Extract process.

↓ Note

Although this setting name has been used previously, the function of the setting is new.

Reporting and document tracking

Regardless of how commingling is applied to documents on a job, IPW tracks the document's identity to and within every job the document is associated with. This includes the download job as well as any commingled jobs.

Assigning job types

InfoPrint Workflow uses a job selection table to assign job types to download jobs. The entries in the job selection table are called *job selection rules*.

This section describes the procedure for assigning a type to a download job and explains how to:

- Add, update, and delete job selection rules
- Validate one or all job selection rules
- Test the job selection rules to find the type assigned to a given job

To do the tasks in this chapter, you use the Job Selection window. To access this window:

1. From System Actions in any view of the main window, click **Administration**.
2. Select **Job Type Management** → **Job Selection** from the System Overview menu. You see the Job Selection window.

Job Selection window

Defined Job Selection Rules

Trans Id	Match String	Job Type Name	Job Type Description	Job Type Sequence
1	EOB	EOB	Explanation of Benefits	2
2	NOT40AS	IRS	IRS MADF Test	2
3	NRP39*	NRP3904S	MADF IRS Test	2
4	LINE*	LINEJOBS	TEST for Line Data	3
5	MADFINVO	MasaType1	Masa Test1	999
6	MADFD*	TESTAFP3	TEST demo data	99
7	MADF3D*	TESTAFP3	TEST demo data	99
8	DCARENEW	TESTAFP3	TEST demo data	99
9	TESTAFP*	TESTAFP3	TEST demo data	99

Details for selected row

Trans Id

Match String

Job Type Name

Job Type Description

Job Type Sequence

Assigning job types to download jobs

InfoPrint Workflow calculates a job name string for each download job based on the value of the JobType_JCLParms system setting and the values of the JCL parameters in the download job.

For example, if the value of the JobType_JCLParms system setting is `JOBN, CLASS, PAGEDEF`; and the values of the `JOBN`, `CLASS`, and `PAGEDEF` parameters in a download job are `FS000123`, `A`, and `P100001` respectively, the job name string is `FS000123.A.P100001`. InfoPrint Workflow then applies the following rules:

Yes

Assign the matching job type.

No

Does the job name string match a match string in a job selection rule? For example, the job name string `FS000123.A.P100001` matches the match string of `FS000123.?.P10*`, because a question mark (?) matches any single character and an asterisk (*) matches any number of characters.

Note

Although match strings must be unique, the use of wild cards may allow more than one match. For example, the job name string `FS000123.A.P100001` matches both `FS000123.?.P10*` and `FS000???.A.P10*`.

Yes

Is there more than one match?

Yes

Assign the matching job type with the lowest sequence number.

No

Assign the only matching job type.

No

Assign a job type of Unknown.

Adding job selection rules

To add a job selection rule:

1. In Details for Selected Row at the bottom of the Manage Job Selection Rules window ([Job Selection window, p. 75](#)), type values in the following fields:

Match String

The values of the JCL parameters specified in the JobType_JCLParms system setting, delimited by periods. This value may include any number of question marks (?) as wild cards matching any single character and one asterisk (*) as a wild card matching any number of characters at the end of the name. For example, FS000123.?.P10* matches job name strings like FS000123.A.P100001 and FS000123.B.P1022.

Job Type Name

The name of the job type assigned by the new rule.

Job Type Description

A description of the job type, for example, Card Statements.

Job Type Sequence

The value used to resolve conflicts when a job matches more than one rule. To give the new rule precedence over an existing rule, type a lower sequence number. The highest sequence number is 999, which is the sequence number of the rule that assigns job type Unknown because all other job types have precedence over Unknown.

2. Click **Add**. You see the Manage Job Selection Rules window with the new rule.

Changing job selection rules

To change a job selection rule:

1. In Defined Job Selection Rules at the top of the Manage Job Selection Rules window ([Job Selection window, p. 75](#)), select the rule that you want to change.
2. In Details for Selected Row at the bottom, change the values in any field except **Trans Id**, which is read-only. The **Update** button is activated.

3. Click **Update**. You see the Manage Job Selection Rules window with the changed rule.

Deleting job selection rules

To delete a job selection rule:

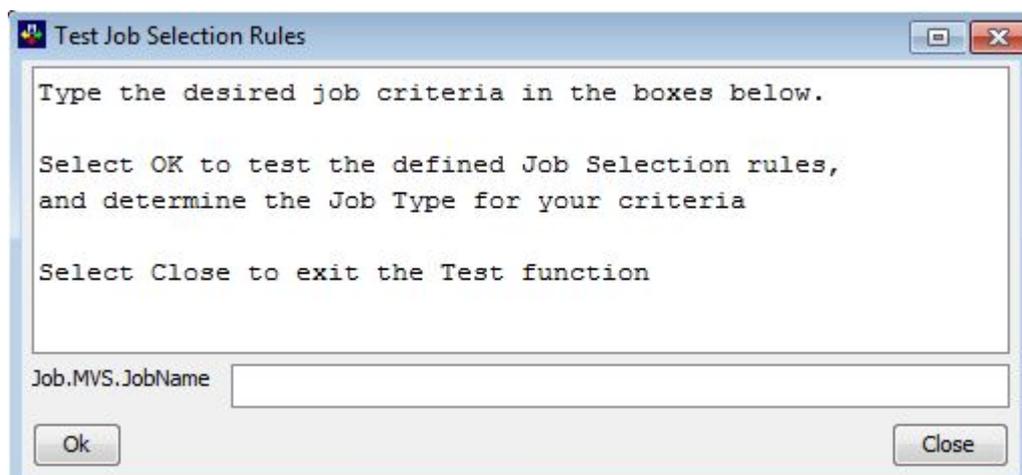
1. In Defined Job Selection Rules at the top of the Manage Job Selection Rules window ([Job Selection window, p. 75](#)), select the rule that you want to delete.
2. Click **Delete**. You see the Manage Job Selection Rules window without the rule.

Testing job selection rules

To determine the job type that would be assigned to a job under the current job selection rules:

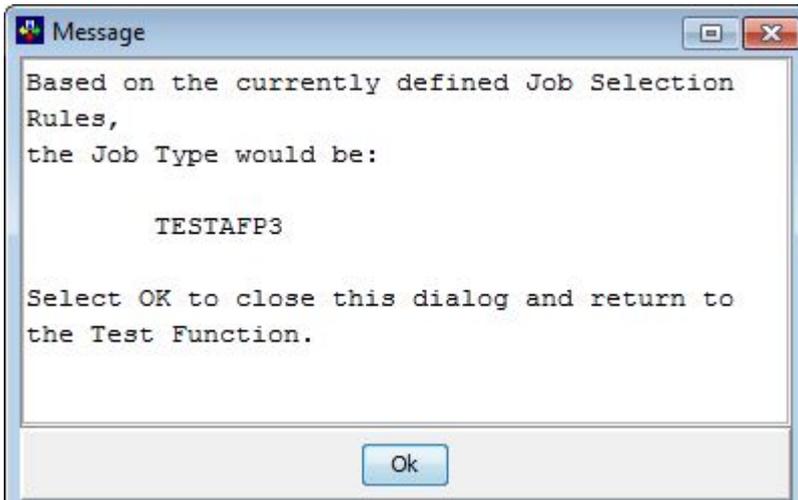
1. In the Manage Job Selection Rules window ([Job Selection window, p. 75](#)), click **Test Rules**. You see the Test Job Selection Rules window.

Test Job Selection Rules window



2. Type a job name string in the Job.MVS.JobName field at the bottom of the window. (For this example we used TESTAFP3)
3. Click **OK**. You see a message like this one:

Test Job Selection Results message



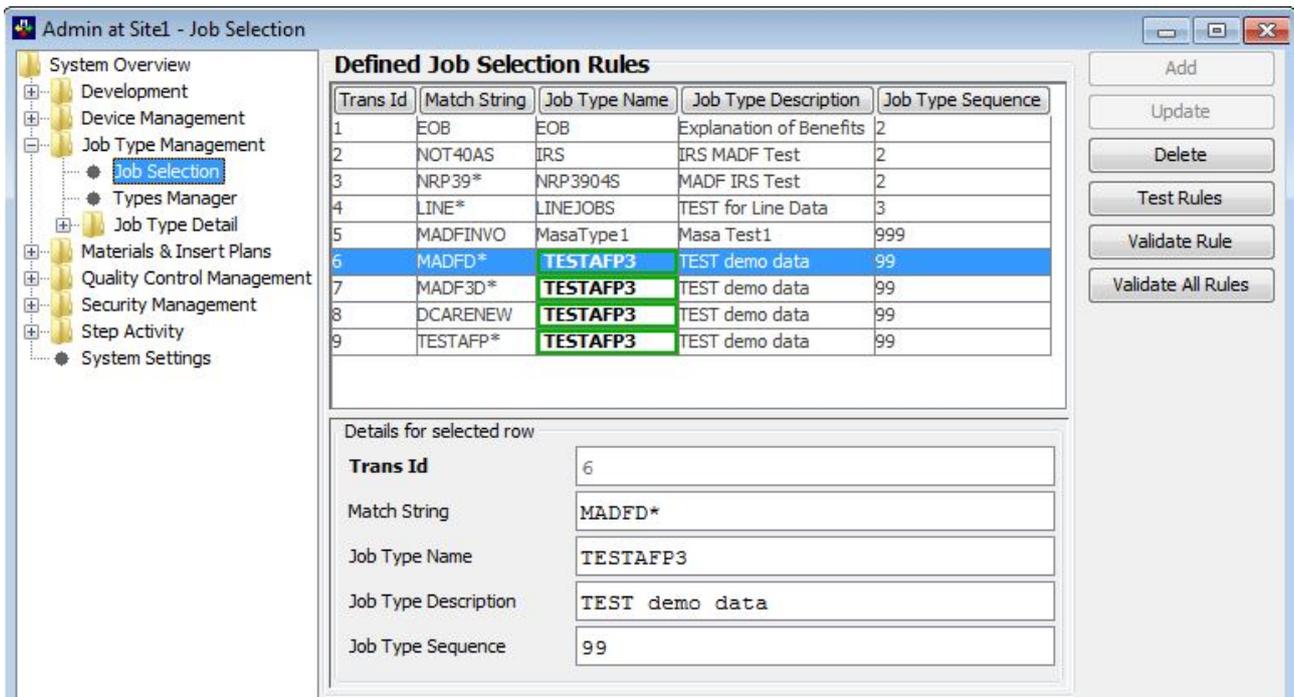
If there is no matching job type, you see the same message with a job type of Unknown.

Validating job selection rules

Job selection rules must refer to a defined job type.

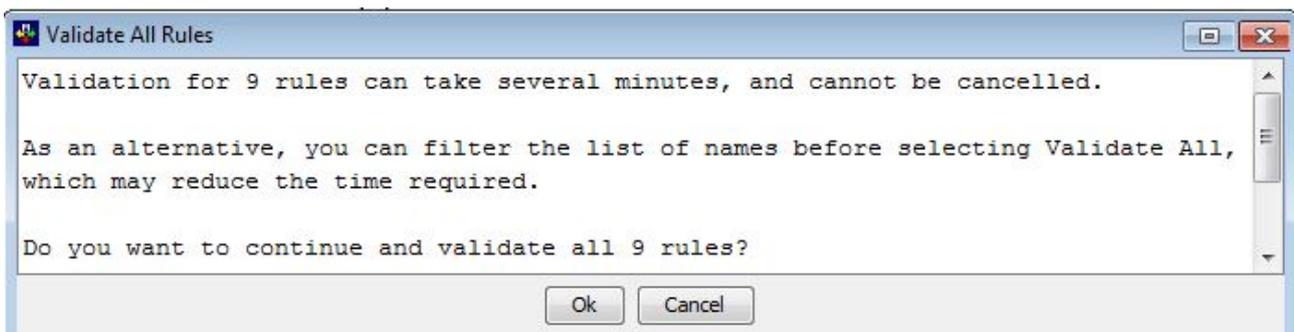
- To validate a single rule:
 1. In Defined Job Selection Rules at the top of the Manage Job Selection Rules window ([Job Selection window, p. 75](#)), select the rule that you want to validate.
 2. Click **Validate Rule**.
 - If the rule refers to a valid job type, you see the **Match String** and **Job Type Name** fields outlined in green. If you move the cursor to either of those fields, the Tool Tip shows that its status is Valid, as in [A valid job selection rule, p. 79](#).

A valid job selection rule



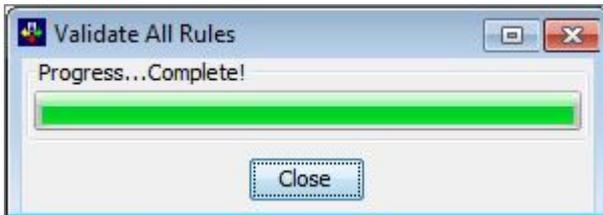
- If the rule does not refer to a valid job type, you see the **Match String** field outlined in red. If you move the cursor to that field, the Tool Tip shows that its status is Invalid.
- To validate all rules:
 1. Click **Validate All Rules**.
You see a confirmation message:

Validate All Rules confirmation message



2. Click **OK**.
You see a status message:

Validate All Rules status message



- When validation is complete, click **Close**.
You see the **Match String** field for all rules outlined in color:
 - If the rule refers to a valid job type, you see the **Match String** field outlined in green.
 - If the rule does not refer to a valid job type, you see the **Match String** field outlined in red.

Validated job selection rules

Rules 6,7,8 and 9, at the bottom, refers to a valid job type, TESTAFP3. The **Match String** and **Job Type Name** fields are outlined in green, and the Tool Tip shows that the status of this rule is Valid. All other rules refer to invalid job types. The **Match String** field for these rules is outlined in red.

Trans Id	Match String	Job Type Name	Job Type Description	Job Type Sequence
1	EOB	EOB	Explanation of Benefits	2
2	NOT40AS	IRS	IRS MADF Test	2
3	NRP39*	NRP39045	MADF IRS Test	2
4	LINE*	LINEJOBS	TEST for Line Data	3
5	MADFINVO	MasaType1	Masa Test1	999
6	MADFD*	TESTAFP3	TEST demo data	99
7	MADFD3D*	TESTAFP3	TEST demo data	99
8	DCARENEW	TESTAFP3	TEST demo data	99
9	TESTAFP*	TESTAFP3	TEST demo data	99

Updating job attributes

Operators assigned to the Administrator user group have the authority to change the values of job attributes while the job is actively running. To change a job type attribute for a single job for the duration of the print process, perform the following steps:

1. In the Summary window, either display the site-specific view or make sure that the tab for the appropriate site is displayed in the Sites Overview.
2. In System Actions, click **Admin Jobs**. You see the All Jobs Admin window:

All Jobs (Administrator) window

Jobs in the System

Job Id	Site Assigned	Process	Step	State	Production Unit Name	Production Unit Cycle	Mvs Job Name	Mvs Jobid	Description	Mail Piece Count
10000060	Site1	Download	WaitForCleanUp	Waiting	TESTAFP3	2016-01-26	TESTAFP3	JOB00003	Test AFP job	4
10000061	Site1	Download	CombineOutgrp	Hold	TESTAFP3	2016-01-26	TESTAFP3	JOB00003	Test AFP job	2
10000062	Site1	Planning	WaitForCleanUp	Waiting	TESTAFP3	2016-01-26	TESTAFP3	JOB00003	Test AFP job	0
10000063	Site1	Extract	WaitForCleanUp	Waiting	TESTAFP3	2016-01-26	TESTAFP3	JOB00003	Test AFP job	0
10000064	Site1	Download	WaitForCleanUp	Waiting	TESTAFP3	2016-02-01	TESTAFP3	JOB00003	Test AFP job	2
10000066	Site1	Planning	WaitForCleanUp	Waiting	TESTAFP3	2016-02-01	TESTAFP3	JOB00003	Test AFP job	0
10000067	Site1	PieceLev...	Print	Waiting	TESTAFP3	2016-01-26	TESTAFP3	JOB00003	Test AFP job	4
10000068	Site1	Extract	WaitForCleanUp	Waiting	TESTAFP3	2016-02-01	TESTAFP3	JOB00003	Test AFP job	0
10000069	Site1	PieceLev...	Print	Sched...	TESTAFP3	2016-02-01	TESTAFP3	JOB00003	Test AFP job	2

Totals: Jobs: 48 Mail Pieces: 44 Sheets: 84

Details for Selected Job

Printed/Total Sheets: 0 / 3
 Printer: ip70
 Comment: test

Attributes | History | Attribute history | Messages | SLA

Time	Process	Step	State	Message
2016-02-25 13:08:18.125895	PieceLevelTracking	Print	Pending	Created job ticket file /IPW/pwref/IPW/jobs/10000069/10000069.0.jobticket
2016-02-25 13:08:02.602852	PieceLevelTracking	Print	Pending	Clear Assigned Printer Option requested on Cancel (operator initiated job change) wa...
2016-02-25 10:07:16.458024	PieceLevelTracking	CreateAfp	Processing	INFO:Command completed successfully.
2016-02-25 10:07:16.305455	PieceLevelTracking	CreateAfp	Processing	INFO:Issuing command [cd /IPW/pwref/IPW/jobs/10000069; adf_extract -x 100000...
2016-02-25 10:07:09.717747	PieceLevelTracking	InitializeJob	Processing	INFO:Overriding RetainJob.Interval value. New value 24 is based on the attribute J...

3. Select the job in Jobs in the System.
4. In Details for Selected Job, select the **Attributes** tab.
The columns in the Attributes tab are:

Columns in Attributes tab

Job	The job ID of the selected job.
Name	The name of the attribute.
Index	The attribute identifier.
Value	The value of the attribute.
Access	<p>The type of access for the attribute:</p> <p>View</p> <p>You can view the attribute, but not change it.</p> <p>Modify</p> <p>You can change the attribute.</p> <p>View:Mod</p> <p>You can change the attribute in this window. Operators can view it in other Job Manager windows, but not change it.</p> <p>None:Mod</p> <p>You can change the attribute in this window. Operators cannot view it.</p>

Modified By	The ID of the user who last modified the attribute.
Group Name	<p>The name of the attribute group:</p> <p>All The attribute is used by all groups</p> <p>Description The attribute has a text value, for example, the job contact name or special instructions for the job.</p> <p>Device The attribute describes devices. (still valid?)</p> <p>Extract The attribute describes extract jobs.</p> <p>General The attribute is a general job-specific attribute.</p> <p>Index The attribute is used for indexing AFP print files.</p> <p>Insert The attribute is used for inserting.</p> <p>Production Unit This is a descriptive identifier by which to reference a particular type of notice. It should be the "common name" by which the work is known to both the operations staff as well as recognized by the source application groups. This is expected to be the Job Type name value.</p> <p>Print The attribute is used for printing.</p> <p>SLA The attribute is a Service Level Agreement attribute.</p> <p>Tracking The attribute is used for accounting and reporting.</p> <p>Type The attribute specifies a job type from which the job inherits the values of other attributes.</p>

- To update an attribute, select the name of an attribute and then click **Update Any Attribute**. You see the Update Any Job Attribute window:

Update Any Job Attribute window

This is the dispatch type of the job. This Job Type attribute is stored in the ipw.doc_index table in the dispatch_type column. This value is one of the criteria that defines a document group when creating Extract jobs. This value can be overridden on a document by document basis, via the ipw.index_data_request table, if customer-added TLEs are included in the datastream. Variations of this value within the doc_index for a Download job will result in the creation of multiple Extract jobs.

Job Id: 10000069

Attribute: Job.DispatchType

Index: 0

Value: Unknown

Buttons: Ok, Cancel

6. In the **Value** field, type or select a new value. The window shows the description of each job attribute.
7. Select **OK**. You see the Attributes tab with the updated attribute and the Modified By column reflects your user name.

Moving a job to another process, step, or state

InfoPrint Workflow allows you to move a job to another process block, to another step within the process block, or to another state. You can skip steps, repeat steps, or ignore an error state.

Note

Be very careful when you move jobs. Moving a job to the wrong process, step, or state can cause serious processing errors. You *cannot* undo the move.

1. In the Summary window, either display the site-specific view or make sure that the tab for the appropriate site is displayed in the Sites Overview.
2. In System Actions, click **Admin Jobs**. You see the All Jobs Admin window:

All Jobs Admin window

The screenshot shows the 'All Jobs (Administrator)' window. The main section is 'Jobs in the System', which contains a table with the following columns: Job Id, Site Assigned, Process, Step, State, Production Unit Name, Production Unit Cycle, Mvs Job Name, Mvs Jobid, Description, and Mail Piece Count. The table lists several jobs, with job 10000069 highlighted in yellow. To the right of the table are buttons for Comment, Retry, Purge, Move Job, Change Job Site, View Trace Log, and View Error Log. Below the table, there are 'Totals' for Jobs (48), Mail Pieces (44), and Sheets (84), along with a 'Find Job' button.

The 'Details for Selected Job' section shows the following information:

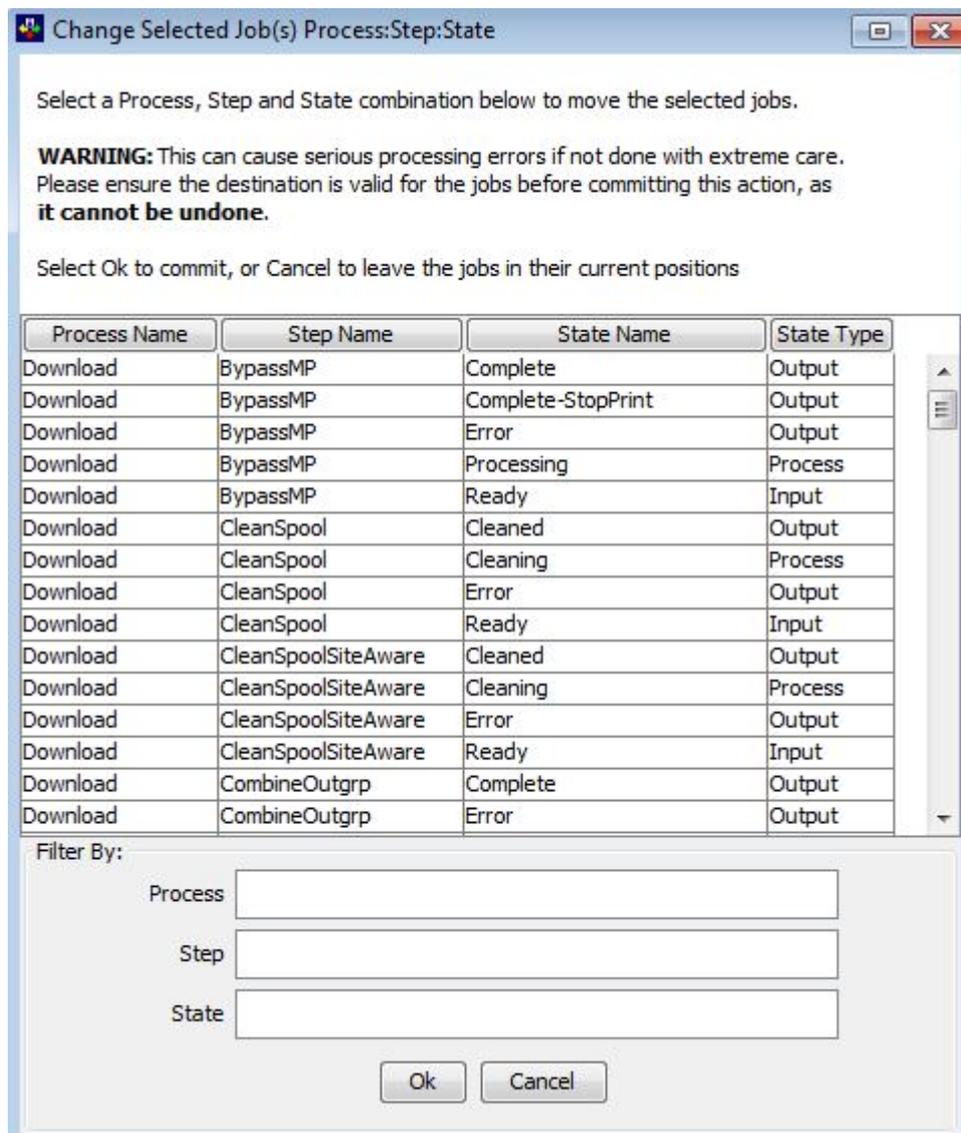
- Printed/Total Sheets: 0 / 3
- Printer: lp70
- Comment: test

Below this information are tabs for Attributes, History, Attribute history, Messages, and SLA. The 'Messages' tab is active, showing a log of events:

Time	Process	Step	State	Message
2016-02-25 13:08:18.125895	PieceLevelTracking	Print	Pending	Created job ticket file /IPW/ipwref/IPW/jobs/10000069/10000069.0.jobticket
2016-02-25 13:08:02.602852	PieceLevelTracking	Print	Pending	Clear Assigned Printer Option requested on Cancel (operator initiated job change) wa...
2016-02-25 10:07:16.458024	PieceLevelTracking	CreateAfp	Processing	INFO:Command completed successfully.
2016-02-25 10:07:16.305455	PieceLevelTracking	CreateAfp	Processing	INFO:Issuing command [cd /IPW/ipwref/IPW/jobs/10000069; adf_extract -x 100000...
2016-02-25 10:07:09.717747	PieceLevelTracking	InitializeJob	Processing	INFO:Overriding RetainJob.Interval value. New value 24 is based on the attribute J...

3. Select one or more jobs in Jobs in the System.
4. Click **Move Job**. You see the Change Selected Job(s) Process:Step:State window:

Change Selected Job(s) Process:Step:State window



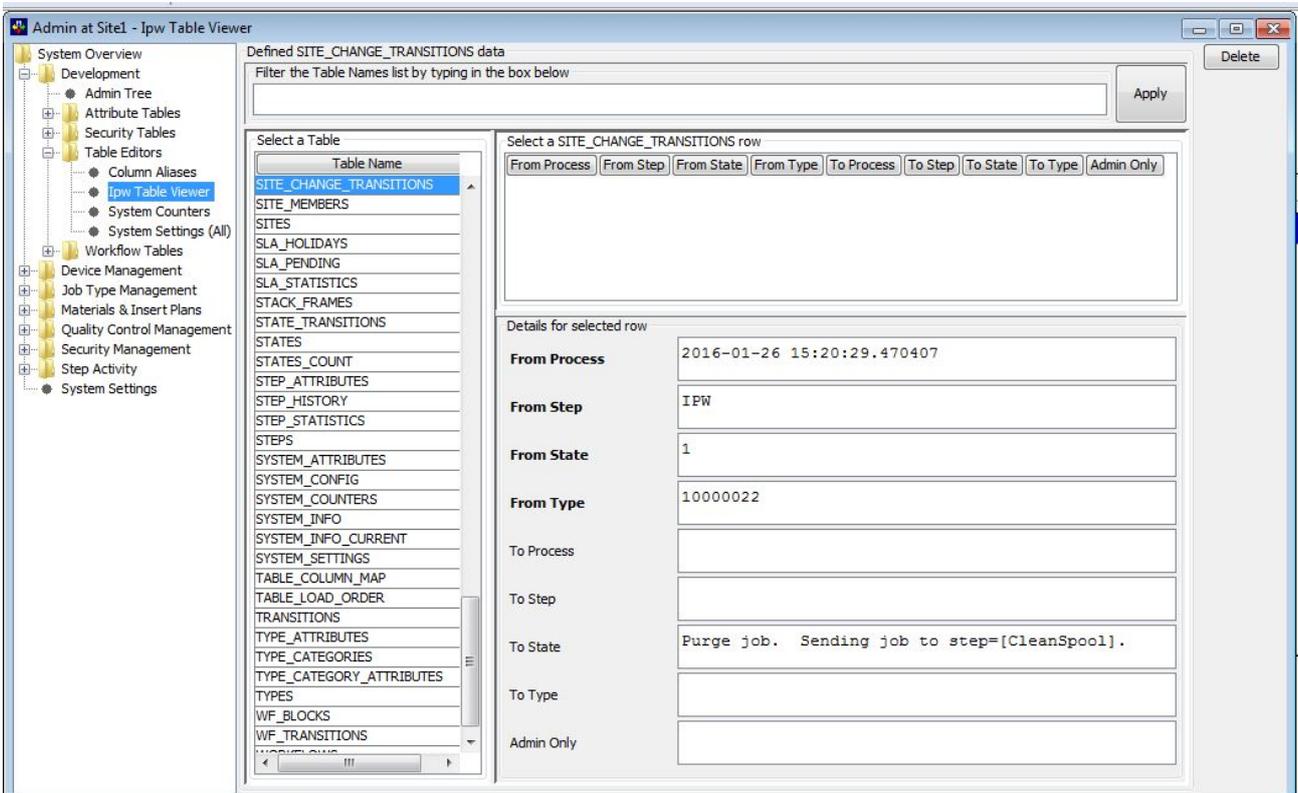
- To filter the table of combinations of process, step, and state, enter values in the **Process**, **Step**, or **State** fields. You can also click on the column headings to filter and sort this table like any other table.
- Select the row with the combination of process, step, and state to which you want to move the job.
- Click **OK** to move the job or **Cancel** to leave the current process, step, and state unchanged.

Moving a job to another site

If a site is having a problem with job processing, the InfoPrint Workflow allows you to move the job to another site. The table `ipw.site_change_transitions` can be used to configure what jobs can move to another site. By default the table is empty and must be configured by the customer administrator.

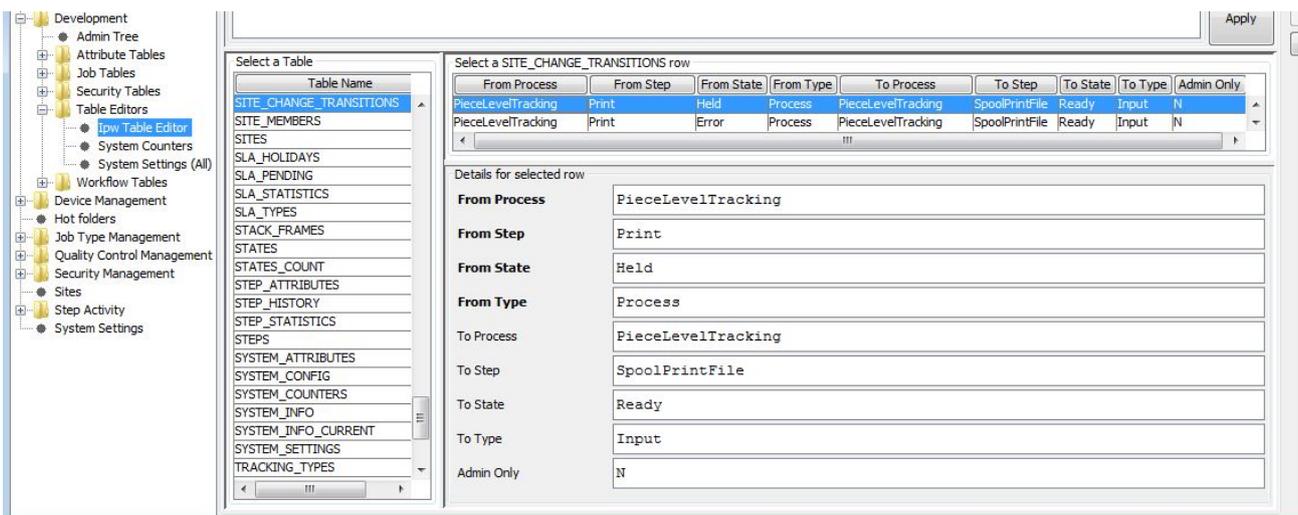
- In System Actions, click **Administration**. You see the **Admin at Site 1** window:
- Open the **Development** folder → the **Table Editors** folder → Select the **Ipw Table Viewer** and scroll to the **SITE_CHANGE_TRANSITIONS** table

Admin at Site1 — Ipw Table Viewer



3. An example of a job transition when moved to another site is shown below.
4. In this example a PieceLevelTracking job in Print/Held state is moved to another site and placed in the PieceLevelTracking – SpoolPrintFile – Ready state to be processed into a print job at the new site.

Site transition job setup



5. The administrator will decide which Process, Step, State and Type the job will move into when transferred.

Managing header and trailer sheets

Before sending a print job to the printer, InfoPrint Workflow calls a header exit to create one or more AFP pages that identify the job. After sending the job, InfoPrint Workflow calls a trailer exit. InfoPrint Workflow passes job-specific data, such as print date and time, submitting user ID, and the job ticket to the exit, which formats the data into text or bar code fields on the header or trailer sheet. The formatting parameters for these fields are supplied in the `/home/ipw_user/templates/exits.cfg` configuration file.

↓ Note

To use a different configuration file, change the value of the `Job.Banner.Config` job type attribute to the name of that file. For instructions, see [Modifying attributes in type definitions, p. 71](#).

Static data on the header or trailer sheet is provided by a medium overlay.

Formatting job-specific data

You can configure the `/home/ipw_user/psup/templates/exits.cfg` file to specify the job-specific fields to print, the font and code page to print them with, and their position on the header or trailer sheet.

★ Important

Be very careful when making changes, as small typographical errors can cause the exit to malfunction. Always keep a backup of the current configuration file so you can recover from editing mistakes.

Lines beginning with `*` are comments.

Other than comments, each line in the configuration file describes a field to print. There are five field types, representing five different ways of extracting data to print:

- ExitData
- JobTicketField
- JobTicketDelimited
- JobTicketMulti
- Literal

Keep in mind:

- The formatting values for each field type are similar but not identical. It is important to use the correct style for the desired field type.
- Formatting values are separated by semicolons (`;`). The semicolon character must not appear in any field value.
- Special formatting values are used when the field is to be formatted as bar code data. For these values, see [Bar code data, p. 93](#).

ExitData field type

The ExitData field type retrieves a single value from the exit data supplied by Infoprint Manager. This includes such information as the submitter user ID, the date printed, the time printed, and so on. Lines of the ExitData type have this format:

```
Field X FieldName ; ExitData ; ExitKey ; CharacterSet ; CodePage ;  
InchesFromLeft ; InchesFromTop ; {0 | 90 | 180 | 270} ;
```

FieldX

The keyword that initializes the field. X is an integer from 1 to 1000, without leading zeros. X must be unique within the configuration file.

FieldName

The name of this field. You may specify any name that is unique within the configuration file.

ExitData

A constant value identifying this line as an ExitData type.

ExitKey

The ExitData variable name identifying the value of interest. These variables are listed in /usr/lpp/psf/exits/ainuexit.h.

CharacterSet

The name of the AFP character set that you want to use to format the text.

CodePage

The name of the AFP code page that you want to use to format the text. This is usually T1000850 for ASCII characters.

InchesFromLeft

The distance in inches of the text from the left edge of the sheet. This value may include a decimal point.

InchesFromTop

The distance in inches of the text from the top edge of the sheet. This value may include a decimal point.

090180270

The clockwise rotation of the data in degrees. Valid values are 0, 90, 180, and 270. This value is optional. The default is 0.

For example, the following field prints the date that the job was printed at a position 5.125 inches from the left edge and 2.1 inches from the top of the sheet. The rotation is not specified, so the date is not rotated. `Field5 Date ; ExitData ; Date ; C0D0GT12 ; T1000850 ; 5.125 ; 2.1`

JobTicketField field type

The JobTicketField field type retrieves a single value from the Infoprint Submit job ticket file. Lines of the JobTicketField type have this format:

```
Field x FieldName; JobTicketField; [TicketKey]; CharacterSet; CodePage;
InchesFromLeft; InchesFromTop; {0 | 90 | 180 | 270};
```

FieldX

The keyword that initializes the field. *x* is an integer from 1 to 1000, without leading zeros. *x* must be unique within the configuration file.

FieldName

The name of this field. You may specify any name that is unique within the configuration file.

JobTicketField

A constant value identifying this line as a JobTicketField type.

[TicketKey]

The Infoprint Submit job ticket key identifying the value of interest. The key must be enclosed in square brackets, for example, [Job copies].

CharacterSet

The name of the AFP character set that you want to use to format the text.

CodePage

The name of the AFP code page that you want to use to format the text. This is usually T1000850 for ASCII characters.

InchesFromLeft

The distance in inches of the text from the left edge of the sheet. This value may include a decimal point.

InchesFromTop

The distance in inches of the text from the top edge of the sheet. This value may include a decimal point.

090180270

The clockwise rotation of the data in degrees. Valid values are 0, 90, 180, and 270. This value is optional. The default is 0.

For example, the following field prints the value of the **[Job copies]** job ticket key at a position 3 inches from the left edge and 6.725 inches from the top of the sheet, rotated 90 degrees: `Field7
TotalSets;JobTicketField;[Job copies];COD0GT10;
T1000850;3.0;6.725;90`

JobTicketDelimited field type

Some values in the Infoprint Submit job ticket file, like [Description], contain multiple sub-values. The JobTicketDelimited field type retrieves a comma-delimited sub-value from the job ticket. Lines of the JobTicketDelimited type have this format:

```
FieldX FieldName; JobTicketDelimited; [TicketKey]; FieldIndex;  
CharacterSet; CodePage; InchesFromLeft; InchesFromTop; {0 | 90 | 180 |  
270};
```

FieldX

The keyword that initializes the field. X is an integer from 1 to 1000, without leading zeros. X must be unique within the configuration file.

FieldName

The name of this field. You may specify any name that is unique within the configuration file.

JobTicketDelimited

A constant value identifying this line as a JobTicketDelimited type.

[*TicketKey*]

The Infoprint Submit job ticket key identifying the value of interest. The key must be enclosed in square brackets, for example, [Description].

FieldIndex

The 1-based index of the desired sub-value within the job ticket value. For example, if the job ticket value is Internal Mail, WH, BULK, 12/20/03, an index of 2 specifies sub-value WH.

CharacterSet

The name of the AFP character set that you want to use to format the text.

CodePage

The name of the AFP code page that you want to use to format the text. This is usually T1000850 for ASCII characters.

InchesFromLeft

The distance in inches of the text from the left edge of the sheet. This value may include a decimal point.

InchesFromTop

The distance in inches of the text from the top edge of the sheet. This value may include a decimal point.

090180270

The clockwise rotation of the data in degrees. Valid values are 0, 90, 180, and 270. This value is optional. The default is 0.

For example, the following field prints the second sub-value of the [Description] job ticket key at a position 0.4 inches from the left edge and 2.1 inches from the top of the sheet. The rotation is not

specified, so the sub-value is not rotated. `Field3 FulfillCode;JobTicketDelimited; [Description];2;CODOGT12;T1000850;0.4;2.1`

JobTicketMulti field type

Some values in the Infoprint Submit job ticket file appear more than once. For example, the key `[-File Item-]` is repeated within the job ticket file to identify each file submitted in the job ticket. The JobTicketMulti field type retrieves multiple values of a repeated ticket key from the job ticket and formats them in columns. Lines of the JobTicketMulti type have this format:

`Field x FieldName; JobTicketMulti; [TicketKey]; CharacterSet; CodePage`

Column definition

`; -1; -1; -1; -1;`

Column definition

`; FirstValuePositionFromLeft; FirstValuePositionFromTop; VerticalIncrement; MaxValuesInColumn`

Fieldx

The keyword that initializes the field. *x* is an integer from 1 to 1000, without leading zeros. *x* must be unique within the configuration file.

FieldName

The name of this field. You may specify any name that is unique within the configuration file.

JobTicketMulti

A constant value identifying this line as a JobTicketMulti type.

[TicketKey]

The Infoprint Submit job ticket key identifying the value of interest. The key must be enclosed in square brackets, for example, `[-File Item-]`.

CharacterSet

The name of the AFP character set that you want to use to format the text.

CodePage

The name of the AFP code page that you want to use to format the text. This is usually T1000850 for ASCII characters.

Column definition:

FirstValuePositionFromLeft

The distance in inches of the first value in the column from the left edge of the sheet. This value may include a decimal point. A value of `-1` indicates the end of the column definitions.

FirstValuePositionFromTop

The distance in inches of the first value in the column from the top edge of the sheet. This value may include a decimal point. A value of `-1` indicates the end of the column definitions.

VerticalIncrement

The vertical distance in inches between values in a column. This value may include a decimal point. A value of -1 indicates the end of the column definitions.

MaxValuesInColumn

The maximum number of values in a column. If there are more values, the next column definition defines their placement. If there are no more column definitions, the last value in this column is replaced with an ellipsis (...) to indicate that not all of the values are displayed. A value of -1 indicates the end of the column definitions.

For example, the following field formats the values of the **[-File Item-]** job ticket key in three columns of 10 values each. Each column starts 5 inches down from the top edge. The first column starts 0.5 inches from the left edge, the second 3 inches from the left edge, and the third 5 inches from the left edge.

```
Field9 Code;JobTicketMulti;[-File Item-];CODOGT10;T1000850; \
  0.5;3.5;0.25;10; 3.0;3.5;0.25;10; 5.5;3.5;0.25;10; -1;-1;-1;-1
```

Note that the backslash (\) at the end of the first line of this example is a continuation character. The example is split into two lines in order to fit on the page. You would enter it as a single line in the configuration file without the backslash.

★ Important

Do not forget the ; -1; -1; -1; -1 at the end of the field.

Literal field type

The Literal field type gets its value from the configuration file itself. Lines of the Literal type have this format:

```
Field x FieldName; Literal; Text; CharacterSet; CodePage;
InchesFromLeft; InchesFromTop; {0 | 90 | 180 | 270};
```

Fieldx

The keyword that initializes the field. *x* is an integer from 1 to 1000, without leading zeros. *x* must be unique within the configuration file.

FieldName

The name of this field. You may specify any name that is unique within the configuration file.

Literal

A constant value identifying this line as a Literal type.

Text

The text that you want to format.

CharacterSet

The name of the AFP character set that you want to use to format the text.

CodePage

The name of the AFP code page that you want to use to format the text. This is usually T1000850 for ASCII characters.

InchesFromLeft

The distance in inches of the text from the left edge of the sheet. This value may include a decimal point.

InchesFromTop

The distance in inches of the text from the top edge of the sheet. This value may include a decimal point.

090180270

The clockwise rotation of the data in degrees. Valid values are 0, 90, 180, and 270. This value is optional. The default is 0.

For example, the following field formats the text "The quick brown fox " at a position 3 inches from the left edge and 6.725 inches from the top of the sheet. The rotation is not specified, so the text is not rotated.

```
Field7 TotalSets;Literal;The quick brown fox;C0D0GT10;T1000850;3.0;6.725;
```

Bar code data

Any field type except `JobTicketMult`, may describe bar code data instead of text. Bar code fields ignore the `CharacterSet` and `CodePage` parameters and add some new ones. Bar code fields have this format: `FieldX FieldName ; {ExitData ; ExitKeyJobTicketField ; [TicketKey] JobTicketDelimited ; [TicketKey] Literal ; Text } ; ; ; InchesFromLeft ; InchesFromTop ; { 0 | 90 | 180 | 270 } ; BarCodeType ; Height ; Modifier ; { yes | no } ; { none | above | below } ; ModuleWidth ; WideNarrowRatio ; RowSize ; Number of Rows ;`

FieldX

The keyword that initializes the field. X is an integer from 1 to 1000, without leading zeros. X must be unique within the configuration file.

FieldName

The name of this field. You may specify any name that is unique within the configuration file.

ExitDataJobTicketField JobTicketDelimitedLiteral

A constant value identifying the line type.

ExitKey

For `ExitData` lines, the `ExitData` variable name identifying the value of interest. These variables are listed in `/usr/lpp/psf/exits/ainuexit.h`.

[*TicketKey*]

For `JobTicketField` and `JobTicketDelimited` lines, the Infoprint Submit job ticket key identifying the value of interest. The key must be enclosed in square brackets, for example, [`Job copies`].

Text

For literal lines, the text that you want to format.

CharacterSet

This value is not used. It should be empty.

CodePage

This value is not used. It should be empty.

InchesFromLeft

The distance in inches of the bar code from the left edge of the sheet. This value may include a decimal point.

InchesFromTop

The distance in inches of the bar code from the top edge of the sheet. This value may include a decimal point.

090180270

The clockwise rotation of the data in degrees. Valid values are 0, 90, 180, and 270. This value is optional. The default is 0.

BarCodeType

The bar code style. Valid values are **3of9**, **MSI**, **UPC-A**, **UPC E**, **UPC-2DIGIT**, **UPC-5DIGIT**, **EAN-8**, **EAN-13**, **Industrial2of5**, **Matrix2of5**, **Interleaved2of5**, **Codabar**, **Code128**, **EAN-2DIGIT**, **EAN 5DIGIT**, **POSTNET**, **RM4SCC**, **JapanPostal**, and **DataMatrix**.

Height

The height in inches of the bar code, not including any human-readable information (HRI).

Modifier

The Bar Code Object Content Architecture (BCOCA) modifier value, which varies by barcode type. Refer to *Bar Code Object Document Content Architecture Reference* for details.

yesno

Whether asterisks should be added before and after the bar code data. This value is used only by certain bar code types. Refer to *Bar Code Object Document Content Architecture Reference* for details.

noneabovebelow

The position of human-readable interpretation (HRI) text in relation to the bar code. This value is used only by certain bar code types. Refer to *Bar Code Object Document Content Architecture Reference* for details.

ModuleWidth

The width of a narrow bar in inches. This value is used only by certain bar code types. Refer to *Bar Code Object Document Content Architecture Reference* for details.

WideNarrowRatio

The ratio between a wide bar and narrow bar; usually between 2.0 and 3.0. This value is used only by certain bar code types. Refer to *Bar Code Object Document Content Architecture Reference* for details.

RowSize

The number of modules in each row of a DataMatrix 2D bar code.

NumberOfRows

The number of rows in a DataMatrix 2D bar code.

For example, this line prints an Interleaved 2 of 5 bar code positioned with its upper left corner 0.5 inch from the left edge and 0.375 inch from the top edge. The bar code is 0.5 inch high, without asterisks and with HRI text below the bar code.

```
Field100 Barcode;JobTicketField:[JobID];;;0.5;0.375;0;Interleaved2of5;0.5;1
;below;;;;
```

Note that the backslash (\) at the end of the first line of this example is a continuation character. The example is split into two lines in order to fit on the page. You would enter it as a single line in the configuration file without the backslash.

Formatting static data

InfoPrint Workflow takes static data for the header sheet and trailer sheet from two medium overlays: *IPW_DataDir/resources/01B1HDR* for the header sheet or *IPW_DataDir/resources/01B1TLR* for the trailer sheet, where *IPW_DataDir* is the value of the *IPW_DataDir* system setting.

To create a medium overlay:

1. Save a copy of the existing medium overlay.
2. Create a source document in any Windows application and print it to a file using the AFP driver. Using the driver properties, specify **OutputType: Medium Overlay** and **Print Text as Graphics: On**.
3. Copy the new overlay to *IPW_DataDir/resources/01B1HDR* or *IPW_DataDir/resources/01B1TLR*.

Files

[Header and trailer sheet files, p. 95](#) lists the files that InfoPrint Workflow uses to create and print header and trailer sheets.

Header and trailer sheet files

File	Description	Location
01B1HDR 01B1TLR	The AFP medium overlays that contains static text, boxes and graphics for the header and trailer sheet	<i>IPW_DataDir/resources</i>
F1B1HDR F1B1TLR	The AFP form definitions that specify the 01B1HDR and 01B1TLR medium overlays	<i>IPW_DataDir/resources</i>
run_mkprof	The shell script used by psup when creating a new printer. The default value for Device .	<i>IPW_HomeDir/psup/bin</i>

File	Description	Location
	HeaderFormDef is F1B1HDR and the default value for Device. TrailerFormDef is F1B1TLR	
exits.cfg	The configuration file that contains the field names and formatting information for the header and trailer sheets	<i>IPW_HomeDir/psup/templates</i>
ainbe.txt	The template for ainbe parameters used by psup when submitting a print job	<i>IPW_HomeDir/psup/templates</i>
auxexit.header auxexit.trailer	The header and trailer exits called from PSF	<i>IPW_HomeDir/psup/exits</i>
GenerateJob-Ticket.wfs	The InfoPrint Workflow script to create a job ticket file containing the desired header or trailer sheet data	<i>IPW_HomeDir/ipwv3aix/Project</i>
Print.wfs	The InfoPrint Workflow script for the Print process, modified to call GenerateJobTicket	<i>IPW_HomeDir/ipwv3aix/Project</i>

Attributes

[Header and trailer sheet attributes](#), p. 96 lists the attributes that refer to header and trailer sheets.

Header and trailer sheet attributes

Attribute	Description	Default value
Job.Banner.Config	The name of the auxiliary exit configuration file for this job	<i>IPW_HomeDir/psup/templates/exits.cfg</i>
Job.AFP.ResourceDir	The name of the directory that contains AFP resources for this job, including the form definitions and overlays used by the header and trailer sheets	<i>IPW_DataDir/resources</i>
Job.RequiredMailDate	The SLA-driven date by which the job must be mailed. This value is printed on the header and trailer pages.	
Job.SpecialInstructions.Line1 Job.SpecialInstructions.Line2 Job.SpecialInstructions.Line3	Up to five lines of special instructions printed on the header or trailer sheet.	

Attribute	Description	Default value
Job.SpecialInstructions.Line4 Job.SpecialInstructions.Line5		
File.PathName.JobTicket	The name of the job ticket file for this job, created by GenerateJobTicket, referenced in ainbe.txt, and used by auxexit.header and auxexit.trailer	<i>IPW_DataDir/job_id/job_id.0.jobticket</i>
Device.HeaderExit	The name of the header exit program for this device	<i>IPW_HomeDir/psup/exits/auxexit.header</i>
Device.TrailerExit	The name of the trailer exit program for this device	<i>IPW_HomeDir/psup/exits/auxexit.trailer</i>
Device.ParameterTemplateFile	The name of the ainbe parameter template for this device	<i>IPW_HomeDir/psup/templates/ainbe.txt</i>

Managing bar codes

An inserter or hand scanner can use any of these bar codes to identify mailpieces:

2-of-5 bar code 3-of-9 bar code DataMatrix two-dimensional (2D) bar code

These three bar code types are called *sequence number bar codes*. You can use any one of the three formats. They look different, but all contain a string of information defined by the Job.SeqNum.Barcode.Content attribute. The 2-of-5 and 3-of-9 bar codes are a series of lines; the 2D bar code is a square graphic.

Human-Readable Interpretation (HRI) bar code

This bar code is numeric and contains a string of information defined by the Job.SeqNum.HRI.Content attribute.

This chapter explains how to set Extract type attributes to:

- Define bar code type and contents
- Enable bar codes and define the pages where they are printed
- Set bar code locations
- Set bar code size
- Mask bar codes
- Define miscellaneous bar code characteristics

Defining bar code type and contents

Use the following attributes to define the type of sequence number bar code and the contents of bar codes:

Job.SeqNumBarcode.Type

This attribute specifies the sequence number bar code format: **BCOCA_2of5**, **BCOCA_3of9**, or **BCOCA_DataMatrix**.

Job.SeqNumBarcode.ContentJob.SeqNumHRI.Content

These attributes define the contents of the sequence number bar code and HRI bar code respectively. Both use the same keywords, delimited by @ characters:

EXTRACT_JOB_ID

The InfoPrint Workflow extract job ID.

EXTRACT_DOC_ID

The InfoPrint Workflow extract document ID.

PRINT_JOB_ID

The InfoPrint Workflow print job ID.

PRINT_DOC_ID

The InfoPrint Workflow print document ID.

CUR_SHEET

The sequence of the current sheet in the current mailpiece.

TOTAL_SHEETS

The total number of inserter sheets in the current mailpiece.

CUSTOM n

A customer-defined index value. Up to ten of these values, numbered 1 through 10, can be defined.

In the HRI bar code, you can also specify literal text that you want to print. For example, you might define the following format strings: `Job.SeqNumBarcode.Content@PRINT_JOB_ID@CUR_SHEET@TOTAL_SHEETS@Job.SeqNumHRI.Content@PRINT_JOB_ID@-@CUR_SHEET@ of @TOTAL_SHEETS@`For the second of four sheets in print job 100612, the resulting sequence number bar code is a series of lines or a square graphic that a scanner can read as 10061224. The HRI bar code reads 100612-2 of 4.

Enabling and placing bar codes

Use the following attributes to turn bar codes on and off and to control the pages where they appear:

Job.SeqNumBarcode.EnabledJob.SeqNumHRI.Enabled

These attributes enable or disable the sequence number bar code and HRI bar code respectively. Specify **Yes** to turn the bar code on or **No** to turn it off.

Job.SeqNumBarcode.PlacementRuleJob.SeqNumHRI.PlacementRule

These attributes control the pages where the sequence number bar code and HRI bar code respectively are printed. Specify one of the following values: **None**, **FirstFrontOnly**, **FirstBackOnly**, **AllFronts**, **AllBacks**, **AllPages**.

Setting the bar code location

The locations of the bar codes on mailpieces depend on the type of bar code and the orientation on the page.

Setting the sequence number bar code location

In InfoPrint Workflow, sequence number bar codes are measured from the top-left corner of the page to the bar code origin, which is the top-left corner of the bar code at 0° orientation. As the orientation of the bar code changes, the bar code origin rotates the same way. For example, the bar codes in [3-of-9 bar code: 0°, 90°, 180°, and 270° orientation, p. 99](#) show the origin of the bar code in 0° 90°, 180°, and 270° orientations. If you rotate the bar code 90°, the bar code origin moves to the top right corner of the bar code.

3-of-9 bar code: 0°, 90°, 180°, and 270° orientation



Use these attributes to control the location of the sequence number bar code:

Job.SeqNumBarcode.Orientation

Set the orientation to **Degrees X**, where *X* is **0, 90, 180, or 270**.

Note

Because the 2D bar code is a square graphic, there is no reason to change its orientation. For this type of sequence number bar code, the orientation should always be **Degrees0**.

Job.SeqNumBarcode.Location

Set the bar code origin coordinates to *X, y*, where *X* is the horizontal distance and *y* is the vertical distance from the top-left corner of the page in inches. Decimal points are allowed. You typically only need to change one coordinate.

Setting the HRI bar code location

In InfoPrint Workflow, HRI bar codes are measured to the bar code origin, which is the top-left corner of the bar code at 0° orientation. In contrast to sequence number bar codes, the measurement origin for HRI bar codes moves to different corners of the page as the orientation of the bar code changes. [HRI bar code orientation, p. 100](#) shows where on the page the measurement origin is for each bar code orientation:

HRI bar code orientation

Orientation	Measurement origin	Coordinate direction (x, y)
0°	Top-left corner	x Horizontal dimension y Vertical dimension
90°	Top-right corner	x Vertical dimension y Horizontal dimension
180°	Bottom-right corner	x Horizontal dimension y Vertical dimension
270°	Bottom-left corner	x Vertical dimension y Horizontal dimension

Use these attributes to control the location of the HRI bar code:

Job.SeqNumHRI.Orientation

Set the orientation to **Degrees X**, where X is **0, 90, 180, or 270**.

Job.SeqNumHRI.Location

Set the bar code origin coordinates to X,Y according to [HRI bar code orientation](#), p. 100. The unit of measure is inches. Decimal points are allowed.

Keep in mind: If you rotate the HRI bar code, but keep the location coordinates the same, the position of the bar code changes drastically on the page. Therefore, if you change the bar code orientation, you probably need to change the location coordinates too.

Setting the bar code size

Use these attributes to set the size of the sequence number bar code:

Job.SeqNumBarcode.BarcodeSize

This attribute specifies the height of the sequence number bar code in inches. Decimal points are allowed.

Job.SeqNumBarcode.ElementSize

This attribute specifies the width of the narrowest element of the sequence number bar code in thousandths of an inch. (For 2D bar codes, the narrowest element is a square element.) Specify a value between 1 and 255, or 0 to accept a default value.

Masking bar codes

Cover blocks are used to mask obsolete information, including bar codes. Use these attributes to manage cover blocks:

Job.CoverBlock.1.EnabledJob.CoverBlock.2.Enabled Job.CoverBlock.3.Enabled

These attributes enable or disable the corresponding cover block. Specify **Yes** to turn the cover block on or **No** to turn it off.

Job.CoverBlock.1.HeightWidthJob.CoverBlock.2.HeightWidth Job.CoverBlock.3.HeightWidth

These attributes specify the size of the corresponding cover block. Specify a value in the format *X, y*, where *X* is the horizontal dimension and *y* is the vertical dimension in inches. Decimal points are allowed.

Job.CoverBlock.1.LocationJob.CoverBlock.2.Location Job.CoverBlock.3.Location

These attributes specify the distance of the top-left corner of the corresponding cover block from the top-left corner of the page. Specify a value in the format *X,y*, where *X* is the horizontal dimension and *y* is the vertical dimension in inches. Decimal points are allowed.

Job.CoverBlock.1.PlacementRuleJob.CoverBlock.2.PlacementRule Job.CoverBlock.3.PlacementRule

These attributes control the pages where the corresponding cover block is printed. Specify one of the following values: **None**, **FirstFrontOnly**, **FirstBackOnly**, **AllFronts**, **AllBacks**, **AllPages**.

Other attributes that affect bar codes

The following attributes also affect bar codes:

Job.ConstantOverlay.Rule

This attribute controls the printing of constant pages for jobs whose form definition includes them. Values are **None**, **Even**, **Odd**, **FirstEven**, **FirstOdd**, **FirstPage**, and **LastPage**. If barcodes appear in unexpected places, try setting this value to **None**.

Job.SeqNumBarcode.IncludeCheckDigit

This attribute specifies whether the sequence number bar code includes a check digit. Specify **Yes** or **No**.

Job.SeqNumHRI.CodedFont

This attribute specifies the name of the coded font used to print the HRI bar code.

7. Indexing

- Processing files with AFPInderer
- Managing index data requests

Processing files with AFPInderer

The optional AFPInderer feature of InfoPrint Workflow adds Page Level and Group Level TLEs to AFP documents. These TLEs allow you to quickly locate information for a specific customer. There are two major processes in using AFPInderer:

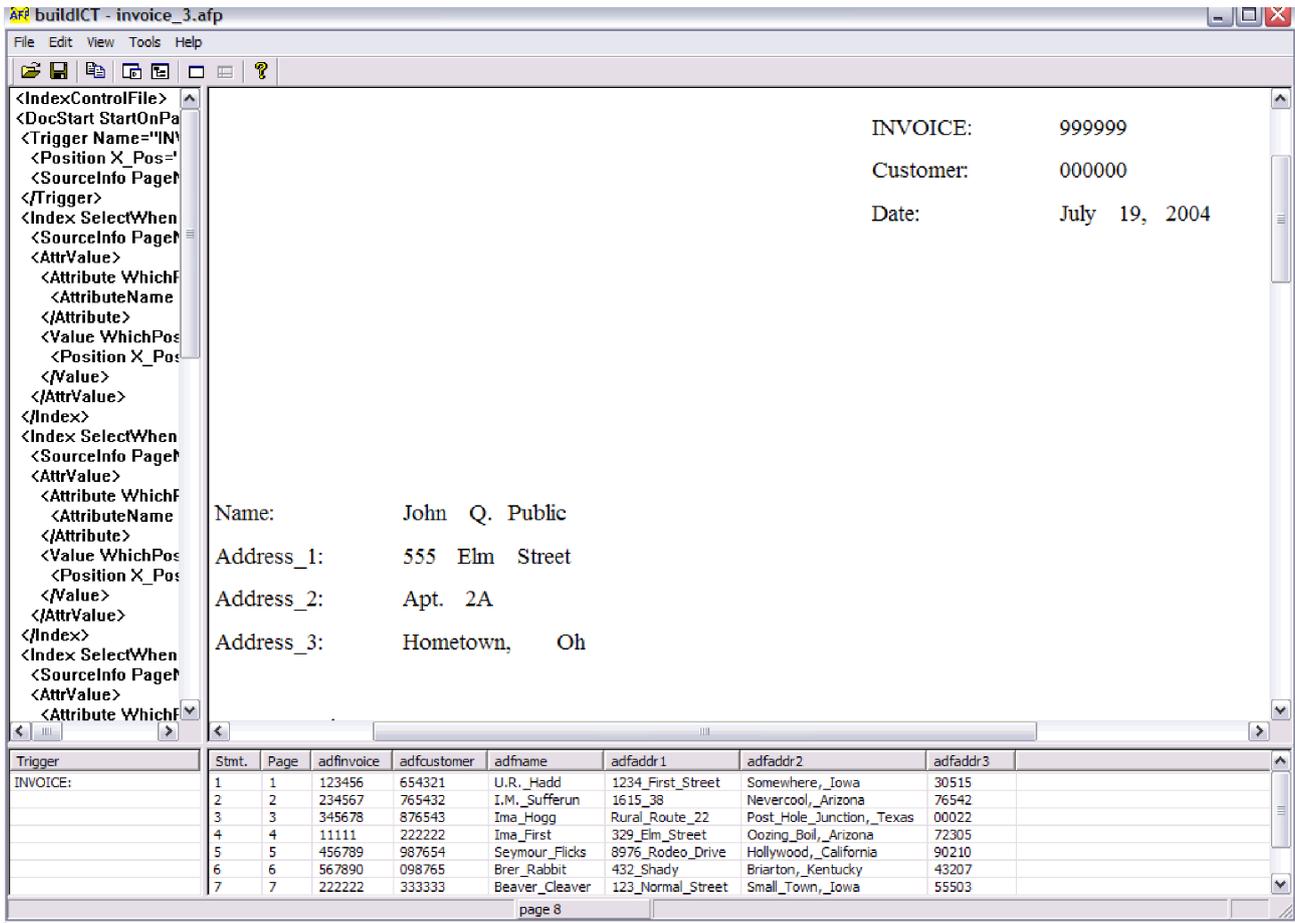
1. On Windows, open a representative AFP document in the AFPInderer GUI. You can select data from this document and define Page Level and Group Level indexing controls, then save these controls in a control file.
2. On either Windows or AIX, process the AFP input file with the control file to create:
 - An indexed AFP output file
 - An optional AFP Resource Group file, containing fonts, overlays, page segments, and form definitions used by the indexed AFP output file
 - An optional AFP Document Index file
 - An optional information file, which describes the Page Level and Group Level indexing controls in the indexed AFP output file

InfoPrint Workflow automatically indexes input files; for test jobs, you may wish to perform this step manually.

Creating the index control file

AFPInderer User's Guide, which is included with the AFPInderer, contains instructions for creating an index control file with the file extension .i c t. Follow these instructions to create control files for your job types.

AFPIndexer GUI



AFPIndexer GUI, p. 104 shows a control file being created.

- The upper right pane shows the sample AFP data file that is being used to create the control file. This file contains multiple statements, each one page long.
- The upper left pane shows the contents of the control file. Scroll to read the entire file, which looks like [An AFPIndexer control file, p. 104](#).

An AFPIndexer control file

```
<IndexControlFile>
  <DocStart StartOnPage="1" DropEndPages="0">
    <Trigger Name="INVOICE:">
      <Position X_Pos="4.75" Y_Pos="1.14583" StringNumber="1"
      Threshold="10"/>
      <SourceInfo PageNumber="1" ItemNumber="7"/>
    </Trigger>
    <Index SelectWhen="WHEN_FOUND">
      <SourceInfo PageNumber="1" ItemNumber="9"/>
      <AttrValue>
        <Attribute WhichPos="1" Required="True">
          <AttributeName Name="adfinvoice"/>
        </Attribute>
        <Value WhichPos="1" Required="True">
```

```

        <Position X_Pos="5.75" Y_Pos="1.14583" StringNumber="1"
Threshold="10"/>
        </Value>
        </AttrValue>
    </Index>
    <Index SelectWhen="WHEN_FOUND">
        <SourceInfo PageNumber="1" ItemNumber="23"/>
        <AttrValue>
            <Attribute WhichPos="1" Required="True">
                <AttributeName Name="adfcustomer"/>
            </Attribute>
            <Value WhichPos="1" Required="True">
                <Position X_Pos="5.75" Y_Pos="1.3375" StringNumber="1"
Threshold="10"/>
                </Value>
            </AttrValue>
        </Index>
        <Index SelectWhen="WHEN_FOUND">
            <SourceInfo PageNumber="1" ItemNumber="49"/>
            <AttrValue>
                <Attribute WhichPos="1" Required="True">
                    <AttributeName Name="adfname"/>
                </Attribute>
                <Value WhichPos="1" Required="True">
                    <Position X_Pos="2.25" Y_Pos="2.87083" StringNumber="1"
Threshold="10"/>
                    </Value>
                </AttrValue>
            </Index>
            <Index SelectWhen="WHEN_FOUND">
                <SourceInfo PageNumber="1" ItemNumber="53"/>
                <AttrValue>
                    <Attribute WhichPos="1" Required="True">
                        <AttributeName Name="adfaddr1"/>
                    </Attribute>
                    <Value WhichPos="1" Required="True">
                        <Position X_Pos="2.25" Y_Pos="3.0625" StringNumber="1"
Threshold="10"/>
                        </Value>
                    </AttrValue>
                </Index>
                <Index SelectWhen="WHEN_FOUND">
                    <SourceInfo PageNumber="1" ItemNumber="58"/>
                    <AttrValue>
                        <Attribute WhichPos="1" Required="True">
                            <AttributeName Name="adfaddr2"/>
                        </Attribute>
                        <Value WhichPos="1" Required="True">
                            <Position X_Pos="2.25" Y_Pos="3.25417" StringNumber="1"
Threshold="10"/>
                            </Value>
                        </AttrValue>
                    </Index>
                </Index>
            </Index>
        </Index>
    </Index>

```

```

</Index>
<Index SelectWhen="WHEN_FOUND">
  <SourceInfo PageNumber="1" ItemNumber="62"/>
  <AttrValue>
    <Attribute WhichPos="1" Required="True">
      <AttributeName Name="adfaddr3"/>
    </Attribute>
    <Value WhichPos="1" Required="True">
      <Position X_Pos="2.25" Y_Pos="3.44583" StringNumber="1"
Threshold="10"/>
    </Value>
  </AttrValue>
</Index>
</DocStart>
</IndexControlFile>

```

The control file defines several attributes, pieces of information that you want to be able to locate quickly. The attribute value defines the position of the attribute, with a threshold that allows for slight variation. A page attribute creates a page-level TLE in the indexed document. A document attribute creates a group-level TLE.

- The lower left pane shows the triggers that have been defined. A document trigger indicates the first page of a new document: in this case, the string `INVOICE:`. A page trigger indicates the beginning of a new page within a document. Because the documents in this file have only one page each, no page triggers have been defined.
- The lower right pane shows the results of applying the control file to the sample data file. It contains two standard columns and a column for each attribute:

Stmt.

The sequence number of the document, or statement, in the data file. This column always appears.

Page

The page number within the data file (not within the document). This column always appears.

adfinvoice

The invoice number. This is the value of the `adfinvoice` attribute defined in the control file.

adfcustomer

The customer number. This is the value of the `adfcustomer` attribute defined in the control file.

adfname

The name of the customer. This is the value of the `adfname` attribute defined in the control file.

adaddr1

The first line of the customer's address. This is the value of the `adfaddr1` attribute defined in the control file.

adaddr2

The second line of the customer's address. This is the value of the `adfaddr2` attribute defined in the control file.

adaddr3

The third line of the customer's address. This is the value of the `adfaddr3` attribute defined in the control file.

After you save the control file, copy it to the directory on the AIX server specified by the `ControlPath.ParmName` system setting.

Manually indexing an AFP file

Use the **indexAFP** command to index an AFP file.

Syntax**indexAFP**

```
indexAFP -i filename -c filename -o filename -fmdir filename -r
filename Resource flags -d filename -f filename
```

Resource flags

```
-fpath ! pathname -ftype {240 | 300 | 600 | OLN} -opath ! pathname -ppath !
pathname -fd formdef -cfg filename
```

Flags**-i *filename***

The name of the input AFP file to be indexed. This parameter is required.

-c *filename*

The name of the index control file. This parameter is required.

-o *filename*

The name of the output indexed AFP file. This parameter is required.

-fmdir *font_directory*

The path of the font mapping information that is installed with AFPIndexer, including the font directory. This attribute is required if you do not run AFPIndexer from the directory where it is installed, or if you have more than one set of font mappings.

-r *filename*

The name of the output AFP resource group file. This parameter is optional. If it is not specified, no AFP resource group file is created.

-d *filename*

The name of the output AFP document index file. This parameter is optional. If it is not specified, no AFP document index file is created.

-f *filename*

The name of the output information file. This parameter is optional. If it is not specified, no information file is created.

-fpath *pathname* !*pathname*... !...

The names, in order, of one or more search paths for AFP font resources to include in the AFP resource group file. Separate multiple path names with an exclamation point (!). This parameter is optional and is used with the `-r` parameter. There is no default value.

Note

In order to be found, font resources must have one of the following file extensions:

240-pel fonts

240, FONT3820, FONT38PP, FIL

300-pel fonts

300, FONT300

600-pel fonts

600

Outline fonts

OLN, FONTOLN

-ftype resolution

The resolution of the font character set to include in the AFP resource group file. Valid values include **240**, **300**, **600**, and **OLN** (outline). The default value is **240**. This parameter is optional and is used with the `-r` parameter.

-opath pathname!pathname...!...

The names, in order, of one or more search paths for AFP overlay resources to include in the AFP resource group file. Separate multiple path names with an exclamation point (!). This parameter is optional and is used with the `-r` parameter. There is no default value.

Note

In order to be found, overlay resources must have one of the following file extensions: OVLY3820, OVLY38PP, OVL, OLY.

-ppath pathname!pathname!...

The names, in order, of one or more search paths for AFP page segment resources to include in the AFP resource group file. Separate multiple path names with an exclamation point (!). This parameter is optional and is used with the `-r` parameter. There is no default value.

Note

In order to be found, page segment resources must have one of the following file extensions: PSEG3820, PSEG38PP, PSG, PSE.

-fd formdef

-cfg filename

The name of a configuration file that can contain the following attributes:

FontPath

The names, in order, of one or more search paths for AFP font resources to include in the AFP resource group file. Separate multiple path names with an exclamation point (!).

OvlyPath

The names, in order, of one or more search paths for AFP overlay resources to include in the AFP resource group file. Separate multiple path names with an exclamation point (!).

PsegPath

The names, in order, of one or more search paths for AFP page segment resources to include in the AFP resource group file. Separate multiple path names with an exclamation point (!).

FormDef

The full path name of the form definition to include in the AFP resource group file. Do not include the file extension.

This parameter is optional and is used with the `-r` parameter. There is no default value.

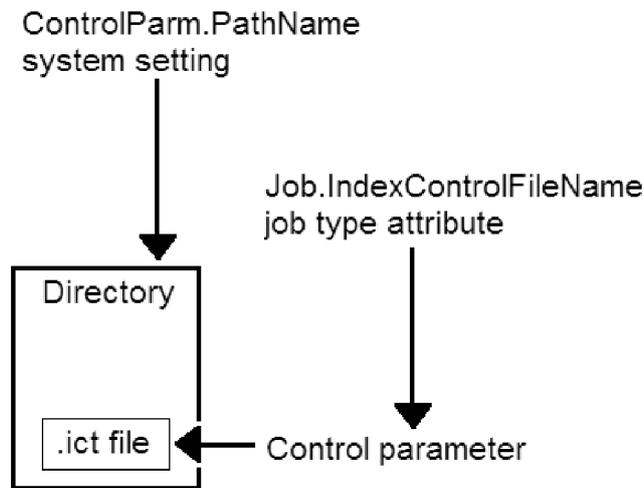
↓ Note

- Values that you specify on the command line for the `-fpath`, `-opath`, `-ppath`, and `-fd` parameters override values in the configuration file.
- A pound sign (#) at the beginning of a line in the control file indicates a comment.
- A sample configuration file is supplied with AFPIndexer. All values in the sample file are commented out.

Automatically indexing AFP files

InfoPrint Workflow uses an index control file to process a job automatically. The index control file must be located in the directory specified by the `ControlParm.PathName` system setting. By default, this directory is `IPW_HomeDir/control_files`. The `Job.IndexControlFile` job attribute points to a control parameter that points to this index control file. This attribute can have different values for different job types.

Specifying index control files



Managing index data requests

InfoPrint Workflow uses job attribute values and the TLE results of the Autoindexer to fill in DB2 tables with data about jobs. Index data requests determine how the data is found or calculated and where it is stored. This chapter explains how to add, copy, change, and delete index data requests.

To do the tasks in this chapter, you use the Manage Index Data Requests window. To access this window:

1. From System Actions in any view of the main window, click **Administration**. You see the System Overview window.

System Overview window

Job and Step Statistics

Total Number of Jobs	47	Jobs In Input Queues	0
Jobs In Error State	17	Jobs In Process Queues	27
Number of Active Steps	0	Jobs In Output Queues	20

DB2 Tablespace Statistics

Tablespace name	% used
BASE_TS	37
DOCMP_IDX_TS	2
RECON_PEND_IDX_TS	7
RECON_PEND_TS	7
HIST_IDX_TS	2

File Statistics

Total Number of Files	33	Total Number of Sheets	24
Files In Download Dir.		Total Number of Documents	24
Total of File Sizes (MB)	33.28		

2. Select **Job Type Management** → **Job Type Detail** → **Index Data Requests** from the System Overview menu.

Index Data Requests window

Defined Index Data Requests

Record Type	Record Name	Table Schema	Table Name	Column Name	Group Type Name	Default Value
Attribute		IPW	DOC_INDEX	DISPATCH_TYPE	ALL	0
Attribute		IPW	DOC_INDEX	ENCLOSER_TYPE	ALL	0
Calculated		IPW	DOC_INDEX	DOWNLOAD_DOC_ADDR	ALL	
Calculated		IPW	DOC_INDEX	DOWNLOAD_DOC_ID	ALL	
Calculated		IPW	DOC_INDEX	DOWNLOAD_DOC_LEN	ALL	
Calculated		IPW	DOC_INDEX	DOWNLOAD_JOB_ID	ALL	
Calculated		IPW	DOC_INDEX	NBR_SHEETS	ALL	
Fixed		IPW	DOC_INDEX	MESSAGE_ID	ALL	3

Adding index data requests

★ Important

The first time that you add an index data request to a new table (for example, DOC_ADDRESS or DOC_CUSTOM), be sure to add an index data request for the table primary keys, DOWNLOAD_DOC_ID and DOWNLOAD_JOB_ID.

To add an index data request:

1. In the Index Data Requests window ([Index Data Requests window, p. 111](#)), click **Add**. You see the Add Index Data Request window:

Add Index Data Request window

Fill in the fields below to indicate the desired indexing behavior.
Note that required fields are marked in bold text.

Record Type	Record Name
Tile	<EMPTY>
Table Schema	Table Name
IPW	DOC_INDEX
Column Name	Group Type Name
ID	ALL
Default Value	Validation Type
<EMPTY>	0
Max Count	Max Length
0	250
Ignore After	Min Length
1	0
Data Length	Offset
0	0
<input checked="" type="checkbox"/> Remove Trailing Blanks	<input type="checkbox"/> Required
<input checked="" type="checkbox"/> Convert To Ascii	<input type="checkbox"/> Special Handling
<input checked="" type="checkbox"/> Zero Fillable	<input type="checkbox"/> Convert To Enum
<input type="checkbox"/> Multiple Fields	<input type="checkbox"/> Null If Absent
<input checked="" type="checkbox"/> Significant	<input type="checkbox"/> Immediate

Ok Cancel

2. Type or select values in the following fields:

Record Type

How the data is determined. Specify one of the following values:

Attribute

The data is the value of a job attribute.

Calculated

InfoPrint Workflow calculates the data.

Fixed

The data is a fixed value.

Tle

The data is the value of a TLE, either created by the AFPIIndexer or already existing in the document.

Job Attribute

For the attribute record type only, the name of the job attribute.

Calculated Type

For the calculated record type only, the calculation used: job ID, length of the document in bytes, offset of the document in bytes from the beginning of the job, sheet count, or document ID.

Record Name

For the TLE record type only, the name of the TLE.

Table Schema

This value is always IPW.

Table Name

The name of the DB2 table where the data is stored.

Column Name

The name of the column in the DB2 table where the data is stored.

Group Type Name

The name of a group of job types. If this value matches the value of the Job.TLEGroupName attribute, the index data request applies to the job. The default value is ALL, meaning that the index data request applies to all job types unless an index data request with a group type name that exactly matches the Job.TLEGroupName overrides it.

Default Value

The value to use if the data is not specified. For the fixed record type, this is the value to use in all cases.

Validation Type

The type to which valid data must belong: alphanumeric, numeric, or printable. Specify None if the data is not validated.

Max Count

The maximum number of times that the data can occur in the job. Specify 0 if there is no maximum.

Max Length

The maximum length of the data in bytes.

Ignore After

The number of occurrences of the data to index within a single document. Subsequent occurrences in the document are ignored. Specify 0 to index all occurrences.

Min Length

The minimum length of the data in bytes. Specify 0 if there is no minimum.

Data Length

The number of bytes of the data to store. Specify 0 if the data is not truncated.

Offset

The number of bytes of the TLE data to ignore before storing the data.

Remove Trailing Blanks

Check this box to ignore blanks at the end of the data.

Convert to ASCII

Check this box to convert the data to ASCII format.

Zero Fillable

Check this box to fill the table column with zeros if the data contains a minor error.

Multiple Fields

Check this box if the TLE data contains multiple fields, or if the value from a single field is stored in multiple columns or tables.

Significant

Check this box if ...

Required

Check this box if the data must be found in each document.

Special Handling

Check this box if the data requires special handling.



IBM must supply code for special handling.

Convert to Enum

Check this box to convert the data to one of a specified set of values. For example, if the data is obtained from a job attribute, you can convert the attribute value to its corresponding numeric value for storage.

Null if Absent

Check this box to place a null value in the table column if the data is absent.

Immediate

Check this box if ...

3. Click **OK**. You see the Index Data Requests window with the new request.

Copying index data requests

To change an index data request:

1. In the Index Data Requests window ([Index Data Requests window, p. 111](#)), select the index data request that you want to copy.
2. Click **Copy**. You see the Add Index Data Request window ([Add Index Data Request window, p. 112](#)).
3. Type or select new values in any fields that you want to change.
4. Click **OK**. You see the Index Data Requests window with the new request.

Changing index data requests

To change an index data request:

1. In the Index Data Requests window ([Index Data Requests window, p. 111](#)), select the index data request that you want to change.
2. Click **Update**.
You see the Update Index Data Request window:

Update Index Data Request window

Fill in the fields below to indicate the desired indexing behavior. Note that required fields are marked in bold text.

Record Type	Job Attribute
Attribute	Job.DispatchType
Table Schema	Table Name
IPW	DOC_INDEX
Column Name	Group Type Name
ID	ALL
Default Value	Validation Type
0	None
Max Count	Max Length
0	250
Ignore After	Min Length
1	0
Data Length	Offset
0	0
<input checked="" type="checkbox"/> Remove Trailing Blanks	<input type="checkbox"/> Required
<input checked="" type="checkbox"/> Convert To Ascii	<input type="checkbox"/> Special Handling
<input checked="" type="checkbox"/> Zero Fillable	<input checked="" type="checkbox"/> Convert To Enum
<input type="checkbox"/> Multiple Fields	<input type="checkbox"/> Null If Absent
<input checked="" type="checkbox"/> Significant	<input type="checkbox"/> Immediate

Ok Cancel

The fields are the same as in the Add Index Data Request window ([Add Index Data Request window, p. 112](#)).

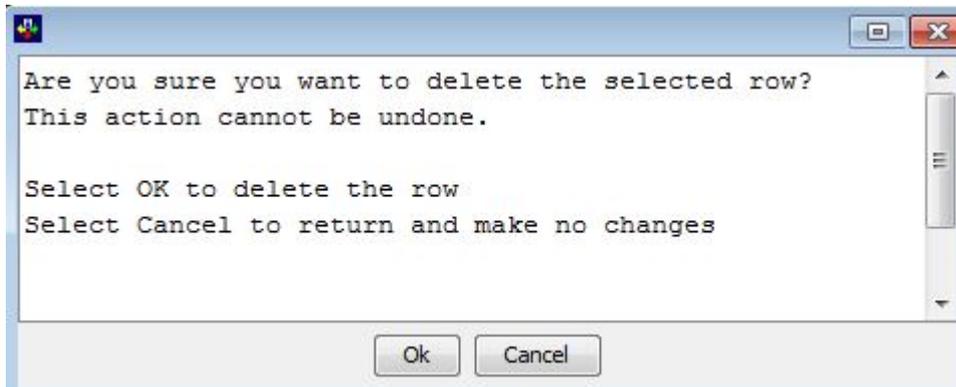
- Type or select new values in the fields that you want to change.
- Click **OK**.
You see the Index Data Requests window with the changed request.

Deleting index data requests

To delete an index data request:

1. In the Index Data Requests window ([Index Data Requests window, p. 111](#)), select the index data request that you want to delete.
2. Click **Delete**.
You see a confirmation message:

Delete Index Data Request confirmation message



3. Click **OK**. You see the Index Data Requests window without the deleted request.

8. Quality control

- Managing quality control questions
- Managing quality control groups
- Managing quality control question definitions

Managing quality control questions

InfoPrint Workflow allows operators to record quality information for jobs at the end of the Quality, Machine Insertion, Manual Insertion, Verify, and Dispatch process blocks. The questions that appear when an operator clicks **Quality** vary according to the process and the value of the Job.QC.ControlGroup attribute.

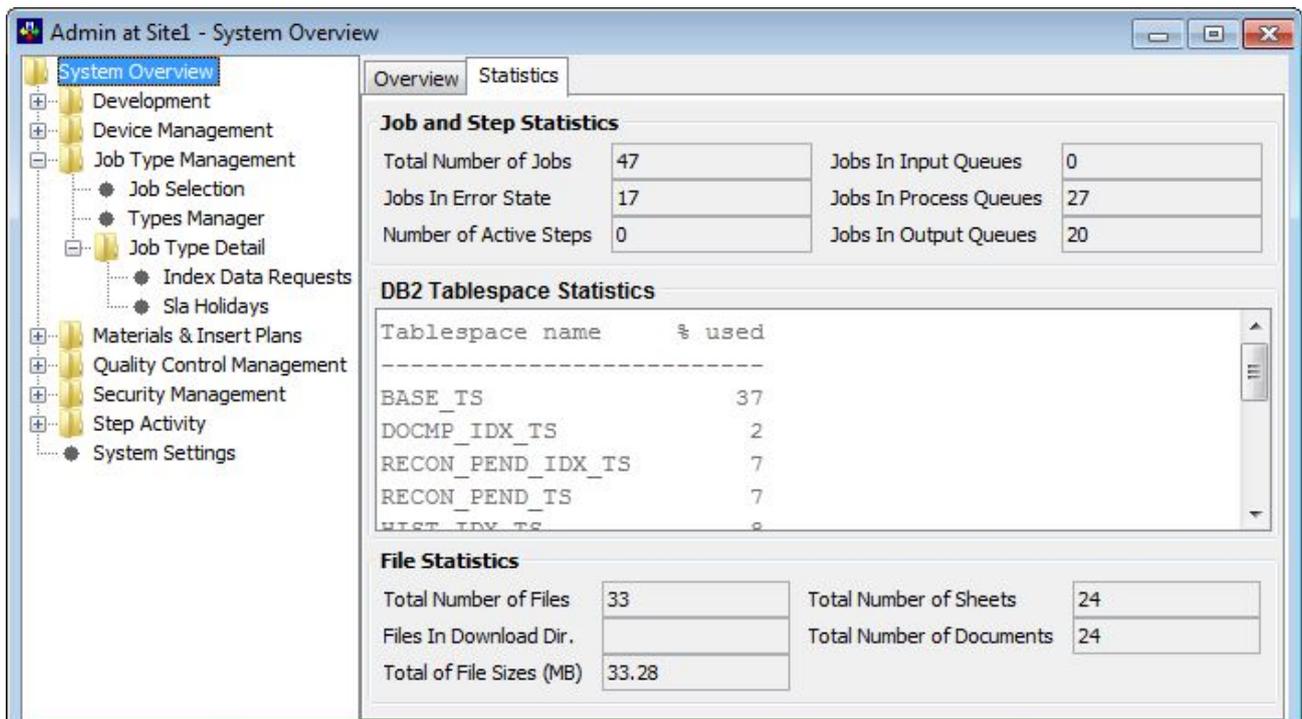
This chapter explains:

- How to add questions to the library of questions that InfoPrint Workflow can ask
- How to change questions
- How to delete questions

To do the tasks in this chapter, you use the Manage QC Questions window. To access this window:

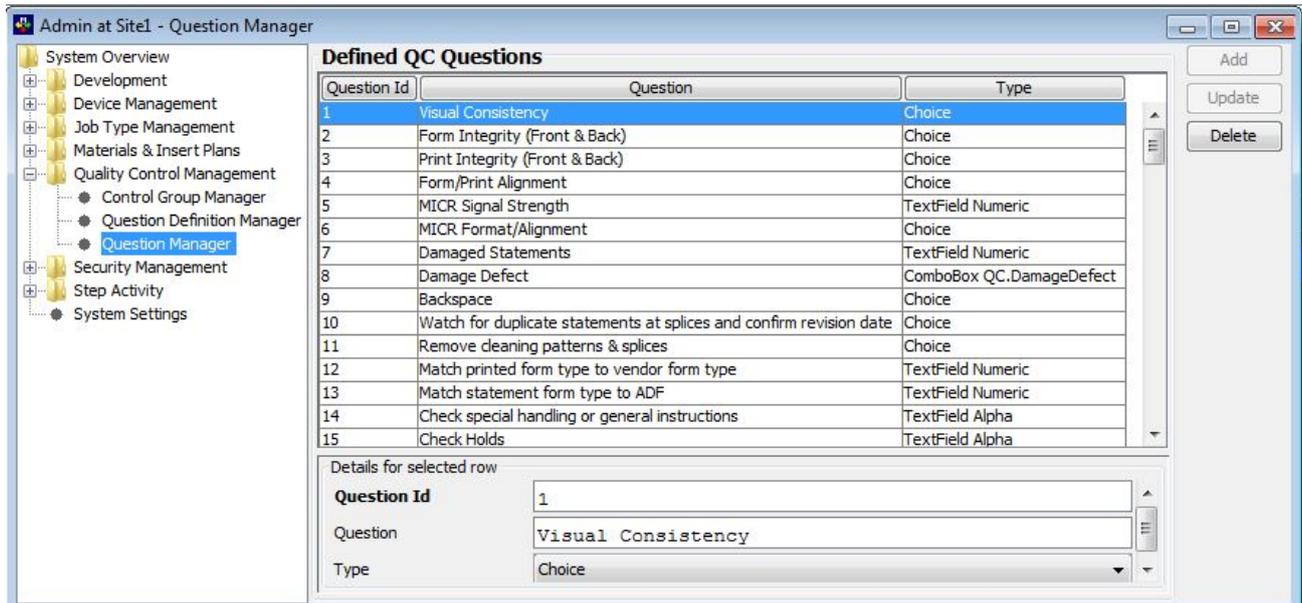
1. From System Actions in any view of the main window, click **Administration**. You see the System Overview window.

System Overview window



2. Select **Quality Control Management** → **Question Manager** from the System Overview menu.

Question Manager window



Adding quality control questions

To add a quality control question:

- In Details for Selected Row at the bottom of the Manage QC Questions window, type a numeric identifier for the new question in the **Question Id** field.
 - If you type a number that already identifies a question, the text of that question appears in the **Question** field and the **Add** button is grayed out.
 - If you type a number that has not been used, the **Add** button is activated.
- Type values in the following fields:

Question

The text of the question.

Answer Type Id

The type of answer for the question:

Choice

If an answer is required, **Yes** and **No** radio buttons. If no answer is required, a check box.

ComboBox

A drop-down list from which the operator selects a predetermined value.

TextArea

A field in which the operator enters multiple lines of text. Any characters are allowed.

TextField

A field in which the operator enters a single line of text. Any characters are allowed.

TextField Alpha

A field in which the operator enters a single line of alphabetic characters.

TextField Numeric

A field in which the operator enters a single line of numeric characters.

3. Click **Add**. You see the Manage QC Questions window with the new question.

Changing quality control questions

To change a quality control question:

1. In the Manage QC Questions window, select the question that you want to change in either of these ways:
 - In Defined QC Questions, scroll up or down until the question is displayed, then click on it.
 - In Details for Selected Row, type the question identifier in the Question ID field.
2. Change the value in the **Question** field, the **Answer Type Id** field, or both. The **Update** button is activated.
3. Click **Update**. You see the Manage QC Questions window with the changed question.

Deleting quality control questions

To delete a quality control question:

1. In the Manage QC Questions window, select the question that you want to delete in either of these ways:
 - In Defined QC Questions, scroll up or down until the question is displayed, then click on it.
 - In Details for Selected Row, type the question identifier in the Question ID field.
2. Click **Delete**. You see the Manage QC Questions window without the question.

Managing quality control groups

A *quality control group* is a group of jobs with similar quality requirements. The Job.QC.ControlGroup attribute is used to assign a job to a quality control group. Together with the process block, the quality control group determines the quality control questions that are asked for a job.

This chapter explains how to add, update, and delete quality control groups.

To do the tasks in this chapter, you use the Manage QC Control Groups window. To access this window:

1. From System Actions in any view of the main window, click **Administration**. You see the System Overview window.

System Overview window

Job and Step Statistics

Total Number of Jobs	47	Jobs In Input Queues	0
Jobs In Error State	17	Jobs In Process Queues	27
Number of Active Steps	0	Jobs In Output Queues	20

DB2 Tablespace Statistics

CFG_UPD_TS	39
DOCMP_ADR_IDX_TS	1
HIST_TS	8
DOCMP_ADR_TS	0
DOCMP_TS	0
JOBS_IDX_TS	9
JOBS_TS	13
BASE_IDX_TS	37
CFG_UPD_IDX_TS	36

File Statistics

Total Number of Files	33	Total Number of Sheets	24
Files In Download Dir.		Total Number of Documents	24
Total of File Sizes (MB)	33.28		

2. Select **Quality Control Management** → **Control Group Manager** from the System Overview menu.

Manage QC Control Groups window

Defined QC Control Groups

Control Group	Control Group Name	Value
QC.ControlGroup	MICR	1
QC.ControlGroup	Non-MICR	2
QC.ControlGroup	None	0

Details for selected row

Control Group

Control Group Name

Value

Adding quality control groups

To add a quality control group:

1. In Details for Selected Row at the bottom of the Manage QC Control Groups window, type a name for the new group in the **Control Group Name** field.
The **Add** button is activated.
2. Click **Add**.
You see the Manage QC Control Groups window with the new group.

Changing quality control groups

To change a quality control group:

1. In the Manage QC Control Groups window, select the group that you want to change.
2. Change the value in the **Control GroupName** field.
The **Update** button is activated.
3. Click **Update**.
You see the Manage QC Control Groups window with the changed group.

Deleting quality control groups

To delete a quality control group:

1. In the Manage QC Control Groups window, select the group that you want to delete.
2. Click **Delete**.
You see the Manage QC Control Groups window without the group.

Managing quality control question definitions

This chapter explains

- How to select quality control questions by process block, quality control group, and user group
- How to indicate whether a quality control question must be answered

To do the tasks in this chapter, you use the Manage Question Definitions window. To access this window:

1. From System Actions in any view of the main window, click **Administration**. You see the System Overview window.

System Overview window

2. Select **Quality Control Management** → **Question Definition Manager** from the System Overview menu.

Manage Question Definitions window

Block Name	Qc Control Group
Dispatch	MICR
Machine Insertion	Non-MICR
Manual Insertion	None
Print	
Quality	
Retain	
Verify	

Selecting quality control questions

You can select the quality control questions that a given user group must answer for a given quality control group in a given process job.

Note

If you select different sets of questions for different user groups and the same combination of process block and control group, a user who belongs to more than one group sees all questions. Each question is asked only once.

To select the questions for a combination of process block, quality control group, and user group:

1. In Defined Blocks and Associated Control Groups at the top of the Manage Question Definitions window, select values from the following columns:

Block Name

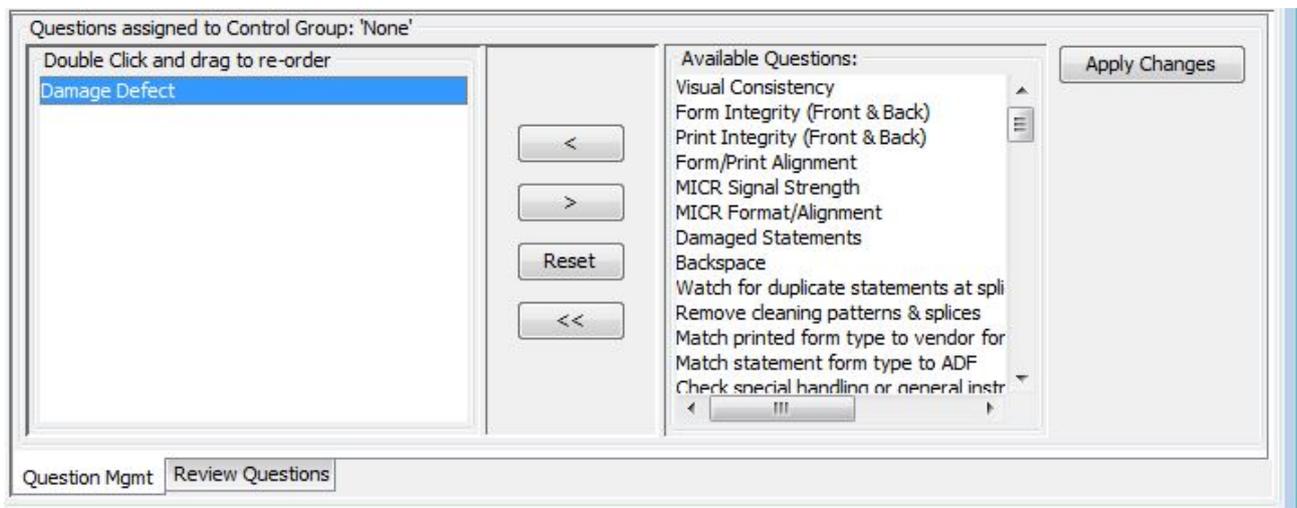
The name of the process block for which you want to select questions.

Qc Control Group

The name of the quality control group to which the questions apply.

2. In User Groups Assigned to Control Group, select one or more user groups:
 - To add a user group to the set, select it in Available User Groups, then click <
 - To remove a user group from the set, select it in Selected User Groups, then click >
 - To add all available user groups to the set, click <<
 - To remove all user groups from the set, click >>
 - To undo all your changes, click **Reset**
3. Select the **Question Mgmt** tab.

Question Mgmt tab



The questions that are already selected for this combination of process block, quality control group, and user group are displayed at the left of the tab, in Double-Click and Drag to Re-Order. All other defined questions are displayed at the right of the tab, in Available Questions.

4. Make your changes:
 - To add a question to the set, select it in **Available Questions**, then click **<**.
 - To remove a question from the set, select it in Double-Click and Drag to Re-Order, then click **>**.
 - To add all available questions to the set, click **<<**.
 - To change the order in which questions are asked, double-click a question in **Double-Click and Drag to Re-Order**, then drag it to a new position in the list.
 - To undo all your changes, click **Reset**.
5. When you have finished making changes, click **Apply Changes**.

Marking quality control questions as required or optional

You can indicate whether a user must answer a quality control question for a combination of process block, quality control group, and user group. To mark questions as required or optional:

1. In Defined Blocks and Associated Control Groups at the top of the Manage Question Definitions window, select values from the **Block Name** and **Choice Name** columns.
2. In User Groups Assigned to Control Group, select one or more user groups.
3. In the Manage Question Definitions window, select the **Review Questions** tab.

Review Questions tab

Question	Sequence	Required
Damage Defect	1	0
Damaged Statements		0

Question Mgmt Review Questions

The questions that are selected for this combination of process block, quality control group, and user group are displayed. A value of 1 in the **Required** column means that the question is required. A value of 0 means that it is optional.

↓ Note

By default, the questions are displayed in the order that they are asked. To sort them in alphabetical order, click the heading of the **Question** column. To sort by the value of the **Required** column, click the heading of that column.

4. To change the **Required** value for a question, click on the question. You see a confirmation message:

Change Required Field confirmation message



5. Click **Yes**. You see the **Review Questions** tab with the value in the **Required** column changed.

9. Managing users

- Managing users
- Administering passwords
- Managing user groups
- Managing sites

Managing users

This chapter explains how to:

- Add, copy, update, and delete users
- Reset passwords for users
- Assign users to security groups
- Control the sites to which users have access

To do the tasks in this chapter, you use the Manage Users window. To access this window:

1. From System Actions in any view of the main window, click **Administration**.
You see the System Overview window.

System Overview window

The screenshot shows the 'Admin at Site1 - System Overview' window. The left sidebar contains a tree view with the following items: System Overview (selected), Development, Device Management, Job Type Management, Materials & Insert Plans, Quality Control Management, Security Management, Users, Step Activity, and System Settings. The main content area is divided into three sections:

- Job and Step Statistics**

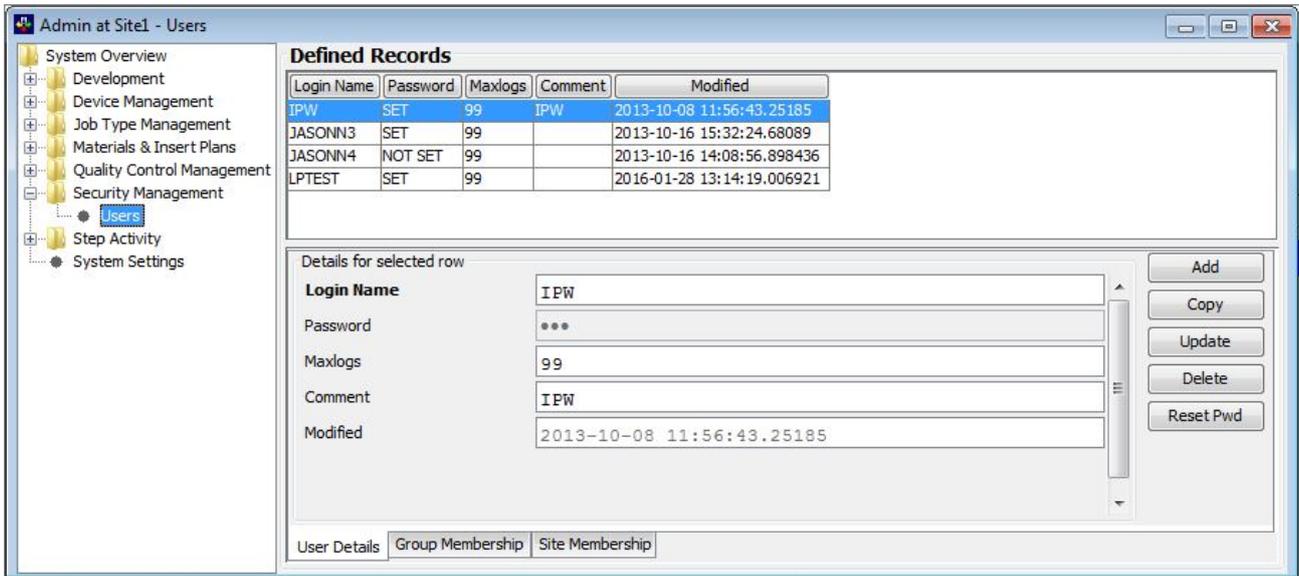
Total Number of Jobs	47	Jobs In Input Queues	0
Jobs In Error State	17	Jobs In Process Queues	27
Number of Active Steps	0	Jobs In Output Queues	20
- DB2 Tablespace Statistics**

CFG_UPD_TS	39
DOCMP_ADR_IDX_TS	1
HIST_TS	8
DOCMP_ADR_TS	0
DOCMP_TS	0
JOBS_IDX_TS	9
JOBS_TS	13
- File Statistics**

Total Number of Files	33	Total Number of Sheets	24
Files In Download Dir.		Total Number of Documents	24
Total of File Sizes (MB)	33.28		

2. From the System Overview menu, select **Security Management** → **Users**.

Manage Users window



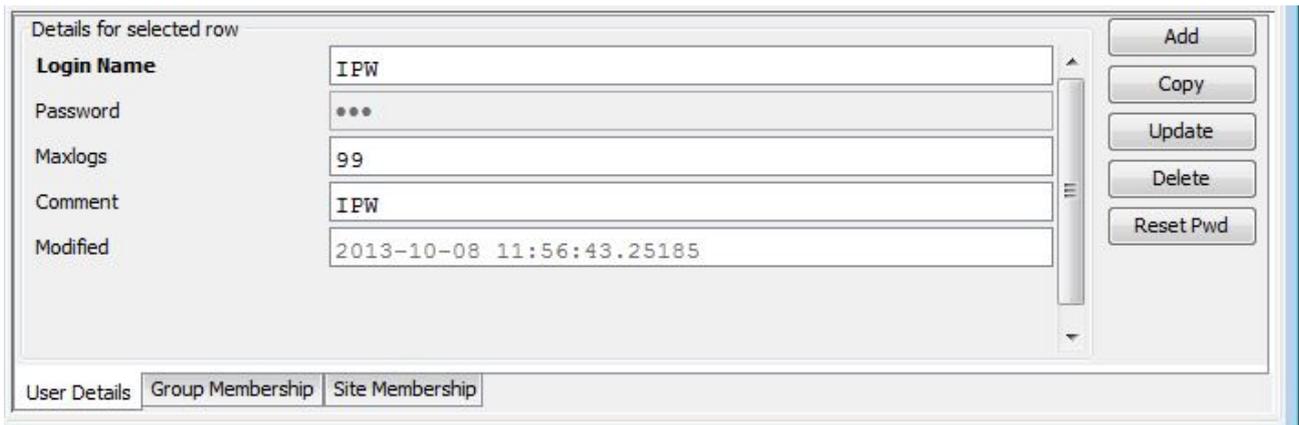
Adding users

You add a user when a new person needs to use InfoPrint Workflow.

To add a user:

1. Open the Manage Users window ([Manage Users window, p. 130](#)).
2. Select the User Details tab:

User Details tab



The columns in the User Details tab are:

Login Name	The user's InfoPrint Workflow identifier.
Password	Whether a password has been set for the user.
Maxlogs	The maximum number of times the user can log on at the same time (usually from different PCs) before the user is denied another logon.

Comment	Any text, normally the user's name or job title.
Modified	The time and date when the user account was last modified.

3.

These fields correspond to the table columns, except for **Password**, which is masked. For new users, the password is set to the value of the default password, as defined by the value of the system setting **DefaultPassword**.

4. Click the **Add** button.

The Add a New User panel is displayed

Type a new value in the **User Id** field and **User Comment** field .

Add a New User

5. Click **Ok**.

A confirmation message is displayed.

Confirmation Message

6. Click **Ok**.

You see the User Details tab with the added user.

↓ **Note**

Group Membership and **Site Membership** tabs must also be updated for the new user

Copying users

If an existing user is similar to a user that you want to add, you can copy the existing user.

1. Open the Manage Users window ([Manage Users window, p. 130](#)).
2. Select the User Details tab ([User Details tab, p. 130](#)).
3. In Defined Records, select the user you want to copy.
4. Click **Copy**.
The Copy an existing user panel is displayed.

Copy an existing user

5. Fill in the **User Id** and **User Comment** fields
6. Click **Ok**. You see the User Details tab with the new user.

↓ **Note**

Changes to the **Password** field are not saved. For new users, the password is set to the value of the default password, the value of the system setting DefaultPassword.

Updating users

You update a user when you want to change the user's information in InfoPrint Workflow, such as how many times a user may log on simultaneously.

To update a user:

1. Open the Manage Users window ([Manage Users window, p. 130](#)).

2. Select the User Details tab ([User Details tab, p. 130](#)).
3. In Defined Records, select the user you want to update.
4. In Details for Selected Row, type changes in the appropriate fields. When you change a field, the **Update** button is activated.

Note

Changes to the **Password** field are not saved. To reset a user's password, see [Administering passwords, p. 133](#).

5. Click **Update**. You see the User Details tab with the updated user.

Deleting users

You delete a user when you want to permanently remove a user's ID so the user cannot access InfoPrint Workflow.

Keep in mind: You cannot undo this action.

To delete a user:

1. Open the Manage Users window ([Manage Users window, p. 130](#)).
2. Select the User Details tab ([User Details tab, p. 130](#)).
3. In Defined Records, select the user you want to delete.
4. Click **Delete**. You see the Confirm Delete window.
5. Click **Ok**. You see the Defined Records window without the user.

Administering passwords

Authorization controls allow authenticated users to access only desired system resources, functions, and features. Within the InfoPrint Workflow solution, authorization parameters are based on:

- Access level (administrator, operator, user)
- User role (print operator, insert operator)
- Multi-role policy (greatest-privilege principle)
- Rule based access control (view only)

Root users and administrators have additional access to system resources to include servers and databases. Implementation of these authorization roles are based on standard AIX user security functions.

Changing the database password

When changing the root user password using the standard AIX **passwd** command, you must also set the database password to the same value. Use this procedure if your system uses the .ipw connection file.

To change the InfoPrint Workflow database password:

1. Log on to the host as the administrative user.
2. If your system uses the .ipw connection file:
 1. Enter the following command: `java com.ibm.aiw.dotipw.DotIpwCmd`
 2. When the database name prompt appears, enter the name of the database or press **Enter** to select the default (ipwdb).
 3. When the user name prompt appears, enter the name of the user or press **Enter** to select the default (ipwdev).
 4. When the password prompt appears, type the password and press **Enter**.
 5. When the retype password prompt appears, retype the password and press **Enter**.
 6. Continue with step 4.
3. If your system does not use the .ipw connection file:

1. Change directories: `cd bin`
2. Enter the following command: `IpwChangePwd.ksh -p password`

You see text on the screen:

```
Tue Jan 09 12:47:31 ***** IpwChangePwd.ksh starting *****
Tue Jan 09 12:47:31 Querying the scheduler config table to get all
hostnames to update (except current host)
Database Connection Information
Database server          = DB2/AIX64 8.2.1
SQL authorization ID    = IPWD
Local database alias    = IPWDB
Tue Jan 09 12:47:32 SERVER_LIST=[server1 server2 server3 server4]
Tue Jan 09 12:47:32 Changing the ipw password...
```

3. Indicate which hosts to update (list of hosts that require access to the InfoPrint Workflow database).
The system copies the .ipw connection file to the defined hosts. If one or more hosts are unavailable, a message displays. To copy the .ipw connection file manually, continue with the next step.
4. Manually copy the .ipw file to each host.
 1. FTP to the server: `ftp hostname`

 **Note**

Do not manually edit the .ipw file.

2. When the login prompt appears, enter your user ID and password.
3. Enter the following command: `get .ipw`
4. Exit ftp and return to the command prompt: `quit`

About the IpwChangePwd.ksh script

The script, `IpwChangePwd.ksh`, enables you to automatically change the connection file on all local and remote servers that connect to the InfoPrint Workflow database.

```
IpwChangePwd.ksh -p password -r servername
```

The system copies the `.ipw` connection file to these nodes using `scp`. When the remote node operand is omitted, the system collects node information from the `IPW.SCHEDULER_CONFIG` table and display this information as a list.

About the .ipw file

When the administrative user's password changes, the entry in the `.ipw` file must be updated to reflect this change. By specifying remote values when executing the `IpwChangePwd.ksh` script, you can update the `.ipw` file on multiple machines (`scp` support is required). The DES-encrypted password repository, `.ipw`, provides a means for all InfoPrint Workflow applications to determine the database password. Maintaining a password repository simplifies security administration when working with extended local and remote network configurations and PSUP machines running on remote servers.

To utilize the `.ipw` file, you must set the data source name environment variable, `IPW_DSN`, which identifies the database password. If the `IPW_DSN` variable is not set, applications will attempt to connect without any password information. By default the system stores the `.ipw` file in the administrator's user (user `ipw`) home directory. To change the location of the `.ipw` file, you can specify the fully qualified path name in the environment variable `IPW_NAME`.

↓ Note

Do not manually edit the `.ipw` file.

Resetting user passwords

Use this procedure to reset a user's password to the default value.

↓ Note

All user passwords are encrypted, so neither you nor anyone else can read the password from the internal user table.

To reset a password for a user:

1. Open the Manage Users window ([Manage Users window, p. 130](#)).
2. Select the User Details tab ([User Details tab, p. 130](#)).
3. In Defined Records, select the user whose password you want to reset.
4. Click **Reset Pwd**
Reset User Password window is displayed

Reset User Password



5. Select one of the following actions in the Password field
 - **Blank** –The password is reset to the default password, the value of the system setting DefaultPassword.
 - **Password value** -Enter a new password value for the user. Notify the user of the new value.
6. Click **Ok**
7. After you reset the user's password, tell the user to log on using the default password. InfoPrint Workflow prompts the user to change his or her password.

Changing the default user password

The default user password is defined as DefaultPassword under system settings. Change this setting as you would any other. Refer to [Working with system settings, p. 36](#) for more information.

Managing user groups

In order to secure the InfoPrint Workflow system and its resources, you must determine what tasks and actions users perform and assign users to the most appropriate user group. The tasks and actions that a user or group of users can perform are determined by the group to which they are assigned. For example, if a user needed to execute both print and insertion tasks, you could grant the user the "Print Operator" and "Insert Operator" user rights instead of adding the user to a more privileged group, such as the Lead Operator group. You cannot secure objects or tasks, such as a file or processes, by assigning permissions. Groups may not be created, modified or deleted.

Predefined groups in the system include Administration groups, Operator groups, and other groups. Only users assigned to an Administration group may perform functions accessible from the Administration button on the main window, which includes tasks such as device management, type management, quality control management, and security management.

Administration groups grant users access to all workflow processes (for example, Receive Print through Retain) and system privileges such as application support and production support. The lpwDev group is reserved for IBM developers.

↓ Note

Do not modify or delete user profiles assigned to the lpwDev user group. Do not add users to this group unless directed to do so by IBM.

The System Administration group enables access to and administration of the overall system. System Administrators may perform all system tasks with the exception of development-related tasks. The Production Administration group allows production-level support, to include device management and quality control management functions.

Operator groups include Lead Operator, Print Operator, and Insert Operator. Operator groups provide limited access to devices and workflow processes such as job-level and piece-level tasks.

Other groups include View Access, and No Access. You may find it helpful to include a user assigned to the **Print Operator** group, for example, in the **View Access** group to provide visibility into all end-to-end processes without granting the functional authority reserved for Lead Operators. Add a user to the **View Access** group, for example, during training or for demonstrative purposes. The No Access group may be used to temporarily disable a user account, such as a Test user account or a user on medical or family leave.

Permissions for all groups is additive. That is, a user assigned to the **Print Operator** group and **View Access** group may perform tasks associated with the Extract and Print workflow processes as well as view jobs in all other workflow processes. By planning and assigning users to the appropriate groups, you can limit the number of users with authority to execute invasive or service-affecting operations, making it easier for you to administer the system overall and to identify and troubleshoot system problems, should they occur.

↓ Note

You must associate a site with a user's profile before that user may perform associated tasks. Access rights granted through group association are applicable to all sites the user is permitted to access. For more information about site management and membership, see

About groups

The following table defines commonly configured groups, interface access rights and commonly-defined job responsibilities.

InfoPrint Workflow users may belong to one or more of the following groups:

Security groups

Group name	Access	Responsibility
Administrator groups		
lpwDev	All workflow processes; all administrator functions	Automated Document Factory development (Ricoh).

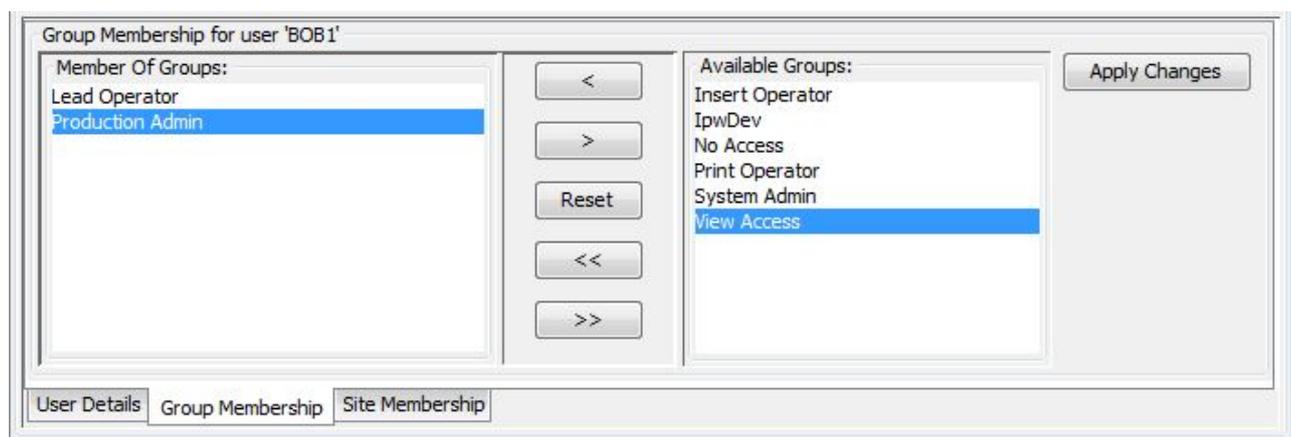
Group name	Access	Responsibility
		Warning: This group is reserved for Ricoh. Do not assign users to this group. Do not remove or modify user profiles assigned to this group.
System Admin	All workflow processes; all administrator functions <i>except</i> Development	Overall system administration; application support
Production Admin	All workflow processes; all administrator functions <i>except</i> Development, Security Management, and Type Management; cannot change jobs from test to production	Limited system administration; production support
Operator groups		
Lead Operator	All workflow processes	All production functions
Print Operator	Extract, Print workflow processes	Print functions
Insert Operator	Machine Insertion, Manual Insertion workflow processes	Insert functions
Other groups		
View Access	All process blocks; cannot perform any tasks	None
No Access	None	None

Managing group membership

Use the following procedure to add or remove a user from a group.

1. From Security Management in the **System Overview** menu, select **Users**.
2. Select the Group Membership tab: .

Group Membership tab



3. In Defined Records, select a user. The groups to which this user belongs display in Member of Groups. All other groups are listed in Available Groups.
4. Make your changes:
 - To add the user to a group, select the group in Available Groups and click <.
 - To add the user to all groups, click <<.
 - To remove the user from a group, select the group in Member of Groups and click >.
 - To remove the user from all groups, click >>.
 - To undo changes, click **Reset**.
5. Click **Apply Changes**.

Managing sites

Access rights granted through group association are applicable to all sites a user is permitted to access. This includes users assigned to Administrator, Operator, View Access and No Access groups. If a user's access is restricted by assigning the user to the No Access group, for example, that user will not have access to any site to which he or she is assigned.

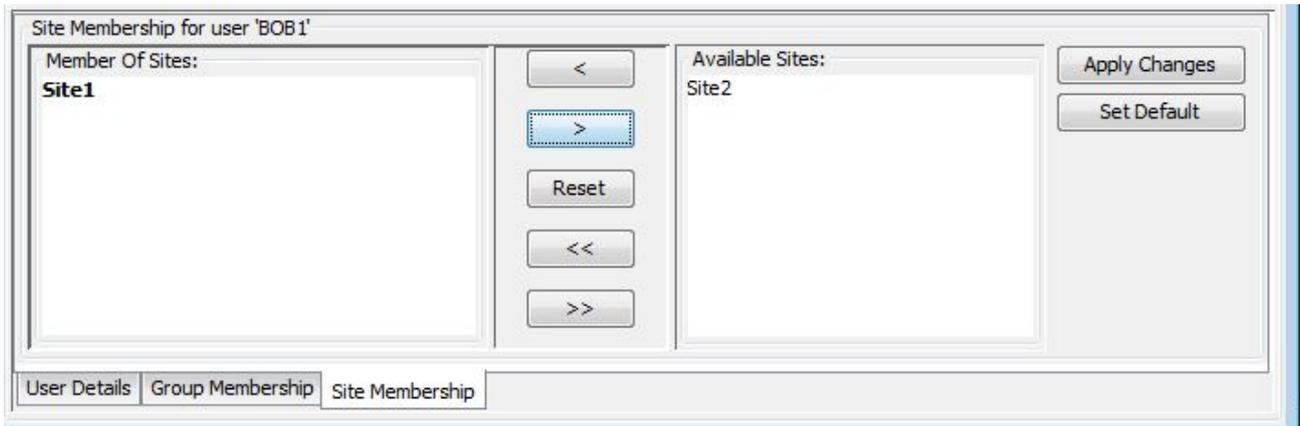
Because group membership is not site-dependant, it is important to follow policies and procedures as defined by your business or corporation when enabling access to multiple sites to ensure integrity of the InfoPrint Workflow system and resources.

Managing site membership

Use the following procedure to add or remove a site from a user's membership profile. You must assign a user to a site before the user can work with jobs at that site.

1. From Security Management in the System Overview menu, select Users.
2. Select the Site Membership tab:

Site Membership tab



3. In Defined Records, select a user. The sites to which this user has access display in the Member of Sites list. All other groups are listed in Available Sites.
4. Make your changes:
 - To add a site to the user membership list, select the site in Available Sites and click <.
 - To add all sites to the user membership list, click << to move all sites from the Available Sites list to the Member of Sites list.
 - To remove a site from the user membership list, select the site in Member of Sites and click >.
 - To remove all sites from the user membership list, click >> to move all sites from the Member of Sites list to the Available Sites list.
 - To undo changes, click **Reset**.
5. Click **Apply Changes**.

Defining a default site for a user

If a user access more than one site, you can define which site information displays by default when the user initializes the interface. To define a user's default site:

1. From Security Management in the **System Overview** menu, select **Users**.
2. Select the **Site Membership** tab.
3. In **Defined Records**, select a user. The sites to which this user has access display in the **Member of Sites** list.
4. Select the desired default site from the **Member of Sites** list.
5. Click **Set Default**.
6. Click **Apply Changes**.

10. Changing the ipw user ID password

The **ipw** user ID uses a password to log on to the **IPWDB** database in two different environments. Therefore, this password is stored in two different files. It is encrypted in both files, so that anyone who reads either of these files still does not know the password. All password change utilities encrypt the new password.

- The Infoprint Workflow ADF administrator must supply the password for **ipw** user ID when logging on to AIX on the Infoprint Workflow ADF server. Because the **IPWDB** database is local to the Infoprint Workflow ADF server, the AIX login password is sufficient to authenticate user **ipw**. The password is stored in the AIX `/etc/passwd` file with all other AIX user ID passwords.

The **psup** application running on the print management server must supply the password in order to log into the **IPWDB** database remotely. The password is stored in the **psup** configuration file.

To change the password for the **ipw** user ID, follow this procedure:

1. On the Infoprint Workflow ADF server, change the password:
 - Log onto the Infoprint Workflow ADF server as user **ipw**.
 - To stop Infoprint Workflow ADF, enter:
`ipw_stop -dimp servername`
where *servername* is the name of the Infoprint Workflow ADF server.
 - Enter the following command:
`passwd`
 - Enter the old password
 - Enter the new password
 - Enter the new password again for confirmation
2. On the print management server, run the `lpwChangePwd.ksh` script to make **psup** aware of the new password. Refer to [About the lpwChangePwd.ksh script, p. 135](#)
3. As user **ipw** on the Infoprint Workflow ADF server, enter the following command to restart Infoprint Workflow ADF.
`ipw_start -dimp servername`
where *servername* is the name of the Infoprint Workflow ADF server.
4. Exit and restart all Infoprint Workflow ADF GUI sessions that you left open at the start of this procedure.

11. Troubleshooting

• Error messages

Error messages

This chapter explains where to find information about the error messages issued by the following programs:

- Download for z/OS
- DB2
- Infoprint Manager for AIX

Download for z/OS error messages

A message identifier beginning with **APS** indicates a Print Services Facility for z/OS message. Messages APS095I and APS986I through APS997I are issued by Download for z/OS. For a complete list of these messages, with an explanation of the cause, a description of the system's next action, and instructions for recovery, refer to *Print Services Facility for OS/390 & z/OS: Messages and Code*.

DB2 error messages

A message identifier beginning with **DSN** indicates a DB2 error message. For a complete list of these messages, with an explanation of the cause, a description of the system's next action, and instructions for recovery, refer to *DB2 UDB Message Reference*.

For more information about DB2 problems, refer to *DB2 UDB System Monitor Guide and Reference*.

Infoprint Manager error messages

Infoprint Manager error messages can have any of the following numeric prefixes:

- 0420
- 0421
- 0422
- 0423
- 0424
- 0425
- 5010

The **pdmsg** utility provides information about any of these messages, including an explanation of the cause, a description of the system's next action, and instructions for recovery. To invoke this utility, type the following command, where *msgnum* is the message number: `pdmsg msgnum`

12. Database back up and restoration

- **Configuring database backup**
- **Backing up the database**
- **Restoring the database**
- **Database scripts**

You can back up and restore the database in InfoPrint Workflow using the database backup utility (`ipw_dbbackup.ksh`) provided with the system. This section includes information regarding the series of database scripts, which include the following:

- configuration file
- database back up script
- remove outdated backup files
- rebind table schemas
- reorganize database tables
- generate system statistics

To do the tasks in this chapter, you use the AIX command-line interface (CLI) on the host system. The host system is the server on which the database instance runs. Note that you must have administrator privileges on the host system to perform the tasks in this section. Administrator privileges on the AIX system are independent of any user privileges on the InfoPrint Workflow; speak to your AIX system administrator to ensure you have a user account and the appropriate user authority level to perform the tasks described.

Configuring database backup

This section describes how to configure the database scripts to perform backup and restoration procedures.`db_back.conf`

Before you begin this procedure, ensure that you:

- Create a copy of the original script and save it to external media, such as a CD-ROM or a separate network drive.
- Document the change activity, to include the date of the change, your name, the defect, and the purpose of the change. You might also want to comment the particular section of the script modified. (Refer to the system help pages or external documentation describing Korn shell commands and operations.)
- Allow enough time to complete the process. Estimate xx hours.

When you modify backup scripts, it is important to know the following:

- If you change the name of a script, ensure calling scripts are modified as well.

Backing up the database

Note

Database backup and restoration scripts are unique for each installation. Before executing the back up or restoration script, it is important for you to review and verify the accuracy and integrity of the defined parameters. Executing a mismatched script during backup or restoration may extend the maintenance window.

Backing up the database to online media

Use the following procedure to back up the database to online media.

Before you begin this procedure, ensure that you:

- Log in with administrator or super user authority on the host system.

To back up the database to online media:

1. Open a command-line prompt on the host system.
2. Execute the following command:

Backing up the database to external media

Use the following procedure to backup the database to external media.

Before you begin this procedure, ensure that you:

- Log in with administrator or super user authority on the host system.
- External media is mounted, if required, and available.

Restoring the database

Before you begin this procedure, ensure that you log in with administrator or super user authority on the host system.

Restoring the database from online media

Use the following procedure to restore the database from online media.

1. Open a command-line prompt on the host system.
2. Execute the following command:

Restoring the database from external media

Before you begin this procedure, ensure that you:

- Log in with administrator or super user authority on the host system.
- External media is mounted, if required, and available.
- sample

Use the following procedure to restore the database from external media.

1. From the command-line prompt, log in to the host system.

2. Execute the following command: `sample`
3. Respond to system prompts, as required.

Database scripts

This section provides general information regarding the contents and function of each script. Since database backup scripts may be customized for your installation, refer to the files that correspond to your system and customer-specific documentation provided with your system to identify differences.

ipw_dbbackup

The `ipw_dbbackup` script is the cover calling script for all database-backup related procedures as described in this section. If the backup is defined as offline in the parameters, then the script assumes `ipw_stop` and backup with reogs and other maintenance are to be performed.

Database runstats parameters

Parameter	Description
<code>d directory</code>	Specify the destination directory for the backup image (the default is specified in <code>db_back.conf</code>)
<code>i</code>	Specifies an incremental backup (default is full backup)
<code>l logfile</code>	Specify the path and filename of the logfile
<code>o</code>	Specifies an online backup (default is offline)
<code>q</code>	Specifies an incremental delta (changes since last incremental)
<code>r days</code>	Retain this backup image for <code>x days</code>
<code>v</code>	Send all messages to standard output (and the log file)

Backup process overview

The script first determines if the backup operation is designated as off line or on line. If online, it is assumed that `ipw_stop` and backup with reogs and other maintenance. If offline, where `$DB_BAK_ONLINE` is false in the `xxx` script, the following process occurs when you execute the command `ipw_dbbackup`:

1. The system issues the `ipw_stop` command
2. The system executes the `db_backup.ksh` script
3. The system executes the `db_reorg.ksh` script
4. The system executes the `db_runstats.ksh` script
5. The system executes the `db_rebind.ksh` script
6. The system executes the `db_cleanbackups.ksh`

Refer to the following subsections to understand the function and usage of each of the scripts outlined in the backup process.

db_back.conf

The db_back.conf script defines configuration settings applicable to the database backup process. You may need to modify this script if the database, node or network configuration changes. Modify this script using any UNIX editor. Keep in mind that UNIX is case sensitive and spaces between strings are not recognized. For more information about working with UNIX line editors, refer to publicly available documentation.

↓ Note

Do not execute this script from the command line. Use the calling script.

Database configuration file settings

Function	Default value	Description
PROG_NAME	\${O##*/}	
#IPW_USER	ipw	The name of the user with authority to perform backups (administrator)
#IPW_HOME	~\${IPWUSER}	The home directory of the user
IPW_HOME	~	The root directory of the database installation
IPW_LOG_DIR	\${IPW_HOME}/logs	The IPW system log directory
IPW_BIN_DIR	\${IPW_HOME}/bin	The binary directory of the database installation
IPW_UTIL_DIR	\${IPW_HOME}/utilities	The system utilities directory (where you store database scripts)
LOG_FILE	\${IPW_LOG_DIR}/\${PROG_NAME}.log	The name of the log file for the database installation
RETENTION	30	The number of days the system retains a backup image
WAIT_SECONDS	5	The number of seconds the systems waits to ...
VERBOSE	\$FALSE	Display all system and script-related messages
EXIT_SUCCESS	0	Exit and display the success message when the sum of all errors codes is equal to zero (less than one)

Function	Default value	Description
EXIT_WARN	1	Exit and display the warning message when the sum of all error codes is equal to one
EXIT_FAIL	2	Exit and display the failure message when the sum of all error codes is two (greater than one)
EXIT_CODE	`\${EXIT_SUCCESS}`	Display the exit code upon successful completion
DB_NAME	"IPWDB"	The name of the IPW database instance
DB_SCHEMA_NAME	"IPW"	The IPW database schema name
DB_TABLE_NAME	"ACTIVE_STEPS"	The name of the active database table
DB_SYSTABLES_NAME	"SYSCAT.TABLES"	The name of the system tables
DB_SYSPACKAGES_NAME	"SYSCAT.PACKAGES"	The name of the system packages
DB_SETTING_LIST_NAME	"IPW_ShellSettingsList"	
DB_BAK_INCREMENTAL	`\${FALSE}`	Perform an incremental backup
DB_BAK_ONLINE	`\${FALSE}`	Perform an online backup
DB_BAK_DELTA	`\${FALSE}`	perform a backup of recent changes only
DB_FIRST_ACTIVE_LOG_STRING	"First active log file"	
DB_LOG_PATH_STRING	"Path to log files"	
DB_LOGRETAIN_VALUE	"RECOVERY"	
DB_TRACKMOD_VALUE	"ON"	
DB_REBIND_LIST	""PROCMSL','PREPMSL','COMMONSQ','PROCCOMM','-PROCTDDR','PREPFORP""	

db_backup.ksh

The db_backup.ksh script creates a full or incremental image of the database. The image destination is defined in the configuration file, though this value may be overridden using the directory (-d) option in

the command line. You may, for example, store smaller daily incremental images in the default location and larger, end of week full images on a server located in a separate facility.

Performing a backup of the database while it is online means that the utility runs while the database is open and available for use. Running the utility while the database is active may impact user operations and overall system performance during the process. Depending on your system configuration, you may find it acceptable to create incremental images while the system is online and full images while the system is offline.

If you encounter errors while executing the script, you may find it useful to run the script again and modify the path or filename of the log file. You can then compare multiple files or create a history for troubleshooting reference. Similarly, you may find it useful to suppress log file pruning while acquiring historical data for purposes of troubleshooting. Enabling verbose mode allows you to view system messages throughout the process. These message can also be written to a log file using a standard output option.

Note

Do not execute this script from the command line. Use the calling script.

db_runstats.ksh

The `db_runstats.ksh` script performs runstats on all tables in the IPW database. The data provided serves as a guideline to monitor and tune database performance. Reviewing run statistics allows performance improvements for static, dynamic SQL, and reoptimization. Accurate baseline data is particularly important when changing cluster ratios, skewed distribution of values, low cardinality columns, and range predicates. Non-indexed column statistics are used for:

- Local predicates in determining the join method and the inner and outer table of the join
- Non-leading columns of a composite index when equal predicates are not specified on all columns and more cases expected in future. Using runstats information you can determine system reorganization needs, verify space management requirements and provide reporting data.

Note

Do not execute this script from the command line. Use the calling script.

Database runstats parameters

Parameter	Description
<code>l logfile</code>	Specify the path and filename of the logfile.
<code>v</code>	Send all messages to standard output (and the log file)

db_rebind.ksh

The `db_rebind.ksh` script rebinds all packages in a defined schema to the IPW database.

Note

Do not execute this script from the command line. Use the calling script.

Database runstats parameters

Parameter	Description
<i>l logfile</i>	Specify the path and filename of the logfile
<i>s schema name</i>	Specify the schema of the packages to be rebound (the default is to rebound only <code>#{DB_SCHEMA_NAME}</code> packages)
<i>v</i>	Send all messages to standard output (and the log file)

db_reorg.ksh

The `db_reorg.ksh` script rebinds all packages in a defined schema to the IPW database.

Note

Do not execute this script from the command line. Use the calling script.

Database runstats parameters

Parameter	Description
<i>l logfile</i>	Specify the path and filename of the logfile
<i>f</i>	Force a reorganization of all tables, regardless of recommendations of REORGCK (the default is to run REORGCHK and only reorg-recommended tables)
<i>v</i>	Send all messages to standard output (and the log file)

db_cleanbackups.ksh

The `db_cleanbackups.ksh` script removes database images from the IPW database that have a defined retention period that has expired. The retention period (`-r`) is defined when executing the script. If you store images in a location other than that defined in the configuration file, use the directory parameter to specify the alternate location.

Note

Do not execute this script from the command line. Use the calling script.

Database runstats parameters

Parameter	Description
<i>d directory</i>	Specify the destination directory for the backup image (the default is specified in <i>db_back.conf</i>)
<i>l logfile</i>	Specify the path and filename of the logfile
<i>r days</i>	Retain this backup image for <i>x days</i>
<i>v</i>	Send all messages to standard output (and the log file)

13. Appendices

- Steps in the workflow process
- System settings in alphabetical order

Steps in the workflow process

[Process overview, p. 20](#) provides a high-level view of the workflow process. This appendix gives a more detailed view of the steps in the process.

Steps in chronological order

[Job-level and piece-level tracking steps, p. 153](#) shows the steps that belong to each process block. For an explanation of each step, see [Appendix – Workflow steps in alphabetical order , p. 155](#).

Job-level and piece-level tracking steps

Job-level tracking	Piece-level tracking
Receive Print <ol style="list-style-type: none"> 1. Submit 2. InitializeJob 3. DuplicateCheck 4. RunACIF (if ACIF is installed) 5. CombineOutGrp 6. RouteJob 	Receive Print <ol style="list-style-type: none"> 1. Submit 2. InitializeJob 3. DuplicateCheck 4. RunACIF (if ACIF is installed) 5. CombineOutGrp 6. BypassMP 7. RouteJob 8. RunAFPIndexer (if AFPIndexer is installed) 9. Index 10. ImportDocInfo 11. GroupForExtract 12. WaitForCleanUp 13. RetainJob 14. CleanSpool 15. RemoveJob
	Planning <ol style="list-style-type: none"> 1. Submit 2. InitializeJob 3. Wait 4. WaitForCleanUp 5. Cleanup 6. CleanSpool 7. RemoveJob
	Extract

Job-level tracking	Piece-level tracking	
	<ol style="list-style-type: none"> 1. SubmitExtractJob 2. ExtractReady 3. ExportDocInfo 4. CreateOutput 5. CreateInserterInputFile 6. UpdateDocInfo 7. CompleteExtract 8. UndoExtract 9. SubmitPrintJobs 10. WaitForCleanUp 11. RetainJob 12. CleanSpool 13. RemoveJob 	
Quality <ol style="list-style-type: none"> 1. Quality 	Quality <ol style="list-style-type: none"> 1. Quality 	
Manual Insertion <ol style="list-style-type: none"> 1. ManuallInsert 	Manual Insertion <ol style="list-style-type: none"> 1. ManuallInsert 	Machine Insertion <ol style="list-style-type: none"> 1. LoadInserterFile 2. FileControlledInsert 3. UnloadInserterFile 4. ProcessInserterFile
Verify <ol style="list-style-type: none"> 1. Verify 	Verify <ol style="list-style-type: none"> 1. Verify 2. Reprint 	
Dispatch <ol style="list-style-type: none"> 1. Dispatch 	Dispatch <ol style="list-style-type: none"> 1. Dispatch 	
Retain <ol style="list-style-type: none"> 1. WaitForCleanUp 2. RetainJob 3. CleanSpool 4. RemoveJob 5. CleanSpoolSiteArea 	Retain <ol style="list-style-type: none"> 1. WaitForCleanUp 2. RetainJob 3. CleanSpool 4. RemoveJob 5. CleanSpoolSiteArea 6. CleanUp 	

[Job-level and piece-level tracking steps, p. 153](#) shows the steps that belong to each process block. For an explanation of each step, see [Appendix – Workflow steps in alphabetical order, p. 155](#).

Workflow steps in alphabetical order

The table below lists the workflow steps in alphabetical order and provides a description of the function for each step.

Appendix – Workflow steps in alphabetical order

Step name	Function	Process Block
BypassMP	Allows recovery of piece-level tracking jobs that cannot be successfully indexed by moving the job to the JobLevelTracking process.	Receive Files
CleanSpool	Deletes the spool files associated with a job. The spool files are identified using the File.PathName.Base attribute. All files that begin with the path name contained in the File.PathName.Base attribute are deleted.	Receive Print Planning Retain
CleanSpoolSiteAware	CleanSpoolSiteAware.wfs deletes the spool files associated with a job. It is site aware and therefore only runs jobs that its node supports. The spool files are identified using the File.PathName.Base attribute. The system deletes all files that begin with the path name contained in the File.PathName.Base attribute.	Receive Print
CleanUp	This step initiates the clean up process.	Extract Planning
CombineOutGrp	This step combines output from the MVS download.	Receive Print
CompleteExtract	Sets the status of all jobs associated with a successful extract to Complete and submits the output jobs to the next process.	Extract
CreateInserterInputFile	Creates the inserter control file.	Extract
CreateOutput	Creates print jobs and modifies individual documents as necessary. Print jobs are created with the mailpieces in mail sort order, if applicable, and to a size specified by job attributes, usually such that a job fits nicely on a cart or a roll.	Extract
Dispatch	Dispatches jobs to the post office.	Dispatch
DuplicateCheck	Checks for other jobs with the same job name, step name, DD name, and piece count.  Note This step is not performed if the system setting PerformDuplicateChecks is No or if the job type is Unknown.	Receive Print

Step name	Function	Process Block
ExportDocInfo	Retrieves document-level information from the database and exports it to a file for subsequent processing by later steps in the Extract process.	Extract
ExportJobInfo		Extract
ExtractReady	<p>Holds jobs for manual extraction. Extract jobs waiting in this step are candidates for possible merging of reprinted documents.</p> <p> Note</p> <p>This step inputs multiple jobs in a single run according to the StepMaxJobRunCount, so the run count should be 1.</p>	Extract
FileControlledInsert	Moves jobs to the Working, Waiting, or Complete state, depending on job attributes and system settings.	Machine Insertion
GroupForExtract	Creates one or more extract jobs for each download job.	Receive Print
ImportDocInfo	Inserts mailpiece data into the document index tables.	Receive Print
ImportInsertResults	This step imports inserter results into report tables.	
Index	Generates an index file of all TLEs defined in the AFP print stream.	Receive Print
InitJobAttrs	This step will set up all applicable attributes for the job as established by the job type.	Receive Print
LoadInserterFile	Loads the inserter control file to an inserter based on the job type and system settings.	Machine Insertion
ManualInsert	Manages the manual insertion process.	Manual Insertion
PollSystemInfo	This step polls the system for various kinds of system information (storage utilization, CPU utilization, etc.) and stores it in a database table for display on the main application interface.	
Print	Schedules and manages the printing of jobs.	Print
ProcessInserterFile	Processes the results of the insertion process and updates the document index tables.	Machine Insertion
Quality	Holds jobs while they are checked for print quality.	Production Control
RemoveJob	Deletes jobs from the database within the time window specified by the RemoveJob.StartTime and RemoveJob.EndTime system settings and archives job information for the deleted jobs.	Receive Print Planning Retain

Step name	Function	Process Block
	<p> Note</p> <p>The run count must be limited because of the number of tables updated by this step. The DB2 log can be filled if many large jobs are deleted at the same time.</p>	
Reprint	Re-extracts documents that need to be reprinted. This step merges documents into an existing extract job when possible, otherwise it creates a new extract job.	Verify
RetainJob	Retains a job and keeps it from proceeding to the next step until the job's retention period expires. This step can be used, for example, to hold a job after processing and before deleting in case reprocessing is necessary.	Receive Print Retain
RouteInsert	RouteInsert routes the job to the appropriate insertion step based on the job type.	
RouteJob	Moves the job to the job-level tracking process or the piece-level tracking process based on the job type.	Receive Print
SegmentJob	Checks the size of a job's spool AFP file against a specified limit. If the limit is exceeded the file will be split into n chunks, where $n \geq 2$. The first chunk will continue on with the job while chunks 2 through n will be submitted as new jobs.	
RunACIF	<p>Runs ACIF on the spool file specified by the File.PathName.Spool attribute. This step produces three files with the same file name as the spool file and different suffixes:</p> <ul style="list-style-type: none"> <i>filename</i>.RunACIF.ParmDD contains the dynamic ACIF parameter file. <i>filename</i>.OutputDD and contains the converted output. This file is renamed to the spool file name if the step completes successfully. <i>filename</i>.LineData contains the original input. <p>To pass additional parameters to ACIF, define job attributes of the form RunACIF.ParmDD.abc=xyz, where <i>abc</i> is the name of the ACIF parameter and <i>xyz</i> is the corresponding value.</p>	Receive Print
RunAFPIndexer	Runs the AFPIndexer to add TLEs to the data stream based on the indexing rules	Receive Print
Submit	Submits a job to the system. This step is invoked as a standalone utility, not as a process step. File names are specified on the command line as fully qualified names. The job type, access mode, and optional parameter overrides are specified on the command line in <i>name=value</i> notation. This step creates a row in the job table	Receive Print Planning

Step name	Function	Process Block
	and initializes the step state and type to the values specified in the corresponding step attributes. It initializes the job attributes from the default attribute table, using the value of the JobType parameter. It creates a spool directory based on the year and month-day. It copies, moves, or links the file to the spool directory, based on the setting of the AccessMode attribute. After all of the command line files and parameters have been processed, it moves the job to an output state, which makes the job available for the rest of the process.	
SubmitExtractJob	Submits a token job created by the GroupForExtract or GroupForReprint steps as an extract job.	Extract
SubmitPrintJobs	Submits print jobs from the Extract process to the next process appropriate for the job.	Extract
SystemCleanUp	This step removed items from the Extract process to the next process appropriate for the job, to include insertion, reconciliation, manifesting, etc.	
UndoExtract	Undoes an extract job by moving it back to the beginning of the Extract process. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 2px; display: inline-block;"> ↓ Note </div> <p>This step must be used to redo extract jobs in error because of the interdependence of Extract steps and to allow configuration mistakes to be corrected.</p>	Extract
UnloadInserterFile	Unloads the inserter control file from the inserter based on job type and system settings.	Machine Insertion
UpdateDocInfo	Updates the document index tables with the Extract Doc ID and Print Job ID assigned in the CreateOutput step.	Extract
Verify	Hold jobs for reconciliation.	Verify
Wait	Waits for a user action	Planning
WaitForCleanUp	Holds jobs for cleanup.	Receive Print Planning Retain

Steps, processes and associated blocks

The following table provides a list of all steps in alphabetical order with the corresponding subsystem process and workflow process (block).

Step	Subsystem process	Workflow block
BypassMP	Download	Receive And Prep
		Receive Print
CleanSpool	Download	Retain
	Extract	Retain
	JobLevelTracking	Retain
	PieceLevelTracking	Retain
	ResourceManagement	Retain
CleanSpoolSiteAware	Download	Retain
	Extract	Retain
	JobLevelTracking	Retain
	PieceLevelTracking	Retain
	ResourceManagement	Retain
CleanUp	PieceLevelTracking	Retain
CombineOutgrp	Download	Receive And Prep
		Receive Print
CompleteExtract	Extract	Extract
CreateInserterInput	Extract	Extract
CreateInserterInputFile	Extract	Extract
CreateOutput	Extract	Extract
CreateTestMSL	Extract	Extract
Dispatch	JobLevelTracking	Dispatch
	PieceLevelTracking	Dispatch
DistributedPrep	JobLevelTracking	Data Transfer
	PieceLevelTracking	Data Transfer
DistributedReceive	JobLevelTracking	Data Transfer
	PieceLevelTracking	Data Transfer
DistributeResource	ResourceManagement	Receive Resources
DuplicateCheck	Download	Receive And Prep
		Receive Print
ExportDocInfo	Extract	Extract
ExportJobInfo	Extract	Extract
ExtractReady	Extract	Extract

Step	Subsystem process	Workflow block
FileControlledInsert	PieceLevelTracking	Machine Insertion
GetResourceAttrs	ResourceManagement	Receive Resources
GroupForExtract	Download	Receive And Prep
	Download	Receive Print
ImportDocInfo	Download	Receive And Prep
		Receive Print
Index	Download	Receive And Prep
		Receive Print
InitJobAttrs	Download	Receive And Prep
		Receive Print
InitJobSLA	Download	Receive And Prep
		Receive Print
LoadInserterFile	PieceLevelTracking	Machine Insertion
ManualInsert	JobLevelTracking	Manual Insertion
	PieceLevelTracking	Manual Insertion
Print	JobLevelTracking	Print
	PieceLevelTracking	Print
ProcessInserterFile	PieceLevelTracking	Machine Insertion
Quality	JobLevelTracking	Quality
	PieceLevelTracking	Quality
ReleaseCompanionForExtract	Extract	Extract
RemoveJob	Download	Retain
	Extract	Retain
	JobLevelTracking	Retain
	PieceLevelTracking	Retain
	ResourceManagement	Retain
Reprint	PieceLevelTracking	Verify
RetainJob	Download	Retain
	Extract	Retain
	JobLevelTracking	Retain
	PieceLevelTracking	Retain
	ResourceManagement	Retain

Step	Subsystem process	Workflow block
RouteInsert	PieceLevelTracking	Quality
RouteJob	Download	Receive And Prep
		Receive Print
SegmentJob	JobLevelTracking	Receive And Prep
	JobLevelTracking	Receive Print
Submit	PieceLevelTracking	Extract
	Download	Receive And Prep
		Receive Print
	ResourceManagement	Receive Resources
SubmitExtractJob	Extract	Extract
SubmitPrintJobs	Extract	Extract
UndoExtract	Extract	Extract
UnloadInserterFile	PieceLevelTracking	Machine Insertion
UpdateDocInfo	Extract	Extract
UpdateInserterInput	Extract	Extract
UploadPrep	PieceLevelTracking	Verify
ValidateResource	ResourceManagement	Receive Resources
Verify	JobLevelTracking	Verify
	PieceLevelTracking	Verify
WaitForCleanUp	Download	Retain
	Extract	Retain
WaitForCompanion	PieceLevelTracking	Retain

Process, steps and associated workflow blocks

Subsystem process	Step	Workflow block
Download	BypassMP	Receive and Prep
		Receive Print
	CleanSpool	Retain
	CleanSpoolSiteAware	Retain
	CombineOutgrp	Receive and Prep

Subsystem process	Step	Workflow block
		Receive Print
	DuplicateCheck	Receive and Prep
		Receive Print
	GroupForExtract	Receive and Prep
		Receive Print
	ImportDocInfo	Receive and Prep
		Receive Print
	Index	Receive and Prep
		Receive Print
	InitJobAttrs	Receive and Prep
		Receive Print
	InitJobSLA	Receive and Prep
		Receive Print
	RemoveJob	Retain
	RetainJob	Retain
RouteJob	Receive and Prep	
	Receive Print	
Submit	Receive and Prep	
	Receive Print	
WaitForCleanUp	Retain	
Extract	CleanSpool	Retain
	CleanSpoolSiteAware	Retain
	CompleteExtract	Extract
	CreateInsertInput	Extract
	CreateInsertInputFile	Extract
	CreateOutput	Extract
	CreateTestMSL	Extract
	ExportDocInfo	Extract
	ExportJobInfo	Extract
	ExtractReady	Extract
	ReleaseCompanionForExtract	Extract
	RemoveJob	Retain

Subsystem process	Step	Workflow block
	RetainJob	Retain
	SubmitExtractJob	Extract
	SubmitPrintJobs	Extract
	UndoExtract	Extract
	UpdateDocInfo	Extract
	UpdateInserterInput	Extract
	WaitForCleanUp	Retain
JobLevelTracking	CleanSpool	Retain
	CleanSpoolSiteAware	Retain
	Dispatch	Dispatch
	DistributedPrep	Data Transfer
	DistributedReceive	Data Transfer
	ManualInsert	Manual Insertion
	Print	Print
	Quality	Quality
	RemoveJob	Retain
	RetainJob	Retain
	SegmentJob	Receive And Prep
		Receive Print
Verify	Verify	
PieceLevelTracking	CleanSpool	Retain
	CleanSpoolSiteAware	Retain
	CleanUp	Retain
	Dispatch	Dispatch
	DistributedPrep	Data Transfer
	DistributedReceive	Data Transfer
	FileControlledInsert	Machine Insertion
	LoadInserterFile	Machine Insertion
	ManualInsert	Manual Insertion
	Print	Print
	ProcessInserterFile	Machine Insertion
	Quality	Quality

Subsystem process	Step	Workflow block
	RemoveJob	Retain
	Reprint	Verify
	RetainJob	Retain
	RouteInsert	Quality
	Submit	Extract
	UnloadInserterFile	Machine Insertion
	UploadPrep	Verify
	Verify	Verify
	WaitForCompanion	Retain
ResourceManagement	CleanSpool	Retain
	CleanSpoolSiteAware	Retain
	DistributeResource	Receive Resources
	GetResourceAttrs	Receive Resources
	RemoveJob	Retain
	RetainJob	Retain
	Submit	Receive Resources
	ValidateResource	Receive Resources
Planning	Submit	Planning
	InitJobAttrs	ReceiveandPrep
	Wait	Planning
	WaitForCleanup	Retain
	CleanUp	Retain
	CleanSpool	Retain
	RemoveJob	Retain

Workflow blocks, steps, and associated processes

Workflow Block	Subsystem Process	Step
Data Transfer	JobLevelTracking	DistributedPrep
	PieceLevelTracking	
	JobLevelTracking	DistributedReceive

Workflow Block	Subsystem Process	Step
	PieceLevelTracking	
Dispatch	JobLevelTracking	Dispatch
	PieceLevelTracking	
Extract	Extract	CompleteExtract
		CreateInserterInput
		CreateInserterInputFile
		CreateOutput
		CreateTestMSL
		ExportDocInfo
		ExportJobInfo
		ExtractReady
		ReleaseCompanionForExtract
	PieceLevelTracking	Submit
	Extract	SubmitExtractJob
		SubmitPrintJobs
		UndoExtract
		UpdateDocInfo
		UpdateInserterInput
Machine Insertion	PieceLevelTracking	FileControlledInsert
		LoadInserterFile
		ProcessInserterFile
		UnloadInserterFile
	JobLevelTracking	ManualInsert
	PieceLevelTracking	
Print	JobLevelTracking	Print
	PieceLevelTracking	
Quality	JobLevelTracking	Quality
	PieceLevelTracking	
	PieceLevelTracking	RoutelInsert
	Download	BypassMP
Receive and Prep	Download	CombineOutgrp

Workflow Block	Subsystem Process	Step	
		DuplicateCheck	
		GroupForExtract	
		ImportDocInfo	
		Index	
		InitJobAttrs	
		InitJobSLA	
		RouteJob	
	JobLevelTracking	SegmentJob	
	Download	Submit	
Receive Print	Download	BypassMP	
		CombineOutgrp	
		DuplicateCheck	
		GroupForExtract	
		ImportDocInfo	
		Index	
		InitJobAttrs	
		InitJobSLA	
	RouteJob		
	JobLevelTracking	SegmentJob	
	Download	Submit	
Receive Resources	ResourceManagement	DistributeResource	
		GetResourceAttrs	
		Submit	
		ValidateResource	
Retain	Download	CleanPool	
	Extract		
	JobLevelTracking		
	PieceLevelTracking		
	ResourceManagement		
	Download		CleanSpoolSiteAware
	Extract		
	JobLevelTracking		
PieceLevelTracking			

Workflow Block	Subsystem Process	Step
	ResourceManagement	
	PieceLevelTracking	CleanUp
	Download	RemoveJob
	Extract	
	JobLevelTracking	
	PieceLevelTracking	
	ResourceManagement	
	Download	RetainJob
	Extract	
	JobLevelTracking	
	PieceLevelTracking	
	ResourceManagement	
	Download	WaitForCleanUp
	Extract	
	PieceLevelTracking	WaitForCompanion
Verify	PieceLevelTracking	Reprint
		UploadPrep
	JobLevelTracking	Verify
	PieceLevelTracking	

System settings in alphabetical order

This appendix provides a detailed description of all system type attributes.

The following table provides an alphabetical list of system settings, descriptions of each setting, and default values. This table lists the most commonly implemented system settings; settings defined for your system may differ slightly from those listed here. Refer to your Customer Addendum, if applicable.

Setting name	Description	Default value
ACIF_Executable	The executable name to use in the RunACIF step. The ACIF executable is 'acif'. Enhanced ACIF used 'arsacif'. Fully qualified path names may be specified	arsacif
AdministrativeLockoutInterval	The interval used to set the lockout time for a password that is administratively reset.	

AFPResourceDir	The default system AFP resource path for the IPW installation. This value is appended to the directories specified in the Job.AFP.ResourceDir job attribute	/IPW/ipw/IPW/resources:/IPW/ResourceServer1/240:/IPW/ResourceServer1/300:/IPW/ResourceServer1/common
Archive.DocRetentionDays	Number of days document-level information is retained in archive	15
Archive.JobRetentionDays	Number of days job-level information is retained in archive	45
AutoExtractAllReprints	Auto-extract all reprint Extract jobs regardless of the Job.AutoExtract value on the original job	Yes
Barcode.Format.1	Barcode Format 1 - JobID,DocId,CurrentSheet,TotalSheets	16,1,6,7,12
Barcode.Format.2	Barcode Format 2 - ExJob,PrtJobID,PrtDocId,ExDocId,CurrentSheet,TotalSheets	24,7,12,13,18
Barcode.Format.3	Barcode Format 3 - JobId,DocId	12,1,6,7,12
Barcode.Format.4	Barcode Format 4 - JobId,DocId	98,1,6,7,12
Barcode.Format.5	Barcode Format 5 - JobId,DocId	99,1,6,7,12
BR.Outlet	Allow CreateBRTapeFiles script to run if an outage is being experienced	No
BR.Tape.Dir	AFP print files for backup and recovery	/IPW/BRTape
CodeBaseRootDir	IPW installation root directory	/home/ipw
ConnectionHistoryRetention	Specifies the number of days to retain connection history entries.	7
ControlParm.PathName	Root directory for files referenced by the control_parm_value field in the ipw.control_parms table	/home/ipwref/control_files
DB_DataDir	Set by SetInstanceSettings.ksh	/IPW/ipwref/db2
DB_LogDir	DB2 log files. Used in calculating percent used	/IPW/ipwref/db2_logs
DefaultInactivityTimer	The amount of time a user can be inactive in the GUI before being logged off (in minutes).	
DefaultLockoutInterval	The default value for the lockout interval when a new login is created.	

DefaultMaxFailedLogins	The default value for the maximum number of failed logins when a login is created.	
DefaultMaxFileSize	Default file size above which files should be split	2140000000
DefaultMaxPasswordAge	The default value for the maximum password age (in days) when a new login is created.	
DefaultMaxSheetCount	Default maximum sheet count per print job created by the Extract process	20000
DefaultNumberPasswords-BeforeReuse	The default number of new passwords required before reuse when a new login is created.	
DefaultPassword	Default user password	lpwPwd
DefaultPasswordCannotEqualUser	The default indicating if a password can equal a the user id or not when a new login is created. Should be Yes or No.	
DefaultPasswordMaxRepeatedChars	The default maximum number of repeating characters allowed when a new login is created.	
DefaultPasswordMinAlphaChars	The default minimum number of alphabetic characters required when a new login is created.	
DefaultPasswordMinLength	The default minimum length for passwords when a new login is created.	
DefaultPasswordMinLowerChars	The default minimum number of lower case characters required when a new login is created.	
DefaultPasswordMinNumericChars	The default minimum number of numeric characters required when a new login is created.	
DefaultPasswordMinSpecialChars	The default minimum number of special (non-alphanumeric) characters required when a new login is created.	
DefaultPasswordMinUpperChars	The default minimum number of upper case characters required when a new login is created.	

Distributed. SiteCleanupWhenNode- SiteUndefined	Yes means to create a cleanup job for sites in CleanSpool when the current node does not have an entry in node_site_map.	No
ExtractUpdateFreq	This system setting specifies the frequency in documents at which the CreateOutput step will report its progress.	5000
InstanceRootDir	Top-level program directory	/IPW/ipwref
IPW_CodeBaseSettingsList	Code base settings defined by the SetInstanceSettings.ksh utility	IPW_LogsDir = CodeBaseRootDir ControlParm.PathName = CodeBaseRootDir /control_files,IPW_ HomeDir = CodeBaseRootDir
IPW_CommitCount	Number of rows to commit during lengthy database transactions	10000
IPW_DataDir	File system allocated to IPW; references IPW_FileSystemCount (if count is 2, then /IPW1 also exists)	/IPW/ipwref/IPW
IPW_DBBackupDir	DB2 backup directory	/IPW/ipwref/db2_ bak
IPW_DownloadDir	Download directory	/IPW/ipwref/IPW/ download
IPW_DownloadPorts	Paired list of Download ports and corresponding behavior options. Update this only after stopping Ipw with ipw_stop -m command. Pairs separated by a space. Example, 8001:AFP 8002:NON_AFP	56000:AFP1 56002: AFP2 56004:ST1 56006:ST2
IPW_FileSystemCount	Number of allocated file systems	1
IPW_ ForceCleanUpStepList	Steps in the CleanUp area; externalized as a system setting because CleanUp is not its own process, and therefore has no other way to determine which steps qualify	'RetainJob','CleanS- pool','RemoveJob'
IPW_HomeDir	IPW ADF code base (root path)	/home/ipwref
IPW_InstanceSettingsList	Specifies the list of instance settings that should be defined by the SetInstanceSettings.ksh utility.	IPW_DataDir= InstanceRootDir/IPW, DB_DataDir= InstanceRootDir/db2, DB_LogDir= InstanceRootDir/db2_

		logs,IPW_PsupJobsDir=IPW_DataDir/jobs,IPW_JobsDir=IPW_DataDir/jobs,IPW_DownloadDir=IPW_DataDir/download,IPW_DBBackupDir=InstanceRootDir/db2_bak,AFPResourceDir=IPW_DataDir/resources:/IPW/ResourceServer1/240:/IPW/ResourceServer1/300:/IPW/ResourceServer1/common,TestDataDir=IPW_DataDir/capture
IPW_JobsDir	IPW job files	/IPW/ipwref/IPW/jobs
IPW_LogPruneLines	Number of lines to retain after pruning a log	500
IPW_LogsDaysToRetain	Number of days to retain log files	14
IPW_LogsDir	System-generated log files	/home/ipwref/logs
IPW_LogsMaxSize	Maximum size (in bytes) that logs will be allowed to be.	20971520
IPW_LogsPruneLines	Number of lines to retain after pruning a log	500
IPW_LogsSelfManaged	Number of lines to retain after pruning a log.	
IPW_MaxJobTypeAttrs	Maximum number of attributes that can be assigned to a job type	1000
IPW_PsupJobsDir	The spool path for PSUP servers	/IPW/ipwref/IPW/jobs
IPW_PsupServerList	A comma-delimited list of PSUP servers	localhost
IPW_PsupSettingsList	Specifies the list of PSUP base setting that should be defined by the SetInstanceSettings.ksh utility.	Device.HeaderExit=(PSUPRootDir)/bin/auxexit.header,Device.TrailerExit=(PSUPRootDir)/bin/auxexit.trailer,Device.ParameterTemplate-File=(PSUPRootDir)/

		templates/BASE_NAME
IPW_RetryCount	Number of retries for database transactions	5
IPW_sysScheduleFlags	The value of the system parameter sysScheduleFlags when RunSteps was started	283
IPW_ShellSettingsList	The list of system settings import to shell scripts	'CodeBaseRoot-Dir','DB_DataDir','DB_LogDir','InstanceRoot-Dir','IPW_DataDir','IPW_DBBackupDir','IPW_DownloadDir','IPW_JobsDir','IPW_LogsDir','IPW_SubmitDir','TestData-Capture','TestDataDir'
IPW_SimplexToDuplexPtr	Whether or not the Print step schedules simplex jobs to a duplex printer	Yes
IPW_SLACleanUpStepC4	Steps excluded from SLA status updates. It is a single step name (no spaces). The characters after IPW_SLACleanUpStep__ can be modified to allow selection of all similar setting names or a subset	WaitForCleanUp
IPW_SLACleanUpStepFC1	Steps excluded from SLA status updates. It is a single step name (no spaces). The characters after IPW_SLACleanUpStep__ can be modified to allow selection of all similar setting names or a subset	RetainJob
IPW_SLACleanUpStepFC2	Excluded steps from SLA status updates. It is a single step name (no spaces). The characters after IPW_SLACleanUpStep__ can be modified to allow selection of all similar setting names or a subset	CleanSpool
IPW_SLACleanUpStepFC3	Step excluded from SLA status updates. It is a single step name (no spaces). The characters after IPW_SLACleanUpStep__ can be modified to allow selection of all similar setting names or a subset	RemoveJob
IPW_StatisticsRetainDays	Number of days to retain job, print and SLA statistics	90

IPW_SubmitDir	Set by SetInstanceSettings.ksh	/IPW/TestFiles
JobLevelTracking.Dispatch.Auto	Automatically move jobs in this step to the Working state	No
JobLevelTracking.ManualInsert.Auto	Automatically move jobs in this step to the Working state	No
JobLevelTracking.Quality.Auto	Automatically move jobs in this step to the Working state	No
JobLevelTracking.Verify.Auto	Automatically move jobs in this step to the Working state	No
JobType.MatchTemplate	Controls the job attribute to job type mapping.	Job.MVS.JobName
PasswordExpirationWarningInterval	The number of days before a password expires where expiration warnings are issued at each successful logon.	
PerformDuplicateChecks	Search for possible duplicate jobs in the DuplicateCheck step	No
PieceLevelTracking.Dispatch.Auto	Automatically move jobs in this step to the Working state	No
PieceLevelTracking.FileControlledInsert.Auto	Automatically move jobs in this step to the Working state	No
PieceLevelTracking.ManualInsert.Auto	Automatically move jobs in this step to the Working state	No
PieceLevelTracking.Quality.Auto	Automatically move jobs in this step to the Working state	No
PieceLevelTracking.Verify.Auto	Automatically move jobs in this step to the Working state	No
PrintServerSite.Site1	Print server name for site 1	ipw6e43
PrintServerSite.Site2	Print server name for site 2	ipw6e43
QC.Block.1	A process block to which a quality control question may be assigned	Print
QC.Block.2	A process block to which a quality control question may be assigned	Quality
QC.Block.3	A process block to which a quality control question may be assigned	Verify
QC.Block.4	A process block to which a quality control question may be assigned	Retain
QC.Block.5	A process block to which a quality control question may be assigned	Dispatch

QC.Block.6	A process block to which a quality control question may be assigned	Machine Insertion
QC.Block.7	A process block to which a quality control question may be assigned	Manual Insertion
RemoveJob.EndTime	Time when RemoveJob must stop processing jobs	2359
RemoveJob.StartTime	Time when RemoveJob begins processing jobs	0
Reprint.ConsolidateReprints	Whether or not reprint documents from different PieceLevelTracking jobs (which share the same parent Extract) should be consolidated into a single reprint Extract job when processed by the Reprint step	Yes
Route.RouteInsert	Controls job routing at the RouteInsert step	Job.InsertStep
Route.RouteJob	The attribute defining the Output state value for the RouteJob step	Job.Tracking
SLAStep.ManualInsert	The attribute_index value to use when updating the Job.SLA.Real job attribute	Insert
SLAStep.Submit	Suppress the submit step from generating SLA milestones directly.	na
SLAStep.UnloadInserterFile	The attribute_index value to use when updating the Job.SLA.Real job attribute	Insert
StepMaxJobRunCount	The maximum number of jobs to process in a step before returning	20
SysInfoFileSystem	List of file systems allocated to IPW; separate multiple entries with a single space	/IPW/ipwbase/IPW/spool
SysInfoRetainDays	Number of days to retain system information records	10
SysInfoTableSpaces	Current table space stats; populated automatically by the PollSystemInfo step	"HIST_TS 1.5% used" "DOCIX_TS 0.59% used" "DOCIX_IDX_TS 2.9% used" "DOC_DETAIL_TS 1.1% used" "DOC_DETAIL_IDX_TS 2.9% used" "JOBS_TS 7.8% used" "RECON_PEND_TS 2.9% used" "JOBS_IDX_TS 19% used" "INDEX_TS 3.4%

		used" "HIST_IDX_TS 1.2% used" "SYSTOOLSPACE 1e +02% used"
TestDataCapture	Capture files downloaded from MVS to the directory specified by the TestDataDir system setting for testing or resubmission	Yes
TestDataDir	Row initialized	/IPW/ipw/IPW/ capture
UseInserterControllerStub	Simulate file-controlled insertion in FileControlledInsert.wfs	Yes

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