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FreeFlow® Output Manager Command Line User Guide



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Introduction

Purpose

Many users will interact with the FreeFlow Output Manager (FFOM) only through its browser based GUIs. However all FreeFlow Output Manager capabilities are also accessible through its command line interface (CLI). This document helps you understand how to use the Xerox FreeFlow Output Manager command line interface.

FFOM CLI commands can be used from a command window to interact with FFOM but they can also be used in scripts that will be automatically executed by FFOM. This is a powerful way to customize FFOM to a specific workflow. This document tells you how to use this feature of FFOM.

2

FreeFlow Output Manager overview

What is FreeFlow Output Manager

FFOM is an output management system. Its primary purpose is to sit in front of a fleet of production printers and manage the flow of print jobs submitted to them.

Print jobs are created by client applications, frequently residing on other hosts in a network. FFOM accepts jobs requests from:

- LPR network printing protocol
- IPP network printing protocol
- JMF protocol (receives JDF jobs)
- Multi-function device (job is scanned at a MFD and sent to FreeFlow Output Manager for printing at a Production Printer)
- a local command line interface
- either local or network mounted “hot-folders”
- clients sending data to a predefined TCP/IP port

Note that the last two mechanisms rely on the command line interface to perform job submission.

There are seven user-visible objects in FFOM:

- **Job:** The job object is a model of a print job. The job object is the managed unit of work within FFOM. It contains information on the characteristics and state of the job and its documents. A job can include one or more documents.
- **Document:** The document object represents the data to be printed and information about how the data is to be printed.
- **Queue:** A queue is the central object in FFOM. It maintains a pool of jobs and is responsible for management of the distribution of these jobs to devices. Each queue has a name and zero or more associated devices.
- **Device:** A device represents a printer and a port on an actual printer (for example, a specific IPP port/virtual printer on a DocuSP). It is possible to have more than one FFOM device that represents the same printer.
- **Server:** The server object contains server statistic information. The data includes snapshots of the internal counters. The internal counters record the number of jobs, number of pages,

and number of bytes received by the queue, sent to devices, and received by the clients such as CLI, IPP, LPR, GUI, and JMF. Refer to section 5 for details.

- **Custom View Group:** The Custom View Group defines the objects that are accessible to the logged in operator. Objects such as printers and queues can be added to the custom view group. If printers and queues are accessible to the logged in operator, their jobs and documents are accessible as well.

The feature can be enabled or disabled. When enabled, FFOM administrators still have access to all objects in the system. FFOM operators can only access the objects that are associated with the Custom View Groups that the FFOM operator belongs to.

- **Multi-Function Device (MFD):** A device used to scan a job and forward it to FFOM for further processing. The MFD is used as a client job submitter to FFOM.

All these objects can be dynamically created and deleted. Queues and devices have names given by the administrator; jobs have names (id's) that are created by the system; documents are identified by their position in the job.

FFOM supports a rich set of job processing attributes. Job attributes may be supplied via a default job ticket associated with a queue, a job ticket prepended to the print data stream or from instructions delivered via the submission protocol. FFOM supports jobs that contain both the ASCII Job Ticket and the XPIF Job Ticket. While the job is held or pending in an FFOM queue, a job ticket editor can be used to inspect and set job ticket instructions.

An FFOM queue is the client submission point. They map to devices in the following ways:

- A queue can accept submissions from any inbound gateway or MFD.
- A queue can send jobs to any number of devices (including zero);
- A device can accept jobs from any number of queues.

In other words, a queue provides a 1-to-n mapping from an inbound service to devices.

Although FFOM does not export a formal, programming interface, it does have a command line interface and supports three mechanisms through which a sophisticated user can customize job processing and/or manipulate the document data to be printed. These are the hot-folder submission method and the queue preprocessing and postprocessing program. The first two mechanisms allow a user to cause an arbitrary script to be executed when a job enters the FFOM system. This script, a DOS bat file using FFOM's CLI, has access to the job object, its attributes, and for hot-folder submission, the document data. The script can do whatever its writer wants.

FFOM supplies one program executable intended for use in preprocessing programs. This program will read a document and guess its PDL, the number of pages in the document, and whether or not the document is color or monochrome.

In addition to preprocessing, an FFOM queue can be configured so that another script is executed when the job enters a terminal state. This postprocessing program is intended to perform things like sending e-mail notification but, again, it can do anything its writer wants.

FFOM supports two job scheduling paradigms:

- **First-in, First-out**—this is the underlying scheduling mechanism, all other things being equal (or irrelevant), the first job to enter a queue will be the first job to be sent to a printer
- **Priority**—incoming jobs can have or be given a priority and the higher the priority, the more quickly the job will be sent to a printer

FFOM supports five device selecting paradigms:

- Round-robin—this is the default, underlying device selecting algorithm; all other things being equal, a queue will cycle through its associated printers and assign a job to the next available device.
- High-watermark—since most FFOM printers are “spooling” printers; they accept numerous jobs and have internal queues. FFOM devices can be configured to stop accepting jobs when they a specified number of jobs already queued-up for printing.
- Capability matching—FFOM devices have attributes that specify their capabilities (‘xxx-supported’ attributes). If so configured, FFOM will match these printer capabilities against the job’s requirements and not schedule a job to a printer that cannot support all of the job’s needs.
- Least-busy by job count—Send a job to a printer with the least number of uncompleted jobs.
- Least-busy by page count—Send a job to a printer with the least pages pending to print. This applies only to jobs forwarded from FreeFlow Output Manager to the printer.

FFOM supports the following five job splitting models:

- Copies—If a job specifies multiple copies, FFOM will distribute the number of copies of the job evenly amongst the printers that can print the job.
- B/W and Color Pages—If a job contains color and black and white (B/W) pages, FFOM will send pages containing color to a Color printer and the B/W pages to a monochrome printer.
- Page range—For a job, FFOM will distribute to each of the printers that can print the job specifying specific pages to print.
- Documents—If a job contains multiple documents, FFOM will distribute the documents amongst the printers that can print the job.
- Sets— If the job contains a document that is a VI Container and the VI Container is a VIPP file with a database, FFOM will distribute to each of the printers that can print the job specifying the document sets to print.

The FFOM will transform a document whose data is a PDF file to PostScript if the device that will print the job only supports PostScript.

Users will benefit from the following features of FFOM:

- Centralized control over a printer farm—Through a single FFOM operator interface, an operator can control how jobs are routed to a set of printers, see their status and redirect them if necessary.
- Intelligent routing—A client can submit jobs to a single FFOM queue and expect that it will be routed to a printer that is capable of printing the job and is available.
- Better utilization of printer resources—The print shop will realize more efficient utilization of its printers since FFOM will ensure that jobs aren’t sent to devices that cannot print them.
- Quicker turnaround—By taking advantage of FFOM’ job splitting features, multiple copy jobs can be spread across several printers resulting in less time to print the entire job.

Objects and attribute model

The user-visible objects, (queues, jobs, documents and devices), all have attributes that define the object's properties and behaviors. This section describes the model of an object and its attributes that FFOM presents.

There are three operations that affect an attribute: get, set and remove. The get operation returns the current value of an attribute, the set operation creates the attribute (if necessary) and gives it a value; the remove operation removes the attribute from the object. The CLI explicitly implements the get, set and remove operations for each object.

From the perspective of the end-user, attributes are either read-only or read-write. A read-only attribute cannot be set or removed. These attributes are typically created when the object is created and the FFOM software manages their values.

A read-write attribute is instantiated when it is given a value; either explicitly by a user of the GUI/CLI or, in the case of jobs, through instructions processed by the inbound gateways. A read-write attribute has its value removed by "removing" the attribute.

In general, read-write attributes do not have default values that are set by the FFOM software. (But, if there is one, it will have its value explicitly set to that default value.)

The get operation on an attribute that has not been instantiated fails.

For example:

```
xomsetque -x "queue-connect-to-all-devices=true" queue1
```

will succeed (assuming queue1 exists). If this is followed by:

```
xomgetque -x queue-connect-to-all-devices queue1
```

the command will succeed and the write the string

```
queue1:queue-connect-to-all-devices=true
```

to standard-out (stdout). If this is followed by:

```
xomremque -x queue-connect-to-all-devices queue1
```

and then

```
xomgetque -x queue-connect-to-all-devices
```

the final get-queue-attributes will return an error and display the message "queue-connect-to-all-devices" does not exist.

This means that a script can use the return of a CLI get operation to determine if an attribute has been instantiated (i.e., has a value). It also means that for the "-all" argument for the CLI get operation, the command will return only the attributes that have been instantiated (i.e., that have values).

3

CLI operation and commands

This section describes the FFOM CLI commands, their options and operands.

CLI overview

Although it is expected that most FFOM users will use the GUIs for most day-to-day operations, FFOM includes a CLI that provides access to all FFOM functionality. This CLI will be used by customers or analysts in hot folder, port controller, pre or post-processing scripts.

CLI operation

Security considerations

Since the CLI allows access to all FFOM operations including potentially destructive ones, its use is restricted to running on the same host as the server software and particular operations are restricted to members of the FFOM authorization groups.

Return value

The CLI commands will return 0 if successful and a positive integer if an error occurred. Error messages will be written to standard error. All other data from the CLI is written to standard out (stdout). A complete list of error codes is given in Appendix B. Commonly expected error codes are also shown with each command, although these should not be considered exhaustive.

Command syntax

The FFOM CLI is patterned after a traditional UNIX command. The basic syntax of a FFOM CLI command is:

```
command [-options [option argument]] operand
```

The options are all single letters, option arguments are not optional, and the options must precede the operand. To ensure uniqueness (and that they are unpronounceable), all FFOM CLI commands are prefixed with “xom” (signifying “Xerox Output Management”).

Extended attribute string syntax

The set, get and remove CLI commands use the `-x` option to specify attribute/value pairs and attribute names.

In the initial implementation, specifying multiple attributes in a single set command requires that the attribute/value pairs be separated by commas and that there be no white space in the `-x` string (unless it's the value of an attribute and has been enclosed by quotes). For example, in a set command the CLI wants to receive:

```
-x attr=value,attr=value,attr = value
```

rather than

```
-x attr=value attr=value.
```

When setting an attribute, the entire attribute/value pairs must be enclosed in double quotes. Example:

```
xomsetque Ross -x "queue-connected-to-all-devices=true"
```

Attribute Files

In addition to attributes specified using the `-x` option, one or more attributes can be specified in a file. The attributes specified are written in XPIF format.

Object identifiers

FFOM objects (jobs, documents, queues and devices) are often the operands of CLI commands. Queues and devices are identified by their unique names. Although jobs have a unique numeric id, the FFOM CLI requires that user also specify the queue the job resides in along with the job id. The syntax for this is "queue:id". A document's id consists of the job identifier followed by a ":" followed by the number of the document within the job. For example 'queue1:123' identifies job 123, which is currently contained in queue1 and queue1:123:2 identifies the second document in the same job.

Note that if a job has only one document, it is not necessary to specify the document number. For example, if job 123 has only one document associated with it

```
xomsetdoc -x sides=two-sided-long-edge queue1:123:1
```

and

```
xomsetdoc -x sides=two-sided-long-edge queue1:123
```

are identical.

Attribute value string syntax

The following section shows the CLI string representation for the attribute syntaxes.

boolean

The boolean attribute syntax has only two values: 'true' and 'false'. For example:

```
xomsetque -x "queue-connect-to-all-devices=true"
queue1
```

followed by

```
xomgetque -x queue-connect-to-all-devices queue1
```

would return

```
queue1:queue-connect-to-all-devices = true
```

Note that the CLI prints the string 'queue1:queue-connect-to-all-devices = true' to standard-out. The command returns a 0 even if the value of the attribute is false.

collection

The collection attribute syntax is a container holding a set of attributes, called member attributes. The names of each member attribute are unique for a collection attribute, but may be the same as the name of a member attribute in another collection attribute or the same as the name of an attribute that is not a member of a collection.

FreeFlow Output Manager validates and processes each member attribute of a collection attribute in the same way that it validates and processes normal attributes. The collection merely serves as a 'container' for the member attributes. Each member attribute can have any attribute syntax type, including 'collection', and can be either single-valued or multi-valued (1setOf). The length of a collection value is not limited. However, the length of each member attribute must not exceed the limit of its attribute syntax.

The CLI represents collection syntax as the member attributes and their values enclosed in curly braces ('{' and '}'). Each member attribute is delimited by a comma with no spaces within the collection.

For example:

```
xomsetjob -x cover-front={media=na-letter-transparent,cover-type=print-none}
```

followed by:

```
xomgetjob -x cover-front queue1:123
```

would return:

```
queue1:123:cover-front={media=na-letter-transparent
cover-type=print-none}
```

dateTime

The dateTime syntax is the full (non-truncated) representation of the date/time value as defined in ISO 8601:

YYYY-MM-DDThh:mm:ss

For example:

```
xomsetque -x "job-hold-until-time=2003-04-01T18:00:00"
queue1
```

followed by

```
xomgetjob -x date-time-at-processing queue1:123
```

would return

```
queue1:123:date-time-at-processing=2003-04-01T09:45:52
```

enum

The enum attribute syntax is an enumerated integer value in the range 1 to MAX and each value has an associated 'keyword' name. The CPSS spec uses 'type1', 'type2' and 'type3' prefixes to indicate different levels of review and/or standards bodies that are involved in the definition of the values. This specification has removed those indicators.

Since each integer in the enum has an associated keyword, either the enum or associated keyword can be used when specifying the enum value.

integer

The integer syntax include an inclusive range constraint of the form (min:max). Valid values for attributes must be within these ranges. The MIN value for integers is -2^{31} and the MAX value for integers is $2^{31}-1$.

For example

```
xomsetjob -x "job-priority=202" queue1:123
```

would return an error since the maximum value for job-priority is 100.

keyword

The keyword syntax is a sequence of characters of length 1 to 255 containing only the US-ASCII encoded values for lowercase letters, uppercase letters, hyphen, dot and underscore. The first character must be lowercase and the keywords must be U.S. English.

This syntax type is used for enumerating semantic identifiers. Keyword values for attributes are listed in the description of the attribute.

mimeMediaType

The mimeMediaType attribute syntax is the Internet Media Type (called MIME type) as defined by RFC 2046 for identifying a document format. The value may include a charset, or other, parameter, depending on the specification of the Media Type in the IANA registry. Although most other syntax types allow for only lower-case values, this syntax type allows for both mixed-case values which are case insensitive.

The FFOM CLI recognizes only the following mimeMediaType values for input:

- 'text/plain': An plain text document in US-ASCII
- 'application/postscript': A PostScript document
- 'application/vnd.hp-PCL': A PCL document
- 'application/pdf': A PDF document
- 'application/octet-stream': An unspecified representation
- 'image/tiff': A Tagged Image File Format document.
- 'application/vnd.xerox-VI-project-container': A VI container file.

For example:

```
xomsetjob -x document-format="application/postscript"
queue1:123
```

would set the job's document format attribute to PostScript.

name

This syntax type is used for user-friendly strings. Names are never translated from one natural language to another. The maximum length of a name syntax type is 255 octets. If the attribute will always contain less than 255 octets, the syntax can be qualified by the maximum allowable length (for example, device-name is limited to 127 octets).

The delimiters for inputting the name syntax are right and left quotation marks. To avoid parsing problems, the FFOM CLI restricts the name syntax type to exclude:

- left and right quotation marks
- the colon (":")
- left and right curly braces ("{" and "}")

For example:

```
xomcreque "Useless Queue"
```

does exactly what you'd think it does.

rangeOfInteger

This syntax is an ordered pair of integers that defines an inclusive range of integer values. The first integer specifies the lower bound and the second specifies the upper bound. If a range constrain is specified (e.g., 1:100), then the constraint applies to both integers.

For example:

```
xomsetque -x "job-priority-supported=100:100" queue1
```

sets queue1 so that it will only accept really important jobs (i.e., jobs with a priority of 100).

The following example:

```
xomsetque -x "job-priority-supported=1:1000" queue1
```

will fail with an INVALID PARAMETER error since the maximum value allowed for the attribute job-priorities accepted is 100.

text

A text attribute is an attribute whose value is a sequence of zero or more characters encoded in a maximum of 1023 ('MAX') octets. MAX is the maximum length for each value of any text attribute. However, if an attribute will always contain values whose maximum length is much less than MAX, the definition of that attribute will include a qualifier that defines the maximum length for values of that attribute.

For example:

```
xomsetdev -x "device-make-and-model='Xerox DocuTech  
75'" device1
```

The delimiters for inputting the text syntax are right and left quotation marks. To avoid parsing problems, the FFOM CLI restricts the text syntax type to exclude:

- left and right quotation marks
- the colon (":")
- left and right curly braces ("{" and "}")

uri

The uri attribute syntax is any valid Uniform Resource Identifier (see RFC 2396). The particular uri scheme supported for a given attribute is described in that attribute's description.

1setOf

The 1setOf attribute is one or more values of the above attribute syntax types (except 1setOf itself). The attribute is called 1setOf rather than just setOf as a reminder that the set of values must not be empty. The sets are normally unordered but a given attribute can specify that the values must be in a particular order.

The CLI represents 1setOf syntax as the values enclosed in curly braces ('{and }') with the values separated by commas. For example:

```
xomgetdev -x orientation-requested-supported device1
might return
device1: orientation-requested-supported
={portrait,landscape}.
```

CLI help

Every FFOM CLI command accepts the options “-h” or “-?”. These options cause the command to write a brief help message to standard out.

Software Version

Every FFOM CLI command accepts the option “-v”. This option will display the version of FFOM.

Example:

```
xomlisjob -v
might return
9.0.0.0_999[10305.20100225]
```

add-document

This command adds a document to an existing job. For this operation to be successful, the job-state must be held. The job attribute **number-of-documents** is incremented by 1. If the document is located in a document repository, a username and password is required to retrieve the document from the repository.

This operation has the following optional argument:

- “open”. If specified, the job is kept open which delays preprocessing until the job is “closed”. The job is considered closed when any of the commands xomrepjob, xomsetjob, xomsetdoc, xomadddoc does not specify the -e option is invoked.

Command name:

```
xomadddoc
```

Operand:

```
uri uri designating the file to be added to the job.
```

Options:

```
-j queue:jobId
-e open (delays preprocessing of job)
-u username required to login to the document repository
-s password required to login to the document repository
```

Returns:

```
0 if successful
JOB_NOT_IN_QUEUE (12) if the job does not exist
INVALID_PARAMETER (22) if the uri is invalid (i.e., file
does not exist)
```

Examples:

```
xomadddoc -j myQ:14 samplefile.ps
xomadddoc -j myQ:14 "C:\SampleFile.ps"
xomadddoc -j myQ:15 /export/cs/samplefile.pdf
xomadddoc -j myQ:15 repository://39083202434903 -u ross
-s mypassword
```

backup-server

This command will create a backup of FFOM. The created backup file is a zip file which is used to restore FFOM through the restore-server command. The user invoking the command must have Windows Administrator privileges as FFOM processes are stopped and restarted during this operation.

The backup file contains the following:

- Configuration settings
- Jobs, Queues, Printers
 - Jobs in the pending, held state will be backed up and restored successfully. Jobs in processing, and completed states will be backed up but upon restore will be deleted.
- Printers registered in Printer Registration Utility
- Standalone Repository Management configuration settings
- Hot Folder and Port Configuration configuration settings
- Accounting Module database and reports

The command must be invoked from the "bin" sub-directory of the FFOM installation directory (e.g. C:\Program Files\xerox\FreeFlow Output Manager).

Command name:

```
fom_backup
```

Operand:

Fully qualified path to the backup file to be created. If the operand is not specified, the generated file is written to the FFOM installation sub-directory called "Backups". The name of the file is ffbbackup_OutputManager_YYYYMMDD_n.zip where:

- YYYY is the year
- MM is the numerical month (e.g. 01 is January)
- DD is the day of the month
- n is the incremental version to avoid conflicts of existing files with the same name in the directory

Returns:

```
0 if successful
```

Example:

```
ffom_backup  
ffom_backup "C:\Backups\ffombackup_20100528_1.zip"
```

browse-repository

This command will return the list of items and their associated repository IDs contained in the specified directory. The IDs for the files are used as input for the `xomprijob`, `xomadddoc`, `xomcpfdoc`, `xomcptdoc` commands when specifying an item in a document repository.

Command name:

```
xombrorps
```

Operand:

```
Directory ID in the form "repository://<id>"
```

Options:

```
-u username required to login to the document repository  
-s password required to login to the document repository
```

Returns:

```
0 if successful  
INVALID_PARAMETER (22) if the attribute is not  
recognized
```

Example:

```
xombrorps -u ross -s mypassword  
xombrorps -u ross -s mypassword repository://  
0234348324024055389043
```

cancel-document

This command cancels a document associated with an existing job. The `cancel-document` operation prevents the document from being printed. The operation is successful if the `job-state` is `pending`, `held`, or `processing`. If the `document-state` is `processing`, best effort is made to cancel printing at the device. If the job contains only a single document, the document cannot be cancelled; the job must be cancelled.

The `document-state` is set to `aborted` and `document-state-reasons` is set to `cancelled-by-operator`. The associated document data is not deleted.

Command name:

```
xomcandoc
```

Operand:`queue:jobId:docId`**Options:**

None

Returns:

```
0 if successful
DOCUMENT_NOT_FOUND (25) if document does not exist
JOB_ERROR (13) if attempting to cancel last document in
the job
```

Examples:`xomcandoc myQueue:14:3`

cancel-job

This command cancels a job (i.e., sets its job-state to canceled). As much as is practical, no further processing or printing will occur on a cancelled job; if it is printing when the cancel is issued, FFOM will attempt to stop printing. The job-state is set to "aborted" and job-state-reasons is set to "job-canceled-by-operator".

FFOM will accept or reject the cancel operation depending on the job's state. The following table shows the effect the cancel operation has on job-state.

Current job-status	New job-status	Status
pending	aborted	Ok, cancel occurs immediately
held	aborted	Ok, cancel occurs immediately
processing	aborted	Ok, may return before completed
aborted	aborted	Operation returns an error
completed	completed	Operation returns an error

A canceled job is not necessarily removed from the system. If, for example, the job's **job-retention-period** attribute has a value, the job will stay in FFOM until the retention period expires.

Command name:`xomcanjob`**Operand:**`queue:id`

Options:

none

Returns:

0 if successful
 JOB_NOT_IN_QUEUE (12) if the job does not exist
 JOB_IN_INVALID_STATE (11) if the job cannot be canceled

Examples:

```
xomcanjob queue1:123
```

check-job

This command returns a list of job attributes that fail capability scheduling against a specified device. The job attributes are listed via stdout.

Command name:

```
xomchkjob
```

Operand:

job-id

Options:

```
-d name of device
```

Returns:

0 if successful
 JOB_NOT_IN_QUEUE (12) if the job does not exist
 DEVICE_NOT_FOUND (7) if the device does not exist

Examples:

```
xomchkjob myQ:34 -d MyPrinter
media-col
sides
```

clear-counters

This command resets the "counters since last reset" to 0. Refer to chapter 5, [Server Attributes](#) on page 1 for more information on counters.

Command name:

```
xomclrct
```

Options:

None

Returns:

0 if successful

Examples:

```
xomclrcnt
```

copy-to-document

This command replaces the document data for the document with the specified file. This operation is used by preprocessing or postprocessing scripts that may wish to modify the original document data and store an updated version associated with the document.

If the document data is stored in a document repository, a username and password is required to retrieve the document from the repository.

To obtain a copy of the original document data, the script uses the copy-from-document operation.

Command name:

```
xomcptdoc
```

Operand:

Filename

```
-d queue-name:jobId:document-number
```

Options:

```
-b max number of bytes to store. If not specified, the
entire document data is stored.
```

```
-u username required to login to the document repository
```

```
-s password required to login to the document repository
```

Returns:

0 if successful

DOCUMENT_NOT_FOUND (25) if document does not exist

INVALID_PARAMETER (22) if can't read data from file

Examples:

```
xomcptdoc -d myQueue:14:1 newdocdata
```

Replaces the current document data for the document referenced by myQueue:14:1 with the contents of the file newdocdata

```
xomcptdoc -d myQueue:14:1 -b 100 newdocdata
```

Replaces the current document data for the document referenced by myQueue:14:1 with the first 100 bytes from the contents of the file newdocdata.

```
xomcptdoc -d myQueue:14:1 repository://
32349028342390423 -b 100 -u ross -s mypassword
```

Replaces the current document data for the document referenced by myQueue:14:1 with the first 100 bytes from the contents of the file contained in the repository.

copy-from-document

This command copies the document data associated with the document to a file or provides an absolute filepath to the document data. The `-f` option will instruct `copy-from-document` to copy the document data content to the specified filename. Otherwise, the command will return the absolute file path to the file in FFOM's spool directory.

This is used by preprocessing or postprocessing scripts that may wish to perform some action on the document data such as analyzing the data for the PDL format, estimating the number of impressions the document represents.

If the document data will be stored to a repository, a username and password is required to store the document into the repository.

Command name:

```
xomcpfdoc
```

Operand:

```
queue:jobId:docId
```

Options:

```
-b max number of bytes to retrieve.
```

If not specified, entire document data is retrieved.

```
-f <filename> absolute filepath where the document data  
is copied
```

```
-a prepend document attributes using an XPIF job ticket
```

```
-u username required to login to the document repository
```

```
-s password required to login to the document repository
```

Returns:

```
0 if successful  
DOCUMENT_NOT_FOUND (25) if document does not exist  
INVALID_PARAMETER (22) if can't write data to file  
JOB_IN_INVALID_STATE (11) if document is in wrong state
```

Examples:

```
xomcpfdoc myQueue:14:1
```

Returns the filepath to the document data referenced by document 1 of job-id 14 in queue "myQueue".

```
xomcpfdoc myQueue:14:1 -f C:\mylocalcopy
```

Copies the document data referenced by document 1 of job-id 14 in queue "myQueue" to the file "C:\mylocalcopy".

```
xomcpfdoc myQueue:14:1 -f C:\mylocalcopy -a
```

Copies the document data referenced by document 1 of job-id 14 in queue "myQueue" to the file "C:\mylocalcopy" prepending the document attributes in XPIF job ticket format

```
xomcpfdoc myQueue:14:1 -f repository://  
2340928342390423908 -u ross -s mypassword
```

Copies the document data referenced by document 1 of job-id 14 in queue "myQueue" to a file in the repository.

copy-job

The copy-job operation creates a duplicate copy of the original job and its associated documents and submits the job to the specified queue. The operation applies to the job in any state with the exception of "pre-processing".

The new copy is processed the same way as a newly submitted job into the system.

This operation has the following optional arguments:

- "open". If specified, the job is kept open which delays preprocessing until the job is "closed". The job is considered closed when any of the commands xomcpyjob, xomrepjob, xomsetjob, xomsetdoc, xomadddoc does not specify the -e option is invoked.
- "hold-job". If the option is specified, the new job will be put in the held state. This allows modification of the new job's attributes prior to the job being released for scheduling.

The job template attributes of the created job are identical to those in the original job.

The document template attributes of the create documents within the job are identical to those in the original.

The following table indicates how the read-only job attributes of the new job are affected.

Attribute	Value in new job
date-time-at-completed	Attribute deleted (i.e., no value)
date-time-at-creation	Absolute time of the copy operation
date-time-of-processing	Attribute deleted (i.e., no value)
date-time-at-processing-completed	Attribute deleted (i.e., no value)
date-time-at-marking	Attribute deleted (i.e., no value)
date-time-at-marking-completed	Attribute deleted (i.e., no value)
job-impressions-completed	Attribute deleted (i.e., no value)
job-impressions-completed-color	Attribute deleted (i.e., no value)
job-impressions-completed-black-only	Attribute deleted (i.e., no value)
duration-marking	Attribute deleted (i.e., no value)
document-name	Same as original job
job-id	Assigned by system
job-id-on-client	Same as original job
job-id-on-printer	Attribute deleted (i.e., no value)
pages	Same as original job

Attribute	Value in new job
job-k-octets	Same as original job
job-originating-user-name	Same as original job
job-originating-host-name	Same as original job
job-name	Same as original job
job-parent-job-id	Job ID of original job
job-reprocessing-job-ids	Attribute deleted (i.e., no value)
job-state	pending or held
job-state-reasons	Attribute deleted (i.e., no value)
number-of-documents	Same as original job
output-device-actual	Attribute deleted (i.e., no value)
output-device	Same as original job if submitted to saame queue. Otherwise attribute deleted

The following table indicates how the read-only document attributes of the new job are affected.

Attribute	Value in newdocument
date-time-at-completed	Attribute deleted (i.e., no value)
date-time-at-creation	Absolute time of the copy operation
date-time-of-processing	Attribute deleted (i.e., no value)
date-time-at-processing-completed	Attribute deleted (i.e., no value)
date-time-at-marking	Attribute deleted (i.e., no value)
date-time-at-marking-completed	Attribute deleted (i.e., no value)
impressions-completed	Attribute deleted (i.e., no value)
impressions-completed-color	Attribute deleted (i.e., no value)
impressions-completed-black-only	Attribute deleted (i.e., no value)
duration-marking	Attribute deleted (i.e., no value)
document-name	Same as original document
impressions	Same as original job
job-id-on-printer	Attribute deleted (i.e., no value)
k-octets	Same as original document
document-state	pending
document-state-reasons	Attribute deleted (i.e., no value)
output-device-assigned	Attribute deleted (i.e., no value)

Command name:

```
xomcpyjob
```

Operand:

```
-q <queue-name>  
<queue-name:job-id>
```

Options:

```
-k hold the job (k as in keep)  
-e open (delays preprocessing of job)
```

Side effects:

Writes a string of the form "queueName:jobId" to standard out where jobId is the newly created job.

Returns:

```
0 if successful  
JOB NOT IN QUEUE (25) if job does not exist  
JOB_IN_INVALID_STATE if the job is in an invalid state  
USER_ERROR if the user is not authorized to perform the  
command
```

Examples:

```
xomcpyjob -q 4525 4525:5
```

A copy of job 4525:5 is submitted to queue 4525

```
xomcpyjob -q splitter 4525:5
```

A copy of job 4525:5 is submitted to queue "splitter".

```
xomcpyjob -q splitter -k 4525:5
```

A copy of job 4525:5 is submitted to queue "splitter" and put in the held state

create-device

This command registers a printer defined in the FreeFlow Printer Registration tool into Output Manager. Once registered, Output Manager will schedule jobs to the printer. The list of printers defined in the FreeFlow Printer Registration tool can be obtained by using the [xomdscdev](#) command.

Command name:

```
xomcredev
```

Operand:

```
deviceName:
```

Name of printer defined in the FreeFlow Printer Registration tool.

Returns:

```
0 if successful
```

Examples:

```
xomcredev DT75
```

create-queue

This command creates a new queue object. The queue-name attribute is the only required argument. The queue-name must be unique in the namespace (i.e., there cannot be an existing device or a queue using the same name). After creating the queue, the queue does not automatically accept job submission from clients or release jobs to the printers for printing. This option must be set.

The following table shows values of the queue's attributes after a create-queue operation.

Attribute	Value
queue-is-accepting-jobs	false
queue-is-releasing-jobs	false
queue-date-time-at-creation	date and time the operation succeeded
queue-name	client-supplied-name
group-name	Custom View Group name

The other queue attributes are not instantiated by a create-queue command. They are [queue-is-holding-new-jobs](#), [queue-connect-to-all-devices](#) and [queue-all-jobs-pass-through](#).

Command name:

```
xomcreque
```

Operand:

```
queueName: A unique name for the new queue
```

Options:

```
-g groupname
```

Returns:

```
0 if successful
DUPLICATE_QUEUE (14) if the name already exists
INVALID_GROUP_NAME(51) if groupname is not valid
MISSING_OPTION_VALUE(3) if groupname is not given
INVALID_PARAMETER(24) if -g option is not given
```

Examples:

```
xomcreque queue1 [-g "groupname"]
```

create-report

This command generates a server statistics report. The generated filename is of the format "FFOMServerStatistics_YYYYMMDD_HHMMSS.csv". The portion of the filename "FFOMServerStatistics" is localized.

The default character encoding of the generated report is UTF-8. An alternate character encoding can be specified using the `-c` switch. Examples of encoding values are "UTF-8" and "Shift_JIS".

Prior to creating the report, a snapshot of the current counters is done. See chapter 5, [Server Attributes](#) on page 1 for more information.

Command name :

```
xomcrerep
```

Options :

```
-c character set encoding for the report file
-r since-install' or 'between-resets
```

Returns :

```
0 if successful
```

Example :

```
xomcrerep
```

create-snapshot

This command will generate a snapshot and store the current values of the counters into the snapshot. See chapter 5, [Server Attributes](#) on page 1 for more information.

Command name :

```
xomcresna
```

Options :

```
-e Clear counters since last reset to 0 after the snapshot is completed
```

Returns :

```
0 if successful
```

Example :

```
xomcresna
```

delete-device

This command deletes an existing device. The device must be disabled before it can be deleted and it can have no jobs associated with it in the [processing](#) job-state.

Command name:

```
xomdeldev
```

Operand:

```
deviceName: The name of an existing device
```

Options:

```
none
```

Returns:

```
0 if successful  
DEVICE_NOT_FOUND (7) if the device does not exist  
DEVICE_NOT_DISABLED (6) if the device is not in a state suitable for deletion
```

Example:

```
xomdeldev device1
```

delete-document

This command deletes a document from a job. For this operation to be successful, the job state must be pending or held. If the job contains only a single document, the document cannot be deleted; the entire job must be deleted. The associated document data is deleted. If necessary, the remaining document's document-number will be updated to ensure all document numbers are in sequential order. For example, if document 3 was deleted in a 5 document job, the document-number for document 4 will be updated to 3 and the document-number for document 5 will be updated to 4. The job's [number-of-documents](#) attribute will be updated.

Command name:

```
xomdeldoc
```

Operand:

Queue:id:documentid: The name of an existing document.

Options:

none

Returns:

0 if successful
DOCUMENT_NOT_FOUND (25) if the document does not exist
JOB_IN_INVALID_STATE (11) if the job is in wrong state
JOB_ERROR (13) if document is last document to be deleted

Examples:

```
xomdeldoc queue1:123:2
```

delete-job

This command deletes a job. The delete-job operation stops job processing and removes the job from the system. As much as is practical, no further processing or printing will occur on a deleted job; if it is printing when the delete is issued, FFOM will attempt to stop printing.

A job can be deleted when it is in any state. The command will return immediately but the system will attempt to cancel printing the job in the background if the job is in the [processing](#) state.

Note that deleting a job removes all traces of it from the system. The [job-retention-period](#) attribute is ignored. Note that there is no deleted state for a job since a job must exist to have a state and a deleted job doesn't exist.

Command name:

```
xomdeljob
```

Operand:

queue:jobId: The queue name, ":" and the job id

Options:

none

Returns:

0 if successful
JOB_NOT_IN_QUEUE (12) if the job does not exist

Examples:

```
xomdeljob queue1:123
```

delete-queue

This command deletes an existing queue. The queue-name is the only required argument. In order to delete a queue, the following conditions must be met:

- The queue must exist;
- The queue must be disabled;
- The queue must contain jobs only in completed or aborted states.

Jobs in a terminal state associated with the queue are deleted when the queue is deleted. Therefore, retained jobs associated with the queue are no longer available for reprocessing.

Command name:

```
xomdelque
```

Operand:

```
queueName: The name of the queue to be deleted
```

Options:

```
none
```

Returns:

```
0 if successful
QUEUE_NOT_FOUND (16) if the queue does not exist
QUEUE_NOT_DISABLED (19) if the queue is not in a state
that allows deletion
QUEUE_CONTAINS_JOBS (17) if the queue contains jobs not
in the terminal state (completed, aborted).
```

Example:

```
xomdelque queue1
```

disable-device

This command disables a device. The disable operation stops the device from accepting new jobs. It causes the **printer-is-accepting-jobs** attribute to be set to false. While the device is disabled, it still responds to all operations other than accepting a new job. It continues to monitor and report on the status of jobs that have been forwarded to printers. A disabled printer will accept without error another disable operation. The only argument to this operation is the device name.

Command name:

```
xomdisdev
```

Operand:

```
deviceName: The name of the device to be disabled.
```

Options:

```
none
```

Returns:

```
0 if successful  
DEVICE_NOT_FOUND (7) if the device does not exist
```

Example:

```
xomdisdev device1
```

disable-queue

This command disables a queue. The disable-queue operation sets the queue's read-only attribute **queue-is-accepting-jobs** to false. If a queue is disabled (i.e., if the value of **queue-is-accepting-jobs** is false), the “print” operations from inbound services and the CLI to that queue will fail.

The disable-queue operation succeeds even if the queue is already disabled.

The disable operation has no effect on the processing of jobs already in the queue. They proceed through their life cycle normally.

Command name:

```
xomdisque
```

Operand:

```
queueName: The name of the queue to be disabled
```

Options:

```
none
```

Returns:

```
0 if successful  
QUEUE_NOT_FOUND (16) if queue does not exist
```

Example:

```
xomdelque queue1
```

discover-device

This command will return the list of printers registered in the FreeFlow Printer Registration Tool. These registered printers are not registered into Output Manager until either the `xomcredev` or `xomupddev` command is invoked.

Command name :

```
xomdscdev
```

Returns:

```
0 if successful
INVALID_PARAMETER (22) if the attribute-name is not
recognized
```

Examples:

```
xomdscdev
```

end-processing

This command is used by a pre or postprocessing script to notify that the script has completed pre or postprocessing a job. This **must** be called by a script prior to exiting the script. Otherwise, the job will be in the pre-processing or post-processing (i.e., held) state forever.

Command name:

```
xomendpro
```

Operand:

```
Job-id: The job-id is in the form <queueName:job-id>.
```

Options:

```
-e The preprocessor or postprocessor has failed. If the
job was preprocessing, it will be put into the held
state. If the job was postprocessing, the state will be
set to either the aborted or completed state depending
on the prior operation of the job.
```

Returns:

```
0 if successful
JOB_NOT_IN_QUEUE (12) if the job does not exist
```

Example:

```
xomendpro queue1:123
xomendpro -e queue1:123
```

enable-device

The enable command starts the device object accepting jobs. It causes the **printer-is-accepting-jobs** attribute to be set to true. An enabled device will accept without error an enable operation.

Command name:

```
xomenadev
```

Operand:

```
deviceName: The name of the device to be enabled
```

Options:

```
none
```

Returns:

```
0 if successful  
DEVICE_NOT_FOUND (7) if the device does not exist
```

Example:

```
xomenadev device1
```

enable-queue

This command enables a queue so that it will begin accepting jobs. It sets the queue's read-only attribute **queue-is-accepting-jobs** to true. The enable-queue operation succeeds even if the queue is already enabled. The enable-queue operation does not ensure that the queue is capable of releasing jobs; in particular it does not ensure that either **queue-connect-to-all-devices** or **output-device-supported** have reasonable values.

Command name:

```
xomenaque
```

Operand:

```
queueName: The name of the queue to enabled
```

Options:

```
none
```

Returns:

```
0 if successful  
QUEUE_NOT_FOUND (16) if the queue does not exist
```

Example:

```
xomenaque queue1
```

get-device-attributes

This command gets the value for a device attribute.

Command name:

```
xomgetdev
```

Operand:

```
deviceName: The name of the device
```

Options:

```
-x attribute-name  
-a returns all attributes set on the printer  
-l writes device attributes to the specified file in  
XPIF format.  
-w overwrite existing file when using the -l option
```

Returns:

```
0 if successful  
INVALID_PARAMETER (22) if the attribute-name is not  
recognized  
DEVICE_NOT_FOUND (7) if the device does not exist
```

Writes a string of the form:

```
deviceName:attribute-name=value
```

to standard out.

Example:

```
xomgetdev -x device-type device1
```

get-document-attributes

This command returns attributes set on the document. It does not list corresponding job attributes if attribute is not set on the document.

Command name:

```
xomgetdoc
```

Operand:

```
queue:jobId:docId
```

Options:

```
-x attribute-name  
-a returns all attributes set on the document  
-l writes device attributes to the specified file in  
XPIF format.  
-w overwrite existing file when using the -l option
```

Returns:

0 if successful
 DOCUMENT_NOT_FOUND (25) if document does not exist
 INVALID_PARAMETER (22) if attribute is not recognizable

Writes a string of the form:

queueName:jobId:docNumber:attribute-name=value

to standard out.

Examples:

```
xomgetdoc queue1:14:1 -x copies
```

Displays the value of copies for the document queue1:14:1

```
xomgetdoc queue:1:14:1 -a
```

Displays all attributes set on the document queue1:14:1.

```
xomgetdoc queue1:14:1 -w -l C:\temp\Job14_1.xpf
```

Writes all attributes on the document queue1:14:1 to file Job14_1.xpf

get-job-attributes

This command gets the attributes of a job.

Command name:

```
xomgetjob
```

Operand:

queue:jobId: The queue name, ":" and the job id

Options:

-x:attribute-name
-a returns all attributes that exist on the job
-l writes device attributes to the specified file in XPIF format.
-w overwrite existing file when using the **-l** option.

Returns:

0 if successful
 INVALID_PARAMETER (22) if the attribute-name is not recognized
 JOB_NOT_IN_QUEUE (12) if the job does not exist

Writes a string of the form:

queueName:jobId:attribute-name=value

to standard out.

Example:

```
xomgetjob -x sides queue1:123
xomgetjob queue1:123 -l C:\temp\job123.xpf
```

Writes all attributes on the job queue1:123 to the file job123.xpf

get-queue-attributes

This command retrieves the value of a specific queue attributes or all queue attributes. A queue's attributes that have a value can have their values retrieved regardless of the state of queue object. A get-queue-attributes of a non-existent attribute returns an error.

Command name:

```
xomgetque
```

Operand:

```
queueName: The name of the queue
```

Options:

```
-x attribute-name
-a returns all attributes set on the queue
-l writes queue attributes to the specified file in XPIF
format
-w overwrite existing file when using the -l option
```

Returns:

```
0 if successful
QUEUE_NOT_FOUND (16) if queue does not exist
INVALID_PARAMETER (22) if the attribute-name is not
recognized
```

Writes a string of the form:

```
queueName:attribute-name=value
```

to standard out.

Example:

```
xomgetque -x output-device-supported myqueue
```

get-server-attributes

This command retrieves the value of a specific server attribute or all server attributes. A server's attributes that have a value can have their values retrieved regardless of the state of server object. A get-server-attributes of a non-existent attribute returns an error. See chapter 5, [Server Attributes](#) on page 1 for more information.

Command name:

```
xomgetser
```

Options:

```
-x attribute-name
-a returns all attributes set on the server
```

Returns:

```
0 if successful
INVALID_PARAMETER (22) if the attribute-name is not
recognized
```

Writes a string of the form:

```
attribute-name=value
```

to stdout.

Example:

```
xomgetser -x server-jobs-accepted
```

hold-job

This command makes a job remain in the queue and be ineligible for scheduling. If the job's **job-state** is pending or pending-held, the operation is successful and job's **job-state** becomes held. The following table shows the job state transitions resulting from a hold-job operation.

Current job-status	New job-status	Status
pending	held	Ok
held	held	Ok
processing	processing	Operation returns an error
aborted	aborted	Operation returns an error
completed	completed	Operation returns an error

The hold-job operation takes an optional argument, hold-until-time. This is a future absolute time at which the job's state will be automatically changed from held to pending.

The value of the hold-until-time argument is set into the job's **job-hold-until-time** attribute. When that time expires and the job transitions to pending state, the **job-hold-until-time** attribute is deleted (i.e., has no value).

If the job attribute **job-hold-until-time** has a value when the hold-job operation is executed, that value will be replaced by the value of the hold-until-time argument if it has been specified. The **job-hold-until-time** attribute will be deleted if the hold-until-time argument was not specified. If the hold-until-time value is set in past the operation fails.

Command name:

```
xomholjob
```

Operand:

queueName:jobId The job Id.

Options:

`-r` release time, an absolute time in the future

Returns:

0 if successful
 JOB_NOT_IN_QUEUE (12) if the job does not exist
 INVALID_PARAMETER (22) if the time doesn't make sense

Examples:

```
xomholjob queue1 :123
```

The job is held indefinitely.

```
xomholjob -r 2003-04-01T18:00:00 queue1:123
```

The job is held until April 1, 2003 at 18 :00.

hold-new-jobs

The hold-new-jobs command causes the queue to complete currently processing or pending jobs but not start any subsequently created jobs. Subsequently created jobs will be put in the held state with **'job-held-on-create'** added to the job's **job-state-reasons** attribute. This operation can be issued at any time and does not affect the ability of the queue to accept jobs. The queue attribute **queue-is-holding-new-jobs** is set to true.

Command name:

```
xomhnjob
```

Operand:

queueName: The name of the queue

Options:

none

Returns:

0 if successful
 QUEUE_NOT_FOUND (16) if the queue doesn't exist

Example:

```
xomhnjob queue1
```

list-devices

This command returns a list of the devices defined in the system.

Command name:

```
xomlisdev
```

Operand:

```
none
```

Options:

```
none
```

Returns:

```
0 if successful
```

Side effects:

Writes a string of the form:

```
device1,device2, ... devicen
```

to standard out. If no devices have been defined, only an end of line is written to standard out.

Example:

```
xomlisdev
```

list-jobs

This command lists all the jobs in a particular queue

Command name:

```
xomlisjob
```

Operand:

```
queueName: The name of the queue that the job are in.
```

Options:

```
-s job state: only jobs of the specified state will be listed
```

Returns:

```
0 if successful
```

```
QUEUE_NOT_FOUND (16) if the queue doesn't exist
```

Side effects:

Writes a string of the form:

```
queue1:123,queue1:124, ... queue1:nnn
```

to standard out. If the queue is empty, a only an end of line is written to standard out.

Example:

```
xomlisjob queue1
```

list-queues

This command returns a list of the queues defined in the system.

Command name:

```
xomlisque
```

Operand:

```
none
```

Options:

```
none
```

Returns:

```
0 if successful
```

Side effects:

Writes a string of the form:

```
queue1,queue2, ... queueen
```

to standard out. If no queues have been defined, only an end of line is written to standard out.

Example:

```
xomlisque
```

move-job

This command moves a job from one queue to another. The following table shows the job state transitions resulting from a move-job operation.

Current job-status	New job-status	Status
pending	pending	Ok
held	held	Ok
processing	processing	Operation returns an error
aborted	aborted	Operation returns an error
completed	completed	Operation returns an error

Note that for FIFO scheduling, the “In” time is when the job enters the queue so a moved job effectively goes to the end of the FIFO queue.

Command name:

```
xommovjob
```

Operand:

```
queue:id: The queue and id of the job to be moved
```

Options:

```
-q queueName: The name of the queue to move the job to.
```

Returns:

```
0 if successful
JOB_NOT_IN_QUEUE (12) if job doesn't exist
QUEUE_NOT_FOUND (16) if the "to queue" doesn't exist
JOB_IN_INVALID_STATE (11) if the job is not in a state
to be moved
```

Example:

```
xommovjob -q queue2 queue1:123
```

pause-queue

This command pause a queue so it no longer releases jobs. Jobs can be submitted to a paused queue but they just accumulate in the queue. The pause-queue operation sets the queue's read-only attribute **queue-is-releasing-jobs** to false.

The pause queue operation takes one optional argument, `pause-until-time`. This argument specifies a dayTime in the future when the queue will be automatically resumed. If this optional argument is supplied, the queue attribute **queue-pause-until-time** is instantiated with the value of the `pause-until-time` argument.

If the optional `pause-until-time` argument is not supplied, the queue will remain paused until a `resume-queue` and the attribute **queue-pause-until-time** is not instantiated.

The pause-queue operation succeeds if the queue is already paused. In this case, if the `pause-until-time` argument is provided, its value will replace existing (if any) value of the attribute **queue-pause-until-time**. If the `pause-until-time` argument is not provided and the attribute **queue-pause-until-time** exists (i.e., has a value), the **queue-pause-until-time** attribute will be removed from the queue.

Command name:

```
xompauque
```

Operand:

```
queueName
```

Options:

```
-r releaseTime an absolute time in the future
```

Returns:

```
0 if successful  
QUEUE_NOT_FOUND (16) if the queue does not exist
```

Example:

```
xompauque queue1
```

The queue, `queue1` is paused indefinitely.

```
xompauque queue1 -r 2003-04-01T18:00:00
```

The queue, `queue1` is paused until April 1, 2003 at 18 :00.

print-job

This command cause a file to be submitted for printing. The print-job operation creates a job object consisting of one or more document objects and enters them into a queue for processing. If the file is stored in a document repository, a username and password is required to retrieve the file from the repository.

This operation has the following optional arguments:

- “hold”. If specified, the submitted job will be in the held state.
- “job name”. If specified, the job attribute “**job-name**” will be set to the specified value.
- “pass through”. If specified, the job will not have an embedded job ticket removed, attributes specified in the ticket are not mapped to job/document attributes, queue defaults will not be applied, and preprocessing scripts will not be executed.
- “open”. If specified, the job is kept open which delays preprocessing until the job is “closed”. The job is considered closed when any of the commands [xomcpyjob](#), [xomrepjob](#), [xomsetjob](#), [xomsetdoc](#), [xomadddoc](#) does not specify the **-e** option is invoked.
- “job-ticket”. If specified, the file containing a job ticket (ASCII, XPIF) will be processed and attributes specified in the ticket act similar to that of default attributes. If the PDL file contains an embedded job ticket, attributes specified in the embedded job ticket take precedence over attributes specified in the separate job-ticket file.

If the job ticket file is a JDF job ticket, the referenced file to print must be described in the JDF job ticket file. Specifying a uri will return an error. This is the only case where an operand is not required.

The template attributes (i.e., read/write) are set on the document object. If a template attribute is set on the job, the value will be treated as a default value for the corresponding document attribute if it does not exist on the document object.

The following table show how the job description attributes are set when the print job operation completes.

Attribute	Value in new job
date-time-at-completed	Not instantiated (i.e., no value)
date-time-at-creation	Absolute time of the print-job operation
date-time-at-processing	Not instantiated (i.e., no value)
date-time-at-processing-completed	Attribute deleted (i.e., no value)
date-time-at-marking	Attribute deleted (i.e., no value)
date-time-at-marking-completed	Attribute deleted (i.e., no value)
job-impressions-completed	Attribute deleted (i.e., no value)
job-impressions-completed-color	Attribute deleted (i.e., no value)
job-impressions-completed-black-only	Attribute deleted (i.e., no value)
duration-marking	Attribute deleted (i.e., no value)
ipp-attribute-fidelity	Set by IPP IBS; not instantiated with CLI and lpr IBS

Attribute	Value in new job
job-id	Assigned by system
job-id-on-client	Set by lpr IBS, not instantiated with CLI and IPP IBS
job-k-octets	Set by system adding all of the document's k-octets.
job-originating-user-name	Set by IBS
job-originating-host-name	Set by lpr client, not instantiated with CLI and IPP IBS
job-name	Set by IBS
job-parent-job-id	Not instantiated (i.e., no value)
job-reprocessed-job-ids	Not instantiated (i.e., no value)
job-state	pending or held
job-state-reasons	If -k is specified, job-hold-until-specified is set, otherwise none
job-subjob-ids	Not instantiated (i.e., no value)
number-of-documents	Set by system to the number of documents in job
output-device-actual	Not instantiated (i.e., no value)
output-device	Not instantiated (i.e., no value)

The following table show how the document description (i.e., read-only) attributes are set when the print job operation completes.

Attribute	Value in new document
date-time-at-completed	Not instantiated (i.e., no value)
date-time-at-creation	Absolute time of the reprocess operation
date-time-at-processing	Not instantiated (i.e., no value)
date-time-at-processing-completed	Attribute deleted (i.e., no value)
date-time-at-marking	Attribute deleted (i.e., no value)
date-time-at-marking-completed	Attribute deleted (i.e., no value)
job-impressions-completed	Attribute deleted (i.e., no value)
job-impressions-completed-color	Attribute deleted (i.e., no value)
job-impressions-completed-black-only	Attribute deleted (i.e., no value)
duration-marking	Attribute deleted (i.e., no value)
document-format	Set by system via PDL guessor if used or specified in JobTicket
document-name	Set to be name of the file
impressions	Set by system via page counter if used
k-octets	Set by system after computing document file size

Attribute	Value in new document
document-state	pending
document-state-reasons	Not instantiated (i.e., no value)
output-device-assigned	Not instantiated (i.e., no value)

Command name:

```
xomprijob
```

Operand:

```
uri [uri ...]
```

One or more uri's designating the files to be sent to the printer delimited by spaces. If there are more than one, they are submitted as a single job with more than one document. Remote file path and Universal Naming Convention (UNC) paths are not supported.

Options:

```
-q queueName: the queue to submit to
-k hold the job (k as in keep)
-p pass-through
-n job name
-e open (delays preprocessing of job)
-j file containing job ticket attributes
-u username required to login to document repository
-p password required to login to document repository
```

Side effects:

Writes a string of the form "queueName:jobId" to standard out where jobId is the newly created job.

Returns:

```
0 if successful
QUEUE_NOT_FOUND (16) if the queue does not exist
QUEUE_DISABLED (18) if the queue is disabled (i.e., not
accepting jobs)
INVALID_PARAMETER (22) if one or more uri's are not
accessible
```

Examples:

```
xomprijob -q queue1 -n "Gary's Job" File1.ps
xomprijob -q queue1 -n "Gary's Job" File1.ps File2.ps
xomprijob -q queue1 -n "Gary's Job" -j SimpleJob.jdf
xomprijob -q queue1 -n "Gary's Job" -j Simplex.xpf
File1.ps
```

purge-queue

This command removes all jobs from a queue, regardless of their job state, including retained jobs. This operation will be accepted by a queue regardless of its state. Since the queue does not need to be disabled, it is possible that new jobs will be accepted while a purge-jobs operation is being executed resulting in a queue that still contains jobs.

Command name:

```
xompurque
```

Operand:

```
queueName
```

Options:

```
none
```

Returns:

```
0 if successful  
QUEUE_NOT_FOUND (16) if the queue doesn't exist
```

Example:

```
xompurque queue1
```

remove-device-attributes

This command removes a read-write attribute (i.e., sets its value to nothing) from a device.

A remove-device-attributes operation on an attribute that does not exist (i.e., does not have a value) is successful.

Command name:

```
xomremdev
```

Operand:

```
deviceName
```

Options:

```
-x attribute-name
```

Returns:

```
0 if successful  
DEVICE_NOT_FOUND (7) if the device does not exist  
INVALID_PARAMETER (22) if the attribute is not  
recognized or is not settable
```

Example:

```
xomremdev -x device-high-watermark device1
```

remove-document-attributes

This command removes a read-write attribute from the document object. Occasionally, there are rules associated with removing an attribute and this special handling is described in the section that describes the attribute. A document attribute can be removed if the state of the document is pending or held.

A remove-document-attributes operation on an attribute that does not exist (i.e., does not have a value) is successful.

Command name:

```
xomremdoc
```

Operand:

```
queue:jobId:docId
```

Options:

```
-x attribute-name
```

Returns:

```
0 if successful
DOCUMENT_NOT_FOUND (25) if document does not exist
INVALID_PARAMETER (22) if attribute is not recognizable
or is not settable
JOB_IN_INVALID_STATE (11) if document is not in valid
state
```

Examples:

```
xomremdoc queue1:14:1 -x copies
```

The copies attribute is removed from document queue1:14:1.

remove-job-attributes

This command removes a read-write attribute (i.e., sets its value to nothing) from a job.

A remove-device-attributes operation on an attribute that does not exist (i.e., does not have a value) is successful.

Command name:

```
xomremjob
```

Operand:

```
queueName:jobId
```

Options:

```
-x attribute-name
```

Returns:

```

0 if successful
JOB_NOT_IN_QUEUE (12) if the job does not exist
INVALID_PARAMETER (22) if the attribute is not
recognized or is not settable
JOB_IN_INVALID_STATE (11) if the job is not in valid
state

```

Example:

```
xomremjob -x job-priority queue1:123
```

remove-queue-attributes

This command removes a read-write attribute (i.e., sets its value to nothing) from a queue.

A remove-queue-attributes operation on an attribute that does not exist (i.e., does not have a value) is successful.

Command name:

```
xomremque
```

Operand:

```
queueName
```

Options:

```
-x attribute-name
```

Returns:

```

0 if successful
QUEUE_NOT_FOUND (16) if the queue does not exist
INVALID_PARAMETER (22) if the attribute is not
recognized or is not settable

```

Example:

```
xomremque -x cpoies-default queue1
```

remove-server-attributes

This command removes a read-write attribute (i.e., sets its value to nothing) from the server. See chapter 5, [Server Attributes](#) on page 1 for more information.

A remove-server-attributes operation on an attribute that does not exist (i.e., does not have a value) is successful.

Command name:

```
xomremser
```

Options:

```
-x attribute-name
```

Returns:

```
0 if successful  
INVALID_PARAMETER (22) if the attribute is not  
recognized or is not settable
```

Example:

```
xomremser -x server-snapshot-time
```

release-held-new-jobs

This command releases those jobs that have been held in a queue due to a hold-new-jobs operation. The queue releases all jobs that have a 'job-held-on-create' value in their **job-state-reasons** attribute and the queue attribute **queue-is-holding-new-jobs** is set to false. This operation can be executed without error on any queue even if **queue-is-holding-new-jobs** is already false.

Command name:

```
xomrhjob
```

Operand:

```
queueName
```

Options:

```
none
```

Returns:

```
0 if successful  
QUEUE_NOT_FOUND (16) if the queue does not exist
```

Example:

```
xomrhjob queue1
```

release-job

This command releases a job that has been held. The following table shows the job state transitions resulting from a release-job operation.

Current job-status	New job-status	Status
pending	pending	Ok, no effect on job
held	pending	Ok
processing	processing	Operation returns an error
aborted	aborted	Operation returns an error
completed	completed	Operation returns an error

If the job attribute **job-hold-until-time** exists when the release-job operation is executed, the **job-hold-until-time** attribute will be deleted.

Note that the release-job operation simply changes the job's state from held to pending. If the job cannot be scheduled for some other reason (e.g., the queue is paused), the job remains pending until that condition changes.

Command name:

```
xomreljob
```

Operand:

```
queueName:jobId
```

Options:

```
none
```

Returns:

```
0 if successful
JOB_NOT_IN_QUEUE (12) if the job does not exist
JOB_IN_INVALID_STATE (11) if the job is in a terminal or
processing state
```

Examples:

```
xomreljob queue1:123
```

reorder-documents

This command sets the document's document number. The operation also updates the document's document-number following the updated document.

Command name:

```
xomreodoc
```

Operand:

```
QueueName:jobId:docNumber
```

Options:

```
-o new-document-number (required)
```

Returns:

```
0 if successful  
DOCUMENT_NOT_FOUND (25) if document does not exist  
JOB_IN_INVALID_STATE (11) if job is in wrong state
```

Examples:

```
xomreodoc queue1 :14 :1 -o 3
```

Document 1 of job queue :14 becomes the 3rd document.

reprocess-job

This command resubmits a job that is “restartable”. The `reprocess-job` operation takes a retained job (i.e., in a terminal state with `job-restartable` as the value for `job-state-reasons`) creates a new, identical job and its associated documents and assigns it to the original job’s queue. In a multi-document job, if any document was previously canceled, these documents in the new job are eligible for printing.

In the following table, the first column refers to the original job’s state (which does not change as a result of a `reprocess-job` operation). The second column indicates the state of the newly created job.

This operation has the following arguments:

- “open”. If specified, the job is kept open which delays preprocessing until the job is “closed”. The job is considered closed when any of the commands `xomcpyjob`, `xomrepjob`, `xomsetjob`, `xomsetdoc`, `xomadddoc` does not specify the `-e` option is invoked.
- “hold-job”. If the option is specified, the new job will be put in the held state. This allows modification of the new job’s attributes prior to the job being released for scheduling.

Current job-status	New job-status	Status
pending	N/A	Operation returns an error
held	N/A	Operation returns an error
processing	N/A	Operation returns an error
aborted/job-restartable	pending or held if hold-job option specified	Ok
completed/job-restartable	pending or held if hold-job option specified	Ok

The original job has the new job’s `job-id` added to value of its `job-reprocessed-job-ids` attribute. Otherwise it is unchanged.

The job template attributes of the created job are identical to those in the original job.

The following table indicates how the read-only job attributes of the new job are affected.

Attribute	Value in new job
date-time-at-completed	Attribute deleted (i.e., no value)
date-time-at-creation	Absolute time of the reprocess operation
date-time-at-processing	Attribute deleted (i.e., no value)
date-time-at-processing-completed	Attribute deleted (i.e., no value)
date-time-at-marking	Attribute deleted (i.e., no value)
date-time-at-marking-completed	Attribute deleted (i.e., no value)
job-impressions-completed	Attribute deleted (i.e., no value)
job-impressions-completed-color	Attribute deleted (i.e., no value)
job-impressions-completed-black-only	Attribute deleted (i.e., no value)
duration-marking	Attribute deleted (i.e., no value)
document-name	Same as original job
job-id	Assigned by system
job-id-on-client	Same as original job
job-id-on-printer	Attribute deleted (i.e., no value)
job-impressions	Same as original job
job-k-octets	Same as original job
job-originating-user-name	Same as original job
job-originating-host-name	Same as original job
job-name	Same as original job
job-parent-job-id	Job id of original job
job-reprocessed-job-ids	Attribute deleted (i.e., no value)
job-state	pending or held
job-state-reasons	Attribute deleted (i.e., no value)
job-subjob-ids	Attribute deleted (i.e., no value)
number-of-documents	Same as original job
output-device-actual	Attribute deleted (i.e., no value)
output-device	Same as original job
queue-assigned	Attribute deleted (i.e., no value)

The following table indicates how the read-only document attributes of the new job are affected.

Attribute	Value in new document
<code>date-time-at-completed</code>	Attribute deleted (i.e., no value)
<code>date-time-at-creation</code>	Absolute time of the reprocess operation
<code>date-time-at-processing</code>	Attribute deleted (i.e., no value)
<code>date-time-at-processing-completed</code>	Attribute deleted (i.e., no value)
<code>date-time-at-marking</code>	Attribute deleted (i.e., no value)
<code>date-time-at-marking-completed</code>	Attribute deleted (i.e., no value)
<code>impressions-completed</code>	Attribute deleted (i.e., no value)
<code>impressions-completed-color</code>	Attribute deleted (i.e., no value)
<code>impressions-completed-black-only</code>	Attribute deleted (i.e., no value)
<code>duration-marking</code>	Attribute deleted (i.e., no value)
<code>document-name</code>	Same as original document
<code>impressions</code>	Same as original document
<code>k-octets</code>	Same as original document
<code>document-state</code>	pending
<code>document-state-reasons</code>	Attribute deleted (i.e., no value)
<code>output-device-assigned</code>	Attribute deleted (i.e., no value)

Command name:

```
xomrepjob
```

Operand:

```
queueName:jobId
```

Options:

```
-k put job in held state (i.e., keep)
-e open (delays preprocessing of job)
```

Side effects:

Writes a string of the form “queueName:jobId” to standard out where jobId is the newly created job.

Returns:

```
0 if successful
JOB_NOT_IN_QUEUE (12) if the job doesn't exist
JOB_IN_INVALID_STATE (11) if the job is not in a
restartable state
```

Example:

```
xomrepjob queue1:123
```

restore-server

This command restores FFOM from a backup file generated from the backup-server command. The user invoking the command must have Windows Administrator privileges as FFOM is shutdown before the restoration and restarted after restore is complete.

Backed up jobs in the pending and held state will be restored. Jobs in processing, and completed states will be restored will be deleted after FFOM is restarted.

Command name:

```
ffom_restore
```

Operand:

Absolute path to the backup file.

Returns:

```
0 if successful
```

Example:

```
ffom_restore"C:\FFOMBackups\ffbackup_OM_20100528_1.zip"
```

resume-queue

This command causes the queue to begin scheduling jobs to its associated devices. The resume-queue operation sets the queue's read-only attribute **queue-is-releasing-jobs** to true.

The resume-queue operation will delete the queue attribute **queue-pause-until-time** if it exists. The resume-queue operation succeeds even if the queue is not paused.

The resume-queue operation does not ensure that the queue can effectively schedule jobs to devices. The queue may have existing or non-existing devices in its **output-devices-supported** attribute. The operation will fail if **output-devices-supported** is not set and **queue-connect-to-all-devices** is set to false.

Command name:

```
xomresque
```

Operand:

```
queueName
```

Options:

```
none
```

Returns:

```
0 if successful
QUEUE_NOT_FOUND (16) if the queue doesn't exist
```

Example:

```
xomresque queue1
```

set-device-attributes

This command sets a value in a device attribute.

Command name:

```
xomsetdev
```

Operand:

```
deviceName
```

Options:

```
-x attribute-name=value
-a delete all xxx-supported attributes from printer
  object, update xxx-supported attributes obtained from
  the device
-m merge existing values from xxx-supported attributes
  and obtained from the device
-l <filename> set device attributes from the specified
  file
```

Returns:

```
0 if successful
DEVICE_NOT_FOUND (7) if the device does not exist
INVALID_PARAMETER (22) if the attribute is not
recognized or is not settable
```

Example:

```
xomsetdev -x "printer-location='In the box'" device1
```

set-job-attributes

This command sets a value in a job attribute when the job is in the held or pending state.

This operation has the following optional arguments:

- "open". If specified, the job is kept open which delays preprocessing until the job is "closed". The job is considered closed when any of the commands [xomcpyjob](#), [xomrepjob](#), [xomsetjob](#), [xomsetdoc](#), [xomadddoc](#) does not specify the `-e` option is invoked.

Command name:

```
xomsetjob
```

Operand:

```
queueName:jobId
```

Options:

```
-x attribute-name=value
-e open (delays preprocessing of job)
```

Returns:

```
0 if successful
JOB_NOT_IN_QUEUE (12) if the job does not exist
INVALID_PARAMETER (22) if the attribute is not
recognized or is not settable
JOB_IN_INVALID_STATE (11) if the job is not in valid
state
```

Example:

```
xomsetjob -x "job-priority=1" queue1:123
```

set-document-attributes

This command sets a value in a document attribute attribute when the job is in the held or pending state.

This operation has the following optional arguments:

- "open". If specified, the job is kept open which delays preprocessing until the job is "closed". The job is considered closed when any of the commands `xomcpyjob`, `xomrepjob`, `xomsetjob`, `xomsetdoc`, `xomadddoc` does not specify the `-e` option is invoked.

Command name:

```
xomsetdoc
```

Operand:

```
queue:jobId:docId
```

Options:

```
-x attribute-name=value  
-e open (delays preprocessing of job)
```

Returns:

```
0 if successful  
DOCUMENT_NOT_FOUND (25) if document does not exist  
INVALID_PARAMETER (22) if attribute is not recognizable  
or is not settable  
JOB_IN_INVALID_STATE (11) if document is not in valid  
state
```

Example:

```
xomsetdoc -x "sides=one-sided" queue1:34:1
```

The sides attribute for document number 1 of job 34 is set to the value "one-sided".

set-queue-attributes

This command sets a value in a queue attribute.

Command name:

```
xomsetque
```

Operand:

```
queueName
```

Options:

```
-x attribute-name=value
-a remove all values from queue's xxx-supported
attributes, reinitialize using the union of all values
from the associated printer's xxx-supported attributes.
-m merge existing values from queue's xxx-supported
attributes with the union of all values from the
associated printer's xxx-supported attributes.
-l <filename>set device attributes from the specified
file.
```

Returns:

```
0 if successful
QUEUE_NOT_FOUND (16) if the queue does not exist
INVALID_PARAMETER (22) if the attribute is not
recognized or is not settable
```

Example:

```
xomsetque -x "queue-connect-to-all-devices=true" queue1
```

set-server-attributes

This command sets a value on a server attribute. See chapter 5, [Server Attributes](#) on page 1 for more information.

Command name:

```
xomsetser
```

Options:

```
-x attribute-name=value
```

Returns:

```
0 if successful
INVALID_PARAMETER (22) if the attribute is not
recognized or is not settable
```

Example:

```
xomsetser -x "server-snapshot-interval=86400"
```

shutdown-system

This command shuts the system down. The Inbound services (LPR and IPP) will stop receiving jobs and stop processing incoming jobs immediately, queues will stop processing jobs and jobs destined to devices will not be sent. This shutdown is immediate.

The command has an optional “controlled” shutdown. In a controlled shutdown, the Inbound services will stop receiving jobs after all incoming job requests are processed, queues will shutdown after a job is scheduled.

Command name:

```
xomshutd
```

Operand:

```
none
```

Options:

```
-w controlled shutdown
```

Returns:

```
0 if successful
```

Example:

```
xomshutd
```

update-devices

This command will merge printers registered in the FreeFlow Printer Registration tool and the printers used by Output Manager. The result is a list of printers managed by Output Manager based on the printers registered in the FreeFlow Printer Registration tool. Printers that were added using the FreeFlow Printer Registration tool will now be registered into Output Manager. Printers that are deleted using the FreeFlow Printer Registration tool will be deleted from Output Manager if there are no incomplete jobs.

If a printer is removed from the FreeFlow Printer Registration tool and the `xomupddev` command is invoked while uncompleted jobs have been forwarded to the “deleted” printer, the printer will continue to be shown in Output Manager until there are no uncompleted jobs. Until the printer is deleted, the attribute “printer-ready-for-deletion” will be set to “false”.

Command name:

```
xomupddev
```

Operand:

```
none
```

Returns:

```
0 if successful
```

Example:

```
xomupddev
```

list-custom-view-groups

This command returns a list of custom view groups defined by the IT administrator using Windows Security. The group names must have the prefix "Xerox FFOM". They are used to control which objects members have access to. Objects are printers, queues, and jobs. FFOM users must be added to these groups via the IT Administrator.

Command:

```
xomlisgrp
```

Operand:

```
none
```

Options:

```
none
```

Returns:

```
0 if successful
CUSTOM_VIEW_DISABLED(50) if custom view group is
disable.
```

Side Effects:

Writes a string of the form:

```
groupname1,groupname2, ... groupnameN
```

to standard out. If no group have been defined, only an end of line is written to standard out

Examples:

```
xomlisgrp
```

enable-custom-view-groups

This command enables the Custom View Groups feature.

Command:

```
xomenagr
```

Operand:

```
none
```

Options:

```
none
```

Returns:

```
0 if successful
```

Examples:

```
xomenagr
```

disable-custom-view-groups

This command disables the Custom View Groups feature. When disabled, the behavior of the system shall be the same as previous versions of FFOM (FF 6.0 or earlier). All users have the same view of the system.

Command:

```
xomdisgrp
```

Operand:

```
none
```

Options:

```
none
```

Returns:

```
0 if successful
```

Examples:

```
xomdisgrp
```

set-custom-view-group-attributes

This command adds the queues and printers to the custom view group. A queue or printer can only be added to a single custom view group. If a queue is added to a group, the queue's associated printers are automatically added.

Command:

```
xomsetgrp
```

Operand:

```
Group name
```

Options:

```
-x group-queues={list of queues},group-devices={list of devices}
```

Returns:

```

0 if successful
GROUP_CHANGE_MESSAGE (52) if the queue/device is
assigned to another group
CVG_DISABLED (36) if custom view group is disabled
INVALID_CVG_GROUP_NAME(37) if invalid custom view group
name is given
GROUP_CHANGE_MESSAGE(52) if queue or printer is
assigned to other group
QUEUE_NOT_FOUND (18) if the queue does not exist
DEVICE_NOT_FOUND (09) if device does not exist
INVALID_PARAMETER(24) if attribute name is invalid

```

Examples:

```

xomsetgrp "Xerox FFOM First Shift" -x "group-
queues={que1,que2},group-devices={dev1,dev2}"

```

remove-custom-view-group-attributes

This command removes printers and/or queues from the specified group.

Command:

```
xomremgrp
```

Operand:

```
none
```

Options:

```
-x attribute-name=value
```

Returns:

```

0 if successful
CVG_DISABLED (36) if custom view group is disabled
QUEUE_NOT_FOUND (18) if queue does not exist
DEVICE_NOT_FOUND (09) if device does not exist
INVALID_PARAMETER(24) if attribute name is invalid

```

Examples:

```
xomremgrp -x "group-queues=que1"
```

get-custom-view-group-attributes

This command gets the attributes of the custom view group.

Command:

```
xomgetgrp
```

Operand:

```
Group name
```

Options:

```
-a    return all attributes set on the custom view group  
-x <attribute-name>
```

Returns:

```
0 if successful  
NO_OPERANDS(01) if option is not given  
INVALID_CVG_GROUP_NAME(37) if invalid custom view group  
name is given  
INVALID_ATTRIBUTE_NAME(29) if attribute name is invalid  
CVG_DISABLED (36) if Custom View Group feature is  
disabled  
INVALID_ATTRIBUTE_NAME(29) if attribute name is invalid
```

Examples:

```
xomgetgrp -x group-queues "Xerox FFOM First Shift"
```

create-multifunction-device

This command creates a new multifunction device (mfd). The mfd name must be unique in the namespace (i.e., there cannot be an existing mfd, device, or a queue using the same name). This command registers Output Manager at the mfd. This allows the mfd walk up users to interact with Output Manager custom user interface at the mfd. Once job templates are setup by the FFOM operator, the mfd user can scan a document and submit to Output Manager for printing.

Command:

```
xomcremfd
```

Operand:

```
mfdName A unique name for the mfd
```

Options:

```
-u <user-name> Administrative user name at mfd  
-s <password> Administrative password at mfd  
-i <device-address> Host name or IP address of mfd  
-l <location> Location of mfd
```

Returns:

```
0 if successful  
DUPLICATE_DEVICE (8) if the name already exists  
MFD_REGISTRATION_ERROR[34] if unable to register mfd.  
SCAN_DISABLED (35) if Send to Production feature is disabled
```

Examples:

```
xomcremfd ffrom -i "13.132.247.19" -u admin -s admin -l  
Office 1520
```

set-multifunction-device-attribute

This command sets a mfd attribute value.

Command:

```
xomsetmfd
```

Operand:

```
mfdName The mfd name
```

Options:

```
-x attribute-name=value
```

Returns:

```
0 if successful  
INVALID_PARAMETER (22) if the attribute is not  
recognized or is not settable  
SCAN_DISABLED[35] if Send to Production feature is  
disabled  
DEVICE_NOT_FOUND(7) if mfdName is not found
```

Examples:

```
xomsetmfd ffrom -x "i-p-address=13.132.247.24"
```

enable-multifunction-devices

This command enables a multifunction device. The allows the mfd walkup user to scan a document and send to Output Manager for printing.

Command:

```
xomenamfd
```

Operand:

```
mfdName The mfd name to be enabled
```

Options:

```
none
```

Returns:

```
0 if successful  
SCAN_DISABLED (35) if Send to Production feature is  
disabled  
DEVICE_NOT_FOUND(7) if mfdName is not found
```

Examples:

```
xomenamfd ffom
```

disable-multifunction-devices

This command disables a multifunction device. When an mfd is disabled, the mfd walkup user will not be able to scan and print.

Command:

```
xomdisbfd
```

Operand:

```
mfdName The mfd name to be disabled
```

Options:

```
none
```

Returns:

```
0 if successful  
SCAN_DISABLED (35) if Send to Production feature is  
disabled  
DEVICE_NOT_FOUND(7) if mfdName is not found
```

Examples:

```
xomdisbfd ffom
```

list-multifunction-devices

This command lists all the registered MFD's in the Output Manager.

Command:

```
xomlismfd
```

Operand:

```
none
```

Options:

```
none
```

Returns:

```
0 if successful
```

Side Effects:

Writes a string of the form:

```
mfd1, mfd2, ... mfdn
```

to standard out. If no mfd's have been defined, only an end of line is written to standard out.

Examples:

```
xomlismfd
```

delete-multifunction-devices

This command deletes an existing MFD. The MFD must be disabled.

Command:

```
xomdelmfd
```

Operand:

```
mfdName The mfd name to be deleted
```

Options:

```
none
```

Returns:

```
0 if successful
```

```
SCAN_DISABLED (35) if Send to Production feature is disabled
```

```
DEVICE_NOT_DISABLED (6) if the mfd has not been disabled.
```

```
DEVICE_NOT_FOUND(7) if mfdName is not found
```

Examples:

```
xomdelmfd ffom
```

get-multifunction-device-attributes

This command lists the MFD information or MFD attributes

Command:

```
xomgetmfd
```

Operand:

```
mfdName The mfd name
```

Options:

```
-x attribute-name  
-a returns all attributes set on the mfd
```

Returns:

```
0 if successful  
INVALID_PARAMETER (22) if the attribute-name is not  
recognized  
DEVICE_NOT_FOUND (7) if the device does not exist  
SCAN_DISABLED (35) if Send to Production feature is  
disabled
```

Side Effects:

Writes a string of the form:

```
<mfdName>:attribute-name=value
```

to standard out.

Examples:

```
xomgetmfd ffom -x location
```

enable-send-to-production

This command enables Send to Production feature.

Command:

```
xomenasca
```

Operand:

```
none
```

Options:

```
none
```

Returns:

0 if successful

Examples:

```
xomenasca
```

disable-send-to-production

This command disables Send to Production feature.

Command:

```
xomdisca
```

Operand:

none

Options:

none

Returns:

0 if successful

Examples:

```
xomdisca
```

set-send-to-production-attribute

This command sets a Send to Production attribute value.

Command:

```
xomsetsca
```

Operand:

none

Options:

```
-x attribute-name=value
```

Returns:

0 if successful
INVALID_PARAMETER (22) if the attribute-name is not recognized
SCAN_DISABLED (35) if Send to Production feature is disabled

Examples:

```
xomsetsca -x "send-confirmation-sheet=true"
```

publish-queue-to-mfd

This command makes the queue available for submission at the MFDs.

Command:

```
xompubque
```

Operand:

```
queueName
```

Options:

```
-d List of MFDs to publish to
```

Returns:

```
0 if successful
INVALID_PARAMETER (22) if the attribute-name is not
recognized
DEVICE_NOT_FOUND (7) if the device does not exist
SCAN_DISABLED (35) if Send to Production feature is
disabled
```

Examples:

```
xompubque queue1 -d mfdName
```

list-multifunction-device-registrations

This command returns a list of MFD Names which are registered on the MFD which are registered through FFOM.

Command Name:

```
xomlisreg
```

Operand :

```
Device address
```

Options :

```
-u username
-s password
```

Returns:

```
0 if successful.  
INVALID_PARAMETER (22) if the attribute-name is not  
recognize  
MFD_REGISTRATION_NOT(38)_EXIST if specified device is  
not an MFD device  
INVALID_MFD_CREDENTIALS(39) if supplied credentials are  
wrong
```

Example:

```
xomlisreg 13.132.247.19 -u admin -s 1111
```

delete-multifunction-device-registration

This command deletes the registration from the MFD which is registered through FFOM. This command should be used with caution.

Command Name:

```
xomdelreg
```

Operand:

```
registration-name
```

Options:

```
-i device address  
-u username  
-s password
```

Returns:

```
0 if successful  
INVALID_PARAMETER (22) if the attribute-name is not  
recognize.  
MFD_REGISTRATION_NOT(38)_EXIST if specified device is  
not an MFD device  
INVALID_MFD_CREDENTIALS(39) if supplied credentials are  
wrong or trying to delete an invalid registration from  
MFD
```

Example:

```
xomdelreg FreeFlowOutputManager13.13.13.13. -i  
13.132.247.19 -u admin -s 1111
```


Attribute summary

4

This chapter describes the FFOM supported attributes.

Attributes of queues

This section describes queue attributes. The types of queue attributes are information, default, and capability.

Note that the queue does not check that the devices assigned to the queue support the defaulted value. If the job cannot be printed, the operator will be informed when the job is (or more precisely, isn't) scheduled.

Informational

These attributes describe the state and configuration of the queue.

job-splitting-failure

This attribute indicates the action to take when a job requested for splitting cannot be split. The cases when a job cannot be split and this attribute has an affect are:

- During a color split, the document format supported by one of the printers is unsupported.
- For a color split job, no color device is available
- For a color split job, no monochrome device is available
- For a color split job, if the job contain no color pages and no monochrome device is available.
- If the number of available or capable devices that will print the job splits (by pages, copies, documents, or document-sets) is less than 2.

The options are:

`hold-job`

The job will be put in the held state. The operator decides the appropriate action for the job.

`send-job-to-single-printer`

The job will not be split and sent to a printer capable of printing the job.

If the attribute is not present, the default behaviour is "`send-job-to-single-printer`"

minimum-copies-for-split

This attribute specifies the minimum number of copies that a document must have before it can be split by copies. This attribute must be set for jobs to be split by copies.

minimum-pages-for-split

This attribute specifies the minimum number of impressions that a document must have before it can be split by pages. This attribute must be set for jobs to be split by pages.

minimum-sets-for-split

This attribute specifies the minimum number of document-sets that a document of VI Container type (vipp-database-mode) must have before it can be split by sets. This attribute must be set for jobs to be split by sets.

queue-all-jobs-pass-through

The attribute **queue-all-jobs-pass-through** has a Boolean value that specifies that all jobs entering the queue should be treated as pass-through (unless the job otherwise indicates). Basically, the purpose of this queue attribute is to be able to set up a queue so that no preprocessing of incoming jobs occurs.

If the value of **queue-all-jobs-pass-through** is true, and the job attribute **job-pass-through** does not exist (i.e., has no value), then **job-pass-through** is set to true when the job enters the queue. If the value **queue-all-jobs-pass-through** is false or if the attribute does not exist, **job-pass-through** is not affected.

This attribute only affects job processing when the job enters the queue. Changing its value or removing the attribute does not affect jobs that are already in the queue and may have had their **job-pass-through** attribute set when they were submitted.

queue-connect-to-all-devices

The attribute **queue-connect-to-all-devices** has a Boolean value. If the value is true, then, regardless of the value of **output-device-supported**, jobs from this queue are scheduled to all devices in the system. Basically, the purpose of this queue attribute is to be able to set up a queue more easily. This is useful for installations where jobs are sent to all available and capable printers.

queue-date-time-at-creation

The attribute **queue-date-time-at-creation** indicates the date and time at which the queue was created (example: Fri, 03 May 2002 08:49:37 GMT). This attribute is set when the queue is created and is read-only thereafter.

queue-device-scheduling-method

This attribute specifies how the queue schedules a job to a device. The valid values are:

- **printer-resources**: The job and document attribute values must match the device's corresponding xxx-supported attribute values.
- **none**: Only the document attribute **document-format** is compared against the device's **document-format-supported** attribute and the document attribute **document-color** is compared against the printer's **color-supported** attribute. If there is a match, the job is scheduled to the device.

queue-device-selection-method

This attribute specifies how the queue selects which device will receive a schedulable job amongst a list of devices that can print the job. The valid values are:

- **distributed**: The next printer in the list receives the job (i.e., round-robin)
- **least-busy-by-job-count**: The printer with the least number of jobs as defined by `queued-job-count` is assigned the job.
- **least-busy-by-page-count**: The printer with the least number of pages as defined by `queued-job-page-count` is assigned the job.

queue-is-accepting-jobs

The attribute **queue-is-accepting-jobs** has a Boolean value. A true value indicates that jobs can be submitted to the queue. A false value indicates that queue is not accepting jobs (i.e., it is disabled).

The attribute **queue-is-accepting-jobs** is read-only and is set by the `enable-queue` and `disable-queue` operations.

queue-is-holding-new-jobs

The attribute **queue-is-holding-new-jobs** has a Boolean value. A true value indicates that the jobs entering the queue will be held until a `release-held-new-jobs` operation is executed. This attribute is set by the `hold-new-jobs` and `release-held-new-jobs` operation.

queue-is-releasing-jobs

The attribute **queue-is-releasing-jobs** has a Boolean value. A true value indicates that jobs in the queue are being scheduled to the queue's associated devices. A false value indicates that queue is not scheduling jobs (i.e., it is paused).

The attribute **queue-is-releasing-jobs** is read-only and is set by the `pause-queue` and `resume-queue` operations.

queue-maximum-job-splits

The value of this attribute specifies the maximum number of split units or "sub-jobs" that will be created when splitting a job. The default is the number of available printers that can print the sub-jobs.

queue-name

The value of the attribute **queue-name** is the name of the queue. This attribute is set by `create` operation and is read-only thereafter.

queue-pause-until-time

The value of the attribute **queue-pause-until-time** is the absolute time at which the queue, if paused, will be automatically resumed. This attribute is optionally set by the `pause-queue` operation and is otherwise read-only.

This attribute allows an administrator to set up, for example, a queue that won't schedule jobs until after 10:00 PM. Jobs that don't need to be printed right away can be moved to this queue and they will begin printing after 10:00.

queue-standby-printer

This identifies the queue's associated devices that the scheduler will not send jobs to until all other associated printers are unavailable or offline. The system does not validate the devices in this list (i.e., printer exists or a member of the queue's **output-device-supported** attribute).

output-device-supported

The value of the attribute **output-device-supported** is the set of devices to which the queue will schedule jobs. Basically, it is the list of the devices that this queue feeds. The devices can be of any device class but all must be of the same device type.

Setting the value of **output-device-supported** to include a non-existent device does not fail. And, the delete-device operation does not verify that the device being deleted is not included on this attribute. So, **output-device-supported** may include names that are not legitimate devices. An error will be signaled when FFOM attempts to schedule jobs to these bogus devices.

If this attribute is removed or has only invalid devices as its value and **queue-connect-to-all-devices** does not exist or is false, then, obviously, the queue cannot schedule jobs and is effectively paused. If this happens, the FFOM system will formally pause the queue the next time it tries to schedule a job. In other words, setting the value of **output-device-supported** does not cause any consistency checking to occur (except for ensuring that the device exists).

queue-name-at-mfd

The value of the attribute **queue-name-at-mfd** name is displayed in the Job Template lists at the MFD GUI.

accept-jobs-from-mfd

This attribute enable or disable the Send to Production capability for the selected FFOM queue.

mfd-queue-attributes

The value of the attribute **mfd-queue-attributes** set the queue settings at the MFD.

mfd-device-name

The value of the attribute **mfd-device-name** is set the MFD to queue.

provide-output-controls-at-mfd

This allows the enabling or disabling of the output controls at MFD

use-job-splitting-threshold-percentage

This attribute enables the queue to use the percentage of color pages detected in a job before the job can be color split.

job-splitting-threshold

This attribute specifies the minimum percentage of color pages in a job required for color splitting.

job-splitting-process-exceptions-bw

This attribute controls how a color split job containing exception pages will be processed. When this attribute is set to true, all exception pages will be printed on the monochrome printer. This setting is useful if the color printer does not support exceptions or job tickets.

Queue Defaults

The queue allows default attributes (i.e., xxx-default) that allow the operator to specify default values for job or document attributes if the corresponding attribute is not set on the job or document when they enter the queue. Refer to appendix A, [Attributes](#) on page 1 for valid queue default attributes. Examples of queue default attributes are described below.

Refer to the corresponding job or document attributes section to obtain a detailed description of the attribute. Usually, the description of the default attribute is the same as the corresponding job/document attribute. For example, the description for [job-retention-period-default](#) is the same as [job-retention-period](#) with the exception that the job entering the queue with no value for its [job-retention-period](#) will have it set to the value of [job-retention-period-default](#).

copies-default

Specifies a default number of copies of the document to print. A job entering the queue with no value for its [copies](#) attribute will have it set to the value of [copies-default](#).

finishings-default

Specifies a default value for the [finishings](#) attributes. A job entering the queue with no value for its [finishings](#) attribute will have it set to the value of [finishings-default](#).

job-account-id-default

Specifies a default value for the [job-account-id](#) attributes. A job entering the queue with no value for its [job-account-id](#) attribute will have it set to the value of [job-account-id-default](#).

job-retention-period-default

Specifies a default value for the [job-retention-period](#) attributes. A job entering the queue with no value for its [job-retention-period](#) attribute will have it set to the value of [job-retention-period-default](#).

job-splitting-default

Specifies the default method how a job will be split when printed. See job attribute job-splitting for details.

preprocessing-program-default

The attribute [preprocessing-program-default](#) specifies the value that indicates the location of a script or program that will be executed during a job's preprocessing phase unless the job's [job-pass-through](#) attribute or the corresponding [queue's queue-all-jobs-pass-through](#) attribute is true. The script or program is passed the job's queue-name and job id (as a single value, queue-name:job-id).

FFOM limits the value for [preprocessing-program-default](#) to be a file name only. That file must exist in the *install-root*\scripts folder. Since only an administrator can write to that folder, restricting the preprocessing program to that folder should prevent a malevolent character from wreaking havoc through running programs with administrator (or root) privilege.

Setting the attribute **preprocessing-program-default** does not verify that the preprocessing program exists. If FFOM finds that the specified file does not exist when it wants to use it (i.e., when a job is entering the queue), an error message is sent to the operator log window.

For more information on preprocessing programs, see chapter 6, [Using the CLI in Scripts](#) on page 1.

postprocessing-program-default

The attribute **postprocessing-program-default** has a uri value that indicates the location of a script or program that will be executed during a job's postprocessing phase, which is defined as immediately after a job is completed printing, or cancelled/deleted by the operator. The script or program is passed the job's queue-name and job id (as a single value, queue-name:job-id).

FFOM limits the value for **postprocessing-program-default** to be a file name only. That file must exist in the *install-root* \scripts folder. Since only an administrator can write to that folder, restricting the postprocessing program to that folder should prevent a malevolent character from wreaking havoc through running programs with administrator (or root) privilege.

Setting the attribute **postprocessing-program-default** does not verify that the postprocessing program exists. If FFOM finds that the specified file does not exist when it wants to use it (i.e., when a job is printed, cancelled or deleted, an error message is sent to the operator log window.

For more information on postprocessing programs, see chapter 6, [Using the CLI in Scripts](#) on page 1.

sheet-collate-default

Specifies a default value for the **sheet-collate** attributes. A job entering the queue with no value for its **sheet-collate** attribute will have it set to the value of **sheet-collate-default**.

sides-default

Specifies a default value for the **sides** attributes. A job entering the queue with no value for its **sides** attribute will have it set to the value of **sides-default**.

Queue Capabilities

These attributes are used by the IPP Inbound Service to advertise to IPP clients the supported capabilities via xxx-supported attributes. These attributes share the same description as a device's xxx-supported attributes. To an IPP client, a FFOM queue looks like an IPP "printer" and advertising the capabilities allows IPP clients such as FreeFlow Print Manager to display appropriate print options when submitting a job.

The values of the capability attributes are created by taking the union of the associated printer capability attribute (i.e., xxx-supported) value. Updating the queue's capability attributes is done by an "update" option when setting queue attributes using the CLI or by the GUI.

Refer to Appendix A for the current Queue capability attributes.

Read-only job attributes

The read-only job attributes are typically provide static, descriptive information or changing state information. They have no effect on how the appearance of the printed job.

date-time-at-completed

Indicates the date and time at which this job was completed.

date-time-at-creation

Indicates the date and time at which this job was created.

date-time-at-processing

Indicates the date and time at which this job first began processing. (example: Fri, 03 May 2002 08:49:37 GMT)

date-time-at-processing-completed

Indicates the date and time at which the job completed processing.

date-time-at-marking

Indicates the date and time at which the job first began marking sheets.

date-time-at-marking-completed

Indicates the date and time at which marking for the job completed.

duration-marking

Indicates amount of time (in seconds) that the job has been marking the images on sheets to produce the output.

total-printing-time

Indicates amount of time (in seconds) that is used to process and mark the job excluding any suspension time.

job-id

The system generates and sets this attribute to the ID of this Job, which is unique for this system.

job-id-on-client

The id of the job from the perspective of certain clients. The lpr IBS uses this attribute to map the RFC 1179 id to the internal id.

job-id-on-printer

This attribute contains the value of the assigned printer and the job id assigned by the printer that received the job. The format of this information is in the format ("assigned-printer:remote-job-id"). This information is available for jobs that are forwarded to printers/DFEs supporting IPP such as DocuSP, DocuPrintNPS, and EFI.

job-id-on-second-printer

This attribute contains the value of the job id assigned by the second printer controller. This information is available for jobs forwarded to the Xerox iGen4 220 Perfecting Press printers.

job-pages

This attribute identifies the total size of this job in number of pages by adding all of the document's pages. A page is the single image on one side of a sheet, i.e., all the marks that are imaged on one side of a sheet. When the printing does not include imposition (e.g. number-up), a page is the same as a finished page. When the printing includes imposition, a page contains multiple pages

This value must neither include the multiplicative factors contributed by the number of copies specified by the "copies" attribute nor any copies instructions embedded in the document data. If the document data actually includes replications of the document data, this value will include such replication. In other words, this value is always the number of pages in the source document data, rather than a measure of the number of pages to be produced by the job.

The **job-pages** attribute is not intended to be a counter; it is intended for use during routing and scheduling. It won't be updated to reflect the actual number of impressions printed (see [job-impressions-completed](#)).

If the client did not provide a value for the **job-pages** attribute, FFOM will normally compute a value during job preprocessing.

job-impressions-completed

This attribute specifies the number of impressions completed for the job. It represents the total of all document's impressions-completed.

job-impressions-completed-black-only

This attribute specifies the number of black impressions completed for the job so far. "Black" impressions are non-blank impressions that require only the primary (normally black) colorant for marking.

job-impressions-completed-color

This attribute specifies the number of color impressions completed for the job so far. "Color" impressions are impressions that have been marked in a mode in which full process color is available and requires at least one colorant other than black for marking.

job-k-octets

The total size of the document in integral units of 1024 octets.

job-originating-user-name

The most authenticated printable name that can be obtained.

job-originating-host-name

The name of the client application's host.

job-reprocessed-job-ids

The ids of any jobs that have been created from this job as a result of the reprocess-job operation.

job-state

This attribute indicates the current state of the job. FFOM supports five job states. These are listed in the following table. The last two states, 'completed', and 'aborted' are terminal job states.

Attribute	Object	Enum Keywords
job-state	job	3—pending 4—held 5—processing 8—aborted 9—completed

job-state-reasons

The following table lists the valid FFOM job states and corresponding job-state-reasons. The valid values are listed here. There may be multiple job state reasons associated with a job-state.

job-status	Valid job-state-reasons	Notes
pending	none	This is the normal state a job that is awaiting scheduling,
held	none	Job has been placed on hold for ANY reason not described below
	job-preprocessing	This indicates that the job is being preprocessed (e.g. page-counting) and is not available for scheduling.
	job-preprocessing-wait	This indicates that the job is waiting to be preprocessed (e.g., page-counting) and is not available for scheduling.
	job-hold-until-specified	This indicates that a held job is held until a specified time via the attribute job-hold-until-time. Also note that a job that is in a paused queue will “show” its state as pending-held. We do this via “lazy evaluation” of the state.
	job-held-on-create	The job was created after a ‘hold-new-jobs’ operation was performed on the queue.
	preprocessor-failed	This indicates the preprocessing program did not complete successfully.
	proof-print-failed	This indicates the preprocessing program did not complete successfully.
	proof-print-wait	This applies only to the main job. This indicates the proof job has completed printing and the main job is held until the operator releases the job.
	job-proof-printing	This indicates the proof job has been sent to the printer but has not completed.
	job-splitting-failed	This indicates the job splitting failed for this job. This usually means the job failed to meet job splitting criteria.
	rejected-by-printer	This indicates the job could not be forwarded to the printer. The job is put in held state for 5 minutes.
	resources-are-not-supported	The scheduler could not find a printer that meets the job resources to print the job.
transform-failed	The transform failed while processing the job for printing.	

job-status	Valid job-state-reasons	Notes
processing	job-scheduling	The system uses this state for the period in which it is working on but not completed scheduling a job (e.g. creating and processing subjobs)
	job-outgoing	The document data is being sent to the printer
	job-queued	The state for smart printers when the job is waiting on the printer
	job-printing	The state for smart printers when the job is actually printing on the printer
	printer-stopped	Used to indicate that the printer has stopped (e.g. out of paper). A job only goes to this state from the job-printing job-state-reason.
aborted	job-canceled-by-operator	Canceled from the FFOM gui or cli
	job-canceled-at-device	Indicates that the job was canceled on the device (e.g. by the printer operator).
	aborted-by-system	Used when we can tell that the printer aborted the job for some reason. Used for any other reason that caused us to abort the job (e.g., FFOM could not get the document data so it aborted the job).
	aborted-by-device	Used when we can tell that the printer aborted the job for some reason. Used for any other reason that caused us to abort the job
	job-restartable	Indicates retention.
	job-completed-successfully	Obvious
	job-completed-with-warnings,job-completed-successfully	Obvious
	job-postprocessing	The job is being preprocessed by a postprocessing program.
	job-postprocessing-wait	The job is waiting to be postprocessed.
	postprocessor-failed	The postprocessing program failed to complete successfully.
	job-completed-with-errors or job-completed-with-warnings	Used only with smart printers or if there is a post-processing warning.

job-status	Valid job-state-reasons	Notes
completed	job-completed-successfully	Obvious.
	job-completed-with-warnings	Used only with smart printers or if there is a post-processing warning.
	job-completed-with-errors	Used only with smart printers or if there is a post-processing error.
	queued-in-device	The state for dumb spooling printers.
	job-restartable	Indicates retention.
	job-postprocessing	The job is being preprocessed by a postprocessing program.
	job-postprocessing-wait	The job is waiting to be postprocessed.
	postprocessor-failed	The postprocessing program failed to complete successfully.

number-of-documents

Indicates the number of documents in the job.

output-device-actual

Identifies the devices to which the queue has assigned this job.

output-device

Requests that the job be sent to a specific device regardless of any other decisions.

proof-print-copies-completed

Specifies the number of proof print copies that were completed. This also signifies the proof job has completed printing and the job is put into the held state awaiting a release job operation to release the job for final print.

queue-assigned

The name of the queue this job resides in.

second-printer

The name of the second printer controller. The printer name can be the name of the controller or its network address. This information is available for jobs forwarded to Xerox iGen4 220 Perfecting Press printers.

Read-write job attributes

A job consists of one or more document objects. Though a job has multiple documents, only the CLI will be able to submit and add documents to an existing job. Other clients such as the LPR and IPP Inbound service submit only single document jobs.

A job attribute contains information regarding the job as a whole. Specific print requirements (e.g. finishings, sides, media) are stored as document attributes.

Job template attributes are attributes that describe job processing behavior. The attribute values provide default values for the corresponding document attributes if it does not exist on the document object. Refer to appendix A, [Attributes](#) on page 1 for the list of read-write attributes related to a job. If a read-write attribute exists for a job and document, the description of the attribute is listed in Section [Read-write document attributes](#) on page 21. Job specific read-write attributes are described in this section.

All job template attributes have associated xxx-default and xxx-supported device attributes. The xxx-default and xxx-supported attributes are used when scheduling the job and in the support of the IPP protocol. Job template attributes can be edited by the CLI or GUI. The majority of job template attributes are passed to the printer for processing. However a few are used by FFOM to make job scheduling or parcelling decisions.

interleaved-sheets-col

Specifies that the printer is to insert either a blank or a duplicate interleaved sheets before and after each sheet in the document. The numbering of pages in the document must not be affected by the interleaved sheets. FFOM supports the interleaved-sheets-type, and media or media-col attributes of the collection.

interleaved-sheets-type

The "interleaved-sheets-type" member attribute specifies the type of interleaved sheet. Standard keyword values are:

Keywords	Comments
'blank after'	The Printer MUST insert one blank interleaved sheet after each sheet.
'blank-before'	The Printer MUST insert one blank interleaved sheet before each sheet.
'duplicate-after'	The Printer MUST insert one duplicate interleaved sheet with the same Front Side impression (and same back side impressions, if printing two-sided and if the Printer supports this combination) after each sheet.
'duplicate-before'	The Printer MUST insert one duplicate interleaved sheet with the same Front Side impression (and same back side impressions, if printing two-sided and if the Printer supports this combination) before each sheet.
'none'	The Printer MUST NOT insert any interleaved sheets. Useful for overriding a Printer default which has another value in "interleaving-sheets-default".

ipp-attribute-fidelity

This attribute indicates if all supplied job attributes must be honored. If **ipp-attribute-fidelity** is 'true' the queue will not schedule the job to any device that does not support all

job attributes. If the value is 'false' the queue will schedule the job to the device that "best" supports the job attributes if there is no printer that supports all attributes.

This attribute is evaluated by the scheduler only if the queue's attribute [queue-device-scheduling](#) method is printer-resources.

job-account-id

The [job-account-id](#) attribute is a character string representing the account associated with the job.

job-accounting-data

This attribute specifies arbitrary data for the job.

job-accounting-user-id

This attribute specifies the user ID associated with the account specified by the "job-account-id" attribute used for this job.

job-hold-until

FFOM supports only [no-hold](#) or [indefinite](#) value. The IPP Inbound gateway translates this attribute to whether the job is submitted in the held or pending state.

job-hold-until-time

Specifies the date and time after which the job must become a candidate for printing.

job-message-to-operator

A message from the end user used to indicate something about the processing of this job.

job-message-from-operator

Provides a message from an operator to indicate to the end user the reasons for modification or other management action taken on a job.

job-name

The device sets this to the client-supplied end-user friendly name for the Job, else the Printer must generate a name from other information. (example: "license agreement memo")

job-offset

This attribute specifies the boundaries to offset output of the printer. "Offset" is the act of shifting the printed job in the delivery device by a small amount in which the direction and amount is device dependent.

The keyword values are:

Keywords	Comments
'none'	No offsetting of the delivered Output-Document is to be performed
'offset-job'	An offset is to be applied at the front boundary and back boundary of the job.
'offset-set'	An offset is to be applied at the boundary between each Set delivered within the job.
'offset-subset'	An offset is to be applied at the boundary between each Subset delivered.

job-pass-through

Prevents any processing of the document data (including proofing, splitting, etc.) that might have been requested for the job. The attribute **job-pass-through** is not passed on to the printer.

job-priority

Priority for scheduling the Job. A higher value specifies a higher priority. The lowest priority job is the job with no **job-priority** attribute.

job-retention-period

Specifies the period of time (in seconds) following the completion of job processing and printing that the system must retain the job.

When a job is retained, all the document data and instructions required to reprint the job are retained so the job can be reprinted or resubmitted. When the job's retention period has expired, all traces of the job are removed from the system.

job-recipient-name

Specifies the name of the person that is to receive the output of the job

job-sheet-message

Conveys a message that is delivered with the job.

job-splitting

Conveys how the job should be split amongst available devices. The valid values are:

- **none** – the job is not split
- **best** – the system chooses between copies, documents, or pages, the appropriate method to split a job.
- **copies** – will cause a job with a copy-count greater than one to be split across the available and acceptable printers associated with the queue.
The jobs created by copy set splitting a job will be identified by setting the job-comment attribute of the subjobs to say “Copy set m of n from FreeFlow Output Manager job xxxxx”.
- **documents** – will cause a job with more than one document to have its documents sent to the available and acceptable printers associated with the queue. The jobs created by document splitting a job will be identified by setting the job-comment attribute of the subjobs to say “Document number m of n from FreeFlow Output Manager job xxxxx”.
- **color**– will cause a job with color and black-and-white pages to be split across the available and acceptable printers associated with the queue.
- **pages** – will cause a job with more than value specified in **minimum-pages-for-split** to be split across the available and acceptable printers associated with the queue. The job cannot be a multi-document job. The jobs created by page splitting a job will be identified by setting the job-comment attribute of the subjobs to say “Pages m to n from FreeFlow Output Manager job xxxxx”.
- **sets** – will cause a job that is a VI Container whose container is a VIPP container with database mode files, to be split across the available printers associated with the queue if the job's attribute value for "**sets**" is equal or larger than the value specified in **minimum-sets-for-split**. The jobs created by page splitting a job will be identified by setting the **job-sheet-message** attribute of the subjobs to say "Sets m to n from FreeFlow Output Manager job xxxx".

This attribute is ignored if the job's pass-through attribute or the corresponding queue's **queue-all-jobs-pass-through** is true.

output-device

Specifies the FFOM device to which the job must be delivered. This attribute overrides FFOM's device choosing algorithms.

pages

This attribute identifies the total number of input pages in the document(s) contained in the Job.

preprocessing-program

This attribute is a uri that identifies a program, script or batch file that will be executed while the job is in preprocessing state. The program is passed the job's queue-name and job id. For more information, see the chapter 6, [Using the CLI in Scripts](#) on page 1.

postprocessing-program

This attribute is a uri that identifies a program, script or batch file that will be executed while the job is in postprocessing stage. For more information, see chapter 6, [Using the CLI in Scripts](#) on page 1.

proof-print

Specifies the elements for zero or more proof prints of the job that are to be printed prior to the printing the full run of the job. FFOM supports only the **proof-print-copies** member attribute of this collection. Although some printers may be able to handle **proof-print** directly, FFOM handles this attribute internally and does not pass it on to the printer. The original job is put into the pending-held state with a job-state-reasons of proof-print-wait. The original job remains in this state until the operator releases it. A proof print job is not split amongst available printers even though the original job may specify job splitting.

The printed proof copy of the job will be identified by setting the **job-sheet-message** attribute of the subjob to say "Proof copy of FreeFlow Output Manager Job xxxxx".

Read-only document attributes

The read-only document attributes typically provide static, descriptive information or changing state information. They have no effect on how the appearance of the printed job.

document-format

The document format for this document.

document-number

The system generates the ordinal number of the document at the time the document is associated with a job. The first document in a job will have a value of 1 and increases the value by 1 for each subsequent document. The number is used to determine the order the documents will be printed.

document-uri-on-printer

The URI of the job on the printer that contains this document (if known). Generally, multi-document jobs will be sent to the printer as a series of "printer jobs", each of which contain a single document.

pages

This attribute identifies the total size of this document in number of ipages.

This value must neither include the multiplicative factors contributed by the number of copies specified by the "copies" attribute nor any copies instructions embedded in the document data. If the document data actually includes replications of the document data, this value will include such replication. In other words, this value is always the number of pages in the source document data, rather than a measure of the number of pages to be produced when the document is printed.

date-time-at-completed

Indicates the date and time at which the document was completed.

date-time-at-creation

Indicates the date and time at which this document was created.

date-time-at-processing

Indicates the date and time at which this document first began processing.

date-time-at-processing-completed

Indicates the date and time at which the document completed processing.

date-time-at-marking

Indicates the date and time at which the document first began marking sheets.

date-time-at-marking-completed

Indicates the date and time at which marking for the document completed (for example: Fri, 03 May 2002 08:49:37 GMT).

duration-marking

Indicates amount of time (in seconds) that the document has been marking the images on sheets to produce the output.

total-printing-time

Indicates amount of time (in seconds) that is used to process and mark the document excluding any suspension time.

impressions-completed

This attribute specifies the number of printed pages for the document. This information is obtained from the printer if it can report this information.

impressions-completed-color

This attribute specifies the number of color impressions completed for the document so far. "Color" impressions are impressions that have been marked in a mode in which full process color is available and requires at least one colorant other than black for marking.

impressions-completed-black-only

This attribute specifies the number of black impressions completed for the document so far. "Black" impressions are non-blank impressions that require only the primary (normally black) colorant for marking.

document-job-id

The job-id for the job that this document is included in.

k-octets

The total size of the document in integral units of 1024 octets.

job-id-on-printer

See [job-id-on-printer](#) on page 8 for details.

document-state

This attribute indicates the state of the document. FFOM supports five document states. These are listed in the following table. The last two states, 'completed' and 'aborted', are terminal document state.

Attribute	Object	Enum Keywords
document-state	document	3-pending 4-held 5-processing 8-aborted 9-completed

document-state-reasons

The following table lists the valid document states and corresponding document-state-reasons. The valid values and combinations of values are only those listed here.

document-state	document-state-reasons	Notes
pending	none	Normal state for document that is awaiting scheduling.
held	resources-are-not-ready	The document is held at the printer because the required resources to print are not ready.
processing	outgoing	The document data is being sent to the printer
	queued	The state for smart printers when the document is waiting on the printer
	printing	The state for smart printers when the document is actually printing on the printer
	printer-stopped	Used to indicate that the printer has stopped (e.g., out of paper).
	resources-are-not-ready	The document at the printer cannot be printed because the required resources to print are not ready.
aborted	canceled-by-operator	Canceled from the FFOM GUI or CLI
	canceled-at-device	Indicates that the document was canceled on the device (e.g. by the printer operator).
	document-access-error	Couldn't get the document data so FFOM aborted the document (and the job that contained it).
	aborted-by-system	Used for any other reason that caused us to abort the job.
	aborted-by-device	Used when we can tell that the printer aborted the job containing the document for some reason.
	completed-with-warnings	Used only with smart printers or if there is a post-processing warning.
	rejected-by-printer	This indicates the document could not be forwarded to the printer.
completed	completed-with-warnings	Used only with smart printers or if there is a post-processing warning
	completed-with-errors	Used only with smart printers or if there is a post-processing error
	queued-in-device	The state for dumb spooling printers
	completed-successfully	Obvious

output-device-assigned

Identifies the device to which the queue has assigned this document.

Read-write document attributes

Document template attributes are attributes that describe processing behavior when the document is printed.

adjust-bw-darkness-mode

This attribute specifies the darkness mode the printer is to apply to the document. Darkness mode enables darkness control and/or emulation to assist in matching the image quality to a job printed on another printer.

The keyword values are:

Keyword	Comments
normal	Specifies that the ability to adjust print darkness on this printer is enabled.
docutech135	Specifies that the print darkness applied should attempt to match a pre-set value that is used on DocuTech 135. The ability to additionally adjust printer darkness is disallowed.
docutech135-adjustable	Specifies that the print darkness applied should attempt to match that used on DocuTech 135, and the light/dark value can be supplied as well.
docutech 6180	Specifies that the print darkness applied should attempt to match a pre-set value that is used on DocuTech 180. The ability to additionally adjust printer darkness is disallowed.
docutech 6180-adjustable	Specifies that the print darkness applied should attempt to match that used on DocuTech 180, and the light/dark value can be supplied as well.
native	Specifies the neutral or nominal darkness setting native to this printer is to be used. The ability to adjust printer darkness is disallowed.

adjust-bw-darkness-value

The “`adjust-bw-darkness-value`” [Job/Document Template Job/Document](#)-attribute specifies the degree of darkness the Printer MUST apply to a monochrome or gray scale job/document.

The supported range is -3 to 3.

adjust-contrast

This attribute specifies the contrast adjustment that the printer is to apply when printing the document. Increasing the contrast value increases the variation between light and dark areas of the printed document and decreasing the contrast value decreases the variation between light and dark areas of the printed document. A value of -100 will cause the output to appear a solid midtone gray color, and a contrast value of 100 will cause the output colors to either use full color (the maximum is restricted by the system ink limit) or no color for each of Cyan, Magenta, Yellow, and Black.

adjust-cyan-red

This attribute specifies the Cyan/Red color adjustment. The Cyan/Red color cast adjustment shifts the color towards cyan or red.

Decreasing the "adjust-cyan-red" value to -100 indicates the maximum cyan color cast supported by the system is to be applied to the document. Increasing the "adjust-cyan-red" value to 100 indicates the maximum red color cast supported by the system is to be applied to the document.

adjust-lightness

This attribute specifies the color lightness adjustment that will affect the lightness of the printed document. Increasing the lightness value **MUST** cause the output to appear lighter and decreasing the lightness value **MUST** cause the output to appear darker.

A lightness value of -100 will cause the output to appear black, and a lightness value of 100 will cause the output to appear white. Depending on the content of the original image, the output for lightness value 100 may be the same as the output for a lower lightness value, and the output for lightness value -100 may be the same as the output for a higher lightness value.

adjust-magenta-green

This attribute specifies the Magenta/Green color adjustment of the printed document. The Magenta/Green color cast adjustment shifts the color towards magenta or green.

Decreasing the "adjust-magenta-green" to -100 indicates the maximum magenta color cast supported by the system is to be applied to the document. Increasing the "adjust-magenta-green" to 100 indicates the maximum green color cast supported by the system is to be applied to the document.

adjust-saturation

This attribute specifies the color saturation adjustment for the printed document. Increasing the saturation value **MUST** cause the output to contain more vibrant colors, and decreasing the saturation value **MUST** cause the output to contain more pastel and gray colors.

A saturation value of -100 will cause the output to appear gray, and a saturation value of 100 will cause the output to have all bright colors. Depending on the content of the original image and the gamut of the print engine, the output for saturation value 100 may be the same as the output for a lower saturation value, and the output for saturation value -100 may be the same as the output for a higher saturation value.

adjust-yellow-blue

This attribute specifies the Yellow/Blue color adjustment for the printed document. The Yellow/Blue color cast adjustment shifts the color towards yellow or blue.

Decreasing the "adjust-yellow-blue" to -100 indicates the maximum yellow color cast supported by the system is to be applied to the document. Increasing the "adjust-yellow-blue" to 100 indicates the maximum blue color cast supported by the system is to be applied to the document.

anti-aliasing

This attribute indicates the anti-aliasing algorithm that is applied to the rendered output images. As a result of rasterization errors and artifacts, curves and diagonal lines rendered below printer resolutions of about 300 dots/inch, can have a jagged appearance.

Typically, these anomalies can be masked by imaging a page at a higher resolution than the print engine supports, then sub-sampling the image back down to engine resolution. In the case of black lines, this operation results in the replacement of some edge pixels with gray pixels. Since the grays and blacks are integrated by the human visual system, the result is a curve or line that looks smooth. These techniques for smoothing rasterized lines are collectively known as "anti-aliasing".

Supported values are:

- **none** – do not apply anti-aliasing algorithm
- **standard** – apply anti-aliasing algorithm
- **high-res-black** - apply K100% High Resolution algorithm

black-overprint

This attribute controls the printer-specific Black Overprint methods used by the Printer.

Valid values are:

- **black-overprint-off** – do not print black over color
- **black-overprint-on** - print black on top of color

color-destination-profile-back

Specifies the color space profile to be used on the back side of the output media.

color-destination-profile-front

Specifies the color space profile to be used on single sided documents and on the front side of the output media for double-sided documents.

color-effects-type

Indicates whether the Printer is to render a color document in full color or using an algorithm that maps the full range of colors to alternate values, such as gray scale or monochrome. The **color-effect-type** attribute allows the user to override the color attributes of a job to create a monochrome output. The printer will use the value of the **color-effects-type** attribute to either override any separately selected color behavior (producing a monochrome gray output, or to allow the color behavior to remain as specified by the other color attributes.

The supported values are **color** and **monochrome-grayscale**.

color-emulation

This attribute causes the Printer to emulate the output of a different color-printing device.

The keyword values are:

Keywords	Comments
none	No emulation is applied in the printer; the Printer's native color information is used.
swop	Emulate the CMYK SWOP (<i>i.e.</i> , <i>Standard Web Offset Press</i>) ink color gamut when printed on coated media
euroscale	Emulate the European ink color gamut standard for offset presses when printed on coated media
japan-color	Emulate the color gamut of the combined/common Dinippon and Toyo Inks standard when printed on coated media
enhanced-swop	Emulate a more saturated version of the CMYK SWOP color gamut when printed on coated media
euroscale-matte	Emulate the color gamut of European inks placed on matte finish media
euroscale-uncoated	Emulate the color gamut of European inks placed on uncoated media

copies

The number of copies of the output document to be printed.

cover-back

The back cover to apply this document. FFOM supports the **media** and **cover-type** member attributes of cover-back. The valid values for cover-type are **no-cover**, **print-front**, **print-back**, **print-both**, **print-none**.

cover-front

The front cover to apply this document. FFOM supports the **media** and **cover-type** member attributes of cover-front. The valid values for cover-type are **no-cover**, **print-front**, **print-back**, **print-both**, **print-none**.

document-color

This attribute indicates the use of color operators internal to the document (i.e., contained in the PDL).

The supported keyword values are:

Keywords	Comments
full-color	The document contains color operators with a range of values.
monochrome	The document contains no color operators.
unknown	It is not known whether the document contains color operators.

document-format

The document format (i.e., PDL) for this document. It is represented using values defined as MIME media types.

The valid recognized values are:

PDL	MIME media value
ASCII	text/plain
PostScript	application/postscript
PCL	application/vnd.hp-PCL
PDF	application/pdf
TIFF	image/tiff
Unknown	application/octet-stream

document-name

Specifies the name of the document. By default, this is the name of the file when submitting the job to the system.

document-set-range

Specifies the range of document-sets to print in a VI Container (VIPP w/Database mode).

document-sets

Specifies the number of document sets in a VI Container (VIPP w/Database mode).

finishings

Identifies the finishings that the Printer uses for each copy of the output document.

The supported values are found in appendix A, [Finishing Values](#) on page 21.

finishings-col

This attribute augments the "finishings" attribute. This "finishings-col" collection attribute enables a client end user to specify detailed finishing operations that cannot be specified using simple enumerated finishing values of the "finishings" attribute.

FreeFlow Output Manager supports only the [finishing-template](#) member attribute and **booklet-making collection** attribute. The finishing-template member attribute contains a string value that specifies some particular finishing operation defined on the printer.

booklet-making

The booklet-making is a collection attribute used to print one or more sheets that are folded (bi-fold), and optionally trimmed. FFOM supports the **booklet-fold-type**, **booklet-square-fold-type**, **booklet-staple-type** and **booklet-trim-width** member attributes for this collection.

booklet-fold-type

The booklet-fold-type member attribute specifies how the stack of sheets is folded.

Supported values are **none**, **short-edge-n-sheet-convex**, **short-edge-single-sheet-convex**, **short-edge-n-sheet-concave** and **short-edge-single-sheet-concave**.

booklet-square-fold-type

The booklet-square-fold-type member attribute specifies whether or not a square fold is applied, and, if so, what type (level) of square fold is used. Supported values are **none**, **low-2**, **low-1**, **normal**, **high-1** and **high-2**.

booklet-staple-type

The booklet-staple-type member attribute specifies the type stapling, if any, to be applied to the booklet. Supported values are **none** and **standard**.

booklet-trim-width

The booklet-trim-width attribute specifies the width of the trimmed booklet measured from the final folded edge to the edge opposite the folded edge.

font-name-requested

Specifies the font name if the document data is in a format that does not have inherent font information (e.g., 'text/plain'), otherwise, this element is ignored.

font-size-requested

Specifies the font size in points (1/72 of an inch) if the document data is in a format that does not have inherent font information (e.g., 'text/plain'), otherwise, this element is ignored.

force-front-side

This attribute forces the identified pages to be imaged on the front side of a sheet in the printed document. This attribute is typically used to start a new chapter or section of a document.

halftone-graphics

Specifies a way to specify the halftone screens to be used by the Printer to render graphic objects within color or black and white documents.

The valid keyword values are:

Keyword	Comments
'none'	Implies that no halftone-xxx (e.g., graphic, image, or text) screen should be applied to objects of type graphic, image or text. This is provided to enable a client to over-ride a Printer default value in situations where no halftoning is desired.
'low-frequency-dot'	Device dependent name for the lowest frequency dot screen available within the system.
'mid-frequency-dot'	Device dependent name for the dot screen with a frequency between the "low-frequency-dot" and "high-frequency-dot" screens available within the system.
'high-frequency-dot'	Device dependent name for the dot screen with a frequency between the "mid-frequency-dot" and "highest-frequency-dot" screens available within the system.
'highest-frequency-dot'	Device dependent name for the dot screen with the highest frequency available within the system.
'low-frequency-line'	Device dependent name for the lowest frequency line screen available within the system.
'mid-frequency-line'	Device dependent name for the line screen with a frequency between the "low-frequency-line" and "high-frequency-line" screens available within the system.
'high-frequency-line'	Device dependent name for the line screen with a frequency between the "mid-frequency-line" and "highest-frequency-line" screens available within the system.
'highest-frequency-line'	Device dependent name for the line screen with the highest frequency available within the system.
'stochastic'	Device dependent name for a screen that uses random spot densities to render objects.
'53-lpi'	Device independent name for a screen that has a frequency of 53 lines per inch.

Keyword	Comments
'85-lpi'	Device independent name for a screen that has a nominal frequency of 85 lines per inch.
'106-lpi'	Device independent name for a screen that has a frequency of 106 lines per inch.
'125-lpi'	Device independent name for a screen that has a nominal frequency of 125 lines per inch.
'134-lpi'	Device independent name for a screen that has a frequency of 134 lines per inch.
'150-dpi'	Device independent name for a screen that has a nominal frequency of 150 dots per inch.
'156-lpi'	Device independent name for a screen that has a nominal frequency of 156 lines per inch.
'171-lpi'	Device independent name for a screen that has a frequency of 171 lines per inch.
'175-dpi'	Device independent name for a screen that has a nominal frequency of 175 dots per inch.
'200-dpi'	Device independent name for a screen that has a nominal frequency of 200 dots per inch.
'200-lpi'	Device independent name for a screen that has a nominal frequency of 200 lines per inch.
'300-lpi'	Device independent name for a screen that has a nominal frequency of 300 lines per inch.
'600-lpi'	Device independent name for a screen that has a nominal frequency of 600 lines per inch.

halftone-images

Specifies a way to specify the halftone screens to be used by the Printer to render image objects within color or black and white documents.

Refer to the section [halftone-graphics](#) on page 27 for valid keyword values.

halftone-text

Specifies a way to specify the halftone screens to be used by the Printer to render text objects within color or black and white documents.

Refer to the section [halftone-graphics](#) on page 27 for valid keyword values.

highlight-colorant

Specifies the color of the toner that must be used by the Printer as the highlight color when printing the document in highlight color mode.

The keyword values are:

Keywords	Comments
'red'	The highlight color should be red.
'green'	The highlight color should be green.
'blue'	The highlight color should be blue.
'cyan'	The highlight color should be cyan.
'magenta'	The highlight color should be magenta.
'cardinal'	The highlight color should be cardinal.
'royal'	The highlight color should be royal.
'black'	The highlight color should be black.
'yellow'	The highlight color should be yellow.
'ruby'	The highlight color should be ruby.
'violet'	The highlight color should be violet.
'brown'	The highlight color should be brown.
'use-ready'	The Printer will use the highlight colorant that is currently loaded on the printer. For PDLs such as PCL and PS that don't label the content as highlight color, the Printer maps "highlight-colorant" (where supplied or defaulted) to the loaded color. The use of 'use-ready' overrides (supersedes) any value in effect for the "highlight-colorant-mismatch" attribute.
Xerox-custom-color-nn	Xerox-supplied custom highlight colorant, where "nn" represents two or three ASCII digits with no leading zero digits in the inclusive range: "12" to "254".
'none'	The Printer shall not use a highlight color.
'other'	The highlight color is a custom color that does not have a predefined keyword value representing it. The Printer maps the full color values from the source document to the highlight color based on the printer administrator's specification of the custom toner's color characteristics.

highlight-colorant-mismatch

Specifies the action to be taken by the Printer if the desired highlight colorant is not currently loaded on the printer.

The keyword values are:

Keywords	Comments
'abort'	If the mismatch is detected at the start of job processing, the printer will abort the job.
'use-ready'	The printer will use the highlight colorant that is currently loaded on the printer. For PDLs, such as PCL and PS, that don't label the content has highlight color, the printer maps "highlight-colorant" (where supplied or defaulted) to the loaded color.

Keywords	Comments
'hold'	The printer will hold the job awaiting for operator to decide how the job will be processed.

highlight-map

Specifies the algorithm to be used for mapping colors defined in the full color space to a color in the highlight color space.

The supported values are:

Keywords	Comments
'pictorial'	This mapping is appropriate for photographic data. The color components of an image that match the map color are printed in a shade of the highlight colorant.
'presentation'	This mapping is appropriate for presentation graphics (such as pie charts, bar charts) that require distinct and saturated colors.
'object-based'	This mapping is appropriate for those pages with mixed content. The Printer uses different mapping algorithms on the different objects within a page, depending upon the type of object.
'color-to-highlight'	This mapping is appropriate when the hue of the colors do not need to be distinguished from one another, but distinguished only from black.
'exact-color'	This mapping is appropriate when the color specified by "highlight-map-color" needs to be distinguished from all other colors. Any color matching the "highlight-map-color" is printed in the highlight colorant and all other colors are printed in black.
'color-tables'	This option uses preset color tables to perform the mapping.
'monochrome-grayscale'	This mapping allows a highlight color printer to print a document in grayscale, for example as a way to save time, toner, or cost when proofing a document.

highlight-map-color

Specifies the color in the source document that is to be mapped by the Printer to the highlight colorant when printing the document in highlight color mode.

The supported values are:

Keywords	Comments
'red'	The map color should be red.
'green'	The map color should be green.
'blue'	The map color should be blue.
'cyan'	The map color should be cyan.
'magenta'	The map color should be magenta.
'cardinal'	The map color should be cardinal.
'royal'	The map color should be royal.
'black'	The map color should be black.
'yellow'	The map color should be yellow.
'ruby'	The map color should be ruby.
'violet'	The map color should be violet.
'brown'	The map color should be brown.
'xerox-custom-color- <i>nn</i> '	The map color should be Xerox-supplied highlight colorant. ' <i>nn</i> ' represents numbers from 12 to 254.
'none'	The Printer shall not use a map color.

insert-sheet

Specifies how Insert Sheets are to be inserted into the sequence of media sheets that are produced for each copy of the documents. FFOM supports the [insert-after-page-number](#), [insert-count](#), [media](#) and [media-col](#) attributes of the collection.

insert-after-page-number

The "insert-after-page-number" member attribute specifies the page in the document after which the Insert-Sheet(s) is (are) to be placed.

insert-count

The "insert-count" member attribute indicates how many sheets to insert. If the "insert-count" attribute is omitted, then the printer assumes a value of 1. The value 0 indicates that no inserts sheets are to be inserted.

interleaved-sheets-col

Specifies that the printer is to insert either a blank or a duplicate interleaved sheets before and after each sheet in the document. The numbering of pages in the document must not be affected by the interleaved sheets. FFOM supports the [interleaved-sheets-type](#), and [media](#) or [media-col](#) attributes of the collection.

interleaved-sheets-type

The "interleaved-sheets-type" member attribute specifies the type of interleaved sheet. Standard keyword values are:

Keywords	Comments
'blank after'	The Printer MUST insert one blank interleaved sheet after each sheet.
'blank-before'	The Printer MUST insert one blank interleaved sheet before each sheet.
'duplicate-after'	The Printer MUST insert one duplicate interleaved sheet with the same Front Side impression (and same back side impressions, if printing two-sided and if the Printer supports this combination) after each sheet.
'duplicate-before'	The Printer MUST insert one duplicate interleaved sheet with the same Front Side impression (and same back side impressions, if printing two-sided and if the Printer supports this combination) before each sheet.
'none'	The Printer MUST NOT insert any interleaved sheets. Useful for overriding a Printer default which has another value in "interleaving-sheets-default".

media

The name of the medium that the Printer uses for all impressions of the job. See appendix A, [Media Values](#) on page 26 for list of values.

media-col

Enables a client end user to submit a list of media characteristics to the Printer as a way to more completely specify the media to be used than the [media](#) attribute. FFOM supports the [media-type](#), [media-color](#), [media-hole-count](#), [media-order-count](#), [media-size](#), [media-weight-metric](#), [media-tooth](#), [media-grain](#), [media-back-coating](#), [media-front-coating](#), [media-pre-printed](#), and [media-recycled](#) member attributes of this collection.

media-type

The "media-type" member attribute identifies the type of media, i.e., the media instance's predominate characteristic. Supported values are stationery, transparency, envelope, pre-cut-tabs, full-cut-tabs, labels, photographic, cardstock, synthetic, textured, cardstock-postcard, pre-cut-tabs-textured, full-cut-tabs-textured and ordered-textured.

media-color

The "media-color" member attribute indicates the desired color of the media being specified. Supported keyword values are white, pink, yellow, blue, green, buff, goldenrod, red, gray, ivory, orange, cyan, magenta, black, turquoise, violet, brown, gold, silver, and clear.

media-hole-count

The "media-hole-count" member attribute indicates the number of pre-drilled holes in the desired media. A value of 0 (zero) indicates that no holes should be present in the media.

media-order-count

The "media-order-count" member attribute indicates the number of sheets, within an ordered sequence of sheets; after which the sequence begins to repeat. For example, third cut tab stock in which all three forms are present has an order count of 3.

media-size

The "media-size" member attribute is a collection that explicitly specifies the numerical media width and height dimensions in hundredths of millimeters. The members of this collection are x-dimension and y-dimension.

media-weight-metric

The "media-weight-metric" member attribute indicates the weight of the desired media rounded to the nearest whole number of grams per square meter.

media-tooth

The "media-tooth" member attribute indicates the desired tooth (or roughness) of the media being specified. The valid keyword values are fine, medium, coarse and semi-coarse.

media-grain

The "media-grain" member attribute indicates the desired grain of the media being specified. The valid keywords are **x-grain** which is the direction of the paper fibers is in the short dimension (i.e., the x-direction) of the medium and **y-grain** which is the direction of the paper fibers is in the long dimension (i.e., the y-direction) of the medium.

media-back-coating and media-front-coating

The "media-front-coating" and "media-back-coating" member attributes indicate what pre-process coating has been applied to the front and back of the desired media, respectively. The valid keywords are **none**, **glossy**, **high-gloss**, **semi-gloss**, **satin**, **matte**, **coated** and **any**.

media-preprinted

The "media-pre-printed" attribute indicates that the pre-printed characteristics of the desired media. The valid keywords are **blank**, **pre-printed**, **letter-head**.

media-recycled

The "media-recycled" member attribute indicates the recycled characteristics of the media. The valid keywords are **none** and **standard**.

number-up

Indicates the number of pages that the printer is to image on one impression.

opi-image-insertion

This attribute indicates the type of OPI image insertion to be performed by the printer.

Valid values are:

- **insert**: OPI images referenced in the document file are retrieved, manipulated as specified, and inserted or substituted for those referenced in the document.
- **do-not-insert**: OPI images referenced in the document are not retrieved, inserted or substituted for those in the document. The Printer ignores all OPI image insertion references.

opi-image-pre-scan

This attribute indicates whether or not the Printer is to pre-scan the document data in order to validate that OPI images referenced within the document are accessible and, optionally, to pull them to the Printer, before processing the job, i.e., before RIPPING or marking.

Valid values are:

- **no-pre-scan**: Perform no pre-scan of the document data before processing the job
- **pre-scan**: Before processing the job, pre-scan the document data and validate that each OPI image exists and is accessible
- **pre-scan-and-gather**: pre-scan the document data and retrieve the referenced OPI images prior to processing the job

orientation-requested

The desired orientation for printed pages for document formats that don't have a built-in orientation. Supported values are **portrait** and **landscape**.

output-gloss-col

The "output-gloss" attribute enables control of the amount of gloss for a printed page.

It supports **output-gloss-scope** and **output-gloss-level** member attributes of this collection.

output-gloss-scope

This member attribute determines the scope of the page to which gloss or varnish should be applied. Supported keyword values are: **full-page-flood**, **images**, **text**, and **graphics**.

output-gloss-level

This member attribute determines the amount of gloss or varnish that should be applied to generate the desired effect. Supported keyword values are: **standard** and **none**.

page-delivery

This attribute indicates whether print-stream pages of the document are to be delivered to the output bin or finisher in the same page order as the original document, or, in reverse of

that order, and, whether the print-stream pages are delivered face up or face down. The supported values are **same-order-face-down**, **same-order-face-up**, **reverse-order-face-down**, **reverse-order-face-up**, **system-specified**.

page-ranges

Specifies a range of pages in the document to be printed. Only one page range is supported.[pages](#)

This attribute identifies the total number of input pages in the document. This value must neither include the multiplicative factors contributed by the number of copies specified by the "copies" attribute nor any copies instructions embedded in the document data. If the document data actually includes replications of the document data, this value will include such replication. In other words, this value is always the number of impressions in the source document data, rather than a measure of the number of impressions to be produced when the document is printed.

output-bin

Specifies the output bin where the job is to be delivered. The supported values are top, stacker, stacker-N (where N=1-7), automatic

page-overrides

Provides for the overriding of processing instructions on a page and document basis. FFOM supports the **adjust-bw-darkness-value**, **adjust-contrast**, **adjust-cyan-red**, **adjust-lightness**, **adjust-magenta-green**, **adjust-saturation**, **adjust-yellow-blue**, **anti-aliasing**, **black-overprint**, **color-destination-profile-back**, **color-destination-profile-front**, **color-effects-type**, **color-emulation**, **halftone-graphics**, **halftone-images**, **halftone-text**, **media**, **or media-col**, **page-rotation**, **rendering-intent-graphics**, **rendering-intent-images**, **rendering-intent-text**, **sides**, **toner-saver**, **trapping**, **trap-width-fast**, **trap-width-slow**, **trc**, **undefined-source-cmyk-graphics**, **undefined-source-cmyk-images**, **undefined-source-cmyk-text**, **undefined-source-gray-graphics**, **undefined-source-gray-images**, **undefined-source-gray-text**, **undefined-source-rgb-graphics**, **undefined-source-rgb-images**, **undefined-source-rgb-text**, **x-image-shift**, **x-side1-image-shift**, **x-side2-image-shift**, **y-image-shift**, **y-side1-image-shift**, and **y-side2-image-shift** member attributes of this collection. A page-override must also contain the following member attributes.

input-documents

This member attribute signifies the number of documents the page-overrides will apply. In this version of OM, this value should be 1.

pages

This member attribute signifies the page numbers that the override will apply.

page-ranges

Specifies a range of pages in the document data to be output.

page-rotation

This attribute specifies a rotation transformation the printer must perform on the affected input page images.

pages-per-subset

This attribute defines the number of pages in a subset.

printer-resolution

This attribute identifies the resolution that Printer uses for the Job. The value is specified as a combination of cross-feed, feed-direction and units (3 signifying dotsPerInch). Therefore to specify printer-resolution, it would be specified as:

```
xomsetjob -x "printer-resolution={cross-feed=300,feed-direction=300,units=3}" myQueue:1
```

rendering-intent-graphics

This attribute provides a way to specify the rendering intent to be used for graphics within a color document.

Valid keyword values are:

Keyword	Description
saturation	This rendering intent specifies that the saturation of pixels in the image is preserved; perhaps even at the expense of the accuracy of hue and lightness.
perceptual	This rendering intent specifies that the full gamut of the image is compressed or expanded to fill the gamut of the destination device. Gray balance is preserved, but colorimetric accuracy may not be preserved. Color relationships are preserved rather than colorimetric relationships.
relative-colorimetric	This rendering intent specifies color fidelity relative to the white point of the selected substrate.
absolute-colorimetric	This rendering intent specifies color fidelity in absolute colorimetric terms.
pure-text	This rendering intent is appropriate for text.
blended-pictorial-and-graphics	This rendering intent is appropriate for mixed content page images consisting of pictorial and graphic objects.
automatic	A rendering algorithm in the printer determines the selection of an appropriate rendering intent for each of the objects in the job, using the rendering intents available in the selected ICC profile(s).

rendering-intent-images

This attribute provides a way to specify the rendering intent to be used for images within a color document.

Refer to section [rendering-intent-graphics](#) on page 36 for valid keyword values.

rendering-intent-text

This attribute provides a way to specify the rendering intent to be used for text within a color document.

Refer to section [rendering-intent-graphics](#) on page 36 for valid keyword values.[resample-method](#)

This attribute specifies the transformation that the printer applies when converting an image (i.e., bit map) from one resolution to another resolution (higher or lower) for printing.

The supported values are:

Keyword	Comments
'nearest-neighbor'	A method used to resample image data (pixels) from one resolution to another that is accomplished by duplicating/deleting an input pixel closest to the desired output pixel location. This would be the fastest form of resampling but would give the lowest image quality.
'bi-linear'	A method used to resample image data (pixels) from one resolution to another that is accomplished by using the weighted sum of the four nearest pixel values in the source image to compute the replacement pixel in the output (resampled) image. This method would give higher image quality than nearest-neighbor but would take more time to compute.
'filtered'	A method used to resample image data (pixels) from one resolution to another that is accomplished by passing pixels in the neighborhood of the input pixel through a filter to determine the location of the output (resampled) pixel. This method would give higher image quality than nearest-neighbor but would take more time to compute.
'automatic'	A method used to resample image data (pixels) from one resolution to another that is accomplished by using input image characteristics to choose a resample algorithm from the list of available printer algorithms. The algorithms available might include nearest-neighbor, bi-linear, filtered, bi-cubic, or some other weighted interpolation method. This method would be designed to give the highest image quality but would take the most time to compute since the Printer would be examining multiple options.
'special'	Implementation dependent method or methods that may be specific to a vendor or class of printers.

resource-cleanup

This attribute is used after job completion to tell the printer which files of any kind had been explicitly transferred to the Printer by means outside the job submission protocol before the job was submitted.

The supported values are [keep](#) and [delete](#).

resource-pre-scan

This attribute indicates whether or not the printer is to pre-scan the document data in order to validate that resources referenced within the document are accessible and, optionally, to pull them to the printer, before processing the job.

The supported values are:

Keyword	Comments
'no-pre-scan'	Perform no pre-scan of the document data before processing the job.
'pre-scan'	Before processing the job, pre-scan the document data and validate that each referenced resource exists and is accessible, but fetch the resource later when the document data is interpreted (RIPped).
'pre-scan-and-gather'	Pre-scan the document data and retrieve the referenced resources prior to processing the job. Note: It is an implementation decision whether the referenced resource files are inserted into the document data stream or are simply copied to the Printer's local disk.

sample-set

This attribute specifies the set frequency, i.e., the number of sets printed before the sample set is produced, at which an additional, **collated** copy is generated by the printer and delivered to the printer's top or sample tray for inspection.

sample-sheet

This attribute specifies the set frequency, i.e., the number of sheets printed before the sample sheet is produced, at which time one additional **uncollated** sheet is generated by the printer and delivered to the printer's top or sample tray for inspection.

separator-sheets

This attribute specifies which separator sheets must be printed with the job. Separator sheets are used to separate individual copies of a multiple copy job.

This attribute consists of member attributes of which only the separator-sheets-type is supported. The supported values of separator-sheets-type are **none** or **slip-sheets**.

sheet-collate

Specifies if the media sheets of each copy of each printed document in a job are to be in sequence. The supported values are **collated** and **uncollated**.

sides

Indicates how an impression is to be placed upon the side(s) of the media. The supported values are **one-sided** (simplex), **two-sided-long-edge** (duplex), **two-sided-short-edge** (tumble, or head-to-toe).

toner-saver

The optional “toner-saver” Job/Document Template attribute permits an end user to instruct the Printer to print in a mode designed to reduce toner consumption.

The supported values are:

Keyword	Comments
'standard'	Reduces toner consumption by an amount determined by the printer.
'none'	Printer does not use toner saving algorithm.

trapping

This attribute controls the color trapping applied by the Printer.

Trapping is an image processing technique, well established in the commercial printing market, that is used to compensate for mis-registration of color planes in the print engine.

Valid keyword values are:

- **off** – no trapping is applied
- **all** - trapping is applied to the edges of all text, graphics, images, and sweeps

trap-width-fast

Specifies the number of pixels at each object boundary that will be within the trapping region in the “fast scan direction” (i.e., the direction parallel to the direction that the print engine’s output Raster Image System (ROS) writes pixels).

trap-width-slow

Specifies the number of pixels at each object boundary that will be within the trapping region in the “slow scan direction” (i.e., the direction perpendicular to the direction that the print engine’s output Raster Image System (ROS) writes pixels).

trc

Specifies the user selected TRCs (Tone Reproduction Curves) to be used for the job. This is a collection attribute which the member attribute **trc-name** is specified.

undefined-source-cmyk-graphics

Specifies the symbolic name of the source color space profile to be used in CMYK color space for rendering graphics to only those parts of a document that have no defined color space translation profile.

The keyword values are:

Keyword	Comments
native-cmyk	The CMYK color space of the target color printer
swop	Emulate the CMYK SWOP (<i>i.e.</i> , <i>Standard Web Offset Press</i>) ink color gamut when printed on coated media
euroscale	Emulate the European ink color gamut standard for offset presses when printed on coated media
japan-color	Emulate the color gamut of the combined/common Dinippon and Toyo Inks standard when printed on coated media
enhanced-swop	Emulate a more saturated version of the CMYK SWOP color gamut when printed on coated media
euroscale-matte	Emulate the color gamut of European inks placed on matte finish media
euroscale-uncoated	Emulate the color gamut of European inks placed on uncoated media

undefined-source-cmyk-images

Specifies the symbolic name of the source color space profile to be used in CMYK color space for rendering images to only those parts of a document that have no defined color space translation profile.

See section [undefined-source-cmyk-graphics](#) on page 40 for valid keyword values.

undefined-source-cmyk-text

Specifies the symbolic name of the source color space profile to be used in CMYK color space for rendering text to only those parts of a document that have no defined color space translation profile.

See section [undefined-source-cmyk-graphics](#) on page 40 for valid keyword values.

undefined-source-gray-graphics

Specifies the symbolic name of the source color space profile to be used to translate grayscale data to L* intensity values for rendering graphics to only those parts of a document that have no defined color space translation profile.

undefined-source-gray-images

Specifies the symbolic name of the source color space profile to be used to translate grayscale data to L* intensity values for rendering images to only those parts of a document that have no defined color space translation profile.

undefined-source-gray-text

Specifies the symbolic name of the source color space profile to be used to translate grayscale data to L* intensity values for rendering text to only those parts of a document that have no defined color space translation profile.

undefined-source-rgb-graphics

Specifies the symbolic name of the source color space profile to be used in RGB color space for rendering graphics to only those parts of a document that have no defined color space translation profile.

The valid keyword values are:

Keyword	Comments
sRGB	sRGB mode according to the Default RGB color space defined in [IEC 61966-2.1]
smpte-240m	Interpret RGB according to standard 240m of the Society of Motion Picture and Television Engineers [SMPTE-240M].
xcc-mode-rgb	Xerox Consistent Color mode for RGB color space.
xcc-mode-rgb-gamma1	Xerox Consistent Color mode for RGB with a gamma value of 1.

undefined-source-rgb-images

Specifies the symbolic name of the source color space profile to be used in RGB color space for rendering images to only those parts of a document that have no defined color space translation profile.

Refer to section [undefined-source-rgb-graphics](#) on page 41 for valid keywords.

undefined-source-rgb-text

Specifies the symbolic name of the source color space profile to be used in RGB color space for rendering text to only those parts of a document that have no defined color space translation profile.

Refer to section [undefined-source-rgb-graphics](#) on page 41 for valid keywords.

vi-container-type

Specifies the VI Container type.

- vipp -
- vipp-database-mode
- ppmI

x-image-shift

Causes the Finished-Page Image to be shifted in position with respect to the x-axis of the media. The unit of measure for this element is hundredths of a millimeter. The sign of the value indicates the direction of the shift.

x-side1-image-shift

Causes the Finished-Page Image that would be placed on the frontside of a sheet to be shifted in position with respect to the x-axis of the media. The unit of measure for this element is hundredths of a millimeter. The sign of the value indicates the direction of the shift.

x-side2-image-shift

Causes each Finished-Page Image that would be placed on the backside of a sheet to be shifted in position with respect to the x-axis of the media. The unit of measure for this element is hundredths of a millimeter. The sign of the value indicates the direction of the shift.

y-image-shift

Causes the Finished-Page Image to be shifted in position with respect to the y-axis of the media. The unit of measure for this element is hundredths of a millimeter. The sign of the value indicates the direction of the shift.

y-side1-image-shift

Causes each Finished-Page Image that would be placed on the front-side of a sheet to be shifted in position with respect to the y-axis of the media. The unit of measure for this element is hundredths of a millimeter. The sign of the value indicates the direction of the shift.

y-side2-image-shift

Causes each Finished-Page Image that would be placed on the back-side of a sheet to be shifted in position with respect to the y-axis of the media. The unit of measure for this element is hundredths of a millimeter. The sign of the value indicates the direction of the shift.

Read-only device attributes

Note that an FFOM device is very similar to a IPP printer. We chose to call it a device rather than a printer since eventually this product family will support other forms of output devices (e.g., cd writers).

device-name

The end-user friendly name of this Printer object. (example: "Sherry's Printer"). Set by create operation and it must be unique amongst the queues and printers in the system.

device-type

This attribute specifies the type of device. In FFOM, the only valid value is 'production-printer'. It is set by the create operation.

printer-controller

The name of the controller for the printer (e.g., DocuSP).

printer-controller-version

The version number of the controller (e.g., '3.6').

printer-high-watermark-reached

A Boolean which is true if high-watermark scheduling is enabled and the device has reached its high-watermark. It will be set to false once the low-watermark has been reached. This attribute is sort of a surrogate for disabled.

printer-is-accepting-jobs

The attribute **printer-is-accepting-jobs** has a Boolean value. A true value indicates that jobs can be submitted to the device. A false value indicates that the device is not accepting jobs (i.e., it is disabled).

The attribute **printer-is-accepting-jobs** is read-only and is set by the enable-device and disable-device operations.

printer-make-and-model

Identifies the make and model of the device that this Printer object represents (for example: "Xerox Phaser 7700", "HP LaserJet 1000", and "Lexmark Optra Color 45").

printer-network-address

The network address of the printer.

printer-ready-for-deletion

Identifies this printer will be deleted after all jobs forwarded to this printer have completed printing or cancelled. If the value is false, there is one or more jobs that are still being processed at the printer.

printer-queue-name

The name of the queue (virtual printer) on the printer where this device sends jobs.

printer-state

Identifies the current state of the printer that this device represents. (See "PrinterStateReasons" below) (Keywords: idle, processing, stopped). The level of support is specific to the printer.

printer-state-reasons

Augments the "printer-state" element to give more detailed information about this Printer's state.

printer-up-time

The amount of time (in seconds) that this device has been up and running.

printer-uri

Uri for the printer this device represents.

printer-secure

This attribute specifies if the printer uses secure IPP communication (i.e., https) when communicating using IPP. It is set when the printer is created.

queued-job-count

The number of jobs that have been forwarded from FreeFlow Output Manager to this printer but has not yet completed.

queued-job-page-count

The number of pages that have been sent to this printer from FreeFlow Output Manager but have been printed yet.

secondary-printer-queue-name

The name of the queue on the second printer controller. This information is available if the printer is a Xerox iGen4 220 Perfecting Press printer.

secondary-printer-network-address

The network address of the second printer controller. This information is available if the printer is a Xerox iGen4 220 Perfecting Press printer.

Read-write device attributes

interposer-supported

This attribute specifies whether the device has an interposer (i.e., non-fuser tray).

printer-high-watermark

The number of jobs spooled on the printer before FFOM stops forwarding jobs to the printer

printer-high-watermark-enabled

Indicates if this device is uses watermark job control. Note that we are going to give devices high and low water marks by default (the levels will be set by device class). We're going to use this to control the number of jobs that are pushed to the device.

printer-location

Identifies the location of the device that this Printer represents. (Example: Tina's Office)

printer-low-watermark

An integer that specifies the number of queued jobs that will cause FFOM to restart scheduling jobs to this device

printer-make-and-model

Identifies the make and model of the device that this Printer object represents. (Example: "Xerox Phaser 7700", "HP LaserJet 1000", "Lexmark Optra Color 45")

printer-name

The name of the actual printer connected to this device. It may be set by the OBS but can be changed by an operator.

Device capability attributes

Device objects support all the device capability attributes (xxx-supported) listed in appendix A, [Attributes](#) on page 1. Depending on the type of printer, these attributes may be set dynamically by FreeFlow Output Manager.

These attributes are used when capability scheduling is being used.

This section will list only attributes whose values is a list of other attributes (i.e., Collections).

Normally the values of xxx-supported attributes is a list of the values found in their corresponding job or document attribute.

For example, the values of supported attributes whose type is “keyword” is a list of keyword values or names defined in the job or document’s attribute. If the type is integer, the supported values is generally a rangeOfIntegers.

In some cases, the supported attribute will be of type Boolean. This simply signifies whether the printer supports the attribute (e.g., job-account-id-supported).

If the job or document attribute is of type collection, its corresponding supported attribute will contain the member attributes that the collection supports. Each member attribute will have a corresponding supported attribute. The supported member attributes are listed below and therefore each member attribute will have a corresponding supported attribute (e.g., cover-type-supported).

booklet-making-supported

The supported member attributes are booklet-making, booklet-fold-type, booklet-square-fold-type, and booklet-trim-width.

cover-back-supported, cover-front-supported

The supported member attributes are **media**, **media-col**, and **cover-type**.

finishings-col-supported

The supported member attributes are **finishing-template** and **booklet-making**.

insert-sheet-supported

The supported member attributes are **insert-page-after-number**, **insert-count**, **media**, and **media-col**.

media-col-supported

The supported member attributes are **media-type**, **media-color**, **media-hole-count**, **media-order-count**, **media-size**, **media-weight-metric**, **media-tooth**, **media-grain**, **media-back-coating**, **media-front-coating**, **media-pre-printed**, and **media-recycled**.

output-gloss-col-supported

The supported member attributes are **output-gloss-scope** and **output-gloss-level** supported.

page-overrides-supported

The supported member attributes are **pages**, **input-documents**, **adjust-bw-darkness-value**, **adjust-contrast**, **adjust-cyan-red**, **adjust-lightness**, **adjust-magenta-green**, **adjust-saturation**, **adjust-yellow-blue**, **anti-aliasing**, **black-overprint**, **color-destination-profile-back**, **color-destination-profile-front**, **color-effects-type**, **color-emulation**, **halftone-graphics**, **halftone-images**, **halftone-text**, **media**, or **media-col**, **page-rotation**, **rendering-intent-graphics**, **rendering-intent-images**, **rendering-intent-text**, **sides**, **toner-saver**, **trapping**, **trap-width-fast**, **trap-width-slow**, **trc**, **undefined-source-cmyk-graphics**, **undefined-source-cmyk-images**, **undefined-source-cmyk-text**, **undefined-source-gray-graphics**, **undefined-source-gray-images**, **undefined-source-gray-text**, **undefined-source-rgb-graphics**, **undefined-source-rgb-images**, **undefined-source-rgb-text**, **x-image-shift**, **x-side1-image-shift**, **x-side2-image-shift**, **y-image-shift**, **y-side1-image-shift**, and **y-side2-image-shift**.

proof-print-supported

The supported member attribute is **proof-print-copies**.

trc-supported

The supported member attribute is **trc-name**.

5

Server Attributes

FreeFlow Output Manager provides the ability to track the number of jobs processed, number of pages processed, and number of bytes processed per Queue and Printer. It also tracks the number of jobs received and how the job was submitted into Output Manager (via LPR, IPP, JMF, CLI, or GUI). This information can be used for capacity usage analysis and configuration planning.

The information is stored in internal counters. The counters provide the following information:

- Totals since installation
- Totals since last reset
- Historical Snapshots

A snapshot stores the values of the counters when a snapshot operation is invoked. It stores the value of the counter along with the date of the snapshot. The snapshot can be invoked manually or programmed to be executed automatically at a specific intervals (specified in minutes). The snapshots can be cleared, removing all snapshots. The system will keep a maximum number of snapshots controlled by the attribute "[server-maximum-snapshots](#)". If the number of snapshots is at the maximum, the oldest snapshot is removed when the next snapshot is taken.

The counters can be reset manually, creating scenarios where the user can see the counts since a reset. However, the counters storing information since installation are not reset. These counters are reset using a different method but are cleared when the OM software is installed.

A report can be generated manually or automatically at a specified interval. The information contained in the report is written in comma separated values (.csv) file format so the report can be uploaded to applications like Microsoft Excel so the data can be easily processed creating graphs and charts. The report name is generated as "FFOMServerStatistics_YYYYMMDD_HHMMSS.csv" and is written to the "reports" directory. The "reports" directory will be located off the root installation directory.

Read-only server attributes

The read-only server attributes typically provide static descriptive information or changing information.

server-jobs-processed

This attribute contains the total number of jobs processed. This attribute is a collection attribute ([server-statistics-col](#)) containing the following member attributes:

- [service-type](#) (keyword: queue, printer, server)
- [service-name](#) (name(127))
- [total-since-last-reset](#) (long)
- [total-since-installation](#) (long)

The service-type denotes the type of service (queue, printer or server). Server is used to denote the inbounds.

The service-name can be either name of the queue, printer, or server. If the service-type is server, the applicable service-names are

- CLI
- IPPInboundService
- LPRInboundService
- JMFInboundService
- GUI

server-jobs-accepted

This attribute contains the total number of jobs accepted by the server. This attribute is a collection attribute ([server-statistics-col](#)). See [server-jobs-processed](#) on page 2 for details.

server-pages-processed

This attribute contains the total number of pages processed by a queue, printer, server. This attribute is a collection attribute ([server-statistics-col](#)). See [server-jobs-processed](#) on page 2 for details.

server-k-octets-processed

This attribute contains the total number of k-octets processed by a queue, printer, server. This attribute is a collection attribute ([server-statistics-col](#)). See [server-jobs-processed](#) on page 2 for details.

server-snapshot

This attribute contains the snapshots of the counters for a queue, printer, server. This attribute is a collection attribute ([snapshot-col](#)) containing the following member attributes:

- [date-time-at-snapshot](#) (DateTime)
- [server-jobs-accepted](#)
- [server-jobs-processed](#)
- [server-pages-processed](#)
- [server-k-octets-processed](#)

Read-write server attributes

server-maximum-snapshots

This attribute specifies the maximum number of snapshots that will be kept. If the maximum number of snapshots is reached and the next snapshot is taken, the oldest snapshots are removed. The absence of this attribute implies no snapshots will be removed when the next snapshot is taken.

server-snapshot-interval

This attribute specifies the interval in minutes when a snapshot of the counters are taken. If the value changes, the change takes affect after the next snapshot is completed. The absence of this attribute disables automatic snapshots.

server-snapshot-time

This attribute represents the time the next snapshot is taken. If `server-snapshot-interval` is present, after the current snapshot is taken, the value for `server-snapshot-time` is updated by adding the value of `server-snapshot-interval` to the current time. Removal of this attribute will terminate future snapshots.

server-report-interval

This attribute specifies the interval in minutes when a report will be generated. If the value changes, the change takes affect after the next report is completed. The absence of this attribute disables automatic report generation.

server-report-time

This attribute represents the time the next report will be generated. If `server-report-interval` is present, after the current report is generated, the value for `server-report-time` is updated by adding the value of `server-report-interval` to the current time. Removal of this attribute will terminate future reports.

reset-counter-interval

This attribute specifies the interval in minutes when the counters except permanent counters are reset to 0. If the value changes, the change takes affect after the next reset is completed. The absence of this attribute disables automatic reset.

reset-counter-time

This attribute represents the time the counters "since last reset" are reset to 0. Prior to the counters being reset, a snapshot is taken.

If `reset-counter-interval` is present, after the counters are reset, the value for `reset-counter-time` is updated by adding the value of `reset-counter-interval` to the current time. Removal of this attribute will terminate future resets.

6

Using the CLI in Scripts

Programming considerations

Since the FFOM services run in a privileged mode, there are security issues with allowing any random program to run as a subprocess. Therefore, the programs associated with the Hot Folders tool, Port Controller tool or with job-preprocessing/postprocessing are restricted to:

- Residing on the Output Manager's system local disk
- Residing in the folder the *install-root*\scripts\ . This folder is created during installation and files can only be written into it by a system administrator, Install-root is the root directory where FreeFlow Output Manager is installed. The directory is usually Program Files\Xerox\FreeFlow Output Manager.

Scripts

FreeFlow Output Manager provides customization of job processing through the system via scripting. A script is a program written as either a batch file (.bat for Windows) or shell file (.sh, .csh for UNIX). The script is free to perform operations on the document data or once a job is submitted into Output Manager, modify the job or document attributes to allow custom scheduling rules.

There are 3 places in the job processing steps where scripts can be used in Output Manager:

- Received print files from clients but the files have not been submitted to Output Manager. The utilities that receive the files are HotFolders and PortController. These utilities receive files and call a script that processes each file. The script then may decide to modify the print file prior to submitting to Output Manager. The script ultimately will submit the file as a print job to Output Manager using the *xomprijob* command.
- Job and its associated print file has been submitted to Output Manager but not yet scheduled (preprocessing). A print job has been submitted to an Output Manager queue and prior to scheduling, a preprocessing program is called to do some operations on the job such as determining the document format, estimating the number of pages in the document, determine if the document has color content, modify the contents of the print file and storing the newer version, setting job or document attributes.
- Job has completed printing or canceled (postprocessing). In this case, after a job has completed printing or been cancelled, a postprocessing script can be written to do operations such as email notification that a job is completed, copy the contents of the print file to another directory where it could be submitted for a reprint at a later time.

The structure of a script is generally the following:

- The script is passed one argument. This is either a job id or the name of the file depending when the script is invoked. If the script is associated with the HotFolder or PortController utility, the script is passed the pathname to the print file. If the script is associated with PreProcessing or PostProcessing, the script is passed the job-id.
- The script then performs operations on the print file. It may change the contents of the print file and that the modified contents will be forwarded to the printer. If the script is a preprocessing script use the CLI commands to get and set attributes on the document.
- If the script is associated with PreProcessing or PostProcessing, the script calls [xomendpro](#) to notify FreeFlow Output Manager the script is completed pre or post processing.
- The script calls the exit command (EXIT for Windows .bat file) as the last command prior to the script exiting.

Preprocessing Scripts

When a job enters the queue and after the queue defaults are applied, if the job attribute *preprocessing-program* has a value and the queue attribute *queue-all-jobs-pass-through* is "true", FreeFlow Output Manager puts the job in the "held" state, adds the job-state-reason, "job-preprocessing" to the job-state-reasons attribute, then calls the program in a separate process.

The program must be put in the "scripts" directory. FreeFlow Output Manager will only search for the program in this directory. The script will run in Windows "cmd" shell environment.

The Preprocessing script is passed one parameter which is the job id of the job in the form "*queueName:jobId*".

The script can obtain the job and associated document attributes using the [xomgetjob](#) and [xomgetdoc](#) commands. The script can determine the number of documents in the job via the job's number-of-documents attribute. To get or set document attributes, the script generates the document id by taking jobID and appending the associated document number.

To access the document data for a document, the script uses the CLI command [xomcpfdoc](#). The command creates a local copy of the document data and stores in the filename specified in the [xomcpfdoc](#) command or passes the path to the spooled data file. The script then can read the contents. The script can manipulate the local copy of the file only. If it wants to associate the updated file back to the document, the script calls [xomcptdoc](#).

Prior to exiting the script, the script must call the CLI command [xomendpro](#). This command will release the job from the held state and allow the job to be scheduled.

At the end of the script, the script uses the EXIT command for Windows script files. Using the exit command will allow system resources allocated as part of the postprocessing program to be reclaimed when the postprocessing script exits. If the exit command is not used, the process associated with the postprocessing program will remain registered with the operating system.

The script must be well-behaved. If the script aborts for some reason and does not call [xomendpro](#) prior exiting, the job will remain in the held state forever. The script should call [xomcanjob](#) if for some reason determines the job should not continue to be processed.

The script when calling FreeFlow Output Manager commands should contain error handling and process errors accordingly.

While a job is preprocessing, operations hold-job, move-job, release-job, and reprocess-job are illegal .

An example of a preprocessing script is the [xomddlana](#) script ([xomddlana.bat](#)). The script is listed in appendix A, [xomddlana script](#) on page 28.

Postprocessing Scripts

Prior to the job transitioning to the terminal state (e.g., aborted or completed), if the job's postprocessing-program attribute contains a value, the job state reason "job-postprocessing" is added to job-state-reasons and the program is called in the same manner as the preprocessor.

The program must be put in the "scripts" directory. FreeFlow Output Manager will only search for the program in this directory. The script will run in Windows "cmd" shell environment.

The Postprocessing script is passed one parameter which is the job id of the job in the form "queueName:jobId".

The script can obtain the job and associated document attributes using the [xomgetjob](#) and [xomgetdoc](#) commands. The script can determine the number of documents in the job via the job's number-of-documents attribute. To get or set document attributes, the script generates the document id by taking jobID and appending the associated document number.

To access the document data for a document, the script uses the CLI command [xomcpfdoc](#). The command creates a local copy of the document data and stores in the filename specified in the [xomcpfdoc](#) command. The script then can read the contents.

Prior to exiting the script, the script must call the CLI command [xomendpro](#). This command will release the job from the postprocessing state and allow the job to proceed to a terminal state (i.e., aborted or completed).

At the end of the script, the script uses the EXIT command for Windows script. The [xomendpro](#) command will release the job from the held state and allow the job to be scheduled. Using the exit command will allow system resources allocated as part of the preprocessing program to be reclaimed when the preprocessing script exits. If the exit command is not used, the process associated with the preprocessing program will remain registered with the operating system.

The script must be well-behaved. If the script aborts for some reason and does not call [xomendpro](#) prior exiting, the job will remain in the held state forever. The script should call [xomcanjob](#) if for some reason determines the job should not continue to be processed.

Operations hold-job, move-job, release-job, reprocess-job, modify-job are illegal while a job is postprocessing.

Hot Folder/Port Controller Scripts

A Hot Folder or Port Controller script is intended to process incoming files and submit the files as jobs to Output Manager using the CLI `xomprijob` command.

The HotFolder script is placed in the `scripts/hotfolders` directory. The PortController script is placed in the `scripts/portgateway` directory. The HotFolders and PortController utilities will pass to the script an argument the name of the file to be processed. The script must delete the file prior to exiting. If the file is not deleted, the file will be processed again.

Sample Hot Folder/Port Controller Scripts

The following is an example of a script that is passed as an argument the path to the file (identified through the argument %1) and the file is then submitted to a FreeFlow Output Manager queue (identified through the argument %2) using the `xomprijob` command. Note the CLI command invoked using the Windows “call” command. The script deletes the file prior to exit. Otherwise, the file will be processed again when the script is called.

In this example, the script also captures the return code from the CLI command and process the return code.

```
@ECHO OFF
call xomprijob -q %2 %1
IF NOT %ERRORLEVEL% == 0 GOTO ERROR
DEL /F %1
ECHO 0
GOTO END
:ERROR
ECHO 1
:END
```

Here is an example where this script calls another script program (in this case a PERL script) to perform operations.

```
b@ECHO OFF
rem
#####
#####
rem # Copyright © 2004,2010 Xerox Corporation. All
rights reserved.
rem #
rem # This script submits the job to Queue1 or Queue2
based on the
rem # number of pages in a PDF or PostScript file. If
the number of pages is
rem # less than 100, then the job is submitted to Queue1
otherwise Queue2.
rem #
rem # Note:
rem # 1) Replace queue1 and queue2 with the Output
Manager queue names
rem # that will be receive the job.
```

```

rem # 2) The script must return 0 for success and 1 for
rem # failure so the
rem # so the status is reported by the utility.
rem # 3) Change the directory of FileCntPgs.pl to its
rem # directory location
rem # 4) Install Active Perl5.8 and set the path
rem # environment variable to the
rem # location where the perl is installed
rem
#####
#####
SET PATH=%PATH%;C:\Perl\bin;
CALL perl "C:\Program
Files\xerox\ecomsservices\perl\filecntpgs.pl" %1 queue1
queue2
IF NOT %ERRORLEVEL% == 0 GOTO ERROR
DEL /F %1
ECHO 0
GOTO END
:ERROR
ECHO 1
:END

```

PDL Analysis Preprocessor Script

The PDL Analysis Preprocessor script, named “[xompdana](#)” determines the PDL of all the documents in the job and counts the pages of all documents in the job. The script calls two programs, one that guesses the PDL ([xomguepdl](#)) and another that counts the number of pages ([xomcntpgs](#)). The programs are called if the script determines that document format is unknown or is set to application/octet-stream or that the *impressions* attribute is not set on the document.

The pseudo-coded script below describes the PDL analysis script.

- Initializes environment
- Get number of documents in job ([xomgetjob \\$0 -x “number-of-documents”](#)). The result is written to stdout so result must be parsed to obtain numeric value
- For each document in job
 - Construct document id (docID) concatenating jobID and document number.
 - Use [xomgetdoc](#) commands to get following information:


```
xomgetdoc “docID” -x “document-format,pages,document-color”
```
 - Use [xomcpfdoc](#) to obtain the absolute pathname to the spooled file corresponding to the document. ([xomcpfdoc “docID”](#))
 - Call [xompdlgue](#) program passing to the program the name of the file, if the document-format attribute does not exist.

- The `xomguedpl` program processes the file writes to stdout the following values "*pdl-format,document-color*".
- Set the appropriate attribute values if it is not "NA" for the document using the CLI:

```
xomsetdoc "docID", -x "document-format=<pdl-format>"
```

```
xomsetdoc "docID", -x "document-color=<color-content>"
```

- Call `xomcntpgs` program if the impression attribute does not exist passing to the program the name of the file and the document-format of the file. The `xomcntpgs` program processes the file and writes to stdout the number of pages found. If the number of pages cannot be determined "NA" is written to stdout.
- Set the appropriate attribute values if it is not "NA" for the document using the CLI:

```
xomsetdoc "docID" -x "pages=<pagesCounted>"
```

- Prior to exiting the script, the CLI command is called notifying the job has completed preprocessing

```
xomendpro "jobId"
```

- For a .bat file written in Windows the script must call EXIT. Otherwise the processed created by FreeFlow Output Manager does not terminate gracefully. The script returns an exit value. This is usually 0 or a non-zero value.

Appendix



Attributes

This table alphabetically lists all the object attributes in FFOM. For each attribute, the following data is included:

- **Attribute name**—This is the FFOM public name of the attribute. Internally, the FFOM programs may refer to attribute differently and the GUI may use different words to refer to it. However, the CLI uses the names from this table.
- **Type**—this column indicates the type of the attribute: 'J' is for job, 'D' is for document, 'P' is for device, 'Q' is for queue, 'S' is for server, and 'M' for the associated multifunction device (MFD) registered with FFOM.
- **Syntax**—this column contains the syntax for values of the attribute.
- **R/W**—this column indicates whether or not the attribute can be set with a set-object-attributes command. 'R/W' means that the attribute can be written; 'R/O' means that the attribute is read-only and a set command will fail.

	Attribute name	Type	Syntax	R/W
1	accept-jobs-from-mfd	Q	boolean	R/W
2	adjust-bw-darkness-mode	D	keyword name	R/W
3	adjust-bw-darkness-mode-default	Q	keyword name	R/W
4	adjust-bw-darkness-mode-supported	P/Q	1setOf keyword	R/W
5	adjust-bw-darkness-value	D	integer	R/W
6	adjust-bw-darkness-value-default	Q	integer	R/W
7	adjust-bw-darkness-value-supported	P/Q	rangeOfInteger	R/W
8	adjust-contrast	D	integer(-100:100)	R/W
9	adjust-contrast-default	Q	integer(-100:100)	R/W
10	adjust-contrast-supported	P/Q	rangeOfInteger(-100:100)	R/W
11	adjust-cyan-red	D	integer(-100:100)	R/W
12	adjust-cyan-red-default	Q	integer(-100:100)	R/W
13	adjust-cyan-red-supported	P/Q	rangeOfInteger(-100:100)	R/W
14	adjust-lightness	D	integer(-100:100)	R/W

	Attribute name	Type	Syntax	R/W
15	adjust-lightness-default	Q	integer(-100:100)	R/W
16	adjust-lightness-supported	P/Q	rangeOfInteger(-100:100)	R/W
17	adjust-magenta-green	D	integer(-100:100)	R/W
18	adjust-magenta-green-default	Q	integer(-100:100)	R/W
19	adjust-magenta-green-supported	P/Q	rangeOfInteger(-100:100)	R/W
20	adjust-saturation	D	integer(-100:100)	R/W
21	adjust-saturation-default	Q	integer(-100:100)	R/W
22	adjust-saturation-supported	P/Q	rangeOfInteger(-100:100)	R/W
23	adjust-yellow-blue	D	integer(-100:100)	R/W
24	adjust-yellow-blue-default	Q	integer(-100:100)	R/W
25	adjust-yellow-blue-supported	P/Q	rangeOfInteger(-100:100)	R/W
26	anti-aliasing	D	keyword	R/W
27	anti-aliasing-default	Q	keyword	R/W
28	anti-aliasing-supported	P/Q	1setOf keyword	R/W
29	black-overprint	D	keyword	R/W
30	black-overprint-default	Q	keyword	R/W
31	black-overprint-supported	P/Q	1setOf keyword	R/W
32	color-destination-profile-back	D	keyword name	R/W
33	color-destination-profile-back-default	Q	keyword name	R/W
34	color-destination-profile-back-supported	P/Q	1setOf keyword name	R/W
35	color-destination-profile-front	D	keyword name	R/W
36	color-destination-profile-front-default	Q	keyword name	R/W
37	color-destination-profile-front-supported	P/Q	1setOf keyword name	R/W
38	color-effects-type	D	keyword	R/W
39	color-effects-type-default	Q	keyword	R/W
40	color-effects-type-supported	P/Q	1setOf keyword	R/W
41	color-emulation	D	keyword	R/W
42	color-emulation-default	Q	keyword	R/W
43	color-emulation-supported	P/Q	1setOf keyword	R/W
44	color-supported	P	boolean	R/W
45	copies	D	integer(1:MAX)	R/W

	Attribute name	Type	Syntax	R/W
46	copies-default	Q	integer(1:MAX)	R/W
47	copies-supported	P/Q	rangeOfInteger(1:MAX)	R/W
48	cover-back	D	collection	R/W
48.1	media		name keyword	R/W
48.2	media-col		collection	R/W
48.3	cover-type		keyword	R/W
49	cover-back-default	Q	collection	R/W
50	cover-back-supported	P/Q	1setOf keyword	R/W
51	cover-type-supported	P/Q	Keyword	R/W
52	cover-front	D	collection	R/W
52.1	media		name keyword	R/W
52.2	media-col		collection	R/W
52.3	cover-type	D	keyword	R/W
53	cover-front-default	Q	collection	R/W
54	cover-front-supported	P/Q	1setOf keyword	R/W
55	date-time-at-completed	J/D	dateTime	R/O
56	date-time-at-creation	J/D	dateTime	R/O
57	date-time-at-processing	J/D	dateTime	R/O
58	date-time-at-processing-completed	J/D	dateTime	R/O
59	date-time-at-marking	J/D	dateTime	R/O
60	date-time-at-marking-completed	J/D	dateTime	R/O
61	device-name	P	name(127)	R/O
62	device-type	P	keyword	R/O
63	document-color	D	Keyword	R/W
64	document-format	D	mimeMediaType	R/W
65	document-format-default	Q	mimeMediaType	R/W
66	document-format-supported	P/Q	1setOf mimeMediaType	R/W
67	document-job-id	D	integer(1:MAX)	R/O
68	document-name	D	name	R/W
69	document-number	D	integer(1:MAX)	R/O
70	document-set-range	D	rangeOfInteger(1:MAX)	R/W
71	document-sets	D	integer(0:MAX)	R/W

	Attribute name	Type	Syntax	R/W
72	document-state	D	enum	R/O
73	document-state-reasons	D	1setOf keyword	R/O
74	document-uri	D	uri	R/O
75	duration-marking	J/D	integer(0:MAX)	R/O
76	finishings	D	1setOf enum	R/W
77	finishings-default	Q	1setOf enum	R/W
78	finishings-ready	P/Q	1setOf enum	R/W
79	finishings-supported	P/Q	1setOf enum	R/W
80	finishings-col	D	collection	R/W
80.1	finishing-template		name	
80.2	booklet-making		collection	
80.2.1	booklet-fold-type	J/D	keyword	R/W
80.2.2	booklet-square-fold-type	J/D	keyword	R/W
80.2.3	booklet-staple-type	J/D	keyword	R/W
80.2.4	booklet-trim-width	Q	integerOrRangeOfInteger	R/W
81	finishings-col-default	Q	collection	R/W
82	finishings-col-supported	P/Q	1setOf keyword	R/W
83	finishings-template-supported	P/Q	1setOf name	R/W
84	booklet-making-supported	P/Q	1setOf keyword	R/W
85	booklet-fold-type-supported	P/Q	1setOf keyword	R/W
86	booklet-square-fold-type-supported	P/Q	1setOf keyword	R/W
87	booklet-staple-type-supported	P/Q	1setOf keyword	R/W
88	booklet-trim-width-supported	P/Q	1setOf integerOrRangeOfInteger	R/W
89	font-name-requested	D	name	R/W
90	font-name-requested-default	Q	name	R/W
91	font-name-requested-supported	P/Q	1setOf name	R/W
92	font-size-requested	D	integer(MAX)	R/W
93	font-size-requested-default	Q	integer(MAX)	R/W
94	font-size-requested-supported	P/Q	1setOf rangeOfInteger(MAX)	R/W
95	force-front-side	D	1setOf integer(1:MAX)	R/W
96	force-front-side-default	Q	1setOf integer(1:MAX)	R/W
97	force-front-side-supported	P/Q	rangeOfInteger(1:MAX)	R/W

	Attribute name	Type	Syntax	R/W
98	halftone-graphics	D	keyword name	R/W
99	halftone-graphics-default	Q	keyword name	R/W
100	halftone-graphics-supported	P/Q	1setOf (keyword name)	R/W
101	halftone-images	D	keyword name	R/W
102	halftone-images-default	Q	keyword name	R/W
103	halftone-images-supported	P/Q	1setOf (keyword name)	R/W
104	halftone-text	D	keyword name	R/W
105	halftone-text-default	Q	keyword name	R/W
106	halftone-text-supported	P/Q	1setOf (keyword name)	R/W
107	highlight-colorant	D	keyword name	R/W
108	highlight-colorant-default	Q	keyword name	R/W
109	highlight-colorant-ready	P/Q	1setOf keyword name	R/W
110	highlight-colorant-supported	P/Q	1setOf keyword name	R/W
111	highlight-colorant-mismatch	D	keyword name	R/W
112	highlight-colorant-mismatch-default	Q	keyword name	R/W
113	highlight-colorant-mismatch-supported	P/Q	1setOf keyword name	R/W
114	highlight-map	D	keyword name	R/W
115	highlight-map-default	Q	keyword name	R/W
116	highlight-map-supported	P/Q	1setOf keyword name	R/W
117	highlight-map-color	D	keyword name	R/W
118	highlight-map-color-default	Q	keyword name	R/W
119	highlight-map-color-supported	P/Q	1setOf keyword name	R/W
120	impressions	D	integer (0:MAX)	R/W
121	impressions-completed	D	integer (0:MAX)	R/O
122	impressions-completed-black-only	D	integer (0:MAX)	R/O
123	impressions-completed-color	D	integer (0:MAX)	R/O
124	insert-sheet	D	1setOf collection	R/W
124.1	insert-page-after-number		integer (0:MAX)	R/W
124.2	insert-count		integer (0:MAX)	R/W
124.3	media		keyword name	R/W
124.4	media-col		Collection	R/W

	Attribute name	Type	Syntax	R/W
125	insert-sheet-default	Q	1setOf collection	R/W
126	insert-sheet-supported	P/Q	1setOf keywords	R/W
127	interleaved-sheets-col	J/D	collection	R/W
127.1	interleaved-sheets-type		keyword name	R/W
127.2	media		keyword name	R/W
127.3	media-col		collection	R/W
128	interleaved-sheets-type-supported	P	1setOf (keyword name)	R/W
129	interleaved-sheets-col-default	P	collection	R/W
130	interleaved-sheets-col-supported	P	boolean	R/W
131	interposer-supported	P	boolean	R/W
132	ipp-attribute-fidelity	J	boolean	R/W
133	job-account-id	J	name	R/W
134	job-account-id-default	Q	name	R/W
135	job-account-id-supported	P/Q	boolean	R/W
136	job-accounting-data	J	text	R/W
137	job-accounting-data-default	Q	text	R/W
138	job-accounting-data-supported	P/Q	boolean	R/W
139	job-accounting-user-id	J	name	R/W
140	job-accounting-user-id-default	Q	name	R/W
141	job-accounting-user-id-supported	P/Q	boolean	R/W
142	job-hold-until	J	keyword	R/O
143	job-hold-until-default	Q	keyword	R/W
144	job-hold-until-supported	Q	1setOf keywords (no-hold,indefinite)	R/W
145	job-hold-until-time	J	dateTime	R/OW
146	job-hold-until-time-supported	Q	rangeOfInteger(0:MAX)	R/W
147	job-id	J	integer(1:MAX)	R/O
148	job-id-on-client	J	integer(0:MAX)	R/O
149	job-id-on-printer	J/D	1setOf text	R/O
150	job-id-on-second-printer	J	integer(0:MAX)	R/O
151	job-impressions	J	integer(0:MAX)	R/O
152	job-impressions-completed	J	integer(0:MAX)	R/O

	Attribute name	Type	Syntax	R/W
153	job-impressions-completed-black-only	J	integer(0:MAX)	R/O
154	job-impressions-completed-color	J	integer(0:MAX)	R/O
155	job-impressions-supported	P/Q	rangeOfInteger(1:MAX)	R/W
156	job-k-octets	J	integer(0:MAX)	R/O
157	job-k-octets-supported	P/Q	rangeOfInteger(0:MAX)	R/W
158	job-message-from-operator	J	text(127)	R/W
159	job-message-to-operator	J	text(MAX)	R/W
160	job-message-to-operator-supported	P/Q	boolean	R/W
161	job-name	J	name	R/W
162	job-offset	J	1setOf keyword	R/W
163	job-offset-default	Q	1setOf keyword	R/W
164	job-offset-supported	P/Q	1setOf keyword	R/W
165	job-originating-host-name	J	name	R/O
166	job-originating-user-name	J	name	R/O
167	job-parent-job-id	J	integer(0:MAX)	R/O
168	job-pass-through	J	boolean	R/W
169	job-priority	J	integer(1:100)	R/W
170	job-priority-default	Q	integer(1:100)	R/W
171	job-recipient-name	J	name	R/W
172	job-recipient-name-supported	P/Q	Boolean	R/W
173	job-reprocessed-job-ids	J	1setOf integer	R/O
174	job-retention-period	J	integer(0:MAX)	R/W
175	job-retention-period-default	Q	integer(0:MAX)	R/W
176	job-retention-period-supported	Q	rangeOfInteger (0:MAX)	R/W
177	job-sheet-message	J	text(MAX)	R/W
178	job-sheet-message-default	Q	text(MAX)	R/W
179	job-sheet-message-supported	P/Q	Boolean	R/W
180	job-state	J	enum	R/O
181	job-state-reasons	J	1setOf keyword	R/O
182	job-subjob-ids	J	1setOf integer	R/O
183	job-uri	J	uri	R/O
184	job-splitting	J	keyword	R/W

	Attribute name	Type	Syntax	R/W
185	job-splitting-default	Q	keyword	R/W
186	job-splitting-failure	Q	keyword	R/W
187	job-splitting-supported	Q	1setOf keyword	R/W
188	job-splitting-process-exceptions-bw	Q	Boolean	R/W
189	job-splitting-threshold	Q	Integer(1:MAX)	R/W
190	k-octets	D	integer(0:MAX)	R/O
191	media	D	keyword name	R/W
192	media-default	Q	keyword name	R/W
193	media-ready	P/Q	1setOf(keyword name)	R/W
194	media-supported	P/Q	1setOf (keyword name)	R/W
195	media-col	D	collection	R/W
195.1	media-key		keyword name	R/W
195.2	media-type		keyword name	R/W
195.3	media-color		keyword name	R/W
195.4	media-hole-count		integer(0:MAX)	R/W
195.5	media-order-count		integer(1:MAX)	R/W
195.6	media-size		collection	R/W
195.6.1	x-dimension		integer	R/W
195.6.2	y-dimension		integer	R/W
195.7	media-weight-metric		integer	R/W
195.8	media-tooth		keyword name	R/W
195.9	media-grain		keyword name	R/W
195.10	media-back-coating		keyword name	R/W
195.11	media-front-coating		keyword name	R/W
195.12	media-pre-printed		keyword name	R/W
195.13	media-recycled		keyword name	R/W
196	media-key-supported	P/Q	1setOf (type3 keyword name(MAX))	R/W
197	media-type-supported	P/Q	1setOf (type3 keyword name(MAX))	R/W
198	media-color-supported	P/Q	1setOf (type3 keyword name(MAX))	R/W
199	media-hole-count-supported	P/Q	1setOf rangeOfInteger(0:MAX)	R/W

	Attribute name	Type	Syntax	R/W
200	media-order-count-supported	P/Q	1setOf rangeOfInteger(1:MAX)	R/W
201	media-size-supported	P/Q	1setOf collection	R/W
202	media-weight-metric-supported	P/Q	1setOf rangeOfInteger(1:MAX)	R/W
203	media-front-coating-supported	P/Q	1setOf (type3 keyword name(MAX))	R/W
204	media-back-coating-supported	P/Q	1setOf (type3 keyword name(MAX))	R/W
205	media-recycled-supported	P/Q	1setOf (type3 keyword name(MAX))	R/W
206	media-tooth-supported	P/Q	1setOf (type3 keyword name(MAX))	R/W
207	media-grain-supported	P/Q	1setOf (type3 keyword name(MAX))	R/W
208	media-pre-printed-supported	P/Q	1setOf (type3 keyword name(MAX))	R/W
209	media-col-database	P	1setOf collection	R/W
210	media-col-default	Q	collection	R/W
211	media-col-ready	P/Q	1setOf collection	R/W
212	media-col-supported	P/Q	1setOf keyword	R/W
213	mfd-device-name	Q	name(127)	R/W
214	mfd-queue-attributes	Q	1setOf(name(127))	R/W
215	minimum-copies-for-split	Q	integer	R/W
216	minimum-pages-for-split	Q	integer	R/W
217	minimum-sets-for-split	Q	integer	R/W
218	number-of-documents	J	integer(0:MAX)	R/O
219	number-up	D	integer(1:MAX)	R/W
220	number-up-default	Q	integer(1:MAX)	R/W
221	number-up-supported	P/Q	1setOf (integer(1:MAX) rangeOfInteger(1:MAX))	R/W
222	operations-supported	P/Q	1setOf enum	R/O
223	opi-image-insertion	D	keyword	R/W
224	opi-image-insertion-default	Q	keyword	R/W
225	opi-image-insertion-supported	P/Q	1setOf keyword	R/W
226	opi-image-pre-scan	D	keyword	R/W
227	opi-image-pre-scan-default	Q	keyword	R/W

	Attribute name	Type	Syntax	R/W
228	opi-image-pre-scan-supported	P/Q	1setOf keyword	R/W
229	orientation-requested	D	enum	R/W
230	orientation-requested-default	Q	enum	R/W
231	orientation-requested-supported	P/Q	1SetOf enum	R/W
232	output-gloss-col	J/D	1setOf collection	R/W
232.1	output-gloss-scope		1setOf keyword	R/W
232.2	output-gloss-level		1setOf keyword	R/W
232.3	output-gloss-scope-supported	P/Q	1setOf keyword	R/W
232.4	output-gloss-level-supported	P/Q	1setOf keyword	R/W
232.5	output-gloss-col-default	Q	1setOf keyword	R/W
232.6	output-gloss-col-supported	P/Q	1setOf keyword	R/W
233	output-bin	D	keyword name	R/W
234	output-bin-default	Q	keyword name	R/W
235	output-bin-supported	P/Q	1SetOf (keyword name)	R/W
236	output-device	J	name(127)	R/W
237	output-device-actual	J	1setOf name	R/O
238	output-device-assigned	D	name(127)	R/O
239	output-device-default	Q	name(127)	R/W
240	output-device-supported	Q	1setOf name	R/W
241	page-delivery	D	keyword	R/W
242	page-delivery-default	Q	keyword	R/W
243	page-delivery-supported	P/Q	1setOf keyword	R/W
244	page-overrides	D	1setOf collection	R/W
244.1	input-documents	D	1setOf rangeOfInteger	R/W
244.2	pages		1setOf rangeOfInteger	R/W
244.3	adjust-bw-darkness-value		integer	R/W
244.4	adjust-contrast		integer(-100:100)	R/W
244.5	adjust-cyan-red		integer(-100:100)	R/W
244.6	adjust-lightness		integer(-100:100)	R/W
244.7	adjust-magenta-green		integer(-100:100)	R/W
244.8	adjust-saturation		integer(-100:100)	R/W
244.9	adjust-yellow-blue		integer(-100:100)	R/W

	Attribute name	Type	Syntax	R/W
244.10	anti-aliasing		keyword	R/W
244.11	black-overprint		keyword	R/W
244.12	color-destination-profile-back		keyword name	R/W
244.13	color-destination-profile-front		keyword name	R/W
244.14	color-effects-type		keyword	R/W
244.15	color-emulation		keyword	R/W
244.16	halftone-graphics		keyword name	R/W
244.17	halftone-images		keyword name	R/W
244.18	halftone-text		keyword name	R/W
244.19	media or media-col		keyword name or (media-col)	R/W
244.20	page-rotation		keyword name	R/W
244.21	rendering-intent-graphics		keyword	R/W
244.22	rendering-intent-images		keyword	R/W
244.23	rendering-intent-text		keyword	R/W
244.24	sides		keyword	R/W
244.25	toner-saver		keyword	R/W
244.26	trapping		keyword	R/W
244.27	trap-width-fast		integer(0:MAX)	R/W
244.28	trap-width-slow		integer(0:MAX)	R/W
244.29	trc		collection	R/W
244.29.1	trc-name		name	R/W
244.30	undefined-source-cmyk-graphics		name	R/W
244.31	undefined-source-cmyk-images		name	R/W
244.32	undefined-source-cmyk-text		name	R/W
244.33	undefined-source-gray-graphics		name	R/W
244.34	undefined-source-gray-images		name	R/W
244.35	undefined-source-gray-text		name	R/W
244.36	undefined-source-rgb-graphics		keyword	R/W
244.37	undefined-source-rgb-images		keyword	R/W
244.38	undefined-source-rgb-text		keyword	R/W
244.39	x-image-shift		integer	R/W
244.40	x-side1-image-shift		integer	R/W

	Attribute name	Type	Syntax	R/W
244.41	x-side2-image-shift		integer	R/W
244.42	y-image-shift		integer	R/W
244.43	y-side1-image-shift		integer	R/W
244.44	y-side2-image-shift		integer	R/W
245	output-gloss-col-supported			
246	page-overrides-supported	P/Q	1setOf keyword	R/O
247	page-ranges	D	1setOf rangeOfInteger(1:MAX)	R/W
248	page-ranges-supported	P/Q	boolean	R/W
249	page-rotation	D	keyword name	R/W
250	page-rotation-default	Q	keyword name	R/W
251	page-rotation-supported	P/Q	1setOf (keyword name)	R/W
252	pages	D	integer	R/W
253	pages-per-subset	D	1setOf integer	R/W
254	pages-per-subset-supported	P/Q	boolean	R/W
255	pantone-path-activation	D	keyword	R/W
256	pantone-path-activation-default	Q	keyword	R/W
257	pantone-path-activation-supported	P/Q	1setOf keyword	R/W
258	pdl-init-file	D	collection	R/W
258.1	pdl-init-file-name		name	R/W
259	pdl-init-file-default	Q	1setOf collection	R/W
260	pdl-init-file-supported	P/Q	1setOf keyword	R/W
261	pdl-init-file-name-supported	P/Q	1setOf name(MAX)	R/W
262	preprocessing-program	J	uri	R/W
263	preprocessing-program-default	Q	uri	R/W
264	preprocessing-program-supported	Q	uri	R/W
265	postprocessing-program	J	uri	R/W
266	postprocessing-program-default	Q	uri	R/W
267	postprocessing-program-supported	Q	uri	R/W
268	primary-printer	J	name(MAX)	R/O
269	printer-controller	P	name(127)	R/O
270	printer-controller-version	P	name(127)	R/O
271	printer-high-watermark	P	integer(0:1000)	R/W

	Attribute name	Type	Syntax	R/W
272	printer-high-watermark-enabled	P	boolean	R/W
273	printer-high-watermark-reached	P	boolean	R/O
274	printer-is-accepting-jobs	P	boolean	R/O
275	printer-location	P	text(127)	R/W
276	printer-low-watermark	P	integer(0:1000)	R/W
277	printer-make-and-model	P	text(127)	R/W
278	printer-name	P	name(127)	R/W
279	printer-network-address	P	name(127)	R/O
280	printer-queue-name	P	name(127)	R/O
281	printer-ready-for-deletion	P	boolean	R/O
282	printer-resolution	D	resolution	R/W
283	printer-resolution-default	Q	resolution	R/W
284	printer-resolution-supported	P/Q	1setOf resolution	R/W
285	printer-secure	P	Boolean	R/O
286	printer-state	P	enum	R/O
287	printer-state-reasons	P	1setOf keyword	R/O
288	printer-up-time	P	integer(1:MAX)	R/O
289	printer-uri	P	uri	R/O
290	printer-vipp-normalization-enabled	P	boolean	R/W
291	proof-print	J	collection	R/W
291.1	proof-print-copies	J	integer	R/W
292	proof-print-copies-completed	J	integer	R/O
293	proof-print-default	Q	collection (proof-print)	R/W
294	proof-print-supported	P/Q	1setOf keyword	R/W
295	provide-output-controls-at-mfd	M	Boolean	R/W
296	queue-all-jobs-pass-through	Q	Boolean	R/W
297	queue-connect-to-all-devices	Q	boolean	R/W
298	queue-date-time-at-creation	Q	dateTime	R/O
299	queue-device-scheduling-method	Q	keyword	R/W
300	queue-device-selection-method	Q	keyword	R/W
301	queue-is-accepting-jobs	Q	boolean	R/O
302	queue-is-holding-new-jobs	Q	Boolean	R/O

	Attribute name	Type	Syntax	R/W
303	queue-is-releasing-jobs	Q	boolean	R/O
304	queue-maximum-job-splits	Q	Integer (1:MAX)	R/W
305	queue-name	Q	name(127)	R/O
306	queue-pause-until-time	Q	dateTime	R/W
307	queue-standby-printer	Q	1setOf name	R/W
308	queued-job-count	P	integer(0:MAX)	R/O
309	queued-job-page-count	P	integer(0:MAX)	R/O
310	queue-name-at-mfd	Q	name(127)	R/W
311	rendering-intent-graphics	D	keyword	R/W
312	rendering-intent-graphics-default	Q	keyword	R/W
313	rendering-intent-graphics-supported	P/Q	1setOf keyword	R/W
314	rendering-intent-images	D	keyword	R/W
315	rendering-intent-images-default	Q	keyword	R/W
316	rendering-intent-images-supported	P/Q	1setOf keyword	R/W
317	rendering-intent-text	D	keyword	R/W
318	rendering-intent-text-default	Q	keyword	R/W
319	rendering-intent-text-supported	P/Q	1setOf keyword	R/W
320	resample-method	D	keyword	R/W
321	resample-method-default	Q	keyword	R/W
322	resample-method-supported	P/Q	1setOf keyword	R/W
323	reset-counter-interval	S	integer(1:MAX)	R/W
324	reset-counter-time	S	date	R/W
325	resource-cleanup	D	keyword 1setOf name	R/W
326	resource-cleanup-default	Q	keyword	R/W
327	resource-cleanup-supported	P/Q	keyword 1setOf name	R/W
328	resource-pre-scan	D	keyword	R/W
329	resource-pre-scan-default	Q	keyword	R/W
330	resource-pre-scan-supported	P/Q	1setOf keyword	R/W
331	sample-set	J	integer(0:MAX)	R/W
332	sample-set-default	Q	integer(0:MAX)	R/W
333	sample-set-supported	P/Q	rangeOfInteger(0:MAX)	R/W

	Attribute name	Type	Syntax	R/W
334	sample-sheet	J	integer(0:MAX)	R/W
335	sample-sheet-default	Q	integer(0:MAX)	R/W
336	sample-sheet-supported	P/Q	rangeOfInteger(0:MAX)	R/W
337	second-printer	J	name(MAX)	R/O
338	secondary-printer-network-address	P	name(127)	R/O
339	secondary-printer-queue-name	P	name(127)	
340	separator-sheets	D	Collection	R/W
340.1	separator-sheet-type		Keyword (slip-sheets only)	
341	separator-sheets-type-supported	P/Q	1setOf (type3 keyword name(MAX))	R/W
342	server-jobs-accepted	S	1setOf server-statistics-col	R/O
343	server-jobs-processed	S	1setOf server-statistics-col	R/O
344	server-k-octets-processed	S	1setOf server-statistics-col	R/O
345	server-maximum-snapshots	S	integer(1:MAX)	R/W
346	server-pages-processed	S	1setOf server-statistics-col	R/O
347	server-snapshot	S	1setOf collection	R/O
347.1	date-time-at-snapshot		date	
347.2	server-jobs-accepted		1setOf server-statistics-col	
347.3	server-jobs-processed		1setOf server-statistics-col	
347.4	server-pages-processed		1setOf server-statistics-col	
347.5	server-k-octets-processed		1setOf server-statistics-col	
348	server-snapshot-interval	S	integer(1:MAX)	R/W
349	server-snapshot-time	S	date	R/W
350	server-statistics-col	S	1setOf collection	
350.1.1	service-type		keyword	
350.2	service-name		Name	
350.3	total-since-last-reset		long	
350.4	total-since-last-installed		long	
351	server-report-interval	S	integer(1:MAX)	R/W
352	server-report-time	S	date	R/W
353	sheet-collate	D	keyword	R/W
354	sheet-collate-default	Q	keyword	R/W

	Attribute name	Type	Syntax	R/W
355	sheet-collate-supported	P/Q	1setOf keyword	R/W
356	sides	D	keyword	R/W
357	sides-default	Q	keyword	R/W
358	sides-supported	P/Q	1SetOf keyword	R/W
359	toner-saver	D	keyword	R/W
360	toner-saver-default	Q	keyword	R/W
361	toner-saver-supported	P/Q	1setOf keyword	R/W
362	total-printing-time	J/D	integer(0:MAX)	R/O
363	trapping	D	keyword	R/W
364	trapping-default	Q	keyword	R/W
365	trapping-supported	P/Q	1setOf keyword	R/W
366	trap-width-fast	D	integer(0:MAX)	R/W
367	trap-width-fast-default	Q	integer(0:MAX)	R/W
368	trap-width-fast-supported	P/Q	rangeOfInteger(0:MAX)	R/W
369	trap-width-slow	D	integer(0:MAX)	R/W
370	trap-width-slow-default	Q	integer(0:MAX)	R/W
371	trap-width-slow-supported	P/Q	rangeOfInteger(0:MAX)	R/W
372	trc	D	collection	R/W
372.1	trc-name		name	R/W
373	trc-default	Q	collection	R/W
374	trc-supported	P/Q	1setOf keyword	R/W
375	trc-name-supported	P/Q	1setOf name(MAX)	R/W
376	undefined-source-cmyk-graphics	D	name	R/W
377	undefined-source-cmyk-graphics-default	Q	name	R/W
378	undefined-source-cmyk-graphics-supported	P/Q	1setOf name	R/W
379	undefined-source-cmyk-images	D	name	R/W
380	undefined-source-cmyk-images-default	Q	name	R/W
381	undefined-source-cmyk-images-supported	P/Q	1setOf name	R/W
382	undefined-source-cmyk-text	D	name	R/W
383	undefined-source-cmyk-text-default	Q	name	R/W

	Attribute name	Type	Syntax	R/W
384	undefined-source-cmyk-text-supported	P/Q	1setOf name	R/W
385	undefined-source-gray-graphics	D	name	R/W
386	undefined-source-gray-graphics-default	Q	name	R/W
387	undefined-source-gray-graphics-supported	P/Q	1setOf name	R/W
388	undefined-source-gray-images	D	name	R/W
389	undefined-source-gray-images-default	Q	name	R/W
390	undefined-source-gray-images-supported	P/Q	1setOf name	R/W
391	undefined-source-gray-text	D	name	R/W
392	undefined-source-gray-text-default	Q	name	R/W
393	undefined-source-gray-text-supported	P/Q	1setOf name	R/W
394	undefined-source-rgb-graphics	D	keyword	R/W
395	undefined-source-rgb-graphics-default	Q	keyword	R/W
396	undefined-source-rgb-graphics-supported	P/Q	1setOf keyword	R/W
397	undefined-source-rgb-images	D	keyword	R/W
398	undefined-source-rgb-images-default	Q	keyword	R/W
399	undefined-source-rgb-images-supported	P/Q	1setOf keyword	R/W
400	undefined-source-rgb-text	D	keyword	R/W
401	undefined-source-rgb-text-default	Q	keyword	R/W
402	undefined-source-rgb-text-supported	P/Q	1setOf keyword	R/W
403	use-job-splitting-threshold-percentage	Q	Boolean	R/W
404	user-defined-values-supported	P/Q	1setOf keywords	R/W
405	vi-container-type	D	keyword	R/W
406	vi-container-type-supported	P/Q	1setOf keyword	R/W
407	x-image-shift	D	integer(MIN:MAX)	R/W
408	x-image-shift-default	Q	integer(MIN:MAX)	R/W
409	x-image-shift-supported	P/Q	rangeOfInteger(MIN:MAX)	R/W
410	x-side1-image-shift	D	integer(MIN:MAX)	R/W

	Attribute name	Type	Syntax	R/W
411	x-side1-image-shift-default	Q	integer(MIN:MAX)	R/W
412	x-side1-image-shift-supported	P/Q	rangeOfInteger(MIN:MAX)	R/W
413	x-side2-image-shift	D	integer(MIN:MAX)	R/W
414	x-side2-image-shift-default	Q	integer(MIN:MAX)	R/W
415	x-side2-image-shift-supported	P/Q	rangeOfInteger(MIN:MAX)	R/W
416	y-image-shift	D	integer(MIN:MAX)	R/W
417	y-image-shift-default	Q	integer(MIN:MAX)	R/W
418	y-image-shift-supported	P/Q	rangeOfInteger(MIN:MAX)	R/W
419	y-side1-image-shift	D	integer(MIN:MAX)	R/W
420	y-side1-image-shift-default	Q	integer(MIN:MAX)	R/W
421	y-side1-image-shift-supported	P/Q	rangeOfInteger(MIN:MAX)	R/W
422	y-side2-image-shift	D	integer(MIN:MAX)	R/W
423	y-side2-image-shift-default	Q	integer(MIN:MAX)	R/W
424	y-side2-image-shift-supported	P/Q	rangeOfInteger(MIN:MAX)	R/W

CLI Error Codes

This table lists all error codes in numeric order.

Error Code	Mnemonic	Error Condition
1	SYNTAX_ERROR	The command was malformed.
2	INFRASTRUCTURE_ERROR	Could not start the infrastructure.
3	DEVICE_CONTAINS_JOBS	Device cannot be deleted because it contains active jobs.
4	DEVICE_DISABLED	Device cannot receive jobs because it is disabled.
5	DEVICE_NOT_AVAILABLE	Device is not available for use.
6	DEVICE_NOT_DISABLED	Device cannot be deleted because it is not disabled.
7	DEVICE_NOT_FOUND	Device was not found (e.g., does not exist on FFOM).
8	DUPLICATE_DEVICE	Device to be created already exists.
9	INVALID_DEVICE_ID	The requested device ID is not valid.
10	DEVICE_ERROR	Unspecified device error.
11	JOB_IN_INVALID_STATE	Job is in the wrong state for the command.
12	JOB_NOT_IN_QUEUE	Job was not found in the specified queue.
13	JOB_ERROR	Unspecified job error.
14	DUPLICATE_QUEUE	Queue to be created already exists.
15	INVALID_QUEUE_ID	The requested queue ID is not valid.
16	QUEUE_NOT_FOUND	Queue was not found (e.g., does not exist on FFOM).
17	QUEUE_CONTAINS_JOBS	Queue cannot be deleted because it contains active jobs.
18	QUEUE_DISABLED	Queue cannot receive jobs because it is disabled.
19	QUEUE_NOT_DISABLED	Queue cannot be deleted because it is not disabled.
20	COMMAND_TIMED_OUT	A timeout occurred trying to access a queue or other service.
21	SERVICE_ERROR	Unspecified service error.
22	INVALID_PARAMETER	The specification of an attribute is invalid.
23	USER_ERROR	User is not authorized to perform the command.
24	GENERAL_ERROR	Unspecified error.
25	DOCUMENT_NOT_FOUND	Document was not found (e.g., does not exist within the specified job).
26	JOB_TICKET_ERROR	File contains an invalid job ticket.

Error Code	Mnemonic	Error Condition
27	UNABLE_TO_GENERATE_RASTER	The view-document command could not generate a JPEG raster image of the document file.
28	LAST_ACTIVE_DOCUMENT	The last active document in a multi-document job cannot be deleted. The job must be deleted.
29	QUEUE_LACKS_DEVICE	No device has been assigned to the queue.
30	MOVE_TO_SAME_QUEUE	The job is attempted to be moved to the same queue.
31	JMF_SERVICE_ERROR	JMF Service is not available
32	DEVICE_NOT_IN_PRT	Device is not defined in the Printer Registration Tool.
33	DOCUMENT_IN_INVALID_STATE	Document is in the wrong state.
34	MFD_REGISTRATION_ERROR	Multifunction device error.
35	SCAN_DISABLED	Multifunction device setup is disabled.
36	CVG_DISABLED	Custom View Group is disabled.
37	INVALID_CVG_GROUP_NAME	Invalid Custom view group name is given.
38	MFD_REGISTRATION_NOT_EXIST	Multifunction Device was not found
39	INVALID_MFD_CREDENTIALS	Invalid credentials or the specified registration does not exist

Finishing Values

This table lists finishing values.

The “Keyword” value may be used instead of the enumerated value.

Note: Not all values are used in FreeFlow Output Manager.

Value	“Keyword”	Symbolic Name and Description
'3'	none	'none': Perform no finishing
'4'	staple	'staple': Bind the document(s) with one or more staples.
'5'	punch	'punch': This value indicates that holes are required.
'6'	cover	'cover': This value is specified when it is desired to select a non-printed (or pre-printed) cover for the document. This does not supplant the specification of a printed cover (on cover stock medium) by the document itself.
'7'	bind	'bind': This value indicates that a binding is to be applied to the document.
'8'	saddle-stitch	'saddle-stitch': Bind the document(s) with one or more staples (wire stitches) along the middle fold.
'9'	edge-stitch	'edge-stitch': Bind the document(s) with one or more staples (wire stitches) along one edge.
'10'	fold	'fold': Fold the document(s) with one or more folds.
'11'	trim	'trim': Trim the document(s) on one or more edges.
'12'	bale	'bale': Bale the document(s).
'13'	booklet-maker	'booklet-maker': Deliver the document(s) to the signature booklet maker. This value is a short cut for specifying a job that is to be folded, trimmed and then saddle-stitched. See also 'booklet-fold-staple'(110) and 'booklet-fold'(111).
'14'	jog-offset	'jog-offset': Shift each copy of an printed document from the previous copy by a small amount.
'20'	staple-top-left	'staple-top-left': Bind the document(s) with one or more staples in the top left corner.
'21'	staple-bottom-left	'staple-bottom-left': Bind the document(s) with one or more staples in the bottom left corner.
'22'	staple-top-right	'staple-top-right': Bind the document(s) with one or more staples in the top right corner.
'23'	staple-bottom-right	'staple-bottom-right': Bind the document(s) with one or more staples in the bottom right corner.
'24'	edge-stitch-left	'edge-stitch-left': Bind the document(s) with one or more staples (wire stitches) along the left edge.
'25'	edge-stitch-top	'edge-stitch-top': Bind the document(s) with one or more staples (wire stitches) along the top edge.

Value	“Keyword”	Symbolic Name and Description
'26'	edge-stitch-right	'edge-stitch-right': Bind the document(s) with one or more staples (wire stitches) along the right edge.
'27'	edge-stitch-bottom	'edge-stitch-bottom': Bind the document(s) with one or more staples (wire stitches) along the bottom edge.
'28'	staple-dual-left	'staple-dual-left': Bind the document(s) with two staples (wire stitches) along the left edge.
'29'	staple-dual-top	'staple-dual-top': Bind the document(s) with two staples (wire stitches) along the top edge.
'30'	staple-dual-right	'staple-dual-right': Bind the document(s) with two staples (wire stitches) along the right edge.
'31'	staple-dual-bottom	'staple-dual-bottom': Bind the document(s) with two staples (wire stitches) along the bottom edge.
'32'	staple-single-center-left	'staple-single-center-left': Bind the document(s) with a single staple (wire stitch) centered along the left edge.
'33'	staple-single-center-top	'staple-single-center-top': Bind the document(s) with a single staple (wire stitch) centered along the top edge.
'34'	staple-single-center-right	'staple-single-center-right': Bind the document(s) with a single staple (wire stitch) centered along the right edge.
'35'	staple-single-center-bottom	'staple-single-center-bottom': Bind the document(s) with a single staple (wire stitch) centered along the bottom edge.
'40'	staple-4-left	'staple-4-left': Bind the document(s) with a four staples (wire stitch) centered along the left edge.
'41'	staple-4-top	'staple-4-top': Bind the document(s) with a four staples (wire stitch) centered along the top edge.
'42'	staple-4-right	'staple-4-right': Bind the document(s) with a four staples (wire stitch) centered along the right edge.
'43'	staple-4-bottom	'staple-4-bottom': Bind the document(s) with a four staples (wire stitch) centered along the bottom edge.
'50'	bind-left	'bind-left': Bind the document(s) along the left edge.
'51'	bind-top	'bind-top': Bind the document(s) along the top edge.
'52'	bind-right	'bind-right': Bind the document(s) along the right edge.
'53'	bind-bottom	'bind-bottom': Bind the document(s) along the bottom edge.
'90'	punch-2-hole	'punch-2-hole': Punch two holes in the document.
'91'	punch-3-hole	'punch-3-hole': Punch three holes in the document.
'92'	punch-4-hole	'punch-4-hole': Punch four holes in the document.
'93'	punch-left	'punch-left': Punch along the left edge.

Value	“Keyword”	Symbolic Name and Description
'94'	punch-top	'punch-top': Punch along the top edge.
'95'	punch-right	'punch-right': Punch along the right edge.
'96'	punch-bottom	'punch-bottom': Punch along the bottom edge.
'90' and '93'	punch-2-hole- left	'punch-2-hole-left': Punch two holes along the left edge.
'90' and '94'	punch-2-hole- top	'punch-2-hole-top': Punch two holes along the top edge.
'90' and '95'	punch-2-hole- right	'punch-2-hole-right': Punch two holes along the right edge.
'90' and '96'	punch-2-hole- bottom	'punch-2-hole-bottom': Punch two holes along the bottom edge.
'91' and '93'	punch-3-hole- left	'punch-3-hole-left': Punch three holes along the left edge.
'91' and '94'	punch-3-hole- top	'punch-3-hole-top': Punch three holes along the top edge.
'91' and '95'	punch-3-hole- right	'punch-3-hole-right': Punch three holes along the right edge.
'91' and '95'	punch-3-hole- bottom	'punch-3-hole-bottom': Punch three holes along the bottom edge.
'92' and '93'	punch-4-hole- left	'punch-4-hole-left': Punch four holes along the left edge.
'92' and '94'	punch-4-hole- top	'punch-4-hole-top': Punch four holes along the top edge.
'92' and '95'	punch-4-hole- right	'punch-4-hole-right': Punch four holes along the right edge.
'92' and '96'	punch-4-hole- bottom	'punch-4-hole-bottom': Punch four holes along the bottom edge.
'110'	booklet-fold- staple	'booklet-fold-staple': Apply booklet making with fold and staples.
'111'	booklet-fold	'booklet-fold': Apply booklet making with only fold.
'254'	coil-punch-left	'coil-punch-left': Punch a row of holes along the left edge suitable for a coil binding on the left edge.
'256'	coil-punch-right	'coil-punch-right': Punch a row of holes along the right edge suitable for a coil binding on the right edge.
'1000'	fold-c-short-in- thirds-sheet	'fold-c-short-in-thirds-sheet': Apply C Tri-Fold to each individual sheet of the document, consisting of two folds per sheet (toward each other, i.e., the 'C' name) across the short dimension of each sheet that are equally-spaced along the long dimension of the sheet.
'1001'	fold-z-short-in- thirds-sheet	'fold-z-short-in-thirds-sheet': Apply Z Tri-Fold to each individual sheet of the document, consisting of two folds (away from each other - 'Z' name) across the short dimension of each sheet that are equally-spaced along the long dimension of the sheet.

Value	“Keyword”	Symbolic Name and Description
'1002'	fold-z-short-sheet	'fold-z-short-sheet': Apply Large Z Fold to each individual sheet of the document, consisting of two folds (away from each other - 'Z' name) across the short dimension of each sheet that are not equally-spaced along the long dimension of the sheet.
'1003'	fold-bi-short-edge-single-sheet-concave	'fold-bi-short-edge-single-sheet-concave': Apply a Bi-Fold to each single sheet of the document, consisting of one concave fold parallel to the short edge of each sheet that is placed midway along the long edge of the sheet. Side one of the sheet will be the inside of the folded piece.
'1004'	fold-bi-short-edge-single-sheet-convex	'fold-bi-short-edge-single-sheet-convex': Apply a Bi-Fold to each single sheet of the document, consisting of one convex fold parallel to the short edge of each sheet that is placed midway along the long edge of the sheet. Side one of the sheet will be the outside of the folded piece.
'1005'	fold-c-short-edge-bottom-in-thirds-single-sheet-convex	'fold-c-short-edge-bottom-in-thirds-single-sheet-convex': Apply C Tri-Fold to each sheet of the document, consisting of two folds per sheet (toward each other, i.e. the 'C' name) parallel to the short edge with the 1st (inner) fold performed by the device nearest the bottom of the sheet (in the CPSS coordinate system) with both folds being convex with respect to Side one of the sheet. The folds appear to be equally-spaced along the long edge of the sheet.
'1006'	fold-c-short-edge-top-in-thirds-single-sheet-concave	'fold-c-short-edge-top-in-thirds-single-sheet-concave': Apply C Tri-Fold to each single sheet of the document, consisting of two folds per sheet (toward each other, i.e. the 'C' name) parallel to the short edge with the 1st (inner) fold performed by the device nearest the top (in the CPSS coordinate system) with both folds being concave with respect to Side one of the sheet. The folds appear to be equally-spaced along the long edge of the sheet.
'1007'	fold-c-short-edge-top-in-thirds-single-sheet-convex	'fold-c-short-edge-top-in-thirds-single-sheet-convex': Apply C Tri-Fold to each single sheet of the document, consisting of two folds per sheet (toward each other, i.e. the 'C' name) parallel to the short edge with the 1st (inner) fold performed by the device nearest the top of the sheet (in the CPSS coordinate system) with both folds being convex with respect to Side one of the sheet. The folds appear to be equally-spaced along the long edge of the sheet.
'1008'	fold-z-short-edge-top-in-half-single-sheet-concave	'fold-z-short-edge-top-in-half-single-sheet-concave': Apply Large Z Fold to each single sheet of the document, consisting of two folds (away from each other - 'Z' name) parallel to and closest to the bottom short edge of each sheet with the fold nearest the top (in the CPSS coordinate system) being concave with respect to Side one of the sheet. The folds appear to be not equally-spaced along the long edge of the sheet. This fold is typically applied to large media.
'1009'	fold-z-short-edge-top-in-half-single-sheet-convex	'fold-z-short-edge-top-in-half-single-sheet-convex': Apply Large Z Fold to each sheet of the document, consisting of two folds (away from each other - 'Z' name) parallel to and closest to the bottom short edge of each sheet with the fold nearest the top (in the CPSS coordinate system) being convex with respect to Side one of the sheet. The folds appear to be not equally-spaced along the long dimension of the sheet. This fold is typically applied to large media.

Value	“Keyword”	Symbolic Name and Description
'1010'	fold-z-short-edge-bottom-in-half-single-sheet-concave	'fold-z-short-edge-top-in-half-single-sheet-concave': Apply Large Z Fold to each single sheet of the document, consisting of two folds (away from each other - 'Z' name) parallel to and closest to the top short edge of each sheet with the fold nearest the top (in the CPSS coordinate system) being concave with respect to Side one of the sheet. The folds appear to be not equally-spaced along the long edge of the sheet. This fold is typically applied to large media.
'1011'	fold-z-short-edge-bottom-in-half-single-sheet-convex	'fold-z-short-edge-top-in-half-single-sheet-convex': Apply Large Z Fold to each sheet of the document, consisting of two folds (away from each other - 'Z' name) parallel to and closest to the bottom short edge of each sheet with the fold nearest the top (in the CPSS coordinate system) being convex with respect to Side one of the sheet. The folds appear to be not equally-spaced along the long edge of the sheet. This fold is typically applied to large media.
'1012'	fold-z-short-edge-in-thirds-single-sheet-convex	'fold-z-short-edge-top-in-thirds-single-sheet-convex': Apply Z Tri-Fold to each individual sheetsingle sheet of the document, consisting of two folds per sheet (away from each other - hence the 'Z' name) parallel to the short edge with the fold nearest the top (in the CPSS coordinate system) being convex with respect to Side oneSide one of the sheet.across the short dimension of each sheet that are The folds appear to be equally-spaced along the long dimension edge of the sheet.
'1013'	fold-z-short-edge-top-variable-single-sheet-convex	'fold-z-short-edge-bottom-variable-single-sheet-convex': Apply Z Fold to each single sheet of the document, consisting of two folds (away from each other - hence the 'Z' name) parallel to the short edge with the fold nearest the top (in the CPSS coordinate system) being convex with respect to Side one of the sheet. The folds appear to be not equally-spaced along the long edge of the sheet with the larger portion being nearest the top.
'1014'	fold-z-short-edge-bottom-variable-single-sheet-concave	'fold-z-short-edge-top-variable-single-sheet-concave': Apply Z Fold to each single sheet of the document, consisting of two folds (away from each other - hence the 'Z' name) parallel to the short edge with the fold nearest the top (in the CPSS coordinate system) being concave with respect to Side one of the sheet. The folds appear to be not equally-spaced along the long edge of the sheet with the larger portion being nearest the bottom.
'1015'	fold-z-short-edge-bottom-variable-single-sheet-convex	'fold-z-short-edge-top-variable-single-sheet-convex': Apply Z Fold to each single sheet of the document, consisting of two folds (away from each other - hence the 'Z' name) parallel to the short edge with the fold nearest the top (in the CPSS coordinate system) being convex with respect to Side one of the sheet. The folds appear to be not equally-spaced along the long edge of the sheet with the larger portion being nearest the bottom.

Media Values

This lists all commonly used media values.

Media	Description
'iso-a0'	Specifies the ISO A0 size: 841 mm by 1189 mm as defined in ISO 216
'iso-a1'	Specifies the ISO A1 size: 594 mm by 841 mm as defined in ISO 216
'iso-a2'	Specifies the ISO A2 size: 420 mm by 594 mm as defined in ISO 216
'iso-a3'	Specifies the ISO A3 size: 297 mm by 420 mm as defined in ISO 216
'iso-a4'	Specifies the ISO A4 size: 210 mm by 297 mm as defined in ISO 216
'iso-a5'	Specifies the ISO A5 size: 148 mm by 210 mm as defined in ISO 216
'iso-a6'	Specifies the ISO A6 size: 105 mm by 148 mm as defined in ISO 216
'iso-a7'	Specifies the ISO A7 size: 74 mm by 105 mm as defined in ISO 216
'iso-a8'	Specifies the ISO A8 size: 52 mm by 74 mm as defined in ISO 216
'iso-a9'	Specifies the ISO A9 size: 37 mm by 52 mm as defined in ISO 216
'iso-a10'	Specifies the ISO A10 size: 26 mm by 37 mm as defined in ISO 216
'iso-b0'	Specifies the ISO B0 size: 1000 mm by 1414 mm as defined in ISO 216
'iso-b1'	Specifies the ISO B1 size: 707 mm by 1000 mm as defined in ISO 216
'iso-b2'	Specifies the ISO B2 size: 500 mm by 707 mm as defined in ISO 216
'iso-b3'	Specifies the ISO B3 size: 353 mm by 500 mm as defined in ISO 216
'iso-b4'	Specifies the ISO B4 size: 250 mm by 353 mm as defined in ISO 216
'iso-b5'	Specifies the ISO B5 size: 176 mm by 250 mm as defined in ISO 216
'iso-b6'	Specifies the ISO B6 size: 125 mm by 176 mm as defined in ISO 216
'iso-b7'	Specifies the ISO B7 size: 88 mm by 125 mm as defined in ISO 216
'iso-b8'	Specifies the ISO B8 size: 62 mm by 88 mm as defined in ISO 216
'iso-b9'	Specifies the ISO B9 size: 44 mm by 62 mm as defined in ISO 216
'iso-b10'	Specifies the ISO B10 size: 31 mm by 44 mm as defined in ISO 216
'iso-a4-wide'	Specifies the ISO A4 cover size: 223 mm by 297 mm
'na-letter'	Specifies the North American letter size: 8.5 inches by 11 inches
'na-letter-cover'	Specifies the North American letter cover size: 9 inches by 11 inches
'na-legal'	Specifies the North American legal size: 8.5 inches by 14 inches

Media	Description
'jp-reply-postcard'	Specifies the Ofuku-Hagaki postcard size: 148 mm x 200 mm
'na-postcard'	Specifies the North American postcard size: 4.5 inches x 6 inches
'na-8x10'	Specifies the North American 8 inches by 10 inches
'na-5x7'	Specifies the North American 5 inches by 7 inches
'taiwan-815'	Specifies the 815 Taiwan size: 267 mm x 388 mm
'iso-220x330'	Specifies the ISO 220 mm by 330 mm
'executive'	Specifies the executive size: 7.25 X 10.5 in
'folio'	Specifies the folio size: 8.5 X 13 in
'invoice'	Specifies the invoice size: 5.5 X 8.5 in
'ledger'	Specifies the ledger size: 11 X 17 in
'quarto'	Specifies the quarto size: 8.5 X 10.83 in
'iso-c3'	Specifies the ISO C3 size: 324 mm by 458 mm as defined in ISO 269
'iso-c4'	Specifies the ISO C4 size: 229 mm by 324 mm as defined in ISO 269
'iso-c5'	Specifies the ISO C5 size: 162 mm by 229 mm as defined in ISO 269
'iso-c6'	Specifies the ISO C6 size: 114 mm by 162 mm as defined in ISO 269
'iso-designated-long'	Specifies the ISO Designated Long size: 110 mm by 220 mm as defined in ISO 269
'na-10x13-envelope'	Specifies the North American 10x13 size: 10 inches by 13 inches
'na-9x12-envelope'	Specifies the North American 9x12 size: 9 inches by 12 inches
'na-number-10-envelope'	Specifies the North American number 10 business envelope size: 4.125 inches by 9.5 inches
'jis-b0'	Specifies the JIS B0 size: 1030mm x 1456mm
'jis-b1'	Specifies the JIS B1 size: 728mm x 1030mm
'jis-b2'	Specifies the JIS B2 size: 515mm x 728mm
'jis-b3'	Specifies the JIS B3 size: 364mm x 515mm
'jis-b4'	Specifies the JIS B4 size: 257mm x 364mm
'jis-b5'	Specifies the JIS B5 size: 182mm x 257mm
'jis-b6'	Specifies the JIS B6 size: 128mm x 182mm
'jis-b7'	Specifies the JIS B7 size: 91mm x 128mm
'jis-b8'	Specifies the JIS B8 size: 64mm x 91mm

Media	Description
'jis-b9'	Specifies the JIS B9 size: 45mm x 64mm
'jis-b10'	Specifies the JIS B10 size: 32mm x 45mm

XOMPDLANA Script

As examples of an FFOM preprocessor script, this appendix lists the FFOM PDL analysis script, xompdana.

xompdana script

```
@ECHO OFF
::/*****
:: Copyright © 2004-2005 Xerox Corporation. All rights reserved.
::/*****/
::/*
:: * xompdana.bat
:: *
:: * Description: Pre-processing script for OutputManager.
:: */

        SETLOCAL
        SET
        PATH=%EOMS_DIR%bin;%EOMS_DIR%lib;%EOMS_DIR%scripts/
        vitAnalyser;%PATH%

::/* To enable logging feature, set LOGGING to TRUE */

        SET LOGGING=FALSE
        SET LOGFILE=" "

        FOR /F "TOKENS=1,2 DELIMS==:" %%A IN ("%1") DO SET
logFileName=%%B

        IF %LOGGING% == TRUE SET
LOGFILE="%EOMS_DIR%scripts/vitAnalyser/%logFileName%.log"
        IF %LOGGING% == TRUE ECHO "[
*****
** ]" > %LOGFILE%
        IF %LOGGING% == TRUE ECHO "[ Main | Entering the script
xompdana.bat ]" >> %LOGFILE%
```

```

:/***** Store the queid:jobid in jobID *****/

        SET jobID=%1
        SET space=" "
        SET colon=:

:/***** The number of documents submitted for print are determined here. *****/

        SET lc_xomgetjob='xomgetjob
        SET lc_xomgetjob=%lc_xomgetjob%%space:="%
        SET lc_xomgetjob=%lc_xomgetjob%%jobID%
        SET lc_xomgetjob=%lc_xomgetjob% -x "number-of-documents"

                IF %LOGGING% == TRUE (
                        ECHO "[ Main | Preprocessing the job: %jobID% ]"
>> %LOGFILE%
                                ECHO "[ Main | Executing the command:
%lc_xomgetjob% to get the number of documents.]" >> %LOGFILE%
                                )

                FOR /F "TOKENS=1,2 DELIMS==" %%A IN (%lc_xomgetjob%)
DO SET numberOfDocs=%%B

                IF %LOGGING% == TRUE ECHO "[ Main | numberOfDocs:
%numberOfDocs% ]" >> %LOGFILE%

:/******
: * Determine the documentFormat, pageCount and colorContent of the
document
: * using the CLI "xomgetdoc". This is executed for numberOfDocs number of
times.
.. *****/
..

        SET /a docNum=0
        SET startValue=1
        SET /a endValue=%numberOfDocs%-1

                FOR /L %%A IN (%startValue%,1,%endValue%) DO (CALL
:lblProcessJob %%A)

:lblProcessJob

        SET Three_in_One=1
        SET bFormatExists=TRUE
        SET bPgcntExists=TRUE
        SET bColorTypeExists=TRUE
        SET bDocSetsExists=TRUE

```

```

SET bViTypeExists=TRUE
SET bCopiesExists=TRUE

SET /a docNum+=1
SET docID=%jobID%%colon%%docNum%

IF %LOGGING% == TRUE ECHO "[ IblProcessJob |
Processing the document: %docID% ]" >> %LOGFILE%

SET lc_xomgetdoc='xomgetdoc
SET lc_xomgetdoc=%lc_xomgetdoc%%space:"=%%docID%
SET lc_xomgetdoc=%lc_xomgetdoc% -x "document-
format,pages,document-color,document-sets,vi-container-type,copies"

IF %LOGGING% == TRUE ECHO "[ IblProcessJob |
Executing the command: %lc_xomgetdoc% ]" >> %LOGFILE%

SET /a lineNum=1
FOR /F "tokens=*" %%A IN (%lc_xomgetdoc%) DO (CALL
:lblFetchValues "%%A")
GOTO :EOF

:lblFetchValues

SET lineStr=%1

IF %LOGGING% == TRUE ECHO "[ IblProcessJob |
Reading xomgetdoc output, line: %lineNum%, lineStr: %lineStr% ]" >>
%LOGFILE%

IF %lineNum% == 1 SET docFormat=%lineStr%
IF %lineNum% == 2 SET pageCount=%lineStr%
IF %lineNum% == 3 SET colorType=%lineStr%
IF %lineNum% == 4 SET documentSets=%lineStr%
IF %lineNum% == 5 SET viContainerType=%lineStr%
IF %lineNum% == 6 SET copies=%lineStr%
IF %lineNum% == 6 GOTO :lblProcessDoc

SET /a lineNum += 1
GOTO :EOF

:lblProcessDoc

:*/
*****
:: * Extract the values of document-format, pages, document-color,
document-sets,

```

```

        :: * vi-container-type and set those values to docFormat,
pageCount, colorType,
        :: * documentSets, viContainerType respectively.
        ::
        ::
*****/

        IF %LOGGING% == TRUE (
            ECHO "[ lblProcessDoc | Before extracting the
values from xomgetdoc output: ]" >> %LOGFILE%
            ECHO "[ lblProcessDoc |--- docFormat:
%docFormat% ]" >> %LOGFILE%
            ECHO "[ lblProcessDoc |--- pageCount:
%pageCount% ]" >> %LOGFILE%
            ECHO "[ lblProcessDoc |--- colorType:
%colorType% ]" >> %LOGFILE%
            ECHO "[ lblProcessDoc |--- copies:%copies% ]" >>
%LOGFILE%
            ECHO "[ lblProcessDoc |--- documentSets:
%documentSets% ]" >> %LOGFILE%
            ECHO "[ lblProcessDoc |--- viContainerType:
%viContainerType% ]" >> %LOGFILE%
        )

        FOR /F "TOKENS=1,2 DELIMS==" %%A IN (%docFormat%) DO
(SET fmtStr="%%B")
        IF %fmtStr% == "" (
            SET bFormatExists=FALSE
        ) ELSE (
            SET docFormat=%fmtStr%
        )

        FOR /F "TOKENS=1,2 DELIMS==" %%A IN (%pageCount%) DO
(SET pcStr="%%B")
        IF %pcStr% == "" (
            SET bPgcntExists=FALSE
        ) ELSE (
            SET pageCount=%pcStr%
        )

        FOR /F "TOKENS=1,2 DELIMS==" %%A IN (%colorType%) DO
(SET ctStr="%%B")
        IF %ctStr% == "" (
            SET bColorTypeExists=FALSE
        ) ELSE (
            SET colorType=%ctStr%
        )

        FOR /F "TOKENS=1,2 DELIMS==" %%A IN (%documentSets%)
DO (SET dsStr="%%B")

```

```

        IF %dsStr% == "" (
            SET bDocSetsExists=FALSE
        ) ELSE (
            SET documentSets=%dsStr%
        )
    )

    FOR /F "TOKENS=1,2 DELIMS==" %%A IN (%viContainerType%)
    DO (SET vtStr="%%B")
        IF %vtStr% == "" (
            SET bViTypeExists=FALSE
        ) ELSE (
            SET viContainerType=%vtStr%
        )
    )

    FOR /F "TOKENS=1,2 DELIMS==" %%A IN (%copies%) DO (SET
vtStr="%%B")
        IF %vtStr% == "" (
            SET bCopiesExists=FALSE
        ) ELSE (
            SET copies=%vtStr%
        )
    )

    IF %LOGGING% == TRUE (
        ECHO "[ lblProcessDoc | After extracting the values
from xomgetdoc output ]" >> %LOGFILE%
        ECHO "[ lblProcessDoc |--- docFormat:
%docFormat%, bFormatExists: %bFormatExists% ]" >> %LOGFILE%
        ECHO "[ lblProcessDoc |--- pageCount:
%pageCount%, bPgcntExists: %bPgcntExists% ]" >> %LOGFILE%
        ECHO "[ lblProcessDoc |--- colorType:
%colorType%, bColorTypeExists: %bColorTypeExists% ]" >> %LOGFILE%
        ECHO "[ lblProcessDoc |--- documentSets:
%documentSets%, bDocSetsExists: %bDocSetsExists% ]" >> %LOGFILE%
        ECHO "[ lblProcessDoc |--- viContainerType:
%viContainerType%, bViTypeExists: %bViTypeExists% ]" >> %LOGFILE%
        ECHO "[ lblProcessDoc |--- copies: %copies%,
bCopiesExists: %bCopiesExists% ]" >> %LOGFILE%
    )

    ::/***** Fetch the filename by invoking xomcpfdoc *****/

    SET lc_xomcpfdoc='xomcpfdoc
    SET lc_xomcpfdoc=%lc_xomcpfdoc% %space:="=
    SET lc_xomcpfdoc=%lc_xomcpfdoc%%docID%
    SET lc_xomcpfdoc=%lc_xomcpfdoc%'

    IF %LOGGING% == TRUE ECHO "[ lblProcessDoc |
Executing the command: %lc_xomcpfdoc% to fetch file name ]" >> %LOGFILE%

```

```

FOR /F "TOKENS=*" %%A IN (%lc_xomcpfdoc%) DO SET
filename=%%A

IF %LOGGING% == TRUE ECHO "[ lblProcessDoc |
filename: %filename% ]" >> %LOGFILE%

::/
*****
:: * Invoke the PDL guesser application to find the document-format
and
:: * document-color(if exists) of the document.
::
*****/

SET lc_xomguepdl='xomguepdl.exe
SET lc_xomguepdl=%lc_xomguepdl%%space:="%%filename%
SET lc_xomguepdl=%lc_xomguepdl% -j %jobID%'

IF %LOGGING% == TRUE ECHO "[ lblProcessDoc |
Executing the command: %lc_xomguepdl% ]" >> %LOGFILE%

FOR /F "TOKENS=1,2 DELIMS=, " %%A IN (%lc_xomguepdl%)
DO (
    SET guepdlFormat=%%A
    SET guepdlColor=%%B
)

IF %LOGGING% == TRUE (
    ECHO "[ lblProcessDoc | Output from xomguepdl: ]"
>> %LOGFILE%
    ECHO "[ lblProcessDoc |-- guepdlFormat:
%guepdlFormat% ]" >> %LOGFILE%
    ECHO "[ lblProcessDoc |-- guepdlColor:
%guepdlColor% ]" >> %LOGFILE%
)

:: /***** set the -p option of xomcntpgs *****/

IF %guepdlFormat% == application/postscript SET
cntpgsOption=PS
IF %guepdlFormat% == application/pdf SET cntpgsOption=PDF
IF %guepdlFormat% == application/vnd.hp-PCL SET
cntpgsOption=PCL
IF %guepdlFormat% == application/pclxl SET
cntpgsOption=PCLXL
IF %guepdlFormat% == image/tiff SET cntpgsOption=TIFF

IF %LOGGING% == TRUE (
    IF DEFINED cntpgsOption ECHO "[ lblProcessDoc |
xomcntpgs -p option has been set to %cntpgsOption% ]" >> %LOGFILE%
)

```

```

PCL *****/
:: /***** If the format is application/pclxl, set it as application/vnd.hp-
PCL *****/

IF %guepdFormat% == application/pclxl SET
guepdFormat=application/vnd.hp-PCL

::/* If the format is application/octet-stream, check if it is vi-
container.
:: xomguepdI generally reports application/octet-stream for vi-
containers */

IF %guepdFormat% == application/octet-stream (
    GOTO :lblCheckWithVI
) ELSE (
    GOTO :lblValidateFormat
)

:lblCheckWithVI

::/
*****
:: * Check if the document is a vi Container
:: * Expect either of the following output on executing
xomvitana.bat
:: * --> application/vnd.xerox-VI-project-container,<document-
sets>,<document-type>
:: * --> unknown
::
*****/

SET lc_xomvitana='xomvitana.bat'
SET lc_xomvitana=%lc_xomvitana%%space:="%%filename%'

IF %LOGGING% == TRUE ECHO "[ lblCheckWithVI |
Executing the command: %lc_xomvitana% ]" >> %LOGFILE%

DO (
    FOR /F "TOKENS=1,2,3 DELIMS=, " %%A IN (%lc_xomvitana%)
        SET viFormat=%%A
        SET docSets=%%B
        SET viType=%%C
    )

IF %LOGGING% == TRUE (
    ::ECHO "[ lblCheckWithVI | Output from xomvitana:
%lc_xomvitana% ]" >> %LOGFILE%
)

```

```

] " >> %LOGFILE%           ECHO "[ lblCheckWithVI |--- viFormat: %viFormat%
] " >> %LOGFILE%           ECHO "[ lblCheckWithVI |--- docSets: %docSets%
>> %LOGFILE%               ECHO "[ lblCheckWithVI |--- viType: %viType% ]"
)

::/
*****
:: * Validate the existing document-format (if set) with the result of
xomvitana.
:: * If mismatch occurs then need not process the document. Just
Leave it untouched.
:: * Otherwise, set the missing attributes.
::
*****/

::/***** If the document is not a vi container, do the regular
processing *****/

(
    IF NOT %viFormat% == application/vnd.xerox-VI-project-container
        GOTO :lblValidateFormat
)

::/***** If format doesn't exist, Just go ahead *****/

IF %bFormatExists% == FALSE SET Three_in_One=document-
format=%viFormat%

    IF %LOGGING% == TRUE (
        IF %bFormatExists% == FALSE ECHO "[
lblCheckWithVI | Three_in_One: %Three_in_One% ]" >> %LOGFILE%
    )

IF %bFormatExists% == FALSE GOTO :lblSetViDocSets

::/***** Else if format exists, validate it. *****/

IF %LOGGING% == TRUE (
    ECHO "[ lblCheckWithVI | document-format already exists
] " >> %LOGFILE%
    ECHO "[ lblCheckWithVI | Existing document-format:
%docFormat% ]" >> %LOGFILE%
)

```

```

        ECHO "[ lblCheckWithVI | Result from xomvitana:
%viFormat% ]" >> %LOGFILE%
        IF NOT %docFormat% == "%viFormat%" ECHO "[
lblCheckWithVI | Mismatch Occurred, going to lblsEnd ]" >> %LOGFILE%
    )

    IF %docFormat% == "%viFormat%" (
        GOTO :lblSetViDocSets
    ) ELSE (
        GOTO :lblsEnd
    )

:lblSetViDocSets

    IF %bDocSetsExists% == TRUE (
        GOTO :lblSetViType
    )

    SET posVal=%Three_in_One:~0,1%

    IF %posVal% == 1 (
        SET Three_in_One=document-sets=%docSets%
    ) ELSE (
        SET Three_in_One=%Three_in_One%,document-
sets=%docSets%
    )

        IF %LOGGING% == TRUE ECHO "[
lblSetViDocSets | Three_in_One: %Three_in_One% ]" >> %LOGFILE%

        GOTO :lblSetViType

:lblSetViType

    IF %bViTypeExists% == TRUE (
        IF %Three_in_One:~0,1% == 1 (
            GOTO :lblsEnd
        ) ELSE (
            GOTO :lblSetJobAttributes
        )
    )

    SET posVal=%Three_in_One:~0,1%

```

```

        IF %posVal% == 1 (
            SET Three_in_One=vi-container-type=%viType%
        ) ELSE (
            SET Three_in_One=%Three_in_One%,vi-
container-type=%viType%
        )

        IF %LOGGING% == TRUE (
            ECHO "[ lblSetViType | Three_in_One:
%Three_in_One% ]" >> %LOGFILE%
        )

        GOTO :lblSetJobAttributes

:lblValidateFormat

        :/
*****
        :: * Validate the existing document-format (if set) with the result of
xomguepdl.
        :: * If mismatch occurs then need not process the document. Just
Leave it untouched.
        :: * Otherwise, set the missing attributes.
        ::
*****/

        :/***** If format doesn't exists , set the document-format and go
ahead *****/

        IF %bFormatExists% == FALSE SET Three_in_One=document-
format=%guepdlFormat%

        IF %LOGGING% == TRUE (
            ECHO "[ lblValidateFormat | Three_in_One:
%Three_in_One% ]" >> %LOGFILE%
        )

        IF %bFormatExists% == FALSE GOTO :lblProcessPageCnt

        :/***** Else if format exists, validate it. *****/

        IF %LOGGING% == TRUE (
            ECHO "[ lblValidateFormat | document-format
already exists ]" >> %LOGFILE%
            ECHO "[ lblValidateFormat | Existing document-
format: %docFormat% ]" >> %LOGFILE%

```

```

                                ECHO "[ lblValidateFormat | Result from
xomguedpl: %guedplFormat% ]" >> %LOGFILE%
                                IF NOT %docFormat% == "%guedplFormat%"
ECHO "[ lblValidateFormat | Mismatch Occurred, going to lblsEnd ]" >>
%LOGFILE%
                                )

                                IF %docFormat% == "%guedplFormat%" (
                                    GOTO :lblProcessPageCnt
                                ) ELSE (
                                    GOTO :lblsEnd
                                )

:lblProcessPageCnt

                                IF %guedplFormat% == text/plain GOTO :lblSetJobAttributes
                                IF %guedplFormat% == application/octet-stream GOTO
:lblSetJobAttributes
                                IF %guedplFormat% == image/jpeg GOTO :lblSetJobAttributes

                                IF %bPgcntExists% == TRUE GOTO :lblSetColor

                                ::/***** Invoke xomcntpgs to find pageCount and
copyCount*****/
                                SET lc_xomcntpgs='xomcntpgs.exe
                                SET lc_xomcntpgs=%lc_xomcntpgs%%space:"=%%filename%
                                SET lc_xomcntpgs=%lc_xomcntpgs%%space:"=% -
p%cntpgsOption%
                                SET lc_xomcntpgs=%lc_xomcntpgs% %jobID%'

                                IF %LOGGING% == TRUE ECHO "[ lblProcessPageCnt |
Executing the command: %lc_xomcntpgs% ]" >> %LOGFILE%

                                FOR /F "TOKENS=1,2 DELIMS=, " %%A IN (%lc_xomcntpgs%)
DO (
                                    SET cntpgsResult=%%A
                                    SET copyCntResult=%%B
                                )

                                IF %LOGGING% == TRUE (
                                    ECHO "[ lblProcessPageCnt | Output from
xomcntpgs: ]" >> %LOGFILE%
                                    ECHO "[ lblProcessPageCnt | cntpgsResult:
%cntpgsResult%]" >> %LOGFILE%
                                )

```

```

        ECHO "[ IblProcessPageCnt | copyCntResult:
%copyCntResult% ]" >> %LOGFILE%
    )

    IF %cntpgsResult% == Error GOTO :IblErrorHndlr
    IF %cntpgsResult% == Invalid GOTO :IblErrorHndlr
    IF %copyCntResult% == Error GOTO :IblErrorHndlr
    IF %copyCntResult% == Invalid GOTO :IblErrorHndlr
    IF %cntpgsResult% == 0 GOTO :IblSetColor

        IF %LOGGING% == TRUE ECHO "[ IblProcessPageCnt |
going to IblSetPgCnt ]" >> %LOGFILE%

    GOTO :IblSetPgcnt

:IblSetPgcnt

    SET posVal=%Three_in_One:~0,2%

    IF %posVal% == 1 (
        IF %copyCntResult% == 0 (
            SET Three_in_One=pages=%cntpgsResult%
        ) ELSE (

            IF %bCopiesExists% == TRUE (
                SET
Three_in_One=pages=%cntpgsResult%
            ) ELSE (
                SET
Three_in_One=pages=%cntpgsResult%,copies=%copyCntResult%
            )
        )
    ) ELSE (
        IF %copyCntResult% == 0 (
            SET
Three_in_One=%Three_in_One%,pages=%cntpgsResult%
        ) ELSE (
            IF %bCopiesExists% == TRUE (
                SET
Three_in_One=%Three_in_One%,pages=%cntpgsResult%
            ) ELSE (
                SET
Three_in_One=%Three_in_One%,pages=%cntpgsResult%,copies=%copyCntRe
sult%
            )
        )
    )
)

```

```

        IF %LOGGING% == TRUE ECHO "[ lblSetPgcnt | Three_in_one:
%Three_in_one% ]" >> %LOGFILE%

        GOTO :lblSetColor

:lblSetColor

        IF %bColorTypeExists% == TRUE GOTO :lblSetJobAttributes

        :: /***** Color guessing support exists for postscript and pdf formats
only *****/

        SET bColorFormat=FALSE
        IF %guepdlFormat% == application/postscript SET
bColorFormat=TRUE
        IF %guepdlFormat% == application/pdf SET bColorFormat=TRUE

        :: /** If the document color cannot be guessed or color is unknown
goto lblSetJobAttributes **/

        IF %bColorFormat% == FALSE GOTO :lblSetJobAttributes
        IF %guepdlColor% == unknown GOTO :lblSetJobAttributes

        SET posVal=%Three_in_One:~0,1%

        IF %posVal% == 1 (
            SET Three_in_One=document-color=%guepdlColor%
        ) ELSE (
            SET Three_in_One=%Three_in_One%,document-
color=%guepdlColor%
        )

        IF %LOGGING% == TRUE ECHO "[ lblSetColor |
Three_in_one: %Three_in_one% ]" >> %LOGFILE%

        GOTO :lblSetJobAttributes

: /*****
:: * After finding the documentFormat, pageCount and colorContent of the
document,
:: * these attributes are set to the document.
:: * If any of the attributes already exists, they are untouched.
:: * If format exists, it is validated against the result of xomguepdl.
:: * If the validation fails, the attributes are untouched.
:: * If the validation passes, only the missing attributes are set.
.. *****/

```

:lblSetJobAttributes

```

SET posVal=%Three_in_One:~0,1%
IF %posVal% == 1 GOTO :lblsEnd

SET Three_in_One="%Three_in_One%"

IF %LOGGING% == TRUE ECHO "[ lblSetJobAttributes |
Three_in_one: %Three_in_one% ]" >> %LOGFILE%

SET lc_xomsetdoc='xomsetdoc
SET lc_xomsetdoc=%lc_xomsetdoc%%space:"=%%docID%
SET lc_xomsetdoc=%lc_xomsetdoc%%space:"=%-x
%Three_in_One%'

IF %LOGGING% == TRUE ECHO "[ lblSetJobAttributes |
Executing the command: %lc_xomsetdoc% ]" >> %LOGFILE%

FOR /F "TOKENS=*" %%A IN (%lc_xomsetdoc%) DO SET
tmpvar=%%A

IF %LOGGING% == TRUE ECHO "[ lblSetJobAttributes |
tmpvar: %tmpvar% ]" >> %LOGFILE%

GOTO :lblsEnd

```

:lblsEnd

```

IF %LOGGING% == TRUE (
    ECHO "[ lblsEnd | numberofDocs:
%numberofDocs%, docNum: %docNum% ]" >> %LOGFILE%
    IF %numberofDocs% == %docNum% ECHO "[
lblsEnd | finished processing all the documents, calling xomendpro ]" >>
%LOGFILE%
)

IF %numberofDocs% == %docNum% (
    GOTO :lblEnd
) ELSE (
    GOTO :EOF
)

```

:lblErrorHndlr

```

SET lc_xomendpro='xomendpro -e
SET lc_xomendpro=%lc_xomendpro%%space:"=%%jobID%'

```

```
        IF %LOGGING% == TRUE ECHO "[ lblErrorHndlr |
Executing the command: %lc_xomendpro% ]" >> %LOGFILE%

        FOR /F "TOKENS=*" %%A IN (%lc_xomendpro%) DO (SET
retCode=%%A)

        IF %LOGGING% == TRUE ECHO "[ lblErrorHndlr | Exiting
the script xomplana.bat ]" >> %LOGFILE%

        ENDLOCAL
        EXIT /B

:lblEnd

        SET lc_xomendpro='xomendpro
        SET lc_xomendpro=%lc_xomendpro%%space:="%%jobID%'

        IF %LOGGING% == TRUE ECHO "[ lblEnd | Executing the
command: %lc_xomendpro% ]" >> %LOGFILE%

        FOR /F "TOKENS=*" %%A IN (%lc_xomendpro%) DO (SET
retCode=%%A)

        IF %LOGGING% == TRUE ECHO "[ lblEnd | Exiting the
script xomplana.bat ]" >> %LOGFILE%

        ENDLOCAL
        EXIT /B
```


