



Outputware *ONLINE Documentation*

Xprint V6.0

Reference Manual

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1 Preface

Xprint V6.0 is the output management system developed by Océ Software Laboratories S.A. for use in heterogeneous networks. It is available for many open system platforms and for Microsoft Windows NT®. It can also interact with systems such as MS-DOS® /MS Windows, BS2000 and BSD UNIX.

This manual is intended primarily for reference, containing a comprehensive overview of the Xprint commands and various configuration files.

1.1 Target groups

This manual is intended for

- Users who submit print jobs
- Xprint users who wish to edit print jobs
- System administrators and local Xprint administrators who are locally responsible for a host system
- the Xprint administrator, who is responsible for the entire spooler system.

What previous knowledge do you require?

If you have no previous experience of the command interface, you can operate Xprint using menu interfaces.

If you want to use commands to operate the Xprint system, you will need a basic knowledge of the operating system. More detailed knowledge is required if you want to use Xprint as a distributed print system on networked computers.

You should also be familiar with the features of the printers you are using (e.g. fonts, settings for landscape and portrait layouts, settings for multiple copies). These features are defined in the PCLs (printer capability lists) for the respective printers.

1.2 Summary of contents

This manual comprises the following chapters:

- The **Chapter "Product overview"**
This chapter explains the special concepts of Xprint and how the system works. It also briefly describes the operation and architecture of the Xprint system and the object types it uses.
- The **Chapter "Commands"**
This relatively comprehensive chapter contains the descriptions of all shell commands for using the Xprint system.
- The **Chapter "Files"**
This chapter describes the formats of configuration files for specific Xprint objects. The Xprint administrator can create and modify these files (filter programs, backend programs, PCL definitions, recovery rules files and map tables) and assign them to the Xprint system.
- The **Chapter "Product overview"**
This chapter describes the default data formats of Xprint and the filters vp (virtual printer) and vppost.
- The **Chapter "Commands"**
This chapter describes all possible messages you might encounter when working with Xprint.
- The **Chapter "Appendix"** contains important tables. These include the list of printers supported by Xprint.
- At the end of the manual in the reference section you will find the following:
 - "Glossary"
 - "References"
 - "Index"

1.3 Notational conventions

This manual uses the following notational conventions:

Fixed-pitch

- This font is used for command lines, screen output in continuous text and examples, and program code.

FIXED-PITCH UPPERCASE

- This font is used for states (e.g. SET/RESET) and keywords.

Italics and bold

- Bold italics are used for mandatory variables in command descriptions.

Italics

- Italics are used for optional variables in command descriptions. They are also used for variables that appear in command lines such as *filename*, *gateway* etc.
- Italics are also used to emphasize important words in continuous text.

[] Square brackets

- In the command descriptions, optional values appear within square brackets. (The brackets themselves must not be entered with the values.)

"Double quotes"

- Double quotes enclose references to other "sections", "chapters" or "manuals".

...

- Ellipses indicates that you can make several entries of the same type. The individual entries must be separated by the internal field delimiter (e.g. a space, tab or newline character).



- Indicates important information which must be observed.



- Refers to important information which warns of potential damage.

1.4 Other publications in this set

In addition to this guide, there are four other manuals in the Xprint V6.0 document set. These are:

-  Xprint V6.0 □
 User and Administrator Guide
 This manual describes the methods which can be used to handle Xprint objects. It serves as an introduction to printing with Xprint and administering the Xprint system, describing the tasks which can be executed using Xprint and the required procedures. The information in the User and Administrator Guide is complemented by that contained in this reference manual.
-  Xprint V6.0 □
 Application Programming Interface (API)
 This manual describes the library functions which can be used in programs to access the functions of the Xprint system.
-  Xprint V6.0 □

Mercator User Guide

This manual provides an introduction to Mercator, the new graphical user interface for Xprint.

2 Product overview

One of the most important benefits of Xprint is that users can send their print jobs to any output device in the Xprint system (printer, fax or e-mail address), regardless of which host the printer is connected to or whether the user is logged on to other hosts.

The Xprint system is a "distributed" output management system, but it can be controlled centrally.

"Distributed" means that individual Xprint processes can run on different hosts if these hosts are networked. Furthermore, gateways allow spooler systems in other networks to be used as well (including LPD print spooler and BS2000 DPRINT spooler).

For better organization of the many and varied application possibilities it offers, Xprint has a management level, from which the Xprint entities can be set up and administered, and user permissions can be granted to the individual Xprint users.

Xprint monitors and controls all the operations involved in printing documents

- at the correct destination
- in the desired form
- in the required quantity
- via the correct route
- with the required resources
- at the specified time
- with the desired level of confidentiality.

2.1 Operating modes

Xprint has two operating modes: local operation and network operation.

Local operation

Xprint can be used on a single host.

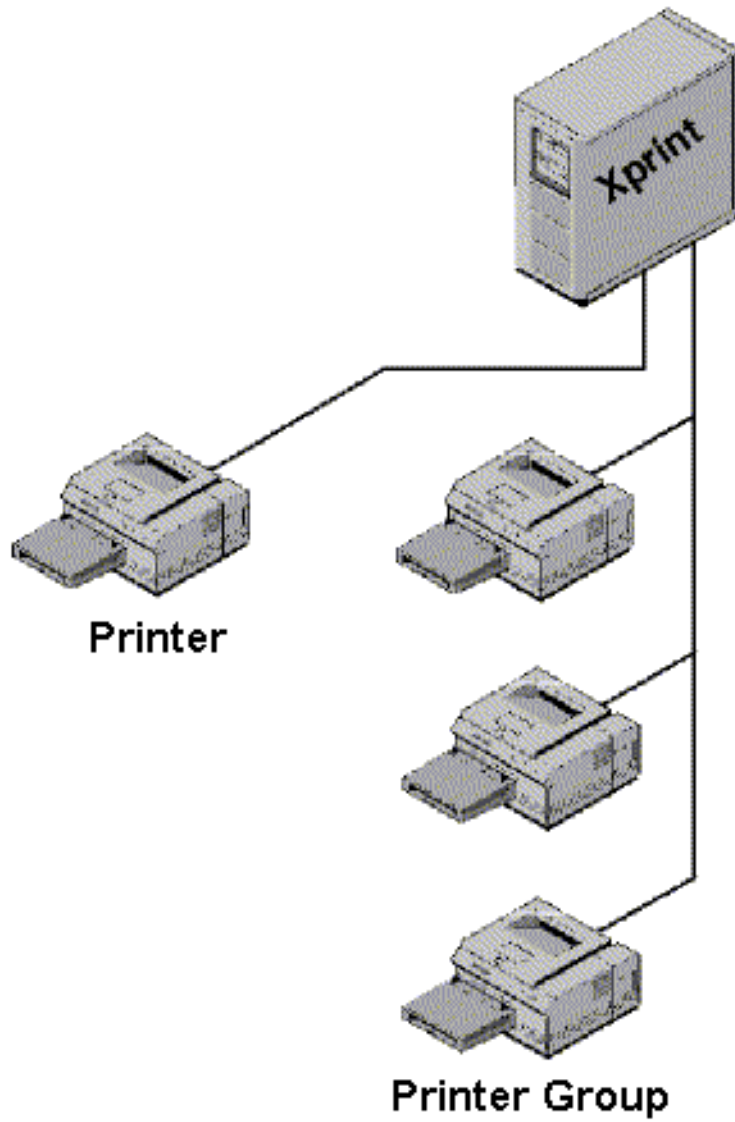


Figure 1: Xprint system on a single host

Network operation

Xprint is most effectively used in a host network. With a gateway host, Xprint can also be used across more than one network.

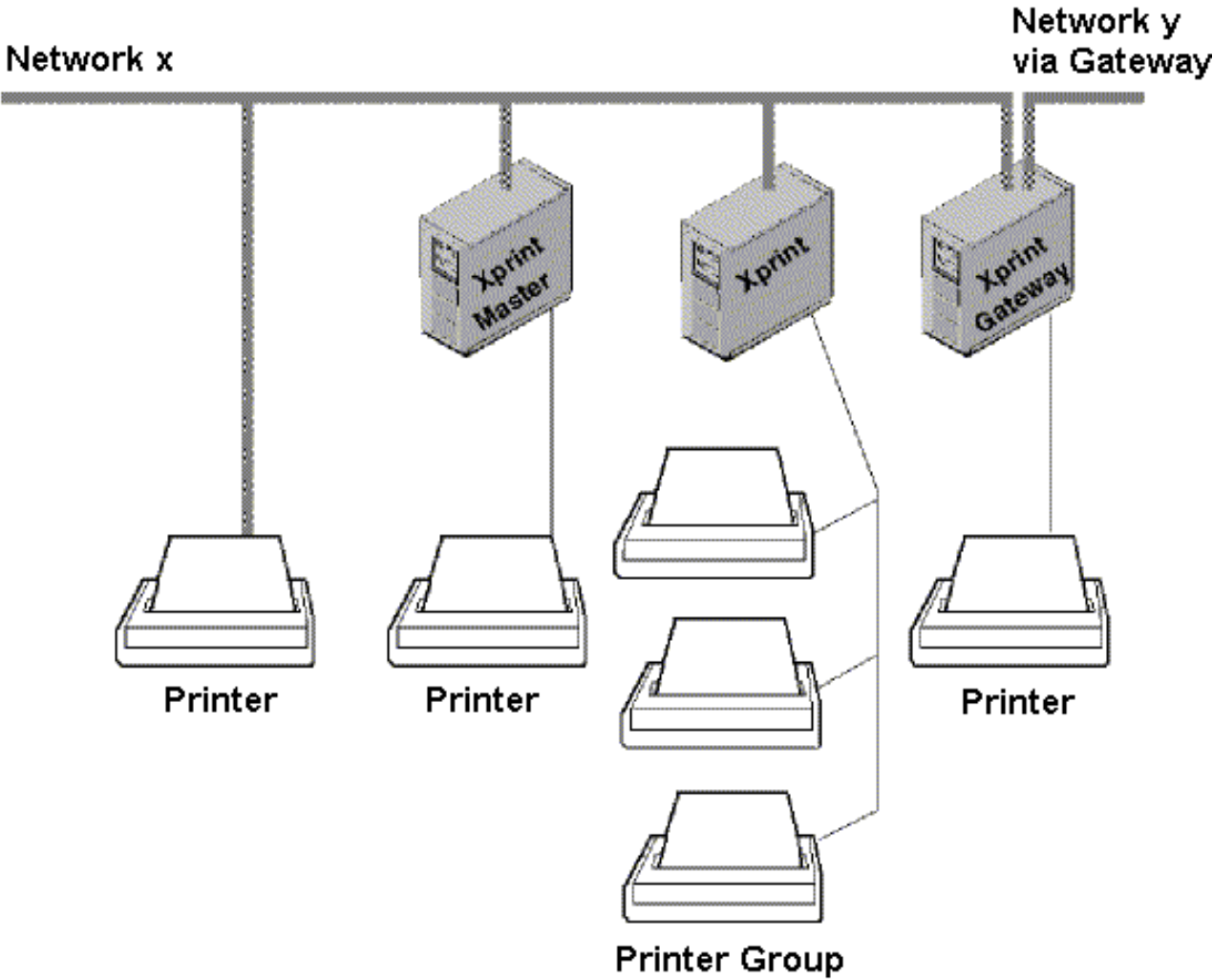


Figure 2: Xprint system running across several network types

2.2 Operation

Several different interfaces are available for controlling Xprint:

Commands

The *command* level provides a large number of options and settings. After a certain training period it allows quick and efficient use of the Xprint system with only a few entries. Xprint provides online help for its commands. This reference manual describes all the Xprint commands and the associated files.

Xprint provides the following commands for various tasks:

Description		Command name
start	Xprint	xpstart
terminate	Xprint	xpstop
define	object	xpadd
display	object definition	xpshow

modify	object definition	xpmod
delete	object definition	xpdel
copy	object definition	xpcopy
display	object status	xpstat
change	object status	xpchange

Table 1: Xprint tasks and standard commands

Description	Command name
define printer	xpconf_dev
redirect print jobs	xprdir
mount form	xpmount
change name of host	xppatch

Table 2: Special Xprint commands and their meanings

■ **Menus** for users and for administrators □

For *Xprint users* who do not like using the command level or who do not have the required privileges, Xprint provides a special *Xprint menu level* via the *xpcui* command or access via the *office character interface* with the *xpoci* command.

There is also a special *Xprint menu interface* for *administrators* which is called via the *xpcai* command.

■ **Library functions** for programs, C programming interface (API) □

An API interface is available for *programmers*. This is described in the manual "Xprint V5.2 - Application Programming Interface".

2.2.1 Language

Xprint allows you to set the language for the menus and messages.

The languages *English* and *German* are supported:

- On hosts where NLS (native language support) is available, Xprint interprets the environment variable LANG (X/Open).
- If LANG is empty or incorrect, Xprint uses English.
- If NLS is not available, Xprint uses English.

For how to set the environment variable LANG, see the documentation on your computer or the *readme* files.

2.2.2 Types of user

Xprint differentiates between users and administrators. It basically distinguishes between three operating levels:

- Administration of the entire Xprint system (global administration)
- Administration of the Xprint components on each local host
- User level

There are five *user groups* in Xprint.

Type of user	Access
Xprint administrator	administering the entire Xprint system
System administrator	administering Xprint on the local host
Local Xprint administrator	administering Xprint on the local

	host
Xprint users	using Xprint services
Reliant UNIX users	submitting print jobs

Table 3: Types of user in Xprint

Xprint administrator

The Xprint administrator is responsible for managing an entire Xprint system (Xprint domain). He/she has access to all the hosts in the Xprint system and can use all of Xprint's commands except those associated with starting Xprint - this is the responsibility of the system administrators of the respective local hosts.

System administrator (root)

System administrators are responsible for managing Xprint on their *local* host. Their tasks include the following:

- Starting and stopping Xprint on the local host.
- Setting up, managing, modifying and deleting objects on the local host. However, a system administrator can usually neither add nor modify the objects "Xprint user", "Host", "Gateway" and "Xprint system". This can only be done by the Xprint administrator.
- Activating and deactivating local printers, servers and supervisors.
- Furthermore, system administrators can modify the definition of their local host and nominate other Xprint users as local Xprint administrators to support them.

Local Xprint administrator

Local Xprint administrators are nominated by the system administrator of a host. In this way, the system administrator can delegate local administration of the Xprint system to another user. Local Xprint administrators have exactly the same responsibilities and permissions as system administrators, except that they cannot start or stop Xprint or modify the contents of the list of local Xprint administrators on their host.

Xprint users

All users in a network (Xprint domain) can use Xprint, whether they have been set up as Xprint users or not. The benefit of setting up users on Xprint is that they can be given specific privileges (e.g. putting their job at the top of the print queue) and they can be assigned individual print quotas. Furthermore, defined users can administer their print jobs from all the hosts for which they are registered.

Reliant UNIX users

These are users who have not been set up on Xprint. They can submit print jobs and can administer only their own print jobs and only on the submission host.

Access rights to Xprint commands

The following table lists all the Xprint commands and the users who are allowed to use them.

Standard commands:

	Editing object definition:					Status:		Xprint	
xp...	add	show	mod	del	copy	stat	change	start	stop
-dev	--345	12345	--345	--345	--345	12345	--345	----	----
-dgr	--345	12345	--345	--345	--345	12345	--345	----	----
-flt	--345	12345	--345	--345	--345	----	----	----	----
-fnt	--345	12345	--345	--345	--345	----	----	----	----

-frm	--345	12345	--345	--345	--345	----	----	----	----
-gtw	----5	--345	----5	----5	----5	--345	--345	----	----
-hos	----5	12345	--345	----5	----	1234 5	----	----	----
-job	1234 5	12345	1234 5	1234 5	----	1234 5	12345	----	----
-jtp	--345	12345	--345	--345	--345	----	----	----	----
-lrs	--345	12345	--345	--345	--345	----	----	----	----
-pcl	--345	12345	--345	--345	----	----	----	----	----
-prm	--345	12345	--345	--345	--345	----	----	----	----
-rec	--345	--345	--345	--345	----	----	----	----	----
-spv	--345	--345	--345	--345	--345	--345	--345	----	----
-srv	--345	--345	--345	--345	--345	--345	--345	----	----
-sys	----	12345	----5	----	----	----	----	--4-	--45
-usr	----5	-2345	----5	----5	----5	-2345	----5	----	----

Table 4: Access rights for the standard Xprint commands

Special commands:

xprdir	xpmount	xppoll	xpconf_dev
12345	12345	12345	--345

Table 5: Access rights for special Xprint commands

xprdir	xpmount	xppoll	xpconf_dev	xppatch
12345	12345	12345	--345	---4-

Table 6: Access rights for special Xprint commands

Key to the tables:

- 1 plain user
- 2 Xprint user
- 3 local Xprint administrator (sub-root)
- 4 system administrator (root)
- 5 Xprint administrator (for Xprint domain)

2.3 Architecture

This section contains an introduction to the architecture of the Xprint system. Although such information is not necessary for simple Xprint applications, it is useful, for example, for planning or administrative tasks and for error analysis.

2.3.1 Entities of the Xprint system

The Xprint system is composed of five basic entities. These are:

- Xprint daemon
- database manager
- client
- server
- supervisor

Each Xprint entity performs a subtask involved in printing jobs sent to the Xprint system. Gateways allow jobs to be received from or exported to other spoolers or another network.

The various Xprint entities are structured such that the individual entities involved in processing spooler jobs can also be distributed over different hosts, e.g. the server is on a different host from the supervisor and its devices. The spooler entities are then linked to each other via exchange protocols.

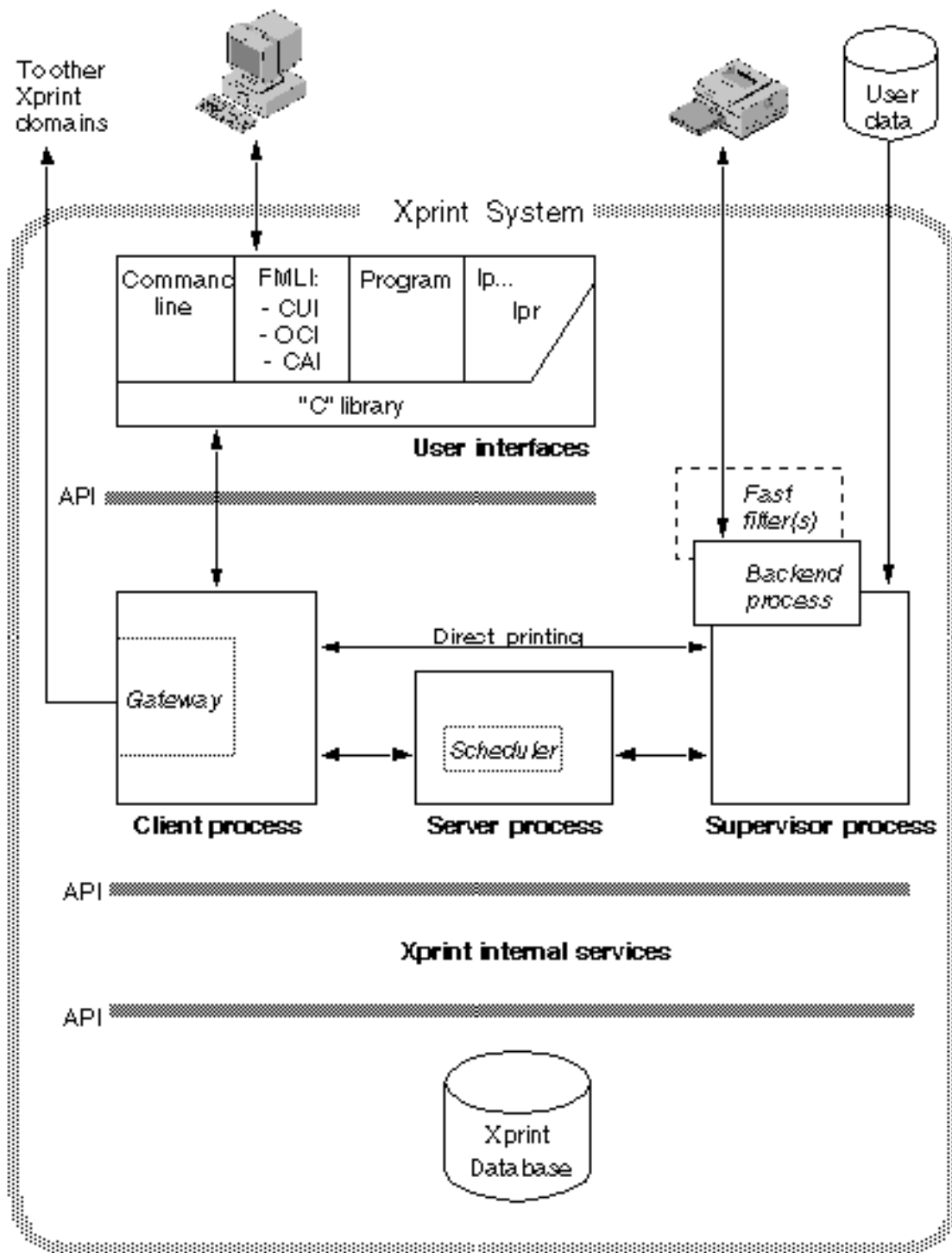


Figure 3: The Xprint system

Xprint daemon

Xprint must be installed and started on each individual host. Each time Xprint is started on a computer, the

Xprint daemon is the first process to run. This daemon is responsible for maintaining the availability of the Xprint processes and objects on the host and for controlling the correct termination of these entities when Xprint terminates. To assist with these tasks, the daemon maintains a table with entries for each active Xprint process. It waits for requests from clients to start the appropriate server and supervisor processes.

Client

"Client" is a generic term for the interface via which the Xprint services are called, e.g. the command level of a host.

The client performs the following tasks:

- receives jobs
- checks the syntax of the jobs
- checks the user's authorization
- selects filters for data conversion if necessary.

The client then creates the parameter list for the job and forwards the job to the correct "server". The job parameter lists are predefined by Xprint. The required values are entered according to the requested options and Xprint itself assigns defaults to the rest. After receiving a response, the client returns it to the user, together with any error notifications. The client is then freed from Xprint control.

Server

The server is an Xprint process which enters and administers print jobs for the Xprint system and controls the "supervisors". One server can control several supervisors. The server administers the print jobs in a "job queue" (also known as "job database").

If more than one supervisor is connected to the server, the server keeps a separate job queue for each supervisor. Print jobs are always entered in a job queue and not in the Xprint database, which contains all respective static values of the Xprint system. The server receives requests from both the client and the supervisor.

A server performs the following tasks:

- enters each new print job in a job queue
- administers the print jobs via its job queues
- schedules the print jobs
- modifies existing print jobs on request (before printing)
- modifies the job state on request (from client or supervisor)
- deletes print jobs on request (from client or supervisor)
- manages one or more supervisors
- distributes the jobs to its supervisors

Supervisor

The supervisor is an Xprint process which is responsible for executing print jobs. The jobs are printed on printers it controls. The supervisor receives the print jobs from its server (or from the client in the case of direct printing).

As part of the job execution process, the supervisor is also responsible for:

- retrieving user data
- transmitting the user data to the printer
- controlling the printer
- handling printer errors

The supervisor can also at any time process requests

- to interrupt or terminate jobs
- to send information to its server

When the supervisor initializes itself to drive a printer, it receives a set of recovery rules (rules for handling printer errors). If an error occurs during the execution of a job, the supervisor can handle the job recovery according to these rules. It can also manage controlled termination of a print job in the event of a termination request.

The database

General information

Xprint is object-oriented. Object types are predefined for printers, servers, users, etc. If, for example, a new printer is added to the Xprint system via a command, the corresponding object type is called, given a name and appropriate parameters, and entered in an "Xprint database" as a new *object*. Print jobs (object type: job) are never entered in the Xprint database, but are always placed in the job queue of a server, where they are managed until they have been fully executed.

All static information is stored in the Xprint database. All print jobs are placed in the job queues (in a server).

Local host

An Xprint database exists on each individual host on which the Xprint system is running. When the Xprint system is started, a database manager process is started.

Host networks

If several hosts are connected to form a network and are also partners in the Xprint system, the database managers can exchange data with one another.

One host in the network is always designated the *master* for the Xprint system. The database manager process of this master receives *all* update requests centrally and enters them in its database. So that all other database managers in the network also receive this information immediately, the master sends a copy of the update request to all other hosts each time it updates its own database.

The master can thus process both update requests and queries, while the other hosts can only handle queries.

Security

To ensure that this information system is safe, a host hierarchy is defined in the Xprint system. This means that if Xprint is terminated on the master host or if the master fails for any other reason, the next host in the hierarchy can *automatically* take over its tasks.

Example:

Let us assume that the master database manager runs on host A. Two further hosts B and C are the next in the hierarchy respectively.

Host C receives a request for an update of the Xprint database. C cannot process the update as this can only be done by the master database manager. C therefore tries to contact A and passes on the update information to it. Host A updates its database and then immediately passes the new status to all other hosts, including host C.

A, however, has failed, so the status of the master database manager, or "active master", goes to the next host in the hierarchy - in this case host B. C knows that B is the next host in the hierarchy which can assume the "active master" status. C therefore sets up a connection to B and requests it to take over the function of master. B then "broadcasts" to all the hosts that it is now the "active master" of the database, and C submits its update request. The update is then distributed by the new master database manager to all the hosts, including C.

If, in the meantime, host A resumes operation, it automatically resumes the role of "active master" (because it is the first in the hierarchy list). B then sends a copy of its database to A and from now on rejects any further update requests from other hosts by sending them an error message and the address of the new "active master".

2.4 Objects of the Xprint system

Xprint is object-oriented. This section provides an overview of the different types of object defined in Xprint. For printers, servers, users, etc. in Xprint, object types are predefined. The attributes for each object are precisely defined in the form of a unique list.

Some object types have many attributes, e.g. name, access permission, state, etc., while others have only a few. Not only physical and static data but also the necessary logical and dynamic links to other object types are defined.

Generally speaking, this method allows quite different concepts to be represented and stored in the object description such that they can then be connected to one another using only a few commands and their options, and then manipulated. The Xprint tasks have also been designed such that the entire functionality of Xprint is on the one hand reflected in the individual object types, and on the other can be linked and controlled, for example, via commands and their options. Users then only need to specify or add, modify, load or delete objects.

The required *object type* is selected by being entered in the Xprint database, e.g. via the `xpadd` command, and is assigned *attributes* or *default values* according to the *options* specified in the command, or is supplied with default values by the Xprint system. For example, for a new printer being added to the Xprint system, the connection type, e.g. SERIAL, and the printer capability list (pcl) must be defined, and if appropriate, its use must be limited to certain users. You can also specify the name of a default form to be used for the print jobs on this printer.

This new entry in the Xprint database is a new *object*. The new Xprint object can then be given its own unique name.

The objects are stored in two different places:

- Print jobs are always entered in job queues of servers.
- All other objects are entered in the Xprint database.

The following table lists the object types of the Xprint system:

Name	Object identifier
Xprint system	-sys
Device	-dev
Device group	-dgr
Filter	-flt
Font	-fnt
Form	-frm
Gateway	-gtw
Host	-hos
Job	-job
Job template	-jtp
Loadable resource	-lrs
Permission	-prm
Printer capability list	-pcl
Recovery rule	-rec
Server	-srv
Supervisor	-spv
User	-usr

Table 7: Object types in the Xprint system

As soon as the Xprint system is set up entirely, only the object "job" needs to be addressed for creating printouts. You can then use, for example, your own fonts, forms or templates. The other objects are required for configuring and administering Xprint.

You can only use the administration functions if you have the appropriate administrator's privileges.

2.4.1 The individual object types

This section describes the individual object types of the Xprint system. Each object type is precisely defined as a data structure in the Xprint system.

The individual object types can be called and assigned attributes via the Xprint interfaces, e.g. using commands. The new objects created in this way are entered in the Xprint database or existing objects in this database are modified. Print jobs are *not* kept in the Xprint database but in a Xprint server.

Xprint applications are thus implemented by users linking individual objects together.

-dev - Printers

Each printer in Xprint is identified by a unique name. This name is assigned to the printer along with its attributes when the printer is set up in the Xprint system. Attributes include the printer's address in the system, the type of connection, speed of data transfer, connection protocol, name of its supervisor and the host it is connected to.

So if you want to direct a job to a particular printer, all you need to know is its name and that your file's data type matches that of the target printer. Your job will then be printed, even if you are on a different host.

By entering new attributes in the Xprint system or changing existing ones, you can:

- Set up a default form (standard invoice, delivery note, letter, etc.) to be used on a printer.
- Restrict the use of a printer to specific users.
- Assign a security level to a printer (which should also be located in a secure area of the building).

The following commands are available for working with the object type -dev:

`xpadd -dev`

To add a new printer to the Xprint system.

`xpshow -dev`

To display the attributes of a printer.

`xpmod -dev`

To modify the attributes of a printer.

`xpcopy -dev`

To copy an existing printer's attributes and modify these or add new attributes.

`xpdel -dev`

To delete a printer from the Xprint system.

State:

`xpstat -dev`

To display the current state of a printer.

`xpchange -dev`

To change the state of a printer.

-dgr - Printer groups

In Xprint, printers can be grouped together into so-called printer groups to speed up the processing of jobs. Every printer group in the Xprint system must have a unique name, which must not be the same as any name given to the individual printers.

The advantage is that if a job is directed to a printer group it will be printed on the first free printer in the group that can handle the job, rather than having to wait its turn in the queue of a specific printer.

Printer groups can be added to, and deleted from the Xprint system; they can be copied, modified, or displayed, and their spoolin state can be changed in the same way as for individual printers.

The use of a printer group can be restricted to specific users in the same way as a printer can, by linking a permission list to it.



A printer can belong to *more than one* printer group.

The following commands are available for working with the object type -dgr:

xpadd -dgr

To add a new printer group to the Xprint system.

xpslow -dgr

To display the attributes of a printer group.

xpmod -dgr

To modify the attributes of a printer group.

xpcopy -dgr

To copy and modify the attributes of an existing printer group.

xpdel -dgr

To delete a printer group.

State:

xpstat -dgr

To display the current state of a printer group.

xpchange -dgr

To change the state of a printer group.

-flt - Filters

Filters are programs that take incoming data and convert it into data the printer can understand.

There are two types of filter:

- "slow" filters
- "fast" filters.

Slow filters are assigned *automatically* when a print job is submitted and are applied before the job is started (asynchronously or before the print process).

Fast filters provide additional or alternative support to backends. For example, when a printer of a type not usually supported by Xprint is connected to the system, a special fast filter will report errors to the backend. See also [Section "Backend programs"](#).

Filters have three main functions:

- Converting input data into a format compatible with the printer, e.g. ASCII to PostScript. This is a function of a slow filter.
- Providing special printing modes, e.g. printing in columns, or in landscape mode. This is also a function of a slow filter.
- Providing dedicated job follow-up and error recovery. This is a function of a fast filter and requires direct connection to the printer.

Two *slow* filters are supplied with Xprint (see [Section "Filter programs"](#)):

vp

This filter (virtual printer) accepts the input types SIMPLE and E-9001-31 and converts them into a suitable data type for a range of printers (including HP LaserJet, IBM ProPrinter and several Siemens Nixdorf printers).

vppest

This filter converts the input types SIMPLE and E-9001-31 into the output type PostScript.

The characteristics of individual filters can be combined. You can also write your own filter programs and add them to the system.

The following commands are available for working with the object type -flt:

xpadd -flt

To add a new filter to the Xprint system.

xpshow -flt

To display the attributes of a filter.

xpmod -flt

To modify the attributes of a filter.

xpcopy -flt

To copy an existing filter's attributes and modify these or add new attributes.

xpdel -flt

To delete your own filters from the Xprint system.

-fnt - Fonts

Fonts used for printing documents always have several attributes, including:

- Typeface (e.g. Helvetica, Times Roman, Courier, etc.).
- Style (e.g. italic or straight).
- Pitch (number of characters per inch).
- Line spacing (number of lines per inch).
- Print quality (draft, near letter quality).
- Character set (e.g. English, French, German, etc.).

Instead of having to specify these attributes individually every time a particular font is required for a print job, Xprint allows you to store them under a name. So whenever you wish to use this defined font, you can simply request it using its font name; Xprint will then automatically apply all its attributes.

Xprint is supplied with one resident font - called GENERIC.

This font has been set up with the following default values: draft print quality, straight (as opposed to italic) character style, no specific typeface, 10 characters per inch pitch, 6 lines per inch line spacing and the International character set.

The GENERIC font cannot be modified or deleted, even by the Xprint administrator.

Defined fonts (including the GENERIC font) can be linked to specific forms so that whenever the form is used, the correct font is used with it.

The following commands are available for working with the object type -fnt:

xpadd -fnt

To add a new font to the Xprint system.

xpshow -fnt

To display the attributes of a font.

xpmod -fnt

To modify the attributes of a font.

xpcopy -fnt

To copy an existing font's attributes and modify these or add new attributes.

xpdel -fnt

To delete a font from the Xprint system.

-frm - Forms

A form is the description of the layout for printouts. Standard forms (invoices, letters, reports, etc.) can be set up using Xprint. This means that if print jobs can be printed in a standard format, you do not need to enter a set of parameters (paper size, font, margin settings, etc.) each time. All you need to do is specify the required form name; Xprint does the rest.

A form can also be set up as the default form for a printer so that all print jobs requesting that printer will

automatically be printed on that form, unless the user specifies otherwise.

Xprint is supplied with one form - the GENERIC form. This form has the GENERIC font as its default font and has been set up using the default values for all the xpadding -frm options.

The GENERIC form is a single-sided form that can be mounted automatically on a printer. It has a page height of 11.69 inches, and a page width of 8.26 inches. Its orientation is portrait with no specific top or left margins, and no start, end or separator sheets will be printed when it is used for a job.

The GENERIC form cannot be modified or deleted, even by the Xprint administrator.

The following commands are available for working with the object type -frm:

xpadding -frm

To add a new form to the Xprint system.

xpshow -frm

To display the attributes of a form.

xpmod -frm

To modify the attributes of a form.

xpcopy -frm

To copy an existing form's attributes and modify these or add new attributes.

xpdel -frm

To delete a form.

-hos - Hosts

Only the Xprint administrator can add and manage hosts.

Any computer in the network can be set up as a host in the Xprint system. Xprint divides the hosts into three categories, the difference lying in the type of access each one is assigned for the Xprint database.

A host can be registered as a:

- potential master (default)
- slave
- parasite

In a network there must always be *one* host which assumes the role of the "active master". This can only be a host of type "potential master", for which very powerful computers are best suited. This host runs the database, which then performs all updates as the *central* database and immediately passes these on to the other hosts. By default the first host of type potential master to be set up in Xprint is given this task. Hosts of type "slave" have their own database but can never take on the role of active master. Hosts of type "parasite" do not have their own database and can only run Xprint in conjunction with a host that has a database.

For further information on the host hierarchy, see section [The database](#).

The following commands are available for working with the object type -hos:

xpadding -hos

To add a new host to the Xprint system. (Can only be used by the Xprint administrator.)

xpshow -hos

To display the attributes of a host.

xpmod -hos

To modify the attributes of a host.

xpdel -hos

To delete a host. (Can only be used by the Xprint administrator.)

State:

xpstat -hos

To display the state of a host.

-gtw - Gateways

Using gateways, connections can be set up from one Xprint domain to others or to other spooler systems (e.g. BSD-UNIX systems). These connections then enable you to use the printers and printer groups of the other system involved. Gateways are necessary for exporting requests from one network to another or, vice versa, to import requests which are then processed by Xprint. You can also use several gateways together on the same host.

The following commands are available for working with the object type `-gtw`:

`xpadd -gtw`

To add a gateway to the Xprint system.

`xpshow -gtw`

To display the attributes of a gateway.

`xpmod -gtw`

To modify the attributes of a gateway.

`xpcopy -gtw`

To copy an existing gateway's attributes and modify these or add new attributes.

`xpdel -gtw`

To delete a gateway.

State:

`xpstat -gtw`

To display the current state of a gateway.

`xpchange -gtw`

To change the state of a gateway.

-job - Print jobs

Print jobs are started by users and are administered by the servers responsible for the respective queues they are waiting in. Print jobs can be manipulated until the end of the print process.

If you are an administrator, you can also redirect all print jobs from one printer to another.

The following commands are available for working with the object type `-job`:

`xpadd -job`

To add a new print job.

`xpshow -job`

To display the attributes of a print job.

`xpmod -job`

To modify the attributes of a print job.

`xpdel -job`

To delete a print job.

State:

`xpstat -job`

To display the current state of a print job.

`xpchange -job`

To change the state of a print job.

-jtp - Job templates

Job templates allow you to combine all options required for a print job (`xpadd -job` request). So if you regularly run print jobs of a type which is not defined as a default, you can create your own job template with all the required options for use whenever you need it. This speeds up the job submission process as you no longer need to enter all the options individually each time.

The following commands are available for working with the object type `-jtp`:

`xpadd -jtp`

To add a new job template to the Xprint system.

xpsshow -jtp

To display the attributes of a job template.

xpmod -jtp

To modify the attributes of a job template.

xpcopy -jtp

To copy the attributes of an existing job template and modify these or add new attributes.

xpdel -jtp

To delete a job template.

-lrs - Loadable resources

Loadable resources allow users to have their logos and fonts in a different file to the document itself. In a distributed environment, resources will be imported to the host where the printer is attached only when they are first used. In a similar way, the process of downloading resources can be optimized.

The following commands are available for working with the object type -lrs:

xpadd -lrs

To add a new loadable resource to the Xprint system.

xpshow -lrs

To display the attributes of a loadable resource.

xpmod -lrs

To modify the attributes of a loadable resource.

xpcopy -lrs

To copy the attributes of an existing loadable resource and modify them or add new attributes.

xpdel -lrs

To delete a loadable resource.

-pcl - Printer capability lists

A printer capability list (pcl) is the object which contains all the information Xprint needs to operate a printer. It helps Xprint to convert the options in a print job (**xp**add -job) into the appropriate control characters required by the printer. It also contains information on the technical characteristics of the printer (e.g. its connection protocol) as well as specifying how Xprint should translate commonly used control characters (form feed, line feed, etc.).

PCLs are defined in a source file *pcl_file_name* (see [Section "PCL definitions"](#)). More than one PCL may be defined in one source file. You define a PCL by adding it to the system using the **xp**add -pcl command, and only the appropriate part of the source file is compiled. This then becomes the PCL object.

Xprint is supplied with a variety of PCLs, including ones for the HP LaserJet, PostScript, IBM Proprinter and several Siemens Nixdorf printers. A full list of supplied PCLs and the printers they support can be found in the [Section "Supported printers and PCLs"](#) in the appendix. You can also display the list of PCLs using the **xp**show -pcl command.

A default PCL - the GENERIC PCL - is also supplied. This PCL provides limited support for printers for which there is no appropriate PCL. Its attributes can be displayed using the -di LONG option of the **xp**show -pcl command. The GENERIC PCL cannot be modified or deleted, not even by the Xprint administrator.

The following commands are available for working with the object type -pcl:

xpadd -pcl

To compile a PCL and add it to the Xprint system.

xpshow -pcl

To display the attributes of a PCL.

xpmod -pcl

To modify the attributes of a PCL (i.e. recompile the PCL from a source file, thus modifying it indirectly).

xpdel -pcl

To delete a PCL.

-prm - Permission lists

Permission lists can be created by administrators. Permission lists allow you to define:

- Which users may, or may not, use a specific printer or group of printers.
- Which users may, or may not, use a specific form.
- Which forms may, or may not, be used on a specific printer.
- Which users may, or may not, use a specific gateway.
- Which administrators (system administrators and local Xprint administrators) may assign a new supervisor to a specific server.

Permission lists are divided into two types - "allowed lists" and "denied lists". The allowed list specifies which users or forms can use the associated object; the denied list specifies which users or forms cannot use the associated object. For example, an allowed list attached to a printer restricts the use of the printer to users named in the permission list. A denied list attached to a printer allows all users except those named in the list to use the printer.



Administrators of a given object (a printer, server, or form) can always use that object, even if the associated permission list specifies otherwise.

Generally, the following rules apply to permission lists:

- If both lists are empty, all users can access the object.
- If there are any entries in the allowed list, the denied list is ignored.
- If the allowed list is empty, the denied list is used.

The following commands are available for working with the object type -prm:

xpadd -prm

To add a permission list to the Xprint system.

xpshow -prm

To display the attributes of a permission list.

xpmod -prm

To modify the attributes of a permission list.

xpcopy -prm

To copy an existing permission list.

xpdel -prm

To delete a permission list.

-rec - Recovery rules

Recovery rules are used to modify the way the interface backend handles printer errors.

For example, the default action for "PaperEnd" in Xprint is that the system continues to try printing the job until the paper supply has been replenished. A recovery rule, which can be linked to the printer as part of the `xpadd -dev` command, could override this default action and specify instead, for example, that the job should be suspended and the printer set to NOT_ACTIVE until an administrator intervenes.

Recovery rules are defined in a file (see [Section "Recovery rules files"](#)). The file is compiled when the recovery rule it contains is added to the Xprint system using the `xpadd -rec` command.

The following commands are available for working with the object type -rec:

xpadd -rec

To add a new recovery rule to the Xprint system.

xpshow -rec

To display the attributes of a recovery rule.

xpmod -rec

To modify the attributes of a recovery rule.

xpdel -rec

To delete a recovery rule.

-spv - Supervisors

Supervisors are responsible for controlling printers. An active supervisor can control a set of printers and provide them with data from the user. A supervisor is always controlled by one server and must reside on the same host as the printers it controls.

The following commands are available for working with the object type -spv:

xpadd -spv

To add a supervisor to the Xprint system.

xpshow -spv

To display the attributes of a supervisor.

xpmod -spv

To modify the attributes of a supervisor.

xpcopy -spv

To copy an existing supervisor's attributes and modify these or add new attributes.

xpdel -spv

To delete a supervisor from the Xprint system.

State:

xpstat -spv

To display the current state of a supervisor.

xpchange -spv

To change the state of a supervisor.

-srv - Servers

A server is an Xprint process which is responsible for scheduling and managing the incoming print jobs. Each server has its own job queue for this purpose. A server can be assigned one or more supervisors.

The following commands are available for working with the object type -srv:

xpadd -srv

To add a server to the Xprint system.

xpshow -srv

To display the attributes of a server.

xpmod -srv

To modify the attributes of a server.

xpcopy -srv

To copy an existing server's attributes and modify these or add new attributes.

xpdel -srv

To delete a server from the Xprint system.

State:

xpstat -srv

To display the current state of a server.

xpchange -srv

To change the state of a server.

-sys - System

The only attributes assigned to the system object are the name of the Xprint administrator, a comment for users and a comment for administrators.

The following commands are available for working with the object type -sys:

xpshow -sys

To display the name of the Xprint administrator together with a comment for users and a comment for administrators.

xpmod -sys

The first time you use the software after its installation, you can use this command to enter the name of the Xprint administrator. After this, only the current Xprint administrator can nominate a new Xprint administrator.

-usr - Users

The user object can only be set up and modified by the Xprint administrator.

Basically, every user (Reliant UNIX users) can submit print jobs, with Xprint only granting access to the default settings. Users can also be set up by the Xprint administrator as "Xprint users", which allows better control of Xprint operation.

For a user to be assigned specific privileges and print quotas, he/she must be entered in the Xprint system as an Xprint user. This allows more efficient use of the Xprint system. Users who have not been set up as Xprint users are assumed to have basic privileges only - in other words, they are not assigned specific quotas for the number of pages, jobs or job copies they can submit for printing, they can only use printers which have no user restrictions, they cannot assign their jobs a security level other than UNCLASSIFIED or move them to the top of a print queue, and they cannot assign their print jobs a priority level higher than that set up for their local host.

The following commands are available for working with the object type -usr:

for the Xprint administrator:

xpadd -usr

To add a new user to the Xprint system.

xpdel -usr

To delete a user from the Xprint system.

xpmod -usr

To modify a user's privileges and print quotas.

xpcopy -usr

To copy an existing user's privileges and print quotas.

xpchange -usr

To reset print quotas when their limit is reached.

for all other Xprint users (only for their own user IDs) and for all the other administrators:

xpstat -usr

To display information on the current state of a user's print quotas (e.g. how many pages have been printed, how many jobs have been submitted, etc.).

xpshow -usr

To display a user's privileges and print quotas.

2.4.2 Naming objects

All objects of the same type in Xprint must have their own unique names for identification purposes, e.g. for servers: sv1, sv2, etc. The object naming conventions are given on



A printer *cannot* have the same name as a printer group, even though they are different object types.

Objects which are already entered in the Xprint system can be manipulated via commands. The same command can also be used to edit several objects of the same type at one time.

Examples:

- Displaying the attributes of an object (xpshow)
- Modifying the attributes of an object (xpmod)
- Displaying the current state of an object (xpstat)

- Changing the state of an object (xpchange)
- Deleting an object (xpdel).
- Copying the attributes of an existing object to a new object (xpcopy)

How to select objects - either directly via their name or indirectly via specific characteristics - is described on

2.4.3 Possible object states

You can change the states of some of the objects. The state settings describe dynamic attributes of objects. For example, because the Xprint system can work with distributed entities on different hosts, you may have to deactivate a printer in order to modify static attributes. After the modification, it can be reactivated. The table below shows the objects in question and the possible values for their state:

Object	Status (-st)	Spoolin state(-si)	Spoolout state (-so)
-dev	ACTIVENOT_ACTIVE DEVICE_ERRORWAITING_FOR_NEXT_PAGE	ONOFF	ONOFF
-dgr	---	ONOFF	---
-gtw	ACTIVENOT_ACTIVE SHUTDOWN	State (-gi) "Gateway_in:" ONOFF	State (-go) "Gateway_out:" ONOFF
-hos	ACTICENOT_ACTIVE	---	---
-job	ACTIVWAITTOPSUSPEND TERMINATEDINTERRUPTED FILE_TRANSFERDEVICE_ERROR DATA_FILTERING	---	---
-spv	ACTIVENOT_ACTIVE	---	---
-srv	ACTIVENOT_ACTIVE	ONOFF	ONOFF
-usr	Print quotas and amounts consumed	--	--

Table 8: Possible object states

The NOT_ACTIVE state implies the value OFF for the spoolin and spoolout states of the relevant object.

If, say, new jobs are not to be sent to a particular system, you must, for example, set the spoolin state for the server to OFF.

2.4.4 Modifying objects

For modifying objects, Xprint provides the xpmmod command. xpmmod is used to specify new option values and thus change the attributes of the relevant objects. The options you specify via the command generally correspond to the options with which the object was added to the system.

The additional option -ad administrator is used by the Xprint administrator to change the administrator of any object except for print jobs, users and hosts. For specific exceptions, refer to the descriptions of the respective commands.

In addition to simply specifying a new value for an option, you can also modify an object by:

- Adding and removing items from option lists.
- Setting and resetting Boolean options.
- Resetting options to their default values.

xpmmod can be used for the following object types:

device / device group / filter / font / form / gateway / host / job / job template / PCL / permission list / Recovery rules / server / supervisor / user / system.

2.4.5 Copying objects

For copying objects, Xprint provides the xpcopy command.

xpcopy is used to copy the attributes of an existing object to a new object which is to be set up in the Xprint system. At the same time you can also specify all options which have attributes that are to be modified or added.

xpcopy can be used for the following object types:

device / device group / filter / font / form / gateway / job template / permission list / server / supervisor / user

3 Commands

This chapter describes all Xprint V6.0 commands in alphabetical order. The first section explains the basic command structure, while the second section describes the individual commands.

3.1 Command structure

This section describes the format which must be used for the command lines of the Xprint commands.

An Xprint command basically consists of three parts:

- command name (xp...)
- operands (mandatory specifications, e.g. the object type)
- options (freely selectable)

Example of a command

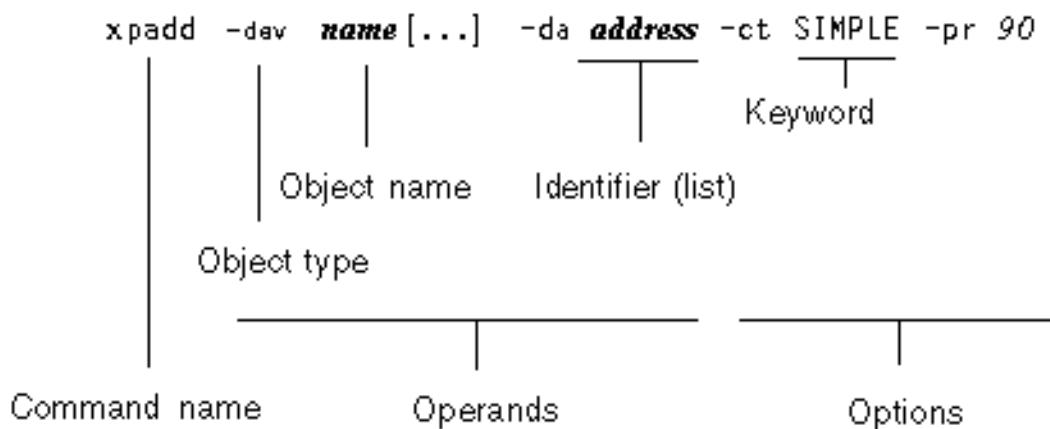


Figure 4: Example of a command

Explanation of the example

Command name:

`xpadd`

□

Command for adding an object

`-dev`

Here: object type *device* (must be specified); for name specify an identifier under which the printer can be addressed in the Xprint system, e.g. □ HP-LJ4si.

Operands:

`-da`

(device_address) device file representing the port to which the printer is connected, e.g. `/dev/lp1` for a parallel port. In the case of LAN printers, the LAN address is specified here, e.g. "137.290.45.12 9100". A device address must be specified.

Options:

`-ct`

(content_type) data format, here: SIMPLE

`-pr`

(priority) defines the printer's default priority

Description of the command:

- A printer is added to the Xprint system.
- It is to be attached to the parallel port, in which case `/dev/lp1` could be specified for *address*.
- The printer can print the content type SIMPLE directly without calling a filter.
- The minimum priority a job must have to be printed on this printer is to be 90.

On-line help for commands

You can request a display of brief information on the syntax by entering the following:

`command -?`

displays the possible object identifiers.

Example:

`xpadd -?`

Syntax:

`xpadd [-job]`

`[options]`

`xpadd {-dev|-dgr|-flt|-fnt|-frm|-gtw|-hos|-jtp|-pcl|`

`-prm|-rec|-spv|-srv|-usr} identifier [options]`

You can request a display of brief information on a command for a specific object by entering the following:

`command -object -?`

displays the possible specifications for the object identifiers *and* the possible options.

Example:

`xpstat -dev -?`

Syntax:

`xpstat -dev [device_names]`

`[-scl "selection_criteria with all xpadd -dev options plus`

`-ad administrator`

`-rd new_device`

`-si spoolin`

`-so spoolout`

`-st state"]`

`[-di display]`

Because of its variable nature the Xprint command line structure requires knowledge of the underlying principles of the Xprint system (interaction of server, supervisor, device etc.) and an overview of the possible formats. Before the detailed description of how the individual commands are used, basic rules for formulating the commands are therefore listed first.

3.1.1 Command names

Each command line must begin with a command name. All command names begin with "xp" and must be specified in full. The following table lists all the Xprint commands with their command name:

Command	Function	Meaning
xpadd	Add object	Add a new object to the Xprint system
xpchange	Change object state	Change the state settings for an object
xpconf_dev	Configure printer	Configure a new printer in the Xprint configuration
xpcopy	Copy object	Copy and modify the attributes of an object
xpdel	Delete object	Remove an object from the Xprint

		database
xpmod	Modify object	Modify the attributes of an object in the Xprint database
xpmount	Form mounted	Notify that a manual form has been mounted in the printer
xppatch	Change host name	Change the name of a local host
xppoll	Poll printer status	Poll the physical status of printer
xprdir	Redirect print job	Redirect a job queue to a different printer
xpshow	Display object	Display the attributes of an object in the Xprint database
xpstart	Start Xprint	Start Xprint on a local host
xpstat	Display state	Display the current state of an object
xpstop	Stop Xprint	Stop Xprint

Table 9: The Xprint commands

In the following command descriptions the command name is always printed in bold letters in syntax descriptions.

3.1.2 Operands

Most commands require further mandatory specifications besides the command name in order to be executable. These mandatory specifications are referred to as *operands* to delimit them from the *options* which do not have to be specified.

The type and number of operands differs for each command. While some commands can be specified without any operands, others require at least an *object type*.

In the following command descriptions operands are printed in bold characters. Variable parts of the operand syntax are marked by bold and italic characters. The following operands are required frequently:

Object type

In most cases, the command name must be followed by an object type. If no object type is specified for a command which expects one, -job is used as the default for *all* commands except xpcopy. For xpcopy the default is -dev.

The following table provides an overview of which object types can be specified for which commands. If a combination is marked with x or dflt this object type is allowed for the respective command. A combination marked with dflt means that this object type is the default value for this command:

	xpadd	xpchange	xpcopy	xpdel	xpmod	xpshow	xpstat
-dev	x	x	dflt	x	x	x	x
-dgr	x	x	x	x	x	x	x
-flt	x		x	x	x	x	
-fnt	x		x	x	x	x	
-frm	x		x	x	x	x	
-gtw	x	x	x	x	x	x	x
-hos	x			x	x	x	x

-job	dflt	dflt		dflt	dflt	dflt	dflt
-jtp	x		x	x	x	x	
-lrs	x		x	x	x	x	
-pcl	x			x	x	x	
-prm	x		x	x	x	x	
-rec	x			x	x	x	
-spv	x	x	x	x	x	x	x
-srv	x	x	x	x	x	x	x
-sys					x	x	
-usr	x	x	x	x	x	x	x

Table 10: Object types as operands for Xprint commands



xpstart and xptest are specified without an object type as they start or stop the Xprint system.

Object name for adding a new object

When an object other than a job is added to the Xprint database (with the xpadd command), a unique name must be specified for the new object. Only when adding print jobs, the object name has to be omitted.

Object names must have the following format:

<Name>::=letter|digit|[[letter|digit|underscore|minus|slash|period|hash]... letter|digit]

This means that:

- An object name must begin with a letter (A-Z, a-z) or a digit (0-9).
- An object name is allowed to be only one character long.
- The last character must be a letter (A-Z, a-z) or a digit (0-9).
- The other characters in the object name may be letters or digits, and you can also use the special characters shown in the definition above.

The following are examples of valid object names:

```
A
B
1
23
a1
aA_prn#2.srv1
c2/TEST_01
aA1_-/.#1
```

All objects of the same type in Xprint must have their own unique names, e.g. a server can be added with the name srv1, and the next must then be entered under another name, e.g. srv2. The name must be no more than 512 characters in length, with the following exceptions:

- The names of the gateways, servers, supervisors and printers can be any length if the OS value is set to BSD. If the OS value is set to ATT, then the names must not comprise more than 14 characters, otherwise they will be truncated.
- The names of PCL objects should be restricted to a maximum of 63 characters to enable the PCL to be used as a filter content type.

Note that a printer cannot have the same name as a printer group, even though they are different objects. This is because they are both used as the destination for a job.

Job names are a special case, as they are given by Xprint and not by the user. When a job is submitted, Xprint returns a message such as:

```
<12> (<srv1:17>) added
```

The first identifier <12> is called the local job identifier. That is, it is only valid on the host where the job is submitted. The other two identifiers <srv1:17> constitute the global job identifier and can be used to address the job from anywhere in the configuration. The global job id has two parts: the server where the job is submitted and a unique number on that server. There is a third job id which takes the form:

```
[server_name:] job title
```

where *job title* is given by the option -jt. This job id is used as an alias. A job title alone is only valid on the host where the job is submitted.

Naming objects in a remote domain

You can also name objects that are administered in a different domain. The syntax required (and the functionality that is available) depends on the remote domain. The functionality available in remote domains is described in the [Section "The gateway protocols BSD and GIP2"](#).

Naming objects via a GIP2 gateway

The GIP2 gateway is a connection between two Xprint domains. It is able to show the definition (and status if possible) of the following objects: jobs, devices, devices groups, filters, fonts, forms, loadable resources, job templates and PCLs. It also supports job management (job submission and deletion etc.) between the two domains.

A job sent to another Xprint domain receives a global job id with the form:

```
gateway!Xprint_server:job_id
```

and a local job id with the form:

```
gateway!local_job_id
```

where the normal Xprint rules apply to the server name and job id.

Other objects' names always have the form:

```
gateway!object name
```

where *gateway* is the name of the partner gateway in the originating Xprint domain, and *object name* is the name given by the remote domain.

Naming objects via a GIP2 gateway in a DPRINT domain

In this case, only a subset of the commands can be used. In fact, three objects are handled by the GIP2 gateway when connecting to a DPRINT domain: jobs, devices and device groups.

A job sent from Xprint to DPRINT receives a job id in the following form:

```
gateway_name!DPRINT TSN
```

where *gateway_name* is the name of the partner gateway in the Xprint domain which gives access to the DPRINT domain. *DPRINT TSN* is up to four alphanumeric characters. Wildcards are not supported.

Devices and Device Groups require the following syntax:

```
gateway_name!device or gateway_name!device group
```

where *gateway_name* is the name of the partner gateway defined in the Xprint domain which gives access to the DPRINT domain. *Device group* represents a pool of printers. Wildcards are not supported.

Naming objects via a BSD gateway

This gateway allows connection to many UNIX and other systems. The only objects accessible are jobs and devices. Wildcards are not supported for server or device names, but are possible for *job_ids*.

The syntax for jobs is:

```
gateway!server:job_id
```

and the syntax for devices is:

gateway!device

where both device and server are in fact the same: they denote a BSD spooler queue. (In a BSD environment, the user prints to a queue which is connected to exactly one logical printer. The logical printer queues the print job requests. Therefore you must specify a *queue name* in the BSD domain, whether it is a device or server.)

Selecting defined objects

The standard commands can usually be executed for several existing objects of the same type at once. Objects can be selected using one of the following methods:

- Specifying the names of the individual objects (identifier list).
- Specifying a list of selection criteria. The command is then applied to all objects matching these criteria.
- Using an identifier list in conjunction with selection criteria.

The different methods are explained below.

Identifier list

This is a list giving the names of all objects to which the command is to be applied. The object names can be specified directly or using the wildcards * and ?.

For example, to display the state of printers prn1, prn2, prn3 etc., enter:

```
xpstat -dev prn1 prn2 prn3 ...
```

where prn1, prn2 and prn3 are direct object names.

You can also specify a list of remote objects in which case the following rules must be observed:

1. The list must not contain both local and remote objects.
2. Each identifier must refer to the same partner gateway.

The following examples show incorrect specifications:

```
... printer1 gateway!printer4          (rule 1)
```

```
... gateway!printer1 gateway3!printer2 (rule 2)
```

The following specification is correct:

```
... gateway!printer1 gateway!printer3
```

Selection criteria list (option -scl)

With selection criteria lists you can specify objects indirectly: -scl (selection_criteria_list) allows you to select objects which match the specified criteria.

A selection criterion is a combination of an option and corresponding value(s). The options and values are specified as one character string enclosed in double quotes.

You can also use selection criteria lists to address remote objects. In this case, the gateway name must be followed by an "!" in the identifier list but must not be included in the criteria list, e.g.:

```
xpstat -dev gateway1! -scl "-ho host1"
```

This command shows the status of all the printers that are accessible in the domain reached via the gateway gateway1 and that are administered on host1.

When accessing remote resources, the functionality of the criteria list depends very much on the print protocol in use. For more information on the supported options, see the [Section "The gateway protocols BSD and GIP2"](#) in the appendix.

The options specified as selection criteria are generally the same as those used with the xpadd command when the object was first added to the Xprint system. The exceptions are listed in the following table and in the individual command descriptions.

Object	Options for -scl	
	possible additional options	not allowed

-dev(printer)	-ad administrator-ju justification-rd printer-st ACTIVE-st NOT_ACTIVE-si ON-si OFF-so ON-so OFF	
-dgr(printer group)	-ad administrator-ju justification-si ON-si OFF	
-flt(filter)	-ad administrator	
-fnt(font)	-ad administrator	
-frm(form)	-ad administrator	
-gtw(gateway)	-ad administrator-ju justification-st ACTIVE-st NOT_ACTIVE-gi ON-gi OFF-go ON-go OFF	
-hos(host)	-ju justification	-po hierarchy_position-pd host_predecessor
-job(print job)	-ik info_key-jo job_originator-st ACTIVE-st WAIT-st SCHEDULED-st TOP-st SUSPEND-st DATA_FILTERING-st INTERRUPTED-st TERMINATED	-jt job_title-te job_template-sx (silent execution)
-jtp (job template)	-ad administrator	
-lrs (loadable resource)	-ad administrator	
-pcl (pcl)	-ad administrator	
-prm (permission list)	-ad administrator	
-rec(recovery rule)	-ad administrator	
-spv(supervisor)	-ad administrator-ju justification-st ACTIVE-st NOT_ACTIVE	
-srv(server)	-ad administrator-ju justification-st ACTIVE-st NOT_ACTIVE-st SHUTDOWN-si ON-si OFF-so ON-so OFF	

Table 11: Exceptions in criteria lists

Note: The option -ik *info_key* refers to the field Status Information in the output of the xpsstat -job command. Here you can specify the first part of the information displayed there, e.g. IK000004. Possible values for *info_key* are:

info_key	Meaning
IK000001	Waiting for data

IK000002	Job information lost
IK000003	Slow filter execution problem
IK000004	File transfer problem - job aborted

Table 12: Values for info_key

Character strings

To use a string in a selection criteria list, you must enclose it within single quotes ('). For example, to change the state of all printers with the user comment *printer for all users* to NOT_ACTIVE, enter:

```
xpchange -dev -scl "-cu 'printer for all users'" -st NOT_ACTIVE
```

Suffix =

The = suffix can be used to select objects that have options containing lists. For example, to select all printer groups which only contain printers hp1 and hp2, enter:

```
-scl "-dl= hp1 hp2"
```

whereas -scl "-dl hp1 hp2" (i.e. without =) selects all printer groups which contain printers hp1 and hp2 as well as other printers.

Boolean values

You can also search using Boolean options (such as a printer's -aa (automatic activation) option, or a font's -tm (mandatory typeface) option). If, for example, -xx is a Boolean option, -xx or -xx+ selects objects for which the option value is TRUE, while -xx- selects objects for which the option value is FALSE. So, to select all fonts which have a mandatory typeface (Boolean value TRUE), enter:

```
-scl "-tm" or -scl "-tm+"
```

Or, to select all fonts which do not have a mandatory typeface (Boolean value FALSE):

```
-scl "-tm-"
```

Wildcards

Standard wildcards (* or ?) can also be used in selection criteria lists for options:

```
xpchange -job -scl "-de dru* -fm reports2"
```

In the above example, -de dru* -fm reports2 specifies all print jobs printed on printers whose names begin with dru... and which use the form reports2 as their default form.

Wildcards cannot be used for the following:

- any options which require numeric values (e.g. a printer's -pr priority option or a form's -ph page_height and -pl page_length).
- any options which use a list of predefined keywords (e.g. a server's -sp scheduling_policy or a printer's -sl security_level option).

Wildcards can also be used within non-exhaustive lists (such as a printer group's -dl printer_list), provided the = suffix is not used.

Combining identifier lists and selection criteria

The identifier list can be combined with selection criteria if required. For example, to select all printers whose name starts with the letter p and which have a security level of SECRET, enter:

```
-dev p* -scl "-sl SECRET"
```

3.1.3 Options

Options allow you to modify the attributes of individual or several objects as required.

If *no* options are specified, Xprint enters appropriate default values or the existing attributes of the objects remain unchanged.

If you specify additional options, the following applies:

General rules

- *Separators*: further specifications in the command line must also be separated by blanks or tabs.
- *-- character*: to avoid confusion with Xprint's own entries, e.g. with `-dr ...`, file names and other values which begin with the `"-"` character must be specified with an *additional* `"-"`, i.e. with `--`. For example: `-myfile` must be entered as `--myfile`.

This rule also applies to modifications and to indirect selection via `-scl`. Example: `xpdcl -job -scl '-dr --abc'`

- *KEYWORDS*: with some options you can only use keywords. These must be written in uppercase letters and can be abbreviated down to one letter as long as the abbreviation is unique and no letters are skipped. E.g.: `LONG` can be specified as `L`, and `UNCLASSIFIED` as `U` (`SE` cannot be used for `SECRET` because it could be confused with `SENSITIVE`)

- ** and ? characters*:

(* stands for string or no character, ? stands for a single character.)□

To use these characters as themselves, you must escape them with a preceding backslash.

Objects: the wildcard characters * and ? can be used in object-identifier lists and in indirect selection with `-scl`.

Jobs: the * and ? characters can also be used when specifying print job names, global job names, and names of servers.

Some options also support these characters. As these are exceptions, however, using * and ? is described with the relevant options.

Suffixes + and - with options

Some options (such as a printer group's `-dl printer_list` option) consist of a list of other objects or items. For this type of option, you can use the suffixes + and - to add/delete objects to/from the list or to replace objects in the list with new ones.

Examples for printer `hp1`:

```
xpmod -dgr gp1 -dl- hp1
```

□

deletes `hp1` from group `gp1`

```
xpmod -dgr gp1 -dl+ hp1
```

□

adds `hp1` to group `gp1`

Example: to create a new printer group `gp2` with the same attributes as group `gp1` but with the additional printers `lp1` and `lp2`:

```
xpcopy -dgr gp1 gp2 -dl+ lp1 lp2
```

Setting or resetting Boolean options

Some options have a Boolean value (SET/RESET) (e.g. a printer's `-ep` □

(`enable_polling`) option). The only way you can modify these options is by setting or resetting them using the + and - suffixes respectively.

Example: to set the enable polling option for printer `lp2`, enter:

```
xpmod -dev lp2 -ep+
```

Resetting an option to its default value

To reset an option to its default value, use the - suffix.

Example: to create a new form `inv2` with the same attributes as `inv1`, but no mandatory font (`-mf`), enter:

```
xpcopy -frm inv1 inv2 -mf-
```

Example: to reset the print quality of font `font1` to its default value of `DRAFT`, enter:

```
xpmod -fnt font1 -pq-
```

Example: to copy the attributes of form letter1 to the new form letter2, but with the default layout -ls PORTRAIT, enter:

```
xpcopy -frm letter1 letter2 -ls-
```

A command for changing an entry usually refers to a single object, e.g. to a printer (-dev) which is to work with a form other than the default one. In this case, only one object must be specified in the command line in the shape of an object type and an object name:

```
xpadd -job ...
```

□

submits a print job

```
xpchange -dev name ...
```

□

changes the state of a printer

However, if a command is used to create a new entry for an object which is dependent on another object, both objects must be specified (as a mandatory option). The format for options must be used here.

3.1.4 Special commands

Xprint also provides commands which differ from the command structure described above.

These commands are used for special purposes, e.g. purposes which can only be achieved using a complex sequence of Xprint commands. Some of them are shell scripts, menu-driven or differ from the usual commands with respect to their access rights.

These special commands are

Command name	Function	Description
xpconf_dev	Defining printers	...
xpmount	Mounting forms	...
xppatch	Changing the host name	...
xppoll	Polling the physical printer status	...
xprdir	Redirecting print jobs	...

Table 13: Special commands and their functions

How to call each of these commands and the individual functions they provide is described in the corresponding sections for each command.

3.1.5 Command result

Error messages

If you enter a command which has the wrong format or contains a syntax error, you will automatically receive brief syntax information or an error message. You can then check your command line according to this information.

Example

```
xpadd -job -dr file1 -de dr0#
```

```
XP000110: Invalid character in value of <-de>
```

The Xprint error messages are listed in the [Chapter "Commands"](#).

Command return codes

In addition to its standard output and standard error messages, each command returns a numeric return code.

This code is *zero* if the command is successfully analyzed and found to be syntactically correct.

Non-zero codes are returned if the command failed for any reason.

The various return values have the following meanings:

Value:	Meaning:
0	The command has been executed successfully.
1	A syntax error has been detected in the user's input.
2	At least one error has been detected during the semantic analysis of the command or during processing of the request.
3	A system error has occurred during processing of the command.

Table 14: Return values

3.2 Description of the individual commands

3.2.1 **xpadd -dev** - Adding a device

This command is for administrators' use only.

Format

xpadd -dev device_name -da device_address [options]

Description

The **xpadd -dev** command adds a new printer to the Xprint system. The options can be used to set up specific attributes for this printer, such as the PCL, the connection type, the authorized users, etc. Use the **xpshow** or **xpstat** command to make sure that the relevant objects (PCLs, permission lists etc.) are actually available. If no options are specified in the command, Xprint uses the default values.

State: when a printer is added to the Xprint system its state is set as follows: initial state (-st) NOT_ACTIVE, spoolin (-si) and spoolout (-so) OFF. (For how to activate the new printer, see the **xpchange -dev** command (...) and option -aa later in this section.)

If you want to set up an SNI printer, the **xpconf_dev** command allows you to do this quickly and easily (see [Section "xpconf_dev - Configuring a new printer"](#)).

Operands

-dev device_name

□

The new printer must be given a new name. (The name must not be the same as that of any existing printer or printer group.) The printer name is used for printer administration and for the submission of jobs to this printer.

-da device_address

□

This operand gives the address of the device. The address is normally checked by physically opening the device. For devices that are connected via a LAN, the connection timeout for the test can be adjusted by using the environment variable **XP_LANDEV_TOUT**. This variable contains the duration of the connection timeout in seconds. The value must be between 0 and 900. If the value is zero, no check is made. If the value is higher than 900, it is silently lowered to 900. If the variable is not defined, or contains a non-numerical or negative value, a default value of 30 seconds is used.

How the printer's address (path) in the network is specified depends on the connection type used by the printer (SERIAL, PARALLEL, LAN or SCSI).

Local: SERIAL, PARALLEL, or SCSI

The address is the name of the special file identifying the printer, e.g. `/dev/lp1`.



The special file for the new printer must already have been created on the host, otherwise a warning is displayed but the command is still executed. However, if you try to submit a print job

to this printer, Xprint will reject the `xpadd -job` command.

Network: LAN

This type of connection exists when a printer has a LAN port. The same applies if the printer can be accessed via a LAN box or via a PC that is connected to a LAN (with Wprint-Server or SPPCS). The address consists of two parts: the Internet address of the printer and the port number it uses.

You must specify either the explicit Internet address of the printer in the format `ww.xx.yy.zz` or the name of the relevant host. The port numbers of LAN ports for printers or of LAN boxes are specified by the manufacturer. For PCs with Wprint-Server or SPPCS, you can choose the port number with certain restrictions. Both parts of the address must be specified in a single string, separated by a field separator (blank, tab or newline character) and each enclosed in double quotes.

`-da "host_name port"`

If the printer address you have entered is incorrect or cannot be checked (e.g. because it is associated with a host whose spooler system has been terminated), a warning message is displayed, but the `xpadd -dev` command is still accepted.

Options

If no options are specified, Xprint uses the default values.



Several of the options that are available as part of the `xpadd -dev` command cannot be used unless other objects (forms, permission lists, etc.) have already been set up in the Xprint system. Before you add a new printer, you should therefore check that these exist using the `xpshow -xxx` command. You should also know the emulation of the printer type (e.g. HP LaserJet, PostScript) as well as its connection protocol, data transfer speed, parity and the number of data bits per byte.

Before adding a new printer to the Xprint system you should therefore use the checklist below to ensure that all the options you want to specify are valid.

Checklist for `xpadd -dev` options:

1. *Attributes*: are the attributes you have chosen for the new printer compatible with its PCL? Check the attributes using the `xpshow -pcl -diL` command. If any inconsistencies occur, the `xpadd -dev` command will be rejected.
2. *Permission list*: if the use of the new printer is to be restricted to a specific group of users, does an appropriate permission list already exist in the Xprint system? See the `xpshow -prm` or `xpadd -prm` command (permission list).
3. *Form*: if you want to set up a default form for the printer, does the form already exist in the Xprint system? See the commands for forms (`-frm`). The default form cannot be MANUAL.
4. *Layup*: is the layup specification of the printer's default form compatible with the printer's PCL? Check this using the LONG displays of the `xpshow -frm` and `xpshow -pcl` commands. If the layup specification is not compatible, modify the form's `-ls` option so that it is.
5. *Font*: is the font of the default form compatible with the printer's PCL? Check this using the LONG displays of the `xpshow -fnt` and `xpshow -pcl` commands. If not, modify the form so that its default font is compatible with the printer's PCL. If an appropriate font does not already exist, you may have to add one to the Xprint system. See the commands for fonts `-fnt`.
6. *Error recovery*: if you want the printer to use a specific set of recovery rules for error handling, does an appropriate recovery rules object already exist in the Xprint system? See the commands for recovery rules `-rec`.
7. *Fast filter*: if the supervisor is to activate a fast filter before the jobs are printed, check whether the relevant filter already exists in the Xprint system. See the commands for filters `-flt`.
8. *Supervisor*: if the printer is to be assigned to a specific supervisor, this supervisor must already exist. See the commands for supervisors `-spv`.
9. *Special file*: does the special file to which the printer is to be assigned exist?

10. If you want to attach loadable resources to the printer, be sure that the loadable resources already exist and that the driver PCL supports the type of resource.

-aa

Specifies that the printer is activated automatically when the host on which the responsible server is defined is activated.

-ca *comment_for_administrator*

□

Here you can add a comment to the printer which can only be displayed by administrators (LONG display of the `xpshow -dev` command).

-co *connection type*

□

The method used to connect the printer to the host. You can choose from the following values:

SERIAL

connection to a serial port

PARALLEL

connection to a parallel port

LAN

LAN printer

SCSI

SCSI high-performance printer

Default: SERIAL.

-ct *content_type*

□

A list indicating the data formats or "content types" that can be printed directly by the printer, i.e. without requiring any filter conversion. The data type SIMPLE is predefined in Xprint. However, you can always specify new data types yourself, e.g. TROFF. The default list contains the content type SIMPLE unless the printer involved is a PostScript printer, in which case the list is empty.

SIMPLE is a special content type which corresponds to ASCII plus the following additional control characters:

ASCII mnemonic:	Meaning:	octal:	hex.:
BS	backspace	10	08
HT	tab	11	09
LF	line feed	12	0A
FF	form feed	14	0C
CR	carriage return	15	0D

Table 15: Content type SIMPLE

For further information, see the commands for filters `-flt`.



The option `-ct SIMPLE` cannot be used for PostScript printers.

By default the data format COMPATIBLE is used, i.e. the print data exactly matches the format required by the printer.

-cu *comment_for_user*

□

Here you can add a comment to the printer that will be seen by users when they use the `xpshow -dev ... -di LONG` command. If you want to use blanks within the text, you must enclose the text in double quotes.

-ep

This option puts the spooler backend in receive mode. It can thus receive and analyze return codes from the printer and initiate specific error recovery. This slows down the interface backend, but improves error recovery. Polling is disabled if this option is not specified. In the event of printer failures, only a general error recovery is possible.

The -ep option can only be used with printers that supply return codes and whose PCL supports polling. With other printers the command is rejected. To check whether a PCL supports polling, you can display its attributes using the `xpshow -pcl ... -di LONG` command.

-ev event_identifiers

□

A list of event types you want to be notified about, should they occur on the printer. The following values are possible:

NONE

No notification required.

ALL

All events that occur.

DEVICE_ERROR

Physical errors that occur on the printer.

MOUNTING

Can be used with printers that use MANUAL forms. You will be notified if the printer reports that a form needs to be mounted.

If one or more of the following options has been defined, the default is ALL; if not, the default is NONE:

`-na notification_delivery_address`

`-nm notification_delivery_method`

`-nr notification_repetition frequency`.

-fl filter

□

The name of the fast filter which must be activated by the supervisor when printing starts. For further information on filters, see [Section "xpadd -flt - Adding a filter"](#).

-fm default_form

□

With this option you can assign a default form to the printer. Xprint checks that the attributes of this form are compatible with the printer's PCL. If they are not, the command is rejected with an appropriate error message. To check whether your chosen attributes are supported, you can consult the LONG displays of the commands `xpshow -frm`, `xpshow -fnt` and `xpshow -pcl`. For further information on attributes of forms, see [Section "xpadd -frm - Adding a form"](#).



A form of type MANUAL cannot be specified as the printer's default form.

-fp form_permission

□

The name of a form permission list specifying which forms can (allowed list) or cannot (denied list) be used on the printer. For further information on permission lists for forms, see [Section "xpadd -prm - Adding a permission list"](#). If this option is omitted, all forms which are compatible with the printer's PCL can be used on the printer.



If you have specified a default form with the -fm option, you cannot specify a form permission list which prevents the default form from being used on the printer.

-ho host_name

□

The name of the host to which the printer is connected and from which it is administered. The default is the name of the host where the printer's supervisor is located. If a printer of the same name already exists on the specified host, the execution of the command is aborted with an error message.



Only the Xprint administrator can add printers on remote hosts. However, the system administrator and the local Xprint administrators of this host can administer the printer.

For a printer which is directly connected to a LAN, the `-ho` option specifies the host from which the printer will be administered. In this case, however, the supervisor of this printer must be defined on the host.

-kc *keep_connection*



Defines how the connection from the system to the printer is to be set up when the spoolout of a printer is activated. You can specify either TEMPORARY or PERMANENT:

TEMPORARY



The connection is set up before and cleared down after each job (see also option `-or connection_setup_time`).

PERMANENT

The connection is retained as long as the spoolout for the printer is set to ON, even if there are no active jobs on the printer.

-lr *resource_list*



A list of predefined resources for downloading to the printer, while enabling the spoolout of the device. These resources have to be defined as permanent (`xpadd -lrs -pe`). They can be accessed by any job being printed on the device.

No resources will be considered if this option is omitted. The option can only be selected if the loadable resources' PCL matches the printer's PCL. Use `xpshow -lrs -di "-pc"` to see the PCL that the loadable resource is defined for. Duplicates will be silently removed from the `resource_list`.

-me

Specify this option if you want to control the downloading of resources to the printer. This may be useful to avoid downloading a resource that is already in the printer's memory. Use `xpshow -lrs -di LONG` to see if the printer's PCL supports loadable resources. The resource manager will not be used if this option is omitted.

-ms *mandatory_start_sheet*



This determines whether or not a start sheet is always printed at the beginning of each job, irrespective of whether the user has requested one or not. The following values can be specified:

BRIEF



A start sheet giving brief job details will always be printed at the beginning of each job.

FULL

A start sheet giving full job details will always be printed at the beginning of each job.

NONE

No start sheet will be printed.

FREE (default)



The printing of a start sheet, and what details are printed on it, is determined by the value of the `-js job_start_sheet` option of the form specified by the user (or the printer's default form if no form has been specified).

-na *notification_delivery_address*

□

The address to which Xprint is to send messages concerning the printer. The format of this address depends on the notification delivery method you have selected (see also options **-ev** *event_identifiers* and □

-nm *notification_delivery_method*).

MAIL

Messages are sent to the specified user address by e-mail. The recipient can read them with the mail command. The recipient of the notification is, by default, the administrator who defined (or modified) the notification profile and the printer configuration. If the notification is to be sent to another user, the appropriate user name must be specified here. For example:

-na "<user_name>" or

-na "<user_name>@<host_name>"

WRITE

□

Messages are written directly to the screen of the specified user. The user ID and, if appropriate, the terminal ID of the user terminal must be specified as the address. The recipient of the notification is, by default, the administrator who defined (or modified) the notification profile and the printer configuration. You can also have the notification sent to a different user of the same host by specifying the relevant user name:

-na "<user_name>"

COMMAND

□

Here you must specify a string identifying the path name of the file (and any arguments) to be executed. The command string can contain the keywords %DEVICE%, %EVENT% and %ERROR% which are used to identify respectively, the printer name, the event that has occurred and, (for the DEVICE_ERROR event only) a description of the error. The file will be executed on the host where the notification was defined.

If a notification is to be sent, Xprint creates a shell and restores the user ID and group ID, the user's working directory and his/her environment variables. The keywords are replaced by their appropriate values and the command is executed in the preset environment.

FILE

Here you must specify the path name of the file to which the notification is to be written. This file can be either a normal file or, for example, the address of a printer or terminal. The specified file must be located on the host where the notification profile was defined.

-nd *notification_delivery_descriptor*

□

A comment clarifying the notification. This comment can be displayed using the **xpshow -dev** command.

-nm *notification_delivery_method*

□

How you want to be notified about the events listed under option **-ev**. The methods available are:

MAIL (default)

□

Notifications are sent via the shell command mail.

WRITE

Notifications are sent via the shell command write. The write command is changed to mail, however, if:

- Xprint has the state NOT_ACTIVE on the host where the notification was defined, or
- the user who is to be notified is not logged in.

COMMAND

The notification is sent via the execution of a shell command, a shell script or a program. If Xprint is NOT_ACTIVE on the host where the notification was defined, the notification is delivered via mail.

FILE

The notification is written to a file via write. If Xprint is NOT_ACTIVE on the host where the notification was defined, the notification is delivered via mail.

-nr *notification_repetition_frequency*

How often the notification is to be sent (every x minutes) until the reason for the notification no longer exists (e.g. DEVICE_ERROR is recovered). If no value is specified here, the notification is sent only once.

-or *connection_setup_time*

Defines the maximum length of time the system has to set up the connection to a printer for a print job, irrespective of the values specified for options *-kc keep_connection* and *-co connection_type*. You can specify a value of 1...65533 (seconds) or INFINITE (default). If the time is exceeded, the print job is put in the SUSPEND state.

-pb *parity_bit*

The parity bit controlling data transfer: ODD, EVEN or NONE (default). If the option *-sb significant_bits* is set to 8 (see below), you must specify NONE for the *-pb* option (default).

-pc *printer_capability_list*

The printer capability list (PCL) used by the printer. PCLs offered with this release of Xprint are listed in the appendix. The default is the GENERIC PCL supplied with Xprint. Use the `xpshow -pcl` command to display a list of all PCLs defined in the system.

For further information on PCLs, see [Section "xpadd -pcl - Adding a PCL"](#).



Make sure that all the options you set up with the `xpadd -dev` command are compatible with your chosen PCL, otherwise the command will be rejected. Use the `xpshow -pcl ... -di LONG` command to display the attributes of a PCL.

-po *protocol*

The connection protocol required by the printer. There are three alternatives: XON (xon/xoff), ETX (etx/ack), RXON (robust xon).

ETX or RXON can only be specified if the printer supports the protocol (see printer documentation) and, in the case of ETX, if this is listed as supported in its PCL. If this is not the case, the `xpadd -dev` command is rejected. The default is XON.

-pr *printer_priority*

Specifies the minimum priority a job must have to be printed on the printer. The range available is from 1 (lowest) to 100 (highest). Jobs with a lower priority level than the one specified here will still be accepted by the printer, but will remain in the WAIT state until the printer's priority is changed (see [Section "xpchange -dev - Changing the state of a printer"](#)). In such cases, a warning will be displayed.

If no priority is specified, the default printer priority of the host is used. See the `xpadd -hos ... -dp` option for more information.

-ps *paper_specification*

□

The method of paper feed to be used on the printer. The following settings are possible

AUTOMATIC_SINGLE_SHEET

□

automatic feed of single sheets

MANUAL_SINGLE_SHEET

□

manual feed of single sheets

LISTING

□

continuous paper

If you specify MANUAL_SINGLE_SHEET, the interface backend will wait for confirmation before each page (including the first one) is printed. This confirmation is provided by the `xpchange -dev -np NEXT` command (see ...).



The `xpchange -dev` command can only be used by administrators, so if MANUAL_SINGLE_SHEET is specified, all jobs submitted by normal users for printing on the new printer will require intervention from an administrator in order to be printed.

-rr *recovery_rules*

□

The file name of a set of (optional) recovery rules to be applied instead of the defaults when printer errors occur. For example, for the printer error "PaperEnd", the Xprint system retries continuously to print the job until the error is corrected (i.e. the paper supply is replenished).

Alternative recovery rules given here could override this default action and specify instead, for example, that the job be suspended and the printer set to NOT_ACTIVE until an administrator intervenes. For how to define recovery rules, see [Section "xpadd -rec - Adding recovery rules"](#).

-sb *significant_bits*

□

The number of significant bits in each byte to be transferred: either 7 or 8 (default). Option `-pb parity_bit` above depends on the value set here.

-sl *security_level*

□

The security level to be assigned to the printer. Possible values are:

- UNCLASSIFIED (default)
- SENSITIVE
- CONFIDENTIAL
- SECRET
- TOP_SECRET

The printer's security level affects the way Xprint distributes the jobs over the various printers. For example, a job with a security level SECRET can only be printed on a printer with at least the same security level (SECRET or TOP_SECRET). See also the `-sl` option under `xpadd -job`.

-sp *speed*

□

The speed to be used for data transfer: 1200, 2400, 4800, 9600 (default), 19200 or 38400 bps (bits per second).

-su *supervisor_name*

□

The name of the supervisor that will control the printer. This supervisor must be on the same host as the printer. If no supervisor is specified, Xprint uses the one with the same name as the host. If no such

supervisor exists, a new one is automatically created and used.

For printers connected via a LAN, the name of the host that controls the printer is used.

-sy *stty_[options]*

□

A string of options for initializing the printer, similar in use to the `stty` command. The following values are possible:

NO_SETTINGS

□

No special printer settings are made for Xprint. The current settings (as shown by the `stty -a printer_path_name` shell command) are used for printing.

"stty_string"

□

The string entered here will be used to initialize the printer, overriding any values set up with the `xpadd -dev` command. If the `-sy` option is omitted, information for printer initialization is extracted from the Xprint attributes for the printer, i.e. the data transfer speed (`-sp`), connection protocol (`-po`), parity (`-pb`) and significant bits (`-sb`) set up with the `xpadd -dev` command.

-up *user_permission*

□

The name of a user permission list specifying which users can (allowed list) or cannot (denied list) use the new printer. For further information on user permissions, see [Section "xpadd -prm - Adding a permission list"](#). If this option is omitted, all users can use the printer. The printer's administrators can always use the printer, even if an associated permission list denies them access.

Example

To set up the printer `printer2`, which has a serial connection and the PCL PROPRINTER, and is controlled by supervisor `rhine`:

```
xpadd -dev printer2 -da /dev/term/tty001 -co SERIAL /
```

```
-su rhine -pc PROPRINTER
```

Files

/var/spool/Xprint/config/SP/supervisor/printer

□

If this file does not yet exist, it will automatically be created with the name of the new printer the first time the printer is activated.

/etc/hosts

□

For the network address of a LAN printer if a symbolic name is used.

See also

- `mknod(1)`, `stty(1)`, `write(1)`
- `xpadd -dgr`, `xpadd -flt`, `xpadd -fnt`, `xpadd -frm`, `xpadd -hos`, □
`xpadd -job`, `xpadd -lrs`, `xpadd -pcl`, `xpadd -prm`, `xpadd -rec`, `xpadd -spv`, `xpadd -srv`, `xpchange -dev`,
`xpshow -dev`
- `xpconf_dev` (special command)
- "Xprint V6.0 - User and Administrator Guide"
- [Section "Loadable resources"](#)

3.2.2 `xpadd -dgr` - Adding a printer group

This command is for administrators' use only.

Format

xpadd -dgr group_name **-dl** local_device_list **-rl** remote_device_list [*options*]

Description

Each printer group in the Xprint system must have a unique name. This name is used to direct jobs to the group and for printer group management. When a new printer group is set up, its spoolin state is automatically set to ON, irrespective of the spoolin state of its individual printers.

When a job is submitted to a device group, the list of local devices is considered first. If an acceptable destination is found among the local devices, the remote list is ignored. Otherwise the remote devices are tried in the same order as they appear in the list, until the job is accepted.



'Local' is relative to the submission *domain* and not the submission *host*.

If you have several paths for the same remote printer (e.g. *gtw1 ! mydev* and *gtw2 ! mydev*), then you have a better chance of reaching the printer, but it may take more time.

Defining device groups which only contain one device is a convenient way of defining alias names for devices. The alias can be for a local or remote device.

The local list and the remote list cannot both be empty: there must be at least one local or remote device in the group.

The `xpadd -dgr` command can only be used by administrators. However, general users can set up their own printer groups using the `XP_DESTIN` shell variable. The "Xprint V6.0 - User and Administrator Guide" contains more information on this variable.

Before you add a new printer group to the Xprint system, you must check the following:

Checklist

1. *Individual printers*: are all the printers to be included in the new group already set up on the system? If not, use the `xpadd -dev` command to add them to the system. For more information, see the [Section "xpadd -dev - Adding a device"](#).
2. *Permission list*: is the use of the printer group to be restricted to specific users? If so, does an appropriate permission list already exist in the Xprint system?

Operands

-dgr device_group_name

□

The name of the new printer group. Each printer group in the Xprint system must have a unique name, which cannot be the same as that of any individual printer either. If you specify a name that already exists as a printer name on the system, the `xpadd -dgr` command will be rejected.

The name is used to direct jobs to the group, and for printer group management.

-dl local_device_list

□

A list of the names of (previously defined) local printers which are to be included in the new group. Each printer name must be separated by a blank, tab or newline character. Printer groups cannot be included in this list. The list of local devices and remote devices may not both be empty.



'Local' is relative to the submission *domain* and not the submission *host*.

-rl remote_device_list

□

A list of the names of remote printers which are to be included in the new group. Each printer name must be separated by a blank, tab or newline character. Printer groups cannot be included in this list. Remote printers are defined as *ptn_gateway ! device*. When the group is defined, Xprint checks that *ptn_gateway* exists as a gateway with the type PARTNER. The list of local devices and remote devices may not both be empty.

Options

-ah *administration_host*

□

The name of the host on which the printer group is added and from where it is administered. The default is the local host. Only the Xprint administrator can add printer groups on remote hosts. The system administrator and the local Xprint administrators can administer the printer group.

-ca *comment_for_administrator*

□

Here you can add a comment to the printer group which can only be displayed by administrators (LONG display of the `xpshow -dgr` command).

-cu *comment_for_user*

□

Here you can add a comment to the printer group that will be seen by users when they use the `xpshow -dgr ... -di LONG` command. If you want to use blanks within the text, enclose the text in double quotes.

-up *user_permission*

□

The name of a user permission list specifying which users can (allowed list) or cannot (denied list) use the new printer group. For further information on user permissions, see [Section "xpadd -prm - Adding a permission list"](#). If this option is omitted, all users can use the printer group. The administrator who adds the printer group to the Xprint system can always use the printer, even if an associated permission list denies him/her access.

A user does not need to have access to all the printers in a group in order to direct jobs to the group. Xprint automatically directs the job to a printer in the group that can handle it and to which the user has access. A user does, however, need permission to access the printer group in order to direct jobs to it, even if he/she has access to individual printers in the group.

Example

To create the printer group `group1` containing the printers `printer1`, `printer2` and `printer3`, and restrict its use to users in permission list `perm1`:

```
xpadd -dgr group1 -dl printer1 printer2 printer3 -up perm1
```

Variables

Environment variable `XP_DESTIN`

□

In the shell variable `XP_DESTIN`, instead of a printer you can also enter a list of printers (separated by spaces) to which jobs will be assigned which have no specific destination defined (`xpadd -job ... -de destination`).

Environment variables `XP_DLPRIO` and `XP_LOCALPRIO`

When a job is submitted to a device group (at `xpadd -job` time), it is normally printed on the first free device in the group (see also [Section "Printer Selection"](#) for more details). This default behavior can be modified when the job is submitted, using the shell environment variables `XP_DLPRIO` and `XP_LOCALPRIO`. If `XP_DLPRIO` is set and the devices of the group are controlled by different servers, the order of the device list in the definition of the device group is observed. If `XP_LOCALPRIO` is set, priority is given to the devices of the device group that are local to the submission host (this minimizes file transfers). If `XP_DLPRIO` is set, `XP_LOCALPRIO` is not taken into consideration.

See also

`xpadd -dev`, `xpadd -job`, `xpadd -prm`, `xpchange -dgr`, `xpshow`
 "Xprint V6.0 - User and Administrator Guide"

3.2.3 **xpadd -flt - Adding a filter**

This command is for administrators' use only.

Format**xpadd -flt** *filter_name* [*options*]**Description**

The **xpadd -flt** command is used to add a new filter to the system. A filter can be set up with specific attributes, such as input and output types and special modes. These attributes influence the selection of suitable filters for print jobs.

Operands**-flt** *filter_name*

□

The name you want to give to the new filter.

Options**-ah** *administration_host*

□

The name of the host on which the filter is set up and administered (default: local host). Only the Xprint administrator can add filters on remote hosts. The system administrator and the local Xprint administrators of this host can administer the filters.

-ca *comment_for_administrator*

□

Here you can add a comment to the filter which can only be displayed by administrators (**xpshow -flt ... -di LONG**).

-cm *command*

□

This string contains the path name of the filter's executable. The path name must be the same on all the hosts on which the filter resides. If a full path name is not specified, the system searches for the filter's executable in the `/var/spool/Xprint/config/filters` directory. The default command is the name of the filter.

-cu *comment_for_user*

□

Here you can add a comment to the filter that will be seen by users when they use the **xpshow -flt ... -di LONG** command. If you want to use blanks within the text, you must enclose the text in double quotes.

-ho *hosts*

□

A list of hosts on which the filter is to be available. If the executable of the filter, explained under the **-cm** option above, is not found on any of the listed hosts, a warning is issued but the command is accepted. The default is the local host, i.e. the host on which the command was issued.

-it *input_content_types*

□

The content types that can be processed by the filter. If this option is not specified, the filter will be assumed to accept any content type. This option is only of significance for slow filters.

Each name specified here should have no more than 63 characters. A typical example of an input content type is the data format **SIMPLE** or the name of a **PCL**.

-op *option_list*

□

A list of strings which identify which options of the **xpadd -job** command are converted into which options for the filter program. This allows you to control the way the options are passed on to the filter. For more information and examples see the [Section "Filter programs"](#).

-ot *output_content_types*

□

The content types the slow filter produces as output. Each name specified here should have no more

than 63 characters. If this option is not used, it is assumed that the output type is the same as the input type and the filter will, therefore, only implement special modes without conversion.

-tp *filter_type*

□

Two types of filter may be added to the system: SLOW and FAST. Slow filters convert input data types into an output data type that is compatible with the destination printer's input content type; they are automatically selected by the system. Slow filters allow the additional use of special printing modes.

Fast filters are executed between the backend and the printer to provide (amongst other functions) error recovery. They can be selected only indirectly through PCL or printer selection.

Example

Enter the input below to set up the new slow filter filter4 for use with Xprint. The executable filter file has the name st2epson and is located in the default path /var/spool/Xprint/config/filters. As Xprint searches this directory by default, it need not be specified explicitly. The format of the input content type is standard, the output content type is Epson4.

```
xpadd -flt filter4 -cm st2epson -it standard -ot Epson4
```

Files

/var/spool/Xprint/config/filters

The default directory for filter programs.

See also

xpadd -dev, xpadd -job, xpshow

Section [Filter programs](#).

3.2.4 xpadd -fnt - Adding a font

This command is for administrators' use only.

Format

xpadd -fnt *font_name* [*options*]

Description

The xpadd -fnt command allows you to add a new font to the Xprint system.



If you are going to add the new font to a form which is (or will be set up as) a printer's default form, make sure that the specified font attributes (print quality (-pq), character style (-cs), typeface (-tp), pitch (horizontal motion -hm), line spacing (vertical motion -vm) and character set (language -la)) are supported by the printer's PCL. You can use the xpshow -pcl ... -di LONG command to see which attributes are supported.

Operands

-fnt *font_name*

□

The unique name by which the font is known to both users and the Xprint system.

Options

-ah *administration_host*

□

With -ah you select the name of the host where the font is added, and from where it is administered (default: local host). Only the Xprint administrator can add fonts on remote hosts. The system administrator and the local Xprint administrators of this host can administer the font.

-ca *comment_for_administrator*

□

A comment which can only be displayed by administrators using the `xpshow -fnt ... -di LONG` command.

-cs *character_style*

☐

The character style to be used for the new font; either STRAIGHT (default) or ITALICS.

-cu *comment_for_user*

☐

Here you can add a comment to the font that will be seen by users when they use the `xpshow -fnt ... -di LONG` command. If you want to use blanks within the text, you must enclose the text in double quotes.

-hm *horizontal_motion*

☐

The number of characters per inch (pitch). The default is 10.

-la *language*

☐

The character set to be used - for example, INTERNATIONAL, ENGLISH, FRENCH, GERMAN, USA, ISO 17, HP Legal, HP Roman-8 etc. If no value is specified, the character set currently loaded on the destination printer will be used. To find out which character sets are provided by your printer refer to the printer documentation.

-pq *print_quality*

☐

The print quality of the font. Depending on the PCL used, this can be specified as either DRAFT, NORMAL or HIGH. The default is DRAFT.

-tm

Specifies that the font's typeface (see option `-tp` below) is mandatory, i.e. it cannot be changed by a user when the job is submitted (using `xpadd -job -ft font_name -tp`). If this option is not specified, the user can specify a different typeface.

-tp *typeface*

☐

Specifies the font's typeface - Courier, Helvetica etc. The default is NONE, i.e. the typeface currently loaded on the destination printer will be used.

-vm *vertical_motion*

☐

The number of lines per inch (line spacing). The default is 6.



The values specified for the options `-pq`, `-cs`, `-tp`, `-vm`, `-hm` and `-la` are dependent on the PCL of the destination printer. Supported values can be displayed using the LONG option of the `xpshow -pcl` command.

Example

- To add the new font font2, with typeface SansSerif, a pitch of 12 cpi and the INTERNATIONAL character set:
`xpadd -fnt font2 -tp SansSerif -hm 12 -la INTERNATIONAL`
- To specify that the typeface Roman is mandatory for the font font7:
`xpadd -fnt font7 -tp Roman -tm`

See also

`xpadd -frm`, `xpshow`

"Xprint V6.0 - User and Administrator Guide"

3.2.5 xpadd -frm - Adding a form

This command is for administrators' use only.

Format

xpadd -frm form_name [options]

Description

The xpadd -frm command allows you to add standard forms to the Xprint system.

Standard forms are useful if you often use the same set of options with the xpadd -job command to print documents. To avoid having to explicitly enter every option each time, you can combine these options into a form. If you then spool in a job using this form, Xprint automatically assigns the options it contains and their values to the job.

Checklist

Before you add a new form to the Xprint system, you need to check the following:

Font: if a specific font is to be used as the form's default font, make sure the font already exists in the Xprint system. Use the xpadd -fnt command to set up an appropriate font if necessary. For further information, see [Section "xpadd -fnt - Adding a font"](#).

Permission list: if the form is to be restricted to specific users, make sure an appropriate permission list exists in the Xprint system. Use the xpadd -prm command to set up a suitable permission list if necessary. For further information, see [Section "xpadd -prm - Adding a permission list"](#).

Form: if the new form is to be set up as a printer's default form, make sure that the layup specification (-ls) and switching between single and double-sided printing (-sd) are supported by the printer's PCL. Use the LONG display of the xpshow -pcl command to see which attributes are supported.

Operands

-frm form_name

□

A unique name for the form that is to contain your chosen options.

Options

-ah administration_host

□

The name of the host where the form is added, and from where it is administered (default: local host). Only the Xprint administrator can add forms to remote hosts. The system administrator and the local Xprint administrators of this host can administer the form.

-ca comment_for_administrator

□

A comment which can only be displayed by administrators using the xpshow -frm ... -di LONG command.

-cu comment_for_user

□

Here you can add a comment to the form that will be seen by users when they use the xpshow -frm ... -di LONG command. If you want to use blanks within the text, you must enclose the text in double quotes.

-ft default_font

□

The default font to be used with the form. This can be overwritten by the user at the time the job is submitted, unless the -mf option (mandatory font) is specified (see below). If this option is omitted, the local default font will be used for all jobs where no alternative has been specified by the user.

The local default font is set up when a host is added to the Xprint system. It can be either a font that has already been configured (with □ xpadd -fnt), or the GENERIC font supplied with Xprint. For further information see [Section "xpadd -hos - Adding a host"](#).

-je *job_end_sheet*

□

The values BRIEF, FULL and NONE are available. The default value is NONE, i.e. an end sheet is not printed. In the case of the setting BRIEF, the end sheet contains information about the job including the job title, the job identifier, the name of the file that has been printed, the name of the printer used for the job, when the job was submitted, when it was actually printed, comments about the processing of the job, etc. The FULL output contains all the BRIEF information, plus a definition of the form and font used for the job.

See also the options -js (job start sheet) and -sp (job separator sheet).

-js *job_start_sheet*

□

The values BRIEF, FULL and NONE are available. The default value is NONE, i.e. a start sheet is not printed. The output for the BRIEF and FULL options depends on whether the sheet feed used by the printer is single sheet or continuous listing paper.

Single-sheet feed: with this type, both BRIEF and FULL start sheets are the same and consist of a single sheet of paper with ten lines of asterisks (*) at the top and bottom of the page and a summary of the job including the user and host name, the job title and file name and the date and time the job was started.

Listing paper: with this type, the BRIEF and FULL start sheets are different. The brief sheet is as described above, but for full, there are two sheets and the asterisks extend over the perforations to enable easy identification of each separate document.

The effect of the -js option depends on how the printer used by the form has been set up. A printer can be set up so that it will never print a start sheet (xpadd -dev ... -ms NONE), or it will always print either a BRIEF or FULL start sheet (-ms BRIEF or -ms FULL). If any of these values has been set, it will overrule any value specified with the form's -js option.

See also the options -je (job end sheet) and -sp (job separator sheet).

-ll *line_length*

□

The logical line length measured in inches (i), centimeters (c), millimeters (m), or - if no unit of measurement is given - in a specific number of characters. If this option is omitted, the line length is taken to be the paper width (as defined by the -pw option), minus the non-printable left and right margins defined by the PCL. Supported values can be displayed using the -di LONG option of the xpshow -pcl command.

-lm *left_margin*

□

The width of the left margin in inches (i), centimeters (c), millimeters (m), or - if no unit of measurement is given - in the number of characters (default: 0).

-lr *resource list*

□

This is a list of predefined resources for downloading to the printer when using the form. The list may also refer to resource classes. Duplicates will be silently removed from the resource list. The number of resources that can be downloaded to a printer will depend on the size of printer memory and the amount of data to download.

See xpadd -lrs on ..., and also the option xpadd -lrs -cn.

-ls *layup_specification*

□

The paper orientation - LANDSCAPE or PORTRAIT. The default is PORTRAIT. The value specified here depends on the PCL of the destination printer. Supported values can be displayed using the -di LONG option of the xpshow -pcl command.

-mf *mandatory_font*

□

This option is used to specify that the form's default font (-ft option) is mandatory (i.e. the user cannot specify an alternative font when submitting a job that uses this form). If this option is omitted, any font can be used to overwrite the form's default font.

-mm *mount_method*

□

Specifies how the form is mounted on a printer; possible values are AUTOMATIC or MANUAL. If AUTOMATIC is specified, jobs requesting different AUTOMATIC forms can be printed successively (on a particular printer) without requiring intervention by the user. If MANUAL is specified, jobs requesting this form will only be printed after the system has been notified that the form has been mounted on the destination printer (with the xpcchange -dev -mf or xpmount command). (For further information on the xpcchange -dev command, option -mf, see ...; xpmount is described on ...).

-nt *notification_delivery_threshold*

□

For manually mounted forms only (see the -mm option above). This option is used to specify the number of jobs that must be waiting to use the form before a mount notification is sent to the administrator of the printer the form is to be mounted on. (Default: 1).

The -nt option is meaningless for automatic forms (-mm AUTOMATIC) and will be ignored, even if a value is specified.

-ph *page_height*

-pl *page_length*

□

The logical page length measured in inches (i), centimeters (c), millimeters (m) or - if no unit of measurement is given - in a specific number of lines. The page height corresponds to the paper format used (e.g. A4, letter, legal), while the page length is the maximum length of the printable area of the page. If this option is omitted, the page length is the paper height (as defined in the -ph option), minus the non-printable top and bottom margins defined by the PCL. Supported values can be displayed using the -di LONG option of the xpsnow -pcl command.

-pw *page_width*

□

These options determine the paper size. The size can be expressed in inches (i), centimeters (c) or millimeters (m). (Default: 8.26i, i.e. A4 width.)

-sd *side_specification*

□

To specify whether the form is to be printed in single-sided mode (SINGLE), or double-sided mode. For double-sided forms, the binding can be either at the wide edge of the paper (DOUBLE_WIDE), or at the narrow edge (DOUBLE_NARROW). The default is SINGLE. The values specified here depend on the PCL of the destination printer. Supported values can be displayed using the xpsnow -pcl ... -di LONG command.

-sp *separator_sheet*

□

The options -js, -sp and -je allow you to specify that start, end and separator pages should be printed for print jobs which consist of several files or file copies. The information printed on these pages can be BRIEF, FULL or NONE.

-tm *top_margin*

□

The space to be left at the top of each new page before the first line is printed. This can be expressed in inches (i), centimeters (c), millimeters (m), or - if no unit of measurement is given - in a specific number of lines. The default is 0.

-up *user_permission*

□

The name of a user permission list specifying which users can (allowed list) or cannot (denied list) use

the new form. If this option is omitted, all users can use the form. For further information on user permissions, see the description of the `xpadd -prm` command on The form's administrators can always use the form, even if the associated permission list denies them access.

Example

To define a form `report1` with the following values: layup PORTRAIT, page height 297 mm, page width 210 mm, top margin 2cm, page length 24 cm, left margin 2.5 cm, standard font font4:

```
xpadd -frm report1 -ls PORTRAIT -ph 297m -pw 210m -tm 2c -pl 24c -lm 2.5c -ft font4
```

See also

- `xpadd -dev`, `xpadd -hos`, `xpadd -lrs`, `xpadd -prm`
- `xpchange -dev`, `xpshow`
- "Xprint V6.0 - User and Administrator Guide"
- [Section "Loadable resources"](#)

3.2.6 `xpadd -gtw` - Adding a gateway

For the Xprint administrator only.

Format

```
xpadd -gtw gateway_name [options]
```

Description

A gateway forms a connection to the "outside world". It is an object which allows print requests to be exchanged between Xprint and other print systems (such as DPRINT or BSD lpd) or between different Xprint domains. A gateway accepts:

- Requests which are to be exported from the local administrative domain to other print systems or other Xprint domains.
- Requests which arrive from non-Xprint systems or from another Xprint domain and are to be processed by the local Xprint system.

Several gateways can run simultaneously on the same host. They are classed as either LOCAL or PARTNER gateways. All print requests which are to be exported leave the network via so-called LOCAL gateways, where they are, for example, converted into a different protocol if the receiving system requires this. The job is then sent to a complementary system, the so-called PARTNER gateway.

Operands

-gtw *gateway_name*

□

A unique name for the gateway. This must comply with the object naming conventions described in the [Section "Operands"](#).

Options

-aa

(automatic_activation) only for LOCAL gateways:

This option enables you to specify that the gateway is to be activated automatically when the host is started up. By default, the gateway remains deactivated.

-ag *allowed_gateway_list*

□

only for LOCAL gateways:

A list of partner gateways that are permitted to make contact with newly added gateways. The partner gateways in this list must already have been defined. If no value is specified, none of the gateways can contact a new one. The reserved keyword ALL can be specified here to mean all gateways of type PARTNER

-bl *backward_link*

□

only for PARTNER gateways:

A list of local gateways which can send requests to the new partner gateway. These gateways must all have the same network protocol (see option -np). Every PARTNER gateway must have such a backward link to at least one LOCAL gateway. The LOCAL gateways in this list can establish a connection to PARTNER gateways. LOCAL gateways never have backward links.

-ca *comment_for_administrator*

□

A comment which can only be displayed by administrators using the `xpshow -gtw ... -di LONG` command. If you want to use blanks within the text, you must enclose the text in double quotes.

-ga *gateway_address*

□

This option can only be used for external connections based on the TCP/IP protocol (-np TCP). The value is of type *string* and specifies the port number of the external gateway address (e.g. "1234"). The default is "9999".

-ho *host_name*

□

The name of the host on which the gateway process is to run. If the gateway is of type LOCAL, the host must already be defined as an object in the system; this then determines the administration host for the gateway. The default is the local host.

This option is mandatory for gateways of type PARTNER. Here, the address of the PARTNER gateway must be specified.

-np *network_protocol*

□

The network protocol of the gateway specified as a string. The protocol can be used for both importing requests from and exporting them to all authorized partners. The value can either be TCP (or ISO - for users only), but it must be specified in full - abbreviations are not permitted.

-oh *original_host*

□

The host on which the gateway is to run. This name must be specified as defined in the administrative domain and where the gateway is defined as LOCAL. If no value is entered, the *host_name* is used for LOCAL and PARTNER. If the gateway is of type LOCAL, only the name of the host as defined under option -ho can be specified.

-on *original_name*

□

The name of the gateway as it is known on the administrative domain on which it is running. If no value is entered, the *gateway_name* is used. If the gateway is of type LOCAL, only the *gateway_name* can be specified.

-op *specific_options*

□

A list of strings which passes on specific options to special gateways. The possible values depend on the spooler protocol (see -pp option).

For the BSD print protocol:

□

There are several possible options which are different for LOCAL and PARTNER gateways:

"PI=*port_min*" and "PA=*port_max*" specify for LOCAL and for PARTNER gateways a range for the port number which must be used for establishing the connection to the gateway. The default range is the port numbers 721 through 731.

"MD=COMPATIBLE" specifies for LOCAL gateways only that print jobs are sent to the

PARTNER gateways in compliance with the SUN OS® convention (first the data and then the control file). The default is the other way round.

"SRVTYPE=*display_type*" specifies for PARTNER gateways the way the information returned by the BSD server is to be parsed. The following values of *display_type* are supported: UNFILTERED (the output of the BSD server is not interpreted by Xprint) and WINNT (for interoperability with Microsoft's Windows NT BSD server).

"XP_GWBSD_CT=*content_type*" specifies for LOCAL gateways only the content type with which the incoming jobs must be submitted to Xprint (see the option -ct of xpadding -job).

For the GIP2 print protocol:

□

Here you can only specify the following options:

"FT=*ft_tns_entry*" specifies, for PARTNER gateways only, the TNS entry for the FT service on the gateway host (see *openFT* documentation), provided *openFT* was used for the connection to the remote host. This option must be set to ensure interoperability with DPRINT.

"RETRY_NUMBER=*nretries*" specifies, for PARTNER gateways only, the number of retry attempts to forward a notification to the origin domain of a job; the notification is aborted after this number of retries is reached.

"RETRY_DELAY=*minutes*" specifies, for PARTNER gateways only, the number of minutes between a failed attempt at notification in the origin domain of a job, and a retry of the same notification.

-pp *print_protocol*

□

The spooler protocol to be supported by the gateway. Every supported protocol requires its own gateway daemon. The binary file associated with this daemon is entered for *print_protocol*. This file is located in the /var/spool/Xprint/config/gateways directory. Possible values are BSD (for the connection to lpd spoolers) and GIP2 (for the connection to other Xprint domains and BS2000 DPRINT spoolers). If you do not specify a protocol, GIP2 is used by default.

-tp *gateway_type*

□

The type of the gateway - either LOCAL or PARTNER.

-up *user_permission*

□

With this option you can assign a user permission list to the gateway. For more details on permission lists, see the xpadding -prm command on An allowed list contains the names of the users who have access to the gateway, a denied list contains those who are denied access. Access is only for exporting jobs (jobs which are sent to a partner).

The Xprint administrator always has access to gateways, even if the permission list specifies otherwise. If no user permission list is assigned, all users can access the gateway.

Example

To set up a gateway connection from the local host leads to the lpd spooler of the BSD UNIX system picasso:

```
xpadding -gtw GTW_leeds -tp LOCAL -ga 515 -ho cleo -np TCP \
-pp BSD -aa
xpadding -gtw GTW_picasso -tp PARTNER -ho picasso -ga 515 \
-bl GTW_leeds -np TCP -pp BSD
xpadding -gtw GTW_leeds -ag+ GTW_picasso
xpaddingchange -gtw GTW_leeds
```

See also

— xpaddingchange -gtw, xpaddingmod -gtw, xpaddingshow -gtw, xpaddingstat -gtw

- "Xprint V6.0 - User and Administrator Guide", chapter "Interoperability".

3.2.7 **xpadd -hos - Adding a host**

For the Xprint administrator only.

Format

xpadd -hos *host_name* [*options*]

Description

The **xpadd -hos** command allows you to define a new host in the Xprint system. It is important to define the hierarchy level at which the new host is to work in the Xprint system. This level defines the way in which the database is administered. You can choose from: potential master, slave, or parasite. The Xprint system always has an active master, which must be a host of type potential master. For further information on the host hierarchy, see the "Xprint V6.0 - User and Administrator Guide".

If the new host is to work as a parasite, i.e. without its own database, you must also specify the name of the host whose database it is to share.

Operands

-hos *host_name*

□

The unique name of the new host. This is the name that administrators will use when adding or modifying objects such as servers, forms and printers using the **-ah** and **-ho** options. It can be

- either the host's primary name in the network (i.e. the node name returned by the **hostname** or **uname -n** commands),
- or the DNS domain name of the host being added,
- or an alias name configured in the file **localconfig** of the host being added.

The name can be given in long format (for example **sharon.swn.sni.be**) or short (for example **sharon**). The new host name must be unambiguous with the set of names of the existing hosts in the Xprint domain registered in the Xprint database. If the new hostname is in long format, there may not be a host in the Xprint database whose name is in short format and is the same as the first component of the new long name (if you add **sharon.swn.sni.be**, there may not already be a host **sharon** in the database). Similarly, if the new host name is in short format, there may not be a host in the database with a long name whose first component is the same as the new host name (if you add **sharon**, there may not already be **sharon.swn.sni.be** in the database). The same rule applies to aliases.

Options

-ca *comment_for_administrator*

□

Here you can add a comment to the host which can only be displayed by administrators using the **xpshow -hos ... -di LONG** command. If you want to use blanks within the text, you must enclose the text in double quotes.

-cu *comment_for_user*

□

Here you can add a comment to the host that will be seen by users when they use the **xpshow -hos ... -di LONG** command. If you want to use blanks within the text, you must enclose the text in double quotes.

-de *default_destination*

□

The name of the printer or printer group to be used for a job if no alternative destination is specified as part of the **xpadd -job** command submitted from this host, and if the environment variable **XP_DESTIN** is not set. There is no default destination if this option is omitted.

-dp *default_printer_priority*

□

The minimum priority that jobs must have to be printed on a printer set up on this host if no specific priority is given as part of the `xpadd -dev ... -pr command`. The range available is from 1 (the lowest) to 100 (the highest). The default priority is 1.

-fi *file_name*

□

The path name of a script file to be executed when Xprint is started up on the new host. If the absolute path name is not given, the system searches for the script file in the `/var/spool/Xprint/config` directory.

-fm *default_form*

□

The name of the form to be used if no alternative form is specified when a new printer is added on this host (with `xpadd -dev`). If this option is omitted, the GENERIC form supplied with Xprint is used.

-ft *default_font*

□

The name of the font to be used if no alternative font is specified when a new form is added on this host (with `xpadd -fm`). If this option is omitted, the GENERIC font supplied with Xprint is used.

-mp *default_maximum_priority*

□

Specifies the highest priority level that users with the maximum priority UNDEFINED may assign to jobs they submit on this host (see the `xpadd -usr -pr command`6.). The default maximum priority is 1.

-np *network_protocol*

□

The network protocol used by the new host (TCP_IP or ISO). The default is the protocol used by the local host (i.e. the host from where the new host is added to the system).

The current release of Xprint does not support heterogeneous networks - in other words, all hosts in the Xprint system must use the same protocol.

-os *operating_system*

□

The operating system type of the host: BSD or ATT.

BSD (default)

This specifies that the host works with a BSD-type operating system, i.e. an operating system which allows file names of up to 512 characters.

ATT

This specifies that the host works with an AT&T-type operating system, i.e. the file system does not allow file names of more than 14 characters. The names of printers, supervisors and servers on this host must therefore also be no longer than 14 characters.

-pd see below (section "[Configuring the database](#)")

-po see below (section "[Configuring the database](#)")

-pr *default_job_priority*

□

The priority to be assigned to a job if no specific priority is given as part of an `xpadd -job -pr command` submitted from this host. The range available is from 1 (the lowest) to 100 (the highest). The default job priority is 1.

-re see below (section "[Configuring the database](#)")

-sh see below (section "[Configuring the database](#)")

-sr *subroot_list*

□

A list of users who are to have the privileges of the local Xprint administrator on this host.

Configuring the database

The following options are used to configure the Xprint database with information on the type of database service that will run on the new host (potential master, slave or parasite), and to determine the position of the new host in the hierarchy of hosts.

-pd *predecessor*

□

Specifies the name of the host which will immediately precede the new host in the hierarchy of hosts. The host named here must be of the same responsibility type (see -re option) as the new host. If this option is omitted, and no value has been specified for the -po option above, the default is LAST (as defined in the -po option).

Specifying the position of a POT_MASTER in the hierarchy of hosts determines the order in which potential masters will take over the role of the master if the current master goes down. For both POT_MASTERS and SLAVES, their position in the hierarchy of hosts also determines the order in which update requests from the master are sent to each in turn.

If the host named here is a PARASITE, you must specify under option -sh the name of the host whose database it is to use.

-po *position*

□

Specifies whether the new host should be placed FIRST or LAST in the hierarchy of hosts of the same type. This option must not be used together with the -pd option.

-re *responsibility*

□

The type of database service that will run on this host. You can specify one of the following:

POT_MASTER (default)

□

The new host can take over as master if the current master is deactivated or crashes.

SLAVE

□

The new host will hold its own copy of the Xprint database, but can never become a master.

PARASITE

□

The new host does not have its own copy of the Xprint database; it uses a file-sharing utility to borrow the files it needs from another host (a POT_MASTER or SLAVE).

If the new host has been defined as a POT_MASTER or SLAVE, you can define its rank in the hierarchy of hosts using either -po or -pd (but not both).

-sh *supporting_host*

□

The name of the host (POT_MASTER or SLAVE) whose database files the new parasite host will share.

Example

- To add the new host king (a potential master) with the default font font3, the default form form2, the default destination printer2 and users fred and jane as local Xprint administrators:

```
xpadd -hos king -ft font3 -fm form2 -de printer2 -sr fred jane
```

- The following command line defines the new host prince (a parasite host which is to use the database of the host host1) with the default font font4, the default form form3, the default destination group2 and default maximum priority of 25:

```
xpadd -hos prince -re PARASITE -sh host1 -ft font4 \
-fm form3 -de group2 -mp 25
```

Files

/var/spool/Xprint/config

□

Default location for the *startup* file

/etc/hosts

/var/spool/Xprint/config/DB.local/localconfig

If this file is present when Xprint starts up and contains a line of the form

LOCALHOST=hostname

then this hostname is used by Xprint as the name of the local host. If the file is not present, the node name or DNS domain name is used as the name of the local host for Xprint processing. The contents of the file may not be modified during the Xprint session, or unpredictable problems will ensue.

In this file, lines starting with the hash sign ('#') are considered as comments and are skipped.

Forcing a given value for the node name of the local host may be useful in high availability environments, where a virtual print server name can be assigned to the system.

See also

- `uname(1)`
- `xpadd -dev`, `xpadd -job`, `xpadd -usr`, `xpadd -fnt`, `xpadd -frm`, `xpshow`
- "Xprint V6.0 - User and Administrator Guide"

3.2.8 **xpadd -job - Adding a print job**

Format

xpadd [-job] [options]

Description

This command enables any users to print documents. Files can be specified for printing. If no files are specified, the standard input of the command is used. If necessary, you can use the options to specify where, when and how the file is to be printed. The options apply to all the print data.

Jobs can also be printed in remote domains via gateways. In this case, the relevant partner gateway must be specified before the printer name. All resources requested by the print job (form, font etc.) are retrieved from the remote domain, i.e. they need not be available in the local domain. If jobs are sent to remote domains, it can happen that some options are not supported. For more information see the [Section "The gateway protocols BSD and GIP2"](#) in the appendix.

Operands

[-job]

□

The `xpadd -job` command is an exception amongst the `xp` commands. Specifying the object identifier `-job` is optional as it is the default for the `xpadd` command. If it is specified, you need not specify an object name.

Options



The following paragraphs show the options for `xpadd -job`. You can also use most of the options from `xpadd -fnt` and `xpadd -frm` with the `xpadd -job` command. You can also overwrite the 'call resource' option. See `-ft`, `-fm` and `-lr` on the following pages for full details.

-at *job_print_after*

□

This option specifies an exact date and time from which a job may be scheduled for printing. The default value is the date and time of submission. The format is: `[+][yy]yy:mm:dd:hh:mm`

Any field may be omitted, but not its semicolon. Leading fields may be omitted with their semicolon.

The optional '+' indicates a value relative to the job submission time. The year can be entered as two or

four digits. When an absolute year is entered as two digits, the values 00 to 50 are considered to be in the 21st Century and the values 51 to 99 are considered to be in the 20th Century. For example:

::09:	Today after 9:00 a.m.
09:05	Today after 9:05 a.m.
+5	In five minutes
03:01:02:10:00	January 2nd 2003 at 10:00 a.m.
99:12:31:23:59	December 31st 1999 at 11:59 p.m.

Table 16:

-cp *copy*

☐

Instructs Xprint to make a copy of the file to be printed. This means you can continue editing the file without waiting for the print process to finish.

-ct *content_type*

☐

This option allows you to specify the content type of a job. Each word processor, text editor, programming language etc. has its own characteristic structure, special characters and use of escape sequences. When you send data to a printer, it must be in a format that the printer can successfully interpret, or your job will not print correctly. For example, if you send a Postscript job to a printer using a PCL emulation, you will receive a printout of the Postscript program, and not the desired image or text! The possible values you can specify are:

COMPATIBLE

☐

This value specifies that the content type of the file to be printed is compatible with the content type or the PCL of the destination printer and can be printed without the use of filters.

SIMPLE

☐

This is a special content type which corresponds to the ASCII character set plus the following additional control characters:

ASCII mnemonic:	Meaning:	octal:	hex.:
BS	backspace	10	08
HT	tab	11	09
LF	line feed	12	0A
FF	form feed	14	0C
CR	carriage return	15	0D

Table 17: Content type SIMPLE

Other content type

☐

You can also specify other content types. For example, if you are using a text editor that has its own content type, you can enter this as a keyword following the -ct option, providing that a filter exists that will accept this content type as input and convert it to a content type that will be accepted by one of your printers. So if you are using the text editor "Maxed", you may have MAXED as a content type.

To see the allowed content types for a device, use ☐

xpshow -dev -diL. To see the input types and output types for a filter use xpshow -flt -diL. To see the content types supported by the gateway protocols BSD and GIP2, see option ☐

-ct in [Table ""](#).

Another possibility is if you want to print a Postscript file that for some reason does not contain the string %!PS in its first 15 characters (see below). You could force the content type to POSTSCRIPT by using -ct POSTSCRIPT, or by using ☐

-ct COMPATIBLE if you have selected a Postscript device.

The option -ct is incompatible with the option -fl.

Automatic content type selection

If you do *not* specify a content type, the following will occur automatically:

- Xprint will read the start of the data. If %! are the *very first* characters, or the string %!PS occurs in the first 15 characters, then the content type will be set to POSTSCRIPT.
- If this is not the case and only SIMPLE characters are detected in the first 15 characters, then the content type is set to SIMPLE.
- Otherwise, the content type is set to COMPATIBLE.

Automatic search for filter(s)

Once a content type has been established, Xprint does the following: it checks the allowed content types given in the definition of the device specified.

- If the job's content type is an allowed content type for the printer, then the document can be printed without using filters.
- Otherwise, Xprint will look for a slow filter, or cascade of slow filters that can convert the job's content type to a content type that the printer will accept.
- If a filter or filter cascade cannot be found, then the job is rejected.

NOTE: If you often work with an application which requires a specific data format, you should consider creating a job template which automatically activates the appropriate options when you submit a print job (see `xpadd -jtp` command in the [Section "xpadd -job - Adding a print job"](#)).

-de *destination*

☐

By default, Xprint sends your print jobs to the printer (list) in the local domain preset in the XP_DESTIN shell variable. If you want a job to be printed elsewhere, you can select a different destination with the -de option. You can specify a single local printer or printer group. If you specify a group, one printer from this group is automatically selected.

Destinations in a remote domain must be specified in the form *gateway!destination*, e.g.:

`bsd_gateway1!gateway4`, where *gateway* is the name of the partner gateway in the remote domain and *destination* is the name of the printer or printer group there.

You can also use the XP_DESTIN shell variable to assign a number of printers in the local domain or remote domains that you want to work with. Devices in the local domain will always be tried before the remote devices.

If you do not specify a printer or a printer group, the value of the XP_DESTIN variable is used.

However, the print job will be rejected if none of the specified printers supports the additional options for the print job that are contained in the command line.

-dp *direct_print*

☐

This option specifies that the print job is to be sent directly (i.e. not via a server) to a specified printer. This printer must not have been redirected (see commands `xprdir` and `xpchange -dev`, option `-rd`).



The name of this printer must be specified additionally with -de and its spoolout state must be OFF (see `xpchange -dev`, option `-so OFF`).

Example:

xpadd -job -de d1 -dr test.ps -dp



This is a quick and simple method of printing, but as there is no server involved, jobs to be printed in this way cannot be modified once they have been submitted.

-dr *document_reference*



The name of the file(s) to be printed. You can specify more than one name, so long as all the files exist and have access permission "read" for users.

If you omit this option or do not specify a value for it, the default value `stdin` is used.

-ev *event_identifiers*



When a print job is processed, certain events occur. `-ev` allows you to specify a list of events that should be reported by Xprint. Events can be reported for jobs printed within the submission domain, and for jobs printed in another Xprint domain. The following events can be specified individually or in combination:

ABORTED



The job was deleted.

ALL

Default if option `-nm` or `-na` is set.

COMPLETED



The job was completed without errors.

DEVICE_ERROR



This requests messages that report problems with the printer or with the connection to the printer which usually require user intervention in order that the job can be processed further. These messages consist of a keyword identifying the message type and, if appropriate, an explanation in parentheses. There are four message types (keywords):

Device busy

This message shows that a connection to the printer could not be established. This can have various causes, the most common of which include:

- The printer is already being used by another application, maybe even by the spooler system itself (especially if a physical device is addressed via more than one logical device).
- The printer's device address (see `xpadd -dev`, option `-da` *device_address*) or connection type (see `xpadd -dev`, option `-co` *connection type*) is incorrect.
- The printer is not ready, e.g. it is not switched on or is out of paper.

Spooler message

This type of message returns the printer error messages supported by the spooler system which are to be processed by recovery rules. These are usually self-explanatory. Most of these messages are only possible with printers for which "enable polling" has been defined (see `xpadd -dev`, option `-ep`). The most common messages include:

- **PaperEnd**: The printer is out of paper.
- **PowerOff**: This may be due to either of two causes: either the printer has not finished reinitializing itself after being switched (back) on, or Xprint has received a special signal from the operating system (e.g. SIGPIPE for LAN printers).
- **PrinterFault**: Default message when I/O operations have been interrupted.

Freely defined text, generated by a fast filter

Fast filters can notify the Xprint system of printer errors they have detected themselves. Xprint passes on these messages unaltered, so that they can be output with `xpstat`.

IOCS error (applies to users only)

IOCS error messages have the following syntax:

IOCS *<function>* failure on *<printer_name>* - errno *<error_code>*

where: *function* represents an IOCS function provided by the IOCS-APIs, *printer_name* stands for the identifier under which the printer is defined in the Xprint database, and *error_code* for an IOCS keyword identifying the error.

IOCS error messages are only possible with printers controlled by SNI IOCS. These must be defined with the PCL NXP (`xpadd -dev, option -pc NXP`) under Xprint.

MODIFIED



Notification that the job has been modified.

NONE

Default if neither `-nm` nor `-na` is set.

REJECTED_FROM_REMOTE_DOMAIN



This message appears if an error occurs during a print job that is sent via a gateway.

RESUMED



The suspended job is back in the queue.

STARTED



The job has been set to ACTIVE.

SUSPEND



The job has been suspended

USER_ERROR



Other user errors.

SENT_TO_REMOTE_DOMAIN



The complete job has been sent via the gateway; all asynchronous operations, such as the data transfer, have been completed.

-fc *file_copy_count*

The number of copies to be printed of each file. The default is 1.

-ff *form_feed_mode_list*

Specifies when an extra form feed is to be performed.

Note the following preset values: without the `-ff` option, the form feeds are performed by the driver program (backend), based on analysis of the print data:

■ *no* extra form feed

if, for example, there is a form feed at the end of the data, or the last print line is also the last line on the printed page.

■ *extra* form feed always

- between two files which belong to the same print job.
- after every start sheet, end sheet and separator sheet.

The following values can be specified for `-ff`:

BEFORE

□

A form feed is performed before every start sheet; if no start sheet is defined, before the data is printed.

AFTER

□

A form feed is performed before every end sheet, if no end sheet is defined, after the data is printed.

BETWEEN

□

A form feed is performed before every separator sheet, □
if no separator sheet is defined, between two files of the same job, or, if several copies of a print job are requested, between the individual copies.

ALL

Specifies BEFORE, AFTER and BETWEEN.

NONE

No extra form feed is performed.

BEFORE, AFTER and BETWEEN can be combined in any way. ALL and NONE are mutually exclusive.

-fl *list_of_filters*

□

This option allows you to specify a list of slow filters. The filters must be available on the host where the job is submitted, and will be used in the order specified. When this option is selected, you cannot use the □

-nf *no_filter* option.

This option forces the application of slow filters. They are applied in cascade, in the order given. This disables the automatic application of slow filters based on content types and special modes. Compatibility between input content types and output content types is not checked. If a filter is defined with INPUT or OUTPUT options (see `xpadd -flt -op` on ...), the corresponding values are set to UNSPECIFIED.

The option -fl is incompatible with the option -ct.

-fm *form_name*

□

The name of a predefined form for your document to be printed on. Some of the form's attributes can be overwritten by using the flags -ft, -ls, -js, -je, -sp, -lm, -ll, -lr, -tm, -pl and -sd. For further information on forms, see the `xpadd -frm` command in the [Section "xpadd -frm - Adding a form"](#).

If this option is not specified, Xprint uses the default form for the printer concerned (see also `xpadd -dev -fm` on ...).

-fp *page_copy_count*

□

The number of copies (1...65533) to be printed of each page. The default is 1.



This option is only for printers featuring multiple printing, i.e. printers which can create several copies of a page internally. This saves transmission time, although the copies may have to be sorted afterwards.

-fr *from_string*

□

Character string in the file as of which printing is to begin. If this option is not specified, the file is printed from the beginning. If the print job comprises several files/copies, the string applies to every file/copy.

-ft *font_name*

□

For every predefined form there is a special font. You can, however, select a different font from the ones provided by your administrator (but make sure that your printer's PCL supports the font you choose; you can do this using `xpshow -pcl ... -di LONG`).

It is also possible to overwrite some of the font's attributes by using the flags `-pq`, `-cs`, `-tp`, `-vm`, `-hm` and `-la`. For further information, see the `xpadd -fnt` command on If this option is not specified, the form's default font will be used.

-hn *hopper_number*

□

The hopper (cassette) from which the paper is to be taken. Whether a hopper can be selected or not depends on the PCL used. If the number you have specified is not covered by the PCL, the print job is rejected. If the number lies within the range permitted by the PCL, the print job will be accepted, even if there is no hopper with this number. Default: the currently active hopper.

-jc *job_comment*

□

With this option you can add a comment to the print job, which can be displayed using the `-di LONG` option of the `xpshow -job` command. The text of the comment must be separated from the option by a blank; individual words in the comment may only be separated by blanks if the entire comment is enclosed in double quotes.

-jt *job_title*

□

Here you can specify a separate name for the print job for later identification. It can be displayed using the `-di LONG` option of the `xpshow -job` command. The first character must not be a digit; if blanks are used, the entire string must be enclosed in double quotes.

-ld *loaded_file_names*

□

Specifies additional resources, such as forms or fonts, to be loaded before printing begins. The files are loaded in the order in which they are specified. If you enter an absolute path name, Xprint searches for it on the local host; if you do not, Xprint searches for the specified files in the default directory `/var/spool/Xprint/config/resources` on the submission host. If it cannot find the files, the job is accepted but the files are not loaded.

-lr *resource_list*

□

This option supplies a list of resources needed for printing documents. Resources may either be public or private ones - see the [Section "Loadable resources"](#). Public resources must be defined as objects in the database using `xpadd -lrs`, while private resources are defined in the `.Xprint` file. Private resources have precedence over public resources. No resources will be considered if this option is omitted. Duplicates will be silently removed from the `resource_list`.

Private resources are identified by their name. Public resources can be identified by their class identifier or their name.

Only the `call_resource` (`-cr`) option can be overwritten. When several resources are specified, the `-cr` option will be overwritten for all specified resources. See the `xpadd -lrs` command on page

-mt *map_table*

□

The name of the character assignment table to be used for printing. The table is stored in a file and is identified by the corresponding file name. If an absolute path name is given, the map table will be imported from the client host (job origin) at printing time. If the path name is relative, the map table will be retrieved from the directory `/var/spool/Xprint/config/maps` on the host where the device is defined.

Default: characters are transferred unchanged.

-na *notification_delivery_address*

□

The address to which Xprint is to send notification concerning your print job. The format of this address depends on the way in which you have chosen to be notified (see also options `-ev event_identifiers` and `-nm notification_delivery_method`).

MAIL

Notification is sent by default to the user who submitted the print job. If the notification is to be sent to a different user, you must specify the user name here:

`-na "<user_name>"` or
`-na "<user_name>@<host_name>"`

WRITE

☐ Notification is sent by default to the user who submitted the print job. You can also send the notification to a different user on the same host by entering the user name here:

`-na "<user_name>"`

COMMAND

☐ You must specify a string for the path name of the file to be executed (with arguments if necessary). The command string may contain the following keywords:

`%JOBID%`

☐
Job ID

`%JOBTITLE%`

☐
Job title

`%DEVICE%`

☐
Printer

`%EVENT%`

☐
Event which triggered notification

`%CMDLINE%`

☐
Command line with which the job was submitted

When notification is to be sent, Xprint creates a shell and restores the user number, group number, the working directory and the environment variables of the user. The keywords are replaced by the corresponding values and the command is executed in the preset environment.

The file is executed on the host on which the job was submitted. If this host is in the `NOT_ACTIVE` state, the notification is passed on to the user via mail.

FILE

You must specify the path name of a file to which the notification is to be written. This file can be either a regular file or, for example, the address of a printer or terminal. The specified file must be located on the submission host. If Xprint cannot find the file, the notification is sent to the user via mail.

-nd *notification_delivery_descriptor*

☐ A comment clarifying the notification. This comment can be displayed using the `xpshow -job ... -di LONG` command.

-nf *no_filter*

☐ Prevents the use of slow filters for content type conversion. This is useful if certain slow filters cause

undesirable formatting of your document.

-nm *notification_delivery_method*

□

How you want to be notified about the events listed under option **-ev**. The methods available are:

MAIL

Notifications are sent via the shell command mail.

WRITE

□

Notifications are sent via the shell command write. However, the write command is changed to mail if:

- Xprint has the state NOT_ACTIVE on the host where the notification was defined, or
- the user who is to be notified is not logged in.

COMMAND

□

Notifications are sent by means of a shell command, a shell script or a program. If Xprint has the state NOT_ACTIVE on the relevant host, the notifications are sent via mail.

FILE

Notifications are written to a file via the write command. If Xprint has the state NOT_ACTIVE on the host where the notification was defined, the notification is sent via mail.

The default is MAIL.

-nv *no_validation*

□

If this option is specified, Xprint does not check whether the PCL-dependent options specified with **xpadd -job** (e.g. **-cs**, **-pq**, **-tp**, **-hm**, **-hn**, **-ob** ...) are supported by the PCL of the destination printer. The check is left to the backend, which handles the conversion of the supported options into printer control sequences and ignores the ones that are not supported.



If **-nv** is specified, the other options you have specified can no longer be used for automatic printer selection, and option **-pc** cannot be used.

-ob *output_bin*

□

Specifies the output tray (bin) for the printout.

-pc *printer_capability_list*

□

Instead of specifying a particular printer you can also use the PCL (printer capability list) as a selection criterion (e.g. HP-LASERJET, E-FX-ND65 or GENERIC). By default the PCL of the printer you have selected is used. If a printer group is selected, Xprint will, by default, use the PCLs of the printers within the group which support the requested options.

-pr *priority*

□

You can assign a priority to your print job. The value you specify must be between 1 (lowest priority) and 100 (highest priority). However, each user is given a personal priority (by the Xprint administrator when setting up the spooler system), which he/she must not exceed. If you specify a priority which is above your maximum, your selection is reduced to your maximum.

If you do not specify a priority for your print job, Xprint uses the default priority of the host on which the job was submitted.



For the job priorities to be effective, you must also specify a server scheduling policy list (see the **xpadd -srv** command, option □)

-sp on ...).



The job must have a high enough priority to be printed on the selected printer. If not, it won't be printed. See the `xpadd -dev` command, option `-pr` on ... for further details.

-ps *page_select*

☐

You can also print only the odd pages, the even pages, or a part of a file, (i.e. specific pages and/or sections of text), by specifying any of the following:

- ODD
- EVEN
- The individual page numbers, separated by commas.
- A page range; specify the first and last numbers of the pages you want to print, separated by a minus sign (-).
- Up to a certain page; specify a minus sign followed by the number of the last page you want to print.
- As of a certain page; specify the number of the first page you want to print, followed by a minus sign.

Examples:

No specification

☐

Prints the complete file

3,12,25

☐

Prints pages 3,12 and 25

3-25

☐

Prints pages 3 through 25

--15

☐

Prints the file up to page 15

15-

☐

Prints the file as of page 15

--12,14-

☐

Prints the whole file except for page 13

Note: in two of the above examples, the page number is preceded by two minus signs (--15 and --12,14-). This prevents the minus sign from being interpreted as the beginning of a new option when the command line is analyzed.

-rm *remove_file_after_print*

☐

This option deletes the files from the system once they have been printed. If the print process could not be completed (e.g. due to an error or because the print job was canceled), the files are not deleted from the system. If a time interval has been specified (via `-rp retention_period`) for the files to remain in the system after they have been printed, they are not deleted until this period is over. If, when the files are to be deleted, the printer system on the host has the state `NOT_ACTIVE`, the files cannot be deleted. Be aware that this option cannot be canceled using `xpmod -job`.

-rp *retention_period*

☐

When the print process has been completed, the information that can be queried with `xpshow` and

xpstat is also deleted from the system. Under certain circumstances, however, it can be useful to still be able to access this information for a while (e.g. if you want to repeat the print job with exactly the same attributes). The option `-rp` allows you to specify a time interval in minutes for the print job to remain on the system after it has been printed.

If the keyword INFINITE is specified, the print job remains on the system permanently. The default value is 0 (delete immediately).

-rt *retention_time*

□

This option allows you to specify the date and time when the print job is to be deleted from the queue if it has not yet been printed. If you do not specify this option, the job will not be deleted from the queue.

The values for option `-rt` are specified in the same format as the times under option `-at` above. The same conventions apply for entering years with two digits.

Options `-at` and `-rt` can be combined, but the time specified via `-at` must be before the time specified via `-rt`, otherwise the `xpadd -job` command will be rejected. If, for example, it is currently 14:00 o'clock, the following command is possible:

```
xpadd -job -dr text.sie -at +30 -rt 17:30
```

In this example, a print file called `text.sie` is submitted to be printed in 30 minutes. However, if for some reason the print process cannot be started before 17:30 o'clock on the same day, it is to be deleted from the queue.

-rw *raw_mode*

□

Specifies that your documents are to be printed in raw mode.

As already mentioned, you can print your documents on preformatted forms. You can, however, also specify the desired formatting and printer control characters yourself. The document will then be passed to the appropriate printer but none of the formatting you have defined is changed. This can be done using the `-rw` option. For example, to print the document `memo` on the printer `postprn1` in raw mode, enter the following.

```
xpadd -job -dr memo -de postprn1 -rw
```

By using raw mode, you can also ensure that all the options you have set for the destination printer (e.g. for a specific character set or for printing in NLQ quality) remain valid for the entire length of your print job and are not reset to their default values.

-sf *stop_after_first_page*

□

This option interrupts the printout after the first page. This is useful, for example, if you want to synchronize the first copy of a long print run. The option can only be used by the administrator of the relevant printer. For more details, see [Section "xpchange -dev - Changing the state of a printer"](#).

-sl *security_level*

□

This option allows you to set a security level for the print job. The following values are possible:

```
UNCLASSIFIED
SENSITIVE
CONFIDENTIAL
SECRET
TOP_SECRET
```

The default security level is UNCLASSIFIED. The security level setting influences the choice of destination for the print job and the scheduling of the job.

You can only request a security level for a print job which corresponds to your own security level or is below it. For a job to be printed on a printer, the printer must have at least the same security level as the job and at most the security level of the job originator. If, for example, you have the security level

SECRET and you assign this level to your document, this document can only be output to a printer which also has the security level SECRET. If, on the other hand, you have the security level SECRET and you assign your document the level SENSITIVE, the document can be output to any suitable printer with the security level SENSITIVE, CONFIDENTIAL or SECRET.

-sm *special_print_modes*

□

By specifying special print modes (keyword and value, as implemented in the corresponding filter) you automatically activate a slow filter via which you can initiate special print modes (e.g. printing in columns or printing in landscape format with two pages printed on one sheet). If there is no slow filter available for supporting the requested special print mode, the `xpadd -job` command is rejected. If the `-nf` option is used, no special print mode can be selected.

-st *initial_state*

□

Once a print job has been submitted, it enters the WAIT state, i.e. it waits to be printed. However, the `-st` option also allows you to specify the values SUSPEND or (if your administrator has granted you the appropriate permission) TOP.

SUSPEND means that the validity check for your files takes place during printing rather than when the job is submitted. You can thus also specify under option `-dr` a file which does not exist or is empty. Then when the file is ready for printing, you can change the state to WAIT or TOP via the `xpchange -job` command. For further information on this, see [Section "xpchange -job - Changing state of a print job"](#).

-sx *silent_execution*

□

Specifies that no notification (e.g. of the job ID, or confirmation) should be sent after successful spoolin of the job. Error messages, however, will always be delivered, even if this option is set.

-te *job_template*

□

Here you can specify a job template which was set up either by you or by an administrator. Xprint first looks for the specified template in the `.Xprint` file in your home directory, then among the system templates administered by your Xprint administrator. If the specified template is not found in the `.Xprint` file, Xprint uses the default template. If Xprint cannot find the `.Xprint` file, the command is aborted with an error message.

You can modify the options in the job template used for the current job by simply entering the new option or value in the command line. The following example shows a simple job template in the `.Xprint` file:

```
# Start of .Xprint file
#
# JOB TEMPLATE 1
# For letters:
letter    -de printer1 -fm form1 -la USA -jt letters
#
# With message:
message -ev COMPLETED ABORTED -nm WRITE\
-nd 'send message after completion'
#
# End of .Xprint file
```

This example shows the two templates letter and message. All lines beginning with a hash (#) are comment lines. Blank lines are ignored. The first name in a non-comment line is the name of the template; this is followed by the parameters for this template. The character strings which consist of several words separated by spaces must be enclosed in single quotes (e.g. `-jc 'comment'`). If a line is to be continued, it must end in a backslash (\). If the first template is to be specified as part of the `xpadd`

-job command and one of the options contained in the template is to be modified at the same time, the command line could look like this:

```
xpadd -job letter1 -de dru2 -te letter
```

In this example, however, the file letter1 would be output to the printer dru2 according to the options in the template letter (provided that form1 is supported by dru2).

-to *to_string*

□

A character string in your file up to which the file is to be printed. If this option is not specified, the whole file is printed.

The options -ps, -fr and -to can be combined in any way.

-tw *tab_width*

□

This option can be used to define the distance between the tab stops on the printed page (number of blanks). The default distance between the tab stops is 8 blanks.

-wa

□

This option sets to SCHEDULED the state of a job that is to become ACTIVE. In order to be printed, the job must be reactivated from this state with the command `xpchange -job ... -st ACTIVE`. As long as the job is in the SCHEDULED state, it blocks the printer to which it is assigned so that no other jobs can be printed there. If a printer is deactivated while it contains a job in the SCHEDULED state, this job's state is changed to INTERRUPTED (in the same way as happens for jobs in the ACTIVE state). When the printer is reactivated, this job is the first to be printed. The SCHEDULED state cannot be achieved directly; it follows the WAIT or TOP states. By default jobs are not blocked by the SCHEDULED state until they are activated.

-wm *wrap_mode*

□

This option specifies how Xprint is to proceed if the line length exceeds the length of the print line. You can specify one of the following values:

CUT

The rest of the line is truncated.

WRAP

The printer performs (inserts) a line feed and continues printing in the next line.

NONE

The file is printed regardless of the line length. The result depends on the printer used.

The default is NONE.

Example

- In the following example the files file1 and file2 are spooled in under the job name my_job, with LaserWriter as the destination printer:

```
xpadd -job -dr file1 file2 -jt my_job -de LaserWriter
```

- The files file3 and file4 are to be printed on the printer DeskJet540 up to the string End. If the job has not been printed by 18.00 o'clock, it is to be deleted:

```
xpadd -job -dr file3 file4 -de DeskJet540 -to End -rt 18:00
```

Files

`/var/spool/Xprint/config/resources`

□

Default directory for additional loadable resources (-ld option)

`/var/spool/Xprint/config/maps`

□

Default directory for character tables (-mt option)

/var/spool/Xprint/config/tmp

□

Directory in which temporary files are stored.

.Xprint

□

File in the home directory for user-defined job templates.

Variables

Environment variable XP_DESTIN

□

Shell variable containing a list of printer names separated by spaces for jobs submitted without option -de *destination* set.

Environment variables XP_DLPRIO and XP_LOCALPRIO

When a job is submitted to a device group it is normally printed on the first free device in the group (see also [Section "Printer Selection"](#) for more details). This default behavior can be modified with the shell environment variables XP_DLPRIO and XP_LOCALPRIO. If XP_DLPRIO is set and the devices of the group are controlled by different servers, the order of the device list in the definition of the device group is observed. If XP_LOCALPRIO is set, priority is given to the devices of the device group that are local to the submission host (this minimizes file transfers). If XP_DLPRIO is set, XP_LOCALPRIO is not taken into consideration.

See also

- mail, write
- xpadd -flt, xpadd -fnt, xpadd -frm, xpadd -hos, xpadd -usr, xpdcl, xpshow, xpchange -job, xpmmod, xpstat
- "Xprint V6.0 - User and Administrator Guide"

3.2.9 xpadd -jtp - Adding a job template

Format

xpadd -jtp *template_name* [*options*]

Description

Options that are frequently used with the xpadd -job command can be combined to form a job template using the xpadd -jtp command. A distinction is made between templates which are valid for the entire spooler system and local templates which users can define for their own needs. Global templates can only be created, modified and deleted by administrators, but local templates can be created and administered by users.

Operands

-jtp *job_template_name*

□

A unique name identifying the job template.

Options

You can specify all xpadd -job options, except for -sx and -te.

-ah *administration_host*

□

The name of the host on which the job template is administered (default: the local host). Only the Xprint administrator can add job templates to remote hosts. The Xprint administrator, the local system administrator and the sub-root administrators of this host can administer the new job template.

-lr *resource_list*

□

This option supplies a list of resources needed for printing documents. Resources may only be public. Public resources are defined as objects in the database using xpadd -lrs. They are identified by their

class identifier or their name. Duplicates will be silently removed from the resource_list.

Only the call_resource (-cr) option can be overwritten. When several resources are specified, the -cr option is overwritten for all specified resources. See the xpadd -lrs command on page

Example

To create template1 which has printer1 as its destination printer, uses form form1 with font font2 and has a priority of 50:

```
xpadd -jtp template1 -de printer1 -fm form1 -ft font2 -pr 50
```

File

-.Xprint



File in a user's home directory for his/her own job templates.

See also

- xpchange -job, xpshow
- "Xprint V6.0 - User and Administrator Guide"

3.2.10 xpadd -lrs - Adding a loadable resource

This command is for administrators' use only.

Format

```
xpadd -lrs loadable_resource_name [option_list]
```

Description

The xpadd -lrs command is used to add a loadable resource to the spooler system. It is important to realize that a loadable resource is an *object*, in the same way that a job, device, filter, form etc. is an object.

Soft fonts and overlays are the most commonly used loadable resources. A soft font usually comprises a font descriptor and one or more character descriptors. These descriptors are embedded in printer commands and are thus dedicated to one particular printer emulation. The font descriptor includes a font identifier (also called an "internal identifier") which is the only way for a document to reference the soft font once the document has been sent to the printer.

Soft fonts are mainly available from software houses. They are usually delivered on diskette with a program that allows you to initialize or override the internal font identifier. If a soft font is defined for different printer types, different data will have to be downloaded to the printer, depending on the set of printer commands supported.

Overlays involve similar processes to soft fonts. Specific data have to be downloaded to the printer, and the document to be printed must include references to the internal identifier. The location of the file that must be loaded in order to define the resource in the printer, together with extra information such as the associated internal identifier, can be saved in a spooler object called a 'loadable resource'.

A loadable resource is best thought of as the information needed for downloading and defining a resource in a printer. It is *not* the data to be downloaded.

The Xprint component that handles printer resources is called the *resource manager*. The resource manager is shared by the Supervisor and the Backend components.

The help of the resource manager may be requested in order to decide when the associated data has to be loaded into the printer. All requested resources will be unconditionally downloaded before printing the user's document, if no resource manager is selected in the definition of the device (see the □ xpadd -dev command, option -me on page ...).

One task of the resource manager is to avoid downloading the same resource several times when it is not needed. The resource manager keeps track of all resource transactions for a given device.

Operands

-lrs *loadable_resource_name*

□

A unique name used to identify the resource.

Options**-ah** *administration_host*

□

The name of the host where the resource object is added, and from where it is administered. The default is the local host. Only the Xprint administrator can add resources to remote hosts. The system administrator and the local Xprint administrator of this host can administer the resource.

-ca *comment_for_administrator*

□

Here you can add a comment to the loadable resource which can only be displayed by administrators (LONG display of the `xps` -lrs command).

-cn *class_name*

□

Specify this option if you want to add the resource object to a specified class. The resource name will be used as the class name when this option is omitted.

-cr *call_resource*

□

Specify this option if you want the printing system to call the resource at the beginning of a specific page of the document. It identifies where a call should be inserted. The possible values are:

ALL

Identifies all the pages to be printed.

FIRST

□

Identifies the first page to be printed. This applies to the first page of each document when the job consists of several documents.

NONE

This is the default value. No call will be inserted when this option is omitted.

-cu *comment_for_user*

□

Here you can add a comment to the loadable resource that will be seen by users when they use the `xps` -lrs ... -di LONG command. If you want to use blanks within the text, you must enclose the text in double quotes.

-dl *device_list*

□

Specify this option if you want to restrict the use of a resource to some printers only. The resource may be downloaded to all printers when this option is omitted. Refer to the [Section "Loadable resources"](#).

-ec

The data to be downloaded may still have to be encapsulated before sending it to the printer. The encapsulation consists of a sequence of escape sequences needed for defining the resource inside the printer. The resource data will not be encapsulated if this option is omitted. Encapsulation may be omitted if the resource is created by a dedicated tool which asks for an internal identifier.

-fi *downloadable_file_name*

□

The name of the file containing the resource definition as needed by the printer. If the full path name is not specified as part of the file name, Xprint assumes that the resource is stored in the `/var/spool/Xprint/config/resources` directory of the host specified with the `-ah` option. If the file name is omitted, the default name is the loadable resource name. The command will be rejected if the file does not exist. The file syntax follows the command syntax of the printer that the resource is dedicated to.

-pc printer_capabilities_list

□

The printer capabilities list (pcl) the resource is defined for. The default is GENERIC. The command will be rejected if the PCL object does not exist. The type of resource must be supported by the PCL.

-pe

Specify this option if you want to define the resource as a permanent resource. Such a resource can only be deleted from the printer with a specific printer command or by a hard printer failure. On the other hand, a temporary resource will be deleted by the printer when the printer receives a reset command. Resources will be considered as temporary when this flag is omitted.

-pi printer_internal_identifier

□

Any document which needs this resource for printing, has to use this identifier in its data for all references to the loadable resource. Identifiers have to follow the syntax described in the printer manual. The default will be an empty string, in which case the printing system will not be able to generate printer commands (e.g. define, select, delete) for the resource. See the [Section "Loadable resources"](#).

-tp type_of_resource

□

Identifies the type of resource. The list of resource types that are supported for a given PCL can be seen in the 'resources' field by using `xpshow -pcl -diLONG`. The default will be an empty string, in which case the resource will be considered as a loadable file without any semantics.

The resource will thus be loaded into the printer unconditionally at the beginning of any job requesting these resources, and the relevant attributes resulting from the `-ec`, `-pe`, and `-pi` options will be ignored by the printing system.

Example

This example shows you how to make the loadable resource available to any job printed on an HP laserjet printer:

```
xpadd -lrs mylogof_hp -pc HP-LASERJET -tp Overlay -fi mylogo.hp -ec -pi 100 -cr ALL -cn mylogo
```

The file only contains the pure data of the resource, so it needs to be encapsulated. This is only possible if an internal identifier is specified. When used, the resource will be applied to all printed pages. As the same resource data can be used on different printer models, a class name is specified.

Files

`/var/spool/Xprint/config/resources`

□

Default directory for the resource files.

See also

The section in your printer manual about defining soft fonts, macros, overlays etc. and the [Section "Loadable resources"](#).

3.2.11 xpadd -pcl - Adding a PCL

This command is for administrators' use only.

Format

```
xpadd -pcl pcl_name [options]
```

Description

A printer capability list (PCL) contains all the information Xprint requires to be able to output a document on a printer. The `xpadd -pcl` command enables you to add a new PCL object to the Xprint system. The format of a PCL definition is described in the [Section "PCL definitions"](#).

By means of the PCL, Xprint converts the options of the `xpadd -job` command into control characters the

printer can process. Furthermore, a PCL contains technical characteristics of the printer, e.g. its connection protocol. Xprint is supplied with a variety of PCLs, including ones for various types of HP LaserJet, for PostScript, IBM Proprinter and several Siemens Nixdorf printers. A full list of supplied PCLs and the printers they support can be found in the [Section "Supported printers and PCLs"](#) in the appendix. These PCLs can be found in the `/var/spool/Xprint/config/PCL/xpterm` file.

Any compilation of PCL objects with an earlier version of Xprint will generate warnings for all capabilities that are not supported. For example, earlier versions of Xprint do not support loadable resources.

Operands

-pcl *pcl_name*

□

The unique name identifying the PCL. The name should be limited to a maximum of 63 characters so that it can be used as a filter content type (cf. `xpadd -flt`, options `-it input_content_types` and `-ot output_content_types`).

Options

-ca *comment_for_administrator*

□

A comment which can only be displayed by administrators with the `xpshow -pcl` command.

-cu *comment_for_user*

□

A comment that can be displayed by users with the `xpshow -pcl` command.

-fi *pcl_file_name*

□

The name of the file containing the PCL definition. If the full path name is not specified, Xprint uses the PCL file stored in the `/var/spool/Xprint/config/PCL` directory of the host (option `-ho`). If the file name is omitted, `stdin` is used to read the PCL definition.

-ho *host_name*

□

The host where the PCL source file is located and from where it is administered. (Default: the local host.) Only the Xprint administrator can specify a host other than the local host. The system administrator and the local Xprint administrators of this host can administer the new PCL.

Examples

- To add the standard PCL POSTSCRIPT to the system:

```
xpadd -pcl POSTSCRIPT -fi xpterm
```

If the `xpterm` file is contained in its default directory `/var/spool/Xprint/config/PCL/`, you do not need to specify the full path name as Xprint automatically searches the default path for the specified file. If the file is located in a different directory, however, you must use the full path name.

- To add to the system a user-defined PCL SELFDEFINED, which is stored under the file name `selfdef_hplj` in the PCL default directory:

```
xpadd -pcl SELFDEFINED -fi selfdef_hplj
```

- To add the PCL HP-LASERJET from the file `hplj` to the remote host `hudson`:

```
xpadd -pcl HP-LASERJET -ho hudson -fi hplj
```

If the `hplj` file is not located in the `/var/spool/Xprint/config/PCL` directory of the remote host `hudson`, you must specify the full path name.

Files

`/var/spool/Xprint/config/PCL`

□

Default directory for the PCL file.

/var/spool/Xprint/config/PCL/xpterm

□

This file contains the source files of the supplied PCLs.

See also

- `xpadd -flt`, `xpshow -pcl`, `xpadd -dev`
- [Section "PCL definitions"](#).

3.2.12 `xpadd -prm` - Adding a permission list

This command is for administrators' use only.

Format

xpadd -prm *permission_list_name* [*options*]

Description

The `xpadd -prm` command allows you to set up permission lists defining:

- Which users may, or may not, use a specific printer, or group of printers.
- Which administrators may attach a new supervisor to a server.
- Which users may, or may not, use a specific form.
- Which forms may, or may not, be used on a specific printer.
- Which users may, or may not, use a specific gateway.

Operands

-prm *permission_list_name*

□

The unique name of the permission list.

Options

-ah *administration_host*

□

The name of the host where the permission list is added, and from where it is administered. (Default: the local host). Only the Xprint administrator can add permission lists to remote hosts. The system administrator and the local Xprint administrators of this host can administer the permission list.

-al *allowed_list*

□

An *allowed list* can be:

- a list of users who are allowed to use a printer, printer group, or form;
- a list of administrators who are allowed to attach new supervisors to a server;
- a list of forms that can be mounted on a specific printer.

-ca *comment_for_administrator*

□

A comment about the permission list specifically for administrators.

-dn *denied_list*

□

A list of users who are not allowed to use a printer, printer group, or form; or a list of forms that cannot be mounted on a specific printer.

A user permission list can contain the following elements:

- `user_name`

A user on the local host. (See the note below for the definition of a local host in this context.)

- *

All users on the local host. (See the note below for the definition of a local host in this context.)

`user_name@host_name`

□

A user on a specific host.

`user_name@*`

□

A user on any host.

`*@host_name`

□

All users on a specific host.

`*@*`

□

All users on all hosts.

Each name specified in an allowed or denied list must be separated by an internal field separator (a blank, tab or newline character)



The local host referred to above is the host where the object (to which the user list is attached) resides, **not** the host where the permission list is set up and administered from (see option `-ah`). For example, say a user permission list is attached to printer A, which is connected to host A, and also to printer B, which is connected to host B; if there is a reference to printer A, the local users in the permission list are the users of host A; if the reference is to printer B, the local users are the users of host B.

-pt *permission_type*

□

The type of list being added to the Xprint system: either USER (default) or FORM.

Examples

- To set up an allowed list `uperm1` containing the names of all users on host `cleo`:
`xpadd -prm uperm1 -al *@cleo -ca "+: all users on C"`
- To set up a denied list `uperm3` containing the names of users `steve`, `marie` and `julie` on the local host and user `andy` on host `oslo`:
`xpadd -prm uperm3 -dn steve marie julie andy@oslo`
- To set up an allowed list `uperm2` with all users on host `cleo` and user `frank` on host `leeds`, copy the list `uperm1` and add `frank`:
`xpcopy -prm uperm1 uperm2 -al+frank@leeds`

See also

- `xpadd -dev`, `xpadd -dgr`, `xpadd -frm`, `xpadd -srv`
- "Xprint V6.0 - User and Administrator Guide".

3.2.13 `xpadd -rec` - Adding recovery rules

This command is for administrators' use only.

Format

xpadd -rec *recovery_rule_name* [*options*]

Description

The `xpadd -rec` command is used to compile and add a new recovery rules file to the Xprint system. How to create a recovery rules file is described in the [Section "Recovery rules files"](#). When the recovery rules are assigned to a printer (see `xpadd -dev` command, option `-rr` on page ...), they override the default actions to be taken when dealing with printer errors.

Operands**-rec** *recovery_rule_name*

□

The unique name identifying the set of recovery rules.

Options**-ca** *comment_for_administrator*

□

A comment which can only be displayed by administrators.

-fi *rule_file_name*

□

The name of the file in which the recovery rules are defined. If the full path name is not specified, the recovery rules file in the `/var/spool/Xprint/config/RR` directory of the specified host (option `-ho`) is used. If this option is omitted, `stdin` is used to read the recovery rules definition.

-ho *host_name*

□

The host where the recovery rules file is located and from where it is administered. The default is the local host. Only the Xprint administrator can specify a host other than the local host. The system administrator and the local Xprint administrators of this host can administer the new recovery rules.

File`/var/spool/Xprint/config/RR`

□

Default directory for the file defining the recovery rules.

Example

To add the recovery rule `standard1` from the file `/var/spool/Xprint/config/RR/my_rec_rule`:

```
xpadd -rec standard1 -fi my_rec_rule
```

See also

- `xpadd -dev`, `xpshow`,
- "Xprint V6.0 - User and Administrator Guide"
- [Section "Recovery rules files"](#).

3.2.14 xpadd -spv - Adding a supervisor

This command is for administrators' use only.

Format

```
xpadd -spv supervisor_name [options]
```

Description

The `xpadd -spv` command is used to add a new supervisor to the Xprint system.

Restriction: Only the Xprint administrator can add a supervisor to a remote host. Local administrators of this host can, however, administer the new supervisor.

State: When a new supervisor is added to the Xprint system its state is set to `NOT_ACTIVE`. To activate the new supervisor, see the `xpchange -spv` command. If the name of the new supervisor does not yet exist in the Xprint system, a subdirectory with this name is automatically created in the `/var/spool/Xprint/config/SP` directory when the supervisor is first activated.

Operands**-spv** *supervisor_name*

□

The unique name by which the supervisor is known to administrators and the system. Supervisor

names on hosts using the ATT system (see the `xpadd -hos -os` command) are restricted to a maximum of 14 characters.

Options

-ca *comment_for_administrator*

□

A comment accessible only to administrators.

-ho *host_name*

□

The host where the supervisor will be located. The default is the local host.

-se *server_name*

□

The name of the server controlling this supervisor. If this option is omitted, Xprint assigns a default server to the supervisor. This is named after the host on which the supervisor is defined. If a server of this name does not exist, it is created automatically.

Examples

- To define and activate supervisor leads on server server3:
`xpadd -spv leads -se server3` □
`xpchange -spv leads`
- To define and activate supervisor shaw on server server3 of remote host nile, assigning it the comment "from_host_luke" for the administrator:
`xpadd -spv shaw -se server3 -ho nile -ca from_host_luke` □
`xpchange -spv shaw`

See also

- `xpadd -hos`, `xpchange -spv`
- "Xprint V6.0 - User and Administrator Guide"

3.2.15 `xpadd -srv` - Adding a server

This command is for administrators' use only.

Format

xpadd -srv *server_name* [*options*]

Description

The `xpadd -srv` command allows you to add a new server to the Xprint system.

Restriction: Only the Xprint administrator can add a server to a remote host. Local administrators of this host can, however, administer the new server.

State: When a new server is added to the Xprint system its state is set to NOT_ACTIVE, with spoolin and spoolout OFF.

To activate the new server, see the `xpchange -srv` command. If the name of the new server does not yet exist in the Xprint system, a subdirectory with this name is automatically created in the `/var/spool/Xprint/config/SV` directory when the server is first activated.

Operands

-srv *server_name*

□

The unique name by which the server is known to administrators and the Xprint system. Server names on hosts using the ATT system (see the `xpadd -hos -os` command) are restricted to a maximum of 14 characters.

Options

-ca *comment_for_administrator*

□

A comment accessible only to administrators.

-ho *host_name*

□

The host on which the new server is to run. (Default: the local host.) Only the Xprint administrator can add a server to a remote host. The system administrator and the local Xprint administrators of this host can, however, administer the new server.

-mj *maximum_jobs*

□

The maximum number of jobs the server can handle at the same time. If this option is omitted, there is no limit.

-sp *scheduling_policy_list*

□

Specifies the order in which the jobs are to be processed. The list may contain any, or all, of the following, separated by blanks

BIG

□

the largest job (in bytes) first

SMALL

□

the smallest job (in bytes) first

PRIORITY

□

the job with the highest priority first

SECURITY

□

the job with the highest security level first

A scheduling policy list of PRIORITY BIG means that the jobs with the highest priority will be scheduled first. If more than one job has the same priority level, the biggest one will be printed first. If more than one job has the same priority level, and the jobs are the same size, the first job received by the server will be printed first.

If none of the above is specified, jobs will be scheduled in the order in which they are received.

-up *user_permission_name*

□

A permission list giving the names of administrators who are allowed/not allowed to attach new supervisor objects to the server. Only the Xprint administrator and the local administrator can link supervisors to the server.

Example

To set up and activate a new server cleo on remote host danube:

```
xpadd -srv cleo -ho danube
```

```
xpchange -srv cleo
```

See also

- xpadd -hos, xpshow -srv, xpstat -srv, xpchange -srv
- "Xprint V6.0 - User and Administrator Guide"

3.2.16 xpadd -usr - Adding a user

For the Xprint administrator only.

Format**xpadd -usr** *user_identifiers_list* [*options*]**Description**

The xpadd -usr command allows the Xprint administrator to set up new Xprint users. Each user can be set up with specific privileges and print quotas, for example:

- Xprint users can be authorized to give high priority to their print jobs, or to put jobs at the top of a print queue.
- Xprint users can be given the privilege of using all the printers in the Xprint system, even if a permission list denies them access to a specific printer.
- The Xprint administrator can set a limit on the number of jobs, or pages or copies of a job a user may submit for printing.
- A limit can be set on the number of pages a user may print.

Operands**-usr** *user_identifiers_list*

□

A list of users to be added to the Xprint system. If one of the user IDs does not exist on the host specified by -ho, or if this host is not accessible, a warning is issued.

Options**-aj** *allowed_jobs*

□

The maximum number of print jobs a user can print. The default is NO_LIMIT.

-ap *allowed_pages*

□

The maximum number of pages a user is allowed to print. Users will not be allowed to submit jobs for printing if they have exceeded the quota specified here. The default is NO_LIMIT.

-ca *comment_for_administrator*

□

A comment about the user for administrators only.

-ho *hosts*

□

A list of hosts on which Xprint users with the same name are recognized as the same user. For example:

On an Xprint system consisting of hosts A, B and C, the Xprint administrator enters the command xpadd -usr fred -ho A B. User fred is now recognized as a user of both hosts A and B. In other words, if he submits a job for printing from host A, then logs on to host B and realizes he has submitted the wrong job for printing, he can delete the job he has just submitted from host A without having to log back on to A. However, if a user called fred submits Xprint commands from host C, he will be considered by Xprint to be a different user and will not be able to act on jobs submitted by user fred on hosts A or B. If this option is omitted, only the local host will be added to the list of hosts.

This has also an impact on the administration privileges. In the example above, if fred is subroot of host A, he will be allowed to type a command on B to define a new printer on A.

-nc *number_of_copies*

□

The number of copies per job that the user can request under options -fp *page_copy_count* and -fc *file_copy_count* of the xpadd -job command. If this option is omitted, there is no limit.

-pr *maximum_priority*

□

The maximum priority a user may give to any of his/her jobs. The values are UNDEFINED (default) or

any value in the range 1 (lowest priority) to 100 (highest priority).

For a user to whom no maximal priority has been attributed, the maximum priority that can be assigned to a job cannot be higher than the default maximum priority of the host from where the job is submitted (for further information, see the description of option `-mp` under `xpadd -hos`).

-pv *privileges_list*

□

A list of privileges to be assigned to each user. The following keywords can be used:

ALL

The user is assigned all available privileges.

NONE

No privileges are given to the user.

ANY_DEVICE

□

The user can use any printer in the Xprint system, even if he/she is denied access to it by a permission list.

TOP

The user can put a job at the top of a queue so that it will be the next job to be printed. The system administrator and the local Xprint administrators always have this privilege.

The default is NONE. ALL and NONE are mutually exclusive.

-sl *security_level*

□

The maximum security level a user may specify when submitting jobs. The following values are possible (in ascending order):

UNCLASSIFIED

SENSITIVE

CONFIDENTIAL

SECRET

TOP_SECRET

The default is UNCLASSIFIED.

-ua *user_accounting*

□

Specifies that the counter for the number of printed pages and jobs submitted by each user should be updated and recorded after each job has finished printing. Users who have reached their quota limit will not be allowed to print any more jobs.

Examples

- To set up user dave on the local Xprint system:
`xpadd -usr dave`
- In an Xprint system with the hosts *oslo*, *london* and *rome*, the Xprint administrator enters the following command:
`xpadd -usr dave -ho oslo london`
 dave is thus considered a user of both hosts *oslo* and *london*. If he now submits a job to the system from host *oslo*, he can also access *oslo* by logging on to host *london*, e.g. to change the job's priority. This is not possible, however, from host *rome* because when he logs on there the Xprint system recognizes him as a different user with the ID dave.

See also

- `xpadd -job`, `xpadd -hos`, `xpchange -usr`
- "Xprint V6.0 - User and Administrator Guide"

3.2.17 **xpchange -dev** - Changing the state of a printer

This command is for administrators' use only.

Format

xpchange -dev [*selection*] [*changes_list*]

Description

The state of a printer can be either ACTIVE or NOT_ACTIVE and its spoolin and spoolout states can be either ON or OFF. You can change the current state of any printer you administer using the xpchange -dev command.



When a new printer is added to the Xprint system its state (-st) is set to NOT_ACTIVE and its spoolin (-si) and spoolout (-so) states are set to OFF.

Operands

-dev [*selection*]

□

Here you specify for which printers you want to change the state. For *selection* you have three possibilities:

device_names

□

One or more printers whose states are to be changed.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant printers are to be selected. Each entry in this list consists of an option of the xpadd -dev command and one or more associated values. The command only affects the printers which match the specified options and their values.

You can use all options of the xpadd -dev command plus -ad, □

-rd, -si, -so and -st.

For full information on using selection criteria for this object, see section [Selection criteria list \(option -scl\)](#).

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to all printers for which the administrator calling the command has the required privileges.

Options

changes_list

A list of options (see below) which define the new state for the specified printer(s). The options available are:

-is *ignore_submitted_jobs*

□

This option specifies that jobs already submitted will remain on the initial server and will not be redirected; only new jobs will be redirected. By default, jobs which are already submitted will be redirected.

Use this flag in order to ensure a better response time to the redirection command, particularly when redirecting to a remote domain. If many jobs need to be redirected to a remote device, it can take a long time to process them.

-ju *justification*

□

A comment explaining the new state which can be displayed using the xpstat -dev command.

This comment is automatically removed when the `-st`, `-si` and `-so` options are changed again using the `xpchange -dev` command.

-mf *mounted_form*

☐

This option is used with forms for which the MANUAL mount method has been defined (`-mm`). These forms will only be printed after the system has been notified via the `xpchange -dev -mf` option that the form has been mounted on the printer. Xprint checks to make sure that the printer's form permission list allows the use of the form and rejects the `-mf` request if it does not.



The printer's spoolout state must be set to OFF before a manual form is mounted. To reinstate automatic mounting of forms, use the `-uf` option described below.

-np *next_page_specification*

☐

Used in conjunction with the mode described under option `-sf` and also with all printers set up with MANUAL_SINGLE_SHEET feed (see command `xpadd -dev`, option `-ps` on page ...) to specify how the job should be printed. Possible values are:

AGAIN

☐

Reprint the current page.

NEXT

☐

Print the next page.

END

☐

Print to the end of the job.

END is not valid for manual feed jobs; if specified, this value has the same effect as NEXT.

-pr *priority*

☐

Used to change the priority of the printer temporarily to allow the printing of jobs with a lower priority than that defined for the printer (see the `xpadd -dev -pr` command). The priority set here (0 to 100) remains in force until the printer's state is set to NOT_ACTIVE, or another new priority is set using this option.



You can use a combination of any of the following options: ☐

`-st`, `-si`, `-so`, `-wn`, `-ju`

However, the `-sf`, `-np`, `-mf`, `-uf`, `-pr` options cannot be combined with any other option. For example, the following command is not allowed and will be rejected:

```
xpchange -dev -st -np
```

If the changes list is empty, or contains only the `-ju` option, the default `-st` ACTIVE `-si` ON `-so` ON is used. If the changes list contains only the `-wn` and `-ju` options, the `-so` option defaults to OFF.

-rd *new_device*

☐

The name of the new device to which all print jobs are to be redirected. The new device can be local or in a remote administration domain. For a remote domain, the device is identified by: *partner_gateway_name ! device_name*.

To redirect to a local device, you must be allowed to administrate both the redirected device and the new target. To redirect to a remote device, you must have global Xprint administrator privileges in the local domain. This option is ignored by default. The redirection can be canceled using the option `-rd-`.

When the command `xpchange -dev -rd new_device` is executed, any job in the ACTIVE state is interrupted and is the first to be printed on the new printer.

If the redirection is aborted, this only affects the jobs which are still to be sent. Jobs which have already been spooled in are not redirected.

Inside a domain, the processing is not recursive. Redirection is rejected if:

- the destination printer already references another printer
- the redirected printer is already the result of an `xpchange -rd` command.

Only printers in the ACTIVE state whose spoolin state is activated can be redirected.

The redirection remains active until it is explicitly canceled with the `xpchange -dev -rd-` command. The redirection even remains active after an `xpstop` command. If redirection is interrupted, the state of the redirected printer does not change.

The spoolout state of the destination printer is automatically set to ACTIVE, whether the redirection is successful or not.

All jobs in the ACTIVE state are set to the INTERRUPTED state and will be printed again from the beginning.

Only jobs whose destination is the printer to be redirected are redirected to the destination printer.

All references to the redirected printer now refer to the destination printer. This applies to both printers and printer groups.

All `xpchange -dev -so ON` or `-st ACTIVE` commands on the redirected printer are rejected.

All `xpchange -dev -so OFF` commands on the redirected printer are ignored.

All `xpstat -dev` commands on the redirected printer output the state of the specified printer and not of the new printer.

The `xppoll` command on a redirected printer outputs the state of the specified printer and not of the new printer.

The `xpstat` command for print jobs returns the destination that was specified when the job was submitted, except:

- for jobs which were submitted before redirection. In this case the destination printer is output.
- for jobs in the ACTIVE or TERMINATED states. In this case the printer handling the job is output.

For redirection to remote domains, the following apply:

- The state of the remote device is not checked at the time of redirection. In order to have new jobs redirected, both the redirected device and the target device should have their spoolin set to 'on'.
- If a device is redirected to a remote domain, any job submitted to this device receives inter-domain job ids (*gtw ! id* and *gtw ! server:id*). The job will not receive a local id in the submission domain.
- Any active job will be interrupted when the `xpchange -dev -rd` command is issued. It will also be the first job to be redirected.
- Cancelling a redirection will only affect new jobs; it will not affect those which are already spooled in.
- Multiple redirections are not allowed:
 - You may not submit a job to a remote device which is itself redirected to a remote device.
 - You may not submit a job to a local device which is redirected to a remote device, if the remote device is in turn redirected to an additional remote device.
 - You may, however, submit a job to a local device which is redirected to a remote device,

where the remote device is redirected to a local device within the same remote domain.

- Conditions which are not allowed are only detected when a job is submitted. They are not detected when the device is redirected.
- Multiple redirections *can* be achieved manually by redirecting a job to the next domain as soon as it has reached the WAIT state or INTERRUPTED state.

-sf *stop_after_first_page*

□

Sets the mode of a printer so that it will stop after the first page of the next job has been printed. If the printer is currently printing the first page of a job, it will stop when it has completed that page. The print job can then be restarted using any of the -np values. When the job has finished printing, the -sf mode is automatically reset to normal.

This option is particularly useful for ensuring that a form is correctly aligned prior to a long print run (for example, a print run for checks). The first page can be printed repeatedly (using option -np AGAIN) until the alignment is correct.

The -sf option can also be specified by administrators when adding a job to the Xprint system.

-si *spoolin*

□

Specifies the new spoolin state for the selected printers:

ON (the server can queue jobs for printing on the printer)

OFF (no jobs will be scheduled for printing).

If the selected printers are NOT_ACTIVE, choosing the ON value will automatically activate them.

-so *spoolout*

□

Specifies the new spoolout state for the selected printers:

ON (the server can start jobs for these printers)

OFF (no jobs are started).

If the selected printers are NOT_ACTIVE, choosing the ON value will automatically activate them.

-st *new_state*

□

Specifies the new state for the selected printers

ACTIVE

NOT_ACTIVE.

Changing a printer's state to ACTIVE automatically sets its supervisor's and server's state to ACTIVE, provided the printer, its supervisor and server are all on the same host (or you are the Xprint administrator). Changing the printer's state to NOT_ACTIVE automatically sets its spoolin and spoolout states to OFF.

When the printer is activated for the first time using the xpchange □

-dev command, a subdirectory with its name is created (if none already exists) in the /var/spool/Xprint/config directory.

If the printer has been set up to be activated automatically (-aa option), the printer state will be set to ACTIVE when its host is activated.

-uf *unmount_form*

□

Informs the system that no MANUAL form is mounted on the printer and that jobs using AUTOMATIC forms may now be printed.

-wn *time_value*

□

Only used in conjunction with option `-so OFF` or `-st NOT_ACTIVE`. This option allows you to specify when the spoolout has to be terminated. Accepted values are:

NOW

□

Terminates the active job immediately and sets it to the **INTERRUPTED** state. The terminated job will be rescheduled as soon as the spoolout state of the printer is set to **ON** again.

DELETE

□

Deletes the active job immediately.

END_JOB

□

The current job is printed, but no further jobs for this printer are started.

LAST_JOB

□

Prints all active and waiting jobs.

If a value is given for the `-wn` option, the spoolout state of the selected printer is assumed to be **OFF**, even if the `-so OFF` option has not been specified.

Example

To change the spoolout state of all PostScript printers on the local host to **OFF** after the current job has been printed:

```
xpchange -dev -scl "-pc POSTSCRIPT" -st NOT_ACTIVE -wn END_JOB
```

File

/var/spool/Xprint/config/SP/supervisor/printer

This directory is created (if it does not already exist) when a printer is activated for the first time.

Note

In some circumstances you will not be able to deactivate the Xprint objects with the `xpchange` command. For example, a host executing/controlling a Xprint server, supervisor and device has crashed. The computer cannot be rebooted and you wish to delete the device, the supervisor and the server from the Xprint domain. You cannot delete the objects because they are considered as **ACTIVE** by Xprint. As the crashed computer cannot be reached, the command `xpchange` fails. In such an extreme situation, the command `xpdeactivate` can be called to force the state **NOT_ACTIVE** in the database. Be aware that `xpdeactivate` does not replace `xpchange`: `xpdeactivate` only changes the state information of the objects, it does not try to actually deactivate them. The use of `xpdeactivate` should be reserved for emergency situations.

To force the deactivation of a device, you can type:

```
xpdeactivate -dev dev_name
```

See also

- `xpadd -dev`, `xpadd -frm`, `xpadd -job`, `xpstat`, `xpmount`, `xprdir`
- `xpdeactivate`
- "Xprint V6.0 - User and Administrator Guide".

3.2.18 `xpchange -dgr` - Changing the state of a printer group

This command is for administrators' use only.

Format

```
xpchange -dgr [selection] [changes_list]
```

Description

The `xpchange -dgr` command allows you to change the current spoolin state of any printer group you administer. The spoolin state of a printer group can be either ON or OFF. It is automatically set to ON when the printer group is added to the Xprint system.

Operands

-dgr [*selection*]

□

With this option you specify the printer groups whose state you want to change. For *selection* you have three possibilities:

device_group_names

□

One or more printer groups whose states are to be changed.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant printer groups are to be selected. Each entry in this list consists of an option of the `xpadd -dgr` command and one or more associated values. The command only affects the printer groups which match the specified options and their values.

For *selection_criteria_list* you can use all options of the `xpadd` □

`-dgr` command plus `-ad` and `-si`.

For full information on using selection criteria for this object, see section [Selection criteria list \(option -scl\)](#).

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to all printer groups for which the administrator calling the command has the required privileges.

-ad *administrator*

□

Specifies the administrator of the printer group to be modified.

-si *spoolin*

□

Specifies the spoolin state (ON or OFF) for the selected printer groups (default: ON).

Options

changes_list

Two options are available:

-ju *justification*

□

Used to add a comment explaining the new spoolin state which can be displayed using the `xpstat -dgr` command. This comment is automatically removed when the `-si` option is changed again using the `xpchange -dgr` command.

-si *spoolin*

□

Specifies the new spoolin state (ON or OFF) for the selected printer groups (default: ON). If `-si` is set to OFF, print requests directed to the selected printer groups will be rejected.



When a job is submitted to a printer group for printing, Xprint checks the spoolin state of the group. If the spoolin state is ON, and at least one of the printers in the group has a spoolin state of ON, jobs will be queued for the group.

Examples

- To change the spoolin state of the printer group group1 to OFF with the justification that the group is being changed:
`xpchange -dgr group1 -si OFF -ju "Group is being changed"`
- To deactivate all printer groups which have the printer printer8 in their printer list (remember that you must enclose all selection criteria for the printer groups in double quotes):
`xpchange -dgr -scl "-dl printer8" -si OFF`
- To deactivate all printer groups:
`xpchange -dgr -si OFF -ju "Complete restructuring"`

See also

- `xpadd -job`, `xpstat`
- "Xprint V6.0 - User and Administrator Guide"

3.2.19 `xpchange -gtw` - Changing the state of a gateway

This command is for administrators' use only.

Format

`xpchange -gtw` [*selection*] [*changes_list*]

Description

A LOCAL gateway can have either the state ACTIVE or NOT_ACTIVE; its gateway in and gateway out states can be set to either ON or OFF. The `xpchange -gtw` command can be used to change the current state of any LOCAL gateway you administer. Gateways of type PARTNER are only representatives for remote systems you can not control. Therefore, you cannot change the state of such gateways.

Operands

`-gtw` [*selection*]

□

Here you specify the gateways of type LOCAL whose state you want to change. For *selection* you have three possibilities:

gateway_names

□

One or more gateways whose states are to be changed.

`-scl` "*selection_criteria_list*"

□

A list of criteria according to which the relevant LOCAL gateways are to be selected. Each entry in the selection list consists of an option of the `xpadd -gtw` command and one or more associated values. The command only affects the gateways which match the specified options and their values.

You can use all options of the `xpadd -gtw` command plus `-ad`, □
`-gi`, `-go` and `-st`.

For full information on using selection criteria for this object, see section [Selection criteria list \(option -scl\)](#).

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to all local gateways for which the administrator calling the command has the required privileges.

Options

changes_list

`-gi` *gateway_in*

□

Defines whether the gateway can receive jobs. Possible values are ON and OFF. The value ON is rejected if the option `-st` has the value `NOT_ACTIVE`. If ON is selected but the corresponding gateway is not active, it is automatically set to the ACTIVE state. If OFF is selected and the corresponding option `-go` is set to OFF, the gateway is automatically changed to the `NOT_ACTIVE` state.

-go *gateway_out*

□

Defines whether the gateway can receive jobs. Possible values are ON and OFF. The value ON is rejected if the option `-st` has the value `NOT_ACTIVE`. If ON is selected but the corresponding gateway is not active, it is automatically set to the ACTIVE state. If OFF is selected and the corresponding option `-gi` is set to OFF, the gateway is automatically changed to the `NOT_ACTIVE` state.

-ju *justification*

□

Used to add a comment justifying the change, which is displayed together with the gateway's state. This comment is automatically removed when the state, *gateway_in* and/or *gateway_out* is/are changed using the `xpchange -gtw` command without a new comment.

-sa *server_activation*

□

If the server is started WARM (default), the gateway retains the job from the previous session; if the server is started COLD the gateway loses the job. The value only concerns the job that is affected by this changed activation.

-st *state*

□

Specifies the new state for the selected gateway. This can either be ACTIVE or `NOT_ACTIVE`. The state ACTIVE must be specified in conjunction with either option `-gi` or option `-go`.

-wn *time_value*

□

Specifies how active transfers are to be treated in the event of transmission problems. Possible values are:

NOW

Active transfers are interrupted immediately.

AFTER_LAST_TRANSACTION (default)

□

Active transfers are to be completed before the state of the gateway is changed.

If the options `-st`, `-gi` and `-go` are not specified, Xprint sets the specified gateway to ACTIVE, spoolin to ON and spoolout to ON.

Example

To deactivate the local gateway `gateway1`:
`xpchange -gtw gateway1 -st NOT_ACTIVE`

Files

`/var/spool/Xprint/config/GW/gateway`

Note

In some circumstances you will not be able to deactivate the Xprint objects using the `xpchange` command. For example, a host executing/controlling a Xprint gateway has crashed. The computer cannot be rebooted and you wish to delete the gateway from the Xprint domain. You cannot delete the object because it is considered as ACTIVE by Xprint. As the crashed computer cannot be reached, the command `xpchange` fails. In such an extreme situation, the command `xpdeactivate` can be called to force the state `NOT_ACTIVE` in the database.

Be aware that `xpdeactivate` does not replace `xpchange`: `xpdeactivate` only changes the state information of the objects, it does not try to actually deactivate them. The use of `xpdeactivate` should be reserved for emergency situations.

To force the deactivation of a gateway you can type:

```
xpdeactivate -gtw gtw_name
```

See also

- `xpadd -gtw`, `xpstat -gtw`, `xpdeactivate`
- "Xprint V6.0 - User and Administrator Guide", chapter "Interoperability"

3.2.20 `xpchange -job` - Changing state of a print job

Format

```
xpchange [-job] [selection] [changes_list]
```

Description

When you have submitted your print job, it is placed in a queue, where it waits to be printed (if a print process is currently running on the printer). This is called the WAIT state.

The position of the print job in the queue depends on the scheduling policy of the server which is processing it. The scheduling policy depends on the configuration of the server; normally, however, it follows the FIFO principle (first in, first out), i.e. the print jobs are processed in the order in which they were placed in the queue. As the administrator, you can use the `xpshow -srv -diL` command to display the scheduling policy of the server responsible for processing your print job. As a user, you can change the order of the print jobs in three different ways:

- You can place the job at the beginning of the queue (TOP) so that it is the next job to be printed. However, you can only do this if you have the necessary permission from the Xprint administrator.
- You can suspend the job temporarily (SUSPEND). The job retains the SUSPEND state until you reassign it the WAIT state.
- You can modify the priorities of your print jobs.

If you have already submitted several print jobs but you want to print another one before these, you have two possibilities:

- You can use the option `-pr priority` of the `xpadd -job` command to assign the new job a higher priority than the jobs you have already submitted, as long as the server also allows the print jobs to be controlled via their priority.
- You can assign the new job the TOP state (`-st`) to place it at the beginning of the queue.

If one of your jobs is already printing (i.e. has the state ACTIVE), you can assign the new job the TOP state and then change the state of the running job from ACTIVE to SUSPEND. You can then restart printing the suspended job at a more convenient time.

It may also occur that a print job which has already started is stopped by the Xprint system (e.g. if the paper runs out during the print process or if a paper jam occurs). Once the problem has been corrected, most printers resume printing at the point where the print job stopped; but for those which do not, there is a function for resuming the job where it was interrupted so that the file is not printed from the beginning again.

To manipulate a print job within the queue, use the `xpchange -job` command, followed by the generated job ID which was output (or the job title) and the `-st` option with the new state you want. As well as the job ID, you can also use the option `-scl selection_criteria_list` (see under *selection* below).



If your print job consists of two or more files, which thus have the same job ID, you cannot halt printing of the individual files. □

You can cancel the whole job using the `xpdel -job` command. For further information, see [Section "xpdel -job - Deleting a print job"](#).

Operands



The object identifier `-job` does not have to be specified; if no object ID is specified, the `xpchange` command automatically uses `-job`. For reasons of clarity, however, this object ID is used in all examples in this manual.

[*selection*]

For *selection* you have three possibilities:

job_IDs

□

One or more jobs whose attributes are to be changed. Jobs in remote domains can be selected in the form `gateway!job_ID`, where *gateway* is the name of the partner gateway and *job_ID* is the local job ID.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant jobs are to be selected. Each entry in this list consists of an option of the `xpadd -job` command and one or more associated values. The command only affects the jobs which match the specified options and their values.

You can use all options of the `xpadd -job` command except `-jt`, `-sx` and `-te`, plus `-jo` and `-st`.

For full information on using selection criteria for this object, see section [Selection criteria list \(option -scl\)](#).

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to all jobs which can currently be changed.

Options

changes_list

-ps *page_select*

□

You can use this option to continue printing an interrupted print job at the point where it was broken off. You can also specify the point up to which the job is to be printed (e.g.: `-ps --60` means that the printing continues through page 60).

If printing is interrupted due to a printer failure and the printer concerned does not resume printing automatically after the failure is corrected, you do not need to print the entire file again. If you change the state of the print job from SUSPEND to WAIT (to return it to the queue), you can also use the `-ps` option to specify the page numbers (first and last pages) for the second print run. An example of this is given below. If you do not specify this option, however, your job will be printed according to the previous setting made for the `-ps` option.



The `-ps` option can only be used with the `xpchange` command for print jobs which have been suspended during printing. Otherwise you must use `xpmod`.

-rf *restart_from_page*

□

This option allows you to restart printing from a specified page number. It only applies if something has already been printed. In other words, if the job status is `DEVICE_ERROR` or `INTERRUPTED`.

You can give an absolute page number, for example: □

`xpchange -job -rf 16`, which will cause the printing to continue from page 16. The default is the first page in the current document and copy. If you enter a page number that does not exist in the current document, then the default value (page 1) will be used.

Alternatively, you can specify a page offset relative to the last page printed. For example, `xpchange -job -rf +2` will continue printing two pages *after* the last page that was printed. This could be useful if

you want to skip pages containing graphics that your printer has difficulty with. You can also specify a negative offset: `xpchange -job -rf --1` will continue printing one page before the last page that was printed. This could be useful if the last page jammed or didn't print properly and you want to repeat it. Note that you have to enter a 'double minus' (`--`) to obtain a negative page offset, as a 'single minus' will be interpreted as an option.

If you are printing more than one document (using `xpadd -job -dr`), or more than one copy of these documents (using `xpadd -job -fc`), or printing each page in a document more than once (using `xpadd -job -fp`), then you can see exactly where the printing will continue from by using the `xpstat -job -diL` command.

You cannot use `-ps` with `-rf`, or `-st` with `-rf`. These combinations are mutually exclusive.

-st state



When you have specified the job IDs or the selection criteria, you can change the state (`-st`) of the selected print job using one of the following

TOP



Change the state of the waiting print job to TOP

SUSPEND



(Default.) To suspend the job with the ACTIVE or WAIT state (i.e. the job which is currently being printed or which is waiting to be printed).

WAIT



To change the state of the suspended print job to WAIT



The state of a print job which is currently being printed (i.e. is ACTIVE) cannot be changed to TOP or WAIT. A job with the state TOP cannot be assigned the state WAIT. The state of a print job which is waiting to be filtered (i.e. has the state DATA_FILTERING), or which was submitted with the option `-dp direct_printing`, cannot be changed.

The state of a job sent from a remote domain which is waiting for the end of the data transfer, (state information: DATA PENDING, state: SUSPEND) cannot be changed manually.

Examples

- To place job `se2:5` at the top of the queue:
`xpchange -job se2:5 -st TOP`
 (you can only use `-st TOP` if you have the relevant authorization.)
- To start printing job `se1:myjob1` at page 16:
`xpchange -job se1:myjob1 -st WAIT -ps 16-`

See also

- `xpadd -job`, `xpstat -job`
- "Xprint V6.0 - User and Administrator Guide".

3.2.21 xpchange -spv - Changing the state of a supervisor

This command is for administrators' use only.

Format

xpchange -spv [*selection*] [*changes_list*]

Description

The state of a supervisor can be either ACTIVE or NOT_ACTIVE. You can change the current state of any

supervisor you administer using the `xpchange -spv` command.



When a new supervisor is added to the Xprint system, its state is set to `NOT_ACTIVE`. When the supervisor is activated for the first time, a subdirectory with its name is created (if none already exists) in the `/var/spool/Xprint/config/SP` directory.

Operands

-spv [*selection*]



Here you specify the supervisors whose state is to be changed. For *selection* you have three possibilities:

supervisor_names



You can specify one supervisor or a list of supervisors.

-scl "*selection_criteria_list*"



A list of criteria according to which the relevant supervisors are to be selected. Each entry in this list consists of an option of the `xpadd -spv` command and one or more associated values. The command only affects the supervisors which match the specified options and their values.

You can use all options of the `xpadd -spv` command plus `-ad` and `-st NOT_ACTIVE`.

For further information on using selection criteria, see the [Selection criteria list \(option -scl\)](#).

No specification:



If you do not specify a value for *selection*, Xprint applies the command to all supervisors for which the administrator calling the command has the required privileges.

Options

changes_list

-ju *justification*



This is a comment explaining the new state which can be displayed by using the `xpstat-spv` command. This comment is automatically removed when the state is changed again using the `xpchange -spv` command.

-st *state*



Specifies the new state for the selected supervisors. This can either be `ACTIVE` or `NOT_ACTIVE` (default: `ACTIVE`). Changing a supervisor's state to `ACTIVE` automatically sets its server's state to `ACTIVE`, provided the supervisor and server are on the same host (or you are the Xprint administrator). Changing the supervisor's state to `NOT_ACTIVE` automatically deactivates its printer. Active jobs on printers which are deactivated by the `xpchange -spv -st NOT_ACTIVE` command are stopped immediately and put in the `INTERRUPTED` state. For further information see the `xpchange -dev` command, option `-wn NOW`, ...



Activating a supervisor does not automatically activate its printers also.

Examples

- To activate the supervisor `bertram`:
`xpchange -spv bertram`
- To deactivate all supervisor objects which bear the comment "`please_delete`":
`xpchange -spv -scl "-ca please_delete" -st NOT_ACTIVE`

File

`/var/spool/Xprint/config/SP/supervisor`

□

This directory is created (if it does not already exist) when a supervisor is activated for the first time.

Note

In some circumstances you will not be able to deactivate Xprint objects using the `xpchange` command. For example, a host executing/controlling a Xprint server, supervisor and device has crashed. The computer cannot be rebooted and you wish to delete the device, the supervisor and the server from the Xprint domain. You cannot delete these objects because they are considered as `ACTIVE` by Xprint. As the crashed computer cannot be reached, the command `xpchange` fails. In such an extreme situation, the command `xpdeactivate` can be called to force the state `NOT_ACTIVE` in the database. Be aware that `xpdeactivate` does not replace `xpchange`: `xpdeactivate` only changes the state information of the objects, it does not try to actually deactivate them. The use of `xpdeactivate` should be reserved for emergency situations.

To force the deactivation of a supervisor, you can type:

```
xpdeactivate -spv spv_name
```

See also

`xpstat`, `xpdeactivate`, "Xprint V6.0 - User and Administrator Guide".

3.2.22 xpchange -srv - Changing the state of a server

This command is for administrators' use only.

Format

```
xpchange -srv [selection] [changes_list]
```

Description

The state of a server can be set to either `ACTIVE` or `NOT_ACTIVE` and its spoolin and spoolout states can be set to either `ON` or `OFF`. You can change the current state of any server you administer using the `xpchange -srv` command.



When a new server is added to the Xprint system its state (`-st`) is set to `NOT_ACTIVE`, and its spoolin (`-si`) and spoolout (`-so`) states are set to `OFF`.

Operands

-srv [*selection*]

□

Here you specify the servers whose state is to be changed. For *selection* you have three possibilities:

server_names

□

One or more servers whose states are to be changed.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant servers are to be selected. Each entry in this list consists of an option of the `xpadd -srv` command and one or more associated values. The command only affects the servers which match the specified options and their values.

You can use all options of the `xpadd -srv` command plus `-ad`, □
`-si`, `-so` and `-st`.

For full information on using selection criteria for this object, see [Selection criteria list \(option -scl\)](#).

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to all servers for which the administrator calling the command has the required privileges.

Options

changes_list

-ju *justification*

□

This is a comment explaining the new state which can be displayed by using the `xpstat -srv` command. This comment is automatically removed when one of the states (`-st`, `si` or `so`) is changed again using the `xpchange -srv` command.

-sa *server_activation*

□

Used with the `xpchange -srv -st ACTIVE` command to specify whether the selected servers should retain jobs from a previous server session (WARM) or delete them (COLD) when activated. The default is the value specified when a server's host is activated (see the `xpstart` command ...).

-si *spoolin*

□

Specifies the new spoolin state for the selected servers - ON (the server will accept jobs for scheduling) or OFF (no jobs are accepted by the server). The default is ON. If the selected servers are NOT_ACTIVE, choosing the value ON automatically activates them.

-so *spoolout*

□

Specifies the new spoolout state for the selected servers - ON (the server will start jobs on printers it controls) or OFF (no jobs will be started). The default is ON. If the selected servers are NOT_ACTIVE, choosing the ON value automatically activates them.

-st *state*

□

Specifies the new state for the selected servers. This can either be ACTIVE or NOT_ACTIVE (default: ACTIVE). Changing a server's state to NOT_ACTIVE automatically sets its spoolin and spoolout states to OFF and deactivates all its supervisors and printers. Active jobs on printers which are deactivated by the `xpchange -srv -st NOT_ACTIVE` command are stopped immediately and put in the INTERRUPTED state. For further information see the description of the `xpchange -dev -wn NOW` command



When a server is activated for the first time using the `xpchange -srv` command, a subdirectory with its name is created (if none already exists) in the `/var/spool/Xprint/config/SV` directory.

Examples

- To reactivate server `server3`, retaining the jobs from the previous session:
`xpchange -srv server3 -sa WARM`
- To deactivate all servers controlled by host `thames`:
`xpchange -srv -scl "-ho thames" -st NOT_ACTIVE`

File

`/var/spool/Xprint/config/SV/server`

□

This directory is created (if it does not already exist) when a server is activated for the first time.

Note

In some circumstances you will not be able to deactivate Xprint objects using the `xpchange` command. For example, suppose the host executing/controlling an Xprint server, supervisor and device has crashed. The computer cannot be rebooted and you wish to delete the device, the supervisor and the server from the Xprint domain. You cannot delete the objects because Xprint considers them to be ACTIVE. As the crashed computer cannot be reached, the command `xpchange` fails. In such an extreme situation, you can call the command `xpdeactivate` to force the state NOT_ACTIVE in the database. Be aware that `xpdeactivate` does not replace `xpchange`: `xpdeactivate` only changes the state information of the objects, it makes no attempt to actually deactivate them. The use of `xpdeactivate` should be reserved for emergency situations.

To force the deactivation of a server you can type:

```
xpdeactivate -srv srv_name
```

See also

- `xpstart`, `xpstat -srv`, `xpdeactivate`
- "Xprint V6.0 - User and Administrator Guide"

3.2.23 `xpchange -usr` - Resetting a user's print quotas

This command is for administrators' use only.

Format

```
xpchange -usr [selection] [changes_list]
```

Description

The `xpadd -usr` command and the options `-aj` and `-ap` can be used to set a limit to the number of pages and jobs a user is allowed to print. If such a quota has been set, Xprint monitors the current number of pages and jobs the user has printed using the `-cp consumed_pages` and `-cj consumed_jobs` counters. When the user reaches his/her allowed limits, you can reset these counters using the `xpchange -usr` command.

Operands

-usr [*selection*]

□

Here you specify the users whose print quotas you want to change. For *selection* you have three possibilities:

user_IDs

□

One or more users whose print quotas are to be changed.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant users are to be selected. Each entry in this list consists of an option of the `xpadd -usr` command and one or more associated values. The command only affects the users which match the specified options and their values.

You can use all options of the `xpadd -usr` command.

For full information on using selection criteria for this object, see the [Selection criteria list \(option -scl\)](#).

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to all users.

Options

changes_list

-cj *consumed_jobs*

□

The number of jobs the user has already submitted for printing. This option can be used to reset

the counter for *consumed_jobs* to the value "0" when a user has reached his/her allowed jobs limit. The default value is "0".

-cp *consumed_pages*

□

The number of pages the user has already printed. This option can be used to reset the counter for *consumed_pages* to the value "0" when a user has reached his/her allowed pages limit. The default value is "0".

Example

To reset the number of consumed pages for users laurel and hardy to 0:

```
xpchange -usr laurel hardy -cp 0
```

See also

- `xpmod -usr`, `xpstat -usr`
- "Xprint V6.0 - User and Administrator Guide"

3.2.24 xpconf_dev - Configuring a new printer

This command is for administrators' use only.

Format

xpconf_dev [*options*]

Description

The `xpconf_dev` command is used to add a new printer to the Xprint system. Suitable attribute values are automatically selected for the printer model and the emulation.

The command (shell procedure) defines a new printer and at the same time chooses suitable default values for the printer model and the emulation (for PCL, speed, parity, significant bits and polling). Automatic activation is always set. If the required PCL is not present in the database, it is first defined by the command before the printer is entered.

`xpconf_dev` can be used in two modes:

- interactively with the user
- through input in the command line

If you enter the command without arguments, Xprint automatically switches to interactive mode. (As soon as you specify an argument after `xpconf_dev`, command mode is used.)

- In interactive mode data is displayed for selection.
- In command mode operands must be specified.

General

Modifications

To assign, for example, a notification delivery method to a printer object that already exists, you can use the `xpmod -dev` command.

Error messages

`xpconf_dev` may return various error messages, which originate mainly from the individual commands of the shell procedure (`getopts`, `xpadd`, ...). In command mode a usage message is output if no operands are specified.

Interruption

If the execution of a command is interrupted from the keyboard, e.g. with DEL or □

Ctrl-C, it may happen that the has been PCL is added but the printer not. In this case, you can remove the PCL using the `xpdcl -pcl` command.

Command mode

Operands

-m *device_model*

☐

SNI model name of the new printer. For possible values, see the list in the file `/var/spool/Xprint/config/data/conf_dev` or the [Table ""](#) in the appendix.

-d *device_address*

☐

Address of the printer. Specifications as with `xpadd -dev -da`; see command `xpadd -dev`, option `-da` on

device_name

☐

The name specified for this printer must be unique among both printers and printer groups.

Options

For the following options (except for `-e`) you can use the specifications under the `xpadd -dev` command on There you will find detailed descriptions and permitted values of the various options as well as their validity and how they interact with each other.

-b *significant_bits* (equivalent to `xpadd -dev -sb`)

☐

If this option is omitted, an appropriate default value is chosen for the specified printer model and the emulation.

-c *connection_type* (equivalent to `xpadd -dev -co`)

☐

If this option is omitted, SERIAL is used (or SCSI for SNI2050 printers).

-e *emulation*

☐

The chosen emulation on the specified printer model. If no emulation is specified but the model supports several, a default emulation is selected. (For the supported models and emulations, see [Section "Supported printers and PCLs"](#).)

-h *host_name* (equivalent to `xpadd -dev -ho`)

☐

If this option is omitted, the printer is defined on the local host.

-i *polling_status* (similar to `xpadd -dev -ep`)

☐

Polling can be activated or deactivated using the keywords SET or RESET respectively. If this option is omitted, Xprint selects an appropriate default value for the specified printer model.

-p *parity* (equivalent to `xpadd -dev -pb`)

☐

If this option is omitted, a suitable default value for the specified printer model and the emulation is chosen.

-s *speed* (equivalent to `xpadd -dev -sp`)

☐

If this option is omitted, a suitable default value for the specified printer model and the emulation is chosen.

-x *protocol* (equivalent to `xpadd -dev -po`)

☐

If this option is omitted, a suitable default value for the specified printer model and the emulation is chosen.

Interactive mode

In interactive mode (i.e. if no argument was specified in the command line), first of all a list of supported printer

models and their emulations is displayed and you are prompted to choose one.

You are asked to enter the printer address, followed by the printer name. A definition proposal is then displayed, showing the name, printer address, host, PCL, protocol, speed, parity, significant bits, polling status and connection type of the printer to be added.

You can either confirm this definition or modify one of the attributes. When you have identified the attribute you want to modify, the possible values for it are displayed. You select one and the updated definition is displayed. You can continue to modify other attributes in this way.

When you finally confirm the definition, the system checks whether the required PCL already exists in the database. If not, the PCL is compiled from the xpterm file and added to the database before the printer itself is finally added.

After each step in the dialog you are free to quit by terminating the command.

Examples

The selection possibilities in the example should not be taken literally. For further information, see [Section "Predefined printers for xpcnf_dev"](#) in the appendix. This list of values is also contained in the file `/var/spool/Xprint/config/data/conf_dev`.

Example 1: Command mode

```
$ xpcnf_dev -m SNI-9022-200 -e Diablo-630 -d /dev/tty printer1
XP000001 <HP-9022> is being added
XP000001 <printer1> is being added
```

Example 2: Interactive mode

```
xpcnf_dev
```

List of device models and emulations supported by Xprint:

```
-- 1  SNI-2050 HP-LASERJET
-- 2  SNI-4007 EPSON-LQ
-- 3  SNI-4009 EPSON-FX
-- 4  SNI-4009 PROPRINTER
-- 5  SNI-4010 EPSON-LQ
-- 6  SNI-4011 ECMA-9097
-- 7  SNI-4011 EPSON-LQ
-- 8  SNI-4011 EPSON-FX
-- 9  SNI-4014 EPSON-LQ
-- 10 SNI-4014 PROPRINTER
-- 11 SNI-4806 HP-LASERJET
-- 12 SNI-4806 PROPRINTER
-- 13 SNI-4806 HP-GL
-- 14 SNI-4810 HP-LASERJET
-- 15 SNI-4810 POSTSCRIPT
```

Please type a number to select a device model,
press return to start customized processing, 'q' to quit or '?' for help.

You can drive inside devices list using +/- (next/previous screen):

All printers in the file `/var/spool/Xprint/config/data/conf_dev` can be selected in this way.

- In this list select your printer model or a similar one with a suitable emulation by entering the corresponding number and pressing ENTER.
- The corresponding entry will be marked, e.g.

```
>> 1  SNI-2050 HP-LASERJET
```
- Confirm it with ENTER.
- Now specify a printer address:
 Please give a device address.
 Type device address, 'q' to quit or '?' for help:

Here you specify the port to which the printer is connected. If it is connected to a serial, parallel or SCSI port on one of the existing hosts, specify the special file belonging to this port (the format is, for instance, /dev/term/tty001 or /dev/term/tty002 for serial, /dev/lp0 oder /dev/lp1 for parallel and /dev/ios/sprin022 for SCSI ports).

If the printer to be added is a LAN printer with its own network card and is connected via a terminal server or a PC by means of the *Wprint* (or *SPPCS*) software, this address comprises an Internet address (or the associated host name from the /etc/hosts file) and a port number. In this case the format of the printer address is, for example, 139.23.124.37 7001.

For more details of the Internet address and the port number, see the documentation and current configuration data of the LAN printer, the terminal server or the *Wprint* (*SPPCS*) software, depending on how the LAN printer is connected to the network.

Enter the address and confirm your input with ENTER

- You will now be requested to give the new printer a name:

Please give a device name.

Type a device name, 'q' to quit or '?' for help:

Enter a name that does not already exist in the system and press ENTER.

Once you have completed these steps, Xprint offers you a standard configuration, which you can modify or confirm.

- A display similar to the following one will appear on your screen:

Proposal of device definition (type "HP Laserjet 4P", emulation "HP-LASERJET"):

```
-- 1  NAME: HPLJ-4P
-- 2  Host: london
-- 3  pcl: HP-LASERJET
-- 4  Address: /dev/lp0
-- 5  Connection type: SERIAL
-- 6  Protocol: XON
-- 7  Speed: 9600
-- 8  Parity: NONE
-- 9  Significant bits: 8
-- 10 Enable polling: RESET
```

Please type a number to update an attribute,
press return to start modification, 'q' to quit or '?' for help: 5

To change the displayed configuration, select the appropriate number and confirm with ENTER.

. This marks the corresponding entry, e.g.:

```
>> 5  Connection type: SERIAL
```

- Confirm again with ENTER.

- The possible parameters for the respective options will be displayed. Select a number and confirm it with ENTER, e.g:

Updating attribute: "Connection type" .

Current value : "SERIAL"

Possible values are :

1. SERIAL 2. PARALLEL 3. LAN 4. SCSI

Type entry number (any other entry means no change) :

- Once you have changed all the settings you require, confirm with ENTER.

- Xprint then confirms that the new printer has been created with the following message:

XP000001 <HPLJ-4P> is being added.

File

/var/spool/Xprint/config/data/conf_dev

□

This file contains a list of all SNI printers that can be configured with the `xpconf_dev` command.

See also

`xpadd -dev`

3.2.25 `xpcopy -dev` - Copying printer entries

This command is for administrators' use only.

Format

xpcopy [-dev] *from_device_name* *to_device_name* [*changes_list*]

Description

The `xpcopy -dev` command is used to set up a new printer with similar attributes to an existing one. The attributes of the existing printer are simply copied to the new one and modified for the new printer according to specifications you have made in a list of changes.

You should, however, specify the new printer's address and its supervisor's name as these will not necessarily be the same as the old printer. For example, the new printer might have the same supervisor, but a different address, or the same address, but a different supervisor.



The new printer is assigned to the host on which the `xpcopy` command is executed.

Note that the printer's supervisor must be available on the host on which the printer is defined. If you copy a remote printer, it is added on the local host. If you have not specified a supervisor, a default supervisor bearing the name of the host is assigned to the new printer. If this supervisor does not exist, it is created automatically.

Only administrators can assign the new printer to a different host they administer using the `-ho` *host_name* option. The Xprint administrator can copy the printer to any host.

Operands

-dev *from_device_name*

□

The name of the printer to be copied.

to_device_name

□

The name of the new printer. If this name already exists for a printer or printer group, the `xpcopy -dev` command is rejected.

Options

changes_list

A list containing all the new or modified options which are to apply to the new printer. You can use the same options as with `xpadd -dev` plus option `-ad` (see description below).

-ad *administrator*

□

Here you can specify a different administrator for the new device by entering his/her Xprint user ID. This option is only a comment.

Files

/var/spool/Xprint/config/SP/supervisor/printer

□

The first time the printer is activated a subdirectory with its name is created (if none exists) in the directory of its supervisor */.../SP/*.

/etc/hosts

□

For the network address of a LAN printer if a symbolic name is used.

Example

The new printer printer12 is to have the same attributes as printer4 but use the default form letter7:

```
xpcopy -dev printer4 printer12 -fm letter7
```

See also

- `mknod(1)`, `stty(1)`, `write(1)`,
- `xpadd -dgr`, `xpadd -flt`, `xpadd -fnt`, `xpadd -frm`, `xpadd -hos`, ☐
`xpadd -job`, `xpadd -pcl`, `xpadd -prm`, `xpadd -rec`, `xpadd -spv`, ☐
`xpadd -srv`, `xpchange -dev`, `xpshow -dev`
- `xpconf_dev` (special command)
- "Xprint V6.0 - User and Administrator Guide"

3.2.26 xpcopy -dgr - Copying a printer group

This command is for administrators' use only.

Format

```
xpcopy -dgr from_device_group_name to_device_group_name [changes_list]
```

Description

The `xpcopy -dgr` command is used to set up a new printer group with similar attributes to an existing one. The attributes of the existing group are simply copied to the new one and modified for the new group according to specifications you have made in a list of changes.



The new printer group is assigned to the host on which the `xpcopy` command is executed. With the `-ah administration_host` option, administrators can assign the new printer group to a different host, which, however, they must administer. This restriction does not apply to the Xprint administrator.

Operands

-dgr *from_device_group_name*

☐

The name of the printer group to be copied.

to_device_group_name

☐

The name of the new printer group. If this name already exists for a printer group or printer, the `xpcopy -dgr` command is rejected.

Options

changes_list

☐

A list containing all the new or modified options which are to apply to the new printer. You can use the same options as with `xpadd -dgr` plus option `-ad` (see description below).

-ad *administrator*

☐

Here you can specify a different administrator for the new printer group by entering his/her Xprint user ID. This option is only a comment.

Examples

- To create a new printer group group2 which is the same as group1:
`xpcopy -dgr group1 group2`
- To create a new printer group group2, which has the same printers as group1 except for printer3:

```
xpcopy -dgr group1 group2 -dl- printer3
```

Variables

XP_DESTIN



Shell variable containing the printer (group) names of the default printer for jobs without option *-de destination*.

See also

- `xpadd -dev`, `xpadd -job`, `xpadd -prm`, `xpchange -dgr`, `xpshow -dgr`
- "Xprint V6.0 - User and Administrator Guide"

3.2.27 xpcopy -flt - Copying a filter

This command is for administrators' use only.

Format

```
xpcopy -flt from_filter_name to_filter_name [changes_list]
```

Description

The `xpcopy -flt` command is used to set up a new filter with similar attributes to an existing one. The attributes of the existing filter are simply copied to the new one and modified for the new filter according to specifications you have made in a list of changes.



The new filter is assigned to the host on which the `xpcopy` command is executed. With the `-ah administration_host` option, administrators can assign the new filter to a different host, which, however, they must administer. This restriction does not apply to the Xprint administrator.

Operands

-flt from_filter_name



The name of the filter to be copied.

to_filter_name



The name of the new filter. If this name already exists in the system, the `xpcopy -flt` command is rejected.

Options

changes_list



A list containing all the new or modified options which are to apply to the new filter. You can use the same options as with `xpadd -flt` except `-tp` plus option `-ad` (see description below).

-ad administrator



Here you can specify a different administrator for the new filter by entering his/her Xprint user ID. This option is only a comment.



The option `-tp filter_type` cannot be modified using the `xpcopy -flt` command.

Example

To set up the new filter `mail_lj` by copying filter `fastmail`. The new filter `mail_lj` is to be administered from the remote host `nile` rather than on your local host `thames`:

```
xpcopy -flt fastmail mail_lj -ah nile
```

Files

`/var/spool/Xprint/config/filters`

□

The default directory for filter programs.

See also

- `xpadd -dev`, `xpadd -job`, `xpshow`
- "Xprint V6.0 - User and Administrator Guide"

3.2.28 `xpcopy -fnt` - Copying a font

This command is for administrators' use only.

Format

`xpcopy -fnt` *from_font_name* *to_font_name* [*changes_list*]

Description

The `xpcopy -fnt` command is used to set up a new font with similar attributes to an existing one. The attributes of the existing font are simply copied to the new one and modified for the new font according to specifications you have made in a list of changes.



The new font is assigned to the host on which the `xpcopy` command is executed. With the `-ah` *administration_host* option, administrators can assign the new font to a different host, which, however, they must administer. This restriction does not apply to the Xprint administrator.

Operands

`-fnt` *from_font_name*

□

The name of the font to be copied.

to_font_name

□

The name of the new font. If this name already exists in the system, the `xpcopy -fnt` command is rejected.

Options

changes_list

□

A list containing all the new or modified options which are to apply to the new font. You can use the same options as with `xpadd -fnt` plus □ option `-ad` (see description below).

`-ad` *administrator*

□

Here you can specify a different administrator for the new font by entering his/her Xprint user ID. This option is only a comment.

Example

To create the new font `font2` from the existing font `font1`. The new font is to be of the type `SansSerif` and have a size of 12 points:

```
xpcopy -fnt font1 font2 -tp SansSerif -hm 12
```

See also

- `xpadd -frm`, `xpshow`
- "Xprint V6.0 - User and Administrator Guide"

3.2.29 `xpcopy -frm` - Copying a form

This command is for administrators' use only.

Format

xpcopy -frm *from_form_name* *to_form_name* [*changes_list*]

Description

The xpcopy -frm command is used to set up a new form with similar attributes to an existing one. The attributes of the existing form are simply copied to the new one and modified for the new form according to specifications you have made in a list of changes.



The new form is assigned to the host on which the xpcopy command is executed. With the -ah *administration_host* option, administrators can assign the new form to a different host, which, however, they must administer. This restriction does not apply to the Xprint administrator.

Operands

-frm *from_form_name*



The name of the form to be copied.

to_form_name



The name of the new form. If this name already exists in the system, the xpcopy -frm command is rejected.

Options

changes_list



A list containing all the new or modified options which are to apply to the new form. You can use the same options as with xpadd -frm plus option -ad (see description below).

-ad *administrator*



Here you can specify a different administrator for the new form by entering his/her Xprint user ID. This option is only a comment.

Examples

- To copy the form invoice3 to another form called form1 without making changes:
xpcopy -frm invoice3 form1
- To copy the form invoice3 to another form called form1, changing the default font to Times, the left margin to 20 mm and the line length to 17 cm:
xpcopy -frm invoice3 form1 -ft Times -lm 20m -ll 17c

See also

- xpadd -dev, xpadd -frm, xpadd -prm, xpshow -frm
- "Xprint V6.0 - User and Administrator Guide"

3.2.30 xpcopy -gtw - Copying a gateway

This command is for administrators' use only.

Format

xpcopy -gtw *from_gateway_name* *to_gateway_name* [*changes_list*]

Description

The xpcopy -gtw command is used to set up a new gateway with similar attributes to an existing one. The attributes of the existing gateway are simply copied to the new one and modified for the new gateway

according to specifications you have made in a list of changes.

Operands

-gtw *from_gateway_name*

□

The name of the gateway to be copied.

to_gateway_name

□

The name of the new gateway. If this name already exists in the system, the `xpcopy -gtw` command is rejected.

Options

changes_list

□

A list containing all the new or modified options which are to apply to the new gateway. You can use the same options as with `xpadd -gtw`.

See also

- `xpadd -gtw`, `xpshow -gtw`
- "Xprint V6.0 - User and Administrator Guide", chapter "Interoperability"

3.2.31 `xpcopy -jtp` - Copying a job template

This command is for administrators' use only.

Format

xpcopy -jtp *from_template_name* *to_template_name* [*changes_list*]

Description

The `xpcopy -jtp` command is used to set up a new job template with similar attributes to an existing one. The attributes of the existing template are simply copied to the new one and modified for the new template according to specifications you have made in a list of changes.



The new template is assigned to the host on which the `xpcopy` command is executed. With the `-ah` *administration_host* option, administrators can assign the new template to a different host which, however, they must administer. This restriction does not apply to the Xprint administrator.

Operands

-jtp *from_template_name*

□

The name of the job template to be copied.

to_template_name

□

The name of the new job template. If this name already exists in the system, the `xpcopy -jtp` command is rejected.

Options

changes_list

□

A list containing all the new or modified options which are to apply to the new job template. You can use the same options as with `xpadd -jtp` plus option `-ad` (see description below).

-ad *administrator*

□

Here you can specify a different administrator for the new job template by entering his/her Xprint user ID. This option is only a comment.

Example

To define a job template letter1 from template template1, setting the destination printer to printer1 and the form to letter2:

```
xpcopy -jtp template1 letter1 -de printer1 -fm letter2
```

File

.Xprint



File in a user's home directory for private job templates.

See also

- xpadd -job, xpadd -jtp
- "Xprint V6.0 - User and Administrator Guide"

3.2.32 xpcopy -lrs - Copying a loadable resource

This command is for administrators' use only.

Format

```
xpcopy -lrs from_loadable_resource_name to_loadable_resource_name [modification_list]
```

Description

The xpcopy -lrs command is used to simplify the process of adding a new resource object to the spooler system. If an existing resource object has similar attributes to those required for the new resource, simply copy the attributes of the old resource to the new resource and modify any that need changing.

Operands

from_loadable_resource_name



The name of the loadable resource to be copied.

to_loadable_resource_name



The name of the new loadable resource. If this name already exists, the command is rejected.

Options

modification_list



A list containing the new values for the options you want to modify. The options specified in this list are the same as those used when a resource is added to the spooler system. See the xpadd -lrs command on

For information on the conventions used for modifying objects, see [Section "Modifying objects"](#) and [Section "Copying objects"](#) in "[Chapter "Product overview"](#)".

Example

This example extends the availability of the loadable resource "mylogo" from HP laserjet to PJJ PCL5e printers. See

```
xpcopy -lrs mylogo_hp mylogo_hp_pjl -cn mylogo -pc PJJ-PCL5e
```

File

/var/spool/Xprint/config/resources



Default directory for the resource files.

See also

xpadd -lrs

3.2.33 xpcopy -prm - Copying a permission list

This command is for administrators' use only.

Format

xpcopy -prm from_permission_name to_permission_name [*changes_list*]

Description

The xpcopy -prm command is used to set up a new permission list with similar attributes to an existing one. The attributes of the existing permission list are simply copied to the new one and modified for the new one according to specifications you have made in a list of changes.



The new permission list is assigned to the host on which the xpcopy command is executed. With the -ah *administration_host* option, administrators can assign the new permission list to a different host which, however, they must administer. This restriction does not apply to the Xprint administrator.

Operands

-prm from_permission_list_name



The name of the permission list to be copied.

to_permission_list_name



The name of the new permission list. If this name already exists in the system, the xpcopy -prm command is rejected.

Options

changes_list



A list containing all the new or modified options which are to apply to the new permission list. You can use the same options as with xpadd -prm except -pt plus option -ad (see description below).

-ad administrator



Here you can specify a different administrator for the new permission list by entering his/her Xprint user ID. This option is only a comment.



The option -pt *permission_type* cannot be modified.

Example

To set up an allowed list perm2 with all users on host rhine plus user laurel on host thames, copy list perm1 and add laurel to it:

```
xpcopy -prm perm1 perm2 -al+laurel@thames
```

See also

- xpadd -dev, xpadd -dgr, xpadd -frm, xpadd -srv
- "Xprint V6.0 - User and Administrator Guide"

3.2.34 xpcopy -spv - Copying a supervisor

This command is for administrators' use only.

Format

xpcopy -spv from_supervisor_name to_supervisor_name [*changes_list*]

Description

The `xpcopy -spv` command is used to set up a new supervisor with similar attributes to an existing one. The attributes of the existing supervisor are simply copied to the new one and modified for the new one according to specifications you have made in a list of changes.



The new supervisor is assigned to the host on which the `xpcopy` command is executed. With the `-ah administration_host` option, administrators can assign the new supervisor to a different host which, however, they must administer. This restriction does not apply to the Xprint administrator.

Operands

-spv *from_supervisor_name*



The name of the supervisor to be copied.

to_supervisor_name



The name of the new supervisor. If this name already exists in the system, the `xpcopy -spv` command is rejected.

Options

changes_list



A list containing all the new or modified options which are to apply to the new supervisor. You can use the same options as with `xpadd -spv` plus option `-ad` (see description below).

-ad *administrator*



Here you can specify a different administrator for the new supervisor by entering his/her Xprint user ID. This option is only a comment.

Examples

- To define the new supervisor `brutus` by copying the existing supervisor `caesar`, adding the comment `new_supervisor` for the Xprint administrator; then activate the new supervisor `brutus`:
`xpcopy -spv caesar brutus -ca new_supervisor`
`xpchange -spv brutus`
- To define and activate the supervisor `shaw` on server `server3` of the remote host `nile`, adding the comment `"from_host_brutus"` for the administrator:
`xpadd -spv shaw -se server3 -ho nile -ca from_host_brutus`
`xpchange -spv shaw`
- To define the supervisor `caesar` on server `server3` of the remote host `nile` by copying the supervisor `cassius` from the local host; then activate the supervisor `caesar`:
`xpcopy -spv cassius caesar -se server3 -ho nile`
`xpchange -spv caesar`
 In this example, option `-se server3` replaces the assignment of the original supervisor `cassius` to the server of the local host for the new supervisor `caesar` with the assignment to server `server3` of the remote host `nile`.

See also

- `xpadd -hos`, `xpchange -spv`
- "Xprint V6.0 - User and Administrator Guide"

3.2.35 xpcopy -srv - Copying a server

This command is for administrators' use only.

Format

xpcopy -srv *from_server _name to_server_name* [*changes_list*]

Description

The xpcopy -srv command is used to set up a new server with similar attributes to an existing one. The attributes of the existing server are simply copied to the new one and modified for the new one according to specifications you have made in a list of changes.



The new server is assigned to the host on which the xpcopy command is executed. With the -ah *administration_host* option, administrators can assign the new server to a different host which, however, they must administer. This restriction does not apply to the Xprint administrator.

Operands

-srv *from_server _name*

□

The name of the server to be copied.

to_server_name

□

The name of the new server. If this name already exists in the system, the xpcopy -srv command is rejected.

Options

changes_list

□

A list containing all the new or modified options which are to apply to the new server. You can use the same options as with xpadd -srv plus option -ad (see description below).

-ad *administrator*

□

Here you can specify a different administrator for the new server by entering his/her Xprint user ID. This option is only a comment.

Examples

- To copy server shaw and give it the new name bernard. The new server bernard is to be controlled by host host4 and is to handle the smallest job first, not the largest like server shaw does:
 xpcopy -srv shaw bernard -ho host4 -sp SMALL
 xpchange -srv bernard
- To set up a new server server3 on remote host nile based on server danube. The new server server3 is to process the largest print jobs first:
 xpcopy -srv danube server3 -ho nile -sp BIG
 xpchange -srv server3

See also

- xpadd -hos, xpadd -prm, xpchange -dev, xpchange -srv
- "Xprint V6.0 - User and Administrator Guide"

3.2.36 xpcopy -usr - Copying a user

This command is for administrators' use only.

Format

xpcopy -usr *from_user _name to_user_name* [*changes_list*]

Description

The xpcopy -usr command is used to set up a new user with similar permissions and print quotas to an existing one. The attributes of the existing user are simply copied to the new one and modified according to

specifications you have made in a list of changes.

Only the Xprint administrator can enter users as Xprint users in the Xprint system.

Operands

-usr *from_user_name*

☐

The name of the user to be copied.

to_user_name

☐

The name of the new user.

Options

changes_list

☐

A list containing all the new or modified options which are to apply to the new user. You can use the same options as with `xpadd -usr` plus the option `-cl host_list` (see ...).

Example

To add a new user `hardy`, with the same attributes as user `laurel`, plus the security level `TOP_SECRET`:

```
xpcopy -usr laurel hardy -sl TOP_SECRET
```

See also

- `xpadd -job`, `xpadd -hos`, `xpchange -usr`
- "Xprint V6.0 - User and Administrator Guide"

3.2.37 `xpdel -dev` - Deleting a printer

This command is for administrators' use only.

Format

xpdel -dev [*selection*]

Description

The `xpdel -dev` command is used to delete any printer in the Xprint system.

You cannot delete a printer that is **ACTIVE** or which is referenced by another object (e.g. a printer that is part of a printer group). Before you delete a printer, therefore, you must remove all such references and deactivate the printer.



When you delete a printer, you also delete all its waiting jobs!

Operands

-dev [*selection*]

☐

Here you specify which printers are to be deleted from the Xprint system. For *selection* you have three possibilities.

No specification

☐

If you do not specify a *selection*, Xprint deletes **all** printers in the Xprint system, for which the administrator calling the command has the required privileges.

device_names

☐

You can specify one printer or a list of printers to be deleted.

-scl "*selection_criteria_list*"

☐

A list of options and values restricting the `xpdel -dev` command to printers which match the specified criteria.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

You can use the same options as with `xpadd -dev` plus options `-ad` and `-si OFF`.

The options `-st ACTIVE`, `-si ON` and `-so ON` cannot be used as selection criteria because you cannot delete an ACTIVE printer.

Example

To delete the printers of supervisor `supervisor4` which are not active:

```
xpdel -dev -scl "-su supervisor4 -st NOT_ACTIVE"
```

Files

`/var/spool/Xprint/config/supervisor/printer`

□

The directory of the printer that is linked to the supervisor is deleted.

See also

`xpchange -dev`, `xpshow -dev`, `xpstat -dev`

3.2.38 xpdel -dgr - Deleting a printer group

This command is for administrators' use only.

Format

```
xpdel -dgr [selection]
```

Description

The `xpdel -dgr` command allows you to delete any printer group you administer. The individual printers in the group are not deleted when this command is used.

Operands

-dgr [*selection*]

□

For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to **all** printer groups for which the administrator calling the command has the required privileges.

device_group_names

□

One or more printer groups to be deleted.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant printer groups are to be selected. Each entry in this list consists of an option of the `xpadd -dgr` command and one or more associated values.

The command only affects the printer groups which match the specified options and their values.

You can use all options of the `xpadd -dgr` command plus `-ad` and `-si`.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

Examples

— To delete the printer group with the name `group1`:

```
xpdel -dgr group1
```

- To delete all printer groups with printer8 in their printer list:
xpdel -dgr -scl "-dl printer8"

See also

- xpadd, xpchange -dev, xpchange -spv, xpchange -srv
- "Xprint V6.0 - User and Administrator Guide"

3.2.39 xpdel -flt - Deleting a filter

This command is for administrators' use only.

Format

xpdel -flt [*selection*]

Description

The xpdel -flt command is used to delete any filter you administer from the Xprint system.

You cannot delete a filter which is referenced by another object (e.g. a fast filter that is assigned to an existing printer)

Operands

-flt [*selection*]

□

Here you specify which filters are to be deleted from the Xprint system. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to **all** filters which can currently be deleted.

filter_names

□

One or more filters to be deleted.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant filters are to be selected. Each entry in this list consists of an option of the xpadd -flt command and one or more associated values. The command only affects the filters which match the specified options and their values.

You can use all options of the xpadd -flt command plus -ad.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

Examples

- To delete the filter LandA2 from the system:
xpdel -flt LandA2
- To delete all filters with the input content type POSTSCRIPT.
xpdel -flt -scl "-it POSTSCRIPT"

3.2.40 xpdel -fnt - Deleting a font

This command is for administrators' use only.

Format

xpdel -fnt [*selection*]

Description

The xpdel -fnt command is used to delete any font you administer from the Xprint system.

You cannot delete a font which is referenced by another object (e.g. the default font of an existing form).

Operands

-fnt [*selection*]

□

Here you specify which fonts are to be deleted from the Xprint system. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to **all** fonts which can currently be deleted.

font_names

□

One or more fonts to be deleted.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant fonts are to be selected. Each entry in this list consists of an option of the xpdel -fnt command and one or more associated values. The command only affects the fonts which match the specified options and their values.

You can use all options of the xpdel -fnt command plus -ad.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

Examples

- To delete fonts font1, font2 and font3 from the system:
xpdel -fnt font1 font2 font3
- To delete all fonts with the character style ITALICS and the print quality DRAFT:
xpdel -fnt -scl "-cs ITALICS -pq DRAFT"

3.2.41 xpdel -frm - Deleting a form

This command is for administrators' use only.

Format

xpdel -frm [*selection*]

Description

The xpdel -frm command is used to delete any form you administer from the Xprint system.

You cannot delete a form which is referenced by another object (e.g. the default form of an existing printer).

Operands

-frm [*selection*]

□

Here you specify which forms are to be deleted from the Xprint system. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to **all** forms which can currently be deleted.

form_names

□

One or more forms to be deleted.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant forms are to be selected. Each entry in this list consists of an option of the `xpadd -frm` command and one or more associated values. The command only affects the forms which match the specified options and their values.

You can use all options of the `xpadd -frm` command plus `-ad`.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

Examples

- To delete the forms `invoice1` and `manual`:
`xpdel -frm invoice1 manual`
- To delete all forms which use the font `font1` and the paper format `A4` (page width 210 mm, page height 297 mm):
`xpdel -frm -scl "-ft font1 -pw 210m -ph 297m"`

3.2.42 `xpdel -gtw` - Deleting a gateway

This command is for administrators' use only.

Format

`xpdel -gtw` [*selection*]

Description

With the `xpdel -gtw` command, you can delete any gateway you administer from the Xprint system.

A gateway of type `LOCAL` with the state `ACTIVE` cannot be deleted; it must first be deactivated.

Operands

`-gtw` [*selection*]

□

Here you specify which gateways are to be deleted from the Xprint system. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to **all** gateways of type `LOCAL` or `PARTNER` which can currently be deleted.

gateway_names

□

One or more gateways to be deleted.

`-scl` "*selection_criteria_list*"

□

A list of criteria according to which the relevant gateways are to be selected. Each entry in this list consists of an option of the `xpadd -gtw` command and one or more associated values. The command only affects the gateways which match the specified options and their values.

You can use all options of the `xpadd -gtw` command plus `-ad`.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

Example

To delete gateway `gateway1`:

`xpdel -gtw gateway1`

If `gateway1` is a local gateway, it must be deactivated before it is deleted.

Files

`/var/spool/Xprint/config/GW/gateways`

See also

xpchange -gtw, xpstat -gtw

3.2.43 xpdel -hos - Deleting a host

This command is for the Xprint administrators' use only.

Format

xpdel -hos [*selection*]

Description

The xpdel -hos command is used to delete a host from the Xprint system.

A host *cannot* be deleted:

- if it is in the ACTIVE state
- if it is linked to another object (e.g. printer, server).

Operands

-hos [*selection*]

□

Here you specify which hosts are to be deleted from the Xprint system. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to **all** hosts which can currently be deleted.

host_names

□

One or more hosts to be deleted.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant hosts are to be selected. Each entry in this list consists of an option of the xpadd -hos command and one or more associated values. The command only affects the hosts which match the specified options and their values.

You can use all options of the xpadd -hos command except for -pd and -po.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

Example

To delete the host host3, having previously removed all its references to other objects, such as printers, and deactivated it:

```
xpmod -hos host3 -de-
xpstop -hos host3
xpdel -hos host3
```

3.2.44 xpdel -job - Deleting a print job

This command is for all users and administrators.

Format

xpdel [-job] *selection*

Description

To delete a job which is waiting to be printed or is already being printed, use the xpdel -job command followed by the job title or the job ID which is automatically assigned to it when it is placed in the queue. Alternatively, you can work with selection criteria (see under [*selection*] below).

All users can delete their own jobs; a user who is not registered in the Xprint system, however, can only do this from the host on which the job has been submitted. Registered Xprint users can delete their jobs from any host for which they are entered. Only administrators can also delete jobs of other users.

With this command at least one element must be specified: an individual job ID, the optional list of job IDs and/or the list of selection criteria. The list of IDs can follow immediately after the command name.

Bear in mind that one job ID can have several file names (if you have specified more than one file for printing). Also, `-job` is an optional element; if you do not specify an ID, the `xpdel` command uses `-job` by default.

Operands

`[-job]` selection

□

Here you specify which print jobs are to be deleted. For *selection* you have two possibilities:

job_names

□

You can specify one print job or a list of jobs. You can use either the local or the global job ID, or, if there is one, the job name which was specified with the `-jt` option of the `xpadd` command.

To delete jobs sent to remote domains, you must specify them in the form *gateway!job_name*, where *gateway* represents the name of the partner gateway and *job_name* for the local ID of the job to be deleted.

`-scl "selection_criteria_list"`

□

A list of criteria according to which the relevant jobs are to be selected. Each entry in this list consists of an option of the `xpadd -job` command and one or more associated values. The command only affects the jobs which match the specified options and their values.

You can use all options of the `xpadd -job` command, except for `-jt`, `-sx` and `-te`, plus `-jo` and `-st`.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

Examples

- To delete the print job with the local ID 12:
`xpdel -job 12`
- To delete job `se2:job1` (global ID) from the queue:
`xpdel -job se2:job1`
where `se2` is the name of the server that processes the print job, and `job1` is the title that was assigned to the job with option `-jt job_title` when it was submitted.
- To delete all jobs submitted on the local host which are to be printed on form `report1`, enter:
`xpdel -job -scl "-fm report1"`
- To delete all jobs processed by server `se2` whose titles begin with either `a` or `b`, enter:
`xpdel -job se2:a* se2:b*`

3.2.45 `xpdel -jtp` - Deleting a job template

This command is for administrators' use only.

Format

`xpdel -jtp [selection]`

Description

The `xpdel -jtp` command is used to delete any job template you administer from the Xprint system.

Operands

`-jtp [selection]`

□

Here you specify which job templates are to be deleted from the Xprint system. For *selection* you have three possibilities:

No specification:

☐

If you do not specify a value for *selection*, Xprint applies the command to **all** job templates which can currently be deleted.

template_names

☐

One or more job templates to be deleted.

-scl "*selection_criteria_list*"

☐

A list of criteria according to which the relevant job templates are to be selected. Each entry in this list consists of an option of the `xpadd -jtp` command and one or more associated values. The command only affects the job templates which match the specified options and their values.

You can use all options of the `xpadd -jtp` command plus `-ad` and `-ah`. For full information on using selection criteria for this object, see the [Section "Operands"](#).

Examples

- To delete the job templates `letter1`, `letter2` and `invoice4`:
`xpdel -jtp letter1 letter2 invoice4`
- To delete all job templates which are assigned to `printer4` and have the priority 50:
`xpdel -jtp -scl "-de printer4 -pr 50"`

3.2.46 `xpdel -lrs` - Deleting a loadable resource

This command is for administrators' use only.

Format

xpdel -lrs [*identifier_list*] [-scl *selection_criteria_list*]

Description

The `xpdel -lrs` command can be used to delete any resource you administer.

Operands

identifier_list

☐

A list of resources to be deleted.

No specification:

☐

If you do not specify a value for *identifier_list*, Xprint applies the command to *all* loadable resources which can currently be deleted.

Options

-scl *selection_criteria_list*

☐

A list of options and values restricting the `xpdel -lrs` command to resources which match the specified criteria. See "Selecting defined objects" on ... for more information on the use of selection criteria lists.

Example

This example deletes the loadable resource `"mylogo"` which was defined with the `xpadd -lrs` command on

`xpdel -lrs -scl "-cn -mylogo"`

3.2.47 **xpdel -pcl - Deleting a PCL**

This command is for administrators' use only.

Format

xpdel -pcl [*selection*]

Description

The xpdel -pcl command is used to delete any PCL you administer from the Xprint system. This only deletes the PCL object from the Xprint database, not the file from which the PCL was added.

The GENERIC PCL cannot be deleted.

You cannot delete a PCL if it is referenced by another object (e.g. the PCL of an existing printer).

Operands

-pcl [*selection*]

□

Here you specify which PCLs are to be deleted from the system. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to **all** PCLs which can currently be deleted.

pcl_names

□

One or more PCLs to be deleted.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant PCLs are to be selected. Each entry in this list consists of an option of the xpadd -pcl command and one or more associated values. The command only affects the PCLs which match the specified options and their values.

You can use all options of the xpadd -pcl command plus -ad.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

Examples

- To delete PCL HP-LASERJET from the system:
xpdel -pcl HP-LASERJET
- To delete all PCLs beginning with the ID EPSON:
xpdel -pcl EPSON*

3.2.48 **xpdel -prm - Deleting a permission list**

This command is for administrators' use only.

Format

xpdel -prm [*selection*]

Description

The xpdel -prm command is used to delete any permission list you administer from the Xprint system.

You cannot delete a permission list which is referenced by another object (e.g. a form permission list attached to an existing printer).

Operands

-prm [*selection*]

□

Here you specify which permission lists are to be deleted from the system. For *selection* you have three possibilities:

No specification:

☐

If you do not specify a value for *selection*, Xprint applies the command to **all** permission lists which can currently be deleted.

permission_list_names

☐

One or more permission lists to be deleted.

-scl "*selection_criteria_list*"

☐

A list of criteria according to which the relevant permission lists are to be selected. Each entry in this list consists of an option of the `xpadd -prm` command and one or more associated values. The command only affects the permission lists which match the specified options and their values.

You can use all options of the `xpadd -prm` command plus `-ad`. For full information on using selection criteria for this object, see the [Section "Operands"](#).

Example

To delete the permission list `perm4` on host `host2`:

```
xpdel -prm perm4 -scl "-ah host2"
```

3.2.49 xpdel -rec - Deleting a recovery rule

This command is for administrators' use only.

Format

xpdel -rec [*selection*]

Description

The `xpdel -rec` command is used to delete any recovery rules you administer from the Xprint system. This command only deletes the recovery rule object from the Xprint system, not the file from which the recovery rules were added. You cannot delete recovery rules if they are associated with an existing printer. In this case the assignment must first be canceled.

Operands

-rec [*selection*]

☐

Here you specify which recovery rules are to be deleted from the Xprint system. For *selection* you have three possibilities:

No specification:

☐

If you do not specify a value for *selection*, Xprint applies the command to **all** recovery rules which can currently be deleted.

recovery_rule_names

☐

One or more sets of recovery rules to be deleted.

-scl "*selection_criteria_list*"

☐

A list of criteria according to which the relevant recovery rules are to be selected. Each entry in this list consists of an option of the `xpadd -rec` command and one or more associated values. The command only affects the recovery rules which match the specified options and their values.

You can use all options of the `xpadd -rec` command plus `-ad`. For full information on using selection criteria for this object, see the [Section "Operands"](#).

Example

To delete a set of recovery rules which have the comment delete:

```
xpdel -rec -scl "-ca delete"
```

3.2.50 xpdel -spv - Deleting a supervisor

This command is for administrators' use only.

Format

```
xpdel -spv [selection]
```

Description

The `xpdel -spv` command is used to delete any supervisor you administer. When a supervisor is deleted its corresponding directory `/var/spool/Xprint/config/SP/<supervisor_name>` is also deleted.

You cannot delete a supervisor that is ACTIVE or which is associated with an existing printer. First, the supervisor must be set to the status NOT_ACTIVE and any existing assignment to a printer must be canceled.

Operands

-spv [*selection*]

□

Here you specify which supervisors are to be deleted from the Xprint system. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to **all** supervisors which can currently be deleted.

supervisor_names

□

One or more supervisors to be deleted.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant supervisors are selected. Each entry in this list consists of an option of the `xpadd -spv` command and one or more associated values. The command only affects the supervisors which match the specified options and their values.

You can use all options of the `xpadd -spv` command plus `-ad` and `-st NOT_ACTIVE`.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

Examples

- To deactivate and delete the supervisor danube:

```
xpchange -spv danube -st NOT_ACTIVE□
```

```
xpdel -spv danube
```

- To deactivate and delete all supervisors bearing the comment "please_delete":

```
xpchange -spv -scl "-ca please_delete" -st NOT_ACTIVE□
```

```
xpdel -spv -scl "-ca please_delete"
```

3.2.51 xpdel -srv - Deleting a server

This command is for administrators' use only.

Format

```
xpdel -srv [selection]
```

Description

The `xpdel -srv` command is used to delete any server you administer. When a server is deleted its corresponding directory `/var/spool/Xprint/config/SV/<server_name>` is also deleted. You cannot delete a server that is ACTIVE or which is linked to an existing supervisor. When you delete a server, you also delete all its waiting jobs!

Operands

-srv [*selection*]

□

Here you specify which servers are to be deleted from the Xprint system. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to **all** servers which can currently be deleted.

server_name

□

One or more servers to be deleted.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant servers are to be selected. Each entry in this list consists of an option of the `xpadd -srv` command and one or more associated values. The command only affects the servers which match the specified options and their values. You can use all options of the □

`xpadd -srv` command plus `-ad`, `-si`, `-so` and `-st NOT_ACTIVE`. For full information on using selection criteria for this object, see the [Section "Operands"](#).

Example

To delete all servers which bear the comment `delete_now`:

```
xpdel -srv -scl "-ca delete_now"
```

3.2.52 xpdel -usr - Deleting an Xprint user

This command is for the Xprint administrator's use only.

Format

xpdel -usr [*selection*]

Description

The `xpdel -usr` command is used to delete user entries from the Xprint system. This command can only be used by the Xprint administrator.

You cannot delete a user who is still listed in a permission list.

Operands

-usr [*selection*]

□

For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to **all** users which can currently be deleted.

user_IDs

□

One or more users to be deleted.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant users are to be selected. Each entry in this list consists of an option of the □
xpadd -usr command and one or more associated values. The command only affects the users which match the specified options and their values.

You can use all options of the xpadd -usr command.

For full information on using selection criteria for this object, see the [Section "Operands"](#).



Entries of users who have been deleted from the /etc/passwd file of a host can be deleted with the xpmode -usr -cl *host_list* command. For further information, see [Section "xpmode -usr - Modifying user entries"](#).

Examples

- To delete user elvis:
xpdel -usr elvis
- To delete all users who have not been assigned a privileges list (*xpadd -usr user_name -pv NONE*):
xpdel -usr -scl "-pv NONE"

3.2.53 xpmode -dev - Modifying the attributes of a printer

This command is for administrators' use only.

Format

xpmode -dev [*selection*] *changes_list* ...

Description

The xpmode -dev command allows you to modify all the attributes of a printer you administer.



You cannot modify a printer that is ACTIVE. You must first deactivate it. Prior to V5.0A, the printer address would be validated if *any* of the printer attributes were modified. From V5.0A onwards, the printer address is only validated when it is modified by the -da option. This reduces timeout delays when modifying network printers.

Operands

-dev [*selection*]

□

Here you specify which printers are to be modified. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to all printers which can currently be modified.

device_names

□

One or more printers to be modified.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant printers are to be selected. Each entry in this list consists of an option of the □

xpadd -dev command and one or more associated values. The command only affects the printers which match the specified options and their values. You can use all options of the □

xpadd -dev command plus -ad, -si OFF, -so OFF and □

-st NOT_ACTIVE.

The option -st ACTIVE cannot be used as a selection criterion because you cannot modify an ACTIVE printer. For full information on using selection criteria for this object, see the [Section "Operands"](#).

Options

changes_list

□

A list containing the new values for the options you want to modify. You can use the same options as with the `xpadd -dev` command plus option `-ad`.

-ad *administrator*

□

This option is only a comment. This option allows the Xprint administrator to define another user as the administrator of a printer. The Xprint administrator can cancel this assignment and reassign him-/herself as the administrator of this printer by using the option `-ad-`. For an introduction to modifying objects, see [Section "Modifying objects"](#).

-da *device_address*

□

This option gives the new address of the device. The new device address is normally checked by physically opening a connection to the device. The address will not be validated if this option is omitted in the □

`xpmod -dev` command. If the validation is performed and fails, a warning is issued, but the command is accepted.

For devices that are connected via a LAN, the connection timeout for the test can be adjusted by using the environment variable `XP_LANDEV_TOUT`. This variable contains the duration of the connection timeout in seconds. The value must be between 0 and 900. If the value is zero, no check is made. If the value is higher than 900, it is silently lowered to 900. If the variable is not defined, or contains a non-numerical or negative value, a default value of 30 seconds is used.

Example

To modify printer `printer1`, which used the PCL HP_LASERJET, so that it now becomes a PostScript printer:

```
xpmod -dev printer1 -pc POSTSCRIPT -ct-
```

The option `-ct-` ensures that the content type of the printer is adjusted to the default value, which depends on the PCL.

See also

`xpadd -dev`, `xpchange -dev`

3.2.54 `xpmod -dgr` - Modifying the attributes of a printer group

This command is for administrators' use only.

Format

```
xpmod -dgr [selection] changes_list
```

Description

The `xpmod -dgr` command allows you to modify all the attributes of any printer group you administer.



You cannot modify a printer group that is ACTIVE. You must first deactivate it.

Operands

-dgr [*selection*]

□

Here you specify which printer groups are to be modified. For *selection* you have three possibilities:

No specification:

☐

If you do not specify a value for *selection*, Xprint applies the command to **all** printer groups which can currently be modified.

device_group_names

☐

One or more printer groups to be modified.

-scl "*selection_criteria_list*"

☐

A list of criteria according to which the relevant printer groups are to be selected. Each entry in this list consists of an option of the `xpadd -dgr` command and one or more associated values. The command only affects the printer groups which match the specified options and their values.

You can use all options of the `xpadd -dgr` command plus `-ad`.

The option `-st ACTIVE` cannot be used as a selection criterion because you cannot delete an ACTIVE printer group.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

Options

changes_list

☐

A list containing the new values for the options you want to modify. You can use the same options as with `xpadd -dgr` plus option `-ad`.

-ad *administrator*

☐

This option is only a comment. This option allows the Xprint administrator to define another user as the administrator of a printer group. The Xprint administrator can cancel this assignment and reassign him-/herself as the administrator of this printer group by using the option `-ad-`.

For an introduction to modifying objects, see [Section "Modifying objects"](#).

Examples

- To delete only printer `printer3` from the printer group `group1`:
`xpmod -dgr group1 -dl- printer3`
- To add the printers `printer4` and `printer5` to printer group `group1`:
`xpmod -dgr group1 -dl+ printer4 printer5`

3.2.55 `xpmod -flt` - Modifying the attributes of a filter

This command is for administrators' use only.

Format

xpmod -flt [*selection*] *changes_list*

Description

The `xpmod -flt` command allows you to modify the attributes of any filter you administer.

Operands

-flt [*selection*]

☐

Here you specify which filters are to be modified. For *selection* you have three possibilities:

No specification:

☐

If you do not specify a value for *selection*, Xprint applies the command to **all** filters which can

currently be modified.

filter_names

□

One or more filters to be modified.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant filters are to be selected. Each entry in this list consists of an option of the `xpadd -flt` command and one or more associated values. The command only affects the filters which match the specified options and their values.

You can use all options of the `xpadd -flt` command plus `-ad`.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

Options

changes_list

□

A list containing at least one new value for the options you want to modify. You can use the same options as with `xpadd -flt` except for □

`-tp filter_type`, plus option `-ad`.

-ad *administrator*

□

This option is only a comment. This option allows the Xprint administrator to define another user as the administrator of a filter. The Xprint administrator can cancel this assignment and reassign him-/herself as the administrator of this filter by using the option `-ad-`.

For an introduction to modifying objects, see [Section "Modifying objects"](#).

Examples

- To make filter LandA2 available also on hosts stan and ollie:
`xpmod -flt LandA2 -ho+ stan ollie`
- To modify all filters with the input content type POSTSCRIPT such that they are administered from the new host stan:
`xpmod -flt -scl "-ot POSTSCRIPT" -ah stan`

3.2.56 `xpmod -fnt` - Modifying the attributes of a font

This command is for administrators' use only.

Format

xpmod -fnt [*selection*] *changes_list*

Description

The `xpmod -fnt` command allows you to modify the attributes of any font you administer.

Operands

-fnt [*selection*]

□

Here you specify which fonts are to be modified. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to **all** fonts which can currently be modified.

font_names

□

One or more fonts to be modified.

-scl "selection_criteria_list"

□

A list of criteria according to which the relevant fonts are to be selected. Each entry in this list consists of an option of the `xpadd -fnt` command and one or more associated values. The command only affects the fonts which match the specified options and their values.

You can use all options of the `xpadd -fnt` command plus `-ad`.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

Options**changes_list**

□

A list containing the new values for the options you want to modify. □

You can use the same options as with `xpadd -fnt` plus option `-ad`.

-ad administrator

□

This option is only a comment. This option allows the Xprint administrator to define another user as the administrator of a font. The Xprint administrator can cancel this assignment and reassign him-/herself as the administrator of this font by using the option `-ad`.

For an introduction to modifying objects, see [Section "Modifying objects"](#).

Examples

- To change the typeface of the font `invoice` from `SansSerif` to `Courier` and the line spacing from 4 to 5:
`xpmod -fnt invoice -tp Courier -vm 5`
- To change the pitch of all fonts with the setting "10 cpi" to "12 cpi":
`xpmod -fnt -scl "-hm 10" -hm 12`

3.2.57 xpmod -frm - Modifying the attributes of a form

This command is for administrators' use only.

Format

xpmod -frm [*selection*] *changes_list*

Description

The `xpmod -frm` command allows you to modify the attributes of any form you administer.

Operands**-frm** [*selection*]

□

Here you specify which forms are to be modified. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to **all** forms which can currently be modified.

form_names

□

One or more forms to be modified.

-scl "selection_criteria_list"

□

A list of criteria according to which the relevant forms are to be selected. Each entry in this list consists of an option of the `xpadd -frm` command and one or more associated values. The command only affects the forms which match the specified options and their values.

You can use all options of the `xpadd -frm` command plus `-ad`.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

Options

changes_list

□

A list containing the new values for the options you want to modify. You can use the same options as with `xpadd -frm` plus option `-ad`.

-ad *administrator*

□

This option is only a comment. This option allows the Xprint administrator to define another user as the administrator of a form. The Xprint administrator can cancel this assignment and reassign him-/herself as the administrator of this form by using the option `-ad-`.

For an introduction to modifying objects, see [Section "Modifying objects"](#).

Examples

- To modify the attributes of form `form1` such that the layout becomes LANDSCAPE and the default font becomes `font1`:

```
xpmod -frm form1 -ls LANDSCAPE -ft font1
```

- To change the page format of all forms with the setting DIN A4 □ (297 mm x 210 mm) to legal (14 inches x 8.5 inches):

```
xpmod -frm -scl "-ph 297m -pw 210" -ph 14i -pw 8.5i
```

See also

`xpadd -frm`

3.2.58 **xpmod -gtw - Modifying the attributes of a gateway**

This command is for administrators' use only.

Format

```
xpmod -gtw [selection] changes_list
```

Description

The `xpmod -gtw` command allows you to modify the attributes of any gateway you administer.

A gateway of type LOCAL with the state ACTIVE cannot be modified; it must first be deactivated.

Operands

-gtw [*selection*]

□

Here you specify which gateways are to be modified. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to **all** gateways which can currently be modified.

gateway_names

□

One or more gateways to be modified.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant gateways are to be selected. Each entry in this list consists of an option of the `xpadd -gtw` command and one or more associated values. The command only affects the gateways which match the specified options and their values.

You can use all options of the `xpadd -gtw` command, and, for gateways of type LOCAL, also the options `-gi`, `-go` and `-st NOT_ACTIVE`.

The option `-st ACTIVE` cannot be used as a selection criterion because a gateway with the state ACTIVE cannot be modified.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

Options

changes_list

□

A list containing the new values for the options you want to modify. You can use the same options as with `xpadd -gtw`.

For an introduction to modifying objects, see [Section "Modifying objects"](#).

Example

To allow the new partner gateway GTW_picasso to also print on printers of the local Xprint domain via the local gateway GTW_thames:

```
xpmod -gtw GTW_thames -ag+ GTW_picasso
```

See also

`xpadd -gtw`, `xpchange -gtw`, `xpshow -gtw`, `xpstat -gtw`

3.2.59 xpmmod -hos - Modifying the attributes of a host

This command is for administrators' use only.

Format

xpmmod -hos [*selection*] *changes_list*

Description

The `xpmmod -hos` command is used to modify the attributes of a host.

Operands

-hos [*selection*]

□

Here you specify which hosts are to be modified. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to **all** hosts which can currently be modified.

host_names

□

One or more hosts to be modified.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant hosts are to be selected. Each entry in this list consists of an option of the `xpadd -hos` command and one or more associated values. The command only affects the hosts which match the specified options and their values.

You can use all options of the `xpadd -hos` command except for □

`-pd` and `-po`.

The `-st ACTIVE` option cannot be used as a selection criterion because an ACTIVE host cannot be modified.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

Options

changes_list

□

A list containing the new values for the options you want to modify. You can use the same options as with `xpadd -hos` except for option `-os`.

For an introduction to modifying objects, see [Section "Modifying objects"](#).

Examples

- To modify host *rome* (a potential master) such that it uses the default font *invoice*, the default form *sni_letter*, and the default destination *HP-LJ4*:
`xpmod -hos rome -ft invoice -fm sni_letter -de HP-LJ4`
- To change the slave host *rhine* to a parasite host:
`xpadd -hos rhine -re PARASITE`

See also

`xpadd -hos`, `xpshow -hos`

3.2.60 `xpmod -job` - Modifying the attributes of a print job

This command is for administrators and all users.

Format

xpmod -job [*selection*] *changes_list*

Description

The `xpmod -job` command allows you to modify the attributes of your print job. For example, you can redirect your job to a different printer or specify a different form for it. For modification you can use the same options as for submitting a job (see also [Section "xpadd -job - Adding a print job"](#)) with the following exceptions:

The `xpmod -job` command can only be used for print jobs which have not yet started printing. To modify a print job which is already printing, you must change its state to SUSPEND using the `xpchange -job` command (see [Section "xpchange -job - Changing state of a print job"](#)), before you call `xpmod -job`.

All users can modify their own jobs. A user who is not registered in the Xprint system, however, can only do this from the host on which the job has been submitted. Registered Xprint users can modify their jobs from any host for which they are entered. Only administrators can also modify jobs of other users.

From V5.0A onwards, it is also possible to redirect jobs to remote domains, provided that both the local and remote domains are running Xprint V5.0A or higher. When you redirect a job to a remote domain, the following points apply:

- The job is resubmitted in the remote domain with the content type it has *after* filtering in the local domain.
- If a job is submitted with a request for specific filters (`-fl`) this will only apply in the local domain. The list of filters requested with `-fl` is deleted when the job is resubmitted in a remote domain.
- When a job is redirected to a remote domain, the notification event `REJECTED_FROM_REMOTE_DOMAIN` is set, which means you will be notified asynchronously of any problems.
- You can only redirect a job to a remote domain if it is in the WAIT state or the INTERRUPTED state.
- You can redirect a job from one remote domain to another, provided it has reached the WAIT state or INTERRUPTED state in its current domain.
- When a job has been redirected to a remote domain, the new remote job ids are sent to the user in the form of the local id within the remote domain □
`(ptn_gtw□!□number)` and the global id of the remote domain □
`(ptn_gtw□!□server□:□number)`. The initial local and global job ids cannot be used to identify a job after it has been redirected to a remote domain.
- If a job is then redirected from the remote domain to a further remote domain the owner of the job will no

longer have control over the job from the submission domain.

- When a job is redirected to a remote domain, the data file is transferred immediately to the partner gateway. This means that Xprint must be running on the host where the job was originally submitted in order for the redirection to take place.

Operands

-job [*selection*]

□

Here you specify which print jobs are to be modified. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to **all** print jobs submitted on the local host which can currently be modified.

job_names

□

You can specify one print job or a list of jobs. You can use either the local or the global job ID, or, if there is one, the job name which was specified with the `-jt` option of the `xpadd` command. To modify jobs sent to remote domains, you must specify them in the form *gateway!job_name*, where *gateway* stands for the name of the partner gateway and *job_name* for the local ID of the job to be modified.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant print jobs are to be selected. Each entry in this list consists of an option of the `xpadd -job` command and one or more associated values. The command only affects the jobs which match the specified options and their values.

You can use all options of the `xpadd -job` command except options □

`-jt`, `-sx`, and `-te`, plus options `-jo` and `-st`.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

Options

changes_list

□

A list containing the new values for the options you want to modify.

You can use the same options as with `xpadd -job`, but note the following:

For some options a Boolean value is specified, e.g. with `-rw` (printing in raw mode) or `-rm` (delete files from the system after printing). You can set or reset such options by appending the suffix `+` or `-` to them, but read the information and examples in the section below.

The following print job options cannot be modified using the `xpmod -job` command:

-cp (*file_copy*)

-ct *content_type*

-dp *direct_print*

-dr *document_reference*

Document (or file) names can only be specified with the `xpadd -job` command.

-jt *job_title lvt*

-nf *no_filter*

-nv (no validation)

-rm+

The option `-rm` deletes your file once it has been printed. This option can be used with the `xpmod -job` command, but it cannot be reset afterwards (`-rm-`).

-sm *special_print_modes*
-st *initial_state*
-sx (silent execution)
-te *job_template*

Examples

- In the following example a print job which was automatically assigned the ID se1:2 is modified. It is redirected to printer printer2, given a priority of 100 and printed from string abc to string vwx:
`xpmod -job se1:2 -de printer2 -pr 100 -fr abc -to vwx`
- In the following example all print jobs you have submitted for printer printer2 are reset to the default priority:
`xpmod -job -scl "-de printer2" -pr-`

See also

`xpadd -job`, `xpchange -job`, `xpshow -job`, `xpstat -job`

3.2.61 xpmod -jtp - Modifying the attributes of a job template

This command is for administrators' use only.

Format

xpmod -jtp [*selection*] *changes_list* ...

Description

The `xpmod -jtp` command allows you to modify the attributes of any job template you administer.

Operands

-jtp [*selection*]

□

Here you specify which job templates are to be modified. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to all job templates which can currently be modified.

template_names

□

One or more job templates to be modified.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant job templates are to be selected. Each entry in this list consists of an option of the `xpadd -jtp` command and one or more associated values. The command only affects the job templates which match the specified options and their values.

You can use all options of the `xpadd -jtp` command plus option `-ad`.

For full information on using selection criteria with this object, see the [Section "Operands"](#).

Options

changes_list

□

A list containing the new values for the options you want to modify. You can use the same options as with `xpadd -job` or `xpadd -jtp` except for options `-sx` and `-te`, plus `-ad` and `-ah`.

-ad *administrator*

□

This option is only a comment. This option allows the Xprint administrator to define another user as the administrator of a job template. The Xprint administrator can cancel this assignment and reassign him-/herself as the administrator of this job template by using the option `-ad-`.

For an introduction to modifying objects, see [Section "Modifying objects"](#).

Example

To modify the job template `letter1` such that the typeface changes from Times to Helvetica:

```
xpmod -jtp letter1 -tp Helvetica
```

See also

`xpadd -jtp`, `xpshow -jtp`

3.2.62 `xpmod -lrs` - Modifying a loadable resource

This command is for administrators' use only.

Format

```
xpmod -lrs [identifier_list] [-scl selection_criteria_list] [modification_list]
```

Description

The `xpmod -lrs` command allows you to modify all the attributes of a resource you administer.

The resource manager can be used to optimize the downloading of resource data to the printer. The `lrs` object is used for this purpose. Any modification of the object will force a new download of the resource data. Any modification of the data to be downloaded must be followed by an `xpmod -lrs`. This is the only way to inform the printing system about the modifications.

Operands

identifier_list

□

A list of resources to be modified.

No specification:

□

If you do not specify a value for *identifier_list*, Xprint applies the command to *all* loadable resources which can currently be modified.

Options

-scl *selection_criteria_list*

□

A list of options and values restricting the `xpmod -lrs` command to resources which match the specified criteria. See "Selecting defined objects" on ... for more information on the use of selection criteria lists.

modification_list

□

A list containing the new values for the options you want to modify. The options specified in this list are the same as those used when the resource was added to the spooler system. See the `xpadd -lrs` command on See the [Section "Modifying objects"](#) for information on the conventions used for modifying objects.

Files

`/var/spool/Xprint/config/resources`

□

Default directory for the resource files.

Example

Any modification of the loadable resource data has to be passed on to the spooler system. See the [Section](#)

"Loadable resources".

xpmmod -lrs mylogo

See also

- xpadd -lrs,
- [Section "Loadable resources"](#).

3.2.63 xpmmod -pcl - Modifying the attributes of a PCL

This command is for administrators' use only.

Format

xpmmod -pcl [*selection*] *changes_list*

Description

The xpmmod -pcl command allows you to modify the attributes of any PCL you administer.



The xpmmod -pcl command cannot be used to modify the definition of a PCL file; it can only be used to modify the Xprint attributes of the PCL object (e.g. user's or administrator's comment) or to compile a new or already modified file (how to modify a PCL is described in the [Section "PCL definitions"](#)). The modifications can be read from standard input stdin or from a new or modified file.

Any compilation of PCL objects with an earlier version of Xprint will generate warnings for all capabilities that are not supported. For example, earlier versions of Xprint do not support loadable resources.

Operands

-pcl [*selection*]

□

Here you specify which PCLs are to be modified. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to all PCLs which can currently be modified.

pcl_names

□

One or more PCLs to be modified.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant PCLs are to be selected. Each entry in this list consists of an option of the xpadd -pcl command and one or more associated values. The command only affects the PCLs which match the specified options and their values.

You can use all options of the xpadd -pcl command plus option -ad. For full information on using selection criteria with this object, see the [Section "Operands"](#).

Options

changes_list

□

A list containing the new values for the options you want to modify. You can use the same options as with xpadd -pcl, but note the following:

- To recompile a new or modified PCL file, use option -fi *pcl_file_name*.
- To read a new (or modified) PCL file from stdin, use the -fi option with the - suffix (-fi-). To cause Xprint to use a file on the local host, you should set the option -ho-, which forces the default setting "local host".

For an introduction to modifying objects, see [Section "Modifying objects"](#).

Examples

- To later assign the user comment "suitable for all printers except printer5" to the PCL SELFDEFINED:
`xpmod -pcl SELFDEFINED /`
`-cu "suitable for all printers except printer 5"`
- To later assign the comment "not required" for the Xprint administrator to the PCLs EPSON-FX, EPSON-LQ and EPSON-SQ:
`xpmod -pcl EPSON-FX EPSON-LQ EPSON-SQ -ca "not required"`

Files

`/var/spool/Xprint/config/PCL/`

□

Default directory for PCL definitions.

`/var/spool/Xprint/config/PCL/xpterm`

□

pcl definition file for the supplied PCLs.

See also

- `xpadd -pcl`, `xpshow -pcl`,
- [Section "PCL definitions"](#).

3.2.64 `xpmod -prm` - Modifying a permission list

This command is for administrators' use only.

Format

`xpmod -prm [selection] changes_list`

Description

The `xpmod -prm` command allows you to modify all the attributes of a permission list, except the `-pt permission_type` option.

Operands

`-prm [selection]`

□

Here you specify which permission lists are to be modified. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to all permission lists which can currently be modified.

permission_list_names

□

One or more permission lists to be modified.

`-scl "selection_criteria_list"`

□

A list of criteria according to which the relevant permission lists are to be selected. Each entry in this list consists of an option of the `xpadd -prm` command and one or more associated values. The command only affects the permission lists which match the specified options and their values.

You can use all options of the `xpadd -prm` command plus option `-ad`.

For full information on using selection criteria with this object, see the [Section "Operands"](#).

Options

changes_list

□

A list containing the new values for the options you want to modify. You can use the same options as with `xpadd -prm`, except for `-pt permission_type`, plus option `-ad`.

-ad *administrator*

□

This option is only a comment. This option allows the Xprint administrator to define another user as the administrator of a permission list. The Xprint administrator can cancel this assignment and reassign him-/herself as the administrator of this permission list by using the option `-ad-`.

For an introduction to modifying objects, see [Section "Modifying objects"](#).

Examples

- To add user jane on host rhine to permission list perm1:

```
xpmod -prm perm1 -al+ jane@rhine
```

- To add form A5land to list list1:

```
xpmod -prm list1 -al+ A5land
```

See also

`xpadd -prm`, `xpshow -prm`

3.2.65 xpmod -rec - Modifying the attributes of recovery rules

This command is for administrators' use only.

Format

xpmod -rec [*selection*] *changes_list*

Description

The `xpmod -rec` command allows you to modify the attributes of any recovery rules you administer.



The `xpmod -rec` command cannot be used to modify the contents of a recovery rules file; it can only be used to modify the attributes of the recovery rules object (e.g. user's or administrator's comment) or to recompile a file that has previously been modified (the syntax for modifying a file is described in the [Section "Recovery rules files"](#)). The modifications can be read from stdin or from a new or modified file.

Operands**-rec** [*selection*]

□

Here you specify which recovery rules are to be modified. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to **all** recovery rules which can currently be modified.

recovery_rule_names

□

One or more recovery rules to be modified.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant recovery rules are to be selected. Each entry in this list consists of an option of the `xpadd -rec` command and one or more associated values.

The command only affects the recovery rules which match the specified options and their values. For full information on using selection criteria with this object, see the [Section "Operands"](#).

You can use all options of the `xpadd -rec` command plus option `-ad`.

Options

changes_list

□

A list containing the new values for the options you want to modify. You can use the same options as with `xpadd -rec`, but note the following:

- To compile a modified recovery rules file, use option `-fi` followed by the name of the file.
- To read a new (or modified) recovery rules file from stdin, use the `-fi` option with the `-` suffix (`-fi-`).

For an introduction to modifying objects, see [Section "Modifying objects"](#).

Example

To assign the recovery rule `standard1` to host `vienna`:

```
xpmod -rec standard1 -ho vienna
```

Files

`/var/spool/Xprint/config/RR/`

□

Default directory for recovery rules files.

See also

- `xpadd -rec`, `xpshow -rec`,
- [Section "Recovery rules files"](#).

3.2.66 xpmod -spv - Modifying supervisor attributes

This command is for administrators' use only.

Format

```
xpmod -spv [selection] changes_list
```

Description

The `xpmod -spv` command allows you to modify all the attributes of a supervisor you administer.



You cannot modify a supervisor that is ACTIVE. It must first be deactivated.

Operands

-spv [*selection*]

□

Here you specify which supervisors are to be modified. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to **all** supervisors which can currently be modified.

supervisor_names

□

One or more supervisors to be modified.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant supervisors are to be selected. Each entry in this list consists of an option of the `xpadd -spv` command and one or more associated values. The command only affects the supervisors which match the specified options and their values.

You can use all options of the `xpadd -spv` command plus `-ad` and `-st NOT_ACTIVE`.

The `-st ACTIVE` option cannot be used as a selection criterion because you cannot modify an ACTIVE supervisor.

For full information on using selection criteria with this object, see the [Section "Operands"](#).

Options

changes_list



A list containing the new values for the options you want to modify. You can use the same options as with `xpadd -spv`, plus `-ad`.

-ad *administrator*



This option is only a comment. This option allows the Xprint administrator to define another user as the administrator of a supervisor. The Xprint administrator can cancel this assignment and reassign him-/herself as the administrator of this supervisor by using the option `-ad-`.

For an introduction to modifying objects, see [Section "Modifying objects"](#).



When you modify a supervisor in order to control it from another server, make sure there are no jobs waiting on the supervisor, other wise they will be lost.

Example

- To modify the attributes of supervisor `bernard`, adding the administrator's comment that this supervisor is a copy of supervisor `vienna`:

```
xpchange -spv bernard -st NOT_ACTIVE
xpmod -spv bernard -ca copy_of_vienna
xpchange -spv bernard
```

- To add to all supervisor objects of host `danube` the administrator's comment that they can be deleted:

```
xpchange -spv -scl "-ho danube" -st NOT_ACTIVE
xpmod -spv -scl "-ho danube" -ca please_delete
xpchange -spv -scl "-ho danube"
```

See also

`xpadd -spv`, `xpchange -spv`, `xpshow -spv`, `xpstat -spv`

3.2.67 **xpmod -srv - Modifying the attributes of a server**

This command is for administrators' use only.

Format

xpmod -srv [*selection*] *changes_list*

Description

The `xpmod -srv` command allows you to modify all the attributes of any server you administer.



You cannot modify a server that is ACTIVE. It must first be deactivated.

Operands

-srv [*selection*]



Here you specify which servers are to be modified. For *selection* you have three possibilities:

No specification:



If you do not specify a value for *selection*, Xprint applies the command to all servers which can currently be modified.

server_names

□

One or more servers to be modified.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant servers are to be selected. Each entry in this list consists of an option of the `xpadd -srv` command and one or more associated values. The command only affects the servers which match the specified options and their values.

You can use all options of the `xpadd -srv` command plus `-ad` , □

`-si OFF`, `-so OFF` and `-st NOT_ACTIVE`.

The options `-st ACTIVE`, `-si ON` and `-so ON` cannot be used as selection criteria because you cannot modify an ACTIVE server.

For full information on using selection criteria with this object, see the [Section "Operands"](#).

Options

changes_list

□

A list containing the new values for the options you want to modify. You can use the same options as with `xpadd -srv`. For an introduction to modifying objects, see [Section "Modifying objects"](#).

Example

- To modify server `server3` such that instead of handling the highest priority jobs first it handles jobs with the highest security level first:

```
xpstat -srv server3
```

```
xpchange -srv server3 -st NOT_ACTIVE
```

```
xpmod -srv server3 -sp SECURITY
```

```
xpchange -srv server3
```

- To modify all servers of host `thames` such that now each one can process a maximum of 20 print jobs:

```
xpstat -srv -scl "-ho thames"
```

```
xpchange -srv -scl "-ho thames" -st NOT_ACTIVE
```

```
xpmod -srv -scl "-ho thames" -mj 20
```

```
xpchange -srv -scl "-ho thames"
```

See also

`xpadd -srv`, `xpchange -srv`, `xpshow -srv`, `xpstat -srv`

3.2.68 **xpmod -sys** - Modifying Xprint administrator settings

This command is for the Xprint administrator's use only.

Format

xpmod -sys *changes_list*

Description

The `xpmod -sys` command is used to modify the name of the Xprint administrator, and to add comments about the system which can be read by users and administrators. This command can only be used by the Xprint administrator. It allows you to turn the accounting function on and off. For users only: it also allows you to turn the Auditing function on and off.

Operands

-sys *changes_list*

□

The following attributes of the Xprint system can be modified:

-ad *administrator*

□

Changes the name of the Xprint administrator. This is used by the current Xprint administrator to designate the new one. The name of the new Xprint administrator must be known to the host as a user and defined as a user in the Xprint system.

-af *accounting_file*

□

Specify this option if you want accounting records to be registered in the specified file. No accounting will be performed if this option is omitted. If the full path name is not specified, Xprint will assume that the file is located in the directory `/var/spool/Xprint/config`. The same path will be used on all hosts running in the local administration domain.

The accounting function generates a record for each job. The fields are separated by the column character '|', and each record ends with a line feed character. The following fields are produced:

Date

□

Specifies the date and time at which the print job was completed. The following format is used: `yyyy/mm/dd:hh:mm`.

Bytes

□

Specifies the number of bytes sent to the printer.

Pages

□

Specifies the number of pages printed. This field is left at zero when the number of pages cannot be calculated, for instance when jobs are submitted in raw mode.

File_copies

□

Specifies the number of file copies that were printed.

Page_copies

□

Specifies the number of pages automatically generated by the printer.

User

□

Identifies the user or application who submitted the job.

Host

□

Identifies the host on which the job was submitted.

Device

□

Identifies the name of the device used for printing the job.

Form

□

Identifies the form used for printing the job.

Product

□

Identifies the product and version that generated the record.

Document(s)

□

Identifies the names of the printed files, each terminated by a semicolon.

Job ID

□

Gives the global job identifier.

Title

Specifies the job title.

Comment

Gives the job comment field.

-au auditing (users only)

The default state for auditing is 'off' (RESET). Use the option -au to turn the auditing function 'on' (SET). To turn the auditing function 'off' (RESET), use the option -au-. For more explanation of the auditing function, see [Section "Auditing \(users only\)"](#).

-ca comment_for_administrator

Adds a new comment about the system which can only be displayed by administrators.

-cu comment_for_user

To add a new comment about the system which can be displayed by all users with the xpslow -sys command.

-lg centralised logging (users only)

Specify this option if you want Xprint to perform centralised logging via LOGGING V3.0. The default state is 'off' (RESET). To activate (SET) the centralised logging enter:

```
xpmod -sys -lg
```

To deactivate (RESET) the centralised logging, enter:

```
xpmod -sys -lg-
```

This function collects 'internal' error messages that are generated by SPOOL and sends them to a unique file. They are completely different to the error messages sent to users. Logging does *not* record the error messages sent to users.

Example

Instead of user spoolmgr, user root is now to become the Xprint administrator:

```
xpmod -sys -ad root
```

3.2.69 xpmod -usr - Modifying user entries

This command is for the Xprint administrator's use only.

Format

xpmod -usr [*selection*] changes_list

Description

The xpmod -usr command allows the Xprint administrator to modify a user's privileges and print quotas. The -cl *host_list* option can also be used to delete from Xprint any user who has been removed from the /etc/passwd file of a host.

Xprint cannot automatically detect any modifications to the /etc/passwd files on hosts in the Xprint system. Using the -cl command is, therefore, the easiest way of ensuring that users who have been deleted from an /etc/passwd file are also deleted from Xprint.

Operands**-usr** [*selection*]

Here you specify which users are to be modified. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint applies the command to **all** users which can currently be modified.

user_names

□

One or more users whose privileges and print quotas are to be modified.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant users are to be selected. Each entry in this list consists of an option of the `xpadd -usr` command and one or more associated values. The command only affects the users which match the specified options and their values.

You can use all options of the `xpadd -usr` command.

For full information on using selection criteria with this object, see the [Section "Operands"](#).

Options

changes_list

□

A list containing the new values for the options you want to modify. You can use the same options as with `xpadd -usr`, but note the following:

The `-cl host_list` option can be used to update a user's host list (see the `xpadd -usr -ho` option). The `-cl` option checks the `/etc/passwd` files on all hosts listed under the user's `-ho` option to see if the user is still recorded. If not, the host is removed from the list of hosts associated with the user. If all hosts are removed from the list of hosts as a result of this check, the user is deleted from Xprint.

For an introduction to modifying objects, see [Section "Modifying objects"](#).

Examples

- To define the maximum priority of user `hardy` as 80. (This user's print jobs can now be assigned any priority from 1 through 80.):
`xpmod -usr hardy -pr 80`
- To change the security level of user `hardy` to `CONFIDENTIAL`:
`xpmod -usr hardy -sl CONFIDENTIAL`

Files

`/etc/passwd`

`/etc/passwd` files of the hosts for using the option `-cl host_list`

See also

`xpadd -usr`, `xpshow -usr`

3.2.70 xpmount - Manual form

Format

xpmount [*-f form_name*] [*-d device_name*] [*-s*]

Description

`xpmount` (a shell procedure) informs Xprint that a manual form is loaded or no longer loaded on a printer.

If a print job uses a particular form that requires special manual settings on the destination printer (e.g. a special type of paper or font cartridge), the job's definition must contain a form that is defined with the mount method `MANUAL`.

Any print job for which a manual form has been specified is automatically placed in the `WAIT` state by Xprint. This gives the user time to mount the appropriate paper or form on the destination printer. The user must notify Xprint when this has been done, and after printing must again notify Xprint that the job requiring the

manual form is finished or that the paper has been removed. The quickest way of informing Xprint of this is to use the xpmount command.

xpmount can be used in two ways:

- without parameters: Xprint starts a dialog to query the specifications (see next example).
- with parameters: specifying the values directly.

Every printer in the network can be reached by every user with xpmount. To restrict access, the system administrator must assign access permissions or owner definitions.

Options

-f *form_name*

☐

Specifies that the manual form *form_name* (as specified under ☐ xpadd -job) is mounted.

-f- specifies that the form is no longer mounted.

-d *device_name*

☐

Name of the destination printer.

-s (no query)

☐

Specifies that load confirmation is deactivated. (The user mounts the required form before calling xpmount.)

Xprint checks whether the form permission list of the destination printer permits the use of the form and, if not, rejects the xpmount command.

Examples

- Document file1 is to be printed on printer LZR960 with form A5land (to be loaded manually) (xpmount interactive mode):

```
xpadd -job -dr file1 -de LZR960 -fm A5land
```

The user mounts the necessary form.

```
xpmount
```

The following menu query is displayed:

Please select the manual form to mount on the device.

Selection:

0. Unmount the form

1. manual

2. A5LAND

Enter number or "?" for help:

Enter: 1

Form "manual" has been selected.

Please select the device where the form "manual" will be mounted.

Selection:

1. D001_nashua

2. HP-LJ2P

3. LZR960

Enter number or "?" for help:

Enter: 3

Device "LZR960" has been selected.

Please mount "manual" on device "LZR960".

Type "y" when finished or "?" for help:

Enter: y

Form "manual" is now mounted on device "LZR960".

The printer now begins to print the document file1. When the print process is completed, the user removes the form from the printer and notifies the system of this:

```
xpmount -f- -d LZR960
```

The following confirmation is displayed:

Form unmounted for "LZR960"

- The document file2 is to be printed on printer printer2 using form manual:

```
xpadd -job -dr file2 -de printer2 -fm manual
```

The user mounts the necessary form.

He/she then enters the xpmount command but specifies the required values explicitly to avoid the menu query:

```
xpmount -f manual -d printer2 -s
```

The following confirmation is displayed:

Form "manual" is now mounted on device "printer2".

The printer starts to print the document file2.

When the print process is completed, the user removes the form from the printer and notifies the system of this:

```
xpmount -f- -d printer2
```

The following confirmation is displayed:

Form unmounted for "printer2"

See also

- xpadd -frm, option -mm MANUAL
- xpchange -dev, option -mf and option -uf -st OFF

3.2.71 xppatch - Changing host names

This command is for the root administrator's use only.

Format

```
xppatch -hostname old_name new_name [ -dg n ]
```

Description

xppatch updates the host name in the configuration of a local Xprint system. This functionality is required in high-availability systems after switching the disks to another host.

This command modifies all references to a host name in the Xprint database and job control files. It also manages the Spool V3.1 emulation particularities.

The xppatch utility enables the renaming of a host for which a local Xprint system is configured. Without xppatch, changing the system name (*node name*) demands the reinitialization of the Xprint configuration, and the resubmission of all jobs previously submitted but not yet printed. xppatch modifies all references to the old system name contained in the Xprint database and job control files, enabling transparent startup of Xprint after the node name has been changed, without the need to completely redefine the configuration.

The following are prerequisites for the execution of xppatch:

- Local Xprint
 - xppatch works exclusively with the local version of Xprint.
- Xprint not active
 - Xprint must be stopped when xppatch is called. xppatch checks that the daemon and DBman1 processes are not running.

— Disk space

Before modifying any configuration or data file, xppatch takes a backup of the files which could be modified. This backup takes approximately the same space as the sum of the SV and DB directories (without the logging and debugging files). If not enough space is available, xppatch fails and the original files are left untouched.

— root privilege

xppatch can be executed by root only.

At the beginning of its execution xppatch makes a backup of all files that could be modified during processing. It traps the signals 2 (SIGINT) and 15 (SIGTERM). When one of these signals is received after the backup has been made, the backup files are restored and the backup directories are cleaned up. This guarantees that the configuration and data files remain in a consistent state.

Operands

old_name

□

host name that has to be changed

new_name

□

host name to be substituted for *old_name*

Options

-dg *n*

□

Identifies a numeric debugging level. The default is 1, meaning that messages are displayed on stdout during processing, identifying the object type currently handled. A value of zero means silent processing: only the error messages are issued on stderr. Values up to 9 are accepted, with an increasing level of refinement in the debugging messages. In practice, only values 0, 1 and 2 are meaningful. (Values between 2 and 9, therefore, have the same effect.)

Files

xppatch affects the following files:

/var/spool/Xprint/config/DB/*.idx, /var/spool/Xprint/config/DB/*.dat

□

Original database segments

/var/spool/Xprint/config/SV/@c-*

□

Original job control files

/var/spool/Xprint/config/tmp/Xpp_backup_dir/DB/*.dat, /var/spool/Xprint/config/tmp/Xpp_backup_dir/DB/*.dat

□

Backup of the database segments

/var/spool/Xprint/config/tmp/Xpp_backup_dir/SV/*/@c-*

□

Backup of the server control files

/var/spool/Xprint/config/Xprint.log

□

Log file of abnormal conditions detected by the Xprint library functions (can be used as a complement to the error messages).

Below are listed for each Xprint object the fields that are modified if they contain references to the host name to be changed:

Object	Field(s)
Class	cl_ad_host

Daemon	dae_net.nt_host
Filter	fl_ad_hostfl_host_lst
Font	ft_ad_host
Form	fm_ad_hostfm_notify.no_current_hostfm_notify. no_addressgw_net.nt_hostpermissionpn_ad_ho st
Host	ho_predecessorho_supp_host
Job	jo_dev.dv_hostjo_dev.dv_notify.no_current_hos tjo_dev.dv_notify.no_addressjo_product.prd_for m.fm_ad_hostjo_product.prd_form.fm_notify.no _current_hostjo_product.prd_form.fm_notify.no addressjo_product.prd_font.ft_ad_hostjo_docu ment.doc_hostjo_security.sc_hostjo_event.ev_n otify.no_current_hostjo_event.ev_notify.no_addr ess
Job template	jt_ad_hostjt_job.jo_event.ev_notify.no_current_ hostjt_job.jo_event.ev_notify.no_address
pcl	pl_host
Printer	dv_hostdv_notify.no_current_hostdv_notify.no_ address
Printer group	dg_ad_host
Recovery rule	rr_host
Server	sv_net.nt_host
Supervisor	sp_net.nt_host
System	-
User	sc_host

Table 18: Xprint objects and fields to be modified

Example

To rename the system host panama to suiez, setting the debugging level to 2:

```
xppatch -host_name panama suiez -dg 2
```

Note

You can also use xppatch with the option **-sn** to skip the test of the local/network license. However, as xppatch by-passes normal database processes and modifies the local database files directly, you should use this possibility only if you are an expert user who understands the consequences and side-effects of such an operation. Be aware that you could lose your database and have to reconfigure it entirely!

3.2.72 xppoll - Polling on request**Format**

```
xppoll device_list
```

Description

The xppoll command allows you to query the physical state currently set on one or more printers. The xpsstat -dev command (see ...) has the same function.

xppoll outputs the following information for each printer:

```
device <printer_name> ready
device <printer_name> not ready
```

For a printer which is "not ready", a supplementary error message may be displayed.

Polling on request is useful if an action fails despite the state of an object of type -dev being set to "State: ACTIVE, Spoolin: ON, Spoolout: ON".

Operands

device_list

□

One or more printers whose states are to be queried.

Example

To query the physical states of printers PS and PS2:

```
xppoll PS PS2
device <PS> ready
device <PS2> not ready
DEVICE_ERROR (Device busy)
```

See also

xpstat -dev

3.2.73 xprdir - Redirecting a job queue to another printer

Format

xprdir [*options*]

Description

This command requests Xprint to redirect the print jobs waiting for a specific printer to a different printer. It does *not* allow you to redirect a job queue to a printer in a remote domain.

If a job is currently being printed on the first printer, you can specify what is to happen to it.

The procedure is as follows:

- the first printer is set to NOT_ACTIVE
- any currently active job is handled as requested (see option -j below).
- the second printer is set to or left ACTIVE
- the queue is redirected



If the program is interrupted, the state of the first printer is set to the state it had before the command was issued.

An alternative method of redirecting a print queue to a different printer is using the command `xpchange -dev selection -rd new_device` (see [Section "xpchange -dev - Changing the state of a printer"](#)).

To redirect individual jobs rather than the whole queue, use the command `xpmod -job selection -de destination` (see [Section "xpmod -job - Modifying the attributes of a print job"](#)).

Options

-d *old_device_name*

-r *new_device_name*

□

Gives the name of the device that will be the new destination for the jobs. This device can be in the *local* or in a remote administration domain. The new name must be different from the old name.

To terminate a redirection, enter the option -r-.

-j *action_for_job*

□

Specifies what is to happen to the job currently being printed on the original printer. Possible values are:

DELETE



The job is deleted.

RESTART-BEGINNING



The job is placed at the head of the new queue and printed from the beginning. See also option `-p`.

SUSPEND



The job is entered in the other queue with the state SUSPEND.

TERMINATE



The job is printed completely on the original printer (and not redirected).

`-p first_print_page`



This option is only of use if the option `-j RESTART-BEGINNING` has been selected.



Option `-p first_print_page` cannot be used with PostScript files.

Without options:



If no options are specified, `xprdir` starts a dialog (see example). Possible values for the first printer are displayed and you can choose one. Enter `?` to display further explanations.

The procedure is repeated for the name of the second printer and for your choice of treatment of any active jobs.

Example

Executing `xprdir` in interactive mode:

```
xprdir
```

```
Please select the action.
```

```
Possible choices are:
```

1. start redirection
2. stop redirection

```
Enter number or "?" for help:
```

```
1
```

```
Please select the device whose job queue is to be redirected.
```

```
Possible choices are:
```

1. Epson-LQ870
2. PS
3. PS1

```
Enter number or "?" for help:
```

```
3
```

```
Device "PS1" has been selected.
```

```
Please select the device that will be the new destination.
```

```
Possible choices are:
```

1. EPSON870
2. Epson-Sty800c
3. HP-DJ550c
4. LZR-960
5. PS

6. PS1

Enter number or "?" for help:

5

Device "PS" has been selected.

Please select action to apply to the job currently active on device "PS1".

1. Delete job.

2. restart job from beginning on "PS".

3. restart job from a specific page on "PS".

4. suspend the job in the "PS" queue.

5. terminate the job on "Epson-LQ870" .

Enter number or "?" for help (default is 2):

4

Job queue from "PS1" has been redirected to "PS".

Active job of "PS1" has been processed.

See also

xpchange -dev option -rd

3.2.74 xpshow -dev - Displaying the attributes of a printer**Format**

xpshow -dev [*selection*] [-di *display*]

Description

The xpshow -dev command allows you to display the attributes of any printer you are allowed to use; the Xprint administrator can display all printers in the system.

Operands

-dev [*selection*]

□

Here you specify the printers about which you want to display information. For *selection* you have three possibilities:

No specification:

□

If you do not specify a value for *selection*, Xprint displays the attributes of **all** printers in the system which you are allowed to use, or, if you are the Xprint administrator, the attributes of all printers in the system.

device_names

□

One or more printers whose attributes are to be displayed. Wildcards (*, ?) are allowed. Printers which can be reached via a gateway can be specified in the form *gateway!printer_name*.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant printers are to be selected. Each entry in this list consists of an option of the xpadd -dev command and one or more associated values. Wildcards are allowed. The command only affects the printers which match the specified options and their values.

You can use all options of the xpadd -dev command, plus -ad, -rd, -si, -so and -st.

For full information on using selection criteria with this object, see the [Section "Operands"](#).



This last point does not apply to option -di REFERENCED_BY; with this option you must specify exactly one printer.

Options

-di *display*

□

Here you specify the type of display you want. It is sufficient to specify the highlighted character of the keywords listed below, e.g. -diL. The following keywords can be specified for *display*:

SHORT (default):

A short list with the most important information for all the selected printers is displayed:

Name	pcl	Dflt. form	Host	Administrator
Epson-LQ	GENERIC	GENERIC	amazon	spoolmgr
HP-DJ550c	GENERIC	GENERIC	orinoco	spoolmgr
LZR-960	GENERIC	GENERIC	london	spoolmgr
PS	POSTSCRIPT	GENERIC	london	spoolmgr

LONG:

All the information on the selected printers is displayed:

NAME: my_device

Host:

Administrator: root

pcl: HP_LASERJET

Default form: GENERIC

Supervisor:

User permission:

Form permission:

Recovery rules:

Address: LanBox 1234 Stty options:

Protocol: XON Speed:9600 Parity:NONE Significant bits: 8

Security level: UNCLASSIFIED Priority: 1

Paper specification: AUTOMATIC_SINGLE_SHEET

Connection type: LAN Enable polling: RESET

Keep connection: TEMPORARY Open retry time: INFINITE

Mandatory start sheet: FREE Automatic activation: RESET

Notification events: NONE

Delivery method: MAIL Repetition frequency: 0

Delivery descriptor: Delivery address:

Permanent filter:

Allowed content types: SIMPLE

Resource Manager: RESET

Default Resources:

User comment:

Administrator comment: Printer on first floor

REFERENCED_BY:

All the references to the selected printer are displayed. Here only one printer must be selected.

Level	Name	Type
1	Laser	dgr
2	london	hos
1	windsor	hos

"individual_selection"

By specifying a parameter list *individual_selection* enclosed in double quotes you can define the scope of the display yourself. In this list you can specify all the options of the `xpadd -dev` command plus `-ad`, which returns the administrator of the printer.

In addition, the option `-id` is also available. It causes the object name to be displayed. This is displayed by default anyway, but if you do not want it to be displayed in the first column, you can have it displayed in a different column by placing the `-id` option accordingly; for example:

```
xpshow -dev -di "-da -id"
```

returns a table which contains the printer address in the first column and the printer name in the second column.

display_template

□

Here you can specify the name of a display template to make an individual selection. This template is stored in the `.Xprint` file in your home directory. The display template in the `.Xprint` file must have the following structure:

```
template_name individual_selection
```

Examples

- To display the attributes of printer `printer4`:

```
xpshow -dev printer4 -diL
```
- To display the attributes of all printers bearing the comment `please_delete`:

```
xpshow -dev -scl "-ca please_delete"
```

Variables

`XP_FS`

This variable defines the separator to be used between the individual fields of a table for an individually selected display or a display template. The default is a tab.

`XP_FW`

The field width in characters for a table displayed for an individually selected display or a display template. If the variable is set to 0, the entries are displayed in full length.

`XP_LS`

This variable defines the separator to be used between the different values in a single field of a table output for an individual selection or via a display template.

`XP_VR`

This variable defines the version number that is used when generating the display. The form of the display was different in earlier versions of Xprint. Consequently, shell scripts or applications that use the output from an earlier version may not be compatible with the current version.

`XP_VR` can have the following values: 01.2B00, 02.0A00, 02.0B00 or 05.0A00. The default is 05.0A00.

For example, if you have a shell script that uses the output from the display in V1.2B, set `XP_VR` to 01.2B00.

Files

`$HOME/.Xprint`

□

File in which user-defined display templates are stored.

`/var/spool/Xprint/config/.Xprint`

□

File in which globally-defined display templates, which all users can access, are stored on the local host. This file is searched after `$HOME/.Xprint`.

See also

`xpadd -job`

3.2.75 `xpshow -dgr` - Displaying the attributes of a printer group

Format

xpshow -dgr [*selection*] [-di *display*]

Description

The xpshow -dgr command allows you to display the attributes of any printer group you are allowed to use. The Xprint administrator can display all printer groups in the system.

Operands

-dgr [*selection*]

□

Here you specify the printer groups about which you want to display information. For *selection* you have three possibilities:

device_group_names

□

One or more printer groups whose attributes are to be displayed. Wildcards (*, ?) are allowed. Printer groups which can be reached via a gateway can be specified in the form *gateway!printer_group_name*.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant printer groups are to be selected. Each entry in this list consists of an option of the xpadd -dgr command and one or more associated values. The command only affects the printer groups which match the specified options and their values.

You can use all options of the xpadd -dgr command, plus -ad and -si.

For full information on using selection criteria with this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, Xprint displays the attributes of all printer groups in the system which you are allowed to use. The Xprint administrator can display the attributes all printer groups in the system.



This last point does not apply to option -di REFERENCED_BY; with this option you must specify exactly one printer group.

Options

-di *display*

□

Here you specify the type of display you want. It is sufficient to specify the highlighted character of the keywords listed below, e.g. -diL. The following keywords can be specified for *display*:

SHORT (default):

□

A short list with the most important information for all the selected printer groups is displayed:

Name	User perm.	Host	Administrator
----	-----	----	-----
Laser	Default	danube	spoolmgr
Inkjet	General	vienna	root

LONG:

□

All the information on the selected printer groups is displayed:

Name: Laser

Host: danube

Administrator: spoolmgr

Device list: PS1 PS
 Remote device list:
 User permission: Default
 User comment:
 Administrator comment:

REFERENCED_BY:

□

All the references to the selected printer group are displayed. Here only exactly one printer group must be selected.

Level	Name	Type
----	----	----
1	london	hos

"individual_selection"

□

By specifying a parameter list *individual_selection* enclosed in double quotes you can define the scope of the display yourself. In this list you can specify all the options of the `xpadd -dgr` command plus `-ad`, which returns the administrator of the printer group. In addition, the option `-id` is also available, causing the object name to be displayed. This is displayed by default anyway, but if you do not want it to be displayed in the first column, you can have it displayed in a different column by placing the `-id` option accordingly. See ... for an example.

display_template

□

Here you can specify the name of a display template to make an individual selection. This template is stored in the `.Xprint` file in your HOME directory. The display template in the `.Xprint` file must have the following structure:

template_name individual_selection

Example

You want to know which printers belong to printer group `group2`:

```
xpshow -dgr group2 -diL
```

Variables

XP_FS

XP_FW

XP_LS

XP_VR

□

For a description of these variables see

Files

`$HOME/.Xprint`

□

File in which user-defined display templates are stored.

`/var/spool/Xprint/config/.Xprint`

□

File in which globally-defined display templates, which all users can access, are stored on the local host. This file is searched after `$HOME/.Xprint`.

See also

`xpadd -dgr`

3.2.76 xpshow -flt - Displaying the attributes of a filter

Format

xpshow -flt [*selection*] [**-di** *display*]

Description

The xpshow -flt command allows you to display the attributes of any filter in the Xprint system which you are allowed to use. The Xprint administrator can display the attributes of all filters in the system.

Operands

-flt [*selection*]

Here you specify the filters about which you want to display information. For *selection* you have three possibilities:

filter_names

□

One or more filters whose attributes are to be displayed. Wildcards (*, ?) are allowed. Filters which can be reached via a gateway can be specified in the form *gateway!filter_name*.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant filters are to be selected. Each entry in this list consists of an option of the xpadd -flt command and one or more associated values. The command only affects the filters which match the specified options and their values.

You can use all options of the xpadd -flt command, plus -ad.

For full information on using selection criteria with this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, Xprint displays the attributes of all filters in the system which you are allowed to use, or, if you are the Xprint administrator, the attributes of all filters in the system.



This last point does not apply to option -di REFERENCED_BY; with this option you must explicitly specify one filter.

Options

-di *display*

□

Here you specify the type of display you want. It is sufficient to specify the highlighted character of the keywords listed below, e.g. -diL. The following keywords can be specified for *display*:

SHORT (default):

□

A short list with the most important information for all the selected filters is displayed:

Name	Type	Host	Administrator
---	---	---	-----
bsd	FAST	danube	root
vp	SLOW	danube	root
vppest	SLOW	danube	root

LONG:

□

Complete information on the selected filters is displayed:

NAME: vppost
Host: nashua
Administrator: spoolmgr
Type: FAST

Supporting hosts: danube vienna rome
 Input types: E-9001 SIMPLE
 Output types: POSTSCRIPT
 Command: vppost
 Options: OUTPUT *=-aspect
 PRINTER *=-iso
 User comment: virtual printer file (PostScript)
 Administrator comment: virtual printer file (PostScript)

REFERENCED_BY:

□

All the references to the selected filter are displayed. Here only exactly one filter must be selected.

Level	Name	Type
1	HP-DJ550c	dev
1	PS1	dev
2	Laser	dgr
3	danube	hos

"individual_selection"

□

By specifying a parameter list *individual_selection* enclosed in double quotes you can define the scope of the display yourself. In this list you can specify all the options of the `xpadd -fit` command plus `-ad`, which returns the administrator of the filter.

In addition, the option `-id` is also available, causing the object name to be displayed. This is displayed by default anyway, but if you do not want it to be displayed in the first column, you can have it displayed in a different column by placing the `-id` option accordingly. See ... for an example.

display_template

□

Here you can specify the name of a display template to make an individual selection. This template is stored in the `.Xprint` file in your HOME directory. The display template in the `.Xprint` file must have the following structure:

template_name individual_selection

Example

To display all filters bearing the user comment for_letters:

```
xpshow -flt -scl "-cu for_letters"
```

Variables

XP_FS, XP_FW, XP_LS, XP_VR

□

For a description of these variables see

Files

`$HOME/.Xprint`

□

File in which user-defined display templates are stored.

`/var/spool/Xprint/config/.Xprint`

□

File in which globally-defined display templates, which all users can access, are stored on the local host. This file is searched after `$HOME/.Xprint`.

See also

xpadd -flt

3.2.77 xpshow -fnt - Displaying the attributes of a font**Format****xpshow -fnt** [*selection*] [**-di** *display*]**Description**

The xpshow -fnt command allows you to display the attributes of any font in the Xprint system which you are allowed to use. The Xprint administrator can display all fonts in the system.

Operands**-fnt** [*selection*]

□

Here you specify the fonts about which you want to display information. For *selection* you have three possibilities:

font_names

□

One or more fonts whose attributes are to be displayed. Wildcards (*,?) are allowed.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant fonts are to be selected. Each entry in this list consists of an option of the xpadd -fnt command and one or more associated values. The command only affects the fonts which match the specified options and their values.

You can use all options of the xpadd -fnt command, plus -ad.

For full information on using selection criteria with this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, Xprint displays the attributes of all fonts in the system which you are allowed to use, or, if you are the Xprint administrator, the attributes of all fonts in the system.



This last point does not apply to option -di REFERENCED_BY; with this option you must specify one font.

Options**-di** *display*

□

Here you specify the type of display you want. It is sufficient to specify the highlighted character of the keywords listed below, e.g. -diL. The following keywords can be specified for *display*:

SHORT (default):

□

A short list with the most important information for all the selected fonts is displayed:

Name	Language	Typeface	Style	Quality	VM	HM
----	-----	-----	-----	--	--	--
GENERIC		STRAIGHT	DRAFT	6	10	
Times	GERMAN	TIMES	STRAIGHT	HIGH	6	10

LONG:

□

Complete information on the selected fonts is displayed:

NAME: GENERIC

Host:
 Administrator:
 Print quality: DRAFT
 Typeface:
 Style: STRAIGHT
 Vertical motion: 6
 Horizontal motion: 10
 Language:
 User comment:
 Administrator comment:

REFERENCED_BY:

□

All the references to the selected font are displayed. Here only one font must be selected.

Level	Name	Type
1	GENERIC	frm
2	Epson-LQ870	dev
3	Laser	dgr
3	danube	hos
2	PS1	dev
1	general	frm
4	rome	hos

"individual_selection"

□

By specifying a parameter list *individual_selection* enclosed in double quotes you can define the scope of the display yourself. In this list you can specify all the options of the `xpadd -fnt` command plus `-ad`, which returns the administrator of the font.

In addition, the option `-id` is also available, causing the object name to be displayed. This is displayed by default anyway, but if you do not want it to be displayed in the first column, you can have it displayed in a different column by placing the `-id` option accordingly. See ... for an example.

display_template

□

Here you can specify the name of a display template to make an individual selection. This template is stored in the `.Xprint` file in your HOME directory. The display template in the `.Xprint` file must have the following structure:

template_name individual_selection

Example

To display all fonts which use the typeface Courier:□

```
xpshow -fnt -scl "-tp Courier"
```

Variables

XP_FS, XP_FW, XP_LS, XP_VR

□

For a description of these variables see

Files

\$HOME/.Xprint

File in which user-defined display templates are stored.

/var/spool/Xprint/config/.Xprint

File in which globally-defined display templates, which all users can access, are stored on the local

host.

See also

xpadd -fmt

3.2.78 xpshow -frm - Displaying the attributes of a form

Format

xpshow -frm [*selection*] [-di *display*]

Description

The xpshow -frm command allows you to display the attributes of any form you are allowed to use. The Xprint administrator can display the attributes of all forms in the system.

Operands

-frm [*selection*]

□

Here you specify the forms about which you want to display information. For *selection* you have three possibilities:

form_names

□

One or more forms whose attributes are to be displayed. Wildcards (*, ?) are allowed. Forms which can be reached via a gateway can be specified in the form *gateway!form_name*.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant forms are to be selected. Each entry in this list consists of an option of the xpadd -frm command and one or more associated values. The command only affects the forms which match the specified options and their values.

You can use all options of the xpadd -frm command, plus -ad.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, Xprint displays the attributes of all forms in the system which you are allowed to use, or, if you are the Xprint administrator, the attributes of all forms in the system.



This last point does not apply to option -di REFERENCED_BY; with this option you must specify one form.

Options

-di *display*

□

Here you specify the type of display you want. It is sufficient to specify the highlighted character of the keywords listed below, e.g. -diL. The following keywords can be specified for *display*:

SHORT (default):

□

A short list with the most important information for all the selected forms is displayed:

Name	Default font	Layup	User perm.	Mount method
GENERIC	GENERIC	PORTRAIT		AUTOMATIC
NEW	GENERIC	PORTRAIT	Default	AUTOMATIC
frm_a5_ls	Times	LANDSCAPE	General	MANUAL

LONG:

□

Complete information on the selected forms is displayed:

NAME: A4

Host:

Administrator: root

Default font: GENERIC

User permission:

Page_height: 11.69i Page width: 8.26i

Left margin: 0C Line length: 0C

Top margin: 0L Page length: 0L

Start sheet: NONE End sheet: NONE Separator sheet: NONE

Layup: PORTRAIT Sides: SINGLE

Mount method: AUTOMATIC Delivery threshold: AUTOMATIC

Resources:

User comment:

Administrator comment:

REFERENCED_BY:

□

All the references to the selected form are displayed. Here only one form must be selected.

Level	Name	Type
1	Epson-LQ870	dev
1	Epson-Sty800c	dev
1	PS	dev
2	Laser	dgr
3	rome	hos
2	danube	hos

"individual_selection"

□

By specifying a parameter list *individual_selection* enclosed in double quotes you can define the scope of the display yourself. In this list you can specify all the options of the `xpadd -frm` command plus `-ad`, which returns the administrator of the form.

In addition, the option `-id` is also available, causing the object name to be displayed. This is displayed by default anyway, but if you do not want it to be displayed in the first column, you can have it displayed in a different column by placing the `-id` option accordingly. See ... for an example.

display_template

□

Here you can specify the name of a display template to make an individual selection. This template is stored in the `.Xprint` file in your HOME directory. The display template in the `.Xprint` file must have the following structure: *template_name individual_selection*

Examples

- To display the attributes of all forms with a mandatory font (option `-mf`) (SHORT display):
`xpshow -frm -scl "-mf"`
- To display the page sizes of all forms:
`xpshow -frm -di "-pl -pw"`

Variables

XP_FS, XP_FW, XP_LS, XP_VR

□

For a description of these variables see

Files**\$HOME/.Xprint**

□

File in which user-defined display templates are stored.

/var/spool/Xprint/config/.Xprint

□

File in which globally-defined display templates, accessible for all users, are stored on the local host. This file is searched after **\$HOME/.Xprint**.**See also**

xpadd -frm

3.2.79 xpshow -gtw - Displaying gateway attributes

This command is for administrators' use only.

Format**xpshow -gtw** [*selection*] [**-di** *display*]**Description**

The xpshow -gtw command allows the administrator to display the attributes of any gateway in the system.

Operands**-gtw** [*selection*]

□

Here you specify the gateways about which you want to display information. For *selection* you have three possibilities:*gateway_names*

□

One or more gateways whose attributes are to be displayed. Wildcards (*, ?) are allowed.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant gateways are to be selected. Each entry in this list consists of an option of the xpadd -gtw command and one or more associated values. The command only affects the gateways which match the specified options and their values.

For "*selection_criteria_list*" you can specify all the options of the xpadd -gtw command.For full information on using selection criteria for this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, Xprint displays the attributes of all gateways in the system.**Options****-di** *display*

□

Here you specify the type of display you want. It is sufficient to specify the highlighted character of the keywords listed below, e.g. -diL. The following keywords can be specified for *display*:

SHORT (default):

□

A short list with the most important information for all the selected gateways is displayed:

Name	Print protocol	Type	Administrator
----	-----	----	-----
danube	BSD	PARTNER	spoolmgr

rome BSD LOCAL spoolmgr

LONG:

□

Complete information on the selected gateways is displayed:

Name: danube

Host: danube

Administrator: spoolmgr

Type: PARTNER Address: 515 Protocol: TCP

Original name: danube Original host: danube

Print protocol: BSD Automatic activation: RESET

User permission:

Allowed gateways:

Backward links:

Options:

User comment:

Administrator comment:

"individual_selection"

□

By specifying a parameter list *individual_selection* enclosed in double quotes you can define the scope of the display yourself. In this list you can specify all the options of the `xpadd -gtw` command plus `-ad`, which returns the administrator of the gateway.

In addition, the option `-id` is also available, causing the object name to be displayed. This is displayed by default anyway, but if you do not want it to be displayed in the first column, you can have it displayed in a different column by placing the `-id` option accordingly. See ... for an example.

display_template

□

Here you can specify the name of a display template to make an individual selection. This template is stored in the `.Xprint` file in your HOME directory. The display template in the `.Xprint` file must have the following structure:

template_name individual_selection

Example

To display a list of all local gateways of type BSD that use the TCP network protocol:

```
xpshow -gtw -scl "-tp LOCAL -np TCP -pp BSD"
```

Variables

XP_FS, XP_FW, XP_LS, XP_VR

□

For a description of these variables see

Files

`$HOME/.Xprint`

□

File in which user-defined display templates are stored.

`/var/spool/Xprint/config/.Xprint`

□

File in which globally-defined display templates, which all users can access, are stored on the local host. This file is searched after `$HOME/.Xprint`.

See also

`xpadd -gtw`

3.2.80 xpslow -hos - Displaying the attributes of a host

Format

xpslow -hos [*selection*] [-di *display*]

Description

The xpslow -hos command allows you to display the attributes of any host in the Xprint system.

Operands

-hos [*selection*]

□

Here you specify the hosts about which you want to display information. For *selection* you have three possibilities:

host_names

□

One or more hosts whose attributes are to be displayed. Wildcards (*, ?) are allowed.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant hosts are to be selected. Each entry in this list consists of an option of the xpslow -hos command and one or more associated values. The command only affects the hosts which match the specified options and their values.

You can use all options of the xpslow -hos command except for -pd and -po.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, Xprint displays the attributes of all hosts in the system.



This last point does not apply to option -di REFERENCED_BY; with this option you must specify one host.

Options

-di *display*

□

Here you specify the type of display you want. It is sufficient to specify the highlighted character of the keywords listed below, e.g. -diL. The following keywords can be specified for *display*:

SHORT (default):

□

A short list with the most important information for all the selected hosts is displayed:

Name	Dft.form	Dft.font	Dft.destination	pr	mp	GP
london	GENERIC	GENERIC	Laser	001	001	001
danube	GENERIC	GENERIC	PS	001	001	001

LONG:

□

Complete information on the selected hosts is displayed:

NAME: nashua

Sub-root list:

Default form: GENERIC

Default font: GENERIC

Default destination: Laser

Dft. job priority: 1 Dft. maximum priority: 1

Dft. device priority: 1

Input file:

Operating system type: ATT Network protocol: TCP_IP

Responsibility: POT_MASTER

Supporting host:

User comment:

Administrator comment:

The contents of the fields Responsibility and Supporting host are only displayed for administrators. For normal users these fields are empty.

REFERENCED_BY:

☐

All the references to the selected host are displayed. Here only one printer must be selected.

Level	Name	Type
----	----	----
1	danube.srv	srv
2	danube.srv	spv
1	EPSON870	dev
2	Laser	dgr
2	danube	hos
1	standard_A4	frm
1	standard	prm
1	root	usr
1	spoolmgr	usr
2	system	sys
1	bsd	flt
1	EPSON-LQ	pcl
1	standard	rec
1	mfs	gtw
...		

HIERARCHY:

☐

The hierarchy of hosts is displayed. For this option, no host must be specified. This option is only available for administrators:

Name	Responsibility	Supp. host
----	-----	-----
danube	POT_MASTER	
rome	POT_MASTER	

"individual_selection"

☐

By specifying a parameter list *individual_selection* enclosed in double quotes you can define the scope of the display yourself. In this list you can specify all the options of the `xpadd -hos` command plus `-ad`, which returns the administrator of the host.

In addition, the option `-id` is also available, causing the object name to be displayed. This is displayed by default anyway, but if you do not want it to be displayed in the first column, you can have it displayed in a different column by placing the `-id` option accordingly. See ... for an example.

display_template

☐

Here you can specify the name of a display template to make an individual selection. This template is stored in the `.Xprint` file in your HOME directory. The display template in the `.Xprint` file must have the following structure:

template_name individual_selection

Example

To find out the responsibility status of host host6:

```
xpshow -hos host6 -diL
```

Variables

XP_FS, XP_FW, XP_LS, XP_VR

□

For a description of these variables see

Files

\$HOME/.Xprint

□

File in which user-defined display templates are stored.

/var/spool/Xprint/config/.Xprint

□

File in which globally-defined display templates, which all users can access, are stored on the local host. This file is searched after \$HOME/.Xprint.

See also

xpadd -hos

3.2.81 xpshow -job - Displaying the attributes of a print job

This command is for all users.

Format

xpshow [-job] [*selection*] [-di *display*]

Description

The xpshow -job command allows you to display the attributes of any print job you have submitted to the system. The Xprint administrator can display all jobs in the system.

For jobs which have been redirected to a remote domain, the following apply:

- The content type displayed for a job is the content type at submission in the remote domain. This is the content type of the job *after* filtering in the submission domain.
- The list of special print modes is deleted when the job is redirected to a remote domain.
- The Slow filters field shows the filters which have been applied in the remote domain after redirection, and *not* filters which were applied in the submission domain, either explicitly or automatically.
- The submission date displayed is the redirection date.

Operands

[-job] [*selection*]

□

Here you specify the jobs about which you want to display information. For *selection* you have three possibilities:

job_names

□

One or more print jobs whose attributes are to be displayed. Wildcards (*, ?) are allowed.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant print jobs are to be selected. Each entry in this list consists of an option of the xpadd -job command and one or more associated values. The command only affects the jobs which match the specified options and their values.

You can use all options of the `xpadd -job` command except for `-jt`, `-sx` and `-te`, plus `-ik`, `-jo` and `-st`.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, Xprint displays the attributes of all print jobs you have submitted, or, if you are the Xprint administrator, the attributes of all jobs in the system.

Options

-di *display*

□

Two display options are available: SHORT (default) and LONG. It is sufficient to specify the highlighted character of the keywords listed below, e.g. `-diL`. The following keywords can be specified for *display*:

SHORT (default):

□

A short list with the most important information for all the selected jobs is displayed:

L. jid Global jid Originator Destination Form fc pr

```
-----
5  nashua:5 spoolmgr PS Standard 001 001
6  nashua:6 spoolmgr PS GENERIC 001 001
7  nashua:7 spoolmgr PS1 A4 001 001
```

LONG:

□

Complete information on the selected jobs is displayed:

LOCAL JOB ID.: 24

Global job id.: srv:2 srv:myjob

Document references: /etc/passwd

Destination: hplj4m PCL: Original job size: 3194

Initial Destination: hplj4m

Candidate printers: hplj4m

Form: Font: No validation: RESET

Resources:

Job priority: 001 File copies: 001 Page copies: 001

Page select:

From string: To string:

Originator: root Security level: UNCLASSIFIED

Submission time: Wed Apr 03 18:25:49 MET

Submission host:

Print after: Wed Apr 03 18:25:49 MET Retention time:

Retention period: 0 Remove: RESET File(s) copied: RESET

FF-mode: Wait activation: RESET

Wrap mode: NONE Tab space: 08 Raw printing: RESET

Hopper number: 00 Output bin:

00 First page behavior: RESET

Loaded files:

Map table: 0 Content type: SIMPLE No filter: RESET

Special print modes:

Notification events: NONE

Delivery method: MAIL Delivery descriptor:

Delivery address:

Slow filters: Submitted command: `xpadd -de hplj4m`

`-dr/etc/passwd -st SUSP`

Comment:

"individual_selection"

□

By specifying a parameter list *individual_selection* enclosed in double quotes you can define the scope of the display yourself. In this list you can specify all the options of the `xpadd -job` command except `-te` and `-sx`, plus the following:

`-lj`: local job ID

`-gj`: global job ID

`-id`: local and global job ID, equals "`-lj gj`"

`-jo`: job originator

The local and global job ids are displayed in the first two columns by default. You can use *individual_selection* to display them in a different position, if required. See the example following.

display_template

□

Here you can specify the name of a display template to make an individual selection. This template is stored in the `.Xprint` file in your HOME directory. The display template in the `.Xprint` file must have the following structure:

template_name individual_selection

Example

- To display all print jobs that use form `a5_land`:
`xpshow -job -scl "-fm a5_land"`
- To display job originator, destination and job ids (local and global):
`xpshow -job -di "-jo -de -id"`

Variables

`XP_FS`, `XP_FW`, `XP_LS`, `XP_VR`

□

For a description of these variables see

Files

`$HOME/.Xprint`

□

File in which user-defined display templates are stored.

`/var/spool/Xprint/config/.Xprint`

□

File in which globally-defined display templates, which all users can access, are stored on the local host. This file is searched after `$HOME/.Xprint`.

`/var/spool/Xprint/config/resources`

□

This is the default directory for the resource files:

Notes

The field Initial Destination indicates the origin of the job. It can be

- the device or device group specified after `-de` in `xpadd -job`,
- `<XP_DESTIN>` if the environment variable `XP_DESTIN` was set,
- `<hos -de>` if the host default destination was used,
- or empty, if none of the situations above apply.

See also

xpadd -job

3.2.82 xpshow -jtp - Displaying the attributes of a job template

Format

xpshow -jtp [*selection*] [**-di** *display*]

Description

The xpshow -jtp command allows you to display the attributes of any job template that has been set up in the Xprint system.

Operands

-jtp [*selection*]

□

Here you specify the job templates about which you want to display information. For *selection* you have three possibilities:

template_names

□

One or more job templates whose attributes are to be displayed. Wildcards (*, ?) are allowed.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant job templates are to be selected. Each entry in this list consists of an option of the xpadd -jtp command and one or more associated values. The command only affects the job templates which match the specified options and their values.

You can use all options of the xpadd -jtp command, plus -ad.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, Xprint displays the attributes of all job templates in the system.

Options

-di *display*

□

Two display options are available: SHORT (default) and LONG. It is sufficient to specify the highlighted character of the keywords listed below, e.g. -diL. The following keywords can be specified for *display*:

SHORT (default)

□

A short list with the most important information for all the selected job templates is displayed:

Name	Destination	Form	Font	fc	pr	rm
LZR	LZR-960	A4	Default	001	050	RESET

LZR LZR-960 A4 Default 001 050 RESET

LONG:

□

Complete information on the selected job templates is displayed:

NAME: my_template

Host:

Administrator: root

Document references:

Job title: Direct printing: RESET

State: WAIT

Destination: PCL:

Form: A4 (Start sheet: FULL End sheet; FULL Sides;
 OUBLE_WIDE) Font: GENERIC (Horizontal motion: 12)
 No validation: RESET
 Resources:
 Job priority: 1 File copies: 1 Page copies: 1
 Page select:
 From string: To string:
 Security level: UNCLASSIFIED
 Print after: Wed Apr 03 18:25:49 MET Retention time:
 Retention period: 0 Remove: RESET File(s) copied: RESET
 FF mode: Wait activation: RESET
 Wrap mode: NONE Tab space: 8 Raw printing: RESET
 Hopper number: 0 Output bin: 0
 First page behavior: RESET
 Loaded files:
 Map table: Content type: COMPATIBLE No filter: RESET
 Special print modes:
 Notification events:
 Delivery method: Delivery descriptor:
 Delivery address:
 Slow filters:
 Comment:

Note: when defining a template, some attributes of the form, font and loadable resources can be overwritten by the user's specific values. If this is the case, the new values are shown in parentheses () in the LONG display. See also `xcpadd -job -fm, -ft and -lr`.

"individual_selection"

□

By specifying a parameter list *individual_selection* enclosed in double quotes you can define the scope of the display yourself. In this list you can specify all the options of the `xpadd -jtp` command plus `-ad`, which returns the administrator of the job template.

In addition, the option `-id` is also available, causing the object name to be displayed. This is displayed by default anyway, but if you do not want it to be displayed in the first column, you can have it displayed in a different column by placing the `-id` option accordingly. See ... for an example.

display_template

□

Here you can specify the name of a display template to make an individual selection. This template is stored in the `.Xprint` file in your HOME directory. The display template in the `.Xprint` file must have the following structure:

template_name individual_selection

Examples

- To display all job templates administered by host rome:
`xpshow -jtp -scl "-ah rome"`
- To find out the destination printer to which job template template1 sends jobs:
`xpshow -jtp template1 -di "-de"`
- To check the definition of template LandA3 :
`xpshow -jtp LandA3 -diL`

Variables

XP_FS, XP_FW, XP_LS, XP_VR

□

For a description of these variables see

Files

`$HOME/.Xprint`

□

File in which user-defined display templates are stored.

`/var/spool/Xprint/config/.Xprint`

□

File in which globally-defined display templates, which all users can access, are stored on the local host. This file is searched after `$HOME/.Xprint`.

`/var/spool/Xprint/config/resources`

□

The following directory is the default directory for the resource files:

See also

`xpadd -jtp`

3.2.83 `xpshow -lrs` - Showing loadable resources

Format

`xpshow -lrs` [*identifier_list*] [-scl "*selection_criteria_list*"] [-di *display*]

Description

The `xpshow -lrs` command allows you to display the attributes of any resource you are allowed to use or any resource you administer.

Operands

identifier_list

□

A list of resources to be displayed.

No specification:

□

If you do not specify a value for *identifier_list*, Xprint displays the attributes of all loadable resources in the system.

Options

-scl *selection_criteria_list*

□

A list of options and values restricting the display to resources which match the specified criteria. See "Selecting defined objects" on ... for more information on the use of selection criteria lists.

-di *display*

□

Different display options are available: SHORT, LONG, REFERENCED_BY, *display_parameter_list* and *display_template*. The default is SHORT.

Display

Form of the short display:

Name	Type	Administrator	PCL
confidential	Overlay	root	PJL-PCL5e
lrs1	Overlay	root	PJL-PCL5e
lrs1-to-encap	Overlay	root	PJL-PCL5e

Form of the long display:

NAME: my_logo
 Host:
 Administrator: root
 Type: Overlay
 Device list:
 Call resource: NONE
 PCL: PJL-PCL5e
 Downloadable file: my_logo Class name: my_logo
 Internal Id: 100 Encapsulate: SET
 Permanent: RESET
 User Comment:
 Administrator comment:

Example

To show the attributes of the loadable resource "mylogo.hp" in long form:

```
xphow -lrs mylogo.hp -diL
```

Variables

XP_VR

□

For a description of this variable see

See also

xpadd -lrs

3.2.84 xpshow -pcl - Displaying the attributes of a PCL

Format

```
xpshow -pcl [selection] [-di display]
```

Description

The xpshow -pcl command allows you to display the attributes of all PCLs in the Xprint system.

Operands

-pcl [*selection*]

□

Here you specify the PCLs about which you want to display information. For *selection* you have three possibilities:

pcl_names

□

One or more PCLs whose attributes are to be displayed. Wildcards (*, ?) are allowed. PCLs which can be reached via a gateway can be specified in the form *gateway!pcl_name*.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant PCLs are to be selected. Each entry in this list consists of an option of the xpadd -pcl command and one or more associated values. The command only affects the PCLs which match the specified options and their values.

You can use all options of the xpadd -pcl command, plus -ad.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, Xprint displays the attributes of all PCLs in the system.



This last point does not apply to option `-di REFERENCED_BY`; with this option you must specify one PCL.

Options

`-di display`



Here you specify the type of display you want. It is sufficient to specify the highlighted character of the keywords listed below, e.g. `-diL`. The following keywords can be specified for *display*:

SHORT (default):



A short list with the most important information for all the selected PCLs is displayed:

Name	File	HC	HS	Host	Administrator
A-9047	/var/spool/Xpr	NO	NO	rome	root
EPSON-FX	/var/spool/Xpr	NO	NO	rome	root
EPSON-LQ	/var/spool/Xpr	NO	YES	rome	root
GENERIC	/var/spool/Xpr	NO	NO		
HP-LASERJET	/var/spool/Xpr	YES	YES	rome	root
POSTSCRIPT	/var/spool/Xpr	YES	YES	rome	root
PROPRINTER	/var/spool/Xpr	NO	NO	rome	root

LONG:



Complete information on the selected PCLs is displayed:

NAME: PJI-PCL5e

Host:

Administrator: root

Version: Xprint V6.0

File: /var/spool/Xprint/config/PCL/xpterm

Fast filter:

Resource Types: SoftFont Overlay

Hardware copy: YES Hopper selection: 1 2 3 4 5 6 9

Output bin: 1 2 3

Sides: SINGLE DOUBLE_WIDE DOUBLE_NARROW

Layup: PORTRAIT LANDSCAPE

Print qualities: DRAFT

Character styles: ITALICS STRAIGHT

Typefaces: Arial

Bodoni

Courier

Futura

Helvetica

Vertical motion: 1 2 3 4 6 8 12 16 24 48

Horizontal motion: ANY

Languages: ISO-2:International-Reference-Version

ISO-4:United-Kingdom

ISO-6:ASCII

ISO-10:Swedish

ISO-11:Swedish

ETX allowed: YES Polling allowed: YES

Backend: xpbacend

Backend options: JOB_ID*=*

DEBUG*=*

PCL*=*

User comment:

Administrator comment:

REFERENCED_BY:

□

All the references to the selected PCL are displayed. Here only exactly one PCL must be selected.

"*individual_selection*"

□

By specifying a parameter list *individual_selection* enclosed in double quotes you can define the scope of the display yourself. In this list you can specify all the options of the `xpadd -pcl` command plus `-ad`, which returns the administrator of the PCL.

In addition, the option `-id` is also available, causing the object name to be displayed. This is displayed by default anyway, but if you do not want it to be displayed in the first column, you can have it displayed in a different column by placing the `-id` option accordingly. See ... for an example.

display_template

□

Here you can specify the name of a display template to make an individual selection. This template is stored in the `.Xprint` file in your HOME directory. The display template in the `.Xprint` file must have the following structure:

template_name individual_selection

Example

To display the attributes of PCL HP-LASERJET in LONG form:

```
xpshow -pcl HP-LASERJET -diL
```

Variables

XP_FS, XP_FW, XP_LS, XP_VR

□

For a description of these variables see

Files

`$HOME/.Xprint`

□

File in which user-defined display templates are stored.

`/var/spool/Xprint/config/.Xprint`

□

File in which globally-defined display templates, which all users can access, are stored on the local host. This file is searched after `$HOME/.Xprint`.

See also

`xpadd -pcl`

3.2.85 xpshow -prm - Displaying a permission list

Format

```
xpshow -prm [selection] [-di display]
```

Description

The `xpshow -prm` command allows you to display the contents of any of your permission lists. The Xprint administrator can display the contents of all permission lists in the system.

Operands

-prm [*selection*]

□

Here you specify the permission lists about which you want to display information. For *selection* you have three possibilities:

permission_list_names

□

One or more permission lists whose attributes are to be displayed. Wildcards (*, ?) are allowed.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant permission lists are to be selected. Each entry in this list consists of an option of the `xpadd -prm` command and one or more associated values. The command only affects the permission lists which match the specified options and their values.

You can use all options of the `xpadd -prm` command, plus `-ad`.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, `Xprint` displays the contents of all permission lists in the system.



This last point does not apply to option `-di REFERENCED_BY`; with this option you must specify one permission list.

Options

-di *display*

□

Here you specify the type of display you want. It is sufficient to specify the highlighted character of the keywords listed below, e.g. `-diL`. The following keywords can be specified for *display*:

SHORT display (default):

□

A short list with the most important information for all the selected permission lists is displayed:

Name	Type	Host	Administrator
----	----	----	-----
Standard	USER	vienna	spoolmgr
T-Form-1	FORM	vienna	spoolmgr
U-Form-1	FORM	rome	root

LONG:

□

Complete information on the selected permission lists is displayed:

NAME: Standard

Host: vienna

Administrator: spoolmgr

Type: USER

Allowed list: jp mp spoolmgr root

Denied list:

Comment:

REFERENCED_BY:

□

All the references to the selected permission list are displayed. Here only one permission list must be selected.

"individual_selection"

□

By specifying a parameter list *individual_selection* enclosed in double quotes you can define the scope of the display yourself. In this list you can specify all the options of the `xpadd -prm` command plus `-ad`, which returns the administrator of the permission list.

In addition, the option `-id` is also available, causing the object name to be displayed. This is displayed by default anyway, but if you do not want it to be displayed in the first column, you can have it displayed in a different column by placing the `-id` option accordingly. See ... for an example.

display_template

□

Here you can specify the name of a display template to make an individual selection. This template is stored in the `.Xprint` file in your HOME directory. The display template in the `.Xprint` file must have the following structure:

template_name individual_selection

Example

To find out which users are entered in permission list `perm1`:

```
xpshow -prm perm1 -diL
```

or

```
xpshow -prm perm1 -di "-al -dn"
```

(shows all "allowed" and "denied" entries)

Variables

`XP_FS`, `XP_FW`, `XP_LS`, `XP_VR`

□

For a description of these variables see

Files

`$HOME/.Xprint`

□

File in which user-defined display templates are stored.

`/var/spool/Xprint/config/.Xprint`

□

File in which globally-defined display templates, which all users can access, are stored on the local host. This file is searched after `$HOME/.Xprint`.

See also

`xpadd -prm`

3.2.86 xpshow -rec - Displaying the attributes of recovery rules

This command is for administrators' use only.

Format

```
xpshow -rec [selection] [-di display]
```

Description

The `xpshow -rec` command allows you to display the attributes of all recovery rules in the Xprint system.

Operands

-rec [selection]

□

Here you specify the recovery rules about which you want to display information. For *selection* you have three possibilities:

recovery_rule_names

□

One or more recovery rules whose attributes are to be displayed. Wildcards (*, ?) are allowed.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant recovery rules are to be selected. Each entry in this list consists of an option of the `xpadd -rec` command and one or more associated values. The command only affects the recovery rules which match the specified options and their values.

You can use all options of the `xpadd -rec` command, plus `-ad` and `-st`.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, Xprint displays information on all recovery rules in the system.



This last point does not apply to option `-di REFERENCED_BY`; with this option you must specify one recovery rule.

Options

-di *display*

□

Here you specify the type of display you want. It is sufficient to specify the highlighted character of the keywords listed below, e.g. `-diL`. The following keywords can be specified for *display*:

SHORT display (default):

□

A short list with the most important information for all the selected recovery rules is displayed:

Name	File	Host	Administrator
Standard	/var/spool/X	vienna	spoolmgr
PS printer	/var/spool/X	rome	root

LONG:

□

Complete information on the selected recovery rules is displayed:

NAME: Standard
 Host: vienna
 Administrator: spoolmgr
 File: /var/spool/Xprint/config/RR/standard.rec
 Comment:

REFERENCED_BY:

□

All the references to the selected recovery rule are displayed. Here only one recovery rule must be selected.

Level	Name	Type
1	HP-LJ4	dev

"individual_selection"

□

By specifying a parameter list *individual_selection* enclosed in double quotes you can define the scope of the display yourself. In this list you can specify all the options of the `xpadd -rec` command plus `-ad`, which returns the administrator of the recovery rule.

In addition, the option `-id` is also available, causing the object name to be displayed. This is displayed by default anyway, but if you do not want it to be displayed in the first column, you can have it displayed in a different column by placing the `-id` option accordingly. See ... for an example.

display_template

□

Here you can specify the name of a display template to make an individual selection. This template is stored in the `.Xprint` file in your HOME directory. The display template in the `.Xprint` file must have the following structure:

template_name individual_selection

Example

To display the recovery rules assigned to host `host8`:

```
xpshow -rec -scl "-ho host8"
```

Variables

XP_FS, XP_FW, XP_LS, XP_VR

□

For a description of these variables see

Files

`$HOME/.Xprint`

□

File in which user-defined display templates are stored.

`/var/spool/Xprint/config/.Xprint`

□

File in which globally-defined display templates, which all users can access, are stored on the local host. This file is searched after `$HOME/.Xprint`.

See also

`xpadd -rec`

3.2.87 xpshow -spv - Displaying the attributes of a supervisor

This command is for administrators' use only.

Format

```
xpshow -spv [selection] [-di display]
```

Description

The `xpshow -spv` command allows you to display the attributes of all supervisors in the Xprint system.

Operands

-spv [selection]

□

Here you specify the supervisors about which you want to display information. For *selection* you have three possibilities:

supervisor_names

□

One or more supervisors whose attributes are to be displayed. Wildcards (*, ?) are allowed.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant supervisors are to be selected. Each entry in this list consists of an option of the `xpadd -spv` command and one or more associated values. The command only affects the supervisors which match the specified options and their values.

You can use all options of the `xpadd -spv` command, plus `-ad` and `-st`.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, `Xprint` displays the attributes of all supervisors in the system.



This last point does not apply to option `-di REFERENCED_BY`; with this option you must specify one supervisor.

Options

-di *display*

□

Here you specify the type of display you want. It is sufficient to specify the highlighted character of the keywords listed below, e.g. `-diL`. The following keywords can be specified for *display*:

SHORT display (default):

□

A short list with the most important information for all the selected supervisors is displayed:

Name	Server	Host	Administrator
pluto_spv	pluto_srv	pluto	spoolmgr
mars_spv	mars_srv	mars	root

LONG:

□

Complete information on the selected supervisors is displayed:

NAME: pluto_spv
 Host: pluto
 Administrator: spoolmgr
 Server: pluto_srv
 Comment:

REFERENCED_BY:

□

All the references to the selected supervisor are displayed. Here only one supervisor must be selected.

"individual_selection"

□

By specifying a parameter list *individual_selection* enclosed in double quotes you can define the scope of the display yourself. In this list you can specify all the options of the `xpadd -spv` command plus `-ad`, which returns the administrator of the supervisor.

In addition, the option `-id` is also available, causing the object name to be displayed. This is displayed by default anyway, but if you do not want it to be displayed in the first column, you can have it displayed in a different column by placing the `-id` option accordingly. See ... for an example.

display_template

□

Here you can specify the name of a display template to make an individual selection. This template is stored in the .Xprint file in your HOME directory. The display template in the .Xprint file must have the following structure:

template_name individual_selection

Examples

- To display the attributes of supervisor mars in detail:
xpsow -spv mars -di LONG
- To display the attributes of all supervisor objects in brief:
xpsow -spv

Variables

XP_FS, XP_FW, XP_LS, XP_VR

□

For a description of these variables see

Files

\$HOME/.Xprint

□

File in which user-defined display templates are stored.

/var/spool/Xprint/config/.Xprint

□

File in which globally-defined display templates, which all users can access, are stored on the local host. This file is searched after \$HOME/.Xprint.

See also

xpadd -spv

3.2.88 xpshow -srv - Displaying the attributes of a server

This command is for administrators' use only.

Format

xpshow -srv [*selection*] [-di *display*]

Description

The xpshow -srv command allows you to display the attributes of all servers in the Xprint system.

Operands

-srv [*selection*]

□

Here you specify the servers about which you want to display information. For *selection* you have three possibilities:

server_names

□

One or more servers whose attributes are to be displayed. Wildcards (*, ?) are allowed.

-scl "*selection_criteria_list*"

A list of criteria according to which the relevant servers are to be selected. Each entry in this list consists of an option of the xpadd -srv command and one or more associated values. The command only affects the servers which match the specified options and their values.

You can use all options of the xpadd -srv command, plus -ad, -si, -so and -st.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, Xprint displays the attributes of all servers in the system.



This last point does not apply to option `-di REFERENCED_BY`; with this option you must specify one server.

Options

`-di display`

□

Here you specify the type of display you want. It is sufficient to specify the highlighted character of the keywords listed below, e.g. `-diL`. The following keywords can be specified for *display*:

SHORT (default):

□

A short list with the most important information for all the selected servers is displayed:

Name	User perm.	Host	Administrator
pluto_srv	standard	pluto	spoolmgr
mars_srv	sys_adm	mars	root

LONG:

□

Complete information on the selected servers is displayed:

NAME: pluto_srv
 Host: pluto
 Administrator: spoolmgr
 Scheduling policy: PRIORITY
 User permission: standard
 Maximum # of jobs: NO_LIMIT
 Comment:

REFERENCED_BY:

□

All the references to the selected server are displayed. Here only exactly one server must be selected.

Level	Name	Type
1	pluto_spv	spv

"*individual_selection*"

By specifying a parameter list *individual_selection* enclosed in double quotes you can define the scope of the display yourself. In this list you can specify all the options of the `xpadd -srv` command plus `-ad`, which returns the administrator of the server. In addition, the option □ `-id` is also available, causing the object name to be displayed. This is displayed by default anyway, but if you do not want it to be displayed in the first column, you can have it displayed in a different column by placing the `-id` option accordingly. See ... for an example.

display_template

□

Here you can specify the name of a display template to make an individual selection. This template is stored in the `.Xprint` file in your HOME directory. The display template in the `.Xprint` file must have the following structure:

template_name individual_selection

Examples

- To display the attributes of server server3 in detail:
xpslow -srv server3 -di LONG
- To display the attributes of all servers belonging to host mars:
xpslow -srv -scl "-ho mars"

Variables

XP_FS, XP_FW, XP_LS, XP_VR

□

For a description of these variables see

Files

\$HOME/.Xprint

□

File in which user-defined display templates are stored.

/var/spool/Xprint/config/.Xprint

□

File in which globally-defined display templates, which all users can access, are stored on the local host. This file is searched after \$HOME/.Xprint.

See also

xpadd -srv

3.2.89 xpslow -sys - Displaying the attributes of the system**Format****xpslow -sys****Description**

The xpslow -sys command allows you to display the attributes of the spooler system. Only one display mode is available (see example below). Auditing and Centralised Logging only apply to uses.

Display

NAME: System

Administrator: root

Accounting file: /var/spool/Xprint/config/account

Auditing: RESET

Centralised Logging: RESET

User comment:

Administrator comment:

See also

xpmoð -sys

3.2.90 xpslow -usr - Displaying attributes of Xprint users**Format****xpslow -usr** [*selection*] [-di *display*]**Description**

The xpslow -usr command allows you to display your own privileges and print quotas. The Xprint administrator can display the privileges and print quotas of all users in the Xprint system.

Operands**-usr** [*selection*]

□

Here you specify the users about which you want to display information. For *selection* you have three

possibilities:

user_names

☐

One or more users whose privileges and print quotas are to be displayed. Wildcards (*, ?) are allowed.

-scl "*selection_criteria_list*"

☐

A list of criteria according to which the relevant users are to be selected. Each entry in this list consists of an option of the `xpadd -usr` command and one or more associated values. The command only affects the users which match the specified options and their values.

You can use all options of the `xpadd -usr` command.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

No specification:

☐

If you do not specify a value for *selection*, Xprint displays information on your privileges and quotas, or, if you are the Xprint administrator, the privileges and quotas of all users in the system.



This last point does not apply to option `-di REFERENCED_BY`; with this option you must specify one user.

Options

-di *display*

☐

Here you specify the type of display you want. It is sufficient to specify the highlighted character of the keywords listed below, e.g. `-diL`. The following keywords can be specified for *display*:

SHORT (default):

☐

A short list with the most important information for all the selected users is displayed:

Name	Jobs	Pages	Copies	Prio.	Accounting
----	----	-----	-----	-----	-----
mp	100	1000	5	50	RESET
jp	100	1000	5	50	RESET
spoolmgr	NO_LIMIT	NO_LIMIT	NO_LIMIT	100	RESET

LONG:

☐

Complete information on the selected users is displayed:

NAME: spoolmgr
 Hosts: pluto
 Allowed jobs: NO_LIMIT Maximum priority: 100
 Allowed pages: NO_LIMIT Allowed copies: NO_LIMIT
 Security level: CONFIDENTIAL Update accounting: RESET
 Privileges: ALL
 Comment:

REFERENCED_BY:

☐

All the references to the selected user are displayed. Here only one user must be selected.

Level	Name	Type
-----	-----	---
1	System	sys

"individual_selection"

□

By specifying a parameter list *individual_selection* enclosed in double quotes you can define the scope of the display yourself. In this list you can specify all the options of the `xpadd -usr` command.

In addition, the option `-id` is also available, causing the object name to be displayed. This is displayed by default anyway, but if you do not want it to be displayed in the first column, you can have it displayed in a different column by placing the `-id` option accordingly. See ... for an example.

display_template

□

Here you can specify the name of a display template to make an individual selection. This template is stored in the `.Xprint` file in your HOME directory. The display template in the `.Xprint` file must have the following structure:

template_name individual_selection

Example

- To display information on all users with the security level `TOP_SECRET`:

```
xpshow -usr -scl "-sl TOP_SECRET" -diL
```

Variables

`XP_FS`, `XP_FW`, `XP_LS`, `XP_VR`

□

For a description of these variables see

Files

`$HOME/.Xprint`

□

File in which user-defined display templates are stored.

`/var/spool/Xprint/config/.Xprint`

□

File in which globally-defined display templates, which all users can access, are stored on the local host. This file is searched after `$HOME/.Xprint`.

See also

`xpadd -usr`

3.2.91 xpstart - Starting the spooler system

This command is for system administrators' use only.

Format

xpstart [**-sa** *system_activation*] [**-fv** *force_version*]

Description

The `xpstart` command can be used by the system administrator (`root`) to start Xprint. The command can only be used on the local host, and this host must be in the `NOT_ACTIVE` state.

For users, Xprint is started or stopped automatically when its host is booted or shut down.

`xpstart` is reserved for the system administrator of the host.

When Xprint is started on a local host, the following are also automatically activated if the variable `XPSP_STARTUP_ENTITIES` is not set to zero:

- all local servers plus the remote printers with automatic activation and their controlling supervisors
- all local printers and their controlling supervisors (if their controlling servers are active)

- Printers are only activated with `xpstart` if the attribute "*automatic_activation*" is set for them (see command `xpadd -dev -aa`). Supervisors are only activated if at least one of their printers is active.
- all gateways which have the attribute "*automatic_activation*" set

The consistency of the database is checked before start-up as specified by the contents of the shell environment variable `XPSP_DBCHECK`. If the database is found to be inconsistent a backup will automatically be restored, after confirmation by the administrator. A copy of the database is saved regularly during Xprint sessions. The frequency of this automatic backup can be modified using the variable `XPSP_BACKUP_INTERVAL` (the default is to save a copy every 30 minutes).

Options

-sa *system_activation*

□

Specifies whether the system startup should be WARM (default) or COLD. The value specified here will be used as the default for server activation on this host if no alternative value is specified with an `xpchange -srv -sa` command.

WARM

Uncompleted jobs from a previous session are retained and the last active job is printed again from the beginning.

COLD

Any uncompleted jobs from a previous session are deleted.

-fv

If `xpstart` is not executed on the first host in the network to be started, the database of the active master host is imported. This can lead to loss of data if an old Xprint version is installed on the active master. Therefore, if data loss seems likely, `xpstart` is automatically aborted. Option `-fv` allows you to force execution of `xpstart`, even if data specific to the new version will be lost when the database is imported.

Variables

Environment variable `XPSP_STARTUP_ENTITIES`

If this shell variable is set to 0 (zero) when `xpstart` is called, the automatic activation of the local servers, printers and gateways will not take place. Only the Xprint daemon and database services are started in this case.

Environment variable `XPSP_DB_CHECK`

If this variable is set to NO, there will be no check of database consistency during the Xprint start-up. The database from the former session will be re-used without any check of validity.

If the variable is set to any value other than NO, a check of database consistency is performed unconditionally at each start-up of Xprint.

If the variable is not set, the database is checked for consistency only if the previous session terminated abnormally.

If the database is found to be inconsistent during this test a back-up will be restored, subject to the administrator giving confirmation. Such backups are saved automatically during each Xprint session.

Environment variable `XPSP_BACKUP_INTERVAL`

This variable can be set to an integer value specifying the number of minutes between the automatic database backups. If the variable is not set, a copy is saved every 30 minutes.

See also

`xpstop`

3.2.92 `xpstat -dev` - Displaying the state of a printer

Format

xpstat -dev [*selection*] [**-di** *display*] [**-ep**]

Description

The `xpstat -dev` command allows you to display the state of all the printers you are allowed to use, and all the printers you administer.

The state value can be either `ACTIVE`, `NOT_ACTIVE` or `DEVICE_ERROR` (in which case the cause of the error will also be displayed). `ACTIVE` and `NOT_ACTIVE` states can be set using the `xpchange -dev` command.

The spoolin and spoolout values can be either `ON` or `OFF`. These values can be set using the `xpchange -dev` command. If spoolout has been set to `OFF` with `xpchange -dev ... -so OFF`, but the `-wn` option has been given a value of `END_JOB` or `LAST_JOB`, the spoolout display may show a value of `ON`, with a comment indicating when it will be set to `OFF`. This will either be when the current job has finished printing or when the last job in the queue has been printed.

Also, if you request the state of a large number of printers, it may take a little time before the status is returned.

Operands

-dev [*selection*]

□

Here you specify the printers whose states you want to display. For *selection* you have three possibilities:

device_names

□

One or more printers whose state you want to display. Printers in remote domains can be specified in the form *gateway!printer*, where *gateway* stands for the name of the partner gateway and *printer* for the name of the printer, e.g. `bsd_partner!printer5`.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant printers are to be selected. Each entry in this list consists of an option of the `xpadd -dev` command and one or more associated values. The command only affects the printers which match the specified options and their values.

You can use all options of the `xpadd -dev` command, plus `-ad`, `-rd`, `-si`, `-so` and `-st`.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, `Xprint` displays the states of all printers in the system.

Options

-di *display*

□

Two display options are available: `SHORT` (default) and `LONG`. It is sufficient to specify the highlighted character in each case, e.g. `-diL`. Examples of both display types are shown below.

When the State field is followed by an additional message, the following conventions are used for the `SHORT` display:

- The State keyword is limited to its first letter.
- Only the first characters of the additional message are shown, between parentheses ().

The 'justification' field in the `LONG` display can have the following values:

Deactivated by server, due to supervisor problem

□

As connection cannot be established with the supervisor, the supervisor and all the devices it controls are set to the `NOT_ACTIVE` state. Check whether the supervisor process is still running by using `ps -ef | grep SP`. If the supervisor process is still running, then the problem is in the

network connection. Kill the supervisor process and restart it with `xpchange -dev`. If the supervisor process was not running, check its `*log` file (see [Section "Logging"](#)). The supervisor can be restarted by using the `xpchange -spv` or the `xpchange -dev` command.

Deactivated by supervisor, due to server/database problem

□

As no connection can be established with the server or database, the supervisor and the devices it controls are put in the `NOT_ACTIVE` state. Check if the server concerned and database manager are still running. (`ps -ef|grep SV` and `ps -ef|grep DB`.)

Deactivated by supervisor, due to printer problem.

□

As no connection can be established with the printer or the connection has been lost during a permanent connection session, the printer will remain in the `NOT_ACTIVE` state. Check that the specified device address is correct and check if the printer is in an error state.

Deactivated by recovery rule

□

The execution of a recovery rule has deactivated the printer. Check why the recovery rule was activated.

Device activation: device busy

□

As no connection can be established with the printer, the device remains in the `NOT_ACTIVE` state. Check that the specified device address is correct and check if the printer is in an error state.

Deactivated by daemon after supervisor exit

□

The supervisor process has terminated unexpectedly. The reason is probably given in the Supervisor's justification field. The daemon process has detected this fact and has deactivated the device, as it is impossible to print without the supervisor.

SHORT display:

Name	Waiting	Active job	SI	SO	State
Epson-LQ870	0000		OFF	OFF	NOT_ACTIVE
HP-DJ550c	0000		OFF	OFF	NOT_ACTIVE
LZR-960	0000		OFF	OFF	NOT_ACTIVE
PS	0001		ON	ON	ACTIVE

LONG display:

NAME: PS1
state: NOT_ACTIVE
spoolin: OFF spoolout: OFF
redirected to:
date of last state modif.: Fr Jul 28 11:24:54 1995
justification:
Number of waiting jobs: 0001 Current priority: 050
Active job:
Mounted form:

-ep *enable_polling*

□

With this option, if a device has its spoolout enabled, the physical status of the printer is shown, even when there is no active job. This is, however, only possible if the printer meets one of the following conditions:

- it has polling enabled

- it supports the ETX protocol
- it supports the RXON protocol
- its connection type is able to return the printer's status.

The status of a device without an active job is established as follows:

1. Establish a connection with the printer.
2. Make use of any available protocol (e.g. RXON, ETX).
3. Ask the printer for its status.

Here are some examples of how this works:

- Very poor support is generally provided for permanent connections. Any `xpstat -dev` will return `DEVICE_ERROR` (Device Busy) when the device doesn't have an active job.
- If the protocol is RXON, the only way to get the status `ACTIVE` is to establish a connection and receive XON.
- If the protocol is ETX and polling is enabled, then steps 1, 2 and 3 must be performed successfully in order to get the status `ACTIVE`.

If a fast filter is attached to the device, the `xpstat -dev` processing merely opens the device at the configured device address, but does not call the fast filter.

Example

- To find out the state of all printers bearing the comment deactivated:
`xpstat -dev -scl "-ca deactivated"`

Variables

XP_VR

□

For a description of this variable see

See also

`xpchange -dev`, `xppoll`

3.2.93 `xpstat -dgr` - Displaying the state of a printer group

Format

`xpstat -dgr [selection] [-di display]`

Description

The `xpstat -dgr` command is used to display the spoolin state of any printer group you are allowed to use, and any printer group you administer. The spoolin values can be either ON or OFF. These values can be set using the □

`xpchange -dgr` command.

Operands

`-dgr [selection]`

□

Here you specify the printer groups whose state you want to display. For *selection* you have three possibilities:

device_group_names

□

One or more printer groups whose state you want to display. Printer groups in remote domains can be specified in the form *gateway!printer_group*, where *gateway* stands for the name of the partner gateway and *printer_group* for the name of the printer group, e.g. `bsd_partner!dgr_ink`

`-scl "selection_criteria_list"`

□

A list of criteria according to which the relevant printer groups are to be selected. Each entry in this list consists of an option of the `xpadd -dgr` command and one or more associated values. The command only affects the printer groups which match the specified options and their values. You can use all options of the `xpadd -dgr` command, plus `-ad` and `-si`.

For full information on using selection criteria for this option, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, Xprint displays the states of all printer groups in the system.

Options

`-di display`

□

Two display options are available: SHORT (default) and LONG. It is sufficient to specify the highlighted character in each case, e.g. `-diL`. An example for each display type is given below:

SHORT display:

Name	Spoolin
------	---------

----	-----
------	-------

HP_Laser	ON
----------	----

Laser	OFF
-------	-----

LONG display:

NAME: Laser

Spoolin: OFF

Date of last modification: Fr Jul 28 12:54:47 1995

Justification:

Example

To display the state of all printer groups which have the spoolin state ON:

```
xpstat -dgr -scl "-si ON"
```

Variables

XP_VR

□

For a description of this variable see

See also

`xpchange -dgr`

3.2.94 `xpstat -gtw` - Displaying the state of a gateway

This command is for administrators' use only.

Format

```
xpstat -gtw [selection] [-di display]
```

Description

The `xpstat -gtw` command allows you to display the state of all gateways of type LOCAL in the system. From V5.0A onwards, you can also display the status of PARTNER gateways.

You can request the status of partner gateways if there are corresponding local gateways in the ACTIVE state with `gateway_out` enabled. For partner gateways, all the status fields are left empty except the State field. As the status request to a partner gateway physically opens a connection to that gateway, it can take some time before the status is returned. For example, you may have to wait for a connection timeout.

When the identifier list is empty or contains only '*' then only LOCAL gateways will be looked for. In other

cases, both LOCAL and PARTNER gateways will be looked for.

Operands

-gtw [*selection*]

□

Here you specify the gateways whose state you want to display. For *selection* you have three possibilities:

gateway_names

□

One or more gateways whose state you want to display.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant gateways are to be selected. Each entry in this list consists of an option of the `xpadd -gtw` command and one or more associated values. The command only affects the gateways which match the specified options and their values.

You can use all options of the `xpadd -gtw` command, plus `-ad`, `-gi`, `-go` and `-st`.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, Xprint displays the states of all gateways in the system.

Options

-di *display*

□

Two display options are available: SHORT (default) and LONG. It is sufficient to specify the highlighted character in each case, e.g. `-diL`. An example for each display type is given below.

The 'justification' field in the LONG display can have the following values:

Database services not accessible

□

This means that the database manager is not able to provide the gateway with the necessary information, or is not able to accept database update requests from the gateway. No recovery is possible from this situation. This is a fatal error and the gateway service will be stopped.

Check the database manager is still running, verify the presence of the processes `Xp_DBman1` and `Xp_DBman2`. If this doesn't work correctly, shutdown Xprint and then start it again.

No available license to start

□

No license has been found to start the requested service. Install the license for the service requested and try to start the gateway again.

System error

□

A system error has occurred during the processing of a request. No recovery is possible from this situation. This is a fatal error and the gateway service will be stopped.

Check the global system resources, available memory, disk space for file systems, system overload and try to start the gateway again.

Internal error

□

An application internal error has occurred. No recovery is possible from this situation. This is a fatal error and the gateway service will be stopped.

Check the general system resources. If the error is still present, contact your support centre.

Local port already in use

The TCP port number used by the local gateway is already in use. No recovery is possible - the gateway will not start.

Another gateway may be using the same address. Use `netstat` to discover which service is already using the port number. Deactivate the service or gateway that is already using the port number, and try again to activate the original gateway.

Network Error

A network connection has failed or has been interrupted. No recovery is possible from this situation. This is a fatal error and the gateway service will be stopped.

Check the hardware connection, the net cable, use the `ping` or `netstat` commands. It is possible that the network is overloaded. Try to start the gateway again.

Process killed by signal

The gateway has shut down after receiving a signal. It is possible that a shutdown of Xprint has been requested. Try to restart the gateway.

SHORT display:

Name	GI	GO	State
----	--	--	----
danube	ON	ON	ACTIVE

LONG display

NAME: danube

State: ACTIVE

gateway_in: ON gateway_out: ON

date of last modification: Mo 31.Jul.1995, 13:34:12 MDT

justification:

Example

To display a list of the states of all local gateways of type BSD which use the TCP network protocol:

```
xpstat -gtw -scl "-tp LOCAL -np TCP -pp BSD"
```

Variables

XP_VR



For a description of this variable see

See also

`xpchange -gtw`

3.2.95 xpstat -hos - Displaying the state of a host**Format**

```
xpstat -hos [selection] [-di display]
```

Description

The `xpstat -hos` command is used to display the current state of any host in the Xprint system. Hosts can have the following state values:

- NOT_ACTIVE
- ACTIVE,
- ACTIVE_MASTER (always a POT_MASTER)
- SHUTDOWN (after `xpstop` command but just before NOT_ACTIVE).

Operands

-hos [*selection*]

□

Here you specify the hosts whose state you want to display. For *selection* you have three possibilities:

host_names

□

One or more hosts whose state you want to display.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant hosts are to be selected. Each entry in this list consists of an option of the `xpadd -hos` command and one or more associated values. The command only affects the hosts which match the specified options and their values.

You can use all options of the `xpadd -hos` command except for `-pd` and `-po`.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, Xprint displays the states of all hosts in the system.

Options**-di** *display*

□

Two display options are available: SHORT (default) and LONG. It is sufficient to specify the highlighted character in each case, e.g. `-diL`. An example of each display type is given below.

The 'justification' field in the LONG display can have the following values:

Unexpected termination of DB manager

□

The daemon process has detected that the database manager has terminated abnormally. This will stop Xprint on the relevant host. Xprint must then be restarted with the `xpstart` command.

SHORT display:

Name	State
pluto	ACTIVE_MASTER
mars	NOT_ACTIVE

pluto ACTIVE_MASTER

mars NOT_ACTIVE

LONG display:

NAME: pluto

State: ACTIVE_MASTER

date of last state modification:

justification:

Product: Xprint Version: 05.A00

Example

To display the state of host woody in the SHORT format:

`xpstat -hos woody`

Variables

XP_VR

□

For a description of this variable see

See also

`xpchange -hos`

3.2.96 **xpstat -job - Displaying the state of a print job**

Format

xpstat [*selection*] [-di *display*]

Description

The xpstat -job command is used to display the state of a print job which has already been submitted. Print jobs can have the states shown below.

Both xpdcl -job and xpchange -job work asynchronously. The user's command is acknowledged after validation, while the processing runs in the background. This processing may need some time before being completed. Substates are used before completion, in order to show that the corresponding command is in progress.

ACTIVE

□

The job is being printed.

ACTIVE [IN_DELETE]

□

The active job is in the process of being deleted.

ACTIVE [IN_SUSPEND]

□

The active job is in the process of being suspended.

DATA_FILTERING

□

The job must be processed by a slow filter before it can be passed into the WAIT state.

DEVICE_ERROR

□

This state is followed by the reason for the error (e.g. paper tray empty).

DEVICE_ERROR [IN_DELETE]*reason*

□

There is a device error and Xprint is trying to delete the job.

DEVICE_ERROR [IN_SUSPEND]*reason*

□

There is a device error and Xprint is trying to suspend the job.

FILE_TRANSFER

□

The job cannot be printed. The relevant files are being transferred.

INTERRUPTED

□

The job has been interrupted because the printer was deactivated; printing will resume automatically when the printer is reactivated.

SCHEDULED

□

The job at the head of the print queue is waiting for confirmation that it can be printed (xpchange -job ... -st ACTIVE), see command □
xpadd -job, option -wa on The printer will be blocked until the job is printed.

SUSPEND

□

The job can currently not be printed.

TERMINATED

□

The job has been printed successfully and the specified retention period for the job in the system has

begun.

TOP

The job will be printed next.

WAIT

The job is waiting for the printer to become free.

WAITING_FOR_NEXT_PAGE

□

The print job is waiting for the instruction to print the next page.

Operands

-job *[selection]*

□

Here you specify the jobs whose state you want to display. For *selection* you have three possibilities:

job_names

□

One or more print jobs whose state you want to display. Jobs in remote domains can be specified in the form *gateway!local_ID*, where *gateway* stands for the name of the partner gateway and *local_ID* for the local identifier of the job, e.g. *bsd_partner!5*

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant print jobs are to be selected. Each entry in this list consists of an option of the *xpadd -job* command and one or more associated values. The command only displays the print jobs which match the specified options and their values.

You can use all options of the *xpadd -job* command except for *-jt*, *-sx* and *-te*, plus *-jo* and *-st*.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, *Xprint* displays the states of all print jobs in the system which have been submitted on the local host.

Options

-di *display*

□

Two display options are available: *SHORT* (default) and *LONG*. It is sufficient to specify the highlighted character in each case, e.g. *-diL*. An example for each display type is given below.

When the State field is followed by an additional message, the following conventions are used for the *SHORT* display:

- The State keyword is limited to its first letter.
- Only the first characters of the additional message are shown, between parentheses ().

SHORT display:

L. jid Global jid Destination Rank Percentage State

L. jid	Global jid	Destination	Rank	Percentage	State
5	london:5	PS	00001	000	SUSPEND
7	london:7	PS1	00001	000	WAIT
8	london:8	PS	00000	000	ACTIVE

LONG display:

LOCAL JOB ID.: 8

Global job id.: london:8

State: ACTIVE

State information:

Destination: PS
 Rank: 0
 Requested copies: 1
 Copies printed: 0
 % already printed: 0
 Last page printed: 0
 Related document:

Important notes

- The option `-jt job_title` cannot be used as a criterion for selecting print jobs.
- If the displayed print job has the state ACTIVE or TERMINATED, the `□` Destination field shows the name of the printer involved. Otherwise it shows the destination printer that was selected when the job was submitted.
- If the displayed print job has the state ACTIVE, Xprint ignores the number of copies per page specified in the fields Copies printed and % already printed when the job was submitted.
- Rank is the position of the print job in the queue - the lower the value, the higher the job is in the queue.
 If the job is waiting to be printed on a printer which belongs to a printer group, the number in the Rank field indicates the job's position in the queue for the printer with the smallest load in the group.
- If you are printing more than one document using the `-dr` option, then related document tell you which document is currently printing and position tells you its position in the sequence. If the job has not yet entered the ACTIVE state, then last page printed is 0 and Related document is blank.
- The information %already printed indicates that the information was successfully transferred to the buffers of the printer, not (necessarily) that it has actually been printed on paper.

Examples

- To display the state of the print job `se2:3`:
`xpstat -job se2:3`
- To display the state of all print jobs you have submitted with the priority 80:
`xpstat -job -scl "-pr 80"`

Variables

XP_VR

□

For a description of this variable see

See also

`xpadd -job`, `xpchange -job`

3.2.97 xpstat -spv - Displaying the state of a supervisor

This command is for administrators' use only.

Format

xpstat -spv [*selection*] [**-di** *display*]

Description

The `xpstat -spv` command is used to display the state of any supervisor you administer. Possible state values are ACTIVE, NOT_ACTIVE or SHUTDOWN. A supervisor is in the SHUTDOWN state from the time NOT_ACTIVE is specified until the NOT_ACTIVE state is reached.

Operands

-spv [*selection*]

□

Here you specify the supervisors whose state you want to display. For *selection* you have three possibilities:

supervisor_names

□

One or more supervisors whose state you want to display.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant supervisors are to be selected. Each entry in this list consists of an option of the `xpadd -spv` command and one or more associated values. The command only affects the supervisors which match the specified options and their values.

You can use all options of the `xpadd -spv` command, plus `-ad` and `-st`.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, `Xprint` displays the states of all supervisors in the system.

Options

-di *display*

□

Two display options are available: SHORT (default) and LONG. It is sufficient to specify the highlighted character in each case, e.g. `-diL`. An example for each display type is given below.

The 'justification' field in the LONG display can have the following values:

Process killed by signal <##>

□

The process was probably killed manually. Restart if necessary.

Deactivated by supervisor, due to server problem

□

As no connection can be established with the server, the supervisor and the devices it controls are put in the NOT_ACTIVE state. Check if the server concerned is still running.

SHORT display:

```
Name      State
----      -
pluto_spv  ACTIVE
mars_spv   NOT_ACTIVE
```

LONG display:

```
Name: pluto_spv
State: ACTIVE
date of last state modification:
justification:
```

Example

To determine the state of supervisor `supervisor3`:

```
xpstat -spv supervisor3
```

Variables

XP_VR

□

For a description of this variable see

See also

xpchange -spv

3.2.98 xpstat -srv - Displaying the state of a server

This command is for administrators' use only.

Format

xpstat -srv [*selection*] [-**di** *display*]

Description

The xpstat -srv command allows you to display the state of all the servers you administer. Possible state values are ACTIVE, NOT_ACTIVE or SHUTDOWN. A server is in the SHUTDOWN state from the time NOT_ACTIVE is specified until the NOT_ACTIVE state is reached. The spoolin and spoolout states can be either ON or OFF. These values are set using the xpchange -srv command.

Operands

-srv [*selection*]

□

Here you specify the servers whose state you want to display. For *selection* you have three possibilities:

server_names

□

One or more supervisors whose state you want to display.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant servers are to be selected. Each entry in this list consists of an option of the xpad -srv command and one or more associated values. The command only affects the servers which match the specified options and their values.

You can use all options of the xpad -srv command, plus -ad, -si, -so and -st.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, Xprint displays the states of all servers in the system.

Options

-di *display*

□

Two display options are available: SHORT (default) and LONG. It is sufficient to specify the highlighted character in each case, e.g. -diL. An example for each display type is given below.

The 'justification' field in the LONG display can have the following values:

— Process killed by signal <##>

The process was probably killed manually. Restart the process if necessary.

— Stopped on request

The server was deactivated properly with xpchange -srv.

SHORT display:

Name	Waiting	Load level	SI	SO	State
london	0002	01	ON	ON	ACTIVE
silver	0000	00	OFF	OFF	NOT_ACTIVE

LONG display:

NAME: london

State: ACTIVE

Spoolin: ON Spoolout: ON
 date of last state modification:
 justification:
 Maximum jobs: NO_LIMIT Waiting jobs: 2
 load level: 1%

Example

To determine the state of all servers which are assigned to host host3:

```
xpstat- srv -scl "-ho host3"
```

Variables

XP_VR

□

For a description of this variable see

See also

xpchange -srv

3.2.99 xpstat -usr - Displaying users' print quotas

This command is for administrators' use only.

Format

```
xpstat -usr [selection] [-di display]
```

Description

The xpstat -usr command allows the Xprint administrator to display the current state of any user's print quotas. The system and local Xprint administrators can display the state of their own print quotas, and the state of print quotas of any users on their local host.

Operands

-usr [*selection*]

□

Here you specify the users whose print quota states you want to display. For *selection* you have three possibilities:

user_names

□

One or more users whose print quotas you want to display.

-scl "*selection_criteria_list*"

□

A list of criteria according to which the relevant users are to be selected. Each entry in this list consists of an option of the xpadd -usr command and one or more associated values. The command only affects the users who match the specified options and their values.

You can use all options of the xpadd -usr command.

For full information on using selection criteria for this object, see the [Section "Operands"](#).

No specification:

□

If you do not specify a value for *selection*, Xprint displays the print quotas of all users in the system.

Options

-di *display*

□

Two display options are available: SHORT (default) and LONG. It is sufficient to specify the highlighted character in each case, e.g. -diL. An example for each display type is given below:

SHORT display:

Name	Consumed pages	Consumed jobs
jp	0000115	0000007
root	0000000	0000000
spoolmgr	0000002	0000001

LONG display:

NAME: spoolmgr
 Allowed pages: NO_LIMIT Consumed pages: 2
 Allowed jobs: NO_LIMIT Consumed jobs: 1

Example

To determine the state of all users logged on to host host6:

```
xpstat -usr -scl "-ho host6"
```

Variables

XP_VR

□

For a description of this variable see

See also

xpadd -usr, xpchange -usr

3.2.100 xpstop - Stopping the Xprint system

This command is for Xprint and system administrators' use.

Format

```
xpstop [ -ho host_list ]
```

Description

System administrators can terminate Xprint with xpstop on their local host only. The Xprint administrator can specify an additional list of hosts on which Xprint is to be terminated.

For users, Xprint is started or stopped automatically when its host is booted or shut down.

When Xprint is stopped on a local host, the following are also automatically deactivated:

- all local printers
- all local supervisors and all the printers they control
- all local servers and thus all supervisors and printers they control, even those on remote hosts. Active print jobs are interrupted (see also the xpchange -dev -wn NOW command).
- All local gateways. Active transactions with other Xprint domains are interrupted (see also the xpchange -gtw command, option -wn NOW on ...).

Options

-ho *host_list*

□

The system administrator can only specify the name of the local host here. The Xprint administrator can specify a list of hosts on which Xprint is to be stopped. Wildcards can be used. (Default: local host).

See also

xpstart

3.3 Additional commands

3.3.1 DBinstall - Initializing the database

This command is for system administrators' use only.

Format

/var/spool/Xprint/config/bin/DBinstall [-i]

/var/spool/Xprint/config/bin/DBinstall -h hostname

/var/spool/Xprint/config/bin/DBinstall -f [-I] [-o os_type]

Description

This command initializes or re-initializes the Xprint database on the host on which it is called. Before you can execute Xprint you need a correctly initialized database, so you will have to call this command before you first start-up Xprint on the relevant machine.

Since DBinstall may, without notification, erase an existing database it should be used with care.

Two possibilities exist, which determine the processing:

- either, the host is the first to be initialized in an administration domain or is to operate alone with a local license,
- or, the host is being integrated into an existing Xprint domain, where at least one host already has Xprint running.

In the first case, a virgin database is created from scratch. This virgin database contains the definition of the local host with the user root as Xprint administrator. In the second case, the database is imported from the current master host of the domain.

DBinstall supports three modes of operation:

-i

interactive mode - questions are written to stdout and answers are read from stdin to determine the appropriate method of processing and the associated options

-h hostname

specifies the name of a host where Xprint is running. The identification of the current master is retrieved from this host, and the database is then imported from that master. Note that the host where DBinstall is called must first be defined in the imported database (for example with `xpadd -hos` on another host of the domain), or DBinstall will abort with an error message.

-f

indicates a first installation, meaning that a new virgin database is created from scratch.

Options

-I

specifies that DBinstall must create the database object representing the local host with the long domain name rather than only the node name (for example `sharon.osl.be` instead of `sharon`)

-o os_type

□

corresponds to the `-os` option of the `xpadd -hos` command described on page ...

Files

`/var/spool/Xprint/config/DB/*.idx` □

`/var/spool/Xprint/config/DB/*.dat`

Xprint database files

See also

`xpadd -hos`

3.3.2 xpdeactivate - Forcing the state NOT_ACTIVE

This command is for system administrators' use only.

Format

xpdeactivate -dev device_name
xpdeactivate -gtw gateway_name
xpdeactivate -hos host_name
xpdeactivate -spv supervisor_name
xpdeactivate -srv server_name

Description

In some circumstances you will not be able to deactivate Xprint objects using the xpchange command. For example, a host executing a Xprint server, supervisor and device has crashed. The computer cannot be rebooted, and you wish to delete the device, the supervisor, the server and the host from the Xprint domain. You cannot delete the objects because they are still considered as ACTIVE by Xprint. As the crashed computer cannot be reached on the network, the xpchange commands fail. In such extreme situations, the command xpdeactivate can be called to force a state NOT_ACTIVE in the database. Be aware that xpdeactivate does not replace xpchange: xpdeactivate only changes the state information of the objects in the database, it does not try to actually deactivate them. For this reason, you should only apply deactivate when you are sure that the concerned entity is really not active (when the related processes really do no longer exist).

As it might lead to inconsistent situations, the use of xpdeactivate should be reserved for exceptional circumstances.

-dev
for a device
-gtw
for a gateway
-hos
for a host
-spv
for a supervisor
-srv
for a server

See also

xpchange

4 Files

This chapter describes the structure of the configuration files for specific Xprint objects which can be created by the users themselves, and how these can be used in Xprint. These are the following configuration files:

- Backend programs (see below)
- Filter programs (starting on ...)
- Map tables (starting on ...)
- PCL definitions (starting on ...)
- Recovery rules files (starting on ...)
- Loadable resources (starting on ...)

This chapter describes how these individual files are created, modified and, if necessary, integrated in the Xprint system, and how the corresponding Xprint objects can be created.

4.1 Backend programs

The process of printing is controlled by a backend using the appropriate printer's PCL to provide printer details. Xprint provides a general-purpose backend but additional specific backends can be defined by the administrator and incorporated into the Xprint system. The section explains the conventions for writing backends.

A backend is added to the system by including its name and location in the appropriate printer's PCL. The `itfpr` and `itfpo` fields are provided for this purpose (see also [Section "PCL definitions"](#)). As the backend actually controls the printer, it must interface with both the supervisor and the printer.

Backend programs must perform the following tasks:

- The backend initializes the printer port and the printer. It sets the printer with any specified job options, such as the typeface and style.
- It ensures that start, end, and separator sheets are printed if required.
- It makes sure that the requested number of copies of the document are printed.
- It interprets status messages returned by the printer and passes them on to the supervisor in a defined form.
- It interprets specific signals sent from the supervisor to the backend to enable the user to interact with the active print job (e.g. to delete or suspend the job).

For this printer-specific information the backend refers to the PCL assigned to the printer.

Communication between supervisor and backend

The backend can be invoked with any of the parameters/options which can be passed to a filter. The same rules as for filter options are used (see [Section "Filter programs"](#)).

The `itfpr` and `itfpo` capabilities of the PCL object refer to the path of the backend to be activated and its expected parameters respectively. When `itfpo` is defined, the parameters which the backend is to accept when it is called (see example below) must also be specified.

The stdout of the backend is assigned to the printer.

Backends should be able to trap the following signals which the supervisor can send to the backend:

- `SIG_DEL`, defined as `SIGUSR1`: interrupt active job and delete it.
- `SIG_CHG`, defined as `SIGUSR2`: interrupt active job and put it in the `SUSPEND` state.
- `SIG_SF`: stop after the first page.
- `SIG_NP`: respond to an active job - stop after first page or manual paper feed.

As `SIG_SF` and `SIG_NP` are machine-dependent, symbolic names are given to them and they are defined in `xprint.h`.

The supervisor ensures that the correct files remain with the appropriate print job. It passes the call

parameters defined in itfpo of the PCL to the backend. Remote files are imported and renamed with a standard prefix string, defined in spv_be.h, and a suffix corresponding to its number in the list of jobs. Defined prefixes are:

```
#define MAP_FIL "@map" : imported map table
#define TMP_FIL "@temp_" : imported documents
#define DOWN_FIL "@down_" : imported downloadable files.
```

Therefore, any file having one of the above prefixes is an imported file. In this case, the original name is lost. Otherwise, the file is local.

The supervisor recognizes the following backend exit codes:

- 0: normal termination
- 1: the job has been deleted
- 2: the job has been suspended
- 3: the backend is unable to handle the job and the supervisor must, therefore, put the job in the SUSPEND state
- 4: an unrecoverable printer error has been detected and the printer should be set to NOT_ACTIVE. The job should be assigned the state ☐ INTERRUPTED so that it will be the first to be rescheduled when the printer is set ACTIVE again.

Example of a simple backend program

The following is a sample shell script which accepts these parameters:

- the name of the user who submitted the job
- the job title
- the job identifier
- the number of lines per inch, characters per inch and the style (italics or straight) to be used for printing each document
- a list of files to print
- a list of documents to print. These are the original names given by the user when the print request was submitted.

```
# $1 : user name
# $2 : job title
# $3 : job identifier
# $4 : vm option
# $5 : hm option
# $6 : style
# $7 : list of files
# $8 : list of documents
# The PCL using this script must have the itfpr and itfpo
# capabilities set as follows:
# itfpr=<script_name>,
# itfpo="LOGIN *=""TITLE *=""JOB_ID *=""
# "V_MOTION *=""H_MOTION *=""STYLE *=""
# "FIL_REF *=""DOC_REF *=",
trap 'echo "\014job deleted\014";exit 1'30
trap 'echo "\014job suspended\014";exit 2'31
trap 'echo "\014";exit 2' 1 2
```

```

RESET="\eE\e&k2G"
LPI_6="\e&l8C"
LPI_8="\e&l6C"
LPI_12="\e&l4C"
CPI_10="\e&k12H"
CPI_12="\e&k10H"
CPI_15="\e&k8H"
ITALICS="\e(s1S"
STRAIGHT="\e(s0S"
#
# Reset
#
echo -n $RESET
#
# header page
#
echo "*****"
echo "*****"
echo "*****"
echo "*****"
echo ""
echo ""
echo ""
banner $1
echo ""
echo ""
echo ""
echo "Title : $2"
echo "Date : 'date'"
echo "\014"
#
# print each document
#
jobid=$3; lpi=$4; cpi=$5; style=$6
j=0
for i in $7
do
case $lpi in
6) echo -n $LPI_6;;
8) echo -n $LPI_8;;
12) echo -n $LPI_12;;
esac
case $cpi in
10) echo -n $CPI_10;;
12) echo -n $CPI_12;;
15) echo -n $CPI_15;;
esac
case $style in
ITALICS) echo -n $ITALICS;;
STRAIGHT) echo -n $STRAIGHT;;
esac
cat $i
echo "\014"
j='expr $j + 1'

```

```

done
#
# trailer
#
j=`expr $j - 1`
k=0
for i in $8
do
if [$k -eq $j]
then
echo "File : $i"
break
fi
k=`expr $k + 1`
done
echo "Job identifier : $jobid"
echo "\014"
exit 0

```

The script prints a simple start sheet, the list of files and an end sheet. It is written for an HP-LaserJet printer.

4.2 Filter programs

Xprint is provided with comprehensive facilities for ensuring that a wide range of printers and data types can be supported. This support is based on filters. Xprint is supplied with the filters `bsd`, `vp` and `vpvpost` which in parts have completely different functions. If other printers or data types are to be supported as well, the Xprint functionality can be enhanced by defining special filters. This section describes the procedure and conventions for writing your own filters.

Two types of filter can be used with Xprint, *slow* and *fast* filters. `vp` and `vpvpost` are slow filters. They simply convert data into a form acceptable to the target printer. `bsd` is a fast filter which simulates a printer for Xprint, but which actually sends data via the network to an `lpd` spooler, e.g. on a BSD system.

4.2.1 Slow filters

Slow filters constitute a kind of black box in Xprint, with their most important characteristics being the input content type, the output content type and, if appropriate, a number of attributes which implement print modes.

Input and output content types are the most important filter attributes. They allow Xprint to automatically select a filter when a special data type needs to be converted. As these attributes are known in Xprint (when the filter is added to the Xprint database), Xprint can use them to convert the data. The following example illustrates this Xprint function:

Let us assume that a program generates print output of data type A and a printer is to print this output. If the printer only accepts data of type C, however, the data of type A can only be printed after a conversion to data type C. Therefore, Xprint needs a program which converts data from type A to C.

This is the function of filters. If there is a filter which accepts the data type A and outputs the data in type C, this filter can be used directly. If there is no such filter available, Xprint checks whether it can combine the available filters such that a conversion from A to C is made possible. If there is, for example a filter converting the data type A to B and another filter converting type B to C, Xprint combines these two filters for a conversion from A to C. This so-called *filter cascade* can also comprise more than two levels.

The print mode attributes of filters additionally allow Xprint to use filters to implement print modes not provided by default.

An example is printing in columns. The `xpadd -job` command does not provide an option for printing in two or more columns. You can define a filter, however, which provides exactly this function. Then, when you add the filter to the Xprint system, you tell Xprint that the filter recognizes the option `-columns n`. If a user then specifies this option when submitting a print job, Xprint automatically calls the filter which supports this option.

Xprint itself does not "know" what the filter actually does with this option and only uses the result.

At the end of this section on ... there is an example of a filter printing in several columns.

Another example is a program that converts PostScript print output as a public domain program: the program `mpage`. The program `mpage` allows the output of PostScript data in a smaller format, so that two, four or more pages of the document can be printed on one sheet. This program can also be easily incorporated in Xprint as a filter.

If required, Xprint can also combine several filters for special print modes.

Slow filters can convert data only, implement special print modes only, or they can do both at the same time. There are no restrictions.

Slow filters are always used when a job is submitted; until the job has been processed by the last required filter, it has the status `DATA_FILTERING`. When all the options of the `xpadd -job` command are processed and the data type is adjusted for the printer, the print job is set to the status `WAIT`.

4.2.2 Fast filters

Fast filters enhance the functionality of the Xprint backend. Their standard input is the data from the backend and they pass it on to the printer via standard output. All print options specified when the print job was printed in, have already been processed. The fast filter only needs to send the data to the printer. Thus they are particularly suitable for printers with unusual connection types.

Support for new printer types, however, should not be provided via fast filters; it should come from defining the printer attributes via a PCL object.

Unlike slow filters, fast filters are directly assigned to a specific printer. They are invoked as soon as data is sent from the backend to the printer.

4.2.3 User-written filters

When defining your own filters, you must observe several rules. These differ depending on whether you write a fast or a slow filter.

Slow filters

- Slow filters must read from `stdin` and write their results to `stdout` in order to be used as elements in a cascade.
- They must return an exit code which is interpreted by Xprint as follows:
 - 0
 - the filter was terminated normally and could perform its tasks.
 - !=0
 - the filter detected an error. In this case, the print job is not processed and the user is notified of the problem via mail.
- As slow filters are invoked by the spooler, they run under the user ID of the user who submitted the print job. Therefore, they can only access those resources which are available to the users of the filter. Generally, filters which access other files should be invoked by the users before they submit the print job.
- All users must have permission to run the filter. In the case of shell programs they must also have read permission.
- Slow filters should not be interruptible by signals as they run as background processes and should not be interrupted.
- A slow filter should observe that the backend does not have any information on the data processed by the filter. Therefore, filters should not perform any functions of the type usually provided by the backend (e.g. page selection or printing start sheets). Otherwise these tasks might be performed twice.

Fast filters

- Fast filters always run under the user ID `root`.
- Both owner and group must be set to `bin`.

- The access rights must be set to 550.
- As soon as a fast filter is terminated, Xprint considers the job as completed.
- Fast filters cannot be elements of cascades; however, a fast filter can call a filter cascade itself (if this should be required in any form).
- Fast filters read their data from stdin. The input is a non-structured stream of data. In particular, it is not possible to differentiate the data generated by the backend from the data from the documents to be printed.
- As the backend no longer has a direct connection with the printer when a fast filter is used, it deactivates the handshaking and any form of flow control. A fast filter must perform these functions itself if necessary.
- Error messages can be output as text via stderr. They must end with a line feed (LF) and should not exceed one line. Then these error messages can be used by the xpstat command.
- Any form of error recovery must be performed by the fast filter itself. The only exception is handling open() errors for the printer when a job is spooled in and when spoolout is activated, provided the printer was defined with a *kept connection*. This is particularly important for LAN printers.
- Recovery rules are not applied by the backend.
- As soon as the backend receives an error message from the fast filter, any sending of data is interrupted until the error is recovered. To send this state to the backend, an empty message must be sent to the backend via stdout. An empty message consists only of the zero byte (\0) or a single line feed (LF).
- The data flow between the backend and the fast filter can be controlled by means of the messages BE_GREEN and BE_RED which are sent by the fast filter via stderr. BE_RED (\001) interrupts the output of data from the backend until a BE_GREEN (\002) is sent. As a backend only polls messages after each page is output, a fast filter should be able to read a considerably large amount of data.
- As soon as a backend has sent all data to the fast filter, it closes its standard output, with an EOF (end of file) being sent to the fast filter. Then the backend waits for the fast filter to close standard error, which means that the filter has terminated.
- When a fast filter terminates after sending an error to the backend without first sending an empty message to report error recovery, the print job is set to the status SUSPEND.
- Fast filters should be able to process the following signals:

Signal	Meaning
SIG_USR1	delete job
SIG_USR2	suspend job
SIGTERM	terminate filter immediately
SIGPIPE	backend terminated

Table 19: Signals for fast filters

4.2.4 Filter location in the file system

The filter executables may be placed anywhere in the file structure, enabling the definition of private filters. For simplicity of administration, however, the directory `/var/spool/Xprint/config/filters` is reserved for filters. If a filter is defined on several hosts, it must have the same path name on all machines.

4.2.5 Filter options

When a filter is added to the Xprint database with the `xpadd -flt` command, the *options* attribute can be used to describe how options are passed to the specified filter. Information for building these options should originate from the user command line, and from the current context (such as the input data type). The mechanism is powerful and works with regular expressions (see the examples at the end of this section). The options attribute of a filter definition contains strings of the form:

`context_keyword match_pattern=replacement`

Each string generates an option for calling the filter when the conditions it describes are met.

There is only one blank between the context keyword and the match pattern. There are no blanks before and after the equals sign (=). If the equals sign is used within the match pattern, it must be escaped (prefixed with the \ character).

The *context_keyword* denotes what must be taken into account for the option generation. The context keyword must be chosen from the list shown in the table below. Each keyword identifies contextual characteristics to be matched by *match_pattern* when the option is generated.

The *match_pattern* identifies when the option must be generated. It can be a value identifier, an asterisk or a regular expression. If the *match_pattern* matches the actual values extracted by means of the *context_keyword*, the option is generated. If it does not, no option is passed to the filter.

The *replacement* describes how the option must be passed to the filter. It can be derived from the actual values hidden behind *context_keyword*, by using the facilities of the regular expressions (& and the constructions \[, \) and \n). *replacement* can also contain an asterisk, which is replaced by the entire *match_pattern*. (It is thus equivalent to &.)

Therefore, if the *vp* filter is used as an example, the entry for the *-op* option in the *xpadd -flt* command would be:

`context_keyword match_pattern=replacement`
`OUTPUT E-9001=-T9001`

The match pattern E-9001 is the data type for the 9001 printer and would be specified by the user with the *xpadd -job -ct E-9001* command. If this match pattern is found after *-ct*, the filter is called with option *-T9001*. *-T9001* is an option of the *vp* filter which activates the conversion from the data type E-9001 to the required format.

Users can specify filters which provide special printing modes as well as data conversion. They can ascertain what filters are available and what they do from the *xpshow -flt* command. It is, therefore, important that you use the comment fields provided to indicate what the filter does when adding a new filter to the system.

The following table presents the allowed context-dependent keywords, the characteristics they represent, the option of the command *xpadd -job* they are extracted from, and the semantics of the valid match patterns.

Context keyword	Characteristic	xpadd -job option	Match pattern
INPUT	input content type	contextual	content type
OUTPUT	output content type	contextual	content type
MODES	special print modes	-sm	special print mode
DOC_REF	document reference	-dr	list of file names
FIL_REF	file reference	contextual	list of full file names
PAGES	pages to be printed	-ps	page selection list
FROM_S	from string	-fr	initial string
TO_S	to string	-to	end string
PRINTER	printer name	contextual	device name
DESTINATION	destination	-de	dev. or dev. group name

pcl	printer pcl	contextual	pcl name
FORM	form	-fm	form name
JOB_START	start sheet	-js	BRIEF, FULL or NONE
JOB_END	end sheet	-je	BRIEF, FULL or NONE
JOB_SEPAR	separator sheet	-sp	BRIEF, FULL or NONE
LAYUP	layup specification	-ls	PORTRAIT or LANDSCAPE
LEFT_MARGIN	left margin	-lm	scaled value
TOP_MARGIN	top margin	-tm	scaled value
L_LENGTH	line length	-ll	scaled value
P_LENGTH	page length	-pl	scaled value
P_HEIGHT	page height	(form)	scaled value
P_WIDTH	page width	(form)	scaled value
FONT	font	-ft	font name
QUALITY	print quality	-pq	DRAFT, NORMAL or HIGH
STYLE	character style	-cs	STRAIGHT or ITALICS
TYPEFACE	typeface	-tp	typeface name
V_MOTION	vertical motion	-vm	integer
H_MOTION	horizontal motion	-hm	integer
LANGUAGE	language	-la	language name
F_COPIES	file copy count	-fc	integer
P_COPIES	page copy count	-pc	integer
TITLE	job title	-jt	job title
SECURITY	security level	-sl	UNCLASSIFIED, SENSITIVE, CONFIDENTIAL, SECRET or TOP_SECRET
PRIORITY	job priority	-pr	integer
FORM_FEED	automatic form feed	-ff	keywords in upper case
WRAP_MODE	wrap mode	-wm	NONE, CUT or WRAP
TAB_WIDTH	tabulation width	-tw	integer
HOPPER	hopper number	-hn	integer
LOAD_FILE	loaded file names	-ld	loaded file

			names
MAP_TABLE	map table	-mt	map table file name
COMMENT	job comment	-jc	job comment string
SIDES	sides	-sd	SINGLE, DOUBLE_WIDE or DOUBLE_NARROW
RAW_MODE	raw mode asked	-rw	YES or NO
SERVER	server part of global job identifier	contextual	server name
JOB_ID	numeric part of global job identifier	contextual	integer
LOGIN	user's login name	contextual	user name
LRS_NAME	loadable resource	-lr	resource names
STTY	stty option list	(printer)	string for stty command

Table 20: List of contextual keywords and match patterns

Examples

- A user submits a job with the special mode `-sm express`. The slow filter which supports this mode is activated with the `-x` option. The description for this option is:
MODES express=-x
- A filter is activated with `-f form_name`. The description for this option is:
FORM *=-f *
- A filter is activated with the line spacing specified in inches using the option `-lpii`:
V_MOTION \(.*\)i=-lp_{ii} \1
or with the line spacing specified in centimeters using the option `-lpic`:
V_MOTION \(.*\)c=-lp_{ic} \1
Another possible solution is:
V_MOTION \(.*\)([ci])=-lp\2 \1
- A filter is required to support magnification of the printed text by a variable factor. In this case, the filter should be called with the option `-mX`, where X is the magnification factor between, say, 1 and 9. The filter can be defined with the option:
MODES bigger=\([1-9]\)=-m\1
The same functionality can be obtained by using the `xpadd -job` command with the option `-sm"bigger=3"` for a magnification factor of 3, for example.

4.2.6 Example of a slow filter

The following example shows a simple filter, allowing multi-column printing:

```
#!/bin/sh
# Name : multicol.sh
```

```

# Parameter(s)
# $1  : CPI (characters per inch)
# $2  : LPI (lines per inch)
# $3  : layup specification (PORTRAIT / LANDSCAPE)
# $4  : -c
# $5  : number of columns
# Function
# This slow filter can be used in order to produce multi column
# output. It expects the job to be printed with LANDSCAPE 17
# cpi and 8 lpi. The filter aborts when one of these conditions
# is not fulfilled.
# Processing
# - check that we are in the appropriate conditions
# - wrap mode is supported by means of the fold tool
# - lets pr do the work
# Configuration
config=/var/spool/Xprint/config
# Let us assume the script located in the $config/filters
# directory under the name multicol.sh.
# It can be defined as follows :
# >>>> xpadd -flt multicol -tp SLOW -cm multicol.sh \
#       -op "H_MOTION *=" \
#       "V_MOTION *=" \
#       "LAYUP *=" \
#       "MODES col=-c" \
#       "COMMENT \(.*)nc=\([1-9]\)\(.*)=\2"
# Jobs can take profit of the provided functionality :
# >>>> xpadd -sm multicol -jc "... nc=# ..."
#   where # stands for the number of columns (normally 2)
#   with the following form/font options
#   -ls LANDSCAPE -vm8 -hm17
# Exit
# 1 invalid form / font settings
#   failure returned by fold / pr
# 0 success
# Used variables
# =====
# FOLD : name of utility to be used
# cpi  : cpi used by job
# lpi  : lpi used by job
# ls   : layup specification used by job
# coln : number of columns
# colw : column width (number of characters)
# linw : total line width (number of characters)
# pl   : total page length (number of lines)
# rc   : exit of fold | pr
# dbgfil : debug file
# debugging staff
# =====
# dbgfil=$config/multicol.dbg
if [ ! -z "$dbgfil" ]
then
> $dbgfil
fi

```

```

debug() {
if [ ! -z "$dbgfil" ]
then
echo "$1" >> $dbgfil
fi
}
# collect parameters
# =====
cpi=$1
lpi=$2
ls=$3
coln=$5
case `uname -s` in
"SINIX-H") FOLD="/usr/ucb/fold";;
*) FOLD="fold";;
esac
# Check we are in the right conditions
# =====
if [ "$cpi" -ne 17 ]
then
debug "invalid cpi : $cpi"
exit 1
fi
if [ "$lpi" -ne 8 ]
then
debug "invalid lpi : $lpi"
exit 1
fi
if [ "$ls" != "LANDSCAPE" ]
then
debug "invalid orientation : $ls"
exit 1
fi
if [ "$coln" -eq 0 ]
then
debug "invalid number of columns : $coln"
exit 1
fi
#
# Use as default the most suitable values that should be used
# for -hm17 -vm8 -lsLANDSCAPE on A4 paper
# e.g for 2 column : $FOLD -92 | pr -2 -w188 -l58 -t
#
colw=`expr 184 / $coln`
linw=188
pl=58
debug "$FOLD - $colw | pr - $coln -w$linw -l$pl -t"
$FOLD - $colw | pr - $coln -w$linw -l$pl -t
rc=$?
exit $rc

```

4.3 Map tables

Map tables are used, for instance, to emulate the ISO-8859-1 character set on printers which do not support it.

Map tables allow the conversion of any character in a document to another character or string. This conversion is effected by the backend when the document is being printed.

Example

The French special character ç (*cedilla*) can be represented in various ways:

- directly as a character with the hexadecimal value 0xE7 if the printer supports the ISO-8859-1 character set
- by a combination of characters, in this case the c, followed by a backspace and the comma ,
- by selecting a different printer character set, e.g the French character set, and output of the character in the new code (example: ESC (1F 0x5C)
- on some printers characters with codes greater than 0x7F can be addressed with the *shift in shift out* functions.

4.3.1 Syntax of a map table

Each line in a map table corresponds to an entry, i.e. a map rule for a character. A map table consists of a maximum of 256 entries, i.e. a map can be defined for any character in a character set.



A table with the standard character set ISO 8859-1 is contained in the appendix on

The basic form of a map table consists of 256 lines, each of which represents a character of the character set ISO 8859-1 Latin 1. Each line contains one of the following three elements:

- a character sequence

Defines what is to replace the character. This sequence can consist of the following elements:

- normal characters (e.g. abc)
- special characters preceded by a backslash (e.g. \b for *Backspace*, \e for *ESC*, \n for *Newline* etc.)
- numbers indicating the value of a character, which can be in decimal (129), octal (0201 or \201) or hexadecimal notation (0x81)
- the character *, which restores the current character set if the character set is changed. * must be specified as the first character of the sequence (e.g.: *\e(1F\x5C. This sequence changes to the French character set, uses the character 0x5C there and then changes back to the original character set)

- the character =

this is used to define that the current character is to be used unaltered.

- the character -

this character defines that the current character is to be omitted, i.e. not sent to the printer.

It is not necessary, however, to define a map for all characters if most of them remain unaltered. To make them shorter, entries of = and - can be specified with a numeric value which defines up to which character this entry is to be valid. The entry is then valid from the current character up to the character with the specified value. A typical example of this is the entry =0x7F as the first entry in a map table. This defines that all characters with the values 0x0 through 0x7F remain unaltered. The next entry in the map table then refers to the character with the code 0x80.

Finally, the last entries of a map table can be omitted, which corresponds to a specification of -0xFF, i.e. all entries from the current character up to the character with the value 0xFF are filtered out.

4.3.2 Restrictions

Standard control characters such as LF, FF etc. cannot be modified with a map table. These control characters must be converted with special attributes of the PCL object. Therefore, entries for the standard control characters are ignored. Any value in which a character has to be mapped, is considered as one printable character.

4.3.3 Example

The following map table defines a conversion of the 8-bit uppercase letters to the corresponding 7-bit uppercase letters.

Map table entry	Meaning
=0xBF	All 7-bit characters and the characters through 0xBF are not converted
A	À (0xC0) maps to A
A	Á (0xC1) maps to A
A	Â (0xC2) maps to A
A	Ã (0xC3) maps to A
A	Ä (0xC4) maps to A
A	Å (0xC5) maps to A
A	Æ (0xC6) maps to A
C	Ç (0xC7) maps to C
E	È (0xC8) maps to E
E	É (0xC9) maps to E
E	Ê (0xCA) maps to E
E	Ë (0xCB) maps to E
I	Ì (0xCC) maps to I
I	Í (0xCD) maps to I
I	Î (0xCE) maps to I
I	Ï (0xCF) maps to I
D	(0xD0) maps to D
N	Ñ (0xD1) maps to N
O	Ò (0xD2) maps to O
O	Ó (0xD3) maps to O
O	Ô (0xD4) maps to O
O	Õ (0xD5) maps to O
O	Ö (0xD6) maps to O
X	(0xD7) maps to X
0	Ø (0xD8) maps to O
U	Ù (0xD9) maps to U
U	Ú (0xDA) maps to U
U	Û (0xDB) maps to U
U	Ü (0xDC) maps to U
Y	(0xDD) maps to YAs no other entry follows, all the other characters (starting with 0xDE) are omitted in the printout

Table 21: Conversion of uppercase letters

4.4 PCL definitions

Xprint supports a large number of different printer types whose capabilities and options are all defined via a PCL (*printer capability list*).

The PCL for the printers which Xprint supports by default are defined in the `/var/spool/Xprint/config/PCL/xpterm` file.

4.4.1 The structure of a PCL

Each PCL definition consists of a header identifying the PCL and a list of capabilities for that particular printer type.

The PCL header must start in column 1 in the first line and contains a unique identifier of the PCL.

The printer capability list consists of one or more entries, each of which defines a capability of the printer. These lines must have the following structure:

- at least one space by which the capability must be indented
- an identifier for the capability
- a separator specifying the type of capability (Boolean, numeric or a character string)
- a value for the capability
- a comma delimiting the entry

In addition, comments can be specified which must start in the first column of the first line with a `#` character.

4.4.2 Printer capabilities

There are three types of capabilities:

1. Boolean values
2. Numeric values
3. Character strings

Boolean values

These specify that a printer type has or does not have a particular feature. Boolean values are specified simply by their comma-separated capability name. If a printer has a capability, the capability name is specified, otherwise nothing, for example:

```
mix
```

Pattern matching is case-sensitive.

Numeric values

These quantify particular capabilities or functions of a printer. Numeric values are followed by the `#` character and a positive integer. Values for numerical capabilities may be specified in decimal, octal or hexadecimal notation, for example:

```
bufsz#4096
```

The printer has an internal buffer of 4 kilobytes.

Character strings

These provide sequences that can be used to perform particular operations on printers. They consist of the capability name, the equals sign, a string causing the printer to activate the corresponding attribute or to perform an action, e.g.:

```
sitm=\e(s1S,
```

The string `\e(s1S` causes an HP-LaserJet printer to set the style *Italics* which is specified by its capability name `sitm`.

Characters may be given as constant string as in the example or as parameterized strings. Parameterized strings contain expressions with *printf*-like escapes beginning with a percentage sign (`%x`). They are often used if various values are possible for an attribute or an action, e.g. for the character pitch (here: 10, 12 and

15 cpi):

```

cpi=?p1%{10}%=%\t\es10H.%e
p1%{12}%=%\t\es12H.%e
p1%{15}%=%\t\es15H.%e;

```

Terminfo syntax

Parameterized strings use the terminfo syntax. This syntax uses three elements:

- simple characters which are used exactly as specified,
- Special characters with special meanings:

Special character	Meaning
\e or \E	ESC
^X	The key combination [Ctrl] [X] for any character <i>X</i>
\n	Newline (NL)
\l	Linefeed (LF)
\r	Return (CR)
\t	Tabulator (TAB)
\b	Backspace (BS)
\f	Formfeed (FF)
\s	Space
\0	Null (NUL)

Table 22: Special characters

- Parameter specifications which all start with the % character.

The parameter mechanism uses a stack and special % codes to manipulate it in the manner of a reverse Polish notation (postfix) calculator. Typically a sequence will push one of the parameters onto the stack and then print it in some format. Often more complex operations are necessary. Binary operations are in postfix form with the operands in the usual order, i.e. to get x minus 5 ($x-5$) one would use `%gx%{5}%-`.

The % codes have the following meanings:

%%

output of the printable character %

%[[:] options] [width [. precision]][doxXs]

as in printf(); options are [-+#] and space.

%c

print element on stack as ASCII character c

%p[1-9]

push ith [1-9] parameter

%P[a-z]

get top element from stack and set it to the dynamic variable [a-z]

%g[a-z]

get dynamic variable [a-z] and push it

%P[A-Z]

get top element from stack and set it to the static variable [A-Z]

%g[A-Z]

get static variable [A-Z] and push it

`%'c'`
 push char constant *c*
`%{nn}`
 push decimal constant *nn*
`%l`
 get top element from stack and put length of string on stack
`%+ %- %* %/ %m`
 arithmetic (%*m* is mod): ☐
 [push(pop() op pop())]
`%& %| %^`
 bit operations: [push(pop() op pop())]
`%= %> %<`
 logical operations: [push(pop() op pop())]
`%A %O`
 logical operations: AND, OR
`%! %~`
 unary operations: push(op pop)
`%? expr %t thenpart %e elsepart %;`
 if-then-else, %*e* *elsepart* is optional; else-ifs are possible as in Algol 68: ☐
`%? condition1 %t text 1 %e c2 %t b2 %e c3 %t b3 %e c4 %t b4 %e b5 %;` ☐
c_i are conditions, *b_i* bodies

Furthermore, there are the following Xprint-specific extras to the terminfo syntax:

`%"s"`
 push string constant "*s*"
`%@ expr %D thenpart %L`
 do-while, as long as condition *expr* is true, *thenpart* is used

If the option "-" is used with %[doxXs], then a colon (:) must be placed between the % and the "-" to differentiate the option from the binary operator %-, e.g.:

`%:-16.16s`

Example

The attribute *lpi* (lines per inch) for the HP-LaserJet printer is to serve as an example. The corresponding attribute of the PCL is:

`lpi=\e&l%{48}%p1%/ %dC,`

The calculation of the expression for eight lines/inch would read as follows: The leading characters `\e&l` are first used unaltered. Then the numerical value 48 is pushed on the stack (`%{48}`) and then the value of the first parameter (`%p1`, here 8). The values are divided (`%/`) and then the result is output (`%d`). Finally the character *C* is again incorporated in the result string unaltered, so that the result is the string `\e&6C`.

4.4.3 Supported capabilities

The following table lists all supported capabilities. Those compatible with terminfo are registered in italics. @1 represents the alphanumeric ☐ parameter 1. #1 represents the numeric parameter 1.

Capability name	Type	Description
bodoc	S	Beginning of document sequence
bolin	S	Beginning of line sequence

<i>bolrs</i>	S	Beginning of resource
<i>bopag</i>	S	Beginning of page sequence
<i>boprt</i>	S	Beginning of print sequence
<i>bs</i>	S	Backspace
<i>bufsz</i>	N	Number of bytes buffered before printing
<i>cancel</i>	S	Cancel the job
<i>cpi</i>	S	Change number of characters per inch to #1
<i>cps</i>	N	Printing rate
<i>cr</i>	S	Carriage return
<i>ctlsq</i>	S	Control sequence
<i>eodoc</i>	S	End of document sequence
<i>eolin</i>	S	End of line sequence
<i>eolrs</i>	S	End of resource
<i>eopag</i>	S	End of page sequence
<i>eoprt</i>	S	End of print sequence
<i>etx</i>	B	ETX protocol supported
<i>fastf</i>	S	Fast filter
<i>feedb</i>	S	Printer feedbacks
<i>flinl</i>	S	Position of the first line after form feed (listing paper only)
<i>ff</i>	S	Form feed
<i>gclrs</i>	S	Call resource for global use
<i>hndsh</i>	S	Handshaking sequence
<i>hopr</i>	S	Select hopper#1
<i>hrdcp</i>	S	Select #1 hardware copies
<i>ht</i>	S	Horizontal tab
<i>itfpo</i>	S	Interface program options
<i>itfpr</i>	S	Interface program options (backend)
<i>lclrs</i>	S	Call resource for local use
<i>leftm</i>	S	Left margin control sequence of value #1
<i>leftu</i>	N	Left margin unit
<i>lf</i>	S	Line feed
<i>lpi</i>	S	Change number of lines per inch to #1
<i>maptb</i>	S	Map table to be used
<i>mem</i>	N	Amount of memory
<i>mix</i>	B	Mixing of lower and upper cases in sequences
<i>nppl</i>	S	Maximum non-printable line length
<i>nppl</i>	S	Maximum non-printable page length

opthr	S	Hierarchy of options
pbob	S	Beginning of block
pbod	S	Beginning of document
pbol	S	Beginning of line
pboj	S	Beginning of job
pbop	S	Beginning of page
peob	S	End of block
peod	S	End of document
peol	S	End of line
peoj	S	End of job
peop	S	End of page
rcpi	N	Value of "character per inch" after reset
ritm	S	Disable italics
rlpi	N	Value of "lines per inch" after reset
rmlrs	S	Remove resource
sdrfq	S	Set draft quality
sfrml	S	Physical page length of a form
sfrmu	S	Physical page length unit
sides	B	Enable double-sided printing
sitm	S	Enable italics
slnd	S	Set landscape mode
smbst	S	Select symbol set @1
snlq	S	Set near letter quality
snrmq	S	Set normal quality print
sprt	S	Set portrait mode
stareq	S	Status request sequence
status	S	Printer feedback
tabs	S	Tab stops on every multiple of #2 until limit #1
tohnd	N	Type of handshaking
topm	S	Top margin sequence of value #1
topu	N	Top margin unit
typfc	S	Select resident typeface @1

Table 23: Supported capabilities

The default values are:

- false for Boolean values (B)
- 0 for numerical values (N)
- "" (empty string) for string capabilities (S).

The only exceptions are:

itfpr:

when no interface program (backend) is specified, Xprint uses
/var/spool/Xprint/config/backends/xpbackend.

itfpo:

when no interface program options are specified, Xprint generates "JOB_ID *==* 0 "PCL *==*".

Resets, special initializations and terminations

The capabilities boprt, bodoc, bopag, bolin and their corresponding capabilities eoprt, eodoc, eopag and eolin do not accept parameters. boprt will be sent at the beginning of each print job to reset the printer. bodoc will be sent at the beginning of each file to be printed, for example to reset temporary printer settings. Each page will start with bopag, for example to invoke a page-specific overlay, and each line will start with the bolin sequence which might be necessary for symmetrical reasons.

Correspondingly, eoprt, eodoc, eopag and eolin resets are sent at the end of a print job, a file, a page or a line, respectively.

Xprint's special sheets (start, separator and end sheet) are printed with the printer's default settings.

It is possible on some printers to cancel the current print job. cancel contains the sequence understood by the printer for this purpose.

Reset Capabilities

The following reset capabilities are also supported:

pboj

This parameterized string capability is used at the beginning of each job. It accepts one parameter: polling enabled (1) or disabled (2).

pbod

A job may consist of several documents, or several copies of the same document. Some resets may be needed at the beginning of each document to cancel temporary settings. This parameterized string capability is used at the beginning of each document. It accepts one parameter: polling enabled (1) or disabled (2).

pbop

A specific reset can be sent at the beginning of each page. This expression does not take parameters but can use static variables. See the PCL description on

pbol

A specific reset can be sent at the beginning of each line. This expression does not take parameters but can use static variables. See the PCL description on

pbob

Some printers expect data to be sent in blocks. A specific reset can be sent at the beginning of each block. This expression does not take parameters but can use static variables. See the PCL description on

Conversely, the peoj, peod, peop, peol and peob resets are sent at the end of each job, document, page, line and block respectively.

Loadable Resources

A loadable resource consists of data that can be stored in the memory of a printer and used afterwards by documents printed on the device. Several resources can be downloaded to a printer. This requires that the data has an identifier. Other attributes may also be assigned to resources, depending on the type of resource and also the printer emulation. The data to be downloaded to the printer consists of three parts: a header, the resource itself and a trailer.

bolrs

□

This parameterized string capability is used while encapsulating the resource data. It accepts three string parameters: the type of resource, the internal identifier, and whether they are *temporary* or *permanent*. The printing system will compute the set of supported types of resources from this capability.

No loadable resources can be used on printers when this capability is omitted in the printer PCL. This capability will be used just before sending the *pure* resource data.

eolrs

□

This parameterized string capability is used while encapsulating the resource data. It accepts three string parameters: the type of resource, the internal identifier, and whether they are *temporary* or *permanent*. This capability will be used just after the pure data is sent.

rmlrs

□

This parameterized string capability specifies how to remove a resource from the printer. Two string parameters are expected: the type of resource and its identifier.

gclrs

□

This parameterized string capability specifies how to call a resource located in the printer. Two string parameters are expected: the type of resource and its identifier. Once called, the resource remains active until the printer is reset.

lclrs

□

This parameterized string capability specifies how to call a resource located in the printer. Two string parameters are expected: the type of resource and its identifier. The resource is only active for the current page.

mem

□

This numerical capability specifies the amount of memory available by default.

config

□

This string capability specifies the printer command to be used in order to collect the hardware configuration of the printer.

dconf

□

This parameterized string capability specifies how to decrypt printer feedback to the config capability.

Downloading resources

Here is how capabilities are used when downloading resources:

```

for every resource to be downloaded
if there is no space enough in the printer
then
remove the less used resource (rmlrs <id>)
fi
if encapsulation is needed
then
send bolrs <type>, <id>,<PERMANENT/TEMPORARY>
send resource data
send eolrs <type> ,<id>
else
send resource data
fi
done

```

Calling resources

The following processing is considered at the top of each page:

```

for every used resource

```



```

if call_resource has to be considered (xpadd -lrs -cr)
then
if resource to be applied on ALL pages and
the glrs capability is available
then
if this is the first page
then
send gclrs <type>, <id>
fi
else
if resource to be applied on ALL pages or
resource to be applied on first page and
this is the first page
then
send lclrs <type>, <id>
fi
fi
fi
done

```

Carriage motion

The following capabilities are available to control carriage motion: cr (carriage return), lf (line feed), ff (form feed), bs (backspace) and ht (horizontal tab).

If bs is omitted, a carriage return character is generated and the line is overwritten with spaces until the print head is at the previous position.

Some printers either do not support ht or assume the existence of tab stops, so that every ht will jump to the next tab stop. Tab stops can be set at every multiple of a given value with the tab sequence. If ht is not included in the PCL definition, the tab character is emulated by spaces. The number of spaces required to reach the next tab stop is calculated; by default, tab stops are set every eight characters. This value, can be modified with the -tw option of the xpadd -job command.

If the attributes cr, ff and lf are omitted, the corresponding characters are treated as values.

flinl specifies the position of the first line after a form feed is performed on listing paper.

The following steps illustrate the process of paper motion and special character sequences.

Step 1: Header

```

if NOT (raw modus) OR ((raw modus) AND (header requested))
then send "boprt" fi
if (job -ff BEFORE) then send "ff" sequence

```

Step 2: Start sheet

```

if (frm -js) /* START SHEET*/
<start_sheet>
send "ff" sequence
fi

```

Step 3a: First document

```

if NOT (raw mode)
then send "bodoc" sequence if any

```

Page 1

```

if NOT (raw mode)
if ("bopag" sequence)
then send it
else top margin if any

```

```

fi
start line 1:
if NOT (raw mode)
if ("bolin" sequence)
then send it
else left margin if any
fi
line 1 contents
line 1 end:
if NOT (raw mode)
if ("eolin" sequence)
then send it
else send "lf" sequence
fi
Line 2 ...
if NOT (raw mode)
if ("eopag" sequence) then send it else send "ff" sequence
fi
Page 2 ...
if NOT (raw mode)
if NOT (page boundary)
if NOT (line boundary)
then send "lf" sequence
if NOT (job -ff BETWEEN (or AFTER for last document))
and NOT (job -ff NONE) then send "ff" sequence
fi
fi
if NOT raw mode OR (raw mode AND (separator sheet requested))
then send "eodoc" fi
Step 3b: Next document
if (job -ff BETWEEN) then send "ff" sequence
if (frm -sp) /* SEPARATOR SHEET*/
<separator_sheet>
send "ff" sequence
fi
DOCUMENT 2 ...../* as step 3a */
Step 4
if (job -ff AFTER) then send "ff" sequence
if NOT (raw mode) OR (raw mode AND (end sheet requested))
then send "eopr" fi
Step 5
if (frm -je) /* END SHEET*/
<end_sheet>
send "ff" sequence
fi

```

The <start_sheet>, <separator_sheet> and <end_sheet> are each a sequence of lines, each line being suffixed with the lf sequence.

Please bear in mind that the printer reset sequences bo... and eo... are sent in transparent mode, i.e. without analysis of their contents. Therefore Xprint is not aware of page or cursor motion caused by these sequences.

The bopr and eopr sequences are sent systematically, even in raw mode.

Print quality

Many dot-matrix printers can alter dot density to produce different qualities of print. The possibilities are (in decreasing level of quality): near letter quality, print quality and draft. These can be selected respectively with `snlq`, `snrmq` and `sdrfq` (`xpadd -job -pq`).

Print density

The strings `cpi` (`xpadd -job -vm`) and `lpi` (`xpadd -job -hm`) are used with a single numeric parameter which selects respectively the number of characters and lines per inch.

Selecting font characteristics

Several characteristics can be used to identify a font. The orientation defines the position of the logical page and direction of print with respect to the physical page. The `sprt` and `slnd` capabilities can be used to switch to portrait (`sprt` for PORTRAIT) or landscape (`slnd` for LANDSCAPE) mode (`xpadd -job -ls`).

A symbol set is the unique ordering of characters in the font. Symbol sets are usually native language dependent. The `smbst` capability accepts a single string identifying the symbol set (`xpadd -job -la`).

In the standard PCLs provided with Xprint, this capability is given a list of standard names, e.g. ASCII, Danish-2. However, the administrator can change these names arbitrarily. They only serve to identify the correct control sequence to send to the printer.

If one of the values created by the `smbst` capability starts with the `@` character, it is considered to be a map table name (ignoring the `@` character). Xprint searches for this map table in the `/var/spool/Xprint/config/MAPS` directory. This name can be followed by the name of the default character set, separated by a blank. This is the set which is selected again during processing of the map table, after character substitution if the substitution string has altered the character set selection. See the description of `maptb` under [Special processing](#) for details on topics including file retrieval, hierarchy and character set selection.

The font style is defined by the shape of the character and the `typeface` identifies symbols having common design features. The italic style can be enabled with `sitm` and disabled with `ritm` (`xpadd -job -cs`). The `typfc` capability, for setting the typeface, accepts a single string parameter identifying the typeface (`xpadd -job -tp`).

The standard names can be changed by the administrator as for the symbol set.

The `opthr` string capability is the hierarchy of the characteristics to be used when selecting a font. Characteristics can be chosen from the following keywords:

- orientation
- symbol
- spacing
- style
- typeface

Page control

Many printers offer paper feed from several paper hoppers. Also, pages can be automatically duplicated. The `hopr` capability is used with a single parameter which identifies the hopper to be used (`xpadd -job -hn`); `obin` is used to specify the output tray (`xpadd -job -ob`). The `hrdcp` capability, also used with a single parameter, is used to select the requested number of copies per page (option `-hc`). `sides` indicates whether the printer allows double-sided printing (`xpadd -job -sd`). Possible values are 1 for single-sided, 2 for double-sided wide and 3 for double-sided narrow.

Values after reset

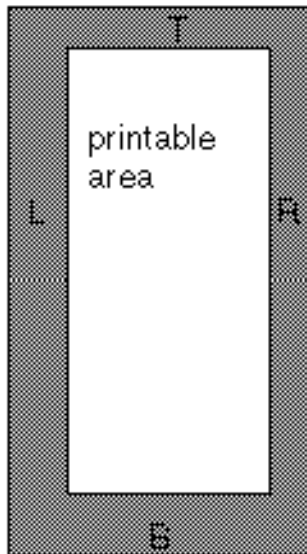
`rcpi` and `rlpi` give the number of characters and lines per inch, respectively, used by the printer after a reset. If no value is specified, the defaults of 10 cpi and 6 lpi, respectively, apply. These options are particularly useful if special settings are used for start sheets and the following pages are to be printed with the default values.

Printable area

The length of the physical page (`xpadd -frm -ph`) and the width (`xpadd -frm -pw`) are specified with `sfrml`, the top margin (`xpadd -frm -tm`) and the left margin (`xpadd -frm -lm`) as a character sequence (numeric values +

measurement unit, e.g. 1i for 1 inch). Margin settings only make sense within the printable area, i.e. within the logical page. The following units of measurement are supported: inch (i), millimeter (m) and column (no character as this is the default).

The nppl and npll capabilities specify the maximum size of the non-printable area (length or width respectively) on a physical page (xpadd -frm -pl and -ll). These capabilities can be specified in inches (i), millimeters (m) and columns (no character as this is the default).



The following applies to the gray margin:

T non-printable top margin

B non-printable bottom margin

L non-printable left margin

R non-printable right margin

The capabilities nppl and npll are calculated as follows:

$np11 = L + R$

$nppl = T + B$

Figure 5: Printable area

The printable area corresponds to the physical form size minus the non-printable area (nppl/np11).

The capability flinl (see section "[Carriage motion](#)") specifies, for listing paper, the location of the first line after a form feed.

topm and leftm describe the sequences for setting the top and left margins, respectively, specified in the form (xpadd -frm -tm and -lm). If these are not specified, the margins are set using successive line feeds and/or blanks. The topu and leftu capabilities describe the unit in which the values are expressed in these sequences - l for line, c for column and i for inch.

Listing paper may have different-sized non-printable areas. Here also, the units inches (i), millimeters (m) and columns (no character as this is the default) are possible. The printable length is equal to the physical length, except after a form feed where the print head moves to the location specified in the PCL (flinl):

if ll is not specified then ll = pw - np11

if pl is not specified

if listing paper and (after FF) then pl = ph - flinl

if listing paper and not (after FF) then pl = ph

if not listing paper then pl = ph - nppl

fi

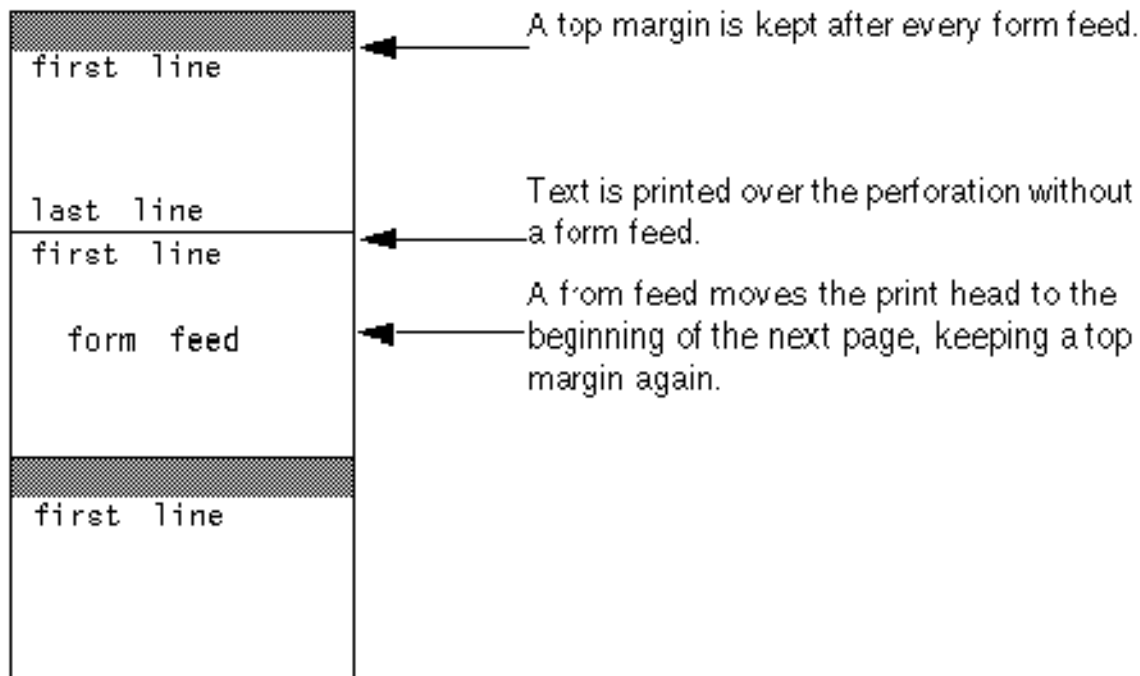


Figure 6: Non-printable areas on listing paper

Handshaking and status reporting

On some printers it is possible to specify handshaking, i.e. the printer is asked to send an echo when printing is completed. `hndsh` describes the control sequence to be sent for this. `tohnd` defines the type (moment) of handshaking (p for handshaking at end of page, d for end of document and j for end of job). The echo sequence to be received from the printer must be the first one described in `feedb`; therefore the status entry must be "OK" (described in the next paragraph).

The control sequence to obtain the printer status (feedback) is saved in `stareq`.



If `hndsh` and `stareq` are not specified, polling (`xpadd -dev -ep`) is not possible.

The `feedb` string capability is a list of comma-separated pairs (the commas are escaped by the % character). Each pair comprises a possible feedback string and the resulting error. In the string, a period (.) stands for any character, while an asterisk (*) means repetition of the previous character. For example, period asterisk (.*) stands for any sequence of characters.

As soon as Xprint finds a matching sequence, it stops searching in the feedback sequences; so it is important to take care over the order in which the possible sequences are given.

Xprint recognizes the following errors:

TonerEmpty
Parity
PaperEnd
PaperSize
PowerOff
CoverOpen
PaperJam
NoTray
OutputTray
InvalidData
Panel
Stop

Unknown

OK

The following is a sample return from feedb (Siemens printer 9001-31):

```
feedb=
\el.*c           %,PowerOff      %,
\ep....;....;1.*;\el\    %,TonerEmpty    %,
\ep....;....;4.*;\el\    %,Parity      %,
\ep....;....;2.*;\el\    %,PaperEnd     %,
\ep....;....;2.*;\el\    %,Stop        %,
\ep....;....;6.*;\el\    %,Stop        %,
\ep....;....;....;\el\    %,OK          %,
,
```

Feedback should be in lower case.

Status

There is also the status capability which has been introduced in Xprint V6.0, which supersedes feedb. Status offers more functionality, but feedb will be maintained for compatibility with previous versions of Xprint.

Modern printers can have error messages that contain more than one item of information. So that this information can be used, status has the ability to store expressions, whereas feedb can only store constants. For example, status can store a PaperEnd message *and* the page number of the last page printed, if this information is in the printer message.

Printing rate and buffer size

The application can synchronize itself with the printer using an ETX/ACK protocol, if the `etx` attribute is set; otherwise it uses the printer status.

Two numeric capabilities can help an application estimate what has been printed. `cps` (characters per second) is the print speed of the printer. This attribute is only relevant for synchronizing printers attached to a serial port and supporting the XON/XOFF protocol only. `bufsz` specifies the size of the printer buffer. If no value is specified, Xprint uses a value of 1 kilobyte for the buffer size.

Special processing

`itfpr` identifies the backend that is to control the printer. Programs can be specified either with an absolute path name or a relative one, in which case `.../backends` is used as the default directory. Programs to be run **must** be available on **all** systems under the specified name:

`itfpr=prnprocess`

The program `prnprocess` must be available on all systems in the directory `/var/spool/Xprint/config/backends`.

If no interface program (backend) is specified, Xprint uses as its default value the name `.../backends/xpbackend`.

`maptb` specifies a map table to be applied when printing. The same rules apply for file retrieval except that `.../maps` will be used as the default directory. Detailed information on map tables is contained in the [Section "Map tables"](#).

No validation of the map table is made for performance reasons.

A map table can thus be specified in three different ways but only one is taken into account. The hierarchy is as follows:

1. The selected value of `smbst` if its name starts with `@`.
2. The map table parameter of the `xpadd -job` command.
3. The `maptb` capability.

`itfpo` identifies the options to be passed to the backend (`xpadd -flt -op`). The value must be a sequence consisting of two strings separated by a space, each of which is enclosed in double quotes. The default is `"JOB *=" "DBG *="`: it passes the job ID and a debugging level to the backend.

Processing is exactly the same as for filters. For more details see the table in the appendix on filters.

The more information a printer system has about a printer, the better the service it can provide. Fast filters can be used as printer-type dedicated programs, providing better control of the printer than a standard interface backend.

The `fastf` capability specifies the fast filter to be run with the interface backend. This filter is then used for all printers for which the PCL in question applies. The specified fast filter must be available on all systems under the specified name. The default directory for relative naming is `.../filters/`.

Printer-specific control sequences

Documents not only consist of print data and the five standard control characters but they often contain escape sequences. All escape sequences supported by a printer are combined in a capability.

The `mix` capability indicates whether both lower and upper case may be used as required in the printer-specific control sequences. In this case, the printer-specific sequences should be written upper case in `ctlsq`.

`ctlsq` describes these sequences and what to do when they occur. The advantages of `ctlsq` are:

- To print data containing complex printer-specific sequences without switching to raw mode.
- To enable page tracking, i.e. keeping trace of the chosen attributes if the corresponding sequences are part of pages not to be printed.
- To take into account the encountered printer-specific sequences when the print page is set up.

It is, of course, possible not to specify `ctlsq` or to specify only a part of the printer-specific sequences. The advantage of this is improved performance.

The information is output in four columns per sequence. Each column is separated by a comma escaped by percentage sign (`%`, as usual with PCL definitions). The contents of these columns are as follows:

1. The description of the sequence itself. This column is used to decode the printer-specific sequences embedded in the user's data. The backend can then recognize the sequence itself and find the location of the first data byte after this sequence.

The control sequences are decoded as follows:

`%%`

% as a literal

`%c`

one character

`%[n]d`

a control sequence of maximum `[n]` digits

`%[n]<del>s`

□

a string of maximum `[n]` characters, ending with the `<del>` character. If `<del>` is the character `d`, it must be escaped by a backslash in order to distinguish the string from a sequence of digits. It is recommended that you specify a value for `[n]` to avoid an infinite loop if no matching occurs.

`%[n]{exp%}`

□

`exp` repeated maximum `[n]` times.

If `[n]` is not specified, the number of digits/repetitions is unlimited.

2. The name of the backend routine. Such a routine is used to adjust the positioning if it could be disturbed by the printer-specific sequence. For instance, if the backend encounters a printer-specific sequence that instructs the device to print in 3 lpi instead of 6 lpi, it must recompute the number of still free lines before a page skip occurs. Alternatively, this column may be left empty.
3. An option indicating whether this sequence must be recorded in order to be sent later. For example, a user has requested a file to print from page 3. In the data on page 1 there are two printer-specific sequences, one requesting italic printing and another requesting the current page to be printed in landscape. The first sequence also applies to page 3, while the second one only applies to page 1. The first sequence must

therefore be sent to the printer just before starting to print page 3, not the second one.

boldface on <i>italics on</i> <u>underlined on</u> <u>boldface off</u>	<i>italics off</i> boldface on <u>underlined off</u> <i>italics on</i>	Text must look as follows: boldface and italics
1	2	3

Figure 7: Printer-specific sequences

However, if for example there is a sequence for setting boldface mode and another one resetting it on page 1, only the second sequence must be sent to the printer. Thus Xprint need only record the last occurrence of these two sequences. For this reason the two sequences are described contiguously and the same memory area is used to record the sequence that occurred.

There are three possible values for this option:

Y

record sequence to send it later.

N

do not record it.

=

record sequence in the same memory area as the preceding entry.

4. A parameter for the routine given in column 2. Different sequences can perform the same function but in different units. For example, vertical motion (line spacing) in number of lines or in number of inches. Of course, only one routine (column 2) is referenced by these various sequences and thus the different values must be converted into a common unit before being passed to this function. Column 4 describes how to convert the resulting value into a common unit.

Some sequences process the [n] number of the subsequent bytes (for example, raster graphic sequences). If it is not indicated in the sequence itself, the routine must find out where these bytes stop. This information is given in this column. It can be either a number of bytes or another printer-specific sequence indicating the end of these bytes.

The syntax used for this column must be the general syntax used in the PCL to describe an expression. As with column 2, this column may also be empty.

The sequences that have been recorded are sent to the printer in the order in which they are described in `ctlsq`. The most frequent escape sequences should be at the beginning of the `ctlsq` capability, as the backend searches it from top to bottom.

The following is a list of backend routines and their meanings. In the comments, `p1`, `p2...` are parameters which are part of the native sequences, while `param` is a parameter given to the routine in column 4.

```
# define SFRML  0  /* set form length          */
/* p1 = length in 1/6 inch          */
# define RFRML  1  /* reset form length          */
# define SLPI   2  /* set lpi                    */
```



```

/* param = lines per inch          */
# define RLPI   3  /* reset lpi          */
# define PLD    4  /* partial line down          */
# define PLU    5  /* partial line up           */
# define SDW   10  /* set double width          */
# define RDW   11  /* reset double width         */
# define SDH   12  /* set double height          */
# define RDH   13  /* reset double height        */
# define EESC   14  /* enable escape             */
# define DESC   15  /* disable escape            */
# define SCPI   19  /* set cpi                   */
/* param = lines per inch          */
# define SKP    23  /* skip bytes                */
/* param = number of bytes         */
# define SUBST   24  /* substitute                 */
/* param = substitution character  */
# define RLF    30  /* reverse line feed         */
# define NESUN   31  /* nested UNTIL              */
/* raw data until param            */
/* param = "until" sequence        */
# define SHIFT_I /* access to 8-bit char with */
/* 7-bit-encoded bytes            */
# define SHIFT_O /* access to 8-bit char with */
/* 7-bit-encoded bytes            */
# define NOFRM   /* disable backend form control */
# define RNOFRM  /* enable backend form control  */

```

4.5 Recovery rules files

In Xprint a standard is defined for the automatic handling of printer errors. If this standard is no longer to apply, a number of recovery rules can be specified.

For example, the default printer action for "PaperEnd" in Xprint is to retry continuously until the paper has been replenished. You can, however, use a recovery rule to define a different behavior, e.g. that the job should be suspended and the printer set to NOT_ACTIVE until an administrator intervenes.

The recovery rules must be defined in a source file. In Xprint the rules must be entered using the `xpadd -rec` or `xpmmod -rec` command. The name of the source file must be specified in the command line (otherwise the rules will be read from stdin). When the command is issued, the source file is automatically compiled and added to the Xprint database. If an error occurs during compilation, the command is rejected. The error messages are described in the [Chapter "Commands"](#).

Recovery rules can be assigned to one or more printers.

Format

The syntax for lines containing recovery rules is:

— Comment lines

which begin with the # character, can be included in the file.

— Rule lines

Rule lines define the action of a recovery rule. They must have the following format:

identifier:[maximum_time]:[generated_code]:action:

Some fields may be omitted (maximum_time and generated_code) but not the separating colons.

identifier

□

This field identifies the rule line. If the state defined by the identifier matches, the rule line is applied. It

can either contain a printer error code (see below) or the generated code of another rule line.

The following printer error codes are possible:

Error code	Description:
TonerEmpty	Toner is empty (response to a status request)
Parity	Parity error occurred during transmission (response to a status request)
PaperEnd	Out of paper (response to a status request)
Stop	Printer in stop state (response to a status request)
PowerOff	Power has been switched off (response to a status request or SIGPIPE signal in the case of LAN printers)
CoverOpen	Printer cover is open (response to a status request)
PaperJam	A paper jam has occurred (response to a status request)
NoAck	The ETX from the backend is not answered by an ACK from the printer
Hangup	read() or write() error (with E_IO)
InvalidData	Printer does not support the data received
PaperSize	The input tray is not loaded with the requested paper type
OutputTray	Output tray overflow
NoTray	Input tray missing or not mounted
Panel	The type of error is displayed on the printer's panel
Unknown	Xprint is unable to understand the printer's feedback

Table 24: Printer error codes for recovery rules

As a special case the * character can be specified as an identifier in the last rule line of a recovery rules file. This covers all printer states not taken account of by the other rule lines.

maximum_time

☐

This field must be used in conjunction with the generated_code. It defines (in seconds) when the value specified in the generated_code field is to be used as the new state and the corresponding rule is applied. Thus it can be used to define a period of time during which the error can be eliminated before another action is taken.

generated_code

☐

This field defines a new state which can itself be used as the identifier for another rule line. This allows rule lines to be combined to form complex action sequences which are additionally controlled via the maximum_time field. generated_code must be specified in conjunction with the maximum_time field. The value of this field is optional.

action

☐

This field defines an action to be taken. Only one action can be specified. Xprint supports the following actions:

Action	Description:
Ignore	ignore error
Retry	repeat printer status polling until READY is returned
Respool	reprint last document completely
Restart	restart with last printed page
Stop	set the device to NOT_ACTIVE and the job to INTERRUPTED
Suspend	suspend the active job

Table 25: Standard actions for recovery rules

The section **Default actions** describes which actions Xprint takes for the different printer states by default if no recovery rules are defined.

Example

The following example shows the structure of a simple recovery rule:

```
#Key           : Time           : Exception      : Action        :
Stop           : 600            : Printer_Stop   : Retry         :
Printer_Stop    :           :                : Stop          :
```

In this example, the first rule line is applied if the printer has been stopped (by pressing the STOP/PAUSE key). In this case the action Retry is taken, i.e. the printer status is checked again until the printer sends a READY signal. If the printer is not ready after 600 seconds, the rule for Printer_Stop is applied.

The rule for Printer_Stop sets the printer to NOT_ACTIVE and stops the current print job (i.e. sets it to the INTERRUPTED state).

Default actions

Error	Default action
TonerEmpty	Retry
Parity	Ignore
PaperEnd	Retry
Stop	Retry
PowerOff	Restart
CoverOpen	Retry
PaperJam	Retry
InvalidData	Suspend
PaperSize	Retry
OutputTray	Retry
NoTray	Retry
Panel	Retry
Unknown	Suspend

Table 26: Default actions for printer errors

4.6 Loadable resources

Documents are becoming more complex, and they use an increasing number of features in their presentation. For instance, a document may use a number of different fonts.

A document can have a number of different 'layers'. Its contents will be in the front (or foreground) layer. Background layers may be common to all pages and can contain information such as headers, footers, text boxes etc. Background layers are also called 'overlays'.

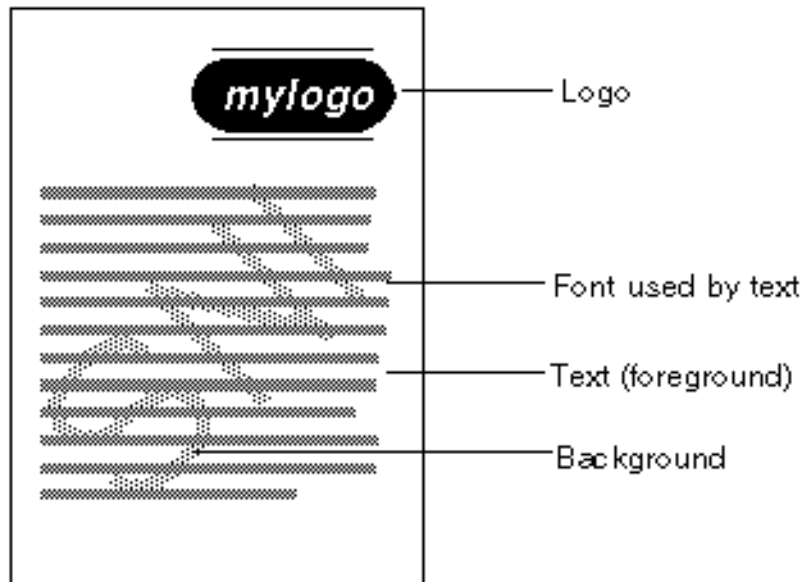


Figure 8: Document layers

Many word processors produce documents that are ready for printing. The definitions of fonts, logos, overlays etc. which are used by the document, belong to the document itself. These documents have the advantage that they can be printed 'as is' on any compatible printer. However, there are some drawbacks:

- The data defining fonts, logos, overlays etc. will be sent to the printer for *each job* that uses them.
- Difficulties may arise when partially printing the document (page selection with `xpadd -job -ps -fr`) as the fonts, overlays etc. may not be sent to the printer.
- Difficulties may also arise when recovery is needed after printer failure, as a printer failure may delete the fonts and overlays etc. from the printer's memory.

The fonts, overlays etc. are collectively referred to as 'loadable resources'. We can separate the resources from a document. The document and resources can then be sent to the printer separately. Provided they are downloaded correctly, the necessary resources will be present in the printer's memory when the document arrives. The document then has to call these resources in order to print correctly.

The advantage is, that if you are printing a number of similar documents, the resources only need to be sent once. It also has the advantage that you can print selected pages, and you have a greater chance of recovering from a printer failure.

Downloading and monitoring the resources is controlled by the resource manager, which is explained later in this chapter.

4.6.1 Creating a loadable resource

A loadable resource has three parts: the resource header, a data section which we will refer to as 'pure resource data', and the resource trailer. The header and trailer are to ensure that the resource is downloaded to the printer correctly. 'Pure resource data' contains the logo, font details etc.

Resources should be created with dedicated tools such as Sieforms, FGL or Siefont (which are available from

SNI). If a resource is not too complicated, it can be created 'manually', but you should try to avoid this as it can turn out to be a lot of hard work!

The resource data, once downloaded to the printer, will only have an effect on the printout when it is *called*. Every loadable resource must have an identifier so that it can be called by a document in the printer. This identifier is called the *internal printer identifier*.

The resource may still not be ready for use. You may have to encapsulate it so that it is defined correctly in the printer. This means adding a *header* and a *trailer* to the 'pure resource data'. The 'type of resource' and 'internal printer identifier' are the kinds of parameter that are necessary for this process. See the following figure.

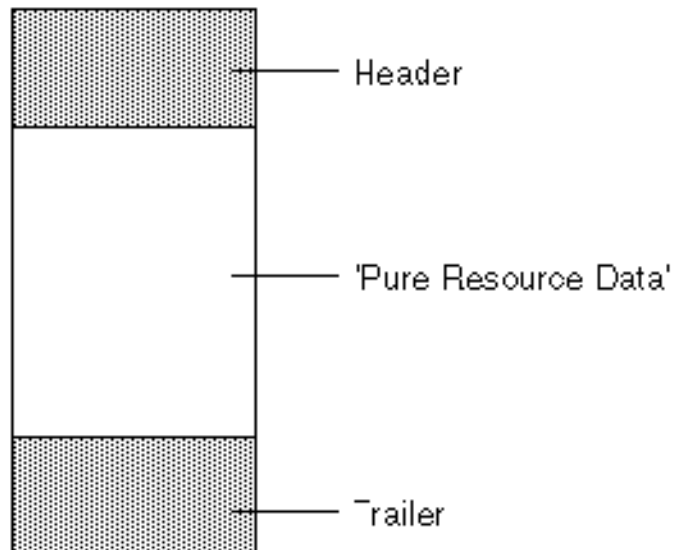


Figure 9: Parts of loadable resource

See also [Section "xpad -lrs - Adding a loadable resource"](#).

4.6.2 Example of a loadable resource

The following example will give a filled rectangle containing the text "Xprint" which will appear at the top right of the page. It could, for example, be used as a simple logo.

```
ESC *p1800x050Y   Move to X, Y (1800/300 = 6i ...)
ESC *c320a150B    L = , H =
ESC *c3G          select type of pattern
ESC *c2P          Fill rectangle
ESC *p1850x180Y   Move to X, Y
ESC (8U          Select Roman-8
ESC (s1p5s0b4148T Select spacing, style, typeface
ESC (s42VX        Select height, print X
ESC (s36Vp        Select height, print p
ESC (s30Vr...
ESC (s24Vi
ESC (s18Vn
ESC (s12Vt
```

This is what the logo looks like:

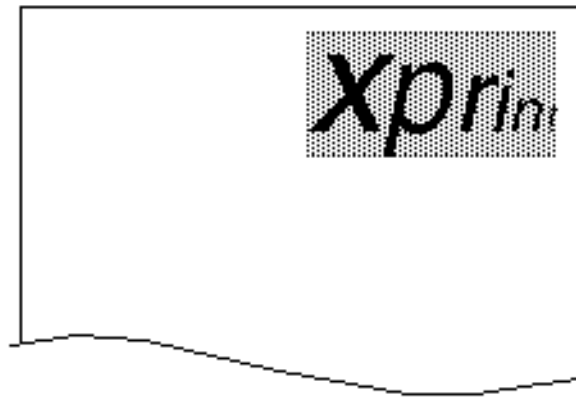


Figure 10: Example of loadable resource

If you create the file shown above and give it the name "sample", you can add it to the system using the following command:

```
xpadd -lrs sample -fi sample -pc HP-LASERJET -ec -tp Overlay
-pi36
```

The command `xpadd -lrs sample` creates an `lrs` object in the Xprint database called "sample". The following option, `-fi sample`, means that the file containing this object will be `/var/spool/Xprint/config/resources/sample`.

The option `-ec` requests encapsulation, which means that a header and trailer has to be added when downloading the contents of `/var/spool/Xprint/config/resources/sample`. The encapsulation notifies the printer that the resource is an overlay (`-tp Overlay`) and is identified within the printer by the number "36" (`-pi36`).

4.6.3 Calling resources

Any document that needs a resource applied to it must make an explicit call to the resource. This can only be done with commands supported by the printer. Documents printed on the HP Laserjet printer can call the 'Xprint logo' resource defined in the previous section by inserting the following command in the document:

`ESC & f 36 y 3 X`, which calls the resource identified by "36". This command must be inserted on each page *exactly* where the resource is required.

Calls can also be inserted by the spooler system. As this is automatic, calls can only be inserted at specific places in the document. Calling a resource does not necessarily cancel the effect of previously called resources. In the same way, the effect of a resource does not necessarily stop at the end of a page. For instance, a soft font called on the first page will remain active until another font is called.

4.6.4 Using resources

Any job that needs resources, has to identify the resources used by the job. The `-lr` option is used for this purpose. For example:

```
xpadd -dr mydocument -lr sample -cr ALL
```

The spooler system will print "mydocument" and insert a call to the resource "sample" at the beginning of each page.

4.6.5 Public and private resources

Loadable resource objects created in the Xprint database are public resources. This can only be done by an administrator. Users can create their own loadable resource objects in a file called `.Xprint` located in their home directory. The following syntax has to be observed:

- All lines starting with '#' are considered as comments.
- Blank lines are ignored.

- Any line defining a resource must start with the resource identifier followed by a set of options available under `xpadd -lrs`. Remember that identifiers apply to the entire `.Xprint` file and are independent of the type of object. The downloadable file must be located on the host where the user is logged on and must be accessible to the user.
- The `-ah`, `-ca` and `-cu` options will be ignored as they are meaningless for user loadable resources.

Private loadable resources are used by means of the `xpadd -job -lr` option. For public job templates however, the `-lr` option references only public loadable resources (that is, those defined in the database with `xpadd -lrs`). Public resources are created using the command `xpadd -lrs`. The file has to exist on the host where the `lrs` object is created, and the file name will be saved in the Xprint database. Remember that the database is duplicated on each host in the Xprint domain.

Public resources are available to all users, but only administrators have the privileges to create them. Public resources are downloaded when first requested, provided the resource manager is enabled (see [Section "Resource manager" on ...](#)). Otherwise, they will be downloaded at the beginning of each job that requests them.

All users can create private resources, which are for their own personal use only. Private resources are downloaded at the beginning of the job that requests them. They cannot be used when printing in a remote domain.

Only public loadable resources belonging to the destination domain are available for inter-domain printing.

4.6.6 Temporary and permanent resources

Temporary resources are removed from the printer automatically at any printer reset escape sequence.

This assumes that the data to be downloaded to the printer defines the resource in the printer as temporary. The resource manager will emulate temporary resources when the temporary feature is not supported by the printer. The emulation consists of sending a 'delete resource' command to the printer at the end of the document.

4.6.7 Resources and license agreements

Resources may sometimes be protected by licenses. A soft font sold by a software house may, for example, only be used on the printer for which it was bought. The device list (see command `xpadd -lrs`, option `-dl` on ...) can be used in order to implement such license restrictions. The device list is only used by the resource manager.

When the device list is not empty, the resource will only be downloaded to a device if the device belongs to the list and is defined as a device object in the printing system database.

4.6.8 Resource classes

A resource can only be defined for one PCL. A class of resources should be considered as a collection of resources having the same class name attribute. Members of the same class must have the same administrator. A resource can only belong to one class.

Resource identifiers and class names may be mixed in the `xpadd -frm -lr` as in the `xpadd -job -lr` command. Class names have a higher priority than resources identifiers in case of conflict. Only resources whose PCL matches the PCL of the printer handling the job will be considered.

Let's consider a logo defined for HP Laserjet but also for Reno emulation. The file `logo.hp` contains the data to be downloaded to an HP Laserjet printer before the logo can be called. In a similar way, the file `logo.reno` has to be downloaded to a Reno printer. Two resources can be defined for this purpose:

```
xpadd -lrs logohp -fi logo.hp -pc HP-LASERJET -tp Overlay -cn mylogo
```

```
xpadd -lrs logoreno -fi logo.reno -pc RENO -tp Overlay -cn mylogo
```

Both resources will belong to the same class as `mylogo`. Jobs can afterwards be submitted as:

```
xpadd -dr mydocument -lr mylogo
```

Once a printer (either HP Laserjet or Reno) is free for handling the job, the printing system will select the appropriate resource. If the job comes out on a Reno printer, then the `logoreno` resource will be used.

The `xpadd -lrs` command is restricted to the administrators.

4.7 Resource manager

The resource manager is responsible for managing and optimizing the downloading of *all* loadable resources to *all* printers in the system. It is also responsible for importing files from the host where they were created to the supervisor where they will be printed.

This has a number of advantages for the user. It allows quicker printing as resources only need to be downloaded once, and not for every job that requires them. It allows the user to print selected pages from a document more easily and gives improved job recovery.

The resource manager keeps track of the resources in the different printers by using its own database. This means that resources need only be downloaded once and can be reused by any subsequent job that requires them. Obviously, if a job requires a resource that is not in the printer, it will need to be downloaded. This may delete a previously downloaded resource, depending on how much memory the printer has.

The following diagram shows the resource manager architecture. It is best thought of as a 'library of functions' that can be called on by applications running in the system. In practice, it is the supervisors and backend processes that call on the resource manager.

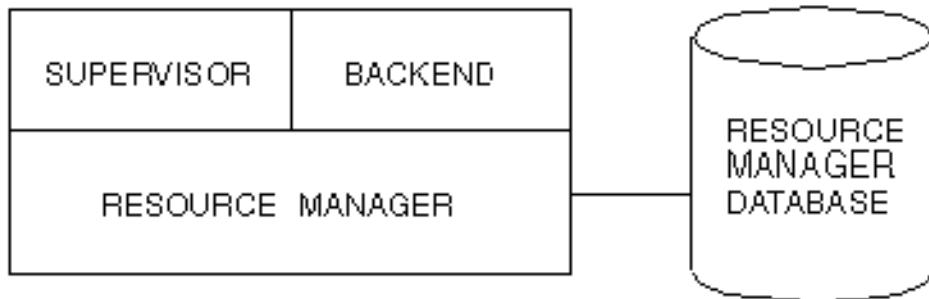


Figure 11: Resource manager architecture

Importing resources to the host where the device is defined and downloading them afterwards to the printer, are both resource manager tasks. However, this process is only optimized for *public* resources.

4.7.1 Printing with a loadable resource

The following example shows you how to create a loadable resource and how to use it when printing.

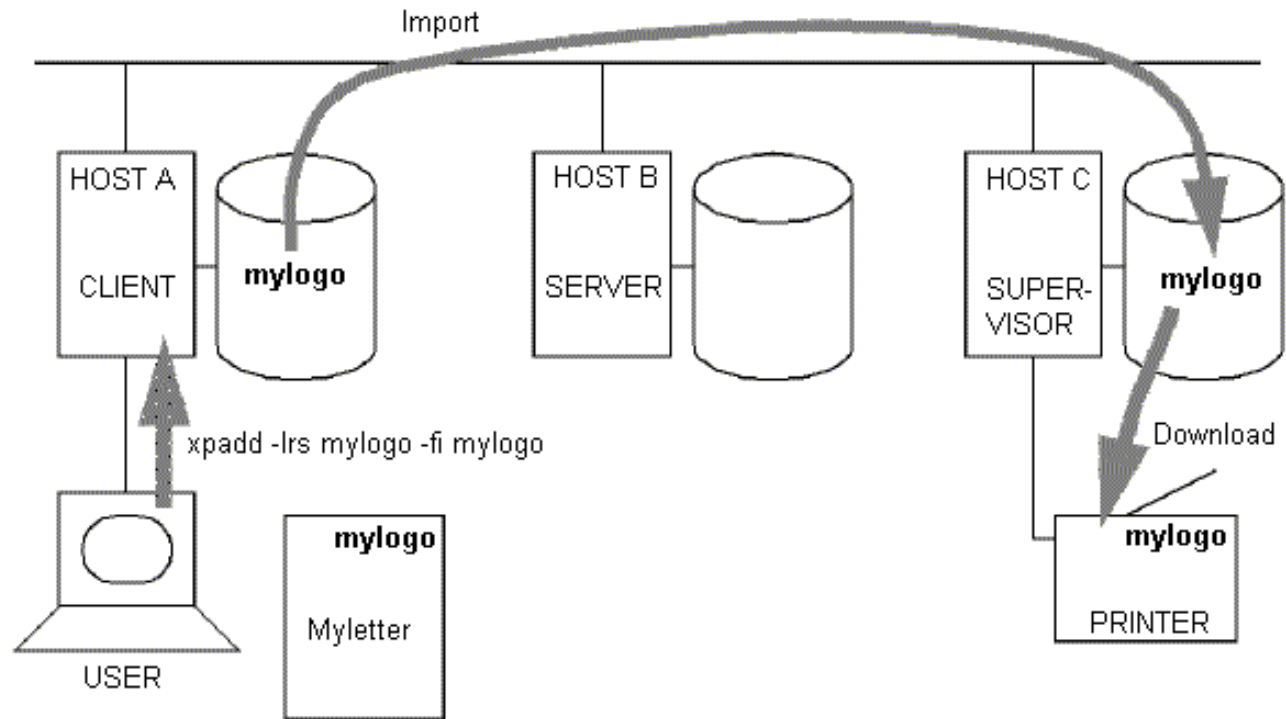


Figure 12: Creating and using loadable resources

1. An administrator on host A creates a loadable resource called "mylogo". This could be something similar to the "Xprint" example given previously.
2. He adds this to the Xprint system and makes it a public resource by using `xpadd -lrs`.
3. The file "mylogo" exists on host A. Because `xpadd -lrs` was used, the name "mylogo" appears in the Xprint database, a copy of which exists on each host. Also in the Xprint database is a pointer to host A where the file "mylogo" exists.
4. A user wants to print "myletter" which calls the loadable resource "mylogo".
5. The user submits the job using `xpadd -dr myletter -lr mylogo`. The client (host A) passes this request to the server (host B), where it is added to the job queue. Once the printer is free for printing, the supervisor that controls it (host C) asks the server for a new job. The job becomes active and is now under the control of the supervisor.
6. The supervisor process checks to see if "mylogo" is already available on the supervisor's host. If not, it asks the resource manager to import "mylogo" (from host A).
7. The supervisor imports the document "myletter" from host A.
8. The backend process asks the resource manager if "mylogo" is already downloaded to the printer. If not, the backend asks the resource manager to download "mylogo" to the printer.
9. The backend sends "myletter" to the printer. "myletter" will call "mylogo" on each page where it is needed.
10. The user then wants to print "mydocument" which also calls the loadable resource "mylogo". He submits a job with the command: `xpadd -dr mydocument -lr mylogo`.
11. As the file containing the resource data for "mylogo" is now available on host C, there is no need to import "mylogo".
12. In a similar way, as the resource was downloaded earlier, the resource manager does not need to download "mylogo" and the document can be printed 'as is'.



If the user modifies "mylogo", the resource manager will not know that there have been modifications.

Therefore you must use the `xpmod -lrs` command after you have modified a (public) resource so that the resource manager knows there is a new version available.

From the [Figure "Resource manager architecture"](#), it is clear that resources have to be imported only if they are not yet available on the host where they are needed. In a similar way, resources should only be downloaded to the printer if they are not already in the printer's memory. These operations are controlled by the resource manager.

4.7.2 Importing resources

The resource manager always imports private resources without optimization. Public resources are imported when they are first used following the startup of the supervisor. Following an `xpmod -lrs` command on a resource, it is automatically imported the next time it is used by a job (`xpadd -dr -lr`).

4.7.3 Downloading resources

Resources attached to a device are downloaded at the beginning of the first job since the enabling of its spoolout. They are downloaded before any resources used by a job. Resources are downloaded in the same order as specified in the `-lr` option. When a resource is specified more than once, only the first reference will be taken into account.

By default, the resource manager does not optimize the downloading of resources to a given printer. This feature may be tuned when defining the device. The `-me` option will enable the optimization, while `-me-` will disable it. Any device whose PCL supports loadable resources may ask for optimizing the downloading of resources.

The optimization only concerns public resources. The following rules apply:

- Resources are downloaded when they are first used. This applies to resources attached to a device and resources attached to a job.
- Loadable resources are downloaded unconditionally in the following cases (provided that a job is active on the device concerned and that the printer fault can be detected):
 - for jobs submitted in raw mode
 - after each hard printer failure.

The resource manager has its own database which allows it to keep track of the resources available on each device. This database is initialized when enabling the spoolout of the device (see command `xpadd -dev`, option `-me` on ...). It will be updated each time a permanent resource is downloaded or deleted from the printer.

Some other events will reinitialize the database:

- Disabling the spoolout of the device.
- Printer hard errors.
- Resource commands that are embedded in the user's data. Any printer command defining or deleting resources that is embedded in the user's data will automatically reset the resource manager's database.
- Any use of the `-ld` option with the `xpadd -job` command will automatically reset the resource manager's database.

The resource manager should not be enabled for a shared printer if the printer has more than one logical name (that is, it exists within Xprint as more than one logical device).

The resource manager should also not be enabled for a shared printer if the printer is shared by number of applications and one of these applications is the spooler itself.

5 Virtual printer

This chapter contains a description of the input content type for the two standard filters `vp` (virtual printer) and `vppest` (virtual printer postscript). The filter programs `vp` or `vppest` are invoked automatically if the input data type of the job to be printed matches one of these data types and if the required output data type can be generated by the filters.

`vp`

accepts input data types of E-9001 or SIMPLE and converts the data into a type suitable for a range of printers (e.g. the HP LaserJet, IBM ProPrinter and a number of Siemens Nixdorf printers).

`vppest`

□

accepts E-9001 and SIMPLE data types and converts the data into PostScript.

SIMPLE

□

is a special data type. It corresponds to the ASCII character set with the following additional control characters:

ASCII □ mnemonics	Meaning	octal	hex.
BS	Backspace	10	08
HT	Tab	11	09
LF	Line feed	12	0A
FF	Form feed	14	0C
CR	Carriage return	15	0D

Table 27:

In addition, the control characters for the printer are recognized and converted accordingly. The printer control characters can be broken down into the following groups:

- Form control
- Form transport
- Carriage control
- Typeface design
- Font and character sets
- Graphics mode
- Other functions

Unless otherwise specified, you can position control characters and control sequences anywhere in the text to take immediate effect on the printer.

5.1 Form control

The following functions are available for form control:

- Paper format (form length)
- First and last print lines
- Beginning and end of lines.

The print area is defined by specifying the beginning and the end of the lines and the first and last print lines. The print area is located between the top-of-form (TOF) position and the end of the form, which is defined by the form length.

The beginning of the form is defined by the current form position when the printer is switched on. It can also be set with a control sequence.

The beginning and end of lines can be set with the applicable control sequences. The default, after switching

on the printer, is the beginning of line in column 1 and end of line in the last column.

The first and last print lines can be set with the applicable control sequences. The default after switching on the printer is the first and last print lines defined by the form length.

The form length can be set with a control sequence. The default is 12 inches (72 lines at 6 lpi).

The top-of-form position is the beginning of the first print line. If there is no programmed print area, e.g. in the initial state, the top-of-form position is identical to the beginning of the form.

Setting the form length

Control character	ISO 7-bit
ESC [p1 p	1B 5B p1 70

The form length can be specified in 1/6 inch increments. The current line spacing does not affect the form length.

The current print line becomes the top-of-form (TOF) position. $p1$ is the form length in 1/6 inch increments. If $p1 = 0$, the FF (form feed) function is disabled. The value must be between 0 and 99.

Resetting the form length

Control character	ISO 7-bit
ESC [p	1B 5B 70

The form length is set to the default value of 12 inches. Any previously defined print area is reset.

The current form position becomes the top-of-form position.

Setting the first and last print lines

Control character	ISO 7-bit
ESC [p1 ; p2 {	1B 5B p1 3B p2 7B
ESC [p1 ; {	1B 5B p1 3B 7B
ESC [p1 {	1B 5B p1 7B
ESC [; p2 {	1B 5B 3B p2 7B

The form length must be set before the first and last print lines. The last line specification takes effect immediately. The first line specification becomes effective if the virtual printer is positioned above the programmed first line. Otherwise, it becomes effective with the next page.

LF (line feed) or line overflow in the programmed last line causes an automatic skip to the programmed first line of the next form.

The FF control character causes a form feed to the programmed first line of the next form, not to the physical first line.

With line spacings other than 6 lpi it is possible that only part of a line of text will fit in the last programmed line. In this case the text is printed in the first line of the next form.

The current line spacing and subsequent line spacing changes do not affect the location of the programmed first and last lines.

$p1$ is the location of the first print line below the beginning of the form (physical first line) in 1/6 inch increments. The value must lie within the range 1 to 99.

If only the first line is to be programmed, it is sufficient to specify ESC [p1 { or ESC [p1 ;{. The current value of $p2$ is retained.

$p2$ is the location of the last print line below the beginning of the form (physical first line) in 1/6 inch increments.

The value must lie within the range 1 to 99. $p2$ must be greater than $p1$.

If only the last line is to be programmed, it is sufficient to specify ESC [; p2 {. The current value of *p1* is retained.

Resetting the first and last print lines

Control character	ISO 7-bit
ESC [{	1B 5B 7B

After this control sequence, the first print line corresponds to the beginning of form and the last print line corresponds to the end of form defined by the form length. The control sequence takes effect after the next FF.

Setting the beginning and end of lines

Control character	ISO 7-bit
ESC [p1 ; p2 s	1B 5B p1 3B p2 73
ESC [p1 ; s	1B 5B p1 3B 73
ESC [p1 s	1B 5B p1 73
ESC [; p2 s	1B 5B 3B p2 73

The beginning and end of lines define the horizontal print range. This control sequence takes effect immediately if it is received after a CR. If it is received before a CR, the new beginning of line takes effect after the next line feed. Without programming, the beginning of line is the first physical column and the end of line is at column 80. Because the virtual printer is an emulation of the narrow page printer, landscape orientation is not supported.

Line overflow results in a skip to the beginning of the next line.

HT (horizontal tab) stops are used only if they are within the print area. If they are outside, they are stored but not used until they are within the print area again.

p1 is the location of the first print column (beginning of line) in 1/10 inch increments, counting from the first physical print column. The value must lie within the range 1 to 99.

If only the beginning of line is to be programmed, it is sufficient to specify ESC [*p1* s or ESC [*p1* ; s. The current value of *p2* is retained.

p2 is the number of the last print column (end of line) in 1/10 inch increments, counting from the first physical column. The value must lie within the range 1 to 99. *p2* must be greater than *p1*.

If only the end of line is to be programmed, it is sufficient to specify ESC [; *p2* s. The current value of *p1* is retained.

Resetting the beginning and end of lines

Control character	ISO 7-bit
ESC [s	1B 5B 73

The horizontal print area is reset to the initial state value.

The programmed beginning of line takes effect after a line feed only if the control sequence does not directly follow CR. If the carriage is to the right of the new right margin, the next print character causes a line overflow.

Beginning of line = 1st column

End of line = 80th column (in 1/10 inch increments).

5.2 Form transport functions

The virtual printer offers the following form transport functions:

- Form feed

- Line spacing
- Line feed (one or more lines)
- Half-line feed forward and reverse
- Micro-line feed

Form feed

Control character	ISO 7-bit
FF	0C

This control character causes the form to be advanced to the next top-of-form position. You can position it anywhere in the text and it is executed immediately.

In its initial state, the top-of-form position is in the first physical line. The first physical line is defined by:

- Initialization
- Form length programming.

A form feed is also performed if the last line of the current print area is exceeded by a line feed, a line overflow or several half-line feeds.

If an FF is succeeded by another FF, the second FF is ignored. The second FF is performed only if one of the following is located between the two FFs:

- A print character (including SP)
- A form transport character (LF, VT, ESC L or ESC K).

Forward and reverse half-line feeds are disabled by FF.

Setting the line spacing

Control character	ISO 7-bit
ESC [p1 x	1B 5B p1 78

This control sequence takes effect with the next line feed. The largest possible line spacing is 99/72 inches = 1 3/8 inches. The smallest possible line spacing is 1/72 inches. *p1* is the number of 1/72 inch increments. The value must be between 0 and 99.

Resetting the line spacing

Control character	ISO 7-bit
ESC [x	1B 5B 78

The line spacing is reset to the initial state. This control sequence takes effect with the next line feed. The line spacing in the initial state is 1/6 inch. ESC [12 x also resets to the initial state.

Line feed

Control character	ISO 7-bit
LF	0A

This control character causes the form to be advanced one line using the current line spacing. It takes effect immediately. The virtual printer performs all actions associated with receiving a CR before it performs LF.

Micro-line feed

This feature is not supported for the 9012, 9013 and 9014 printers.

Control character	ISO 7-bit
ESC [p1 ! x	1B 5B p1 21 78

A line feed is performed in 1/144 increments. *p1* is the number of 1/144 inch increments. The value must be

between 0 and 99.

Micro-line feeds are not permitted in the last line of a form.

Reverse micro-line feed

This feature is not supported for the 9001, 9011, 9012, 9013 and 9014 printers.

Control character	ISO 7-bit
ESC [p1 ! y	1B 5B p1 21 79

A reverse line feed is performed in 1/144 inch increments. *p1* is the number of 1/144 inch increments. The value must be between 0 and 99.

Reverse micro-line feeds are not permitted in the first line of a form.

Forward or reverse half-line feed

Direction	Control character	ISO 7-bit
Forward	ESC K	1B 4B
Reverse	ESC L	1B 4C

The form is advanced or reversed 1/12 inch (1/2 line at 6 lpi). This function is not affected by the current line spacing.

Only one ESC K can be performed in the last line. The next half-line feed causes a form feed. Only one ESC L can be performed in the first line. Further half-line feeds may be ignored.

5.3 Carriage control functions

The following functions affect the carriage position:

- Carriage return
- Space
- Backspace
- Horizontal tabulation

Carriage return

Control character	ISO 7-bit
CR	0D

Line overflow causes an automatic carriage return (CR) and a line feed (LF).

Maximum number of characters per line:

Character pitch	Characters per line
10 cpi	80
12 cpi	96
13.3 cpi	106
15 cpi	120
17.14 cpi	137

Input lines exceeding the length given above are silently truncated.

Printing is initiated if the maximum line length (80 characters at 10 cpi) or the programmed end of line is exceeded, i.e. an automatic CR/LF is performed at the end of the line and the overflowing text is printed in the next line.

Space

Control character	ISO 7-bit
SP	20

The carriage moves one column to the right.

Backspace

Control character	ISO 7-bit
BS	08

The carriage moves back to the last character printed. The next character is printed on top of this character. This means that different characters can be combined (as per DIN 32 743). Diacritics are printed by backspacing over the base character and then printing the second character over this character. The diameter symbol, for example, can be obtained by combining O and /.

Any number of BS characters are permitted within a line. BS can also be used in double-width and spaced modes.

This control character is ignored if the backspace sequence tries to place the new position before the beginning of the line.

Setting the character pitch

Character pitch	Control character	ISO 7-bit
10 cpi	ESC [1 w	1B 5B 31 77
12 cpi	ESC [2w	1B 5B 32 77
15 cpi	ESC [3w	1B 5B 33 77
17.14 cpi	ESC [4w	1B 5B 34 77
13.3 cpi	ESC [5w	1B 5B 35 77

In the initial state the character pitch is 10 cpi. The following pitches can be set from this basis: 12 cpi, 13.3 cpi, 15 cpi and 17.14 cpi.

The first print column in each line is always the same, regardless of the selected character pitch.

Boldface mode is disabled if 13.3 cpi, 15 cpi or 17.14 cpi is set.

The 9022 printer recognizes only the built-in character pitches 10 cpi and 12 cpi.

Setting the direction of printing

This function is not supported for the 9022, 9026 and HP LaserJet printers.

Direction of printing	Control character	ISO 7-bit
Bidirectional	ESC SP :	1B 20 3A
Unidirectional	ESC SP =	1B 20 3D

Bidirectional printing is set in the initial state. The above control character sequences allow you to switch between bidirectional and unidirectional printing.

Horizontal tabulation*Relative horizontal tabulation*

Control character	ISO 7-bit
ESC [p1 a	1B 5B p1 61

The carriage moves one or more columns to the right counting from the current column. The width of the space character in the current character pitch is used as the column width. Double-width mode is permitted. A carriage return (CR) and a line feed (LF) are performed if relative horizontal tabulation would cause the programmed end of line to be exceeded. Any remaining tab stops are carried over into the next line.

p1 is the number of columns to be skipped counting from the current column. The value must lie within the range 1 to 233.

Absolute horizontal tabulation by character pitch

Control character	ISO 7-bit
ESC [p1 '	1B 5B p1 60

The carriage moves to the specified column counting from column 1. The current character pitch is used as the column width. Reverse tabulation is possible. Double-width mode does not affect this function. *p1* is the number of columns the tab stop is away from the first physical column based on the current character pitch. The value must lie within the range 1 to 137.

Absolute horizontal tabulation in micro-columns

Control character	ISO 7-bit
ESC [p1 SP r	1B 5B p1 20 72

Tabulation in 1/120 inch increments within a line of the print area counting from micro-column 1. Subsequent characters are printed starting at the left edge of the tab stop position. Reverse tabulation is possible.

Tabulation by micro-columns is required in graphics mode to print a number of lines directly below one another.

p1 is the number of micro-columns in 1/120 inch (0.21167 mm) increments that the tab stop is away from the physical left margin. The value must lie within the range 1 to 960.

Horizontal tabulation

Control character	ISO 7-bit
HT	09

The carriage moves to the next HT stop. HT stops can be skipped by entering HT the required number of times. HT HT HT HT, for example, moves the carriage directly to the fourth HT stop.

The HT stops are preset in every eighth column (1st, 9th column, etc.). HT stops are accessed in ascending order. Their location depends on the current character pitch.

HT after LF without CR causes the next HT stop after the current print position to be accessed.

HT stops located outside the print area or at the beginning of the line cannot be accessed with HT.

HT stops located before the programmed beginning of the line are ignored; the first HT stop following the programmed beginning of the line is accessed instead.

5.4 Control characters for typeface design

The following modes are available for typeface design:

- Double-width mode
- Near-letter quality mode
- Superscript
- Subscript
- Underline mode
- Boldface mode
- Double-strike mode
- Double-height mode

- Italics mode
- Smudge

Setting double-width mode

This function is not supported for the HP LaserJet printer.

Control character	ISO 7-bit
ESC 8	1B 38

These control sequences are used to switch to double-width mode. Even individual characters can be printed in this mode.

In double-width mode, the character width (including that of the space) is doubled, i.e. the character pitch is halved. Every character dot is printed twice. This also applies to spaced mode.

If the last double-width character does not completely fit into the line (line overflow), it is passed to the next line and printed completely there.

HT stop locations are not affected by double-width mode. Double-width mode is suppressed in graphics mode.

Resetting double-width mode

This feature is not supported for the HP LaserJet printer.

Control character	ISO 7-bit
ESC <	1B 3C

Setting near-letter quality mode

This feature is not supported for the 9011, 9012, 9022, 9026 and HP LaserJet printers.

Control character	ISO 7-bit
ESC ! :	1B 21 3A

Near-letter quality is suppressed in double-strike, superscript and subscript mode.

Resetting near-letter quality mode

This feature is not supported for the 9011, 9012, 9022, 9026 and HP LaserJet printers.

Control character	ISO 7-bit
ESC ! 9	1B 21 39

Setting superscript mode

Control character	ISO 7-bit
ESC ! 7	1B 21 37

Superscript mode suppresses near-letter quality, subscript and double-strike mode. Superscript mode is suppressed in graphics mode.

Setting subscript mode

Control character	ISO 7-bit
ESC ! 8	1B 21 38

Subscript mode suppresses underline, double-strike, superscript and near-letter quality mode. Subscript mode is suppressed in graphics mode.

Resetting superscript and subscript mode

Control character	ISO 7-bit
ESC ! 6	1B 21 36

Setting italics mode

This feature is not supported for the 9012 and 9022 printers.

Control character	ISO 7-bit
ESC 3	1B 33

Resetting italics mode

This feature is not supported for the 9012 and 9022 printers.

Control character	ISO 7-bit
ESC 4	1B 34

When switching from italics mode to normal mode, a space must be inserted between the last italicized character and the first normal mode character to ensure that the characters do not overlap.

Setting underline mode

Control character	ISO 7-bit
ESC 0	1B 30

The underline is continuous and is printed under all characters, including spaces, fillers and horizontal tabs. This mode can also be set for individual characters and can be used in proportional mode. Underline mode is suppressed in graphics mode and subscript mode.

Resetting underline mode

Control character	ISO 7-bit
ESC 9	1B 39

Setting boldface mode

Control character	ISO 7-bit
ESC ! 1	1B 21 31

Boldface mode is suppressed for 13.3 cpi, 15 cpi, 17.14 cpi and in graphics mode.

Resetting boldface mode

Control character	ISO 7-bit
ESC ! 0	1B 21 30

Setting double-strike mode

Control character	ISO 7-bit
ESC ! 3	1B 21 33

Near-letter quality mode is suppressed in double-strike mode. Double-strike mode is suppressed in boldface, superscript, subscript and graphics mode.

Resetting double-strike mode

Control character	ISO 7-bit
ESC ! 2	1B 21 32

Setting double-height mode

This feature is not supported for the 9012 and HP LaserJet printers.

Control character	ISO 7-bit
ESC ! 5	1B 21 35

A macro font is obtained if this mode is combined with double-width mode.

Resetting double-height mode

This feature is not supported for 9012 and HP LaserJet printers.

Control character	ISO 7-bit
ESC ! 4	1B 21 34

Smudge

Control character	ISO 7-bit
DEL	7F

This control character creates a smudge (full-matrix pattern).

5.5 Font and character sets

The virtual printer supports only one font. Various character sets are available for this font.

Character sets

Character set	Control character	ISO 7-bit
International	ESC (@	1B 28 40
English	ESC (A	1B 28 41
ASCII	ESC (B	1B 28 42 (default)
Danish / Norwegian	ESC (E	1B 28 45
Swedish-2	ESC (H	1B 28 48
German	ESC (K	1B 28 4B
French	ESC (R	1B 28 52
Italian	ESC (Y	1B 28 59
Spanish	ESC (3	1B 28 33
Swiss	ESC (5	1B 28 35
Norwegian-2	ESC (6	1B 28 36
Danish-2	ESC (7	1B 28 37
French /Belgian-2	ESC (8	1B 28 38

Character sets define different print characters for (hexadecimal) codes 23, 24, 40, 5B, 5C, 5D, 5E, 60, 7B, 7C, 7D and 7E.

5.6 Graphics mode

The virtual printer features two graphics modes:

- Bit-image graphics
- Scanner graphics

Bit-image graphics

In bit-image mode, the individual bits of the received data are printed in columns. One byte represents a column. All bits set to 1 are printed.

Graphics can be superimposed without gaps by setting the line spacing to a suitable value for the target printer. Within a line you can switch into bit-image graphics as often as required.

The printer interprets all characters, including control characters, which are received during graphics printing, as graphical information. When graphics mode is selected, the first graphics column is printed in the first micro-column of the next print column. When normal mode is reselected, the first text character is printed immediately after the last graphics column.

If the end of the line is exceeded, an automatic line feed (using the current line spacing) and a carriage return (CR + LF) are performed. The remaining graphics information is printed in the next line.

A programmed print area also applies to graphics printing.

The virtual printer supports single-density bit-image graphics only.

When compiling graphics data, the virtual printer may make rounding errors which could distort the printed graphics. The following format settings affect bit-image graphics:

- Beginning and end of lines
- Form length
- First and last lines
- Line spacing
- Character pitch

The following modes do not affect bit-image graphics (they are reactivated when you leave graphics mode):

- Double-width mode
- Underline mode
- Proportional mode
- Boldface mode
- Double-strike mode
- Double-height mode
- Superscript mode
- Subscript mode
- Near-letter quality mode

Setting bit-image graphics mode, 8 bits, single density

This feature is not supported for the HP LaserJet printer.

Control character	ISO 7-bit
ESC [p1 y	1B 5B p1 79

Graphics mode is selected for the specified number of graphics bytes. Normal mode is reactivated automatically as soon as this number of bytes has been processed.

A graphics byte represents a column of 8 dots. The horizontal resolution (dot density) depends on the current character pitch:

Characterpitch	Density in dotsper inch (dpi)	Print columnsper line
10 cpi	60	480
12 cpi	72	576

15 cpi	90	720
17.14 cpi	103	822

p1 is the number of graphics bytes. The value must lie within the range 1 to 9999.

Setting bit-image graphics mode, 6 bits, single density

This feature is not supported for the 9022 and HP LaserJet printers.

Control character	ISO 7-bit
ESC [p1 " ylv	1B 5B p1 22 79

Graphics mode is selected for the specified number of graphics bytes. Normal mode is reactivated automatically as soon as the number of bytes has been processed.

A graphics byte represents a column of 6 dots. The least significant bits of the data byte contain the graphics information for rows 1 to 6:

Bit	Assigned to
20	row 1
21	row 2
22	row 3
23	row 4
24	row 5
25	row 6
26	(always 1)
27	(parity)

The horizontal resolution (dot density) depends on the current character pitch as for eight-bit graphics. *p1* is the number of graphics bytes. The value must lie within the range 1 to 9999.

Scanner graphics

In scanner graphics mode the dots are arranged in lines. This mode is suitable for applications in which the graphics data is already in horizontal format, e.g. hardcopies of a display memory.

One byte represents 7 horizontal dots.

Bit	Value	Meaning
1	1	Dot is printed
2	1	"
3	1	"
4	1	"
5	1	"
6	1	"
7	1	"
8	1	Bits 1 to 7 are treated as graphics information
8	0	Bits 1 to 7 are treated as control characters

Scanner graphics mode can be combined with all character pitches. The relationship between character pitch

and horizontal resolution is given below:

Characterpitch	Densitiy in dotsper inch (dpi)	Print columnsper line
10 cpi	60	480
12 cpi	72	576
13.3 cpi	80	640
15 cpi	90	720
17.14 cpi	102	822

Graphics lines can be superimposed without intervening gaps if the line spacing is set to a suitable value for the target printer.

Setting scanner graphics mode

This feature is not supported for the 9011, 9012, 9022, 9026 and HP LaserJet printers.

Control character	ISO 7-bit
ESC [	1B 5B 7C

This control sequence must be located at the beginning of the line (after LF, end-of-line criterion) and takes effect immediately. Set the desired line spacing and character pitch before selecting scanner graphics mode. Every horizontal row must be terminated with CR.

A line feed using the current line spacing and a carriage return to the beginning of the line are performed after every 7th row received. If the rows differ in length, the length of the complete scanner line is determined by the longest row. The shorter rows are filled with blanks. The virtual printer accepts the following control characters in scanner graphics mode:

- CR as end of row
- LF line feed as in text mode, takes effect after every 7th end of row
- FF form feed
- ESC [~ reset scanner graphics mode

All other control characters are ignored. Graphics information that would exceed the right margin is ignored.

All format settings such as beginning of line, end of line, programmed first and last lines are also valid in scanner graphics mode.

Resetting scanner graphics mode

This feature is not supported for the 9011, 9012, 9022, 9026 and HP LaserJet printers.

Control character	ISO 7-bit
ESC [~	1B 5B 7E

The character pitch selected in scanner graphics mode remains in effect when scanner graphics mode is reset. If no complete line of graphics information consisting of 7 horizontal graphics rows has been received, the data is printed but no automatic line feed is performed.

5.7 Other functions

This section describes the following functions:

- Audible signal (BEL)
- Hopper selection
- Resetting functions and parameters
- Resetting virtual printer to initial state
- Non-escape control sequences

Audible signal (BEL)

Control character	ISO 7-bit
BEL	07

The control character BEL causes an audible signal to sound at the target printer if the printer is so equipped. The control character does not affect the printed output.

Hopper selection

This feature is not supported for the 9001, 9011 and HP LaserJet printers.

Selecting the first automatic hopper

Control character	ISO 7-bit
ESC [1 SP p	1B 5B 31 20 70

This control sequence takes effect as of the next sheet. If the control sequence is received at the beginning of a new page, it takes effect immediately.

Selecting the second automatic hopper

Control character	ISO 7-bit
ESC [2 SP p	1B 5B 32 20 70

This control sequence takes effect as of the next sheet. If the control sequence is received at the beginning of a new page, it takes effect immediately.

Resetting all functions and parameters

Control character	ISO 7-bit
ESC R	1B 52

This control sequence resets all programmed functions and function parameters to initial state values. The data received by the printer before this control sequence is not affected.

The following functions are reset:

- Double-width mode
- Underline mode
- Double-height mode
- Italics mode
- Boldface mode
- Double-strike mode
- Superscript mode
- Subscript mode
- Print area
- Bidirectional print mode

Resetting virtual printer to initial state

Control character	ISO 7-bit
ESC c	1B 63

This control sequence sets all initial state parameters, with the exception of the top-of-form position, to their default values.

The text line terminated with ESC c is deleted from the printer buffer. The form is advanced to the top-of-form position.

Initial state means:

- The printer buffer is cleared
- The character pitch is set to 10 cpi
- The current form position is assumed to be the top-of-form position
- The character set is ASCII
- The line spacing is 6 lpi
- The form length is 12 inches = 72 lines at 6 lpi

The functions defined for the initial state can be reprogrammed with control characters.

Non-escape control sequences

In general, all other characters are passed to the target printer. However, characters that would cause a line overflow are output in the next line. Also, characters that do not appear at the same location in the target printer's current character set are converted to a character set and position that matches the input character.

6 Messages

This chapter contains all the messages of the Xprint system.

Xprint displays three types of message:

- Specific errors in syntax, e.g.:
Error -srv: Exactly one argument required
- Xprint messages (warnings or error messages), e.g.:
XP000108: Administrator reserved command
- Specific errors in the compilation of PCLs and recovery rules files, e.g.:
Err : comma expected at end of capability - line <%d>

6.1 Syntax error messages

The following messages report syntax errors in command lines:

Internal error

System error. See log file for more information.

Out of memory

System error. See log file for more information.

calloc() failed at line %d File %s

Error: Unrecognised options:

At least one of the options specified as part of the command line is not valid for this command.

Error: %s flag must be specified

The specified operand has been omitted on the command line.

Error: unrecognised flag: %s

The command line contains an invalid option (%s).

Error %s: '+' suffixes are not allowed here: use '=<+parameter>' instead

This message is displayed when you need to 'escape' the special meaning of the plus sign (+) with the equals sign (=).

Error %s: All arguments starting with a '-' should be prefixed with a '-'

This is to prevent the command line interpreter from treating such an argument as an option.

Error %s: Non-numeric character found in numeric string: %c

The specified option accepts numeric values only.

Error %s: Number must be in range 1..65533

The specified flag's argument must have a positive, non-zero value of less than 65534.

Error %s: Number must be in range 1..2 147 483 645

The specified flag's argument must have a positive, non-zero value of less than 2.147.483.646.

Error %s: Number must be in range 1..127

The specified option's argument must have a positive, non-zero value of less than 128.

Error %s: Exactly one argument required

Only one argument is allowed for option %s.

Error %s: Exactly two arguments required

Two arguments must be specified for the option %s. For example, the xpcopy -dev command requires two device names.

Error %s: At least one argument expected

A minimum of one argument must be specified for the option %s. (Example: -dl with the xpadd -dgr

command).

Error %s: No arguments required

No arguments should be specified for the option %s (e.g. -rm of the xpad -job command

Error: cannot have '=' suffix for a boolean flag

Only + and - suffixes are valid for Boolean options.

Error %s: Duplicate flag

The specified option (%s) has been entered twice.

Error %s: Suffixes not allowed here

Suffixes are not allowed for the specified option %s.

Error %s: must have at least one flag in double quotes

The specified option should be followed by at least one option in double quotes (").

Error %s: expecting flags in double quotes

The specified option should be followed by options enclosed within double quotes.

Error %s: must be one of the following:

An incorrect value has been entered for option %s. Correct values are stated as part of the error message.

Error %s: Number must be in range 0..2 147 483 645

The specified option's argument must have a positive value of less than 2147483646.

Error %s: Number must be in range 1..100

The specified option's argument must have a positive, non-zero value of less than 101.

Error %s: Number must be in range 1..127

The specified option's argument must have a positive, non-zero value of less than 128.

Error %s: Number must be in range 0..65533

The specified option's argument must have a positive, non-zero value of less than 65534.

Error %s: Number Format: n[nn][[.][nnn...]][icm]

The specified option %s accepts values in the indicated format using either i for inches, c for centimeters or m for millimeters.

Error %s: Number must be in range 0.00 ... 655,33

The specified option's argument must have a value in the range between 0 and 655.33.

Error %s: Number must be in range 0.0 ... 6553,3

The specified option's argument must have a value in the range between 0 and 6553.3.

Error: spurious '-' character...

Command string has too many minus (-) characters.

Unmatched '(' ...

The command string has too many open brackets.

Fatal internal error. Stopped.

A system error has caused the command to stop.

Error %s: %s not a valid option...

The value %s specified for the option %s is not valid. This is followed by a message "Valid options are:" with a list of options.

Error %s: %s option is duplicated...

The value (%s) has been entered twice.

Error %s: %s is an exclusive option

The specified option cannot be combined with another option. For example -ev NONE SUSPEND produces the error Error -ev: NONE is an exclusive option.

Error %s: Argument "%s" ambiguous

The abbreviated keyword is ambiguous. For example -ev S will generate this error because S is the abbreviation for both START and SUSPEND.

Error %s: Either UNDEFINED or 1..100

The specified option only accepts the keyword UNDEFINED or a value in the range of 1 to 100 (e.g. option -ps of the xpadding -usr command).

Error %s: Either INFINITE or 1..2 147 483 645

The specified option only accepts the keyword INFINITE or a value in the range of 1 to 2,147,483,645 (e.g. option -rp of the xpadding -job command).

Error %s: Either NO_LIMIT or 1..2 147 483 645

The specified option only accepts the keyword NO_LIMIT or a value in the range of 1 to 2,147,483,645 (e.g. option -up of the xpadding -usr command).

Error: Invalid environment variable %s. Must be one of the following:

The value of the environment variable %s is invalid. The error message also returns a list of all possible values (e.g.: the value for the environment variable XP_VR for controlling the output of xps show -di -di LONG has an invalid value).

Error: Invalid environment variable %s

The value of the environment variable %s is invalid.

Error %s: must be an option list, a template or one of the following:

The option %s requires a list of options, a template or a list of predefined values as an argument (e.g. the -di option of the xps show command).

Error: Exclusive flags: %s

The specified options cannot be used simultaneously (e.g. the options - np and -rd with xps change -dev).

6.2 Xprint messages

These messages start with the letters XP. Messages 1 to 18 carry information, messages 19 to 31 are warnings and messages from 32 onwards are general error messages.

XP000001: <% .128s> is being added

The specified object has been added to the spooler configuration.

XP000002: Job <% .6s> (<% .128s>) added

The specified job has been accepted by the spooler. The two variables '%.6s' and '(<% .128s>)' represent the local job identifier and the global job identifier respectively.

XP000003: <% .128s> is being changed.

The status of the specified object has been changed.

XP000004: Job <% .6s> (<% .128s>) is being changed.

The status of the specified job has been changed. The two variables '%.6s' and '(<% .128s>)' represent the local job identifier and the global job identifier respectively.

XP000005: <% .128s> is being copied into <% .128s>.

The first specified object has been copied into the second specified object.

XP000006: <% .128s> is being deleted.

The specified object has been deleted from the spooler configuration.

XP000007: Job <% .6s> (<% .128s>) is being deleted.

The specified job has been deleted. The two variables '%.6s' and '(<% .128s>)' represent the local job identifier and the global job identifier respectively.

XP000008: <% .128s> is being modified.

The specified object has been modified.

XP000009: Job <%.6s> (<%.128s>) modified

The specified job has been modified. The two variables '%.6s' and '(<%.128s>)' represent the local job identifier and the global job identifier respectively.

XP000011: Copyright (C) Siemens Nixdorf Software S.A. [1991,1993,1995] All rights reserved.

XP000012: Xprint <%.128s%.128s> is being set or is left ACTIVE.

Xprint is now available (as a result of an xptest command).

XP000013: Xprint <%.128s> is being set or is left NOT ACTIVE on <%.128s>.

Xprint is now not available on the specified host (as a result of an xptest command issued from the specified host).

XP000017: Gateway <%.128s> is being activated.

XP000019: WARNING : file <%.128s> not found on host <%.128s>

The specified file cannot be found on the specified host.

XP000020: WARNING : system input file cannot be executed

This message is displayed if the system input file cannot be executed after system startup.

XP000021: WARNING in recovery rule file

This is a header message followed by a more detailed description.

XP000022: WARNING in printer control language

This is a header message followed by a more detailed description.

XP000023: WARNING : no user modified or deleted

During xpmmod or xpdcl -usr no match was found in the selection criteria.

XP000024: WARNING : host <%.128s> not found in system host file

A host specified in the xpmadd -hos command was not recognized in the system host file.

XP000025: WARNING : device address <%.128s> cannot be reached

A LAN address is unknown. Contact the LAN manager to verify the address.

XP000026: WARNING : user <%.128s> not found in system user file on host <%.128s> or cannot reach the host

The user is either not defined on the host or Xprint is not active on the host (thus a check is not possible).

XP000027: WARNING : Spool startup file not executed correctly

The Xprint start file could not be executed when Xprint was started.

XP000028: WARNING : No reference to print protocol and network protocol <%.128s> found in <%.128s> on host <%.128s>

XP000029: WARNING : Device <%.128s> cannot be activated. The remote server <%.128s> is not active.

The printer can only be activated after the remote server has been activated by an administrator with the appropriate privileges.

XP000030: WARNING : Local gateway(s) with same gateway address exist(s).

XP000039: Error during construction of a message

This is an emergency message indicating that the real message could not be correctly constructed. Try again, or consult the log file for an explanation of the error.

XP000040: Syntax error in selection structure

An incorrect select structure is provided for the program interface (for example, a wrong pointer or first element in a sequence or the wrong number of elements).

XP000041: Syntax error in modification structure

An incorrect modify structure is provided for the program interface.

XP000042: Object names cannot be modified

A modify structure provided for the program interface for a spooler object tries to modify the object name.

XP000043: Cannot mount form <%.128s> on device <%.128s>

The desired form cannot be mounted on the printer due to the permission definition.

XP000044: Job <%.6s> (<%.128s>) is ACTIVE

The specified job is being printed. The two variables '%.6s' and '(<%.128s>)' represent the local job identifier and the global job identifier respectively.

XP000045: No job ACTIVE on device <%.128s>

No job is currently being printed on the specified printer.

XP000046: Cannot reach supervisor <%.128s>

The print request cannot be processed because it cannot reach the supervisor %.128s. The supervisor may be set to NOT_ACTIVE. Also consult the log file for an explanation.

XP000047: Cannot reach server <%.128s>

The request cannot be processed because it cannot reach the server identified by '%.128s'. If this server is NOT_ACTIVE, activate it. If it is ACTIVE, try again or consult the log file for an explanation.

XP000048: <%.128s> still referenced by <%d> object(s)

This message will be displayed when an object to be deleted is still referenced by another object. An object can only be deleted when all associated objects have been deleted.

XP000049: Xprint not available

This message is displayed when the Xprint system is NOT_AVAILABLE on a specific host. Start the spooler on the specific host and try again.

XP000050: <%.128s> : wrong job identifier

The job identifier %.128s cannot be processed because of a syntax error in its construction or because the specified server does not exist.

XP000051: <%.128s>'s server not active

A request sent to the specified supervisor cannot be processed because its server is NOT_ACTIVE. Set the server to ACTIVE and try again.

XP000052: No server available

A request relating to a job cannot be processed because no server is currently ACTIVE. Activate a server and try again.

XP000053: Database inconsistency detected

A database inconsistency (such as a reference to an object which does not exist) has been detected. Check object details and try again. If it still fails restart the spooler. Contact your support center.

XP000054: <%.128s>'s supervisor not active

A job request sent to the specified printer cannot be printed because its supervisor is NOT_ACTIVE. Activate the supervisor and try again.

XP000055: Xprint not active on host <%.128s>

A connection error to the spooler on another host has failed while the existence of a user on this host was being checked. Check the current status of the host.

XP000056: <%.128s>'s attributes not supported by pcl <%.128s>

The attributes of the form or font identified by %.128s do not match those of the PCL %.128s.

XP000057: <%.128s> still active

The server, supervisor or printer specified by %.128s cannot be deleted or modified because it is still ACTIVE. Set the object to NOT_ACTIVE and try again.

XP000058: Network error detected

An error has been detected in the network. Try again or consult the log file for an explanation.

XP000059: System administrator reserved command

The command that has been entered is restricted to the system administrator (root) only.

XP000060: error(s) in recovery rule file

XP000061: error(s) in printer control language

These two messages precede other error messages describing the error (see there).

XP000063: Wrong structure version <%.128s>

The program interface was called with a structure which was allocated incorrectly.

XP000064: Syntax error in parameter structure

The program interface was called with a structure which was not initialized correctly.

XP000065: Syntax error in addition structure

The program interface was called with a structure which was not initialized correctly.

XP000066: <%.128s>'s spoolout must be disabled

The specified object (printer or server) is enabled for spoolout.

XP000067: Default forms cannot be MANUAL

The default form for the specified printer cannot be of type MANUAL.

XP000068: Device <%.128s> is being activated

The specified printer is now ACTIVE as a result of an xpcchange -dev command or automatic activation during xptest.

XP000069: Supervisor <%.128s> is being activated

The specified supervisor is now ACTIVE as a result of an xpcchange -spv command or automatic activation during xptest.

XP000070: Server <%.128s> is being activated

The specified server is now ACTIVE as a result of an xpcchange -srv command or automatic activation during xptest.

XP000071: Device <%.128s> cannot be activated

A printer cannot be activated during startup of the spooler. Check the log file.

XP000072: Supervisor <%.128s> cannot be activated

A supervisor cannot be activated during startup of the spooler. Check the log file.

XP000073: Server <%.128s> cannot be activated

A server cannot be activated during startup of the spooler. Check the log file.

XP000074: Invalid context key <%.128s>

In the -op option of the xpadd or xpmmod -flt command a contextual keyword pattern is incorrect.

XP000075: Syntax error in regular expression <%.128s>

An incorrect Outputware syntax has been specified in a command option.

XP000076: PCL <%.128s> does not fit request

The PCL of the printer does not support the requested options.

XP000077: Xprint still active on host <%.128s>

A host cannot be deleted from the host list as Xprint is still active on this host.

XP000078: <%.128s>'s device list would become empty

The intended modification of the printer group %.128s will cause its printer list to be empty.

XP000079: %.128s's host list would become empty

The intended modification will cause the host list to be empty.

XP000080: Supporting host <%.128s> not active

An attempt has been made to start Xprint on a parasite host whose supporting host is NOT_ACTIVE. Start

Xprint on the supporting host and try again.

XP000081: Parasite host <%.128s> still active

An attempt has been made to stop Xprint on a supporting host while at least one of its parasites is still active. Stop Xprint on all the parasites before stopping it on the supporting host.

XP000082: Recovery rules <%.128s> not accessible

During the adding of a printer, a specified recovery rules file is not recognized. Check the display of current recovery rules for the correct name.

XP000084: Filter <%.128s> not accessible

A reference to a filter object is not recognized. Check the display of current filters for the correct name.

XP000085: Host <%.128s> not accessible

The specified host %.128s is not registered as a host in the Xprint database.

XP000086: PCL <%.128s> not accessible

While adding a job, a specified PCL was not recognized. Check the display of current PCLs for the correct name.

XP000087: Job template <%.128s> not accessible

While adding a job, a specified job template was not recognized. Check the display of current job templates for the correct name.

XP000088: Device group <%.128s> not accessible

A specified printer group is not recognized. Check the display of current printer groups for the correct name.

XP000090: Invalid option : <%.128s>

A syntax or semantics error has been detected in operand <%.128s>.

XP000091: <%.128s> already in Xprint configuration

The specified object already exists in the spooler configuration. Choose another name and try again.

XP000093: <%.128s> not accessible

The specified object is not a Xprint object, or you cannot access it because you do not have the required privileges.

XP000094: Job <%.6s> (<%.128s>) not modified because of filter(s)

The print job cannot be modified because a filter was specified when the job was added.

XP000096: Form <%.128s> not accessible

The specified form is not a Xprint form, or you cannot access it because you do not have the required privileges.

XP000097: Font <%.128s> not accessible

The specified font is not a Xprint font, or you cannot access it because you do not have the required privileges.

XP000098: Access error on file/directory <%.128s>

The specified file or directory does not exist, or you are denied access. Verify the existence of the file or directory and check the access rights.

XP000100: Device <%.128s> not accessible

The specified printer is not a Xprint printer, or you cannot access it because you do not have the required privileges.

XP000101: User <%.128s> not accessible

The specified user is not a Xprint user, or you cannot access it because you do not have the required privileges.

XP000102: No device found according to specification

The xpadding -job request is rejected because no printer fits the options you have specified.

XP000103: Permission <%.128s> not accessible

The specified permission is not a Xprint permission, or you cannot access it because you do not have the required privileges.

XP000104: Illegal object type

The program interface was called with an object type that is not supported.

XP000107: Xprint administrator reserved command

The command that has been entered is restricted to the Xprint administrator only.

XP000108: Administrator reserved command

The command that has been entered is restricted to administrators only.

XP000109: Invalid length for value of <%.128s>

Incorrect format (length of character string) for the specified value.

XP000110: Invalid character in value of <%.128s>

Incorrect format (invalid character) for the specified value.

XP000111: Internal error

A system call has failed. Try again or consult the log file for an explanation. Contact your support center.

XP000112: Destination not accessible

The xpadding -job request is rejected because the specified (or Xprint-determined) destination is unknown, or cannot be accessed because you do not have the required privileges.

XP000113: Invalid environment variable XP_DESTIN

The environment variable XP_DESTIN has no valid value assigned.

XP000114: Supervisor <%.128s> not accessible

The specified supervisor is not a Xprint supervisor, or you cannot access it because you do not have the required privileges.

XP000115: Server <%.128s> not accessible

The specified server is not a Xprint server, or you cannot access it because you do not have the required privileges.

XP000116: Maximum daily jobs quota reached

You have reached the quota limit set by the Xprint administrator.

XP000117: Maximum pages quota reached

You have reached the quota limit for printed pages set by the Xprint administrator.

XP000118: Maximum copies quota reached

You have reached the quota limit for printed documents set by the Xprint administrator.

XP000119: Data stream limit conflict (-fr/-pf or -to/-pt)

Indicates an error (or conflict) in the print "from" and "to" options specified in the xpadding -job command.

XP000120: Device <%.128s> already in Xprint configuration

The specified printer (group) cannot be created because a printer with the same name already exists in the Xprint configuration.

XP000121: Device group <%.128s> already in Xprint configuration

The specified printer group (printer) cannot be created because a printer group with the same name already exists in the Xprint configuration.

XP000124: User <%.128s> not found in system user file of host <%.128s>

The specified user does not exist in the Xprint system for this host.

XP000129: Memory lack

A malloc() or calloc() call has failed. Try again or consult the log file for an explanation.

XP000131: Connection error

A Xprint entity cannot establish a connection with another one. Try again or consult the log file for an explanation.

XP000132: Database access error

Failure to access the Xprint database. Try again or consult the log file for an explanation.

XP000133: Device <%.128s> does not enable spoolin

The printer specified for the xpadding -job command is not enabled for spoolin. Consult your system administrator.

XP000134: Device <%.128s> does not fit request

One or more options specified with the xpadding -job command do not match the chosen printer's PCL.

XP000136: <%.128s>'s supervisor not active

A request sent to the printer %.128s cannot be processed because its supervisor cannot be reached. If the supervisor is NOT_ACTIVE, activate it. If it is already ACTIVE, try again or consult the log file for an explanation.

XP000137: <%.128s>'s server does not enable spoolin

The specified printer's server is not enabled for spoolin.

XP000138: <%.128s>'s server has reached its maximum job quota

The specified printer's server has reached the maximum number of jobs it can schedule. Choose another printer or change the number of jobs that the server can handle.

XP000141: No access to local database files

Access is denied to local database files. Verify the existence of the database files and check the access rights.

XP000142: New object already exists

The object that is to be created already exists.

XP000143: A referenced object does not exist

An object cannot be processed because one of the objects it references does not exist. (For example: the font referenced by a form does not exist).

XP000144: Object not found

The object specified in the command does not exist.

XP000145: No database master present

An update of the Xprint configuration is not possible because none of the potential masters are available. Restart Xprint on a potential master host.

XP000146: Request refused by the server

The server rejects the request. Try again or consult the log file for an explanation.

XP000147: Xprint lock file already locked

Another spooler daemon is locking the file. Kill the active process.

XP000148: Data send error

An error has occurred while the data was being transferred in the network. Try again or consult the log file for an explanation.

XP000149: Data receive error

An error has occurred while the data was being received from the network. Try again or consult the log file for an explanation.

XP000150: Invalid option <%.128s> due to mandatory default font

You cannot modify the font options of the job because the specified form has a mandatory font.

XP000151: No destination could be found

Connection to the server or supervisor failed during xpadd -job.

XP000152: Filter <%.128s> not found

The filter determined with the xpadd -job command could not be found.

XP000153: Direct printing needs explicit destination (flag -de mandatory)

A printer must be specified using the -de option when the -dp option is used.

XP000154: <%.128s>'s spoolout must be OFF

When using direct printing mode, the specified printer's spoolout must be disabled.

XP000155: System call failed during filter processing

A system call has failed during filter batch processing.

XP000156: Connection with SERVER/SUPERVISOR failed after filter processing

The connection to the sever or supervisor has failed subsequent to the background processing of the filters. Check whether the destination is still ACTIVE.

XP000157: Execution of filter <%.128s> failed with arguments\n\t <%s> \n

Execution of a filter failed during background processing. Check the filter arguments.

XP000158: Database installation error

The spooler has not been properly installed. Access rights to some files are wrong or some files are missing. It is also possible that there is no entry for the spooler service in /etc/services .

XP000159: Illegal database startup

An attempt has been made to start the database manager processes incorrectly. Call xpstart. Incorrect access rights for the DB directory can also generate this message.

XP000160: Local host not defined in database

Before installing the spooler on any host except the first one, you must define it in the database. Call the xpadd -hos command on a host where the spooler is running before starting the new host.

XP000161: Database public port open failed

During startup the spooler is unable to open a transfer port at the specified address. Wait 60 seconds after an xpstop before restarting. Otherwise check if the spooler entry is properly defined in /etc/services.

XP000162: Local host may not be master

You are trying to start a slave or parasite host while no master is running. First start the spooler on a potential master host.

XP000163: Connection to current master failed

During startup, the spooler is unable to contact the current master host. Make sure that transmissions are possible with that host or consult the log file.

XP000164: Resynchronization from master failed

During startup, data transfer with the master host has failed. Make sure that both hosts are running compatible versions of Xprint and that the master did not crash. Also consult the log file.

XP000166: Aborted by user

Under certain circumstances the spooler asks for a user confirmation before continuing its startup. This message is displayed if the user chooses to abort startup.

XP000167: Unable to start up since another host is starting up. Retry later.

As long as another host has not completed its start process, starting up is not possible. A retry after a short time should be successful.

XP000168: Cannot reach DB_manager

Connection problem in the network.

XP000169: Filesystem is full

The file system on which Xprint is installed is almost full.

XP000170: Filesystem is full on master host

The file system on which Xprint is installed on the active master is almost full.

XP000171: Execution aborted (users only)

Execution of "xppatch" was aborted due to an abnormal state. Earlier messages give the reason. If these messages are not clear enough, consult the log file for an explanation.

XP000172: Taking configuration backup in <%s> (users only)

xppatch: Message describing the current processing step (for debug levels >= 1).

XP000173: Signal <%d> received. (users only)

xppatch: Message (for debug levels >= 1) stating that signal 2 (keyboard interrupt) or 15 ("kill") was received. Executing is aborted.

XP000174: Restoration of backup failed. Restore manually. (users only)

xppatch could not restore the backup files; the original files are probably inconsistent. To restore the original situation the files "<install_dir>/tmp/Xpp_backup_dir/DB/*.[idx|dat]" should be moved to "<install_dir>/DB/*.[idx|dat]" and the files "<install_dir>/tmp/Xpp_backup_dir/SV/*/@c-*" to "<install_dir>/SV/*/@c-*".

XP000175: Cleaning up backup directories. (users only)

xppatch: Message describing the current processing step (for debug levels >= 1).

XP000176: Restoring backup from <%s> (users only)

xppatch: Message describing the current processing step (for debug levels >= 1).

XP000177: Initial configuration restored (users only)

Execution of "xppatch" has failed and the original situation has been restored.

XP000178: Clean-up of backup failed (users only)

xppatch could not remove the backup files. The directory "<install_dir>/tmp/Xpp_backup_dir" and all its subdirectories must be removed manually.

XP000179: Handling %s segment. (users only)

xppatch: Message specifying the object type being processed (for debug levels >= 1).

XP000180: ---Object: %s. (users only)

xppatch: Message specifying the entity of the object being processed (for debug levels >= 2).

XP000181: Handling print jobs. (users only)

xppatch: Message describing the current processing step (for debug levels >= 1).

XP000182: ---Server: %.128s. (users only)

xppatch: Message specifying the server whose jobs are being processed (for debug levels >= 1).

XP000183: -----Job: %.128s. (users only)

xppatch: Message specifying the job being processed (for debug levels >= 2).

XP000184: Spool-N key diskette installed (users only)

xppatch can only be executed for a Xprint system that is installed locally.

XP000185: Spool processes still running (users only)

Xprint must be stopped for executing xppatch.

XP000186: An object name cannot begin by a '!'

Select a different object name.

XP000187: Different gateway names are not allowed.

In a list of object identifiers for remote objects all identifiers must contain the same gateway name.

XP000188: Mix between local and remote object names are not allowed

A list of object identifiers must contain either only local or only remote objects.

XP000189: Wild cards are not allowed in gateway name

In a list of object identifiers of remote objects, each object identifier must contain the same gateway name.

XP000190: Host <%.128s> defined in database

XP000191: The option <%.128s> is mandatory in this context

This message lists the options which must be specified (e.g. when defining a PARTNER gateway, the -ho option must be specified).

XP000192: Gateway <%.128s> not accessible

The specified gateway is not accessible.

XP000193: The network protocol of gateway <%.128s> and <%.128s> is not the same

All gateways specified in the backward-link list (-bl) of a PARTNER gateway must use the same network protocol (-np).

XP000194: Type of gateway <%.128s> and gateway <%.128s> are not compatible

This message specifies that the type of the second gateway (usually a gateway from the backward-link list -bl) does not match the type of the first gateway (usually the PARTNER gateway).

XP000195: The specific option <%.128s> is not correct

Incorrect syntax was used for specifying option %.128s.

XP000196: Gateway <%.128s> cannot be activated

The corresponding program is not installed correctly on the host.

XP000197: Device <%.128s> is redirected

This message shows that a printer is to be redirected to a printer which itself is already redirected. This is not allowed.

XP000198: A redirection to device <%.128s> exists

Another printer is already redirected to the printer that is to be redirected. This is not allowed.

XP000199: Device <%.128s> must enable spoolin

Spoolin must be enabled for the printer to be redirected.

XP000200: Device <%.128s> is redirected to itself

This message is displayed if you try to redirect a printer to itself.

XP000201: Device <%.128s> is not redirected

This message is displayed if you try to cancel a non-existent redirection.

XP000202: Only one object (without wildcard) may be specified

The command only accepts one object (e.g. with xpshow .. -diR).

XP000203: No reference to specified object

The object cannot be found in the Xprint database.

XP000204: Job information lost

A job in another Xprint domain cannot be processed correctly as the job-specific data cannot be found.

XP000205: Slow filter execution problem

Execution of a filter in the remote domain failed.

XP000206: The pair <%s>,<%s> already exist

There is already an object (usually a gateway) with the same values for the options (usually -on and -oh with gateways).

XP000207: Cannot reach gateway <%.128s>

The LOCAL gateway cannot establish a connection to the PARTNER gateway.

XP000208: Access permission denied for gateway

The local gateway is not allowed to send requests to the PARTNER gateway. Permission must be granted on the PARTNER side.

XP000209: Requested service not yet supported by gateway

This function cannot be performed by the gateway as the function is not supported in this version.

XP000210: Unable to process request on remote gateway

The PARTNER gateway cannot process the request.

XP000211: Local gateway <%s> with print protocol <%s> reports:

XP000212: Remote gateway <%s> with print protocol <%s> reports:

XP000213: Unknown gateway origin <%s> reports:

These three messages precede another message and show the originator of the subsequent message.

XP000214: <%.128s> is referenced in a backward list.

Modification of a gateway contained in a backward-link list (-bl) is rejected.

XP000215: <%.128s> : illegal object name.

The specified object name is invalid (e.g. ALL used as a gateway name).

XP000216: Protocol error

A protocol error between the local and the PARTNER gateway occurred during processing of a request.

XP000217: Forbidden xpsstat on PARTNER gateway <%.128s>

xpsstat can only be executed for local gateways.

XP000218: Forbidden xpchange on PARTNER gateway <%.128s>

xpchange can only be executed for local gateways.

XP000219: Meaningless operation on such type of gateway

Activating or deactivating PARTNER gateways is not allowed.

XP000220: Cannot take control from host with old version

XP000221: Unknown error message <%.128s>

This error message comes from a spooler system of a partner (e.g. from a BSD spooler) and is not recognized by Xprint.

XP000222: This service needs the Spool-N key_disk to be installed (users only)

This service is only available after the Spool-N key diskette has been installed.

XP000223: Print services not available

The print services of the PARTNER domain are not active.

XP000224: No active or accessible local gateway to reach remote gateway <%.128s>

There is no active local gateway to send the request to the PARTNER gateway.

XP000225: No database (installation needed) or database with a wrong format (migration required).

A database of an earlier Xprint version must first be migrated for the new version to be started.

XP000226: Unable to process request on remote gateway:<%.128s>

The PARTNER gateway cannot process the request for the specified reason.

XP000232: Permission denied for object <%s>

The user is not on the permission list for this object.

XP000233: Insufficient privilege for object <%s>

For example, only the Xprint system administrator has sufficient privilege to modify the system object (xpsmod -sys).

XP000234: Operation denied for object <%s>

The operation has *not* been denied because of lack of permission or privilege, but because the operation you have attempted is denied by the Xprint syntax.

XP000235: No device defined In configuration.

A job has been submitted without requesting a specific destination, but there are no devices configured in the

print system.

XP000236: No device accessible in configuration (criteria: spoolin, capabilities, permission and security level)

A job has been submitted without requesting a specific destination and the XP_DESTIN variable is not defined. This message means that none of the devices configured in the print system meet the criteria listed. The reasons may be different for each device.

XP000237: Requested destination <%s> not defined in configuration

There is no device or device group configured in the print system whose name corresponds to the requested destination of the job.

XP000238: Permission denied to device group <%s>.

The user is not on the permission list for the requested device group.

XP000239: No device accessible in device group <%s> (criteria: spoolin, capabilities, permission and security level)

A job has been submitted to a device group, but none of the devices in the group meet the criteria listed. The reason may be different for each device.

XP000240: Redirected device <%s> not defined in configuration

The requested destination device has been redirected to a device which no longer exists in the print system.

XP000241: No device accessible in environment variable XP_DESTIN (criteria: spoolin, capabilities, permission and security level)

The contents of the XP_DESTIN user's environment variable is used as the job destination, but none of the devices listed in this variable meet the criteria listed. The reasons may be different for each device.

XP000242: Job redirection to remote destination <%s> not allowed

The destination of a print job cannot be modified to a destination in a remote domain (that is, a destination that needs to be accessed through a gateway).

XP000243: Invalid security level to access device.

The combination of user, job and device security levels is not acceptable: either the user has a security level lower than the device, or the job has a security level higher than the device.

XP000244: Permission denied to print on device <%s>

The user is not on the permission list for the device.

XP000245: Permission denied to use the form <%s> on device <%s>

The combination of form and device cannot be used because the form is not on the 'forms' permission list for the device.

XP000246: Loadable resource <%s> does not allow device <%s>

The requested loadable resource is not compatible with the device.

XP000247: Current state of job <%s> (<%s>) incompatible with request

The state of this job does not permit the operation you are attempting.

XP000248: Insufficient privilege for server <%s>

You do not have the required user privileges for this operation on the server.

XP000249: Permission denied for server <%s>

You are not in the required permission list for the operation on the server.

XP000250: <%s> : wrong object identifier

Informs the user that the specified object name is not correct according the object naming restriction. Used by the BSD gateway for a wrong device name.

XP000251: When encapsulation is requested, the printer internal identifier of the loadable resource must be specified

The printer internal identifier must be specified

XP000252: When a call_resource type is requested, the printer internal identifier of the loadable resource must be specified

The printer internal identifier must be specified

XP000257: Cannot redirect a job which is not in WAIT or INTERRUPTED state.

Only jobs in these states can be modified to specify a new destination.

XP000258: Remote destination cannot be redirected to another domain.

A job cannot be submitted to a device of another domain that is itself redirected to another domain.

XP000259: No valid license available.

This message means that there is no valid license key to start the requested service. In this case, the service could be either Xprint or a gateway.

XP000260: -ct or -fl options are forbidden with empty or non existing files.

Filtering requires that the data is available at the time the job is submitted.

XP000261: No device available for job recovery with xprecover.

xprecover fails because none of the specified devices is accepting jobs.

XP000262: Unknown message <%s>

This message is used by a gateway to return an uninterpreted message to a user

XP000263: Host of device <%s> does not support large files

You are trying to print a large file to a device whose supervisor resides on a host that does not support large file systems.

XP000264: Server host of device <%s> does not support large files

You are trying to print a large file to a device whose server resides on a host that does not support the large file systems.

XP000265: License limit exceeded - too many objects

The number of devices configured in your domain exceeds the value allowed by your license.

XP000266: Device is already redirected

The operation is rejected because the device has been redirected to another device.

XP000267: Invalid FT account on gateway host

In the context of interoperability with Dprint, the openFT account is invalid.

XP000268: Access error on file/directory <%s>, option <-cp> could solve

A job submission on Windows NT fails under the Admin account because the file is not accessible. Using the -cp option should solve the problem.

6.3 Messages relating to PCLs and recovery rules

When a new PCL (printer capability list) is added to the Xprint system or when a PCL is modified, the PCL is recompiled. The same applies to recovery rules. This may lead to the following error messages:

XP000061: Comments about analysis of <%s1> <%s2> file

This is a header message. It is followed by a more detailed account of the error.

%s1 - type of file

%s2 - file name

Err : <%s> failure - errno = <%d>

A system call failed during compilation.

%s - system call

%d - error number (see errno.h)

Err : can not open <%s> file - errno = <%d>

The source file could not be opened.

%.128s - type of file

%d - file name

Err : no entry found in file <%.128s> for PCL <%.128s>

No definition could be found for the requested PCL.

%.128s1 - file name

%.128s2 - PCL identifier

Wng : <%.128s> capability not supported - line <%d>

The specified capability is not supported.

%.128s - The capability found in the PCL definition

%d - line number

Err : double definition of <%.128s> capability - line <%d>

The capability has been defined twice.

%.128s - capability identifier

%d - line number

Err : invalid <%.128s1> capability value for <%.128s2> - line <%d>

The value is not an expected type.

%.128s1 - type of capability (NUMERIC, BOOLEAN, STRING)

%.128s2 - capability identifier

%d - line number

Err : <%c> - too many parameters in parameterized string - line <%d>

Invalid parameter identifier in parameterized capability.

%c - parameter identifier

%d - line number

Err : not enough operands for <%c> - line <%d>

Not enough operands for specified operator.

%c - operator (+, -, ...)

%d - line number

Err : invalid <%.128s> identifier: <%c%c> - line <%d>

Invalid variable identifier.

%.128s - type of variable (static, dynamic)

%c - operation PUT/GET

%c - variable identifier

%d - line number

Err : no closing quote - line <%d>

A closing quotation mark is missing in a character value.

%d - line number

Err : no closing double quote - line <%d>

a closing double quote is missing in a string value.

%d - line number

Err : no closing bracket '}' - line <%d>

%d - line number of the missing }

Err : operands of invalid type for <%c> - line <%d>

Operands are not of the expected type.

%c - operator

%d - line number

Err : comma expected at end of capability - line <%d>

%d - line number of the missing comma.

Err : invalid control character <^%c> - line <%d>

The caret character must be followed by an uppercase letter.

%c - character following the caret symbol

%d - line number

Err : invalid numerical capability <%.128s%c> - line <%d>

The numerical capability must be followed by the # character.□

%.128s - numerical capability identifier□

%c - character following the identifier□

%d - line number

Err : only one decimal point allowed in scaled value (<%.128s>) □
- line <%d>

%.128s - scaled value

%d - line number

Err : too many digits in scaled value (<%.128s>). Value will be truncated - line <%d>

%.128s - scaled value

%d - line number

Err : no significant value found for <%.128s> - line <%d>

No value found for the capability.

%.128s - capability identifier

%d - line number

Err : decimal point not allowed for <%c> - line <%d>

The scaled value must be an integer for the lines and column units.

%c - unit used

%d - line number

Err : unknown standard capability <%.128s> - line <%d>

The specified function is not known by the spooler.

%.128s - identifier

%d - line number

Err : invalid 'keep' value field <%c> - line <%d>

Keep field must be one of =, Y or N.

%c - keep field value

%d - line number

Err : invalid key word <%.128s> - line <%d>

%c - keyword identifier

%d - line number

Err : invalid printf flag field %#<%c> for capability <%.128s> □
- line <%d>

%#<%c> - invalid string

%.128s - invalid capability identifier

%d - line number

Err : invalid printf converter field <%c> for capability <%.128s> □
- line <%d>

%c - converter must be c, d, x, X or ...

%.128s - capability identifier

%d - line number

Err : no other printf fields allowed with <%c> for capability <%.128s> - line <%d>

The printf %c does not allow any other printf fields.

%.128s - invalid sequence

%d - line number

Err : found forbidden character(s) <%c> after <%.128s> - line <%d>

%c - invalid character

%.128s - field identifier

%d - line number

Err : <%c> expected after <%.128s> field (skipping until end of line) - line <%d>

%c - expected separator

%.128s - field identifier

%d - line number

Wng : <%c> expected after <%.128s> - line <%d>

%c - expected separator

%.128s - field identifier

%d - line number

Err : <%.128s> : multi definition - line <%d>

%.128s - recovery rule identifier

%d - line number

Err : undefined generated code <%.128s> - line <%d>

%.128s - generated code

%d - line number

Err : generated code makes only sense if time field is specified □
- line <%d>

%d - line number

Wng : <%.128s> not defined (can only be used by private backends) □
- line <%d>

%.128s - recovery rule identifier or action

%d - line number

Err : possible loop starting with generated code <%.128s> - line <%d>

%.128s - identifier of the generated code □

%d - line number

Err : <%.128s> field is mandatory - line <%d>

The field %.128s is mandatory

%d - line number

Err : no recovery rules found

7 Appendix

This appendix contains the following sections:

- **Supported printers and PCLs** starting below
This section contains a list of the printers supported by Xprint and the PCLs required for these printers
- **Predefined printers for `xpconf_dev`**
This section lists the printer names and PCLs supported by `xpconf_dev`.
- **Printing on Postscript printers**
This section describes page selection for Postscript documents and options that are supported for ASCII documents.
- **Support for PJI printers**
This section contains information about using PJI printers with Xprint.
- **Support of fax and e-mail destinations**
This section describes how to configure devices to output faxes or e-mails.
- **Options of the Xprint backend**
This section describes particular options that influence processing of the Xprint backend.
- **Printer Selection**
This section describes how a printer is selected for a print job.
- **The gateway protocols BSD and GIP2**
This section describes the functionality of the two gateway protocols BSD and GIP2 under Xprint.
- **The character set ISO 8859-1 Latin 1**
This section contains a table with the characters of the character set ISO 8859-1 Latin 1, which is supported by Xprint and which serves as a basis for user-defined map tables.
- **X/Open compatibility**
This section describes the X/Open commands `lp`, `lpstat` and `cancel` supported by Xprint.
- **Auditing (users only) (users only)**
This section describes the auditing function, which records information about actions which may affect the security of a computer system.
- **Logging**
This section describes the possibilities for logging.
- **Job recovery: `xprecover` and `xppatch`**
This section describes the Xprint utilities that can be used in high availability environments.
- **The Xprint R/3 kit**
This section describes in detail the features and configuration of the certified output management interface that can be used with SAP R/3.

7.1 Supported printers and PCLs

This chapter lists the printers supported by Xprint together with the following information:

- Name of the printer
- Interface types
- Emulation
- PCL (printer capability list)

By default, only the PCL GENERIC is installed with Xprint. All the other PCLs can be installed later with the `xpadd -pcl` command. If, for example, the PCLs for the 9015 printer are no longer in the database after installation, you can enter them using the following commands.

```
xpadd -pcl E-9015 -fi xterm
xpadd -pcl P-9015 -fi xterm
xpadd -pcl E-LQ-9015 -fi xterm
```

When the PCLs are added, you can display the functionality of the different PCLs using the command `xpshow -pcl pcl_name -diL`. You can then also specify the correct options when submitting print jobs; e.g.:

The 9015 printer supports two different paper tractors, two different output bins and a paper-cutting option. You can make your choice from these using the options `-hn` (hopper_number) and `-ob` (output_bin) in the `xpadd -job ...` command:

`-hn1` = hopper_number 1

`-hn2` = hopper_number 2

`-ob1` = lower output bin without cutting

`-ob2` = lower output bin with cutting

`-ob3` = upper output bin with cutting



When you use the upper output bin the paper is always cut. □

Printer Model	Alias	Emulation	PCL
2030		HP-LASERJET	HP-LASERJET
4007-N10	ND48	NXP	NXP
4007-N10	ND48	EPSON-LQ	EPSON-LQ
4007-N60	ND49	NXP	NXP
4007-N60	ND49	EPSON-LQ	EPSON-LQ
4009-N10	ND65	NXP	NXP
4009-N10	ND65	EPSON-FX	EPSON-FX
4009-N10	ND65	PROPRINTER	PROPRINTER
4009-N60	ND66	NXP	NXP
4009-N60	ND66	EPSON-FX	EPSON-FX
4009-N60	ND66	PROPRINTER	PROPRINTER
4010-N10	ND72	EPSON-LQ	EPSON-LQ
4010-N10	ND72	PROPRINTER	PROPRINTER
4010-N60	ND73	EPSON-LQ	EPSON-LQ
4010-N60	ND73	PROPRINTER	PROPRINTER
4011		ECMA 9097	E-9097
4011		EPSON-FX	E-FX-4011
4011-N		ECMA 9097	E-9097
4011-N		EPSON-FX	E-FX-4011
4011-N		EPSON-LQ	EPSON-LQ
4014-N60	ND38	NXP	NXP
4014-N60	ND38	EPSON-LQ	EPSON-LQ
4014-N60	ND38	PROPRINTER	PROPRINTER
4806	MD12	NXP	NXP

4806	MD12	HPLJ 2	HP-LASERJET
4806	MD12	PROPRINTER	PROPRINTER
4810-P10	MD26	NXP	NXP
4810-P10	MD26	HPLJ 3	HP-LASERJET
4810-P10	MD26	POSTSCRIPT	POSTSCRIPT
4812			DJ4812
4812-I10		EPSON-FX	EPSON-FX
4812-I10		HP-DESKJET	DJ-4812
4812-I11	MD25	EPSON-FX	EPSON-FX
4812-I11	MD25	HP-DESKJET	DJ-4812
4813			E-9097
4813-I101		(ECMA)	E-9097
4813-I101		ESC/P2	EPSON-LQ
4813-I60		(ECMA)	E-9097
4813-I60		ESC/P2	EPSON-LQ
4815-P10	MD20	NXP	NXP
4815-P10	MD20	EPSON-FX	EPSON-FX
4815-P10	MD20	PROPRINTER	PROPRINTER
4815-P10	MD20	HPLJ 2	HP-LASERJET
4819-P10		HPLJ 3	HP-LASERJET
4819-P10		POSTSCRIPT	POSTSCRIPT
4820-P10		HPLJ 3	HP-LASERJET
4820-P10		POSTSCRIPT	POSTSCRIPT
4820-P15		HPLJ 3	HP-LASERJET
4820-P15		POSTSCRIPT	POSTSCRIPT
4821-P10		HPLJ 4	HP-LASERJET
4821-P15		POSTSCRIPT	POSTSCRIPT
4822		DIABLO	DB-4822
4822		EPSON-LQ	E-LQ-4822
4822		HP-LASERJET	HP-4822
4822		Line-Printer	LP-4822
4822		PROPRINTER	P-4822
4822		POSTSCRIPT	POSTSCRIPT
4824-P10		HPLJ 3	HP-LASERJET
4824-P15		HPLJ 3	HP-LASERJET
4824-P15		POSTSCRIPT	POSTSCRIPT
4826		DIABLO	DB-4822
4826		EPSON-LQ	E-LQ-4822

4826		HP-LASERJET	PJL-PCL5e-48xx
4826		Line-Printer	LP-4822
4826		PROPRINTER	P-4822
4827		DIABLO	DB-4822
4827		EPSON-LQ	E-LQ-4822
4827		HP-LASERJET	PJL-PCL5e-48xx
4827		Line-Printer	LP-4822
4827		PROPRINTER	P-4822
4828		DIABLO	DB-4822
4828		EPSON-LQ	E-LQ-4822
4828		HP-LASERJET	PJL-PCL5e-48xx
4828		Line-Printer	LP-4822
4828		PROPRINTER	P-4822
4830		DIABLO	DB-4822
4830		EPSON-LQ	E-LQ-4822
4830		HP-LASERJET	PJL-PCL5e-48xx
4830		Line-Printer	LP-4822
4830		POSTSCRIPT	PJL-PS-48xx
4830		PROPRINTER	P-4822
4850		HP-LASERJET	PJL-PCL5e-4850
4904	ND90		NXP
9001-2		ECMA	E-9001
9001-31		ECMA	E-9001-31
9001-891		ECMA	E-9001-31
9001-8931		ECMA	E-9001-31
9001-32		ECMA	E-9001-31
9001-832		ECMA	E-9001-31
9011			E-9011
9011-28		ECMA	E-9011
9011-29		ECMA	E-9011
9012		ECMA	E-9012
9013			E-9013
9013-300		ECMA	E-9013
9014			E-9014
9014-11		ECMA	E-9014
9014-12		EPSON-LQ	EPSON-LQ
9014-12		PROPRINTER	PROPRINTER
9014-16		ECMA	E-9014

9015		ECMA	E-9015
9015		PROPRINTER	P-9015
9015		EPSON-LQ	E-LQ-9015
9021	MD24	HPLJ 2	HP-LASERJET
9021		(POSTSCRIPT)	POSTSCRIPT
9022	MD07	NXP	NXP
9022-100	MD07	DIABLO 630	DB-9022
9022-200		NXP	NXP
9022-200		DIABLO 630	DB-9022
9022-200		HPLJ	HP-9022
9022-200		PROPRINTER	PROPRINTER
9022-300		POSTSCRIPT	POSTSCRIPT
9024		NXP	NXP
9024		HPLJ 2	HP-LASERJET
9024		POSTSCRIPT	POSTSCRIPT
9025		POSTSCRIPT	POSTSCRIPT
9025		RENO	R-9025
9026		RENO	R-9026
9026		POSTSCRIPT	POSTSCRIPT
9026		HPLJ 2000	HP-LASERJET
9040	ZD09		LP-9040
9041	ZD11		S-9041
9041	ZD11		C-9041
9041	ZD11		D-9041
9042	ZD12		C-9041
9043	ZD13	NXP	NXP
9043	ZD13	A-ZD13	A-ZD13
9043	ZD13		D-ZD13
9044	ZD14	NXP	NXP
9044	ZD14	A-ZD14	A-ZD14
9044	ZD13		D-ZD14
9045		ANSI	A-ZD14
9046		ANSI	S-9041
9047		ASCII	A-9047
9048			P-9048
9049			P-9048
9097			E-9097
9097-10		ECMA	E-9097

9097-20		ECMA	E-9097
9097-20		EPSON-FX	EPSON-FX
MD06		NXP	NXP
ND24	ND44	NXP	NXP
ND25	ND45	NXP	NXP
ND27		NXP	NXP
ND31		NXP	NXP
ND32		NXP	NXP
ND33		NXP	NXP
ND35		NXP	NXP
ND37		NXP	NXP
ND44		NXP	NXP
ND45		NXP	NXP
ZD09		NXP	NXP
ZD12		NXP	NXP

Table 28: Supported printers and corresponding PCLs

7.2 Predefined printers for xpcnf_dev

The following table shows the information contained in the file `/var/spool/Xprint/config/data/conf_dev`. Each line describes a predefined printer with the following information: name, emulation, PCL and default connection data (parity, baud, data bits, protocol, polling, and connection type).

SNI-2030	HP-LASERJET	HP-LASERJET	NON E	38400	8	XO N	N	SERIAL
PS55	PCL5e	PJL-PCL5e	NON E	9600	8	XO N	N	SCSI
PS75	PCL5e	PJL-PCL5e	NON E	9600	8	XO N	N	SCSI
PS158	PCL5e	PJL-PCL5e	NON E	9600	8	XO N	N	SCSI
PS88	PCL5e	PJL-PCL5e	NON E	9600	8	XO N	N	SCSI
PS145	PCL5e	PJL-PCL5e	NON E	9600	8	XO N	N	SCSI
PS235	PCL5e	PJL-PCL5e	NON E	9600	8	XO N	N	SCSI
PS350	PCL5e	PJL-PCL5e	NON E	9600	8	XO N	N	SCSI
PS440	PCL5e	PJL-PCL5e	NON E	9600	8	XO N	N	SCSI
DSC200	PCL5e	PJL-PCL5e	NON E	9600	8	XO N	N	SCSI
DSC200	PCL5e	PJL-PCL5e	NON E	9600	8	XO N	N	SCSI

F		5e	E	0		N		
SNI-400 7-N10	EPSON- LQ	EPSON- LQ	NON E	960 0	8	XO N	N	SERI AL
SNI-400 7-N10	EPSON- LQ-#NX P#	NXP	NON E	960 0	8	XO N	N	SERI AL
SNI-400 7-N60	EPSON- LQ	EPSON- LQ	NON E	960 0	8	XO N	N	SERI AL
SNI-400 7-N60	EPSON- LQ-#NX P#	NXP	NON E	960 0	8	XO N	N	SERI AL
SNI-400 9-N10	EPSON- FX	EPSON- FX	NON E	960 0	8	ET X	N	SERI AL
SNI-400 9-N10	PROPRI NTER	PROPRI NTER	NON E	960 0	8	XO N	N	SERI AL
SNI-400 9-N10	EPSON- FX-#NX P#	NXP	NON E	960 0	8	XO N	N	SERI AL
SNI-400 9-N60	EPSON- FX	EPSON- FX	NON E	960 0	8	ET X	N	SERI AL
SNI-400 9-N60	PROPRI NTER	PROPRI NTER	NON E	960 0	8	XO N	N	SERI AL
SNI-400 9-N60	EPSON- FX-#NX P#	NXP	NON E	960 0	8	XO N	N	SERI AL
SNI-401 0-N10	EPSON- LQ	EPSON- LQ	NON E	960 0	8	XO N	N	SERI AL
SNI-401 0-N10	PROPRI NTER	PROPRI NTER	NON E	960 0	8	XO N	N	SERI AL
SNI-401 0-N60	EPSON- LQ	EPSON- LQ	NON E	960 0	8	XO N	N	SERI AL
SNI-401 0-N60	PROPRI NTER	PROPRI NTER	NON E	960 0	8	XO N	N	SERI AL
SNI-401 1	ECMA	E-9097	NON E	960 0	8	XO N	Y	SERI AL
SNI-401 1	EPSON- LQ	EPSON- LQ	NON E	960 0	8	XO N	N	SERI AL
SNI-401 1	EPSON- FX	E-FX-40 11	NON E	960 0	8	XO N	N	SERI AL
SNI-401 4	EPSON- LQ	EPSON- LQ	NON E	960 0	8	XO N	N	SERI AL
SNI-401 4	PROPRI NTER	PROPRI NTER	NON E	960 0	8	XO N	N	SERI AL
SNI-401 4	EPSON- LQ-#NX	NXP	NON E	960 0	8	XO N	N	SERI AL

	P#							
SNI-4806	HP-LASERJET	HP-LASERJET	NON E	9600	8	ET X	N	SERIAL
SNI-4806	PROPRI NTER	PROPRI NTER	NON E	9600	8	XO N	N	SERIAL
SNI-4806	HP-LASERJET-#NXP#	NXP	NON E	9600	8	XO N	N	SERIAL
SNI-4810-P10	HP-LASERJET	HP-LASERJET	NON E	9600	8	RX ON	N	SERIAL
SNI-4810-P10	POSTS CRIPT	POSTS CRIPT	NON E	9600	8	RX ON	N	SERIAL
SNI-4810-P10	HP-LASERJET-#NXP#	NXP	NON E	9600	8	XO N	N	SERIAL
SNI-4812-I10	EPSON-FX	EPSON-FX	NON E	9600	8	ET X	N	SERIAL
SNI-4812-I10	HP-DESKJET	DJ-4812	NON E	9600	8	XO N	Y	SERIAL
SNI-4812-I11	EPSON-FX	EPSON-FX	NON E	9600	8	ET X	N	SERIAL
SNI-4812-I11	HP-DESKJET	DJ-4812	NON E	9600	8	XO N	Y	SERIAL
SNI-4813-I60	ECMA	E-9097	NON E	9600	8	ET X	Y	SERIAL
SNI-4813-I60	ESC-P2	EPSON-LQ	NON E	9600	8	XO N	N	SERIAL
SNI-4815-P10	PROPRI NTER	PROPRI NTER	NON E	19200	8	XO N	N	SERIAL
SNI-4815-P10	HP-LASERJET	HP-LASERJET	NON E	19200	8	ET X	N	SERIAL
SNI-4815-P10	EPSON-FX	EPSON-FX	NON E	19200	8	XO N	N	SERIAL
SNI-4815-P10	HP-LASERJET-#NXP#	NXP	NON E	9600	8	XO N	N	SERIAL
SNI-4819-P10	HP-LASERJET	HP-LASERJET	NON E	19200	8	RX ON	N	SERIAL
SNI-4819-P10	POSTS CRIPT	POSTS CRIPT	NON E	19200	8	RX ON	Y	SERIAL
SNI-4820-P10	HP-LASERJET	HP-LASERJET	NON E	19200	8	RX ON	N	SERIAL
SNI-4820-P10	POSTS CRIPT	POSTS CRIPT	NON E	19200	8	RX ON	Y	SERIAL
SNI-482	HP-LAS	HP-LAS	NON	192	8	RX	N	SERI

0-P15	ERJET	ERJET	E	00		ON		AL
SNI-482 0-P15	POSTS CRIPT	POSTS CRIPT	NON E	192 00	8	RX ON	Y	SERI AL
SNI-482 1-P10	HP-LAS ERJET	HP-LAS ERJET	NON E	192 00	8	XO N	N	SERI AL
SNI-482 1-P15	POSTS CRIPT	POSTS CRIPT	NON E	192 00	8	XO N	N	SERI AL
SNI-482 2	DIABLO- 630	DB-4822	NON E	960 0	8	XO N	N	SERI AL
SNI-482 2	EPSON- LQ	E-LQ-48 22	NON E	960 0	8	XO N	N	SERI AL
SNI-482 2	HP-LAS ERJET	HP-4822	NON E	960 0	8	XO N	N	SERI AL
SNI-482 2	LinePrint er	LP-4822	NON E	960 0	8	XO N	N	SERI AL
SNI-482 2	PROPRI NTER	P-4822	NON E	960 0	8	XO N	N	SERI AL
SNI-482 2	POSTS CRIPT	PS-4822	NON E	960 0	8	XO N	N	SERI AL
SNI-482 4-P10	HP-LAS ERJET	HP-LAS ERJET	NON E	192 00	8	RX ON	N	SERI AL
SNI-482 4-P15	HP-LAS ERJET	HP-LAS ERJET	NON E	192 00	8	RX ON	N	SERI AL
SNI-482 4-P15	POSTS CRIPT	POSTS CRIPT	NON E	192 00	8	RX ON	Y	SERI AL
SNI-482 6	DIABLO- 630	DB-4822	NON E	960 0	8	XO N	N	SERI AL
SNI-482 6	EPSON- LQ	E-LQ-48 22	NON E	960 0	8	XO N	N	SERI AL
SNI-482 6	HP-LAS ERJET	PJL-PCL 5e-48xx	NON E	960 0	8	XO N	N	SERI AL
SNI-482 6	LinePrint er	LP-4822	NON E	960 0	8	XO N	N	SERI AL
SNI-482 6	PROPRI NTER	P-4822	NON E	960 0	8	XO N	N	SERI AL
SNI-482 7	DIABLO- 630	DB-4822	NON E	960 0	8	XO N	N	SERI AL
SNI-482 7	EPSON- LQ	E-LQ-48 22	NON E	960 0	8	XO N	N	SERI AL
SNI-482 7	HP-LAS ERJET	PJL-PCL 5e-48xx	NON E	960 0	8	XO N	N	SERI AL
SNI-482 7	LinePrint er	LP-4822	NON E	960 0	8	XO N	N	SERI AL
SNI-482	PROPRI	P-4822	NON	960	8	XO	N	SERI

7	ENTER		E	0		N		AL
SNI-4828	DIABLO-630	DB-4822	NON E	9600	8	XO N	N	SERIAL
SNI-4828	EPSON-LQ	E-LQ-4822	NON E	9600	8	XO N	N	SERIAL
SNI-4828	HP-LASERJET	PJL-PCL 5e-48xx	NON E	9600	8	XO N	N	SERIAL
SNI-4828	LinePrinter	LP-4822	NON E	9600	8	XO N	N	SERIAL
SNI-4828	PROPRIENTER	P-4822	NON E	9600	8	XO N	N	SERIAL
SNI-4830	DIABLO-630	DB-4822	NON E	9600	8	XO N	N	SERIAL
SNI-4830	EPSON-LQ	E-LQ-4822	NON E	9600	8	XO N	N	SERIAL
SNI-4830	HP-LASERJET	PJL-PCL 5e-48xx	NON E	9600	8	XO N	N	SERIAL
SNI-4830	LinePrinter	LP-4822	NON E	9600	8	XO N	N	SERIAL
SNI-4830	PROPRIENTER	P-4822	NON E	9600	8	XO N	N	SERIAL
SNI-4830	POSTSCRIPT	PJL-PS-48xx	NON E	9600	8	XO N	N	SERIAL
SNI-4850	HP-LASERJET	PJL-PCL 5e-4850	NON E	9600	8	XO N	N	SERIAL
SNI-4904	EPSON-FX-#NXP#	NXP	NON E	9600	8	XO N	N	SERIAL
SNI-9001-2	ECMA	E-9001	NON E	9600	8	ET X	N	SERIAL
SNI-9001-xx	ECMA	E-9001-31	NON E	9600	8	ET X	N	SERIAL
SNI-9011-28	ECMA	E-9011	ODD	9600	7	XO N	N	SERIAL
SNI-9011-29	ECMA	E-9011	ODD	9600	7	XO N	N	SERIAL
SNI-9012-2	ECMA	E-9012	NON E	9600	8	XO N	N	SERIAL
SNI-9013-300	ECMA	E-9013	ODD	9600	7	ET X	Y	SERIAL
SNI-9014-11	ECMA	E-9014	NON E	9600	8	ET X	Y	SERIAL
SNI-9014-12	EPSON-LQ	EPSON-LQ	NON E	9600	8	XO N	N	SERIAL

SNI-901 4-12	PROPRI NTER	PROPRI NTER	NON E	960 0	8	XO N	N	SERI AL
SNI-901 4-16	ECMA	E-9014	NON E	960 0	8	ET X	Y	SERI AL
SNI-901 5	ECMA	E-9015	NON E	960 0	8	ET X	Y	SERI AL
SNI-901 5	EPSON- LQ	E-LQ-90 15	NON E	960 0	8	XO N	N	SERI AL
SNI-901 5	PROPRI NTER	P-9015	NON E	960 0	8	XO N	N	SERI AL
SNI-902 1	HP-LAS ERJET	HP-LAS ERJET	NON E	960 0	8	RX ON	N	SERI AL
SNI-902 1	POSTS CRIPT	POSTS CRIPT	NON E	960 0	8	RX ON	Y	SERI AL
SNI-902 2	HP-LAS ERJET- #NXP#	NXP	NON E	960 0	8	XO N	N	SERI AL
SNI-902 2-100	DIABLO- 630	DB-9022	NON E	960 0	8	XO N	N	SERI AL
SNI-902 2-200	DIABLO- 630	DB-9022	NON E	960 0	8	XO N	Y	SERI AL
SNI-902 2-200	HP-LAS ERJET	HP-9022	NON E	960 0	8	XO N	N	SERI AL
SNI-902 2-200	PROPRI NTER	PROPRI NTER	NON E	960 0	8	XO N	N	SERI AL
SNI-902 2-300	POSTS CRIPT	POSTS CRIPT	NON E	960 0	8	XO N	Y	SERI AL
SNI-902 4	HP-LAS ERJET	HP-LAS ERJET	NON E	192 00	8	ET X	N	SERI AL
SNI-902 4	POSTS CRIPT	POSTS CRIPT	NON E	192 00	8	ET X	Y	SERI AL
SNI-902 4	HP-LAS ERJET- #NXP#	NXP	NON E	192 00	8	XO N	N	SERI AL
SNI-902 5	RENO	R-9025	NON E	192 00	8	XO N	Y	SERI AL
SNI-902 5	POSTS CRIPT	POSTS CRIPT	NON E	192 00	8	ET X	Y	SERI AL
SNI-902 6	RENO	R-9026	NON E	192 00	8	XO N	Y	SERI AL
SNI-902 6	HP-LAS ERJET	HP-LAS ERJET	NON E	192 00	8	ET X	N	SERI AL
SNI-902 6	POSTS CRIPT	POSTS CRIPT	NON E	192 00	8	ET X	Y	SERI AL
SNI-904	LinePrint		LP-9	NO	96	8	X	N

0	er		040	NE	00		O N	
SNI-904 1	ANSI	S-9041	NON E	960 0	8	XO N	N	SERI AL
SNI-904 1	ANSI	C-9041	NON E	960 0	8	XO N	N	PARA LLEL
SNI-904 1	DATAP RODUC T	D-9041	NON E	960 0	8	XO N	N	SERI AL
SNI-904 2	ANSI	C-9041	NON E	960 0	8	XO N	N	PARA LLEL
SNI-904 3	A-ZD13	A-ZD13	NON E	960 0	8	ET X	N	SERI AL
SNI-904 3	DATAP RODUC T	D-ZD13	NON E	960 0	8	XO N	N	SERI AL
SNI-904 3	ANSI-#N XP#	NXP	NON E	960 0	8	XO N	N	SERI AL
SNI-904 4	A-ZD14	A-ZD14	NON E	960 0	8	ET X	N	SERI AL
SNI-904 4	DATAP RODUC T	D-ZD14	NON E	960 0	8	XO N	N	SERI AL
SNI-904 4	ANSI-#N XP#	NXP	NON E	960 0	8	XO N	N	SERI AL
SNI-904 5	ANSI	A-ZD14	NON E	960 0	8	ET X	N	SERI AL
SNI-904 6	ANSI	S-9041	NON E	192 00	7	XO N	N	SERI AL
SNI-904 7	ASCII	A-9047	ODD	192 00	7	XO N	Y	SERI AL
SNI-904 8	PROPRI NTER	P-9048	ODD	192 00	7	ET X	Y	SERI AL
SNI-904 9	PROPRI NTER	P-9048	ODD	192 00	7	ET X	Y	SERI AL
SNI-909 7-10	ECMA	E-9097	NON E	960 0	8	XO N	Y	SERI AL
SNI-909 7-20	ECMA	E-9097	NON E	960 0	8	XO N	Y	SERI AL
SNI-909 7-20	EPSON- FX	EPSON- FX	NON E	960 0	8	XO N	N	SERI AL

Table 29: Predefined printers for xpcnf_dev

7.3 Printing on Postscript printers

7.3.1 Page selection for Postscript documents

Page selection for Postscript documents is possible if they follow a standard structure. Adobe has a set of structuring conventions that apply from Postscript version 1.0 onwards. Documents that obey these conventions are called *conforming programs*.

The following paragraphs give an overview of the Postscript structuring conventions used during the page selection process. Structuring conventions do not have any effect on the PostScript interpreter execution. They are implemented as Postscript comments.

PostScript comments

A Postscript comment consists of a % in first position followed by any text and terminated by a newline character with a maximum line length of 256 . This line is totally ignored by the interpreter.

Comment convention

Conforming programs contain structural information in comments that begin with either %! or %%. The very first line of any Postscript program should be a line that begins with the characters %!, which identifies the data as a Postscript program. Any additional lines beginning with %! will be ignored.

In a conforming PostScript program, the first line must be the version comment. For example:
%!PS-Adobe-1.0
tells you that the Postscript version is 1.0.

Comments have the following form:

```
%%keyword: value1 value2 \n
```

and must obey some syntax rules:

- %% must start at first position (no space before).
- Keyword is a comment identifier (see the Postscript language reference manual).
- No space between %% and the keyword.
- No space between keyword and ":"
- Only one space (mandatory) after ":" and one space between each value.
- Maximum length of 256 characters.
- %%+ is the comment continuation.
- Terminated by a newline.

Comments for conforming programs fall into three classes: header, body and trailer.

Header comments

Header comments precede any non-comment program text and provide information about the program as a whole. They begin immediately after the version comment and end at the first occurrence of a line that doesn't start with %% or %!, or at an explicit %%EndComments comment. The following are examples of possible header comments:

```
%%DocumentFonts: font1 font2 .... | (attend)
```

□

Names of the fonts used by the document.

```
%%Title: title
```

□

Title of the document.

```
%%Creator: text
```

□

Person or program that created the document.

```
%%CreationDate: text
```

□

Date and time of document creation.

```
%%For: text
```

□

recipient of the printed document.

%%Pages: pages | (at end)

□

Number of pages in the document.

%%BoundingBox: llx lly urx ury | (atend)

□

Coordinates of the lower left and upper right corners of the bounding box in the user coordinate system.

%%EndComments

□

Explicitly ends the header comments.

Certain header comments can be deferred to the end of the program (that is, put in the trailer section). This is for the benefit of applications that generate page descriptions on-the-fly; such applications may not have the necessary information about fonts, page count etc. at the beginning of generating a page description, but only at the end.

If a particular header comment is to be deferred, a comment with the same keyword and the value (atend) must appear in the header section.

Body comments

Body comments mark the boundaries between the various parts of a page description.

Page selection that operates on the structure of a page description (e.g. extracts page subsets) must pay attention to these boundaries. In particular, whatever it does to individual pages, it must preserve the prologue (the header comments plus general comments relating to the document) at the beginning, and the trailer at the end of the document. The trailer comments are explained in the next section.

%%EndProlog

□

End of the prologue section and beginning of the script section of the document.

%%Page: label ordinal

□

Beginning of the description of an individual page, thereby terminating the preceding page.

This page information is useful to the page selection for extracting pages from a document; it allows a page to be identified by its page number, which is given in the ordinal field.

label

□

is a text string not containing white space characters. It identifies the page according to its internal scheme (e.g. i, ii, iii, ... 1-1, 1-2, 1-3 ...). This field is optional.

ordinal

□

is a positive integer that specifies the page's position in the document (from 1 through n in an n-page document).

%%PageFonts: font1 font2 ...

□

Fonts required by the current page.

%%Trailer

□

End of the last page of the document and beginning of the trailer section.

Trailer comments

These are header comments that have been deferred to the end of the document by entering the value (atend) after the keyword.



The page selection preserves the header data and only applies to the body of the Postscript

documents. As the vppost slow filter delivered with Xprint follows these standards, page selection is possible on documents submitted with the `-ct SIMPLE` option.

7.3.2 Job options supported for ASCII documents

It is possible to support some job options even if an ASCII document must be printed on a Postscript printer. The option values must therefore be given to the vppost slow filter in such a way that they will be converted to Postscript commands. This has been implemented by adding a new slow filter options which converts job options to E-9001-31 escape sequences and sends them to vppost immediately before the ASCII document. Since these sequences are translated by vppost the appropriate job options are supported for text documents printed on Postscript printers.

The following diagram shows how the slow filters work in cascade.

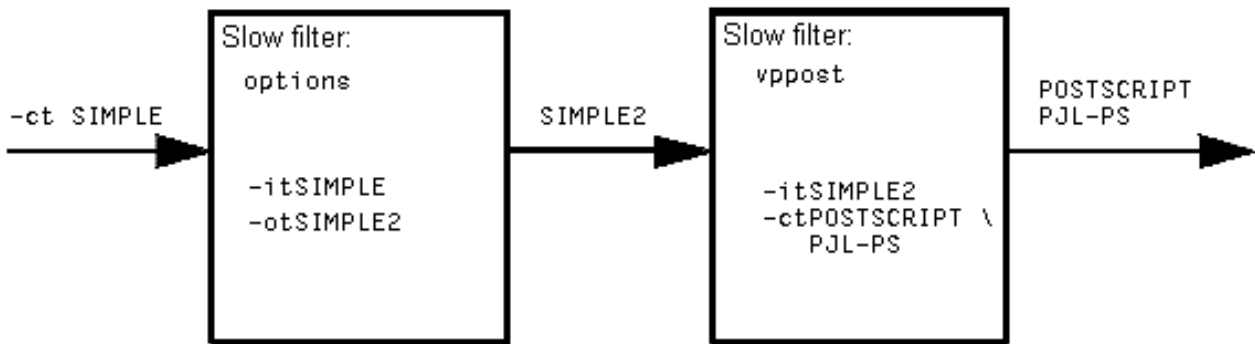


Figure 13: Slow filters working in cascade

Job options for PostScript printing:

-lm left_margin

☐

Specifies the left margin - the indentation from the left side of the page. The default value is 0. Possible values are: any scaled value.

-tm top_margin

☐

Specifies the top margin - the space skipped at the beginning of each new page before printing the first line. The default value is 0. Possible values are: any scaled value.

-ll line_length

☐

Indicates the logical length of a line. If this flag is omitted, the line length will depend on the printer settings. Possible values are: any scaled value.

-pl page_length

☐

Specifies the logical length of a page. If this flag is omitted, the page length will be the page height minus the top margin. Possible values are: any scaled value.

-cs character_style

☐

This option selects the character style. The default value is STRAIGHT. Possible values are STRAIGHT or ITALICS.

-vm vertical_motion

☐

This option sets the vertical motion performed for each line, in other words, the line height. The value is given in lines per inch. The default value is 6. Possible values are: any integer value.

-hm horizontal_motion

□

The horizontal motion performed for each character and given in characters per inch. The default value is 10. Possible values are: □
10, 12, 13, 15, 17.

-la language

□

This option allows you to select a language, enabling you to use the character set for that language. The languages correspond to those supported in the PCL E-9001-31.

Possible values are: International English, ASCII, USA, Norwegian, Danish, Swedish, German, French, Italian, Spanish, Swiss, Norwegian-2, Danish-2, Belgian, DTSH, INT, ENGL, ASCI, DAEN, FRNZ, SPAN, ITAL, SWED, FINN, NORW, BELG, CH.

7.4 Support for PjL printers

Many modern printers offer several different emulations. In the past, the emulation required had to be selected from the printer control panel. Nowadays, most printers that support the HP-LASERJET emulation, also support PjL (Printer Job Language). PjL allows you to select the printer language by using software commands. The latest printers go one step further: they can analyze the data to be printed and then select the appropriate emulation.

In Xprint V6.0, there is one PCL object for each printer emulation. A printer supporting PjL must be defined in the system for each emulation that will be used. For example, knowing that PjL-PS and PjL-PCL5e are two PCL objects delivered with the current version, a printer supporting PjL must be defined as two logical devices:

```
xpadd -dev hpps -pc PjL-PS -da ...
```

```
xpadd -dev hppcl -pc PjL-PCL5e -da ...
```

PCL jobs have to be submitted to the PCL device (hppcl), and Postscript documents must be submitted to the Postscript device (hpps).

PjL supports a wide variety of status codes, which are grouped into classes. The first two digits indicate the message category. The other digits give further information about the particular category. There are also status codes to show if the printer is online or not. The following table shows the codes that are currently supported.

PjL Status Code	Xprint code	Comment
CODE=10001□ ONLINE=TRUE	Ok	
CODE=10001□ ONLINE=FALSE	Stop	
CODE=10006	Ok	TONER LOW
CODE=10xxx	Ok	Information Messages
CODE=11xyy	Ok	Background Paper Mount
CODE=20xxx	Ok	PjL Parser Errors
CODE=25xxx	Ok	PjL Parser Warnings
CODE=27xxx	Ok	PjL Semantic Errors
CODE=30xxx	Panel	Auto-Continuable Conditions
CODE=35xxx	Panel	Possible Operator Intervention Conditions
CODE=40021	CoverOpen	PRINTER OPEN

CODE=40022	PaperJam	PAPER JAM
CODE=40xxx	Panel	Any other error of category "Operator Intervention Required."
CODE=41xyy	PaperEnd	Out of paper. "xyyx" specifies the type of paper.

Table 30: Supported status codes

7.5 Support of fax and e-mail destinations

7.5.1 General mechanism

Xprint enables you to direct print jobs to printers, faxes or electronic mail boxes. Xprint can reach any SMTP compatible mail server directly, and operates together with external products to print to fax devices.

One of the following products is required to print to a fax:

- VSI-FAX
- Optio FaxFX
- TOPCALL

To print to e-mail, you need an SMTP compliant mail server (RFC 1521) in your network.

Fax and e-mail destinations are supported by Xprint devices. Fast filters redirect the print data to the fax software or the mail server. Xprint considers a print job to be terminated as soon as it has been accepted by the fax software or the mail server. In order to follow the sending status of, for example, a fax job accepted by the external software, you will need to use the interfaces of your favorite fax product.

To send a fax or e-mail, Xprint needs specific fax or mail parameters (e.g. phone number, distribution list, ...). As these are different for each product Xprint does not provide an additional option for them; the specific parameters are registered as comments for the device and the job objects. You can register the fixed parameters in the device comment, and pass the variable data that is peculiar to each job in that job's job comment. The parameters in the device comment are applied to all the jobs sent to that device. To simplify this procedure you can define the job comment in an Xprint job template.

`xpconf_fax` is a command that helps you define new Xprint devices which produce their output as faxes or e-mails. This command creates the required fast filters and adds a new device with the appropriate attributes.

7.5.2 Configuration

The command `xpconf_fax` allows you to configure a fax or e-mail device in Xprint. You may wish to configure options of the fax products that are not supported by `xpconf_fax`, so the manual configuration of these Xprint objects is also described.

7.5.3 `xpconf_fax` - Configuring a fax/e-mail device

Format

`xpconf_fax` *device_name* **-tp** *target_product* [*options*]

Description

`xpconf_fax` creates an Xprint device that forwards all the received jobs to a fax program or mail server. The device is created with a fast filter which interfaces with the external product. The options given to this command are registered in the administrator's device comment. Any parameters that may vary between jobs should not be specified to `xpconf_fax` but should be placed in the comment belonging to the specific print job. This command is reserved for the Xprint administrator.

Operands

device_name

□

name of the Xprint device to be created. If this name is already in use the command will be rejected.

-tp target_product

□

The name of the external software program which handles faxing or mailing the print jobs. The following values can be specified:

- VSIFAX to fax with VSI-FAX.
- TOPCALL to fax with TOPCALL.
- OPTIO to fax with Optio FaxFX
- SMTP to send mails with an SMTP server.

Options**-ho host**

□

The name of the Xprint host on which the fax/e-mail Xprint device is created. The default is the current host.

-ft address_string

□

This option is needed for TOPCALL (it is not used for the other products). It provides the ftp address at which the TOPCALL file must be stored in order to send a fax. This address is a string of the form **ftp://username:password@hostname/directory/subdirectory**. □

This string should not include a file name; this will be computed dynamically by Xprint. Do not use backslashes ('\') in the path name, even for Windows machines, use a slash instead ('/'). □

A password must always be supplied, even if the ftp server allows access without passwords (e.g. for the "anonymous" user). □

This option is stored in the administrator's comment field of the Xprint device. Only Xprint administrators are permitted to read this attribute and the user name and password it contains.

-ap application

□

This option can be submitted only for the TOPCALL software. It provides the "APPLICATION" string that Xprint will store on the ":ATT:" line (attached file description) of the TOPCALL parameter file and is mandatory, i.e. it must be present either here or in the job comment.

-co comment

□

This option can be submitted only for the TOPCALL software. It provides the "COMMENT" string that Xprint will store on the ":ATT:" line (attached file description) of the TOPCALL parameter file. It is optional.

-ss smtp_server

□

This option can be submitted only for an SMTP server. It specifies the name of the host running the SMTP server.

-sj subject

□

This option can be submitted only for an SMTP server. It specifies the text that will appear as the subject of the e-mail.

-to recipient

□

This option can be submitted only for an SMTP server. It specifies the mail recipient.

-fr originator

□

This option can be submitted only for an SMTP server. It specifies the mail originator.

-rp reply

□

This option can be submitted only for an SMTP server. It specifies the reply address of the mail.

-mp *mail_prefix*

□

This option can be submitted only for an SMTP server. It specifies a text prefix to be inserted before the sent message (i.e. the printed file). If *mail_prefix* contains blank characters, it must be enclosed in quotes.

-ms *mail_suffix*

□

This option can be submitted only for an SMTP server. It specifies a text suffix to be appended to the sent message (i.e. the printed file). If *mail_suffix* contains blank characters it must be enclosed in quotes.

-an *attachment_name*

□

This option can be submitted only for an SMTP server. It specifies the name of an attachment. If *attachment_name* is specified, then the printed file is sent as a mail attachment (and not as the text of the mail).

-at *attachment_type*

□

This option can be submitted only for an SMTP server. It specifies the MIME type of the attachment (e.g. Text/plain or application/msword).

-op *product_options*

□

This option specifies the fax-product-specific parameters that you want to attach to the Xprint device. It is not used for SMTP mailing. Note that if *product_options* starts with a dash ("-"), you must prefix it with a space character (" ").

-pc *pcl_name* □

This option specifies the name of the PCL for the device. The default value is FAXMAIL. When the FAXMAIL PCL is used, the printed file is transmitted to the fax product or e-mail server without any modification.

Examples

```
xpconf_fax xp2mail -tp SMTP -ss smtphast -sj "Sample mail" \
```

```
-fr Joe@my.company.earth \
```

```
-mp "Hi,\n These are my documents:" \
```

```
-at application/x-zip-compressed
```

This command defines a device sending print jobs as e-mails containing a text (Hi, These...), followed by an attached zip file named *documents*. The attachment is made up of the printed data. The mail recipient is not provided as a fixed parameter for the device but will be specified when the job is submitted, for example with:

```
xpadd -dr zipped_files -de xp2mail \
```

```
-jc " -to Bill@company.moon -an \"New documents\" "
```

This command sends a mail to Bill and names the attachment *New documents*.

```
xpconf_fax xp2topcall -tp TOPCALL \
```

```
-ft joe:anna@faxserver/topcall/FI2TC \
```

```
-co from_xprint -op "SUBJ=Test "
```

This command defines a device that forwards print jobs to TOPCALL by transferring the file via ftp on the host *faxserver* using the user *joe* and the password *anna* on the directory */topcall/FI2TC*. If you type the command:

```
xpadd -dr faxedfile -de xp2topcall \
```

```
-jc " -ap f.ps | TO: NA=Bill, SE=FAX, N=5551234 "
```

the file sent to TOPCALL will contain a "SUBJ" line a "TO" line and an attachment line.

```
xpconf_fax xp2vsi -tp VSIFAX \
-op " -n \"5551234:Bill Smith\"-E fine"
```

This command defines a device that forwards jobs to VSI-FAX. If you enter the command:

```
xpadd -dr faxedfile -de xp2vsi -jc" -C classic"
```

Xprint issues the following command to VSI-FAX:

```
vfx -n "5551234:Bill Smith" -E fine -C classic < faxeddata
```

```
xpconf_fax xp2optio -tp OPTIO -op " -phone 5551234 -force_fine"
```

This command defines a device that forwards jobs to Optio FaxFX. If you enter the command:

```
xpadd -dr faxedfile -de xp2vsi -jc" -sender Joe"
```

Xprint issues the following command to Optio FaxFX:

```
faxsend -sheetd faxeddata -phone 5551234 -force_fine \
-sender Joe
```

7.5.3.1 Manual configuration

Fast Filters

The following fast filter executable files are installed in the Xprint filters directory (/var/spool/Xprint/config/filters):

- vsi_fax.sh: supporting VSI-FAX
- topcall.sh: supporting TOPCALL
- optio.sh: supporting Optio FaxFX
- smtp.sh: supporting SMTP mail servers

These filters are not pre-defined in the Xprint database. If you do not use `xpconf_fax` to configure your device you will have to add them manually first.

The filters can be defined using the command:

```
xpadd -flt filtername -tp FAST -cm executable_name \
-op "JOB_ID *=" "PRINTER *="
```

Xprint devices

Before sending faxes or e-mails using your print jobs you will first have to configure the devices. It is good policy to define at least one distinct device for each external product.

The devices should be defined using the following Xprint parameters:

-ca:

The administrator's comment is used to specify the fax/mail submission parameters. This comment is no longer available for other purposes, but the user's comment (-cu) can still be used.

-co:

The connection type option should be set to PARALLEL for OPTIO FaxFX, VSI-FAX and TOPCALL and must be LAN for SMTP.

-ct:

You should specify all the content types describing languages supported by the target product. This will enable automatic activation of Xprint translation filters (slow filters) when other formats of documents are submitted to the device. See also the `-pc` option.

-da:

For OPTIO FaxFX, VSI-FAX and TOPCALL you must specify a file path here (for example /var/spool/Xprint/config/dev/xprint_fax001). We advise you to specify a different path for each device. For SMTP devices you must specify the host name and port number of the SMTP server here (e.g. -da "SMTPHost 25"). The standard port number of the SMTP service is 25.

-fl:

The name of the fast filter that will handle the job (the name you chose for the filter during the `xpadd -flt`

command).

-ho:

The device must be defined on a host on which the external products are accessible. Xprint's fax and mail fast filters issue some fax and mail commands on this host. This is not always the host where the SMTP or TOPCALL server are installed but is the host where the filter is executed. For Optio FaxFx and VSI-FAX, however, the product must be installed on the host that is specified here.

-pc:

The PCL that describes the document language sent to the mail/fax software should be specified (e.g. POSTSCRIPT or HP-LASERJET). If you need to send documents in different languages to the same fax/mail software, you will have to define several devices. If you merely wish to forward the print file unchanged you can use the FAXMAIL PCL. Inquire about the document formats supported by your fax software. Using an unsupported format does not generate any error in Xprint (which acts merely as a document carrier) but could lead to unexpected fax output.

Setting job and device comments

The fast filters parameters can be registered in the job comment and in the administrator's device comment. The filters append the job comment to the device comment and uses the resulting string as parameters to the filters.

A convenient way to specify common fax/mail options in the job comment is to create a Xprint job template for each application and to let the user or the application invoke the template when the job is submitted.

Any parameter that is not recognized by the filter (i.e. not described in this section) is forwarded unchanged to the fax/mail software. Xprint does not check whether a parameter is given twice. The job comment parameters do not override the device comment parameters.

The parameters that are actually interpreted and processed by the fast filters are listed below:

- topcall.sh: -ft, -ap, -co
- smtp.sh: -sj, -to, -fr, -rp, -mp, -ms, -an, -at
- vsi_fax.sh: the parameters are forwarded transparently without being interpreted
- option_fax.sh: the parameters are forwarded transparently without being interpreted.

7.5.4 Restrictions

Some functions of Xprint are no longer available on fax or e-mail devices, others will exhibit different behavior. This section enumerates these cases.

Job options

-at

specify the time at which the job is forwarded to the fax/mail software (and not the time at which the document is actually faxed/mailed)

-dr

if several documents are submitted with only one xpadding -job command they will be forwarded to the fax/mail software as only one file.

-ev

in the context of fax/e-mail devices, to print a job is to forward it to the fax/mail software. The notification mechanism do not cover the processing done by the fax/mail software.

-fc

if several file copies are requested they will be forwarded to the fax/mail software as only one file in a single request.

-fp

you should not use this option. It adds escape sequences that trigger the page copy printer feature, which is meaningless for fax and e-mail.

-fi

fax and mail products typically support a limited set of file formats (e.g. PCL, ASCII, ...). If the user's

applications do not generate files to be mailed/faxed in an accepted format the Xprint slow filter mechanism may be a solution.

-hn

you should not use this option. It adds escape sequences that select the printer hopper.

-jc

the job comment option must be used to specify parameters for forwarding to the fax/mail software. It is no longer available for any another use.

-ob

you should not use this option. It adds escape sequences that select the printer output bin.

-rw

when you print in raw mode, the printed file is transferred 'as is' to the fax/mail software. Xprint does not add any escape sequences to control the printer (e.g. reset at the beginning of the job). This option is recommended when you print formatted files (e.g. PostScript or PCL files). If you want Xprint to format your document (e.g. setting italics font, ...) this parameter must not be specified.

Device options

-ep

this option should not be used. It is only meaningful when a real printer is used.

-kc

this option should not be used. It is only meaningful when a real printer is used.

-lr

this option should not be used. It is only meaningful when a real printer is used.

-me

this option should not be used. It is only meaningful when a real printer is used.

-or

this option should not be used. It is only meaningful when a real printer is used.

-pb

this option should be set to NONE (default). It is only meaningful for a real printer connection.

-pc

the PCL that describes the document language sent to the mail/fax software should be specified.

-ps

this option should not be used. It is only meaningful when a real printer is used.

-rr

this option should not be used. It is only meaningful when a real printer is used.

-sb

this option should not be used. It is only meaningful for a real connection.

-sp

this option should not be used. It is only meaningful for a real connection.

-sy

this option should not be used. It is only meaningful for a real connection.

7.5.5 Error handling

Xprint's processing is limited to transferring the print jobs to the fax/mail software. It is not concerned with errors that might occur in a fax device or mail system.

Nevertheless Xprint may encounter various problems while transferring job to the fax/mail software. It adopts one of two different responses in such a situation, depending on the type of error. If the problem is a transient one it will periodically attempt to resubmit the job to the fax/mail software, while changing the Xprint device status and indicating an error message in the job and in the device status. If the problem is permanent, the job will be suspended and the next job scheduled.

If you wish to interrupt such a retry loop you can either suspend the faulty job (xpchange jobid -st S) or stop

the printer (xpcchange -dev printername -st NOT_ACTIVE).

7.5.6 Logging

The fast filters store information on the encountered errors in logging files. These files are located in the device directories □

/var/spool/Xprint/config/SP/supervisor/device.

Depending on the fast filter that was used the files are named optio.log, vsi_fax.log, topcall.log or smtp.log.

7.5.7 Details of the submission

Some of the supported products offer several interfaces for sending a fax or e-mail. For each product, this section specifies which interface is used by Xprint. This information will be useful should you wish to construct the parameters for these external products yourself.

VSI-FAX

Xprint calls the command vfx. When it forwards a job to VSI-FAX, Xprint concatenates the job comment (-jc) with the administrator's comment (-ca) for the relevant device. The result is used as parameter to the vfx command. The data to be faxed is passed on stdin.

For example:

- administrator's comment: "-n 5551234 -E fine"
- job comment: "-C classic"
- generated command:

```
vfx -n 5551234 -E fine -C classic < faxeddata
```

Please refer to the VSI-FAX documentation for a complete description of the syntax and usage of the vfx command.

The following vfx parameter cannot be used: □

-i: interactive mode

There is no check in Xprint to ensure that this parameter is not used. Specifying it in a job or device comment will lead to unexpected results.

Optio FaxFX

Xprint calls the command faxsend. When it forwards a job to VSI-FAX, Xprint concatenates the job comment (-jc) to the administrator's comment (-ca) for the relevant device and uses the result as parameter to the faxsend command. The parameter -sheetd is used to specify the document that is to be faxed.

For example:

- administrator's comment: "-phone 5551234 -force_fine"
- job comment: "-sender Joe"
- generated command:

```
faxsend -sheetd faxeddata -phone 5551234 \□  
-force_fine -sender Joe
```

Please refer to the Optio FaxFX documentation for a complete description of the syntax and usage of the faxsend command.

Be aware that Optio FaxFX automatically detects the document format, but does not support the PjL printer language (embedded in e.g. Postscript files).

TOPCALL

Xprint uses the TC/LINK-FI interface. Please read the TC/LINK-FI manual for a description of the available TOPCALL parameters.

When Xprint forwards the job to TOPCALL it creates two files. One file contains the data to be faxed and the other contains the TOPCALL parameters. This parameter file contains

- the administrator's comment (-ca) defined for the Xprint device immediately followed by the job comment.

The pipe characters ("|") in the job and device comments are converted in line separators by Xprint.

- a line of the form:□
:ATT: NA=datafile, APPL=-ap_option, COM=-co_option□
where datafile is the name of the file to be faxed, -ap_option and -co_option are the values of the xpcnf_dev arguments -ap and -co respectively.

These files are transferred via ftp to the TC/LINK-FI host.

For example:

- administrator's comment: " -ap x.pcl -co pclfile TO: | SE=FAX, N=5551234 "
- job comment: " FROM: SN=RF, SE=INT, N=RF"
- generated parameter file:

TO:□

SE=FAX, N=5551234□

FROM: SN=RF, SE=INT, N=RF□

:ATT: NA=somefile, APPL=x.pcl, COM=pclfile

SMTP support

Xprint communicates with a SMTP server to send the mail. When it mails a job, Xprint concatenates the job comment (-jc) with the administrator's comment (-ca) for the relevant device and uses the result as mail parameters.

The following SMTP protocol options are offered:

- the mail recipient, subject, sender, reply address can be specified.
- the printed file can be sent as the mail text or as a mail attachment.
- a mail text prefix and suffix can be defined.

7.6 Options of the Xprint backend

The default Xprint backend xpbbackend supports a variety of tuning options which are detailed in this section.

The backend options can be provided as a capability in the printer's PCL or can be specified within the administrator's comment for the device object.

The itfpo capability in the PCL defines the rules for passing arguments to the backend process. In the same way as for filter options, it states which arguments have to be given to the backend and in which order. By default the backend process is called with the job identifier, the active trace level, and the identifier of the PCL. The itfpo capability can extend this set of mandatory arguments, using the filter option mechanism to dynamically compute other arguments.

The job comment can be used as attribute keyword. The always condition can be selected (the match pattern is an asterisk). The value consists of a freely defined string containing the additional backend arguments. This string should always start with at least one space.

Example (in the PCL source file):□

```
Itfpo="JOB_ID *=" "DEBUG *=" "PCL *=" "COMMENT *= -r -s"
```

The same tuning options may also be specified in the administrator's comment for the device. The options specified in the comment for administrator overrule the options specified in the itfpo capability of the PCL.

The following options are supported by the Xprint backend:

-f value

allows interrupted jobs to be restarted relative to the last page sent. To a certain extent it provides an automatic "xpchange -job -rf "

-p

allows status reporting on raw jobs (for PjL PCLs only)

-n

prevents any boosting of the backend process

-s

enables the use of PJP silent mode for repositioning in the document after printer error or when a job is interrupted.

7.6.1 Restart of interrupted jobs

Disabling the spoolout of a device automatically puts the active job in state INTERRUPTED. Enabling the spoolout restores the job to the ACTIVE state. By default such a job is restarted from the beginning. The **-f** option of the backend (in the `itfpo` capability or within the administrator's comment for the device) provides for restart relative to the last page sent before the job was interrupted. The option accepts an integer value as parameter. The value is considered as a roll back relative to the last page sent. When a device is deactivated the last page sent also corresponds in many cases to the last page printed, unless a hard printer failure has occurred.

As it is linked to a device or device type (PCL), the use of this option is independent of the type of document printed. If it is specified in the administrator's comment it affects the restart of any job interrupted on the relevant device; when specified within the `itfpo` capability it applies to all the devices with that PCL.

This option is ignored after any use of the command `xpchange -job -rf` issued while the job is interrupted.

Be aware that repositioning within a document may not recreate the context of the starting page if the document includes embedded fonts or resources of any kind.

7.6.2 Silent mode and repositioning

Repositioning after a printer error or while restarting an interrupted job may lead to a different printout from the one produced by a straight sequential printout because the context of the starting page may not be fully restored, this applies mainly to documents which include resources. The silent mode of the PJP language informs the printer that it should print only from the specified page number (although the document is retransmitted from the beginning). This makes it possible to have the starting page and all the following ones printed exactly as if the entire document had been printed.

The **-s** option can be used in order to take advantage of this facility. It is enabled by default for printers of the PCLs PJP-PCL5e and PJP-PS.

This option can be turned off by adapting the `itfpo` capability of the PCL.

If you disable the spoolout of a device the active job will be halted immediately and no additional printer synchronization will be performed. Rather than recording within the job the number of printed pages returned by the printer, Xprint records the number of sent pages counted by the backend parser.

7.6.3 Status reporting and raw jobs

Xprint guarantees that raw jobs are transported as is to the printer without any characters being inserted, which forbids handshaking as a means of reporting the printer status. Some printers, including PJP devices, are nevertheless able to inform the spooler application about physical changes to the printer. If the option **-p** is specified Xprint prefixes the user data with printer instructions without inserting a single character in the data flow itself. At the end of the job, the backend process then polls the printer until it returns a notification that the job is complete. This procedure preserves the user data. Printer polling only takes place at the end of the job.

The **-p** option is enabled by default for printers with the PCLs PJP-PCL5e and PJP-PS. It can be turned off by adapting the `"itfpo"` capability.

In summary, this option enables you to print jobs in raw mode while permitting some limited reporting of printer status.

7.6.4 Accounting based on feedback from the printer

By default, the Xprint backend counts job pages by parsing the user's data. When the document includes resources of any kind, this result may sometimes differ from the number of pages actually printed.

PJP-oriented printers are able to return the number of pages actually printed. This information is then taken as is for accounting purposes. This feature is also available for raw jobs, provided the backend is called with

the **-p** option (polling on raw jobs - see above).

7.6.5 Adjusting the display on the printer console

The message displayed on the console while printing jobs on a PJJ printer can be adjusted. It can show either the job identifier, the name of the document or the job title. This option is provided within the pboj capability. It requires some expertise in programming printer capabilities.

The capability can be used by backends running different versions of Xprint. Special care has been taken to cope with this compatibility issue.

System variables can be used to share information between the backend and the capabilities. The following system variables may be considered (system variables have \$ as prefix to their one letter identifier):

- **\$F**: Xprint internal version number. The value 0 stands for all versions prior to Xprint 6.0A00. The value 1 is used in order to identify extensions implemented in Xprint 6.0A00.
- **\$C**: stands for the job identifier
- **\$G**: stands for the job title
- **\$H**: stands for the name of the document

The pboj capability expects the text of the console in the static variable Z.

The doubly underlined text in the example below sets the static variable Z to the value of the system variable \$G. This forces the name of the document to be displayed on the printer console. Any modification of the display should be limited to a change to the doubly underlined text %g\$G%s. The reference of the system variable \$G can be replaced by a reference to another system variable, for example \$H.

```
#   Z : Job name before 6.0 : Xprint job"
#           since 6.0 : the job identifier (server:jid)   $C
#           the job title                               $G
#           the job owner                               $H
#   Y : Job start has been returned (0 : No / 1: Yes)
#   X : How to Drop a message (Drop < 6.0A00 else WaitSynchro)
#   W : restart page
pboj=%g$A%PW
%?%gW%{0}%=
%t%{1}%gW%+%PW%;
%{0}%P$A
%{1}%P$I
%?%g$F%{0}%=
%t%{1}%PY%"Drop"%PX%"Xprint job"%PZ%{1}%PW
%e%{0}%PY%"WaitSynchro"%PX%g$C%PZ%;
%?%p1%{1}%=%\E\%-12345X@PJJ\015\012
@PJJ ECHO Xprint Printing\015\012
@PJJ JOB NAME = "%gZ%s"\015\012
@PJJ RDYMSG DISPLAY = "%g$G%s"\015\012
```

7.6.6 Boosted output

Because data parsing may be time consuming, the Xprint backend is able to dynamically skip the parsing of the user's data. This dynamic change of behavior only takes place under certain conditions:

- No polling with the printer
- No accounting
- No range of pages being printed.

The mechanism should be understood as an automatic switch to raw mode after the first data is sent to the

printer. It can significantly improve the throughput to the printer when the printer is controlled by a fast filter.

This feature can be turned off with the `-n` option in the `itfpo` capability or in the administrator's comment for the device.

7.6.7 Notification on printer recovery

Notification can be requested in order to be informed about any device error. The notification can be enabled within the job and / or within the device definition. The available notification events include `DEVICE_ERROR` and the notification message then describes the reason for the error.

Selecting the event `DEVICE_ERROR` also triggers a notification as soon as the printer fault has been resolved. The reason for this "error" is then transmitted as an empty message.

7.7 Printer Selection

Selecting the printer that actually prints a job is a complex process. Even if an individual printer is specified with `xpadd -de`, the full process is used. The following factors are considered when deciding which printer to use:

- Has a particular printer been specified with `xpadd -de`?
- What are the contents of the `XP_DESTIN` environment variable?
- What is the default destination of the submission host?
- What are the load levels of the servers?
- What printer properties have been specified? For example: security level, permission lists, state, PCL capabilities?
- What are privileges of the user submitting the job?
- Is the printer in the submission domain or in a remote domain?

If the printer is in a remote domain, the job is immediately forwarded to the appropriate local gateway. If not, the following "Selection process" is used.

7.7.1 Selection process

The selection process has two parts:

- First, a list of 'candidate printers' is prepared by the client. This list comprises printers which are all controlled by the same server, all compatible with the print request and able to process the job. If the user specifies a particular printer when the job is submitted (`xpadd -de`), then this becomes the only candidate printer.
- The second stage is performed by the server, where the first free candidate printer is selected to print the job. The job is then forwarded to the appropriate server or local gateway.

7.7.2 Candidate printers

The client uses the following method to select the candidate printers, before forwarding the job to the server.

1. An initial list is prepared according to the parameters in the job request.

- If a printer is specified with `xpadd -de`, it becomes the only printer on the list.
- If a device group is specified with `xpadd -de`, the printers in the group become the only printers on the list.
- If the destination option (`xpadd -de`) has not been used, the printers specified by the environment variable `XP_DESTIN` become the only printers on the list.
- If the `XP_DESTIN` variable has not been specified, the default destination of the submission host (device or device group) is used.
- If a default destination has not been configured for the submission host, then the initial list will contain all the printers in the local domain.

- All the redirected printers in this initial list are then replaced by their substitute target.

1. This initial list is then reduced to the printers that actually match the job criteria

Printers in remote domains are kept aside (see step 6). All the local printers are checked for the appropriate:

- security level
- permission lists (user and form)
- spoolin state
- printer capability list (except for jobs with a 'no validation' request): font style, densities, typeface, language, form layout, sides, hopper number, output bin and copies

1. The printers remaining in the list are sorted into groups according to their controlling server.

The different groups are then sorted according to the server load level. To reduce the global overhead, the load level of the servers is updated by Xprint every five minutes, so the reported load level is only approximate, since it is not a real time value. If the job was submitted to a device group and either XP_LOCALPRIO or XP_DLPRIO is set, the sort algorithm will take into consideration whether they are local to the submission host, or the order in the device list for the relevant device group, respectively.

1. Find printers that match the job characteristics without slow filters

Starting with the group whose server's load level is the lowest, an attempt is made *from within the group* to find a list of candidate printers whose PCL and allowed content type match the job characteristics. These devices could accept the job without Xprint automatically selecting and applying slow filters. If the first group does not produce at least one candidate printer, then the other groups are examined, in order.

After eliminating the printers that are incompatible because of their content type, the remaining devices are retained to make the device competitor list, and the job is passed to the corresponding server.

If the slow filters have been explicitly requested with `xpadd -fl`, only one printer is retained in the candidate printer list. This printer will be selected at random from those available. Random selection gives a better distribution of jobs which are submitted within a short time period, between the available printers.

1. If necessary, apply slow filters.

If there is no device in any group which can accept the job because of its content type, then Xprint will attempt to apply slow filters to convert the content type.

Each group is considered in the order of the server load levels. In each group, each device is successively examined in a random order, until a filter cascade is found to convert the job content type and support all special modes. The first device for which a cascade can be found is retained and the job is submitted to its server. In this case, the candidate printer list will contain only that single printer.

1. Try the printers in remote domains

If a suitable printer could not be found in the submission domain, the list of printers in remote domains (see step 2) is now examined. Each printer in this list is tried until a local gateway accepts the job.

7.8 Redirecting print requests to BSD Spool

7.8.1 Description

The fast filter `bsd` allows Xprint jobs to be sent to a BSD Spool system. This process is transparent to the Xprint user but there are some limitations, particularly when interrogating the state of a job.

For each BSD Spool attached printer to be accessed through Xprint there must be an Xprint device with `bsd` specified as its fast filter. When a user adds a job, it will first be queued in Xprint like any other job. When it is scheduled for printing it will have the normal Xprint backend processing, but instead of being sent to a printer it will be transferred via the fast filter to a remote BSD Spool.

The BSD Spool job number is generated by the fast filter. To that end, it maintains a file *printer_name* in the directory `XPRINT_PATH/DB.local/BSD` which holds the next job number. If this file does not exist, the job number will be 0 and the new file is created with a counter value 1.

7.8.2 Usage

To add a job use `xpadd` as usual. If you encounter formatting problems, see [Section "Examples"](#).

```
xpadd -job -de bsd_printer -dr filename
```

The job comment `-jc` can be useful for some specific options:

-mail

require a mail notification at the completion of the BSD job. This mail is formatted by the `lpd` daemon and sent to the job originator.

-banner

☐

request the printing of a BSD banner page. If this option is set, the job title `-jt` will be printed on the banner page.

-debug

☐

this option will create debugging traces in the file `fast_bsd.dbg` of the Xprint device directory.

The following examples depict some possible usage of the options. One can ask for BSD's mail notification, specifying:

```
xpadd -job -de bsd-printer -dr filename -jc "--mail"
```

This mail is sent by BSD Spool (if it supports it) when the job has completed, either successfully or unsuccessfully. Note however that mail is sent to the user submitting the job, *but on the host where the Xprint device is defined* (and not on the host the user submitted the job). Also, if the user is not known on that host, the mail notification is lost.

If you want debug information from the fast filter, together with mail notification but no BSD banner page, issue:

```
xpadd -job -de bsd-printer -dr filename \
-jc "--debug --mail"
```

If a BSD banner page and a mail notification is required, the following command could be used:

```
xpadd -job -de bsd_printer -dr filename \
-jc "--banner --mail"
```

To see whether there is a problem with the BSD Spool, the Xprint user can consult the Xprint device's status, or get a job status:

```
xpstat -dev <bsd-printer> , or
xpstat -job
```

If job or device is in state `DEVICE_ERROR`, you should contact your system administrator as the job could be lost. If the job disappeared from the job list, it is not certain if the job has really been printed, as is the case with Xprint. It could be lost without a trace; you can use mail notification to get around this problem.

7.8.3 Limitations

Redirecting print requests to BSD Spool is only supported for TCP/IP networks. When using this fast filter, Xprint 'prints' the job to a BSD Spool queue and then considers the job completed, whereas the job is in a BSD Spool queue waiting to be printed. A user issuing `xpstat -job` won't see the job any more, and yet may not find a printout at the printer.

An error local to BSD Spool, which occurs after a job has been sent from Xprint to BSD Spool, cannot be detected by an Xprint user. When the BSD line printer daemon refuses a job (queue disabled, wrong format...) this is not reported back to the user, instead the job is suspended. See [Section "Error messages"](#).

By default, the `bsd` fast filter simulates the BSD command `lpr -l`. This means that the file is printed without interpreting control characters. Banner page printing can be suppressed by the BSD Spool administrator by using option `sh` in `/etc/printcap`. Special formatting options of the BSD `lpr` command, such as the handling of troff files, raster files, etc. are supported by the option (see section "Configuration" below).

Mail is sent to the host where the Xprint device is defined. A maximum of ☐

11 active jobs at a time using the `bsd` filter is allowed on a host.

7.8.4 Configuration

For every BSD Spool printer that has to be accessible to Xprint users, an Xprint device has to be defined with `bsd` as its fast filter. The name of the Xprint device must be either the official name or an alias of the corresponding BSD Spool printer, or the substring `"queue=BSDprinter"` must be inserted into the device's comment field `-ca`. See the [Section "Examples"](#) for a more practical approach.

The BSD Spool line printer daemon servicing a printer, and the Xprint device accessing this printer through the fast filter, should not reside on the same host. Otherwise it is possible that a BSD Spool `lpr` command takes the same job id as a `bsd` fast filter job, resulting in a job id clash and one of the two jobs being lost.

The `bsd` fast filter is a new component of Xprint. At installation time, if the DB of a former version of Xprint is imported, be care that the filter won't be automatically created.

To add the fast filter to Xprint:

```
xpadd -flt bsd -tp FAST -cm bsd \
-op "LOGIN *=" "PRINTER *=" \
"DOC_REF *=" "COMMENT *=" "TITLE *="
```

To add a printer:

```
xpadd -dev <bsd-printer> -da <sink-file> -su <supervisor> \
-fl bsd [-ca <adm-comment>] [-pc <content-type>]
```

Parameter `bsd_printer` is the name of the printer as known by the BSD Spool system, i.e. as defined in `/etc/printcap`. Parameter `sink_file` is a file on the same host as the Xprint device, which will never contain data, but is needed for locking purposes. Use a different `sink_file` for different Xprint devices!

The name of the BSD printer should be specified in the administrator's comment field as a substring of the form `queue=bsd_printer`.

If this substring is omitted, the Xprint device name must be `bsd_printer`. The host where the BSD line printer daemon resides must be specified in the administrator's comment field as a substring of the form `host=hostname`. A trailing blank or end-of-string must follow this substring. When no substring is given or no administrator's comment at all, the host where the Xprint device runs is taken, which should be considered "forbidden" to avoid job id clashes.

A supplementary option called `-compatible` can be stored in the device's comment field `-ca`. This flag will modify the behavior of the `bsd` fast filter in order to be close to the SUN OS `lpd` implementation. For instance, this capability is required for interaction with the `lpd` emulation of the ATT `lp` spool:

```
xpadd -dev bsd_printer sink_file -su supervisor -fl bsd \
-ca "host=hostname --compatible" [-pc content_type]
```

When mail notification is wanted, note that it is the BSD line printer daemon that sends the mail to the user that submitted the job and to the host where the Xprint device containing the fast filter runs. If that host has no mail daemon, or if the user is not known on that host, the mail notification is lost.

A content type may be specified for the device. This has to be the content type of the printer attached to the BSD Spool, or if the BSD Spool printer uses an output filter for conversion purposes, a content type compatible with that filter.

The option `type=` can be set in the administrator's comment for the device in order to modify the BSD file type used by the fast filter to submit the job. By default, this value is `'l'` meaning a printing in raw mode. The type is one character which must be handled by the BSD server. The file types specified in the BSD norm (RFC 1179) are listed in the table following.

Type value	Description
c	CIF file
d	DVI file
f	ASCII text - simple file

g	Plot file
l	Compatible with printer - raw mode
n	Ditroff file
o	Postscript file
p	PR file
r	Fortran file
t	Troff file
v	Raster file

Table 31: File types (RFC1179)

The options `PI=low_port` and `PA=high_port` can fix the range of ports used by the filter. These values should be aligned on the port numbers accepted by the BSD server. By default, a value of 721 is used for PI (512 with `-compatible`), and 731 for PA (1023 with `-compatible`). The option `port=svr_port` can be used to specify the TCP port number of the BSD server (515 by default).

7.8.5 Error messages

When the fast filter detects an error, it adds an entry in `fast_bsd.log`. This file can be found in the same directory as the Xprint device's log.

Some of these errors cause the Xprint device to go into state `DEVICE_ERROR`. They are noted explicitly below. These errors generally indicate an error which needs human intervention, like a configuration problem or a hardware failure. After the administrator resolved that error, he has to execute the following two commands.

```

xpcchange -dev bsd-printer -st NOT_ACTIVE
xpcchange -dev bsd-printer -st ACTIVE -si ON -so ON

```

Afterwards the job being interrupted when the error occurred is reprinted.

- Configuration error: usage is `bsd user printer doc_ref [comment [title] ]`
Check the options `-op` entry in the definition of the bsd filter.
- Cannot create temporary file `-job job_id user user_id` abandoned.
Probably due to a full file system. This temporary file is created in the directory where the bsd fast filter resides, normally the `XPRINT_PATH` filters directory.
- Configuration error: cannot become root (`setuid(0)` call)
The behavior of the filter is executed by a binary file located in the `/var/spool/Xprint/config/filters` directory. If such an error message is returned, check that the attributes of the bsd file located in the directory above mentioned are the following:
`-r-sr-xr-x 1 root bin`
- Remote LPD on `host-lpd` rejected `job job_id` of user `user-id`
This error can have many causes. Mostly it will occur because the BSD Spool administrator turned off spooling for the printer. Also the job could have been rejected because of its size, a job id clash with an `lpr` command (issued on the same host as the Xprint device to the same printer), etc.
This error causes the job to be suspended. Remember the user is not informed about this by Xprint. However, the user can use mail notification, but note that the host the mail will be sent to is the host of the Xprint device.
- Problem with BSD Spool on `lpd-host`, job `job_id`
This error causes the state of the Xprint device become `DEVICE_ERROR`. This error message will be displayed when issuing an `xpstat` command. This error indicates that either there is no BSD line printer daemon (`lpd`) running on the host where the fast filter expects it, or the connection to that host cannot be established. Check if the fast filter tries to access the right host (compare the administrator's comment in

Xprint device), and if the lpd is alive on that host.

- Local problem fast filter, job *job_id*

This error causes the state of the Xprint device become `DEVICE_ERROR`. This error message will be displayed when issuing an `xpstat` command. This error indicates a local problem which impedes the fast filter from finishing the job. Not enough file system space could be a cause.

- Unable to open a connection: still trying!

This message indicates that the fast filter is not able to open a connection with the BSD daemon, but it is still trying to open a new connection. This message should disappear when the BSD daemon is started.

If there isn't a log file and yet you have a `DEVICE_ERROR`, the fast filter hasn't run. If the accompanying message when doing an `xpstat` is "busy", there is probably a lock on the file associated with the Xprint device (`-da` parameter). Restart the supervisor and device and delete any pending jobs.

7.8.6 Examples

7.8.6.1 A SIMPLE printer

Here we discuss the case where the physical printer will receive data corresponding to the `SIMPLE` content type. Any conversion from a particular format to the `SIMPLE` format is handled by Xprint.

The BSD Spool can add whatever filter it wants. For example, if a Postscript printer is attached to the host, the BSD Spool output filter (of entry in `printcap`) would implement a plain-text to Postscript filter. If an ordinary line printer is attached, no conversion output filter needs to be used.

Suppose the host containing the BSD Spool printer is named `BSDhost`, and the Xprint device (and thus the fast filter) is on host `Xhost`. The printer attached is an ordinary line printer. The `printcap` entry for this printer on `BSDhost` could be as follows:

```
1|lp|line printer:\
:lp=/dev/ttya:\
:sd=/usr/spool/lpd:\
:lf=/var/adm/lpd-errs:\
:br#9600:ms=-parity,onlcr:
```

Make sure the printer and queue are enabled, using the `lpc` command. Now we log on to `Xhost`. The `bsd` filter is set up as:

```
xpadd -flt bsd -tp FAST -cm bsd \
□□□□□-op "LOGIN *=" "PRINTER *=" \
□□□□□"DOC_REF *=" "COMMENT *=" "TITLE *="
```

The Xprint device's name can be one of the aliases for the printer as defined in `printcap`, say `lp`. The device has `spvxhost` as its supervisor and will contact the line printer daemon on `BSDhost`:

```
touch /home/sink/lp
```

You can either define an Xprint device with the name of the BSD queue:

```
xpadd -dev lp -da /home/sink/lp -su spvxhost -fl bsd \
-ca "Don't discard: host=BSDhost"
xpchange -dev lp -st ACTIVE -si ON -so ON
```

or you can use `queue=` substring to specify another Xprint device name:

```
xpadd -dev BSDlp -da /home/sink/lp -su spvxhost -fl bsd \
-ca "Don't discard: host=BSDhost queue=lp"
xpchange -dev BSDlp -st ACTIVE -si ON -so ON
```

The device should now be active. Try and submit some jobs:

```
xpadd -de lp -dr document -rw -jc "--banner"
```

or

```
xpadd -de BSDlp -dr document -rw -jc "--banner"
```

according to the Xprint device name

The option `-rw` is needed to prevent Xprint from adding page breaks. Note that the banner page printed is a BSD Spool banner page.

7.8.6.2 A Non SIMPLE printer - example for PostScript

Here we discuss the case where the Xprint device has as its content type the PCL of the physical printer. By doing this we don't lose any formatting as opposed to the previous case. The BSD Spool printer definition can have an output filter, but it shouldn't touch the data to be printed.

Suppose we have a Postscript printer attached on the parallel port of BSDhost. The input content type of the Xprint device on host Xhost then is POSTSCRIPT.

On BSDhost the printcap file contains :

```
2|ps|postscript printer:\
:lp=/dev/lp:\
:sd=/usr/spool/psd:\
:lf=/var/adm/lpd-errs:\
:sh:
```

With `:sh` we inform BSD Spool not to print a banner page.

On Xhost we execute :

```
xpadd -flt bsd -tp FAST -cm bsd \
-op "LOGIN *=" "PRINTER *=" \
"DOC_REF *=" "COMMENT *=" "TITLE *="
touch /home/sink/ps
xpadd -dev ps -da /home/sink/ps -su spvxhost -fl bsd \
-ca "Don't discard: host=BSDhost" -pc POSTSCRIPT
xpchange -dev ps -st ACTIVE -so ON -si ON
xpadd -de ps -dr doc -ct SIMPLE -js FULL
```

As explained in the SIMPLE printer configuration, the substring `queue=ps` can be inserted into the administrator's comment for the device in order to permit use of an arbitrary device name. Note that we requested an Xprint banner page in our job request.

If we let BSD Spool add a banner, this banner would be added to the front of the PostScript formatted data. Since the banner page is simple ASCII with line feeds and a form feed, the PostScript printer will report an error and reject the job.

7.8.6.3 A Non-SIMPLE printer - example for HP-LaserJet

Suppose we have an HP Laserjet III printer, which understands PCL 4. As in the PostScript printer example, the Xprint device has as its content type the PCL of the physical printer, so we can use all the printer's capabilities.

On BSDhost we add an entry in printcap; note that the BSD Spool will print a banner. Also note we suppress form feeds through the `:sf` option.

```
3|hppcl|HP PCL printer:\
:lp=/dev/lp2:\
:sd=/usr/spool/hppcl:\
:lf=/var/adm/lpd-errs:sf:
```

We suppose the filter has already been added to Xprint. On Xhost we execute:

```
touch /home/sink/hppcl
xpadd -dev BSDhppcl -da /home/sink/hppcl -su spvxhost \
-fl bsd -pc HP-LASERJET \
-ca "Don't discard: host=BSDhost queue=hppcl"
xpchange -dev BSDhppcl -st ACTIVE -si ON -so ON
xpadd -de BSDhppcl -dr document -ct SIMPLE
```

In this way, a new Xprint device with a freely defined name `BSDhppcl` is defined in the configuration. This works very well: the BSD Spool adds a banner which uses normal characters, line feeds and a form feed;

thereafter comes the document possibly containing special PCL formatting sequences.

So, it's up to you whether to use the BSD Spool banner or the Xprint banner. Before using the BSD Spool banner, check whether the printer will accept it.

7.8.7 Files

- /etc/printcap
BSD Spool printer capabilities
- `XPRINT_PATH` filters/bsd
fast filter
- `XPRINT_PATH`config/SP/<supervisor>/<device>/fast_bsd.log
fast filter log
- `XPRINT_PATH`config/SP/<supervisor>/<device>/fast_bsd.dbg
fast filter debug file

7.9 The gateway protocols BSD and GIP2

This section contains a detailed description of the functionality that the two gateway protocols BSD and GIP2 provide under Xprint. This includes all the differences which apply to the Xprint commands when used with gateways.

7.9.1 The gateway protocol BSD

The gateway protocol BSD supports the following operations:

- `xpadd -job`
- `xpdel -job`
- `xpshow -job`
- `xpstat -job`
- `xpshow -dev`
- `xpstat -dev`

The following sections describe these operations together with the options supported in each case.

Adding new print jobs (`xpadd -job`)

Option	Description
-cp	Request that a copy of the file be made when the job is submitted
-ct	The following content types are supported (the corresponding BSD types are given in parentheses): SIMPLE (f) POSTSCRIPT (v) CIF (c) DVI (d) PLOT (g) DITROFF (n) FORTRAN (r) TROFF (t) PR (p) The type POSTSCRIPT is mapped to (v) to ensure compatibility with the SUN OS implementation. (v) is actually the type RASTER.
-de	The destination must be specified in the form <i>gateway!bsd_printer</i> .
-dr	This option is fully supported.

-ev	Only the events REJECTED_FROM_REMOTE_DOMAIN and SENT_TO_REMOTE_DOMAIN are fully supported. If the BSD spooler supports the events ABORTED and COMPLETED accordingly, the user will be notified directly by mail from the BSD spooler. The value ALL represents all of the four events mentioned.
-fc	The number of file copies (default: 1).
-jc	In the case of the content type PR, this comment is printed as the title on the header sheet.
-js	This option requests a BSD start sheet. The values FULL and BRIEF are equivalent.
-jt	This string is printed on the start sheet.
-ll	This option, which limits the output to the specified line length in columns, centimeters or inches, is only supported for the content type PR. It is ignored for all other content types.
-lm	Indentation of the left margin. The default is 0. If no input filter is defined for the BSD print queue, SUN lpd ignores this option.
-na	Only the events REJECTED_FROM_REMOTE_DOMAIN and SENT_TO_REMOTE_DOMAIN are fully supported. All other events are ignored.
-nd	Only the events REJECTED_FROM_REMOTE_DOMAIN and SENT_TO_REMOTE_DOMAIN are fully supported. All other events are ignored.
-nm	Only the events REJECTED_FROM_REMOTE_DOMAIN and SENT_TO_REMOTE_DOMAIN are fully supported. The value MAIL is forced for the events ABORTED and COMPLETED.
-rw	RAW mode is converted to the BSD file format.
-sx	This option is fully supported.
-te	This option is fully supported.

Table 32: xpadd -job

Deleting new print jobs (xpdel -job)

The job IDs must be specified in the form *gateway!bsd_printer:job_number*. The wildcard (*) can be used in *job_number* but not in *bsd_printer*. Selection via criteria lists (-scl) is restricted to the status (-st ACTIVE) or the job originator (-jo) and only has an effect if *job_number* is *.

Displaying print jobs (xpshow -job)

Selection via criteria lists (-scl) is restricted to the status (-st ACTIVE and ☐ -st WAIT) or the job originator (-jo). The following fields are supported: global job ID, document references, destination, job originator and the submission host.

Displaying the status of print jobs (xpstat -job)

The selection via criteria lists (-scl) supports the same values as for xpshow -job. The following fields are supported: global job ID, status, destination and position in the print queue.

Displaying printers (xpshow -dev)

Selection via criteria lists (-scl) is not supported. Printing the references ☐ (-di REFERENCED_BY) is not allowed. Only the printer name field is supported.

Displaying the printer status (xpstat -dev)

Selection via criteria lists (-scl) is not supported. The following fields are supported: printer name, status, spoolin, spoolout, number of jobs waiting and active job.

7.9.2 The gateway protocol GIP2

The gateway protocol GIP2 is used for both gateways to other Xprint domains and gateways to DPRINT spoolers in BS2000 systems. Depending on the gateway type, different restrictions apply.

The following operations are supported:

to other Xprint domains	to DPRINT spoolers
xpadd -job	xpadd -job
xpchange -job	-
xpdel -job	xpdel -job
xpmod -job	
xpshow -dev/-dgr/-flt/-fnt/-frm/-job/-lrs/-pcl	xpshow -dev/-dgr/-job
xpstat -dev/-dgr/-job	xpstat -dev/-dgr/-job

Table 33: Supported operations

In the case of gateways to other Xprint domains, the following restrictions to the xpadd -job command apply:

-rm	is not accepted as it cannot be used
-nm, -ev, -na, -nd	are the only notification methods allowed, but these options cannot be modified within the job
-dr	if <i>openFT</i> is used for the file transfer, only one document reference can be specified.

Table 34: xpadd -job command restrictions

In the following you will find a description of the operations for gateways to DPRINT spoolers with a list of the options supported in each case.

Adding new print jobs (xpadd -job)

Option	Description
-cp	Request that a copy of the file be made when the job is submitted
-ct	The following content types are supported: PLAIN-TEXTASCII file which can only contain the following control characters: CR, LF and FFXCCW Document in Extended CCWSPDS Document in the Structured Fields (SF) formatAdditional content types can be used if corresponding additional filters have been defined in the DPRINT cluster.
-de	The destination must be specified in the form <i>gateway!printer</i> or <i>gateway!printer_pool</i> .
-dr	Only one name can be specified.
-ev	Only the events REJECTED_FROM_REMOTE_DOMAIN and SENT_TO_REMOTE_DOMAIN are fully supported. All other events are ignored. The value ALL represents both events.
-fc	Number of file copies (default: 1, the maximum is 256).
-fm	Name of a DPRINT form resource (max. 6 uppercase letters)

-fp	Number of copies of each page (default: 1, the maximum is 256).
-ft	Name of a DPRINT font (max. 3 uppercase characters)
-jc	This comment is printed as the 'header page text' at the bottom of the start sheet. It is truncated to 32 characters and only the first eight characters are actually printed.
-js	This option requests a BSD start sheet. The values FULL and BRIEF are equivalent.
-jt	This string is printed in the centre of the start sheet as the job title. It is truncated to eight characters.
-lm	Indentation of the left margin. The default is 0, the unit is 1/10 inch. The maximum value is 31/10 inch, i.e. 3.1 inches.
-ls	Possible values are PORTRAIT (default) and LANDSCAPE. The printer must support the specified value.
-na	This option is fully supported.
-nd	This option is fully supported.
-nm	This option is fully supported.
-pr	Priority of the print job. The possible values in the range of 1 to 100 are converted to values in the range of 255 to 30 for DPRINT.
-ps	Only one interval (open or closed) can be specified (e.g. 5- or 5-10□ or -10)
-sx	This option is fully supported.
-te	This option is fully supported.

Table 35: Adding new print jobs

Deleting print jobs (xpdel -job)

One and only one job ID must be specified in the form *gateway!TSN*. Wildcards and criteria lists (-scl) are not supported.

Displaying print jobs (xpshow -job)

Selection via criteria lists (-scl) is not supported. The following fields are displayed: global job ID, document references, destination, form, font, job priority, file copies, page copies, content type and comment.

Displaying printers (xpshow -dev)

Selection via criteria lists (-scl) is not supported. Printing the reference list (-di REFERENCED_BY) is not allowed. The only fields displayed are printer name and user comment (DPRINT printer type).

Displaying printer groups (xpshow -dgr)

Selection via criteria lists (-scl) is not supported. Printing the reference list (-di REFERENCED_BY) is not allowed. The only fields displayed are printer group name and device list.

Displaying the printer group status (xpstat -job)

Selection via criteria lists (-scl) is not supported. The following fields are displayed: global job ID, status, status information and destination.

Displaying the printer status (xpstat -dev)

Selection via criteria lists (-scl) is not supported. The following fields are supported: printer name, status, spoolin, spoolout, layup, active job and mounted form.

Displaying the printer group status (xpsstat -dgr)

Selection via criteria lists (-scl) is not supported. The following fields are supported: printer group name and spoolin (always ON).

7.10 The character set ISO 8859-1 Latin 1

The following table contains all the characters of the character set ISO 8859-1 Latin 1.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			S P	0	@	P	`	p				°	À		à	
1			!	1	A	Q	a	q			ı		Á	Ñ	á	ñ
2			"	2	B	R	b	r			¢		Â	Ò	â	ò
3			#	3	C	S	c	s			£		Ã	Ó	ã	ó
4			\$	4	D	T	d	t			¤	´	Ä	Ô	ä	ô
5			%	5	E	U	e	u			¥		Å	Ö	å	ö
6			&	6	F	V	f	v				¶	Æ	Ö	æ	ö
7			'	7	G	W	g	w			§	·	Ç		ç	
8			(	8	H	X	h	x			¨	¸	È	Ø	è	ø
9			)	9	I	Y	i	y			©		É	Ù	é	ù
A			*	:	J	Z	j	z			ª	º	Ê	Ú	ê	ú
B			+	;	K	[	k	{			«	»	Ë	Û	ë	û
C			,	<	L	\	l				¬	¼	Ì	Ü	ì	ü
D			-	=	M	]	m	}			-	½	Í		í	
E			.	>	N	^	n	~			®	¾	Î		î	
F			/	?	O	_	o				¯	¿	Ï	ß	ï	

Table 36: Character set ISO 8859-1 Latin 1

7.11 X/Open compatibility

Xprint can also be accessed through the following *X/Open commands*:

lp submit print jobs
lpstat display information on print jobs
cancel delete print jobs

Language for messages

The messages output by lp, lpstat and cancel can also be displayed in languages other than English. The language is defined in the environment variable LANG.

Installation path

The commands lp, lpstat and cancel installed by Xprint do not overwrite the standard commands installed with your system. The Xprint commands are accessible on the directory path /var/spool/Xprint/config/cmd.

7.11.1 lp (line printer)

Format

lp [*option*] [*file...*]

Description

In addition to queueing files for printing, lp can be used for:

- Selecting a printer or printer group for the print job.
- Specifying a header page to be printed.

A unique job number is assigned to each print job. This number is written to standard output and can be used to cancel or abort a print job with `cancel` or to have status information on the print job displayed with `lpstat`.

The lp command is supported in the same way as under the UNIX system 5.4, as shown in the above syntax. Therefore, options and file names must be specified in two separate groups. The options apply to all file names.

If no options are given, the specified files are printed on the default printer. This is defined either system-specifically via the environment variable `LPDEST`, or in accordance with the job attributes (see also the description of option `-d destination` below).

If no files are specified, standard input is assumed.

More than one file may be specified. However, submitting a print request for several files on the same command line is considered one job. If you use a dash instead of a file name, lp reads from standard input. A dash can be specified as many times as you wish on the command line but the standard input will be read once (the contents of standard input will be considered one print job). If you name a number of files, these are printed in the order in which you list them on the command line.

For each job submission, lp returns a local and a global job identifier. The local identifier is a decimal number and cannot be used to identify the job from a host other than the one from where the job was submitted. The global identifier comprises two fields, server and identifier, separated by a colon (:). server is the name of the server that will handle the print job, and identifier is a number generated by the server. The global identifier can be used from anywhere in the system configuration.

For each print request, lp issues a message in the form:

request id is local-id (global-id) (# file(s))

When lp reads from standard input, the message is:

request id is local-id (global-id) (standard input)

Options

-c copy



Enables a copy of the named files to be made so that the user can continue to work on the original file while printing takes place. Files to be printed are not normally copied, so if you change or remove a file between the time the job was submitted and the time of printing, all such changes will be reflected in the printed output.

-d destination



Selects the printer or printer group that is to print the job. If the destination is a group of printers, the job will be printed on the first available printer in that group. If the destination is not specified, the value is taken from the environment variable `LPDEST`. If the specified printer (group) cannot process the print job, the job is rejected. If `LPDEST` is undefined, the print job is printed on a printer able to support the job options involved. The first printer to be used is always the default destination of the system. If none of the printers supports the specified options, the job is rejected.

-m mail



Sends a message via the mail command when the print job has been completed or stopped. If `-m` is not specified, no message is sent.

-n number

☐ Specifies the number of copies of the file to be printed. The default value is 1.

-s

Suppresses messages from the lp command.

-t title

☐ Prints a specified title on the header (banner) page. The first character of the title cannot be a digit.

-w write

☐ Displays a message on the screen when the print job is completed or suspended. If the user is no longer logged on to the system, he/she will be notified via mail.

-o option

☐ This is used to specify printer or printer group-dependent options. Several options may be specified, each one preceded by -o. The options available are those offered by the UNIX system 5.4:

-o nobanner

☐ No banner page

-o nofilebreak

☐ No form feed between files and no separator sheet

-o length=scaled value

☐ Specifies the logical length of a page

-o width=scaled value

☐ Specifies the logical length of a line

-o lpi=number

☐ The line pitch, specified in number of lines per inch

-o cpi=number

☐ The character pitch, specified in number of characters per inch

7.11.2 lpstat - output printer and job status information

Format

lpstat [*options*] [*ID...*]

Description

lpstat outputs information about the current status of printers of the Xprint system and details of individual print jobs. You can display information on the status and definition of the printers and printer groups you are allowed to use. You can also display information on your own print jobs.

System administrators and local Xprint administrators can display information on all jobs submitted for printers and printer groups they administer, and display information on all other objects in the spooler system.

If no options are specified, lpstat prints the status of all print jobs sent to the spooler by the user. Any arguments that are not options are assumed to be job IDs as returned by lp. Some options may be followed by an optional list, which can be in one of two forms:

- A list of items separated by commas. (A list consisting of only one job id must be terminated by a comma.)
- A list of items enclosed in double quotes and separated by commas and/or one or more spaces.

Options**-a** [*list*]

□

Shows the acceptance status of printers and printer groups. *list* can be a mixture of printers and groups.**-c** [*list*]

□

Shows the printer group names and their members. *list* represents the name(s) of printer group(s).**-d**

Shows the system's default destination for the print job.

-o [*list*]

□

Shows the status of job requests. The *list* can be a mixture of printer and printer group names and job IDs.**-p** [*list*]

□

Shows the status of printers. *list* represents the name(s) of printer(s).**-r**

Shows the spooler status on the current host.

-s

Shows a status summary, including the status of the spooler, the system's default destination, printer groups with their members, and printers with their associated addresses.

-t

Shows all status information.

-u [*list*]

□

Shows the status of the user's print requests. *list* is a list of user IDs.**-v** [*list*]

□

Shows the names of printers and their associated device names. *list* is a list of printer names.**ID**If nothing is specified for *ID*, Xprint displays the status of all jobs in the system (depending on your privileges).**Example**

lpstat -u "user1,user2, user3"

or

lpstat -u user1,user2,user3

If you do not specify any list after these options, all the information relevant to the option will be printed.

7.11.3 cancel - cancel and abort print jobs

FORMAT

cancel [*ID*] [*device*]**Description**

You can use cancel to cancel any print jobs which you have previously submitted with the xpsd -job or lp commands.

You must specify a value for at least one of the operands.

Operands

ID

can be either the local identifier or the global identifier of a print job. You may specify more than one job identifier. Job identifiers are returned when you invoke the `xpadd -job` or `lp` command

printer

□

can be the name of a printer or printer group. You may specify more than one name. Any print job currently running on any of the specified printers or printer groups is aborted, and the printer is released for the next job.

Specifying a job ID cancels the corresponding print job on the printer even if it is currently printing. Specifying a printer name cancels the job currently printing on that printer. Specifying a printer group name cancels the jobs associated with all the printers in that group, depending on the user's privileges. Regular users can only cancel their own jobs, system administrators and local Xprint administrators can cancel all jobs on printers they administer, and Xprint administrators can cancel or abort any job. `cancel` issues a message to standard output to tell you which print jobs have been canceled or aborted.

7.12 Auditing (users only)

7.12.1 Introduction

An auditing facility needs to record information about actions that may affect the security of a computer system. In particular, it should be able to record any action by any user that may represent a breach of the system security.

To meet these requirements, Xprint records the following events:

- start of a print job
- end of a print job
- deletion of a print job
- interruption of a print job
- any addition , modification, copy or deletion of a Xprint user
- any addition, modification or deletion of a host
- any addition, modification, copy or deletion of a gateway
- start and end of the spooler.

UNIX systems have their own auditing facility. When the Xprint auditing function is activated using the command `xpmod -sys`, option `-au` (see ...), it passes information to the UNIX auditing facility. The UNIX auditing facility then stores this information in a database, which you can access.

The following paragraphs show the records generated by the events that the Xprint auditing function monitors. The figure shows the data flow.

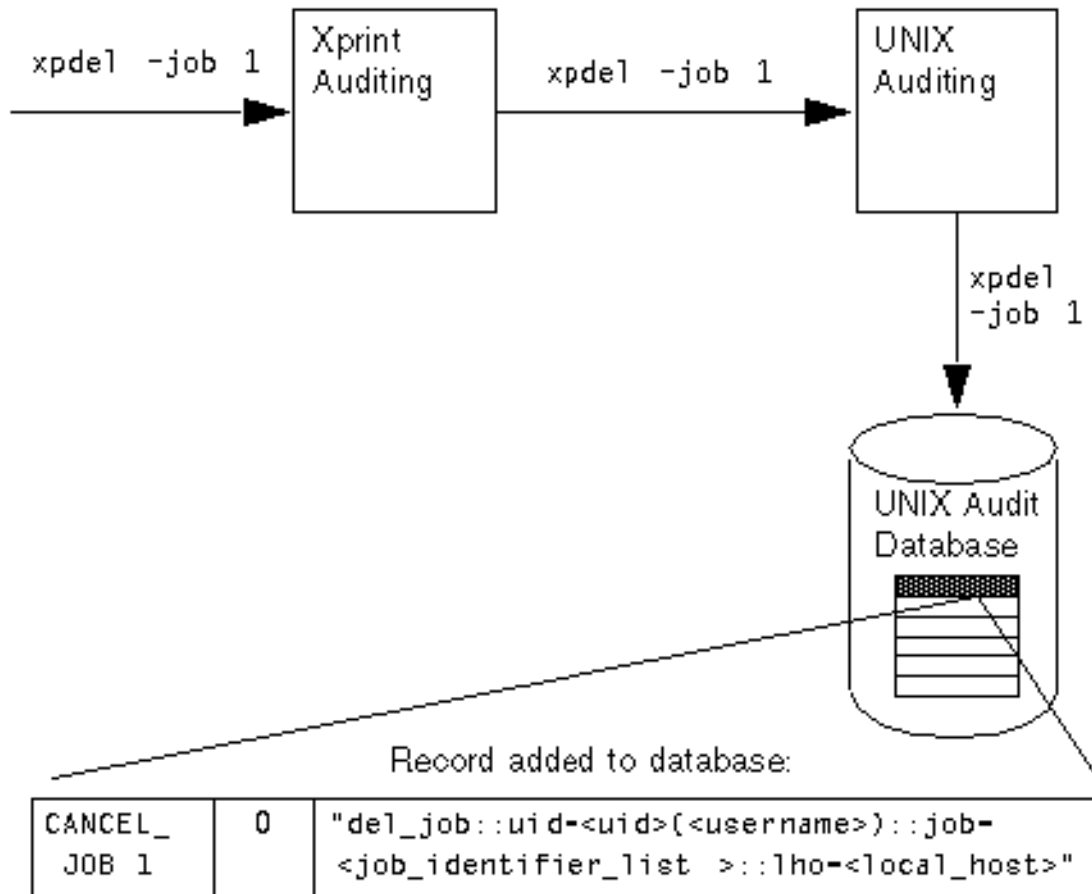


Figure 14: Data flow (auditing)

7.12.2 Events description

The audit information that is recorded for each event is shown in the following paragraphs. Each record contains:

- the audit record event type (rtype)
- the audit record event status (rstatus)
- the audit record format (argp).

Notational convention: In this section of the manual, items enclosed in angle brackets e.g. <job id> are variables.

7.12.2.1 Successful submission of a print request

The following information is recorded:

- name of the user who submitted the request (i.e. the job originator)
- request identification (i.e. the local and global job identification)
- destination
- documents to be printed
- priority
- security level.

The audit record will contain:

rtype: PRT_JOB

```
rstatus: 0
argp: "add_job::jo=<job originator>::job=<local and global job
id>::de=<destination>::dr=<documents>::pr=<priority>::sl=<job_security_level>::lho=<local_host>"
```

7.12.2.2 Start of a print job

The following information is recorded:

- name of the user who requested the print job (i.e. the job originator)
- request identification.

The audit record will contain:

```
rtype: PRT_JOB
rstatus: 0
argp: start_job::jo=<job originator>::job=<local and global job id>::lho=<local_host>"
```

7.12.2.3 End of a print job

The following information is recorded:

- name of the user who requested the print job (i.e. the job originator)
- request identification
- reason for ending the job.

The audit record will contain:

```
rtype: PRT_JOB
rstatus: 0 or 1
argp: end_job::jo=<job originator>::job=<local and global job id>::rc=<reason of abnormal
term>::lho=<local_host>"
```

7.12.2.4 Deletion of a print job

The following information is recorded:

- name of the user requesting the deletion
- identification of the print request to be deleted.

The audit record will contain:

```
rtype: CANCEL_JOB
rstatus: 0 or 1
argp : "del_job::uid=<uid>(<username>)::job=<job_identifier>::lho=<local_host>"
```

7.12.2.5 Interruption of a print job

The following information is recorded:

- name of the user requesting the modification
- identification of the print request(s) to be modified
- new status requested

The audit record will contain:

```
rtype: LP_MISC
rstatus: 0 or 1
argp : "chg_job::uid=<uid>(<username>)::job=<job_identifier_list >::st=<new_status>::lho=<local_host>"
```

7.12.2.6 Modification of a print priority or a print job_security_level

The following information is recorded:

- name of the user requesting the modification
- identification of the print request to be modified
- new priority/ job_security_level requested

The audit record will contain:

```
rtype: LP_MISC
rstatus: 0 or 1
argp: "mod_job::uid=<uid>(<username>)::job=<job_identifier>::pr=<new_priority>::lho=<local_host>"
```


or

```
"mod_job::uid=<uid>(<username>)::job=<job_identifier_list >::sl=<new job_security_level>::lho=<local_host>"
```

7.12.2.7 Addition, modification, copy or deletion of a Xprint user

The following information is recorded:

- name of the user requesting the modification
- user name (to be added, modified...)
- priority (if specified)
- privilege list (if specified)
- job security level (if specified)

The audit record will contain:

```
rtype: LP_ADMIN
```

```
rstatus: 0
```

```
argp: "add_usr::uid=<uid>(<username>)::usr=<username>::pr=<priority>::pv=<privilege  
list>::sl=<security_level>::lho=<local_host>"
```

or

```
"mod_usr::uid=<uid>(<username>)::usr=<username>::pr=<priority>::pv=<privilege  
list>::sl=<security_level>::lho=<local_host>"
```

or

```
"cpy_usr::uid=<uid>(<username>)::usr=<from username>::usr=<to username>::pr=<priority>::pv=<privilege  
list>::sl=<security_level>::lho=<local_host>"
```

or

```
"del_usr::uid=<uid>(<username>)::usr=<username list>::lho=<local_host>"
```

7.12.2.8 Addition, modification or deletion of a Xprint host

The following information is recorded:

- name of user requesting the action on the host
- identification of the host(s)

The audit record will contain:

```
type: LP_ADMIN
```

```
rstatus: 0
```

```
argp: "add_hos::uid=<uid>(<username>)::hos=<host_name>::lho=<local_host>"
```

or

```
"mod_hos::uid=<uid>(<username>)::hos=<host_list>::lho=<local_host>"
```

or

```
"del_hos::uid=<uid>(<username>)::hos=<host_list>::lho=<local_host>"
```

7.12.2.9 Addition, modification, copy or deletion of a gateway

The following information is recorded:

- name of user requesting the action on the gateway
- identification of the gateway(s)

The audit record will contain:

```
rtype: LP_ADMIN
```

```
status: 0
```

```
argp: "add_gtw::uid=<uid>(<username>):gtw=<gtw_name>::lho=<local_host>"
```

or

```
"mod_gtw::uid=<uid>(<username>)::gtw=<gtw_list>::lho=<local_host>" or
```

```
"del_hos::uid=<uid>(<username>):gtw=<gtw_list>::lho=<local_host>"
```

7.12.2.10 Start and end of Xprint

The following information is recorded:

- name of the user requesting the start or end of the spooler
- host(s) identification where the spooler must be ended.

The audit record will contain:

rtype: LP_ADMIN

rstatus: 0

argp: "start_spooler::uid=<uid>(<username>)::lho=<local_host>

or

"end_spooler::uid=<uid>(<username>)::hos=<host_list>::lho=<local_host>"

7.12.3 Tuning the auditing

As auditing may alter the performance of the system, Xprint V6.0 is delivered with the auditing disabled. How to tune the auditing is registered in the system object. The xpmmod command can be used for this purpose.

Administrators should be familiar with the auditing tools. They may have to enable the following audit events:

- PRT_JOB
- CANCEL_JOB
- LP_ADMIN
- LP_MISC

See the " AUDIT V1.0 System Administrator's Guide" for further details.

7.13 Logging

7.13.1 Introduction

There are the following ways to read logging messages:

- Read the Xprint *.log files.
- Use the xp_alert binary (described below).
- Use the centralized logging feature (described below). This only applies to users.

7.13.2 xp_alert

There is now a new possibility for collecting logging messages. Xprint can execute a binary called xp_alert when a logging message is generated. This binary takes the logging message as its input parameter, but the message is still written in the Xprint log files.

Writing the xp_alert binary is the responsibility of the administrator, and it must be installed in the config/bin directory. Note that the Xprint entities which generate logging messages can have different user ids. This means xp_alert will be called with different user ids. To solve this problem, the administrator can use the 's' bit in the xp_alert privileges.

The execution of xp_alert does not normally decrease the product's performance because this is an asynchronous process

7.13.3 centralized logging

If you want to use centralized logging based on the LOGGING V3.0 API, first verify that the product SIlog3 is installed on your host. If SIlog3 is installed, you will have to modify the administration files for Xprint V6.0. This update will be performed automatically by the SIspl package when possible. You then need to let the SIlog3 application know that it has new configuration files.

7.13.3.1 Modifying the administration files

Log3admin file

Edit the /opt/log3/log3admin file:

Add the following line to the LOGFILE block:

sispl0000000050000000000200000001;compno1080014

And add the following line to the LOGTYPE block:

1080014000000sispl0000001000000000;SIsplapplication

Log3struct file

Add the following structure to the end of the /opt/log3/log3struct file:

```
# STRUCT 56
\nTYPE:
\nENTITY:
\nROUTINE:
\nMSG_KEY:
\nPID:
\nMSG: "
```

7.13.3.2 Inform Slog3 about the new configuration

If Slog3 is not running, execute:

```
/opt/log3/bin/log3adm
/opt/log3/bin/log3str
```

- and start the Slog3 server with the following command:

```
sh /etc/rc2.d/s26log3 start
```

If Slog3 is running, execute:

```
/opt/log3/bin/log3adm
/opt/log3/log3new
/opt/log3/bin/log3str
```

7.13.3.3 Output

If the Slog3 product is configured correctly, has been started, and centralized logging is required in Xprint V6.0, all logging information will be written in the /opt/log3/sispl#log file (where # can be 0, 1, ...).

7.13.3.4 Troubleshooting

- You don't see logging messages in the /opt/log3/sispl#log file.
First check that the message has not been written in the /opt/log3/default#log file. If the messages are in this file, it means that the modifications made to the opt/log3/log3admin file are not correct or have not been accepted by the Slog3 server. See the [Section "Modifying the administration files"](#) and the [Section "Inform Slog3 about the new configuration"](#).
- Your logging messages are in the correct file, but are unformatted.
This means that the modifications to the /opt/log3/log3struct file have not been accepted by the Slog3 server. See [Section "Inform Slog3 about the new configuration"](#).
- All the configuration files seem to be correct, but the configuration does not seem to be accepted by the Slog3 server.
To solve this, stop and start the server with the following commands:
sh /etc/rc2.d/S26log3 stop
sh /etc/rc2.d/S26log3 start
- If you have any other problems, please refer to the "Logging V3.0 Product Manual", reference number: U9151-J-Z715-1-7600.

7.14 Job recovery: xprecover and xppatch

In some circumstances (for example, in high availability environments), it can be useful to redirect to other servers, jobs that are already queued. □

The xpmode -job command allows you to do this, but the initial server must be active and accessible. After a server crash, it is not possible to use xpmode -job to redirect a print job. The xprecover utility allows you to redirect jobs when the initial server is not available. It must be executed on a host where Xprint is active.

The xprecover utility can only be used by root (and not by the Xprint administrator). It scans the control files of a server that is not active and re-submits the jobs to a new server, according to device mapping rules given on the command line. Jobs from the initial server's host whose data files are accessible can be redirected. Jobs from other hosts can also be redirected.

If the data files for a job on the server's host are not accessible, the job will not be redirected. The server control files and job data file on the host where the server has crashed, must be accessible from the host where xprecover is called.

You need to know the following before running xprecover:

- the name of the server whose jobs are to be redirected;
- the list of path name mapping rules (based on regular expressions);
- the list of device mapping rules (based on regular expressions).

The path name mapping rules are necessary for two reasons:

- firstly, to state how the Xprint server directory containing the job control files can be accessed from the host where xprecover is called;
- secondly, to show how the path names of the initial server's host stored in the job definition can be converted, so that they can be accessed from the host on which xprecover is executed.

These rules map the path names of the original host to the path name under which the same file can be accessed on the xprecover host.

The device mapping rules state to which device each job will be redirected. This depends on its initial destination. Using regular expressions allows you to build the converted names dynamically. If a consistent naming policy is used in the Xprint configuration, a single regular expression can cover hundreds of individual conversions and supports, without change, the extension of the configuration to new devices.

When stating the conversion rules, administrators should be careful only to map devices of same type. For example, PostScript devices to PostScript devices. The conversion rules should potentially cover all the devices controlled by the initial server.

7.14.1 xprecover

Format

```
xprecover -f file_mapping_list -d device_mapping_list -s server_name
[ -l debug_level ] [ -a ]
```

Description

This command allows you to resubmit jobs from a non-active server to new devices. Called on an execution host, xprecover redirects the maximum number of jobs already submitted to an initial server, to devices controlled by target servers. The initial server must not be running when xprecover is called. A typical use of xprecover is to recover jobs submitted to a host which has crashed. In high availability environments, xprecover would then be called from the switching scripts.

Both the initial server's directory where the job control files are stored, and the data files of the jobs issued from the initial server's host must be accessible on the execution host. In high availability environments, this can be guaranteed by appropriate hardware and software.

The arguments given to xprecover, name the server whose jobs are to be redirected, how the job target printers should be redirected, and how directory and file names of the initial host can be translated so that the execution host can identify them. Xprint must be running on the xprecover execution host.

The xprecover utility will scan all control files in the initial server's directory.

In order to move a job, the following conditions must be met:

- The job state must be WAIT, TOP, ACTIVE, INTERRUPTED or SCHEDULED or SUSPEND. Jobs in the SUSPEND state with sub-state DATA_PENDING are never redirected.
- The job data file(s) must be accessible. Either the job has been submitted from a host which is not the initial server host, or the job has been submitted from the initial server host and its data can be accessed after applying the path name conversion rules.
- After applying the mapping rules for the devices to the 'candidate printer' list of the original job, at least one new target must be active (spoolin ON) and accept the job. The other candidate printers will be translated and tested, in the same order as they appear in the list.

No re-filtering will take place. Jobs are re-submitted to a new target device with the content type that they have after any filtering that has taken place on their submission host. Their data file is actually the output of the filters, if any. This means that the device mapping rules should exclusively map devices of comparable types. For example, it would not make sense to map a PostScript device to an HP PCL5 device. When mapping the devices, xprecover checks that the new target accepts the actual content type of the job.

xprecover resubmits the jobs to a new server, and creates a new local job id for the jobs whose data files are local to the host of the initial server. Since the server has also changed, the global id of the redirected jobs will also change. The old local id information stored on the initial server's host will be cleaned up when Xprint is next started on that host.

Jobs submitted from the original server's host (i.e. whose data files are local to the server's host) are re-submitted to a new server as if they had been initially submitted from the xprecover execution host. Information about the original host is therefore lost.

The job control files of the initial server are removed after the jobs have been successful redirected to another server. It is not possible to redirect jobs to devices in remote Xprint administration domains.

Operands

-d device_mapping_list

□

This operand is a list of rules in the form:

```
"init_dev_1=new_dev_1 init_dev_2=new_dev_2 ..."
```

where `init_dev` contains any ed regular expression pattern, and `new_dev` contains any ed substitution pattern, including regular expression registers. A printer name matching the regular expression on the left of the equal sign is converted as described by the substitution pattern on the right side. In order to be accepted as a single argument, the whole list should be enclosed in quotes.

This operand specifies how the initial destination devices must be modified. When redirecting a job, xprecover attempts to translate the first printer in the list of candidate printers. If it matches `init_dev_1`, then the first printer in the list of candidate printers is converted to `new_dev_1`. Otherwise xprecover will try to match `init_dev_2`, and so on. If no conversion can be made for the first printer in the list of candidate printers, the process is repeated for the second printer in the list, and so on.

The list may contain single mappings. For example:

```
"old_PS=new_PS old_HP=new_HP"
```

Or it can contain regular expressions covering mapping families. For example:

```
"old_(.*)=new_1"
```

which covers the example above. This makes the conversion rule independent of the actual configuration and its possible extensions.

If a job's original destination cannot be converted to a valid printer, then the job will not be recovered, and a warning will be issued.

-f file_mapping_list

□

This operand is a list of rules in the form:

```
"init_file_1=new_file_1 init_file_2=new_file_2 ..."
```

where `init_file` contains any ed regular expression pattern, and `new_file` contains any ed substitution pattern, including regular expression registers. A file name matching the regular expression on the left of the equal sign is converted as described by the substitution pattern on the right side. In order to be accepted as a single argument, the whole list should be enclosed in quotes.

This operand specifies how the file names of the initial server system can be converted into paths designating the same files on the xprecover execution system. For example:

```
"/var/spool/Xprint/config/(.*)=/import/host1/Xprint/config/1"
```

It is a requirement that the Xprint directory on the initial host (`/var/spool/Xprint/config`) can be accessed

from the execution host. The directories likely to contain job data files should also be accessible from the host where xprecover is executed.

When a file name needs to be converted, the successive rules are applied until one matches. A job whose necessary data files cannot be converted, or whose resulting file cannot be accessed is not recovered, and a warning is issued.

-s server

□

This operand identifies the server on the initial host, whose jobs are to be recovered. The server's directory must be accessible from the xprecover execution host.

Options

-l debug_level

□

This option specifies the debugging level. Possible values are between 0 and 3. This determines the follow-up messages which are issued during processing.

At level '0', only error messages are returned. The default value is '1'.

-a

This option specifies that all jobs should be redirected, including jobs in the SUSPEND state. Jobs in state SUSPEND + DATA_PENDING are never redirected.

Without this option, only the jobs in the states WAIT, TOP, ACTIVE, INTERRUPTED and SCHEDULED are redirected. Jobs in the TERMINATED state are never redirected.

Notes

Some restrictions apply to the recovered jobs:

- Jobs in the TERMINATED state cannot be redirected
- The options -at (print at) and -rt (retention time) can lead to unpredictable printing times following job recovery.
- The removal of the original data files after a job has been printed □
(xpad -job -rm) is not supported for jobs submitted on initial server's host. A work-around consists of submitting the jobs with the copy option □
(-cp), and immediately removing the file manually, but temporary files created on the original host as the output of filters or as temporary copies are removed.

To guarantee their availability, xprecover copies the data files of the jobs issued from the initial server's host to the Xprint temporary directory of its execution host.

7.14.2 xppatch

Description

The xppatch utility is a general tool for accessing and modifying the Xprint configuration and internal data in a way that is not possible with the usual product interface.

xppatch is described on ... of this manual.

7.14.3 xprecover and xppatch

Both xppatch and xprecover are tools developed for high availability environments. The functions they perform, however, are quite different.

The xppatch utility modifies the Xprint database and job control files to convert all references to a host name. It is well suited to the cases where a host executing the local mode of Xprint has a dedicated backup machine. In case of failure, the backup machine mounts the disks of the original system and assumes its duties.

xppatch can be called to ensure that the Xprint session on the original host is continued on the recovery host, which will have a different node name. Only one of the hosts in the peer group may execute Xprint at a time. xppatch is incompatible with the distributed mode of Xprint, because it directly patches the database files and bypasses the distributed database mechanisms.

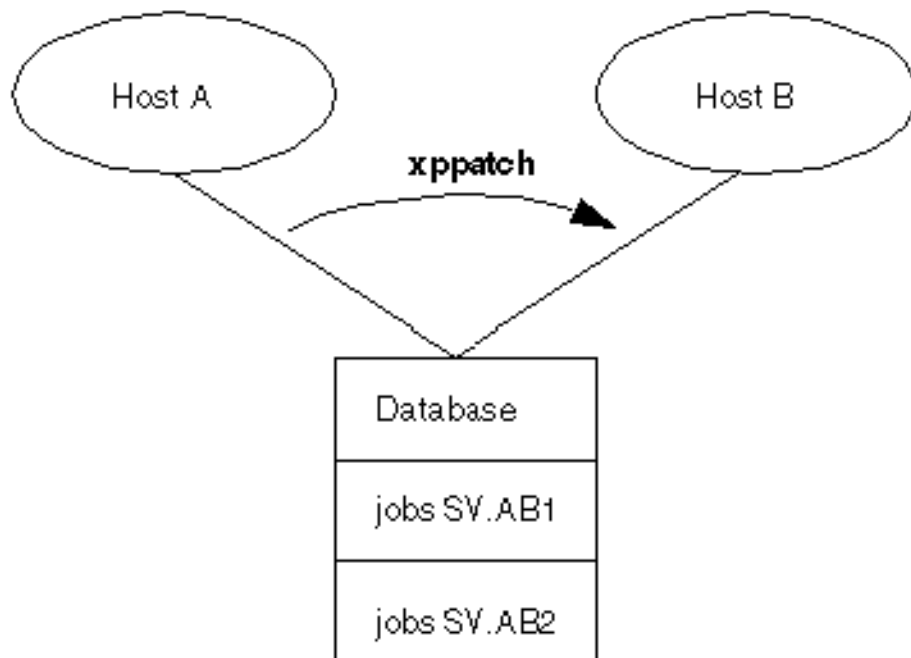


Figure 15: xppatch utility

xprecover does not modify the Xprint database contents, but focuses on job redirection. This utility scans the job control files of a server that is not available, and re-submits the corresponding jobs to new destinations, controlled by other servers within the same administration domain. xprecover is compatible with the distributed mode of Xprint. xprecover is suited to an environment of cooperating hosts rather than (original - backup) peers.

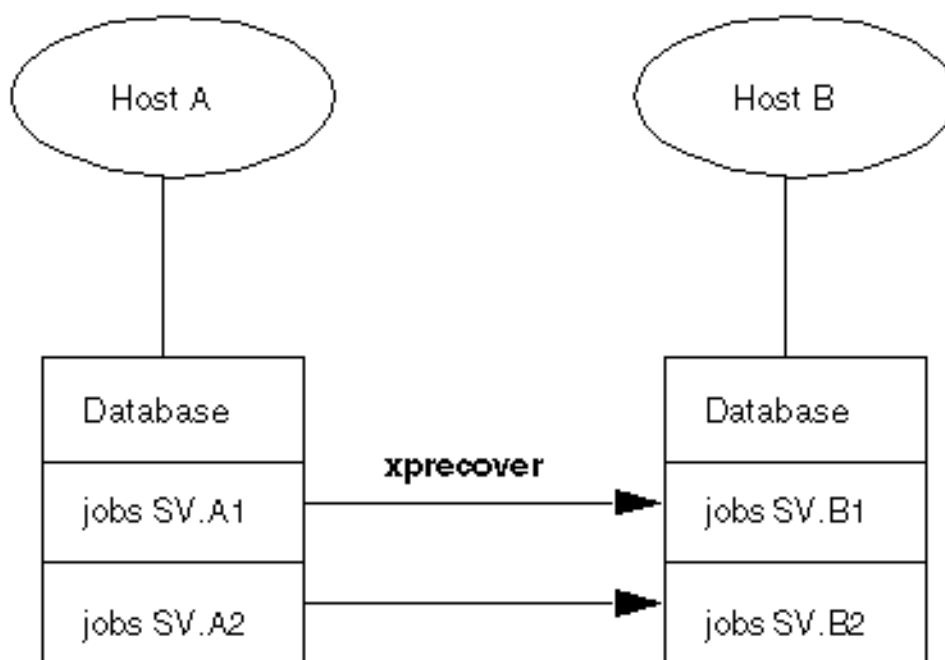


Figure 16: xprecover utility

The following table summarizes the differences between xppatch and xprecover.

	xppatch	xprecover
Xprint mode	local	local and distributed
Effect on database	patch	none
Effect on Jobs	patch	redirection to other server
Domain of ☐ application	backup systems	cooperating systems

Table 37: Differences xppatch/xprecover

7.15 The Xprint R/3 kit

7.15.1 Introduction

To improve the print functions and enhance performance, SAP has externalized printing from R/3 V4.x. The development of an open generic interface to the R/3 printing system passes the delivery of R/3 document to an external Output Management System. Xprint provides this interface with its R/3 kit, and has been certified by SAP for this implementation (BC-XOM).

The advantages of the Xprint R/3 kit for R/3 V4.x users are these:

- accurate and timely information on print documents
- real-time asynchronous status feedback
- tracking of documents
- improved performance
- better support of printers.

7.15.2 Mechanism

SAP has specified the interface to be supported by external Output Management Systems (OMS). Two operation modes are defined: polling and callback. In polling mode, R/3's Spool Work Process (SWP) continuously issues commands to synchronously retrieve job status information. In callback mode, the OMS asynchronously reports events concerning jobs and devices (for example a job termination, or a paper end situation) to the R/3 printing system. The OMS reports these events using SAP Remote Function Calls (RFC).

The OMS interface supports the following operations:

- print job submission
- print job cancellation
- print job query returning detailed information about jobs
- printer query returning the status of a device and the queued jobs

Callback mode uses the Xprint notification mechanism. The following events are supported for jobs: started, completed, aborted, suspended and in error; for devices, printer errors are reported.

7.15.3 Designing your configuration

The Xprint R/3 kit interfaces Xprint with SAP R/3. The system must be configured at three levels: R/3 kit, Xprint and R/3 itself.

Configuring the Xprint R/3 Kit

The Xprint R/3 Kit is designed with a Client/Server architecture.

The Xprint R/3 kit client converts R/3 commands (job submission, device query...) issued by the R/3 Spool Work Process to Xprint calls, and formats the Xprint results.

The Xprint R/3 kit server registers the job/device events, groups them and issues the adequate R/3 Remote Function Calls when appropriate. The server is only needed when working in the callback mode.

Only one R/3 kit server is needed to use the R/3 kit in an Xprint domain. The server can run on any host where R/3 is installed. The server doesn't require the installation of Xprint nor the presence of any R/3 specific entity on its host. The same R/3 kit server can serve different R/3 systems.

A R/3 kit client must be installed on each host where an R/3 Spool Work Process runs. Moreover, each client requires Xprint on its host.

Clients and server may run on different hosts.



Callback mode has the advantage of immediate feedback but increases the traffic in the network. It is thus recommended to use it only on those printers that require it.

Configuring Xprint

Devices that are defined in R/3 with callback must be configured with an adequate notification method in Xprint so that events are reported to R/3.

Configuring R/3

Beside the printers, two entities have to be configured in the R/3 system: a Real Output Management System (ROMS) and a Logical Output Management System (LOMS).

In R/3, a printer is mainly characterized by its name, its type, the LOMS to which it belongs and the name of the corresponding device in Xprint.

A LOMS is characterized by the functionality it supports: polling and/or callback, and is linked to a ROMS.

A ROMS describes the external spooler itself: which interface it provides (polling and/or callback), and how to make the mapping between the R/3 commands (as job submission) and the spooler commands.

7.15.4 Usage models

An R/3 installation consists usually of several R/3 systems (for example for production, development and testing) and Xprint may be set up with multiple domains. The following sub-sections introduce some typical

configuration models.

Several R/3 systems in one Xprint domain

The same Xprint domain can be reached from different R/3 systems. Each R/3 system has its own Spool Work Process. In this case, all R/3 systems can share all the resources of the Xprint domain.

For example, R/3 system #1 via the SWP and R/3Kit client running on host A sees the complete Xprint domain, R/3 system #2 sees the same domain from host B. So your R/3 production, test and development systems share the same Xprint resources.

One R/3 system with several Xprint domains

From an R/3 system with one Spool Work Process it is not only possible to reach the printers of the local Xprint domain, but also the devices configured in remote Xprint domains. Provided the Xprint gateways are correctly configured, the devices of remote domains can be configured in R/3 with the usual syntax `gateway_name!remote_printer_name`. Devices of remote domains can be managed in both polling and callback mode using the R/3 kit.

An alternative approach is to configure different Spool Work Processes for the same R/3 system in different Xprint domains. In this case, each SWP can only access the devices local to its Xprint domain. No Xprint gateway is needed and callback mode is supported, provided an R/3 kit server is configured in each domain. One different LOMS must be configured for each Xprint domain accessed locally by a Spool Work Process.

7.15.5 Installation

During the installation, all the files related to the R/3 kit are downloaded under the path `/var/spool/Xprint/config/mgt/SAP`. This path name will be referred to in the following pages by the variable `$OMSPATH`. All the binaries are located in the directory `$OMSPATH/bin`.

Installation of the R/3 kit client

The package `SIsplr3kc` contains the client part of the kit. It must be installed on each host that may run a SAP R/3 Spool Work Process, and requires the presence of the basic Xprint package (`SIspl`).

The R/3 kit client is protected by a specific license key. This additional key can be installed in the same way as any other Xprint key.

Installation of the R/3 kit server

The package `Sisplr3ks` contains the server part of the kit. It needs to be installed on only one host of the Xprint domain.

A standard script to start and stop the server at system boot-up and shutdown is also installed in the directory `/etc/init.d`.

Registering the R/3 kit messages

To register the Xprint R/3 Kit messages in R/3, you will have to call the following command after the installation:

```
xpsap_upload_msg /var/spool/Xprint/config/mgt/SAP/res/upload.msg
```

This command only needs to be called on one host of the domain, where either an R/3 kit client or server has been downloaded.

7.15.6 Configuration

The system file `/etc/services`

An entry in the file `/etc/services` must be added on each host on which an R/3 kit client or server is installed. This entry must have the identifier `Xprint_R3_Kit`. The specified port number must be the same on all hosts:

```
Xprint_R3_Kit    5777/tcp    # Xprint SAP R/3 OMS Kit
```

The server's host file

On each machine with an R/3 kit client you will have to specify the name of the machine lodging the R/3 kit server that performs the RFC callbacks. For that purpose you must edit the file `$OMSPATH/#daemon_host` and

replace the dummy entry *hostname* by the output of the command "uname -n" executed on the R/3 kit server's host, or the corresponding IP address, or a host alias name.

The R/3 systems configuration file

If you want to use callback mode, you must maintain a file on the R/3 kit server's host describing the various R/3 systems that belong to the global R/3 environment. This file is called *\$OMSPATH/#r3_systems*. It contains an entry for each R/3 system; these entries are used to open RFC connections and XML sessions with the corresponding R/3 system.

Each entry contains the R/3 system name, the hostname, the R/3 system number, the login uid, the client number, the password, and the language. These elements must be separated by spaces. Immediately after the installation the file contains only a dummy entry:

```
<sysname> <hostname> <sys#> <login> <client> <passwd> <language>
```

Example:

```
BIN hs0311 53 GNELSON 000 GERMANY D
```

Parametrizing the Xprint devices

The Xprint devices dealing with R/3 in callback mode must be configured adequately so that the R/3 kit is notified of the corresponding events. For that purpose, the following parameters must be specified in the Xprint commands *xpadd -dev* or *xpmod -dev* (you will find more detailed information in the pages of this manual which describe these commands):

```
-ev DEVICE_ERROR
```

```
-nm COMMAND
```

```
-na 'var/spool/Xprint/config/bin/xpsap_dev_notif %DEVICE% %EVENT% "%ERROR%"
```

Reconfiguration issue

An R/3 system can inform the Xprint R/3 kit at any time about a modification to its devices. If, at a given moment, some devices have been removed from the configuration, it is R/3's responsibility to ensure that there are no more events pending for these devices before actually removing them from the configuration

7.15.7 Commands

This section details the commands that have to be introduced into the configuration of R/3 in order to have the Xprint R/3 kit called by R/3. These commands must appear in the definition of the ROMS object in R/3.

All arguments are parsed by the shell. The caller must therefore take into account the following rules concerning the syntax of the arguments:

- the character ' (single quote) is escaped by \ (backslash)
- a single \ is represented as \\
- parameters that may contain any shell special characters or blanks are enclosed in ' (single quotes) in the command template

The command binaries are located in the directory *\$OMSPATH/bin* and this should be included in the environment variable *\$PATH*.

Any command will be rejected if Xprint has not been started on the host where the command is issued.

The SUBMIT command

This command transmits a job from the SAP Spool Work Process to the OMS.

```
xpsap_add_job -r&EG -i&EI -d&P -s&Es -f&F [-c&C] [-p&Y] [-w&U] [-t"&T"]
```

The parameters *&EG*, *&EI*, *&P*, *&ES* and *&F* are mandatory, the command will be rejected if any of them is missing. The corresponding Xprint command and parameters are:

parameter	SAP name	xpadd -job parameter	API add_job_cli() field of the Xp_job structure
reply message	&EG	-jc	jo_info.j_comment

group sap_spool_id (SPID)	&EI &Es	"RMG=.... SPID=.... SYSNAME=...."	
destination (printer)	&P	-de	jo_schedul.sch_destin
document (file)	&F	-dr	jo_document.doc_doc_ref
copy count	&C	-fc	jo_product.prd_copies (XP_SFT_CPY)
priority (1 high to 99 low)	&Y	-pr	jo_schedul.sch_priority (100 high to 2 low)
title page (wanted?) X = yes, N = no	&U	-js -je	jo_product.prd_form.fm_start jo_product.prd_form.fm_end
title	&T	-jt	jo_info.j_title

Table 38: Xprint commands and parameters of SUBMIT

The output of this command complies with the SAP specification.

The DPOLL command

This command is the polling command of the SAP Spool Work Process for querying jobs on a device.

```
xpsap_poll_dev -d&P -r&EG
xpsap_poll_dev -d&P -j"&EL"
```

The parameter &P is mandatory. One and only one of the parameters &EG and &EL must be specified. By definition, the Reply Message Group references only jobs that have been submitted on the local host. The corresponding Xprint commands and parameters are:

parameter	SAP name	xpstat parameter	API sta_all_cli() field of the ECM_printer structure
destination (printer)	&P	-dev	dv_name

Table 39: Xprint commands and parameters of DPOLL

parameter	SAP name	xpstat parameter	API sta_job_cli() field of the Xp_job structure
destination (printer)	&P	-scl "-de..."	jo_schedul.sch_destin
reply message group	&EG	-scl "-jc "RMG=...*" "	jo_info.j_comment
list of Xprint Job IDs	&EL	-job	jo_id.jid_jid

Table 40: Xprint commands and parameters of DPOLL

The output of this command complies with the SAP specification.



This command returns information only for jobs whose RMG specified reporting by polling at the time the job was submitted. If, at a given time, the relevant RMG is changed from polling to callback, only the jobs that were issued before this modification will be reported by a further DPOLL.

The DQUERY command

This command interactively queries an entire device queue (global device query).

`xpsap_query_dev -d&P -s&Es`

Both parameters `&P` and `&Es` are mandatory. The corresponding Xprint commands and parameters are:

parameter	SAP name	xpstat parameter	API <code>sta_all_cli()</code> field of the <code>ECM_printer</code> structure
destination (printer)	&P	-dev	dv_name

Table 41: Xprint commands and parameters of DQUERY

parameter	SAP name	xpstat & xpshow -job parameter	API <code>sta_job_cli()</code> field of the <code>Xp_job</code> structure
destination (printer)	&P	-scl"-de..."	jo_schedul.sch_destin

Table 42: Xprint commands and parameters of DQUERY

The output of this command complies with the SAP specification.



The kit does not verify that the RMG related to this device permits DQUERY requests. This is supposed to be checked by R/3 itself.



If you want to see not only the R/3 jobs but all the jobs in the printer queue, we suggest you define the R/3 user issuing this command as Xprint sub-root user.

The JQUERY command

This command interactively returns full information on the identified jobs.

`xpsap_query_job -j"&EL"`

The parameter `&EL` is mandatory. The corresponding Xprint command and parameters are:

parameter	SAP name	xpstat parameter	API <code>sta_job_cli()</code> field of the <code>Xp_job</code> structure
list of Xprint Job IDs	&EL	-job	jo_id.jid_jid

Table 43: Xprint commands and parameters of JQUERY

The output of this command complies with the SAP specification.



The kit does not verify that the RMG related to this job permits JQUERY requests. This is supposed to be checked by R/3 itself.

The CANCEL command

This command deletes a job at the request of the user.

`xpsap_cancel_job -j"&EL"`

The parameter `&EL` is mandatory. The corresponding Xprint call command and parameters are:

parameter	SAP name	xpdel param.	API <code>del_job_cli()</code> field of the <code>Xp_job</code> structure
list of Xprint	&EL	-job	jo_id.jid_jid

Job IDs			
---------	--	--	--

Table 44: Xprint commands and parameters of CANCEL



The kit does not verify that the RMG related to this job permits CANCEL requests. This is supposed to be checked by R/3 itself.

7.15.8 The server

The task of the R/3 kit server is to perform asynchronous and batched event callbacks to the various R/3 systems. For this purpose it maintains a central log of job and device events. It uses the Remote Function Call (RFC) mechanism offered by R/3 to perform these notifications.

The R/3 kit server is started with the command:

```
xpsap_start [recovery]
```

If the keyword *recovery* is not specified, the server is started from scratch; if *recovery* is specified, previous events not notified yet to R/3 are restored.

The R/3 kit server is stopped with the command

```
xpsap_stop
```

The server's activity is controlled with the command:

```
xpsap_change_sys system name
```

This command is called once by each R/3 system:

- to inform the R/3 kit server that the calling R/3 system is now coming on line
- or to inform it that the R/3 system is restarting after crash
- or to notify it that a modification occurred in the communication protocol with this system.

This communication protocol with the various R/3 systems is described in the R/3 systems configuration file `$OMSPATH/#r3_systems`. When a protocol is modified, the administrator first has to update this file and then inform the R/3 kit server using the `xpsap_change_sys` command.

In all cases, the R/3 kit server performs the following steps for the specified system:

- open an RFC connection
- open an XMI session
- call R/3 to get the RMG information
- call R/3 to get the device information

The output of the command complies with SAP specifications. At least one character is returned: '0' if the command was OK, and a value other than '0' if an error occurred.



The commands `xpsap_start` and `xpsap_stop` must be executed on the server's host, while the command `xpsap_change_sys` can be called on any host.

Dialog between Xprint and the R/3 kit server

The job and device events in Xprint trigger notification methods which forward the events to the R/3 kit server. This is only possible if the jobs are submitted with the `xpsap_add_job` command and if the devices are configured as described in [Parametrizing the Xprint devices](#).



If, when a job terminates, Xprint is no longer active on its submission host, the Xprint notification cannot be executed. In this case, the event is definitively lost for the server. It is therefore the Xprint administrator's responsibility to ensure that Xprint is not stopped on a host between the time SAP submits a job and the time it is terminated.

7.16 Product licensing

A general presentation of Xprint licensing can be found in the User and Administrator Guide. More specific

topics are addressed here.

7.16.1 **xpkey**

NAME

xpkey - installs license keys and lists installed licenses.

SYNOPSIS

xpkey[-l]□

xpkey -i *value*

DESCRIPTION

xpkey -l lists the features enabled locally by the installed license keys. This is the default option.

xpkey -i value installs a new license key for Xprint. The key is saved in a file named *DPMX.n* where *n* is an integer suffix.

OPTIONS

If no options is specified, the usage of the command is displayed.

-i value

installs a new key with the specified value. As *value* usually contains space characters, it should be enclosed between quotes. Some keys may be made of 2 strings, in which case, *value* should be given by appending the second string to the first one.

-l

scans the files in which the keys are saved. For each valid key found, the following information is returned concerning the corresponding license:

- Product and version
- Expiration date
- Set of enabled features
- Maximum number of devices allowed, if any
- Site identifier, if any

Information is also provided about found keys that are no longer valid.

NOTES

xpkey exits with the following status codes:

- 0: no valid key has been found (*xpkey -l*) or the key to be installed is not valid (*xpkey -i*).
- 1: no key has been found on the system.
- 2: Installed keys or the key to be installed refer to Xprint Local licenses
- 3: Installed keys or the key to be installed refer to Xprint Net licenses

Xprint licenses can also be installed by manually creating a file containing the license key. The name of the file must begin with *DPM* and the file must be stored in the directory */etc/.OSL_LICENCE*.

EXAMPLES

Example 1 - Installing a new key:

```
xpkey -i "Lr Gh Iz Xu CY 9d A@ To Hx aY Sw 1c m9 Uw:"
```

Example 2 - Retrieving the list of valid licenses installed on the system:

```
xpkey -l
```

FILES

/etc/.OSL_LICENCE

On UNIX systems, the directory in which *xpkey* creates the *DPMX.n* files containing the installed license keys and where manually created license files must be stored.

NT_install_dir/Xprint/config/data

On Windows NT systems, the directory in which the *DPMX.n* files containing the installed license keys are created.

DPMX.n

Files created by *xpkey* at license key installation.

DPMfree_suffix

Files containing license keys, which may be created manually in the directories specified above.

7.16.2 No valid license available

The basic licenses, such as Xprint Local, Xprint Net Client or Xprint Net Server, are checked when Xprint starts up. After the evaluation period, an attempt to start Xprint will fail if none of these licenses has been installed and the following message will be returned:

XP000259: No valid license available.

More information can be found in the file */var/spool/Xprint/config/Xprint.log* (UNIX) or in the system event log (Windows NT).

The reason may be:

- *Unrecognized license*: no license was found or the license that was found is not valid for the current version of Xprint
- *Service needs Server license*: the host is defined as potential master while only the Xprint Net Client license is installed.
- *License out of date*: the license is no longer valid
- *License already in use in Xprint domain*: the same license key is being used on another host.

The following cases do not prevent the start-up of Xprint:

- The host has an Xprint Net Client license but has servers or supervisors configured locally. In this case, activation of these entities will fail. Gateways can be created, but activated only for input to accept requests from Wprint.
- More than one host is found in the Xprint configuration while running with a license Xprint Local. Any communication with other hosts will be impossible.
- The Xprint domain has more logical devices than allowed.

In each of these cases, the user *root* will be notified of the inconsistency by mail at each start-up until the configuration corresponds effectively to the installed licenses.

7.16.3 Additional remarks

Evaluation period

The evaluation period during which Xprint can run without license after installation is limited to 30 days. During this period, a maximum of 32 devices may be configured simultaneously.

Sharing of license keys

The same license key may not be used on different hosts.

Device upgrade licenses

On Siemens platforms, any device upgrade license demands that all the device upgrade licenses for the lower levels are also installed. For example, with Xprint Local, a device upgrade to 256 devices demands that the licenses for 32 and 128 devices are also installed. With Xprint Net, a device upgrade to 256 devices demands that the license for 128 devices is also installed.

Update of license keys

Newly installed keys become normally active after the next Xprint start-up on the host. This means that installing a new key during an Xprint session may not take effect immediately.

7.16.4 Details

Evaluation mode

- Evaluation mode is granted only once per version
- The expiration date is 30 days since the first `xpstart` or 30 days after the first `xpadd -dev`, whichever is later.
- Both `xpstart` and `xpstop` messages include the string Demo License.
- An e-mail is sent to root at each `xpstart` reporting the number of days remaining.
- A logging entry is generated reporting the number of days remaining.
- The string Demo License is printed on the start and end sheets.
- Most of the functionality of Xprint is available.
- The number of devices is restricted to 32. This restriction does only make sense if the Xprint domain does not have any other keys allowing more devices.
- The `xpdbls` goodie cannot be used.
- If, when Xprint is started, more devices are found to be defined than are permitted and no other key in the domain allows more devices, a mail is sent and a logging message is generated. This occurs when migrating Xprint from one version to another without having the necessary new key.

Xprint Local license

- One logging message is generated if more than one host is found on the system when starting Xprint. A mail is also sent to root
- By default, only a maximum of 2 devices can be defined. Any attempt to add more devices than allowed will fail with the message:

Too many objects - maximum allowed <%d>

where %d identifies the maximum number of devices allowed on the host.

- Gateways can only be used to handle requests coming from Wprint.
- Xprint only considers license keys that are valid, in which case a "or" operation is done between the different keys.

Net Client license

- The same license key cannot be used more than once.
- The start-up will fail if the host with the Net Client license is registered as *POTENTIAL_MASTER*.
- Any `xpadd -dev`, `-spv` or `-gtw` will be rejected if submitted locally. If objects are added on the host from a host which has a Net Server license the objects will be created, but any `xpchange` of those objects will fail.

Net Server license

- The same license key cannot be used more than once.

Device upgrade license

- By default, a maximum of 32 devices can be defined in a domain with Xprint Net licenses while a system with an Xprint Local license is limited to 2 devices. This threshold can be increased with appropriate device upgrade licenses.
- Any attempt to add more devices than allowed will fail with the message:

Too many objects - maximum allowed <%d>

where %d identifies the maximum number of devices allowed in the Xprint domain.

- The message

License limit exceeded – too many objects

may be returned if the key has been added during an Xprint session with an Xprint Net license because not all the Xprint entities have yet been informed about the update.

- On Siemens platforms, an upgrade license can only be used if the licenses for the lower limits are installed. If no key is found, `xpstart` will fail.
- Once a key controlling the number of devices is detected as out of date, the maximum number of devices allowed on the host is used as reference for the domain. In the worst case, the default number of devices is considered (2 for Local and 32 for Server).

- When several device upgrade licenses are detected, the largest value is used.

Site License

- A site license key only needs to be installed once per domain.
- The name of the site is displayed at *xpstart* and *xpstop* and is also printed on the start and end sheets.

Glossary

Argument

An element in the command line used to specify the data which is to be processed. Arguments immediately follow the command and can be numbers, letters or character strings. For example, in the input `xpadd -dr file.txt`, `xpadd` is the command and `file.txt` is the argument. `-dr` is an option. See also *option*.

ASCII

An acronym for American Standard Code for Information Interchange. This is the format in which data in the `system` is most frequently encoded.

Backend

This is a driver program responsible for controlling printers. In addition, it is responsible for error recovery and printer state information.

Character set

The letters, digits, punctuation marks and symbols available for a font.

Client

Unit (e.g. a host or a process) using the services of a server.

Direct printing

Under Xprint you do not necessarily have to place a print job in the print queue. You can also send a print job directly to a specified printer; in this case, however, the job cannot be modified after submission.

FACE (Framed Access Command Environment)

The character interface to the `system`. This interface allows users to perform a number of routine actions via menus on the screen. These actions include sorting the file archive, accessing various applications, and processing several tasks in parallel. Each task is allotted a separate window, and several windows can be open at the same time.

Fast filter

This is a program which enhances the functionality of Xprint. Above all, fast filters are used to enhance the *backend program*, i.e. their main function is to define additional options for `xpadd -job` and to detect feedback messages from the printer and pass them on to the responsible supervisor in a form it can understand. Fast filters are executed between the *supervisor* and the printer when the job is being printed.

Filter

A filter is a program which enhances the functionality of Xprint. It receives incoming data and converts it into a format which the printer or, in the other direction, the supervisor can understand. The system differentiates between *fast filters* and *slow filters*.

Font

Fonts are Xprint objects which combine the different pieces of font information (typeface, style, character pitch, line spacing, print quality and character set) under one name.

Form

This is an Xprint object with which you can have documents output in a predefined layout.

Gateway

Gateways are Xprint objects which allow the connection of a *Xprint domain* with different systems (other *Xprint domains*, BSD-UNIX systems and BS2000).

GIP

Abbreviation of "Global Interchange Protocol".

HOME directory

This is the directory in which a user is located after logging in to the system. Also known as the login directory.

Hopper

A paper cassette belonging to the printer. Some printers have two or more hoppers.

Host

This is the central computer to which the terminals and printers of the users are connected. Under Xprint every computer defined in a Xprint domain is referred to as a host. Hosts are divided into three categories: master, slave and parasite hosts. The difference lies in the way each one handles the *Xprint database*.

Job

See *print job*.

Job identifier

Every *print job* is automatically assigned a character combination called the job identifier when it is added to the print queue. This job ID is required if changes are to be made to a submitted job.

Job template

A job template is an object which can store a sequence of specific options of the *xpadd* command which are used frequently for spooling in print jobs. If a user specifies this job template when submitting a print job, Xprint automatically uses the predefined options of the template; this saves the user the effort of specifying frequently recurring option sequences again and again.

LAN

Abbreviation of "Local Area Network".

Loadable Resource

This is an Xprint object that may be used for printing documents. Resources are data that are document independent and loaded to the printer separately from the user's data. Documents can then call downloaded resources.

Master host

All hosts of the type "potential master" contain a complete copy of the *Xprint database*. One of the master hosts is always the "active master host". All modifications are first entered in the Xprint database of this host and then a copy of them is sent to the other hosts. When Xprint is introduced into a network, the first computer (type "potential master") on which Xprint is installed and started automatically assumes the role of the active master host. If Xprint is terminated on the active master, the next potential master host in the so-called *host hierarchy* assumes its function as active master host.

Object

Using the *xpadd ...* command, for example, a specific *object type* is selected, a name is specified for the new object (e.g. for a printer), and this new object is entered in the *Xprint database*. This object is then known by its own unique name in the Xprint system.

Object type

A generic term for the defined individual components which Xprint keeps available for users to create *objects* (e.g. printers, print jobs, fonts, forms, etc.). The object types of the Xprint system are stored in a library.

Option

These are special instructions used to govern command execution. All options are preceded by a minus sign (-). With most of the Xprint commands you can specify several options (also simultaneously). The command line *xpadd -dr text -da printer2 -fm form1*, for example, contains the options -dr, -da and -fm which are used to modify the function of the *xpadd* command. See also *argument*.

Parasite host

A host which is registered as a parasite host does not have its own copy of the Xprint database. If Xprint is to be accessed from a parasite host, this host requires another host to be assigned to it as the database server.

PCL (printer capability list)

This is an object containing all the information Xprint needs for controlling a printer. It supports the printer driver in converting print options to the corresponding control characters the printer needs. Furthermore, it contains information on the technical features of the printer (e.g. its connection protocol) and the conversion of common control characters (form feed, line feed, etc.) performed by the printer.

Permission list

Permission lists are Xprint objects, in which access rights for other objects are defined. There are two types of permission list: allowed lists and denied lists. The former comprise lists of users or other objects, e.g. *forms*, that are allowed to access specific objects, e.g. printers. The latter list objects which are not allowed to access specific objects, for example users who do not have access to specific printers.

Print job

When one or more files are sent off for printing via the `xpadd` command or the menu interface, these are combined to form *one* object named "print job" and subsequently treated as such by Xprint. At spoolin, every print job is assigned a *job identifier* under which it can later be addressed, e.g. to change the formatting.

Printer capability list

See *PCL*.

Printer group

You can combine several printers to form a printer group. Users can then send a job to this group, whereupon the job will be printed on the first printer to become available in the group. This avoids long wait times, which might occur if only one destination printer is selected. Nevertheless, users can still address any printer in a group individually.

Raw mode

When a print job is spooled in in raw mode, Xprint sends this file to the specified printer without any formatting or processing by a filter.

Recovery rule

Recovery rules are used to define the error recovery procedure in the case of specific printer conditions.

Server

A unit (e.g. a host or process) providing services to *clients*. Servers are the Xprint objects which administer incoming *print jobs* and are responsible for scheduling them. The print jobs are entered in a print queue. The server manages a separate queue for each supervisor it controls. The various print jobs for the printers belonging to the respective supervisors are entered in these queues.

Slave host

A slave host is a *host* which holds a complete copy of the *Xprint database* but cannot become active *master host* itself.

Slow filter

Slow filters are executed in parallel to the spool process, i.e. after job submission and before printing. They convert data or allow special print modes such as printing in columns or in landscape mode.

Supervisor

A supervisor is directly in charge of controlling one or more printers. It receives the job data from the superordinate *server* and passes it on to the *backend* program.

Xprint user

A Xprint user is a user who is registered in the Xprint database. Xprint allows extensive manipulation of the privileges of the Xprint users within the Xprint system.

Xprint database

The Xprint database contains all the data Xprint needs to be able to access the Xprint resources. This includes information on the defined hosts, Xprint users, printers and printer groups as well as on forms, filters, gateways and servers. Only the print jobs are not stored in this database but on the server which is responsible for their administration.

Xprint domain

All the Xprint objects, in particular the hosts, for which an entry exists in a shared Xprint database and which are administered by a single Xprint administrator.

Related publications

Please apply to your local office for ordering the manuals.

- [1] **Xprint V6.0**
 User and Administrator's Guide
Target Group
 Users and administrators of Xprint V6.0.
Contents
 The manual describes the methods used for working with Xprint V6.0 and for its administration and installation.

- [2] **Xprint V6.0**
 Application Programming Interface (API)
 User Guide
Target Group
 This manual is for programmers who want to make use of the Xprint functionality in their programs.
Contents
 The manual describes how you can use the functions of Xprint API in your own programs. Furthermore, it contains a reference of all Xprint API functions and the corresponding macros and functions.

- [3] **Xprint V6.0**
 Graphical User Interface
 User Guide
Target Group
 Users, system administrators, printer managers and programmers of Xprint
Contents
 Description of Xprint Mercator User Interface for operation, administration and maintenance.

- [4] **Wprint V3.0** (Windows NT)
 User Guide
Target Group
 Windows NT administrators and Wprint users
Contents
 Description of the installation, configuration and operation of Wprint V3, the Xprint client for Windows NT.