Advanced Queueing

Technical Brief

Overview

The Codonics NP-1660 Direct Thermal and Dye Sublimation Printer allows users to print on both classic Dye Diffusion paper and ribbon, and new DirectVista™ Film and Paper. This breakthrough technology necessitated creating a media handling scheme in order to give users greater control over image processing. Users can customize settings for each of the four media types, and may instruct the printer to preserve jobs until the proper media is loaded.

Advanced queueing has been introduced so that users may take advantage of the various media options without physically changing the media between print jobs. Users may send jobs intended for media types and sizes other than that currently loaded in the printer, and the printer will retain the jobs until the proper media is loaded.

> See "Technical Brief, Media-Based User Preferences" and "Technical Brief, Job Settings" for more information.

The Advanced queueing System utilizes three features:

- The "Hold Queue," a device designed to save and not print jobs until the proper media is loaded into the printer.
- User notification of outstanding jobs in the print queue.
- "Persistent Queues," in which the Advanced queueing System retains jobs during printer resets and power cycling.

Media-Based queueing

The printer puts jobs into one of two queues:

The "print queue," for jobs that can be printed on the currently loaded media,

or

The "hold queue," for jobs that cannot be printed on the currently loaded media.

The printer must decide what **media size** and **type** to assign to each job in order to properly process and queue them. The following table shows the possible media size and type combinations that are supported, though not all combinations indicated may be currently available:

Media Size	Media Types Supported
A	CVP, CVT, DVP
A4	CVP, CVT, DVP
LONGA	CVP, CVT, DVP
LONGA4	CVP, CVT, DVP
XLONGA	CVP, CVT, DVP
XLONGA4	CVP, CVT, DVP
XLONGWIDE	CVP, DVP
8x10	DVF

CVP = ChromaVista™ Paper
CVT = ChromaVista™ Transparency
DVP = DirectVista™ Paper
DVF = DirectVista™ Film

Determining the Media Size

Information about a job's media size comes from one of two places:

1. The associated job settings.
2. The currently loaded media.

If the print job settings specify a media, the printer will process the job for that media size. See the "Job Preferences" technical brief for details.

> See "Technical Brief, Job Preferences" for more information.

When there are no job settings or the media size is not specified, the printer assigns the media size loaded at the time it *initially* processes the print job. Initial processing usually occurs soon after the printer receives the job. If many jobs are being submitted, it may take several minutes before the printer begins initial processing and media size is determined.

Once the media size value is assigned, the printer formats the job to fit. To ensure that a job without associated job settings is printed on the proper media size, load the correct media before the job is submitted and leave it loaded until the job actually prints.

Determining the Media Type

Like media size, the information about a job's media type comes from one of two places:

1. The associated job settings.
2. The default system value.

The default value is **any** type of the correct size. If the job has associated job settings and they specify the media type, then the printer will use that media type.

If there are no job settings or the media type is not specified in them, then the printer assigns the default system value.

However, as noted in the "Media-based User Preferences" technical brief, using the default type can cause the printer to apply the wrong **user preferences**. User preferences determine the image quality settings, i.e. gamma, contrast, scaling. When a job is initially processed, the printer assigns the correct user preferences by the currently loaded media type. If the media in the printer is changed after the initial processing—for instance, from CV paper to CV transparency—the CV paper user preferences will be applied to a job printing on CV transparency. This mixup will only occur if the media type is set to the printer's default. If a media type is specified and the media in the printer changes, the job will go to the holding queue.

The media type default is useful when using mixed media types in a single tray (e.g. ChromaVista™ Paper and Transparency), and the same user preferences are intended for both.

As with media size, the best way to ensure that a job without associated job settings is printed on the proper media type is to load the proper media before the job is submitted, and to leave it there until the job is printed.

The Print and Hold Queues

Once the printer has completely processed a job it is placed in either the "print" or the "hold" queue. The print queue is for jobs that can be printed on the currently loaded media. The hold queue is for jobs that cannot be printed on the currently loaded media.

Each time the media changes the hold queue is examined, and any jobs in it that can be printed are moved to the print queue. And likewise, if any jobs in the print queue can no longer be printed on this media, then they are moved to the hold queue.

The hold queue can be manipulated with the **lpq** and **lprm** commands. The hold queue is logical device 6, and has the name "hold" on the printer. The **lpq** command can be used to query the queue, and the lprm command can be used to remove jobs from it. See the **NP-1600/1660 User's Manual** for more information on using these commands.

User Notifications

The printer notifies the user when it has jobs in the hold queue via the front panel, the **stat** command, and ImageWeb status.

The Front Panel

The printer flashes messages on the front panel when there are jobs in the hold queue. These messages indicate what type(s) of media to load to print the job(s). For example, if there is a job requiring DirectVista™ Film, the following message would flash on the front panel:

LOAD 8X10 DVFILM

The message includes both the media size and type unless the print job uses the default. In this case any media type will do as long as the size is correct. For example, if a job in the hold queue requires A4-size media but the media type is "any", then the following message would flash on the front panel:

LOAD A4

When jobs with multiple media size and type combinations are in the hold queue, multiple messages (up to 4) will flash on the front panel in a repeating succession.

The stat Command

The display from the **stat** command shows both the number of jobs in the hold queue and the user notification messages that are displayed on the front panel (as described in the previous section).

Users without root privileges can retrieve status as follows:

1. telnet to printer's ***hostname*** or ***IP Address***
2. login as **status**

The printer will then disconnect the user automatically.

Users with root privileges can do the following:

1. telnet to printer's ***hostname*** or ***IP Address***
2. login as **root**
3. at prompt, type **stat** ***user-id***

Please refer to the User's Manual for more information about telnet.

ImageWeb Status

The **stat** command display can also be accessed from the ImageWeb interface. The "ImageWeb" technical brief contains detailed information on ImageWeb. From the main page click on the PRINTER STATUS button to see **stat** command output.

Persistent Queues

"Persistent Queues" protect unprinted jobs already in the printer when it is powered down or resetting. When the printer is powered back up it automatically processes and prints these jobs.

By default the persistent queues feature is turned off. In this mode,

unprinted jobs are lost when the printer is powered down or reset.

Controlling Persistent Queues

To turn persistent queues on or off, send a simple ASCII text file to Logical Device 0, similar to sending a user or job settings file.

The file should contain a single line that is either:

KEEPQUEUES TRUE

to enable persistent queues

or

KEEPQUEUES FALSE

to disable persistent queues.

The spacing is not significant and the characters are case-insensitive.

Note: This file must be submitted by 'root'.

For example, given a file called 'keepqueues.txt', which contains the line:

KEEPQUEUES TRUE

the following FTP session would enable persistent queues:

ftp *myprinter*
Connected to myprinter.
220 np1660 FTP server ready.
Name (myprinter:username): ***jsmith***
331 Use printer # [0-2, 8, 9, 10, 11-99, 100-104, 135, 300] for password.
Password: **0** *Note: Password will not display*
230 User jsmith logged in on System device.
ftp> **bin**
200 Type set to I.
ftp> **put *keepqueues.txt***
200 PORT command successful.
150 Opening BINARY mode data connection for keepqueues.txt.
226 Transfer complete.
local: keepqueues.txt remote: keepqueues.txt
19 bytes sent in 0.00049 seconds (3.9e+02 Kbytes/s)
ftp> **bye**
221 Goodbye.

Note: The file must be transferred in binary mode when using FTP. This may seem unusual because the file is ASCII text, but the FTP server in the printer is designed to only accept files in binary mode to prevent data from being changed during the transfer.

Querying the Queue Setting

The current persistent queues setting can be queried using the **stat** command on the printer, either via a Telnet session, or the ImageWeb interface (see the "User Notification" section above for instructions on using these tools).
The persistent queues setting is indicated by a message appearing directly under the "Queues:" heading of the status display. If no message appears then persistent queues are disabled.

The display reads:

Queues: 0 jobs in image queue
0 jobs in print queue
0 jobs in hold queue

If persistent queues are enabled, then the display reads:

Queues: 0 jobs in image queue
[KEEP] 0 jobs in print queue
0 jobs in hold queue

The **[KEEP]** message indicates that persistent queueing is turned on. If the printer is reset or power cycled, all unprinted jobs will be preserved.

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