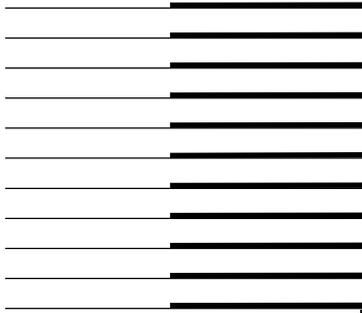


Océ



PJL for SRA Controller



User's Guide



December 2000 Edition

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Contents

1 Introduction to PJJL	7
1.1 What is PJJL?	7
1.2 What is PJJL For ?	8
1.3 The Benefits of PJJL	9
1.4 Who Should Use PJJL?	10
2 PJJL Command Syntax and Format	11
2.1 Document Conventions	11
2.2 Formats of PJJL Commands	13
2.3 PJJL Syntax Rules	14
2.4 Types of Variables	16
2.5 Processing Invalid Commands	17
3 Using PJJL	19
3.1 Overview of How Commands are Used	19
3.2 PJJL Job Requirements	20
3.3 Example of a PJJL Job	21
3.4 Command Groupings by Functionality	22
4 Kernel Commands	25
4.1 Universal Exit Language (UEL) Command	26
4.2 ENTER	28
4.3 COMMENT Command	29
4.4 Methods of Printer Language Switching	31
5 Job Separation Commands	33
5.1 JOB Command	33
5.2 EOJ Command	39
5.3 PJJL Job Security	41
5.3.1 Password Protection of Default Feature Settings	41
5.3.2 Control Panel Lock	41
5.3.3 Example: Using PJJL Security	42
5.4 PJJL Job Offset	43

Contents

6 Environment Commands	47
6.1 Print Environments	48
6.2 Changing Environment Settings.....	51
6.2.1 Environment Summary.....	52
6.3 PjL Reset Conditions.....	54
6.4 Key Points to Remember About Environments	54
6.5 PjL Environment Variables	55
6.6 General PjL Environment Variables	56
6.7 Setting the Printer to a Desired State.....	64
6.8 DEFAULT Command	66
6.9 INITIALIZE Command.....	68
6.10 RESET Command.....	70
6.11 SET Command.....	72
7 Status Readback Commands	75
7.1 Printer Status Requirements	76
7.2 Synchronising Status Readback Responses	76
7.3 Format of Status Readback Responses	76
7.4 INQUIRE	77
7.5 DINQUIRE Command.....	81
7.6 ECHO Command	85
7.7 INFO Command	87
7.7.1 ID Category	88
7.7.2 CONFIG Category.....	89
7.7.3 MEMORY Category.....	92
7.7.4 PAGECOUNT Category.....	92
7.7.5 STATUS Category.....	93
7.7.6 VARIABLES Category.....	94
INTRAYS Category	100
7.7.7 USTATUS Category.....	100
7.8 USTATUS	102
7.8.1 DEVICE Variable.....	104
7.8.2 JOB Variable	106
7.8.3 PAGE Variable	109
7.8.4 TIMED Variable	110
7.9 USTATUSOFF	112
7.10 Job Recovery	113
8 Device Attendance Commands	115
8.1 RDYMSG Command.....	116
8.2 OPMSG Command	118
9 Programming Tips for Using PjL	119

9.1 PjL Services.....	120
9.2 Print Data Generators.....	120
9.3 Printer Utilities.....	122
9.4 Spoolers.....	126
9.5 Requesting Printer Status.....	132
9.6 Using Status Readback in a Multi-User System.....	132
9.6.1 Printer Status Readback Usage.....	132
9.6.2 Determining If Printer Status Readback is Available.....	133
9.6.3 Old Printer Status Readback Responses.....	133
9.6.4 Response Data Buffer Overflow.....	134
9.6.5 Application Design Ideas.....	135
Related Documentation.....	137
Appendix A : Product-Specific Feature Support.....	139
A.1 PjL Feature Support.....	140
A.2 PjL Environment Variable Support.....	141
Appendix B: PjL Command Summary.....	145
Appendix C: PjL Status Codes.....	149
C.1 Status Code Groupings.....	149
C.1.1 Informational Messages (10xxx).....	150
C.1.2 General Errors (20xxx).....	150
C.1.3 General Warnings (25xxx).....	152
C.1.4 Semantic Errors (27xxx).....	153
C.1.5 Potential Operator Intervention Conditions (35xxx).....	153
C.1.6 Operator Intervention Conditions (40xxx).....	154
Glossary.....	155
Index.....	161

1 Introduction to P_JL

1.1 What is P_JL?

P_JL stands for Printer Job Language.

P_JL was developed by Hewlett Packard to give software applications more job-level printer control. By definition, it takes priority over the actual printer language (PCL or also Postscript) and is largely independent of this language. P_JL offers functions for controlling jobs in networks and other multi-user systems, for simulating operator panel inputs and for querying the printer status.

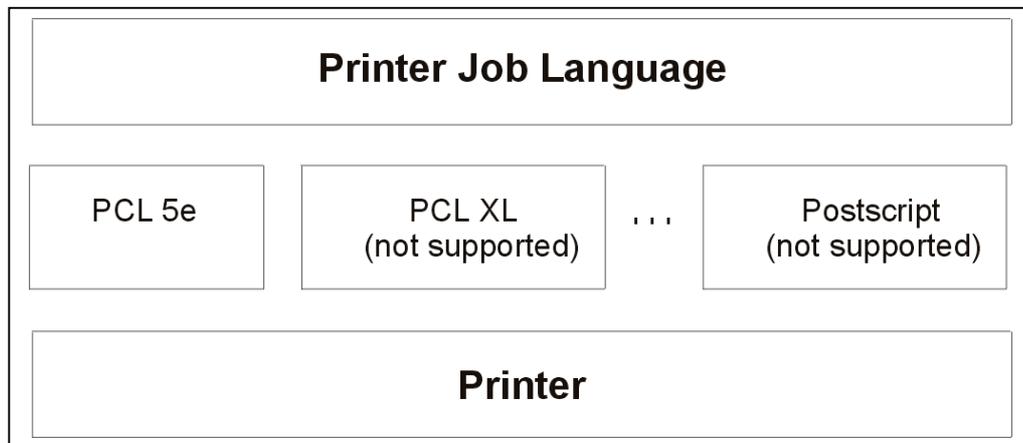


Figure 1-1. P_JL resides above other printer languages

1.2 What is PJJ For ?

PJJ provides four main functions

- **Printer language switching between jobs**
If a printer supports more than one language (PostScript as well as PCL5, for example), a PJJ command can select the language to use. If the printer is PCL6-capable, you can switch between PCL 5 and PCL XL. The PCL5 and Postscript languages are detected automatically, but if you wish to switch to PCL XL, an explicit PJJ command has to be submitted.
- **Job separation**
Start and end marks can be used to separate the print jobs. This feature is particularly useful in multi-user and network environments, because you can identify the end of your own jobs in this way. This feature also plays an important role in the automatic detection of errors.
- **Printer configuration**
Many of the settings that can be entered on the printer operator panel can also be programmed with PJJ commands. The settings can be changed either temporarily or permanently. This makes it possible to design print jobs such that they can run irrespective of the current operator panel settings. In addition, the printer can easily be returned to a desired default state by the host system.
- **Status readbacks**
Status readbacks are notifications about the status of the printer which the printer sends to the host system. The printer can communicate details about its physical state (e.g. Ready/Stop, memory, hard disk), the installed resources (fonts and macros) and the value of parameters (e.g. copy count, binding, duplex). It is also possible for the printer to submit unsolicited information, e.g. messages about errors, page counts and start of job/end of job notifications.

1.3 The Benefits of PJJ

Listed below are some of the benefits PJJ provides:

Controlled printing

PJJ puts the host system in a position to monitor the print process for each of the jobs completed. The commands for modifying operator panel settings can be used to define and query the printer's default configuration. The job separation commands can be used in combination with status readback commands to track the print process and react to any error states that are reported.

Ease of use

PJJ is an ASCII language. All commands except the Universal Exit Language (UEL) command consist of printable characters and plain-English words or abbreviated words. Chapters 2 and 3 of this manual provide an overview of the syntax and structure of this language.

1.4 Who Should Use PJJ?

PJJ resides above the printer languages and is used for programming spooler and other applications which need greater control over the processing of print jobs.

Despite its simple structure, PJJ is a powerful tool and should be used only by experienced users who can create jobs that cause no adverse effects on other jobs in a shared environment. When programming jobs, always take into account what possible effects any setting could have on the print jobs of other users.

2.2 Formats of PJL Commands

All PJL command lines follow one of the following four formats. Each format defines how commands using that format are structured.

Format #1 <ESC>~12345X

The only command that uses this format is the Universal Exit Language (UEL) command.

Format #2 @PJL [<CR>]<LF>

This format allows a PJL line with no command, and is used to add clarity to PJL command listings. You can use one or more of these commands to visually break up several lines of PJL commands.

Format #3 @PJL *command* [<words>] [<CR>]<LF>

The COMMENT and ECHO commands currently are the only PJL commands using format number 3.

Format #4 @ PJL *command* [*command modifier* : *value*]
→ [*option name* [= *value*]] [<CR>]<LF>

This format is used for all of the other PJL commands and is described in more detail below.

command One of the assigned PJL command names, such as SET or JOB.

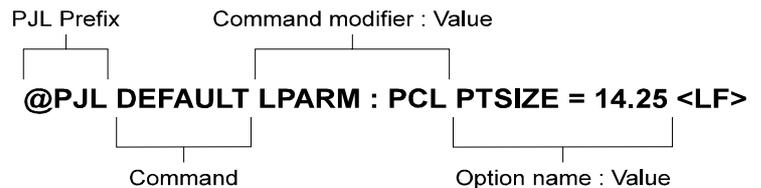
[*command modifier* : *value*]

The command modifier enables the user to specify what is affected by the command. For example, with the command modifier LPARM you can specify language-specific variables. A PJL command with a command modifier of LPARM : PCL only affects PCL-specific settings. A PJL command can contain only one command modifier.

[*option name* [= *value*]

The option parameter specifies an option or sets a command option to a certain value. Examples include “@PJL INQUIRE COPIES” and “@PJL ENTER LANGUAGE = *personality*.” The range of values varies with each specific command and each printer model. A PJL command may have no options, or one or more options. An option can have one or no value.

The DEFAULT command shown below illustrates format number 4. The command sets the default PCL point size to 14.25.



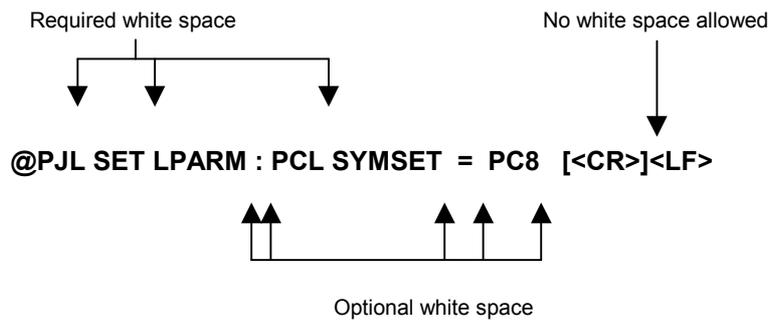
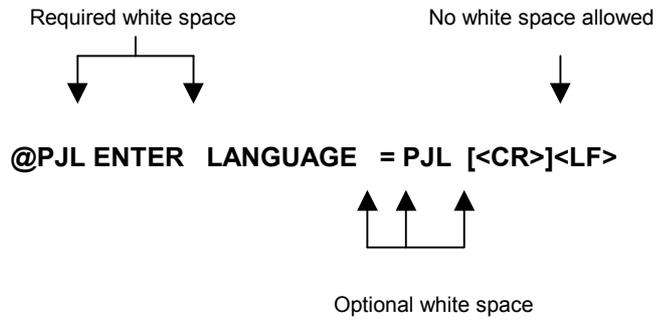
Note: PJL command length is limited. An error 20005 will be reported when a line is longer than 1024 bytes.

2.3 PJL Syntax Rules

Following are the rules governing the use of PJL commands:

- The PJL prefix “@PJL” always must be uppercase. The remainder of the PJL command is not case-sensitive. For clarity, however, this manual shows other portions of PJL commands in uppercase to indicate portions that are not variable and that should be typed as shown (such as the first three words in the following command):
@PJL JOB NAME = "name" [<CR>]<LF>
- Spacing between characters, or “white space,” is comprised of one or more of either the space character (ASCII 32) or the horizontal tab character (ASCII 9). For clarity and consistency, this manual shows all white space as one blank space.
- The placement of white space in PJL commands depends on its location within the command. Some white space is required and some is optional:
 - White space is required between the @PJL prefix and the PJL command name, and between the PJL command name and command modifiers.
For example: @PJL OPMSG DISPLAY or @PJL ENTER LANGUAGE
 - If white space is shown in any other place in the command, it is optional (see the examples below).
 - If white space is not shown between two portions of a command, white space is not allowed. An example is between the optional carriage return and required line feed character that terminate most commands.

The examples here illustrate how white space is used in PJL commands:



2.4 Types of Variables

PJL uses alphanumeric variables, numeric variables, and strings. The following explains the three types of variables and their ranges.

Alphanumeric variables

Any combination of letters and digits, with the stipulation that the first character always must be a letter. Letters consist of the uppercase letters (ASCII 65 through 90) and lowercase letters (ASCII 97 through 122). Digits consist of numbers 0 through 9 (ASCII 48 through 57).

Examples of *valid* alphanumeric variables include:

Printer279

J1953

Examples of *invalid* alphanumeric variables include:

123ABC

(Alphanumeric variables must begin with a letter)

J 1953

(Space characters [ASCII 32] are not allowed in alphanumeric variables)

Numeric variables

Any number consisting of digits, with one optional decimal point and an optional + or – sign preceding the first digit. Only one decimal point may be used, and it must be placed somewhere after the first digit. Digits are not required after the decimal point.

Examples of *valid* numeric variables include:

0.123456

-123.456

+657000

2468.

Examples of *invalid* numeric variables include:

.123456

(The decimal point must be preceded by at least 1 digit)

-123.45.6

(Only 1 decimal point is allowed in a numeric variable)

+657,000

(Commas are not allowed in numeric variables)

String variables

Enclosed in quotation marks, strings consist of any combination of characters from ASCII 32 through 255, plus ASCII 9 (horizontal tab), excluding ASCII 34 (quotation marks).

Examples of *valid* strings include:

"<HT>This is a valid string."

(Tabs are allowed in strings)

"Print job #4655"

Examples of *invalid* strings include:

"This is not a valid" string."

(Strings cannot contain quotation marks)

"This is also not<CR>valid."

(<CR> is not within the valid range of ASCII characters for a string.)

2.5 Processing Invalid Commands

There are two general types of invalid commands: those commands with *syntax errors*, and those that have *syntax* or *semantic warnings*. Each type is handled differently.

- *Syntax errors* cause the printer to ignore the entire PJL command, and include errors such as unrecognised commands and command modifiers, strings missing closing double-quotes, numeric values missing digits before the decimal point, and so on.

For example, the value part of the SET command's COPIES option is numeric variable. In the second example below, the SET command is ignored since the numeric variable contains an illegal character.

- Valid command:
@PJL SET COPIES = 3
Invalid command:
@PJL SET COPIES = 1+2
- *Syntax warnings* and *semantic warnings* are issued for commands such as those having unsupported options, values that are out of range, values that are the wrong type or missing, or values that are included when none are allowed. When the printer receives commands with syntax or semantic warnings, it executes as much of the command as possible, but the portion of the command containing the warning is ignored.
For example, in the following two sample PJL commands, START is a valid option for the JOB command, but FINISH is not a valid option (the END option should be used). The START option is executed, but the FINISH option is ignored.

Valid command:
@PJL JOB START = 1 <LF>
Invalid command:
@PJL JOB START = 1 FINISH = HOME <LF>

Note: Any errors that occur during PJL parsing can be received by enabling device status as described in Chapter 7 (send the @PJL USTATUS DEVICE = VERBOSE command). Appendix C lists the status codes that can be received by the host.

3 Using PJJ

This chapter describes how PJJ commands are used. After reading this chapter, you can create basic jobs and perform simple PJJ tasks, such as printer language switching and changing some PJJ feature settings.

To give you an understanding of where to look for more PJJ information, this chapter explains how the manual categorises PJJ commands into five groups of related commands. Each command has a brief description of its function to help familiarise you with the PJJ language.

3.1 Overview of How Commands are Used

As previously explained, PJJ resides “above” other printer languages such as PCL and PostScript. PJJ commands encapsulate the printer language jobs. The UEL command (Universal Exit Language) allows the printer to alternate between interpreting PJJ commands and printer language commands.

3.2 PJJ Job Requirements

PJJ jobs ought to work well with all PJJ-compatible printers, both in single-computer/single-printer environments and network environments. Here are the requirements that a PJJ job must fulfil:

- All PJJ jobs must begin and end with a Universal Exit Language (UEL) command (<ESC>%-12345X). This command exits the current printer language and returns control to PJJ.
- The Universal Exit Language (UEL) command at the beginning of the job must be immediately followed by the PJJ command prefix (@PJJ). The "@PJJ" can be followed by an optional carriage return and a required line feed character, or it can be the prefix of another PJJ command (see following examples). No other characters, including control characters, are allowed between the UEL command and the @PJJ prefix.
- The UEL command at the job end must not be followed by anything (except the first character of the next job).
- Line Termination—a line feed character (<LF>) is required to terminate all PJJ commands (except the UEL command). A carriage return can precede the terminating line feed, however the carriage return is optional and is ignored.
- No blank command lines are allowed. The command @PJJ [<CR>]<LF> is provided for situations where a blank line is needed to add space between command lines.

3.3 Example of a PJJ Job

Here is an example illustrating how PJJ is used.

```
<ESC>%-12345X@PJJ COMMENT *Start job* <CR><LF>
@PJJ JOB NAME = "Sample job #1" <CR><LF>
@PJJ SET COPIES = 3 <CR><LF>>
@PJJ SET ORIENTATION = PORTRAIT<CR><LF>
@PJJ ENTER LANGUAGE = PCL <CR><LF>
<ESC>E. . . . PCL-Job . . . .<ESC>E
➔<ESC>%-12345X@PJJ <CR><LF>
@PJJ EOJ<CR><LF>
<ESC>%-12345X
```

The sequence begins with a comment. The JOB command indicates the start of the print job. The environment variables for the copy count and orientation are modified for this job. The print job itself comes after the switch to PCL. Once the job has been processed, a UEL command causes the switch back to PJJ. The end of the job is indicated with the EOJ command.

3.4 Command Groupings by Functionality

This manual categorises the PJJ commands into related groups. Each group of commands is covered in a separate chapter. The table list each command group and states which commands are in each:

Command Group	Command	Command Description
Kernel Commands	Universal Exit Language (UEL)	Exits current printer language and returns control to PJJ. Resets the PJJ parser to start at the beginning of the line.
	COMMENT	Causes PJJ to accept the command line as a comment.
	ENTER	Selects a printer language for processing the current job.
Job Separation Commands	JOB	Informs printer of the start of a print job, resets the page count, allows naming of the job, supports non-printing mode for printing portions of jobs, controls job separation and PJJ password security.
	EOJ	Tells printer the print job is complete, resets the page count.
Environment Commands	DEFAULT	Changes the default value for environment variables.
	SET	Sets an environment variable to a specified value for the duration of a PJJ job.
	INITIALIZE	Resets current and default PJJ variables to factory default values.
	RESET	Resets current PJJ variables to default values.

Command Group	Command	Command Description
Status Readback Commands	INQUIRE	Requests the current value for a specified environment variable.
	DINQUIRE	Requests the default value for a specified environment variable.
	ECHO	Returns the <words> portion of the command to the host computer.
	INFO	Requests a specified category of printer information, such as printer model number, printer memory available, configuration, page count, status, environment variables, and unsolicited status variables.
	USTATUS	Status information. Various categories of device and job information can be set separately. Status can be sent at specified time intervals.
	USTATUSOFF	Turns off all unsolicited status.
Operator Notification Commands	RDYMSG	Specifies a message that replaces the READY message on the printer control panel. Does not affect Ready state.
	OPMSG	Displays specified message on printer control panel and takes printer Not Ready.

4 Kernel Commands

Introduction

This chapter explains the following three PJP commands:

- Universal Exit Language (UEL) command
exits the current printer language and returns control to PJP.
- ENTER command
selects a printer language for processing the current job.
- COMMENT command
enables developers to add comments to their PJP commands.

4.1 Universal Exit Language (UEL) Command

The Universal Exit Language (UEL) Command causes the printer to exit the printer language. The printer then returns control to PJL.

Note: Use the UEL command at the beginning and end of every PJL job. You do not need a UEL command before every PJL command. The examples demonstrate the use of this command.

Syntax:

<ESC>%-12345X

Parameters:

The UEL command does not use any parameters.

Comments:

The UEL command is a data stream sequence recognised by all printer languages in PJJ printers. The UEL command instructs the active printer language to finish processing the current job and relinquish control to PJJ. If PJJ is active, any unprocessed PJJ commands are discarded and the printer is ready to accept the next PJJ command.

Remember that:

- All jobs must start and end with the UEL command.
- At the beginning of a PJJ job, the PJJ command prefix (@PJJ) must immediately follow the UEL command. If the printer receives any characters, spaces, or control codes before @PJJ, it enables the default printer language and processes the job in that printer language. Instead of relying on implicit switching, use the ENTER command to specify the printer language, even if the printer has only one printer language.

The following example demonstrates the use of the UEL command.

Example: Using the UEL Command

This example enters PCL and prints a PCL job. Notice how the PCL job begins and ends with the UEL command, and how the first UEL command is followed immediately by the @PJL prefix.

```
<ESC>%-12345X@PJL COMMENT PCL Job <CR><LF>
```

```
@PJL ENTER LANGUAGE = PCL <CR><LF>
```

```
<ESC>E . . . PCL-Job . . . <ESC>E
```

```
➔<ESC>%-12345X
```

4.2 ENTER

The ENTER command enables the specified personality. Use this command to select the printer language for printing subsequent data.

Syntax:

```
@PJL ENTER LANGUAGE = Personality [<CR>]<LF>
```

Parameters:

Personality PCL

Personality The *Personality* variable must be set to PCL. If your application handles status readback, you can request a list of all valid personalities present in the printer (see the “INFO CONFIG” section in Chapter 7).

Comments:

The ENTER command must be positioned immediately before any personality-specific data. The selected personality begins parsing immediately after the <LF> that terminates the ENTER command. If the printer does not receive the ENTER command requesting a specific printer language, the printer enables the default printer language (see the “Methods of Printer Language Switching” later in this chapter). For any job containing personality-specific data, send the ENTER command. If the printer receives a request for an invalid printer language (other than PCL), the printer consumes the data stream until it finds the next UEL command, and then discards the data. The printer also posts an “invalid personality” warning message and, if enabled, returns a status message.

Note: In spooling applications, performance is not adversely affected if both the application file and the spooler send the ENTER LANGUAGE command.

Example: Using the ENTER Command

```
<ESC>%-12345X@PJL <CR><LF>  
@PJL COMMENT Prepare for PCL Job <CR><LF>  
@PJL ENTER LANGUAGE = PCL <CR><LF>  
<ESC>E . . . . PCL Job . . . . <ESC>E  
➔<ESC>%-12345X
```

4.3 COMMENT Command

The COMMENT command enables you to add a line of information as a comment. Use this command whenever you want to add an explanation to PJI commands.

Syntax:

```
@PJI COMMENT remarks [<CR>] <LF>
```

Parameters:

remarks ASCII characters 33 through 255 and <WS>, starting with a printable character.

Comments:

The COMMENT command is useful for documenting lines of PJI commands. Comments may be placed anywhere in the PJI code between the initial UEL command and the ENTER command. (Comments placed after the ENTER command are considered personality-specific data and are printed as determined by the printer language.)

Like other PJI commands, the COMMENT command is terminated by a <LF>. You cannot extend comments onto the next line. Comments longer than one line require a separate COMMENT command for each line.

See the following page for an example demonstrating the use of the COMMENT command.

Example: Using the COMMENT Command

This example demonstrates using the COMMENT command to add clarity to your PDL command listings:

```
<ESC>%-12345X@PDL <CR><LF>
@PDL COMMENT ***** <CR><LF>
@PDL COMMENT ** SAMPLE JOB 24.12.00 ** <CR><LF>
@PDL COMMENT ***** <CR><LF>
@PDL <CR><LF>
@PDL <CR><LF>
@PDL JOB NAME = "Example of a comment" <CR><LF>
@PDL <CR><LF>
@PDL <CR><LF>
@PDL COMMENT ***Set horizontal shift to*** <CR><LF>
@PDL COMMENT **** one inch **** <CR><LF>
@PDL SET LEFTOFFSET = 720 <CR><LF>
@PDL <CR><LF>
@PDL COMMENT ***** Change to PCL ***** <CR><LF>
@PDL ENTER LANGUAGE = PCL <CR><LF>
<ESC>E . . . . PCL-Job . . . . <ESC>E
➔<ESC>%-12345X@PDL <CR><LF>
@PDL EOJ <CR><LF>
<ESC>%-12345X
```

4.4 Methods of Printer Language Switching

There are two methods of switching printer languages.

Explicit Switching

With explicit switching, the P JL ENTER LANGUAGE command is used to “explicitly” select the desired printer language. This is the preferred switching method because it ensures that the specified printer language is always selected (see Figure 4-1). If this language is not available, the print data to the next UEL command is ignored.

Implicit Switching

In this case the switch is made automatically. The printer automatically switches to the default printer language (see figure 4.1). There will be unpredictable results if the print data does not match the default language.

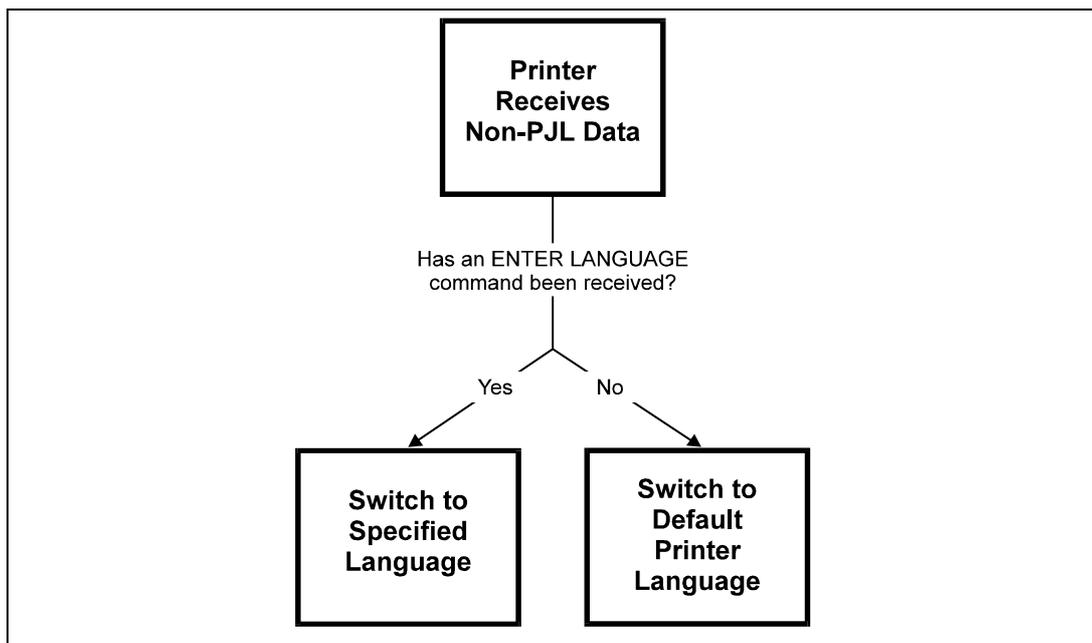


Figure 4-1. Switching printer languages

5 Job Separation Commands

Introduction

This chapter explains the JOB and EOJ commands. These commands are used to describe the boundaries of a job, indicating where the PjL job begins and ends. The commands can be used to name a job, and they support a non-printing mode for printing selected pages within a job. When used in combination with status readback, the printer also can send status information regarding when the printer starts processing the job and when the job is complete. This chapter also describes PjL security and its relation to the JOB command.

5.1 JOB Command

The JOB command informs the printer of the start of a PjL job and synchronises the job and page status information. Use the JOB/EOJ commands for spooling and related applications to monitor printing status, name a job, or print portions of a job, or to mark job boundaries to keep the printer from treating a single print job as multiple jobs (for example, when printing a job with a banner page).

Note: The JOB and EOJ commands always are used in pairs. Do not use one without the other.

Syntax:

```
@PJL JOB [NAME = "job name"] [START=first page]
➔ [END = last page] [PASSWORD = number] [OFFSET = value]
[<CR>] <LF>
```

Parameters:

NAME = " <i>job name</i> "	ASCII 33 through 255, <SP>, <HT> default: N/A
START = <i>first page</i>	1 to 2,147,483,647 default: 1
END = <i>last page</i>	1 to 2,147,483,647 default: prints entire job
PASSWORD = <i>number</i>	0 to 65,535 default: 0
OFFSET = <i>value</i>	TRUE, FALSE, ONLY default: N/A

NAME = "*job name*" The command option NAME tags the print job with a job name. The variable *job name* can be any combination of printable characters and spaces or horizontal tab characters. The *job name* variable is a string and must be enclosed in double quotes, as shown in the command syntax. If the NAME option is included, the unsolicited job status includes the job name (if unsolicited job status is enabled). In view of future applications and to enhance the clarity of the status info, do not assign names that are longer than 60 characters.

START = *first page* The command option START is used to provide a non-printing mode for skipping to a selected portion of the job. It indicates the first page that is printed. If the START option is omitted, the printer starts printing at the beginning of the job. If the end of the job comes before the START page, no pages are printed. If the printer is in "Twoacross"¹ mode, ***first page*** will be corrected if necessary to the preceding uneven number.

¹ Continuous forms printers only

END = *last page*

The command option END indicates the page number of the *last page* to be printed. The *last page* variable is relative to page 1 of the print job. If the END variable is omitted, the printer prints to the end of the job. If the end of the job is encountered before the START page, no pages are printed. If the end of job is encountered before the END page, printing terminates. Additionally, if the START page is greater than the END page, no pages are printed. Consider that the page count always begins at page 1 of a job. . If the printer is in "Twoacross"² mode, *last page* will be corrected if necessary to the preceding even number.

PASSWORD = *number*

The command option PASSWORD allows the application to modify the NVRAM variables if the password matches the active password variable. (Using PJI, the NVRAM variables are modified using either the DEFAULT or INITIALIZE commands.) Passwords are set using the DEFAULT command. The default password value is 0, which indicates PJI security is disabled—any job can modify printer feature settings using the DEFAULT or INITIALIZE commands. If any other password value is active, PJI jobs must issue the correct password value or they are disabled from using the DEFAULT or INITIALIZE commands. (See the "PJI Security" section at the end of this chapter.)

OFFSET = *value*

The command option OFFSET provides a method to control whether or not a job is separated from previous jobs and enables/disables the printer language command for separating jobs.

For cut sheet printers job separation is done by an outtray stacker offset movement. For continuous forms printers job separation is done by printing a number of marks in the toner mark area (see the "PJI Job Offset" section at the end of this chapter).

Comments:

When a JOB command is received, the printer does not recognise the UEL command as a PJI job boundary until an EOJ command is received. UEL commands within a PJI JOB/EOJ command pair are treated as printer language resets; they default the print

² Continuous forms printers only

environment to the PJI Current Environment settings, instead of the User Default Environment.

If your application has status readback capabilities, you can monitor the job status using the USTATUS command with the JOB option. If job status is enabled and the printer receives a JOB command, it returns a job status message.

Note: Resetting the page count associated with unsolicited page status affects only future pages. Pages already processed, but not yet printed, are not affected.

JOB commands can be nested. For example, a spooling application can send a PJI job that uses the JOB command to another spooler that encapsulates the spooled job with another JOB/EOJ command pair. When this is done, note that the job name from the outer JOB command is cleared or overwritten by the inner command.

Example: Using the JOB Command to Print Selected Pages

You can use the JOB command with the START and END options to print selected pages of a job. The entire job must be sent to the printer and formatted, but the printer does not begin printing until the page indicated in the START option.

Note: If there is a need to print more than one copy of each page, send the job multiple times using the START and END options to print collated copies. Using the SET command or a printer language "number of copies" command to print multiple copies of selected pages causes unexpected results, because the printer counts physical pages, not multi-copy collated pages.

In this example, the JOB command:

- Informs the printer of the beginning of a print job.
- Names the print job "G.O.'s Job."
- Instructs the printer to begin printing on page 100 of the job. (Since the END option is missing, the job prints from page 100 through the end of the job.)

Notice that the name option for the JOB and EOJ commands need not be the same. You may use different names for each.

```
<ESC>%-12345X@PJL <CR><LF>
@PJL JOB NAME = "G.O.'s Job" START = 100 <CR><LF>
@PJL ENTER LANGUAGE = PCL <CR><LF>
<ESC>E . . . . PCL Job . . . . <ESC>E
➔<ESC>%-12345X@PJL <CR><LF>
@PJL EOJ NAME = "End of G.O.'s Job" <CR><LF>
<ESC>%-12345X
```

Example: Using the JOB Command to Monitor Job Status

This example demonstrates a print job that is spooled before printing. The job actually consists of three separate sections (notice the UEL commands that bound the three sections—the first section does not need a closing UEL command since the printer is already in PJL mode):

- The first section is sent by the spooler. These lines name the print job and send the USTATUS command so the spooler can monitor job status.
- The next section is a PCL job sent to the spooler from a software application.
- The last section is sent by the spooler to end the job. When the last page is completely printed, the printer returns unsolicited status information notifying the spooler that the job is complete.

```
<ESC>%-12345X@PJL <CR><LF>
@PJL COMMENT **Beginning of Job ** <CR><LF>
@PJL JOB NAME = "TF's Monitor Job" <CR><LF>
@PJL USTATUS JOB = ON <CR><LF>

<ESC>%-12345X@PJL <CR><LF>
@PJL ENTER LANGUAGE = PCL <CR><LF>
<ESC>E .. PCL print job ... <ESC>E
➔<ESC>%-12345X

➔<ESC>%-12345X@PJL <CR><LF>
@PJL EOJ NAME = "End of TF's Job" <CR><LF>
<ESC>%-12345X
```

Note: If the spooler received a print job that did not use PJL (that is, the application generated a print job that consisted of just "<ESC>E ... PCL print Job ... <ESC>E", the printer using implicit switching would still print properly and the spooler would still receive the unsolicited job status information.

Example: Nested JOB Commands

This example shows a PCL job that was sent to spooler 1, which in turn was sent to spooler 2 (the nested jobs are indented). Note that the first job name is overwritten by the second job name ("Spooler 1 Job") when the second JOB command is processed.

```
<ESC>%-12345X@PJL <CR><LF>
@PJL JOB NAME = "Printing Job Sent From
➔Spooler 2" <CR><LF>

<ESC>%-12345X@PJL <CR><LF>
@PJL COMMENT Printing a PCL job <CR><LF>
@PJL JOB NAME = "Spooler 1 Job" <CR><LF>
@PJL SET DUPLEX = ON <CR><LF>
  <ESC>%-12345X@PJL <CR><LF>
    @PJL ENTER LANGUAGE = PCL <CR><LF>
    <ESC>E . . PCL print job . .<ESC>E
    ➔<ESC>%-12345X
  ➔<ESC>%-12345X@PJL <CR><LF>
    @PJL EOJ NAME = "End Spooler 1 Job" <CR><LF>
  <ESC>%-12345X

➔<ESC>%-12345X@PJL <CR><LF>
@PJL EOJ NAME = "End Spooler 2 Job" <CR><LF>
<ESC>%-12345X
```

Related Commands:

EOJ, USTATUS

5.2 EOJ Command

The EOJ command informs the printer that the job has completed. Use this command whenever you use the JOB command.

Note: The JOB and EOJ commands are always used in pairs. Do not use one without the other.
If job status is enabled, command parsing stops until the last page is printed.

Syntax:

```
@PJL EOJ [NAME = "job name"] [<CR>] <LF>
```

Parameters:

NAME = "job name" ASCII 33 through 255, <SP>, <HT>
default: N/A

NAME = "job name" Using the EOJ command, you can name your print job. The job name variable is a string and must be enclosed in double quotes as shown in the command syntax. The job name string need not be the same name used in the JOB command. If the NAME option is included, the unsolicited end-of-job status includes the job name (if unsolicited job status is enabled). In view of future applications and to enhance the clarity of the status info, do not assign names that are longer than 60 characters.

Comments:

The EOJ command marks the end of the job started with the previous JOB command. The EOJ command:

- Resets the PJL Current Environment variables to their default (NVRAM) values, as if the printer powered down and then powered up again.
- Resets the page number associated with unsolicited page status.
- Terminates the non-printing mode (enabled by using the START/END options). The non-printing mode, if enabled by the last JOB command, only applies to the previously received data, and does not effect any future pages until another JOB command enables the non-printing mode again.

Effect on Unsolicited Job Status

When the printer receives this command, it returns unsolicited job status information, if enabled, when the last page of the job exits the printer and is in the output tray. The EOJ command resets the page number associated with unsolicited page status. Resetting the page count associated with unsolicited page status only affects future pages. Pages already processed, but not yet printed, are not affected.

Related Commands:

JOB, USTATUS

Note: When applied to a continuous forms printer, the expression 'is in the output tray' or similar means 'after the page leaves the photoconductor drum'.

5.3 PJL Job Security

The Océ SRA PCL5e printers support the following types of PJL security:

- Password protection of default feature settings
This type of security prevents applications from modifying the printer's default feature settings unless the correct password is specified.
- Control panel lock
Control panel lock prevents users from modifying settings using control panel keys.

All types of security are set using the DEFAULT command and queried using DINQUIRE or INQUIRE.

5.3.1 Password Protection of Default Feature Settings

You can use a password to protect the printer's default features by sending the @PJL DEFAULT PASSWORD = *number* command, specifying a number between 1 and 65,535 (the 0 value disables password protection). Once password protection is enabled, the DEFAULT or INITIALIZE commands are disabled unless the correct password is specified in the JOB command. The printer language is also prevented from changing default variables (media eject length on continuous forms printers).

Secure PJL jobs are able to use the DEFAULT and INITIALIZE commands (or printer language commands) to set default features, including the value of the PASSWORD and CPLOCK variables, until the next EOJ command is received.

5.3.2 Control Panel Lock

You can “lock” the control panel (operator panel) by sending the @PJL DEFAULT CPLOCK = ON command. When the panel is locked, the user cannot change some control panel settings. If the user tries to change any of these settings, the message “MENUS LOCKED” appears on the panel display. The CPLOCK variable can only be changed from within a “secure” PJL job (a job that includes the correct non-zero PASSWORD value in the JOB command).

Note: You can use the DINQUIRE command to check the status of the PASSWORD and CPLOCK variables. @PJL DINQUIRE PASSWORD returns ENABLED or DISABLED, @PJL DINQUIRE CPLOCK returns OFF or ON. You do not have to be in a secure job to use the DINQUIRE command to check these variables.

5.3.3 Example: Using PJL Security

This example demonstrates how to set a password and how to lock the control panel so that users cannot modify control panel settings. It is assumed that the password value at the start of the job is 7654. The example changes the password to 1776.

```
<ESC>%-12345X@PJL <CR><LF>
@PJL COMMENT **Set Password** <CR><LF>
@PJL COMMENT **& Lock Control Panel**<CR><LF>
@PJL JOB PASSWORD = 7654 <CR><LF>
@PJL DEFAULT PASSWORD = 1776 <CR><LF>
@PJL DINQUIRE PASSWORD <CR><LF>
@PJL DEFAULT CPLOCK = ON <CR><LF>
@PJL EOJ <CR><LF>
<ESC>%-12345X
```

To unlock the control panel, you would send a job similar to the following job. This job specifies the correct password with the JOB command, and then uses the DEFAULT command to unlock the control panel.

```
<ESC>%-12345X@PJL <CR><LF>
@PJL COMMENT **Unlock Control Panel** <CR><LF>
@PJL JOB PASSWORD = 1776 <CR><LF>
@PJL DEFAULT CPLOCK = OFF <CR><LF>
@PJL EOJ <CR><LF>
<ESC>%-12345X
```

5.4 PJL Job Offset

Job Offset is the ability of the device to add some visual method to distinguish the current job from the previous job. This makes it easier to separate the jobs in the output tray. This feature is not standard on all devices.

For cut sheet printers job offset consists of an outtray stacker offset movement. For continuous forms printers³ the job offset will be a number of marks (1, 2 or 3) in the toner mark area at the beginning and/or the end of a physical page (see figure 5-2). The number of marks will be reset (no marks) if JOBOFFSET is set to OFF.

PJL provides several methods of supporting the job offset feature. The environment variable JOBOFFSET can be set to ON to enable job offsets and OFF to disable job offsets. If JOBOFFSET is ON then any offset command will cause the device to perform a job offset. There are two sources of offset commands:

- a) The OFFSET option in the JOB command.
- b) The personality specific job offset command (<ESC>&I1T in PCL)

If JOBOFFSET is OFF, then all offset commands are ignored.

Further flexibility is provided at the JOB command. For the OFFSET option of the JOB command to be valid JOBOFFSET must be ON.

If the OFFSET option is set to TRUE then a job offset will be performed and personality specific job offsets will be enabled. If the OFFSET option is set to ONLY then a job offset will be performed and personality specific job offsets will be disabled.

If the OFFSET option is set to FALSE then a job offset will not be performed and personality specific job offsets will be disabled. If the OFFSET option is not included in the JOB command then a job offset will not be performed but personality specific job offset will be enabled (see figure 5-1).

For example:

JOBOFFSET is set to ON

OFFSET option is set to TRUE (@PJL JOB OFFSET = TRUE)

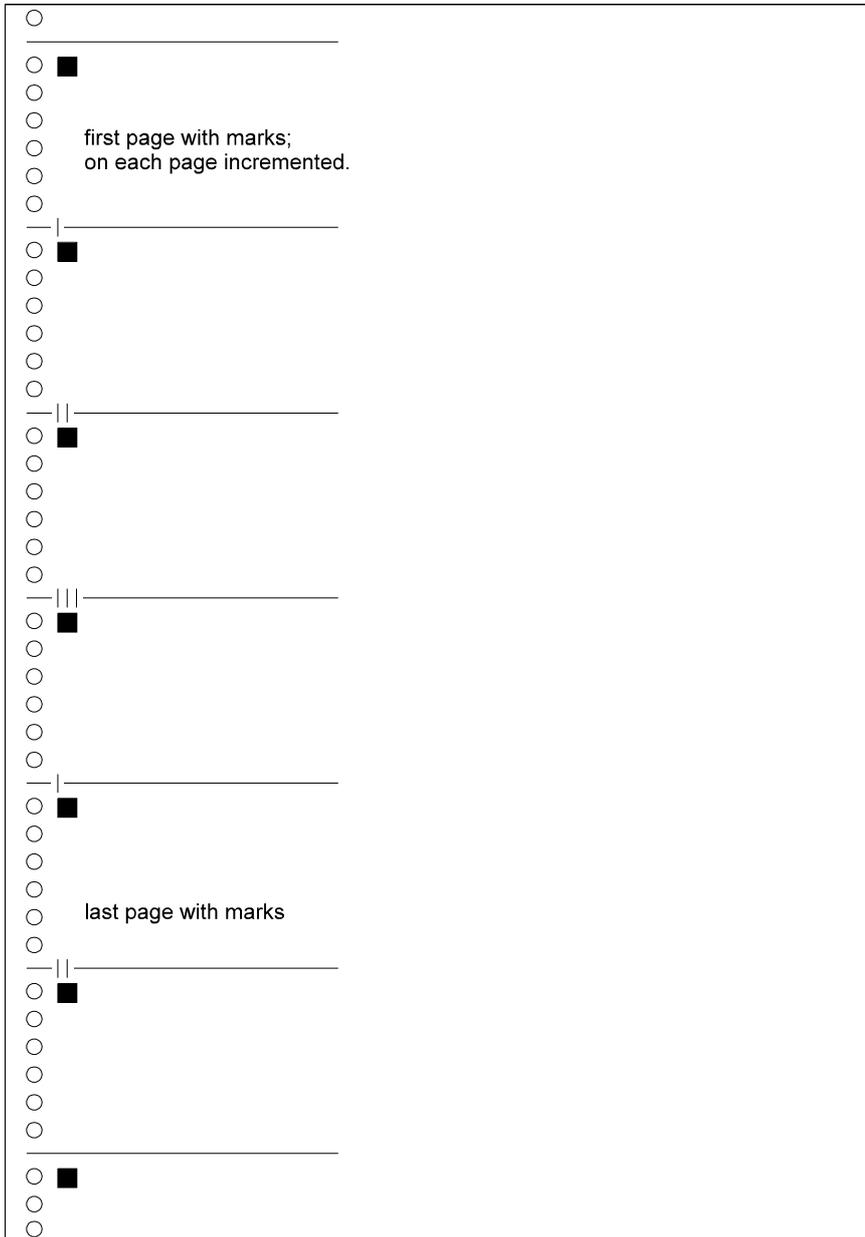
Then the JOB command and each <ESC>&I1T will increment the number of edge marks on continuous forms printers³, but only once per page.

³ Not on pinless machines

OFFSET option	The JOB command itself causes a stacker movement or increments the number of marks by 1.	A personality specific offset command causes a stacker movement or increments the number of marks by 1.
no option	no	yes
TRUE	yes	yes
FALSE	no	no
ONLY	yes	no

Figure 5-1

Marks are printed on the perforation as follows:



■ is used as symbol for the tonermark.

Figure 5-2

6 Environment Commands

Introduction

Océ SRA PCL5e printers have many features you can set using printer commands or by pressing control (operator) panel keys. Since previous jobs can change feature settings to unwanted values, applications should set printer features affecting the print job to a desired state at the beginning of the job. Setting features to a desired state is easily accomplished using a combination of PJL and printer language commands.

This chapter describes sets of printer features known as print environments, and the PJL commands you use to set printer features to a desired state, such as:

DEFAULT	Sets the default value for environment variables, storing these values in non-volatile RAM.
INITIALIZE	Resets the current and default PJL variables to the factory default values.
RESET	Resets the current PJL variables to the default values.
SET	Sets an environment variable to a specified value until the next PJL reset condition.

Note: For a list of default feature settings, see Appendix A.

6.1 Print Environments

At any time during printer operation, the printer's current feature settings are referred to collectively as the print environment. When certain printer events occur, such as the incidence of a printer language reset, PJI RESET command, or other PJI reset condition, the print environment settings can default to the settings of other stored environments.

The printer constantly maintains four environments, which are listed below in priority order:

- Factory Default Environment (lowest priority)
- User Default Environment
- PJI Current Environment
- Modified Print Environment (highest priority)

Each environment is explained in more detail below:

Factory Default Environment

This environment consists of a group of feature settings that are permanently stored in the printer. The printer uses these settings when it is powered on for the first time after leaving the factory, and after the @PJM INITIALIZE command is received.

User Default Environment

This environment contains the values that are set using the @PJM DEFAULT command or the control panel keys. These values are stored in non-volatile RAM. Following any PJM reset condition, these values are placed into the PJM Current Environment. The User Default values are displayed on the control panel under the appropriate menu.

PJM Current Environment

This environment contains the current PJM feature settings. Current settings are based on the User Default values and any settings modified using the @PJM SET command. These values default to the User Default values when a PJM reset condition occurs.

Modified Print Environment

This environment is active as soon as a printer language is entered. At that time, the PJM Current Environment values are loaded into the Modified Print Environment and act as a base set of features. Printer language commands then are used to modify feature settings to the desired state. The PJM Current Environment settings are loaded into the Modified Print Environment whenever a personality is activated or a reset is received, including any printer language reset or PJM reset condition.

Figure 6-1 illustrates how the environments interact, and how they affect the modified print environment.

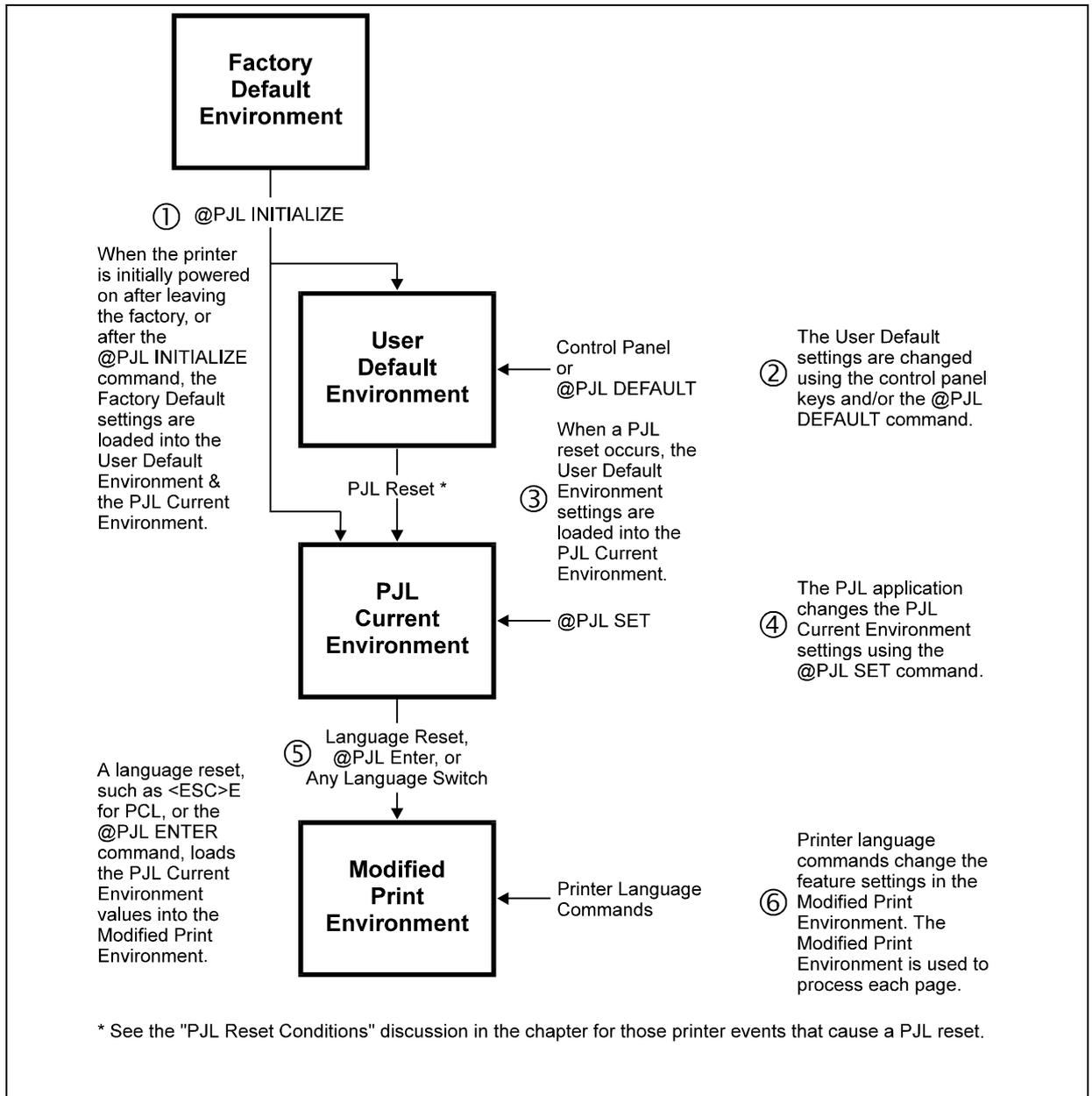


Figure 6-1. How environments affect the print job

6.2 Changing Environment Settings

The following scenario elaborates on how the print environment changes during printer operation. The number of copies feature is used to show feature changes as events occur.

1. The first time the printer is turned on after it leaves the factory (or after the @PJM INITIALIZE command), the number of copies feature is set to the factory default value of 1 copy.
2. At any point following the initial power-on or the @PJM INITIALIZE command, the number of copies feature can be set using the @PJM DEFAULT COPIES command in a PJM job or by changing the COPIES setting on the control panel. This changes the User Default Environment setting to a new value, such as number of copies = 3
3. If the PJM job uses the @PJM SET COPIES = 5 command to change the number of copies, the PJM Current Environment value changes to the selected setting (for example, 5). Otherwise, the number of copies setting remains the same as set using the DEFAULT command or the control panel (in this example, 3).
4. If the printer language (PCL) changes the number of copies setting to another value, such as 8, the newly specified printer language value overrides the PJM Current Environment value. If the printer has a control panel, however, it still displays the User Default Environment value set using the control panel keys or the DEFAULT command.
5. The next PJM reset condition defaults the number of copies setting to the value set from the control panel or by using the DEFAULT command (User Default Environment). In this example, the number of copies feature setting then defaults to 3 after a PJM reset condition.

All other features operate similarly – if any feature is not modified by a higher priority action, it keeps its current value setting.

Example: Changing Environment Settings

This example shows the values stored in the different environments when commands are issued. The example begins with the number of copies set to 1 in all environments (the Factory Default Environment setting). The table reflects the current settings after each command.

Command Sent	Environment Setting			
	Factory Default	User Default	PJL Current	Modified Print
After PJL INITIALIZE or RESET MENU	1	1	1	1
@PJL DEFAULT COPIES=3	1	3	1	1
@PJL SET COPIES = 4	1	3	4	4
@PJL ENTER LANGUAGE=PCL<LF> <ESC>&I5X	1	3	4	5
<ESC>%-12345X	1	3	3	3

6.2.1 Environment Summary

As indicated previously, each environment differs in relation to how it is stored, how the settings are changed, and how the PJL Current Environment can be defaulted. The table beginning on the following page summarises the characteristics of each environment.

Note: See Appendix A of this manual for a list of environment variables for the various PJL printers.

Factory Default Environment

Stored permanently in printer memory—settings cannot be modified. Factory default settings cannot be read programmatically, but they are listed in Appendix A.

User Default Environment

The User Default Environment is set to the factory default values when the printer initially is powered on—before printer commands are sent from an application or any control panel settings are changed.

Stored in non-volatile RAM it can be changed using the @PJM DEFAULT command or control panel keys.

The @PJM INITIALIZE command loads the Factory Default settings into the User Default Environment.

User default settings can be read using the @PJM DQUIRE command.

PJM Current Environment

Any PJM reset condition loads the User Default Environment feature settings into the PJM Current Environment.

Always reflects the PJM-level settings currently in use.

Stored in RAM—can be changed using @PJM SET command. These values override feature settings until the next PJM reset condition.

The @PJM INITIALIZE command loads the Factory Default settings into the PJM Current Environment.

PJM Current Environment settings can be read using the @PJM INQUIRE command.

Modified Print Environment (Printer-Language Specific)

Active as soon as printer receives any PCL commands. This environment contains all of the feature settings currently in effect at any point after PCL is entered.

PCL resets (<ESC>E), any printer language switch, or the @PJM ENTER command load the PJM Current Environment into the Modified Print Environment.

Stored in RAM—can be changed using PCL commands. The PCL values override any PJM Current Environment feature for the duration of the printer language job (until a PCL reset is executed).

6.3 PJL Reset Conditions

PJL reset conditions are listed below. Note that *PJL reset conditions* differ from PCL resets (such as <ESC>E). PCL resets load the PJL Current Environment values into the Modified Print Environment. PJL reset conditions are more powerful. They load the User Default values into the PJL Current Environment, and also into the Modified Print Environment.

The following events trigger a PJL reset:

- Power-on
- UEL command (when not between a JOB and EOJ command pair)
- @PJL INITIALIZE command
- @PJL RESET command
- @PJL JOB or EOJ command
- Implicit printer language switch

6.4 Key Points to Remember About Environments

When using PJL to set the printer to a desired state, remember the following points.

- At the beginning of a PJL job, the current feature settings are the same as the control panel values or those features set with the DEFAULT command.
- When PCL is entered, the current feature settings (Modified Print Environment) become the same as the PJL Current Environment. From this starting point, the printer language commands modify the feature settings. Printer language commands override all other settings.
- The PJL Current Environment settings can be changed using the SET command. These settings take effect until the next PJL reset condition.
- The control panel settings (User Default Environment) can be changed using the control panel or the DEFAULT command.
- The Modified Print Environment settings are changed using PCL commands. These settings take effect for the duration of the printer language job. After <ESC>E, the PJL Current Environment feature settings are loaded into the Modified Print Environment.
- If the SET command is used in a PJL job, always use the PJL RESET command after the job is completed.

6.5 PJL Environment Variables

This section lists the PJL environment variables. General PJL environment variables (those not PCL-specific) are listed first, followed by PCL-specific variables. For most variables except the read-only variables, value settings can be modified using the following commands:

@PJL SET	Sets PJL Current Environment settings that remain active until the next PJL reset condition.
@PJL RESET	The PJL RESET command defaults the PJL Current Environment to the User Default Environment (feature settings set with the DEFAULT command or the control panel keys).
@PJL DEFAULT	Modifies the User Default settings (stored in NVRAM)
@PJL INITIALIZE	Defaults all environments to the Factory Default settings.

You can request value settings for printer features using the following two commands:

@PJL INQUIRE	Requests the PJL Current Environment settings.
@PJL DINQUIRE	Requests the User Default (control panel) settings.

(The INQUIRE and DINQUIRE commands are discussed in Chapter 7.)

Note: Whenever possible, use printer language commands to set printer features. Use PJL commands only when there are no printer language commands available for a desired feature. When setting printer features with PJL, use the SET and RESET commands if you want to affect the current PJL job only. Using the DEFAULT and INITIALIZE commands affects the current job *and* succeeding jobs (these commands should only be used when you require a command that affects more than just the current job).

6.6 General PJI Environment Variables

The following table lists the PJI environment variables that are not printer language-specific. When you use these variables, do not use the LPARM : *personality* option. The range of values for each variable may differ for the various printer models. Appendix A lists the environment variables and indicates which printers support each variable. Another method of obtaining a list of valid variables and the range of values for each variable is to send the @PJI INFO VARIABLES command to request this information directly from the printer. See the INFO command section in Chapter 7 for more information (@PJI INFO VARIABLES).

Note: Some environment variables can be modified using the DEFAULT command but not the SET command, some can be SET but not modified using DEFAULT, and some are read only variables. Appendix A lists environment variables, including read-only variables, for all of the PJI printers.

General PJI Environment Variables		
Variable	Description	Sample Value Range
BINDING ¹	Sets the default relationship of the front and back images on pages printed in duplex	LONGEDGE SHORTEDGE
COLORVID n ²	Specifies the Color Verification ID of the colour station n	1 to 65535
COPIES	Number of uncollated copies for each page of the job	1 to 999
CPLOCK	Default control panel lockout state. If CPLOCK is set to ON, users cannot modify feature settings using the control panel keys. This variable can only be set by a secure job using only the DEFAULT ¹ command.	ON, OFF
DUPLEX ¹	Sets the default mode to enable/disable printing on both sides of the paper. OFF enables simplex and ON enables duplex printing	ON, OFF

¹ Only on cut sheet printers and Océ Pagestream 200DSC

² Only for printers that support CustomTone

Variable	Description	Sample Value Range
FORMLINES	Number of lines per page. This variable is tied to both the PAPER and ORIENTATION variables on cut sheet printers and PAPERLENGTH, PAPERWIDTH and ORIENTATION on continuous forms printers. If the value of either of those variables is changed, then the FORMLINES variable automatically is updated to maintain the same line spacing	5 to 128
INTRAY n ^{1,7}	Returns the auto-selection lock status for the upper input tray	LOCKED, UNLOCKED
INTRAY n SIZE ^{1,7}	Returns the current paper format for the input tray n .	LETTER, LEGAL, LEDGER, A4, A3, A3UNCUT, SCHULBUCH, SNIMANUAL, TABSTOCK, A4LANDSCAPE, FOLDSHEET, CUSTOM ⁸
INTRAY n NAME ^{1,7}	Returns the name of input tray n , provided a tray of this name has been defined at the operator panel.	String
JOBOFFSET	Sets the default job offset state.	ON, OFF

Variable	Description	Sample Value Range
JOBID	Indicates whether automatic status feedback with info about jobs and pages will include a printer-assigned job ID.	ON, OFF
LEFTOFFSET ²	Enters a horizontal print column shift in decipoints.	- 3600 to +3600
ORIENTATION ⁵	Page orientation	PORTRAIT, LANDSCAPE

¹ Cut sheet printers only

² Continuous forms printers only

⁵ On continuous forms printers, the ORIENTATION depends on the values for PAPERLENGTH and PAPERWIDTH.

⁷ The number of trays depends on the printer type and what additional hardware is installed

⁸ The number of paper formats supported depends on the printer type

Variable	Description	Sample Value Range
OUTBIN ^{1,4}	Sets the default output tray	UPPER, LOWER, SAMPLE, EXTERNAL
PAPER ^{1,3}	Sets the default paper format	LETTER, LEGAL, LEDGER, A4, A3, A3UNCUT, A4UNCUT, SCHULBUCH, SNIMANUAL, TABSTOCK, A4LANDSCAPE, FOLDSHEET, CUSTOM ⁵
PAPERLENGTH ²	Size of the logical page in paper movement direction in decipoints. The value will be rounded down to the next multiple of 120(1/6"). It matches the panel entry PAGELENGTH.	2160 to 17280 in steps of 120
PAPERWIDTH ²	Size of the logical page perpendicular to paper movement in decipoints.	2160 to actual width of the paper
PASSWORD	Default password for PJI security. This variable can only be set by a secure job using only DEFAULT Command.	0 to 65535
PERSONALITY	Personality for implicit switching (implicit switching refers to switching to the default personality without explicitly doing so with the @PJI ENTER command).	PCL
RESOLUTION	Print resolution in dots per inch.	300, 600 ⁶

Variable	Description	Sample Value Range
TOPOFFSET ²	Moves printout in paper movement direction. Value in decipoints.	- 3600 to +3600
TWOACROSS ²	Indicates whether two logical pages are to be printed side by side on one physical page. The left page is printed first, then the right. The right side begins after half the width of the physical page.	ON, OFF
TWOACROSSFLIP ²	Like TWOACROSS, but the sequence is right first, then left. (TWOACROSS and TWOACROSSFLIP are mutually exclusive, so the last setting to be made takes priority)	ON, OFF

¹ Cut sheet printers only

² Continuous forms printers only

³ Only relevant when the selected input tray is set to REMOTE (operator panel menu 1.4).

⁴ Only relevant when the selected output tray is set to REMOTE (operator panel menu 1.4).

⁵ The number of paper formats supported depends on the printer type.

⁶ Only on 600 dpi printers

PCL-Specific Variables

The following variables are PCL-specific and can be set and requested using PCL. These variables must be set using the LPARM : PCL option. A sample value range is shown in this table. See Appendix A for the actual value range for each PCL printer, or use the @PCL INFO VARIABLES command to request these values from the printer.

Variables are listed alphabetically, not in the order of their use. For variables FONTNUMBER and SYMSET it is advisable always to set SYMSET before FONTNUMBER.

General PCL Environment Variables		
Variable	Description	Sample Value Range
FONTNUMBER	Internal font number. The FONTNUMBER values range from 0 to 43. If the SYMSET variable changes, the FONTNUMBER defaults to 1 (Courier). NOTE: the recommended order for setting FONTNUMBER and SYMSET is SYMSET first, then FONTNUMBER.	0, 1, 2, . . . 43
PITCH	Pitch of the default font in units of characters per inch (the default font must be a fixed-pitch scalable font). The pitch value can be specified to two decimal places	0.44, 0.45, . . . 99.99

Variable	Description	Sample Value Range
PTSIZE	Height of the default font in units of points (the default font must be a proportional scalable font). The point size is significant to a quarter of a point	4.00, 4.25, . . . 999.75
SYMSET	Symbol set	ROMAN8, ISOL1, ISOL2, ISOL5, PC8, PC8DN, PC850, PC852, PC8TK, WINL1, WINL2, WINL5, DESKTOP, PSTEXT, VNINTL, VNUS, MSPUBL, MATH8, PSMATH, VNMATH, PIFONT, LEGAL, ISO4, ISO6, ISO11, ISO15, ISO17, ISO21, ISO60, ISO69, WIN30

6.7 Setting the Printer to a Desired State

At the beginning of each print job, printer features which affect the printed output must be set to a desired state to print the job as expected. This can be accomplished in two ways:

- The user sets the control panel to values appropriate for all users sharing the printer.
- For features that must be set on a job-by-job basis, use printer language commands. If a feature cannot be set with a printer language, use PjL.

Applications that generate print data, such as word processors, spreadsheets, and graphics programs, should ensure that the printer is set to a desired state as follows (see Chapter 9 for a description of the various application types):

1. Send the UEL command (<ESC>%-12345X) to start PjL and to default the print environment to the User Default Environment settings.
2. Use the @PjL SET command to modify any currently defined environment variables that cannot be set using PCL.

Note: Do not set features that you do not enable users to set from your application. Any feature set by the application should enable the user to control that feature.

3. Enter PCL and use commands to set all other environment variables to the desired settings.
4. If using a SET command to modify an environment variable, use a RESET command to return to its default state.

The following example demonstrates setting the printer to a known state.

Example: Setting the Printer to a Desired State

For the specific printer you are configuring, consider which environment features you can modify. The modifiable environment features for the printers are listed below (see Appendix A for a list of environment variables supported by each PJI printer):

COPIES	PITCH	BINDING
PAPER	FORMLINES	PAPERLENGTH
ORIENTATION	PAPERWIDTH	JOB-OFFSET
PTSIZE	LEFT-OFFSET	SYMSET
TO-OFFSET	FONTNUMBER	DUPLEX
JOBID	TWOACROSS	TWOACROSSFLIP

Assuming you could not set the horizontal and vertical print shift with PCL commands, you could achieve the desired effect using the PJI SET commands and the variables LEFT-OFFSET and TO-OFFSET. Proceed as follows:

```
<ESC>%-12345X@PJI <CR><LF>
@PJI SET LEFT-OFFSET = 360 <CR><LF>
PJI SET TO-OFFSET = 720 <CR><LF>
@PJI ENTER LANGUAGE = PCL <CR><LF>
<ESC>E . . Use PCL to set copies, paper, orientation, line
spacing, and font selection—values not set using PJI <ESC>E
➔<ESC>%-12345X@PJI <CR><LF>
@PJI RESET <CR><LF>
<ESC>%-12345X
```

6.8 DEFAULT Command

The DEFAULT command sets the User Default Environment value for the specified environment variable. This value is stored in non-volatile RAM and is activated following a PJI reset condition. The DEFAULT command does not affect the current print environment, but takes effect when a PJI reset condition occurs. Use this command to change the default value for any environment setting.

Note: In situations where the printer is shared by several users, such as networks, restrict the use of the DEFAULT command using PJI security mechanisms. This recommendation allows a standard print environment to be used and avoids having default features changed by different print jobs. Instead, if a printer feature must be changed from the default for a particular print job, use the SET command. In this way, jobs can be successfully printed in any order, since they are not affected by settings from previous jobs.

Syntax:

```
@PJI DEFAULT [LPARM : personality]  
→variable = value [<CR>]<LF>
```

LPARM : *personality*

This optional parameter is used to set personality-specific environment variables. PCL is a valid personality. Use the @PJI INFO CONFIG command to request the range of values for all personalities installed in a particular printer. The LPARM : *personality* option must be used when setting personality-specific variables.

variable = value

This parameter sets one of the environment variables to the specified value. For example, the @PJI DEFAULT TOPOFFSET = 600 command sets the default top offset to 600 decipoints. See Appendix A for a list of variables and values for each printer. If you need a more detailed description of a particular variable, see the "Environment Variables" section earlier in this chapter.

Note: The supported variables and values for each variable may not be the same in all Océ SRA PCL5e printer models. See Appendix A for a list of the variables and range of values for each PJI printer. You can also obtain valid variables and the range of values for each variable by sending the @PJI INFO VARIABLES command to request this information directly from the printer.

Parameters:

personality PCL
variable Valid variables for each printer are listed in Appendix A.
value Appropriate values for each variable are also listed in Appendix A.

Comments:

The DEFAULT command enables you to specify default values for either general variables, which are used by all personalities, or personality-specific variables. All PCL-specific variables, must be set using this option. Variables that are not personality-specific cannot be set using the LPARM : *personality* option.

Default values set with this command affect the printer control panel value and the feature setting stored in non-volatile RAM. However, these values do not affect the print environment until a PJL reset condition occurs (see "PJL Reset Conditions" for a list of printer events that constitute a PJL reset). Consequently, if you want the default values to take effect immediately, send a PJL RESET command after sending the DEFAULT command(s).

A separate DEFAULT command must be sent for each environment variable you specify. The command may be used to set any environment variable except the read-only variables. See the "Environment Variables" section of this chapter for a description of each environment variable.

Example: Modifying User Default Settings

This example selects the PC8 symbol set for all PCL jobs. A PJL RESET command follows the DEFAULT commands so that the PJL Current Environment defaults to the new setting.

```
<ESC>%-12345X@PJL <CR><LF>  
@PJL COMMENT User Defaults <CR><LF>  
@PJL DEFAULT LPARM : PCL SYMSET = PC8 <CR><LF>  
@PJL RESET <CR><LF>  
<ESC>%-12345X
```

Related Commands:

RESET, SET, JOB, EOJ, UEL

6.9 INITIALIZE Command

The INITIALIZE command resets the PJL Current Environment and the User Default Environment variables to their Factory Default values. This command does not affect the unsolicited status settings. Use the INITIALIZE command to set the printer environment values to their factory default state, such as when you move the printer to a new installation site. (This command is not intended for frequent use, since it resets most environments and control panel settings.) It takes effect only within a secure job. If a password is in use, a secure job is one that contains the correct password in the job command.

Note: In situations where the printer is shared by several users, such as networks, restrict the INITIALIZE command. This recommendation allows a standard print environment to be used and avoids having default features changed by different print jobs. In this way, jobs may be successfully printed in any order since they are not affected by settings from previous jobs.

Syntax:

```
@PJL INITIALIZE [<CR>]<LF>
```

Parameters:

The INITIALIZE command has no parameters.

Comments:

The INITIALIZE command resets the following environment variables to their Factory Default values:

Variable Names	
BINDING	PAPER
COPIES	PAPERLENGTH
DUPLEX	PAPERWIDTH
FORMLINES	LEFTOFFSET
JOBOFFSET	ORIENTATION
TOPOFFSET	TWOACROSS
TWOACROSSFLIP	

PCL-Specific Variables	
FONTNUMBER	PTSIZE
PITCH	SYMSET

Note: The environment variables may vary with different Océ SRA PCL5e printer models. See Appendix A for a list of valid variables, or send the @PJM INFO VARIABLES command to request this information directly from the printer.

Example: Using the INITIALIZE Command

This example initialises the printer:

```
<ESC>%-12345X@PJM <CR><LF>  
@PJM COMMENT Initialise settings to <CR><LF>  
@PJM COMMENT factory defaults <CR><LF>  
@PJM INITIALIZE <CR><LF>  
<ESC>%-12345X
```

Related Commands:

DEFAULT, RESET, SET

6.10 RESET Command

The PJL RESET command resets the PJL Current Environment variables to their User Default values. This command has the same effect on the PJL Current Environment as power-cycling the printer. Use this command at the end of PJL jobs that use the PJL SET command to set the printer back to its default state.

Syntax:

```
@PJL RESET [<CR>] <LF>
```

Parameters:

The RESET command has no parameters.

Comments:

Any time an application such as a Spooler or Print Data Generator uses the SET command to set PJL variables, the application should conclude with the RESET command (before the closing UEL command) to return the variables to their previous state. (See Chapter 9 for more information about Spoolers and Print Data Generators.)

The RESET command must also be sent after the DEFAULT command if the new default values are to take effect immediately within the same job (see the DEFAULT command example on page 67).

The RESET command resets the following environment variables to their user default values.

Variable Names	
BINDING	PAPER
COPIES	PAPERLENGTH
DUPLEX	PAPERWIDTH
FORMLINES	LEFTOFFSET
JOBOFFSET	ORIENTATION
TOPOFFSET	TWOACROSS
TWOACROSSFLIP	
PCL-Specific Variables	
FONTNUMBER	PTSIZE
PITCH	SYMSET

Example: Using the RESET Command

The following example uses a PJI RESET command after the print job to return the features to their previous state:

```
<ESC>%-12345X@PJI <CR><LF>
@PJI COMMENT Resets variables to <CR><LF>
@PJI COMMENT control panel settings <CR><LF>
@PJI SET COPIES = 2 <CR><LF>
@PJI ENTER LANGUAGE = PCL <CR><LF>
<ESC>E . . . PCL job . . . <ESC>E
➔<ESC>%-12345X@PJI <CR><LF>
@PJI COMMENT Reset to return to <CR><LF>
@PJI COMMENT control panel settings <CR><LF>
@PJI RESET <CR><LF>
<ESC>%-12345X
```

Related Commands:

DEFAULT, INITIALIZE, SET

6.11 SET Command

The SET command enables you to change the value of PJL Current Environment variables for the duration of a PJL job, or until a PJL reset condition defaults the value. Use this command to create a job-specific environment.

Syntax:

```
@PJL SET [LPARM : personality]  
→variable = value [<CR>]<LF>
```

LPARM : *personality* This optional parameter is used to set personality-specific environment variables. For example, you can use this option to set the PCL symbol set. PCL is a valid personality. Use the @PJL INFO VARIABLES command to request the range of values for all personalities in a particular printer.

The LPARM : *personality* option must be used when setting personality-specific variables.

variable* = *value This parameter sets one of the environment variables to the specified value. For example, the @PJL SET COPIES = 6 command sets the current copy count to 6. If you require a more detailed description of a particular variable, see the "Environment Variables" section in this chapter.

Note: The permissible environment variables and range of values for each variable is not the same in all PCL5e printer models. See Appendix A for a list of valid variables and the range of values for each variable, or send the @PJL INFO VARIABLES command to request this information directly from the printer.

Parameters:

<i>personality</i>	PCL
<i>variable</i>	Valid variables for each printer are listed in Appendix A.
<i>value</i>	Appropriate values for each variable are also listed in Appendix A.

Comments:

The SET command enables you to specify either general variables which are used by all personalities, or printer language-specific variables. Printer language-specific variables must be specified using the LPARM : *personality* option. Features that are not personality-specific cannot be specified with the LPARM option.

Values modified with the SET command do not affect the User Default Environment values. Feature settings changed with the SET command are valid until the next PJI reset condition.

A separate SET command must be sent for each environment variable you specify. The command may be used to set any environment variable except CPLOCK, PASSWORD, and the read-only variables. See the "Environment Variables" section of this chapter for a discussion of each environment variable.

Note: If the SET command is used in a job, use the RESET command after the job to reset features to the User Default (control panel) values. Bear in mind that the JOB and EOJ commands also effect a PJI reset. Therefore the settings required for a subsequent job must be made following the JOB command. If EOJ is used, it is not necessary to perform an explicit RESET command.

Example 1: SET

This example uses the SET command to create a desired state before sending a job. The SET command is used only to set those features that affect the printed output and that cannot be set using the desired personality. After the job has been sent, the RESET command is issued to return all features to their default values.

```
<ESC>%-12345X@PJI <CR><LF>
@PJI COMMENT Setting Job <CR><LF>
@PJI COMMENT to Desired State <CR><LF>
@PJI SET PAPERLENGTH =3600<CR><LF>
@PJI ENTER LANGUAGE = PCL <CR><LF>
<ESC>E ... PCL print job use PCL code to set all values that are
not set using PJI...<ESC>E
➔<ESC>%-12345X@PJI <CR><LF>
@PJI RESET <CR><LF>
<ESC>%-12345X
```

Example 2: SET in Combination with JOB/EOJ

In the following example, the JOB command has the same effect as a PJJ reset, i.e. all settings are restored to the User Default Environment settings. The copy count is increased to 5 for the current job. Following the transfer of the print data, the current job is concluded with the EOJ command. This also has the effect of a PJJ reset and restores the copy count for all subsequent jobs to the number set in the Default Environment.

```
<ESC>%-12345X@PJJ <CR><LF>
@PJJ COMMENT Only the next job <CR><LF>
@PJJ COMMENT has a copy count of 5 <CR><LF>
@PJJ JOB NAME = "JOB_5_KOPIEN" <CR><LF>
@PJJ SET COPIES =5<CR><LF>
@PJJ ENTER LANGUAGE = PCL <CR><LF>
<ESC>E ... PCL print job ... <ESC>E
➔<ESC>%-12345X@PJJ <CR><LF>
@PJJ EOJ NAME = "JOB_5_KOPIEN" <CR><LF>
<ESC>%-12345X
```

Related Commands:

DEFAULT, INITIALIZE, RESET, JOB, EOJ

7 Status Readback Commands

Introduction

PJL allows applications to request configuration and status information from the printer. The printer also can be programmed to send unsolicited status information to the application when printer events occur. For example, the printer can send status information indicating the printer door is open, toner is low, ready/not ready status, the text displayed on the control panel, and other pertinent information.

PJL status readback is especially useful during application development. Status readback enables you to determine that your application successfully changed feature settings to your specifications.

This chapter describes the requirements for using status readback, and explains the following status readback commands:

INQUIRE	Requests the <i>current</i> value (PJL Current Environment) for a specified environment variable.
DINQUIRE	Requests the <i>default</i> value (User Default Environment) for a specified environment variable.
ECHO	Returns a comment to the host computer to synchronise status information.
INFO	Requests a specified category of printer information.
USTATUS	Allows the printer to send unsolicited status messages, including device, job, page, and timed status.
USTATUSOFF	Turns off all unsolicited status.

This chapter also explains job recovery.

7.1 Printer Status Requirements

To receive status information from the printer, the application must have program code that handles the status information sent from the printer.

7.2 Synchronising Status Readback Responses

Status responses are directed to the printer's I/O port from which the request is received. When using status readback, applications must synchronise status messages to ensure that status responses are indeed the requested status. To clear any possible unread status responses requested by previous applications, upon starting up, an application should use the ECHO command as described in the ECHO command section later in this chapter.

If unsolicited status is enabled, applications should properly handle receiving unsolicited status responses at any time. In particular, be aware that applications may receive an unsolicited status response after requesting printer status information.

The application and printer must be in a printer environment that supports two-way communication between the application and the printer. Printer sharing devices, networks, and other printing system components may not support this bi-directional communication. (Refer to "Using Status Readback in a Multi-User System" in Chapter 9.)

7.3 Format of Status Readback Responses

When PJI sends printer status information to the host, the response is in a readable ASCII format that always begins with the @PJI prefix and ends with a <FF> character. For example, the readback response for the @PJI INQUIRE command is:

```
@PJI INQUIRE [LPRM:Personality] Variable<CR><LF>
Value<CR><LF>
<FF>
```

Your application should be able to read all the data between the "@PJI" header and the <FF> control code.

Lines within the PJI status response begin with a specific keyword, as described in the command descriptions in this chapter, and end with the <CR><LF> control codes. Future printers may support new keywords in the PJI status response. Your application should ignore those lines which it does not understand.

The format of the printer response for each status readback command is described in the command descriptions.

7.4 INQUIRE Command

The INQUIRE command is used to obtain the current value of a specified PJI environment variable, including read-only variables. Use the INQUIRE command to find out the setting for a particular PJI feature, such as ORIENTATION.

Syntax:

```
@PJI INQUIRE [LPARM : Personality] Variable [<CR>]<LF>
```

Response Syntax:

```
@PJI INQUIRE [LPARM:Personality] Variable <CR><LF>  
value<CR><LF>  
<FF>
```

LPARM : *Personality*

This optional parameter is used to inquire about printer language-specific environment variables. For example, you can use this option to request the current PCL symbol set stored in the PJI Current Environment.

PCL is a valid personality. Use the @PJI INFO CONFIG command to request the personalities installed in a particular printer.

variable

This parameter specifies the environment variable you want. For example, the @PJI INQUIRE COPIES command requests the current value of the copy count. See Appendix A for a list of valid variables for each printer. If you require a more detailed description of a particular variable, see the "Environment Variables" section in Chapter 6.

Note: The permissible variables and range of values for each variable is not the same in all SRA PCL5e printer models. See Appendix A for a list of valid variables, or send the @PJL INFO VARIABLES command to request this information directly from the printer.

value This parameter is the returned value of the requested variable. For example, if you send the @PJL INQUIRE COPIES command, and the PJL Current Environment setting is 65, the returned value is 65, indicating 65 copies. See Appendix A for variable names for each parameter.

Parameters:

personality PCL
variable Valid variables for each printer are listed in Appendix A.
value Appropriate values for each variable are also listed in Appendix A.

Comments:

If your application has status readback capabilities, you can request the current setting of any valid environment variable. Since the INQUIRE command returns only the value for one feature, you can send multiple INQUIRE commands to request information about more than one feature. If you need information about many variables, the PJL INFO VARIABLES command returns the PJL Current Environment settings for all environment variables.

If the printer does not support the variable, the response is:

```
@PJL INQUIRE [LPARM:personality] variable <CR><LF>
"?"<CR><LF>
<FF>
```

If a printer language-specific variable is not available because that printer language is invalid, the command will return an appropriate error code if USTATUS DEVICE=VERBOSE is enabled.

Note: The LPARM : *personality* option must be used when requesting printer language-specific information.

Example: Using INQUIRE to Request Feature Settings

This example requests the current print environment settings for RESOLUTION and PERSONALITY. The printer response for this example is listed below.

```
<ESC>%-12345X@PJL <CR><LF>
@PJL COMMENT ***Inquiring About <CR><LF>
@PJL COMMENT Environment Settings*** <CR><LF>
@PJL ECHO 02:18:23.9 05-30-00 <CR><LF>
@PJL INQUIRE RESOLUTION <CR><LF>
@PJL INQUIRE PERSONALITY <CR><LF>
<ESC>%-12345X
```

For a Océ SRA PCL5e printer, the response is as follows. Other PjL printers may respond differently.

```
@PJL ECHO 02:18:23.9 05-30-00<CR><LF>
<FF>
@PJL INQUIRE RESOLUTION<CR><LF>
600<CR><LF>
<FF>
@PJL INQUIRE PERSONALITY<CR><LF>
PCL<CR><LF>
<FF>
```

Example: Using INQUIRE for Printer Language-Specific Variables

This example requests the PCL settings for pitch, point size, and symbol set.

```
<ESC>%-12345X@PJL <CR><LF>
@PJL COMMENT Requesting PCL Settings <CR><LF>
@PJL ECHO 12:22:23.9 11-05-00 <CR><LF>
@PJL INQUIRE LPARM : PCL PITCH <CR><LF>
@PJL INQUIRE LPARM : PCL PTSIZE <CR><LF>
@PJL INQUIRE LPARM : PCL SYMSET <CR><LF>
<ESC>%-12345X
```

For the Océ SRA PCL5e printer, the response for this example is shown below. Other PJL printers may respond differently.

```
@PJL ECHO 12:22:23.9 11-05-00<CR><LF>
<FF>
@PJL INQUIRE LPARM:PCL PITCH<CR><LF>
10.00<CR><LF>
<FF>
@PJL INQUIRE LPARM:PCL PTSIZE<CR><LF>
12.00<CR><LF>
<FF>
@PJL INQUIRE LPARM:PCL SYMSET<CR><LF>
ROMAN8<CR><LF>
<FF>
```

Related Commands:

DINQUIRE, ECHO, INFO, SET, DEFAULT, USTATUS

7.5 DINQUIRE Command

The DINQUIRE command is used to obtain the default value of a specified PJI environment variable. Use the DINQUIRE command to find the User Default Environment setting for any environment variable, including read-only variables.

Syntax:

```
@PJI DINQUIRE [LPIRM : personality] variable [<CR>]<LF>
```

Response Syntax:

```
@PJI DINQUIRE [LPIRM:personality] variable <CR><LF>
value<CR><LF>
<FF>
```

LPIRM : <i>personality</i>	This optional parameter is used to inquire about printer language-specific environment variables. For example, you can use this option to request the default PCL pitch setting.
<i>variable</i>	This parameter specifies the environment variable about which you are inquiring. For example, the @PJI DINQUIRE RESOLUTION command requests the default resolution setting. See Appendix A for a list of valid variables for each printer. If you require a more detailed description of a particular variable, see the "Environment Variables" section in Chapter 6.

Note: The supported variables and range of values for each variable may not be the same in all PJI printer models. See Appendix A for a list of valid variables for each printer, or send the @PJI INFO VARIABLES command to request this information directly from the printer.

value This parameter is the returned value of the requested variable. For example, if you sent the @PJI DINQUIRE JOBOFFSET command, the returned value is either ON or OFF, indicating whether or not you want a job separation. See Appendix A for valid variable values.

Parameters:

<i>personality</i>	PCL
<i>variable</i>	Valid variables for each printer are listed in Appendix A.
<i>value</i>	Appropriate values for each variable are also listed in Appendix A.

Comments:

If your application has status readback capability, you can request the default setting of any valid environment variable. The returned value indicates the User Default Environment value for the feature. Since the DINQUIRE command returns only the value for one feature, you must send multiple DINQUIRE commands for data about more than one feature.

If the printer does not support the variable, the response is:

```
@PJL DINQUIRE [LPARM:personality] variable <CR><LF>
"?"<CR><LF>
<FF>
```

If a printer language-specific variable is not available because that printer language is invalid, the command will return an appropriate error code if USTATUS DEVICE=VERBOSE is enabled.

Note: The LPARM : *personality* option must be used when requesting printer language-specific information.

Example: Using DINQUIRE to Request Feature Settings

This example requests the default settings for resolution and job offset. The printer returns values of 600 and OFF.

```
<ESC>%-12345X@PJL <CR><LF>
@PJL COMMENT Inquiring Default Settings <CR><LF>
@PJL ECHO 08:10:33.7 04-17-00 <CR><LF>
@PJL DINQUIRE RESOLUTION <CR><LF>
@PJL DINQUIRE JOBOFFSET <CR><LF>
<ESC>%-12345X
```

A sample response for this example is as follows.

```
@PJL ECHO 08:10:33.7 04-17-00<CR><LF>
<FF>
@PJL DINQUIRE RESOLUTION<CR><LF>
600<CR><LF>
<FF>
@PJL DINQUIRE JOBOFFSET<CR><LF>
OFF<CR><LF>
<FF>
```

Example: Using DINQUIRE for Printer Language-Specific Variables

This example requests the default PCL pitch and symbol set using the DINQUIRE command. The printer returns values of 10.00 and ROMAN8.

```
<ESC>%-12345X@PJL <CR><LF>
@PJL COMMENT Inquiring Default PCL Settings<CR><LF>
@PJL ECHO 11:03:05.9 07-04-00 <CR><LF>
@PJL DINQUIRE LPARM : PCL PITCH <CR><LF>
@PJL DINQUIRE LPARM : PCL SYMSET <CR><LF>
<ESC>%-12345X
```

A sample Océ SRA PCL5e printer response for this example is as follows. Other PJL printer responses may vary.

```
@PJL ECHO 11:03:05.9 07-04-00<CR><LF>
<FF>
@PJL DINQUIRE LPARM:PCL PITCH<CR><LF>
10.00<CR><LF>
<FF>
@PJL DINQUIRE LPARM:PCL SYMSET<CR><LF>
ROMAN8<CR><LF>
<FF>
```

Related Commands:

INQUIRE, ECHO, INFO, SET, DEFAULT, USTATUS

7.6 ECHO Command

The ECHO command prompts the printer to return a specified message to the host computer. Use the ECHO command to synchronise the printer with the host computer to ensure that the status received is the requested status information.

Syntax:

```
@PJL ECHO [<words>] [<CR>] <LF>
```

Response Syntax:

```
@PJL ECHO [<words>] <CR><LF>  
<FF>
```

Parameters:

<words> ASCII 33 through 255, <SP>, <HT>
 default: N/A

<words> The <words> parameter must begin with a printable character, and can contain any character from ASCII 33 through 255, in addition to space characters and horizontal tabs. The <words> parameter is not a string variable, and therefore need not be enclosed in quotation marks. The parameter should be unique, such as the time indicated by the real time clock at the moment the ECHO command is issued. A unique message eliminates the possibility of duplicate messages being echoed by different applications.

Comments:

In a multi-user environment, the printer may respond to many different status requests. Since the status messages are buffered in the printer until they are received, the current application may receive status messages that were requested by a previous application. (This happens in situations where the application requests information, or unsolicited status is enabled, and the application closes before receiving the status messages.)

Use the ECHO command to synchronise status so that you know the status you are receiving is the requested status. To do this, send an ECHO command to the printer, and then discard the incoming status messages until your message is echoed back. Eliminate all data received from the printer up to the echoed response string. For the remainder of your print job, you can be sure that all status messages you receive after your echoed message were requested by your application. If you turned on USTATUS, you may receive unsolicited status information at any time.

Example: Using the ECHO Command

This example sends the `Testing 68394 10:57:06.4` message using the ECHO command. After the application receives the `Testing 68394` response, all succeeding solicited messages received during the current job are those requested by the current application.

```
<ESC>%-12345X@PJL <CR><LF>  
@PJL COMMENT Using the ECHO command <CR><LF>  
@PJL ECHO Testing 68394 10:57:06.4 <CR><LF>  
<ESC>%-12345X
```

The printer response would look like this:

```
@PJL ECHO Testing 68394 10:57:06.4<CR><LF>  
<FF>
```

Related Commands:

INQUIRE, DINQUIRE, INFO, SET, DEFAULT, USTATUS

7.7 INFO Command

The INFO command is used to request a specified category of information (see the table below). Use this command to find the printer model, printer configuration, memory available, page count, status information, and a list of the printer variables, including environmental, printer language-dependent, and unsolicited status variables.

Syntax:

```
@PJL INFO category [<CR>]<LF>
```

Response Syntax:

```
@PJL INFO category<CR><LF>
[1 or more lines of printable characters or <WS> followed by
<CR><LF>]
<FF>
```

Parameters:

Category	Description
ID	Provides the printer model number, e.g. "PS235"
CONFIG	Provides configuration information, such as how many and which paper sizes are available in this printer.
MEMORY	Identifies the amount of memory available.
PAGECOUNT	Returns the number of pages printed by the print engine.
STATUS	Provides the current printer status.
VARIABLES	Lists environmental and printer language-dependent variables, the possible variable values, and the current variable settings.
INTRAYS ⁴	Lists the names of available input trays.
USTATUS	Lists the unsolicited status variables provided by the printer, the possible variable values, and the current variable settings.

⁴ Océ Pagestream 158 DC only

Comments:

When the printer receives the INFO command, it returns the requested information. Only one *category* can be used for each INFO command. Each category is described below, with the format of the printer's response. If the printer does not support the specified category, the returned information is as follows:

```
@PJL INFO category <CR><LF>
"?" <CR><LF>
<FF>
```

7.7.1 ID Category

The @PJL INFO ID command provides a way to identify the type of printer used. For the Océ Pagestream 235 electronic printing system, the @PJL INFO ID command prompts the printer to return the following response:

```
@PJL INFO ID<CR><LF>
"PS235"<CR><LF>
<FF>
```

Note: To maintain compatibility with future printers, applications should not use the @PJL INFO ID command to identify printer features. Instead, the more detailed @PJL INFO CONFIG command should be used (see the following discussion on "The CONFIG Category").

7.7.2 CONFIG Category

The @PJL INFO CONFIG command returns a series of lines listing configuration information.

Variables appear in the response only if they are installed in the printer.

The general format of the returned information is:

```
@PJL INFO CONFIG<CR><LF>
feature[=value] [<value> feature information]<CR><LF>
[<HT>returned option[ attribute]<CR><LF>]
. . .
. . .
feature[=value] [<value> feature information]<CR><LF>
[<HT>returned option<CR><LF>]
<FF>
```

The returned information can list multiple features, with the format of the feature information enclosed in brackets. For "[<value> *feature information*]", the square brackets ([]) in the format indicate an optional item as well as indicating that brackets enclose the feature information. For example, [4 ENUMERATED] indicates there are 4 returned options for the feature. Refer to the sample printer response in the "Using the @PJL INFO CONFIG Command" example for the format of an actual response.

Parameter	Format	Description
<i>feature</i>	Alphanumeric value (any combination of letters [ASCII 65-90 or 97-122] and/or digits [ASCII 48-57], beginning with a letter)	Name of a printer feature, such as DUPLEX.
<i>value</i>	Numeric value	Indicates a feature value, such as MEMORY=500000, or how many and what type of options follow, such as [2 ENUMERATED].
<i>feature information</i>	One or more alphanumeric values, separated by spaces	Indicates what type of information follows, such as RANGE, ENUMERATED, or READONLY.
<i>returned option</i>	Alphanumeric or numeric value, or string	An option of a feature listed in the returned data, such as TIMED, describing a type of USTATUS.

Example: Using the @PJL INFO CONFIG Command

This example requests the current configuration information. The printer, an Océ Pagestream 158 DC in this case, responds with a list of features. For example, the returned information shows there are three input trays: INTRAY1, INTRAY2 and INTRAY3. Other configuration information also is listed, including the total amount of installed memory available and the number of display lines and characters.

```
<ESC>%-12345X@PJL <CR><LF>
@PJL COMMENT Example of @PJL INFO CONFIG <CR><LF>
@PJL INFO CONFIG <CR><LF>
<ESC>%-12345X
```

A sample response of an Océ Pagestream 158 DC is shown below. Other printers may respond differently.

```
@PJL INFO CONFIG
IN TRAYS [4 ENUMERATED]
  INTRAY1
  INTRAY2
  INTRAY3
  INTRAY4
PAPERS [13 ENUMERATED]
  A4
  A3
  LETTER
  LEGAL
  LEDGER
  A4UNCUT
  A3UNCUT
  SCHULBUCH
  SNIMANUAL
  TABSTOCK
  A4LANDSCAPE
  FOLDSHEET
  CUSTOM
OUT TRAYS [4 ENUMERATED]
  UPPER LARGE
  LOWER LARGE
  SAMPLE LARGE
  EXTERNAL LARGE
DUPLIX
CUSTOMCOLOR [1 ENUMERATED]
  COLORVID1
DISPLAY LINES=1
DISPLAY CHARACTER SIZE=32
LANGUAGES [1 ENUMERATED]
  PCL
USTATUS [4 ENUMERATED]
  JOB
  PAGE
  TIMED
  DEVICE
MEMORY=267825152
SERIAL NUMBER= "55012"
```

7.7.3 MEMORY Category

The @PJL INFO MEMORY command returns the total number of bytes of free memory space and the largest free memory block.

Example: Using the @PJL INFO MEMORY Command

```
<ESC>%-12345X@PJL <CR><LF>
@PJL COMMENT Using @PJL INFO MEMORY <CR><LF>
@PJL ECHO 14:51:48.3 12-18-00 <CR><LF>
@PJL INFO MEMORY <CR><LF>
<ESC>%-12345X
```

The printer response would look like this:

```
@PJL ECHO 14:51:48.3 12-18-00<CR><LF>
<FF>
@PJL INFO MEMORY<CR><LF>
TOTAL=229666816<CR><LF>
LARGEST=229666816<CR><LF>
<FF>
```

Even if the values are always identical they will be reported both for compatibility with LIP2 controller.

7.7.4 PAGECOUNT Category

The @PJL INFO PAGECOUNT returns the number of pages printed by the current print engine. This returned number is an indication of printer usage; on continuous forms printers, it is counted in 12 inch pages.

Example: Using the @PJL INFO PAGECOUNT Command

```
<ESC>%-12345X@PJL <CR><LF>
@PJL COMMENT Using PJL INFO PAGECOUNT <CR><LF>
@PJL INFO PAGECOUNT <CR><LF>
<ESC>%-12345X
```

The printer response would look like this:

```
@PJL INFO PAGECOUNT<CR><LF>
TOTAL PAGECOUNT=183933<CR><LF>
<FF>
```

7.7.5 STATUS Category

The @PJL INFO STATUS command returns the printer status (ONLINE=FALSE means the printer is not Ready, ONLINE=TRUE means Ready), the message currently displayed on the control panel, and a status code. In the following example, the status code is 10001, which means the printer is ready. (See Appendix C for a list of all printer status codes.)

Only the "string" portion of the "DISPLAY =" status message is localised; the same message as that displayed on the control panel appears in whichever language is used.

Example: Using the @PJL INFO STATUS Command

This example requests status information. The printer returns a status code (10001), the message displayed on the control panel ("Ready"), and the Ready status (ONLINE=TRUE).

```
<ESC>%-12345X@PJL <CR><LF>
@PJL COMMENT Using @PJL INFO STATUS <CR><LF>
@PJL ECHO 17:45:22.5 05-17-00 <CR><LF>
@PJL INFO STATUS <CR><LF>
<ESC>%-12345X
```

The printer response would look like this:

```
@PJL ECHO 17:45:22.5 05-17-00<CR><LF>
<FF>
@PJL INFO STATUS<CR><LF>
CODE=10001<CR><LF>
DISPLAY= "Ready"<CR><LF>
ONLINE=TRUE<CR><LF>
<FF>
```

7.7.6 VARIABLES Category

The @PJL INFO VARIABLES command returns a list of the environment and printer language-dependent variables. Use this command to find a list of the variables, the current setting for each, and the possible values.

Printer language-specific variables are always indicated by LPARM:*personality* in the response.

The FONTNUMBER range lists the range of fonts for the internal fonts.

Note: For information about any of the environment variables listed by the @PJL INFO VARIABLES command, see the "Environment Variables" section in Chapter 6.

Example: Using the @PJL INFO VARIABLES Command

This example uses the INFO VARIABLES command to obtain a list of the environment variables. The returned information lists the environment variables, the current setting, and the value or range of values for each. For example, the RESOLUTION section indicates the current setting is 600, and that there are two possible choices: 300 and 600.

```
<ESC>%-12345X@PJL <CR><LF>
@PJL COMMENT Using PJL INFO <CR><LF>
@PJL COMMENT @PJL INFO VARIABLES <CR><LF>
@PJL INFO VARIABLES <CR><LF>
<ESC>%-12345X
```

Printer responses for this example are shown below for cut sheet (Pagestream 75). This is followed by a continuous forms printer (Pagestream 200 DSC).

Response from a **Pagestream 75**

```
@PJL INFO VARIABLES
COPIES=1 [2 RANGE]
 1
 999
CPLOCK=OFF [2 ENUMERATED]
 OFF
 ON
ORIENTATION=LANDSCAPE [2 ENUMERATED]
 PORTRAIT
 LANDSCAPE
FORMLINES=66 [2 RANGE]
 5
 128
JOBSEPERATION=ON [2 ENUMERATED]
 OFF
 ON
PASSWORD DISABLED [2 RANGE]
 0
 65535
PERSONALITY=PCL [1 ENUMERATED READONLY]
 PCL
RESOLUTION=300 [2 ENUMERATED READONLY]
 300
 600
PAPER=A4 [7 ENUMERATED]
 A4
 A3
 LETTER
 LEGAL
 LEDGER
 A4UNCUT
 A3UNCUT
INTRAY1=UNLOCKED [2 ENUMERATED READONLY]
 UNLOCKED
 LOCKED
INTRAY2=UNLOCKED [2 ENUMERATED READONLY]
 UNLOCKED
 LOCKED
```

```
INTRAY3=UNLOCKED [2 ENUMERATED READONLY]
  UNLOCKED
  LOCKED
INTRAY1SIZE=A4 [7 ENUMERATED READONLY]
  A4
  A3
  LETTER
  LEGAL
  LEDGER
  A4UNCUT
  A3UNCUT
INTRAY2SIZE=A4 [7 ENUMERATED READONLY]
  A4
  A3
  LETTER
  LEGAL
  LEDGER
  A4UNCUT
  A3UNCUT
INTRAY3SIZE=LEDGER [7 ENUMERATED READONLY]
  A4
  A3
  LETTER
  LEGAL
  LEDGER
  A4UNCUT
  A3UNCUT
OUTBIN=UPPER [3 ENUMERATED]
  UPPER
  LOWER
  SAMPLE
LPARM:PCL FONTNUMBER=1 [2 RANGE]
  0
  43
LPARM:PCL PITCH=10.00 [2 RANGE]
  0.44
  99.99
LPARM:PCL PTSIZE=10.00 [2 RANGE]
  4.00
  999.75
LPARM:PCL SYMSET=ROMAN8 [31 ENUMERATED]
  DESKTOP
  ISO4
```

ISO6
ISO11
ISO15
ISO17
ISO21
ISO60
ISO69
ISOL1
ISOL2
ISOL5
LEGAL
MATH8
MSPUBL
PC8
PC8DN
PC8TK
PC850
PC852
PIFONT
PSMATH
PSTEXT
ROMAN8
VNINTL
VNMATH
VNUS
WIN30
WINL1
WINL2
WINL5

Response from a Pagestream 200 DSC:

```
@PJL INFO VARIABLES
COPIES=1 [2 RANGE]
  1
  999
ORIENTATION=LANDSCAPE [2 ENUMERATED]
  PORTRAIT
  LANDSCAPE
FORMLINES=62 [2 RANGE]
  5
  128
JOBSEPERATION=ON [2 ENUMERATED]
  OFF
  ON
CPLOCK=OFF [2 ENUMERATED]
  OFF
  ON
PASSWORD DISABLED [2 RANGE]
  0
  65535
PERSONALITY=PCL [1 ENUMERATED READONLY]
  PCL
RESOLUTION=300 [1 ENUMERATED READONLY]
  300
PAPERLENGTH=6120 [2 RANGE]
  2160
  11520
PAPERWIDTH=8208 [2 RANGE]
  2160
  14745
COLORVID1=4660 [2 RANGE READONLY]
  0
  65535
COLORVID2=43981 [2 RANGE READONLY]
  0
  65535
LPARM:PCL FONTNUMBER=1 [2 RANGE]
  0
  43
LPARM:PCL PITCH=12.00 [2 RANGE]
  0.44
```

```
99.99
LPARM:PCL PTSIZE=10.00 [2 RANGE]
4.00
999.75
LPARM:PCL SYMSET=ROMAN8 [31 ENUMERATED]
DESKTOP
ISO4
ISO6
ISO11
ISO15
ISO17
ISO21
ISO60
ISO69
ISOL1
ISOL2
ISOL5
LEGAL
MATH8
MSPUBL
PC8
PC8DN
PC8TK
PC850
PC852
PIFONT
PSMATH
PSTEXT
ROMAN8
VNINTL
VNMATH
VNUS
WIN30
WINL1
WINL2
WINL5
```

INTRAYS Category

This command is valid only for Océ Pagestream 110 DC and Océ Pagestream 158 DC printers.

The @PJL INFO INTRAYS command lists all the available input trays together with the form names defined on the control panel for each tray.

Example: @PJL INFO INTRAYS

The command requests the form names of an Océ Pagestream 158 DC that has an optional input cascade:

```
<ESC>%-12345X@PJL <CR><LF>
@PJL ECHO 09:10:09.1 08-22-00 <CR><LF>
@PJL INFO INTRAYS <CR><LF>
<ESC>%-12345X
```

The printer response would look like this:

```
@PJL ECHO 09:10:09.1 08-22-00<CR><LF>
<FF>
@PJL INFO INTRAYS [8 TABLE] <CR><LF>
  INTRAY          NAME<CR><LF>
  INTRAY 1        "UPPER TRAY"<CR><LF>
  INTRAY 2        "RED PAPER"<CR><LF>
  INTRAY 3        "PAPER RED"<CR><LF>
  INTRAY 4        "PREPRINT"<CR><LF>
  INTRAY 5        "TRAY A1"<CR><LF>
  INTRAY 6        "TRAY B1"<CR><LF>
  INTRAY 7        "TRAY C1"<CR><LF>
  INTRAY 8        "TRAY D1"<CR><LF>
<FF>
```

Related Commands:

INQUIRE, ECHO, SET, DEFAULT, USTATUS

7.7.7 USTATUS Category

The @PJL INFO USTATUS command lists each type of unsolicited status supported by the printer, such as DEVICE, JOB, PAGE, and TIMED. The listing also contains the current settings and the possible values for each type of status. For more information concerning the different types of unsolicited status, see the "USTATUS Command" section later in this chapter.

Example: Using the @PJL INFO USTATUS Command

This example requests information about the unsolicited status variables. These are variables that can be used in the USTATUS command. In this example, the printer replies that there are 4 unsolicited status types: DEVICE, JOB, PAGE, and TIMED. The current setting for each type of unsolicited status is given, along with the possible variable values (for instance, OFF, ON, and VERBOSE for device status).

```
<ESC>%-12345X@PJL <CR><LF>
@PJL ECHO 08:10:09.1 08-22-00 <CR><LF>
@PJL INFO USTATUS <CR><LF>
<ESC>%-12345X
```

The printer response for this example is shown below:

```
@PJL ECHO 08:10:09.1 08-22-00 <CR><LF>
<FF>
@PJL INFO USTATUS<CR><LF>
DEVICE=OFF [3 ENUMERATED] <CR><LF>
  OFF<CR><LF>
  ON<CR><LF>
  VERBOSE<CR><LF>
JOB=OFF [2 ENUMERATED] <CR><LF>
  OFF<CR><LF>
  ON<CR><LF>
PAGE=OFF [2 ENUMERATED] <CR><LF>
  OFF<CR><LF>
  ON<CR><LF>
TIMED=0 [2 RANGE] <CR><LF>
  5<CR><LF>
  300<CR><LF>
<FF>
```

Related Commands:

INQUIRE, ECHO, SET, DEFAULT, USTATUS

7.8 USTATUS

The USTATUS command is used to enable or disable unsolicited printer status. Unlike the status information solicited by sending the INQUIRE, DINQUIRE, or INFO commands, unsolicited status is sent automatically when the status changes. Use the USTATUS command when you want to know:

- Device status changes (such as printer open, paper jams, and paper out conditions)
- Job status changes (when a JOB command is encountered and following completion of a job)
- Page status changes (when all the printed pages have reached the output tray or been transferred to paper)
- Timed status (periodic status report at a specified time interval)

Note: Unlike solicited status, the USTATUS command does not have an immediate response. Instead, unsolicited status messages – excepting for those which are time-controlled – are sent only when the printer status changes).

Syntax:

```
@PJL USTATUS Variable = Value [<CR>]<LF>
```

Syntax:

```
@PJL USTATUS Variable <CR><LF>  
[1 or more lines of printable characters or <WS> followed by  
<CR><LF>]  
<FF>
```

Parameters:

Variable	Value	Description
DEVICE	ON	Enables unsolicited device status for all status changes (see the "DEVICE Variable" description below)
	VERBOSE	Like ON, plus notification of all PjL parser warnings and errors. The VERBOSE value should only be used during application development.
	OFF	Disables unsolicited device status.
JOB	ON	Enables unsolicited job status so that the printer sends a status message every time a job begins or ends
	OFF	Disables unsolicited job status
PAGE	ON	Enables unsolicited page status so that the printer sends a status message every time a page reaches the output tray or is transferred to paper
	OFF	Disables unsolicited page status
TIMED	5 to 300	Enables timed unsolicited status so that the printer automatically sends status at a specified time increment (in seconds)
	0	Turns TIMED USTATUS off.

Comments:

Unsolicited status allows you to automatically receive device, job, page, or timed status without requesting it. Each type of unsolicited status provides different information and is described on the following pages.

Unsolicited status, except for TIMED, can be turned off individually using the OFF parameter, such as in the @PjL USTATUS JOB=OFF command. TIMED status is turned off by setting it to zero. Alternatively, all unsolicited device status can be turned off using the USTATUSOFF command.

7.8.1 DEVICE Variable

The @PJM USTATUS DEVICE = *value* command prompts the printer to send status messages when device changes occur. When DEVICE = ON, the printer sends status information for all changes to printer status. When DEVICE = VERBOSE, the printer also sends status information for all PJL parser warnings and errors.

Part of the unsolicited status message sent to the host is a 5-digit code that indicates the status condition. The first two digits divide the status codes into different categories. The general status categories are listed in the following table. (This is only a general summary of the specified categories. The full status code listing is given in Appendix C.)

If there is a "DISPLAY=*string*" portion of the status message, the string is localised; the same message as that displayed on the control panel appears in whichever language is being used.

Status Category	Description
10 (10-000 to 10-999)	Informational messages which do not indicate errors, such as "Device was put online and is ready" or "device was put offline."
20 (20-000 to 20-999)	This type of message denotes a PJL parser error. When this type of error occurs, the entire command line is ignored.
25 (25-000 to 25-999)	These messages are PJL parser errors. When this type of message occurs, only part of the PJL command is ignored, instead of the whole command as happens with 20-xxx errors.
27 (27-000 to 27-999)	These messages are PJL semantic errors, indicating the command syntax is acceptable, but command execution is not possible for some reason. A situation that produces a semantic error is trying to default a variable outside a secure job.
35031	Data may be lost due to language switching to an unsupported personality.
40 (40-000 to 40-999)	Messages indicating that operator intervention is required. Printing halts until the condition is resolved. Examples include paper jam, out of paper, and printer open conditions.

Example 1: Using Unsolicited Device Status

The following example enables unsolicited status with the option ON. The printer response indicates that the front door is open.

```
<ESC>%-12345X@PJL <CR><LF>  
@PJL USTATUS DEVICE = ON<CR><LF>  
<ESC>%-12345X
```

The printer response for unsolicited device status is shown here. For other printers, responses may vary.

```
@PJL USTATUS DEVICE<CR><LF>  
CODE=40101  
DISPLAY="65.00 FRONT DOOR OPEN"<CR><LF>  
ONLINE=FALSE<CR><LF>  
<FF>
```

Example 2: Using Unsolicited Device Status

In this example, the unsolicited status is activated with the VERBOSE option. The printer reports a generic PJL error.

```
<ESC>%-12345X@PJL <CR><LF>  
@PJL USTATUS DEVICE = VERBOSE<CR><LF>  
@PJL SET COPIES = 1A  
<ESC>%-12345X
```

The following example shows the printer response. Status code 20009 indicates an invalid character in a numeric value. An overview of all the PJL status codes is provided in Appendix C.

```
@PJL USTATUS DEVICE<CR><LF>  
CODE=20009  
<FF>
```

7.8.2 JOB Variable

The @PJL USTATUS JOB = ON command activates the output of status information associated with the JOB and EOJ commands. Three different messages can be returned:

- JOB START
- JOB END
- JOB CANCELED

JOB START is issued as soon as the JOB command is processed. The JOB END notification follows as a response to the PJL command EOJ, but not until all the pages have been printed which were parsed prior to the EOJ command.

If a job is begun with the JOB command and cancelled by an operator panel input before the EOJ command is received, the message JOB CANCELED is issued.

If the JOBID environment variable is ON (see also Chapter 6), each job status message is output with a job ID that is generated by the printer. This ID is identical for the JOB and EOJ commands in a pair. If the feature for unsolicited device information is activated, this ID will be included in all page status notifications relating to the job. This makes it possible to identify the end and the beginning of the job and the pages it contains, and to keep a check on the job.

If job status is enabled and the printer receives a JOB command, it resets the page count associated with the unsolicited page status and returns a job status message.

Note: Resetting the page count associated with unsolicited page status affects only future pages. Pages that are already processed, but not yet printed, are not affected.

The PAGES=*number of pages* information associated with unsolicited EOJ status indicates the number of pages printed on paper. It does not include any page images that were processed in non-printing mode (see the "PAGE Variable" discussion.).

Note: For cut sheet printers: when in the duplex mode, each side of a duplex page counts as one page.

Example 1: Using Unsolicited Job Status

This example turns on unsolicited job status so that the spooler can be notified when the job starts and completely finishes. A job name is included so that the spooler can match the status information with the correct job. (The indented lines indicate a job sent to the spooler from another application.)

```
<ESC>%-12345X@PJL <CR><LF>
@PJL USTATUS JOB = ON <CR><LF>
@PJL JOB NAME = "JOB 1234" <CR><LF>
    <ESC>%-12345X@PJL <CR><LF>
    @PJL ENTER LANGUAGE = PCL <CR><LF>
    <ESC>E . . . PCL-Job . . . <ESC>E
    ➔ <ESC>%-12345X
➔ <ESC>%-12345X@PJL <CR><LF>
@PJL EOJ NAME = "JOB 1234" <CR><LF>
<ESC>%-12345X
```

A sample unsolicited printer response is shown here:

```
@PJL USTATUS JOB<CR><LF>
START<CR><LF>
NAME= "JOB 1234"<CR><LF>                                     (from the JOB command)
<FF>

[ . . Duration of print job . . ]

@PJL USTATUS JOB<CR><LF>
END<CR><LF>
NAME= "JOB 1234"<CR><LF>                                     (from the EOJ command)
PAGES=3<CR><LF>
RESULT=OK
<FF>
```

Example 2: Using Unsolicited Job Status and Job Cancel

This example turns on unsolicited job status and turns the variable JOBID in the default user environment ON. The job is cancelled by operator panel command while the PCL print data is being processed. The spooler then sends the EOJ command.

```
<ESC>%-12345X@PJL <CR><LF>
@PJL DEFAULT JOBID =ON <CR><LF>
@PJL USTATUS JOB = ON <CR><LF>
@PJL JOB <CR><LF>
    <ESC>%-12345X@PJL <CR><LF>
        @PJL ENTER LANGUAGE = PCL <CR><LF>
            <ESC>E . . . PCL Job . !!! Job Cancel
➔@PJL EOJ <CR><LF>
<ESC>%-12345X
```

A sample printer response is shown here:

```
@PJL USTATUS JOB<CR><LF>
START<CR><LF>
    ID=25                                     (Job ID, assigned by PJL)
<FF>

[ . . Start of print job . . .]
[ . . Job cancelled via operator panel . . .]

@PJL JOB CANCELED
ID=25
RESULT=USER_CANCELED
<FF>

[ . . @PJL EOJ is transferred . . .]

@PJL USTATUS JOB<CR><LF>
END<CR><LF>
PAGES=57<CR><LF>
ID=25
RESULT=USER_CANCELED
<FF>
```

Bear in mind that the number in the PAGES=*value* line indicates only the number of pages printed before the job was cancelled. This number can be used to determine where the job needs to be resumed (see START and END options of the JOB command, and Section 10 in this chapter).

Even if a job is cancelled by the Cancel command, the EOJ command has to be given because every JOB command must be followed by a corresponding EOJ command. JOB commands with no corresponding EOJ will result in a chain of nested jobs, and the depth of this nesting has limits.

Note: The printer sends the unsolicited status associated with the JOB command when the JOB command is parsed. The printer does not send the unsolicited status associated with the EOJ command until all of the pages received before the EOJ command have been printed.

7.8.3 PAGE Variable

The @PJL USTATUS PAGE = ON command is used to notify the application that a particular page finished printing. This is useful for applications such as spoolers, where it is beneficial to monitor the job on a page-by-page basis. For job recovery, described later in this chapter, it is helpful to know which pages are completely printed.

The number of pages is incremented by one for each simplex page formatted and by two for each duplex page formatted on cut sheet printers. The page count includes all pages printed and all pages processed in non-printing mode since the last JOB or EOJ command. (This may be different than the PAGES = *page count* returned with the unsolicited JOB status, which does not include pages processed in non-printing mode.)

Example: Using Unsolicited Page Status

The following example enables unsolicited page status. The printer response indicates the status messages that the printer sends when processing a four-page job.

```
<ESC>%-12345X@PJL <CR><LF>
@PJL USTATUS PAGE = ON <CR><LF>
@PJL JOB <CR><LF>
@PJL ENTER LANGUAGE = PCL <CR><LF>
<ESC>E . . . Four-page PCL Job . . . <ESC>E
➔<ESC>%-12345X@PJL <CR><LF>
@PJL EOJ <CR><LF>
<ESC>%-12345X
```

A printer response for unsolicited page status is shown here:

```
@PJL USTATUS PAGE<CR><LF>
1<CR><LF>
<FF>
@PJL USTATUS PAGE<CR><LF>
2<CR><LF>
<FF>
@PJL USTATUS PAGE<CR><LF>
3<CR><LF>
<FF>
@PJL USTATUS PAGE<CR><LF>
4<CR><LF>
<FF>
```

If the JOBID variable were set to ON, the printer response for, say, page 1 of the job with the ID 47 would be as follows:

```
@PJL USTATUS PAGE<CR><LF>
1<CR><LF>
ID=47
<FF>
```

7.8.4 TIMED Variable

The TIMED variable allows "automatic polling" of the printer without host intervention and without exiting the current printer language (back to PJL), irrespective of whether or not the printer status has changed in the meantime. Values from 5 to 300 indicate the time interval between status messages, in seconds. This feature is turned off by setting the value to 0. The status message returned when this command is enabled is similar to that solicited by the @PJL INFO STATUS command.

The accuracy of the timer may vary due to delays in data transmission and other system variables. To allow for this, use a timing window in your application. The first notification is returned immediately the command is processed.

The "CODE=" portion indicates a status code number. (See Appendix C for a complete list of status code numbers.) The "DISPLAY=" portion of the returned status indicates the message currently displayed on the control panel. The "ONLINE=" portion indicates whether the printer is online or offline.

Note: The "*string*" portion of the "DISPLAY=*string*" status message is localised; the same message displayed on the control panel appears in whichever language is being used.

Example: Using Timed Unsolicited Status

In this example, a status message is sent to the host every 30 seconds.

```
<ESC>%-12345X@PJL <CR><LF>  
@PJL USTATUS TIMED = 30 <CR><LF>  
<ESC>%-12345X
```

A printer response is shown below.

```
@PJL USTATUS TIMED<CR><LF>  
CODE=10001<CR><LF>  
DISPLAY= "Ready"<CR><LF>  
ONLINE=TRUE<CR><LF>  
<FF>
```

Related Commands:

INFO, ECHO, INQUIRE, DINQUIRE, SET, USTATUSOFF

7.9 USTATUSOFF

The USTATUSOFF command turns off all unsolicited status. This command eliminates the need to send several commands to turn off different types of USTATUS.

Syntax:

```
@PJL USTATUSOFF [<CR>] <LF>
```

Parameters:

There are no parameters for this command.

Example: USTATUSOFF

This example uses the USTATUSOFF command to disable all unsolicited status before specifying the desired unsolicited status, which in this case is DEVICE status.

```
<ESC>%-12345X@PJL <CR><LF>  
@PJL USTATUSOFF <CR><LF>  
@PJL USTATUS DEVICE = ON <CR><LF>  
<ESC>%-12345X
```

Related Commands:

USTATUS

7.10 Job Recovery

PJL provides job recovery capability using the following combination of commands:

- The JOB and EOJ commands reset the page count and inform the printer of the boundaries for the job—its beginning and end.
- The USTATUS PAGE command determines how many pages are completely printed.

If you must reprint a portion of a job, the spooling application can re-issue the job using the START option to specify the remaining portion of the job.

The following PJL job shows an example that provides job recovery if a problem occurs. Notice that the USTATUS JOB and USTATUS PAGE commands are sent prior to the JOB command. If a power failure interrupts the job, the unsolicited page status indicates the last completely printed page.

Note: The USTATUS JOB command is not strictly required for job recovery. However, it is useful for tracking jobs by name or ID, not just page number. The following example uses the command to show the difference between the page count returned by the unsolicited job status and the unsolicited page status.

Sending the Initial Job

```
<ESC>%-12345X@PJL <CR><LF>
@PJL COMMENT Providing for Recovery <CR><LF>
@PJL USTATUS JOB = ON <CR><LF>
@PJL USTATUS PAGE = ON <CR><LF>
@PJL JOB NAME = "1st Try" <CR><LF>
@PJL ENTER LANGUAGE = PCL <CR><LF>
<ESC>E ... 100-page PCL job ... <ESC>E
➔<ESC>%-12345X@PJL <CR><LF>
@PJL EOJ NAME = "End of 1st Try" <CR><LF>
<ESC>%-12345X
```

After Job Failure

Once the spooler senses that the job failed due to a power failure, the job can be recovered by resending it using the JOB command with the START option. Set the page number in the START option to the number of the last page printed plus 1. For instance, in the previous example, if a power failure occurred after page 25 completely printed, you set the START option to start printing on page 26 (see below). In this case, the printer processes the first 25 pages in non-printing mode, and then prints from page 26 through the end of the job.

```

<ESC>%-12345X@PJJL <CR><LF>
@PJJL COMMENT Recovering Crashed Job <CR><LF>
@PJJL USTATUS JOB = ON <CR><LF>
@PJJL USTATUS PAGE = ON <CR><LF>
@PJJL JOB NAME = "2nd Try" START = 26 <CR><LF>
@PJJL ENTER LANGUAGE = PCL <CR><LF>
<ESC>E ...Same 100-page PCL job ...<ESC>E
➔ <ESC>%-12345X@PJJL <CR><LF>
@PJJL EOJ NAME = "End of Recovery" <CR><LF>
<ESC>%-12345X

```

In the job above, the first unsolicited page status message is sent after page 26 lands in the output tray. The response appears as shown below.

```

@PJJL USTATUS PAGE<CR><LF>
26<CR><LF>
<FF>

```

Additional page status messages are sent after each succeeding page lands in the output tray. After the remaining 75 pages of the job are completely printed, the host receives unsolicited page and job status as follows:

```

@PJJL USTATUS PAGE<CR><LF>
100<CR><LF>
<FF>
@PJJL USTATUS JOB<CR><LF>
END<CR><LF>
NAME="End of Recovery"<CR><LF>
PAGES=75<CR><LF>
<FF>

```

The unsolicited *page* status indicates that the 100th page printed (25 processed in non-printing mode and 75 printed pages). The *job* status indicates that the EOJ command was received and that 75 pages were printed in the recovery job.

Note: In case of a 'normal' device error (Paper jam, Paper end, ...) the printer recovers the pages from it's internal buffer, so you do not need Job Recovery.

8 Device Attendance Commands

Introduction

PJL enables you to change messages displayed on the printer control panel. This capability is useful for alerting operators to perform specific actions, such as loading paper. This chapter describes the following two device attendance commands:

- | | |
|--------|--|
| RDYMSG | This command specifies a "ready message" that replaces the "Ready" message on the printer control panel. The RDYMSG command does not affect the Ready state. |
| OPMSG | This command displays a specified "operator message" on the printer control panel and takes the printer Not Ready. |

8.1 RDYMSG Command

The RDYMSG command replaces the control panel's "ready" message with the specified message. Use the RDYMSG command to modify the displayed message while keeping the printer Ready.

Syntax:

```
@PJL RDYMSG DISPLAY = "message" [<CR>] <LF>
```

Parameters:

DISPLAY = "*message*" ASCII 33 and ASCII 35 through 255, <SP>
default: N/A

DISPLAY = "*message*" The variable *message* can be any combination of printable characters (except quotation marks, ASCII 34) and spaces, with a limit of 1 line of 32 characters (see "Comments" below). The *message* variable is a string and must be enclosed in double quotes as shown in the command syntax.

Comments:

Since the RDYMSG command leaves the printer Ready, it can be used to display the name of the person printing the current job, or other pertinent information, while a job is printing. It also can be used in network environments to display the name of the printer.

The command @PJL RDYMSG DISPLAY = "" returns the display to the normal ready message.

Note: This command replaces the lowest priority READY message. If any higher priority message is displayed (for example, toner low, or printer open), the new ready message does not appear until these outstanding conditions are cleared.
This note does not apply to the touchscreen operator panel.

Some printers may have a different limit for the number of display lines and number of display characters. To request the display limits, use the INFO CONFIG command. When this command is used, the printer returns DISPLAY LINES=*value* and DISPLAY CHARACTER SIZE=*value* as part of the response message.

Example: Using the RDYMSG Command

This example simulates a spooler that prints a job from another application. The spooler uses the RDYMSG command to display the name of the person printing the job (while the job is printing). After the job is printed, the spooler restores the normal ready message. (The indented command lines indicate those sent by the printing application; the remaining lines are sent by the spooler.)

```
<ESC>%-12345X@PJL <CR><LF>
@PJL JOB NAME = "George's Job" <CR><LF>
@PJL RDYMSG DISPLAY = "George's JOB" <CR><LF>

<ESC>%-12345X@PJL <CR><LF>
@PJL ENTER LANGUAGE = PCL <CR><LF>
<ESC>E . . . PCL Job . . .<ESC>E
➔<ESC>%-12345X

<ESC>%-12345X@PJL <CR><LF>
@PJL COMMENT Restore READY message <CR><LF>
@PJL RDYMSG DISPLAY = "" <CR><LF>
@PJL EOJ NAME = "End of George's Job" <CR><LF>
<ESC>%-12345X>
```

Related Commands:

OPMSG, INFO CONFIG

8.2 OPMSG Command

The OPMSG command prompts the printer to display the specified message and go Not Ready. Use this command to display a message and halt printing until the operator presses the Ready key.

Syntax:

```
@PJL OPMSG DISPLAY = "message" [<CR>] <LF>
```

Parameters:

DISPLAY = "message" ASCII 33 and ASCII 35<196> 255, <SP>
default: N/A

DISPLAY = "message" The variable *message* can be any combination of printable characters (except quotation marks, ASCII 34) and spaces with a limit of 1 line of 32 characters (see "Comments" below). The *message* variable is a string and must be enclosed in quotation marks as shown in the command syntax.

Comments:

Some printers may have a different limit for the number of display lines and number of display characters. To request the display limitations, use the INFO CONFIG command. The printer returns DISPLAY LINES=*value* and DISPLAY CHARACTER SIZE=*value* as part of the response message.

Example: Using the OPMSG Command

This example displays "This job needs A3 paper" on the printer control panel and halts processing until the operator presses the Ready key. Once the key is pressed, the job is printed.

```
<ESC>%-12345X@PJL <CR><LF>  
@PJL JOB NAME = "JOB A3" <CR><LF>  
@PJL OPMSG DISPLAY = "This job needs A3 paper"<CR><LF>  
@PJL <CR><LF>  
@PJL ENTER LANGUAGE = PCL <CR><LF>  
<ESC>E ... A3 job ... <ESC>E  
➔<ESC>%-12345X@PJL <CR><LF>  
@PJL EOJ NAME = "EOJ A3" <CR><LF>  
<ESC>%-12345X
```

Related Commands:

RDYMSG, INFO CONFIG

9 Programming Tips for Using PJP

Introduction

When using most printer languages, there is usually more than one way to perform a certain printing function. PJP is no exception. Properly formed PJP jobs provide the developer with the desired features while eliminating glitches. This chapter provides tips for creating efficient PJP jobs that eliminate potential problems.

Note: Improperly coded print jobs may work fine in a single-computer/single-printer environment running only one application, but cause problems in a multi-application or shared network environment.

The first part of this chapter categorises PJP applications into three general types, and provides guidance and examples for each type. The remainder of the chapter provides hints for handling specific situations, including using status readback in a multi-user system.

9.1 PJJ Services

This section segments applications into three types based on the services provided. Applications using PJJ can be categorised as one of the following:

Print Data Generators	Applications that generate print jobs, such as Microsoft Word.
Printer Utilities	Applications that control printer features, or request and provide printer status. These applications also can monitor the current state of the printer.
Spoolers	Applications that control print jobs generated by other applications.

Many applications provide more than one of the services listed above. For example, a Spooler can be used to monitor the printer and provide control over printer features, and print jobs. If an application does provide more than one service, only use those PJJ commands appropriate for the provided services.

If applications providing different printer services follow the guidelines described in this section, they can work together properly. This chapter lists the commands used by each application type, explains the functions of each command, and offers several examples illustrating different PJJ functions.

9.2 Print Data Generators

Print Data Generators are applications used to create and print information. One example of an application is Microsoft Word.

Software applications of this type should work properly when the printer is under the direct control of the application, and also when there is a spooler between the application and the printer. This is accomplished by using the ENTER command to select the proper printer language before sending print data to the spooler or printer. The UEL command should precede and follow the print job.

Print Data Generators should only use PJJ commands when a corresponding command does not exist in the printer language. This is recommended so that the application does not override feature settings and adversely affect future jobs. To change feature settings for the duration of the job, or until the next PJJ reset condition, use the SET command. Do not use the PJJ INITIALIZE command for Print Data Generators.

Commands Used by Print Data Generators

UEL	Use before and after every PJJ job.
COMMENT	Use to add explanations within PJJ code.

ENTER	To select the correct printer language for the print job.
SET	To select a desired feature when it is not possible using the desired printer language (such as PCL).
RESET	Use at the end of the job if the SET command is used in the job.

Example

This example selects a printer language using the ENTER command. It is the most common job format for Print Data Generators:

```
<ESC>%-12345X@PJJ <CR><LF>  
@PJJ ENTER LANGUAGE = PCL <CR><LF>  
<ESC>E ... Printing PCL data ... <ESC>E  
<ESC>%-12345X
```

9.3 Printer Utilities

Printer utilities are those applications that perform one or more of the following functions:

Control printer resources These programs set printer features using the SET, RESET, DEFAULT, and INITIALIZE commands.

Request information from the printer Printer status and feature settings can be requested from the printer using the ECHO, INFO, INQUIRE, and DINQUIRE commands. Applications should only use PJJ commands that request status if the application is in direct control of the printer and there is a bi-directional communication channel between the printer and the application.

Monitor the printer status Device status and timed status can inform the application of printer events such as printer open, paper jam, or toner empty. The USTATUS DEVICE and USTATUS TIMED commands are used to monitor printer status. Applications can continuously monitor the printer for changes in printer state. When the printer changes state, the application takes appropriate action, such as informing the user.

Note: The command USTATUS DEVICE should be used in preference to the USTATUS TIMED command for monitoring printer states. This ensures that messages are only sent when the printer status actually changes. The information is available quickly, and the data transfer volume is kept down.

In general, the printer utilities described here are not used to print information, but enable the user to request the current printer feature settings and modify features as desired.

Commands Used by Printer Utilities

UEL Use before and after every PJJ job.
COMMENT Use to add explanations within PJJ code.
SET To modify a printer feature until the next PJJ reset condition.
RESET To set the printer to its user default feature settings.
DEFAULT To modify the user default value of a printer feature.

NOTE: In shared environments, this feature should be used by system administrators only.

INITIALIZE To set the printer to its factory default settings.

NOTE: In shared environments, this feature should be used by system administrators only.

Printer utilities that are equipped for bi-directional communications can request printer status using the following commands:

INQUIRE To request the current setting for a particular feature.

DINQUIRE To request the default setting for a particular feature.

INFO To find the printer model, printer configuration, memory available, status information, page count, or printer variables.

ECHO To synchronise requested status information.

USTATUS To be informed when the printer status changes.
DEVICE

USTATUS To receive unsolicited printer status at periodic intervals.
TIMED

Examples

The following three examples demonstrate the kind of PJJ jobs used by Printer Utilities:

- Jobs that request information and perform printer setup
- Jobs that request information, set features, and print existing files
- Jobs that monitor printing status

Jobs that Request Information and Perform Print Setup

The following example demonstrates a job setup utility that first asks for printer information, then sets default features to a desired state. This application functions like a remote control panel. This type of utility enables users to select PJJ features before printing from another application that cannot select PJJ features. In this example, the DEFAULT command is used instead of the SET command, so that changes apply to all future print jobs.

Note: Since this application uses the DEFAULT command, it changes the User Default Environment and control panel settings. In multi-user situations, it should be used only by printer administrators to avoid unexpected results by other users.

(Reading Status Information)

```
<ESC>>%-12345X@PJJ <CR><LF>
@PJJ COMMENT Requesting features <CR><LF>
@PJJ ECHO 15:18:25.3 07-25-00 <CR><LF>
[. . application discards any printer status readback information
received before the ECHO response . .]
@PJJ DINQUIRE LPARM:PCL SYMSET <CR><LF>
[. . application receives status readback from the DINQUIRE
commands showing that the default symbol set is ROMAN8. . . .]
<ESC>>%-12345X
```

(Changing the Default Values)

```
<ESC>-12345X@PJJ <<CR><LF>
@PJJ COMMENT Set desired values <CR><LF>
@PJJ DEFAULT LPARM:PCL SYMSET=PC8<CR><LF>
@PJJ COMMENT Reset PJJ to ensure default
➔values take effect <CR><LF>
@PJJ RESET <CR><LF>
<ESC>>%-12345X
```

Jobs That Request Information, Set Features and Print Existing Files

The following example requests information using the INQUIRE command, sets printer features using the SET command, and then sends an existing application print file to the printer. To restore the default values, the RESET command is issued before the job closes.

```
<ESC>>%-12345X@PJJ <CR><LF>
@PJJ COMMENT Requesting features <CR><LF>
@PJJ ECHO Job #53 11-17-00 08:52:03.7 <CR><LF>
[. . application discards any printer status readback information
received before the ECHO response . .]
@PJJ INQUIRE LPARM:PCL SYMSET <CR><LF>
<ESC>>%-12345X
```

```
[. . application receives status readback from the INQUIRE
commands showing the current symbol set is PC8 which is not the
desired setting. The application then sends SET command to modify
the setting to the desired value . .]
```

```
<ESC>%-12345X@PJJ <CR><LF>
@PJJ COMMENT Set desired values <CR><LF>
@PJJ SET LPARM:PCL SYMSET=WIN30 <CR><LF>
@PJJ ENTER LANGUAGE = PCL <CR><LF>
<ESC>E . . . PCL file . . .<ESC>E
➔<ESC>%-12345X@PJJ <CR><LF>
@PJJ COMMENT Reset PJJ to restore <CR><LF>
@PJJ COMMENT control panel defaults <CR><LF>
@PJJ RESET <CR><LF>
<ESC>%-12345X
```

Jobs That Monitor Printing Status

The following example enables unsolicited printer status using the USTATUS DEVICE command. After unsolicited device status is enabled, the printer automatically sends a status response whenever the printer's status changes.

```
<ESC>%-12345X@PJJ <CR><LF>
@PJJ ECHO Acme #17 8-28-92 5:39:00.9 <CR><LF>
@PJJ COMMENT Turn on unsolicited device
➔status <CR><LF>
@PJJ USTATUS DEVICE = ON <CR><LF>
<ESC>%-12345X
```

9.4 Spoolers

Spoolers are applications that control and/or monitor print jobs generated by other applications.

Spooling applications should use only PJJ job-related commands when controlling the flow of print jobs to the printer. Encapsulate each print job with the JOB command at the beginning and the EOJ command at the end (the UEL command is always the first and last command in all PJJ jobs).

Spoolers perform one or more of the following operations:

- | | |
|---|--|
| Confirm job completion | To notify the spooler when the job is completely processed, use the USTATUS JOB = ON command. When this command is used, the EOJ command at the end of the job triggers the printer to send unsolicited job status information when the last page of the job is printed and in the output tray. |
| Monitor job progress | If you want the spooler to monitor the page-by-page progress of a job, enable the page status with the USTATUS PAGE=ON command. As each page lands in the output tray, the printer sends an unsolicited page status message to the spooler. |
| Interact with the user | To flash a message on the printer's display and take the printer Not Ready, use the OPMSG command. These command is used to notify the user of a required action before printing can continue. For example, you can display "LOAD BLUE PAPER" and then wait until the user presses the Ready key. To display a message without taking the printer Not Ready, use the RDYMSG command. |
| Select a printer language or print a banner page | If the spooler is responsible for printer language selection or printing banner pages, use the ENTER LANGUAGE command. (Performance is not adversely affected if both the application file and the spooler send the ENTER LANGUAGE command.) |
| Print selected pages of jobs | Use the JOB command with the START and END options to specify which pages you want to print. |

Commands Used by Spoolers

UEL	Use before and after every PJJ job.
COMMENT	Use to add explanations within PJJ code.
DEFAULT	To modify the default value of a printer feature. (NOTE: In shared environments, this feature should be used by system administrators only.)
ENTER	Use if responsible for printer language selection or banner printing.
JOB/EOJ	Use to monitor printing status, name jobs, print portions of a job, mark job boundaries. NOTE: you must always use both of the commands, JOB and EOJ.
OPMSG	To display a customised message and take the printer Not Ready until the operator presses the Ready key.
RDYMSG	To replace the control panel "Ready" message with a customised message.

Spoolers equipped for bi-directional communications can monitor printer status using the following commands:

ECHO	To synchronise status readback information. The application should send an ECHO command before any other status readback commands; all status responses before the returned ECHO response should be discarded to ensure proper synchronisation.
USTATUS-OFF	To turn off all unsolicited status before specifying the desired USTATUS.
USTATUS PAGE	To receive notification as each page lands in the output tray.
USTATUS JOB	To monitor job progress. Sends status message when job has completed.

Examples

The following examples show jobs used by spooling applications:

- Jobs that monitor job progress and confirm job completion
- Jobs that notify the user to load specific forms or paper
- Jobs that control printer resources and print selected pages
- Jobs that print a banner page followed by an application-generated job (application specifies printer language)
- Jobs that print a banner page followed by an application-generated job (application does not specify printer language)

In each example, the indented lines indicate commands belonging to a print file created by another application.

Jobs That Monitor Job Progress and Confirm Job Completion

This example enables the spooler to receive notification as each page is finished printing, and when the entire job has finished. The USTATUS JOB = ON command enables unsolicited job status and the USTATUS PAGE = ON command enables page status.

```
<ESC>%-12345X@PJJ <CR><LF>
@PJJ COMMENT Monitoring Job Progress <CR><LF>
@PJJ COMMENT and Completion <CR><LF>
@PJJ ECHO 12:07:54.5 07-26-00 <CR><LF>
  [. . application discards printer status readback data received
  before ECHO response . .]
@PJJ USTATUS JOB = ON <CR><LF>
@PJJ USTATUS PAGE = ON <CR><LF>
@PJJ JOB NAME = "Monitoring Job" <CR><LF>
  <ESC>%-12345X@PJJ <CR><LF>
  @PJJ ENTER LANGUAGE = PCL <CR><LF>
  <ESC>E... PCL print data ...<ESC>E
  →<ESC>%-12345X
  →<ESC>%-12345X@PJJ <CR><LF>
@PJJ EOJ NAME = "End of Monitor Job" <CR><LF>
@PJJ USTATUS JOB = OFF <CR><LF>
@PJJ USTATUS PAGE = OFF <CR><LF>
<ESC>%-12345X
```

When the printer processes the JOB command, the following unsolicited job status message is sent:

```
@PJJ USTATUS JOB
START
NAME="Monitoring Job"
<FF>
```

When USTATUS PAGE = ON, the first unsolicited page status message is sent after page 1 lands in the output tray:

```
@PJJ USTATUS PAGE
1
<FF>
```

Additional page status messages are sent after each succeeding page lands in the output tray. After the job is completely printed, the host receives unsolicited page and job status as follows (assuming a 38-page job):

```
@PJJ USTATUS PAGE
38
<FF>
```

```
@PJJ USTATUS JOB
END
NAME="End of Monitor Job"
PAGES=38
<FF>
```

The unsolicited *page* status indicates that the 38th page was printed. The *job* status indicates that the EOJ command was received, and that 38 pages were printed. (The page count is incremented by one for each simplex page formatted, and by two for each duplex page formatted.)

Note: You should assign identical or corresponding names so as to synchronise the start and end of jobs. If you do not do this, you should set DEFAULT JOBID=ON to activate the automatic assignments of job IDs. This ID is output in the JOB START and JOB END notifications and in the page status messages for this job.

Jobs That Notify the User to Load Specific Forms or Paper

This example displays a message to "LOAD FORM 4711" and takes the printer off-line. When the form is loaded and the Ready key is pressed, the form is printed.

```
<ESC>%-12345X@PJJ <CR><LF>
@PJJ JOB NAME = "Job #12345" <CR><LF>
@PJJ OPMSG DISPLAY = "LOAD FORM 4711" <CR><LF>
  <ESC>%-12345X@PJJ <CR><LF>
  @PJJ ENTER LANGUAGE = PCL <CR><LF>
  <ESC>E ... PCL print data ... <ESC>E
  ➔ <ESC>%-12345X
➔ <ESC>%-12345X@PJJ <CR><LF>
@PJJ EOJ NAME = "Job #12345" <CR><LF>
<ESC>%-12345X
```

Jobs That Control Printer Resources and Print Selected Pages

The following job prints 1 copy of pages 5 through 8 of the print job. The START command tells the printer to process pages in non-printing mode until the specified page (in this case, page 5). The END command specifies the last page to print. If the END command is not included, the job prints from page 5 through the end of the document.

Note: If you need to print more than one copy of each page, send the job multiple times using the START and END options to get collated copies. Using the SET command to print multiple copies of a selected page causes unexpected results because the printer counts physical pages, not multi-copy collated pages.

```
<ESC>%-12345X@PJJ <CR><LF>
@PJJ COMMENT Printing selected pages <CR><LF>
@PJJ JOB START = 5 END = 8 <CR><LF>
  <ESC>%-12345X@PJJ <CR><LF>
  @PJJ ENTER LANGUAGE = PCL <CR><LF>
  <ESC>E . . . PCL print job . . . <ESC>E
  ➔ <ESC>%-12345X
➔ <ESC>%-12345X@PJJ <CR><LF>
@PJJ EOJ <CR><LF>
<ESC>%-12345X
```

Spooler Job That Prints a Banner Page Followed by an Application-Generated Job (Application specifies printer language)

The following example demonstrates a spooling application that prints a banner page, and then prints a PCL job. The application that produced the print file specifies the printer language.

```
<ESC>%-12345X@PJJ <CR><LF>
@PJJ COMMENT Spooling Job with Banner <CR><LF>
@PJJ JOB NAME = "Spooler #1" <CR><LF>
@PJJ ENTER LANGUAGE = PCL <CR><LF>
<ESC>E . . . Banner Page Data . . . <ESC>E
➔<ESC>%-12345X
  ➔<ESC>%-12345X@PJJ <CR><LF>
  @PJJ ENTER LANGUAGE = PCL <CR><LF>
  <ESC>E . . . PCL Job . . . <ESC>E
  ➔<ESC>%-12345X
➔<ESC>%-12345X@PJJ <CR><LF>
@PJJ EOJ <CR><LF>
<ESC>%-12345X
```

Spooler Job That Prints a Banner Page Followed by an Application-Generated Job (Application Does Not Specify Printer Language)

The following example demonstrates a spooling application that prints a banner page. The application was not created with a PJJ-ready driver, so it does not begin and end with UEL commands, or specify the printer language, so the printer implicitly switches to PCL.

```
<ESC>%-12345X@PJJ <CR><LF>
@PJJ JOB NAME = "Spooler #2" <CR><LF>
@PJJ ENTER LANGUAGE = PCL <CR><LF>
<ESC>E . . Banner Page Data. .< ESC>E
➔<ESC>%-12345X
. . PCL print data . . .
➔<ESC>%-12345X@PJJ <CR><LF>
@PJJ EOJ <CR><LF>
<ESC>%-12345X
```

9.5 Requesting Printer Status

When you query the printer for status, the response is not immediate. If the printer is still working on a previous print job, it may take a while before a response is received.

Lines within the PJJ status response begin with a specific keyword, as described in the command description in Chapter 7, and end with the <CR><LF> control codes. Future printers may support new keywords in the PJJ status response. Your application should ignore those lines which it does not understand.

9.6 Using Status Readback in a Multi-User System

The printing system consists of all components involved in the process of turning an application document into a printed sheet of paper. Common printing system components include the host computer, applications on the host computer, the operating system used by the host computer, the cable connecting the host computer to the printer, and the printer. Other printing system components can include printer sharing boxes, network servers, spoolers running on network servers. For printer status readback to be useful, all components must be bi-directional.

9.6.1 Printer Status Readback Usage

Applications use printer status readback for two primary purposes (although there are other uses): printer driver configuration and monitoring device status. Since printer configuration does not change often (i.e. the amount of installed printer memory does not change frequently) using printer status readback to assist in initial configuration (or when the printer's configuration changes) is straightforward. If the application determines printer status readback is unavailable (discussed in the "Determining If Printer Status Readback is Available" section), the application can ask the user for the information instead of querying the printer.

The other primary use for printer status readback is to allow applications to monitor the state of the printer. In particular, applications can inform the user when the printer requires intervention (e.g. fill paper trays). If the application enables unsolicited PJJ device status, the printer will inform the application whenever the printer's status changes.

Another use for printer status readback is to determine what volatile resources (e.g. soft fonts) are available in the printer right before a print job is sent to the printer. If an application optimises the printer job using printer status readback (i.e. does not send soft fonts if the printer already has the font), then if printer status readback is unavailable, the application should assume worst case (i.e. the font is not in the printer) when generating print jobs.

In summary, the application should be designed to take advantage of printer status readback, if available, but still function if it is unavailable.

9.6.2 Determining If Printer Status Readback is Available

If the application sends a PJL ECHO command (preceded by the Universal Exit Language command, of course) to the printer and receives the expected response, then the application can assume bi-directional communication with the printer is available and supported solicited status queries will be answered in a timely fashion.

9.6.3 Old Printer Status Readback Responses

Applications need to be designed to handle receiving printer status readback responses that were generated because of an action performed by a different application. For example, a word processing application may send a query to the printer, but because the user turned off the host computer, the application never got a chance to retrieve the response from the printer before the host computer was turned off. When another application, or even the same application at a later time, queries the printer, the first response is the response to the word processing application's query.

The currently executing application should accept old printer status readback responses and discard them until the expected response is received. Applications should include unique information as part of the ECHO command, such as the current time and date and a random number, so that the application can resynchronise with printer status readback responses.

There is also a chance the PJL ECHO response will never be sent by the printer, due to overflowing of the printer's response data buffer as discussed in the following section.

9.6.4 Response Data Buffer Overflow

The printer reserves a limited amount of memory for response data. It is possible for an application to fill this memory with printer status readback responses that have not yet been sent to the host computer, simply by sending many queries and never accepting the responses from the printer. Also, if an application enables unsolicited status and never accepts responses, the printer's response data buffer can overflow. When that memory is full (and the host has not recently accepted any responses), the printer discards all future responses until the host accepts the currently queued responses in the printer.

When the printer discards responses, the printer inserts the PJJ unsolicited "printer to host data buffer overflow" message:

```
@PJJ USTATUS DEVICE  
CODE=10010
```

The application should always send a PJJ ECHO command to resynchronise with the printer status readback responses (i.e. get rid of any old responses). However, if the printer's response data buffer is full and the printer is discarding all future responses, then the host will receive a PJJ unsolicited "printer to host data buffer overflow" message, but not the PJJ ECHO response. Applications must be designed to handle situations where the printer's response data buffer overflows and the printer does not provide the expected response, but instead provides a PJJ unsolicited "printer to host data buffer overflow" message. The application should resend all unanswered queries whenever the application receives a PJJ unsolicited "printer to host data buffer overflow" message.

9.6.5 Application Design Ideas

This section discusses application design ideas that handle the complexities involved with using printer status readback information.

The obvious design approach of querying the printer and waiting for an answer to that query is sure to lead to failure. A busy printer, old printer responses, overflowed printer response buffer, and a uni-directional printing environment all cause the obvious design approach to be inadequate. A better design approach is to treat printer responses as events that cause the application to take some action. Solicited and unsolicited printer status readback queries/responses are discussed separately.

Whenever the application sends a solicited query to the printer, the application should add the query to the "outstanding solicited query" list. Also, if the application can not proceed until the response is received, then a watchdog timer should be set so that some event will be guaranteed to occur in case the application does not receive a timely response. Whenever a solicited response is received, the response should be compared to the list of outstanding solicited queries. If there is no match, then the solicited response should be discarded. If there is a match, then the query should be removed from the outstanding solicited query list, any associated watchdog timer should be disabled, and the application should process the response. If the application was blocked waiting for the response, then the application should become unblocked.

If the application does not need an unsolicited status response, then the application can discard the response.

If the application ever receives the unsolicited PJJ "printer to host data buffer overflow" message, then the application should resend all queries in the "outstanding solicited query" list. When the application resends the outstanding solicited queries, it is possible that the application will receive two responses (one generated because of the initial query and one generated because of the resent query). If the application is using an outstanding solicited query list, then when the first response is received, the query will be removed from the list. When the second response is received, the second response will be ignored because there is no matching query in the outstanding solicited query list.

Given the above structure for sending queries and processing responses, applications should adhere to the following guidelines:

- 1) Check status readback availability as described in the "Determining if Printer Status Readback is Available" section.
- 2) Synchronise with the printer-to-host data stream as described in the "Old Printer Status Readback Responses" section.
- 3) Do not have more than five outstanding queries before accepting printer status readback responses. This prevents response data loss as described in the "Response Data Buffer Overflow" section.
- 4) Before quitting, turn off all unsolicited status enabled by the application. Also, accept all responses from the printer that were generated because of actions performed by the application.

Related Documentation

The following documents provide related information about Océ PCL 5 printers.

PCL 5e on SRA Controller

This manual describes the PCL 5 printer command language. The manual provides explanations of each PCL 5 command, and examples demonstrating how the commands are used to manipulate the printer.

Appendix A : Product-Specific Feature Support

Introduction

This appendix helps you compare the differences in PjL support for all PjL printers. It includes a list of all the PjL commands, showing which commands are supported by each PjL printer. Also, a list of environment variables shows the range of environment variables supported by each printer.

A.1 PJL Feature Support

The following table lists the entire PJL feature set and shows which features are supported by Océ SRA PCL5e cut sheet and continuous forms printers.

PJL Command Name	Cut Sheet	Continuous Forms
COMMENT	YES	YES
DEFAULT	YES	YES
DINQUIRE	YES	YES
ECHO	YES	YES
ENTER	YES	YES
EOJ	YES	YES
INFO	YES	YES
INITIALIZE	YES	YES
INQUIRE	YES	YES
JOB	YES	YES
OPMSG	YES	YES
PJL (@PJL prefix followed by <LF>)	YES	YES
RDYMSG	YES	YES
RESET	YES	YES
SET	YES	YES
UEL	YES	YES
USTATUS	YES	YES
USTATUSOFF	YES	YES

A.2 PJL Environment Variable Support

The following table lists all of the current environment variables for PJL and PCL5e, and shows which features are supported by which printers and whether the variables are write-protected. Factory default values are shown in parentheses.

Environment Variable	Variable Values	Cut sheet	Continuous Forms
BINDING	(LONGEDGE)	YES	NO ¹
	SHORTEGE	YES	NO ¹
COPIES	(1) to 999	YES	YES
COLORVID	1 to 65535	write-protected	write-protected
CPLOCK	ON	YES	YES
	(OFF)	YES	YES
DUPLEX	(ON)	YES	NO ¹
	OFF	YES	NO ¹
FONTNUMBER	(0) to 43	YES	YES
FORMLINES	5 to 128 (60)	YES	YES
INTRAY n	UNLOCKED	write-protected	NO
	LOCKED	write-protected	NO
INTRAY n NAME	String	write-protected	NO
INTRAY n SIZE	LETTER	write-protected	NO
	LEGAL	write-protected	NO
	LEDGER	write-protected	NO
	A4	write-protected	NO
	A4UNCUT	write-protected	NO

¹ Exception: Océ Pagestream 200DSC

Environment Variable	Variable Values	Cut Sheet	Continuous Forms
	A3	write-protected	NO
	A3UNCUT	write-protected	NO
	SCHULBUCH	write-protected	NO
	SNIMANUAL	write-protected	NO
	TABSTOCK	write-protected	NO
	A4LANDSCAPE	write-protected	NO
	FOLDSHEET	write-protected	NO
	CUSTOM	write-protected	NO
JOB OFFSET	(ON)	YES	YES
	OFF	YES	YES
LEFT OFFSET	-3600 to +3600	NO	YES
ORIENTATION	(PORTRAIT)	YES	YES
	LANDSCAPE	YES	YES
OUTBIN	UPPER	YES	NO
	LOWER	YES	NO
	SAMPLE	YES	NO
	EXTERNAL	YES	NO

Environment Variable	Variable Values	Cut Sheet	Continuous Forms
PAPER	(LETTER)	YES	NO
	LEGAL	YES	NO
	LEDGER	YES	NO
	A4	YES	NO
	A4UNCUT	YES	NO
	A3	YES	NO
	A3UNCUT	YES	NO
	SCHULBUCH	YES	NO
	SNIMANUAL	YES	NO
	TABSTOCK	YES	NO
	A4LANDSCAPE	YES	NO
	FOLDSHEET	YES	NO
	CUSTOM	YES	NO
PAPERLENGTH	2160 to 11520 (6120)	NO	YES
PAPERWIDTH	2160 to 14745(7920)	NO	YES
PASSWORD	0 to 65535	YES	YES
PERSONALITY	PCL	write-protected	write-protected
PITCH	0,44 to 99,99 (10.00)	YES	YES
PTSIZE	4,00 to 999,75 (12.00)	YES	YES
RESOLUTION ²	300	write-protected	write-protected
	(600) ¹	write-protected	write-protected

Environment Variable	Variable Values	Cut Sheet	Continuous Forms
SYMSET	(ROMAN8), ISOL1, ISOL2, ISOL5, PC8, PC8DN, PC850, PC852, PC8TK; WINL1, WINL2, WINL5, DESKTOP, PSTEXT, VNINTL, VNUS, MSPUBL, MATH8, PSMATH, VNMATH, PIFONT, LEGAL, ISO4, ISO6, ISO11, ISO15, ISO17, ISO21, ISO60, ISO69, WIN30	YES	YES
TOPOFFSET	-3600 to +3600	NO	YES
TWOACROSS	ON	NO	YES
	OFF	NO	YES
TWOACROSSFLIP	ON	NO	YES
	OFF	NO	YES

¹ 600 dpi printers only

² 600 dpi printers with HDP option only; reboot printer to switch the resolution

Appendix B: PJI Command Summary

COMMENT

@PJI COMMENT <words> [<CR>] <LF>

DEFAULT

@PJI DEFAULT [LPARM : *personality*] *variable* = *value* [<CR>]<LF>

DINQUIRE

@PJI DINQUIRE [LPARM : *personality*] *variable* [<CR>] <LF>

Response

@PJI DINQUIRE [LPARM : *personality*] *variable* <CR><LF>
value <CR><LF>
<FF>

ECHO

@PJI ECHO [<words>] [<CR>] <LF>

Response

@PJI ECHO [<words>] <CR><LF>
<FF>

ENTER

@PJI ENTER LANGUAGE = *personality* [<CR>] <LF>

PJL Command Summary

EOJ

```
@PJL EOJ [NAME = "job name"] [<CR>]<LF>
```

INFO

```
@PJL INFO category [<CR>] <LF>
```

Response

```
@PJL INFO category <CR><LF>  
[1 or more lines of printable characters or <WS> followed by  
<CR><LF>]  
<FF>
```

INITIALIZE

```
@PJL INITIALIZE [<CR>] <LF>
```

INQUIRE

```
@PCL INQUIRE [LPARM : personality] variable [<CR>] <LF>
```

Response

```
@PCL INQUIRE [LPARM:personality] variable <CR><LF>  
value <CR><LF>  
<FF>
```

JOB

```
@PJL JOB [NAME="job name"] [START=first page] [END=last page]  
[PASSWORD=number] [OFFSET=offset] <CR><LF>
```

OPMSG

```
@PJL OPMSG DISPLAY = "message" [<CR>] <LF>
```

PJL

@PJL [<CR>] <LF>

RDYMSG

@PJL RDYMSG DISPLAY = "message" [<CR>] <LF>

RESET

@PJL RESET [<CR>] <LF>

SET

@PCL SET [LPARM : *personality*] *variable* = *value* [<CR>] <LF>

UEL

<ESC>%-12345X

USTATUS

@PJL USTATUS *variable* = *value* [<CR>] <LF>

Appendix C: PJJ Status Codes

Appendix C deals with the PJJ status codes. The status readback responses usually include these codes in the format "CODE=xxxxxx," where each "x" stands for a single digit 0 through 9. For example, if unsolicited status is enabled and the printer is open, the following message is returned:

```
@PJJ USTATUS DEVICE
CODE=40101
DISPLAY= "65.00 FRONT DOOR OPEN"
ONLINE=FALSE
```

C.1 Status Code Groupings

PJJ status codes are grouped as follows, with the first two digits indicating a message category:

- Informational messages (10xxx)

Status codes relating to the interpretation of the PJJ language:

- General error (20xxx),
- General warnings (25xxx) concerning PJJ interpretation
- Semantic errors (27xxx), concerning PJJ interpretation

Status codes relating to the device status and print results

- Situations that might call for operator action (35xxx)
- Situations that always call for operator action (40xxx)

The following pages list the status codes in numerical order, by groups. For a complete description of each control panel display string, see the user and service manuals for each printer model.

PJL Status Codes

C.1.1 Informational Messages (10xxx)

Status Code	Control Panel Display String or Code Meaning
10001	Ready [PJL RDYMSG]
10002	Not Ready
10010	Status buffer overflow

C.1.2 General Errors (20xxx)

These status codes denote PJL parser errors. The entire PJL command line is ignored. (Some of the status codes refer to portions of PJL commands such as “command modifiers” and “alphanumeric values.” For a description of the PJL command format, see “Format of PJL Commands” in Chapter 2.

20001	Generic syntax error
20002	Unsupported command
20004	Unsupported personality/system
20006	Illegal character or line terminated by the Universal Exit Language command
20007	<WS> or [<CR>]<LF> missing after closing quotes
20008	Invalid character in an alphanumeric value
20009	Invalid character in a numeric value
20010	Invalid character at the start of a string, alphanumeric value, or numeric value
20011	String missing closing double-quote character
20012	Numeric value starts with a decimal point
20013	Numeric value does not contain any digits
20014	No alphanumeric value after command modifier
20015	Option name and equal sign encountered, but the value field is missing

20016	More than one command modifier
20017	Command modifier encountered after an option (command modifier must precede option)
20018	Command not an alphanumeric value
20019	Numeric value encountered when an alphanumeric value expected
20020	String encountered when an alphanumeric value expected
20021	Unsupported command modifier
20022	Command modifier missing
20023	Option missing
20024	Extra data received after option name (used for commands like SET that limit the number of options supported)
20025	Two decimal points in a numeric value

PJL Status Codes

C.1.3 General Warnings (25xxx)

This group of status codes denote PJL parser warnings, which indicates that part of the PJL command is ignored.

25001	Generic warning error (part of the PJL command ignored)
25002	PJL prefix missing
25006	Unsupported option name
25007	Option name requires a value which is missing
25008	Option name requires a value of a different type
25009	Option name received with a value, but this option does not support values
25010	Same option name received more than once
25011	Ignored option name due to value underflow or overflow
25012	Value for option experienced data loss due to data conversion (value truncated or rounded)
25013	Value for option experienced data loss due to value being out of range; the value used was the closest supported limit
25014	Value is of the correct type, but is out of range (value was ignored)
25016	Option name received with an alphanumeric value, but this value is not supported
25017	String empty, option ignored

C.1.4 Semantic Errors (27xxx)

This group of status codes denote PjL semantic errors. As much of the command is executed as possible, depending on the current configuration of the printer.

27001	Generic semantic error
27002	EOJ command encountered without a previously matching JOB command. An EOJ command does not have a matching JOB command if the number of valid EOJ commands received is greater than the number of valid JOB commands received.
27003	Command requires PjL security to execute.
27004	Cannot modify the value of a read-only variable.

C.1.5 Potential Operator Intervention Conditions (35xxx)

The following status code is issued when an invalid printer language is selected with the ENTER LANGUAGE command. All data to the next UEL command is ignored. The printer continues to operate, but data will be lost.

Status Code	Control panel display string (2nd Line)
35031	Invalid job data

PJL Status Codes

C.1.6 Operator Intervention Conditions (40xxx)

This list specifies the set of PJL error codes for conditions where operator intervention is required. Printing cannot continue until the condition is resolved.

Status Code	Control panel display
40000	00.00 Not Ready [PJL OPMSG]
40177	B1.00 CSI HARDWARE ERROR
40178	B2.00 CSI ERROR
40194	C2.00 DECOMPRESSION ERROR
40205	CD.00 CONTROLLER HW ERROR: <error code>
40206	CE.00 CONTROLLER SW ERROR: <error code>
40218	DA.00 NOT ENOUGH RASTER MEMORY
40220	DC.00 NOT ENOUGH I/O MEMORY
40223	DF.00 PAPERSIZE xxxxx NOT LOADED ¹

¹ The requested paper format appears in place of "xxxxx" (cut sheet printers only).

All further status codes are specific to particular printing systems. The PJL status codes are formed on the basis of the error codes shown on the operator panel. The operator panel codes are mapped to the PJL status codes according to the following convention: The operator panel message consists of four characters separated by a point into two sets of two characters. This code is augmented by a text message. The first two characters are the hex representation (one byte) of an error number. This number is added to the number 40000 in decimal coding to give the PJL status code. The second pair of numbers give information on locating the error. This information is not included in the PJL status code. A detailed description of the operator panel error codes is given in the operator manual for your printing system.

Example:

Operator panel message: 6D.00 TONER MARK NOT DETECTED

The hex number 0x6D is equivalent to decimal 109, so the resulting PJL status code is 40109.

Glossary



This character indicates that the current command line is a continuation of the previous line. For example, "These

➔ words are all part of the same line."

Configuration

Configuration is the process of changing printer settings. The printer is configured using the control panel or PjL.

Control Code

A control code is a non-printable ASCII character that initiates a printer function, for example carriage return (<CR>), line feed (<LF>), and form feed (<FF>).

Default

A value used instead of a programmatically selected value. A factory default is a value programmed into the printer at the factory; this value is stored in read-only memory and cannot be changed by a user or operator. A user default is a default value, stored in non-volatile RAM, that is selectable using the control panel or the PjL DEFAULT command.

Download

The process of transferring data, including soft fonts, macros, or raster data from a host computer to the printer.

Environment

See "Print Environment."

Explicit Switching

Explicit switching occurs when a printer language is activated due to processing a PJJ ENTER command.

Factory Default

Factory defaults refer to the settings that are programmed into the printer at the factory. These values are stored in read-only memory and cannot be changed. Factory default settings are in use unless you override them using either the control panel or by sending printer commands.

Factory Default Environment

A factory default is a setting programmed into the printer at the factory. The group of all the printer's factory settings is referred to as the Factory Default Environment.

Implicit Switching

Implicit switching occurs when a printer language is activated due to reception of non-PJJ data which is not preceded by a PJJ ENTER command.

Job Boundary

The beginning or end of a print job. The position between two characters of data in the data stream where the previous character is the last character of the previous print job, and the next character is the first character of the next print job.

Macro

A macro is a collection of escape sequences, control codes, and data downloaded to the printer. Its execution can be initiated using a single command.

Modified Print Environment

Once a printer language, such as PCL, is entered, the current feature settings constitute the modified print environment. Whenever a feature setting is altered using printer language commands, the new setting is recorded in the Modified Print Environment.

Non-Printing Mode

Printing selective pages in a print job by sending the entire print job, the desired starting page number, and the ending page number. The PjL JOB command options START and END are used to provide the starting page number and the ending page number. When the printer processes the pages that are not printed, the printer is said to be in non-printing mode.

Non-Volatile Memory

Random Access Memory where contents are preserved when the printer is powered off (volatile RAM is memory where contents are not preserved when the device is powered off).

Offline/Online

Online is a condition during which the printer is logically connected to the host computer. When the printer is online, the ON LINE light is lit. When offline, the printer can not accept data from the host.

Personality

The printer firmware related to transforming a particular type of printer language data, like PCL or PostScript, into images that the printer's operating system can print. The printer personality is PCL.

PjL Current Environment

The PjL Current Environment is the set of features that is active when a PjL job is entered. As soon as a PjL job is entered, the PjL Current Environment settings are the same as the User Default Environment. Applications then can modify the PjL Current Environment values using the PjL SET command. The PjL Current Environment provides a base set of values when entering a printer language.

PjL Job

A PjL job is any print job containing PjL commands. Properly formed PjL jobs always begin and end with the UEL command.

PJL Reset Condition

A PJL reset condition prompts the printer to load the User Default values into the PJL Current Environment, which are then loaded into the Modified Print Environment. In this document, the term PJL reset condition refers to any of the following events: a power-on, UEL command (when not between a JOB/EOJ command pair), the @PJL INITIALIZE, @PJL RESET, @PJL JOB, or EOJ commands.

Poorly Formed Print Job

A print job which either starts or ends with an invalid data stream sequence. For example, any job that does not begin *and* end with a UEL command is a poorly formed job. This manual describes how to create properly formed print jobs and contains many examples to demonstrate them. See Chapters 1 through 3 and Chapter 9 for more information about creating well-formed jobs.

Print Environment

The group of all the printer's current feature settings, collectively, is referred to as the print environment. The print environment is modified using printer commands and control panel settings.

Printer Language

A set of syntax and semantic rules used to control a printer. PCL is a printer language - it contains commands that enable the user to control where marks are printed on a page.

Ready Message

A ready message is displayed on the control panel display when no error conditions are present. When errors occur, an error message replaces the ready message until the situation is corrected. The PJL RDYMSG command is used to specify a ready message to replace the "Ready" message.

Secure PJL Job

A "secure" PJL job is a job that contains the correct password in the JOB command. Secure jobs are able to use the DEFAULT and INITIALIZE command.

Solicited Status

Solicited status is printer status information that is specifically requested. For example, the command @PJM INFO ID solicits the printer's ID. The printer responds to solicited status messages as they are received. See "unsolicited status".

Status Readback

Sending printer status information from the printer to the host computer.

Universal Exit Language (UEL) Command

A PJL command, understood by PCL that prompts to finish processing the current job and exit the personality. PJL also recognises the UEL command and, when received, PJL discards any unprocessed partial PJL command and prepares to accept the next PJL command.

Unsolicited Status

Unsolicited status (USTATUS) is printer status information sent as a result of certain printer events occurring, such as when the printer runs out of paper, a job finishes printing, or when a certain time period elapses. There are several types of unsolicited status (DEVICE, JOB, PAGE, and TIMED); unsolicited status must be enabled with the USTATUS command.

User Default

A user default is a default value that is selectable by way of the operator control panel or the PJL DEFAULT command.

User Default Environment

The User Default Environment consists of the user default settings selected from the control panel or by way of the PJL DEFAULT command. The user default settings are stored in non-volatile memory. Those settings not selected using the control panel or PJL DEFAULT command are set to the factory default values.

Index

- ➔ (Line continuation character), 11, 165
- @PJM, 14, 146
- @PJM JOB command, 54
- <words>, 12
- 10010 error, 139
- Alphanumeric variables, 16
- Application design ideas, 140
- BINDING variable, 57
- BINDING, variable, 148
- Blank command lines, 20
- Buffer overflow, 139
- Carriage return character (CR), 12
- Color verification ID, 57
- COLORVID, variable, 148
- COLORVID*n*, Variable, 57
- Command
 - format, 13
 - modifier, 13
 - summary, 155
- Command options
 - syntax, 14
- Command summary, 22
- Commands
 - overview, 22
- Commands grouped by application, 22
- COMMENT command, 29, 146, 155
 - example, 30
- Configuration, 165
 - requesting, 90
 - status, 75
- Control code, 165
- Control codes, 12
- Control panel
 - messages, changing, 117
- Conventions, document, 11
- COPIES variable, 57
- COPIES, variable, 148
- CPLOCK variable, 57, 148
- Current environment, 49
- Default, 165
- DEFAULT command, 14, 49, 53, 54, 66, 146, 155
 - example, 67
- Default variables, 82
- Device attendance commands, 117
- Device status
 - example, 106
- Device status, 103
- DEVICE variable, 105
- DINQUIRE command, 82, 146, 155
 - example, 84
 - example, language-specific, 85
- Document conventions, 11
- Download, 165
- DUPLEX, variable, 57, 148
- ECHO command, 76, 86, 146, 155
 - example, 87
- ENTER command, 12, 28, 53, 146, 155
 - example, 28
- Environment, 165
- Environments, 48
 - changing settings, 51
 - commands, 47
 - defaulting, 48
 - example (changing settings), 52
 - factory default, 49, 53
 - modified print, 49, 53
 - PJM current, 49, 53
 - printer language-specific, 53
 - summary, 52

Index

- user default, 49, 53
- variable support, 148
- variables, 55
- EOJ command, 40, 54, 146, 156
- Errors, processing, 17
- Escape character (ESC), 12
- Explicit switching, 31, 166
- Factory default, 166
- Factory default environment, 49, 53, 166
- Feature comparison, 145
- Feature settings, 47
- FONTNUMBER variable, 62
- FONTNUMBER, variable, 148
- Form feed character (FF), 12
- Format of PJI commands, 13
- FORMLINES variable, 58
- FORMLINES, variable, 148
- General errors, 160
- General warnings, 161
- Horizontal tab character (HT), 12
- Identifiers, 12
- Implicit switching, 31, 60, 166
- INFO command, 87, 146, 156
 - example, 91
 - INFO CONFIG, 90
 - INFO ID, 89
 - INFO MEMORY, 93
 - INFO PAGECOUNT, 93
 - INFO STATUS, 94
 - INFO USTATUS, 101
 - INFO VARIABLES, 95
- INFO VARIABLES command, 95
- Informational messages, 160
- Initialising printer, 54, 64
- INITIALIZE command, 49, 51, 53, 54, 67, 146, 156
 - example, 69
- Input trays
 - names, 58
- INQUIRE command, 53, 78, 146, 156
 - example, language-specific, 81
 - example, request feature settings, 80
- INTRAYn, variable, 148
- INTRAYn, variable, 58
- INTRAYnNAME, variable, 58, 148
- INTRAYnSIZE, variable, 58, 149
- Invalid commands, 17
- JOB
 - variable, 106
- Job boundary, 166
- JOB command, 33, 146, 156
 - example, 37
- Job ID, 59
- Job offset, 58
- Job recovery, 114
- Job requirements, 26
- Job separation commands, 33
- JOB/EOJ pairs, 33, 40
- JOBID, variable, 59
- JOBOFFSET, variable, 58, 150
- Jobs
 - names, 34, 40
- Kernel commands, 25
- Known state, 64
- Landscape, 59
- LEFTOFFSET, variable, 59, 150
- Line feed character (LF), 12
- Line spacing (FORMLINES), 58
- Line termination, 20
- LPARM, 13
- LPARM : PCL, 62
- LPARM : personality, 56
- Macro, 166
- Memory available, 93
- Minimum set of PJI commands, 25
- Modified print environment, 49, 53, 166
- Monitor the printer status, 126
- Multi-user environment, 86
- Naming jobs, 34
- Nested jobs, 39
- Networks, 137
- Non-printing mode, 167
- Non-volatile memory, 53, 167
- Numeric variables, 16
- Offline/online, 167
- Operator message, changing, 120

- OPMSG command, 120, 146, 156
 - example, 120
- Orientation (page), 59
- ORIENTATION, variable, 59, 150
- OUTBIN, variable, 60
- Output trays, 60
- Overflow, data buffer, 139
- Overview, 19
- Page count, 35
- Page length, 60
- PAGE variable, 110
- Page width, 60
- Paper format, 60
- PAPER, variable, 60, 151
- PAPERLENGTH, variable, 60, 151
- PAPERWIDTH, variable, 151
- PAPERWIDTH, variable, 60
- Parser errors, 17
- Password, 60
- PASSWORD, variable, 60, 151
- PCL 5 Printer Language Technical Reference Manual, 143
- PCL-specific variables, 62
- Personality, 167
- PERSONALITY, variable, 60, 151
- PITCH variable, 62
- PITCH, variable, 151
- PJL
 - adding comments, 29
 - application types, 124
 - command, 157
 - command formats, 13
 - command summary, 155
 - command syntax and format, 11
 - command usage, 19
 - commands grouped by function, 22
 - current environment, 49, 53, 167
 - environment variable support, 148
 - environment variables, 55
 - feature comparison, 145
 - feature support, 146
 - getting to desired state, 64
 - in multi-user systems, 137
 - job, 167
 - job requirements, 20
 - job separation commands, 33
 - minimum command set, 25
 - prefix, 14
 - print environment, 51
 - processing invalid commands, 17
 - reset condition, 54, 168
 - services, 124
 - status codes, 159
 - using, 19
 - well-formed jobs, 20
 - white space in commands, 14
- Poorly formed print job, 168
- Portrait, 59
- Prefix (@PJL), 14, 20
- Print column shift
 - horizontal, 59
 - vertical, 61
- Print data generators, 125
- Print environment, 168
- Print job initialisation, 54
- Printer
 - feature comparison, 145
 - ID, 88
 - resources, 126
 - status readback usage, 137
 - status requirements, 76
 - status, requesting, 137
 - utilities, 126
- Printer language, 168
 - commands, 48
 - reset, 54
 - switching, 28, 31
- Printer setup, 64
- Printing pre-existing jobs, 131
- Product-specific feature support, 145
- PTSIZE variable, 63
- PTSIZE, variable, 151
- RDYMSG command, 118, 146, 157
 - example, 118
- Readback, printer status, 75
- Ready message, 168

Index

- Ready messages, changing, 118
- Related documents, 143
- Requesting printer status, 137
- RESET command, 54, 55, 64, 70, 146, 157
- Reset conditions, PjL, 54
- Resetting printer, 64
- Resolution, 60
- RESOLUTION, variable, 60, 152
- Response data buffer overflow, 139
- Secure PjL job, 168
- Semantic errors, 162
- Semantic warnings, 18
- SET command, 49, 53, 55, 64, 70, 72, 146, 157
 - example, 71, 73
- Solicited status, 169
- Space between characters, 14
- Space character (SP), 12
- Spoolers, 28, 39, 131
- Stale status response, 138
- Status codes, 159
- status message, 105
- Status readback, 169
 - commands, 75
 - determining if available, 138
 - format, 76
 - old response, 138
 - usage, 137
- Status requirements, 76
- String variables, 17
- Symbol set, 63
- SYMSET variable, 63
- SYMSET, variable, 153
- Synchronising
 - job and page status, 33
 - status information, 86
 - status response, 76
- Syntax
 - errors, 17
 - of PjL commands, 11
 - rules, 14
 - warnings, 18
- Termination, line, 20
- TIMED variable, 111
- TOPOFFSET, variable, 61, 153
- TWOACROSS, variable, 61, 153
- TWOACROSSFLIP, variable, 61, 153
- UEL (Universal Exit Language) command, 13
- UEL command, 19, 26, 54, 64, 146, 157
 - example, 27
- Universal Exit Language (UEL), 13, 26, 169
- Unsolicited job status, 41
- Unsolicited page status, 36
- Unsolicited status, 169
 - determining choices, 101
 - turning off, 113
- User default, 169
- User default environment, 49, 53, 169
- Using PjL, 19
- Using unsolicited device status
 - example, 106
- USTATUS
 - JOB, 106
- USTATUS command, 18, 36, 103, 146, 157
 - USTATUS DEVICE, 105
 - USTATUS PAGE, 110
 - USTATUS TIMED, 111
- USTATUSOFF command, 113, 147
- Utilities, 126
- Value, 13
- Variable support, 148
- Variables, 16
 - environment, 55
 - input trays, names, 58
 - job ID, 59
 - job offset, 58
 - modifying, 55
 - page length, 60
 - page orientation, 59
 - page width, 60
 - paper format, 60
 - password, 60
 - PCL-specific, 62
 - personality, 60
 - print column shift, 59
 - printer resolution, 60

read-only, 55
vertical print column shift, 61

Well-formed jobs, 20
White space (WS), 12, 15