

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, online/offline 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 *current* value (PJL Current Environment) for a specified environment variable.
- DINQUIRE requests the *default* value (User Default Environment) for a specified environment variable.
- ECHO returns a comment to the host computer to synchronize 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.

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.

Synchronizing 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 synchronize 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 11.)

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 INQUIRE command is:

```
@PJI INQUIRE [LPRM:personality | IPARM:port]
^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.

INQUIRE Command

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

Syntax:

```
@PDL INQUIRE [LPARM : personality |  
^IPARM : port] variable [<CR>]<LF>
```

Response Syntax:

```
@PDL INQUIRE [LPARM:personality |  
^IPARM:port] 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 PDL symbol set stored in the PDL Current Environment.

PDL is a valid personality. Other personalities, such as POSTSCRIPT, can be added as hardware options. Use the @PDL INFO CONFIG command to request the personalities installed in a particular printer.

- **IPARM : *port*** — This optional parameter is used to set port-specific variables. The HP LaserJet 4PJ is the only printer which supports port-specific variables.

The IPARM : *port* option must be used when setting port-specific variables. Valid values for port for the HP LaserJet 4PJ printer are SERIAL and PARALLEL.

- ***variable*** — This parameter specifies the environment variable you want. For example, the INQUIRE RET command requests the current value of the Resolution Enhancement technology feature. 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 may not be the same in all HP LaserJet 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.

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

Parameters:

Parameter	Variable Names+	
<i>personality</i>	PCL	ESCP
	POSTSCRIPT	(other personalities may be supported)
<i>port</i>	PARALLEL	Supported on HP LaserJet 4PJ only
	SERIAL	
<i>variable</i>	Valid variables for each printer are listed in Appendix A.	
<i>value</i>	Acceptable 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 PJM INFO VARIABLES command returns the PJM Current Environment settings for all environment variables.

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

```
@PJM INQUIRE [LPARM:personality | IPARM:port]
^variable <CR><LF>
" ? " <CR><LF>
<FF>
```

If a printer language-specific variable is not available because that printer language is not installed or is invalid, or if a port-specific variable is not available because that port is not supported, 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.

The IPARM : *port* option must be used when requesting port-specific information.

Example: Using INQUIRE to Request Feature Settings

This example requests the current print environment settings for RET, PAGEPROTECT, RESOLUTION, PERSONALITY, and TIMEOUT. 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 05-30-92 <CR><LF>
@PJL INQUIRE RET <CR><LF>
@PJL INQUIRE PAGEPROTECT <CR><LF>
@PJL INQUIRE RESOLUTION <CR><LF>
@PJL INQUIRE PERSONALITY <CR><LF>
@PJL INQUIRE TIMEOUT <CR><LF>
<ESC>%-12345X
```

For the HP LaserJet 4 printer, a sample printer response for this example is as follows. Other PJI printers may respond differently.

```
@PJJ ECHO 02:18:23.9 05-30-92<CR><LF>
<FF>
@PJJ INQUIRE RET<CR><LF>
MEDIUM<CR><LF>
<FF>
@PJJ INQUIRE PAGEPROTECT<CR><LF>
OFF<CR><LF>
<FF>
@PJJ INQUIRE RESOLUTION<CR><LF>
600<CR><LF>
<FF>
@PJJ INQUIRE PERSONALITY<CR><LF>
AUTO<CR><LF>
<FF>
@PJJ INQUIRE TIMEOUT<CR><LF>
15<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@PJJ <CR><LF>
@PJJ COMMENT Requesting PCL Settings <CR><LF>
@PJJ ECHO 12:22:23.9 11-05-92 <CR><LF>
@PJJ INQUIRE LPARM : PCL PITCH <CR><LF>
@PJJ INQUIRE LPARM : PCL PSIZE <CR><LF>
@PJJ INQUIRE LPARM : PCL SYMSET <CR><LF>
<ESC>%-12345X
```

For the HP LaserJet 4 printer, the response for this example is shown on the following page. Other PJJ printers may respond differently.

```
@PJL ECHO 12:22:23.9 11-05-92<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

DINQUIRE Command

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

Syntax:

```
@PJL DINQUIRE [LPARM : personality |  
⌘IPARM : port] variable [<CR>]<LF>
```

Response Syntax:

```
@PJL DINQUIRE [LPARM:personality |  
⌘IPARM:port] 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 default PCL pitch setting.

PCL is a valid personality. Other personalities, such as POSTSCRIPT, can be added as hardware options. Use the @PJL INFO CONFIG command to request the personalities installed in a particular printer.

- **IPARM : *port*** — This optional parameter is used to set port-specific variables. The HP LaserJet 4PJ is the only printer which supports port-specific variables.

The IPARM : *port* option must be used when setting port-specific variables. Valid values for port for the HP LaserJet 4PJ printer are SERIAL and PARALLEL.

- ***variable*** — This parameter specifies the environment variable about which you are inquiring. For example, the DINQUIRE DENSITY command requests the default toner density 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 PJJ printer models. See Appendix A for a list of valid variables for each printer, or send the @PJJ 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 DINQUIRE LOWTONER command, the returned value is either ON or OFF (or CONTINUE/STOP), indicating whether or not you want the printer to stay online when the toner is low. See Appendix A for valid variable values.

Parameters:

Parameter	Variable Names	
<i>personality</i>	PCL	ESCP
	POSTSCRIPT	(other personalities may be supported)
<i>port</i>	PARALLEL	Supported on HP LaserJet 4PJ only
	SERIAL	
<i>variable</i>	Valid variables for each printer are listed in Appendix A.	
<i>value</i>	Acceptable 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 | IPARM:port]
^?variable <CR><LF>
"?"<CR><LF>
<FF>
```

If a printer language-specific variable is not available because that printer language is not installed or is invalid, or if a port-specific variable is not available because that port is not supported, 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.

The IPARM : *port* option must be used when requesting port-specific information.

Example: Using DINQUIRE to Request Feature Settings

This example requests the default settings for resolution and personality. The printer returns values of 600 and AUTO.

```
<ESC>%-12345X@PJL <CR><LF>
@PJL COMMENT Inquiring Default Settings
^?<CR><LF>
@PJL ECHO 08:10:33.7 04-17-93 <CR><LF>
@PJL DINQUIRE RESOLUTION <CR><LF>
@PJL DINQUIRE PERSONALITY <CR><LF>
<ESC>%-12345X
```

For the HP LaserJet 4 printer, a sample response for this example is as follows. Responses from other PJJ printers may vary.

```
@PJL ECHO 08:10:33.7 04-17-93<CR><LF>
<FF>
@PJL DINQUIRE RESOLUTION<CR><LF>
600<CR><LF>
<FF>
@PJL DINQUIRE PERSONALITY<CR><LF>
AUTO<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 07-04-92 <CR><LF>
@PJL DINQUIRE LPARM : PCL PITCH <CR><LF>
@PJL DINQUIRE LPARM : PCL SYMSET <CR><LF>
<ESC>%-12345X
```

A sample HP LaserJet 4 printer response for this example is as follows. Other PJP printer responses may vary.

```
@PJL ECHO 11:03:05.9 07-04-92<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

ECHO Command

The ECHO command prompts the printer to return a specified message to the host computer. Use the ECHO command to synchronize 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:

Parameter	Functional Range	Default
<words>	Roman-8 characters 33 – 255, <SP>, <HT>	N/A

- **<words>** — The <words> parameter must begin with a printable character, and can contain any Roman-8 character from 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. The maximum length for <words> is 80 bytes.

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 synchronize 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
```

A sample HP LaserJet 4 printer response for this example is shown below. Other PJI printers may have different responses.

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

Related Commands:

INQUIRE, DINQUIRE, INFO, SET, DEFAULT, USTATUS

INFO Command

The INFO command requests a specified category of information (see table below). Use this command to find the printer model, configuration, memory available, page count, status information, PJL file system 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, such as "LaserJet 4."
CONFIG	Provides configuration information, such as how many and which paper sizes are available in this printer.
FILESYS	Returns PJL file system information.
MEMORY	Identifies 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.
USTATUS	Lists the unsolicited status variables provided by the printer, the possible variable values, and the current variable settings.

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>
```

ID Category

The INFO ID command provides a way to identify the type of printer used. For the HP LaserJet 4 printer, the INFO ID command prompts the printer to return the following response:

```
@PJL INFO ID<CR><LF>  
"LASERJET 4"<CR><LF>  
<FF>
```

Note

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

Some printers, such as the HP LaserJet 4ML printer, return “HP” in front of the model name, for example:

```
@PJL INFO ID<CR><LF>  
"HP LASERJET 4ML"<CR><LF>  
<FF>
```

CONFIG Category

The INFO CONFIG command returns a series of lines listing configuration information. Use this command to request information such as which printer languages are installed, how many input and output trays are installed, and how many font cartridge slots are in the printer.

Variables appear in the response only if they are installed in the printer. For example, if a HP LaserJet 4 printer does not have the lower paper cassette installed, the INTRAY3 option is not returned in the response.

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[ attribute]<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 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 or FONT CARTRIDGE SLOTS.
<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, TABLE 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.
<i>attribute</i>	alphanumeric or numeric value, or string	Adds more information about a particular returned option, such as INTRAY1 MP, indicating that tray 1 is a multipurpose (MP) tray.

Example: Using the INFO CONFIG Command

This example requests the current configuration information. The printer, a HP LaserJet 4 printer in this case, responds with a list of features. For example, the returned information shows there is an envelope tray and three input trays: INTRAY1 MP, the multi-purpose tray, INTRAY2 PC, the paper cassette tray, and INTRAY3 LC, the optional lower cassette tray. 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 Using @PJL INFO CONFIG <CR><LF>
@PJL ECHO 09:51:48.3 12-24-92 <CR><LF>
@PJL INFO CONFIG <CR><LF>
<ESC>%-12345X
```

A sample HP LaserJet 4 printer response for this example is shown on the following page. Other printers may respond differently.

```
@PJL ECHO 09:51:48.3 12-24-92<CR><LF>
<FF>
@PJL INFO CONFIG<CR><LF>
IN TRAYS [3 ENUMERATED]<CR><LF>
    INTRAY1 MP<CR><LF>
    INTRAY2 PC<CR><LF>
    INTRAY3 LC<CR><LF>
ENVELOPE TRAY<CR><LF>
OUT TRAYS [1 ENUMERATED]<CR><LF>
    NORMAL FACEDOWN<CR><LF>
PAPERS [9 ENUMERATED]<CR><LF>
    LETTER<CR><LF>
    LEGAL<CR><LF>
    A4<CR><LF>
    EXECUTIVE<CR><LF>
    MONARCH<CR><LF>
    COM10<CR><LF>
    DL<CR><LF>
    C5<CR><LF>
    B5<CR><LF>
LANGUAGES [2 ENUMERATED]<CR><LF>
    PCL<CR><LF>
    POSTSCRIPT<CR><LF>
USTATUS [4 ENUMERATED]<CR><LF>
    DEVICE<CR><LF>
    JOB<CR><LF>
    PAGE<CR><LF>
    TIMED<CR><LF>
FONT CARTRIDGE SLOTS [1 ENUMERATED]<CR><LF>
    CARTRIDGE<CR><LF>
MEMORY=2097152<CR><LF>
DISPLAY LINES=1<CR><LF>
DISPLAY CHARACTER SIZE=16<CR><LF>
<FF>
```

FILESYS Category

The INFO FILESYS command returns the following information for each volume initialized on the PJJL file system:

- Total capacity
- Volume label
- Free space
- Volume read/write status
- Location

Example: Using the INFO FILESYS Command

```
<ESC>%-12345X@PJJL <CR><LF>  
@PJJL COMMENT Using @PJJL INFO FILESYS <CR><LF>  
@PJJL ECHO 11:33:42.3 9-20-96 <CR><LF>  
@PJJL INFO FILESYS <CR><LF>  
<ESC>%-12345X
```

A sample HP LaserJet 5 printer response for this example is shown below. Other printers may respond differently.

```
@PJJL INFO FILESYS [2 TABLE]  
VOLUME  TOTAL SIZE  FREE SPACE  LOCATION LABEL  STATUS<CR><LF>  
0:      1755136     1718272   <HT>     <HT>     READ-WRITE<CR><LF>
```

If the mass storage device is not present (but the file system firmware is), or if there are not initialized volumes, the reply will be as follows:

```
@PJJL INFO FILESYS [1 TABLE]  
VOLUME  TOTAL SIZE  FREE SPACE  LOCATION LABEL  STATUS<CR><LF>  
<FF>
```

A printer with no file system firmware will treat this command as a PJJL INFO command with an unknown category and will respond with the reply:

```
@PJJL INFO FILESYS<CR><LF>  
" ? " <CR><LF>  
<FF>
```

MEMORY Category

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

Note

To determine the amount of memory available for a particular personality, use the personality command instead of the INFO MEMORY command. For example, to find the amount of memory available for PCL 5, use the Free Space command (<ESC>*s1M). See the *PCL 5 Printer Language Technical Reference Manual* for more information about PCL status readback.

Example: Using the INFO MEMORY Command

```
<ESC>%-12345X@PJL <CR><LF>
@PJL COMMENT Using @PJL INFO MEMORY <CR><LF>
@PJL ECHO 14:51:48.3 12-18-92 <CR><LF>
@PJL INFO MEMORY <CR><LF>
<ESC>%-12345X
```

A sample HP LaserJet 4 printer response for this example is shown below. Other printers may respond differently.

```
@PJL ECHO 14:51:48.3 12-18-92<CR><LF>
<FF>
@PJL INFO MEMORY<CR><LF>
TOTAL=1494416<CR><LF>
LARGEST=1494176<CR><LF>
<FF>
```

PAGECOUNT Category

The INFO PAGECOUNT returns the number of pages printed by the current print engine. This returned number is an indication of printer usage.

Example: Using the INFO PAGECOUNT Command

```
<ESC>%-12345X@PJL <CR><LF>  
@PJL COMMENT Using PJL INFO PAGECOUNT <CR><LF>  
@PJL ECHO 06:53:29.3 1-25-93 <CR><LF>  
@PJL INFO PAGECOUNT <CR><LF>  
<ESC>%-12345X
```

A sample HP LaserJet 4ML printer response for this example is shown here. Some printers do not return the label "PAGECOUNT=" in front of the page count.

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

STATUS Category

The INFO STATUS command returns online status (TRUE=online, FALSE=offline), 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 D for a list of all printer status codes.)

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

Note

For those printers supporting Japanese printing, when the language is set to Japanese, strings which correspond to a control panel message are displayed on the control panel using the JIS X0201-76 character set.

Example: Using the INFO STATUS Command

This example requests status information. The printer, in this case a HP LaserJet 4 printer, returns a status code (10001), the message displayed on the control panel (00 READY), and the online status (ONLINE=TRUE).

```
<ESC>%-12345X@PJL <CR><LF>
@PJL COMMENT Using @PJL INFO STATUS <CR><LF>
@PJL ECHO 17:45:22.5 05-17-92 <CR><LF>
@PJL INFO STATUS <CR><LF>
<ESC>%-12345X
```

A sample HP LaserJet 4 printer response for this example is shown here. Other PJI printers may produce a different response.

```
@PJL ECHO 17:45:22.5 05-17-92<CR><LF>
<FF>
@PJL INFO STATUS<CR><LF>
CODE=10001<CR><LF>
DISPLAY="00 READY" <CR><LF>
ONLINE=TRUE<CR><LF>
<FF>
```

VARIABLES Category

The 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.

The set of printer language-specific variables returned by the printer depends on the current environment and the printer languages installed. Each add-on printer language has its own specific variables. Printer language-specific variables are always indicated by LPARM:*personality* in the response. Port-specific variables (HP LaserJet 4PJ only) are always indicated by IPARM:*port* in the response.

One portion of the returned information is a list of font sources (see the following example). This list varies depending on which font sources, such as ROM SIMMs and cartridges, are installed. Only those font sources which are installed and contain valid fonts appear on the list. For example, the **S** option appears only if one or more permanent soft fonts currently exist.

The FONTNUMBER range lists the range of fonts for the current font source only. The lower limit is 0 if the current font source contains a default-marked font; otherwise the lower limit is 1. The upper range limit varies depending on how many fonts are in the current font source.

Note

For information about any of the environment variables listed by the INFO VARIABLES command, see the “PJM Environment Variables” section in Chapter 6.

Example: Using the 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 the @PJL INFO <CR><LF>
@PJL COMMENT VARIABLES Command <CR><LF>
@PJL ECHO 07:22:03.8 12-03-92 <CR><LF>
@PJL INFO VARIABLES <CR><LF>
<ESC>%-12345X
```

A sample HP LaserJet 4 printer response for this example is shown below. Other PJI printers may provide a somewhat different response:

```
@PJL ECHO 07:22:03.8 12-03-92<CR><LF>
<FF>
@PJL INFO VARIABLES
COPIES=1 [2 RANGE]
    1
    999
PAPER=LETTER [9 ENUMERATED]
    LETTER
    LEGAL
    A4
    . . .
    B5
ORIENTATION=PORTRAIT [2 ENUMERATED]
    PORTRAIT
    LANDSCAPE
FORMLINES=60 [2 RANGE]
    5
    128
MANUALFEED=OFF [2 ENUMERATED]
    OFF
    ON/
```

```
RET=MEDIUM [ 4 ENUMERATED ]
    OFF
    LIGHT
    MEDIUM
    DARK
PAGEPROTECT=OFF [ 4 ENUMERATED ]
    OFF
    LETTER
    LEGAL
    A4
RESOLUTION=600 [ 2 ENUMERATED ]
    300
    600
PERSONALITY=AUTO [ 3 ENUMERATED ]
    AUTO
    PCL
POSTSCRIPT
    TIMEOUT=15 [ 2 RANGE ]
    5
    300
MPTRAY=CASSETTE [ 3 ENUMERATED ]
    MANUAL
    CASSETTE
    FIRST
INTRAY1=UNLOCKED [ 2 ENUMERATED ]
    UNLOCKED
    LOCKED
INTRAY2=UNLOCKED [ 2 ENUMERATED ]
    UNLOCKED
    LOCKED
INTRAY3=UNLOCKED [ 2 ENUMERATED ]
    UNLOCKED
    LOCKED
CLEARABLEWARNINGS=ON [ 2 ENUMERATED READONLY ]
    JOB
    ON
AUTOCONT=OFF [ 2 ENUMERATED READONLY ]
    OFF
    ON
```

```
DENSITY=3 [ 2 RANGE READONLY]
    1
    5
LOWTONER=ON [ 2 ENUMERATED READONLY]
    OFF
    ON
INTRAY1SIZE=LETTER [ 9 ENUMERATED READONLY]
    LETTER
    LEGAL
    A4
    EXECUTIVE
    COM10
    MONARCH
    C5
    DL
    B5
INTRAY2SIZE=LETTER [ 4 ENUMERATED READONLY]
    LETTER
    LEGAL
    A4
    EXECUTIVE
INTRAY3SIZE=LETTER [ 4 ENUMERATED READONLY]
    LETTER
    LEGAL
    A4
    EXECUTIVE
INTRAY4SIZE=COM10 [ 5 ENUMERATED READONLY]
    COM10
    MONARCH
    C5
    DL
    B5
LPARM:PCL FONTSOURCE=I [ 1 ENUMERATED]
    I
LPARM:PCL FONTNUMBER=0 [ 2 RANGE]
    0
    50
LPARM:PCL PITCH=10.00 [ 2 RANGE]
    0.44
    99.99
```

```

LPARM:PCL PTFIT=12.00 [ 2 RANGE ]
    4.00
    999.75
LPARM:PCL SYMSET=ROMAN8 [ 31 ENUMERATED ]
    ROMAN8
    ISOL1
    ISOL2
    . . .
    . . .
    WIN30
LPARM:POSTSCRIPT PRTPSERRS=OFF [ 2 ENUMERATED ]
    OFF
    ON
<FF>

```

USTATUS Category

The INFO USTATUS command lists each type of unsolicited status supported by the printer, such as DEVICE, JOB, PAGE, and TIMED (see the “USTATUS Command” discussion on the next page for information about unsolicited status). The listing also contains the current setting 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 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 HP LaserJet 4 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 08-22-92 <CR><LF>
@PJL INFO USTATUS <CR><LF>
<ESC>%-12345X

```

A sample HP LaserJet 4 printer response for this example is shown below. Responses for other PJI printers may vary.

```
@PJI ECHO 08:10:09.1 08-22-92<CR><LF>
<FF>
@PJI 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

USTATUS Command

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, the job completely prints, or the job is canceled)
- Page status changes (when each printed page reaches the output tray)
- 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 are sent only when the printer status changes.

Syntax:

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

Status Message 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	Enables unsolicited device status for all status changes plus notification of all PJI 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, ends, or is canceled
	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
	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.

Some printer models may have more (or fewer) types of unsolicited status than DEVICE, JOB, PAGE, and TIMED. You can have the printer list the various types of unsolicited status by issuing the INFO USTATUS command. See “Example: Using the INFO USTATUS Command” for an example of this.

Unsolicited status, except for TIMED, can be turned off individually using the OFF parameter, such as in the 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.

DEVICE Variable

The 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 PDL 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 2 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 located in Appendix D.)

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

Note

For those printers supporting Japanese printing, when the language is set to Japanese, strings which correspond to a control panel message are displayed on the control panel using the JIS X0201-76 character set.

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.”
11 (11-000 to 11-999)	These messages indicate background paper mount messages, which means one of the available paper input sources is empty, but another paper source is available and loaded with the correct paper size. The printer remains online during background paper mount conditions.
12 (12-000 to 12-999)	Messages indicating background paper tray status, such as “tray open” or “tray lifting”. The printer remains online during background paper tray status conditions.
15 (15-000 to 15-999)	These messages indicate output bin status, such as “output bin full.” The printer goes offline when the output bin is full.
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 lock a paper tray when all other paper trays are already locked.
30 (30-000 to 30-999)	Most conditions in this category are auto-continuable, indicating that if no operator action is taken, the printer automatically continues if the auto-continue feature is set to true; if auto-continue is set to false, the printer waits until an operator presses either the Continue or On Line key. Examples of these errors include non-fatal I/O errors or when a page is ejected because it is too complex to format without the page protection feature enabled.
32 (32-000 to 32-999)	These conditions indicate PjL file system errors and their corresponding error codes and control panel display strings.

Status Category	Description
35 (35-000 to 35-999)	Messages indicating that operator intervention <i>may</i> be required. The printer stays online and continues printing, with the potential for reduced capability. Data may be lost.
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.
41 (41-000 to 41-999)	This category of messages indicates a foreground paper mount. These conditions occur when paper is out and there is no alternate paper source available that is loaded with the correct paper size. The printer is offline under these conditions.
42 and 44 (42-000 to 44-999)	These status codes indicate paper jam errors and their associated error codes and control panel display strings.
43 (43-000 to 43-999)	Messages indicating PJL error codes and corresponding control panel display strings for optional (external) paper handling devices.
50 (50-000 to 50-999)	Hardware errors. Examples include memory errors and fatal print engine errors.

Using Unsolicited Device Status

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

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

A sample HP LaserJet 4 printer response for unsolicited device status is shown here. For other printers, responses may vary.

```
@PJL USTATUS DEVICE<CR><LF>
CODE=40021<CR><LF>
DISPLAY=" 12 PRINTER OPEN"<CR><LF>
ONLINE=FALSE<CR><LF>
<FF>
```

JOB Variable

The USTATUS JOB = ON command is used to notify the application every time a JOB command is encountered, when the final page of a job is in the output tray and an EOJ command has been received, and when a job has been canceled (only for those printers that support job cancellation such as the HP LaserJet 4000 series and 5000 series printers). This is useful for spooling applications requiring feedback indicating that a particular job has started or completely printed.

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.) When in the duplex mode, each side of a duplex page counts as one page.

Note

Some HP LaserJet printers support job cancellation. For information about unsolicited job status during job cancellation, see the “Job Cancellation” section in Chapter 5.

Example: 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 14993" <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 14993" <CR><LF>
<ESC>%-12345X
```

A sample unsolicited HP LaserJet 4 printer response for this example is as shown here. For other printers, the response may be different.

```
@PJL USTATUS JOB<CR><LF>
START<CR><LF>
NAME="JOB 14993" <CR><LF>    (from the JOB command)
<FF>

[ . . time period while job is printing . . .]

@PJL USTATUS JOB<CR><LF>
END<CR><LF>
NAME="JOB 14993" <CR><LF>    (from the EOJ command)
PAGES=3<CR><LF>
<FF>
```

The printer sends the unsolicited status associated with the JOB command when the JOB command is parsed. The printer sends the unsolicited status associated with the EOJ command when all of the pages received before the EOJ command have been printed. To maximize performance, HP printers start processing the next job before the last page of the current job has been printed. Therefore, the printer may return unsolicited JOB and EOJ status messages in an order different than sent by the application or spooler. For example, when printing two consecutive jobs, the unsolicited EOJ status message associated with the first job may not arrive at the host until after the JOB status message of the second job.

PAGE Variable

The 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. The page count includes all pages printed and all pages processed in non-printing mode since the last JOB or EOJ command. (This is 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 sample HP LaserJet 4 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 sample HP LaserJet 4 printer response for unsolicited page status is shown here. Other PJI printer responses may vary.

```
@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>
```

TIMED Variable

The TIMED variable allows “automatic polling” of the printer without host intervention and without exiting the current printer language (back to PjL). 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 INFO STATUS command.

Note

The accuracy of the timer may vary +/- 10% due to delays in data transmission and other system variables. To allow for this use a timing window in your application.

The “CODE=” portion indicates a status code number. See Appendix D 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 localized; the same message displayed on the control panel appears in whichever language is being used.

For those printers supporting Japanese printing when the language is set to Japanese strings which correspond to a control panel message are displayed on the control panel using the JIS X0201-76 character set.

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 sample HP LaserJet 4 printer response is shown below. Other PJI printers may respond differently.

```
@PJI USTATUS TIMED<CR><LF>
CODE=10001<CR><LF>
DISPLAY="00 READY" <CR><LF>
ONLINE=TRUE<CR><LF>
<FF>
```

Related Commands:

INFO, ECHO, INQUIRE, DINQUIRE, SET, USTATUSOFF

USTATUSOFF Command

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: Using the USTATUSOFF Command

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

Job Recovery

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

- The JOB and EOJ commands are used to reset the page count and inform the printer of the boundaries for the job—its beginning and end.
- The USTATUS PAGE command is used to determine 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 or another problem 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, 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 Shot" <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 Shot" <CR><LF>
<ESC>%-12345X
```

After Job Failure

Once the spooler senses that the job failed (in this case, 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@PJL <CR><LF>
@PJL COMMENT Recovering Crashed Job <CR><LF>
@PJL USTATUS JOB = ON <CR><LF>
@PJL USTATUS PAGE = ON <CR><LF>
@PJL JOB NAME = "2nd Try" START = 26 <CR><LF>
@PJL ENTER LANGUAGE = PCL <CR><LF>
<ESC>E ...Same 100-page PCL job ...<ESC>E
↵<ESC>%-12345X@PJL <CR><LF>
@PJL 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. For an HP LaserJet 4 printer, the response appears as shown below. Other PJJ printers may respond differently.

```
@PJL 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:

```
@PJL USTATUS PAGE<CR><LF>
100<CR><LF>
<FF>
@PJL 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.