ZPR Users Manual

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I. Introduction

The program *zpr* has been developed to provide quick PostScript printing capability for text files on IBM personal computers (and true compatibles) using the PC–DOS or MS–DOS operating system. The formatted output of the program may be sent to PostScript printers (or other printers equipped with PostScript interpretation cartridges) that are connected to these computers. Normally, commercial software programs and applications provide good direct support for PostScript and PostScript–compatible printers, but it is usually quite painful to simply print ascii text files from the DOS command line onto such a device.

Thus, very simply, *zpr* is a DOS command line driven PostScript formatter for ascii text files that can also be used as a DOS filter.

This program is *not* a print spooler or queue manager, although the output from *zpr* may be used with such programs. Specific examples of this use are beyond the scope of this document—your spooler software documentation should provide necessary information on how to print text files.

The program writes as efficient PostScript code as possible, with minimal use of advanced features. All calculations are done within *zpr* rather than in the PostScript that will be interpreted on the output devices. Since PostScript interpretation can be quite slow, this was a deliberate program design trade-off to maximise thoughput. For example, printing from the output from *zpr* will generally run near the maximum print speeds of most devices.

II. Included Files

A single compressed file, *zprXXX.zip*, in ZIP format[1], is provided as the distribution for this program. The three letters "XXX" will typically represent the version number of the program. For example, the file *zpr020.zip* contains version Z2.0 of the program. Thus, it is easy to determine the exact version number of the program without having to download and extract.

This compressed ZIP file contains the following two files:

zpr.exe The main executable binary for the *zpr* program. This program will run on any Intel 8088 (or later processor) based IBM PC compatible computer. A floating point processor is *not* required.

zpr.ps The PostScript file used to generate this document, the *ZPR Users Manual*, on any PostScript or PostScript–compatible printer.

[1]The ZIP file format is in the public domain.

III. Installation

First, extract the ZIP file using the *pkunzip*[2] utility which is available on Compuserve and other BBS's:

```
pkunzip  zpr020.zip
```

where it is assumed that the compressed file is named *zpr020.zip*. As mentioned earlier, this file name encodes the program version number and will change with future revisions.

Next, copy or move the executable file *zpr.exe* into a directory that is accessible from within your DOS PATH. This is typically the directory that contains your other DOS executable files, but may be any directory in your DOS search path. For example, if your DOS directory is named *dos* and is at the root of your hard disk drive C, you can type the following command:

```
copy  zpr.exe  c:\dos\zpr.exe
```

The program name *zpr* may be changed to another name if desired. For example, you may copy the executable file to another name *pstext*:

```
copy  zpr.exe  c:\dos\pstext.exe
```

This will have no effect on the operation of the program, except, of course, the new command *pstext* must be used to access it, and all references to the program name *zpr* in this document must be appropriately interpreted. There is no limit—other than DOS file name limitations and conventions—to the specific name that you choose for this program, but using characters other than the basic alphanumeric ascii characters may be confusing. Of course, the file extension *must* be left as *.exe*, to allow DOS to properly execute the program.

Optionally, print and read this *ZPR Users Manual*, by copying the file *zpr.ps* to any PostScript printer connected to your system. In this example, it is assumed to be attached to the parallel port LPT2:

```
copy  zpr.ps  lpt2:
```

That's it! The program is now ready to run.

IV. Basic Program Use

The program *zpr* uses standard output channels for PostScript output. This output may be redirected to a file, or to a printer port for actual imaging. If the output is not redirected, it will be displayed on the screen of the personal computer. All error and informational messages will always be sent to the screen, regardless of the redirection of the PostScript output, unless the standard error output channels are *also* redirected.

---

[2] *pkzip* and *pkunzip* are copyrighted programs of PKWARE Inc., 7545 N. Port Washington Road, Glendale, WI 53217.

In addition, *zpr* will also accept ascii text using standard input channels, as long as files are *not* specified on the command line. This allows it to operate as a DOS filter, and other programs (that use standard input and output channels) will be able to use *zpr* as a means of outputting ascii data onto PostScript printers.

For further information on the concept and use of DOS filters, users should refer to the relevant DOS manuals or a good book on the DOS operating system environment, as coverage of this topic is beyond the scope of this document. In other words, the concepts of "pipes" and "i/o redirection" is assumed to be known to the reader, and more information on these may be found in appropriate DOS manuals or books. A few simple examples will, however, be provided to allow readers to grasp the fundamentals of using *zpr* as a DOS filter to process ascii data.

A. Example 1. Single File Formatting

As the first simple example, typing:

```
zpr  filename.txt  >  lpt2:
```

at the DOS prompt, will cause *zpr* to read the file *filename.txt* and generate the PostScript output, which will then be sent to the PostScript printer assumed to be connected to the port LPT2. Note that the colon at the end of the device port name allows DOS to recognize that "LPT2" is a device and not a file.

B. Example 2. Multiple Files On Command Line

More than one file may be formatted by including them in the command line one after the other—certain wildcards are also allowed. For example, typing:

```
zpr  *.c  >  lpt2:
```

will format all the C source code files in the current default directory and print the PostScript output on the PostScript printer assumed to be connected to LPT2. Another similar example will illustrate the use of multiple file specifiers on the same command line:

```
zpr  *.c  *.h  >  temp.ps
```

where the PostScript formatted output is stored into the file *temp.ps* for subsequent output to the PostScript printer, using either the DOS *copy* command or some other command for a print spooler[3]. For example, the following may be used to output the file onto the printer:

```
copy  temp.ps  lpt2:
```

Note that, in all cases, the input files are *not* modified in any way.

---

[3]A binary DOS copy (the /b option) is not required for *zpr* output, since *zpr* only generates ascii PostScript. Although not as size efficient as encoded binary PostScript, this allows users to edit the output with ascii text editors—or other DOS filters—to add additional information. The small loss of transmission speed using ascii is insignificant when compared to the PostScript interpreter speeds of most PostScript printers.

C. Example 3. Use As A Filter

The *zpr* program may also be used as a DOS filter. If no file names are provided as input to the program, it is assumed that the data to be formatted into PostScript will be supplied using standard input channels. If this data is not re-directed into the program, *zpr* will wait for input from the console—this is a convenient (albeit clumsy since it does not allow real editing of previous lines) method of typing ascii data to a PostScript printer.

For example, typing the following at the console:

```
zpr  >  lpt2:
```

will cause the program to accept input directly from the keyboard, until a control-Z character is typed (or the F6 function key is pressed), signifying the end of input. All the typed data will be output on the PostScript printer that is assumed to be connected to LPT2.

In addition, using the program as a filter allows other programs (that use standard channels) to output data on the PostScript device. For example, the output from the DOS DIR command may be printed as follows:

```
dir  |  zpr  >  lpt2:
```

This pipes the output of the DIR command to the input of *zpr*. The output from *zpr* is then sent on to the PostScript device on LPT2 for imaging.

V. Options

The *zpr* program allows optional parameters for further control of certain features. These options, along with any option values, are inserted *after* the *zpr* command and *before* any filenames. If no filenames are used, i.e. the input to *zpr* comes from the standard input channel, the options may simply be placed after the *zpr* command.

The options are specified as single characters preceded by a single hyphen (the character '—'). The hyphen[4] is used rather than the DOS standard (a forward slash '/') to prevent confusion with directory path separators—particularly with users who are more familiar with unix operating systems.

It is important to note that the case of the characters used to specify the option is significant—in other words, the lowercase option *l* is different from the uppercase option *L*.

This section will describe the options and what effect they have on the PostScript output.

---

[4]Currently, the forward slash character will also be accepted by *zpr*, although this document will *not* demonstrate its use. In particular, this capability may be removed, without warning, from future revisions of the program, so users are urged to *only* use the hyphen as an option specifier.

A. Help: —?

The *—?* option is used to display a list of valid options and parameters. No option value is needed. All further processing is stopped after this option is encountered, and *zpr* will exit after the information is displayed. All other options and parameters will be ignored.

Example:

```
zpr  -?
```

This will display information about the options and parameters of *zpr* onto the screen.

B. Number of copies: —c

The *—c* option is used to specify the number of copies of each page to be produced—the default is 1. If this option is specified, the number of copies desired must also be specified. This number must be greater than 0, and less than 32,000[5].

Example:

```
zpr  -c  5  filename.txt  >  lpt2:
```

It should be noted that the copies will not be collated[6]—each page will be outputted *c* times before continuing to the next page.

C. Font Name: —f

The *—f* option is used to specify the PostScript font to be used for the printed output—the default is "Courier". If this option is specified, the font name to be used must also be specified.

Example:

```
zpr  -f  Helvetica  filename.txt  >  lpt2:
```

The font name used must be a valid PostScript font. The case of the letters is also important. The program will check and validate the name of the font. If the name is not recognized, a warning message will be generated, and operation will continue regardless.

The basic 35 fonts provided with most PostScript printers are known to the *zpr* program. Since there are other PostScript fonts available on the market, *zpr* allows other font names to be specified in a data file for correct checking[7]. This feature is activated by creating a text file containing other valid font names, one per line, with *no* blanks or tabs (also known as white–

---

[5]Of course, producing even one-tenth as many copies as this on a PostScript printer is likely to take a considerable amount of time! This number was simply chosen to be a large limit that is unlikely to be exceeded.

[6]A future enhancement to *zpr* is expected to provide collated copies.

[7]This is optional since program operation is not stopped for invalid font names.

space) anywhere in the file. The font names *must* have the correct case. This file may be created with any text editor. Other word processing programs may be used as long as the output is saved in text form—there must not be any word processor specific control characters in the file.

The actual path to this file must be specified as an environment variable to DOS, typically in the *autoexec.bat* startup file. For example, the following line can be added to *autoexec.bat*:

```
set  FONTFILE=c:\dos\fonts.lst
```

assuming that the file path shown in the example is the one containing the font names to be validated. Note that the environment variable *must* be "FONTFILE", and cannot be changed even if the program name *zpr* is changed during program installation as described earlier. Furthermore, there should not be any space or tab characters before or after the equal sign—this is a DOS requirement and must be followed to generate the correct value for the environment variable. To save environment space, this DOS command may also be added to any batch file that is executed—only once—prior to any session using *zpr*.

If you are unable to add more environment variables due to the environment space being full, additional space may be created (when using DOS versions 3.2 and higher) using the */E:xxx* option to the *shell* command in the *config.sys* startup file. For further information, refer to your IBM PC–DOS or Microsoft MS–DOS operating system manuals.

It should be noted that the program assumes that any soft font (not built into the printer hardware or cartridge) will already have been downloaded into the printer memory, using appropriate font download programs—such as those provided by Adobe Corporation. Most PostScript devices will substitute some other closely related font if the font specified is not available, but users should not rely on this feature.

Since *zpr* uses the Adobe Document Structuring Conventions[8] (DSC) Version 3.0, if the output from *zpr* is printed using special printing managers that understand and use Adobe DSC information, the burden of font management and page handling will be greatly eased. Although the author does not know of any DOS print managers that interpret DSC, the output from *zpr* was made to conform to these DSC standards, so that this output may be sent over networks to computers and print handlers that do use this information.

D. Display Known Fonts: —F

The —*F* option is used to request a list of "known" fonts. This is provided as a convenience to allow users to determine which font to use for the printed output. The program first lists the 35 fonts that are available on most PostScript printers, and then lists any fonts found in a file containing font names (refer to the section on the font name option for further information on font name data files).

---

[8]For further information on the Adobe Document Structuring Conventions Version 3.0, refer to Appendix G, Page 611, *PostScript Language Reference Manual Second Edition,* Adobe Systems Incorporated, published by Addison-Wesley Publishing Company, Inc. ISBN 0-201-18127-4.

Example:

```
zpr  -F
```

Note that this option is different from the *—f* option (lowercase character) used to specify the font name.

After displaying the list of fonts, *zpr* will exit to DOS without proceeding further, under the assumption that the user is using this option in a desire to determine what fonts are available before performing an actual run of the program to generate the PostScript output. It should be noted that this current behavior (of exiting the program after displaying the fonts list) may change in future revisions to the program based on user feedback.

E. Header Page: —h

The *—h* is used to specify that a burst header page be output before each file is printed. The header page allows the users to separate each file with a uniquely formatted page. This header page contains the file name, the system time at which the *zpr* program was run, and some dark lines along the left and right edges of the page to allow the page to be found easily when sorting through the output from multiple files.

Example:

```
zpr  -h  file1.txt  file2.txt  >  lpt2:
```

F. Line Numbering: —l

The *—l* option is used to request line numbering along the left edge of the text—the default is no line numbering. If this option is specified, then the line number increment to be used must also be specified. This option is most useful when printing source code for programs.

It should be noted that lines containing a single formfeed character (ascii 12) will not be counted towards the line numbering scheme, as a formfeed is used to start a new output page. If the formfeed occurs at the beginning or end of a line containing other characters, then the rest of the characters of the line will outputted and counted as a single line. If the formfeed occurs in the middle of the line, the characters before the formfeed will be outputted and counted as a single line, and the characters after the formfeed will be outputted on the next page and counted as a separate line.

Example:

```
zpr  -l  10  filename.txt  >  lpt2:
```

The line number increment must be between 1 and 100, inclusive. Values outside this range will be ignored, and will result in line numbering every 5 lines—no warning messages will be output.

G. Landscape Format: —L

The *—L* option is used to request that the output be printed in Landscape format rather than Portrait which is the default. Note that the option letter is an uppercase letter *L*, and is different from the lowercase letter *l* used to specify the line numbering option.

Example:

```
zpr  -L  filename.txt  >  lpt2:
```

H. Left Margin Size: —m

The *—m* option allows the size of the left margin to be specified—the default is 1 inch if the option is not used. If this option is used, then the actual value of the left margin must also be specified. The location of any requested line numbering is assumed to lie 0.5 inches to the left of the edge of the text—*within* this specified margin region. If the specified margin is too small, the line numbering may get clipped and not show on the page.

Example:

```
zpr  -m  2.0  filename.txt  >  lpt2:
```

is used to specify a 2 inch margin. If line numbering is also requested, these line numbers will lie approximately at 1.5 inches from the left edge of the paper. Note that the value of the margin should be specified as a floating point number to allow fine position control.

A left margin that is specified to lie off the paper will result in *zpr* exiting with an error message. In addition, the left margin cannot lie to the "right" of the right margin.

The minimum value of the left margin that is allowed is 0.0 inches. However, this may not image correct on the PostScript output device, as most printers require some paper handling room where no toner can be used; typically, this is a 0.25 inch region around the edge of the paper, but this will depend on the device vendor.

I. Page Numbering: —p

The *—p* option is used to request that page numbers be printed on each page of output—the default is no page numbers are printed. This page number is printed in the center of the bottom edge of the page.

Example:

```
zpr  -p  filename.txt  >  lpt2:
```

J. Right Margin Size: —r

The *—r* option allows the size of the right margin to be specified—the default is 7.5 inches in portrait format and 10.0 inches in landscape format if the option is not used. If this option is

specified, then the actual value of the right margin must also be specified. Note that the right margin size is measured from the *left* edge of the paper.

Example:

```
zpr  -r  6.5  filename.txt  >  lpt2:
```

is used to specify a right margin that is 6 inches from the left edge of the paper (2.5 inch margin from the right edge). Note that the value of the margin should be specified as a floating point number to allow fine position control.

A right margin that is specified to lie off the paper will result in *zpr* exiting with an error message. In addition, the right margin cannot lie to the "left" of the left margin.

The maximum allowed value of the right margin depends on the page format selected—in portrait format, 8.5 is accepted, and in landscape format, 11.0 is accepted. However, these values may not image on the PostScript device correctly as most printers require some paper handling room where no toner can be used; typically this is a 0.25 inch region around the edge of the paper, but the actual value will depend on the device vendor.

K. Size Of Font: —s

The —*s* option is used to specify the font size, in points per inch, to be used for output—the default is 8 points. If this option is specified, then the font size to be used must also be specified. The font size must be specified as an integer.

Example:

```
zpr  -s  12  filename.txt  >  lpt2:
```

The requested font size must lie between 4 and 999 points[9] per inch, inclusive. Values outside this range will be adjusted up or down to lie within this range, and no warning message will be output.

L. Version Number: —v

The —*v* option is used to request the version number and release date of the *zpr* program. This version number and release date is needed when contacting the author about bugs or suggested enhancements to the program.

Example:

```
zpr  -v  filename.txt  >  lpt2:
```

---

[9]Obviously, no guarantees can be made as to whether the font can be displayed or imaged on a given device for sizes that are beyond the norms for that device. It is upto the user to determine what font sizes are legal for the PostScript device, and specify values accordingly.

This will display a single line of relevant information before proceeding. It should be noted that this information is sent to a different channel than the PostScript output. In the above example, the version number and date will be displayed on the screen, while the PostScript data will be sent to the printer on LPT2. In addition, the program version number is also inserted as a commented field within the output of the program, as allowed by the Adobe Document Structuring Conventions.

M. Specifying Multiple Options

Naturally, more than one option may be specified. The options may be specified in any order—with an exception described later—as long as any required option values are placed immediately following the option itself. For example, the following command may be used to specify line numbering, page numbering, font size, and landscape format output:

```
zpr -l 20 -L -s 12 -p filename.txt > lpt2:
```

Since the order of the options is not important, the above command could also be entered—with the same end result—as follows:

```
zpr -s 12 -l 20 -p -L filename.txt > lpt2:
```

There is one major exception to this rule. The help option *—?* stops further operation when it is encountered. Thus, the following command will not display the version number:

```
zpr -v -? filename.txt > lpt2:
```

since program operation will end after outputting the help message. As mentioned earlier, the help option supersedes all other options, as it is handled directly by a newly developed command line argument system.

N. Combining Multiple Options

Multiple options may be combined in certain ways. The key characters can be specified after a single option delimiter. Any option values required by these key characters must be specified in the same order as the key characters. For example:

```
zpr -vpsl 20 10 filename.txt > lpt2:
```

will work correctly, and is equivalent to:

```
zpr -v -p -s 20 -l 10 filename.txt > lpt2:
```

Since neither the *—v* nor the *—p* options require values, their position within the string are not significant. In other words, the following commands provide completely identical output:

```
zpr -vpsl 20 10 filename.txt > lpt2:
zpr -vspl 20 10 filename.txt > lpt2:
zpr -svpl 20 10 filename.txt > lpt2:
zpr -slvp 20 10 filename.txt > lpt2:
```

Furthermore, since the order of the options is also not important (with the exception of —*?*), the following commands are also identical:

```
zpr  -vpsl  20  10  filename.txt  >  lpt2:
zpr  -vpls  10  20  filename.txt  >  lpt2:
```

In the second command, the order of the option values has to be reversed to match the reversed order of the key characters of the options.

If this discussion seems confusing, simply ignore this document subsection. Use each option separately and specify the option values after each option, as shown in earlier examples.

VI. Policies

A. Copyright And Disclaimer

The program is copyrighted, and all rights are reserved. It is expressly *not* in the public domain.

The program and documentation is provided "as–is". The person using this program bears all risk as to the quality and performance of the program or documentation. The author makes no warranty, whether express or implied, concerning the function or fitness of this program or documentation for any application or purpose, and shall have no liability or responsibility to any recipient with respect to any liability, loss, or damage directly or indirectly arising out of the use of this program, including, but not limited to, any loss of business or other special, incidental or consequential damages or claim by any other party.

B. Licensing

The program is user supported software (SHAREWARE) for IBM compatible personal computers, and is made available for a free ten day trial period. After this period, the program must be licensed for further non–commercial use by any individual, by sending US$10.00 to the author at:

Syed Zaeem Hosain
P. O. Box 610097
San Jose, CA 95161–0097.

After this one–time licensing requirement is fulfilled, licensed users may freely use this and all future revisions of the program without any additional fees. Please note that the author does not provide updates directly—the latest revision of the program will be typically made available on Compuserve, and possibly uploaded to other BBS's per the guidelines outlined later.

In the case of the non–commercial license, the program is licensed to a single individual. The program may be copied to all machines used by the individual, without any additional licensing fees, as long as it can be totally guaranteed that only one copy per license is in use at a time by the licensed individual and/or his agents.

The program may be also licensed for commercial use at a single site on the following license fee scale:

Number of copies/machines	Price per copy
2 – 10	US$7.00
11 – 40	US$5.50
41 – 100	US$4.00
101 – 1000	US$3.00
1001+	US$1.00

A commercial site is defined as a single business or individual activity at any location, that generates revenue as a direct or indirect result of the use of this program.

Students at schools and universities may freely use the program without any licensing fees. Employees of the educational institution must license the program if it is used as part of their normal work activities, using the commercial license rates.

The program may be distributed as part of another commercially sold application software, upon obtaining a license from the author, and the payment of US$1.00 royalty for each copy shipped.

C. Registration

To register licenses, please send the following information along with your payment:

Individual Licenses:

Name	Of the individual who is licensing the program
Address	Of individual who is licensing the program
Version	Of the program being licensed
Number	Of licenses being registered (if not 1 license)
Source	Of program receipt (Compuserve forum name, BBS name, etc.)

Commercial Licenses:

Name	Of company or organization licensing the program
Name	Of contact person at company or organization
Title	Of contact person (optional)
Address	Of company or organization site
Version	Of the program being licensed
Number	Of licenses being registered
Source	Of program receipt (Compuserve forum name, BBS name, etc.)

The program version number may be determined by using the —*v* option. Other additional information, such as any e–mail addresses (particularly of Compuserve accounts), how you use the program, what you find useful, etc., would also be useful for future enhancements and distribution of the program.

D. Distribution

The program may be copied and distributed, whether on magnetic media or electronic, including uploading to any BBS or any other distribution system, as long as this document and all copyright information, is included in the distribution, and all recipients agree to abide by the policies stated in this document. The licensing policy will continue to apply to all users of this program, regardless of the source from where this program is obtained, except when the program is obtained as part of a purchase of another commercial application.

It is requested that the original compressed file—from which this document was extracted—be the specific file that is distributed. This will ensure that the above distribution policy is met on an on–going basis. In particular, the filename of the compressed file should be maintained and uploaded unchanged. Thus the version number of the program encoded into the filename will be properly distributed.

E. Enhancements And Bugs

Users are encouraged to send enhancement requests and bug reports to the author at the address listed elsewhere in this document, or via electronic mail to Compuserve account: 70152,2042. All enhancement requests, suggestions, and bug reports become the property of the author—no royalty, license or fees of any kind will be paid for these submissions, whether they are incorporated into the program or not. The author can neither commit to, nor guarantee, any completion schedule for bug fixes or program enhancements, and also reserves the right to change the program and documentation without notification. The author reserves the right to choose which enhancements and modifications are made and which are not.