

BuildPRD: Build Microsoft Word PRinter Driver

version 5.8

BuildPRD generates a Microsoft Word 5.x PRinter Driver (.PRD) based on the HP LaserJet soft fonts you have on your system. The (HP-format) soft fonts can be from Hewlett-Packard, Bitstream, public domain, etc. and can be in various directories on your disk(s).

This program is shareware by Gary Pardun Consulting. Try it, share it, upload it, download it. If you find it useful to you, register your copy by sending a check for \$25 to:

Gary Pardun Consulting
2389 Sagamore Hills Drive
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Use the registration form included with this software, called REGISTER.DOC. Be sure to include your name, address, phone number, and the name and version of the software.

Benefits of registration: free software upgrades (by downloading) or for the price of a floppy and postage, and notice of additional software availability.

If you have any difficulty with the program, or suggestions for improvement, mail your comments to the above address or call (404)634-6800.

Running BuildPRD

(For a list of changes in this release of BuildPRD, see the last section of this document.)

To run the BuildPRD program enter:

```
BUILDPRD
```

Microsoft Word 5.x really needs 2 files: the .PRD file and the .DAT file. The .PRD file has the list of soft fonts and all of the character width and character translation tables. The .DAT file contains the actual file titles of the various soft font files.

The BuildPRD program creates a .DOC file, which is the readable text equivalent of the .PRD file, and the .DAT file. The BuildPRD program will try to run the MAKEPRD utility that Microsoft supplies with MS Word to convert the .DOC file to the equivalent .PRD file.

The program will search for MAKEPRD in the following places:

1. current directory
2. current path
3. \WORD55
4. \WORD50
5. \WORD5
6. \WORD
7. \MSWORD

If the BuildPRD program cannot find the MAKEPRD program it will display a message telling you to run it yourself.

The first question the BuildPRD program will ask is the name of the printer driver file you want to create. The default name is HPLASER in the current directory. You can enter any valid DOS filename, including a path prefix, e.g. \WORD50\HPDRIVER. You do not need to put an extension, such as .PRD, on the filename.

```

Build MS Word Printer Driver (v 5.8)

Build a Microsoft Word 5.x PRinter Driver for all your HP LaserJet soft fonts.

PRD file name (no extension):  HPLaser

Enter the name of the printer driver file that you want to create.

You can specify a name like HPPORT
                          or C:\WORD50\LASER

This will be the name you tell MS Word in Printer Options.

(If you want to quit this program now, press {Esc}.)
    
```

After entering the name of the printer driver, BuildPRD asks whether you want to generate a Portrait ("tall") or Landscape ("wide") printer driver. Press P or L. BuildPRD will ensure that any soft font files it finds have the corresponding orientation.

```

Build MS Word Printer Driver (v 5.8)

Build a Microsoft Word 5.x PRinter Driver for all your HP LaserJet soft fonts.

D:\GPC\SOFTWARE\HPLASER

Orientation
Portrait
Landscape

Choose which "orientation" you want your printer driver to handle.

Portrait      Landscape
    
```

BuildPRD then asks if .DAT file should contain full pathnames. The default is Y(es), which means that each font file title in the .DAT file will contain a complete directory prefix such as C:\FONTS\HV180RPN.USP. If you answer N(o), the file titles will contain only the filename, such as HV180RPN.USP, which means that the font files have to be in the same directory as the printer driver or in a directory in your PATH directory list. By storing only the simple file names you can use the printer driver on another system as long as the fonts are in a directory contained in the PATH.

```

Build MS Word Printer Driver (v 5.8)

Build a Microsoft Word 5.x PRINTER Driver for all your HP LaserJet soft fonts.

D:\GPC\SOFTWARE\HPLASER

Full path names in .DAT file? Y

Softfont file names in the .DAT file look like:

----- Yes -----          ---- No ----
C:\FONTS\HV240RPN.USB       HV240RPN.USB
C:\FONTS\HV120RPN.USB      HV120RPN.USB
C:\FONTS\TR180RPN.USB      TR180RPN.USB
...                          ...
(Answering N(o) allows you to use the printer driver on a totally different
machine as long as the fonts are in the same directory as the PRD.)

--> If you are not sure, press {Enter} to answer Y(es).
    
```

The next question it asks is where to find the soft font files. The default is highlighted. If the default is correct, just hit Enter. Otherwise type in the correct pathname and hit Enter. You can use the backspace key when the window first pops up to start erasing from the end of the default name rather than retyping the whole name.

```

Build MS Word Printer Driver (v 5.8)

Build a Microsoft Word 5.x PRINTER Driver for all your HP LaserJet soft fonts.

D:\GPC\SOFTWARE\HPLASER

Font file path (Esc if done): \FONTS\*.??P

Enter a pathname telling BuildPRD where to look for softfont files.
This is usually something like: \FONTS\*.USB
                                or C:\WORD50\*.??P

If the displayed pathname is ok as is, just press {Enter}.

By pressing the {Backspace} key first, you can edit the name that is
shown as the default.

--> Press the {Esc} key when there are no other softfont files.
    
```

Be sure to use wildcards (* and ?) for the soft font file pathname. The BuildPRD program will process all of the files it finds using that pathname AND THEN WILL ASK YOU FOR ANOTHER FILE PATHNAME. This allows you to have your soft font files in various directories. Unlike the .DAT files that Microsoft provides, the .DAT files that BuildPRD generates specify the complete path for each soft font file (unless you specify otherwise as described above). So you don't have to put all of your soft fonts in the same directory as the printer driver.

For each soft font file BuildPRD finds, it will display the file name, typeface, size, and stroke (regular, bold, italic). It

will display an error message if the file is not a valid soft font file or has the wrong orientation (portrait vs. landscape).

You will also get an error message if it encounters a duplicate, i.e. same typeface, size, and stroke. Sometimes there actually is a difference between "duplicate" soft fonts, such as in the weight or special effects, but MS Word can't distinguish between them so duplicates are discarded. You may need to move some of the duplicates to other directories in order to have BuildPRD pick up the ones you want.

```

Build MS Word Printer Driver (v 5.8)

Build a Microsoft Word 5.x PRinter Driver for all your HP LaserJet soft fonts.

D:\GPC\SOFTWARE\HPLASER

Font file path (Esc if done): D:\FONTS\*.??P

BuildPRD has finished reading all the softfont files for:
D:\FONTS\*.??P (36 good font files found)

If you want BuildPRD to read other softfont files, enter another path.

--> Otherwise press {Esc} to tell BuildPrd you are finished.
    
```

BuildPRD builds the width tables for the PRinter Driver by reading the character descriptors in each soft font file.

When you have told BuildPRD where all of your soft fonts are, just hit Esc. It will then write out the printer driver .DOC and .DAT files. Then, as described above, it will run the MAKEPRD program to convert the .DOC file to a .PRD file.

```

Build MS Word Printer Driver (v 5.8)

Build a Microsoft Word 5.x PRinter Driver for all your HP LaserJet soft fonts.

D:\GPC\SOFTWARE\HPLASER

Palatino          18
Garamond          12 18 24 30
SWFTE_ORNA        18
Script            18
SWFTE_PRESTIGE    18
SWFTE_ROMAN       10 18 40
Symbol            18
Symbol_A_Prop     8 10 12 14
Greek             10
Chancelor         12 18 24
    
```

```

Build MS Word Printer Driver (v 5.8)

Build a Microsoft Word 5.x Printer Driver for all your HP LaserJet soft fonts.

Converting D:\GPC\SOFTWARE\HPLASER.DOC to D:\GPC\SOFTWARE\HPLASER.PRD ...

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use or for distribution to others for evaluation. If you use this
program you are expected to pay the $25 registration fee to:

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2389 Sagamore Hills Drive
Decatur, GA 30033-1216

```

After the BuildPRD program finishes, I suggest you look at the BuildPRD.log file to review any error messages and see a summary of what the program did. The summary shows you exactly what typefaces, sizes, and symbolsets you can use in WORD.

```

Build MS Word Printer Driver (v 5.8)

Build a Microsoft Word 5.x Printer Driver for all your HP LaserJet soft fonts.

D:\GPC\SOFTWARE\HPLASER ready!

Run MS Word and do {Esc} Print Options D:\GPC\SOFTWARE\HPLASER

--> List BuildPRD.log for a summary of this run.

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```

If BuildPRD can not find the Microsoft MAKEPRD program, the last screen will tell you what command you need to execute to convert the generated file. In that case, your screen should look similar to the following:

```
Build MS Word Printer Driver (v 5.8)

Build a Microsoft Word 5.x Printer Driver for all your HP LaserJet soft fonts.

Now run the Microsoft Word utility MAKEPRD to convert it to a PRD:

MAKEPRD /P E:\HPLASER.PRD E:\HPLASER.DOC

--> List BuildPRD.log for a summary of this run.

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```

The last step is to run WORD and use Print Options to select your new printer driver.

BuildPRD Log File

The Log file (BuildPRD.log) reports the results of the last run of the BuildPRD program. It will look something like this:

```

Build MS Word Printer Driver (v 5.8) C:\TEMP\BUILDPRD.EXE
Screen codepage: 437 (United States)
Loaded typeface info from C:\TEMP\BUILDPRD.TYP
Building C:\WORD50\HPPORT (portrait) April 5, 1992 @ 22:37:49

C:\FONTS\CH2400PN.USB >> Skipping duplicate font <<
C:\FONTS\GR180RPN.USB >> Skipping duplicate font <<
C:\FONTS\AA0060W@.HPF >> Wrong orientation <<

Courier          ( 3) {F0} HP Roman-8
 10pt
  Regular      Internal
  Bold         Internal
 12pt
  Regular      Internal
  Bold         Internal

CourierPC        ( 3) {F1} PC-8
 10pt
  Regular      Internal
  Bold         Internal
 12pt
  Regular      Internal
  Bold         Internal

Univers          ( 52) {F3} PC-8
 scalable
  Regular      Internal

LinePrinterPC    ( 0) {F6} PC-8
 8pt
  Regular      Internal

LinePrinter      ( 0) {F7} HP Roman-8
 8pt
  Regular      Internal

Helvetica        ( 4) {F8} ANSI Windows
 10pt
  Regular      C:\FONTS\AA0100WH.HPF
  Italic       C:\FONTS\AB0100WH.HPF
  Bold         C:\FONTS\AC0100WH.HPF
  BoldItalic   C:\FONTS\AD0100WH.HPF
 18pt
  Regular      C:\FONTS\AA0180WH.HPF
  Italic       C:\FONTS\AB0180WH.HPF
  BoldItalic   C:\FONTS\AD0180WH.HPF

HelveticaASCII   ( 4) {F13} ISO 6: ASCII
 24pt
  Italic       C:\FONTS\AB0240AH.HPF
  Bold         C:\FONTS\AC0240AH.HPF
  BoldItalic   C:\FONTS\AD0240AH.HPF

CGTimes          ( 5) {F16} PC-8
 scalable
  Regular      Internal

CourierSymbol    ( 3) {F63} ISO 100: ECMA-94
 10pt
  Regular      Internal
  Bold         Internal
 12pt
  Regular      Internal
  Bold         Internal

Looking for MAKEPRD.EXE ...
Looking for \WORD55\MAKEPRD.EXE ...
Looking for \WORD50\MAKEPRD.EXE ...
MAKEPRD exit code: 0
C:\WORD50\HPPORT ready!
    
```

Line 1: Program name, version number, and complete path name used to find the BuildPRD program.

Line 3: Screen codepage number that BuildPRD detected. The screen codepage is the set of characters displayed on the screen, which varies from country to country. BuildPRD uses the screen codepage to select the appropriate symbolset translation table.

Line 4: File containing the typeface information, usually BuildPRD.typ. If the program couldn't find the file, it will use internal default information and print the message "Loaded default typeface info."

Line 5: The name and orientation of the printer driver it built and the date and time the program was run.

Line 7 and following: Any rejected files and the reasons they were rejected, such as "Wrong orientation" or "Invalid font file" or "Typeface unknown."

Lines following the rejected files report on the fonts processed successfully. The format is:

```
<tf name>    (<tf number>)  {F<Word font nbr>} <symbolset>
<pointsize>
<style>    <file name>
```

The <tf name>, e.g. Helvetica, is the typeface name given in the BuildPRD.typ file and is the name Word will display as the font name when you do the Format Character command. If BuildPRD.typ did not contain a name for this typeface, BuildPRD took the name from the font header in the softfont file itself.

If BuildPRD finds a softfont having the same typeface number as another softfont, but a different symbolset, it will assign it a different typeface name and Word font number. Notice in the example above that there is a group of Helvetica fonts and a group of HelveticaASCII fonts. The first group has the ANSI Windows symbolset, while the second group has the ASCII symbolset. Since Word can have only one character translation table per font, and each symbolset requires its own table, BuildPRD separates the typeface by symbolset. It looks for a predefined name in the BuildPRD.typ file for each symbolset and if it doesn't find a match, it appends a brief description of the symbolset to the font name, e.g. "ASCII" in HelveticaASCII.

The <tf number> field tells you the typeface code that BuildPRD found in the font header in the softfont file. If you want to use different names for the fonts in Word, you would put this code and the new name in the BuildPRD.typ file. For example, the screen above has Helvetica as font 8. When doing a Format Character command in Word, you might prefer calling it Helv rather

than Helvetica. To do that, edit the BuildPRD.typ file so that it has a line that says:

```
Helv          ( 4,  ?) -> 8
```

(The question mark says that you don't know/care what the symbolset is.)

The {F<Word font nbr>} field, e.g. {F8}, is the way Word refers to the typeface internally.

The <symbolset> field describes the symbol set in the font file. Common symbol sets are ISO 6: ASCII, which has 96 characters, and ANSI Windows, which has 193 characters.

The <pointsize> field is the size of the font in points. For example, 18pt means the font is 18 points high.

The <style> field indicates the font style: the choices are Regular, Bold, Italic, and BoldItal.

The last field, <file name>, is of course the name of the soft font file that Word will download for the particular font. If the <file name> is "Internal" then the font is permanently resident, i.e. built-in, as an internal font.

Use this report to determine which combinations of typeface, size, and style you can use from Word. Word is very particular about how it matches your formatting with what it has available.

Using the example above, if you formatted some text as Helvetica 18 bold and then tried to print it with Word, it would not download the Helvetica soft font because it does not match exactly. You have Helvetica 18 regular and you have Helvetica 18 italic, but you don't have Helvetica 18 bold. The LaserJet will pick what it thinks is the closest match from what it has in memory already. (And the symbol set is higher priority than the typeface!)

Supported Typefaces

BuildPRD tries to read a file called BuildPRD.typ when it initializes to determine the associations between typeface codes (stored in the font header of the soft font file itself), MS Word font numbers, and typeface names. The BuildPRD.typ file also contains character translations for various combinations of video fonts and printer symbolsets. This capability lets BuildPRD easily support international (non-U.S.) video displays automatically.

When you run BuildPRD, it automatically determines the current screen codepage, i.e. the video symbolset, such as 437 or 850, and

selects the proper character translations to match the printer font symbolset with the video symbolset.

You may edit the BuildPRD.typ file as you see fit by adding, deleting, and changing the entries. (You must save the file in straight ASCII form, not Word's format, etc.) The format of the commands in BuildPRD.typ is documented in the file itself. A # indicates the rest of the line is a comment.

The BuildPRD.typ file has 3 main purposes:

1. Let you choose the font names that will appear in Word
2. Ensure that fonts always get assigned the same numbers. (Otherwise, if you copy some new softfonts to your hard disk and then use BuildPRD to rebuild the printer driver, some old fonts could get new numbers and any documents or stylesheets referring to the old numbers would access the wrong font files.)
3. Define character translations so that screen characters will be mapped to the proper characters in each symbolset.

If it can't find the file, BuildPRD will load some default values.

The BuildPRD.typ file contains the name of the typeface that you will see and use within Word. This name does not have to match what the font header says. So, for example, if the font header in the softfont file says the name of the font is SWFTE HELVETTE, but you would rather call it HELV, just add or change the line in the BuildPRD.typ file that it has the proper name associated with the typeface code. (Again just look at the log file to determine the typeface codes.)

If BuildPRD encounters a soft font file having a typeface number that is not in the BuildPRD.typ list, it will use the font name stored in the softfont file font header as the name of the typeface and then it just assigns it the next available MS Word font number.

Some useful characters are not available in DOS text mode using codepage 437 (United States), such as the copyright symbol. The CourierSymbol font, which BuildPRD predeclares, includes a character translation table that maps some of the less frequently used screen characters. The following list shows the predefined translations. (Print this page to see what happens.)

© (Alt+229) -> © copyright symbol
 ¤ (Alt+232) -> ¤ general currency symbol or "sun"
 ® (Alt+233) -> ® registered symbol

These symbols must be formatted as "CourierSymbol" (or some other font having the 0N - ISO 100:ECMA-94 Latin 1 symbolset or the 9U - ANSI Windows symbolset) for the translation to take effect.

Potential Problems

Here are some potential problems you may encounter.

1. Duplicate font files. (Described above.)
2. Font files with bad font descriptors. Some public domain soft font files have badly formatted font descriptors. If you have any of these that BuildPRD cannot read, contact Gary Pardun Consulting for a utility to fix them up.
3. BuildPRD assigns font number 24 (Roman i) to TimesRoman fonts, which corresponds to the documentation in the Microsoft Word Printer Information manual. The Microsoft printer drivers, e.g. HPDWNSEFP, however, use 16 (Roman a) for TmsRmn. Since Word chooses the closest font when printing, you should be able to print your existing documents as is. You may want to convert your stylesheets (if you use them) to refer to TimesRoman (Roman i) rather than Roman a. Again, an alternative is to edit the BuildPRD.typ file so that the TimesRoman MS Word font number is 16.
4. Missing character translation definition in the BuildPRD.typ file for your particular video codepage, e.g. 852 (Slavic), and a softfont symbolset, e.g. Roman-8. Solution: print out the ALLCHARS.DOC file using Word after formatting the characters with the desired font. Then determine the proper character mappings by comparing the characters displayed on the screen with the printout. Enter these translations in the BuildPRD.typ file. I will include these mappings in future versions of BuildPRD if you send them to the address on page 1 of this document.
5. Missing characters when you print out a document from Word. The standard version of the BuildPRD.typ file is rather strict in mapping screen characters to softfont printer characters. For example, CourierPC does not have a capital A with a caret (^) over it. BuildPRD will translate such a non-printable character to a space. You have two options: either format the text with a font having a symbolset that includes the characters you are using, or modify the BuildPRD.typ file to translate those characters into "something close." So, for the problem above, you might translate a capital A with a caret to a plain capital A. Make sure that when you edit the BuildPRD.typ file, you change the set of mappings for the correct combination of screen codepage and softfont symbolset. So if you have a Multilingual (German, etc.) screen codepage and want to change the mappings for the IBM-PC symbolset (like in CourierPC), find the section for "symbolset 10U for codepage 850 ..." and make the changes there. The BuildPRD.typ file has plenty of comments to tell you what the various codepage and symbolset codes are.

Changes in Version 5.x

5.0 changes:

Generate PRD compatible with Word 5.0;
Delete DOWN replacement program since Microsoft incorporated the functions of DOWN into the WORD 5.0 program;

5.1 changes:

Auto run of MAKEPRD (if can find it) to convert the .DOC printer driver to the equivalent .PRD;
Option to generate the font file names in the DAT file with or without complete path names;
Pop-up window will ask for the name of the printer driver that you want to create rather than requiring it on the command line;

Changes in font codes:

BrushScript: MSWord font number 34, was 32
CourierSF: MSWord font number 1, was 2
Script: MSWord font number 32, was 35
ITCSouvenir: Laserjet typeface number 231, was 0;

Added Uncial and Universe;

5.2 changes:

User-customizable file BuildPRD.typ contains typeface number and name associations;

5.3 changes:

Summary and error messages written to BuildPRD.log;
Fixed MS Word's "INSUFFICIENT MEMORY" problem; (This happened if there were no width tables in the PRD and WidthTSwap=1);
Command line parameter specifies alternate name for BuildPRD.typ;
Removed redundant escape sequences in printer driver;

5.4 changes:

Support HP LaserJet III, IIP, and IID
Select correct symbolset (previous versions assumed fonts were always ISO-6 ASCII or IBM PC-8);
Enhanced reporting in log file to show details of typeface sizes, styles, symbolsets, and font file name;
Display error messages if exceeding any of Microsoft's MAKEPRD limitations, e.g. 128 total width tables;
Use separate skeleton PRD source file to allow user to edit or replace the file;

Deimplemented "BIN 2" printer option to select 8 1/2 x 14 manual feed paper since HP LaserJet III has a real bin 2;

5.5 changes:

Merged CourierSF (Courier soft fonts) with the internal Courier fonts so that the Courier soft fonts are listed with the internal Courier fonts in Word;
Changed Olivia MSWord font number from 6 to 10 to avoid conflict with LinePrinterPC;
Added SymbolPropA (typeface number 137) to default typefaces;
Corrected bad translatable in BuildPRD.SKL, which printed garbage for one of the linedraw characters;

5.6 changes:

Corrected "missing single quotes" problem by defining a printer macro to automatically select correct character for single quote marks. If the font symbolset is ANSI, the macro picks the "curly" single quotes, which look much better than the "straight" single quotes. If the symbolset is not ANSI, the font does not have alternate single quotes and the printer macro will not translate them. Previously, BuildPrd was always translating the single quote characters even if the "curly" quotes did not exist (and hence did not print);
Implemented "BIN 3" printer option to select 8 1/2 x 14 manual feed paper for HP LaserJet II, IIP, IID, III. (In Word, set the Division page length to 14" and increase the bottom margin accordingly, otherwise the printer will eject a blank page before printing the first page of text.)

5.7 changes:

Implemented automatic font name assignment. If BuildPRD tries to process a softfont file having a typeface code that is not in the BuildPRD.typ file it will create a font name from the name in the font file header in the softfont file itself. This means that you do not have to know any typeface codes (especially for non-standard softfont files). Furthermore, BuildPRD first tries to match a softfont by the font header name rather than by the typeface code, which is now the second choice item for matching.
Added help text screens for all input pop-up menus.
Changed BuildPRD.skl to accurately reflect the fonts supported by the various LaserJet models.

5.8 changes:

Implemented pseudo-WYSIWYG character translations. The BuildPRD.typ file now contains translation tables for several symbolsets and two codepages: 437

(United States) and 850 (multilingual). The translation tables map the screen characters to their corresponding symbolset characters in the printer font. The character on the screen will match the character that is printed. (See the following item for exceptions.) Any user is welcome to modify the BuildPRD.typ file to add new symbolset translations, change individual character mappings, typeface names, font numbers, etc.

Added some special translations for "useful" characters that are not available in DOS text mode using codepage 437 (United States). The following list shows the predefined translations.

σ (Alt+229) -> © copyright symbol
Φ (Alt+232) -> ¤ general currency or "sun"
Θ (Alt+233) -> ® registered symbol

These symbols must be formatted as "CourierSymbol"
(or some other font having the 0N - ISO 100:ECMA-94 Latin 1 symbolset or 9U - ANSI Windows symbolset) for the translation to take effect.

Added FONTCOMP.EXE utility to "compile" BuildPRD.typ font and symbolset information. BuildPRD automatically calls FONTCOMP.EXE during initialization.

Deimplemented the automatic "raised" underscore in favor of user-specified superscripting.

(End of BuildPRD documentation)