

A TINYHELP

6

Making an Electronic Book

Compiled by

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TinyHelp 6 provides some instructions for making an electronic book in the PostScript page description language used for typesetting on paper. It was itself created by the included Minidict resource, which defines the necessary Direct PostScript markup codes. Users will need a text editor and a PDF converter such as Adobe Acrobat or Ghostscript to distill the typeset file.



Cappella Archive

Book on Demand Limited Editions

Cappella Archive

Foley Terrace : Great Malvern : WR14 4RQ : England

<http://www.cappella.demon.co.uk/tinyfiles/>

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[ISBN number here if required.](#)

Electronic books do not need an ISB number, although one is necessary if any printed hard-copies of the book are deposited with the copyright libraries in the country of origin. The advantage in the United Kingdom is that the title would be listed in *Whitaker's Books in Print* and so available for those who prefer the permanence of ink to the transitory nature of binary digits.

Typeset in 10 point Palatino on 13 point linespacing by the described Minidict

Grateful thanks are due to Ian Blythe for assessing the intelligibility of these instructions.


NEXT


BACK


FIRST

A Cautionary Introduction

The Direct PostScript mark-up codes in the following Minidict provide a simple way of typesetting ascii text for conversion into the Adobe portable document format as an electronic book for distribution on the Internet. If your text is not original, such world-wide accessibility must have the written consent of the author, or any subsequent editor, or (in the EU within 70 years of their death) their executors or agents. The only exception is for short extracts quoted as 'fair dealing' in evidence or comment, and even then an acknowledgement of the source would be courteous.

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Include it on a copyright page similar to the one above, giving the date and origin of the work as well as a contact address. Avoid the lengthy legal halitosis beloved of American software manuals, whose writers imagine they are not selling a product but merely a licence to use it; otherwise known as vapourware. If you are worried about screen-shot plagiarism, then place the Minidict watermark across the text or image.

David Byram-Wigfield

Presentation

The basic monitor screen is 480 pixels high and 640 pixels wide. There are 72 pixels to the inch, which match the point sizes used in printing. However, a wide page is very tiring to read, which is why newspapers are set in columns. Traditionally, an average of twelve words to the line is the normal width of text on a book page, as it provides a suitable width of input for the literate human eye. The depth of the electronic page should be no lower than the screen to avoid scrolling, which is both irritating and tiresome.

An on-screen page also needs room for thumbnails or bookmarks down the left hand side of the screen and a menu bar across the top. This reduces the space available to a square of about 460 points. If we subtract a comfortable reading measure of about 330 points (4.5" or 115mm) we are left with 130 points to spare, which may be halved on either side or arranged to provide a wider left or right hand margin for 'hanging' comments or navigation links as used here.

The typeface should be one of the Adobe standard 13 with large x body size, such as Bookman, or Schoolbook, or this Palatino, and set at not less than 10 points. Avoid the ubiquitous Times-Roman, which was specifically designed for narrow columns and, as you can see in this line, is not as readable at the same size. A sans-serif typeface, like Helvetica, certainly has a large body size, but tends to make the page look very ponderous when in long paragraphs.

The lines are best when not too closely spaced, and you should consider providing a pastel background, as reading a white monitor screen can become tiring over a period of time. Finally, make the pages open with a default zoom of at least 120%, so that the text appears at a readable size.

Direct PostScript?

Portable Document Format documents are normally made by saving a desktop printing or graphics document as a PostScript file from the Print dialog. The resulting file is usually large, as it holds the entire PostScript dictionary of the originating application, as well as any non-standard typefaces needed for the document.

The document is then converted into pdf by Distiller and opened in the Exchange portion of the Acrobat trilogy. Bookmarks, links, and action buttons are added by selecting the appropriate menu item; clicking a suitable point in the on-screen page; typing the text required, and moving on to the next one. This lengthy process inserts what are known as pdfmark instructions in the file to provide the necessary links and bookmarks whenever the distilled PDF document is opened.

Bookmarks make the search for relevant material faster and easier, whilst links allow jumps to other PDF pages, files, or Web pages to be made instantaneously. The great disadvantage is that any editing and re-distilling of the original PostScript file means that the pdf file will be overwritten and the whole process must be done again. If the originating application is unavailable, then no re-editing may be done at all.

Direct PostScript mark-up files are ideally suited for creating PDF pages because the bookmarks and links are easily embedded; remain permanently in position; do not have to be re-inserted for a re-distilled file and remain editable at any time.



NEXT



BACK



FIRST

PDFmarks

A wide range of marks, buttons and links may be inserted into an electronic book, but always include a built-in command for the pages to open at a size you choose. For example these pages open at 120% the head of the file instruction:

```
[ /PageMode /UseOutlines /View [ /XYZ 0 480 1.2 ] /DOCVIEW pdfmark
```

The X and Y are the lower left and upper right page size co-ordinates, and Z is the magnification; 1 = 100%. Outlines are bookmarks whereas 'UseThumbs' would open the book with thumbnails.

PDF bookmarks may be added anywhere in a Direct PostScript file; simply type wherever needed:

```
[ /Title (Your Subject ) /OUT pdfmark
```

A positive or negative /Count would indicate the number of related nested bookmarks and whether they are open or closed. A first article with two closed bookmarks and a second with five related bookmarks, all of them open, would be invoked by:

```
[ /Count -2 /Title (First Article) /OUT pdfmark  
  [ /Title (subject 1) /OUT pdfmark  
    [ /Title (subject 2) /OUT pdfmark  
  ]  
] /Count 5 (Second Article) /OUT pdfmark
```

PDFmarks and navigation buttons deserve a TinyHelp all to themselves, but in the meantime see section 20 in the TinyGuide to Direct PostScript mark-up at:

<http://www.cappella.demon.co.uk/tinyfiles/tinyguide.pdf>

 NEXT

 BACK

 FIRST

Equipment

The Minidict described below is a smaller version of the Cappella Archive Tinydict, which contains a wider variety of typesetting bells and whistles for archiving Self-printing Books in Direct PostScript. The simple mark-up codes provide all the necessary information for the interpretation of a text file by a PostScript printer, a pdf writer, or a PostScript emulator.

The requirements for using the Minidict to typeset electronic books are a text editor and:

1. A recent computer and a software emulator with PDF conversion, such as Ghostscript or NikNak.
- OR
2. Adobe Acrobat v4.0. (Use v3.0.1 on a 16 Meg PC or 030/040 Mac)

For coding the text, it helps if your text editor can unwrap lines:

On a PC use NoteTab Pro 4.5 by Eric G.V. Fookes. It can open documents up to 16 Mb, has a tabbed layout and fully customizable toolbar, spell checker, thesaurus, text to HTML, and can sort lines, and join them.

<http://www.fookes.com>

On a Macintosh use BBEdit Lite (which has very useful Send PostScript and Pre- and Suffix Extension), Tex-Edit, or Alpha. All are frequently available on Mac magazine CDs.

You may use a word processor but the resulting file must be saved as an ascii text or TXT file, not a Word or Works one, or the inserted electronic formatting garbage will make the file useless.

Mac users without Acrobat may view on-screen and print single DPS pages with EPStoPICT by ArtAge, and PC owners could use Preview Lite from <http://www.primenet.com/~liberty>

The Minidict

Zoom down to 50%; copy the following five pages and paste into a text editor

Delete all page numbers, footer and button text: 'NEXT . . . edition'

Comment lines beginning with a % must NOT linebreak.

```
%!PS-Adobe-2.0
%%Title: A Direct PostScript Typesetter
%%Creator: byram@cappella.demon.co.uk
%%Date: 14 January 2000
%%Copyright: David Byram-Wigfield. C 2000. All Rights Reserved
%%EndComments % no colon needed

% PostScript is a trademark of Adobe Systems Inc.
% which may be registered in some jurisdictions.

%%BeginResource:minidict % all distances are in points
userdict begin
/_Z { /defaults save def } def
/ZZ { defaults restore } def
% allow laser printing of pdf pages
/pdfmark where { pop } {userdict /pdfmark /cleartomark load put } ifelse
% on-screen page width and height: alter sizes to suit
% prefix a % to <</PageSize before laser or inkjet printing
/PW { /pw exch def } def 420 PW
/PH { /ph exch def } def 460 PH
<< /PageSize [ pw ph ] >> setpagedevice
% page footer: textbox margin defaults: top, right, bottom, left
/FM { /fm exch def } def 50 FM
/TM { /tm exch def } def 400 TM
/RM { /rm exch def } def 330 RM
/BM { /bm exch def } def 0 BM
/LM { /lm exch def } def 0 LM
```

 NEXT

 BACK

% default linespacing and first page number

```
/LG { /lg exch def } def 13 LG
```

```
/PG { /pg exch def } def 1 PG
```

% page format and textbox defaults

```
/pdfbook { _Z minidict begin p1 } def
```

```
end % close the userdict: important
```

%%BeginDictionary

```
/minidict 40 dict def minidict begin
```

% textbox defaults: 10 pt roman on 13 pt spacing: your 'style sheet'

```
/textbox { 380 TM 330 RM 0 BM 0 LM 13 LG 10 rom lm tm moveto } def
```

% centre the textbox on the page

```
/midpage { pw rm sub 2 div fm translate textbox numbering } def
```

% open the first page: jump to next when the last line is full

```
/p1 { gsave background midpage watermark brown rgb
```

```
  /jump {bm tm gt { grestore showpage p1 } if } def
```

```
} def
```

% auto numbering with two footers at the bottom of the page

```
/footerproc { currentpoint pop bm 20 neg add moveto show } def
```

```
/title (Making an E-book) def
```

```
/chapter (The Mini Typesetter ) def
```

```
/number { pg pg 1 add PG 3 string cvs } def
```

```
/twofooters { gsave
```

```
  0 0 1 setrgbcolor lm 20 neg moveto
```

```
  10 it title footerproc
```

```
  10 rom number centre footerproc
```

```
  10 it chapter right footerproc
```

```
grestore } bind def
```

```
/numbering { twofooters } def
```

% define a space

```
/space ( ) def
```

 NEXT

 BACK

 FIRST

% look for spaces
 /find { search { pop 3 -1 roll 1 add 3 1 roll } { pop exit } ifelse } def
 % count the spaces
 /spacecount { 0 exch space { find } loop } def
 % is the next space beyond the textbox width? gt = greater than
 /toofar? { space search pop dup stringwidth pop currentpoint pop add rm gt } def

 % advance # points : e.g. 20 a
 /a { tm exch sub TM lm tm moveto } bind def
 /H { lg 2 div a } bind def % advance half a line
 /L { lg a } def % advance a line
 % centre text: no movement
 /centre {
 dup stringwidth pop 2 div rm 2 div exch sub lm add tm moveto
 } bind def
 % move text right
 /right { dup stringwidth pop rm exch sub tm moveto } bind def

 % text mark-up codes
 % place text: stay on same line
 /s /show load def
 % place text: advance a line: page jump
 /n { bm tm gt { jump s L } { s L } ifelse } bind def

 % place centred text: line advance
 /c { centre s L } def
 % justify right
 /r { right s L } def
 % linewidth text: no line advance: page jump
 /S { dup spacecount { toofar? { L jump s s } { s s } ifelse } repeat pop } bind def
 % place coloured text: no line advance: page jump
 % use CS L for coloured text and a line advance
 /CS { gsave rgb S currentpoint grestore moveto } def

 NEXT

 BACK

 FIRST

`% linewidth a paragraph: advance a line: page jump`

`/P { S L } bind def`

`/J { P } def`

`% tabs: eg. 150 T (text) s 200 T (last one) n`

`/T { l m pop t m moveto } def`

`% some colour abbreviations`

`/rgb /setrgbcolor load def`

`/red { 1 0 0 } def`

`/blue { 0 0 1 } def`

`/green { 0 1 0 } def`

`/pale { 1 1 0.95 } def`

`/brown { 0.4 0.16 0.1 } def`

`/background { gsave pale rgb 0 0 pw ph rectfill grestore } def`

`% place a watermark if you are nervous`

`/watermark { gsave 30 5 moveto 50 rotate 40 rom`

`(Cappella Archive Editions)`

`0.9 setgray show grestore } def`

`% typefaces: substitute correct o/s PS names and choice`

`/F { findfont exch scalefont setfont } def`

`/rom { /Palatino-Roman F } def %`

`/it { /Palatino-Italic F } def`

`/bol { /Palatino-Bold F } def`

`/ss { /Helvetica F } def`

`/sb { /Helvetica F } def`

`% force a page jump when needed`

`/newpage { 10 neg T M t m pop jump } def`

`% print the page: remove digital detritus: close the file`

`/close { showpage grestore clear } def`

`end % close the minidict: important`

`%%EndResource`

%%BeginScript

pdfbook % open the page format

% 11 pt bold: centre header: restore 10 pt roman body text

11 bol (PLACING THE CODES) c 10 rom

H % half line advance

(Each paragraph or single line of typeset text must start and end with a curved bracket, also known as a parenthesis or text delimiter. Each closing bracket is followed by a coding letter.) P % P = paragraph code

3 a % 3 point advance

(The n code justifies flush left and moves to the next line.) n

(The c code centres the text and moves to the next line.) c

(The r code justifies flush right and moves to the next line.) r

(The CS code allows you to use coloured text.) centre blue CS L

10 sb (The 'S' and 'CS' codes allow you) S 12 it (to change) red CS 10 bol

(typographical) S 10 rom (horses.) P

50 T (Tabs) s 100 T (are) s 150 T (like) s 200 T (this.) n

(The upper case page-jumping codes) S 10 bol (must) S 10 rom (have a space before their closing bracket.) P

50 LM H % inset left margin 50 points: half line advance

(The textbox bottom line BM and the left hand margin LM are set by default to zero. To indent a paragraph like this or make room for footnotes type a different value, such as 20 LM or 30 BM. A movement is needed before they take effect, i.e.

50 LM 1 a. The default values will re-assert themselves on a new page.) P

0 LM 3 a % restore the left margin: 3 point advance

(Some PC operating systems and text editors cannot unwrap paragraphed \ text and require the PostScript 'soft' return of space-backslash-return \ at the end of each on-screen line. The soft returns have no relation to \ the justification of the text on the page and are not needed on a Macintosh.)

No spaces should be placed at the beginning of a line of text.) P

3 a % 3 point advance

close % print the last page: remove the minidict: restore defaults %

%%EOF

% ----- copy to here ----- %

If you distill or print all the above, the result should look something like this.
PLACING THE CODES

Each paragraph or single line of typeset text must start and end with a curved bracket, also known as a parenthesis or text delimiter. Each closing bracket is followed by a coding letter.

The n code justifies flush left and moves to the next line.

The c code centres the text and moves to the next line.

The r code justifies flush right and moves to the next line.

The CS code allows you to use coloured text.

The S and CS codes allow you to *change* typographical horses.

 Tabs are like this.

The upper case page-jumping codes **must** have a space before their closing bracket.

The textbox bottom line BM and the left hand margin LM are set by default to zero. To indent a paragraph like this or make room for footnotes type a different value, such as 20 LM or 30 BM. A movement is needed before they take effect, i.e. 50 LM 1 a. The default values will re-assert themselves on a new page.

Some PC operating systems and text editors cannot unwrap paragraphed text and require the PostScript soft return of space-backslash-return at the end of each on-screen line. The soft returns have no relation to the justification of the text on the page and are not needed on a Macintosh. No spaces should be placed at the beginning of a line of text.


NEXT


BACK


FIRST

If you wish to learn more about PostScript or would like the TinyDict with full justification mark-up procedures, send for a copy of:

Practical PostScript

A Guide to Digital Typesetting: 64pp. 30 illus.

ISBN 0-9525308-0-5

'Reader-friendly': MacWorld UK

10 GBP; \$20 US; 30 DM: notes or sterling cheques: post and packing free.

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Cappella Archive Editions

