PTXprint

Technical Reference Manual

version 0.92

Contents

Introduction

The PTXprint source may be found at https://github.com/sillsdev/ptx2pdf
This document is docs/documentation/PTXprintTechRef.odt

PTXprint Specific

Piclists

anchor caption|size="*size*" pgpos="*pgpos*" ref="*ref*" scale="*scale*" *etc.* % remainder

Anchor	**Description**
bkk c.v	e.g. JHN 3.16. Book chapter verse reference matching the \v value
*bkk*L *c.v*	As above but with diglot side reference
bkk term	A glossary item e.g. \k This Term\k* and GEN ThisTerm
bkk id	Milesetone id as in \zfiga |id="r12"* and GEN r12
bkk bookstart	Start of a book
anchor=n	Number of paragraphs after the anchor e.g. JHN 3.16=2

Size	**Description**
full	the entire size of the paper, a page reserved for images
page	the normal printed area of the page, on a page reserved for images
col	the width of the current column (only valid for 2 column text or diglot)
span	the width of the normal printed area of the page
width	the full width of the paper
font	the height of the font
line	the current line spacing

pgpos (regex)	**Description**
t	**T**op. Above everything except the header line.
tr|tl|ti|to	**T**op of **l**eft or **r**ight or **i**nner or **o**uter column (if 2 columns)
b[rlcio]?	**B**ottom
h[rlcio]?	**H**ere mid paragraph. **r**ight, **l**eft, **i**nner, **o**uter or ***c**entre aligned
p[rlcio]?	After this **p**aragraph **r**ight, **l**eft or ***c**entre aligned
p[rlcio]?#	After the given number of paragraphs (here is paragraph 1)
c[rlio]#?	**C**utout **l**eft, **r**ight,**i**nner or **o**uter. Number is line count, may be fractional.
P[lrcio]?[tbcf]?	**P**age within margins with horizontal and vertical position (**t**op, **b**ottom, **c**entre, **f**ill - sidebars only)
F[lrcio]?[tbcf]?	**F**ull page outside margins with horizontal and vertical position
[tb][LR]	**T**op or **b**ottom of diglot column
H	HERE, character-like.
B	BELOW footnotes and anything else except footer.

Attribute	**Description**
alt; caption; copy; ref	USFM mandated values: Alternative description or comment; Figure caption; copyright information; reference for caption.
scale	Image linear scale factor with no scaling as 1.0.
x-spacebeside	Cutout image horizontal space to text including units. E.g. "3pt" Default is set by \DefaultSpaceBeside
x-spacebefore	Per image override of SpaceBefore in line units
x-spaceafter	Per image override of SpaceAfter in line units
x-edgeadjust	Indent (or outdent) an image relative to the border
x-xetex	rotate=edge|binding|odd=*degrees*|even=*degrees*; rotated *degrees*;

	page=*sourcepdf_pnum*
media	allowed media: a=applications, p=print, w=web
mirror	odd|even|both
x-credit	In image credit text
x-creditpos	[tcb][lcrio]
x-creditrot	rotation of credit box. Default is bottom to edge
x-creditbox	*r g b* (0-1.0) | *stylename* | true| t

Adjustment Lists

Historically, adjustments lists are held strictly in reference order. No other entries are matched until the next one in the list matches. A garbled line may cause crashes or following entries to be skipped. This behaviour saves memory and can be reverted to with the command \adjslurpfalse. The new behaviour loads all adjustments as the .USFM file is opened.

Syntax: *bkk C.V [+-]n* also *bkk C.V [+-]n*[*m*], *bbk C.V [+-]n*[*m f*]

where: *bkk* is a book code; *C* a chapter number; *V* a verse identifier following \v; + to increase the paragraph length; - to decrease the paragraph length (don't include the square brackets); *n* number of lines to increase/decrease; *m* paragraph number following reference, square brackets must be supplied around this number. The paragraph containing the reference is *m*=1. *f* references a note marker.instance with an optional .paragraph in the note. E.g. GEN 3.1 +1[ef.1 3] (First ef note in the first paragraph in GEN 3.1, the third paragraph in that note). Anything following % is ignored (including the %). Blank lines are then ignored.

Shortcuts for working with AdjLists

Keyboard Shortcut	Action
Ctrl-` (grave/back-tick)	Activate first **shrink** option on current line in AdjList
Ctrl-*N* (where *N* = 1...9)	Activate *N*th **grow** option on current line in AdjList
e.g. **Ctrl-2**	Grow the 2nd paragraph +1[2]

Generic Shortcuts

Keyboard Shortcut	Action
Ctrl-minus	Shrink - size of text in current view
Ctrl-equals	Grow + size of text in current view
Ctrl-D	**S**ave file
Ctrl-D	**D**uplicate current line
Ctrl-L	de**L**ete current **L**ine
Ctrl-0	Comment out/in the current line (uses \rem, #, %)
Ctrl-,	Comment out/in the current line (uses \rem, %)
Ctrl-Up	Move the current line/selection UP by one line
Ctrl-Down	Move the current line/selection DOWN by one line
Ctrl-F	Activate **F**ind: Search for settings
Ctrl-Q	Toggle **Q**uick Run setting
Ctrl-R	Toggle c**R**eate Diff setting
Ctrl-P	**P**rint (Make PDF)

Z-Codes

Marker	Description
\zbl*[/num]**	Blank lines
\zccimg *by-nd*|size="*size*"	Insert Create Commons logo: by, by-nc, by-nc-nd, by-nc-sa, by-

Marker	Description
pgpos="*pgpos*"	nd, by-sa; pgpos=p. E.g. \zccimg by-nc-nd|size="col" pgpos="pc"
scale="*scale*"*	scale="0.2"*
\zfiga|*anchor**	Insert image from piclist with given anchor
\zcopyright	Insert project copyright statement
\zgap*[|dimen]**	Insert a vertical gap of given dimension
\zimagecopyrights*[LANG]*	Insert image copyrights for a language
\zlicence	Insert projects license
\zplaceallnotes	Output end notes for this file here
\zendnoterule	Insert an endnote type rule, including spacing
\zpostendnoterule	If there were endnotes just now, insert a rule to mark the bottom.
\ztoc*[|order]**	Insert Table of Contents of given order (main, ot, nt, dc, pre, post, heb, sorta, sortb, sortc)
\zvar|*variablename**	Insert project variable value
\zthumbtab *bookname*	Set the thumb tab text for this book (instead of \toc3)
\zlabel|*uniquelabel**	Remember where *uniquelabel* is (page and reference)
\zpage|*uniquelabel**	Output the page number for *uniquelabel*
\zref|id=”*uniquelabel*” show=”b_c:v”*	Output chapter:verse for *uniquelabel* (show: b=book, c=chapter, v=verse, _=space, anything else is copied)
\zISBNbarcode| isbn="*num*" height="*size*" var="*varid*" price="*price*" pricecode="*code*" pricecodevar="*varid*" pricevar="*varid*" font="*Font Name*" fontheight="12pt"*	Insert ISBNbarcode for *num (10 or 13 digits)*. Optional parameter size one of (normal, medium, short). If isbn is missing tr it tries the zvar *varid*. *Font* selects an alternative font; fontheight specifies the main (bottom) font height, to which everything is scaled. If pricecode is supplied then an extended ISBN barcode (EAN-5) is generated, falling back to pricecodevar, supplying pricing information required in some countries. The code is a 5 digit number, with the first digit representing the currency (0,1=GBP, 3=AUD, 4=NZD, 5=USD, 6=CanD) and the next 4 digits representing the price, according to local conventions. *price* is a human readable text string, which may give other information, e.g. an alternative currency, falling back to pricevar.
\zendperiph	End of a periph section, if you’re not starting a new periphery. Must be the only thing on the line.
\zgetperiph|*id**	Get (use) the periphery stored earlier by \periph comment|id=”intot”
\zglot|[*col*]*	Use formatting for diglot column *col*, in a monoglot section. Return to normal formatting with \zglot|*
\dopagenums	Turn on page numbers
\nopagenums	Turn off page numbers
\resetpagenums *pnum*	Reset page numbers (negative for Roman numerals)
\singlecolumn	Required along with \onebody if forcing 1-col layout for section
\onebody	Set \BodyColumns=1 for single column body text
\doublecolumns	Required along with \twobody if forcing 2-col layout for section
\twobody	Set \BodyColumns=2 for double column body text
\ztmon \ztmoff	Turn on /off TeX’s tracingmacros for debugging
\makeatletter	Allow access to names with @ in them
\makeatother	Disable access to names with @ in them
\m@kedigitsother	Treat digits as digits
\m@kedigitsletters	Treat digits as letters (for use in names)
\beginL	Start LTR text run

Marker	Description
\beginR	Start RTL text run
\zfillsignature|pages="8" pagenums="no" extra="2"*	Fill a signature to the given modulo of pages. Note, uses the actual page count. Optional 'pagenums' parameter 'no'=\nopagenums, 'do'=\dopagenums), extra states that this many extra pages will be added manually or by special code before page lay-up.
\ztocbefore...\ztocbefore*	Insert table rows (\tr \cat toc\cat*...) before the TOC
\ztocafter .... \ztocafter*	Insert table rows (\tr \tc1 ....) after the TOC.
\zendtable	Force a table to end and be processed, (as happens automatically when a new paragraph style is started). Can help before pagebreak, zgap, etc. when a normal paragraph break causes unwanted effects.
\zEmptyPage	Insert intentionally empty page contains \TPILB
\zNeedOddPage	Insert an "empty" page if the current page is even
\zNeedEvenPage	Insert an "empty" page if the current page is off
\zNeedQuadPage	Insert 1, 2 or 3 "empty" pages if the current page is not divisible by 4
\zifvarset|var="*varname*"*	Sets conditional text if *varname* is set. emptyOK="T" ⇒ empty is true, emptyOK="F" ⇒ empty is false.
\zifhooks|*marker**	Does *marker* have a hook, set conditional true
\ztruetext ...\ztruetext*	Include contents if condition is true
\zfalsetext ...\zfalsetext*	Include contents if condition is false
\zcustommark|type="user" value="*text*"*	Inserts a mark of given type and value
\zcustombotmark|type="user"*	Gets the value of the given mark at the bottom of this page. Used in headers/footers
\zcustomfirstmark|type="user"*	Gets the value of the first given mark on this page. Used in headers/footers
\zcustomtopmark|type="user"*	Gets the value of the given mark at the bottom of the previous page. Used in headers/footers
\zrule |cat="*category*" width="*width*" thick="*thickness*" align="l|c|r" raise="*raise*" style="*mode*"*	Draws a line. *category* zrule category for style. Common list available. Missing defaults to simple line. *mode*=double for double line. *thickness*=height dimension. *width*=proportion of line. All attributes optional. \zrule cat="VectorionRule1" width="0.4" align="c" thick="7pt"*
\zqrcode |cat="*category*" size="*size*" data="*data*" color="*color*" pgpos="*pgpos*" background="*color*" spacebeside="*space*" vmax="*version*" vmin="*version*" unicode="T|F"*	Insert a QR code of the *data* string. *size*=height dimension. color is foreground colour. background is background color. spacebeside is padding inside qrcode box. pgpos gives position on the page, see piclist parameters. vmin, vmax is QR code version limits, affecting size and error-correcting. Unicode specifies to use Unicode encoded text, which slows down processing (a temporary file must be written and re-read). \zqrcode size="1cm" pgpose="cr" data="https://unicode.org"*
\zcolsync|id*	Synchronisation point for diglots. If id is v2, then that point will be considered the start of verse 2. If id is *p2* then that point will be treated as the start of the second paragraph, even if it's actually the 4th. Alternatively matching entries (which must

Marker	Description
	occur in ASCII order) can be given in each file.
\zsetref|book="book" bkid="GEN" chapter="1" verse="3"*	Set the running header to *book*, the book id to *GEN*, the chapter to 1, and verse to 3. This does not itself cause any triggers, but it means that the next verse will fire triggers for GEN 1:whatever, rather than MOD 0:whatever from a module.
\SHOWSTUFF	Produces no output in PDF, but write most of the significant flags, etc to the logfile. A useful debugging aid.

Table of Contents types

A type may be followed by a diglot side identifier as in sortcR

Type	Description
main	Default page number order of all books [default]
ot	Old Testament
nt	New Testament
dc	Deuterocanonical books
pre	Before Old Testament books (e.g. FRT)
post	Post scriptural books (e.g. GLO)
heb	Old Testament books in Hebrew order
sorta	Sort by \toc1
sortb	Sort by \toc2
sortc	Sort by \toc3

Marker Style Fields (.sty Files)

Field	Description
\Marker	The start of a marker description
\Endmarker	Specifies the closing marker for this group
\Name	3 parts separated by -: marker, category, summary description
\Description	Textual one line description of the marker
\OccursUnder	List of markers this marker may occur under in the hierarchy
\TextProperties	(non)publishable, vernacular
\TextType	VerseText, NoteText, BodyText, Title, Section, Other, ChapterNumber, VerseNumber
\StyleType	Paragraph, Character, Note, Milestone
\Color	decimal B * 65536 + G * 256 + R, or xRRGGBB hex digits
\FontName	font name to pass to font specification
\FontSize	actual font size is \FontSize * \FontSizeUnit. 12 = main font size
\FontScale	Scaled font size relative to the current font (e.g. \p)
\ztexFontFeatures	XeTeX style font feature settings to append to the font name specification when a font is instantiated
\ztexGrSpace	The \XeTeXinterwordspacing value to use when this marker is active
\Italic	blank enables, "-" disables
\Bold	blank enables, "-" disables
\Superscript	blank enables, "-" disables. Equivalent to \FontScale \ SuperscriptFactor, \Raise \SuperscriptRaise
\SmallCaps	blank enables, "-" disables
\Regular	Disables \Italic, \Bold, \Superscript
\Raise	Specifies a dimension to raise the text by. Be careful, this can't handle whole paragraphs and will not allow line breaking within the text so marked
\BaseLine	(see also LineSpacing.) Dimension of line spacing. An absolute measure that can include glue. (e.g. `12pt plus 1pt minus 1pt`). *Units are required*
\LineSpacing	Dimension of the line spacing, as a proportion of the default line spacing (1.0 is one line). i.e. \LineSpacing * \LineSpaceBase * \ LineSpacingFactor * \FontSizeUnit
\FirstLineIndent	First line indent * \IndentUnit. 1 = Specified indent factor. For sidebars, this indents (or outdents if negative) a the sidebar.
\LeftMargin	Left margin * \IndentUnit (Right margin in RTL)
\RightMargin	Right margin * \IndentUnit (Left margin in RTL)
\Justification	values; center, left, right. Anything else is fully justified
\NonJustifiedFill	Proportion of line to allow for line break filling. Default 0.25
\SpaceBefore	Space before paragraph (\SpaceBefore * \VerticalSpaceFactor * \ LineSpacingFactor * \FontSizeUnit)
\SpaceAfter	Space before paragraph (\SpaceAfter * \VerticalSpaceFactor * \ LineSpacingFactor * \FontSizeUnit)
\CallerStyle	Marker to style the body text caller for a note
\CallerRaise	Dimension to raise the body text caller
\NoteCallerStyle	Marker to style the in note caller
\NoteCallerRaise	Dimension to raise the in note caller
\NoteBlendInto	name of note type marker to merge these notes into that class, but with styling specified here

Field	Description
\Underline	1 = single underline. 2 = double underline[1]
\Background	Apply a background colour or highlight[1]
\Outline	Line thickness (* FontsizeUnit) to outline text with[1]
\OutlineColour	Colour of outline line[1]
\Shadow	Offset of text shadow multipled by font size[1]
\ShadowColour	Colour of text shadow[1]

Sidebar/Box Style Fields

Field	Description
\Position	Position on the page: [tbhpfB][lrico]? | [FP]([lrcio][ctbf]?)? default bl
\Scale	Proportion of width of parent
\SpaceBeside	Horizontally shift the sidebar relative to the margin, in same units as paragraph indentation. May be negative.
\SidebarGridding	normal – top of sidebar is top of a subpage, last line is on grid; smart – as normal for sidebar of integral number of lines; orig – obey spaceBefore; *none – no attempt at gridding, ignore spaceBefore; heading – as none but obey spaceBefore
\BgColor	F (disable), T (enable), or 3 values 0-1.0 RGB
\Alpha	Background transparency
\FgImage	filename of image (.jpg, .pdf)
\FgImagePos	Location of image within box
\FgImageScale	How much to scale image by (default 0.2)
\BgImage	filename for horizontally and centred background image
\BgImageScale	floatxfloat or float or xfloat for image scaling
\BgImageOversize	ignore (overfill, no crop), (shrink, distort, crop)
\BgImageLow	t (under background color) or f (over background color)
\BgImageAlpha	Alpha for background image
\BgImageColor	3 floats (RGB) or x with 6 hex digits
\BoxPadding	margin between border and background color/image
\BoxPaddingInnerOuter	T – Left means inner, Right outer; F – Left and Right are left and right.
\BoxHPadding	Horizontal margin
\BoxVPadding	Vertical margin
\Border	Apply border to this side: None, Top, Bottom, Left, Right, Inner, Outer, All
\BorderWidth	Total border width including 2 lines and fill, etc. In pts
\BorderColour	3 floats (RGB) or x with 6 hex digits
\BorderStyle	plain, double, ornaments. Describes how many lines are in the border. May also reference a standard style, e.g. Vectorian1, in which case it behaves as \BorderRef
\BorderRef	Reference (inherit values from) another (e.g. standard) style. Parameters not defined for the current style will be used from the named style. Resolution of inherited values occurs on reading the first USFM file.

[1] Should only be applied to character styles and prevents line breaking within the character style. Paragraph style support is not yet implemented

Field	Description
\BorderFillColor	3 floats (RGB) or x with 6 hex digits. Color to fill between border lines or in a complex ornament
\BorderLineWidth	Thickness of lines in the border in pts
\BorderPadding	External padding margin to the border (from outside text, say). In pts.
\BorderHPadding	Horizontal external padding
\BorderVPadding	Vertical external padding
\BorderPatternTop	Border pattern syntax description of top border of box
\BorderPatternBot	Border pattern syntax for bottom border of box
\BorderPatternLeft	Border pattern syntax for left border of box
\BorderPatternRight	Border pattern syntax for right border of box The left and right borders match the height of the contents (plus padding), and the top and bottom patterns provide the corner pieces. The sequence of creation (if they are to be used) is Top, Bottom,Left, Right
\OrnamentScaleRef	Define (comma separated) named scale factors for this border based on the natural size of the given ornament(s). Format is *name*:*type*|*reference_orn*[:*type*|*reference_orn*] *type* is one of x, y, xy, X,Y,XY. Upper case sets the scale based on the other dimension of the reference ornament. e.g. *corner:X|33:y|32* defines the named scaling *corner* to be such that the natural height of orn. 33 defines the x scaling and the natural height of orn.32 defines the y scaling.

Stylesheet Processing Order

File	Purpose
usfm_sb.sty	Base USFM specification stylesheet
prj/usfm.sty (*)	Project specific extensions to USFM
ptx2pdf.sty	PTXprint USFM stylesheet extensions
prj/custom.sty (*)	Project custom stylesheet
shared/ptxprint/*prj*/ptxprint.sty (*)	Project stylesheet from PTXprint UI
shared/ptxprint/*prj*/ptxprint-mods.sty (*)	Project stylesheet overrides

* processes all the corresponding files for each glot

Border pattern syntax

- Pattern element is: number or "string"|rotation(uvhdlrLR)|fill(x-) or repeat(?*+(i,j)")=)[A-Za-z]|scaling(float. or name)|adjustment. Any final empty | may be ignored. **u** is unmodified
  u - up-> **u**p, d - up->**d**own, l - up->**l**eft, r - up->**r**ight.
  h - Mirror left->right, v - Mirror up-down
  L and R apply rotation and then **h** mirroring.
- Ornament string is , separated list of pattern elements

Marker Grammar

Example marker: id:XXS|periph:strongshebrew|cat:emphasised|k+s

```
marker:  markerexp  ('+'  (tag  |  ms))*
markerexp:  (constraints  '|')?  tag  |  ms
ms:  (defaultval  '|')?  tag
tag:  idchar+
catval:  idchar+
```

```
constraints: categories | periph | id
categories: category (':' category)*
category: 'cat:' catval
periph: 'periph:' catval ('|' categories)?
id:'id:' catval ('|' (periph | categories))?
defaultval: uniwdchar*
idchar: [a-zA-Z0-9_] | '-'
uniwdchar : [^\s"|+]
```

Milestones are treated as character styles and propagate into paragraphs that occur while active.

If not clear from the above constraints (id:, periph: and cat:) must occur in that order. If the tag1+tag2+tag3 format is used, tag3 is the outermost (e.g. a paragraph) and tag1 the innermost. E.g. to style `\p ... \wj ... \+nd` the style identifier is `nd+wj+p`

Key Styles

Style Name	Where	Description
zglm	S	Glossary marking characters
xts	S	Strongs digit cell
cat:ornaments|zrule	S	Border styling for \zrule|cat="ornaments"
cat:frontpage|esb	S	Sidebar styling for \esb\cat frontpage\cat*
cat:toc|tr	S	TOC table row styling
cat:toc|tc1	S	Column 1 cell styling for TOC (also for tc2, tc3, etc.) not tcr3
cat:foo|tr	S	Styling for \tr\cat foo\cat* and subsequent rows in the same table.
wg+strong-s	S	Strong's Greek term (also k, wh, wl, xt) (\wg is a char style)
strong-s+li	S	List entry paragraph styling for Strong's Index (also m) (\li is a paragraph style)
periph:cover|mt1	S	Styles \mt1 for the cover
id:MAT|ip	S	Styles \ip in the book of Matthew
textborder	S	If enabled, styling for automatic border around (verse-containing) body text.
cat:headingsbox|esb	S	If enabled, automatic sidebar which encloses all heading blocks
cat:titlebox|esb	S	If enabled, automatic sidebar which encloses all title blocks
\p^95	U	^ prefix for font expand value in %. E.g. 0.95 expand = 5% compression. Also p^103 to widen text.

S: automatically applied style, use the name in style definition.
U: Automatically interpreted style, use the name in USFM for the special effect.

Headers

Without odd or even, a header or footer is the fallback if either the odd or even is undefined.

Header/Footer	Usage
\R(H|F)(odd|even)?(left|right|center)	Non first page, containing scripture
\R(H|F)title(odd|even)?(left|right|center)	First page of a book (ptxfile)
\R(H|F)noV(odd|even)?(left|right|center)	Non first page, not containing scripture

Macro	Description
\pagenumber	The page number. Maybe disabled with \nopagenums
\folio	The page number. May not be disabled.
\rangeref	First and last references on the page

\firstref	First reference on the page
\lastref	Last reference on the page
\book	Book name from \h
\bookalt	Alternate book name from \h1
\usdate	Date in month/day/year format
\ukdate	Date in day/month/year format
\isodate	Date in year-month (2digits)-day format
\year	Year
\month	Month number
\day	Day number
\ROMANnumeral#1	Converts the parameter to uppercase roman numerals
\romannumeral#1	Converts the parameter to lowercase roman numerals
\timestamp	Date and time as year.month.day :: hours:minutes (each, except year, 2 digits). As used in crop marks.

Changes syntax elements

Id	Element	Description
replace	"*regex*" > "*output*"	Simple replacement
replace	'*regex*' > '*output*'	Simple replacement
inreplace	in '*regex*' *inreplace*|*replace*	Matches regex and applies replacement within matched text
atreplace	at *reflist inreplace*|*replace*	Within the USFM covered by the references in the reflist, apply the replacement

References

A reference list has this grammar:

Id	Expression	Description
verse	\d+[a-z]?	Verse number with possible sub verse
chapter	\d+	Chapter number
CV	*chapter*([:.]*verse*)?	Chapter with verse
book	\S{3}	Book id from list of books, e.g. JHN
ref	*book CV*|*CV*|*verse*	A simple complete reference
range	*ref-ref*	A range of two references
reflist	(*range*[,;]\s*)+	List of references

e.g. JHN3:16-20; LUK 1, 2:15, 19; JON 2:3-4:6, 1JN 1:9

Other changes file content

`include "path/to/changesfile.txt"` Include the named file

`sections(`**`step[,step]`**`)`

The changes file can now be divided into distinct sections. Those sections apply at different points in the processing flow (many of the events are optional):

File	Preceeding event(s)	Changes step
FRT, INT	File is read	periph|default
normal	Processing with a "before" script. USFM file is read.	initial
normal	Chapter range check, Interlinear reconstruction, Module flattening	default
normal	Canonicalise USFM, Introduction removal, Empty verse removal, End of ayah, Strong's numbers, Manual hypenation, Other UI controlled changes, Apply paragraph stretch.	final

Peripherals

If stored, the macros hold onto the peripheral contents to output it in the right place or in response to \zgetperiph. Use \NoStorePeriph{*id*} or \StorePeriph{*id*} to change behaviour.

Id	Stored	Book	Description
abbreviations	no	FRT	Abbreviations used and their description
alphacontents	no	FRT	Alphabetical Contents section, if separate from contents
intbible	yes	INT	Introduction to the Bible
chron	no	BAK	Chronology
contents	no	FRT	Contents page(s)
cover	no	FRT	Cover page. PTXprint uses coverfront
coverback	yes	FRT	Back page of the cover
coverfront	yes	FRT	Front page of the cover
coverspine	yes	FRT	Spine of the cover
coverwhole	yes	FRT	The structure of the whole cover
foreward	no	FRT	The foreward section
halftitle	no	FRT	The half title page between the title page and the publication data
imprematur	no	FRT	For an imprematur
intbible	yes	INT	Introductory section to the Bible
intdc	yes	INT	Introductory section of the Deuterocanonical books
intepistles	yes	INT	Introductory section to the Epistles (before ROM)
intgospels	yes	INT	Introductory section to the Gospels
intletters	yes	INT	Introductory section of the letters
intnt	yes	INT	Introductory section to the New Testament
intot	yes	INT	Introductory section to the Old Testament
intpent	yes	INT	Introductory section to the Pentateuch
intpoetry	yes	INT	Introductory section to the the Poetry books
intprophesy	yes	INT	Introductory section to the Prophetic books
insert_*id*	yes	INT	Inserts for extraction to other print files
lxxquotes	no	BAK	LXX quotes in NT (back matter)
maps	no	BAK	Map Index
measures	no	BAK	Weights and Measures
preface	no	FRT	Preface
promo	no	FRT	Promotional text, e.g. for back cover. PTXprint uses coverback
pubdata	no	FRT	Publication data including copyrights, etc.
spine	no	FRT	Spine contents. PTXprint uses coverspine
title	no	FRT	Title page (non cover)

Commandline Options

usage: ptxprint [-h] [-c CONFIG] [-M MODULE] [-p PARATEXT] [-d DIRECTORY] [-P] [-b BOOKS] [-Z ZIP] [-R RUNS] [-L LANG] [-n PORT] [-m MACROS] [-N] [-l LOGGING] [--logfile LOGFILE] [--timeout TIMEOUT] [-T] [-f FONTPATH] [--nofontcache] [-A ACTION] [-F DIFFFILE] [--diffpages DIFFPAGES] [-D DEFINE] [--debug] [-z EXTRAS] [-V PDFVERSION] [-I] [pid]

positional arguments:

pid Project id or full path to a ptxprint.cfg file

Option	Description
-h, --help	show this help message and exit
-c CONFIG, --config CONFIG	Configuration path to load
-M MODULE, --module MODULE	Module to print
-p PARATEXT, --paratext PARATEXT	Path to Paratext Projects directory
-d DIRECTORY, --directory DIRECTORY	Directory to store temporary files in
- P, --print	Hits print
-b BOOKS, --books BOOKS	Reference list to print (as in Choose Books)
- Z ZIP, --zip ZIP	Unzip into project directory and delete at end
- R RUNS, --runs RUNS	limit xetex runs
-L LANG, --lang LANG	Set UI language code
-n PORT, --port PORT	Listen on given port
-m MACROS, --macros MACROS	Directory containing TeX macros (paratext2.tex)
-N, --nointernet	Disable all internet access
-l LOGGING, --logging LOGGING	Logging level [DEBUG, *INFO*, WARN, ERROR, number]
--logfile LOGFILE	Set logging file [ptxprint.log] or "none"
--timeout TIMEOUT	xetex runtime timeout
-T, --testing	Run in testing, output xdv
-f FONTPATH, --fontpath FONTPATH	Directory of fonts to include (repeatable)
--nofontcache	Don't use system fonts
-A ACTION, --action ACTION	Run view method instead of print
-F DIFFFILE, --difffile DIFFFILE	Create difference PDF against PDF file
--diffpages DIFFPAGES	Maximum number of pages to insert in diff file
-D DEFINE, --define DEFINE	set UI component=value. Repeatable
--debug	Give debug output
-z EXTRAS, --extras EXTRAS	Special bit flags: 0-3 - verbosity of xdvipdfmx
-V PDFVERSION, --pdfversion PDFVERSION	PDF Version to read and write * 10 (default=14)
-I, --identify	add widget and config names to tooltips

Logging

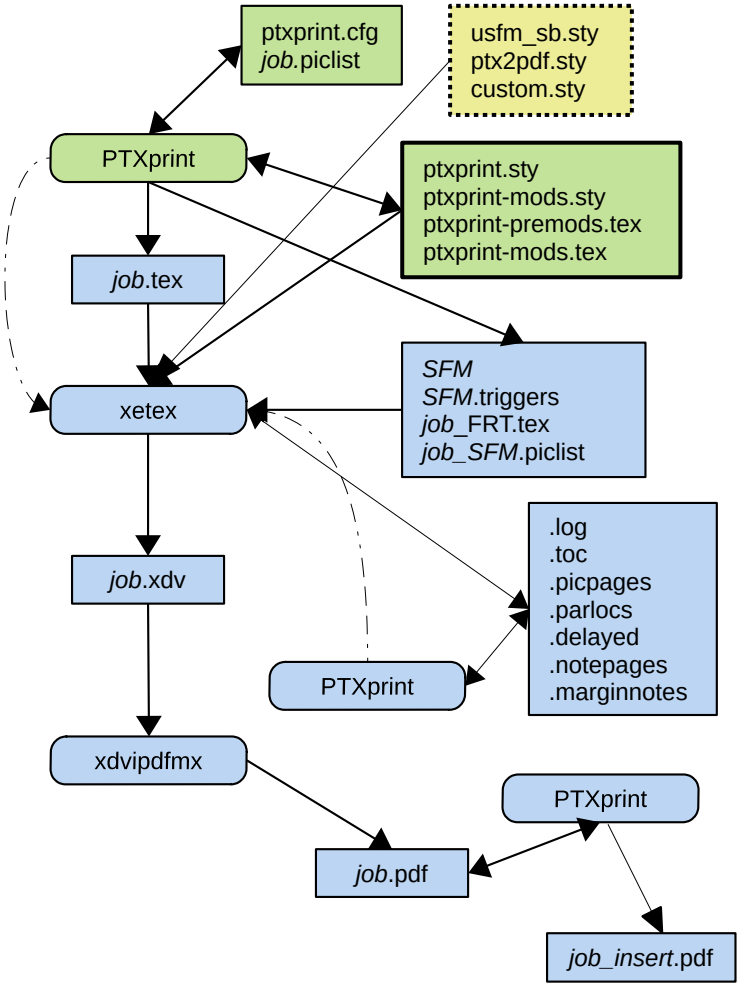
Where the commandline is not accessible, logging can be enabled by creating a file **ptxprint_logging.cfg** in C:\Users*<Username>*\AppData\Local\SIL\ptxprint on Windows or ~/.config/ptxprint on Linux. An example file is:

```
[loggers]
keys=root

[handlers]
keys=hand01

[formatters]
keys=form01

[logger_root]
level=DEBUG
handlers=hand01

[handler_hand01]
class=FileHandler
level=DEBUG
args=('c:/<writeablepath>/ptxprint_debug.log', 'w')
formatter=form01

[formatter_form01]
format=%(asctime)s.%(msecs)03d %(levelname)s:%(module)s(%(lineno)d) %(message)s
datefmt=%d/%b/%Y %H:%M:%S
class=logging.Formatter
```

Diglot merge debugging

If the debug level is 5 or less, diglot merge verification files are created, one for each glot with each chunk in it. For example, if *19PSAprimary.SFM* and *19PSAsecondary.SFM* are the (processed) primary and secondary input files, then the merged (final SFM) file is *19PSAprimary-diglot.SFM,* and the verification files, *19PSAprimary-diglot.SFM-L* and *...-R*. These can then be diffed against the originals, e.g.

```
wdiff -3  19PSAsecondary.SFM  19PSAprimary-diglot.SFM-R
```


ptxprint.cfg
job.piclist
usfm_sb.sty
ptx2pdf.sty
custom.sty
PTXprint
ptxprint.sty
ptxprint-mods.sty
ptxprint-premods.tex
ptxprint-mods.tex
job.tex
SFM
SFM.triggers
job_FRT.tex
job_SFM.piclist
xetex
.log
.toc
.picpages
.parlocs
.delayed
.notepages
.marginnotes
job.xdv
PTXprint
xdvipdfmx
PTXprint
job.pdf
job_insert.pdf

File Processing and Generated Files

[r] indicates the file is also read

Extension	Description
.tex [r]	Job file that XeTeX runs
.log	Generated log of the last XeTeX run against the .tex file
.delayed [r]	Paragraph positions of cutouts (drop chap, figures, sidebars). Is used to calculate paragraph cutouts: \DelayedItem{*type*}{*ref*}{*pageno*}{(*widthxlength in lines*@*delay*)*side*} \RaiseItem{*type*}{*ref*}{*pageno*}
.parlocs [r]	Position of the start and end of each paragraph on the page \@pgstart{*pageno*} \@colstart{*height*}{*depth*}{*width*}{*xpos*}{*ypos*} \@parstart {*baselineskip*}{*xpos*}{*ypos*} \@parlen{*ref*}{*adjustment*}{*number of lines in paragraph*} \@colstop{*xpos*}{*ypos*}
.picpages [r]	Tracks which figures are on which pages to catch them moving \figonpage{*page number*}{*figure number*}{*file name*}{*pgpos*}{*copyright*}{*misc:size, rotation, etc.*}
.notepages [r]	For per page callers, holds the first caller per page: \noteonpage{*caller*}{*pageno*}
.marginnotes [r]	Position of each margin note on the page \@marginnote{*ref*}{*marker*}{*side*}{*distance from text*}{*width*}{*height*}{*xshift*}{*yshift*}{*pageno*}{*xpos*}{*ypos*}
.fontusage	List of fonts used if \ifLogFonts true
.toc [r]	Table of Contents after processing to give different lists
_orig.toc	Copy of table of contents as generated from TeX
_FRT.sfm [r]	Generated front matter to be output
_INT.sfm [r]	Generated INT file of peripheral matter
.xdv	TeX device independent output. Generates PDF
.xdvi_log	Logs output from xdvipdfm-x, xdv to PDF conversion

Content-defining macros

Macro	Purpose
\ChapterVerseSeparator	Separator between chapter and verse in header.
\BookChapSeparator	Separator between book and chapter in header.
\RangeSeparator	A range of verses in header
\RangeChapSeparator	If a range includes a change of chapters/books in header
\MakeChapterLabel#1#2{#1\ #2}	Sequence and separator for chapter labels.
\AdornVerseNumber#1{#1}	Any ornamentation for verses
\DecorateRef#1{(#1)}	Any decoration of the reference in a figure caption
\ISBN#1	Output ISBN from TeX. (see also zISBNbarcode)
\DefineActiveChar#1#2	Mark a character as being active with the given definition
\bridgeVerses *bkkC.V-V.*	Bridges a pair of verse. Note the final . delimiter
\EndNoteSeparator	Makes the rule used before (and after) end-notes
\zBookEndDecoration	The user-interface-selected decoration at end of a book.
\zautoBookEndDecoration	Template automatically includes this at end of each book. When a user-selected decoration is included it is: \iffilehasverses\zBookEndDecoration\fi

Macro	Purpose
\bookendrule, \lastbookendrule	Macros (default empty) to draw a rule or include other content after the main content of the book, assuming the last page was not so full that it has been written to the PDF file already by the transition to single-column. \lastbookendrule is used after the final USFM file, otherwise \bookendrule is used. This content goes before any book-end hooks and automatic end-notes, whcih in turn go before BookEndDecoration

Triggers

Trigger files are included from shared/ptxprint/*config*/triggers (unless \TrigListPath has been changed), and/or the job directory. The filename consists of the job file or the filename passed to \ptxfile with .triggers appended. After a \ptxfile file has been opened successfully, *filename*-1.triggers is tried with the number increasing for each successful read.

Triggers are normally run once and then forgotten. Each takes a name and USFM content:

```
\AddTrigger name
   USFM content
\EndTrigger
```

Pattern	Description
REV20.14-preverse	Triggers before the verse number
GLOk.LakeofFire-preverse	Triggers before a glossary entry in the the GLO book
ms:zif	Triggers before any standalone milestone of type zif: \zif| file="wombats"* in any book
ms:zwombat=a542	Triggers before the unique standalone milestone \zwombat| id="a542"*
GENa542	Triggers before any standalone milestone with matching id e.g. \ zwombat|a542* in the book GEN
REV20.14	Triggers mid-paragraph, after the post-versenumber space.
GLOk.Herod	Triggers mid-paragraph, after the glossary entry \k Herod\k*
name=2	Triggers before the second paragraph after *name*

Global Settings and Commands

Global (layout-altering and *debugging*) booleans

For \ifanif, use \ifanif to test, \aniftrue to set and \aniffalse to unset.

Setting	Purpose
\ifActions	Make links active inside PDF [true]
\ifAlwaysCheckAttributes	Check all char styles for link-href attributes
\ifAttrMilestoneMatchesUnattr	Should styling specified for a milestone without an attribute be applied to a milestones with an attribute? If true, then styling specified for an e.g. \qt-s* is also applied to \qt-s| Pilate*. [false]
\ifBindingGutter	Is there a binding gutter [false[
\ifBookOpenLeft	Page order is reversed for RTL type books [false]
\ifbookresetcallers	Reset note caller sequences at the start of a book
\ifCalcChapSize	Attempt to automatically calculate drop chapter number size [true]

Setting	Purpose
\ifCaptionFirst	Output caption before image [false]
\ifCaptionRefFirst	Output reference before caption [false]
\ifColNotes	Whether to have column notes [false]
\ifColNotesRule	Output a rule separating column notes from body text [false]
\ifColorFonts	Allow coloured fonts [true]
\ifColumnGutterRule	Output a central column gutter rule [false]
\ifCropMarks	Whether to insert crop marks (and increase page size) [false]
\ifDoCaptions	Include captions in figures
\ifDropActions	Don't output PDF bookmarks [false]
\ifendbooknoeject	Don't insert a page break after this book
\iffiglocleft	Default figure positions to top left [true]
\ifFigurePlaceholder	Insert place holders instead of picture files [false]
\ifFinalNotesDown	Push notes on the final page to the bottom of the page [false]
\ifHangeVA	Also hang alternative verse numbers
\ifIncludeFigures	Include figures at all [true]
\ifIndentAfterHeading	Allow first line indentation after a heading [true]
\ifIndentAfterHeading	Allow indented paragraphs following a heading [true]
\ifIndentAtChapter	Allow indented paragraphs at chapter start with cutouts [false]
\ifJoinGutterRule	Join diglot text rule with notes rule [false]
\ifJustifyPars	Justify text [true]
\ifkeepmarginversemarkers	Insert in text markers for margin verses not output.
ifLogFonts	Generate an extra .fontusage file showing which page each new character style is first used on and what font it uses.
ifMarkAdjustPoints	Display an adjlist id for each paragraph [false]
ifMarkTriggerPoints	Display trigger points in output [false]
\ifMidPageFootnotes	Should footnotes go before a single-double column transition [false]
\ifNoHangVerseNumberOne	Don't hang verse 1 if output with a drop chap
\ifnoinkinmargin	Reduce text block to insert footer rather than in the margin [false]
\ifnoparstartmvm	Whether to exclude verse 1 in marginal verses
\ifNoteGutterRule	Insert a rule between diglot columns [true]
\ifnotesEachBook	Output endnotes at the end of each book [true]
\ifNoTransparency	Disable transparency output in PDF [false]
\ifnotocwrite	Stops the macros writing a new .orig_toc file. Good for TOC design testing.
\ifOmitBookRef	Omit the book name in the running header reference [false]
\ifOmitChapterNumber	Don't output chapter numbers [false]
\ifOmitChapterNumberRH	Omit chapter numbers from running header [false]
\ifOmitVerseNumberOne	Don't output verse 1 at the start of a chapter [false]
\ifparnoteskillprevdepth	Sets final note line baseline on the bottom of the note box
\ifparnotesmidtopskip	gridfits the top of the mid note skip
\ifparnotesruletopskip	gridfits the note rule above the note
\ifrefbookmarks	Use book codes instead of book names in bookmarks [false]
\ifsquashgridbox	Don't insert space above headings at the start of a column [true]
\ifStudyGutterRule	Output a rule separating study notes columns [false]
\iftildenbsp	Treat ~ as non breaking space [true]
\ifstretchtab	Do tabs stretch if the text is too large? [false]

Setting	Purpose
\ifTOCthreetab	Use \toc3 for tab text if no \zthumbtab [true]
\fTabsOddOnly	Only print thumb tabs on odd pages to ease ink seepage.
\iftildenbsp	~ \ | output as literals
\ifUnderlineSpaces	Underline spaces in underlined runs [true]
\ifversehyphen	In marginal verses, do we insert a hyphen between verse ranges? [true]
\ifVerseRefs	Include verses in references [true]
ifVisTrace	Insert visible trace marks in diglot output [false]
ifVistTraceExtra	Add extra information to diglot trace marks (cat alter layout) [false]
\ifXrefSideAlign	Align column notes to side and page [false]
\ifXrefTopFill	Sit column notes on the bottom of the page

Settings in ornaments plugin

ifboxorn	Display boxes around ornaments [false]
\ifClipOrnaments	Ornaments by default clip themselves to a certain box. That box is sometimes just too small for real beauty, so clipping has been disabled. \ClipOrnamentstrue restores previous behaviour.
\ifCacheOrnaments	Use (lots of) TeX boxes to store objects to reduce repeated loading [false]
\ifXformOrnaments	Use PDF's xform objects to reduce PDF size and repeated loading (experimental) [false]

Global Dimensions and Counts

For \ADimension, use \ADimension=20pt (any dimension) or \ACount=number

Dimension	Default	Description
\AboveEndNoteSpace	14pt	Space between text and end notes
\AutoCallerNumChars	26	Length of autocaller fallback sequence
\AutoCallerStartChar	97	Start of auto caller fallback sequence
\badspacepenalty	100	Penalty for a \BADBREAK
\baselineskip		Current line spacing
\lineskiplimit	0.9 x lineheight	Allowed line overlap before forced spacing
\BindingGutter	5mm	Binding gutter to use if enabled (\ifBindingGutter)
\BodyColumns	1	Number of column to use for body text
\ColumnGutterRuleSkip	0pt	Space to insert above a gutter rule
\columnshift	0pt	Space to insert before text columns (e.g. for marginal verses)
\ExtraRMargin	0pt	Extra space to take from the right of a column
\FigCreditPadding	2pt	Space to insert above and below figure credits
\FontSizeUnit	1bp	Multipler such that 12 is the desired font size
\IntroColumns	1	Number of columns for introductory text
\ISBNfontdim	10pt	Font size of ISBN barcodes
\lastnoteclubpenalty	10000	Club penalty for the last note across pages
\lastnoteinterlinepenalty	10000	interline penalty for the last note of the page
\lastnoteparpenalty	100	manual par penalty for the last note
\lastnotewidowpenalty	10000	Widow penalty for the last note across pages
\minblackline	0.25pt	Minimum line thickness for a black line (see OverThinRule)

Dimension	Default	Description
\mincolourline	0.5pt	as above for a colour line.
\minwhiteline	0.5pt	as above for a white line (presumably against a dark background)
\minfontsize	5pt	Trigger warnings if any font is smaller than this.
\NoteCallerSpace	.2em	Space following the note caller
\NoteCallerWidth	1.1ex	Width to normalise note callers to
\NoteShaveMin	1	Minimum number of lines of last note to split over
\NoteShaveStay	1	Minimum number of lines of all notes that remain
\pageno	1	Current page number
\PaperHeight	297mm	Page Height
\PaperWidth	210mm	Page width
\StudyColumnGutterRuleSkip	0pt	Space to insert above a study notes gutter rule
\TabsEnd	10pt	Distance between the lower edge of the lowermost thumb-tab and the bottom page margin (text area)
\TabsStart	10pt	Distance between the upper edge of the topmost thumb-tab and the top margin of the page (text area). Negative values may be given to extend tabs into the upper margin
\TitleColumns	1	Number of columns for a title block
\VerseBoxWidth	0pt	Allocated space for marginal verses (for wrapping)
\XeTeXgenerateactualtext	0	If non zero outputs actual text into the PDF file
\XeTeXinterchartokenstate	0	If non zero, enables intercharacter space insertion
\XeTeXinterwordspaceshaping	0	If non zero assume the primary font has contextual spaces (rare)
\XeTeXuseglyphmetrics	0	If non zero use glyph metrics for box metrics
\XrefNotesMargin	1pt	Margin between body text and column notes
\XrefNotesWidth	0pt	Width of central column notes
\XrefSkip	0pt	Insert space between cross references in centre column notes

Defined Constants

For \DefConstant, use \def\DefConstant{value}

Dimension	Default	Description
\AfterVerseSpaceFactor	2	Multiplied by \FontSizeUnit to insert after verse number in the text
\BackgroundOverrun	0.25pt	The spread beyond the text box when background colour set.
\BalanceThreshold	0.95	Don't let a full page become less full than this before taking the best unbalanced page
\BelowEndNoteRuleSpace	10pt	Space below and end note rule
\bold		Main bold body text font
\bolditalic		Main bold italic body text font
\BottomMarginFactor	\TopMarginFactor	\BottomMarginFactor * \MarginUnit space at the bottom of a page
\ChapterVerseSeparator		What to put beween chapter and verse in reference
\colshiftmode	left	left, right, inner, outer for \columnshift
\DefaultSpaceBeside	10pt	Horizontal picture margin space * 2
\EndNoteRuleThickness	0.4pt	Thickness of end note rule
\EndNoteRuleWidth	0.5	Percentage of page width for end note rule
\FooterPosition	0.5	Multiplie by \MarginUnit. Position of baseline of footer from bottom of page
\FullPageFudgeFactor	0pt	How much does a full page top aligned picture miss the top of the page by?
\GraphPaperColMajor	0.8 0.1 0.8	Colour (RGB) of major division lines
\GraphPaperColMinor	0.9 1.0 1.0	Colour (RGB) of grid lines
\GraphPaperLineMajor	0.3pt	Thickness of major division lines
\GraphPaperLineMinor	0.1pt	Thickness of grid lines
\GraphPaperMajorDiv	5	How many divisions between major ones
\GraphPaperX	2mm	Grid size horizontally
\GraphPaperXoffset	0cm	Offset from start of page to start of grid
\GraphPaperY	2mm	Grid size vertically
\GraphPaperYoffset	0cm	Offset from start of page to start of grid
\HeaderPosition	0.5	Multiplied by \MarginUnit. Position of header baseline from top of page
\horizThumbtabVadj	1sp	Distance of top of tab box to text, unrotated. 1sp ⇒ centred
\IndentUnit	1in	Dimension to multiply indentation factors by
\intercharspace	\hskip0pt	Space to insert between characters if enabled.
\internotepenalty	-10	Penalty inserted between paragraphed notes
\InterNoteSpace	3.5pt	Vertical space between note classes
\ISBNfont	"Andika"	Font to use for text in ISBN
\italic		Main italic body text font
\LineSpaceBase	14	Effect font size of a default line spacing
\LineSpacingFactor	1.0	FontSizeUnit multiplier for line spacing
\mainBodyColumns	1	How many columns for the main body text
\marginversemarker		Auto generated verse range marker in margin verses. Styled with zmvm char style
\MaxPagesPerChunk	300	Spot runaway diglots by limiting pages per chunk
\OptionalBreakPenalty	300	Penalty for an optional break
\OverThinCurve	warn	What happens if a line is too thin for reliable printing

Dimension	Default	Description
\OverThinRule	warn	(see \minblackline, \mincolourline, \minwhiteline) Options: "ignore" "warn" "warnfix" "fix" "error".
\PageFullFactor	0.9	Proportion of a page that is full before we say the page is full
\R[HF](noV|title)?(odd|even)(left|center|right)		Running header/footer tokens. noV for peripheral matter and introductions. title for pages that start with a major title.
\RangeSeparator		What to put between first - last of a reference range
\regular		Main regular body text font
\RuleThickness	0.4pt	Thickness of a rule of not otherwise specified
\SideMarginFactor	1.0	\SideMarginFactor * \MarginUnit space either side of the page
\SmallCapsSuffix	/ICU:+smcp	What to add to font definition for \SmallCaps
\SpaceShrinkFactor	\empty	Dimension of inter character shrink space
\SpaceStretchFactor	\empty	Dimension of inter character stretch space
\StringOrnamentFont	Ag Arabesque Desktop	Font to use for ornament string definitions
\StudyGutterFactor	1.0	Gutter width factor for study notes
\StudyNoteRuleThickness	0.4pt	Rule above study notes thickness
\SuperscriptFactor	0.75	Font scale factor for \Superscript
\SuperscriptRaise	0.85ex	Default raise to use for \Superscript
\TabBleed	5pt	How much tabs protrude outside the page
\TPILB	{}	Text to insert in intentional blank pages
\TopMarginFactor	1.0	\TopMarginFactor * \MarginUnit space at the top of a page
\UnderlineLower	0.2em	Distance of underline rule below lowest descender (if >=0), or below baseline (<0).
\UnderlineThickness	0.05em	Dimension of underline rule
\uselanguage{*lang*}	{}	Enable preinstalled language: USenglish, and a full list of language names from https://tug.org/texmf-dist/tex/generic/config/language.def. Lang tags: af as be bg bn ca cop cs cu cy da de-1901 de-1996 de-ch-1901 el-monoton el-polyton en-gb en-us eo es et eu fi fi-x-school fr fur ga gl gu hi hr hsb hu hy ia id it is ka kmr kn la-x-classic la-x-liturgic lt lv mk ml mn-cyrl mn-cyrl-x-lmc mr mul-ethi nb nl nn oc or pa pi pl pms pt rm ro ru sa sk sl sr-latn sr-cyrl sv ta te th tk tr uk zh-latn
\VerticalSpaceFactor	1.0	Multiplier for SpaceBefore, SpaceAfter
\vertThumbtabVadj	-2pt	Distance of top of tab box to text, rotated
\XrefNotes		Notes class to use for central notes column
\XrefSide	0	1 = Left, 2 = Right, 3 = Inner, 4 = Outer

Other TeX file commands/options

TeX	Description
\AutoCallers{*x*}{*list*}	Comma separated (no spaces) list of callers for note *x*.
\ColumnGutterFactor	Column gutter width is \ColumnGutterFactor * \FontSizeUnit. Default 15.
\NoStorePeriph{*intot*}	Immediately output the peripheral section *intot* when it is met.

TeX	Description
\NoteAtEnd{*x*}	Treat *x* as an endnote. \fe already set as endnote
\NumericCallers{*x*}	Specifies a note style that has numeric callers
\OmitCallerInNote{*x*}	Don't include a caller in this note
\PageResetCallers{*x*}	The callers for note style *x* should reset each page
\ParagraphedNotes{*x*}	Run notes in this class into one paragraph
\StorePeriph{*intot*}	Store the peripheral section *intot* for later inclusion using \zgetperiph
\StudyNotes{*x*}	Output *x* as study notes
\XeTeXlinebreaklocale	ICU locale to use for line breaking
\cstyle{sty}{text}	Format text in character style sty.

PTX Penalty Values

Penalty	Default	Description
OptionalBreakPenalty	300	\def this to set \linepenalty at //. Also sets the break for a // as -\OptionalBreakPenalty
badspacepenalty	100	Assign this as the you can break here if you must

PTX Special Spaces and Characters

The default is \def\intercharspace{\hskip 0pt}

USV	Macro	Definition
00A0	\NBSP	\nobreak\space
00AD	\SFTHYPHEN	\-
2000	\NQUAD	\BADBREAK\relax\space
2001	\MQUAD	\BADBREAK\hskip 1em plus .2em minus .2em
2002	\NSPACE	\hbox{\space} *(non-stretching space)*
2003	\MSPACE	\hskip 1em
2004	\THREEPEREMSPACE	\hskip .333em
2005	\FOURPEREMSPACE	\hskip .25em
2006	\SIXPEREMSPACE	\hskip .1666em
2009	\THINSPACE	\hskip .2em plus .1em minus .1em
200A	\HAIRSPACE	\hskip .042em\nobreak\intercharspace
200B	\ZWSP	\intercharspace
2010	\HYPHEN	\-
2011	\NBHYPHEN	\leavevmode\hbox{-}
2028	\LINESEP	\break
2060	\WJ	\leavevmode\nobreak
2063	\GOODBREAK	\penalty-\OptionalBreakPenalty
2064	\BADBREAK	\penalty\the\badspacepenalty
FEFF	\ZWNBSP	\WJ

Hooks

Sethooks

These give the values for the first parameter (pos) of \sethook{pos}{mrkr}{code}

Position	Description
before	Runs before the style is set for the marker
start	Runs within the styling of the marker before any text is output
end	Runs before the marker closes or the paragraph is closed for a paragraph style. *For book-hooks (see below), it is at the end of the content, before any endnotes.*

Position	Description
after	Runs after the marker is closed and after the paragraph is finished for a paragraph style. *For book-hooks, this is after any end-of-book rule or pagebreak.*

'mrkr' can be any marker, or a complex marker such as 'periph:intot|*nd+is2*' Only hooks for the most complex matching hook position will be triggered. i.e. setting a start hook for *nd+s2* will prevent any hook defined for *nd* from triggering in an s2 paragraph.

Other settable hooks:

\setcvhook{#1}{code}	Runs *code* at the start of the reference #1 e.g. GEN1.2 - At GEN 1:2 GEN3.0 - Just before chapter 3 of Genesis all3.0 - Just before chapter 3 in all books
\setbookhook{*pos*}{GEN}{code}	Runs *code* at start/end/after (of) GEN. If specified book is {all}, it applies to all books. {all} hooks are further from the text than {GEN} (etc) ones (i.e. start is earlier, end & final after).
\sethook{bookstart}{GEN}{code}	Alternative to setbookhook{start}
\setbookhook{*pos*}{final}{code}	Runs *code* at end/final (of) the final book
\sethook{final}{afterincludes}{code}	Runs *code* after any included PDFs
\sethook{page}{2}{code}	Runs *code* just after page 1 has been written to the PDF.
\setbetweenhook{mkr1}{mkr2}{code}	Runs *code* between paragraphs mkr1 and mkr2. e.g. if it is desirable to insert extra space between \s1 and \r but not above every \r

Note that if *code* is intended to set configuration variables with extended effect, it is probable that the prefix *global (or \gdef, \xdef)* should be used. ('probable' becomes 'certain' for page hooks, start and end hooks on character styles and anything in a table, or heading)

AddHooks

These are additive, and should be used with extreme caution to avoid conflicts.

Addhook	Description
\addtoinithooks	Run when setting up on loading the first ptx file
\addtoendhooks	Run at the very end of the document after the last page
\addtoeveryparhooks	Run before the first character is added to a paragraph
\addtoparstylehooks	Run last at the end of a paragraph style
\addtoidhooks	Run when processing a \id line
\addtoversehooks	Run after the verse number is output
\addtopreversehooks	Run before the verse number is output
\addToLeftHooks	Run each \lefttext after entering the left column
\addToRightHooks	Run each \righttext after entering the right column
\addToXHooks	Run each \polyglotcolumn X, after entering that column
\addToSideHooks{X}	Alternative to \addToXHooks
\addtoendptxhooks	Run when closing a ptx file before end notes and single column
\addtostartptxhooks	Runs before a ptx file is read

Status tests / values for hooks etc.

(These may be tested to determine the state of things. As a debugging aid, the state of many aof these, and some other internal variables are written to the log in response to meeting a \SHOWSTUFF in the USFM content).

Boolean/state	When valid	Why
\iffilehasverses	Any	False at the start of a file, set to true the first time that a \v has been met in a file.
\ifm@rksonpage	Headings	Are there any verses on the about-to-be-printed page?
\ifstartpara	Text	True if a new paragraph has been initiated (e.g by \p) but it not actually begun yet (by some text)
\prev@rsemode	Text	Empty if the verse was mid-paragraph, equal to the paragraph type (e.g. 'q2') if the verse came at the start of the paragraph.
\ifvmode	Any	TeX has different modes. This tests for vertical mode when new boxes stack vertically, spaces are ignored and text starts a new paragraph and switches to horizontal mode. \prevdepth is valid
\ifhmode	Any	TeX has different modes. This tests for horizontal mode, when new boxes add horizontally. Spaces count. True in a paragraph or within an hbox.
\prevdepth	vertical mode	The depth below the baseline of the previous box on the page. Causes an error outside vertical mode.
\iflastptxfile	Any	Set true by template before the last file
\ifinperiph	Text	True when a \periph is being expanded
\ifhe@dings	Text	True when in a headings block
\ifinextended	Text	True when in an \esb (including automatically applied ones)
\ifdoingt@ble	Text	True when in a table.
\ifinn@te	Text	True when in a footnotes
\iffirst@fterheading	Text	Is the paragraph about to start the first one after a heading?
\ifsk@pping	Text	Is this due to be discarded? (e.g. because the current paragraph is a \rem)

Dimension Units

Units	Description
pt	point
pc	pica = 12pt
in	inch = 72.27pt
bp	big point (aka postscript point) 72bp = 1in
cm	centimeter: 2.54cm = 1in

mm	millimeter = 0.1cm
dd	didot point: 1157 dd = 1238pt
cc	cicero = 12dd
sp	scaled point: 65536 sp = 1 pt

Layout Versions

Here we list the changes that were introduced at each layout version increase.
Test using \ifversion{*n*}{new code}{old code}. New code is for \ptxversion == 0 or >= *n*.

Version	Description
2	Subtract space below from space above+space below, thus decreasing the space above note rules. Fix asymmetric ISBN layout. Intro pages don't force the next book onto an odd page if the intro is missing. Don't increase linespacing for raised or lowered boxes. Don't shrink/stretch footnote text based on the paragraph the note is in.

Tracing Codes

\tracing{**x**} where **x** is one of the codes shown below:

Code	Description
a	Trace everything!
A	Show attribute processing
b	Give information on page balancing for external analysis
B	Underfull pages
C	Show cutout calculations
c	Show chapters
ch	Active characters
cov	Covers
d	Diglot construction
dP	Diglot page usage
D	Diglot gory details
De	Diglot repetitive commands (each@col)
Df	Diglot footnote separation
Dh	Diglot available height extra details
Ds	Diglot stylesheet
dm	Diglot module
dmp	Diglot module: polyglot
e	Extended USFM (mainly side bars and categories)
eb	Extended borders
ebi	Border style inheritance
et	textborders
f	**footnotes**
F	**fonts**
g	figures
G	shipping pages
gI	figure inserts - tracking saving / restoring of inserts
h	headings
hv	hanging verses
H	Headers, marks, etc
i	inserts (tracking the value of holdinginserts)
I	ifchecks
j	**paragraph adjustments** (for seeing where it loses sync)
m	milestones
mx	milestones: expand content
M	markers
n	notes
nS	note saving / restoring
o	**output routines / rebalancing**
oh	other (not stylesheet) hooks
orn	Ornaments
p	page output
pt	Page tabs
P	Piclists
s	**stylesheet**
sa	stylesheet additional debugging
spv	stylesheet parameter lookups that return void
ss	style start/stop
sP	Stylesheet everypar/chapter
sc	Stylesheet category
sC	Stylesheet Cache
sh	Stylesheet-related hooks
sk	Style stacK and option stack operations

sko	Style stack option-list building	u	'Unprintable' pages (e.g. triggered images don't fit)
S	side-dependent swapping		
t	Tables and table of contents	V	verse numbers
T	**Triggers**	v	marginal verses

TeX Info

Tracers

Property	**Description**
\tracingcommands	Show each command as it executes, =3 to see logic path
\tracinglostchars	Show all missing characters
\tracingmacros	Show each macro, its expansion and parameters
\tracingonline	Output \showbox to the terminal as well as the .log
\tracingoutput	Outputs the contents of each page to the log
\tracingpages	Show page break decision process
\tracingparagraphs	Show line breaking decision process
\tracingrestores	Trace removals from the 'save stack' for local variables
\tracingstats	Show resource usage stats at the end of the log
\tracingifs	Trace each \if, \else and \fi
\tracingassigns	When values are set.
\tracinggroups	Begin/end group scopes

Horizontal Penalties and Demerits

demerits = badness^2+penalty^2 Set values: e.g. \linepenalty=500

Penalty	**Default**	**Use**
linepenalty	10/1000	Penalty for ending a line. Increase to reduce paragraph lengths.
hyphenpenalty	50	Penalty of inserting a discretionary break (hyphen) (10000 in headings)
exhyphenpenalty	50	Hyphen penalty if nothing is output
XeTeXlinebreakpenalty	0	Inserted at every XeTeXlinebreaklocale induced line break
doublehyphendemerits	5000	Extra cost to each line of multiple lines in sequence ending in a discretionary break
finalhyphendemerits	10000	Extra cost if the second-last line ends in a discretionary break
adjdemerits	10000	Extra cost if two lines have different tightnesses. I.e. don't let one line shrink and an adjacent one stretch.

Vertical Penalties

Excludes display and match penalties

Penalty	**Default**	**Use**
clubpenalty	150/10000	Extra penalty at the end of the first line of a paragraph
widowpenalty	150/10000	Extra penalty before the last line of a paragraph
brokenpenalty	100/50	Extra penalty for a line ending with a discretionary break.
interlinepenalty	0	Base penalty at the end of every line (10000 inside heading)
outputpenalty	10000	The penalty that caused the start of this page, or 10000
insertpenalties	/0	Penalty for adding an insert to a page
floatingpenalty	/500	Added to insertpenalties on insert split across pages.

Booknames

3 Ltr	2 Ltr	Name
GEN	GE	Genesis
EXO	EX	Exodus
LEV	LE	Leviticus
NUM	NU	Numbers
DEU	DT	Deuteronomy
JOS	JS	Joshua
JDG	JG	Judges
RUT	RU	Ruth
1SA	1S	1 Samuel
2SA	2S	2 Samuel
1KI	1K	1 Kings
2KI	2K	2 Kings
1CH	3K	1 Chronicles
2CH	4K	2 Chronicles
EZR	ER	Ezra
NEH	NE	Nehemiah
EST	ES	Esther
JOB	JB	Job
PSA	PS	Psalms
PRO	PR	Proverbs
ECC	EC	Ecclesiastes
SNG	SS	Song of Songs
ISA	IS	Isaiah
JER	JE	Jeremiah
LAM	LA	Lamentations
EZK	EZ	Ezekiel
DAN	DA	Daniel
HOS	HO	Hosea
JOL	JL	Joel
AMO	AM	Amos
OBA	OB	Obadiah
JON	JO	Jonah
MIC	MI	Micah
NAM	NA	Nahum
HAB	HB	Habakkuk
ZEP	ZP	Zephaniah
HAG	HG	Haggai
ZEC	ZE	Zechariah
MAL	MA	Malachi
MAT	MT	Matthew
MRK	MK	Mark
LUK	LK	Luke
JHN	JN	John
ACT	AC	Acts
ROM	RO	Romans
1CO	1C	1 Corinthians
2CO	2C	2 Corinthians
GAL	GA	Galatians
EPH	EP	Ephesians
PHP	PH	Philippians
COL	CL	Colossians
1TH	1T	1 Thessalonians
2TH	2T	2 Thessalonians
1TI	3T	1 Timothy
2TI	4T	2 Timothy
TIT	TT	Titus
PHM	PM	Philemon
HEB	HE	Hebrews
JAS	JA	James
1PE	1P	1 Peter
2PE	2P	2 Peter
1JN	1J	1 John
2JN	2J	2 John
3JN	3J	3 John
JUD	JD	Jude
REV	RE	Revelation
TOB	TO	Tobit
JDT	JT	Judith
ESG	EG	Esther Greek
WIS	WI	Wisdom of Solomon
SIR	SI	Sirach also Ecclesiasticus
BAR	BA	Baruch
LJE	LJ	Letter of Jeremiah
S3Y	S3	Prayer of Azariah and the Song of the Three Jews
SUS	SU	Susanna
BEL	BE	Bel and the Dragon
1MA	1M	1 Maccabees
2MA	2M	2 Maccabees
3MA	3M	3 Maccabees
4MA	4M	4 Maccabees
1ES	1E	1 Esdras (Greek)
2ES	2E	2 Esdras (Latin)
MAN	MN	Prayer of Manasseh
PS2	P2	Psalm 151
ODA	OD	Odes
PSS	P4	Psalms of Solomon
JSA	JH	Joshua A.
JDB	JI	Joshua B.
TBS	TB	Tobit S.
SST	ST	Susanna Th.
DNT	DN	Daniel Th.
BLT	BL	Bel Th.
3ES	3E	3 Ezra
EZA	EA	Apocalypse of Ezra

5EZ	5E	5 Ezra
6EZ	6E	6 Ezra
DAG	DG	Daniel (in Greek)
PS3	P3	Psalms 152-155
2BA	2B	2 Baruch (Apocalypse)
LBA	LB	Letter of Baruch
JUB	JU	Jubilees
ENO	EN	Enoch
1MQ	1Q	1 Meqabyan/Mekabis
2MQ	2Q	2 Meqabyan/Mekabis
3MQ	3Q	3 Meqabyan/Mekabis
REP	RE	Reproof (Proverbs 25-31)
4BA	4B	4 Baruch (Rest of Baruch)
LAO	LO	Letter to the Laodiceans
FRT	FR	Front Matter
GLO	GL	Glossary / Wordlist
CNC	CC	Concordance
XXA	XA	Extra Material
XXB	XB	Extra Material
XXC	XC	Extra Material
XXD	XD	Extra Material
XXE	XE	Extra Material
XXF	XF	Extra Material
XXG	XG	Extra Material
XXS	XS	Extra Material (not in PT)
BAK	BK	Back Matter
OTH	OT	Other Matter
INT	IN	Introductory Peripherals
TDX	TX	Topical Index
NDX	NX	Names Index

Regexp

Special Characters

.	**Matches any character except a newline**.
^	**Matches the start of the string**.
$	**Matches the end of the string or just before the newline at the end of the string.**
*****	**Matches 0 or more (greedy) repetitions of the preceding RE**. Greedy means that it will match as many repetitions as possible.
+	Matches 1 or more (greedy) repetitions of the preceding RE.
?	**Matches 0 or 1 (greedy) of the preceding RE.**
***?,+?,??**	**Non-greedy versions of the previous three special characters.**
*+,++,?+	Possessive versions of the previous three special characters.
{m,n}	**Matches from m to n repetitions of the preceding RE.**
{m,n}?	Non-greedy version of the above.
{m,n}+	Possessive version of the above.
{...}	Fuzzy matching constraints.
\\	Either escapes special characters or signals a special sequence.
[...]	**Indicates a set of characters**. A "^" as the first character indicates a complementing set.
|	A|B, creates an RE that will match either A or B.
(...)	Matches the RE inside the parentheses. The contents are captured and can be retrieved or matched later in the string.
(?flags-flags)	VERSION1: Sets/clears the flags for the remainder of the group or pattern; VERSION0: Sets the flags for the entire pattern.
(?:...)	**Non-capturing version of regular parentheses.**
(?>...)	Atomic non-capturing version of regular parentheses.
(?flags-flags:...)	Non-capturing version of regular parentheses with local flags.
(?P<name>...)	The substring matched by the group is accessible by name.
(?<name>...)	The substring matched by the group is accessible by name.
(?P=name)	Matches the text matched earlier by the group named name.
(?#...)	A comment; ignored.
(?=...)	**Matches if ... matches next, but doesn't consume the string.**
(?!...)	**Matches if ... doesn't match next.**
(?<=...)	**Matches if preceded by ....**
(?<!...)	**Matches if not preceded by ....**
(?(id)yes|no)	Matches yes pattern if group id matched, the (optional) no pattern otherwise.
(?(DEFINE)...)	If there's no group called "DEFINE", then ... will be ignored, but any group definitions will be available.
(?|...|...)	(?|A|B), creates an RE that will match either A or B, but reuses capture group numbers across the alternatives.
(*FAIL)	Forces matching to fail, which means immediate backtracking.
(*F)	Abbreviation for (*FAIL).
(*PRUNE)	Discards the current backtracking information. Its effect doesn't extend outside an atomic group or a lookaround.
(*SKIP)	Similar to (*PRUNE), except that it also sets where in the text the next attempt at matching the entire pattern will start. Its effect doesn't extend outside an atomic group or a lookaround.

Escapes

\number	Matches the contents of the group of the same number if number is no more than 2 digits, otherwise the character with the 3-digit octal code.
\a	Matches the bell character.
\A	Matches only at the start of the string.
\b	Matches the empty string, but only at the start or end of a word.
\B	Matches the empty string, but not at the start or end of a word.
\d	**Matches any decimal digit**; equivalent to the set [0-9] when matching a bytestring or a Unicode string with the ASCII flag, or the whole range of Unicode digits when matching a Unicode string.
\D	Matches any non-digit character; equivalent to [^\d].
\f	Matches the formfeed character.
\g<name>	Matches the text matched by the group named name.
\G	Matches the empty string, but only at the position where the search started.
\h	Matches horizontal whitespace.
\K	Keeps only what follows for the entire match.
\L<name>	Named list. The list is provided as a keyword argument.
\m	Matches the empty string, but only at the start of a word.
\M	Matches the empty string, but only at the end of a word.
\n	**Matches the newline character.**
\N{name}	Matches the named character.
\p{name=value}	**Matches the character if its property has the specified value.**
\P{name=value}	Matches the character if its property **hasn't** the value.
\r	**Matches the carriage-return character.**
\s	**Matches any whitespace character;** equivalent to [\t\n\r\f\v]**.**
\S	Matches any non-whitespace character; equivalent to [^\s].
\t	Matches the tab character.
\uXXXX	**Matches the Unicode codepoint with 4-digit hex code XXXX.**
\UXXXXXXXX	Matches the Unicode codepoint with 8-digit hex code XXXXXXXX.
\v	Matches the vertical tab character.
\w	Matches any alphanumeric character; equivalent to [a-zA-Z0-9_] when matching a bytestring or a Unicode string with the ASCII flag, or the whole range of Unicode alphanumeric characters (letters plus digits plus underscore) when matching a Unicode string. With LOCALE, it will match the set [0-9_] plus characters defined as letters for the current locale.
\W	Matches the complement of \w; equivalent to [^\w].
\xXX	Matches the character with 2-digit hex code XX.
\X	**Matches a grapheme.**
\Z	Matches only at the end of the string.
\\	Matches a literal backslash.

Flags

A	a	ASCII	Make \w, \W, \b, \B, \d, and \D match the corresponding ASCII character categories. Default when matching a bytestring.
B	b	BESTMATCH	Find the best fuzzy match (default is first).
D		DEBUG	Print the parsed pattern.
E	e	ENHANCEMATCH	Attempt to improve the fit after finding the first fuzzy

			match.
F	f	FULLCASE	Use full case-folding when performing case-insensitive matching in Unicode.
I	**I**	**IGNORECASE**	**Perform case-insensitive matching.**
L	L	LOCALE	Make \w, \W, \b, \B, \d, and \D dependent on the current locale. (One byte per character only.)
M	**m**	**MULTILINE**	"^" matches the beginning of lines (after a newline) as well as the string. "$" matches the end of lines (before a newline) as well as the end of the string.
P	p	POSIX	Perform POSIX-standard matching (leftmost longest).
R	r	REVERSE	Searches backwards.
S	**s**	**DOTALL**	"." matches any character at all, including the newline.
U	u	UNICODE	Make \w, \W, \b, \B, \d, and \D dependent on the Unicode locale. Default when matching a Unicode string.
V0	V0	VERSION0	Turn on the old legacy behaviour.
V1	V1	VERSION1	Turn on the new enhanced behaviour. This flag includes the FULLCASE flag.
W	w	WORD	Make \b and \B work with default Unicode word breaks and make ".", "^" and "$" work with Unicode line breaks.
X	**x**	**VERBOSE**	Ignore whitespace and comments for nicer looking REs.

Properties

Property	Description
age	version character introduced
bc	**Bidi Class**, takes Bidi class values (AL, L, R, BN, etc.)
blk	Unicode block. E.g. Arabic_Ext_A, ASCII, etc.
ccc	Canonical combining class (or order)
dt	Decomposition type: Can, Com, Enc, etc.
ea	East Asian Width: A, F, H, N, Na, W
gc	**General Category**: L, Lo, Ll, M, Mc, Mn, P, etc.
GCB	Grapheme Cluster Break: SM, T, CN, etc.
hst	Hangul Syllable Type: L, LV, LVT, NA, T, V
InPC	**Indic Positional Category**: Bottom_And_Left, Left, etc.
InSC	**Indic Syllabic Category**: Bindu, Invisible_Stacker, Modifying_Letter, etc.
JSN	Jamo Short Name: A, AE, B, BB, BS, etc.
jg	Joining Group: Beh, African_Feh, Heh_Goal, Malayalam_Ja, etc.
jt	Joining Type: C, D, L, R, T, U
lb	**Line Break**: AI, AL, B2, BA, BB, BK, CB, etc.
NFC_QC	NFC Quick Check: M(aybe), N(o), Y(es)
NFKC_QC	NFKC Quick Check: M, N, Y
nt	Numeric Type: De(cimal), Di(git), None, Nu(meric)
sc	**Script**: value is 4 letter script code in title case
SB	Sentence Break: AT, CL, CR, EX, FO, LE, LF, LO, NU, SC, SE, SP, ST, UP, XX
vo	Vertical Orientation: R, Tr, Tu, U
WB	Word Break: CR, DQ, Extend, FO, etc.

Binary Properties

Property	Description
AHex	ASCII Hex Digit
Alpha	Alphabetic
Bidi_C	Bidi Control
Bidi_M	Bidi Mirrored
CI	Case Ignorable
Cased	Cased (has case)
CWCF	Changes When Casefolded
CWCM	Changes when Casemapped
CWL	Changes when lowercased
CWKCF	Changes when NFKCCasefolded
CWT	Changes when Titlecased
CWU	Changes when UPPERCASED
CE	Composition Exclusion
Dash	Is a Dash
DI	Default Ignorable Code Point
Dep	Deprecated
Dia	Diacritic
Emoji	Emoji
EComp	Emoji Component
EMod	Emoji Modifier
EBase	Emoji Modifier Base
EPres	Emoji Presentation
XO_NFC	Expands on NFC
XO_NFD	Expands on NFD
XO_NFKC	Expands on NFKC
XO_NFKD	Expands on NKKD
ExtPict	Extended Pictograph
Ext	Extender
Comp_Ex	Full Composition Exclusion
Gr_Base	Grapheme Base
Gr_Ext	Grapheme Extend
Gr_Link	Grapheme Link
Hex	Hex Digit
Hyphen	Hyphen
IDSB	Ideographic Descriptive Sequence Binary Operator
IDST	Ideographic Descriptive Sequence Trinary Operator
IDC	Ideographic Descriptive Sequence Continue
IDS	Ideographic Descriptive Sequence Start
Ideo	Ideographic
Join_C	Join Control
LOE	Logical Order Exception
Lower	Lowercase
Math	Math
NFD_QC	NFD Quick Check
NFKD_QC	NFKD Quick Check
NChar	Noncharacter Code Point
OAlpha	Other Alphabetic
ODI	Other Default Ignorable Code Point
OGr_Ext	Other Grapheme Extend
OIDC	Other ID continue
OIDS	Other ID Start
OLower	Other Lowercase
OMath	Other Math
OUpper	Other Upper
Pat_Syn	Pattern Syntax
Pat_WS	Pattern Whitespace
PCM	Prepended Concatenation Mark
QMark	Quotation Mark
Radical	Radical
RI	Region Indicator
STerm	Sentence Terminal
SD	Soft Dotted
Term	Terminal Punctuation
UIdo	Unified Ideograph
Upper	Uppercase
VS	Variation Selector
WSpace	White Space
XIDC	XID Continue
XIDS	XID Start

Character Sets

See UTR#18. Binary properties take no value. All gc property values are treated as binary properties.

Character Set	**Description**
[*charlist*]	list of chars. Ranges separate first and last by '-'
[^*charlist*]	charset of non matching chars
\p{*property*}	charset containing all characters with the property
\p{*property=value*}	charset of all characters whose property is value
\P{*property[=value]*}	same as [^\p{*property[=value]*}]
[:*property[=value]*:]	legacy version of \P{*property[=value]*}

Character sets may be combined using relation operators:

Relation	**Description**
||	union: A∪B. Also absence of operator
&&	intersection: A∩B
--	set difference: A \B (in A but not in B)
~~	symmetric difference: A⊖B = (A∪B)\(A∩B)

Printers

In the documentation above, there are various printer-compatability measures: \minblackline, \mincolourline, \minwhiteline, \minfontsize.
Line widths below the specified size can trigger a warning, a correction or an error; see \OverThinRule (to specify the response for plain and double rules and borders) and \OverThinCurve (for ornamental rules and borders). Oversmall fonts trigger a warning.

Pretore

Lines no thinner than 0.35pt. Diapositive (colour/grey) lines and cutouts at least 0.5pt
Black print qualities: low, medium, high
Bleeds to 3mm. Content should be 3mm from trim line.
Min page width: 85mm (3.34in)

Maximum page width

Bandwidth	278mm (10.94in)	349mm (13.74in)	424mm (16.69in)
Max page width	120mm (4.72in)	160mm (6.29in)	190mm (7.48in)

Covers

Hard cover bleed: 20mm (0.78in)
Soft cover bleed: 3mm (0.118in)
Hard cover > 148x210mm. Diversion: 3mm (0.118in)
Hard cover < 148x210mm. Diversion: 2mm (0.078in)
Soft cover. Diversion: 0mm

Paper Thickness

Weight (gsm)	33	36	40	50	60
Thickness (µm)	37	43	47	60	70