

OpenType Features

There are plenty of free fonts available such as Palatino Linotype (distributed with Windows XP) that contain some OpenType features. Windows Vista includes several fonts such as Calibri, Cambria, or Constantia, which are included with the free [PowerPoint Viewer](#), and Windows 7 includes Gabriola, a script font that contains alternative swash character sets.

Many different [OpenType features](#) are possible. The features available in a font are shown in the OpenType Details Tab of the Format Character dialogue, which shows what happens on selecting any feature. Stacking fractions will replace the more usual design. These are preferable for use with measurements using fractions of an inch, for example.

If the user types 123 and selects the Superscript feature, it will display as ¹²³ using superscripts that are designed to match the weight of the font at small sizes. If Format Character is used to apply superscripts, the numbers will be smaller, but will be too light: ¹²³ not ¹²³ and the vertical position may not be as designed. Small Capitals suffer from similar problems as well as being taller than the x-height.

Many modern fonts use lining figures, which are a uniform width, and that are aligned to the height of capital letters in fonts. A few, like Georgia, use OldStyle Figures, which align with the x-height and so look better when used in body text. Linotype Palatino includes OldStyle Figures as well as proportionally spaced figures, either of which can be selected by enabling the appropriate OpenType feature.

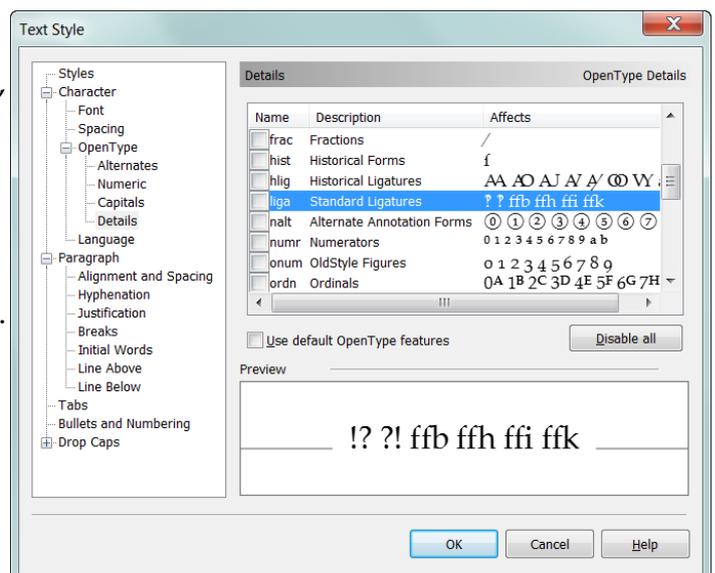
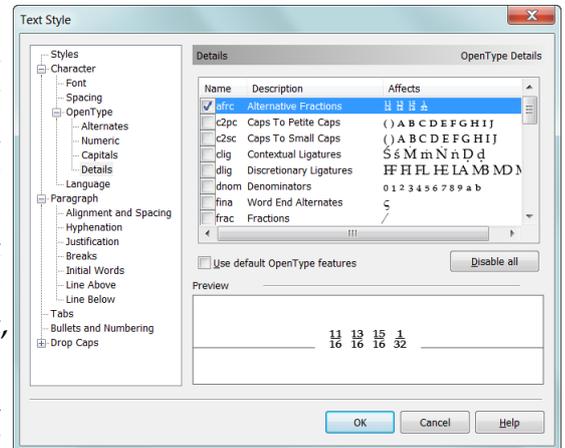
If standard ligatures are enabled, when the user types “first offer” it is automatically changed to “first offer,” and if discretionary ligatures are also enabled it is converted to “first offer.”

If the Insert Symbol dialogue is used to add ligatures these words will be underlined as spelling errors. Also, if OpenType features are used, searching for “first offer” will find the text as usual, but if Alphabetic Presentation forms are used, the user must enter these glyphs in the find dialogue, which is much less convenient. Using the insert symbol dialogue is not only slow, but if glyphs are not found in other fonts, you will get errors when changing fonts. OpenType features avoid this problem.

Glyph Substitutions

This PDF uses my own [Pali OpenType font](#), which includes OpenType features such as Petite Capitals, Standard Ligatures, and Discretionary ligatures. They use glyph substitutions — that is, if the feature is enabled, some letters or several letters will be substituted with another glyph.

[Standard Ligatures](#) are found in many fonts. Even fonts without OpenType features may have a few Alphabetic Presentation Forms such as ff and fl. When the user types ff or fl with Standard Ligatures enabled, these Alphabetic Presentation Forms are substituted for the glyphs ff, fl, ffi, ffl wherever they are used, for example, in words like *effect*. In PagePlus X5 or later this can be done for all fonts with Alphabetic Presentation Forms by using the ligature option on the formatting dialogue, even if the font lacks OpenType ligatures. Standard ligatures should be used if the font contains them, as they are designed to avoid the unsightly clashes that occur when certain letter pairs are adjacent. My own fonts include less common Standard Ligatures for pairs like fb, fk, fh, tt, or ty, and for interrobang?



DISCRETIONARY LIGATURES, as the name implies, are optional. They are stylistic alternative forms. Hand-written manuscripts often contain ligatures, or pairs of letters with connecting strokes. Letter pairs with discretionary ligatures in my fonts are: Th ck cky ct it ip ky sp tw tz, FF FI FL HE LA MB MD ME MP MR NK NT CC CG CD TT TW TY UB UD UP and UR. It is easy to enable/disable discretionary ligatures for individual words or sentences using the OpenType icon on the text context toolbar, e.g. LØK or LOOK.

PETITE CAPITALS substitute lowercase glyphs with x-height uppercase glyphs. Small Capitals are designed for subheadings. Petite Capitals are designed for use in BODY TEXT, and so match the x-height of the font, while SMALL CAPITALS are usually 70-80% of the height of capitals. To force Small Capitals for capital letters enable the CAPITALS TO SMALL CAPITALS FEATURE, which can be mixed with PETITE CAPITALS or SMALL CAPITALS My Pali font includes Small Capitals, which are about 80% of the Caps-height.

PETITE CAPITALS: SMALL CAPITALS

TITLING CAPITALS

TITLING CAPITALS

Titling Capitals are slightly lighter and more generously spaced than regular capitals. They are designed for use at large point sizes for book titles or on posters.

Scientific Inferiors should be used instead of subscripts in formulae.

Scientific Inferiors H₂SO₄ C₄H₅ : H₂SO₄ C₄H₅ Subscripts

Alternative (Stacking) fractions are designed for typesetting measurements in feet and inches:

1½" 2⁵/₁₆" 3¹/₈" 4³¹/₆₄" 5⁷/₃₂" 6⁵/₆" 7⁵/₈" 8⁷/₈"

Regular fractions don't look so neat. To use whole numbers with regular fractions the feature must be disabled for the whole number to prevent it being treated as **part of the numerator**:

1½" **25/16"** 3¹/₈" 4³¹/₆₄" 5⁷/₃₂" **65/6"** **75/8"** 8⁷/₈"

Alternate Annotation Forms

Alternate Annotation Forms replace digits ①②③ and ©apitals with Ⓔnclosed Ⓐlphanumerics. They are not designed for use with body text, but for lists or artistic text.

Ornaments

The Ornaments feature replaces numbers and text with dingbats. Expert users may prefer this to using the insert symbol feature. It is designed for use with lists. 123 = **❶❷❸**, ABC-XYZ = **✕✕✕-☆☆☆** The feature is listed as "Unknown" in the OpenType details dialog, but PagePlus does support this feature.

Stylistic Alternates

With Stylistic Alternates enabled, if the user types * + @ † ‡ • or © a selection of related glyphs can be selected by using the OpenType icon on the context toolbar. Instead of * + @ † ‡ • © the user can choose one of five alternate sets to get: 1) * + @ † ‡ • © 2) * + @ † ‡ • © 3) * + @ † ‡ • © 4) * + @ † ‡ • © or 5) * + @ † ‡ • © **Again**, it is easy to enable or disable this feature for individual letters or sentences by using the **O**penType flyout on the text context toolbar.

The Gabriola font that comes with Windows 7 includes some fancy swashes and Alternative Glyph Designs as Stylistic Alternates.

Contextual Ligatures

Some scholars use the [Velthuis system](#) for typing Pāli. By enabling [contextual ligatures](#), doubled vowels are converted to macron vowels: Ā, Ī, Ū, ā, ī, ū, and a period followed by Pali consonants have a dot below: ḍ, ḷ, ṃ, ṇ, ṛ, ṣ, ṭ, etc. This is an unusual way of using this feature. It is more usual for them to be used in handwriting fonts to ensure continuous connections between different letter pairs, or to use a different glyph form at the start or end of a word.

Default Settings for OpenType Features

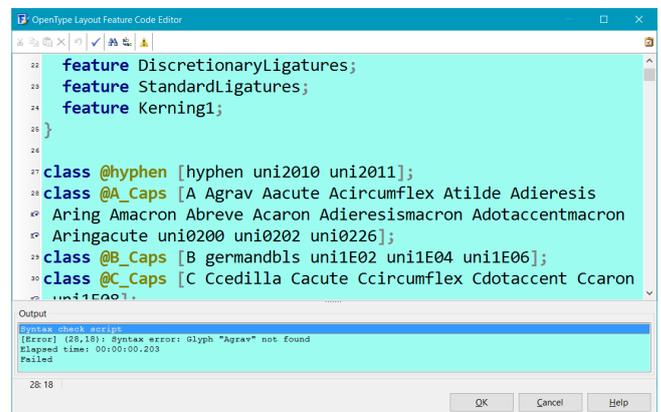
[Standard ligatures](#), [Contextual Ligatures](#), and [Required Ligatures](#) should all be active by default according to Microsoft's recommendations. Unlike InDesign, which does it correctly, PagePlus disables them by default to avoid confusing users? Modify the paragraph styles to enable them by default.

Adding OpenType Features

[FontCreator](#) from High-Logic adds OpenType Features automatically if suitable glyphs exist in the font. The Professional Edition allows OpenType Features to be decompiled and edited. Recent versions of FontCreator have made it ever easier to add and edit OpenType features in a visual way without understanding too much about scripting.

However, the Code Editor may still be used for those who prefer that approach. Scripts can be imported and exported as plain text, so you can edit them in your favourite text editor and copy/paste or import them into the editor. Clicking the Tick icon will compile the script and report any syntax errors in the output pane. Double-click on the error to highlight the line in the code editor to correct the intentional typo of "Agrav" to "Agrave." The errors can be copied to the clipboard for editing in your favourite text editor if that's easier for you.

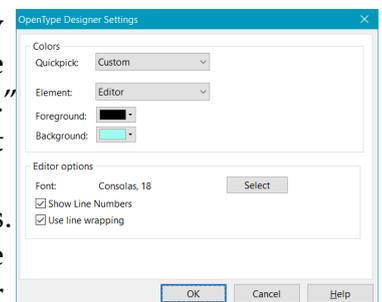
The Code Editor can be customised to use larger fonts or different colours. Click on the icon at the top right of the editor to open the settings dialogue where you can choose from any available monospaced fonts, and set a softer background colour than the default brilliant white.



```
22 feature DiscretionaryLigatures;
23 feature StandardLigatures;
24 feature Kerning1;
25 }
26
27 class @hyphen [hyphen uni2010 uni2011];
28 class @A_Caps [A Agrav Aacute Acircumflex Atilde Adieresis
29 Aring Amacron Abreve Acaron Adieresismacron Adotaccentmacron
30 Aringacute uni0200 uni0202 uni0226];
31 class @B_Caps [B germandbls uni1E02 uni1E04 uni1E06];
32 class @C_Caps [C Ccedilla Cacute Ccircumflex Cdotaccent Ccaron
33 uni1E07];
```

Output

```
[Error] (28,18): Syntax error: Glyph "Agrav" not found
Elapsed time: 00:00:00,203
Failed
```



Deciding on the Features to Add

I add a lot of features to my fonts just because I can, and because I want to test out various ideas. To begin with, just add the features that you need — perhaps Standard Ligatures and Small Capitals and/or Petite Capitals will be enough. Consider whether or not you need glyphs for accented Small Capitals or Greek Small Capitals. Look at professional fonts to see what special glyphs and ligatures they include.

See my [FontCreator Review](#) for some videos on adding OpenType features.

Adding the Required Glyphs

Adding [composite glyphs](#) to a font is quick and easy once you have created the base glyphs, but you may also want to add Low Profile accents designed to work with the smaller capital letters. If these smaller low profile accents exist in a font, FontCreator's Complete Composites feature will use them for Capitals, Small Capitals, or Petite Capitals. Future versions of FontCreator will allow the use of complete composites with unmapped glyphs, e.g. by combining lowprofileacuteaccent (´) with a.smcp (A), positioning it centred over the base glyph at an appropriate height (Á), leaving only a minimum of manual adjustments to be made for some glyphs.

Editing Glyph Names

FontCreator generates glyph names automatically, but the script used to add OpenType features needs to know what these names are. The default for any glyphs mapped to the Private Use Area is the hexadecimal Unicode mapping value, so Petite Capital A would be named uniE2F1, which is not very user-friendly when editing scripts. I recommend using glyph names with a suffix that is shared by the OpenType Feature's tag. In this case, uniE2F1 would be renamed as "a.pcap," uniE2F2 would be "b.pcap," *etc.*, or if you were designing Small Capitals, you would use "a.smcp," "b.smcp," *etc.* This **optional** step makes it much easier to edit and debug the script used to add OpenType features. Glyph names can be copied to other fonts, or a font can be used as a template for creating other fonts, so this naming process only needs to be done once. If glyphs are renamed in FontCreator using the Properties toolbar, the names are automatically modified in the OpenType feature script too, and vice versa. If you're not afraid to do some simple coding in a text editor, you can modify glyphnames.dat in FontCreator's Application Data folder. The text file is simple to understand. Each line contains a hexadecimal code-point, a semicolon, and the glyph name. Just add lines in ascending order of code-point, with the glyph names you wish to use, e.g.

Code-point;Glyph Name

```
1D00;a.smcp
E015;lowprofilegrave
E026;lowprofilecommabelow
E2C0;zero.onum
E2C9;nine.onum
E2D1;A.titl
E2EA;Z.titl
E2F1;a.pcap
E30A;z.pcap
EAA1;A.sups
EB5A;uacute.sups
EBA0;longsadieresis
EBAE;longsk
EC73;onethird.afrc
ECB7;sixtythreesixtyfourths.afrc
EEC4;ck (c_k is recommended, but ease of use is more important to me)
EFD6;ffk
FB00;ff (f_f is recommended, but ease of use is more important to me)
FB0D;sk
1F300;cyclone
1F305;sunrise
1F32C;windblowingface
```

Just add whatever glyphnames you want to use, at the appropriate Unicode codepoints. FontCreator uses the Private Use Area extensively for mapping glyphs for OpenType features, so check the documentation on this first.

There is also a free Microsoft tool called [VOLT](#) (Visual OpenType Layout Tool) that can be used to add OpenType Features. The latest version of FontCreator can import data from VOLT projects.