

Using OpenType Features in LibreOffice

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Note: Part I provides background for those who have little or no experience using OpenType. If you are already familiar with OpenType features and just want to learn how to access them in LibreOffice, you can go directly to Part II. You might also need to read Part IB if you have worked with OT features through a graphical interface rather than by using four-character codes.

N.B.: names of keys on the keyboard are shown in small capitals (ENTER, TAB, etc.).

I. About OpenType

A. Introduction

OpenType (abbreviated OT hereafter) is a font technology that enables the appearance of characters to be changed without altering the underlying text. Why would one want such a thing?

In some languages, characters may need to be reshaped depending on context. In Arabic, for instance, letters have different shapes depending on whether they come at the beginning of a word, in the middle, or at the end. The user types a letter and the appropriate shape is displayed. In languages like Arabic, the operating system automatically applies the needed OT features without intervention by the user. Windows and Linux use OT to support such complex scripts (Mac OS X uses a different technology for this).

In languages that do not require reshaping, OT provides access to many refinements traditionally used in high-quality typography. In the remainder of this article we will focus on such typographic features that users may wish to apply to their text. Here is one example.

Numerals can be lining 0123456789 or oldstyle 0123456789. The latter are designed to fit better among words in running text. Each numeral can be designed to take up the same width as the others, which makes numbers in tables line up nicely, or numerals can be proportional, where (for instance) '1' is narrower than '0'.

He was born on June 10, 1781 in a small village.	Lining tabular numerals
He was born on June 10, 1781 in a small village.	Oldstyle tabular numerals
He was born on June 10, 1781 in a small village.	Oldstyle proportional numerals

OpenType includes features for lining, oldstyle, tabular and proportional numerals. Most fonts use lining tabular numerals as the default, although some feature oldstyle unless lining numerals are specifically requested.

Font designers use four-character codes to specify OT features, such as the following:

lnum = lining numerals	onum = oldstyle numerals
tnum = tabular numerals	pnum = proportional numerals

B. Using the four-character codes

Some programs include a user interface with pull-down menus, checkboxes, and so forth to access OT features. Illustration 1 shows how OT features are accessed in the open-source publishing program Scribus.¹ At this time (May 2017), LibreOffice does not have this kind of interface, although it may in the future. Instead, you need to use the four-character codes mentioned above. Part II explains how to do this.

Here are the codes for some common OT features.

smcp	small capitals ²	c2sc	capitals changed to small capitals
liga	common ligatures	dlig	discretionary ligatures
frac	diagonal fractions		

A more complete list is found in the Wikipedia [list of typographic features](#). §§1.4, 1.6, and 1.7 of this article deal with features that are relevant to scripts such as Latin and Greek.

You should consult the documentation that came with your font to find out which OT features are included. (Documentation may not include the four-character codes, under the assumption that users will have a graphical interface available; the Wikipedia article can help you locate the codes if needed.) If there is no documentation, you can try a feature and see if it works; if it doesn't, no harm is done. This document is set in the font Libertinus Serif, an open-source font with many OT features; all examples make use of this font unless otherwise noted. [Libertinus](#) is an offshoot of Linux Libertine, and the [Linux Libertine website](#) shows examples of the various features and is a good way to learn about OT if you are new to it.

II. Using OpenType in LibreOffice

Most testing for this article was done with LO Writer. Limited testing with Impress and Draw indicates that the OT features also work in those programs.

A. Turning single features on or off

Most OT features are turned off unless you explicitly turn them on. If a feature is left

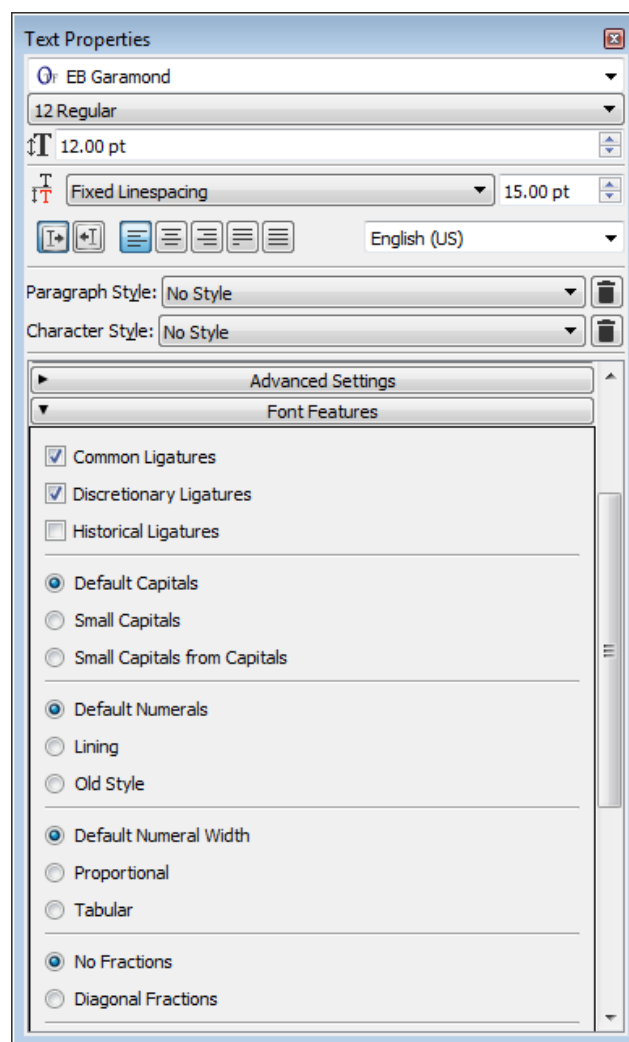


Illustration 1: A graphical interface for OT features.

¹ This screenshot is from ver. 1.3.5, a development version; hopefully this will be officially released soon.
² OT fonts can contain properly designed small capitals. Some programs display small caps by shrinking the full-sized letters, but these often look spindly and badly spaced. True small caps can have slightly thicker stems to work better at small sizes and have the spacing between letters optimized.

You can also use a hyphen/minus sign to turn a feature off. For instance, if you had previously turned on tabular numerals and now wished to change to proportional ones, you could use:

```
Libertinus Serif:-tnum&pnum
```

C. Features with multiple variants

A few OT features provide more than the typical on/off arrangement. One such is Character Variants, which provides multiple alternate shapes for a character. A font may contain up to 99 CV features, numbered cv01-cv99.

The font [EB Garamond](#), an open-source version of Garamond with many OT features, provides three variants of the letter ‘v’ in italics. The font manual tells us that these v-alternates are accessed through cv05. Here is how you would use this feature. (The actual name of the font is ‘EB Garamond 12’ since there is a version ‘EB Garamond 8’ for use at small point sizes.)

<i>van</i>	EB Garamond 12	default (cv05 turned off)
<i>van</i>	EB Garamond 12:cv05	v-variant 1 OR
<i>van</i>	EB Garamond 12:cv05=1	v-variant 1
<i>van</i>	EB Garamond 12:cv05=2	v-variant 2
<i>van</i>	EB Garamond 12:cv05=3	v-variant 3

Remember that typing cv05 is the same as cv05=1; =1 is the default and normally turns the feature on, but can be omitted. With a feature like Character Variants, typing only the four characters selects the first option; you could type cv05=01 if you wish. Subsequent variants are selected by entering =2, =3, etc.

Two fonts of interest to scholars that include the Character Variants feature are [Italica Vetus](#), for the Old Italic script, and [Athena Ruby](#), for Byzantine inscriptions. Here is an example with the latter. First enter an Alpha (U+0391; not the same in Unicode as a Latin capital A). The Alpha variants are accessed through cv01, so highlight the Alpha you typed and then enter the following in LO Writer’s font selection box to get the 18th variant, shown below:

```
Α Athena Ruby:cv01=18
```

D. Making Things Easier

Typing codes for the OT features is not difficult, but can be a nuisance if you need to do it frequently – especially if the font name is long. Be aware that a font name with OT codes attached is a standard part of character formatting, as far as LO is concerned, just like boldface, font size, etc. Because of this:

- If you format text with an OT tag such as onum or cv05 and copy that text, the formatting is included when you paste the text elsewhere in your document.
- You can include font names with OT tags when you create or edit styles; this can be an easy way to apply formatting.
- You can include formatting in search and replace operations. For instance, if your text contains many instances of the acronym NATO in all caps, you could change it to small caps by searching for NATO with the font attribute Liberation Serif (or whatever

font your document is in) and replacing it with NATO with the font attribute `Liberation Serif:c2sc` (that's the OT tag for capitals to small capitals).

- To do this, open the Find & Replace dialog (CTRL-H), then click on Other Options, then Format. This will open a dialog where you can format the font attributes as usual.

In particular, if you are not accustomed to working with styles, you will find that they can be an easy way to format text easily and consistently. Furthermore, if you update a style the change will take effect throughout your document, which can avoid a lot of manual updating. You can leave the styles panel open in LO's Sidebar or open it easily with the hotkey F11.

As an example, I took Writer's Default paragraph style and modified it by changing the font from Liberation Serif to Linux Libertine O with the oldstyle numerals feature turned on. Then I saved it under the style name Default Oldstyle (see Illustration 3 below). By basing my new style on the default, I kept all the setting such as line spacing, indents, etc. the same. See the LibreOffice help file for much more information about working with styles.

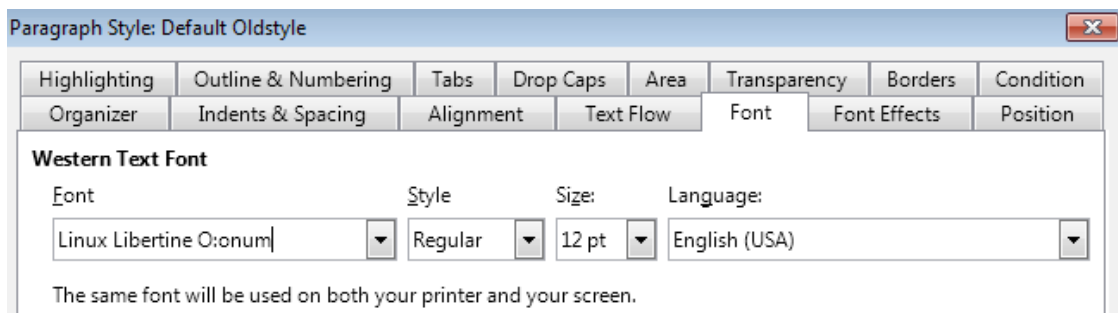


Illustration 3: LibreOffice Writer's dialog for modifying paragraph styles.

E. OpenType and Graphite Features

There are two “smart font” technologies in addition to OpenType: Graphite and AAT (Apple Advanced Typography). A font can contain code to enable more than one of these to work.

If a font contains both OT and Graphite tables with the same features, LO uses the Graphite rendering in preference to the OT one. There are very few such fonts, mainly those produced by SIL International, but if you happen to use one of these and don't understand how they work in LO it can be confusing. The SIL font Gentium Plus, for instance, contains a vertical-bar variant H of the character H. Using `Gentium Plus:cv28` (the OT syntax for this feature) does not work, but `Gentium Plus:Hstk` (the Graphite syntax) does. Consult the font documentation for details about such features.

F. Applying OT Features to Part of a Word

This section will apply mostly to advanced users but is included for the sake of completeness.

Let's say you type a word like AVERSION and then apply an OT feature, maybe a swash form, to the first letter. If the font were called "LongTail," you would highlight the A and format it as `LongTail:swsh`. Doing so might break the kerning (depending on the font's construction) so you would get unattractive space between the first two letters: AVERSION. To deal with such issues, you can apply a feature to specific letter(s) within the word. By doing so LO still sees the word as a single unit, so features such as kerning will operate on the whole word.

Highlight AVERSION and format it as `LongTail:swsh[:1]`. The ':1' tells LO to apply the swash feature only to the first character of the word. Here are the ways to use this with the kern feature as an example:

<code>kern[4:]</code>	turn feature on starting with the fourth character until the end of the word
<code>kern[:4]</code>	turn feature on from the beginning and ending with the fourth character
<code>kern[2:4]</code>	turn feature on for the second through fourth characters
<code>kern[4]</code>	turn feature on for the fourth character only

To apply the feature Character Variant 5 to the third through seventh letters of a word, using the second variant defined in the feature, you would type, after the font's name:

`:cv05[3:7]=2.`

Change Log

August 4, 2017	Version 1.2	Added example with Athena Ruby; various small edits.
July 4, 2017	Version 1.1	Included with Italice Vetus release and posted separately on the web site.