

DigitalKhatt Lua \LaTeX Package

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This Lua \LaTeX package enables to use the DigitalKhatt variable font in the \TeX system. In the previous version, I have to patch Lua \TeX and `luaotfload` to use the font. In the current version, a new `luaotfload` plugin mode, named `digitalkhatt`, has been defined, which uses its own files as follows.

- **digitalkhatt.sty**: The \LaTeX package style file
- **digitalkhatt.lua**: Main file
- **digitalkhatt-define.lua**: copied from `luaotfload-harf-define.lua` and adapted to DigitalKhatt
- **digitalkhatt-plug.lua**: copied from `luaotfload-harf-plug.lua` and adapted to DigitalKhatt
- **mushaffeatures.lua**: Implements Sajda bar and tajweed colors found in some Quran Mushafs
- **digitalkhatt-cff2.otf**: DigitalKhatt OpenType variable font extended with new lookup types (such as finite state machine lookup) and justification table
- **digitalkhatt_glyphnames.lua** and **digitalkhatt_lookupnames.lua**: accompaniments to **digitalkhatt-cff2.otf**. Needed for lookup callbacks. Currently they are used to extend the fatha mark above some stretched glyphs.
- **lpdf-ini-digitalkhatt.lua**: Copy of the Context file **lpdf-ini.lua** Mainly used to define PDF Type3 fonts.
- **charstrings.lua**: Parsing of charstring by glyph id.
- **fontloader-digitalkhatt-cff2.lua**: Copied from **fontloader-font-cff.lua** and patched to allow only the current extended glyph to be parsed and not the entire file. Used with **charstrings.lua**.
- **luadigitalkhatt.[dll,so]**: The native lua module : HarfBuzz + Justification Algorithm + new OpenType subtables

To use the package, all the above files has to be copied in the working directory and in the main tex file you add the command `\usepackage{digitalkhatt}` in the preamble. To use the font you call the command `\digitalkhatt{fontsize}` giving the font size as parameter. For example, here the word welcome using a font size of 12pt مرحبًا. Since the package uses a Lua native module, you should call Lua \LaTeX using the `--shell-escape` command line argument as follows.

lualatex --shell-escape readme.tex

The justification is disabled by default. Here an example of a paragraph using 18pt font size without justification.

الْمَ ١ ذَٰلِكَ الْكِتَابُ لَا رَيْبَ فِيهِ هُدًى لِّلْمُتَّقِينَ ٢ الَّذِينَ يُؤْمِنُونَ بِالْغَيْبِ
وَيُقِيمُونَ الصَّلَاةَ وَمِمَّا رَزَقْنَاهُمْ يُنْفِقُونَ ٣ وَالَّذِينَ يُؤْمِنُونَ بِمَا أُنزِلَ إِلَيْكَ وَمَا أُنزِلَ
مِّن قَبْلِكَ وَبِالْآخِرَةِ هُمْ يُوقِنُونَ ٤ أُولَٰئِكَ عَلَىٰ هُدًى مِّن رَّبِّهِمْ وَأُولَٰئِكَ هُمُ الْمُفْلِحُونَ ٥

You can enable and disable justification using the commands `\enableDKJust` and `\disableDKJust`. Below is the same paragraph using justification. Some alternates are now applied in the first line. Also by using justification the third line is compressed by shrinking the kashida between joining letters.

الْمَ ١ ذَٰلِكَ الْكِتَابُ لَا رَيْبَ فِيهِ هُدًى لِّلْمُتَّقِينَ ٢ الَّذِينَ يُؤْمِنُونَ بِالْغَيْبِ
وَيُقِيمُونَ الصَّلَاةَ وَمِمَّا رَزَقْنَاهُمْ يُنْفِقُونَ ٣ وَالَّذِينَ يُؤْمِنُونَ بِمَا أُنزِلَ إِلَيْكَ وَمَا أُنزِلَ
مِّن قَبْلِكَ وَبِالْآخِرَةِ هُمْ يُوقِنُونَ ٤ أُولَٰئِكَ عَلَىٰ هُدًى مِّن رَّبِّهِمْ وَأُولَٰئِكَ هُمُ الْمُفْلِحُونَ ٥

For now, the justification only applies to lines or paragraphs which are only composed of the same DigitalKhatt font without changing direction.

When there is an overfull or underfull box, you can decrease or increase the font size to limit the overfull or underfull amount. The command `\setDKMinExpFactor` sets the minimum ratio (i.e. desired line width / current line width) allowed to decrease the font size and the command `\setDKMaxExpFactor` sets the maximum ratio allowed to increase the font size. By default the minimum expansion ration is set to 0.98 and the maximum expansion ratio is set to 1 (i.e. There is no font expansion when the line is loose). To use this feature you must first enable font expansion with the command `\enableDKFontExpansion`. For instance, the following example does not use justification

سَنَقِرُّكَ فَلَا تَنْسَى ٦ إِلَّا مَا شَاءَ اللَّهُ إِنَّهُ يَعْلَمُ الْجَهْرَ وَمَا يَخْفَى ٧
وَنُيَسِّرُكَ لِلْيُسْرَى ٨ فَذَكِّرْ إِنْ نَفَعَتِ الذِّكْرَى ٩ سَيَذَكِّرُ مَنْ يَخْشَى ١٠
وَيَتَجَنَّبُهَا الْأَشْقَى ١١ الَّذِي يَصْلَى النَّارَ الْكُبْرَى ١٢ ثُمَّ لَا يَمُوتُ

Below is the same example using justification.

سَنَقِرُّكَ فَلَا تَنْسَى ٦ إِلَّا مَا شَاءَ اللَّهُ إِنَّهُ يَعْلَمُ الْجَهْرَ وَمَا يَخْفَى ٧
وَنُيَسِّرُكَ لِلْيُسْرَى ٨ فَذَكِّرْ إِنْ نَفَعَتِ الذِّكْرَى ٩ سَيَذَكِّرُ مَنْ يَخْشَى ١٠
وَيَتَجَنَّبُهَا الْأَشْقَى ١١ الَّذِي يَصْلَى النَّارَ الْكُبْرَى ١٢ ثُمَّ لَا يَمُوتُ

Below is the same example using justification and enabling font expansion by calling the commands `\enableDKFontExpansion` and `\setDKMinExpFactor{0.95}`. Notice that the font size of the second line has decreased to fit the width of the line.

سَنَقِرُّكَ فَلَا تَنْسَى ٦ إِلَّا مَا شَاءَ اللَّهُ إِنَّهُ يَعْلَمُ الْجَهْرَ وَمَا يَخْفَى ٧
وَنُيَسِّرُكَ لِلْيُسْرَى ٨ فَذَكِّرْ إِنْ نَفَعَتِ الذِّكْرَى ٩ سَيَذَكِّرُ مَنْ يَخْشَى ١٠
وَيَتَجَنَّبُهَا الْأَشْقَى ١١ الَّذِي يَصْلَى النَّارَ الْكُبْرَى ١٢ ثُمَّ لَا يَمُوتُ

There are also two commands `\enableDKTajweedColor` and `\disableDKTajweedColor` to enable and disable Tajweed colors.

قُلْ هُوَ اللَّهُ أَحَدٌ ١ اللَّهُ الصَّمَدُ ٢ لَمْ يَلِدْ وَلَمْ يُولَدْ ٣
وَلَمْ يَكُنْ لَهُ كُفُوًا أَحَدٌ ٤

The DigitalKhatt project is still work-in progress. If you encounter a problem, please file an issue on GitHub.