hTeX 1.0

The Powerful LaTeX Engine for Hollywood

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1 General information

1.1 Introduction

hTeX is a plugin for Hollywood that allows you to use the LaTeX markup language from Hollywood. This makes it possible to easily display mathematical formulas in your Hollywood scripts but of course you can also use more advanced LaTeX features like tables, boxes, and various formatting styles. On top of that, hTeX also allows you to export LaTeX formatted text as PDF documents, SVG images, and PNG images.

Using hTeX is very simple and convenient because the plugin directly interfaces with Hollywood's text library so you don't need to learn any new functions but you can just use the functions from Hollywood's text library. As soon as the hTeX plugin is installed, all functions from Hollywood's text library will automatically be able to handle text formatted in LaTeX. hTeX will make the text available to Hollywood as full vector text which means that it can be infinitely scaled, rotated, and transformed without any loss of quality.

The hTeX distribution comes with several examples as well as a comprehensive documentation to get you started quickly.

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1.3 Requirements

- Hollywood 10.0 or better
- Windows: requires Windows 7 or better
- macOS: requires at least 10.5 (Leopard) for PowerPC, 10.9 (Mavericks) for x64 and 11.0 (Big Sur) for arm64
- AmigaOS 3: your filesystem must be able to handle filenames longer than the usual 31 characters which are the limit on classic FFS; so you mustn't use classic FFS with hTeX; also, when using fonts that contain emojis or CJK characters you'll also need lots of memory because those fonts are often than 10 to 20 megabytes (or even more) in size and hTeX loads each font you use into a contiguous memory block so you'll need lots of memory and it mustn't be fragmented so that large blocks can still be allocated

1.4 Installation

Installing hTeX is straightforward and simple: Just copy the file `htex.hwp` for the platform of your choice to Hollywood's plugins directory. On all systems except on

AmigaOS and compatibles, plugins must be stored in a directory named `Plugins` that is in the same directory as the main Hollywood program. On AmigaOS and compatible systems, plugins must be installed to `LIBS:Hollywood` instead. On macOS, the `Plugins` directory must be inside the `Resources` directory of the application bundle, i.e. inside the `HollywoodInterpreter.app/Contents/Resources` directory. Note that `HollywoodInterpreter.app` is stored inside the `Hollywood.app` application bundle itself, namely in `Hollywood.app/Contents/Resources`.

Afterwards merge the contents of the `Examples` folder with the `Examples` folder that is part of your Hollywood installation. All hTeX examples will then appear in Hollywood's GUI and you can launch and view them conveniently from the Hollywood GUI or IDE.

On Windows you should also copy the file `hTeX.chm` to the `Docs` directory of your Hollywood installation. Then you will be able to get online help by pressing F1 when the cursor is over a hTeX function in the Hollywood IDE.

On Linux and macOS copy the `hTeX` directory that is inside the `Docs` directory of the hTeX distribution archive to the `Docs` directory of your Hollywood installation. Note that on macOS the `Docs` directory is within the `Hollywood.app` application bundle, i.e. in `Hollywood.app/Contents/Resources/Docs`.

2 About hTeX

2.1 Credits

hTeX was written by Andreas Falkenhahn, based on MicroTeX. See Section 1.2 [hTeX license], page 1, for details. Thanks must go to Tom Crecelius for the idea and Frank Wille for his help with debugging a rather nasty bug on 68k AmigaOS.

If you need to contact me, you can either send an e-mail to andreas@airsoftsoftwair.de or use the contact form on http://www.hollywood-mal.com.

2.2 Frequently asked questions

This section covers some frequently asked questions. Please read them first before asking on the forum because your problem might have been covered here.

Q: Is there a Hollywood forum where I can get in touch with other users?

A: Yes, please check out the "Community" section of the official Hollywood Portal online at http://www.hollywood-mal.com.

Q: Where can I ask for help?

A: There's an active forum at http://forums.hollywood-mal.com. You're welcome to join it and ask your question there.

Q: I have found a bug.

A: Please post about it in the "Bugs" section of the forum.

2.3 Future

Here are some things that are on my to do list:

 – add support for multiple fonts

Don't hesitate to contact me if hTeX lacks a certain feature that is important for your project.

2.4 History

Please see the file `history.txt` for a complete change log of hTeX.

3 Using hTeX

3.1 Using hTeX

Using hTeX is really easy. It extends standard Hollywood text commands like `SetFont()` and `TextOut()` to support rendering text that is formatted using the LaTeX markup language. To draw LaTeX-formatted text using hTeX, just make sure you open the font using hTeX by passing the `Loader` tag to `SetFont()`. To use hTeX's inbuilt LaTeX font, just pass "latex" as the font name. Once you have opened a font through hTeX, all Hollywood commands that draw text will automatically do so through hTeX, e.g.:

```
@REQUIRE "hTeX"

SetFont("latex", 72, {Loader = "hTeX"})
SetFontStyle(#ANTIALIAS)

text$ = "\\int_{now}^{+\\infty} \\text{Keep trying}"

TextOut(#CENTER, #CENTER, text$)
```

hTeX will draw all text as real vector graphics so you can scale, rotate, and transform all text drawn by hTeX as you please. It will always be perfectly crisp because hTeX handles all text as true vector graphics.

As described above, if you pass "latex" as the font name to `SetFont()`, hTeX will use its inbuilt font which is Latin Modern Math. If you want to use a different font, you must pass a path to its TTF/OTF file, e.g.

```
SetFont("fonts/myfont.otf", {Loader = "hTeX"})
```

Note that if you pass a path to an OTF file you must also provide a CLM file for the font because that is needed by MicroTeX. The CLM file must be located in the same path as the OTF file and it must use the same name as the font filename except that the extension must be `.clm`. So if you pass the font `myfont.otf` to `SetFont()`, there must also be a CLM file named `myfont.clm` in the same directory. CLM files can be generated using the `otf2clm` script which is part of the MicroTeX distribution.

Note that currently it is not possible to use multiple fonts with hTeX. You can only use a single font with hTeX. The font that you specify in the first call to `SetFont()` is the only font you will be able to use with hTeX. If you try to use a different font with hTeX later, `SetFont()` will fail.

In the code above we explicitly tell `SetFont()` to use hTeX to open the font by passing "hTeX" in the `Loader` tag. Alternatively, you can also globally enable hTeX for all Hollywood commands dealing with fonts by simply installing hTeX's font adapter. This can be done by setting the `InstallAdapter` tag to `True` when `@REQUIRE`ing hTeX, e.g. like this:

```
@REQUIRE "hTeX", {InstallAdapter = True}
```

If you globally enable hTeX, you don't have to use the `Loader` tag with `SetFont()` or other Hollywood commands that deal with fonts any longer because if hTeX is globally enabled, commands like `SetFont()` will automatically ask hTeX for every font that is to be opened whether or not the plugin would like to handle this font.

When using hTeX you can also pass some additional arguments to `SetFont()`, `OpenFont()` or the `@FONT` preprocessor by using Hollywood's user tags. The following additional arguments are recognized by hTeX:

Monochrome

Set this tag to `True` if you want hTeX to operate in monochrome mode. This will reduce memory consumption by 75% because hTeX only needs to allocate one pixel channel instead of four but you will only be able to use single-colored text in monochrome mode so things like colored tables or boxes won't be drawn correctly. Defaults to `False`.

Here's how you can pass user tags to hTeX:

```
@REQUIRE "hTeX"
SetFont("latex", 72, {Loader = "hTeX", UserTags = {Monochrome = True}})
SetFontStyle(#ANTIALIAS)
text$ = "\\int_{now}^{+\\infty} \\text{Keep trying}"
TextOut(#CENTER, #CENTER, text$)
```

By default, hTeX will draw the LaTeX-formatted text to the current output device, e.g. a Hollywood display or a brush. Alternatively, it is possible to make hTeX export the text as a PDF document, SVG image, or a PNG image. To do that, you have to use the function htex.SetOutputMode().

4 Functions

4.1 htex.SetFontconfig

NAME

htex.SetFontconfig – set Fontconfig parameter

SYNOPSIS

`htex.SetFontconfig(parm$, val$[, ...])`

FUNCTION

This function can be used to configure individual Fontconfig settings. Fontconfig is used by Pango for font management. The following Fontconfig settings can currently be configured and passed as `parm$`:

FontDir   Adds the specified directory to the list of directories scanned for fonts by Fontconfig. If you pass `True` as a third argument to this function, the existing list of font directories will be cleared so that `val$` is the only directory where Fontconfig will be looking for fonts. If you omit the third argument or set it to `False`, the specified directory will be added on top of the existing font directories.

CacheDir   Sets the cache directory used by Fontconfig.

ConfigDir

            Sets the directory in which Fontconfig looks for and stores configuration files.

ConfigFile

            Sets the configuration file that Fontconfig should use.

INPUTS

parm$ setting to modify (see above for valid types)

val$ new value for the Fontconfig setting

...   optional: further parameters depending on the type passed in `parm$`

4.2 htex.SetOutputMode

NAME

htex.SetOutputMode – set output mode

SYNOPSIS

`htex.SetOutputMode(mode[, f$])`

FUNCTION

This function can be used to configure hTeX's output mode. This allows you to redirect hTeX's output to a PDF document, an SVG image, or a PNG image. You have to pass the desired output mode in the `mode` parameter. This can be one of the following special constants:

`#HTEX_OUTPUT_HOLLYWOOD`

>   Draw the text to Hollywood's current output device, e.g. the current Hollywood display or a Hollywood brush if `SelectBrush()` is active. This is the default mode.

`#HTEX_OUTPUT_SVG`

>   Draw the text to an SVG image. If you use this mode, you also have to pass the optional argument `f$` which must be set to the name of the output file.

`#HTEX_OUTPUT_PDF`

>   Draw the text to a PDF document. If you use this mode, you also have to pass the optional argument `f$` which must be set to the name of the output file.

`#HTEX_OUTPUT_PNG`

>   Draw the text to a PNG image. If you use this mode, you also have to pass the optional argument `f$` which must be set to the name of the output file.

INPUTS

mode   desired output mode (see above)

f$ optional: desired output file; this must only be passed if the `mode` argument is not `#HTEX_OUTPUT_HOLLYWOOD`

EXAMPLE

```
SetFont("latex", 72, {Loader = "hTeX"})
SetFontStyle(#ANTIALIAS)
SetFontColor(#BLACK)
htex.SetOutputMode(#HTEX_OUTPUT_PDF, "test.pdf")
text$ = "\\int_{now}^{+\\infty} \\text{Keep trying}"
TextOut(#CENTER, #CENTER, text$)
```

The code will save the LaTeX-formatted text to a file named `test.pdf` instead of drawing it to Hollywood's current output device.

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