

# Package ‘gdtools’

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**Title** Utilities for Graphical Rendering and Fonts Management

**Version** 0.4.1

**Description** Tools are provided to compute metrics of formatted strings and to check the availability of a font. Another set of functions is provided to support the collection of fonts from 'Google Fonts' in a cache. Their use is simple within 'R Markdown' documents and 'shiny' applications but also with graphic productions generated with the 'ggiraph', 'ragg' and 'svglite' packages or with tabular productions from the 'flextable' package.

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**URL** <https://davidgohel.github.io/gdtools/>

**BugReports** <https://github.com/davidgohel/gdtools/issues>

**Depends** R (>= 4.0.0)

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---

addGFontHtmlDependency

*Use a font in Shiny or Markdown*

---

### Description

Add an empty HTML element attached to an 'HTML Dependency' containing the css and the font files so that the font is available in the HTML page. Multiple families are supported.

The htmlDependency is defined with function `gfontHtmlDependency()`.

### Usage

```
addGFontHtmlDependency(family = "Open Sans", subset = c("latin", "latin-ext"))
```

### Arguments

**family** family name of a 'Google Fonts', for example, "Open Sans", "Roboto", "Fira Code" or "Fira Sans Condensed". Complete list is available with the following command:

```
gfonts::get_all_fonts()$family |>
  unlist() |>
  unique() |>
  sort()
```

subset font subset, a character vector, it defaults to only "latin" and "latin-ext" and can contain values such as "greek", "emoji", "chinese-traditional",  
Run the following code to get a complete list:

```
gfonts::get_all_fonts()$subsets |> unlist() |> unique() |> sort()
```

### Details

It allows users to use fonts from 'Google Fonts' in an HTML page generated by 'shiny' or 'R Markdown'. At the first request, the font files will be downloaded and stored in a cache on the user's machine, thus avoiding many useless downloads or allowing to work with these fonts afterwards without an Internet connection, in a docker image for example. See [fonts\\_cache\\_dir\(\)](#).

The server delivering the font files should not be too busy. That's why a one second pause is added after each download to respect the server's limits. This time can be set with the option `G FONTS_DOWNLOAD_SLEEP TIME` which must be a number of seconds.

### Value

an HTML object

### See Also

Other functions for font management: [fonts\\_cache\\_dir\(\)](#), [gfontHtmlDependency\(\)](#), [install\\_gfont\\_script\(\)](#), [installed\\_gfonts\(\)](#), [liberationsansHtmlDependency\(\)](#), [register\\_gfont\(\)](#), [register\\_liberationsans\(\)](#)

### Examples

```
## Not run:
if (check_gfonts()) {
  dummy_setup()
  addGFontHtmlDependency(family = "Open Sans")
}

## End(Not run)
```

---

fontconfig\_reinit      *reload Fontconfig configuration*

---

### Description

This function can be used to make fontconfig reload font configuration files.

### Usage

```
fontconfig_reinit()
```

### Note

Fontconfig is not used anymore and that function will be deprecated in the next release.

**Author(s)**

Paul Murrell

---

fonts_cache_dir	<i>manage font working directory</i>
-----------------	--------------------------------------

---

**Description**

Initialize or remove font directory used to store downloaded font files.

This directory is managed by R function `R_user_dir()` but can also be defined in a non-user location by setting ENV variable `GDTTOOLS_CACHE_DIR` or by setting R option `GDTTOOLS_CACHE_DIR`.

Its value can be read with the `fonts_cache_dir()` function.

The directory can be deleted with `rm_fonts_cache()` and created with `init_fonts_cache()`.

**Usage**

```
fonts_cache_dir()
```

```
rm_fonts_cache()
```

```
init_fonts_cache()
```

**See Also**

Other functions for font management: [addGFontHtmlDependency\(\)](#), [gfontHtmlDependency\(\)](#), [install\\_gfont\\_script\(\)](#), [installed\\_gfonts\(\)](#), [liberationsansHtmlDependency\(\)](#), [register\\_gfont\(\)](#), [register\\_liberationsans\(\)](#)

**Examples**

```
fonts_cache_dir()
```

```
options(GDTTOOLS_CACHE_DIR = tempdir())  
fonts_cache_dir()  
options(GDTTOOLS_CACHE_DIR = NULL)
```

```
Sys.setenv(GDTTOOLS_CACHE_DIR = tempdir())  
fonts_cache_dir()  
Sys.setenv(GDTTOOLS_CACHE_DIR = "")
```

```
init_fonts_cache()  
dir.exists(fonts_cache_dir())
```

```
rm_fonts_cache()  
dir.exists(fonts_cache_dir())
```

---

font\_family\_exists     *Check if font family exists.*

---

**Description**

Check if a font family exists in system fonts.

**Usage**

```
font_family_exists(font_family = "sans")
```

**Arguments**

font\_family     font family name (case sensitive)

**Value**

A logical value

**Examples**

```
font_family_exists("sans")
font_family_exists("Arial")
font_family_exists("Courier")
```

---

gfontHtmlDependency     *'Google Font' HTML dependency*

---

**Description**

Create an HTML dependency ready to be used in 'Shiny' or 'R Markdown'.

**Usage**

```
gfontHtmlDependency(family = "Open Sans", subset = c("latin", "latin-ext"))
```

**Arguments**

family     family name of a 'Google Fonts', for example, "Open Sans", "Roboto", "Fira Code" or "Fira Sans Condensed". Complete list is available with the following command:

```
gfonts::get_all_fonts()$family |>
  unlist() |>
  unique() |>
  sort()
```

subset font subset, a character vector, it defaults to only "latin" and "latin-ext" and can contain values such as "greek", "emoji", "chinese-traditional",  
Run the following code to get a complete list:

```
gfonts::get_all_fonts()$subsets |> unlist() |> unique() |> sort()
```

### Details

It allows users to use fonts from 'Google Fonts' in an HTML page generated by 'shiny' or 'R Markdown'. At the first request, the font files will be downloaded and stored in a cache on the user's machine, thus avoiding many useless downloads or allowing to work with these fonts afterwards without an Internet connection, in a docker image for example. See [fonts\\_cache\\_dir\(\)](#).

The server delivering the font files should not be too busy. That's why a one second pause is added after each download to respect the server's limits. This time can be set with the option `G FONTS_DOWNLOAD_SLEEP TIME` which must be a number of seconds.

### Value

an object defined with `htmltools::htmlDependency()`.

### See Also

Other functions for font management: [addGFontHtmlDependency\(\)](#), [fonts\\_cache\\_dir\(\)](#), [install\\_gfont\\_script\(\)](#), [installed\\_gfonts\(\)](#), [liberationsansHtmlDependency\(\)](#), [register\\_gfont\(\)](#), [register\\_liberationsans\(\)](#)

### Examples

```
## Not run:
if (check_gfonts()) {
  dummy_setup()
  gfontHtmlDependency(family = "Open Sans")
}

## End(Not run)
```

---

glyphs\_match

*Validate glyph entries*

---

### Description

Determines if strings contain glyphs not part of a font.

### Usage

```
glyphs_match(x, fontname = "sans", bold = FALSE, italic = FALSE, fontfile = "")
```

**Arguments**

x	Character vector of strings
fontname	Font name
bold, italic	Is text bold/italic?
fontfile	Font file

**Value**

a logical vector, if a character element is containing at least a glyph that can not be matched in the font table, FALSE is returned.

**Examples**

```
glyphs_match(letters)
glyphs_match("\u265E", bold = TRUE)
```

---

installed\_gfonts      *List installed 'Google Fonts'*

---

**Description**

List installed 'Google Fonts' that can be found in the user cache directory.

**Usage**

```
installed_gfonts()
```

**Value**

families names as a character vector

**See Also**

Other functions for font management: [addGFontHtmlDependency\(\)](#), [fonts\\_cache\\_dir\(\)](#), [gfontHtmlDependency\(\)](#), [install\\_gfont\\_script\(\)](#), [liberationsansHtmlDependency\(\)](#), [register\\_gfont\(\)](#), [register\\_liberationsans\(\)](#)

**Examples**

```
## Not run:
if (check_gfonts()) {
  dummy_setup()
  register_gfont(family = "Roboto")
  installed_gfonts()
}

## End(Not run)
```

---

install\_gfont\_script *Shell command to install a font from 'Google Fonts'*

---

### Description

Create a string containing a system command to execute so that the font from 'Google Fonts' is installed on the system. Its execution may require root permissions, in dockerfile for example.

### Usage

```
install_gfont_script(
  family = "Open Sans",
  subset = c("latin", "latin-ext"),
  platform = c("debian", "windows", "macos"),
  file = NULL
)
```

### Arguments

family	family name of a 'Google Fonts', for example, "Open Sans", "Roboto", "Fira Code" or "Fira Sans Condensed". Complete list is available with the following command:  <pre>gfonts::get_all_fonts()\$family  &gt;   unlist()  &gt;   unique()  &gt;   sort()</pre>
subset	font subset, a character vector, it defaults to only "latin" and "latin-ext" and can contains values such as "greek", "emoji", "chinese-traditional", Run the following code to get a complete list:  <pre>gfonts::get_all_fonts()\$subsets  &gt; unlist()  &gt; unique()  &gt; sort()</pre>
platform	"debian" and "windows" and "macos" are supported.
file	script file to generate, optional. If the parameter is specified, a file will be generated ready for execution. If the platform is Windows, administration rights are required to run the script.

### Details

It allows users to use fonts from 'Google Fonts' in an HTML page generated by 'shiny' or 'R Markdown'. At the first request, the font files will be downloaded and stored in a cache on the user's machine, thus avoiding many useless downloads or allowing to work with these fonts afterwards without an Internet connection, in a docker image for example. See [fonts\\_cache\\_dir\(\)](#).

The server delivering the font files should not be too busy. That's why a one second pause is added after each download to respect the server's limits. This time can be set with the option GFONTS\_DOWNLOAD\_SLEEPTIME which must be a number of seconds.



**Value**

the 'shell' or 'PowerShell' command as a string

**See Also**

Other functions for font management: [addGFontHtmlDependency\(\)](#), [fonts\\_cache\\_dir\(\)](#), [gfontHtmlDependency\(\)](#), [installed\\_gfonts\(\)](#), [liberationsansHtmlDependency\(\)](#), [register\\_gfont\(\)](#), [register\\_liberationsans\(\)](#)

**Examples**

```
## Not run:
if (check_gfonts()) {
  dummy_setup()
  install_gfont_script(family = "Roboto", platform = "macos")
}

## End(Not run)
```

---

liberationsansHtmlDependency

*'Liberation Sans' Font HTML dependency*

---

**Description**

Create an HTML dependency ready to be used in 'Shiny' or 'R Markdown' with 'Liberation Sans' Font.

**Usage**

```
liberationsansHtmlDependency()
```

**See Also**

[gfontHtmlDependency\(\)](#)

Other functions for font management: [addGFontHtmlDependency\(\)](#), [fonts\\_cache\\_dir\(\)](#), [gfontHtmlDependency\(\)](#), [install\\_gfont\\_script\(\)](#), [installed\\_gfonts\(\)](#), [register\\_gfont\(\)](#), [register\\_liberationsans\(\)](#)

---

match_family	<i>Find best family match with systemfonts</i>
--------------	--

---

**Description**

match\_family() returns the best font family match.

**Usage**

```
match_family(font = "sans", bold = TRUE, italic = TRUE, debug = NULL)
```

**Arguments**

font	family or face to match.
bold	Wheter to match a font featuring a bold face.
italic	Wheter to match a font featuring an italic face.
debug	deprecated

**Examples**

```
match_family("sans")  
match_family("serif")
```

---

m_str_extents	<i>Compute string extents for a vector of string.</i>
---------------	---

---

**Description**

For each x element, determines the width and height of a bounding box that's big enough to (just) enclose the provided text. Unit is pixel.

**Usage**

```
m_str_extents(  
  x,  
  fontname = "sans",  
  fontsize = 10,  
  bold = FALSE,  
  italic = FALSE,  
  fontfile = NULL  
)
```

**Arguments**

x	Character vector of strings to measure
fontname	Font name. A vector of character to match with x.
fontsize	Font size. A vector of numeric to match with x.
bold, italic	Is text bold/italic?. A vector of logical to match with x.
fontfile	Font file. A vector of character to match with x.

**Examples**

```
# The first run can be slow when font caches are missing
# as font files are then being scanned to build those font caches.
m_str_extents(letters, fontsize = 1:26)
m_str_extents(letters[1:3],
  bold = c(TRUE, FALSE, TRUE),
  italic = c(FALSE, TRUE, TRUE),
  fontname = c("sans", "sans", "sans") )
```

---

raster\_str

*Draw/preview a raster into a string*


---

**Description**

raster\_view is a helper function for testing. It uses `htmltools` to render a png as an image with base64 encoded data image.

**Usage**

```
raster_str(x, width = 480, height = 480, interpolate = FALSE)
```

```
raster_view(code)
```

**Arguments**

x	A raster object
width, height	Width and height in pixels.
interpolate	A logical value indicating whether to linearly interpolate the image.
code	base64 code of a raster

**Examples**

```
r <- as.raster(matrix(hcl(0, 80, seq(50, 80, 10)),
  nrow = 4, ncol = 5))
code <- raster_str(r, width = 50, height = 50)
if (interactive() && require("htmltools")) {
  raster_view(code = code)
}
```

raster\_write                    *Draw/preview a raster to a png file*

---

### Description

Draw/preview a raster to a png file

### Usage

```
raster_write(x, path, width = 480, height = 480, interpolate = FALSE)
```

### Arguments

x	A raster object
path	name of the file to create
width, height	Width and height in pixels.
interpolate	A logical value indicating whether to linearly interpolate the image.

### Examples

```
r <- as.raster(matrix(hcl(0, 80, seq(50, 80, 10)),
  nrow = 4, ncol = 5))
filepng <- tempfile(fileext = ".png")
raster_write(x = r, path = filepng, width = 50, height = 50)
```

---

register\_gfont                    *Register a 'Google Fonts'*

---

### Description

Register a font from 'Google Fonts' so that it can be used with devices using the 'systemfonts' package, i.e. the 'flextable' package and graphic outputs generated with the 'ragg', 'svglite' and 'ggiraph' packages.

### Usage

```
register_gfont(family = "Open Sans", subset = c("latin", "latin-ext"))
```

**Arguments**

**family** family name of a 'Google Fonts', for example, "Open Sans", "Roboto", "Fira Code" or "Fira Sans Condensed". Complete list is available with the following command:

```
gfonts::get_all_fonts()$family |>
  unlist() |>
  unique() |>
  sort()
```

**subset** font subset, a character vector, it defaults to only "latin" and "latin-ext" and can contains values such as "greek", "emoji", "chinese-traditional",  
Run the following code to get a complete list:

```
gfonts::get_all_fonts()$subsets |> unlist() |> unique() |> sort()
```

**Details**

It allows users to use fonts from 'Google Fonts' in an HTML page generated by 'shiny' or 'R Markdown'. At the first request, the font files will be downloaded and stored in a cache on the user's machine, thus avoiding many useless downloads or allowing to work with these fonts afterwards without an Internet connection, in a docker image for example. See [fonts\\_cache\\_dir\(\)](#).

The server delivering the font files should not be too busy. That's why a one second pause is added after each download to respect the server's limits. This time can be set with the option `GFONTS_DOWNLOAD_SLEEPTIME` which must be a number of seconds.

**Value**

TRUE if the operation went ok.

**See Also**

Other functions for font management: [addGFontHtmlDependency\(\)](#), [fonts\\_cache\\_dir\(\)](#), [gfontHtmlDependency\(\)](#), [install\\_gfont\\_script\(\)](#), [installed\\_gfonts\(\)](#), [liberationsansHtmlDependency\(\)](#), [register\\_liberationsans\(\)](#)

**Examples**

```
## Not run:
if (check_gfonts()) {
  dummy_setup()
  register_gfont(family = "Roboto")
}

## End(Not run)
```

---

`register_liberationsans`*Register font 'Liberation Sans'*

---

**Description**

Register font 'Liberation Sans' so that it can be used with devices using the 'systemfonts' package, i.e. the 'flextable' package and graphic outputs generated with the 'ragg', 'svglite' and 'ggiraph' packages.

**Usage**`register_liberationsans()`**Value**

TRUE if the operation went ok.

**See Also**

Other functions for font management: [addGFontHtmlDependency\(\)](#), [fonts\\_cache\\_dir\(\)](#), [gfontHtmlDependency\(\)](#), [install\\_gfont\\_script\(\)](#), [installed\\_gfonts\(\)](#), [liberationsansHtmlDependency\(\)](#), [register\\_gfont\(\)](#)

---

`set_dummy_conf`*Set and unset a minimalistic Fontconfig configuration*

---

**Description**

Set and unset a minimalistic Fontconfig configuration

**Usage**`set_dummy_conf()``unset_dummy_conf()`**Note**

Fontconfig is not used anymore and these functions will be deprecated in the next release.

---

str_extents	<i>Compute string extents.</i>
-------------	--------------------------------

---

**Description**

Determines the width and height of a bounding box that's big enough to (just) enclose the provided text.

**Usage**

```
str_extents(  
  x,  
  fontname = "sans",  
  fontsize = 12,  
  bold = FALSE,  
  italic = FALSE,  
  fontfile = ""  
)
```

**Arguments**

x	Character vector of strings to measure
fontname	Font name
fontsize	Font size
bold, italic	Is text bold/italic?
fontfile	Font file

**Examples**

```
str_extents(letters)  
str_extents("Hello World!", bold = TRUE, italic = FALSE,  
  fontname = "sans", fontsize = 12)
```

---

str_metrics	<i>Get font metrics for a string.</i>
-------------	---------------------------------------

---

**Description**

Get font metrics for a string.

**Usage**

```
str_metrics(
  x,
  fontname = "sans",
  fontsize = 12,
  bold = FALSE,
  italic = FALSE,
  fontfile = ""
)
```

**Arguments**

x	Character vector of strings to measure
fontname	Font name
fontsize	Font size
bold, italic	Is text bold/italic?
fontfile	Font file

**Value**

A named numeric vector

**Examples**

```
str_metrics("Hello World!")
```

---

sys\_fonts

*List fonts for 'systemfonts'.*

---

**Description**

List system and registryfonts details into a data.frame containing columns foundry, family, file, slant and weight.

**Usage**

```
sys_fonts()
```

**Examples**

```
sys_fonts()
```



---

version_freetype	<i>Version numbers of C libraries</i>
------------------	---------------------------------------

---

**Description**

version\_cairo() and version\_freetype() return the runtime version. These helpers return version objects as with [packageVersion\(\)](#).

**Usage**

```
version_freetype()
```

```
version_cairo()
```

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