

Package ‘servr’

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Type Package

Title A Simple HTTP Server to Serve Static Files or Dynamic Documents

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Maintainer Yihui Xie <xie@yihui.name>

Description Start an HTTP server in R to serve static files, or dynamic documents that can be converted to HTML files (e.g., R Markdown) under a given directory.

Depends R (>= 3.0.0)

Imports mime (>= 0.2), httpuv (>= 1.3.2), jsonlite

Suggests tools, later, knitr (>= 1.9), rmarkdown

License GPL

URL <https://github.com/yihui/servr>

BugReports <https://github.com/yihui/servr/issues>

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Author Yihui Xie [aut, cre] (0000-0003-0645-5666),
Carson Sievert [ctb],
Jesse Anderson [ctb],
Ramnath Vaidyanathan [ctb]

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daemon_stop	<i>Utilities for daemonized servers</i>
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Description

The server functions in this package will return server handles if daemonized servers were used (e.g., `servr::httd(daemon = TRUE)`). You can pass the handles to `daemon_stop()` to stop the daemonized servers. Because stopping a daemonized server more than once using `httpuv::stopDaemonizedServer()` will crash the R session, this function will check if a server has been stopped before really attempting to stop it, so it is safer than the `stopDaemonizedServer()` in **httpuv**.

Usage

```
daemon_stop(which = daemon_list())

daemon_list()
```

Arguments

<code>which</code>	the server handles returned by server functions; by default, all existing handles in the current R session obtained from <code>daemon_list()</code> , i.e., all daemon servers will be stopped by default
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Value

The function `daemon_list()` returns a list of existing server handles, and `daemon_stop()` returns an invisible `NULL`.

httd	<i>Serve static files under a directory</i>
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Description

If there is an `index.html` under this directory, it will be displayed; otherwise the list of files is displayed, with links on their names. After we run this function, we can go to `http://localhost:port` to browse the web pages either created from R or read from HTML files.

Usage

```
httd(dir = ".", ...)

httw(dir = ".", watch = ".", pattern = NULL, all_files = FALSE, handler = NULL, ...)
```

Arguments

dir	the root directory to serve
...	server configurations passed to <code>server_config()</code>
watch	a directory under which <code>httpd()</code> is to watch for changes; if it is a relative path, it is relative to the <code>dir</code> argument
pattern	a regular expression passed to <code>list.files()</code> to determine the files to watch
all_files	whether to watch all files including the hidden files
handler	a function to be called every time any files are changed or added under the directory; its argument is a character vector of the filenames of the files modified or added

Details

`httd()` is a pure static server, and `httpd()` is similar but watches for changes under the directory: if an HTML file is being viewed in the browser, and any files are modified under the directory, the HTML page will be automatically refreshed.

References

<https://github.com/yihui/srvr>

Examples

```
#' see https://github.com/yihui/srvr for command line usage
# or run inside an R session
if (interactive()) srvr::httd()
```

jekyll

Serve R Markdown based websites

Description

R Markdown documents (with the filename extension `‘.Rmd’`) are re-compiled using **knitr** or **rmarkdown** when necessary (source files are newer than output files), and the HTML pages will be automatically refreshed in the web browser accordingly.

Usage

```
jekyll(dir = ".", input = c(".", "_source", "_posts"), output = c(".",
  "_posts", "_posts"), script = c("Makefile", "build.R"), serve = TRUE,
  command = "jekyll build", ...)
```

```
rmdv2(dir = ".", script = c("Makefile", "build.R"), in_session = FALSE,
  ...)
```

```
rmdv1(dir = ".", script = c("Makefile", "build.R"), in_session = FALSE,
  ...)
```

Arguments

<code>dir</code>	the root directory of the website
<code>input</code>	the input directories that contain R Markdown documents (the directories must be relative instead of absolute; same for output directories)
<code>output</code>	the output directories corresponding to <code>input</code> ; for an input document ‘foo.Rmd’ under the directory <code>input[i]</code> , its output document ‘foo.md’ (or ‘foo.html’) is generated under <code>output[i]</code> if the output document is older than the input document
<code>script</code>	a Makefile (see make), or (if Makefile not found) the name of an R script to re-build R Markdown documents, which will be executed via command line of the form <code>Rscript build.R arg1 arg2</code> where <code>build.R</code> is the script specified by this argument, <code>arg1</code> is the input filename, and <code>arg2</code> is the output filename; inside the R script, you can use <code>commandArgs(TRUE)</code> to capture <code>c(arg1, arg2)</code> , e.g. <code>knitr::knit(commandArgs(TRUE)[1], commandArgs(TRUE)[2])</code> ; if this R script is not found, either, internal compiling methods will be used, which are basically <code>knit()</code> , <code>knit2html()</code> , or <code>render()</code>
<code>serve</code>	whether to serve the website; if <code>FALSE</code> , the R Markdown documents and the website will be compiled but not served
<code>command</code>	a command to build the Jekyll website; by default, it is <code>jekyll build</code> , and you can use alternative commands, such as <code>bundle exec jekyll build</code>
<code>...</code>	server configurations passed to <code>server_config()</code>
<code>in_session</code>	whether to render the R Markdown documents in the current R session (<code>TRUE</code>) or in a separate new R session (<code>FALSE</code>); if the former, the argument <code>script</code> can be a function with two arguments, the filenames of the source document and the output document, respectively; an internal function (basically <code>rmarkdown::render()</code> or <code>knitr::knit2html()</code>) will be used if the <code>script</code> argument is not a function and <code>in_session = TRUE</code>

Details

The function `jekyll()` sets up a web server to serve a Jekyll-based website. A connection is established between R and the HTML pages through WebSockets so that R can notify the HTML pages to refresh themselves if any R Markdown documents have been re-compiled.

The functions `rmdv1()` and `rmdv2()` are similar to `jekyll()`, and the only difference is the way to compile R Markdown documents: `rmdv1()` uses the **markdown** package (a.k.a R Markdown v1) via `knit2html()`, and `rmdv2()` calls `render()` in the **rmarkdown** package (a.k.a R Markdown v2).

Note

Apparently `jekyll()` and `rmdv1()` require the **knitr** package, and `rmdv2()` requires **rmarkdown**. You have to install them before calling the server functions here.

All R Markdown documents are compiled in separate R sessions by default. If you have any R Markdown documents that should not be compiled as standalone documents (e.g. child documents), you can use different filename extensions, such as ‘.Rmarkdown’.

The `baseurl` argument does not work in `jekyll()`, and the base URL setting will be read from `'_config.yml'` (the `'baseurl'` field) of the website if present. You should not pass `baseurl` to the function `jekyll()` directly.

For the sake of reproducibility, you are recommended to compile each source document in a separate R session (i.e., use the default `in_session = FALSE`) to make sure they can compile on their own, otherwise the current workspace may affect the evaluation of the code chunks in these source documents. Sometimes it might be useful to compile a document in the current R session. For example, if reading data is time-consuming and it is not convenient to cache it (using the **knitr** chunk option `cache = TRUE`), you may read the data once, temporarily turn off the evaluation of that code chunk, and keep on working on the rest of code chunks so that data will not be read over and over again.

References

R Markdown v1: <https://cran.rstudio.org/package=markdown>. R Markdown v2: <http://rmarkdown.rstudio.com>. For Jekyll, see <http://jekyllrb.com>. The GitHub repository <https://github.com/yihui/knitr-jekyll> is an example of serving Jekyll websites with `servr::jekyll()`.

See Also

The **blogdown** package (based on Hugo and R Markdown v2) is a better alternative to Jekyll: <https://github.com/rstudio/blogdown/>. I strongly recommend you to try it.

Examples

```
if (interactive()) servr::rmdv1() # serve the current dir with R Markdown v1
if (interactive()) servr::rmdv2() # or R Markdown v2

# built-in examples
servr::serve_example("rmd", servr::rmdv1)
servr::serve_example("rmd", servr::rmdv2)
```

make

Serve files under a directory based on GNU Make

Description

You can define how and when to rebuild files (such as R Markdown files) using Make rules, e.g. a rule `_posts/%.md: _source/%.Rmd` with a command to build `' .Rmd'` to `' .md'` will be executed if and only if `'foo.Rmd'` is newer than `'foo.md'`. The exit status of the command `make -q` will decide whether to rebuild files: rebuilding occurs only when the exit code is not 0. When an HTML file has been rebuilt, it will be automatically refreshed in the web browser.

Usage

```
make(dir = ".", ...)
```

Arguments

dir	the root directory to serve
...	server configurations passed to <code>server_config()</code>

Note

You must have installed GNU Make to use this function. This is normally not a problem for Linux and OS X users (it should be available by default). For Windows users, you can either install GNU Make, or just install **Rtools**, which also contains GNU Make.

Examples

```
# some built-in examples (if you are not familiar with make, you can take a look
# at the Makefile of each example)
servr::serve_example("make1", servr::make)
servr::serve_example("make2", servr::make)
```

server_config	<i>Server configurations</i>
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Description

The server functions in this package are configured through this function.

Usage

```
server_config(dir = ".", host = "127.0.0.1", port, browser, daemon, interval = 1,
  baseurl = "", initpath = "")
```

Arguments

dir	the root directory to serve
host	A string that is a valid IPv4 address that is owned by this server, or "0.0.0.0" to listen on all IP addresses.
port	the TCP port number; by default it is 4321 or a random port if 4321 is not available, unless a command line argument of the form <code>-pNNNN</code> (N is a digit from 0 to 9) was passed in when R was launched, in which case NNNN will be used as the port number
browser	whether to launch the default web browser; by default, it is TRUE if the R session is <code>interactive()</code> , or when a command line argument <code>-b</code> was passed to R (see <code>commandArgs()</code>); N.B. the RStudio viewer is used as the web browser if available
daemon	whether to launch a daemonized server (the server does not block the current R session) or a blocking server; by default, it is the global option <code>getOption('servr.daemon')</code> (e.g., you can set <code>options(servr.daemon = TRUE)</code>); if this option was not set, <code>daemon = TRUE</code> if a command line argument <code>-d</code> was passed to R (through <code>Rscript</code>); normally it should be FALSE by default

interval	the time interval used to check if an HTML page needs to be rebuilt (by default, it is checked every second); at the moment, the smallest possible interval is set to be 1, and this may change in the future
baseurl	the base URL (the full URL will be <code>http://host:port/baseurl</code>)
initpath	the initial path in the URL (e.g. you can open a specific HTML file initially)

Value

A list of configuration information of the form `list(host, port, start_server = function(app) {}, ...)`.

serve_example	<i>A convenience function to serve examples in this package</i>
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Description

Use server functions to serve built-in examples of this package.

Usage

```
serve_example(name, FUN, ..., run = interactive())
```

Arguments

name	the directory name of the example under the directory <code>system.file('examples', package = 'servr')</code>
FUN	a server function that takes the example path as its first argument, e.g. httd , or rmdv1
...	other arguments passed to FUN
run	whether to run the example (this is mainly for R CMD check purposes: the examples will not be really served when the R session is not interactive, so they will not block R CMD check)

Value

NULL if `run = FALSE`, otherwise the value returned from `FUN()`.

Examples

```
# R Markdown v1 or v2
servr::serve_example("rmd", servr::rmdv1)
servr::serve_example("rmd", servr::rmdv2)

# GNU Make
servr::serve_example("make1", servr::make)
servr::serve_example("make2", servr::make)
```

`vign`*Serve R Markdown/HTML package vignettes*

Description

Serve package vignettes under the ‘vignettes/’ directory. Because the HTML output files should not be included in the source package, this function renders R Markdown/HTML vignettes, displays them in the web browser, and deletes the HTML output files. You will see the HTML output when you click the links on the ‘.Rmd’ or ‘.Rhtml’ files (unlike the static HTTP server, the compiled output instead of the source document is displayed).

Usage

```
vign(dir = "vignettes", ...)
```

Arguments

<code>dir</code>	the root directory to serve
<code>...</code>	server configurations passed to <code>server_config()</code>

Details

When developing R packages, you may want to preview your vignettes once in a while. You can certainly click the button in RStudio to do it, but that requires you to install the package and rebuild the vignettes. With this function, you may start a daemonized server (`vign(daemon = TRUE)`), and your vignette will be rebuilt automatically when you update the source document. Moreover, because the compilation takes place in the current R session, you can take advantage of `devtools::load_all()` (which has a keyboard shortcut in the RStudio IDE) to reload your package and see the updated vignette in the web browser.

Note

You are supposed to call this function from the root directory of your package. If that is not the case, you should provide the correct path to the ‘vignettes/’ directory of your package to the `dir` argument.

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