Package ‘servr’

December 14, 2020

Type Package
Title A Simple HTTP Server to Serve Static Files or Dynamic Documents
Version 0.21
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 (> 1.5.2), xfun, jsonlite
Suggests tools, later, rstudioapi, knitr (> 1.9), rmarkdown
License GPL
URL https://github.com/yihui/servr
BugReports https://github.com/yihui/servr/issues
Encoding UTF-8
RoxygenNote 7.1.1
NeedsCompilation no
Author Yihui Xie [aut, cre] (>https://orcid.org/0000-0003-0645-5666>,
Carson Sievert [ctb],
Jesse Anderson [ctb],
Ramnath Vaidyanathan [ctb]
Repository CRAN
Date/Publication 2020-12-14 06:00:05 UTC

R topics documented:

- browse_last
- daemon_stop
- http
- jekyll
- make

2 2 3 4 6
### browse_last

**Reopen the last browsed page**

**Description**

If you have launched a page in the browser via `servr` but closed it later, you may call this function to reopen it.

**Usage**

```r
browse_last(open = TRUE)
```

**Arguments**

- `open`  
  Whether to reopen the lastly browsed page. If `FALSE`, the URL of the previously browsed page will be returned.

**Examples**

```r
servr::browse_last()
```

---

### daemon_stop

**Utilities for daemonized servers**

**Description**

daemon_list() returns IDs of servers, which can be used to stop the daemonized servers.

**Usage**

```r
daemon_stop(which = daemon_list())
daemon_list()
```

**Arguments**

- `which`  
  A integer vector of the server IDs; by default, IDs of all existing servers in the current R session obtained from `daemon_list()`, i.e., all daemon servers will be stopped by default.
**Value**

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

---

**httd**

_Serve static files under a directory_

---

**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**

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

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

**Arguments**

- **dir** The root directory to serve.
- **...** server configurations passed to `server_config()`
- **watch** a directory under which `httw()` is to watch for changes; if it is a relative path, it is relative to the `dir` argument
- **pattern** a regular expression passed to `list.files()` to determine the files to watch
- **all_files** whether to watch all files including the hidden files
- **filter** a function to filter the file paths returned from `list.files()` (e.g., you can exclude certain files from the watch list)
- **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 `httw()` 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.
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

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

```r
cmdv2(dir = ".", script = c("Makefile", "build.R"), in_session = FALSE, ...)
```

```r
cmdv1(dir = ".", script = c("Makefile", "build.R"), in_session = FALSE, ...)
```

Arguments

- **dir**
  - the root directory of the website

- **input**
  - the input directories that contain R Markdown documents (the directories must be relative instead of absolute; same for output directories)

- **output**
  - the output directories corresponding to input; for an input document `foo.Rmd` under the directory `input[i]`, its output document `foo.md` (or `foo.html`) is generated under `output[i]` if the output document is older than the input document
script

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 `Rscript build.R arg1 arg2` where `build.R` is the script specified by this argument, `arg1` is the input filename, and `arg2` is the output filename; inside the R script, you can use `commandArgs(TRUE)` to capture `c(arg1, arg2)`, e.g. `knitr::knit(commandArgs(TRUE)[1],commandArgs(TRUE)[2])`; if this R script is not found, either, internal compiling methods will be used, which are basically `knit()`, `knit2html()`, or `render()`. 

serve

whether to serve the website; if `FALSE`, the R Markdown documents and the website will be compiled but not served

command

a command to build the Jekyll website; by default, it is `jekyll build`, and you can use alternative commands, such as `bundle exec jekyll build`

... server configurations passed to `server_config()`

in_session

whether to render the R Markdown documents in the current R session (`TRUE`) or in a separate new R session (`FALSE`); if the former, the argument `script` can be a function with two arguments, the filenames of the source document and the output document, respectively; an internal function (basically `rmarkdown::render()` or `knitr::knit2html()`) will be used if the `script` argument is not a function and `in_session = TRUE`.

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

Accordingly `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


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 server_config()

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)

random_port

Find a random available TCP port

Description

Test a series of random TCP ports from 3000 to 8000 (excluding a few that are considered unsafe
by Chrome) and return the first available one. A web server can be later started on this port.

Usage

random_port(port = 4321L, host = "127.0.0.1", n = 20)

Arguments

<table>
<thead>
<tr>
<th>port</th>
<th>The preferred port(s).</th>
</tr>
</thead>
<tbody>
<tr>
<td>host</td>
<td>A string that is a valid IPv4 address that is owned by this server, or &quot;0.0.0.0&quot; to listen on all IP addresses.</td>
</tr>
<tr>
<td>n</td>
<td>The maximum number of random ports to be tested.</td>
</tr>
</tbody>
</table>

Value

A port number, or an error if no ports are available.

server_config

Server configurations

Description

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

```r
server_config(
  dir = ".",
  host = getOption("servr.host", "127.0.0.1"),
  port,
  browser,
  daemon,
  interval = getOption("servr.interval", 1),
  baseurl = "",
  initpath = "",
  hosturl = identity,
  verbose = TRUE
)
```

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. If it is not explicitly set, the default value will be looked up in this order: First, the command line argument of the form `-pNNNN` (N is a digit from 0 to 9). If it was passed to R when R was started, NNNN will be used as the port number. Second, the environment variable R_SERVR_PORT. Third, the global option `servr.port` (e.g., `options(servr.port = 4322)`). If none of these command-line arguments, variables, or options were set, the default port will be 4321. If this port is not available, a random available port will be used.

browser Whether to launch the default web browser. By default, it is `TRUE` if the R session is `interactive()`, or when a command line argument `-b` was passed to R (see `commandArgs()`). 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 `getOption('servr.daemon')` (e.g., you can set options(`servr.daemon = TRUE`)); if this option was not set, `daemon = TRUE` if a command line argument `-d` was passed to R (through `Rscript`), or the server is running in an interactive R session.

interval The time interval used to check if an HTML page needs to be rebuilt (by default, it is checked every second).

baseurl The base URL (the full URL will be `http://host:port/baseurl`).

initpath The initial path in the URL (e.g. you can open a specific HTML file initially).

hosturl A function that takes the host address and returns a character string to be used in the URL, e.g., `function(host) { if (host == '127.0.0.1') 'localhost' else host}` to convert `127.0.0.1` to `localhost` in the URL.

verbose Whether to print messages when launching the server.
serve_example

Value

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

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 system.file('examples', package = 'servr')
FUN a server function that takes the example path as its first argument, e.g. htt d, or rmdv1
... other arguments passed to FUN
run whether to run the example (this is mainly for R CMD check purposes: the exam-
    ples 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

- dir: The root directory to serve.
- ...: server configurations passed to server_config()

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, 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.
Index

browse_last, 2
commandArgs, 5, 8
daemon_list (daemon_stop), 2
daemon_stop, 2
httd, 3, 9
httw (httd), 3
interactive, 8
jekyll, 4
knit, 5
knit2html, 5
list.files, 3
make, 5, 6
random_port, 7
render, 5
rmdv1, 9
rmdv1 (jekyll), 4
rmdv2 (jekyll), 4
serve_example, 9
server_config, 3, 5, 6, 7, 10
vign, 10