

Package ‘routing’

May 12, 2026

Title 'Express.js' Like Routing for R Web Frameworks

Version 1.1.0

Description It aims to provide R web frameworks a routing mechanism of HTTP requests inspired by the battle tested 'Express.js' web framework.

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Encoding UTF-8

RoxygenNote 7.3.3

Imports httpcode, pater, promises, R6, utils

Suggests curl, httpuv, later, testthat (>= 3.0.0), yyjsonr

Config/testthat/edition 3

URL <https://github.com/JulioCollazos64/routing>

BugReports <https://github.com/JulioCollazos64/routing/issues>

NeedsCompilation no

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Repository CRAN

Date/Publication 2026-05-12 05:10:02 UTC

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finalHandler	<i>Final Handler</i>
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Description

Returns a function(*err*) to be used as the callback argument of `Router$handle()`. It is invoked when the router exhausts its stack without sending a response, or when an unhandled occurs.

Behaviour:

- **No error** and no response sent – writes a 404 Not Found HTML response. The body message is "Cannot <METHOD> <PATH_INFO>".
- **Error** – derives the HTTP status from `err$status` (must be a numeric 4xx or 5xx value); falls back to `res$status`, and then to 500. The body contains the standard HTTP phrase for the status code.

In all cases the response is an HTML document and includes the security headers `Content-Security-Policy: default-s` and `X-Content-Type-Options: nosniff`. Pre-existing `Content-Encoding`, `Content-Language`, and `Content-Range` headers are removed.

Usage

```
finalHandler(req, res, options)
```

Arguments

<code>req</code>	(environment) Rook request environment.
<code>res</code>	(Response) Response object.
<code>options</code>	(list) Reserved for future use; currently ignored.

Value

A function(*err*) that sends the final HTTP response.

Router	<i>Router</i>
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Description

A port of the [pillarjs/router](#) package for R. Maintains an ordered stack of layers; each layer pairs a path pattern with a middleware function, a nested Router, or a Route object. Middleware and nested routers are added via `$use()`; routes are added via `$route()` or the HTTP-verb shortcuts. When a request arrives, the stack is walked in order and each matching layer is invoked until the request is handled or the stack is exhausted.

Important details:

- `forward()` **instead of** `next()` – `next` is a reserved word in R. `forward("route")` and `forward("router")` work identically to their Express counterparts.
- `forward` **is implicit** – handlers do not need to declare `forward` as an argument to call it; it is automatically injected into the handler's formal if absent. `function(req, res) { forward() }` works just as well as `function(req, res, forward) { forward() }`.
- `forward` **is auto-called** – if a handler returns without calling `forward()` or sending a response, `forward()` is called automatically.
- **Error handlers take three arguments** – write error handlers as `(err, req, res)`; `forward` is injected automatically as the fourth argument.

HTTP verb shortcuts:

`$get()`, `$post()`, `$put()`, `$delete()`, etc. (one per HTTP verb) and `$all()` are convenience wrappers with signature `(path, ...)` equivalent to `router$route(path)$<verb>(...)`. They return self invisibly for chaining.

Methods

Public methods:

- `Router$new()`
- `Router$handle()`
- `Router$use()`
- `Router$route()`
- `Router$param()`
- `Router$static()`
- `Router$getStack()`
- `Router$clone()`

Method `new()`: Creates a new Router.

Usage:

```
Router$new(caseSensitive = FALSE, mergeParams = FALSE, strict = FALSE)
```

Arguments:

`caseSensitive` (logical(1))

When TRUE, path matching is case-sensitive (`/Foo` does not match `/foo`). Default FALSE.

`mergeParams` (logical(1))

When TRUE, `req$params` from a parent router are merged with those of this router instead of being replaced. Default FALSE.

`strict` (logical(1))

When TRUE, trailing slashes are significant (`/foo/` does not match `/foo`). Default FALSE.

Returns: A new Router object.

Method `handle()`: Dispatches a request through the router's layer stack. Normally called by a server or a parent router rather than directly.

Usage:

```
Router$handle(req, res = NULL, callback = NULL)
```

Arguments:

`req` (environment)

Rook request environment.

`res` (Response)

Response object.

`callback` (function)

Called when no layer matched or an unhandled error occurred.

Method `use()`: Mounts one or more middleware handlers, optionally scoped to a path prefix. A [Router](#) may be passed and will be wrapped automatically. Functions whose first parameter is named `err` are treated as error handlers.

Usage:

```
Router$use(...)
```

Arguments:

`...` (function | list)

An optional leading character(1) path prefix, followed by one or more handler functions, nested lists of functions, or another [Router](#).

Returns: `self` invisibly.

Method `route()`: Creates a new Route for path and appends it to the stack.

Usage:

```
Router$route(path)
```

Arguments:

`path` (character(1))

Path pattern.

Returns: The new Route invisibly.

Method `param()`: Registers a callback triggered whenever a named route parameter is present in a matched route. The callback runs before the route handler.

The callback signature is `function(req, res, value, name)`:

- `value` – the captured value of the parameter.
- `name` – the parameter name (character).

Usage:

```
Router$param(name, fn)
```

Arguments:

`name` (character(1))

Name of the route parameter to watch.

```
fn (function)
  Callback with signature function(req, res, value, name).
```

Returns: self invisibly.

Examples:

```
router <- Router$new()

router$param("id", function(req, res, value, name) {
  user <- findUser(value)
  req$user <- list(id = value, name = user$name)
  forward()
})

router$get("/user/:id", function(req, res) {
  res$send(paste("user:", req$user$name))
})
```

Method `static()`: Registers a directory of static files to be served at a given URL prefix. Static files are served directly by httpuv's background I/O thread without invoking R.

Usage:

```
Router$static(root, url, ...)
```

Arguments:

```
root (character(1))
  Local filesystem path to the directory containing the files to serve.
url (character(1))
  URL prefix at which the files will be available (e.g. "/static").
... Additional arguments passed to httpuv::staticPath\(\).
```

Returns: self invisibly.

Method `getStack()`: Returns the internal layer stack.

Usage:

```
Router$getStack()
```

Returns: list of Layer objects.

Method `clone()`: The objects of this class are cloneable with this method.

Usage:

```
Router$clone(deep = FALSE)
```

Arguments:

```
deep Whether to make a deep clone.
```

Examples

```
router <- Router$new()

router$get(
  "/get",
```

```

    function(req, res) {
      res$send("Hello there!")
    }
  )$post(
    "/post",
    function(req, res) {
      res$send("Goodbye!")
    }
  )

router$get(
  "/hello",
  function(req, res) {
    forward()
  },
  function(req, res) {
    res$send("Hello!")
  }
)

router$post("/bye", function(req, res) {
  res$send("Bye!")
})

router$route("/hi")$get(function(req, res) {
  res$send("handling a GET request!")
})$post(function(req, res) {
  res$send("handling a POST request!")
})

router$get(
  c("/path", "/another-path"),
  function(req, res) {
    res$send("Hola!")
  }
)

## -----
## Method `Router$param`
## -----

router <- Router$new()

router$param("id", function(req, res, value, name) {
  user <- findUser(value)
  req$user <- list(id = value, name = user$name)
  forward()
})

router$get("/user/:id", function(req, res) {
  res$send(paste("user:", req$user$name))
})

```

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