

# Package ‘webmockr’

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**Title** Stubbing and Setting Expectations on 'HTTP' Requests

**Description** Stubbing and setting expectations on 'HTTP' requests. Includes tools for stubbing 'HTTP' requests, including expected request conditions and response conditions. Match on 'HTTP' method, query parameters, request body, headers and more. Can be used for unit tests or outside of a testing context.

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**License** MIT + file LICENSE

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<https://books.ropensci.org/http-testing/> (user manual)  
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webmockr-package	<i>webmockr</i>
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**Description**

Stubbing and setting expectations on HTTP requests

## Features

- Stubbing HTTP requests at low http client lib level
- Setting and verifying expectations on HTTP requests
- Matching requests based on method, URI, headers and body
- Supports multiple HTTP libraries, including **crul** and **httr**
- Integration with HTTP test caching library **vc**

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## Examples

```
library(webmockr)
stub_request("get", "https://httpbin.org/get")
stub_request("post", "https://httpbin.org/post")
stub_registry()
```

---

build\_crul\_request      *Build a crul request*

---

## Description

Build a crul request

## Usage

```
build_crul_request(x)
```

## Arguments

x                      an unexecuted crul request object

## Value

a crul request

build\_crul\_response    *Build a crul response*

---

**Description**

Build a crul response

**Usage**

```
build_crul_response(req, resp)
```

**Arguments**

req	a request
resp	a response

**Value**

a crul response

---

build\_httr\_request    *Build a httr request*

---

**Description**

Build a httr request

**Usage**

```
build_httr_request(x)
```

**Arguments**

x	an unexecuted httr request object
---	-----------------------------------

**Value**

a httr request

---

build\_httr\_response     *Build a httr response*

---

### Description

Build a httr response

### Usage

```
build_httr_response(req, resp)
```

### Arguments

req	a request
resp	a response

### Value

a httr response

---

CrulAdapter     *Adapters for Modifying HTTP Requests*

---

### Description

Adapter is the base parent class used to implement **webmockr** support for different HTTP clients. It should not be used directly. Instead, use one of the client-specific adapters that webmockr currently provides:

- CrulAdapter for **crul**
- HttrAdapter for **httr**

### Details

Note that the documented fields and methods are the same across all client-specific adapters.

### Super class

```
webmockr::Adapter -> CrulAdapter
```

### Public fields

client	HTTP client package name
name	adapter name

## Methods

### Public methods:

- [CurlAdapter\\$clone\(\)](#)

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

*Usage:*

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

*Arguments:*

deep Whether to make a deep clone.

## Super class

```
webmockr::Adapter -> HttAdapter
```

## Public fields

client HTTP client package name

name adapter name

## Methods

### Public methods:

- [HttAdapter\\$clone\(\)](#)

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

*Usage:*

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

*Arguments:*

deep Whether to make a deep clone.

## Public fields

client HTTP client package name

name adapter name

## Methods

### Public methods:

- [Adapter\\$new\(\)](#)
- [Adapter\\$enable\(\)](#)
- [Adapter\\$disable\(\)](#)
- [Adapter\\$handle\\_request\(\)](#)
- [Adapter\\$remove\\_stubs\(\)](#)
- [Adapter\\$clone\(\)](#)

**Method** `new()`: Create a new Adapter object

*Usage:*

```
Adapter$new()
```

**Method** `enable()`: Enable the adapter

*Usage:*

```
Adapter$enable()
```

*Returns:* TRUE, invisibly

**Method** `disable()`: Disable the adapter

*Usage:*

```
Adapter$disable()
```

*Returns:* FALSE, invisibly

**Method** `handle_request()`: All logic for handling a request

*Usage:*

```
Adapter$handle_request(req)
```

*Arguments:*

`req` a request

*Returns:* various outcomes

**Method** `remove_stubs()`: Remove all stubs

*Usage:*

```
Adapter$remove_stubs()
```

*Returns:* nothing returned; removes all request stubs

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

*Usage:*

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

*Arguments:*

`deep` Whether to make a deep clone.

## Examples

```
## Not run:
if (requireNamespace("httr", quietly = TRUE)) {
# library(httr)

# normal httr request, works fine
# real <- GET("https://httpbin.org/get")
# real

# with webmockr
# library(webmockr)
## turn on httr mocking
```

```

# httr_mock()
## now this request isn't allowed
# GET("https://httpbin.org/get")
## stub the request
# stub_request('get', uri = 'https://httpbin.org/get') %>%
#   with(
#     headers = list('Accept' = 'application/json, text/xml, application/xml, */*')
#   ) %>%
#   to_return(status = 418, body = "I'm a teapot!", headers = list(a = 5))
## now the request succeeds and returns a mocked response
# (res <- GET("https://httpbin.org/get"))
# res$status_code
# rawToChar(res$content)

# allow real requests while webmockr is loaded
# webmockr_allow_net_connect()
# webmockr_net_connect_allowed()
# GET("https://httpbin.org/get?animal=chicken")
# webmockr_disable_net_connect()
# webmockr_net_connect_allowed()
# GET("https://httpbin.org/get?animal=chicken")

# httr_mock(FALSE)
}

## End(Not run)

```

---

enable

*Enable or disable webmockr*


---

## Description

Enable or disable webmockr

## Usage

```
enable(adapter = NULL, options = list())
```

```
enabled(adapter = "crul")
```

```
disable(adapter = NULL, options = list())
```

## Arguments

**adapter** (character) the adapter name, 'crul' or 'httr'. one or the other. if none given, we attempt to enable both adapters

**options** list of options - ignored for now.

**Details**

enable() enables **webmockr** for all adapters. disable() disables **webmockr** for all adapters. enabled() answers whether **webmockr** is enabled for a given adapter

**Value**

enable() and disable() invisibly returns booleans for each adapter, as a result of running enable or disable, respectively, on each [HttpLibAdapaterRegistry](#) object. enabled returns a single boolean

---

 HashCounter

*HashCounter*


---

**Description**

hash with counter, to store requests, and count each time it is used

**Public fields**

hash (list) a list for internal use only, with elements key, sig, and count

**Methods****Public methods:**

- [HashCounter\\$put\(\)](#)
- [HashCounter\\$get\(\)](#)
- [HashCounter\\$clone\(\)](#)

**Method** put(): Register a request by it's key

*Usage:*

HashCounter\$put(req\_sig)

*Arguments:*

req\_sig an object of class RequestSignature

*Returns:* nothing returned; registers request and iterates internal counter

**Method** get(): Get a request by key

*Usage:*

HashCounter\$get(req\_sig)

*Arguments:*

req\_sig an object of class RequestSignature

*Returns:* (integer) the count of how many times the request has been made

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

*Usage:*

HashCounter\$clone(deep = FALSE)

*Arguments:*

deep Whether to make a deep clone.

**See Also**

Other request-registry: [RequestRegistry](#), [request\\_registry\(\)](#)

**Examples**

```
x <- HashCounter$new()
x$hash
z <- RequestSignature$new(method = "get", uri = "https://httpbin.org/get")
x$put(z)
x$hash
x$get(z)
x$put(z)
x$get(z)
```

---

HttpLibAdapaterRegistry

*HttpLibAdapaterRegistry*

---

**Description**

http lib adapter registry

**Public fields**

adapters list

**Methods****Public methods:**

- [HttpLibAdapaterRegistry#print\(\)](#)
- [HttpLibAdapaterRegistry\\$register\(\)](#)
- [HttpLibAdapaterRegistry\\$clone\(\)](#)

**Method** `print()`: print method for the HttpLibAdapaterRegistry class

*Usage:*

HttpLibAdapaterRegistry#print(x, ...)

*Arguments:*

x self

... ignored

**Method** `register()`: Register an http library adapter

*Usage:*

HttpLibAdapaterRegistry\$register(x)

*Arguments:*

x an http lib adapter, e.g., [CruLAdapter](#)

*Returns:* nothing, registers the library adapter

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

*Usage:*

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

*Arguments:*

`deep` Whether to make a deep clone.

### Examples

```
x <- HttpLibAdapaterRegistry$new()
x$register(CrulAdapter$new())
x
x$adapters
x$adapters[[1]]$name
```

---

httr\_mock

*Turn on httr mocking Sets a callback that routes httr request through webmockr*

---

### Description

Turn on httr mocking Sets a callback that routes httr request through webmockr

### Usage

```
httr_mock(on = TRUE)
```

### Arguments

`on` (logical) set to TRUE to turn on, and FALSE to turn off. default: TRUE

### Value

Silently returns TRUE when enabled and FALSE when disabled.

---

 mocking-disk-writing *Mocking writing to disk*


---

## Description

Mocking writing to disk

## Examples

```
## Not run:
# enable mocking
enable()

# Write to a file before mocked request

# crul
library(crul)
## make a temp file
f <- tempfile(fileext = ".json")
## write something to the file
cat("{\"hello\":\"world\"}\n", file = f)
readLines(f)
## make the stub
stub_request("get", "https://httpbin.org/get") %>%
  to_return(body = file(f))
## make a request
(out <- HttpClient$new("https://httpbin.org/get")$get(disk = f))
out$content
readLines(out$content)

# htr
library(htr)
## make a temp file
f <- tempfile(fileext = ".json")
## write something to the file
cat("{\"hello\":\"world\"}\n", file = f)
readLines(f)
## make the stub
stub_request("get", "https://httpbin.org/get") %>%
  to_return(body = file(f),
    headers = list('content-type' = "application/json"))
## make a request
## with htr, you must set overwrite=TRUE or you'll get an error
out <- GET("https://httpbin.org/get", write_disk(f, overwrite=TRUE))
out
out$content
content(out, "text", encoding = "UTF-8")

# Use mock_file to have webmockr handle file and contents
```

```

# crul
library(crul)
f <- tempfile(fileext = ".json")
## make the stub
stub_request("get", "https://httpbin.org/get") %>%
  to_return(body = mock_file(f, "{\hello\":"mars\"}\n"))
## make a request
(out <- crul::HttpClient$new("https://httpbin.org/get")$get(disk = f))
out$content
readLines(out$content)

# httr
library(httr)
## make a temp file
f <- tempfile(fileext = ".json")
## make the stub
stub_request("get", "https://httpbin.org/get") %>%
  to_return(
    body = mock_file(path = f, payload = "{\foo\":"bar\}"),
    headers = list('content-type' = "application/json")
  )
## make a request
out <- GET("https://httpbin.org/get", write_disk(f))
out
## view stubbed file content
out$content
readLines(out$content)
content(out, "text", encoding = "UTF-8")

# disable mocking
disable()

## End(Not run)

```

---

mock\_file

*Mock file*


---

## Description

Mock file

## Usage

```
mock_file(path, payload)
```

## Arguments

path (character) a file path. required  
 payload (character) string to be written to the file given at path parameter. required

**Value**

a list with S3 class `mock_file`

**Examples**

```
mock_file(path = tempfile(), payload = "{\"foo\": \"bar\"}")
```

---

`pluck_body`

*Extract the body from an HTTP request*

---

**Description**

Returns an appropriate representation of the data contained within a request body based on its encoding.

**Usage**

```
pluck_body(x)
```

**Arguments**

`x` an unexecuted `curl` or `httr` request object

**Value**

one of the following:

- NULL if the request is not associated with a body
- NULL if an upload is used not in a list
- list containing the multipart-encoded body
- character vector with the JSON- or raw-encoded body, or upload form file

---

`remove_request_stub`

*Remove a request stub*

---

**Description**

Remove a request stub

**Usage**

```
remove_request_stub(stub)
```

**Arguments**

`stub` a request stub, of class `StubbedRequest`

**Value**

logical, TRUE if removed, FALSE if not removed

**See Also**

Other stub-registry: [StubRegistry](#), [stub\\_registry\\_clear\(\)](#), [stub\\_registry\(\)](#)

**Examples**

```
(x <- stub_request("get", "https://httpbin.org/get"))
stub_registry()
remove_request_stub(x)
stub_registry()
```

---

RequestPattern

*RequestPattern class*

---

**Description**

class handling all request matchers

**Public fields**

method\_pattern xxx  
uri\_pattern xxx  
body\_pattern xxx  
headers\_pattern xxx

**Methods****Public methods:**

- [RequestPattern\\$new\(\)](#)
- [RequestPattern\\$matches\(\)](#)
- [RequestPattern\\$to\\_s\(\)](#)
- [RequestPattern\\$clone\(\)](#)

**Method** `new()`: Create a new RequestPattern object

*Usage:*

```
RequestPattern$new(  
  method,  
  uri = NULL,  
  uri_regex = NULL,  
  query = NULL,  
  body = NULL,  
  headers = NULL  
)
```

*Arguments:*

method the HTTP method (any, head, options, get, post, put, patch, trace, or delete). "any" matches any HTTP method. required.

uri (character) request URI. required or uri\_regex

uri\_regex (character) request URI as regex. required or uri

query (list) query parameters, optional

body (list) body request, optional

headers (list) headers, optional

*Returns:* A new RequestPattern object

**Method** matches(): does a request signature match the selected matchers?

*Usage:*

```
RequestPattern$matches(request_signature)
```

*Arguments:*

request\_signature a [RequestSignature](#) object

*Returns:* a boolean

**Method** to\_s(): Print pattern for easy human consumption

*Usage:*

```
RequestPattern$to_s()
```

*Returns:* a string

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

*Usage:*

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

*Arguments:*

deep Whether to make a deep clone.

**See Also**

pattern classes for HTTP method [MethodPattern](#), headers [HeadersPattern](#), body [BodyPattern](#), and URI/URL [UriPattern](#)

**Examples**

```
## Not run:
(x <- RequestPattern$new(method = "get", uri = "httpbin.org/get"))
x$body_pattern
x$headers_pattern
x$method_pattern
x$uri_pattern
x$to_s()

# make a request signature
rs <- RequestSignature$new(method = "get", uri = "http://httpbin.org/get")
```

```

# check if it matches
x$matches(rs)

# regex uri
(x <- RequestPattern$new(method = "get", uri_regex = ".+ossref.org"))
x$uri_pattern
x$uri_pattern$to_s()
x$to_s()

# uri with query parameters
(x <- RequestPattern$new(
  method = "get", uri = "https://httpbin.org/get",
  query = list(foo = "bar")
))
x$to_s()
## query params included in url, not separately
(x <- RequestPattern$new(
  method = "get", uri = "https://httpbin.org/get?stuff=things"
))
x$to_s()
x$query_params

# just headers (via setting method=any & uri_regex=.)
headers <- list(
  'User-Agent' = 'Apple',
  'Accept-Encoding' = 'gzip, deflate',
  'Accept' = 'application/json, text/xml, application/xml, */*')
x <- RequestPattern$new(
  method = "any",
  uri_regex = ".+",
  headers = headers)
x$to_s()
rs <- RequestSignature$new(method = "any", uri = "http://foo.bar",
  options = list(headers = headers))
rs
x$matches(rs)

# body
x <- RequestPattern$new(method = "post", uri = "httpbin.org/post",
  body = list(y = crul::upload(system.file("CITATION"))))
x$to_s()
rs <- RequestSignature$new(method = "post", uri = "http://httpbin.org/post",
  options = list(
    body = list(y = crul::upload(system.file("CITATION"))))
)
rs
x$matches(rs)

## End(Not run)

```

**Description**

keeps track of HTTP requests

**Public fields**

request\_signatures a HashCounter object

**Methods****Public methods:**

- [RequestRegistry#print\(\)](#)
- [RequestRegistry\\$reset\(\)](#)
- [RequestRegistry\\$register\\_request\(\)](#)
- [RequestRegistry\\$times\\_executed\(\)](#)
- [RequestRegistry\\$clone\(\)](#)

**Method** print(): print method for the RequestRegistry class

*Usage:*

RequestRegistry#print(x, ...)

*Arguments:*

x self

... ignored

**Method** reset(): Reset the registry to no registered requests

*Usage:*

RequestRegistry\$reset()

*Returns:* nothing returned; resets registry to no requests

**Method** register\_request(): Register a request

*Usage:*

RequestRegistry\$register\_request(request)

*Arguments:*

request a character string of the request, serialized from a RequestSignature\$new(...)\$to\_s()

*Returns:* nothing returned; registers the request

**Method** times\_executed(): How many times has a request been made

*Usage:*

RequestRegistry\$times\_executed(request\_pattern)

*Arguments:*

request\_pattern an object of class RequestPattern

*Details:* if no match is found for the request pattern, 0 is returned

*Returns:* integer, the number of times the request has been made

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

*Usage:*

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

*Arguments:*

`deep` Whether to make a deep clone.

## See Also

[stub\\_registry\(\)](#) and [StubRegistry](#)

Other request-registry: [HashCounter](#), [request\\_registry\(\)](#)

## Examples

```
x <- RequestRegistry$new()
z1 <- RequestSignature$new("get", "http://scottchamberlain.info")
z2 <- RequestSignature$new("post", "https://httpbin.org/post")
x$register_request(request = z1)
x$register_request(request = z1)
x$register_request(request = z2)
# print method to list requests
x

# more complex requests
w <- RequestSignature$new(
  method = "get",
  uri = "https://httpbin.org/get",
  options = list(headers = list(`User-Agent` = "foobar", stuff = "things"))
)
w$to_s()
x$register_request(request = w)
x

# hashes, and number of times each requested
x$request_signatures$hash

# times_executed method
pat <- RequestPattern$new(
  method = "get",
  uri = "https://httpbin.org/get",
  headers = list(`User-Agent` = "foobar", stuff = "things")
)
pat$to_s()
x$times_executed(pat)
z <- RequestPattern$new(method = "get", uri = "http://scottchamberlain.info")
x$times_executed(z)
w <- RequestPattern$new(method = "post", uri = "https://httpbin.org/post")
x$times_executed(w)

## pattern with no matches - returns 0 (zero)
pat <- RequestPattern$new(
```

```

    method = "get",
    uri = "http://recology.info/"
)
pat$to_s()
x$times_executed(pat)

# reset the request registry
x$reset()

```

---

RequestSignature

*RequestSignature*


---

## Description

General purpose request signature builder

## Public fields

method (character) an http method  
 uri (character) a uri  
 body (various) request body  
 headers (list) named list of headers  
 proxies (list) proxies as a named list  
 auth (list) authentication details, as a named list  
 url internal use  
 disk (character) if writing to disk, the path  
 fields (various) request body details  
 output (various) request output details, disk, memory, etc

## Methods

### Public methods:

- [RequestSignature\\$new\(\)](#)
- [RequestSignature#print\(\)](#)
- [RequestSignature\\$to\\_s\(\)](#)
- [RequestSignature\\$clone\(\)](#)

**Method** `new()`: Create a new RequestSignature object

*Usage:*

```
RequestSignature$new(method, uri, options = list())
```

*Arguments:*

method the HTTP method (any, head, options, get, post, put, patch, trace, or delete). "any" matches any HTTP method. required.

uri (character) request URI. required.  
 options (list) options. optional. See Details.  
*Returns:* A new RequestSignature object

**Method** print(): print method for the RequestSignature class

*Usage:*  
 RequestSignature#print()

*Arguments:*  
 x self  
 ... ignored

**Method** to\_s(): Request signature to a string

*Usage:*  
 RequestSignature\$to\_s()

*Returns:* a character string representation of the request signature

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

*Usage:*  
 RequestSignature\$clone(deep = FALSE)

*Arguments:*  
 deep Whether to make a deep clone.

## Examples

```
# make request signature
x <- RequestSignature$new(method = "get", uri = "https://httpbin.org/get")
# method
x$method
# uri
x$uri
# request signature to string
x$to_s()

# headers
w <- RequestSignature$new(
  method = "get",
  uri = "https://httpbin.org/get",
  options = list(headers = list(`User-Agent` = "foobar", stuff = "things"))
)
w
w$headers
w$to_s()

# headers and body
bb <- RequestSignature$new(
  method = "get",
  uri = "https://httpbin.org/get",
  options = list(
```

```
headers = list(`User-Agent` = "foobar", stuff = "things"),
body = list(a = "tables")
)
)
bb
bb$headers
bb$body
bb$to_s()

# with disk path
f <- tempfile()
bb <- RequestSignature$new(
  method = "get",
  uri = "https://httpbin.org/get",
  options = list(disk = f)
)
bb
bb$disk
bb$to_s()
```

---

request\_registry

*List or clear requests in the request registry*

---

## Description

List or clear requests in the request registry

## Usage

```
request_registry()
```

```
request_registry_clear()
```

## Details

`request_registry()` lists the requests that have been made that webmockr knows about; `request_registry_clear()` resets the request registry (removes all recorded requests)

## Value

an object of class `RequestRegistry`, print method gives the requests in the registry and the number of times each one has been performed

## See Also

Other request-registry: [HashCounter](#), [RequestRegistry](#)

**Examples**

```

webmockr::enable()
stub_request("get", "https://httpbin.org/get") %>%
  to_return(body = "success!", status = 200)

# nothing in the request registry
request_registry()

# make the request
z <- crul::HttpClient$new(url = "https://httpbin.org")$get("get")

# check the request registry - the request was made 1 time
request_registry()

# do the request again
z <- crul::HttpClient$new(url = "https://httpbin.org")$get("get")

# check the request registry - now it's been made 2 times, yay!
request_registry()

# clear the request registry
request_registry_clear()
webmockr::disable()

```

---

Response

*Response*


---

**Description**

custom webmockr http response class

**Public fields**

url (character) a url  
body (various) list, character, etc  
content (various) response content/body  
request\_headers (list) a named list  
response\_headers (list) a named list  
options (character) list  
status\_code (integer) an http status code  
exception (character) an exception message  
should\_timeout (logical) should the response timeout?

## Methods

### Public methods:

- `Response$new()`
- `Response$print()`
- `Response$set_url()`
- `Response$get_url()`
- `Response$set_request_headers()`
- `Response$get_request_headers()`
- `Response$set_response_headers()`
- `Response$get_response_headers()`
- `Response$set_body()`
- `Response$get_body()`
- `Response$set_status()`
- `Response$get_status()`
- `Response$set_exception()`
- `Response$get_exception()`
- `Response$clone()`

**Method** `new()`: Create a new Response object

*Usage:*

```
Response$new(options = list())
```

*Arguments:*

`options` (list) a list of options

*Returns:* A new Response object

**Method** `print()`: print method for the Response class

*Usage:*

```
Response$print(x, ...)
```

*Arguments:*

`x` self

`...` ignored

**Method** `set_url()`: set the url for the response

*Usage:*

```
Response$set_url(url)
```

*Arguments:*

`url` (character) a url

*Returns:* nothing returned; sets url

**Method** `get_url()`: get the url for the response

*Usage:*

```
Response$get_url()
```

*Returns:* (character) a url

**Method** `set_request_headers()`: set the request headers for the response

*Usage:*

```
Response$set_request_headers(headers, capitalize = TRUE)
```

*Arguments:*

headers (list) named list

capitalize (logical) whether to capitalize first letters of each header; default: TRUE

*Returns:* nothing returned; sets request headers on the response

**Method** `get_request_headers()`: get the request headers for the response

*Usage:*

```
Response$get_request_headers()
```

*Returns:* (list) request headers, a named list

**Method** `set_response_headers()`: set the response headers for the response

*Usage:*

```
Response$set_response_headers(headers, capitalize = TRUE)
```

*Arguments:*

headers (list) named list

capitalize (logical) whether to capitalize first letters of each header; default: TRUE

*Returns:* nothing returned; sets response headers on the response

**Method** `get_response_headers()`: get the response headers for the response

*Usage:*

```
Response$get_response_headers()
```

*Returns:* (list) response headers, a named list

**Method** `set_body()`: set the body of the response

*Usage:*

```
Response$set_body(body, disk = FALSE)
```

*Arguments:*

body (various types)

disk (logical) whether its on disk; default: FALSE

*Returns:* nothing returned; sets body on the response

**Method** `get_body()`: get the body of the response

*Usage:*

```
Response$get_body()
```

*Returns:* various

**Method** `set_status()`: set the http status of the response

*Usage:*

Response\$set\_status(status)

*Arguments:*

status (integer) the http status

*Returns:* nothing returned; sets the http status of the response

**Method** get\_status(): get the http status of the response

*Usage:*

Response\$get\_status()

*Returns:* (integer) the http status

**Method** set\_exception(): set an exception

*Usage:*

Response\$set\_exception(exception)

*Arguments:*

exception (character) an exception string

*Returns:* nothing returned; sets an exception

**Method** get\_exception(): get the exception, if set

*Usage:*

Response\$get\_exception()

*Returns:* (character) an exception

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

*Usage:*

Response\$clone(deep = FALSE)

*Arguments:*

deep Whether to make a deep clone.

## Examples

```
## Not run:
(x <- Response$new())

x$set_url("https://httpbin.org/get")
x

x$set_request_headers(list('Content-Type' = "application/json"))
x
x$request_headers

x$set_response_headers(list('Host' = "httpbin.org"))
x
x$response_headers
```

```
x$set_status(404)
x
x$get_status()

x$set_body("hello world")
x
x$get_body()
# raw body
x$set_body(charToRaw("hello world"))
x
x$get_body()

x$set_exception("exception")
x
x$get_exception()

## End(Not run)
```

---

StubbedRequest

*StubbedRequest*

---

## Description

stubbed request class underlying [stub\\_request\(\)](#)

## Public fields

```
method (xx) xx
uri (xx) xx
uri_regex (xx) xx
uri_parts (xx) xx
host (xx) xx
query (xx) xx
body (xx) xx
basic_auth (xx) xx
request_headers (xx) xx
response_headers (xx) xx
responses_sequences (xx) xx
status_code (xx) xx
```

## Methods

### Public methods:

- `StubbedRequest$new()`
- `StubbedRequest#print()`
- `StubbedRequest$with()`
- `StubbedRequest$to_return()`
- `StubbedRequest$to_timeout()`
- `StubbedRequest$to_raise()`
- `StubbedRequest$to_s()`
- `StubbedRequest$clone()`

**Method** `new()`: Create a new `StubbedRequest` object

*Usage:*

```
StubbedRequest$new(method, uri = NULL, uri_regex = NULL)
```

*Arguments:*

`method` the HTTP method (any, head, get, post, put, patch, or delete). "any" matches any HTTP method. required.

`uri` (character) request URI. either this or `uri_regex` required. **webmockr** can match `uri`'s without the "http" scheme, but does not match if the scheme is "https". required, unless `uri_regex` given. See [UriPattern](#) for more.

`uri_regex` (character) request URI as regex. either this or `uri` required

*Returns:* A new `StubbedRequest` object

**Method** `print()`: print method for the `StubbedRequest` class

*Usage:*

```
StubbedRequest#print(x, ...)
```

*Arguments:*

`x` self

`...` ignored

**Method** `with()`: Set expectations for what's given in HTTP request

*Usage:*

```
StubbedRequest$with(
  query = NULL,
  body = NULL,
  headers = NULL,
  basic_auth = NULL
)
```

*Arguments:*

`query` (list) request query params, as a named list. optional

`body` (list) request body, as a named list. optional

`headers` (list) request headers as a named list. optional.

`basic_auth` (character) basic authentication. optional.

*Returns:* nothing returned; sets only

**Method** `to_return()`: Set expectations for what's returned in HTTP response

*Usage:*

```
StubbedRequest$to_return(status, body, headers)
```

*Arguments:*

`status` (numeric) an HTTP status code

`body` (list) response body, one of: `character`, `json`, `list`, `raw`, `numeric`, `NULL`, `FALSE`, or a file connection (other connection types not supported)

`headers` (list) named list, response headers. optional.

*Returns:* nothing returned; sets what's to be returned

**Method** `to_timeout()`: Response should time out

*Usage:*

```
StubbedRequest$to_timeout()
```

*Returns:* nothing returned

**Method** `to_raise()`: Response should raise an exception `x`

*Usage:*

```
StubbedRequest$to_raise(x)
```

*Arguments:*

`x` (character) an exception message

*Returns:* nothing returned

**Method** `to_s()`: Response as a character string

*Usage:*

```
StubbedRequest$to_s()
```

*Returns:* (character) the response as a string

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

*Usage:*

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

*Arguments:*

`deep` Whether to make a deep clone.

## See Also

[stub\\_request\(\)](#)

**Examples**

```

## Not run:
x <- StubbedRequest$new(method = "get", uri = "api.crossref.org")
x$method
x$uri
x$with(headers = list('User-Agent' = 'R', apple = "good"))
x$to_return(status = 200, body = "foobar", headers = list(a = 5))
x
x$to_s()

# many to_return's
x <- StubbedRequest$new(method = "get", uri = "httpbin.org")
x$to_return(status = 200, body = "foobar", headers = list(a = 5))
x$to_return(status = 200, body = "bears", headers = list(b = 6))
x
x$to_s()

# raw body
x <- StubbedRequest$new(method = "get", uri = "api.crossref.org")
x$to_return(status = 200, body = raw(0), headers = list(a = 5))
x$to_s()
x

x <- StubbedRequest$new(method = "get", uri = "api.crossref.org")
x$to_return(status = 200, body = charToRaw("foo bar"),
  headers = list(a = 5))
x$to_s()
x

# basic auth
x <- StubbedRequest$new(method = "get", uri = "api.crossref.org")
x$with(basic_auth = c("foo", "bar"))
x$to_s()
x

# file path
x <- StubbedRequest$new(method = "get", uri = "api.crossref.org")
f <- tempfile()
x$to_return(status = 200, body = file(f), headers = list(a = 5))
x
x$to_s()
unlink(f)

# to_file(): file path and payload to go into the file
# payload written to file during mocked response creation
x <- StubbedRequest$new(method = "get", uri = "api.crossref.org")
f <- tempfile()
x$to_return(status = 200, body = mock_file(f, "{\"foo\": \"bar\"}"),
  headers = list(a = 5))
x
x$to_s()
unlink(f)

```

```
# uri_regex
(x <- StubbedRequest$new(method = "get", uri_regex = ".+ossref.org"))
x$method
x$uri_regex
x$to_s()

# to timeout
(x <- StubbedRequest$new(method = "get", uri_regex = ".+ossref.org"))
x$to_s()
x$to_timeout()
x$to_s()
x

# to raise
library(fauxpas)
(x <- StubbedRequest$new(method = "get", uri_regex = ".+ossref.org"))
x$to_s()
x$to_raise(HTTPBadGateway)
x$to_s()
x

## End(Not run)
```

---

StubRegistry

*StubRegistry*

---

## Description

stub registry to keep track of [StubbedRequest](#) stubs

## Public fields

request\_stubs (list) list of request stubs

global\_stubs (list) list of global stubs

## Methods

### Public methods:

- [StubRegistry#print\(\)](#)
- [StubRegistry\\$register\\_stub\(\)](#)
- [StubRegistry\\$find\\_stubbed\\_request\(\)](#)
- [StubRegistry\\$request\\_stub\\_for\(\)](#)
- [StubRegistry\\$remove\\_request\\_stub\(\)](#)
- [StubRegistry\\$remove\\_all\\_request\\_stubs\(\)](#)
- [StubRegistry\\$is\\_registered\(\)](#)
- [StubRegistry\\$clone\(\)](#)

**Method** print(): print method for the StubRegistry class

*Usage:*

StubRegistry#print(x, ...)

*Arguments:*

x self

... ignored

**Method** register\_stub(): Register a stub

*Usage:*

StubRegistry\$register\_stub(stub)

*Arguments:*

stub an object of type [StubbedRequest](#)

*Returns:* nothing returned; registers the stub

**Method** find\_stubbed\_request(): Find a stubbed request

*Usage:*

StubRegistry\$find\_stubbed\_request(req)

*Arguments:*

req an object of class [RequestSignature](#)

*Returns:* an object of type [StubbedRequest](#), if matched

**Method** request\_stub\_for(): Find a stubbed request

*Usage:*

StubRegistry\$request\_stub\_for(request\_signature)

*Arguments:*

request\_signature an object of class [RequestSignature](#)

*Returns:* logical, 1 or more

**Method** remove\_request\_stub(): Remove a stubbed request by matching request signature

*Usage:*

StubRegistry\$remove\_request\_stub(stub)

*Arguments:*

stub an object of type [StubbedRequest](#)

*Returns:* nothing returned; removes the stub from the registry

**Method** remove\_all\_request\_stubs(): Remove all request stubs

*Usage:*

StubRegistry\$remove\_all\_request\_stubs()

*Returns:* nothing returned; removes all request stubs

**Method** is\_registered(): Find a stubbed request

*Usage:*

```
StubRegistry$is_registered(x)
```

*Arguments:*

x an object of class [RequestSignature](#)

*Returns:* nothing returned; registers the stub

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

*Usage:*

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

*Arguments:*

deep Whether to make a deep clone.

### See Also

Other stub-registry: [remove\\_request\\_stub\(\)](#), [stub\\_registry\\_clear\(\)](#), [stub\\_registry\(\)](#)

### Examples

```
## Not run:
# Make a stub
stub1 <- StubbedRequest$new(method = "get", uri = "api.crossref.org")
stub1$with(headers = list('User-Agent' = 'R'))
stub1$to_return(status = 200, body = "foobar", headers = list())
stub1

# Make another stub
stub2 <- StubbedRequest$new(method = "get", uri = "api.crossref.org")
stub2

# Put both stubs in the stub registry
reg <- StubRegistry$new()
reg$register_stub(stub = stub1)
reg$register_stub(stub = stub2)
reg
reg$request_stubs

## End(Not run)
```

---

```
stub_registry
```

```
List stubs in the stub registry
```

---

### Description

List stubs in the stub registry

### Usage

```
stub_registry()
```

**Value**

an object of class StubRegistry, print method gives the stubs in the registry

**See Also**

Other stub-registry: [StubRegistry](#), [remove\\_request\\_stub\(\)](#), [stub\\_registry\\_clear\(\)](#)

**Examples**

```
# make a stub
stub_request("get", "https://httpbin.org/get") %>%
  to_return(body = "success!", status = 200)

# check the stub registry, there should be one in there
stub_registry()

# make another stub
stub_request("get", "https://httpbin.org/get") %>%
  to_return(body = "woopsy", status = 404)

# check the stub registry, now there are two there
stub_registry()

# to clear the stub registry
stub_registry_clear()
```

---

stub\_registry\_clear    *stub\_registry\_clear*

---

**Description**

Clear all stubs in the stub registry

**Usage**

```
stub_registry_clear()
```

**Value**

an empty list invisibly

**See Also**

Other stub-registry: [StubRegistry](#), [remove\\_request\\_stub\(\)](#), [stub\\_registry\(\)](#)

**Examples**

```
(x <- stub_request("get", "https://httpbin.org/get"))
stub_registry()
stub_registry_clear()
stub_registry()
```

---

stub_request	<i>Stub an http request</i>
--------------	-----------------------------

---

**Description**

Stub an http request

**Usage**

```
stub_request(method = "get", uri = NULL, uri_regex = NULL)
```

**Arguments**

method	(character) HTTP method, one of "get", "post", "put", "patch", "head", "delete", "options" - or the special "any" (for any method)
uri	(character) The request uri. Can be a full or partial uri. <b>webmockr</b> can match uri's without the "http" scheme, but does not match if the scheme is "https". required, unless uri_regex given. See <a href="#">UriPattern</a> for more.
uri_regex	(character) A URI represented as regex. required, if uri not given. See examples

**Details**

Internally, this calls [StubbedRequest](#) which handles the logic

See [stub\\_registry\(\)](#) for listing stubs, [stub\\_registry\\_clear\(\)](#) for removing all stubs and [remove\\_request\\_stub\(\)](#) for removing specific stubs

If multiple stubs match the same request, we use the first stub. So if you want to use a stub that was created after an earlier one that matches, remove the earlier one(s).

Note on [wi\\_th\(\)](#): If you pass query values are coerced to character class in the recorded stub. You can pass numeric, integer, etc., but all will be coerced to character.

See [wi\\_th\(\)](#) for details on request body/query/headers and [to\\_return\(\)](#) for details on how response status/body/headers are handled

**Value**

an object of class `StubbedRequest`, with `print` method describing the stub.

**Matching URI's**

- Trailing slashes are dropped from stub URIs before matching
- Query parameters are dropped from stub URIs before matching; URIs are compared without query parameters

**Mocking writing to disk**

See [mocking-disk-writing](#)

**See Also**

[wi\\_th\(\)](#), [to\\_return\(\)](#), [to\\_timeout\(\)](#), [to\\_raise\(\)](#), [mock\\_file\(\)](#)

**Examples**

```
## Not run:
# basic stubbing
stub_request("get", "https://httpbin.org/get")
stub_request("post", "https://httpbin.org/post")

# any method, use "any"
stub_request("any", "https://httpbin.org/get")

# list stubs
stub_registry()

# request headers
stub_request("get", "https://httpbin.org/get") %>%
  wi_th(headers = list('User-Agent' = 'R'))

# request body
stub_request("post", "https://httpbin.org/post") %>%
  wi_th(body = list(foo = 'bar'))
stub_registry()
library(crul)
x <- crul::HttpClient$new(url = "https://httpbin.org")
crul::mock()
x$post('post', body = list(foo = 'bar'))

# add expectation with to_return
stub_request("get", "https://httpbin.org/get") %>%
  wi_th(
    query = list(hello = "world"),
    headers = list('User-Agent' = 'R')) %>%
  to_return(status = 200, body = "stuff", headers = list(a = 5))

# list stubs again
stub_registry()

# regex
stub_request("get", uri_regex = ".+ample\\.\\.")

# set stub an expectation to timeout
stub_request("get", "https://httpbin.org/get") %>% to_timeout()
x <- crul::HttpClient$new(url = "https://httpbin.org")
res <- x$get('get')

# raise exception
```

```

library(fauxpas)
stub_request("get", "https://httpbin.org/get") %>% to_raise(HTTPAccepted)
stub_request("get", "https://httpbin.org/get") %>% to_raise(HTTPAccepted, HTTPGone)

x <- crul::HttpClient$new(url = "https://httpbin.org")
stub_request("get", "https://httpbin.org/get") %>% to_raise(HTTPBadGateway)
crul::mock()
x$get('get')

# pass a list to .list
z <- stub_request("get", "https://httpbin.org/get")
wi_th(z, .list = list(query = list(foo = "bar")))

# just body
stub_request("any", uri_regex = ".+") %>%
  wi_th(body = list(foo = 'bar'))
library(crul)
x <- crul::HttpClient$new(url = "https://httpbin.org")
crul::mock()
x$post('post', body = list(foo = 'bar'))
x$put('put', body = list(foo = 'bar'))

# just headers
headers <- list(
  'Accept-Encoding' = 'gzip, deflate',
  'Accept' = 'application/json, text/xml, application/xml, */*')
stub_request("any", uri_regex = ".+") %>% wi_th(headers = headers)
library(crul)
x <- crul::HttpClient$new(url = "https://httpbin.org", headers = headers)
crul::mock()
x$post('post')
x$put('put', body = list(foo = 'bar'))
x$get('put', query = list(stuff = 3423234L))

# many responses
## the first response matches the first to_return call, and so on
stub_request("get", "https://httpbin.org/get") %>%
  to_return(status = 200, body = "foobar", headers = list(a = 5)) %>%
  to_return(status = 200, body = "bears", headers = list(b = 6))
con <- crul::HttpClient$new(url = "https://httpbin.org")
con$get("get")$parse("UTF-8")
con$get("get")$parse("UTF-8")

## OR, use times with to_return() to repeat the same response many times
library(fauxpas)
stub_request("get", "https://httpbin.org/get") %>%
  to_return(status = 200, body = "apple-pie", times = 2) %>%
  to_raise(HTTPUnauthorized)
con <- crul::HttpClient$new(url = "https://httpbin.org")
con$get("get")$parse("UTF-8")
con$get("get")$parse("UTF-8")
con$get("get")$parse("UTF-8")

```

```
# clear all stubs
stub_registry()
stub_registry_clear()

## End(Not run)
```

---

to_raise	<i>Set raise error condition</i>
----------	----------------------------------

---

## Description

Set raise error condition

## Usage

```
to_raise(.data, ...)
```

## Arguments

.data	input. Anything that can be coerced to a StubbedRequest class object
...	One or more HTTP exceptions from the <b>fauxpas</b> package. Run <code>grep("HTTP*", getNamespaceExports("fauxpas") = TRUE)</code> for a list of possible exceptions

## Details

The behavior in the future will be:

When multiple exceptions are passed, the first is used on the first mock, the second on the second mock, and so on. Subsequent mocks use the last exception

But for now, only the first exception is used until we get that fixed

## Value

an object of class StubbedRequest, with print method describing the stub

## Note

see examples in [stub\\_request\(\)](#)

---

to_return	<i>Expectation for what's returned from a stubbed request</i>
-----------	---------------------------------------------------------------

---

### Description

Set response status code, response body, and/or response headers

### Usage

```
to_return(.data, ..., .list = list(), times = 1)
```

### Arguments

<code>.data</code>	input. Anything that can be coerced to a <code>StubbedRequest</code> class object
<code>...</code>	Comma separated list of named variables. accepts the following: <code>status</code> , <code>body</code> , <code>headers</code> . See Details for more.
<code>.list</code>	named list, has to be one of <code>'status'</code> , <code>'body'</code> , and/or <code>'headers'</code> . An alternative to passing in via <code>...</code> . Don't pass the same thing to both, e.g. don't pass <code>'status'</code> to <code>...</code> , and also <code>'status'</code> to this parameter
<code>times</code>	(integer) number of times the given response should be returned; default: 1. value must be greater than or equal to 1. Very large values probably don't make sense, but there's no maximum value. See Details.

### Details

Values for status, body, and headers:

- `status`: (numeric/integer) three digit status code
- `body`: various: character, json, list, raw, numeric, NULL, FALSE, a file connection (other connection types not supported), or a `mock_file` function call (see [mock\\_file\(\)](#))
- `headers`: (list) a named list, must be named

response headers are returned with all lowercase names and the values are all of type character. if numeric/integer values are given (e.g., `to_return(headers = list(a = 10))`), we'll coerce any numeric/integer values to character.

### Value

an object of class `StubbedRequest`, with `print` method describing the stub

### multiple to\_return()

You can add more than one `to_return()` to a webmockr stub (including [to\\_raise\(\)](#), [to\\_timeout\(\)](#)). Each one is a HTTP response returned. That is, you'll match to an HTTP request based on `stub_request()` and `with()`; the first time the request is made, the first response is returned; the second time the request is made, the second response is returned; and so on.

Be aware that webmockr has to track number of requests (see [request\\_registry\(\)](#)), and so if you use multiple `to_return()` or the `times` parameter, you must clear the request registry in order to go back to mocking responses from the start again. `webmockr_reset()` clears the stub registry and the request registry, after which you can use multiple responses again (after creating your stub(s) again of course)

### Note

see more examples in [stub\\_request\(\)](#)

### Examples

```
# first, make a stub object
foo <- function() {
  stub_request("post", "https://httpbin.org/post")
}

# add status, body and/or headers
foo() %>% to_return(status = 200)
foo() %>% to_return(body = "stuff")
foo() %>% to_return(body = list(a = list(b = "world")))
foo() %>% to_return(headers = list(a = 5))
foo() %>%
  to_return(status = 200, body = "stuff", headers = list(a = 5))

# .list - pass in a named list instead
foo() %>% to_return(.list = list(body = list(foo = "bar")))

# multiple responses using chained `to_return()`
foo() %>% to_return(body = "stuff") %>% to_return(body = "things")

# many of the same response using the times parameter
foo() %>% to_return(body = "stuff", times = 3)
```

---

to_timeout	<i>Set timeout as an expected return on a match</i>
------------	-----------------------------------------------------

---

### Description

Set timeout as an expected return on a match

### Usage

```
to_timeout(.data)
```

### Arguments

`.data` input. Anything that can be coerced to a `StubbedRequest` class object

**Value**

an object of class `StubbedRequest`, with `print` method describing the stub

**Note**

see examples in [stub\\_request\(\)](#)

---

webmockr-defunct	<i>Defunct functions in webmockr</i>
------------------	--------------------------------------

---

**Description**

- [webmockr\\_enable\(\)](#): Function removed, see [enable\(\)](#)
- [webmockr\\_disable\(\)](#): Function removed, see [disable\(\)](#)
- `to_return_`: Only [to\\_return\(\)](#) is available now
- `wi_th_`: Only [wi\\_th\(\)](#) is available now

---

webmockr_configure	<i>webmockr configuration</i>
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---

**Description**

webmockr configuration

**Usage**

```
webmockr_configure(
  allow_net_connect = FALSE,
  allow_localhost = FALSE,
  allow = NULL,
  net_http_connect_on_start = FALSE,
  show_stubbing_instructions = FALSE,
  query_values_notation = FALSE,
  show_body_diff = FALSE
)

webmockr_configure_reset()

webmockr_configuration()

webmockr_allow_net_connect()

webmockr_disable_net_connect(allow = NULL)

webmockr_net_connect_allowed(uri = NULL)
```



---

webmockr_reset	<i>webmockr_reset</i>
----------------	-----------------------

---

**Description**

Clear all stubs and the request counter

**Usage**

```
webmockr_reset()
```

**Details**

this function runs [stub\\_registry\\_clear\(\)](#) and [request\\_registry\\_clear\(\)](#) - so you can run those two yourself to achieve the same thing

**Value**

nothing

**See Also**

[stub\\_registry\\_clear\(\)](#) [request\\_registry\\_clear\(\)](#)

**Examples**

```
# webmockr_reset()
```

---

wi_th	<i>Set additional parts of a stubbed request</i>
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---

**Description**

Set query params, request body, request headers and/or basic\_auth

**Usage**

```
wi_th(.data, ..., .list = list())
```

**Arguments**

<code>.data</code>	input. Anything that can be coerced to a <code>StubbedRequest</code> class object
<code>...</code>	Comma separated list of named variables. accepts the following: <code>query</code> , <code>body</code> , <code>headers</code> , <code>basic_auth</code> . See Details.
<code>.list</code>	named list, has to be one of <code>query</code> , <code>body</code> , <code>headers</code> and/or <code>basic_auth</code> . An alternative to passing in via <code>...</code> . Don't pass the same thing to both, e.g. don't pass <code>'query'</code> to <code>...</code> , and also <code>'query'</code> to this parameter

## Details

with is a function in the base package, so we went with wi\_th

Values for query, body, headers, and basic\_auth:

- query: (list) a named list. values are coerced to character class in the recorded stub. You can pass numeric, integer, etc., but all will be coerced to character.
- body: various, including character string, list, raw, numeric, upload (crul::upload or httr::upload\_file, they both create the same object in the end)
- headers: (list) a named list
- basic\_auth: (character) a length two vector, username and password. authentication type (basic/digest/ntlm/etc.) is ignored. that is, mocking authentication right now does not take into account the authentication type. We don't do any checking of the username/password except to detect edge cases where for example, the username/password were probably not set by the user on purpose (e.g., a URL is picked up by an environment variable)

Note that there is no regex matching on query, body, or headers. They are tested for matches in the following ways:

- query: compare stubs and requests with identical(). this compares named lists, so both list names and values are compared
- body: varies depending on the body format (list vs. character, etc.)
- headers: compare stub and request values with ==. list names are compared with %in%. basic\_auth is included in headers (with the name Authorization)

## Value

an object of class StubbedRequest, with print method describing the stub

## Note

see more examples in [stub\\_request\(\)](#)

## Examples

```
# first, make a stub object
req <- stub_request("post", "https://httpbin.org/post")

# add body
# list
wi_th(req, body = list(foo = "bar"))
# string
wi_th(req, body = '{"foo": "bar"}')
# raw
wi_th(req, body = charToRaw('{"foo": "bar"}'))
# numeric
wi_th(req, body = 5)
# an upload
wi_th(req, body = crul::upload(system.file("CITATION")))
# wi_th(req, body = httr::upload_file(system.file("CITATION")))
```

```
# add query - has to be a named list
wi_th(req, query = list(foo = "bar"))

# add headers - has to be a named list
wi_th(req, headers = list(foo = "bar"))
wi_th(req, headers = list(`User-Agent` = "webmockr/v1", hello="world"))

# .list - pass in a named list instead
wi_th(req, .list = list(body = list(foo = "bar")))

# basic authentication
wi_th(req, basic_auth = c("user", "pass"))
wi_th(req, basic_auth = c("user", "pass"), headers = list(foo = "bar"))
```

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