

# Package ‘shinytest’

May 7, 2018

**Title** Test Shiny Apps

**Version** 1.3.0

**Description** For automated testing of Shiny applications, using a headless browser, driven through 'WebDriver'.

**License** MIT + file LICENSE

**LazyData** true

**URL** <https://github.com/rstudio/shinytest>

**BugReports** <https://github.com/rstudio/shinytest/issues>

**RoxygenNote** 6.0.1.9000

**Imports** assertthat, digest, crayon, debugme, parsedate, pingr, callr (>= 2.0.3), R6, rematch, httr, shiny (>= 1.0.4), testthat (>= 1.0.0), utils, webdriver (>= 1.0.5), htmlwidgets, jsonlite, withr, httpuv

**Suggests** rmarkdown, flexdashboard

**Encoding** UTF-8

**SystemRequirements** PhantomJS (<http://phantomjs.org/>)

**NeedsCompilation** no

**Author** Winston Chang [aut, cre],  
Gábor Csárdi [aut]

**Maintainer** Winston Chang <[winston@rstudio.com](mailto:winston@rstudio.com)>

**Repository** CRAN

**Date/Publication** 2018-05-07 12:12:51 UTC

## R topics documented:

dependenciesInstalled . . . . .	2
diffviewer_widget . . . . .	2
expectUpdate . . . . .	3
expect_pass . . . . .	4
installDependencies . . . . .	4

recordTest . . . . .	5
ShinyDriver . . . . .	6
shinytest . . . . .	9
snapshotCompare . . . . .	9
testApp . . . . .	10
textTestDiff . . . . .	11
viewTestDiff . . . . .	11
viewTestDiffWidget . . . . .	12
Widget . . . . .	12

<b>Index</b>	<b>14</b>
--------------	-----------

---

dependenciesInstalled *Checks all dependencies are installed*

---

### Description

Checks that all the required system dependencies are installed properly, returns. If dependencies are missing, consider running [installDependencies](#).

### Usage

```
dependenciesInstalled()
```

### Value

TRUE when all dependencies are fulfilled; otherwise, FALSE.

### See Also

[installDependencies](#) to install missing dependencies.

---

diffviewer\_widget *Creates an htmlwidget that shows differences between files or directories*

---

### Description

This function can be used for viewing differences between current test results and the expected results

### Usage

```
diffviewer_widget(old, new, width = NULL, height = NULL, pattern = NULL)
```

**Arguments**

old, new	Names of the old and new directories to compare. Alternatively, they can be a character vectors of specific files to compare.
width	Width of the htmlwidget.
height	Height of the htmlwidget
pattern	A filter to apply to the old and new directories.

---

expectUpdate	testthat <i>expectation for a Shiny update</i>
--------------	--

---

**Description**

testthat expectation for a Shiny update

**Usage**

```
expectUpdate(app, output, ..., timeout = 3000, iotype = c("auto", "input",
  "output"))
```

**Arguments**

app	A <a href="#">ShinyDriver</a> object.
output	Character vector, the name(s) of the output widgets that are required to update for the test to succeed.
...	Named arguments specifying updates for Shiny input widgets.
timeout	Timeout for the update to happen, in milliseconds.
iotype	Type of the widget(s) to change. These are normally input widgets.

**Examples**

```
## Not run:
## https://github.com/rstudio/shiny-examples/tree/master/050-kmeans-example
app <- ShinyDriver$new("050-kmeans-example")
expectUpdate(app, xcol = "Sepal.Width", output = "plot1")
expectUpdate(app, ycol = "Petal.Width", output = "plot1")
expectUpdate(app, clusters = 4, output = "plot1")

## End(Not run)
```

`expect_pass`*Expectation: shinytest object passed snapshot tests*

---

### Description

This returns an testthat expectation object.

### Usage

```
expect_pass(object, info = NULL)
```

### Arguments

<code>object</code>	The results returned by <a href="#">testApp</a> .
<code>info</code>	Extra information to be included in the message (useful when writing tests in loops).

### Examples

```
## Not run:  
expect_pass(testApp("path/to/app/"))  
  
## End(Not run)
```

---

`installDependencies`*Installs missing dependencies*

---

### Description

Installs all the required system dependencies to record and run tests. This will install a headless web browser, PhantomJS.

### Usage

```
installDependencies()
```

### See Also

[dependenciesInstalled](#) to check if dependencies are missing. For more information about where PhantomJS will be installed, see [install\\_phantomjs](#).

## Examples

```
## Not run:

if (!dependenciesInstalled() &&
    identical(menu(c("Yes", "No"), "Install missing dependencies?"), 1L)) {
  installDependencies()
}

## End(Not run)
```

---

recordTest

*Launch test event recorder for a Shiny app*

---

## Description

Launch test event recorder for a Shiny app

## Usage

```
recordTest(app = ".", save_dir = NULL, load_mode = FALSE, seed = NULL,
  loadTimeout = 10000, shinyOptions = list())
```

## Arguments

app	A <a href="#">ShinyDriver</a> object, or path to a Shiny application.
save_dir	A directory to save stuff.
load_mode	A boolean that determines whether or not the resulting test script should be appropriate for load testing.
seed	A random seed to set before running the app. This seed will also be used in the test script.
loadTimeout	Maximum time to wait for the Shiny application to load, in milliseconds. If a value is provided, it will be saved in the test script.
shinyOptions	A list of options to pass to <code>runApp()</code> . If a value is provided, it will be saved in the test script.

---

**ShinyDriver***Class to manage a shiny app and a phantom.js headless browser*

---

**Description**

Class to manage a shiny app and a phantom.js headless browser

**Usage**

```
app <- ShinyDriver$new(path = ".", loadTimeout = 5000,
  checkNames = TRUE, debug = c("none", "all",
  ShinyDriver$debugLogTypes), phantomTimeout = 5000,
  seed = NULL, cleanLogs = TRUE, shinyOptions = list())

app$stop()
app$getDebugLog(type = c("all", ShinyDriver$debugLogTypes))

app$getValue(name, iotype = c("auto", "input", "output"))
app$setValue(name, value, iotype = c("auto", "input", "output"))
app$sendKeys(name = NULL, keys)

app$get_windows_size()
app$setWindowSize(width, height)

app$getUrl()
app$goBack()
app$refresh()
app$getTitle()
app$getSource()
app$takeScreenshot(file = NULL)

app$findElement(css = NULL, linkText = NULL,
  partialLinkText = NULL, xpath = NULL)

app$findElements(css = NULL, linkText = NULL,
  partialLinkText = NULL, xpath = NULL)

app$waitFor(expr, checkInterval = 100, timeout = 3000)

app$listWidgets()

app$checkUniqueWidgetNames()

app$findWidget(name, iotype = c("auto", "input", "output"))

app$expectUpdate(output, ..., timeout = 3000,
  iotype = c("auto", "input", "output"))
```

## Arguments

- app** A ShinyDriver instance.
- path** Path to a directory containing a Shiny app, i.e. a single app.R file or a server.R and ui.R pair.
- loadTimeout** How long to wait for the app to load, in ms. This includes the time to start R.
- phantomTimeout** How long to wait when connecting to phantomJS process, in ms.
- checkNames** Whether to check if widget names are unique in the app.
- debug** Whether to start the app in debugging mode. In debugging mode debug messages are printed to the console.
- seed** An optional random seed to use before starting the application. For apps that use R's random number generator, this can make their behavior repeatable.
- cleanLogs** Whether to remove the stdout and stderr logs when the Shiny process object is garbage collected.
- shinyOptions** A list of options to pass to runApp().
- name** Name of a shiny widget. For \$sendKeys it can be NULL, in which case the keys are sent to the active HTML element.
- iotype** Type of the Shiny widget. Usually shinytest finds the widgets by their name, so this need not be specified, but Shiny allows input and output widgets with identical names.
- keys** Keys to send to the widget or the app. See the sendKeys method of the webdriver package.
- width** Scalar integer, the desired width of the browser window.
- height** Scalar integer, the desired height of the browser window.
- file** File name to save the screenshot to. If NULL, then it will be shown on the R graphics device.
- css** CSS selector to find an HTML element.
- linkText** Find <a> HTML elements based on their innerText.
- partialLinkText** Find <a> HTML elements based on their innerText. It uses partial matching.
- xpath** Find HTML elements using XPath expressions.
- expr** A string scalar containing JavaScript code that evaluates to the condition to wait for.
- checkInterval** How often to check for the condition, in milliseconds.
- timeout** Timeout for the condition, in milliseconds.
- output** Character vector, the name(s) of the Shiny output widgets that should be updated.
- ...** For expectUpdate these can be named arguments. The argument names correspond to Shiny input widgets: each input widget will be set to the specified value.

## Details

ShinyDriver\$new() function creates a ShinyDriver object. It starts the Shiny app in a new R session, and it also starts a phantomjs headless browser that connects to the app. It waits until the app is ready to use. It waits at most loadTimeout milliseconds, and if the app is not ready, then it throws an error. You can increase loadTimeout for slow loading apps. Currently it supports apps that are defined in a single app.R file, or in a server.R and ui.R pair.

`app$stop()` stops the app, i.e. the external R process that runs the app, and also the phantomjs instance.

`app$getDebugLog()` queries one or more of the debug logs: `shiny_console`, `browser` or `shinytest`.

`app$getValue()` finds a widget and queries its value. See the `getValue` method of the `Widget` class.

`app$setInputs()` sets the value of inputs. The arguments must all be named; an input with each name will be assigned the given value.

`app$uploadFile()` uploads a file to a file input. The argument must be named and the value must be the path to a local file; that file will be uploaded to a file input with that name.

`app$getAllValues()` returns a named list of all inputs, outputs, and error values.

`app$setValue()` finds a widget and sets its value. See the `setValue` method of the `Widget` class.

`app$sendKeys` sends the specified keys to the HTML element of the widget.

`app$getWindowSize()` returns the current size of the browser window, in a list of two integer scalars named 'width' and 'height'.

`app$setWindowSize()` sets the size of the browser window to the specified width and height.

`app$getUrl()` returns the current URL.

`app$goBack()` "presses" the browser's 'back' button.

`app$refresh()` "presses" the browser's 'refresh' button.

`app$getTitle()` returns the title of the page. (More precisely the document title.)

`app$getSource()` returns the complete HTML source of the current page, in a character scalar.

`app$takeScreenshot()` takes a screenshot of the current page and writes it to a file, or (if file is NULL) shows it on the R graphics device. The output file has PNG format.

`app$findElement()` find an HTML element on the page, using a CSS selector or an XPath expression. The return value is an `Element` object from the `webdriver` package.

`app$findElements()` finds potentially multiple HTML elements, and returns them in a list of `Element` objects from the `webdriver` package.

`app$waitFor()` waits until a JavaScript expression evaluates to true, or a timeout happens. It returns TRUE is the expression evaluated to true, possible after some waiting.

`app$listWidgets()` lists the names of all input and output widgets. It returns a list of two character vectors, named input and output.

`app$checkUniqueWidgetNames()` checks if Shiny widget names are unique.

`app$findWidget()` finds the corresponding HTML element of a Shiny widget. It returns a `Widget` object.

`expectUpdate()` is one of the main functions to test Shiny apps. It performs one or more update operations via the browser, and then waits for the specified output widgets to update. The test succeeds if all specified output widgets are updated before the timeout. For updates that involve a lot of computation, you increase the timeout.



## Examples

```
## Not run:
## https://github.com/rstudio/shiny-examples/tree/master/050-kmeans-example
app <- ShinyDriver$new("050-kmeans-example")
expectUpdate(app, xcol = "Sepal.Width", output = "plot1")
expectUpdate(app, ycol = "Petal.Width", output = "plot1")
expectUpdate(app, clusters = 4, output = "plot1")

## End(Not run)
```

shinytest

*Test Shiny Apps*

## Description

Uses a headless browser, driven through 'WebDriver'. See [ShinyDriver](#) to get started.

snapshotCompare

*Compare current and expected snapshots*

## Description

This compares current and expected snapshots for a test set, and prints any differences to the console.

## Usage

```
snapshotCompare(appDir, testnames = NULL, autoremove = TRUE,
  images = TRUE, quiet = FALSE, interactive = base::interactive())

snapshotUpdate(appDir = ".", testnames = NULL, quiet = FALSE)
```

## Arguments

appDir	Directory that holds the tests for an application. This is the parent directory for the expected and current snapshot directories.
testnames	Name or names of a test. If NULL, compare all test results.
autoremove	If the current results match the expected results, should the current results be removed automatically? Defaults to TRUE.
images	Should screenshots and PNG images be compared? It can be useful to set this to FALSE when the expected results were taken on a different platform from the current results.
quiet	Should output be suppressed? This is useful for automated testing.
interactive	If there are any differences between current results and expected results, provide an interactive graphical viewer that shows the changes and allows the user to accept or reject the changes.

**See Also**[testApp](#)

---

`testApp`*Run tests for a Shiny application*

---

**Description**

Run tests for a Shiny application

**Usage**

```
testApp(appDir = ".", testnames = NULL, quiet = FALSE,  
        compareImages = TRUE, interactive = base::interactive())
```

**Arguments**

<code>appDir</code>	Path to the Shiny application to be tested.
<code>testnames</code>	Test script(s) to run. The .R extension of the filename is optional. For example, "mytest" or c("mytest", "mytest2.R"). If NULL (the default), all scripts in the tests/ directory will be run.
<code>quiet</code>	Should output be suppressed? This is useful for automated testing.
<code>compareImages</code>	Should screenshots be compared? It can be useful to set this to FALSE when the expected results were taken on a different platform from the one currently being used to test the application.
<code>interactive</code>	If there are any differences between current results and expected results, provide an interactive graphical viewer that shows the changes and allows the user to accept or reject the changes.

**See Also**

[snapshotCompare](#) and [snapshotUpdate](#) if you want to compare or update snapshots after testing. In most cases, the user is prompted to do these tasks interactively, but there are also times where it is useful to call these functions from the console.

---

textTestDiff	<i>Get textual diff of test results</i>
--------------	---

---

**Description**

Get textual diff of test results

**Usage**

```
textTestDiff(appDir = ".", testnames = NULL, images = TRUE)
```

**Arguments**

appDir	Directory of the Shiny application that was tested.
testnames	A character vector of names of tests to compare. If NULL, compare all test results for which there are differences.
images	Compare screenshot images.

**See Also**

[viewTestDiff](#) for interactive diff viewer.

---

viewTestDiff	<i>View differences in test results</i>
--------------	---

---

**Description**

View differences in test results

**Usage**

```
viewTestDiff(appDir = ".", testnames = NULL,  
             interactive = base::interactive(), images = TRUE)
```

**Arguments**

appDir	Directory of the Shiny application that was tested.
testnames	A character vector of names of tests to compare. If NULL, compare all test results for which there are differences.
interactive	If TRUE, use the interactive diff viewer, which runs in a Shiny app. If FALSE, print a textual diff, generated by <a href="#">textTestDiff</a> .
images	Compare screenshot images (only used when interactive is FALSE).

**Value**

A character vector the same length as `testnames`, with "accept" or "reject" for each test.

**See Also**

[textTestDiff](#) to get a text diff as a string.

---

<code>viewTestDiffWidget</code>	<i>Interactive viewer widget for changes in test results</i>
---------------------------------	--

---

**Description**

Interactive viewer widget for changes in test results

**Usage**

```
viewTestDiffWidget(appDir = ".", testname = NULL)
```

**Arguments**

<code>appDir</code>	Directory of the Shiny application that was tested.
<code>testname</code>	Name of test to compare.

---

<code>Widget</code>	<i>Class for a Shiny widget</i>
---------------------	---------------------------------

---

**Description**

Class for a Shiny widget

**Usage**

```
w <- app$findWidget(name,
  iotype = c("auto", "input", "output"))
```

```
w$getName()
w$getElement()
w$getType()
w$getIoType()
w$isinput()
w$isOutput()

w$getValue()
w$setValue(value)

w$sendKeys(keys)

w$listTabs()
```

## Arguments

**app** A [ShinyDriver](#) object.

**w** A [Widget](#) object.

**name** Name of a Shiny widget.

**ioType** Character scalar, whether the widget is ‘input’ or ‘output’. The default ‘auto’ value works well, provided that widgets have unique names. (Shiny allows an input and an output widget with the same name.)

**value** Value to set for the widget. Its interpretation depends on the type of the widget, see details below.

**keys** Keys to send to the widget. See the `sendKeys` method of the [Element](#) class in the `webdriver` package.

## Details

A [Widget](#) object represents a Shiny input or output widget. `app$findWidget` creates a widget object from a [ShinyDriver](#) object.

`w$getName()` returns the name of the widget.

`w$getElement()` returns an HTML element. This is an [Element](#) object from the `webdriver` package.

`w$getType()` returns the type of the widget, possible values are `textInput`, `selectInput`, etc.

`w$getIoType()` returns ‘input’ or ‘output’, whether the widget is an input or output widget.

`w$isInput()` returns `TRUE` for input widgets, `FALSE` otherwise.

`w$isOutput()` returns `TRUE` for output widgets, `FALSE` otherwise.

`w$getValue()` returns the value of the widget. The exact type returned depends on the type of the widget. **TODO:** list widgets and their return types.

`w$setValue()` sets the value of the widget, through the web browser. Different widget types expect different different value arguments. **TODO:** list widgets and types.

`w$sendKeys` sends the specified keys to the HTML element of the widget.

`w$listTabs` lists the tab names of a `tabsetPanel` widget. It fails for other types of widgets.

## Examples

```
{  
  
}
```

# Index

dependenciesInstalled, [2](#), [4](#)  
diffviewer\_widget, [2](#)

Element, [8](#), [13](#)  
expect\_pass, [4](#)  
expectUpdate, [3](#)

install\_phantomjs, [4](#)  
installDependencies, [2](#), [4](#)

recordTest, [5](#)

ShinyDriver, [3](#), [5](#), [6](#), [9](#), [13](#)  
shinytest, [9](#)  
shinytest-package (shinytest), [9](#)  
snapshotCompare, [9](#), [10](#)  
snapshotUpdate, [10](#)  
snapshotUpdate (snapshotCompare), [9](#)

testApp, [4](#), [10](#), [10](#)  
textTestDiff, [11](#), [11](#), [12](#)

viewTestDiff, [11](#), [11](#)  
viewTestDiffWidget, [12](#)

Widget, [8](#), [12](#)