

Package ‘rhino’

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Title A Framework for Enterprise Shiny Applications

Version 1.1.0

Description A framework that supports creating and extending enterprise Shiny applications using best practices.

URL <https://appsilon.github.io/rhino/>,
<https://github.com/Appsilon/rhino>

BugReports <https://github.com/Appsilon/rhino/issues>

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app	<i>Rhino application</i>
-----	--------------------------

Description

The entrypoint for a Rhino application. Your `app.R` should contain nothing but a call to `rhino::app()`.

Usage

```
app()
```

Details

This function is a wrapper around `shiny::shinyApp()`. It reads `rhino.yml` and performs some configuration steps (logger, static files, box modules). You can run a Rhino application in typical fashion using `shiny::runApp()`.

Rhino will load the `app/main.R` file as a box module (`box::use(app/main)`). It should export two functions which take a single `id` argument - the `ui` and `server` of your top-level Shiny module.

Value

An object representing the app (can be passed to `shiny::runApp()`).

Legacy entrypoint

It is possible to specify a different way to load your application using the `legacy_entrypoint` option in `rhino.yml`:

1. `app_dir`: Rhino will run the app using `shiny::shinyAppDir("app")`.
2. `source`: Rhino will `source("app/main.R")`. This file should define the top-level `ui` and `server` objects to be passed to `shinyApp()`.

3. `box_top_level`: Rhino will load `app/main.R` as a box module (as it does by default), but the exported `ui` and `server` objects will be considered as top-level.

The `legacy_entrypoint` setting is useful when migrating an existing Shiny application to Rhino. It is recommended to transform your application step by step:

1. With `app_dir` you should be able to run your application right away (just put the files in the `app` directory).
2. With `source` setting your application structure must be brought closer to Rhino, but you can still use `library()` and `source()` functions.
3. With `box_top_level` you can be confident that the whole app is properly modularized, as box modules can only load other box modules (`library()` and `source()` won't work).
4. The last step is to remove the `legacy_entrypoint` setting completely. Compared to `box_top_level` you'll need to make your top-level `ui` and `server` into a **Shiny module** (functions taking a single `id` argument).

Examples

```
## Not run:  
# Your `app.R` should contain nothing but this single call:  
rhino::app()  
  
## End(Not run)
```

build_js

Build JavaScript

Description

Builds the `app/js/index.js` file into `app/static/js/app.min.js`. The code is transformed and bundled using **Babel** and **webpack**, so the latest JavaScript features can be used (including ECMAScript 2015 aka ES6 and newer standards). Requires Node.js and the `yarn` command to be available on the system.

Usage

```
build_js(watch = FALSE)
```

Arguments

`watch` Keep the process running and rebuilding JS whenever source files change.

Details

Functions/objects defined in the global scope do not automatically become window properties, so the following JS code:

```
function sayHello() { alert('Hello!'); }
```

won't work as expected if used in R like this:

```
tags$button("Hello!", onclick = 'sayHello()');
```

Instead you should explicitly export functions:

```
export function sayHello() { alert('Hello!'); }
```

and access them via the global App object:

```
tags$button("Hello!", onclick = "App.sayHello()")
```

Value

None. This function is called for side effects.

Examples

```
if (interactive()) {  
  # Build the `app/js/index.js` file into `app/static/js/app.min.js`.  
  build_js()  
}
```

build_sass

Build Sass

Description

Builds the app/styles/main.scss file into app/static/css/app.min.css.

Usage

```
build_sass(watch = FALSE)
```

Arguments

watch Keep the process running and rebuilding Sass whenever source files change. Only supported for sass: node configuration in rhino.yml.

Details

The build method can be configured using the `sass` option in `rhino.yml`:

1. `node`: Use **Dart Sass** (requires Node.js and the `yarn` command to be available on the system).
2. `r`: Use the `{sass}` R package.

It is recommended to use Dart Sass which is the primary, actively developed implementation of Sass. On systems without `yarn` you can use the `{sass}` R package as a fallback. It is not advised however, as it uses the deprecated **LibSass** implementation.

Value

None. This function is called for side effects.

Examples

```
if (interactive()) {  
  # Build the `app/styles/main.scss` file into `app/static/css/app.min.css`.  
  build_sass()  
}
```

diagnostics

Print diagnostics

Description

Prints information which can be useful for diagnosing issues with Rhino.

Usage

```
diagnostics()
```

Value

None. This function is called for side effects.

Examples

```
if (interactive()) {  
  # Print diagnostic information.  
  diagnostics()  
}
```

format_r	<i>Format R</i>
----------	-----------------

Description

Uses the {styler} package to automatically format R sources.

Usage

```
format_r(paths)
```

Arguments

paths Character vector of files and directories to format.

Details

The code is formatted according to the `styler::tidyverse_style` guide with one adjustment: spacing around math operators is not modified to avoid conflicts with `box::use()` statements.

Value

None. This function is called for side effects.

Examples

```
if (interactive()) {  
  # Format a single file.  
  format_r("app/main.R")  
  
  # Format all files in a directory.  
  format_r("app/view")  
}
```

init	<i>Create Rhino application</i>
------	---------------------------------

Description

Generates the file structure of a Rhino application. Can be used to start a fresh project or to migrate an existing Shiny application created without Rhino.

Usage

```
init(dir = ".", github_actions_ci = TRUE, rhino_version = "rhino")
```

Arguments

<code>dir</code>	Name of the directory to create application in.
<code>github_actions_ci</code>	Should the GitHub Actions CI be added?
<code>rhino_version</code>	When using an existing <code>renv.lock</code> file, Rhino will install itself using <code>renv::install(rhino_version)</code> . You can provide this argument to use a specific version / source, e.g. <code>"Appsilon/rhino@v0.4.0"</code> .

Details

The recommended steps for migrating an existing Shiny application to Rhino:

1. Put all app files in the app directory, so that it can be run with `shiny::shinyAppDir("app")` (assuming all dependencies are installed).
2. If you have a list of dependencies in form of `library()` calls, put them in the `dependencies.R` file. If this file does not exist, Rhino will generate it based on `renv::dependencies("app")`.
3. If your project uses `{renv}`, put `renv.lock` and `renv` directory in the project root. Rhino will try to only add the necessary dependencies to your lockfile.
4. Run `rhino::init()` in the project root.

Value

None. This function is called for side effects.

<code>lint_js</code>	<i>Lint JavaScript</i>
----------------------	------------------------

Description

Runs **ESLint** on the JavaScript sources in the `app/js` directory. Requires Node.js and the `yarn` command to be available on the system.

Usage

```
lint_js(fix = FALSE)
```

Arguments

<code>fix</code>	Automatically fix problems.
------------------	-----------------------------

Details

If your JS code uses global objects defined by other JS libraries or R packages, you'll need to let the linter know or it will complain about undefined objects. For example, the `{leaflet}` package defines a global object `L`. To access it without raising linter errors, add `/* global L */` comment in your JS code.

You don't need to define `Shiny` and `$` as these global variables are defined by default.

If you find a particular ESLint error inapplicable to your code, you can disable a specific rule for the next line of code with a comment like:

```
// eslint-disable-next-line no-restricted-syntax
```

See the [ESLint documentation](#) for full details.

Value

None. This function is called for side effects.

Examples

```
if (interactive()) {
  # Lint the JavaScript sources in the `app/js` directory.
  lint_js()
}
```

 lint_r

Lint R

Description

Uses the `{lintr}` package to check all R sources in the `app` and `tests/testthat` directories for style errors.

Usage

```
lint_r()
```

Details

The linter rules can be adjusted in the `.lintr` file.

You can set the maximum number of accepted style errors with the `legacy_max_lint_r_errors` option in `rhino.yml`. This can be useful when inheriting legacy code with multiple styling issues.

Value

None. This function is called for side effects.

lint_sass	<i>Lint Sass</i>
-----------	------------------

Description

Runs **Stylelint** on the Sass sources in the app/styles directory. Requires Node.js and the yarn command to be available on the system.

Usage

```
lint_sass(fix = FALSE)
```

Arguments

fix Automatically fix problems.

Value

None. This function is called for side effects.

Examples

```
if (interactive()) {  
  # Lint the Sass sources in the `app/styles` directory.  
  lint_sass()  
}
```

log	<i>Logging functions</i>
-----	--------------------------

Description

Convenient way to log messages at a desired severity level.

Usage

```
log
```

Format

An object of class list of length 7.

Details

The log object is a list of logging functions, in order of decreasing severity:

1. fatal
2. error
3. warn
4. success
5. info
6. debug
7. trace

Rhino configures logging based on settings read from the `config.yml` file in the root of your project:

1. `rhino_log_level`: The minimum severity of messages to be logged.
2. `rhino_log_file`: The file to save logs to. If NA, standard error stream will be used.

The default `config.yml` file uses `!expr Sys.getenv()` so that log level and file can also be configured by setting the `RHINO_LOG_LEVEL` and `RHINO_LOG_FILE` environment variables.

The functions re-exported by the log object are aliases for `{logger}` functions. You can also import the package and use it directly to utilize its full capabilities.

Examples

```
## Not run:
box::use(rhino[log])

# Messages can be formatted using glue syntax.
name <- "Rhino"
log$warn("Hello {name}!")
log$info("{1:3} + {1:3} = {2 * (1:3)}")

## End(Not run)
```

rhinos

Population of rhinos

Description

A dataset containing population of 5 species of rhinos.

Usage

rhinos

Format

A data frame with 58 rows and 3 variables:

Year year

Population rhinos population

Species rhinos species

Source

<https://ourworldindata.org/>

test_e2e

Run Cypress end-to-end tests

Description

Uses **Cypress** to run end-to-end tests defined in the tests/cypress directory. Requires Node.js and the yarn command to be available on the system.

Usage

```
test_e2e(interactive = FALSE)
```

Arguments

interactive Should Cypress be run in the interactive mode?

Value

None. This function is called for side effects.

Examples

```
if (interactive()) {  
  # Run the end-to-end tests in the `tests/cypress` directory.  
  test_e2e()  
}
```

`test_r`*Run R unit tests*

Description

Uses the {testthat} package to run all unit tests in tests/testthat directory.

Usage

```
test_r()
```

Value

None. This function is called for side effects.

Examples

```
if (interactive()) {  
  # Run all unit tests in the `tests/testthat` directory.  
  test_r()  
}
```

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