Package ‘covr’

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Title Test Coverage for Packages

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Description Track and report code coverage for your package and (optionally) upload the results to a coverage service like 'Codecov' <http://codecov.io> or 'Coveralls' <http://coveralls.io>. Code coverage is a measure of the amount of code being exercised by a set of tests. It is an indirect measure of test quality and completeness. This package is compatible with any testing methodology or framework and tracks coverage of both R code and compiled C/C++/FORTRAN code.


BugReports https://github.com/r-lib/covr/issues

Depends R (>= 3.1.0), methods

Imports digest, stats, utils, jsonlite, rex, httr, crayon, withr (>= 1.0.2), yaml

Suggests R6, knitr, rmarkdown, htmltools, DT (>= 0.2), testthat, rlang, rstudioapi (>= 0.2), xml2 (>= 1.0.0), parallel, memoise, mockery

License GPL-3

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covr-package

Description

covr tracks and reports code coverage for your package and (optionally) upload the results to a coverage service like 'Codecov' http://codecov.io or 'Coveralls' http://coveralls.io. Code coverage is a measure of the amount of code being exercised by a set of tests. It is an indirect measure of test quality and completeness. This package is compatible with any testing methodology or framework and tracks coverage of both R code and compiled C/C++/FORTRAN code.

Details

A coverage report can be used to inspect coverage for each line in your package. Using report() requires the additional dependencies DT and htmltools.

# If run with no arguments `report()` implicitly calls `package_coverage()`
report()

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Run covr on a package and output the result so it is available on Azure Pipelines

Usage

```r
azure(
  ..., 
  coverage = package_coverage(..., quiet = quiet), 
  filename = "coverage.xml", 
  quiet = TRUE
)
```

Arguments

- `...`: arguments passed to `package_coverage()`
- `coverage`: an existing coverage object to submit, if NULL, `package_coverage()` will be called with the arguments from `...`
- `filename`: the name of the Cobertura XML file
- `quiet`: if FALSE, print the coverage before submission.
codecov

Run covr on a package and upload the result to codecov.io

Description

Run covr on a package and upload the result to codecov.io

Usage

codecov(
    ..., coverage = NULL,
    base_url = "https://codecov.io",
    token = NULL,
    commit = NULL,
    branch = NULL,
    flags = NULL,
    quiet = TRUE
)

Arguments

... arguments passed to package_coverage()
coverage an existing coverage object to submit, if NULL, package_coverage() will be called with the arguments from ...
base_url Codecov url (change for Enterprise)
token a codecov upload token, if NULL then following external sources will be checked in this order:
    1. the environment variable ‘CODECOV_TOKEN’. If it is empty, then
    2. package will look at directory of the package for a file codecov.yml. File must have codecov section where field token is set to a token that will be used.
commit explicitly set the commit this coverage result object corresponds to. Is looked up from the service or locally if it is NULL.
branch explicitly set the branch this coverage result object corresponds to, this is looked up from the service or locally if it is NULL.
flags A flag to use for this coverage upload see https://docs.codecov.io/docs/flags for details.
quiet if FALSE, print the coverage before submission.

Examples

## Not run:
codecov(path = "test")

## End(Not run)
code_coverage  
*Calculate coverage of code directly*

**Description**

This function is useful for testing, and is a thin wrapper around `file_coverage()` because parse-Data is not populated properly unless the functions are defined in a file.

**Usage**

```r
code_coverage(
  source_code,
  test_code,
  line_exclusions = NULL,
  function_exclusions = NULL,
  ...
)
```

**Arguments**

- `source_code`: A character vector of source code
- `test_code`: A character vector of test code
- `line_exclusions`: a named list of files with the lines to exclude from each file.
- `function_exclusions`: a vector of regular expressions matching function names to exclude. Example `print\.|.*\.` to match print methods.
- `...`: Additional arguments passed to `file_coverage()`

coverage_to_list  
*Convert a coverage dataset to a list*

**Description**

Convert a coverage dataset to a list

**Usage**

```r
coverage_to_list(x = package_coverage())
```

**Arguments**

- `x`: a coverage dataset, defaults to running `package_coverage()`.

**Value**

A list containing coverage result for each individual file and the whole package
coveralls  
Run covr on a package and upload the result to coveralls

Description
Run covr on a package and upload the result to coveralls

Usage
coveralls(
  ..., 
  coverage = NULL,
  repo_token = Sys.getenv("COVERALLS_TOKEN"),
  service_name = Sys.getenv("CI_NAME", "travis-ci"),
  quiet = TRUE
)

Arguments
... arguments passed to package_coverage()
coverage an existing coverage object to submit, if NULL, package_coverage() will be called with the arguments from ...
repo_token The secret repo token for your repository, found at the bottom of your repository’s page on Coveralls. This is useful if your job is running on a service Coveralls doesn’t support out-of-the-box. If set to NULL, it is assumed that the job is running on travis-ci
service_name the CI service to use, if environment variable ‘CI_NAME’ is set that is used, otherwise ‘travis-ci’ is used.
quiet if FALSE, print the coverage before submission.

environment_coverage  
Calculate coverage of an environment

Description
Calculate coverage of an environment

Usage
environment_coverage(
  env = parent.frame(),
  test_files,
  line_exclusions = NULL,
  function_exclusions = NULL
)
Arguments

- **env**: The environment to be instrumented.
- **test_files**: Character vector of test files with code to test the functions
- **line_exclusions**: a named list of files with the lines to exclude from each file.
- **function_exclusions**: a vector of regular expressions matching function names to exclude. Example `print\\.*` to match print methods.

Exclusions

<table>
<thead>
<tr>
<th>exclusions</th>
<th>Exclusions</th>
</tr>
</thead>
</table>

Description

covr supports a couple of different ways of excluding some or all of a file.

Line Exclusions

The `line_exclusions` argument to `package_coverage()` can be used to exclude some or all of a file. This argument takes a list of filenames or named ranges to exclude.

Function Exclusions

Alternatively `function_exclusions` can be used to exclude R functions based on regular expression(s). For example `print\\.*` can be used to exclude all the print methods defined in a package from coverage.

Exclusion Comments

In addition you can exclude lines from the coverage by putting special comments in your source code. This can be done per line or by specifying a range. The patterns used can be specified by the `exclude_pattern`, `exclude_start`, `exclude_end` arguments to `package_coverage()` or by setting the global options `covr.exclude_pattern`, `covr.exclude_start`, `covr.exclude_end`.

Examples

```r
## Not run:
# exclude whole file of R/test.R
package_coverage(exclusions = "R/test.R")

# exclude lines 1 to 10 and 15 from R/test.R
package_coverage(line_exclusions = list("R/test.R" = c(1:10, 15)))

# exclude lines 1 to 10 from R/test.R, all of R/test2.R
package_coverage(line_exclusions = list("R/test.R" = 1:10, "R/test2.R"))

# exclude all print and format methods from the package.
package_coverage(function_exclusions = c("print\\.", "format\."]))
```
file_coverage

Calculate test coverage for sets of files

Description

The files in source_files are first sourced into a new environment to define functions to be checked. Then they are instrumented to track coverage and the files in test_files are sourced.

Usage

file_coverage(
  source_files,
  test_files,
  line_exclusions = NULL,
  function_exclusions = NULL,
  parent_env = parent.frame()
)

Arguments

source_files Character vector of source files with function definitions to measure coverage
test_files Character vector of test files with code to test the functions
line_exclusions a named list of files with the lines to exclude from each file.
function_exclusions a vector of regular expressions matching function names to exclude. Example print\. to match print methods.
parent_env The parent environment to use when sourcing the files.
**file_report**  
A coverage report for a specific file

**Description**
A coverage report for a specific file.

**Usage**
```r
file_report(
  x = package_coverage(),
  file = NULL,
  out_file = file.path(tempdir(), paste0(get_package_name(x), "-file-report.html")),
  browse = interactive()
)
```

**Arguments**
- **x**: a coverage dataset, defaults to running `package_coverage()`.
- **file**: The file to report on, if NULL, use the first file in the coverage output.
- **out_file**: The output file.
- **browse**: whether to open a browser to view the report.

**function_coverage**  
Calculate test coverage for a specific function.

**Description**
Calculate test coverage for a specific function.

**Usage**
```r
function_coverage(fun, code = NULL, env = NULL, enc = parent.frame())
```

**Arguments**
- **fun**: name of the function.
- **code**: expressions to run.
- **env**: environment the function is defined in.
- **enc**: the enclosing environment which to run the expressions.
**gitlab**

Run covr on package and create report for GitLab

---

**Description**

Utilize internal GitLab static pages to publish package coverage. Creates local covr report in a package subdirectory. Uses the pages GitLab job to publish the report.

**Usage**

```r
gitlab(..., coverage = NULL, file = "public/coverage.html", quiet = TRUE)
```

**Arguments**

- `...`: arguments passed to `package_coverage()`
- `coverage`: an existing coverage object to submit, if NULL, `package_coverage()` will be called with the arguments from `...`
- `file`: The report filename.
- `quiet`: if FALSE, print the coverage before submission.

---

**in_covr**

Determine if code is being run in covr

---

**Description**

covr functions set the environment variable R_COVR when they are running. `in_covr()` returns TRUE if this environment variable is set and FALSE otherwise.

**Usage**

```r
in_covr()
```

**Examples**

```r
if (require(testthat)) {
  testthat::skip_if(in_covr())
}
```
package_coverage

Calculate test coverage for a package

Description

This function calculates the test coverage for a development package on the path. By default it runs only the package tests, but it can also run vignette and example code.

Usage

package_coverage(
  path = ".", 
  type = c("tests", "vignettes", "examples", "all", "none"), 
  combine_types = TRUE, 
  relative_path = TRUE, 
  quiet = TRUE, 
  clean = TRUE, 
  line_exclusions = NULL, 
  function_exclusions = NULL, 
  code = character(), 
  ..., 
  exclusions, 
  pre_clean = TRUE 
)

Arguments

- **path**: file path to the package.
- **type**: run the package ‘tests’, ‘vignettes’, ‘examples’, ‘all’, or ‘none’. The default is ‘tests’.
- **combine_types**: If TRUE (the default) the coverage for all types is simply summed into one coverage object. If FALSE separate objects are used for each type of coverage.
- **relative_path**: whether to output the paths as relative or absolute paths.
- **quiet**: whether to load and compile the package quietly, useful for debugging errors.
- **clean**: whether to clean temporary output files after running, mainly useful for debugging errors.
- **line_exclusions**: a named list of files with the lines to exclude from each file.
- **function_exclusions**: a vector of regular expressions matching function names to exclude. Example print\. to match print methods.
- **code**: A character vector of additional test code to run.
- **...**: Additional arguments passed to tools::testInstalledPackage().
- **exclusions**: ‘Deprecated’, please use ‘line_exclusions’ instead.
- **pre_clean**: whether to delete all objects present in the src directory before compiling.
percent_coverage

Details

This function uses `tools::testInstalledPackage()` to run the code, if you would like to test your package in another way you can set `type = "none"` and pass the code to run as a character vector to the code parameter.

Parallelized code using `parallel`s `mcparallel()` needs to use a patched `parallel:::mcexit`. This is done automatically if the package depends on `parallel`, but can also be explicitly set using the environment variable `COVR_FIX_PARALLEL_MCEXIT` or the global option `covr.fix_parallel_mcexit`.

See Also

`exclusions()` For details on excluding parts of the package from the coverage calculations.

---

percent_coverage  Provide percent coverage of package

Description

Calculate the total percent coverage from a coverage result object.

Usage

```r
percent_coverage(x, ...)
```

Arguments

- `x`  the coverage object returned from `package_coverage()`
- `...`  additional arguments passed to `tally_coverage()`

Value

The total percentage as a numeric(1).

---

print.coverage  Print a coverage object

Description

Print a coverage object

Usage

```r
# S3 method for class 'coverage'
print(x, group = c("filename", "functions"), by = "line", ...)
```
Arguments

- **x**: the coverage object to be printed
- **group**: whether to group coverage by filename or function
- **by**: whether to count coverage by line or expression
- ... additional arguments ignored

Value

The coverage object (invisibly).

---

**report**

*Display covr results using a standalone report*

---

Description

Display covr results using a standalone report

Usage

```r
report(
  x = package_coverage(),
  file = file.path(tempdir(), paste0(get_package_name(x), "-report.html")),
  browse = interactive()
)
```

Arguments

- **x**: a coverage dataset, defaults to running `package_coverage()`.
- **file**: The report filename.
- **browse**: whether to open a browser to view the report.

Examples

```r
## Not run:
x <- package_coverage()
report(x)
## End(Not run)
```
### tally_coverage

**Tally coverage by line or expression**

#### Description

Tally coverage by line or expression

#### Usage

```r
tally_coverage(x, by = c("line", "expression"))
```

#### Arguments

- `x`  the coverage object returned from `package_coverage()`
- `by`  whether to tally coverage by line or expression

#### Value

a `data.frame` of coverage tallied by line or expression.

---

### to_cobertura

**Create a Cobertura XML file**

#### Description

This functionality requires the xml2 package be installed.

#### Usage

```r
to_cobertura(cov, filename = "cobertura.xml")
```

#### Arguments

- `cov`  the coverage object returned from `package_coverage()`
- `filename`  the name of the Cobertura XML file

#### Author(s)

Willem Ligtenberg
value

*Retrieve the value from an object*

**Description**
Retrieve the value from an object

**Usage**

```r
value(x, ...)
```

**Arguments**

- `x`: object from which to retrieve the value
- `...`: additional arguments passed to methods

---

zero_coverage

*Provide locations of zero coverage*

**Description**
When examining the test coverage of a package, it is useful to know if there are any locations where there is 0 test coverage.

**Usage**

```r
zero_coverage(x, ...)
```

**Arguments**

- `x`: a coverage object returned `package_coverage()`
- `...`: additional arguments passed to `tally_coverage()`

**Details**
if used within RStudio this function outputs the results using the Marker API.

**Value**

A `data.frame` with coverage data where the coverage is 0.
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