Package 'checked'

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Title Systematically Run R CMD Checks

Version 0.5.1

Description Systematically Run R checks against multiple packages. Checks are run in parallel with strategies to minimize dependency installation. Provides out of the box interface for running reverse dependency check.

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BugReports https://github.com/Genentech/checked/issues

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Contents

`checker` R6 *Checks Coordinator*

Description

A stateful object that orchestrates all separate processes required to manage installation, library setup and run `R CMD checks` in sequence.

Public fields

`graph (igraph::igraph())`
: A dependency graph, storing information about which dependencies are required prior to execution of each check task. Created with `task_graph()`

`plan (data.frame())`
: Checks task `data.frame` which is the source of all the checks.

`output (character(1))`
: Output directory where raw results and temporary library will be created and stored.

Methods

Public methods:

- checker$new()
- checker$active_processes()
- checker$failed_tasks()
- checker$terminate()
- checker$step()
- checker$start_next_task()
- checker$is_done()
- checker$clone()

Method `new()`**:** Initialize a new check design

Use checks data.frame to generate task graph in which all dependencies and installation order are embedded.

Usage:

```
checker$new(
  plan,
  n = 2L,
  output = file.path(tempdir(), paste(packageName(), Sys.Date(), sep = "-")),
  lib.loc = .libPaths(),
  repos = getOption("repos"),
  restore = options::opt("restore"),
  ...
)
```

Arguments:

`plan` `plan` `data.frame`.

`n` `integer` value indicating maximum number of subprocesses that can be simultaneously spawned when executing tasks.

`output` `character` value specifying path where the output should be stored.

`lib.loc` `character` vector with libraries allowed to be used when checking packages, defaults to entire .libPaths().

`repos` `character` vector of repositories which will be used when generating task graph and later pulling dependencies.

`restore` `logical` value, whether output directory should be unlinked before running checks. If `FALSE`, an attempt will me made to restore previous progress from the same `output`.

`...` Additional arguments unused

Returns: checker.

Method `active_processes()`**:** Get Active Processes list

Usage:

```
checker$active_processes()
```

Method `failed_tasks()`**:** Get Failed Tasks list

Usage:

```
checker$failed_tasks()
```

Method `terminate()`**:** Kill All Active Design Processes

Immediately terminates all the active processes.

Usage:

```
checker$terminate()
```

Method `step()`**:** Fill Available Processes with Tasks

Usage:

```
checker$step()
```

Returns: A logical value, indicating whether processes are actively running.

Method `start_next_task()`**:** Start Next Task

Usage:

```
checker$start_next_task()
```

Returns: A integer value, coercible to logical to indicate whether a new process was spawned, or `-1` if all tasks have finished.

Method `is_done()`**:** Check if checks are done

Checks whether all the scheduled tasks were successfully executed.

Usage:

```
checker$is_done()
```

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

Usage:

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

Arguments:

`deep` Whether to make a deep clone.

See Also

Other checks: `STATUS`, `check_pkgs()`, `check_rev_deps()`, `new_checker()`

Examples

```
## Not run:
library(checked)
plan <- plan_checks(c(
  system.file("example_packages", "exampleBad", package = "checked"),
  system.file("example_packages", "exampleGood", package = "checked")
))

orchestrator <- checker$new(
  plan,
  n = 10,
  repos = "https://cran.r-project.org/"
)
```

```
while (!orchestrator$is_done()) {
  orchestrator$start_next_task()
}

## End(Not run)
```

---

check_pkgs *Check packages*

Description

Runs classical `R CMD check` for the given source package. It first identifies and installs, in parallel, all dependencies required to check the package. Then, it runs `R CMD check` for each specified package.

Usage

```
check_pkgs(
  package,
  n = 2L,
  output = tempfile(paste(utils::packageName(), Sys.Date(), sep = "-")),
  lib.loc = .libPaths(),
  repos = getOption("repos"),
  restore = TRUE,
  ...
)
```

Arguments

`package`	A path to either package, directory with packages or name of the package (details)
`n`	`integer` value indicating maximum number of subprocesses that can be simultaneously spawned when executing tasks.
`output`	`character` value specifying path where the output should be stored.
`lib.loc`	`character` vector with libraries allowed to be used when checking packages, defaults to entire `.libPaths()`.
`repos`	`character` vector of repositories which will be used when generating task graph and later pulling dependencies.
`restore`	`logical` indicating whether output directory should be unlinked before running checks. If `FALSE`, an attempt will me made to restore previous progress from the same `output`
`...`	Additional arguments passed to `run()`

Value

`checker()` R6 class storing all the details regarding checks that run. Can be combined with `results` and `summary()` methods to generate results.

See Also

Other checks: `STATUS`, `check_rev_deps()`, `checker`, `new_checker()`

`check_rev_deps` *Check reverse dependencies*

Description

Check a package's reverse dependencies in order to identify differences in reverse dependency check results when run alongside your package's development and release versions.

Usage

```
check_rev_deps(
  path,
  n = 2L,
  output = tempfile(paste(utils::packageName(), Sys.Date(), sep = "-")),
  lib.loc = .libPaths(),
  repos = getOption("repos"),
  reverse_repos = repos,
  restore = TRUE,
  ...
)
```

Arguments

`path`	file path to the package source directory
`n`	`integer` value indicating maximum number of subprocesses that can be simultaneously spawned when executing tasks.
`output`	`character` value specifying path where the output should be stored.
`lib.loc`	`character` vector with libraries allowed to be used when checking packages, defaults to entire `.libPaths()`.
`repos`	`character` vector of repositories which will be used when generating task graph and later pulling dependencies.
`reverse_repos`	`character` vector of repositories which will be used to pull sources for reverse dependencies. In some cases, for instance using binaries on Linux, we want to use different repositories when pulling sources to check and different when installing dependencies.
`restore`	`logical` indicating whether output directory should be unlinked before running checks. If `FALSE`, an attempt will me made to restore previous progress from the same `output`
`...`	Additional arguments passed to `run()`

Details

Runs classical reverse dependency checks for the given source package. It first identifies reverse dependencies available in `repos`. Then, after installing all required dependencies, runs `R CMD check` twice for each package, one time with the release version of the given source package installed from `repos` and a second time with the development version installed from local source. Both `R CMD checks` are later compared to identify changes in reverse dependency behaviors.

Value

`checker()` R6 class storing all the details regarding checks that run. Can be combined with `results` and `summary()` methods to generate results.

See Also

Other checks: `STATUS`, `check_pkgs()`, `checker`, `new_checker()`

---

check_task *Create a task to run* `R CMD check`

Description

Create a task to run `R CMD check`

Usage

```
check_task(build_args = NULL, args = NULL, env = NULL, ...)
```

Arguments

`build_args`	Character vector of arguments to pass to `R CMD build`. Pass each argument as a single element of this character vector (do not use spaces to delimit arguments like you would in the shell). For example, `build_args = c("--force", "--keep-empty-dirs")` is a correct usage and `build_args = "--force --keep-empty-dirs"` is incorrect.
`args`	Character vector of arguments to pass to `R CMD check`. Pass each argument as a single element of this character vector (do not use spaces to delimit arguments like you would in the shell). For example, to skip running of examples and tests, use `args = c("--no-examples", "--no-tests")` and not `args = "--no-examples --no-tests"`. (Note that instead of the `--output` option you should use the `check_dir` argument, because `--output` cannot deal with spaces and other special characters on Windows.)
`env`	A named character vector, extra environment variables to set in the check process.
`...`	Arguments passed on to `task` `.subclass` Additional subclasses.

See Also

Other tasks: `install_task()`, `meta_task()`, `task()`

`install_task` *Create a task to install a package and dependencies*

Description

Create a task to install a package and dependencies

Usage

```
install_task(
  origin,
  type = package_install_type(origin),
  INSTALL_opts = NULL,
  lib = lib_path(origin),
  ...
)
```

Arguments

`origin`	`pkg_origin()` object.
`type`	character, indicating the type of package to download and install. Will be `"source"` except on Windows and some macOS builds: see the section on 'Binary packages' for those.
`INSTALL_opts`	an optional character vector of additional option(s) to be passed to `R CMD INSTALL` for a source package install. E.g., `c("--html", "--no-multiarch", "--no-test-load")` or, for macOS, `"--dsym"`. Can also be a named list of character vectors to be used as additional options, with names the respective package names.
`lib`	Any object that can be passed to `lib()` to generate a library path.
`...`	further arguments to be passed to `download.file`, `available.packages`, or to the functions for binary installs on macOS and Windows (which accept an argument `"lock"`: see the section on 'Locking').

See Also

Other tasks: `check_task()`, `meta_task()`, `task()`

lib_path *Make a Library Location*

Description

A description of where packages should be installed. This object provides necessary information to determine where a package should be installed. lib_path method creates default path handlers for given pkg origin while lib_path_x creates an actual object.

Usage

```
lib_path(x, ..., .class = c())

lib_path_default(.class = c())

lib_path_isolated(.class = c())
```

Arguments

x	A pkg_origin() object used for default dispatch.
...	Additional values
.class	An optional subclass, used primarily for dispatch.

See Also

Other specs: pkg_origin()

meta_task *Construct a 'Meta' Task*

Description

Meta tasks are tasks which are not intended to perform computation. They exist simply to provide relationships among computational tasks.

Usage

```
meta_task(..., .subclass = NULL)
```

Arguments

...	Objects passed to specified class functions
.subclass	character name of the subclass. It will be appended with "_meta" suffix.

See Also

Other tasks: check_task(), install_task(), task()

new_checker *Creating new Check Design Objects*

Description

Instantiate a check design from a path or directory.

Usage

```
new_checker(...)

new_rev_dep_checker(x, ...)
```

Arguments

...	Additional arguments passed to new_checker()
x	A file path, passed to plan_rev_dep_checks()

See Also

Other checks: STATUS, check_pkgs(), check_rev_deps(), checker

Other checks: STATUS, check_pkgs(), check_rev_deps(), checker

options *checked Options*

Description

Internally used, package-specific options. All options will prioritize R options() values, and fall back to environment variables if undefined. If neither the option nor the environment variable is set, a default value is used.

Checking Option Values

Option values specific to checked can be accessed by passing the package name to env.

```
options::opts(env = "checked")

options::opt(x, default, env = "checked")
```

Options

tty_tick_interval tty refresh interval when reporting results in milliseconds

default: `0.1`

option: checked.tty_tick_interval

envvar: R_CHECKED_TTY_TICK_INTERVAL (evaluated if possible, raw string otherwise)

tty_default_height deafult tty height used for the ANSI reporter. Used only if correct values could not be acquired with system('tput lines')

default: `50`

option: checked.tty_default_height

envvar: R_CHECKED_TTY_DEFAULT_HEIGHT (evaluated if possible, raw string otherwise)

proactive_gc `logical`, indicating whether additional garbage collection should be performed before starting a new task, if at least one process recently finalized. This can cause the checker to orchestrate tasks slower but is recommended to be used for designs with many sub-processes required as native garbage collection can lag leading to memory issues. Disable only when maximum prefromance is required and memory is not the issue.

default: `TRUE`

option: checked.proactive_gc

envvar: R_CHECKED_PROACTIVE_GC (evaluated if possible, raw string otherwise)

results_error_on character vector indicating whether R error should be thrown when issues are discovered when generating results. "never" means that no errors are thrown. If "issues" then errors are emitted only on issues, whereas "potential issues" stands for error on both issues and potential issues.

default: `"never"`

option: checked.results_error_on

envvar: R_CHECKED_RESULTS_ERROR_ON (evaluated if possible, raw string otherwise)

results_keep character vector indicating which packages should be included in the results. "all" means that all packages are kept. If "issues" then only packages with issues identified, whereas "potential_issues" stands for keeping packages with both "issues" and "potential_issues".

default: `"all"`

option: checked.results_keep

envvar: R_CHECKED_RESULTS_KEEP (evaluated if possible, raw string otherwise)

restore `logical` indicating whether output directory should be unlinked before running checks. If `FALSE`, an attempt will me made to restore previous progress from the same `output`

default: `NA`

option: checked.restore

envvar: R_CHECKED_RESTORE (evaluated if possible, raw string otherwise)

add_remotes `logical` indicating whether origins inheriting from `pkg_origin_local`, should be scanned for packages in the `remotes` field and added while constrocuting a plan `task_grap`

default: `TRUE`

option: checked.add_remotes

envvar: R_CHECKED_ADD_REMOTES (evaluated if possible, raw string otherwise)

check_envvars named `character` vector of environment variables to use during the R CMD check.

default: `c(`_R_CHECK_FORCE_SUGGESTS_` = "false", `_R_CHECK_RD_XREFS_` = "false", `_R_CHECK_SYSTEM_CLOCK_` = "false", `_R_CHECK_SUGGESTS_ONLY_` = "true", `_R_CHECK_CRAN_INCOMING_` = "false")`

option: checked.check_envvars

envvar: R_CHECKED_CHECK_ENVVARS (evaluated if possible, raw string otherwise)

check_build_args `character` vector of args passed to the R CMD build.

default: `c("--no-build-vignettes", "--no-manual")`

option: checked.check_build_args

envvar: R_CHECKED_CHECK_BUILD_ARGS (space-separated R CMD build flags)

check_args `character` vector of args passed to the R CMD check.

default: `c("--timings", "--ignore-vignettes", "--no-manual", "--as-cran")`

option: checked.check_args

envvar: R_CHECKED_CHECK_ARGS (space-separated R CMD check flags)

See Also

options getOption Sys.setenv Sys.getenv

Other documentation: `options_params`

`options_params` *Checked Options*

Description

Checked Options

Arguments

`proactive_gc` `logical`, indicating whether additional garbage collection should be performed before starting a new task, if at least one process recently finalized. This can cause the checker to orchestrate tasks slower but is recommended to be used for designs with many sub-processes required as native garbage collection can lag leading to memory issues. Disable only when maximum prefromance is required and memory is not the issue. (Defaults to `TRUE`, overwritable using option 'checked.proactive_gc' or environment variable 'R_CHECKED_PROACTIVE_GC')

`results_error_on` character vector indicating whether R error should be thrown when issues are discovered when generating results. "never" means that no errors are thrown. If "issues" then errors are emitted only on issues, whereas "potential issues"

stands for error on both issues and potential issues. (Defaults to "never", overwritable using option 'checked.results_error_on' or environment variable 'R_CHECKED_RESULTS_ERROR_ON')

check_args
: character vector of args passed to the R CMD check. (Defaults to c("--timings", "--ignore-vignettes", "--no-manual", "--as-cran"), overwritable using option 'checked.check_args' or environment variable 'R_CHECKED_CHECK_ARGS')

results_keep
: character vector indicating which packages should be included in the results. "all" means that all packages are kept. If "issues" then only packages with issues identified, whereas "potential_issues" stands for keeping packages with both "issues" and "potential_issues". (Defaults to "all", overwritable using option 'checked.results_keep' or environment variable 'R_CHECKED_RESULTS_KEEP')

add_remotes
: logical indicating whether origins inheriting from pkg_origin_local, should be scanned for packages in the remotes field and added while constrocuting a plan task_grap (Defaults to TRUE, overwritable using option 'checked.add_remotes' or environment variable 'R_CHECKED_ADD_REMOTES')

check_envvars
: named character vector of environment variables to use during the R CMD check. (Defaults to c(*R_CHECK_FORCE_SUGGESTS*= "false",*R_CHECK_RD_XREFS*= "false", overwritable using option 'checked.check_envvars' or environment variable 'R_CHECKED_CHECK_EN

tty_tick_interval
: tty refresh interval when reporting results in milliseconds (Defaults to 0.1, overwritable using option 'checked.tty_tick_interval' or environment variable 'R_CHECKED_TTY_TICK_IN

check_build_args
: character vector of args passed to the R CMD build. (Defaults to c("--no-build-vignettes", "--no-manual"), overwritable using option 'checked.check_build_args' or environment variable 'R_CHECKED_CHECK_BUILD_ARGS')

restore
: logical indicating whether output directory should be unlinked before running checks. If FALSE, an attempt will me made to restore previous progress from the same output (Defaults to NA, overwritable using option 'checked.restore' or environment variable 'R_CHECKED_RESTORE')

tty_default_height
: deafult tty height used for the ANSI reporter. Used only if correct values could not be acquired with system('tput lines') (Defaults to 50, overwritable using option 'checked.tty_default_height' or environment variable 'R_CHECKED_TTY_DEFAULT_HEIGHT')

See Also

Other documentation: options()

---

pkg_origin *Package specification*

Description

Create package specification list which consists of all the details required to identify and acquire source of the package.

Usage

```
pkg_origin(package, ..., .class = c())

pkg_origin_repo(package, repos, ...)

pkg_origin_is_base(package, ...)

pkg_origin_base(package, ...)

pkg_origin_unknown(package, ...)

pkg_origin_local(path = NULL, ...)

pkg_origin_remote(remote = NULL, ...)

pkg_origin_archive(path = NULL, ...)
```

Arguments

package	name of the package.
...	parameters passed to downstream constructors.
.class	Additional subclasses.
repos	repository where package with given name should identified.
path	path to the source of the package (either bundled or not). URLs are acceptable.
remote	remote object from the remotes package used to identify non-standard packages.

See Also

Other specs: lib_path()

---

plan_local_checks *Plan R CMD Checks*

Description

Generates a plan for running R CMD check for a specified set of packages.

Usage

```
plan_local_checks(package, repos = getOption("repos"))
```

Arguments

package	A path to either package, directory with packages or name of the package (details)
repos	repository used to identify packages when name is provided.

Details

package parameter has two different allowed values:

- Package - checked looks for a DESCRIPTION file in the provided path, if found treats it like a source package.
- If the specified value does not correspond to a source package, the parameter is treated as the name and repos parameter is used to identify the source.

See Also

Other plan: plan_local_install(), plan_rev_dep_checks()

---

plan_local_install *Plan source package installation*

Description

Generates a plan for running installing a package from source.

Usage

```
plan_local_install(package, repos = getOption("repos"))
```

Arguments

package	A path to package source.
repos	repository used to identify packages when name is provided.

See Also

Other plan: plan_local_checks(), plan_rev_dep_checks()

---

plan_rev_dep_checks *Plan Reverse Dependency Checks*

Description

Generates a plan for running reverse dependency check for certain source package. In such case path should be proivded with a directory path to the development version of the package and repos should be a repository for which reverse dependencies should be identified.

Usage

```
plan_rev_dep_checks(path, repos = getOption("repos"))
```

Arguments

path	path to the package source.
repos	repository used to identify reverse dependencies.

See Also

Other plan: plan_local_checks(), plan_local_install()

---

print.checked_results *Print checked results*

Description

Print checked results

Usage

```
## S3 method for class 'checked_results'
print(x, ...)

## S3 method for class 'rev_dep_dep_results'
print(x, ..., name = NULL, keep = options::opt("results_keep"))

## S3 method for class 'local_check_results'
print(x, ..., name = NULL, keep = options::opt("results_keep"))
```

Arguments

x	an object to be printed.
...	other parameters.
name	character name of the rev_dep_dep package
keep	character vector indicating which packages should be included in the results. "all" means that all packages are kept. If "issues" then only packages with issues identified, whereas "potential_issues" stands for keeping packages with both "issues" and "potential_issues". (Defaults to "all", overwritable using option 'checked.results_keep' or environment variable 'R_CHECKED_RESULTS_KEEP')

See Also

Other results: results(), results_to_df()

reporters *Check checker Runner Reporters*

Description

Reporters are used to configure how output is communicated while running a checker. They range from glossy command-line tools intended for displaying progress in an interactive R session, to line-feed logs which may be better suited for automated execution, such as in continuous itegration.

Usage

```
reporter_ansi_tty()

reporter_ansi_tty2()

reporter_basic_tty()

reporter_default()
```

Details

`reporter_default()`:

Automatically chooses an appropriate reporter based on the calling context.

`reporter_ansi_tty()`:

Highly dynamic output for fully capable terminals. Requires multi-line dynamic output, which may not be available in editors that that present a terminal as a web component.

`reporter_basic_tty()`:

A line-feed reporter presenting output one line at a time, providing a reporter with minimal assumptions about terminal capabilities.

results *Check results*

Description

Get R CMD check results

Usage

```
results(x, ...)

## S3 method for class 'checker'
results(x, error_on = options::opt("results_error_on"), ...)

## S3 method for class 'integer'
results(x, checker_obj, ...)

## S3 method for class 'igraph.vs'
results(x, ...)

## S3 method for class 'rev_dep_dep_meta_task'
results(x, checker_obj, ...)

## S3 method for class 'rev_dep_check_meta_task'
results(x, checker_obj, ...)

## S3 method for class 'local_check_meta_task'
results(x, checker_obj, ...)
```

Arguments

x	object which results should be presented.
...	other parameters.
error_on	character vector indicating whether R error should be thrown when issues are discovered when generating results. "never" means that no errors are thrown. If "issues" then errors are emitted only on issues, whereas "potential issues" stands for error on both issues and potential issues. (Defaults to "never", overwritable using option 'checked.results_error_on' or environment variable 'R_CHECKED_RESULTS_ERROR_ON')
checker_obj	checker object.

See Also

Other results: print.checked_results(), results_to_df()

---

results_to_df *Summarize checked results as data.frame*

Description

Turns checked results into a list of data.frams, one for each meta root task. Such form makes quick results analysis easier by providing a general overview of identified failures.

Usage

```
results_to_df(results, ...)
```

Arguments

results	checked_results object or any of the sub-objects.
...	other prameters passed to downstream functions.

See Also

Other results: print.checked_results(), results()

---

run *Run a Series of* R CMD check*s*

Description

run() provides a generic, and is the central interface for executing checkers. If a path is provided, a new reverse dependency check plan is generated from the source code path. Otherwise a plan can be built separately and executed using run().

Usage

```
run(checker, ..., reporter = reporter_default())
```

Arguments

checker	character or checker If a character value is provided, it is first coerced into a checker using new_rev_dep_checker().
...	Additional arguments passed to new_rev_dep_checker()
reporter	A reporter to provide progress updates. Will default to the most expressive command-line reporter given your terminal capabilities.

STATUS *Check execution status categories*

Description

Check execution status categories

Usage

```
STATUS
```

Format

An object of class `enum` (inherits from `factor`) of length 4.

See Also

Other checks: `check_pkgs()`, `check_rev_deps()`, `checker`, `new_checker()`

`task` *Task specification*

Description

Create task specification list which consists of all the details required to run specific task.

Usage

```
task(..., .subclass = NULL)
```

Arguments

`...`	parameters passed to downstream constructors.
`.subclass`	Additional subclasses.

Details

Tasks can be nested, representing either a singular task, or a set of related tasks.

See Also

Other tasks: `check_task()`, `install_task()`, `meta_task()`

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