Package 'sysreqr'

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Title Preflight Checks for 'R' Package System Requirements

Version 0.1.0

Description Helps users on 'Linux' (and, where applicable, 'macOS') find the system packages they need before installing 'R' packages from source. Queries maintained system requirement sources, reports missing system packages, and generates installation commands, 'Dockerfile' snippets, 'GitHub Actions' steps, administrator request templates, and diagnostic reports from failed installation logs.

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BugReports https://github.com/choxos/sysreqR/issues

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Contents

`admin_request` *Create an administrator request*

Description

Produces a plain-text message that a user without root access can send to their system administrator. The message lists missing system packages, which R packages need them, and a suggested install command.

Usage

```
admin_request(x, platform = NULL, ...)
```

Arguments

`x`	A `sysreqr_plan` or package vector.
`platform`	Platform specification accepted by `resolve_platform()`.
`...`	Passed to `check_packages()` when `x` is not a plan.

Value

A plain-text administrator request.

See Also

Other commands: `dockerfile()`, `github_actions()`, `install_command()`

Examples

```
plan <- check_packages("xml2", platform = "ubuntu-22.04")
cat(admin_request(plan))
```

`as_data_frame` *Coerce a plan to a plain data frame*

Description

Strips the `sysreqr_plan` class and attributes, returning a plain `data.frame`. Equivalent to `as.data.frame()` on a plan, but provided as a verb form for users who prefer that style.

Usage

```
as_data_frame(x)
```

Arguments

`x`	A `sysreqr_plan`.

Value

A data frame without the `sysreqr_plan` class.

See Also

Other plan: `is_sysreqr_plan()`, `print.sysreqr_plan()`

Examples

```
plan <- check_packages("xml2", platform = "ubuntu-22.04")
df <- as_data_frame(plan)
inherits(df, "sysreqr_plan")
inherits(df, "data.frame")
```

as_install_plan *Return backend install plan data*

Description

Converts a plan into a structured list suitable for downstream tooling (other R code, deployment scripts, or CI). The fields are `platform`, `backend`, `pre_install`, `install`, `post_install`, and `packages`.

Usage

```
as_install_plan(x)
```

Arguments

`x`	A `sysreqr_plan`.

Value

A list with commands and plan data.

See Also

Other output: `write_dockerfile_snippet()`, `write_install_script()`, `write_json()`, `write_report()`

Examples

```
plan <- check_packages("xml2", platform = "ubuntu-22.04")
as_install_plan(plan)
```

check_error *Check the most recent install error for likely system requirements*

Description

Convenience wrapper around `diagnose_log()`. When `text` is `NULL` (the default), the most recent R error message is read from `base::geterrmessage()`.

Usage

```
check_error(
  text = NULL,
  platform = NULL,
  backend = c("auto", "bundled", "ppm", "pak"),
  repo = "cran",
  check_installed = TRUE
)
```

Arguments

text	Error text. When NULL, the most recent R error message is used.
platform	Platform specification accepted by resolve_platform().
backend	One of "auto", "bundled", "ppm", or "pak" for failed package lookup.
repo	Repository name used by the PPM backend.
check_installed	Whether to check installed system packages on the current host when possible.

Value

A sysreqr_plan.

See Also

Other diagnose: diagnose_failed_packages(), diagnose_log()

Examples

```
check_error(
  text = "ERROR: configuration failed for package 'xml2'",
  platform = "ubuntu-22.04",
  backend = "bundled"
)
```

---

check_library *Check system requirements for installed R packages*

Description

Reads the package names from one or more R library paths and resolves their system requirements. Useful for auditing an existing R installation.

Usage

```
check_library(
  packages = NULL,
  library = .libPaths()[1],
  platform = NULL,
  backend = c("bundled", "auto", "ppm", "pak")
)
```

Arguments

packages	Optional installed R package names.
library	Library path or paths.
platform	Platform specification accepted by resolve_platform().
backend	One of "bundled", "auto", "ppm", or "pak".

Value

A sysreqr_plan.

See Also

Other preflight: check_packages(), check_project(), detect_project_packages()

Examples

```
# Offline, with an explicit package list and the bundled backend:
check_library(
  packages = c("xml2", "curl"),
  platform = "ubuntu-22.04",
  backend = "bundled"
)
```

---

check_packages *Check system requirements for R packages*

Description

Resolves the system packages an R package needs on a given Linux platform and returns them in a structured plan. The "auto" backend prefers the offline bundled database on apt platforms, then Posit Package Manager, then pak.

Usage

```
check_packages(
  packages,
  platform = NULL,
  backend = c("auto", "bundled", "ppm", "pak"),
  repo = "cran",
  dependencies = NA,
  upgrade = TRUE,
  check_installed = TRUE
)
```

Arguments

packages	Package names or package references.
platform	Platform specification accepted by resolve_platform().
backend	One of "auto", "bundled", "ppm", or "pak".
repo	Repository name used in notes and by the PPM backend.
dependencies	Dependency policy passed to pak::pkg_sysreqs() when the pak backend is used.
upgrade	Upgrade policy passed to pak::pkg_sysreqs() when the pak backend is used.
check_installed	Whether to check installed system packages on the current host when possible.

Value

A `sysreqr_plan`.

See Also

`check_project()`, `check_library()`, `diagnose_log()`.

Other preflight: `check_library()`, `check_project()`, `detect_project_packages()`

Examples

```
plan <- check_packages(c("xml2", "curl"), platform = "ubuntu-22.04")
plan

install_command(plan)
```

---

check_ppm *Check Posit Package Manager support*

Description

Reports whether a platform is currently served by Posit Package Manager and whether it has system requirement metadata and binary packages.

Usage

```
check_ppm(platform = NULL, base_url = ppm_default_base_url())
```

Arguments

`platform`	Platform specification accepted by `resolve_platform()`.
`base_url`	Posit Package Manager base URL.

Value

A list with the matched platform and Package Manager status.

See Also

Other ppm: `ppm_platforms()`, `ppm_repo()`, `ppm_sysreqs()`, `use_ppm()`

Examples

```
check_ppm("ubuntu-22.04")
check_ppm("fedora-40")
```

check_project *Check system requirements for a project*

Description

Convenience wrapper around `detect_project_packages()` and `check_packages()`.

Usage

```
check_project(
  path = ".",
  include_suggests = FALSE,
  platform = NULL,
  backend = c("auto", "bundled", "ppm", "pak"),
  ...
)
```

Arguments

path	Project path.
include_suggests	Whether to include `Suggests` from `DESCRIPTION`.
platform	Platform specification accepted by `resolve_platform()`.
backend	One of `"auto"`, `"ppm"`, or `"pak"`.
...	Passed to `check_packages()`.

Value

A `sysreqr_plan`.

See Also

Other preflight: `check_library()`, `check_packages()`, `detect_project_packages()`

Examples

```
project <- file.path(tempdir(), "demo-project")
dir.create(project, showWarnings = FALSE)
writeLines(
  c("Package: demo", "Imports: xml2"),
  file.path(project, "DESCRIPTION")
)
check_project(project, platform = "ubuntu-22.04", backend = "bundled")
```

detect_package_manager

Detect the platform package manager

Description

Returns the name of the operating system package manager for a platform: `"apt"`, `"dnf"`, `"yum"`, `"zypper"`, `"apk"`, or `"brew"`.

Usage

```
detect_package_manager(platform = NULL)
```

Arguments

`platform`	A platform specification accepted by `resolve_platform()`.

Value

A package manager name such as `"apt"` or `"dnf"`.

See Also

Other platform: `detect_platform()`, `resolve_platform()`

Examples

```
detect_package_manager("ubuntu-22.04")
detect_package_manager("fedora-40")
detect_package_manager("opensuse156")
```

detect_platform

Detect the current platform

Description

Detects the host operating system and, on Linux, parses `/etc/os-release`. On macOS, queries `sw_vers`. Returns a structured platform object used by the rest of the package. When `os_release` is supplied and exists, the file is parsed even on macOS or Windows; this makes fixture-driven testing practical.

Usage

```
detect_platform(os_release = "/etc/os-release")
```

Arguments

os_release	Path to an os-release file. Defaults to the system file /etc/os-release. Mainly useful for tests and reproducible builds.

Value

An object of class sysreqr_platform (a list).

See Also

Other platform: detect_package_manager(), resolve_platform()

Examples

```
platform <- detect_platform()
platform$distro

# Reproducible reads from a fixture file:
fixture <- system.file(
  "extdata", "os-release-fedora-40",
  package = "sysreqr",
  mustWork = FALSE
)
if (nzchar(fixture)) detect_platform(os_release = fixture)
```

---

detect_project_packages

Detect R packages used by a project

Description

Inspects a project directory for the R packages it uses. The detection priority is:

Usage

```
detect_project_packages(path = ".", include_suggests = FALSE)
```

Arguments

path	Project path.
include_suggests	Whether to include Suggests from DESCRIPTION.

Details

1. renv.lock (the Packages map),
2. DESCRIPTION (Depends, Imports, LinkingTo, and optionally Suggests),
3. .R, .Rmd, .qmd, and NAMESPACE files (looking for library(), require(), requireNamespace(), and pkg::fun references; line comments are ignored).

Value

A character vector of package names.

See Also

Other preflight: `check_library()`, `check_packages()`, `check_project()`

Examples

```
project <- file.path(tempdir(), "demo-project")
dir.create(project, showWarnings = FALSE)
writeLines(
  c("Package: demo", "Imports: xml2, curl"),
  file.path(project, "DESCRIPTION")
)
detect_project_packages(project)
```

---

diagnose_failed_packages

Diagnose failed R packages

Description

Resolves the system requirements for a set of R packages that the user already knows failed to install. Useful when an install was attempted outside R, or when the log was lost.

Usage

```
diagnose_failed_packages(
  packages,
  platform = NULL,
  backend = c("auto", "bundled", "ppm", "pak"),
  repo = "cran",
  check_installed = TRUE
)
```

Arguments

`packages`	R package names inferred from failed installation output.
`platform`	Platform specification accepted by `resolve_platform()`.
`backend`	One of `"auto"`, `"bundled"`, `"ppm"`, or `"pak"` for failed package lookup.
`repo`	Repository name used by the PPM backend.
`check_installed`	Whether to check installed system packages on the current host when possible.

Value

A sysreqr_plan.

See Also

Other diagnose: check_error(), diagnose_log()

Examples

```
diagnose_failed_packages(
  c("xml2", "curl"),
  platform = "ubuntu-22.04",
  backend = "bundled"
)
```

---

diagnose_log *Diagnose an R package installation log*

Description

Scans an installation log for common compiler and linker errors and for R-level "configuration failed" and "non-zero exit status" patterns, then resolves those failed packages back to their system requirements.

Usage

```
diagnose_log(
  path = NULL,
  text = NULL,
  platform = NULL,
  backend = c("auto", "bundled", "ppm", "pak"),
  repo = "cran",
  check_installed = TRUE
)

diagnose_install_log(
  path = NULL,
  text = NULL,
  platform = NULL,
  backend = c("auto", "bundled", "ppm", "pak"),
  repo = "cran",
  check_installed = TRUE
)
```

Arguments

path	Path to an installation log.
text	Log text. Used when path is NULL.
platform	Platform specification accepted by resolve_platform().
backend	One of "auto", "bundled", "ppm", or "pak" for failed package lookup.
repo	Repository name used by the PPM backend.
check_installed	Whether to check installed system packages on the current host when possible.

Details

The function combines two paths:

1. Direct log-pattern matching against a curated list of header and linker error messages.
2. Failed package extraction plus a back-end lookup of those package names.

Confidence levels are "high" for direct pattern matches and pak/PPM lookups, and "medium" for bundled fallback data and inferred package requirements.

Value

A sysreqr_plan with likely system package fixes.

See Also

Other diagnose: check_error(), diagnose_failed_packages()

Examples

```
log <- paste(
  "fatal error: libxml/parser.h: No such file or directory",
  "ERROR: configuration failed for package 'xml2'",
  sep = "\n"
)
plan <- diagnose_log(text = log, platform = "ubuntu-22.04")
plan
```

---

dockerfile *Generate Dockerfile lines*

Description

Produces a Dockerfile RUN snippet that installs the system packages a plan needs. On apt platforms the output uses the standard apt-get update && apt-get install -y --no-install-recommends ... && rm -rf /var/l pattern.

Usage

```
dockerfile(x, platform = NULL, missing_only = TRUE, ...)
```

Arguments

x	A sysreqr_plan or package vector.
platform	Platform specification accepted by resolve_platform().
missing_only	Whether to include only packages not known to be installed.
...	Passed to check_packages() when x is not a plan.

Value

A single Dockerfile snippet.

See Also

Other commands: admin_request(), github_actions(), install_command()

Examples

```
plan <- check_packages("xml2", platform = "ubuntu-22.04")
cat(dockerfile(plan))
```

---

explain *Explain system requirements*

Description

Prints a short, friendly explanation for each system package an R package needs and the command to install it. Useful for teaching and for emails to less-experienced collaborators.

Usage

```
explain(x, platform = NULL, ...)
```

Arguments

x	A package name, package vector, or sysreqr_plan.
platform	Platform specification accepted by resolve_platform().
...	Passed to check_packages() when x is not a plan.

Value

A character vector of explanation lines, invisibly.

See Also

Other setup: print.sysreqr_setup_advice(), setup_advice()

Examples

```
plan <- check_packages("xml2", platform = "ubuntu-22.04")
explain(plan)
```

`github_actions` *Generate a GitHub Actions snippet*

Description

Produces a GitHub Actions YAML step that installs the system packages a plan needs. `gha()` is a short alias.

Usage

```
github_actions(x, platform = NULL, missing_only = TRUE, ...)

gha(x, platform = NULL, missing_only = TRUE, ...)
```

Arguments

`x`	A `sysreqr_plan` or package vector.
`platform`	Platform specification accepted by `resolve_platform()`.
`missing_only`	Whether to include only packages not known to be installed.
`...`	Passed to `check_packages()` when `x` is not a plan.

Value

A YAML snippet.

See Also

Other commands: admin_request(), dockerfile(), install_command()

Examples

```
plan <- check_packages("xml2", platform = "ubuntu-22.04")
cat(github_actions(plan))
identical(gha(plan), github_actions(plan))
```

`install_command` *Generate an installation command*

Description

Translates a plan (or a package vector that can be resolved to a plan) into shell commands appropriate for the platform's package manager.

Usage

```
install_command(
  x,
  platform = NULL,
  sudo = TRUE,
  update = TRUE,
  missing_only = TRUE,
  ...
)
```

Arguments

`x`	A `sysreqr_plan` or package vector.
`platform`	Platform specification accepted by `resolve_platform()`.
`sudo`	Whether to prefix commands with `sudo`.
`update`	Whether to include the package manager update command when appropriate.
`missing_only`	Whether to include only packages not known to be installed.
`...`	Passed to `check_packages()` when `x` is not a plan.

Value

A character vector of shell commands.

See Also

Other commands: `admin_request()`, `dockerfile()`, `github_actions()`

Examples

```
plan <- check_packages(c("xml2", "curl"), platform = "ubuntu-22.04")
install_command(plan)
install_command(plan, sudo = FALSE, update = FALSE)
```

is_sysreqr_plan *Test whether an object is a sysreqr plan*

Description

Test whether an object is a sysreqr plan

Usage

```
is_sysreqr_plan(x)
```

Arguments

x	An object.

Value

TRUE if x inherits from "sysreqr_plan".

See Also

Other plan: as_data_frame(), print.sysreqr_plan()

Examples

```
plan <- check_packages("xml2", platform = "ubuntu-22.04")
is_sysreqr_plan(plan)
is_sysreqr_plan(data.frame(x = 1))
```

ppm_platforms *List Posit Package Manager platforms*

Description

Queries the Posit Package Manager /__api__/status endpoint and returns a data frame of supported distributions.

Usage

```
ppm_platforms(base_url = ppm_default_base_url())
```

Arguments

base_url	Posit Package Manager base URL.

Value

A data frame of platform records reported by Package Manager.

See Also

Other ppm: check_ppm(), ppm_repo(), ppm_sysreqs(), use_ppm()

Examples

```
ppm_platforms()
```

---

ppm_repo *Build a Posit Package Manager repository URL*

Description

Constructs a Linux binary repository URL for the given platform, CRAN repository alias, and snapshot.

Usage

```
ppm_repo(
  platform = NULL,
  repo = "cran",
  snapshot = "latest",
  base_url = ppm_default_base_url()
)
```

Arguments

platform	Platform specification accepted by resolve_platform().
repo	Repository name.
snapshot	Snapshot name or date.
base_url	Posit Package Manager base URL.

Value

A repository URL.

See Also

Other ppm: check_ppm(), ppm_platforms(), ppm_sysreqs(), use_ppm()

Examples

```
ppm_repo(platform = "ubuntu-22.04")
ppm_repo(platform = "ubuntu-26.04", snapshot = "2026-04-01")
```

ppm_sysreqs *Query Package Manager system requirements*

Description

Queries the Posit Package Manager `/sysreqs` endpoint for the given packages and platform, and normalizes the response into a `sysreqr_plan`. If the API call fails, the function falls back to the bundled database and records the failure in the `"fallback_error"` attribute of the returned plan.

Usage

```
ppm_sysreqs(
  packages = NULL,
  all = FALSE,
  platform = NULL,
  repo = "cran",
  base_url = ppm_default_base_url(),
  check_installed = TRUE
)
```

Arguments

`packages`	Package names. Required when `all = FALSE`.
`all`	Whether to return system requirements for the whole repository.
`platform`	Platform specification accepted by `resolve_platform()`.
`repo`	Repository name.
`base_url`	Posit Package Manager base URL.
`check_installed`	Whether to check installed system packages on the current host when possible.

Value

A `sysreqr_plan`.

See Also

Other ppm: `check_ppm()`, `ppm_platforms()`, `ppm_repo()`, `use_ppm()`

Examples

```
ppm_sysreqs(c("xml2", "curl"), platform = "ubuntu-22.04")
```

print.sysreqr_plan *Print a sysreqr plan*

Description

Print a sysreqr plan

Usage

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

Arguments

x	A sysreqr_plan.
...	Unused.

Value

x, invisibly.

See Also

Other plan: as_data_frame(), is_sysreqr_plan()

print.sysreqr_setup_advice *Print setup advice*

Description

Print setup advice

Usage

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

Arguments

x	A sysreqr_setup_advice object.
...	Unused.

Value

x, invisibly.

See Also

Other setup: explain(), setup_advice()

`resolve_platform` *Resolve a platform specification*

Description

Accepts a NULL, a sysreqr_platform object, or a short string and returns a fully normalized platform object. Strings can be the <distro>-<version> shorthand ("ubuntu-22.04", "debian-12") or a codename alias ("jammy", "noble", "resolute", "bookworm", "trixie").

Usage

```
resolve_platform(platform = NULL)
```

Arguments

platform	NULL, a platform list returned by detect_platform(), or a character string such as "ubuntu-22.04", "debian-12", "jammy", or "bookworm".

Value

A platform list with class "sysreqr_platform".

See Also

Other platform: detect_package_manager(), detect_platform()

Examples

```
resolve_platform("ubuntu-22.04")
resolve_platform("resolute")
resolve_platform("bookworm")
```

setup_advice *Get beginner setup advice for R package installation on Linux*

Description

Produces a practical checklist for users who are new to R on GNU/Linux. It recommends binary package repositories where available, explains when R Project operating system repositories are relevant, lists source build tools, and can add package-specific system requirements. It never runs sudo, edits the system R configuration, or changes operating system repositories; the user remains in control.

Usage

```
setup_advice(
  packages = NULL,
  platform = NULL,
  backend = c("auto", "bundled", "ppm", "pak"),
  repo = "cran",
  check_installed = TRUE,
  include_r_project_repo = TRUE,
  script = NULL
)
```

Arguments

packages	Optional R package names to check.
platform	Platform specification accepted by resolve_platform().
backend	One of "auto", "bundled", "ppm", or "pak".
repo	Repository name used for Posit Package Manager and sysreq lookup.
check_installed	Whether to check installed system packages on the current host when possible.
include_r_project_repo	Whether to include optional R Project operating system repository commands for supported Linux distributions.
script	Optional path. When supplied, an executable shell script is written with the safe setup commands.

Value

A sysreqr_setup_advice object.

See Also

Other setup: explain(), print.sysreqr_setup_advice()

Examples

```
advice <- setup_advice(
  "xml2",
  platform = "ubuntu-22.04",
  backend = "bundled"
)
print(advice)


# Write a reviewable shell script:
setup_advice(
  c("xml2", "curl"),
  platform = "ubuntu-22.04",
  backend = "bundled",
  script = tempfile(fileext = ".sh")
)
```

---

use_ppm *Configure Package Manager repository options*

Description

Emits or installs the R code lines that point `options(repos)` at a Posit Package Manager binary repository. With `dry_run = TRUE` (the default), the lines are returned without touching any file, so the user can review them before applying. When `dry_run = FALSE`, `path` must be supplied explicitly.

Usage

```
use_ppm(
  scope = c("user", "project"),
  platform = NULL,
  repo = "cran",
  dry_run = TRUE,
  path = NULL
)
```

Arguments

`scope`	`"user"` edits the user `.Rprofile`, `"project"` edits the current project `.Rprofile`.
`platform`	Platform specification accepted by `resolve_platform()`.
`repo`	Repository name.
`dry_run`	If `TRUE`, return the lines that would be written without editing files.
`path`	Explicit `.Rprofile` path used when `dry_run = FALSE`.

Value

The configuration lines, invisibly when written.

See Also

Other ppm: check_ppm(), ppm_platforms(), ppm_repo(), ppm_sysreqs()

Examples

```
use_ppm("user", platform = "ubuntu-22.04", dry_run = TRUE)

# Write to a throwaway .Rprofile under tempdir():
use_ppm(
  "user",
  platform = "ubuntu-22.04",
  dry_run = FALSE,
  path = file.path(tempdir(), ".Rprofile")
)
```

---

write_dockerfile_snippet

Write a Dockerfile snippet

Description

Writes the output of dockerfile() to a file so it can be appended to an existing Dockerfile or included verbatim.

Usage

```
write_dockerfile_snippet(plan, path)
```

Arguments

plan	A sysreqr_plan.
path	Output path.

Value

path, invisibly.

See Also

Other output: as_install_plan(), write_install_script(), write_json(), write_report()

Examples

```
plan <- check_packages("xml2", platform = "ubuntu-22.04")
write_dockerfile_snippet(plan, file.path(tempdir(), "Dockerfile.sysreqs"))
```

write_install_script *Write an install script*

Description

Writes a POSIX-shell install script. The script begins with `#!/usr/bin/env sh` and `set -eu` and is marked executable.

Usage

```
write_install_script(plan, path)
```

Arguments

plan	A sysreqr_plan.
path	Output path.

Value

path, invisibly.

See Also

Other output: as_install_plan(), write_dockerfile_snippet(), write_json(), write_report()

Examples

```
plan <- check_packages("xml2", platform = "ubuntu-22.04")
write_install_script(plan, file.path(tempdir(), "install-sysreqs.sh"))
```

write_json *Write a sysreqr plan as JSON*

Description

Serializes the plan data frame to JSON.

Usage

```
write_json(plan, path)
```

Arguments

plan	A sysreqr_plan.
path	Output path.

Value

path, invisibly.

See Also

Other output: as_install_plan(), write_dockerfile_snippet(), write_install_script(), write_report()

Examples

```
plan <- check_packages("xml2", platform = "ubuntu-22.04")
write_json(plan, file.path(tempdir(), "sysreqs.json"))
```

---

write_report *Write a Markdown report*

Description

Produces a human-readable Markdown report describing the platform, selected backend, R packages checked, system packages needed, and a suggested install command.

Usage

```
write_report(plan, path)
```

Arguments

plan	A sysreqr_plan.
path	Output path.

Value

path, invisibly.

See Also

Other output: as_install_plan(), write_dockerfile_snippet(), write_install_script(), write_json()

Examples

```
plan <- check_packages("xml2", platform = "ubuntu-22.04")
write_report(plan, file.path(tempdir(), "SYSREQS.md"))
```

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