Package 'qgisprocess'

October 6, 2024

Title Use 'QGIS' Processing Algorithms

Version 0.4.1

Description Provides seamless access to the 'QGIS' (<https://qgis.org>) processing toolbox using the standalone 'qgis_process' command-line utility. Both native and third-party (plugin) processing providers are supported. Beside referring data sources from file, also common objects from 'sf', 'terra' and 'stars' are supported. The native processing algorithms are documented by QGIS.org (2024) <https://docs.qgis.org/latest/en/docs/user_manual/processing_algs/>.

License GPL (>= 3)

URL https://r-spatial.github.io/qgisprocess/, https://github.com/r-spatial/qgisprocess

BugReports https://github.com/r-spatial/qgisprocess/issues

Depends R (>= 3.6.0)

Imports assertthat, glue, jsonlite, processx (>= 3.5.2), rappdirs, rlang, stats, stringr, tibble, vctrs, withr

Suggests dplyr, knitr, mapview, raster, rmarkdown, rprojroot, sf, spDataLarge, stars, stringi, terra, testthat, tidyr

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NeedsCompilation no

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Contents

has_qgis *Check availability of QGIS, a plugin, a provider or an algorithm*

Description

has_qgis() checks whether the loaded qgisprocess cache is populated, which means that a QGIS installation was accessible and responsive when loading the package. qgis_has_plugin(), qgis_has_provider() and qgis_has_algorithm() check for the availability of one or several plugins, processing providers and algorithms, respectively. They are vectorized.

Usage

```
has_qgis()

qgis_has_plugin(plugin, query = FALSE, quiet = TRUE)

qgis_has_provider(provider, query = FALSE, quiet = TRUE)

qgis_has_algorithm(algorithm, query = FALSE, quiet = TRUE)
```

Arguments

plugin	A plugin name (e.g., "native"). Can be a vector of names.
query	Use TRUE to refresh the cached value.
quiet	Use FALSE to display more information, possibly useful for debugging.
provider	A provider name (e.g., "native"). Can be a vector of names.
algorithm	A qualified algorithm name (e.g., "native:buffer"). Can be a vector of names.

Value

A logical, with length 1 in case of has_qgis().

Note

Only plugins that implement processing providers are supported.

See Also

Other topics about reporting the QGIS state: qgis_algorithms(), qgis_path(), qgis_using_json_input()

Examples

```
has_qgis()
if (has_qgis()) qgis_has_algorithm("native:filedownloader")
if (has_qgis()) qgis_has_provider("native")
if (has_qgis()) qgis_has_plugin(c("grassprovider", "processing_saga_nextgen"))
```

qgis_algorithms *List algorithms, processing providers or plugins*

Description

Functions that return metadata about the installed and enabled algorithms or processing providers, or about the installed plugins that implement processing providers. See the QGIS docs for a detailed description of the algorithms provided 'out of the box' on QGIS.

Usage

```
qgis_algorithms(query = FALSE, quiet = TRUE, include_deprecated = TRUE)

qgis_providers(query = FALSE, quiet = TRUE, include_deprecated = TRUE)

qgis_plugins(which = "all", query = FALSE, quiet = TRUE, ...)
```

Arguments

query	Use TRUE to refresh the cached value.
quiet	Use FALSE to display more information, possibly useful for debugging.
include_deprecated	Logical. Should deprecated algorithms be included?
which	String defining which plugins to select, based on their status in QGIS (enabled or disabled). Must be one of: "all", "enabled", "disabled".
...	Only used by other functions calling this function.

Details

The include_deprecated argument in qgis_algorithms() does not affect the cached value. The latter always includes deprecated algorithms if these are returned by 'qgis_process' (this requires the JSON output method).

Value

A tibble of algorithms, processing providers or plugins, with metadata.

See Also

qgis_enable_plugins(), qgis_disable_plugins()

Other topics about information on algorithms & processing providers: qgis_search_algorithms(), qgis_show_help()

Other topics about reporting the QGIS state: has_qgis(), qgis_path(), qgis_using_json_input()

Examples

```
qgis_algorithms()
qgis_algorithms(include_deprecated = FALSE)
qgis_providers()
qgis_plugins(quiet = FALSE)
qgis_plugins(which = "disabled")
```

`qgis_as_raster` *Convert a qgis_result object or one of its elements to a raster object*

Description

Convert a qgis_result object or one of its elements to a raster object

Usage

```
qgis_as_raster(x, ...)

qgis_as_brick(x, ...)

## S3 method for class 'qgis_outputRaster'
qgis_as_raster(x, ...)

## S3 method for class 'qgis_outputRaster'
qgis_as_brick(x, ...)

## S3 method for class 'qgis_outputLayer'
qgis_as_raster(x, ...)

## S3 method for class 'qgis_outputLayer'
qgis_as_brick(x, ...)

## S3 method for class 'qgis_result'
qgis_as_raster(x, ...)

## S3 method for class 'qgis_result'
qgis_as_brick(x, ...)
```

Arguments

`x`	A `qgis_result` object from `qgis_run_algorithm()` or a `qgis_output*` object from one of the `qgis_extract_output()` functions.
`...`	Arguments passed to `raster::raster()` or `raster::brick()`.

Value

A `RasterLayer` or a `RasterBrick` object.

See Also

Other topics about coercing processing output: qgis_as_terra(), st_as_sf, st_as_stars

Other topics about accessing or managing processing results: qgis_as_terra(), qgis_clean_result(), qgis_extract_output(), qgis_result_status(), st_as_sf, st_as_stars

Examples

```
# not running below examples in R CMD check to save time
result <- qgis_run_algorithm(
  "native:slope",
  INPUT = system.file("longlake/longlake_depth.tif", package = "qgisprocess")
)

# most direct approach, autoselecting a `qgis_outputRaster` type
# output from the `result` object and reading as RasterLayer:
qgis_as_raster(result)

# if you need more control, extract the needed output element first:
output_raster <- qgis_extract_output(result, "OUTPUT")
qgis_as_raster(output_raster)
```

---

qgis_as_terra *Convert a qgis_result object or one of its elements to a terra object*

Description

This function performs coercion to one of the terra classes SpatRaster, SpatVector or SpatVectorProxy (add proxy = TRUE for the latter). The distinction between SpatRaster and SpatVector is based on the output type.

Usage

```
qgis_as_terra(x, ...)

## S3 method for class 'qgis_outputRaster'
qgis_as_terra(x, ...)

## S3 method for class 'qgis_outputLayer'
qgis_as_terra(x, ...)

## S3 method for class 'qgis_outputVector'
qgis_as_terra(x, ...)

## S3 method for class 'qgis_result'
qgis_as_terra(x, ...)
```

Arguments

x	A qgis_result object from qgis_run_algorithm() or a qgis_output* object from one of the qgis_extract_output() functions.
...	Arguments passed to terra::rast() or terra::vect(), depending on the output type of x (or one of its elements, if x is a qgis_result).

Value

A SpatRaster, SpatVector or SpatVectorProxy object.

See Also

Other topics about coercing processing output: qgis_as_raster(), st_as_sf, st_as_stars

Other topics about accessing or managing processing results: qgis_as_raster(), qgis_clean_result(), qgis_extract_output(), qgis_result_status(), st_as_sf, st_as_stars

Examples

```
# not running below examples in R CMD check to save time
result <- qgis_run_algorithm(
  "native:slope",
  INPUT = system.file("longlake/longlake_depth.tif", package = "qgisprocess")
)

# most direct approach, autoselecting a `qgis_outputRaster` type
# output from the `result` object and reading as SpatRaster:
qgis_as_terra(result)

# if you need more control, extract the needed output element first:
output_raster <- qgis_extract_output(result, "OUTPUT")
qgis_as_terra(output_raster)

# Same holds for coercion to SpatVector
result2 <- qgis_run_algorithm(
  "native:buffer",
  INPUT = system.file("longlake/longlake.gpkg", package = "qgisprocess"),
  DISTANCE = 100
)

qgis_as_terra(result2)
output_vector <- qgis_extract_output(result2, "OUTPUT")
qgis_as_terra(output_vector)

# SpatVectorProxy:
qgis_as_terra(result2, proxy = TRUE)
```

qgis_clean_result *Clean processing results*

Description

Deletes any temporary files that are defined in a `qgis_result` object. These may comprise both input and output files.

Usage

```
qgis_clean_result(x)
```

Arguments

`x`	A `qgis_result` object returned by `qgis_run_algorithm()`.

Value

The `qgis_result` object passed to the function is returned invisibly.

See Also

Other topics about accessing or managing processing results: `qgis_as_raster()`, `qgis_as_terra()`, `qgis_extract_output()`, `qgis_result_status()`, `st_as_sf`, `st_as_stars`

Examples

```
result <- qgis_run_algorithm(
  "native:buffer",
  INPUT = system.file("longlake/longlake_depth.gpkg", package = "qgisprocess"),
  DISTANCE = 10
)

file.exists(qgis_extract_output(result))
qgis_clean_result(result)
file.exists(qgis_extract_output(result))
```

qgis_configure *Configure qgisprocess*

Description

Run `qgis_configure()` to bring the package configuration in line with QGIS and to save this configuration to a persistent cache. See the *Details* section for more information about setting the path of the 'qgis_process' command line tool.

Usage

```
qgis_configure(quiet = FALSE, use_cached_data = FALSE)
```

Arguments

quiet	Use FALSE to display more information, possibly useful for debugging.
use_cached_data	Use the cached algorithm list and path found when configuring qgisprocess during the last session. This saves some time loading the package.

Details

The qgisprocess package is a wrapper around the 'qgis_process' command line tool distributed with QGIS (>=3.14). Several functions use heuristics to detect the location of the 'qgis_process' executable.

When loading the package, the configuration is automatically read from the cache with `qgis_configure(use_cached_data = TRUE, quiet = TRUE)` in order to save time. Run `qgis_configure(use_cached_data = TRUE)` manually to get more details.

Use `qgis_algorithms()`, `qgis_providers()`, `qgis_plugins()`, `qgis_using_json_output()`, `qgis_path()` and `qgis_version()` to inspect cache contents.

If the configuration fails or you have more than one QGIS installation, you can set `options(qgisprocess.path = "path/to/qgis_process")` or the `R_QGISPROCESS_PATH` environment variable (useful on CI). On Linux the 'qgis_process' executable is generally available on the user's PATH, on MacOS the executable is within the QGIS*.app/Contents/MacOS/bin folder, and on Windows the executable is named qgis_process-qgis.bat or qgis_process-qgis-dev.bat and is located in Program Files/QGIS*/bin or OSGeo4W(64)/bin.

Value

The result of `processx::run()`.

See Also

`qgis_unconfigure()`

`qgis_path()`, `qgis_version()`

Other topics about configuring QGIS and qgisprocess: `qgis_enable_plugins()`, `qgis_run()`

Examples

```
# not running in R CMD check to save time
qgis_configure(use_cached_data = TRUE)


## Not run:
# package reconfiguration
# (not run in example() as it rewrites the package cache file)
qgis_configure()
```

```
## End(Not run)
```

---

qgis_detect_paths *Detect QGIS installations with 'qgis_process' on Windows and macOS*

Description

Discovers existing 'qgis_process' executables on the system and returns their filepath. Only available for Windows and macOS systems. `qgis_detect_paths()` is a shortcut to `qgis_detect_windows_paths()` on Windows and `qgis_detect_macos_paths()` on macOS.

Usage

```
qgis_detect_paths(drive_letter = strsplit(R.home(), ":")[[1]][1])

qgis_detect_windows_paths(drive_letter = strsplit(R.home(), ":")[[1]][1])

qgis_detect_macos_paths()
```

Arguments

`drive_letter`	The drive letter on which to search. By default, this is the same drive letter as the R executable. Only applicable to Windows.

Value

A character vector of possible paths to the 'qgis_process' executable.

Note

These functions do not verify whether the discovered 'qgis_process' executables successfully run. You can run `qgis_path(query = TRUE, quiet = FALSE)` to discover and cache the first 'qgis_process' in the list that works.

See Also

`qgis_configure()`, `qgis_path()`

Examples

```
if (.Platform$OS.type == "windows") {
  qgis_detect_paths()
  identical(qgis_detect_windows_paths(), qgis_detect_paths())
}
if (Sys.info()["sysname"] == "Darwin") {
  qgis_detect_paths()
  identical(qgis_detect_macos_paths(), qgis_detect_paths())
}
```

qgis_enable_plugins *Enable or disable QGIS plugins*

Description

Processing plugins, installed in QGIS, can be in an 'enabled' or 'disabled' state in QGIS. The plugin state can be controlled from R. `qgis_enable_plugins()` enables plugins while `qgis_disable_plugins()` does the reverse.

Usage

```
qgis_enable_plugins(names = NULL, quiet = FALSE)

qgis_disable_plugins(names = NULL, quiet = FALSE)
```

Arguments

`names`	Optional character vector of plugin names.
`quiet`	Use `FALSE` to display more information, possibly useful for debugging.

Details

The cache is immediately updated upon enabling or disabling plugins from R.

Run `qgis_plugins()` to list the available plugins that implement processing providers.

If you installed, removed, enabled or disabled plugins in the QGIS GUI, then run `qgis_configure()` to make those changes available in R.

If `names` is not provided to `qgis_enable_plugins()`, it is assumed that all *disabled* plugins are to be enabled. If `names` is not provided to `qgis_disable_plugins()`, it is assumed that all *enabled* plugins are to be disabled. Note that the 'processing' plugin is ignored, because it is always available to 'qgis_process' (not QGIS though).

Value

A tibble of plugins, invisibly.

Note

Only plugins that implement processing providers are supported. Installing or removing plugins is not supported.

See Also

`qgis_plugins()`

Other topics about configuring QGIS and qgisprocess: `qgis_configure()`, `qgis_run()`

Examples

```
qgis_enable_plugins("name_of_plugin")
```

`qgis_extract_output` *Access processing output*

Description

These functions extract one output element from the result of `qgis_run_algorithm()`, potentially more than one in the case of `qgis_extract_output_by_class()`. An output element can be extracted based on its name, its position in the printed `qgis_result` object returned by `qgis_run_algorithm()`, or its class.

`qgis_extract_output()` is an alias to `qgis_extract_output_by_name()`.

Usage

```
qgis_extract_output_by_name(x, name = "OUTPUT", first = TRUE)

qgis_extract_output(x, name = "OUTPUT", first = TRUE)

qgis_extract_output_by_position(x, which)

qgis_extract_output_by_class(x, class, single = TRUE)
```

Arguments

`x`	A `qgis_result` object returned by `qgis_run_algorithm()`.
`name`	The name of an output.
`first`	Logical. Should `qgis_extract_output_by_name()` fall back to the first output element if the default `OUTPUT` or `output` element is not available? Only takes effect if `name` is equal to `OUTPUT` or `output`, but not found.
`which`	The index of an output.
`class`	Character vector of classes. At least one class must be inherited by an element of `x` for that element to be selected.
`single`	Logical. Ensures the selection of a single output in `qgis_extract_output_by_class()`. The `OUTPUT` or `output` element is taken if available and on condition that it inherits a specified class; otherwise falls back to the first element that inherits a specified class.

Value

A `qgis_output*` object.

See Also

Other topics about accessing or managing processing results: qgis_as_raster(), qgis_as_terra(), qgis_clean_result(), qgis_result_status(), st_as_sf, st_as_stars

Examples

```
result <- qgis_run_algorithm(
  "native:buffer",
  INPUT = system.file("longlake/longlake_depth.gpkg", package = "qgisprocess"),
  DISTANCE = 10
)

# the print() method of a qgis_result only prints its output elements:
result

# nevertheless, more elements are included:
length(result)
names(result)

# extract the output element 'OUTPUT':
qgis_extract_output(result)
```

---

qgis_function *Create a wrapper function that runs one algorithm*

Description

As opposed to qgis_run_algorithm(), qgis_function() creates a callable function based on the argument metadata provided by qgis_get_argument_specs().

Usage

```
qgis_function(algorithm, ...)
```

Arguments

algorithm	A qualified algorithm name (e.g., "native:buffer").
...	Algorithm arguments. These values are evaluated once and immediately, so you shouldn't call qgis_tmp_file() here.

Details

The logic of qgis_function() has been implemented in R package qgis. This package also provides the QGIS documentation of each processing algorithm as corresponding R function documentation.

Value

A function.

Examples

```
qgis_buffer <- qgis_function("native:buffer")
qgis_buffer(
  system.file(
    "longlake/longlake_depth.gpkg",
    package = "qgisprocess"
  ),
  DISTANCE = 10
)
```

`qgis_list_input` *Prepare a compound input argument*

Description

Some algorithm arguments require a compound object, consisting of several layers or elements. These functions apply strict validation rules when generating this object and are recommended.

Usage

```
qgis_list_input(...)

qgis_dict_input(...)
```

Arguments

`...`	Named values for `qgis_dict_input()` or unnamed values for `qgis_list_input()`.

Details

`qgis_list_input()` generates an unnamed list of class `qgis_list_input`. The use of `qgis_list_input()` instead of list() is *required* for compound arguments *in case of no-JSON input* (see `qgis_using_json_input()`). Since it applies strict validation rules, it is recommended in all cases though.

`qgis_dict_input()` generates a named list of class `qgis_dict_input`. `qgis_dict_input()` is only supported when the JSON input method applies (see `qgis_using_json_input()`), where it can be interchanged with a named `list()`. It can only be used for arguments requiring *named* lists. Since it applies strict validation rules, it is recommended above `list()`.

Some QGIS argument types that need a compound object are the `multilayer`, `aggregates`, `fields_mapping`, `tininputlayers` and `vectortilewriterlayers` argument types.

Value

- `qgis_list_input()`: An object of class 'qgis_list_input'
- `qgis_dict_input()`: An object of class 'qgis_dict_input'

Examples

```
qgis_list_input(1, 2, 3)
qgis_dict_input(a = 1, b = 2, c = 3)
```

---

qgis_path *Get metadata about the used 'qgis_process' command*

Description

`qgis_path()` returns the filepath of the 'qgis_process' command, while `qgis_version()` returns the QGIS version.

Usage

```
qgis_path(query = FALSE, quiet = TRUE)

qgis_version(query = FALSE, quiet = TRUE, full = TRUE, debug = FALSE)
```

Arguments

`query`	Use `TRUE` to refresh the cached value.
`quiet`	Use `FALSE` to display more information, possibly useful for debugging.
`full`	Logical. If `FALSE`, only return the `"x.y.z"` version string instead of the full version string that includes the name. Defaults to `TRUE`; ignored if `debug = TRUE`.
`debug`	Logical. If `TRUE`, also output the version of QGIS, the operating system and all relevant libraries, as reported by the 'qgis_process' command.

Value

A string.

See Also

`qgis_configure()`

Other topics about reporting the QGIS state: `has_qgis()`, `qgis_algorithms()`, `qgis_using_json_input()`

Examples

```
qgis_path()
qgis_path(quiet = FALSE)
qgis_version()
qgis_version(full = FALSE)
qgis_version(debug = TRUE)
```

`qgis_result_status` *Access processing results: extra tools*

Description

A `qgis_result` object is a list that, next to the output elements, also contains other elements that can be useful in scripting. Several of these can be extracted with convenience functions: the exit status of the process, standard output and standard error of 'qgis_process', arguments passed to 'qgis_process'.

Usage

```
qgis_result_status(x)

qgis_result_stdout(x)

qgis_result_stderr(x)

qgis_result_args(x)
```

Arguments

`x`	A `qgis_result` object returned by `qgis_run_algorithm()`.

Value

- A number in case of `qgis_result_status()`.
- A string in case of `qgis_result_stdout()` and `qgis_result_stderr()`.
- A list in case of `qgis_result_args()`.

See Also

Other topics about programming or debugging utilities: `qgis_run()`, `qgis_tmp_file()`, `qgis_unconfigure()`, `qgis_using_json_input()`

Other topics about accessing or managing processing results: `qgis_as_raster()`, `qgis_as_terra()`, `qgis_clean_result()`, `qgis_extract_output()`, `st_as_sf`, `st_as_stars`

Examples

```
result <- qgis_run_algorithm(
  "native:buffer",
  INPUT = system.file("longlake/longlake_depth.gpkg", package = "qgisprocess"),
  DISTANCE = 10
)

qgis_result_status(result)
stdout <- qgis_result_stdout(result)
cat(substr(stdout, 1, 335))
qgis_result_stderr(result)
qgis_result_args(result)
```

---

qgis_run *Call the 'qgis_process' command directly*

Description

`qgis_run()` offers full access to 'qgis_process'. Run `cat(qgis_run("--help")$stdout)` to get the command's help.

Usage

```
qgis_run(args = character(), ..., env = qgis_env(), path = qgis_path())
```

Arguments

`args`	Command-line arguments
`...`	Passed to `processx::run()`.
`env`	A `list()` of environment variables. Defaults to `getOption("qgisprocess.env", list(QT_QPA_PLATFORM = "offscreen"))`.
`path`	A path to the 'qgis_process' executable. Defaults to `qgis_path()`.

Value

A `processx::run()` return value, i.e. a list with `status`, `stdout`, `stderr` and `timeout` elements.

See Also

Other topics about programming or debugging utilities: `qgis_result_status()`, `qgis_tmp_file()`, `qgis_unconfigure()`, `qgis_using_json_input()`

Other topics about configuring QGIS and qgisprocess: `qgis_configure()`, `qgis_enable_plugins()`

Examples

```
processx_list <- qgis_run(args = "--help")
cat(processx_list$stdout)
```

qgis_run_algorithm *Run an algorithm using 'qgis_process'*

Description

Runs an algorithm using 'qgis_process'. See the QGIS docs for a detailed description of the algorithms provided 'out of the box' on QGIS.

Usage

```
qgis_run_algorithm(
  algorithm,
  ...,
  PROJECT_PATH = NULL,
  ELLIPSOID = NULL,
  .raw_json_input = NULL,
  .quiet = TRUE
)
```

Arguments

`algorithm`	A qualified algorithm name (e.g., `"native:buffer"`) or a path to a QGIS model file.
`...`	Named key-value pairs as arguments for the algorithm. Features of `rlang::list2()` are supported. These arguments are converted to strings using `as_qgis_argument()`.
`PROJECT_PATH, ELLIPSOID`	Global values for QGIS project file and ellipsoid name for distance calculations.
`.raw_json_input`	The raw JSON to use as input in place of `...`. See *Details* section.
`.quiet`	Use `FALSE` to get extra output from 'qgis_process'. This can be useful in debugging.

Details

`qgis_run_algorithm()` accepts various R objects as algorithm arguments. An overview is given by `vignette("qgis_arguments")`. Examples include an R matrix or data frame for the argument type 'matrix', R colors for the argument type 'color', sf or terra (SpatVector) objects for the argument type 'vector' and raster/terra/stars objects for the argument type 'raster', but there are many more. `qgis_run_algorithm()` preprocesses the provided objects into the format that QGIS expects for a given argument.

Providing R objects that cannot be converted to the applicable argument type will lead to an error.

Algorithm arguments can be passed as arguments of `qgis_run_algorithm()`, but they can also be combined as a JSON string and fed into the `.raw_json_input` argument. A JSON string can be obtained from the QGIS GUI, either from the processing tool dialog or from the processing history dialog, by selecting 'Copy as JSON' in the 'Advanced' dropdown menu. So a user can first try out

a geoprocessing step in the QGIS GUI, and once the chosen algorithm arguments are satisfactory, copy the JSON string to reproduce the operation in R. A screenshot is available at the package homepage.

Value

A `qgis_result` object.

Running QGIS models and Python scripts

QGIS models and Python scripts can be added to the Processing Toolbox in the QGIS GUI, by pointing at their corresponding file. This will put the model or script below the provider 'Models' or 'Scripts', respectively. Next, it is necessary to run `qgis_configure()` in R in order to make the model or script available to qgisprocess (even reloading the package won't detect it, since these providers have dynamic content, not tied to a plugin or to a QGIS version). You can check the outcome with `qgis_providers()` and `qgis_search_algorithms()`. Now, just as with other algorithms, you can provide the `model:<name>` or `script:<name>` identifier to the `algorithm` argument of `qgis_run_algorithm()`.

As the output argument name of a QGIS model can have an R-unfriendly syntax, you may need to take the JSON parameter string from the QGIS processing dialog and feed the JSON string to the `.raw_json_input` argument of `qgis_run_algorithm()` instead of providing separate arguments.

Although the 'qgis_process' backend also supports replacing the 'algorithm' parameter by the file path of a model file or a Python script, it is not planned to implement this in qgisprocess, as it would bypass argument preprocessing in R (including checks).

See Also

`vignette("qgis_arguments")`

Other functions to run one geoprocessing algorithm: `qgis_run_algorithm_p()`

Examples

```
qgis_run_algorithm(
  "native:buffer",
  INPUT = system.file("longlake/longlake_depth.gpkg", package = "qgisprocess"),
  DISTANCE = 10
)
```

---

qgis_run_algorithm_p *Run an algorithm using 'qgis_process': pipe-friendly wrapper*

Description

`qgis_run_algorithm_p()` wraps `qgis_run_algorithm()`, passing its first argument to the first argument of the QGIS `algorithm`. This makes it more convenient in a pipeline (hence '_p' in the name).

Usage

```
qgis_run_algorithm_p(
  .data,
  algorithm,
  ...,
  .select = "OUTPUT",
  .clean = TRUE,
  .quiet = TRUE
)
```

Arguments

.data	Passed to the first input of algorithm. If .data is a qgis_result (the result of a previous processing step), .data[[.select]] is passed instead.
algorithm	A qualified algorithm name (e.g., "native:buffer").
...	Other algorithm arguments. These values are evaluated once and immediately, so you shouldn't call qgis_tmp_file() here.
.select	String. The name of the element to select from .data if the latter is a qgis_result. Defaults to "OUTPUT".
.clean	Logical. Should an incoming qgis_result be cleaned (using qgis_clean_result()) after processing?
.quiet	Use FALSE to get extra output from 'qgis_process'. This can be useful in debugging.

Details

Uses qgis_function() under the hood.

Value

A qgis_result object.

See Also

Other functions to run one geoprocessing algorithm: qgis_run_algorithm()

Examples

```
system.file(
  "longlake/longlake_depth.gpkg",
  package = "qgisprocess"
) |>
  qgis_run_algorithm_p(
    "native:buffer",
    DISTANCE = 10
  )
```

qgis_search_algorithms *Search geoprocessing algorithms*

Description

Searches for algorithms using a regular expression. In its simplest form that is just a string that must match part of a character value.

Usage

```
qgis_search_algorithms(
  algorithm = NULL,
  provider = NULL,
  group = NULL,
  include_deprecated = FALSE
)
```

Arguments

algorithm	Regular expression to match the algorithm or algorithm_title value from the output of qgis_algorithms().
provider	Regular expression to match the provider or provider_title value from the output of qgis_algorithms().
group	Regular expression to match the group value from the output of qgis_algorithms().
include_deprecated	Logical. Should deprecated algorithms be included?

Details

When using multiple arguments in combination, only the algorithms are returned that fulfill all conditions.

All regular expressions that stringr::str_detect() can handle, are accepted. Have a look at stringi::search_regex() to get a nice overview.

Value

A tibble.

See Also

Other topics about information on algorithms & processing providers: qgis_algorithms(), qgis_show_help()

Examples

```
qgis_search_algorithms(
  algorithm = "point.*line",
  provider = "^native$"
)
```

`qgis_show_help` *Get detailed information about one algorithm*

Description

Get detailed information about one algorithm

Usage

```
qgis_show_help(algorithm)

qgis_get_description(algorithm)

qgis_get_argument_specs(algorithm, ...)

qgis_get_output_specs(algorithm, ...)
```

Arguments

`algorithm`	A qualified algorithm name (e.g., `"native:buffer"`).
`...`	For internal use only.

Value

- `qgis_get_description()`: a string.
- `qgis_get_argument_specs()`, `qgis_get_output_specs()`: a tibble.
- `qgis_show_help()`: the algorithm name, invisibly.

See Also

Other topics about information on algorithms & processing providers: `qgis_algorithms()`, `qgis_search_algorithms()`

Examples

```
qgis_get_description("native:filedownloader")

# not running below examples in R CMD check to save time
qgis_get_argument_specs("native:filedownloader")
qgis_get_output_specs("native:filedownloader")
qgis_show_help("native:filedownloader")
```

qgis_tmp_file *Manage temporary files*

Description

These functions create temporary files that can be used in calls to `qgis_run_algorithm()` or elsewhere. These files are created in a special temporary directory (`qgis_tmp_base()`) that should be periodically cleaned up using `qgis_clean_tmp()`. You can set your preferred vector and/or raster file extension using `options(qgisprocess.tmp_vector_ext = "...")` and/or `options(qgisprocess.tmp_raster_ext = "...")`, respectively.

Usage

```
qgis_tmp_file(ext)

qgis_tmp_folder()

qgis_tmp_vector(ext = getOption("qgisprocess.tmp_vector_ext", ".gpkg"))

qgis_tmp_raster(ext = getOption("qgisprocess.tmp_raster_ext", ".tif"))

qgis_tmp_base()

qgis_clean_tmp()
```

Arguments

`ext`	The file extension to be used.

Value

A character vector indicating the location of a (not yet created) temporary file.

See Also

Other topics about programming or debugging utilities: `qgis_result_status()`, `qgis_run()`, `qgis_unconfigure()`, `qgis_using_json_input()`

Examples

```
qgis_tmp_base()
qgis_tmp_file(".csv")
qgis_tmp_vector()
qgis_tmp_raster()
```

qgis_unconfigure *Clean the package cache*

Description

Empties the qgisprocess cache environment.

Usage

```
qgis_unconfigure()
```

Value

NULL, invisibly.

See Also

Other topics about programming or debugging utilities: qgis_result_status(), qgis_run(), qgis_tmp_file(), qgis_using_json_input()

Examples

```
## Not run:
# not running this function in example() as it clears the cache environment.
qgis_unconfigure()

## End(Not run)

# undoing qgis_unconfigure() by repopulating the cache environment from file:

# not running in R CMD check to save time
qgis_configure(use_cached_data = TRUE)
```

qgis_using_json_input *Report if JSON objects are used for input to and output from 'qgis_process'*

Description

Returns a logical that reveals whether the JSON input and output methods are used, respectively.

Usage

```
qgis_using_json_input()

qgis_using_json_output(query = FALSE, quiet = TRUE)
```

Arguments

query	Logical. Should the outcome of `qgis_using_json_output()` ignore the cached value? The argument has effect on condition that no user setting 'use_json_output' is in place (see Details). • If set as `TRUE`, the function simply returns `TRUE` and the cached value for the current session is set as `TRUE`. • If set as `FALSE` (default), the function returns the cached value on condition that it does not conflict with a 'use_json_**in**put' user setting.
quiet	Use `FALSE` to display more information, possibly useful for debugging.

Details

Since QGIS 3.24 the JSON input method of 'qgis_process' is used by default when calling the command. It allows to use certain algorithms that require a more complex input argument, e.g. a list of lists (see `qgis_list_input()`).

Likewise, JSON output is the default output format requested from 'qgis_process'. Using the JSON input method of 'qgis_process' automatically implies using the JSON output method; when *not* using the JSON input method it is possible (but not the default) to also not use the JSON output method.

The defaults can be overruled with the options `qgisprocess.use_json_input` or `qgisprocess.use_json_output`, and with the environment variables `R_QGISPROCESS_USE_JSON_INPUT` or `R_QGISPROCESS_USE_JSON_OUTPUT`.

The returned JSON output method is always cached during the current session by `qgis_using_json_output()`. Given that `qgis_using_json_output()` is called by various functions in the package, having a user setting 'use_json_output' in place (see above) will have effect during subsequent usage of the package. To cache the value between sessions, `qgis_configure()` needs to be called to update the value stored in the persistent package cache file.

The JSON input method is not cached but simply determined on the fly, based on QGIS version, the JSON output method and the user setting if present.

There is good reason for having 'use_json_output' in the persistent package cache: the values of `qgis_algorithms()` and `qgis_plugins()` are different with or without the JSON output method, and are also stored in the cache.

Value

A logical of length 1.

See Also

Other topics about programming or debugging utilities: `qgis_result_status()`, `qgis_run()`, `qgis_tmp_file()`, `qgis_unconfigure()`

Other topics about reporting the QGIS state: `has_qgis()`, `qgis_algorithms()`, `qgis_path()`

Examples

```
qgis_using_json_input()
qgis_using_json_output()
```

st_as_sf *Convert a qgis_result object or one of its elements to an sf object*

Description

Convert a qgis_result object or one of its elements to an sf object

Usage

```
## S3 method for class 'qgis_result'
st_as_sf(x, ...)

## S3 method for class 'qgis_outputVector'
st_as_sf(x, ...)

## S3 method for class 'qgis_outputLayer'
st_as_sf(x, ...)
```

Arguments

x	A `qgis_result` object from `qgis_run_algorithm()` or a `qgis_output*` object from one of the `qgis_extract_output()` functions.
...	Arguments passed to `sf::read_sf()`.

Details

The sf package must be loaded explicitly to use these methods.

Value

An `sf` object.

See Also

Other topics about coercing processing output: `qgis_as_raster()`, `qgis_as_terra()`, `st_as_stars`

Other topics about accessing or managing processing results: `qgis_as_raster()`, `qgis_as_terra()`, `qgis_clean_result()`, `qgis_extract_output()`, `qgis_result_status()`, `st_as_stars`

Examples

```
# not running below examples in R CMD check to save time
result <- qgis_run_algorithm(
  "native:buffer",
  INPUT = system.file("longlake/longlake_depth.gpkg", package = "qgisprocess"),
  DISTANCE = 10
)
```

```
# most direct approach, autoselecting a `qgis_outputVector` type
# output from the `result` object and reading as sf object:
sf::st_as_sf(result)

# if you need more control, extract the needed output element first:
output_vector <- qgis_extract_output(result, "OUTPUT")
sf::st_as_sf(output_vector)
```

`st_as_stars` *Convert a qgis_result object or one of its elements to a stars object*

Description

Convert a qgis_result object or one of its elements to a stars object

Usage

```
## S3 method for class 'qgis_outputRaster'
st_as_stars(x, ...)

## S3 method for class 'qgis_outputLayer'
st_as_stars(x, ...)

## S3 method for class 'qgis_result'
st_as_stars(x, ...)
```

Arguments

`x`	A `qgis_result` object from `qgis_run_algorithm()` or a `qgis_output*` object from one of the `qgis_extract_output()` functions.
`...`	Arguments passed to `stars::read_stars()`.

Details

The stars package must be loaded explicitly to use these methods.

Value

A `stars` or a `stars_proxy` object.

See Also

Other topics about coercing processing output: `qgis_as_raster()`, `qgis_as_terra()`, `st_as_sf`

Other topics about accessing or managing processing results: `qgis_as_raster()`, `qgis_as_terra()`, `qgis_clean_result()`, `qgis_extract_output()`, `qgis_result_status()`, `st_as_sf`

Examples

```
# not running below examples in R CMD check to save time
result <- qgis_run_algorithm(
  "native:slope",
  INPUT = system.file("longlake/longlake_depth.tif", package = "qgisprocess")
)

# most direct approach, autoselecting a `qgis_outputRaster` type
# output from the `result` object and reading as stars or stars_proxy:
stars::st_as_stars(result)
stars::st_as_stars(result, proxy = TRUE)

# if you need more control, extract the needed output element first:
output_raster <- qgis_extract_output(result, "OUTPUT")
stars::st_as_stars(output_raster)
```

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