Package 'beastier'

October 30, 2020

Type Package

Title Call 'BEAST2'

Version 2.2.1

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Description 'BEAST2' (<https://www.beast2.org>) is a widely used Bayesian phylogenetic tool, that uses DNA/RNA/protein data and many model priors to create a posterior of jointly estimated phylogenies and parameters.
'BEAST2' is a command-line tool.
This package provides a way to call 'BEAST2' from an 'R' function call.

License GPL-3

Encoding UTF-8

LazyData true

RoxygenNote 7.1.1

Imports ape, assertive, beautier (>= 2.3.5), phangorn, pryr, rappdirs, remotes, rJava, stringr, xml2

Suggests hunspell, knitr, rmarkdown, spelling, testit, testthat (>= 2.1.0), tracerer

URL https://docs.ropensci.org/beastier/ (website)
https://github.com/ropensci/beastier/

BugReports https://github.com/ropensci/beastier

Language en-US

VignetteBuilder knitr

SystemRequirements BEAST2 (https://www.beast2.org/)

NeedsCompilation no

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Repository CRAN

Date/Publication 2020-10-30 14:50:03 UTC

R topics documented:

`are_beast2_input_lines` *Would these lines of text, when written to a file, result in a valid BEAST2 input file?*

Description

Would these lines of text, when written to a file, result in a valid BEAST2 input file?

Usage

```
are_beast2_input_lines(
  lines,
  verbose = FALSE,
  method = ifelse(is_on_ci(), "deep", "fast"),
  beast2_path = get_default_beast2_path()
)
```

Arguments

`lines`	lines of text
`verbose`	if TRUE, additional information is displayed, that is potentially useful in debugging
`method`	the method to check. Can be 'deep' or 'fast'. The 'deep' method uses BEAST2 to validate the complete file. The 'fast' method uses some superficial tests (for example: if all IDs are unique)
`beast2_path`	name of either a BEAST2 binary file (usually simply `beast`) or a BEAST2 jar file (usually has a `.jar` extension). Use get_default_beast2_bin_path to get the default BEAST binary file's path Use get_default_beast2_jar_path to get the default BEAST jar file's path

Value

TRUE if the text is valid, FALSE if not

Author(s)

Richèl J.C. Bilderbeek

See Also

Use `is_beast2_input_file` to check a file

Examples

```
if (is_beast2_installed() && is_on_ci()) {
  get_beastier_path("anthus_2_4.xml")
}
```

`are_beast2_input_lines_deep` *Would these lines of text, when written to a file, result in a valid BEAST2 input file?*

Description

Would these lines of text, when written to a file, result in a valid BEAST2 input file?

Usage

```
are_beast2_input_lines_deep(
  lines,
  verbose = FALSE,
  beast2_path = get_default_beast2_path()
)
```

Arguments

`lines`	lines of text
`verbose`	if TRUE, additional information is displayed, that is potentially useful in debugging
`beast2_path`	name of either a BEAST2 binary file (usually simply `beast`) or a BEAST2 jar file (usually has a `.jar` extension). Use get_default_beast2_bin_path to get the default BEAST binary file's path Use get_default_beast2_jar_path to get the default BEAST jar file's path

Value

TRUE if the text is valid, FALSE if not

Author(s)

Richèl J.C. Bilderbeek

See Also

Use `is_beast2_input_file` to check a file

Examples

```
if (is_beast2_installed() && is_on_ci()) {
  beast2_filename <- get_beastier_path("anthus_2_4.xml")
  text <- readLines(beast2_filename)
  testit::assert(are_beast2_input_lines_deep(text))
}
```

`are_beast2_input_lines_fast` *Would these lines of text, when written to a file, result in a valid BEAST2 input file?*

Description

Would these lines of text, when written to a file, result in a valid BEAST2 input file?

Usage

```
are_beast2_input_lines_fast(lines)
```

Arguments

`lines`	lines of text

Value

TRUE if the text is valid, FALSE if not

Author(s)

Richèl J.C. Bilderbeek

See Also

Use `is_beast2_input_file` to check a file

Examples

```
beast2_filename <- get_beastier_path("anthus_2_4.xml")
text <- readLines(beast2_filename)

# TRUE
are_beast2_input_lines_fast(text)
```

are_identical_alignments

Determines if the two alignments are equal

Description

Determines if the two alignments are equal

Usage

```
are_identical_alignments(p, q)
```

Arguments

p	the first alignment
q	the second alignment

Value

TRUE or FALSE

Author(s)

Richèl J.C. Bilderbeek

beast2_internal_filenames_to_table

Convert a beast2_internal_filenames *to a table*

Description

Convert a beast2_internal_filenames to a table

Usage

```
beast2_internal_filenames_to_table(beast2_internal_filenames)
```

Arguments

beast2_internal_filenames	a list of internally used BEAST2 filenames, as created by create_beast2_internal_filenames

`beast2_options_to_table` *Convert a* `beast2_options` *to a table*

Description

Convert a `beast2_options` to a table

Usage

```
beast2_options_to_table(beast2_options)
```

Arguments

`beast2_options`	a set of BEAST2 options, that are the R equivalent of the BEAST2 command-line options, as can be created by create_beast2_options

`beastier` `beastier`*: A package to call BEAST2.*

Description

`beastier` allows to call BEAST2, a popular Bayesian phylogenetics tool, using an R interface. 'beastier' closely follows the interface of BEAST2, including its default settings.

See Also

These are packages associated with `beastier`:

- The package `beautier` can create BEAST2 input files from R
- The package `tracerer` can parse BEAST2 output files from R
- The package `babette` combines the functionality of `beautier`, `beastier` and `tracerer` into a single workflow

Examples

```
beast2_options <- create_beast2_options(
  input_filename = get_beastier_path("2_4.xml")
)

if (is_beast2_installed() && is_on_ci()) {
  run_beast2_from_options(beast2_options)
}
```

beastier_report *Create a beastier report, to be used when reporting bugs*

Description

Create a beastier report, to be used when reporting bugs

Usage

```
beastier_report()
```

check_beast2 *Check if BEAST2 is installed properly.*

Description

Calls `stop` if BEAST2 is improperly installed

Usage

```
check_beast2(beast2_path = get_default_beast2_path())
```

Arguments

`beast2_path`	name of either a BEAST2 binary file (usually simply `beast`) or a BEAST2 jar file (usually has a `.jar` extension). Use get_default_beast2_bin_path to get the default BEAST binary file's path Use get_default_beast2_jar_path to get the default BEAST jar file's path

Value

nothing

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_beast2_installed()) {
  check_beast2()
}
```

`check_beast2_internal_filenames` *Check if the* `beast2_internal_filenames` *is a valid BEAST2 internal filenames object.*

Description

Calls `stop` if the BEAST2 internal filenames object is invalid

Usage

```
check_beast2_internal_filenames(beast2_internal_filenames)
```

Arguments

`beast2_internal_filenames` a list of internally used BEAST2 filenames, as created by create_beast2_internal_filenames

Value

nothing

Author(s)

Richèl J.C. Bilderbeek

See Also

Use create_beast2_internal_filenames to create a valid BEAST2 internal filenames object

Examples

```
if (beastier::is_beast2_installed()) {
  check_beast2_internal_filenames(
    create_beast2_internal_filenames(
      create_beast2_options(
        input_filename = get_beastier_path("2_4.xml")
      )
    )
  )
}
```

check_beast2_internal_filenames_data_types

Check if the `beast2_internal_filenames`*, which is a list, has all elements of the right data types*

Description

Calls `stop` if not.

Usage

```
check_beast2_internal_filenames_data_types(beast2_internal_filenames)
```

Arguments

`beast2_internal_filenames`
: a list of internally used BEAST2 filenames, as created by create_beast2_internal_filenames

Value

nothing

Author(s)

Richèl J.C. Bilderbeek

See Also

Use check_beast2_internal_filenames to check the entire `beast2_internal_filenames` object

check_beast2_internal_filenames_filenames_differ

Check if the filenames in `beast2_internal_filenames` *differ*

Description

Calls `stop` if not.

Usage

```
check_beast2_internal_filenames_filenames_differ(beast2_internal_filenames)
```

Arguments

`beast2_internal_filenames`
: a list of internally used BEAST2 filenames, as created by create_beast2_internal_filenames

Value

nothing

Author(s)

Richèl J.C. Bilderbeek

See Also

Use check_beast2_internal_filenames to check the entire `beast2_internal_filenames` object

---

`check_beast2_internal_filenames_names`
Check if the `beast2_internal_filenames`*, which is a list, has all the elements needed.*

Description

Calls `stop` if not.

Usage

```
check_beast2_internal_filenames_names(beast2_internal_filenames)
```

Arguments

`beast2_internal_filenames`
a list of internally used BEAST2 filenames, as created by create_beast2_internal_filenames

Value

nothing

Author(s)

Richèl J.C. Bilderbeek

See Also

Use check_beast2_internal_filenames to check the entire `beast2_internal_filenames` object

check_beast2_options *Check if the* beast2_options *is a valid BEAST2 options object.*

Description

Calls stop if the BEAST2 option object is invalid

Usage

```
check_beast2_options(beast2_options)
```

Arguments

beast2_options	a set of BEAST2 options, that are the R equivalent of the BEAST2 command-line options, as can be created by create_beast2_options

Value

nothing

Author(s)

Richèl J.C. Bilderbeek

See Also

Use create_beast2_options to create a valid BEAST2 options object

Examples

```
check_beast2_options(create_beast2_options())
```

check_beast2_optionses *Check if the* beast2_options *is a valid BEAST2 options object.*

Description

Calls stop if the BEAST2 option object is invalid

Usage

```
check_beast2_optionses(beast2_optionses)
```

Arguments

`beast2_optionses`
: list of one or more `beast2_options` structures, as can be created by create_beast2_options. Use of reduplicated plural to achieve difference with `beast2_options`

Value

nothing

Author(s)

Richèl J.C. Bilderbeek

See Also

Use create_beast2_options to create a valid BEAST2 options object

Examples

```
check_beast2_optionses(list(create_beast2_options()))
```

---

check_beast2_options_data_types

Check if the `beast2_options`*, which is a list, has all elements of the right data types*

Description

Calls `stop` if not.

Usage

```
check_beast2_options_data_types(beast2_options)
```

Arguments

`beast2_options`
: a set of BEAST2 options, that are the R equivalent of the BEAST2 command-line options, as can be created by create_beast2_options

Value

nothing

Author(s)

Richèl J.C. Bilderbeek

See Also

Use check_beast2_options to check the entire `beast2_options` object

check_beast2_options_do_not_overwrite_existing_files

Check if the beast2_options *will not overwrite existing files, when the 'overwrite' options is set to* FALSE

Description

Will stop if a file is threatened to be overwritten

Usage

```
check_beast2_options_do_not_overwrite_existing_files(
  beast2_options,
  beast2_internal_filenames
)
```

Arguments

beast2_options	a set of BEAST2 options, that are the R equivalent of the BEAST2 command-line options, as can be created by create_beast2_options
beast2_internal_filenames	a list of internally used BEAST2 filenames, as created by create_beast2_internal_filenames

Author(s)

Richèl J.C. Bilderbeek

check_beast2_options_filenames_differ

Check if the filenames in beast2_options *differ*

Description

Calls stop if not.

Usage

```
check_beast2_options_filenames_differ(beast2_options)
```

Arguments

beast2_options	a set of BEAST2 options, that are the R equivalent of the BEAST2 command-line options, as can be created by create_beast2_options

Value

nothing

Author(s)

Richèl J.C. Bilderbeek

See Also

Use check_beast2_options to check the entire `beast2_options` object

`check_beast2_options_names`

Check if the `beast2_options`*, which is a list, has all the elements needed.*

Description

Calls `stop` if not.

Usage

```
check_beast2_options_names(beast2_options)
```

Arguments

`beast2_options`	a set of BEAST2 options, that are the R equivalent of the BEAST2 command-line options, as can be created by create_beast2_options

Value

nothing

Author(s)

Richèl J.C. Bilderbeek

See Also

Use check_beast2_options to check the entire `beast2_options` object

check_beast2_path *Checks the BEAST2* `.jar` *path. Will stop if there is a problem with the BEAST2* `.jar` *path.*

Description

Checks the BEAST2 `.jar` path. Will stop if there is a problem with the BEAST2 `.jar` path.

Usage

```
check_beast2_path(beast2_path)
```

Arguments

`beast2_path`	name of either a BEAST2 binary file (usually simply `beast`) or a BEAST2 jar file (usually has a `.jar` extension). Use get_default_beast2_bin_path to get the default BEAST binary file's path Use get_default_beast2_jar_path to get the default BEAST jar file's path

Value

nothing. Will call `stop` if the BEAST2 `.jar` path has a problem

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_beast2_installed()) {
  beast2_path <- get_default_beast2_jar_path()
  check_beast2_path(beast2_path)
}
```

check_can_create_file *Check that a file can be created at a certain path.*

Description

Will stop if not. Will stop if the file already exists. Does so by creating an empty file at the path, and then deleting it.

Usage

```
check_can_create_file(filename, overwrite = TRUE)
```

Arguments

filename	file that may or may not be created
overwrite	if TRUE, if filename already exists, it will be deleted by this function

Author(s)

Richèl J.C. Bilderbeek

---

check_input_filename *Checks the input filename. Will stop if there is a problem with the input filename.*

Description

Checks the input filename. Will stop if there is a problem with the input filename.

Usage

```
check_input_filename(input_filename)
```

Arguments

input_filename	the name of a BEAST2 input XML file. This file usually has an .xml extension. Use create_temp_input_filename to create a temporary filename with that extension.

Value

nothing. Will call stop if the input file is invalid

Author(s)

Richèl J.C. Bilderbeek

Examples

```
check_input_filename(
  get_beastier_path("beast2_example_output.log")
)
```

check_n_threads *Check if the input is a valid number of threads.*

Description

Will stop if not.

Usage

```
check_n_threads(n_threads)
```

Arguments

n_threads	the number of computational threads to use. Use NA to use the BEAST2 default of 1.

Author(s)

Richèl J.C. Bilderbeek

Examples

```
# Can have 1 or more threads
check_n_threads(1)
check_n_threads(2)
# Can have NA threads
check_n_threads(NA)
```

check_os *Checks if the operating system is supported*

Description

Checks if the operating system is supported

Usage

```
check_os(os)
```

Arguments

os	name of the operating system, must be unix (Linux, Mac) or win (Windows)

Value

nothing. Will stop if the OS is unsupported

Author(s)

Richèl J.C. Bilderbeek

Examples

```
check_os("mac")
check_os("unix")
check_os("win")
```

`check_rng_seed` *Check if the input is a valid RNG seed.*

Description

Will stop if not.

Usage

```
check_rng_seed(rng_seed)
```

Arguments

`rng_seed`	the random number generator seed of the BEAST2 run. Must be a non-zero positive integer value or NA. If `rng_seed` is NA, BEAST2 will pick a random seed

Author(s)

Richèl J.C. Bilderbeek

Examples

```
# Numbers from 1 and higher are valid RNG seeds
check_rng_seed(1)
check_rng_seed(2)
# Also NA is a valid RNG seed
check_rng_seed(NA)
```

create_beast2_internal_filenames

Create a list with the internally used BEAST2 filenames

Description

Create a list with the internally used BEAST2 filenames

Usage

```
create_beast2_internal_filenames(beast2_options)
```

Arguments

beast2_options	a set of BEAST2 options, that are the R equivalent of the BEAST2 command-line options, as can be created by create_beast2_options

Value

a list with the internally used BEAST2 filenames

Examples

```
beast2_options <- create_beast2_options(
  input_filename = get_beastier_path("2_4.xml")
)
if (is_beast2_installed()) {
  create_beast2_internal_filenames(beast2_options)
}
```

create_beast2_options

Function to create a set of BEAST2 options.

Description

These BEAST2 options are the R equivalent of the command-line options.

Usage

```
create_beast2_options(
  input_filename = create_temp_input_filename(),
  output_state_filename = create_temp_state_filename(),
  rng_seed = NA,
  n_threads = NA,
  use_beagle = FALSE,
  overwrite = TRUE,
```

```
  beast2_path = get_default_beast2_path(),
  verbose = FALSE,
  output_log_filename = "deprecated",
  output_trees_filenames = "deprecated",
  beast2_working_dir = "deprecated"
)
```

Arguments

input_filename	the name of a BEAST2 input XML file. This file usually has an .xml extension. Use create_temp_input_filename to create a temporary filename with that extension.
output_state_filename	name of the .xml.state file to create. Use create_temp_state_filename to create a temporary filename with that extension.
rng_seed	the random number generator seed of the BEAST2 run. Must be a non-zero positive integer value or NA. If rng_seed is NA, BEAST2 will pick a random seed
n_threads	the number of computational threads to use. Use NA to use the BEAST2 default of 1.
use_beagle	use BEAGLE if present
overwrite	if TRUE: overwrite the .log and .trees files if one of these exists. If FALSE, BEAST2 will not be started if • the .log file exists • the .trees files exist • the .log file created by BEAST2 exists • the .trees files created by BEAST2 exist
beast2_path	name of either a BEAST2 binary file (usually simply beast) or a BEAST2 jar file (usually has a .jar extension). Use get_default_beast2_bin_path to get the default BEAST binary file's path Use get_default_beast2_jar_path to get the default BEAST jar file's path
verbose	if TRUE, additional information is displayed, that is potentially useful in debugging
output_log_filename	name of the .log file to create
output_trees_filenames	one or more names for .trees file to create. There will be one .trees file created per alignment in the input file. The number of alignments must equal the number of .trees filenames, else an error is thrown. Alignments are sorted alphabetically by their IDs
beast2_working_dir	a folder where BEAST2 can work in isolation. For each BEAST2 run, a new subfolder is created in that folder. Within this folder, BEAST2 is allowed to create all of its output files, without the risk of overwriting existing ones, allowing BEAST2 to run in multiple parallel processes.

Value

a BEAST2 options structure

Author(s)

Richèl J.C. Bilderbeek

Examples

```
beast2_options <- create_beast2_options()
check_beast2_options(beast2_options)
```

`create_beast2_run_cmd` *Creates the terminal command to run BEAST2*

Description

Creates the terminal command to run BEAST2

Usage

```
create_beast2_run_cmd(
  input_filename,
  output_state_filename,
  rng_seed = NA,
  n_threads = NA,
  use_beagle = FALSE,
  overwrite = FALSE,
  beast2_path = get_default_beast2_path()
)
```

Arguments

`input_filename`	the name of a BEAST2 input XML file. This file usually has an `.xml` extension. Use create_temp_input_filename to create a temporary filename with that extension.
`output_state_filename`	name of the BEAST2 output file that stores the state (usually has a `.xml.state` extension)
`rng_seed`	the random number generator seed of the BEAST2 run. Must be a non-zero positive integer value or NA. If `rng_seed` is NA, BEAST2 will pick a random seed
`n_threads`	the number of computational threads to use. Use NA to use the BEAST2 default of 1.
`use_beagle`	use BEAGLE if present

`overwrite` if TRUE: overwrite the `.log` and `.trees` files if one of these exists. If FALSE, BEAST2 will not be started if

- the `.log` file exists
- the `.trees` files exist
- the `.log` file created by BEAST2 exists
- the `.trees` files created by BEAST2 exist

`beast2_path` name of either a BEAST2 binary file (usually simply `beast`) or a BEAST2 jar file (usually has a `.jar` extension). Use get_default_beast2_bin_path to get the default BEAST binary file's path Use get_default_beast2_jar_path to get the default BEAST jar file's path

Value

a character vector with the command and arguments to call BEAST2

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_beast2_installed()) {
  cmds <- create_beast2_run_cmd(
    input_filename = "input.xml",
    output_state_filename = "output.xml.state",
    beast2_path = get_default_beast2_jar_path()
  )
  testit::assert(cmds[2] == "-cp")
}
```

---

create_beast2_validate_cmd

Creates the terminal command to validate a BEAST2 input file

Description

Creates the terminal command to validate a BEAST2 input file

Usage

```
create_beast2_validate_cmd(
  input_filename,
  beast2_path = get_default_beast2_path()
)
```

Arguments

input_filename	the name of a BEAST2 input XML file. This file usually has an .xml extension. Use create_temp_input_filename to create a temporary filename with that extension.
beast2_path	name of either a BEAST2 binary file (usually simply beast) or a BEAST2 jar file (usually has a .jar extension). Use get_default_beast2_bin_path to get the default BEAST binary file's path Use get_default_beast2_jar_path to get the default BEAST jar file's path

Value

a character vector, of which the first element is the command (java, in this case), and the others are arguments (-jar, in this case, followed by more arguments.

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_beast2_installed() && is_on_ci()) {
  cmds <- create_beast2_validate_cmd(
    input_filename = "input.xml"
  )
  testit::assert(cmds[2] == "-cp")
}
```

---

create_beast2_validate_cmd_bin

Creates the terminal command to validate a BEAST2 input file using a call to the launcher.jar *file*

Description

Creates the terminal command to validate a BEAST2 input file using a call to the launcher.jar file

Usage

```
create_beast2_validate_cmd_bin(
  input_filename,
  beast2_bin_path = get_default_beast2_bin_path()
)
```

Arguments

input_filename	the name of a BEAST2 input XML file. This file usually has an .xml extension. Use create_temp_input_filename to create a temporary filename with that extension.
beast2_bin_path	name of the BEAST2 binary file (usually simply beast). Use get_default_beast2_bin_path to get the default BEAST binary file's path

Value

a character vector, of which the first element is the command (java, in this case), and the others are arguments (-jar, in this case, followed by more arguments.

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_beast2_installed() && is_on_ci()) {
  cmds <- create_beast2_validate_cmd_bin(
    input_filename = "input.xml"
  )
  testit::assert(length(cmds) == 3)
  testit::assert(cmds[2] == "-validate")
}
```

---

create_beast2_validate_cmd_jar

Creates the terminal command to validate a BEAST2 input file using a call to the launcher.jar *file*

Description

Creates the terminal command to validate a BEAST2 input file using a call to the launcher.jar file

Usage

```
create_beast2_validate_cmd_jar(
  input_filename,
  beast2_jar_path = get_default_beast2_jar_path()
)
```

Arguments

input_filename	the name of a BEAST2 input XML file. This file usually has an .xml extension. Use create_temp_input_filename to create a temporary filename with that extension.
beast2_jar_path	name of the BEAST2 jar file (usually has a .jar extension). Use get_default_beast2_jar_path to get the default BEAST jar file's path

Value

a character vector, of which the first element is the command (java, in this case), and the others are arguments (-jar, in this case, followed by more arguments.

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_beast2_installed() && is_on_ci()) {
  cmds <- create_beast2_validate_cmd_jar(
    input_filename = "input.xml"
  )
  testit::assert(length(cmds) == 6)
  testit::assert(cmds[2] == "-cp")
}
```

---

create_beast2_version_cmd

Creates the terminal command to version a BEAST2 input file

Description

Creates the terminal command to version a BEAST2 input file

Usage

```
create_beast2_version_cmd(beast2_path = beastier::get_default_beast2_path())
```

Arguments

beast2_path	name of either a BEAST2 binary file (usually simply beast) or a BEAST2 jar file (usually has a .jar extension). Use get_default_beast2_bin_path to get the default BEAST binary file's path Use get_default_beast2_jar_path to get the default BEAST jar file's path

Value

a character vector, of which the first element is the command (`java`, in this case), and the others are arguments (`-jar`, in this case, followed by more arguments.

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_beast2_installed() && is_on_ci()) {
  cmds <- create_beast2_version_cmd()
  testit::assert(cmds[2] == "-cp")
}
```

---

create_beast2_version_cmd_bin

Creates the terminal command to version a BEAST2 input file using a call to the `launcher.jar` *file*

Description

Creates the terminal command to version a BEAST2 input file using a call to the `launcher.jar` file

Usage

```
create_beast2_version_cmd_bin(beast2_bin_path = get_default_beast2_bin_path())
```

Arguments

`beast2_bin_path`
: name of the BEAST2 binary file (usually simply `beast`). Use get_default_beast2_bin_path to get the default BEAST binary file's path

Value

a character vector, of which the first element is the command (`java`, in this case), and the others are arguments (`-jar`, in this case, followed by more arguments.

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_beast2_installed() && is_on_ci()) {
  cmds <- create_beast2_version_cmd_bin()
  testit::assert(length(cmds) == 2)
  testit::assert(cmds[2] == "-version")
}
```

`create_beast2_version_cmd_jar`
Creates the terminal command to version a BEAST2 input file using a call to the `launcher.jar` *file*

Description

Creates the terminal command to version a BEAST2 input file using a call to the `launcher.jar` file

Usage

```
create_beast2_version_cmd_jar(beast2_jar_path = get_default_beast2_jar_path())
```

Arguments

`beast2_jar_path`
name of the BEAST2 jar file (usually has a `.jar` extension). Use get_default_beast2_jar_path to get the default BEAST jar file's path

Value

a character vector, of which the first element is the command (`java`, in this case), and the others are arguments (`-jar`, in this case, followed by more arguments.

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_beast2_installed()) {
  cmds <- create_beast2_version_cmd_jar()
  testit::assert(length(cmds) == 5)
  testit::assert(cmds[2] == "-cp")
}
```

`create_mcbette_beast2_options`
Create a `beast2_options` *structure for* `mcbette`

Description

Create a `beast2_options` structure to be used for `mcbette` (a package that allows one to do model comparison). The generated filenames indicating `mcbette` usage, as well as the correct BEAST2 binary type

Usage

```
create_mcbette_beast2_options(
  input_filename = beastier::create_temp_input_filename(),
  output_state_filename = beastier::create_temp_state_filename(),
  rng_seed = NA,
  n_threads = NA,
  use_beagle = FALSE,
  overwrite = TRUE,
  beast2_bin_path = beastier::get_default_beast2_bin_path(),
  verbose = FALSE
)
```

Arguments

`input_filename`	the name of a BEAST2 input XML file. This file usually has an `.xml` extension. Use create_temp_input_filename to create a temporary filename with that extension.
`output_state_filename`	name of the `.xml.state` file to create. Use create_temp_state_filename to create a temporary filename with that extension.
`rng_seed`	the random number generator seed of the BEAST2 run. Must be a non-zero positive integer value or NA. If `rng_seed` is NA, BEAST2 will pick a random seed
`n_threads`	the number of computational threads to use. Use NA to use the BEAST2 default of 1.
`use_beagle`	use BEAGLE if present
`overwrite`	if TRUE: overwrite the `.log` and `.trees` files if one of these exists. If FALSE, BEAST2 will not be started if • the `.log` file exists • the `.trees` files exist • the `.log` file created by BEAST2 exists • the `.trees` files created by BEAST2 exist
`beast2_bin_path`	name of the BEAST2 binary file (usually simply `beast`). Use get_default_beast2_bin_path to get the default BEAST binary file's path
`verbose`	if TRUE, additional information is displayed, that is potentially useful in debugging

Author(s)

Richèl J.C. Bilderbeek

See Also

to create a regular (that is, not intended for model comparison) BEAST2 options structure, use create_beast2_options

Examples

```
create_mcbette_beast2_options()
```

`create_temp_input_filename` *Create a temporary filename for the BEAST2 XML filename*

Description

Create a temporary filename for the BEAST2 XML filename

Usage

```
create_temp_input_filename()
```

`create_temp_state_filename` *Create a temporary file for the BEAST2 XML output file that stores its state.*

Description

Create a temporary file for the BEAST2 XML output file that stores its state.

Usage

```
create_temp_state_filename()
```

`default_params_doc` *This function does nothing. It is intended to inherit is parameters' documentation.*

Description

This function does nothing. It is intended to inherit is parameters' documentation.

Usage

```
default_params_doc(
  beast2_bin_path,
  beast2_folder,
  beast2_internal_filenames,
  beast2_jar_path,
  beast2_options,
  beast2_optionses,
  beast2_path,
  beast2_version,
  beast2_working_dir,
  clock_model,
  clock_models,
  crown_age,
  crown_ages,
  fasta_filename,
  fasta_filenames,
  fixed_crown_age,
  fixed_crown_ages,
  initial_phylogenies,
  input_filename,
  mcmc,
  misc_options,
  n_taxa,
  n_threads,
  os,
  output_filename,
  output_log_filename,
  output_state_filename,
  output_trees_filenames,
  overwrite,
  rename_fun,
  rng_seed,
  sequence_length,
  site_model,
  site_models,
  tree_prior,
  tree_priors,
  use_beagle,
  verbose
)
```

Arguments

beast2_bin_path	name of the BEAST2 binary file (usually simply `beast`). Use get_default_beast2_bin_path to get the default BEAST binary file's path
beast2_folder	the folder where the BEAST2 is installed. Note that this is not the folder

where the BEAST2 executable is installed: the BEAST2 executable is in a subfolder. Use get_default_beast2_folder to get the default BEAST2 folder. Use get_default_beast2_bin_path to get the full path to the default BEAST2 executable.

`beast2_internal_filenames`
: a list of internally used BEAST2 filenames, as created by create_beast2_internal_filenames

`beast2_jar_path`
: name of the BEAST2 jar file (usually has a `.jar` extension). Use get_default_beast2_jar_path to get the default BEAST jar file's path

`beast2_options`
: a set of BEAST2 options, that are the R equivalent of the BEAST2 command-line options, as can be created by create_beast2_options

`beast2_optionses`
: list of one or more `beast2_options` structures, as can be created by create_beast2_options. Use of reduplicated plural to achieve difference with `beast2_options`

`beast2_path`
: name of either a BEAST2 binary file (usually simply `beast`) or a BEAST2 jar file (usually has a `.jar` extension). Use get_default_beast2_bin_path to get the default BEAST binary file's path Use get_default_beast2_jar_path to get the default BEAST jar file's path

`beast2_version`
: the version of BEAST2. By default, this is the version as returned by get_default_beast2_version

`beast2_working_dir`
: a folder where BEAST2 can work in isolation. For each BEAST2 run, a new subfolder is created in that folder. Within this folder, BEAST2 is allowed to create all of its output files, without the risk of overwriting existing ones, allowing BEAST2 to run in multiple parallel processes.

`clock_model`
: a `beautier` clock model

`clock_models`
: a list of one or more `beautier` clock models

`crown_age`
: the crown age of the phylogeny

`crown_ages`
: the crown ages of the phylogenies. Set to NA if the crown age needs to be estimated

`fasta_filename`
: a FASTA filename.

`fasta_filenames`
: One or more FASTA filenames.

`fixed_crown_age`
: determines if the phylogeny's crown age is fixed. If FALSE, crown age is estimated by BEAST2. If TRUE, the crown age is fixed to the crown age of the initial phylogeny.

`fixed_crown_ages`
: one or more booleans to determine if the phylogenies' crown ages are fixed. If FALSE, crown age is estimated by BEAST2. If TRUE, the crown age is fixed to the crown age of the initial phylogeny.

`initial_phylogenies`
: one or more MCMC chain's initial phylogenies. Each one set to NA will result in BEAST2 using a random phylogeny. Else the phylogeny is assumed to be of class `ape::phylo`.

`input_filename` the name of a BEAST2 input XML file. This file usually has an `.xml` extension. Use create_temp_input_filename to create a temporary filename with that extension.

`mcmc` one `beautier` MCMC

`misc_options` one `beautier` misc_options object

`n_taxa` The number of taxa

`n_threads` the number of computational threads to use. Use NA to use the BEAST2 default of 1.

`os` name of the operating system, must be `unix` (Linux, Mac) or `win` (Windows)

`output_filename`
Name of the XML parameter file created by this function. BEAST2 uses this file as input.

`output_log_filename`
name of the .log file to create

`output_state_filename`
name of the `.xml.state` file to create. Use create_temp_state_filename to create a temporary filename with that extension.

`output_trees_filenames`
one or more names for .trees file to create. There will be one .trees file created per alignment in the input file. The number of alignments must equal the number of .trees filenames, else an error is thrown. Alignments are sorted alphabetically by their IDs

`overwrite` if TRUE: overwrite the `.log` and `.trees` files if one of these exists. If FALSE, BEAST2 will not be started if

- the `.log` file exists
- the `.trees` files exist
- the `.log` file created by BEAST2 exists
- the `.trees` files created by BEAST2 exist

`rename_fun` a function to rename a filename, as can be checked by check_rename_fun. This function should have one argument, which will be a filename or NA. The function should return one filename (when passed one filename) or one NA (when passed one NA). Example rename functions are:

- get_remove_dir_fun get a function that removes the directory paths from the filenames, in effect turning these into local files
- get_replace_dir_fun get a function that replaces the directory paths from the filenames
- get_remove_hex_fun get a function that removes the hex string from filenames. For example, `tracelog_82c1a522040.log` becomes `tracelog.log`

`rng_seed` the random number generator seed of the BEAST2 run. Must be a non-zero positive integer value or NA. If `rng_seed` is NA, BEAST2 will pick a random seed

`sequence_length`
a DNA sequence length, in base pairs

`site_model` a `beautier` site model

site_models	one or more beautier site models
tree_prior	a beautier tree prior
tree_priors	one or more beautier tree priors
use_beagle	use BEAGLE if present
verbose	if TRUE, additional information is displayed, that is potentially useful in debugging

Value

Nothing. This is an internal function that does nothing

Note

This is an internal function, so it should be marked with @noRd. This is not done, as this will disallow all functions to find the documentation parameters

Author(s)

Richèl J.C. Bilderbeek

---

do_minimal_run *Do a minimal BEAST2 run*

Description

To achieve this, run_beast2_from_options is called.

Usage

```
do_minimal_run()
```

Value

The text sent to STDOUT and STDERR. It will create the files with name output_state_filename

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_beast2_installed() && is_on_ci()) {

  do_minimal_run()

}
```

get_alignment_ids_from_xml_filename

Get the alignment ID from a file with one alignment

Description

Get the alignment ID from a file with one alignment

Usage

```
get_alignment_ids_from_xml_filename(xml_filename)
```

Arguments

xml_filename	name of a BEAST2 XML input filename

Value

one or more alignment IDs

Author(s)

Richèl J.C. Bilderbeek

Examples

```
# test_output_0
get_alignment_ids_from_xml_filename(get_beastier_path("2_4.xml"))
# c("anthus_aco","anthus_nd2")
get_alignment_ids_from_xml_filename(get_beastier_path("anthus_15_15.xml"))
```

get_beast2_example_filename

Get the full path of a BEAST2 example file

Description

Will stop if the filename is not a BEAST2 example file

Usage

```
get_beast2_example_filename(
  filename,
  beast2_folder = get_default_beast2_folder()
)
```

Arguments

filename	name of the BEAST2 example file. This should exclude the full path; this function exists to add that full path
beast2_folder	the folder where the BEAST2 is installed. Note that this is not the folder where the BEAST2 executable is installed: the BEAST2 executable is in a subfolder. Use get_default_beast2_folder to get the default BEAST2 folder. Use get_default_beast2_bin_path to get the full path to the default BEAST2 executable.

Examples

```
if (is_beast2_installed()) {
  get_beast2_example_filename("testJukesCantor.xml")
}
```

---

get_beast2_example_filenames

Get a list with the full paths of all BEAST2 example filenames

---

Description

Get a list with the full paths of all BEAST2 example filenames

Usage

```
get_beast2_example_filenames(beast2_folder = get_default_beast2_folder())
```

Arguments

beast2_folder	the folder where the BEAST2 is installed. Note that this is not the folder where the BEAST2 executable is installed: the BEAST2 executable is in a subfolder. Use get_default_beast2_folder to get the default BEAST2 folder. Use get_default_beast2_bin_path to get the full path to the default BEAST2 executable.

Value

a list with the full paths of all BEAST2 example filenames

`get_beast2_main_class_name` *Get the BEAST2 main class name.*

Description

One way to fix the error `no main manifest attribute` is to specify the main class name.

Usage

```
get_beast2_main_class_name()
```

`get_beast2_options_filenames` *Extract the filenames from a* `beast2_options`

Description

Extract the filenames from a `beast2_options`

Usage

```
get_beast2_options_filenames(beast2_options)
```

Arguments

`beast2_options`	a set of BEAST2 options, that are the R equivalent of the BEAST2 command-line options, as can be created by create_beast2_options

Author(s)

Richèl J.C. Bilderbeek

Examples

```
beast2_options <- beastier::create_beast2_options()
get_beast2_options_filenames(beast2_options)
```

get_beast2_version *Get the BEAST2 version*

Description

Get the BEAST2 version

Usage

```
get_beast2_version(beast2_path = get_default_beast2_path())
```

Arguments

beast2_path	name of either a BEAST2 binary file (usually simply beast) or a BEAST2 jar file (usually has a .jar extension). Use get_default_beast2_bin_path to get the default BEAST binary file's path Use get_default_beast2_jar_path to get the default BEAST jar file's path

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_beast2_installed() && is_on_ci()) {
  get_beast2_version()
}
```

get_beastier_path *Get the full path of a file in the* inst/extdata *folder*

Description

Get the full path of a file in the inst/extdata folder

Usage

```
get_beastier_path(filename)
```

Arguments

filename	the file's name, without the path

Value

the full path to the filename. Will stop if the file is absent in the inst/extdata folder

Author(s)

Richèl J.C. Bilderbeek

See Also

for more files, use `get_beastier_paths`

Examples

```
get_beastier_path("beast2_example_output.log")
get_beastier_path("beast2_example_output.trees")
get_beastier_path("beast2_example_output.xml")
get_beastier_path("beast2_example_output.xml.state")
```

`get_beastier_paths` *Get the full paths of files in the* `inst/extdata` *folder*

Description

Get the full paths of files in the `inst/extdata` folder

Usage

```
get_beastier_paths(filenames)
```

Arguments

`filenames`	the files' names, without the path

Value

the filenames' full paths. Will `stop` if a file is absent in the `inst/extdata` folder

Author(s)

Richèl J.C. Bilderbeek

See Also

for one file, use `get_beastier_path`

Examples

```
get_beastier_paths(
  c(
    "beast2_example_output.log",
    "beast2_example_output.trees",
    "beast2_example_output.xml",
    "beast2_example_output.xml.state"
  )
)
```

`get_default_beast2_bin_path` *Get the default BEAST2 binary file (*`beast`*, that is) path*

Description

Get the default BEAST2 binary file (`beast`, that is) path

Usage

```
get_default_beast2_bin_path(
  beast2_folder = get_default_beast2_folder(),
  os = rappdirs::app_dir()$os
)
```

Arguments

`beast2_folder`	the folder where the BEAST2 is installed. Note that this is not the folder where the BEAST2 executable is installed: the BEAST2 executable is in a subfolder. Use get_default_beast2_folder to get the default BEAST2 folder. Use get_default_beast2_bin_path to get the full path to the default BEAST2 executable.
`os`	name of the operating system, must be `unix` (Linux, Mac) or `win` (Windows)

Value

the default BEAST2 binary file's path

Author(s)

Richèl J.C. Bilderbeek

See Also

Use get_default_beast2_folder to get the default folder in which BEAST2 is installed. Use install_beast2 with default arguments to install BEAST2 to this location.

Examples

```
if (is_beast2_installed() && rappdirs::app_dir()$os == "unix") {
  testit::assert(
    grepl(
      "beast/bin/beast",
      get_default_beast2_bin_path()
    )
  )
}
```

`get_default_beast2_download_url` *Get the default BEAST2 download URL, which depends on the operating system*

Description

Get the default BEAST2 download URL, which depends on the operating system

Usage

```
get_default_beast2_download_url(
  beast2_version = beastier::get_default_beast2_version(),
  os = rappdirs::app_dir()$os
)
```

Arguments

`beast2_version`	the version of BEAST2. By default, this is the version as returned by get_default_beast2_version
`os`	name of the operating system, must be `unix` (Linux, Mac) or `win` (Windows)

Value

the URL where BEAST2 can be downloaded from

Author(s)

Richèl J.C. Bilderbeek

Examples

```
get_default_beast2_download_url()
```

get_default_beast2_download_url_linux

Get the BEAST2 download URL for Linux

Description

Get the BEAST2 download URL for Linux

Usage

```
get_default_beast2_download_url_linux(
  beast2_version = beastier::get_default_beast2_version()
)
```

Arguments

beast2_version	the version of BEAST2. By default, this is the version as returned by get_default_beast2_version

Value

the URL where BEAST2 can be downloaded from

Author(s)

Richèl J.C. Bilderbeek

get_default_beast2_download_url_win

Get the BEAST2 download URL for Windows

Description

Get the BEAST2 download URL for Windows

Usage

```
get_default_beast2_download_url_win(
  beast2_version = beastier::get_default_beast2_version()
)
```

Arguments

beast2_version	the version of BEAST2. By default, this is the version as returned by get_default_beast2_version

Value

the URL where BEAST2 can be downloaded from

Author(s)

Richèl J.C. Bilderbeek

`get_default_beast2_folder` *Get the path to the folder where this package installs BEAST2 by default*

Description

Get the path to the folder where this package installs BEAST2 by default

Usage

```
get_default_beast2_folder()
```

Value

the path to the folder where this package installs BEAST2 by default

Author(s)

Richèl J.C. Bilderbeek

See Also

Use get_default_beast2_jar_path to get the path to the BEAST2 jar file, when installed by this package Use install_beast2 with default arguments to install BEAST2 to this folder.

Examples

```
print(get_default_beast2_folder())
```

`get_default_beast2_jar_path` *Get the default BEAST2 jar file's path*

Description

Get the default BEAST2 jar file's path

Usage

```
get_default_beast2_jar_path(
  beast2_folder = beastier::get_default_beast2_folder(),
  os = rappdirs::app_dir()$os
)
```

Arguments

`beast2_folder`	the folder where the BEAST2 is installed. Note that this is not the folder where the BEAST2 executable is installed: the BEAST2 executable is in a subfolder. Use get_default_beast2_folder to get the default BEAST2 folder. Use get_default_beast2_bin_path to get the full path to the default BEAST2 executable.
`os`	name of the operating system, must be `unix` (Linux, Mac) or `win` (Windows)

Value

the default BEAST2 jar file's path

Author(s)

Richèl J.C. Bilderbeek

See Also

Use get_default_beast2_folder to get the default folder in which BEAST2 is installed. Use install_beast2 with default arguments to install BEAST2 to this location.

Examples

```
get_default_beast2_jar_path()
```

`get_default_beast2_path`

Get the default BEAST2 path

Description

Get the default BEAST2 path

Usage

```
get_default_beast2_path()
```

Value

the default BEAST2 path

Author(s)

Richèl J.C. Bilderbeek

See Also

Use get_default_beast2_bin_path to get the default path to the BEAST2 binary file. Use get_default_beast2_jar_path to get the default path to the BEAST2 jar file. Use get_default_beast2_folder to get the default folder in which BEAST2 is installed. Use install_beast2 with default arguments to install BEAST2 to this location.

Examples

```
if (is_beast2_installed()) {
  get_default_beast2_path()
}
```

---

get_default_beast2_version

Get the default BEAST2 version that is used by beastier

Description

Get the default BEAST2 version that is used by beastier

Usage

```
get_default_beast2_version()
```

Value

the BEAST2 version

Author(s)

Richèl J.C. Bilderbeek

Examples

```
get_default_beast2_version()
```

get_default_java_path *Obtains the default path to the Java executable*

Description

Obtains the default path to the Java executable

Usage

```
get_default_java_path(os = rappdirs::app_dir()$os)
```

Arguments

os	name of the operating system, must be unix (Linux, Mac) or win (Windows)

Value

the default path to the Java executable

Author(s)

Richèl J.C. Bilderbeek

get_duplicate_param_ids *Find duplicate* RealParameter *IDs*

Description

Find duplicate RealParameter IDs

Usage

```
get_duplicate_param_ids(text)
```

Arguments

text	the XML as text

Value

a vector of duplicate IDs, will be empty if all IDs are unique

Author(s)

Richèl J.C. Bilderbeek

See Also

to see if all IDs are unique, use has_unique_ids

Examples

```
line_1 <- "<parameter id=\"RealParameter.1\" ...</parameter>"
line_2 <- "<parameter id=\"RealParameter.2\" ...</parameter>"
testit::assert(
  length(get_duplicate_param_ids(c(line_1, line_2))) == 0)
testit::assert(
  get_duplicate_param_ids(
  c(line_1, line_1)) == c("RealParameter.1")
)
testit::assert(
  get_duplicate_param_ids(
  c(line_2, line_2)) == c("RealParameter.2")
)
```

---

get_java_version *Get the Java version*

Description

Get the Java version

Usage

```
get_java_version()
```

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_beast2_installed() && is_on_ci()) {
  get_java_version()
}
```

get_trees_filenames *Get the .trees filenames that BEAST2 will produce*

Description

Get the .trees filenames that BEAST2 will produce

Usage

```
get_trees_filenames(input_filename)
```

Arguments

input_filename	the name of a BEAST2 input XML file. This file usually has an .xml extension. Use create_temp_input_filename to create a temporary filename with that extension.

Value

character vector with the names of the .trees files that BEAST2 will produce

Author(s)

Richèl J.C. Bilderbeek

Examples

```
get_trees_filenames(get_beastier_path("2_4.xml"))
get_trees_filenames(get_beastier_path("anthus_2_4.xml"))
```

gives_beast2_warning *Determines if BEAST2 issues a warning when using the BEAST2 XML input file*

Description

Determines if BEAST2 issues a warning when using the BEAST2 XML input file

Usage

```
gives_beast2_warning(
  filename,
  verbose = FALSE,
  beast2_path = get_default_beast2_path()
)
```

Arguments

filename	name of the BEAST2 XML input file
verbose	if TRUE, additional information is displayed, that is potentially useful in debugging
beast2_path	name of either a BEAST2 binary file (usually simply beast) or a BEAST2 jar file (usually has a .jar extension). Use get_default_beast2_bin_path to get the default BEAST binary file's path Use get_default_beast2_jar_path to get the default BEAST jar file's path

Value

TRUE if the file produces a BEAST2 warning, FALSE if not

Author(s)

Richèl J.C. Bilderbeek

See Also

Use is_beast2_input_file to check if a file is a valid BEAST2 input file. Use are_beast2_input_lines to check if the text (for example, as loaded from a file) to be valid BEAST2 input.

Examples

```
if (is_beast2_installed() &&
  is_on_ci() &&
  rappdirs::app_dir()$os == "unix") {

  # This file is OK for BEAST2, no warning, returns FALSE
  gives_beast2_warning(filename = get_beastier_path("2_4.xml"))

  # BEAST2 will give a warning on this file, returns TRUE
  gives_beast2_warning(
    filename = get_beastier_path("beast2_warning.xml")
  )
}
```

---

has_unique_ids *Determine if the XML text has unique parameter IDs*

Description

Determine if the XML text has unique parameter IDs

Usage

```
has_unique_ids(text)
```

Arguments

text	the XML as text

Value

TRUE if all parameter IDs are unique, FALSE otherwise

Author(s)

Richèl J.C. Bilderbeek

See Also

to obtain the duplicate parameter IDs, use get_duplicate_param_ids

Examples

```
line_1 <- "<parameter id=\"RealParameter.1\" ...</parameter>"
line_2 <- "<parameter id=\"RealParameter.2\" ...</parameter>"
# Unique IDs
has_unique_ids(c(line_1, line_2))
# No unique ID
has_unique_ids(c(line_1, line_1))
```

---

install_beast2 *Install BEAST2 Installs BEAST2 of the default version (see get_default_beast2_version), but another version can also be specified*

Description

Install BEAST2 Installs BEAST2 of the default version (see get_default_beast2_version), but another version can also be specified

Usage

```
install_beast2(
  folder_name = rappdirs::user_data_dir(),
  beast2_version = beastier::get_default_beast2_version(),
  verbose = FALSE,
  os = rappdirs::app_dir()$os
)
```

Arguments

folder_name	name of the folder where the BEAST2 files will be put. The name of the BEAST2 binary file will be at [folder_name]/beast/bin/beast The name of the BEAST2 jar file will be at [folder_name]/beast/lib/launcher.jar
beast2_version	the version of BEAST2. By default, this is the version as returned by get_default_beast2_version
verbose	if TRUE, additional information is displayed, that is potentially useful in debugging
os	name of the operating system, must be unix (Linux, Mac) or win (Windows)

Value

Nothing. Will install BEAST2

Author(s)

Richèl J.C. Bilderbeek

Examples

```
## Not run:
  install_beast2()

## End(Not run)
```

---

is_alignment *Determines if the input is an alignment of type DNAbin*

Description

Determines if the input is an alignment of type DNAbin

Usage

```
is_alignment(input)
```

Arguments

input	The input to be tested

Value

TRUE or FALSE

Author(s)

Richèl J.C. Bilderbeek

`is_beast2_input_file` *Is a file a valid BEAST2 input file?*

Description

Is a file a valid BEAST2 input file?

Usage

```
is_beast2_input_file(
  filename,
  show_warnings = FALSE,
  verbose = FALSE,
  beast2_path = get_default_beast2_path()
)
```

Arguments

`filename`	name of the BEAST2 XML input file
`show_warnings`	if TRUE, warnings will shown
`verbose`	if TRUE, additional information is displayed, that is potentially useful in debugging
`beast2_path`	name of either a BEAST2 binary file (usually simply `beast`) or a BEAST2 jar file (usually has a `.jar` extension). Use get_default_beast2_bin_path to get the default BEAST binary file's path Use get_default_beast2_jar_path to get the default BEAST jar file's path

Value

TRUE if the file is valid, FALSE if not

Note

this function only works on standard BEAST2 input files: if a BEAST2 input file is modified to use a certain BEAST2 package, this function will label it as an invalid file

Author(s)

Richèl J.C. Bilderbeek

See Also

Use `are_beast2_input_lines` to check the lines

Examples

```
if (is_beast2_installed() && is_on_ci()) {

  filename <- get_beastier_path("anthus_2_4.xml")
  # TRUE, this is a BEAST2 input file
  is_beast2_input_file(filename)

  filename <- get_beastier_path("beast2_example_output.log")
  # FALSE, this is not a BEAST2 input file,
  # it is a BEAST2 output log file insteaf
  is_beast2_input_file(filename)
}
```

---

is_beast2_installed *Checks if BEAST2 is installed*

Description

Checks if BEAST2 is installed

Usage

```
is_beast2_installed(
  folder_name = get_default_beast2_folder(),
  os = rappdirs::app_dir()$os
)
```

Arguments

folder_name	name of the folder where the BEAST2 files are put. The name of the BEAST2 binary file will be at `[folder_name]/beast/bin/beast` The name of the BEAST2 jar file will be at `[folder_name]/beast/lib/launcher.jar`
os	name of the operating system, must be `unix` (Linux, Mac) or `win` (Windows)

Value

TRUE if BEAST2 is installed

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_beast2_installed()) {
  print("BEAST2 is installed")
}
```

is_bin_path *Is the path a path to the BEAST2 binary file? Does not check if the file at that path is present*

Description

Is the path a path to the BEAST2 binary file? Does not check if the file at that path is present

Usage

```
is_bin_path(path)
```

Arguments

path	a string to a path

Value

TRUE if the path is a path to a BEAST2 binary file

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_beast2_installed()) {
  # TRUE
  is_bin_path("beast")
  is_bin_path("BEAST.exe")
  is_bin_path(get_default_beast2_bin_path())
  # FALSE
  is_bin_path("launcher.jar")
  is_bin_path(get_default_beast2_jar_path())
}
```

is_jar_path *Is the path a path to the BEAST2 jar file? Does not check if the file at that path is present*

Description

Is the path a path to the BEAST2 jar file? Does not check if the file at that path is present

Usage

```
is_jar_path(path)
```

Arguments

path	a string to a path

Value

TRUE if the path is a path to a BEAST2 jar file

Author(s)

Richèl J.C. Bilderbeek

Examples

```
# Returns TRUE
is_jar_path("beast.jar")
is_jar_path("launcher.jar")
is_jar_path(get_default_beast2_jar_path())
# Returns FALSE
is_jar_path("beast")
is_jar_path(get_default_beast2_bin_path())
```

---

is_on_appveyor *Determines if the environment is AppVeyor*

Description

Determines if the environment is AppVeyor

Usage

```
is_on_appveyor()
```

Value

TRUE if run on AppVeyor, FALSE otherwise

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_on_appveyor()) {
  print("Running on AppVeyor")
}
```

is_on_ci *Determines if the environment is a continuous integration service*

Description

Determines if the environment is a continuous integration service

Usage

```
is_on_ci()
```

Value

TRUE if run on AppVeyor or Travis CI, FALSE otherwise

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_on_ci()) {
  print("Running on a continuous integration service")
}
```

is_on_travis *Determines if the environment is Travis CI*

Description

Determines if the environment is Travis CI

Usage

```
is_on_travis()
```

Value

TRUE if run on Travis CI, FALSE otherwise

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_on_travis()) {
  print("Running on Travis CI")
}
```

print_beast2_internal_filenames *Print a* beast2_internal_filenames *as a table*

Description

Print a beast2_internal_filenames as a table

Usage

```
print_beast2_internal_filenames(beast2_internal_filenames)
```

Arguments

beast2_internal_filenames	a list of internally used BEAST2 filenames, as created by create_beast2_internal_filenames

print_beast2_options *Pretty-print a* beast2_options

Description

Pretty-print a beast2_options

Usage

```
print_beast2_options(beast2_options)
```

Arguments

beast2_options	a set of BEAST2 options, that are the R equivalent of the BEAST2 command-line options, as can be created by create_beast2_options

remove_file_if_present

Remove a file if it is present

Description

Remove a file if it is present

Usage

```
remove_file_if_present(filename)
```

Arguments

filename	name of a file

rename_beast2_options_filenames

Rename the filenames in the BEAST2 options

Description

Rename the filenames in the BEAST2 options

Usage

```
rename_beast2_options_filenames(beast2_options, rename_fun)
```

Arguments

beast2_options	a set of BEAST2 options, that are the R equivalent of the BEAST2 command-line options, as can be created by create_beast2_options
rename_fun	a function to rename a filename, as can be checked by check_rename_fun. This function should have one argument, which will be a filename or NA. The function should return one filename (when passed one filename) or one NA (when passed one NA). Example rename functions are: • get_remove_dir_fun get a function that removes the directory paths from the filenames, in effect turning these into local files • get_replace_dir_fun get a function that replaces the directory paths from the filenames • get_remove_hex_fun get a function that removes the hex string from filenames. For example, tracelog_82c1a522040.log becomes tracelog.log

run_beast2 *Run BEAST2*

Description

Run BEAST2

Usage

```
run_beast2(
  input_filename,
  output_log_filename = "output_log_filename_is_deprecated",
  output_trees_filenames = "output_trees_filenames_is_deprecated",
  output_state_filename = create_temp_state_filename(),
  rng_seed = NA,
  n_threads = NA,
  use_beagle = FALSE,
  overwrite = TRUE,
  beast2_working_dir = "beast2_working_dir_is_deprecated",
  beast2_path = get_default_beast2_path(),
  verbose = FALSE
)
```

Arguments

input_filename	the name of a BEAST2 input XML file. This file usually has an .xml extension. Use create_temp_input_filename to create a temporary filename with that extension.
output_log_filename	name of the .log file to create
output_trees_filenames	one or more names for .trees file to create. There will be one .trees file created per alignment in the input file. The number of alignments must equal the number of .trees filenames, else an error is thrown. Alignments are sorted alphabetically by their IDs
output_state_filename	name of the .xml.state file to create. Use create_temp_state_filename to create a temporary filename with that extension.
rng_seed	the random number generator seed of the BEAST2 run. Must be a non-zero positive integer value or NA. If rng_seed is NA, BEAST2 will pick a random seed
n_threads	the number of computational threads to use. Use NA to use the BEAST2 default of 1.
use_beagle	use BEAGLE if present
overwrite	if TRUE: overwrite the .log and .trees files if one of these exists. If FALSE, BEAST2 will not be started if

- the .log file exists
- the .trees files exist
- the .log file created by BEAST2 exists
- the .trees files created by BEAST2 exist

beast2_working_dir
: a folder where BEAST2 can work in isolation. For each BEAST2 run, a new subfolder is created in that folder. Within this folder, BEAST2 is allowed to create all of its output files, without the risk of overwriting existing ones, allowing BEAST2 to run in multiple parallel processes.

beast2_path
: name of either a BEAST2 binary file (usually simply beast) or a BEAST2 jar file (usually has a .jar extension). Use get_default_beast2_bin_path to get the default BEAST binary file's path Use get_default_beast2_jar_path to get the default BEAST jar file's path

verbose
: if TRUE, additional information is displayed, that is potentially useful in debugging

Value

The text sent to STDOUT and STDERR. It will create the file with name output_state_filenames

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_beast2_installed() && is_on_ci()) {

  run_beast2(
    input_filename = get_beastier_path("2_4.xml")
  )
}
```

---

run_beast2_from_options

Run BEAST2

Description

Run BEAST2

Usage

```
run_beast2_from_options(beast2_options = create_beast2_options())
```

Arguments

beast2_options	a set of BEAST2 options, that are the R equivalent of the BEAST2 command-line options, as can be created by create_beast2_options

Author(s)

Richèl J.C. Bilderbeek

Examples

```
if (is_beast2_installed() && is_on_ci()) {
  beast2_options <- create_beast2_options(
    input_filename = get_beastier_path("2_4.xml")
  )
  run_beast2_from_options(beast2_options)
}
```

---

save_lines *Save text (a container of strings) to a file*

Description

Save text (a container of strings) to a file

Usage

```
save_lines(filename, lines)
```

Arguments

filename	filename of the file to have the text written to
lines	lines of text to be written to file

Value

Nothing. Will save the lines to file

Author(s)

Richèl J.C. Bilderbeek

Examples

```
text <- c("hello", "world")
filename <- tempfile(fileext = ".txt")
save_lines(filename = filename, lines = text)
```

save_nexus_as_fasta *Save a NEXUS file as a FASTA file*

Description

Save a NEXUS file as a FASTA file

Usage

```
save_nexus_as_fasta(nexus_filename, fasta_filename)
```

Arguments

nexus_filename	name of an existing NEXUS file
fasta_filename	name of the FASTA file to be created

uninstall_beast2 *Uninstall BEAST2*

Description

Uninstall BEAST2

Usage

```
uninstall_beast2(
  folder_name = rappdirs::user_data_dir(),
  os = rappdirs::app_dir()$os,
  verbose = FALSE
)
```

Arguments

folder_name	name of the folder where the BEAST2 files are installed. The name of the BEAST2 binary file will be at [folder_name]/beast/bin/beast The name of the BEAST2 jar file will be at [folder_name]/beast/lib/launcher.jar
os	name of the operating system, must be unix (Linux, Mac) or win (Windows)
verbose	if TRUE, additional information is displayed, that is potentially useful in debugging

Author(s)

Richèl J.C. Bilderbeek

Examples

```
## Not run:
  uninstall_beast2()

## End(Not run)
```

`update_beastier` *Update all beastier dependencies, by installing their latest versions*

Description

Update all beastier dependencies, by installing their latest versions

Usage

```
update_beastier()
```

Author(s)

Richèl J.C. Bilderbeek

`upgrade_beast2` *Upgrade BEAST2.*

Description

Will stop if BEAST2 is not installed

Usage

```
upgrade_beast2(
  folder_name = rappdirs::user_data_dir(),
  os = rappdirs::app_dir()$os
)
```

Arguments

`folder_name`	name of the folder where the BEAST2 files will be put. The name of the BEAST2 binary file will be at `[folder_name]/beast/bin/beast` The name of the BEAST2 jar file will be at `[folder_name]/beast/lib/launcher.jar`
`os`	name of the operating system, must be `unix` (Linux, Mac) or `win` (Windows)

Author(s)

Richèl J.C. Bilderbeek

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