

Package ‘argparser’

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Type Package

Title Command-Line Argument Parser

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Description Cross-platform command-line argument parser written purely in R with no external dependencies. It is useful with the Rscript front-end and facilitates turning an R script into an executable script.

URL <https://bitbucket.org/djhshih/argparser>

BugReports <https://bitbucket.org/djhshih/argparser/issues>

Depends methods

Suggests testthat (>= 3.0.0)

License GPL (>= 3)

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add.argument	<i>Add an argument to a parser.</i>
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Description

This function is deprecated. Use `add_argument` instead.

Usage

```
add.argument(
    parser,
    arg,
    help,
    default = NULL,
    type = NULL,
    flag = NULL,
    short = NULL
)
```

Arguments

parser	an <code>arg.parser</code> object
arg	argument name (use no prefix for positional arguments, <code>--</code> or <code>-</code> prefix for optional arguments or flags)
help	help description for the argument
default	default value for the argument [default: NA]
type	variable type of the argument (which can be inferred from <code>default</code>), assumed to be character otherwise
flag	whether argument is a flag (and does not consume a value) [default: FALSE]
short	short-form for flags and positional arguments; short-forms can be assigned automatically based on the first character of the argument name, unless a conflict arises with an existing short-form; to avoid conflicts, add the argument as early as possible

Value

an `arg.parser` object with the argument added

add_argument	<i>Add an argument to a parser.</i>
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Description

This function adds an argument to an `arg.parser` object and returns the modified object.

Usage

```
add_argument(
  parser,
  arg,
  help,
  default = NULL,
  type = NULL,
  nargs = NULL,
  flag = NULL,
  short = NULL
)
```

Arguments

<code>parser</code>	an <code>arg.parser</code> object
<code>arg</code>	argument name (use no prefix for positional arguments, <code>--</code> or <code>-</code> prefix for optional arguments or flags)
<code>help</code>	help description for the argument
<code>default</code>	default value for the argument [default: NA]
<code>type</code>	variable type of the argument (which can be inferred from <code>default</code>); assumed to be character otherwise. See details for more information.
<code>nargs</code>	number of argument values (which can be inferred from <code>default</code>); set to <code>Inf</code> for an indefinite number; an optional argument with an indefinite number of values may need to be followed by another optional argument or flag (e.g. <code>--</code>) to separate the indefinite optional argument from possible position arguments
<code>flag</code>	whether argument is a flag (and does not consume a value) [default: FALSE]; during argument parsing, a flag argument is FALSE by default if it is not set
<code>short</code>	short-form for flags and positional arguments; short-forms can be assigned automatically based on the first character of the argument name, unless a conflict arises with an existing short-form; to avoid conflicts, add the argument as early as possible

Details

This function supports multiple arguments in a vector. To ensure that the argument variable type is set correctly, either specify `type` directly or supply `default` argument values as a list. Custom types are supported by defining a new class and a S4 method for `coerce`, see the examples section.

Value

an `arg.parser` object with the argument added

Note

Dashes - that occur in the stem of the argument names (e.g. `-argument-name`) will be converted to underscores `_` (e.g. `argument_name`) in the name of the corresponding variable.

Examples

```
p <- arg_parser("A text file modifying program")

# Add a positional argument
p <- add_argument(p, "input", help="input file")

# Add an optional argument
p <- add_argument(p, "--output", help="output file", default="output.txt")

# Add a flag
p <- add_argument(p, "--append", help="append to file", flag=TRUE)

# Add multiple arguments together
p <- add_argument(p,
  c("ref", "--date", "--sort"),
  help = c("reference file", "date stamp to use", "sort lines"),
  flag = c(FALSE, FALSE, TRUE))

# Print the help message
print(p)

# Example of custom type, using the example from pythons argparse
setClass("perfectSquare")
setMethod("coerce", c(from = "ANY", to = "perfectSquare"),
  function(from, to) {
    from <- as.numeric(from)
    if (!all.equal(from, as.integer(from))) {
      stop("Type error: ", from, " is not an integer!")
    }
    sqrt <- sqrt(from)
    if (sqrt != as.integer(sqrt)) {
      stop("Type error: ", from, " is not a perfect square!")
    }
    from
  }
)

p2 <- arg_parser("Perfect square checker")
p2 <- add_argument(p2, arg = c("--perfect-square"),
  help = "A perfect square integer",
  type = "perfectSquare")

parse_args(p2, c("--perfect-square", 144))
```

arg.parser	<i>Create an argument parser.</i>
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Description

This function is deprecated. Use `arg_parser` instead.

Usage

```
arg.parser(description, name = NULL)
```

Arguments

description	description of the program
name	name of the program

Value

a new `arg.parser` object

argparser	<i>Command-line argument parser</i>
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Description

`argparser` provides functions for parsing command-line arguments.

Details

To use the parser,

1. create an `arg.parser` object with [arg_parser](#);
2. add arguments to the parser with [add_argument](#);
3. call [parse_args](#) to parse the command line arguments.

To execute the script, invoke `Rscript`. Alternatively on Linux, insert a shebang on the first line (`#!/usr/bin/env Rscript`) and `chmod +x` the script,

arg_parser	<i>Create an argument parser.</i>
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Description

This function creates an `arg.parser` object. It infers the program name from the file name of the invoked script.

Usage

```
arg_parser(description, name = NULL, hide.opts = FALSE)
```

Arguments

<code>description</code>	description of the program
<code>name</code>	name of the program
<code>hide.opts</code>	hide the <code>--opts</code> argument

Details

The argument parser will be created by default with two arguments: `--help` and `--opts`. The latter argument can be used for loading a list of argument values that are saved in a RDS file.

Value

a new `arg.parser` object

Examples

```
p <- arg_parser("A test program")
```

include	<i>Include R script file</i>
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Description

Include R script with behaviour similar to C++ `#include "header.h"`, by searching in the directory where the current script file resides.

Usage

```
include(file)
```

Arguments

<code>file</code>	<code>name</code>
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parse.args	<i>Parse arguments with a parser.</i>
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Description

This function is deprecated. Use `parse_args` instead.

Usage

```
parse.args(parser, argv = commandArgs(trailingOnly = TRUE))
```

Arguments

parser	an <code>arg.parser</code> object
argv	a character vector to parse (arguments and values should already be split by whitespace)

Value

a list with argument values

parse_args	<i>Parse arguments with a parser.</i>
------------	---------------------------------------

Description

This function uses an `arg.parser` object to parse command line arguments or a character vector.

Usage

```
parse_args(parser, argv = commandArgs(trailingOnly = TRUE))
```

Arguments

parser	an <code>arg.parser</code> object
argv	a character vector to parse (arguments and values should already be split by whitespace)

Value

a list with argument values

Examples

```

p <- arg_parser('pi')
p <- add_argument(p, "--digits",
  help="number of significant digits to print", default=7)

## Not run:
# If arguments are passed from the command line,
# then we would use the following:
argv <- parse_args(p)

## End(Not run)

# For testing purposes, we can pass a character vector:
argv <- parse_args(p, c("-d", "30"))

# Now, the script runs based on the passed arguments
digits <- if (argv$digits > 22) 22 else argv$digits
print(pi, digits=digits)

## Not run:
# We can also save an argument list for later use
saveRDS(argv, "arguments.rds")

# To use the saved arguments, use the --opts argument at the command line
#$ ./script.R --opts arguments.rds

## End(Not run)

```

```
print.arg.parser      Print the help message for an arg.parser.
```

Description

This function prints the help message.

Usage

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

Arguments

x	an arg.parser object
...	unused arguments

Details

At the command line, we would use the --help or -help flag to print the help message: \$ script --help

show_arg_labels	<i>Extract label and help strings from parser.</i>
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Description

Extract label and help strings from parser.

Usage

```
show_arg_labels(parser)
```

Arguments

parser	arg.parser object
--------	-------------------

Value

a list containing a reg.args, flags, and opt.args list, which each containing a label string and a help string

spaces	<i>Space string.</i>
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Description

Space string.

Usage

```
spaces(n)
```

Arguments

n	number of spaces
---	------------------

Value

a character string containing n spaces

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