

Package ‘RcppSpdlog’

September 10, 2024

Type Package

Title R and C++ Interfaces to 'spdlog' C++ Header Library for Logging

Version 0.0.18

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License GPL (>= 2)

Description The mature and widely-used C++ logging library 'spdlog' by Gabi Melman provides many desirable features. This package bundles these header files for easy use by R packages from both their R and C or C++ code. Explicit use via 'LinkingTo:' is also supported. Also see the 'spd' package which enhanced this package with a consistent R and C++ interface.

URL <https://github.com/eddelbuettel/rcppspdlog>,
<https://dirk.eddelbuettel.com/code/rcpp.spdlog.html>

BugReports <https://github.com/eddelbuettel/rcppspdlog/issues>

LinkingTo Rcpp

Imports Rcpp

Suggests simplrmarkdown

VignetteBuilder simplrmarkdown

RoxygenNote 6.0.1

NeedsCompilation yes

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RcppSpdlog-package *R and C++ Interfaces to 'spdlog' C++ Header Library for Logging*

Description

The mature and widely-used C++ logging library 'spdlog' by Gabi Melman provides many desirable features. This package bundles these header files for easy use by R packages from both their R and C or C++ code. Explicit use via 'LinkingTo:' is also supported. Also see the 'spdl' package which enhanced this package with a consistent R and C++ interface.

Details

The DESCRIPTION file:

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Authors@R:    c(person("Dirk", "Eddelbuettel", role = c("aut", "cre"), email = "edd@debian.org", comment = c(ORCID =
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LinkingTo:    Rcpp
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Maintainer:   Dirk Eddelbuettel <edd@debian.org>
```

Index of help topics:

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get_stopwatch	R Accessor Functions for spdlog Stopwatch

log_setup	R Accessor Functions for spdlog Logger
setLogLevel	spdlog Logging Level Setter

This section should provide a more detailed overview of how to use the package, including the most important functions.

Author(s)

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Maintainer: Dirk Eddelbuettel <edd@debian.org>

exampleRsink

spdlog Example using a sink for R

Description

A simple example invoking a derived R/Rcpp logger. Also demonstrates the stopwatch feature. For more features see the 'spdlog' documentation.

Usage

```
exampleRsink()
```

Details

Note that this no longer triggers R warnings thanks to excellent help by Gabi Melman.

Value

None

Examples

```
exampleRsink()
```

 formatter

Simple Pass-Through Formatter to `fmt::format()`

Description

The C-level interface of R does not make it easy to pass . . . arguments. This helper function assumes it has already been called with `format()` on each argument (as a wrapper can do) so it just spreads out the class to `fmt::format{}` which, being C++, uses variadic templates to receive the arguments. The main motivation for this function is to be able to format strings as used by the ‘`fmtlib::fmt`’ library included in ‘`spdlog`’ to write similar debug strings in both R and C++. This function permits R calls with multiple arguments of different types which (by being formatted on the R side) are handled as strings (whereas C++ logging has access to the templating logic).

Usage

```
formatter(s, v)
```

Arguments

`s` A character variable with a format string for ‘`fmtlib::fmt`’
`v` A character vector with the logging string arguments.

Value

A single (formatted) string

See Also

<https://github.com/fmtlib/fmt>

 get_stopwatch

R Accessor Functions for `spdlog` Stopwatch

Description

A set of functions provides access to the `spdlog` stopwatch facility. As `stopwatch` object is a simple container around a C++ `std::chrono` object which (essentially) reports elapsed-time since creation. The object is exported to R via an external pointer permitting use from both R and C++.

Usage

```
get_stopwatch()

elapsed_stopwatch(sw)

format_stopwatch(sw)

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

## S3 method for class 'stopwatch'
format(x, ...)
```

Arguments

<code>sw</code>	An S3 object of type stopwatch.
<code>x</code>	An S3 object of type stopwatch.
<code>...</code>	Dotted argument required by generic, unused here.

Details

Several functions are provided:

`get_stopwatch` Returns a stopwatch object (as an S3 object).
`elapsed_stopwatch` Returns elapsed time for stopwatch in seconds.
`format_stopwatch` Returns elapsed time for stopwatch as character variable.

The stopwatch object has `print` and `format` methods.

Value

The desired object is returned: respectively, a stopwatch object as an external pointer in an S3 class, the elapsed time in seconds as a double, or formatted as a character variable.

Examples

```
w <- get_stopwatch()
Sys.sleep(0.2)
elapsed_stopwatch(w)
format_stopwatch(w)
```

`log_setup`*R Accessor Functions for spdlog Logger*

Description

Several R-level functions can access the spdlog logging facilities. As spdlog is a C++-level logging library, these are R function permit concurrent logging from both R and C++.

Usage

```
log_setup(name = "default", level = "warn")  
  
log_init(level = "warn")  
  
log_filesetup(filename, name = "default", level = "warn")  
  
log_drop(name)  
  
log_set_pattern(s)  
  
log_set_level(s)  
  
log_trace(s)  
  
log_debug(s)  
  
log_info(s)  
  
log_warn(s)  
  
log_error(s)  
  
log_critical(s)
```

Arguments

<code>name</code>	A character variable with the logging instance name, default value is ‘default’.
<code>level</code>	A character variable with the default logging level, default value is ‘warn’.
<code>filename</code>	A character variable with the logging filename if a file-based logger is instantiated.
<code>s</code>	A character variable with the logging pattern, level or message.

Details

Several functions are provided:

`log_setup` Initializes a logger (which becomes the default logger).

`log_filesetup` Initializes a file-based logger (which becomes the default).
`log_drop` Removes logger (which in general should not be needed).
`log_set_pattern` Changes the default logging message pattern.
`log_set_level` Sets the logging level threshold.
`log_trace` Logs a trace-level message.
`log_debug` Logs a debug-level message.
`log_info` Logs a info-level message.
`log_warn` Logs a warn-level message.
`log_error` Logs a error-level message.
`log_critical` Logs a critical-level message.

Supported logging levels are, in order of increasing threshold values, 'trace', 'debug', 'warn', 'info', 'warn', 'error', and 'critical'. A message issued below the current threshold is not displayed whereas a message at or above the current threshold is displayed. The default level is 'warn'.

Value

Nothing is returned from these functions as they are invoked for their side-effects.

See Also

The logging pattern format is described in at the repo in the page <https://github.com/gabime/spdlog/wiki/3.-Custom-formatting>.

Examples

```
log_setup("demo") # at default level 'warn'  
log_info("this message is NOT seen")  
log_set_level("debug")  
log_info("this message is seen")  
log_warn("as is this message")
```

setLogLevel

spdlog Logging Lever Setter

Description

A helper function to turn a logging level given as string into the current logging level

Usage

```
setLogLevel(name)
```

Arguments

name A string with the logging level. Value understood are, in decreasing verbosity 'trace', 'debug', 'info', 'warning', 'error', 'critical', and 'off'. Unrecognised names are equivalent to 'off'.

Value

Nothing is returned.

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