Package ‘logger’
March 4, 2021

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Description Inspired by the the ‘futile.logger’ R package and ‘logging’ Python module, this utility provides a flexible and extensible way of formatting and delivering log messages with low overhead.
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R topics documented:

appender_async ........................................... 3
appender_console ........................................... 4
appender_file . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 5
appender_kinesis . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 6
appender_pushbullet . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 7
appender_slack . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 8
appender_stdout . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 9
appender_syslog . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 9
appender_syslognet . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 10
appender_tee . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 11
appender_telegram . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 11
colorize_by_log_level . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 12
deparse_to_one_line . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 13
fail_on_missing_package . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 13
FATAL . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 14
formatter_glue . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 15
formatter_glue_or_sprintf . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 16
formatter_json . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 17
formatter_logging . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 18
formatter_pander . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 19
formatter_paste . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 20
formatter_sprintf . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 21
get_logger_meta_variables . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 22
grayscale_by_log_level . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 24
layout_blank . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 24
layout_glue . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 25
layout_glue_colors . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 26
layout_glue_generator . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 28
layout_json . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 29
layout_json_parser . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 30
layout_logging . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 31
layout_simple . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 32
layout_syslognet . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 33
logger . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 34
log_appender . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 35
log_errors . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 36
log_eval . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 36
log_failure . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 37
log_formatter . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 38
log_layout . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 38
log_level . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 39
log_messages . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 40
log_namespaces . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 41
log_separator . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 41
log_shiny_input_changes . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 42
log_threshold . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 43
log_tictoc . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 44
log_warnings . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 44
log_with_separator . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 45
skip_formatter . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 46
**Description**

Delays executing the actual appender function to the future in a background process to avoid blocking the main R session

**Usage**

```r
appender_async(  
  appender,  
  batch = 1,  
  namespace = "async_logger",  
  init = function() log_info("Background process started")
)
```

**Arguments**

- `appender`: a `log_appender` function with a generator attribute (TODO note not required, all fn will be passed if not)
- `batch`: number of records to process from the queue at once
- `namespace`: logger namespace to use for logging messages on starting up the background process
- `init`: optional function to run in the background process that is useful to set up the environment required for logging, eg if the appender function requires some extra packages to be loaded or some environment variables to be set etc

**Value**

function taking `lines` argument

**Note**

This functionality depends on the `txtq` and `callr` packages. The R session’s temp folder is used for staging files (message queue and other forms of communication between the parent and child processes).

**See Also**

This function is to be used with an actual `log_appender`, for example `appender_console`, `appender_file`, `appender_tee`, `appender_pushbullet`, `appender_telegram`, `appender_syslog` or `appender_kinesis`. 

---

**appender_async**

- Delays executing the actual appender function to the future in a background process to avoid blocking the main R session.
Examples

```r
## Not run:
appender_file_slow <- function(file) {
  force(file)
  function(lines) {
    Sys.sleep(1)
    cat(lines, sep = '\n', file = file, append = TRUE)
  }
}

## log what's happening in the background
log_threshold(TRACE, namespace = 'async_logger')
log_appender(appender_console, namespace = 'async_logger')

## start async appender
t <- tempfile()
log_info('Logging in the background to {t}''
my_appender <- appender_async(appender_file_slow(file = t))

## use async appender
log_appender(my_appender)
log_info('Was this slow?')
system.time(for (i in 1:25) log_info(i))
readLines(t)
Sys.sleep(10)
readLines(t)

## check on the async appender (debugging, you will probably never need this)
attr(my_appender, 'async_writer_queue'$count()
attr(my_appender, 'async_writer_queue'$log()
attr(my_appender, 'async_writer_process'$get_pid()
attr(my_appender, 'async_writer_process'$get_state()
attr(my_appender, 'async_writer_process'$poll_process()
attr(my_appender, 'async_writer_process'$read()
attr(my_appender, 'async_writer_process'$is_alive()
attr(my_appender, 'async_writer_process'$read_error()

## End(Not run)
```
appender_file

Usage

appender_console(lines)

appender_stderr(lines)

Arguments

lines character vector

See Also

This is a log_appender, for alternatives, see eg appender_stdout, appender_file, appender_tee, appender_slack, appender_pushbullet, appender_telegram, appender_syslog, appender_kinesis and appender_async for evaluate any log_appender function in a background process.

Description

Log messages are written to a file with basic log rotation: when max number of lines or bytes is defined to be other than Inf, then the log file is renamed with a .1 suffix and a new log file is created. The renaming happens recursively (eg logfile.1 renamed to logfile.2) until the specified max_files, then the oldest file (logfile.(max_files-1)) is deleted.

Usage

appender_file(
  file,
  append = TRUE,
  max_lines = Inf,
  max_bytes = Inf,
  max_files = 1L
)

Arguments

file path
append boolean passed to cat defining if the file should be overwritten with the most recent log message instead of appending
max_lines numeric specifying the maximum number of lines allowed in a file before rotating
max_bytes numeric specifying the maximum number of bytes allowed in a file before rotating
max_files integer specifying the maximum number of files to be used in rotation
Value

function taking lines argument

See Also

This is generator function for log_appender, for alternatives, see eg appender_console, appender_tee, appender_slack, appender_pushbullet, appender_telegram, appender_syslog, appender_kinesis and appender_async for evaluate any log_appender function in a background process.

Examples

```r
## Not run:
## ##########################################################################
## simple example logging to a file
## t <- tempfile()
log_appender(appender_file(t))
for (i in 1:25) log_info(i)
readLines(t)

## ##########################################################################
## more complex example of logging to file
## rotated after every 3rd line up to max 5 files

## create a folder storing the log files
## f <- file.path(t, '/quotesingle.Var log/quotesingle.Var')
## define the file logger with log rotation enabled
log_appender(appender_file(f, max_lines = 3, max_files = 5L))

## log 25 messages
for (i in 1:25) log_info(i)

## see what was logged
lapply(list.files(t, full.names = TRUE), function(t) {
  cat(cat(readLines(t), sep = '\n')
})

## enable internal logging to see what's actually happening in the logrotate steps
log_threshold(TRACE, namespace = '.logger')
## run the above commands again

## End(Not run)
```

appender_kinesis  
Send log messages to a Amazon Kinesis stream
**appender_pushbullet**

**Description**
Send log messages to Pushbullet

**Usage**
`appender_pushbullet(...)`

**Arguments**
`...` parameters passed to pbPost, such as recipients or apikey, although it's probably much better to set all these in the ~/.rpushbullet.json as per package docs at http://dirk.eddelbuettel.com/code/rpushbullet.html

**Note**
This functionality depends on the RPushbullet package.
See Also

This is generator function for `log_appender`, for alternatives, see eg `appender_console`, `appender_file`, `appender_tee`, `appender_slack`, `appender_telegram`, `appender_syslog`, `appender_kinesis` and `appender_async` for evaluate any `log_appender` function in a background process.

---

**appender_slack**

Send log messages to a Slack channel

Description

Send log messages to a Slack channel

Usage

```r
appender_slack(
    channel = Sys.getenv("SLACK_CHANNEL"),
    username = Sys.getenv("SLACK_USERNAME"),
    icon_emoji = Sys.getenv("SLACK_ICON_EMOJI"),
    api_token = Sys.getenv("SLACK_API_TOKEN"),
    preformatted = TRUE
)
```

Arguments

- **channel**: Slack channel name with a hashtag prefix for public channel and no prefix for private channels
- **username**: Slack (bot) username
- **icon_emoji**: optional override for the bot icon
- **api_token**: Slack API token
- **preformatted**: use code tags around the message?

Value

function taking lines argument

Note

This functionality depends on the `slackr` package.

See Also

This is generator function for `log_appender`, for alternatives, see eg `appender_console`, `appender_file`, `appender_tee`, `appender_pushbullet`, `appender_telegram`, `appender_syslog`, `appender_kinesis` and `appender_async` for evaluate any `log_appender` function in a background process.
**appender_stdout**  
*Append log record to stdout*

**Description**  
Append log record to stdout

**Usage**  
```r
appender_stdout(lines)
```

**Arguments**  
- `lines` character vector

**See Also**  
This is a log_appender, for alternatives, see eg `appender_console`, `appender_file`, `appender_tee`, `appender_slack`, `appender_pushbullet`

---

**appender_syslog**  
*Send log messages to the POSIX system log*

**Description**  
Send log messages to the POSIX system log

**Usage**  
```r
appender_syslog(identifier, ...)
```

**Arguments**  
- `identifier` A string identifying the process.
- `...` Further arguments passed on to open_syslog.

**Value**  
function taking lines argument

**Note**  
This functionality depends on the rsyslog package.
See Also

This is generator function for `log_appender`, for alternatives, see eg `appender_console`, `appender_file`, `appender_tee`, `appender_pushbullet`, `appender_telegram`, `appender_kinesis` and `appender_async` for evaluate any `log_appender` function in a background process.

Examples

```
## Not run:
if (requireNamespace("rsyslog", quietly = TRUE)) {
  log_appender(appender_syslog("test"))
  log_info("Test message.")
}
## End(Not run)
```

---

**appender_syslognet**

Send log messages to a network syslog server

**Description**

Send log messages to a network syslog server

**Usage**

```
appender_syslognet(identifier, server, port = 601L)
```

**Arguments**

- `identifier`: program/function identification (string).
- `server`: machine where syslog daemon runs (string).
- `port`: port where syslog daemon listens (integer).

**Value**

A function taking a `lines` argument.

**Note**

This functionality depends on the `syslognet` package.

**Examples**

```
## Not run:
if (requireNamespace("syslognet", quietly = TRUE)) {
  log_appender(appender_syslognet("test_app", "remoteserver"))
  log_info("Test message.")
}
## End(Not run)
```
appender_tee

Appender log messages to a file and stdout as well

Description

Append log messages to a file and stdout as well

Usage

appender_tee(file, append = TRUE)

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>file</td>
<td>path</td>
</tr>
<tr>
<td>append</td>
<td>boolean passed to <code>cat</code> defining if the file should be overwritten with the most recent log message instead of appending</td>
</tr>
</tbody>
</table>

Value

function taking `lines` argument

See Also

This is generator function for `log_appender`, for alternatives, see eg `appender_console`, `appender_file`, `appender_slack`, `appender_pushbullet`, `appender_telegram`, `appender_syslog`, `appender_kinesis` and `appender_async` for evaluate any `log_appender` function in a background process.

appender_telegram

Send log messages to a Telegram chat

Description

Send log messages to a Telegram chat

Usage

appender_telegram(
    chat_id = Sys.getenv("TELEGRAM_CHAT_ID"),
    bot_token = Sys.getenv("TELEGRAM_BOT_TOKEN"),
    parse_mode = NULL
)
Arguments

chat_id  Unique identifier for the target chat or username of the target channel (in the format @channelusername)

bot_token  Telegram Authorization token

parse_mode  Message parse mode. Allowed values: Markdown or HTML

Value

function taking lines argument

Note

This functionality depends on the telegram package.

See Also

This is generator function for log_appender, for alternatives, see eg appender_console, appender_file, appender_tee, appender_pushbullet, appender_syslog, appender_kinesis and appender_async for evaluate any log_appender function in a background process.

colorize_by_log_level  Colorize string by the related log level

Description

Adding color to a string to be used in terminal output. Supports ANSI standard colors 8 or 256.

Usage

colorize_by_log_level(msg, level)

Arguments

msg  string

level  see log_levels

Value

string with ANSI escape code
Examples

```r
## Not run:
cat(colorize_by_log_level(FATAL, 'foobar'), '\n')
cat(colorize_by_log_level(ERROR, 'foobar'), '\n')
cat(colorize_by_log_level(WARN, 'foobar'), '\n')
cat(colorize_by_log_level(SUCCESS, 'foobar'), '\n')
cat(colorize_by_log_level(INFO, 'foobar'), '\n')
cat(colorize_by_log_level(DEBUG, 'foobar'), '\n')
cat(colorize_by_log_level(TRACE, 'foobar'), '\n')

## End(Not run)
```

---

**deparse_to_one_line**  
*Deparse and join all lines into a single line*

**Description**

Calling `deparse` and joining all the returned lines into a single line, separated by whitespace, and then cleaning up all the duplicated whitespace (except for excessive whitespace in strings between single or double quotes).

**Usage**

```r
deparse_to_one_line(x)
```

**Arguments**

- `x` object to deparse

**Value**

string

---

**fail_on_missing_package**  
*Check if R package can be loaded and fails loudly otherwise*

**Description**

Check if R package can be loaded and fails loudly otherwise

**Usage**

```r
defail_on_missing_package(pkg)
```
Arguments
pkg  string

Examples

```r
## Not run:
f <- function() fail_on_missing_package('foobar')
f()
g <- function() fail_on_missing_package('stats')
g()
## End(Not run)
```

---

FATAL  Log levels

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FATAL</td>
<td>severe error that will prevent the application from continuing</td>
</tr>
<tr>
<td>ERROR</td>
<td>An error in the application, possibly recoverable</td>
</tr>
</tbody>
</table>

Description

The standard Apache log4j log levels plus a custom level for SUCCESS. For the full list of these log levels and suggested usage, check the below Details.

Usage

- TRACE
- DEBUG
- INFO
- SUCCESS
- WARN
- ERROR
- FATAL

Format

An object of class loglevel (inherits from integer) of length 1.

Details

List of supported log levels:

1. FATAL severe error that will prevent the application from continuing
2. ERROR An error in the application, possibly recoverable
3. **WARN** An event that might possible lead to an error
4. **SUCCESS** An explicit success event above the INFO level that you want to log
5. **INFO** An event for informational purposes
6. **DEBUG** A general debugging event
7. **TRACE** A fine-grained debug message, typically capturing the flow through the application.

### References

- https://logging.apache.org/log4j/2.0/log4j-api/apidocs/org/apache/logging/log4j/Level.html

---

**formatter_glue**

*Apply glue to convert R objects into a character vector*

---

**Description**

Apply glue to convert R objects into a character vector

**Usage**

```r
formatter_glue(
  ..., 
  .logcall = sys.call(),
  .topcall = sys.call(-1),
  .topenv = parent.frame()
)
```

**Arguments**

- `...`: passed to glue for the text interpolation
- `.logcall`: the logging call being evaluated (useful in formatters and layouts when you want to have access to the raw, unevaluated R expression)
- `.topcall`: R expression from which the logging function was called (useful in formatters and layouts to extract the calling function’s name or arguments)
- `.topenv`: original frame of the .topcall calling function where the formatter function will be evaluated and that is used to look up the namespace as well via `logger:::top_env_name`

**Value**

character vector

**Note**

Although this is the default log message formatter function, but when `glue` is not installed, `formatter_sprintf` will be used as a fallback.
formatter_glue_or_sprintf

Description

The best of both words: using both formatter functions in your log messages, which can be useful eg if you are migrating from sprintf formatted log messages to glue or similar.

Usage

```r
formatter_glue_or_sprintf(
  msg,
  ...,  
  .logcall = sys.call(),
  .topcall = sys.call(-1),
  .topenv = parent.frame()
)
```

Arguments

- `msg` passed to sprintf as fmt or handled as part of ... in glue
- `...` passed to glue for the text interpolation
- `.logcall` the logging call being evaluated (useful in formatters and layouts when you want to have access to the raw, unevaluated R expression)
- `.topcall` R expression from which the logging function was called (useful in formatters and layouts to extract the calling function’s name or arguments)
- `.topenv` original frame of the .topcall calling function where the formatter function will be evaluated and that is used to look up the namespace as well via `logger::top_env_name`

Details

Note that this function tries to be smart when passing arguments to glue and sprintf, but might fail with some edge cases, and returns an unformatted string.

Value

character vector
formatter_json

Transforms all passed R objects into a JSON list

Description

Transforms all passed R objects into a JSON list

Usage

formatter_json(
  ...,
  .logcall = sys.call(),
  .topcall = sys.call(-1),
  .topenv = parent.frame()
)

Arguments

... passed to toJSON wrapped into a list
.logcall the logging call being evaluated (useful in formatters and layouts when you want
to have access to the raw, unevaluated R expression)
.topcall R expression from which the logging function was called (useful in formatters
and layouts to extract the calling function’s name or arguments)
.topenv original frame of the .topcall calling function where the formatter function
will be evaluated and that is used to look up the namespace as well via logger:::top_env_name

See Also

This is a log_formatter, for alternatives, see formatter_paste, formatter_sprintf, formatter_glue_or_sprintf,
formatter_logging, formatter_json, formatter_pander and skip_formatter for marking a
string not to apply the formatter on it.

Examples

## Not run:
formatter_glue_or_sprintf("{a} + {b} = %s", a = 2, b = 3, 5)
formatter_glue_or_sprintf("{pi} * {2} = %s", pi*2)
formatter_glue_or_sprintf("{pi} * {2} = (pi*2)")

formatter_glue_or_sprintf("Hi ", "c('foo', 'bar')), did you know that 2*4=(2*4)")
formatter_glue_or_sprintf("Hi {c('foo', 'bar')), did you know that 2*4=(2*4)")
formatter_glue_or_sprintf("Hi {c('foo', 'bar')), did you know that 2*4=(2*4)"", c('foo', 'bar'))
formatter_glue_or_sprintf("Hi %s, did you know that 2*4=%s", c('foo', 'bar'), 2*4)

## End(Not run)
formatter_logging

Value

character vector

Note

This functionality depends on the jsonlite package.

See Also

This is a log_formatter potentially to be used with layout_json_parser, for alternatives, see formatter_paste, formatter_sprintf, formatter_glue, formatter_glue_or_sprintf, formatter_logging, formatter_pander and skip_formatter for marking a string not to apply the formatter on it.

Examples

```r
## Not run:
log_formatter(formatter_json())
log_layout(layout_json_parser())
log_info(everything = 42)
log_info(mtcars = mtcars, species = iris$Species)

## End(Not run)
```

formatter_logging  
Mimic the default formatter used in the logging package

Description

The logging package uses a formatter that behaves differently when the input is a string or other R object. If the first argument is a string, then sprintf is being called – otherwise it does something like log_eval and logs the R expression(s) and the result(s) as well.

Usage

```r
formatter_logging(
  ..., .logcall = sys.call(),
  .topcall = sys.call(-1),
  .topenv = parent.frame()
)
```

Arguments

```r
... string and further params passed to sprintf or R expressions to be evaluated
.logcall the logging call being evaluated (useful in formatters and layouts when you want to have access to the raw, unevaluated R expression)
```
formatter_pander

.topcall  R expression from which the logging function was called (useful in formatters and layouts to extract the calling function’s name or arguments)
.topenv   original frame of the .topcall calling function where the formatter function will be evaluated and that is used to look up the namespace as well via logger:::top_env_name

Value

character vector

See Also

This is a log_formatter, for alternatives, see formatter_paste, formatter_glue, formatter_glue_or_sprintf, formatter_json, formatter_pander and skip_formatter for marking a string not to apply the formatter on it.

Examples

```r
## Not run:
log_formatter(formatter_logging)
log_info(42)
log_info(4+2)
log_info('foo %s', 'bar')
log_info('vector %s', 1:3)
log_info(12, 1+1, 2 * 2)
## End(Not run)
```

formatter_pander

Formats R objects with pander

Description

Formats R objects with pander

Usage

```r
formatter_pander(
  x, 
  ..., 
  .logcall = sys.call(),
  .topcall = sys.call(-1),
  .topenv = parent.frame()
)
```
Arguments

- **x**: object to be logged
- **...**: optional parameters passed to `pander`
- **.logcall**: the logging call being evaluated (useful in formatters and layouts when you want to have access to the raw, unevaluated R expression)
- **.topcall**: R expression from which the logging function was called (useful in formatters and layouts to extract the calling function’s name or arguments)
- **.topenv**: original frame of the `.topcall` calling function where the formatter function will be evaluated and that is used to look up the namespace as well via `logger:::top_env_name`

Value

character vector

Note

This functionality depends on the `pander` package.

See Also

This is a `log_formatter`, for alternatives, see `formatter_paste`, `formatter_sprintf`, `formatter_glue`, `formatter_glue_or_sprintf`, `formatter_logging`

Examples

```r
## Not run:
log_formatter(formatter_pander)
log_info('42')
log_info(42)
log_info(4+2)
log_info(head(iris))
log_info(head(iris), style = 'simple')
log_info(lm(hp ~ wt, mtcars))

## End(Not run)
```

---

**formatter_paste**

*Concatenate R objects into a character vector via `paste`*

**Description**

Concatenate R objects into a character vector via `paste`
formatter_sprintf

Usage

```r
formatter_paste(
  ..., 
  .logcall = sys.call(), 
  .topcall = sys.call(-1), 
  .topenv = parent.frame()
)
```

Arguments

- `...`: passed to `paste`
- `.logcall`: the logging call being evaluated (useful in formatters and layouts when you want to have access to the raw, unevaluated R expression)
- `.topcall`: R expression from which the logging function was called (useful in formatters and layouts to extract the calling function's name or arguments)
- `.topenv`: original frame of the `.topcall` calling function where the formatter function will be evaluated and that is used to look up the namespace as well via `logger:::top_env_name`

Value

character vector

See Also

This is a `log_formatter`, for alternatives, see `formatter_sprintf`, `formatter_glue`, `formatter_glue_or_sprintf`, `formatter_logging`, `formatter_json`, `formatter_pander` and `skip_formatter` for marking a string not to apply the formatter on it.

---

**formatter_sprintf**  
*Apply sprintf to convert R objects into a character vector*

Description

Apply `sprintf` to convert R objects into a character vector

Usage

```r
formatter_sprintf(
  fmt,
  ..., 
  .logcall = sys.call(), 
  .topcall = sys.call(-1), 
  .topenv = parent.frame()
)
```
get_logger_meta_variables

Arguments

- **fmt** passed to `sprintf`
- **...** passed to `sprintf`
- **.logcall** the logging call being evaluated (useful in formatters and layouts when you want to have access to the raw, unevaluated R expression)
- **.topcall** R expression from which the logging function was called (useful in formatters and layouts to extract the calling function’s name or arguments)
- **.topenv** original frame of the `.topcall` calling function where the formatter function will be evaluated and that is used to look up the namespace as well via `logger:::top_env_name`

Value

character vector

See Also

This is a `log_formatter`, for alternatives, see `formatter_paste`, `formatter_glue`, `formatter_glue_or_sprintf`, `formatter_logging`, `formatter_json`, `formatter_pander` and `skip_formatter` for marking a string not to apply the formatter on it.

Description

Available variables to be used in the log formatter functions, eg in `layout_glue_generator`:

- **levelr**: log level as an R object, eg `INFO`
- **level**: log level as a string, eg `INFO`
- **time**: current time as `POSIXct`
- **node**: name by which the machine is known on the network as reported by `Sys.info`
- **arch**: machine type, typically the CPU architecture
- **os_name**: Operating System’s name
- **os_release**: Operating System’s release
- **os_version**: Operating System’s version
- **user**: name of the real user id as reported by `Sys.info`
- **pid**: the process identification number of the R session
- **node**: name by which the machine is known on the network as reported by `Sys.info`
- **r_version**: R’s major and minor version as a string
• ns: namespace usually defaults to global or the name of the holding R package of the calling the logging function
• ns_pkg_version: the version of ns when it’s a package
• ans: same as ns if there’s a defined logger for the namespace, otherwise a fallback namespace (eg usually global)
• topenv: the name of the top environment from which the parent call was called (eg R package name or GlobalEnv)
• call: parent call (if any) calling the logging function
• fn: function’s (if any) name calling the logging function

Usage

get_logger_meta_variables(
  log_level = NULL,
  namespace = NA_character_,
  .logcall = sys.call(),
  .topcall = sys.call(-1),
  .topenv = parent.frame()
)

Arguments

log_level log level as per log_levels
namespace string referring to the logger environment / config to be used to override the target of the message record to be used instead of the default namespace, which is defined by the R package name from which the logger was called, and falls back to a common, global namespace.
.logcall the logging call being evaluated (useful in formatters and layouts when you want to have access to the raw, unevaluated R expression)
.topcall R expression from which the logging function was called (useful in formatters and layouts to extract the calling function’s name or arguments)
.topenv original frame of the .topcall calling function where the formatter function will be evaluated and that is used to look up the namespace as well via logger:::top_env_name

Value

list

See Also

layout_glue_generator
grayscale_by_log_level

Render a string with light/dark gray based on the related log level

Description

Adding color to a string to be used in terminal output. Supports ANSI standard colors 8 or 256.

Usage

grayscale_by_log_level(msg, level)

Arguments

msg string
level see log_levels

Value

string with ANSI escape code

Examples

## Not run:
cat(grayscale_by_log_level(FATAL, 'foobar'), '\n')
cat(grayscale_by_log_level(ERROR, 'foobar'), '\n')
cat(grayscale_by_log_level(WARN, 'foobar'), '\n')
cat(grayscale_by_log_level(SUCCESS, 'foobar'), '\n')
cat(grayscale_by_log_level(INFO, 'foobar'), '\n')
cat(grayscale_by_log_level(DEBUG, 'foobar'), '\n')
cat(grayscale_by_log_level(TRACE, 'foobar'), '\n')

## End(Not run)

layout_blank

Format a log record by including the raw message without anything added or modified

Description

Format a log record by including the raw message without anything added or modified
Usage

```r
layout_blank(
  level,
  msg,
  namespace = NA_character_,
  .logcall = sys.call(),
  .topcall = sys.call(-1),
  .topenv = parent.frame()
)
```

Arguments

- `level`: log level, see `log_levels` for more details
- `msg`: string message
- `namespace`: string referring to the logger environment/config to be used to override the target of the message record to be used instead of the default namespace, which is defined by the R package name from which the logger was called, and falls back to a common, global namespace.
- `.logcall`: the logging call being evaluated (useful in formatters and layouts when you want to have access to the raw, unevaluated R expression)
- `.topcall`: R expression from which the logging function was called (useful in formatters and layouts to extract the calling function’s name or arguments)
- `.topenv`: original frame of the `.topcall` calling function where the formatter function will be evaluated and that is used to look up the namespace as well via `logger:::top_env_name`

Value

character vector

See Also

This is a `log_layout`, for alternatives, see `layout_simple`, `layout_glue_colors`, `layout_json`, or generator functions such as `layout_glue_generator`

---

**layout_glue**

*Format a log message with glue*

Description

By default, this layout includes the log level of the log record as per `log_levels`, the current timestamp and the actual log message – that you can override via calling `layout_glue_generator` directly. For colorized output, see `layout_glue_colors`.
Usage

```r
layout_glue(
  level,
  msg,
  namespace = NA_character_,
  .logcall = sys.call(),
  .topcall = sys.call(-1),
  .topenv = parent.frame()
)
```

Arguments

- `level` - log level, see `log_levels` for more details
- `msg` - string message
- `namespace` - string referring to the logger environment / config to be used to override the target of the message record to be used instead of the default namespace, which is defined by the R package name from which the logger was called, and falls back to a common, global namespace.
- `.logcall` - the logging call being evaluated (useful in formatters and layouts when you want to have access to the raw, unevaluated R expression)
- `.topcall` - R expression from which the logging function was called (useful in formatters and layouts to extract the calling function’s name or arguments)
- `.topenv` - original frame of the `.topcall` calling function where the formatter function will be evaluated and that is used to look up the namespace as well via `logger:::top_env_name`

Value

character vector

See Also

This is a `log_layout`, for alternatives, see `layout_blank`, `layout_simple`, `layout_glue_colors`, `layout_json`, `layout_json_parser`, or generator functions such as `layout_glue_generator`

---

**layout_glue_colors**

Format a log message with glue and ANSI escape codes to add colors

Description

Format a log message with glue and ANSI escape codes to add colors
layout_glue_colors

Usage

```r
layout_glue_colors(
  level,
  msg,
  namespace = NA_character_,
  .logcall = sys.call(),
  .topcall = sys.call(-1),
  .topenv = parent.frame()
)
```

Arguments

- `level`: log level, see `log_levels` for more details
- `msg`: string message
- `namespace`: string referring to the logger environment / config to be used to override the target of the message record to be used instead of the default namespace, which is defined by the R package name from which the logger was called, and falls back to a common, global namespace.
- `.logcall`: the logging call being evaluated (useful in formatters and layouts when you want to have access to the raw, unevaluated R expression)
- `.topcall`: R expression from which the logging function was called (useful in formatters and layouts to extract the calling function’s name or arguments)
- `.topenv`: original frame of the `.topcall` calling function where the formatter function will be evaluated and that is used to look up the namespace as well via `logger:::top_env_name`

Value

character vector

Note

This functionality depends on the `crayon` package.

See Also

This is a `log_layout`, for alternatives, see `layout_blank, layout_simple, layout_glue, layout_json, layout_json_parser`, or generator functions such as `layout_glue_generator`

Examples

```r
## Not run:
log_layout(layout_glue_colors)
log_threshold(TRACE)
log_info('Starting the script...')
log_debug('This is the second line')
log_trace('That is being placed right after the first one.')
log_warn('Some errors might come!')
log_error('This is a problem')
```
log_debug('Getting an error is usually bad')
log_error('This is another problem')
log_fatal('The last problem.')</n# End(Not run)

layout_glue_generator Generate log layout function using common variables available via glue syntax

Description

format is passed to glue with access to the below variables:

- msg: the actual log message
- further variables set by get_logger_meta_variables

Usage

layout_glue_generator(
  format = "\{level\} [[\{time\}, \"%Y-%m-%d %H:%M:%S\}]\} {msg}"
)

Arguments

format glue-flavored layout of the message using the above variables

Value

function taking level and msg arguments - keeping the original call creating the generator in the generator attribute that is returned when calling log_layout for the currently used layout

See Also

See example calls from layout_glue and layout_glue_colors.

Examples

## Not run:
example_layout <- layout_glue_generator(
  format = '{node}/{pid}/{ns}/{ans}/{topenv}/{fn} {time} {level}: {msg}"
)
example_layout(INFO, 'try {runif(1)}')

log_layout(example_layout)
log_info('try {runif(1)}')

## End(Not run)
Generate log layout function rendering JSON

Description

Generate log layout function rendering JSON

Usage

```r
layout_json(
  fields = c("time", "level", "ns", "ans", "topenv", "fn", "node", "arch", "os_name",
            "os_release", "os_version", "pid", "user", "msg")
)
```

Arguments

- `fields` character vector of field names to be included in the JSON

Value

character vector

Note

This functionality depends on the `jsonlite` package.

See Also

This is a `log_layout`, for alternatives, see `layout_blank`, `layout_simple`, `layout_glue`, `layout_glue_colors`, `layout_json_parser`, or generator functions such as `layout_glue_generator`

Examples

```r
## Not run:
log_layout(layout_json())
log_info(42)
log_info("ok {1:3} + {1:3} = {2*(1:3)}")
## End(Not run)
```
layout_json_parser  Generate log layout function rendering JSON after merging meta fields with parsed list from JSON message

Description

Generate log layout function rendering JSON after merging meta fields with parsed list from JSON message

Usage

layout_json_parser(
  fields = c("time", "level", "ns", "ans", "topenv", "fn", "node", "arch", "os_name",
             "os_release", "os_version", "pid", "user")
)

Arguments

fields  character vector of field names to be included in the JSON

Note

This functionality depends on the jsonlite package.

See Also

This is a log_layout potentially to be used with formatter_json, for alternatives, see layout_simple, layout_glue, layout_glue_colors, layout_json or generator functions such as layout_glue_generator

Examples

```r
## Not run:
log_formatter(formatter_json)
log_info(everything = 42)
log_layout(layout_json_parser())
log_info(everything = 42)
log_layout(layout_json_parser(fields = c("time", "node")))
log_info(cars = row.names(mtcars), species = unique(iris$Species))
## End(Not run)
```
**layout_logging**  

*Format a log record as the logging package does by default*

**Description**

Format a log record as the logging package does by default

**Usage**

```r
layout_logging(
  level,  # log level, see log_levels for more details
  msg,   # string message
  namespace = NA_character_,  # string referring to the logger environment/config to be used to override the target of the message record to be used instead of the default namespace, which is defined by the R package name from which the logger was called, and falls back to a common, global namespace.
  .logcall = sys.call(),  # the logging call being evaluated (useful in formatters and layouts when you want to have access to the raw, unevaluated R expression)
  .topcall = sys.call(-1),  # R expression from which the logging function was called (useful in formatters and layouts to extract the calling function’s name or arguments)
  .topenv = parent.frame()  # original frame of the .topcall calling function where the formatter function will be evaluated and that is used to look up the namespace as well via logger:::top_env_name
)
```

**Arguments**

- `level`  
  log level, see *log_levels* for more details
- `msg`  
  string message
- `namespace`  
  string referring to the *logger* environment/config to be used to override the target of the message record to be used instead of the default namespace, which is defined by the R package name from which the logger was called, and falls back to a common, global namespace.
- `logcall`  
  the logging call being evaluated (useful in formatters and layouts when you want to have access to the raw, unevaluated R expression)
- `topcall`  
  R expression from which the logging function was called (useful in formatters and layouts to extract the calling function’s name or arguments)
- `topenv`  
  original frame of the .topcall calling function where the formatter function will be evaluated and that is used to look up the namespace as well via logger:::top_env_name

**Value**

character vector

**See Also**

This is a *log_layout*, for alternatives, see *layout_blank, layout_glue, layout_glue_colors, layout_json, layout_json_parser*, or generator functions such as *layout_glue_generator*
Examples

```r
## Not run:
log_layout(layout_logging)
log_info(42)
log_info(42, namespace = 'everything')

devtools::load_all(system.file('demo-packages/logger-tester-package', package = 'logger'))
logger_tester_function(INFO, 42)

## End(Not run)
```

---

**layout_simple**

Format a log record by concatenating the log level, timestamp and message

Description

Format a log record by concatenating the log level, timestamp and message

Usage

```r
layout_simple(
  level,
  msg,
  namespace = NA_character_,
  .logcall = sys.call(),
  .topcall = sys.call(-1),
  .topenv = parent.frame()
)
```

Arguments

- `level`: log level, see `log_levels` for more details
- `msg`: string message
- `namespace`: string referring to the logger environment / config to be used to override the target of the message record to be used instead of the default namespace, which is defined by the R package name from which the logger was called, and falls back to a common, global namespace.
- `.logcall`: the logging call being evaluated (useful in formatters and layouts when you want to have access to the raw, unevaluated R expression)
- `.topcall`: R expression from which the logging function was called (useful in formatters and layouts to extract the calling function’s name or arguments)
- `.topenv`: original frame of the `.topcall` calling function where the formatter function will be evaluated and that is used to look up the namespace as well via `logger::top_env_name`
layout_syslognet

Value
character vector

See Also
This is a log_layout, for alternatives, see layout_blank, layout_glue, layout_glue_colors, layout_json, layout_json_parser, or generator functions such as layout_glue_generator

layout_syslognet Format a log record for syslognet

Description
Format a log record for syslognet. This function converts the logger log level to a log severity level according to RFC 5424 "The Syslog Protocol".

Usage
layout_syslognet(
  level,
  msg,
  namespace = NA_character_,
  .logcall = sys.call(),
  .topcall = sys.call(-1),
  .topenv = parent.frame()
)

Arguments
level log level, see log_levels for more details
msg string message
namespace string referring to the logger environment / config to be used to override the target of the message record to be used instead of the default namespace, which is defined by the R package name from which the logger was called, and falls back to a common, global namespace.
.logcall the logging call being evaluated (useful in formatters and layouts when you want to have access to the raw, unevaluated R expression)
.topcall R expression from which the logging function was called (useful in formatters and layouts to extract the calling function’s name or arguments)
.topenv original frame of the .topcall calling function where the formatter function will be evaluated and that is used to look up the namespace as well via logger:::top_env_name

Value
A character vector with a severity attribute.
logger

Generate logging utility

Description

A logger consists of a log level threshold, a log message formatter function, a log record layout formatting function and the appender function deciding on the destination of the log record. For more details, see the package README.md.

Usage

logger(threshold, formatter, layout, appender)

Arguments

- `threshold`: omit log messages below this `log_levels`
- `formatter`: function pre-processing the message of the log record when it’s not wrapped in a `skip_formatter` call
- `layout`: function rendering the layout of the actual log record
- `appender`: function writing the log record

Details

By default, a general logger definition is created when loading the logger package, that uses

1. `INFO` as the log level threshold
2. `layout_simple` as the layout function showing the log level, timestamp and log message
3. `formatter_glue` (or `formatter_sprintf` if `glue` is not installed) as the default formatter function transforming the R objects to be logged to a character vector
4. `appender_console` as the default log record destination

Value

function taking `level` and `msg` arguments

Note

It’s quite unlikely that you need to call this function directly, but instead set the logger parameters and functions at `log_threshold`, `log_formatter`, `log_layout` and `log_appender` and then call `log_levels` and its derivatives, such as `log_info` directly.

References

For more details, see the Anatomy of a Log Request vignette at https://daroczig.github.io/logger/articles/anatomy.html.
log_appender

Examples

## Not run:
do.call(logger, logger:::namespaces$global[[1]])(INFO, 42)
do.call(logger, logger:::namespaces$global[[1]])(INFO, '{pi}')
x <- 42
do.call(logger, logger:::namespaces$global[[1]])(INFO, '{x}^2 = {x^2}')

## End(Not run)

log_appender

Get or set log record appender function

Description

Get or set log record appender function

Usage

log_appender(appender, namespace = "global", index = 1)

Arguments

appender function delivering a log record to the destination, eg appender_console, appender_file or appender_tee
namespace logger namespace
index index of the logger within the namespace

See Also

logger, log_threshold, log_layout and log_formatter

Examples

## Not run:
## change appender to "tee" that writes to the console and a file as well
t <- tempfile()
log_appender(appender_tee(t))
log_info(42)
log_info(42:44)
readLines(t)

## poor man's tee by stacking loggers in the namespace
t <- tempfile()
log_appender(appender_console)
log_appender(appender_file(t), index = 2)
log_info(42)
readLines(t)

## End(Not run)
log_errors

*Injests a logger call to standard errors*

**Description**

This function uses `trace` to add a `log_error` function call when `stop` is called to log the error messages with the logger layout and appender.

**Usage**

```r
log_errors()
```

**Examples**

```r
## Not run:
log_errors()
stop('foobar')

## End(Not run)
```

log_eval

*Evaluate an expression and log results*

**Description**

Evaluate an expression and log results

**Usage**

```r
log_eval(expr, level = TRACE, multiline = FALSE)
```

**Arguments**

- `expr`: R expression to be evaluated while logging the expression itself along with the result
- `level`: `log_levels`
- `multiline`: setting to FALSE will print both the expression (enforced to be on one line by removing line-breaks if any) and its result on a single line separated by `=>`, while setting to TRUE will log the expression and the result in separate sections reserving line-breaks and rendering the printed results
Examples

```r
## Not run:
log_eval(pi * 2, level = INFO)

## lowering the log level threshold so that we don’t have to set a higher level in log_eval
log_threshold(TRACE)
log_eval(x <- 4)
log_eval(sqrt(x))

## log_eval can be called in-line as well as returning the return value of the expression
x <- log_eval(mean(runif(1e3)))
x

## https://twitter.com/krlmlr/status/1067864829547999232
f <- sqrt
g <- mean
x <- 1:31
log_eval(f(g(x)), level = INFO)
log_eval(y <- f(g(x)), level = INFO)

## returning a function
log_eval(f <- sqrt)
log_eval(f)

## evaluating something returning a wall of "text"
log_eval(f <- log_eval)
log_eval(f <- log_eval, multiline = TRUE)

## doing something computationally intensive
log_eval(system.time(for(i in 1:100) mad(runif(1000))), multiline = TRUE)

## End(Not run)
```

---

**log_failure**  
Logs the error message to console before failing

Description

Logs the error message to console before failing

Usage

```
log_failure(expression)
```

Arguments

- **expression**  
  call
Examples

```r
## Not run:
log_failure('foobar')
log_failure(foobar)

## End(Not run)
```

log_formatter  

### Get or set log message formatter

Description

Get or set log message formatter

Usage

```r
log_formatter(formatter, namespace = "global", index = 1)
```

Arguments

- `formatter`: function defining how R objects are converted into a single string, e.g., `formatter_paste`, `formatter_sprintf`, `formatter_glue`, `formatter_glue_or_sprintf`, `formatter_logging`
- `namespace`: logger namespace
- `index`: index of the logger within the namespace

See Also

`logger`, `log_threshold`, `log_appender` and `log_layout`

log_layout  

### Get or set log record layout

Description

Get or set log record layout

Usage

```r
log_layout(layout, namespace = "global", index = 1)
```

Arguments

- `layout`: function defining the structure of a log record, e.g., `layout_simple`, `layout_glue` or `layout_glue_colors`, `layout_json`, or generator functions such as `layout_glue_generator`
- `namespace`: logger namespace
- `index`: index of the logger within the namespace
log_level

See Also

logger, log_threshold, log_appender and log_formatter

Examples

```r
## Not run:
log_layout(layout_json())
log_info(42)

## End(Not run)
```

---

log_level

Log a message with given log level

Description

Log a message with given log level

Usage

```r
log_level(level, ..., namespace = NA_character_,
 .logcall = sys.call(), .topcall = sys.call(-1), .topenv = parent.frame())
```

log_trace(...)

log_debug(...)

log_info(...)

log_success(...)

log_warn(...)

log_error(...)

log_fatal(...)

Arguments

- **level**: log level, see `log_levels` for more details
- **...**: R objects that can be converted to a character vector via the active message formatter function
- **namespace**: string referring to the logger environment / config to be used to override the target of the message record to be used instead of the default namespace, which is defined by the R package name from which the logger was called, and falls back to a common, global namespace.
.logcall  the logging call being evaluated (useful in formatters and layouts when you want to have access to the raw, unevaluated R expression)
.topcall  R expression from which the logging function was called (useful in formatters and layouts to extract the calling function’s name or arguments)
.topenv   original frame of the .topcall calling function where the formatter function will be evaluated and that is used to look up the namespace as well via logger:::top_env_name

See Also

logger

Examples

## Not run:
log_level(INFO, 'hi there')
log_info('hi there')

## output omitted
log_debug('hi there')

## lower threshold and retry
log_threshold(TRACE)
log_debug('hi there')

## multiple lines
log_info('ok {1:3} + {1:3} = {2*(1:3)}')

log_layout(layout_json())
log_info('ok {1:3} + {1:3} = {2*(1:3)}')

## note for the JSON output, glue is not automatically applied
log_info(glue::glue('ok {1:3} + {1:3} = {2*(1:3)}'))

## End(Not run)

log_messages  Injects a logger call to standard messages

Description

This function uses trace to add a log_info function call when message is called to log the informative messages with the logger layout and appender.

Usage

log_messages()
Examples

```r
## Not run:
log_messages()
message('hi there')

## End(Not run)
```

**log_namespaces**

*Looks up logger namespaces*

**Description**

Looks up logger namespaces

**Usage**

```r
log_namespaces()
```

**Value**

character vector of namespace names

**log_separator**

*Logs a long line to stand out from the console*

**Description**

Logs a long line to stand out from the console

**Usage**

```r
log_separator(
  level = INFO,
  namespace = NA_character_,
  separator = "=",
  width = 80
)
```

**Arguments**

- **level**: log level, see `log_levels` for more details
- **namespace**: string referring to the logger environment / config to be used to override the target of the message record to be used instead of the default namespace, which is defined by the R package name from which the logger was called, and falls back to a common, global namespace.
- **separator**: character to be used as a separator
- **width**: max width of message – longer text will be wrapped into multiple lines
log_shiny_input_changes

See Also

log_with_separator

Examples

log_separator()
log_separator(ERROR, separator = '!', width = 60)

Description

This is to be called in the `server` section of the Shiny app.

Usage

log_shiny_input_changes(input, level = INFO)

Arguments

input passed from Shiny’s server
level log level

Examples

```r
## Not run:
library(shiny)

ui <- bootstrapPage(
  numericInput('mean', 'mean', 0),
  numericInput('sd', 'sd', 1),
  textInput('title', 'title', 'title'),
  textInput('foo', 'This is not used at all, still gets logged', 'foo'),
  plotOutput('plot')
)

server <- function(input, output) {
  logger::log_shiny_input_changes(input)

  output$plot <- renderPlot({
    hist(rnorm(1e3, input$mean, input$sd), main = input$title)
  })
}

shinyApp(ui = ui, server = server)
```
log_threshold

Description
Get or set log level threshold

Usage
log_threshold(level, namespace = "global", index = 1)

Arguments
level see log_levels
namespace logger namespace
index index of the logger within the namespace

Value
currently set log level threshold

See Also
logger, log_layout, log_formatter, log_appender

Examples
## Not run:
## check the currently set log level threshold
log_threshold()

## change the log level threshold to WARN
log_threshold(WARN)
log_info(1)
log_warn(2)

## add another logger with a lower log level threshold and check the number of logged messages
log_threshold(INFO, index = 2)
log_info(1)
log_warn(2)

## set the log level threshold in all namespaces to ERROR
log_threshold(ERROR, namespace = log_namespaces())

## End(Not run)
log_tictoc  

Description

Tic-toc logging

Usage

log_tictoc(..., level = INFO, namespace = NA_character_)

Arguments

... passed to log_level
level x
namespace x

Author(s)

Thanks to Neal Fultz for the idea and original implementation!

Examples

## Not run:
log_tictoc('warming up')
Sys.sleep(0.1)
log_tictoc('running')
Sys.sleep(0.1)
log_tictoc('running')
Sys.sleep(runif(1))
log_tictoc('and running')

## End(Not run)

log_warnings  

Description

Injects a logger call to standard warnings

Usage

log_warnings()
Examples

```r
## Not run:
log_warnings()
for (i in 1:5) { Sys.sleep(runif(1)); warning(i) }

## End(Not run)
```

### log_with_separator

**Logs a message in a very visible way**

#### Description

Logs a message in a very visible way

#### Usage

```r
log_with_separator(
  ...,
  level = INFO,
  namespace = NA_character_,
  separator = "=",
  width = 80
)
```

#### Arguments

- `...` R objects that can be converted to a character vector via the active message formatter function
- `level` log level, see `log_levels` for more details
- `namespace` string referring to the logger environment / config to be used to override the target of the message record to be used instead of the default namespace, which is defined by the R package name from which the logger was called, and falls back to a common, global namespace.
- `separator` character to be used as a separator
- `width` max width of message – longer text will be wrapped into multiple lines

#### See Also

`log_separator`
Examples

```r
log_with_separator('An important message')
log_with_separator('Some critical KPI down!!!', separator = '$')
log_with_separator('This message is worth a \{1e3\} words')
log_with_separator(paste('A very important message with a bunch of extra words that will',
'eventually wrap into a multi-line message for our quite nice demo :wow:'))
log_with_separator('Boo!', level = FATAL)
```

### skip_formatter

**Description**

Adds the `skip_formatter` attribute to an object so that logger will skip calling the formatter function on the object(s) to be logged

**Usage**

```r
skip_formatter(message, ...)
```

**Arguments**

- `message` character vector directly passed to the appender function in `logger`
- `...` should be never set

**Value**

character vector with `skip_formatter` attribute set to `TRUE`

### with_log_threshold

**Description**

Evaluate R expression with a temporarily updated log level threshold

Evaluate R expression with a temporarily updated log level threshold
Usage

```r
with_log_threshold(
    expression,
    threshold = ERROR,
    namespace = "global",
    index = 1
)
```

Arguments

- **expression**: R command
- **threshold**: `log_levels`
- **namespace**: logger namespace
- **index**: index of the logger within the namespace

Examples

```r
## Not run:
log_threshold(TRACE)
log_trace('Logging everything!')
x <- with_log_threshold({
    log_info('Now we are temporarily suppressing eg INFO messages')
    log_warn('WARN')
    log_debug('Debug messages are suppressed as well')
    log_error('ERROR')
    invisible(42)
}, threshold = WARN)
x
log_trace('DONE')
## End(Not run)
```

---

%except%  

*Try to evaluate an expressions and evaluate another expression on exception*

Description

Try to evaluate an expressions and evaluate another expression on exception

Usage

```r
try %except% except
```

Arguments

- **try**: R expression
- **except**: fallback R expression to be evaluated if `try` fails
Note

Suppress log messages in the except namespace if you don’t want to throw a WARN log message on the exception branch.

Examples

```r
everything %except% 42
everything <- '640kb'
everything %except% 42

Mean(1:10) %except% sum(1:10) / length(1:10)
Mean(1:10) %except% (sum(1:10) / length(1:10))
Mean(1:10) %except% MEAN(1:10) %except% mean(1:10)
Mean(1:10) %except% (MEAN(1:10) %except% mean(1:10))
```
Index

* datasets
  FATAL, 14
%except%, 47
appender_async, 3, 5–8, 10–12
appender_console, 3, 4, 6–12, 34, 35
appender_file, 3, 5, 7–12, 35
appender_kinesis, 3, 5, 6, 8, 10–12
appender_pushbullet, 3, 5–7, 7, 8–12
appender_slack, 5, 6, 8, 9, 11
appender_stderr (appender_console), 4
appender_stdout, 5
appender_syslog, 3, 5–8, 9, 11, 12
appender_syslognet, 10
appender_tee, 3, 5–10, 11, 12, 35
appender_telegram, 3, 5–10, 11, 12

colorize_by_log_level, 12

DEBUG (FATAL), 14
deparse_to_one_line, 13
ERROR (FATAL), 14

fail_on_missing_package, 13
FATAL, 14
formatter_glue, 15, 18–22, 34, 38
formatter_glue_or_sprintf, 16, 16, 17–22, 38
formatter_json, 16, 17, 19, 21, 22, 30
formatter_logging, 16–18, 19, 20–22, 38
formatter_pander, 16–19, 19, 21, 22
formatter_paste, 16–20, 20, 22, 38
formatter_sprintf, 15–18, 20, 21, 21, 34, 38

get_logger_meta_variables, 22, 28
grayscale_by_log_level, 24

INFO, 22, 34
INFO (FATAL), 14

layout_blank, 24, 26, 27, 29, 31, 33
layout_glue, 25, 27–31, 33, 38
layout_glue_colors, 25, 26, 26, 28–31, 33, 38
layout_glue_generator, 22, 23, 25–27, 28, 29–31, 33, 38
layout_json, 25–27, 29, 30, 31, 33, 38
layout_json_parser, 18, 26, 27, 29, 30, 31, 33
layout_logging, 31
layout_simple, 25–27, 29, 30, 32, 34, 38
layout_syslognet, 33
log_appender, 3, 5–12, 34, 35, 38, 39, 43
log_debug (log_level), 39
log_error (log_level), 39
log_errors, 36
log_eval, 18, 36
log_failure, 37
log_fatal (log_level), 39
log_formatter, 16–22, 34, 35, 38, 39, 43
log_info, 34
log_info (log_level), 39
log_layout, 25–31, 33–35, 38, 39, 43
log_level, 39
log_levels, 12, 23–27, 31–34, 36, 39, 41, 43, 45, 47
log_levels (FATAL), 14
log_messages, 40
log_namespace, 41
log_separator, 41, 45
log_shiny_input_changes, 42
log_success (log_level), 39
log_threshold, 34, 35, 38, 39, 43
log_tictoc, 44
log_trace (log_level), 39
log_warn (log_level), 39
log_warnings, 44
log_with_separator, 42, 45
logger, 23, 34, 35, 38–40, 43, 46
open_syslog, 9
skip_formatter, 16–19, 21, 22, 34, 46
sprintf, 18
SUCCESS (FATAL), 14
TRACE (FATAL), 14
WARN (FATAL), 14
with_log_threshold, 46