Package ‘lgr’

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Type Package

Title A Fully Featured Logging Framework

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Description A flexible, feature-rich yet light-weight logging framework based on ‘R6’ classes. It supports hierarchical loggers, custom log levels, arbitrary data fields in log events, logging to plaintext, 'JSON', (rotating) files, memory buffers. For extra appenders that support logging to databases, email and push notifications see the the package lgr.app.

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URL https://s-fleck.github.io/lgr/

BugReports https://github.com/s-fleck/lgr/issues/

Depends R (>= 3.2.0)

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'Filter.R' 'log_levels.R' 'LogEvent.R' 'Layout.R' 'Logger.R'
'basic_config.R' 'default_functions.R' 'event_list.R'
'get_logger.R' 'lgr-package.R' 'logger_config.R'
'logger_index.R' 'logger_tree.R' 'read_json_lines.R'
'simple_logging.R' 'string_repr.R' 'use_logger.R'
'utilis-formatting.R' 'utils-logging.R' 'utils-rd.R'
'utilis-rotor.R'

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AppenderBuffer

Description

An Appender that Buffers LogEvents in-memory and redirects them to other Appenders once certain conditions are met.

Fields

appenders, set_appenders() Like for a Logger. Buffered events will be passed on to these Appenders once a flush is triggered

flush_on_exit, set_flush_on_exit(x) TRUE or FALSE: Whether the buffer should be flushed when the Appender is garbage collected (e.g. when you close R)

flush_on_rotate, set_flush_on_rotate TRUE or FALSE: Whether the buffer should be flushed when the Buffer is full (e.g. when you close R). Setting this to off can have slightly negative performance impacts.

Super classes

lgr::Filterable -> lgr::Appender -> lgr::AppenderMemory -> AppenderBuffer

Methods

Public methods:

- AppenderBuffer$new()
- AppenderBuffer$flush()
- AppenderBuffer$clear()
- AppenderBuffer$set_appenders()
- AppenderBuffer$add_appender()
- AppenderBuffer$remove_appender()
- AppenderBuffer$format()

Method new(): The Layout for this Appender is used only to format console output of its $show() method.

Usage:
AppenderBuffer$new(
  threshold = NA_integer_,
  layout = LayoutFormat$new(fmt = "%L [%t] %m",
    timestampFmt = "%H:%M:%S",
    colors = getOption("lgr.colors")),
  appenders = NULL,
  buffer_size = 1000,
  flush_threshold = NULL,
  flush_on_exit = TRUE,
  flush_on_rotate = TRUE,
  should_flush = NULL,
  filters = NULL
)

Method flush(): Sends the buffer's contents to all attached Appenders and then clears the Buffer

Usage:
AppenderBuffer$flush()

Method clear(): Clears the buffer, discarding all buffered Events

Usage:
AppenderBuffer$clear()

Method set_appenders(): Exactly like a Logger, an AppenderBuffer can have an arbitrary amount of Appenders attached. When the buffer is flushed, the buffered events are dispatched to these Appenders.

Usage:
AppenderBuffer$set_appenders(x)

Arguments:
x single Appender or a list thereof. Appenders control the output of a Logger. Be aware that a Logger also inherits the Appenders of its ancestors (see vignette("lgr", package = "lgr") for more info about Logger inheritance).

Method add_appender(): Add an Appender to the AppenderBuffer
Add or remove an Appender. Supplying a name is optional but recommended. After adding an Appender with appender$add_appender(AppenderConsole$new(), name = "console") you can refer to it via appender$appenders$console. remove_appender() can remove an Appender by position or name.

Usage:
AppenderBuffer$add_appender(appender, name = NULL)

Arguments:
appender a single Appender
name a character scalar. Optional but recommended.

Method remove_appender(): remove an appender

Usage:
AppenderBuffer$remove_appender(pos)
Arguments:
  pos integer index or character name of the Appender(s) to remove

Method format():
Usage:
AppenderBuffer$format(...)
See Also

- `LayoutFormat`

Other Appenders: `AppenderBuffer, AppenderFileRotatingDate, AppenderFileRotatingTime, AppenderFileRotating, AppenderFile, AppenderTable, Appender`

Examples

```r
# create a new logger with propagate = FALSE to prevent routing to the root
# logger. Please look at the section "Logger Hirarchies" in the package
# vignette for more info.
lg <- get_logger("test")$set_propagate(FALSE)

lg$add_appender(AppenderConsole$new())
lg$add_appender(AppenderConsole$new(
  layout = LayoutFormat$new("[%t] %c(): [%n] %m", colors = getOption("lgr.colors")))

# Will output the message twice because we attached two console appenders
lg$warn("A test message")
lg$config(NULL) # reset config
```

---

### AppenderFile

**Log to a file**

---

**Description**

A simple Appender that outputs to a file in the file system. If you plan to log to text files, consider logging to JSON files and take a look at `AppenderJson`, which is a shortcut for `AppenderFile` preconfigured with `LayoutJson`.

**Super classes**

- `lgr::Filterable` &rarr; `lgr::Appender` &rarr; AppenderFile

**Active bindings**

- `file` character scalar. path to the log file
- `data` data.frame. Contents of file parsed to a data.frame if used with a `Layout` that supports parsing of log file data (notably `LayoutJson`). Will throw an error if `Layout` does not support parsing.
- `data_char` character scalar. Like `$data`, but returns a `data.table` instead (requires the `data.table` package).
**AppenderFile**

**Methods**

Public methods:
- `AppenderFile$new()`
- `AppenderFile$append()`
- `AppenderFile$set_file()`
- `AppenderFile$show()`

Method `new()`:

Usage:
```r
AppenderFile$new(
  file,
  threshold = NA_integer_,
  layout = LayoutFormat$new(),
  filters = NULL
)
```

Method `append()`:

Usage:
```r
AppenderFile$append(event)
```

Method `set_file()`: Set a log file

Usage:
```r
AppenderFile$set_file(file)
```

Arguments:
- `file` character scalar. Path to the log file. If `file` does not exist it will be created.

Method `show()`: Display the contents of the log file.

Usage:
```r
AppenderFile$show(threshold = NA_integer_, n = 20L)
```

Arguments:
- `threshold` character or integer scalar. The minimum log level that should be displayed.
- `n` integer scalar. Show only the last `n` log entries that match `threshold`.

**Super classes**

`lgr::Filterable` -> `lgr::Appender` -> `lgr::AppenderFile` -> `AppenderJson`

**Methods**

Public methods:
- `AppenderJson$new()`

Method `new()`:

Usage:
AppenderFile$new(
  file,
  threshold = NA_integer_,
  layout = LayoutJson$new(),
  filters = NULL
)

See Also

LayoutFormat, LayoutJson

Other Appenders: AppenderBuffer, AppenderConsole, AppenderFileRotatingDate, AppenderFileRotatingTime, AppenderFileRotating, AppenderTable, Appender

Other Appenders: AppenderBuffer, AppenderConsole, AppenderFileRotatingDate, AppenderFileRotatingTime, AppenderFileRotating, AppenderTable, Appender

Examples

lg <- get_logger("test")
default <- tempfile()
fancy <- tempfile()
json <- tempfile()

lg$add_appender(AppenderFile$new(default), "default")
lg$add_appender(AppenderFile$new(fancy, layout = LayoutFormat$new("[%t] %c(): %L %m")), "fancy")
lg$add_appender(AppenderFile$new(json, layout = LayoutJson$new()), "json")

dl$info("A test message")

readLines(default)
readLines(fancy)
readLines(json)

# cleanup
lg$config(NULL)
unlink(default)
unlink(fancy)
unlink(json)
tf <- tempfile()
lg <- get_logger("test")$
  set_appenders(AppenderJson$new(tf))$
  set_propagate(FALSE)$

lg$info("A test message")
lg$info("A test message %s strings", "with format strings", and = "custom_fields")
lg$appenders[[1]]$show()}
AppenderFileRotating

lg$appenders[[1]]$data

# cleanup
lg$config(NULL)
unlink(tf)

AppenderFileRotating  Log to a rotating file

Description
Log to a rotating file

Details
An extension of AppenderFile that rotates logfiles based on certain conditions. Please refer to the documentation of rotor::rotate() for the meanings of the extra arguments

Super classes
lgr::Filterable -> lgr::Appender -> lgr::AppenderFile -> AppenderFileRotating

Active bindings
backups  A data.frame containing information on path, file size, etc... on the available backups of file.

Methods
Public methods:
• AppenderFileRotating$new()
• AppenderFileRotating$append()
• AppenderFileRotating$rotate()
• AppenderFileRotating$prune()
• AppenderFileRotating$set_file()
• AppenderFileRotating$set_size()
• AppenderFileRotating$set_max_backups()
• AppenderFileRotating$set_compression()
• AppenderFileRotating$set_create_file()
• AppenderFileRotating$set_backup_dir()
• AppenderFileRotating$format()
• AppenderFileRotating$clone()

Method new():
Usage:
AppenderFileRotating$new(
  file,
  threshold = NA_integer_,
  layout = LayoutFormat$new(),
  filters = NULL,
  size = Inf,
  max_backups = Inf,
  compression = FALSE,
  backup_dir = dirname(file),
  create_file = NULL
)

Arguments:
size, max_backups, compression, backup_dir, fmt see rotor::rotate() for the meaning of these arguments. Note that fmt corresponds to format and backup_dir to dir.

Method append():
Usage:
AppenderFileRotating$append(event)

Method rotate():
Usage:
AppenderFileRotating$rotate(force = FALSE)

Method prune():
Usage:
AppenderFileRotating$prune(max_backups = self$max_backups)

Method set_file():
Usage:
AppenderFileRotating$set_file(file)

Method set_size():
Usage:
AppenderFileRotating$set_size(x)

Method set_max_backups():
Usage:
AppenderFileRotating$set_max_backups(x)

Method set_compression():
Usage:
AppenderFileRotating$set_compression(x)

Method set_create_file():
Usage:
**AppenderFileRotatingDate**

Log to a date-stamped rotating file

---

**Description**

Log to a date-stamped rotating file

**Details**

This is a simpler version of AppenderFileRotatingTime when the timestamps do not need to include sub-day accuracy.

**Super classes**

`lgr::Filterable` -> `lgr::Appender` -> `lgr::AppenderFile` -> `lgr::AppenderFileRotating` -> `AppenderFileRotatingDate`
Methods

Public methods:

• AppenderFileRotatingDate$new()
• AppenderFileRotatingDate$clone()

Method new():

Usage:
AppenderFileRotatingDate$new(  
  file,  
  threshold = NA_integer_,  
  layout = LayoutFormat$new(),  
  filters = NULL,  
  age = Inf,  
  size = -1,  
  max_backups = Inf,  
  compression = FALSE,  
  backup_dir = dirname(file),  
  fmt = "%Y-%m-%d",  
  overwrite = FALSE,  
  cache_backups = TRUE,  
  create_file = NULL  
)

Arguments:
size, age, max_backups, compression, backup_dir, fmt, overwrite, cache_backups see rotor::rotate_date() for the meaning of these arguments. Note that fmt corresponds to format (because $format has a special meaning for R6 classes).

Method clone(): The objects of this class are cloneable with this method.

Usage:
AppenderFileRotatingDate$clone(deep = FALSE)

Arguments:
deep Whether to make a deep clone.

See Also

AppenderFileRotatingTime, AppenderFileRotating, rotor::rotate()

Other Appenders: AppenderBuffer, AppenderConsole, AppenderFileRotatingTime, AppenderFileRotating, AppenderFile, AppenderTable, Appender
AppenderFileRotatingTime

Log to a time-stamped rotating file

Description
Log to a time-stamped rotating file
Log to a time-stamped rotating file

Super classes

\texttt{lgr::Filterable} \rightarrow \texttt{lgr::Appender} \rightarrow \texttt{lgr::AppenderFile} \rightarrow \texttt{lgr::AppenderFileRotating} \rightarrow \texttt{AppenderFileRotating}

Active bindings

\texttt{cache\_backups} \ TRUE \ or \ \FALSE. \ If \ \TRUE \ (the \ default) \ the \ list \ of \ backups \ is \ cached, \ if \ \FALSE \ it \ is \ read \ from \ disk \ every \ time \ this \ appender \ triggers. \ Caching \ brings \ a \ significant \ speedup \ for \ checking \ whether \ to \ rotate \ or \ not \ based \ on \ the \ age \ of \ the \ last \ backup, \ but \ is \ only \ safe \ if \ there \ are \ no \ other \ programs/functions \ (except \ this \ appender) \ interacting \ with \ the \ backups.

Methods

Public methods:

\begin{itemize}
  \item \texttt{AppenderFileRotatingTime$new()}
  \item \texttt{AppenderFileRotatingTime$rotate()}
  \item \texttt{AppenderFileRotatingTime$set\_age()}
  \item \texttt{AppenderFileRotatingTime$set\_fmt()}
  \item \texttt{AppenderFileRotatingTime$set\_overwrite()}
  \item \texttt{AppenderFileRotatingTime$set\_cache\_backups()}
  \item \texttt{AppenderFileRotatingTime$format()}
  \item \texttt{AppenderFileRotatingTime$clone()}
\end{itemize}

Method \texttt{new()}:

\textit{Usage:}
\texttt{AppenderFileRotatingTime$new(file, threshold = NA\_integer\_, layout = LayoutFormat$new(), filters = NULL, age = Inf, size = -1, max\_backups = Inf, compression = FALSE, backup\_dir = dirname(file),}
AppenderFileRotatingTime

```r
fmt = "%Y-%m-%d-%H-%M-%S",
overwrite = FALSE,
cache_backups = TRUE,
create_file = NULL
)

Arguments:
size, age, max_backups, compression, backup_dir, fmt, overwrite, cache_backups see `rotor::rotate_time()` for the meaning of these arguments. Note that `fmt` corresponds to format and `backup_dir` to `dir`.

Method `rotate()`:
Usage:
AppenderFileRotatingTime$rotate(force = FALSE, now = Sys.time())

Method `set_age()`:
Usage:
AppenderFileRotatingTime$self_age(x)

Method `set_fmt()`:
Usage:
AppenderFileRotatingTime$self_fmt(x)

Method `set_overwrite()`:
Usage:
AppenderFileRotatingTime$self_overwrite(x)

Method `set_cache_backups()`:
Usage:
AppenderFileRotatingTime$self_cache_backups(x)
Arguments:
x a logical scalar

Method `format()`:
Usage:
AppenderFileRotatingTime$self_format(color = FALSE, ...)

Method `clone()`:
The objects of this class are cloneable with this method.
Usage:
AppenderFileRotatingTime$self_clone(deep = FALSE)
Arguments:
deep Whether to make a deep clone.

See Also

AppenderFileRotatingDate, AppenderFileRotating, rotor::rotate()

Other Appenders: AppenderBuffer, AppenderConsole, AppenderFileRotatingDate, AppenderFileRotating, AppenderFile, AppenderTable, Appender
```
AppenderMemory

Abstract class for logging to memory buffers

Description

NOTE: This is an abstract class. Abstract classes cannot be instantiated directly, but are exported for package developers that want to extend Lgr - for example by creating their own Appenders or Layouts. Please refer to the see also section for actual implementations of this class.

AppenderMemory is extended by Appenders that retain an in-memory event buffer, such as AppenderBuffer and AppenderPushbullet from the lgrExtra package.

Super classes

lgr::Filterable -> lgr::Appender -> AppenderMemory

Active bindings

flush_on_exit A logical scalar. Should the buffer be flushed if the Appender is destroyed (e.g. because the R session is terminated)?
flush_on_rotate A logical scalar. Should the buffer be flushed when it is rotated because $buffer_size is exceeded?
should_flush A function with exactly one arguments: event. $append() calls this function internally on the current LogEvent and flushes the buffer if it evaluates to TRUE.
buffer_size integer scalar >= 0. Maximum number of LogEvents to buffer.
flush_threshold A numeric or character threshold. LogEvents with a log_level equal to or lower than this threshold trigger flushing the buffer.
buffer_events A list of LogEvents. Contents of the buffer.
buffer_events A data.frame. Contents of the buffer converted to a data.frame.
buffer_events A data.frame. Contents of the buffer converted to a data.table.

Methods

Public methods:

• AppenderMemory$new()
• AppenderMemory$append()
• AppenderMemory$flush()
• AppenderMemory$clear()
• AppenderMemory$set_buffer_size()
• AppenderMemory$set_should_flush()
• AppenderMemory$set_flush_on_exit()
• AppenderMemory$set_flush_on_rotate()
• AppenderMemory$set_flush_threshold()
• AppenderMemory$show()
• AppenderMemory$format()

**Method new():**
Usage:
AppenderMemory$new(...)

**Method append():**
Usage:
AppenderMemory$append(event)

**Method flush():** Sends the buffer’s contents to all attached Appenders and then clears the Buffer
Usage:
AppenderMemory$flush()

**Method clear():** Clears the buffer, discarding all buffered Events
Usage:
AppenderMemory$clear()

**Method set_buffer_size():** Set the maximum size of the buffer
Usage:
AppenderMemory$set_buffer_size(x)
Arguments:
x an integer scalar \( \geq 0 \). Number of LogEvents to buffer.

**Method set_should_flush():** Set function that can trigger flushing the buffer
Usage:
AppenderMemory$set_should_flush(x)
Arguments:
x A function with the single argument event. Setting x to NULL is a shortcut for function(event) FALSE. See active bindings.

**Method set_flush_on_exit():** Should the buffer be flushed when the Appender is destroyed?
Usage:
AppenderMemory$set_flush_on_exit(x)
Arguments:
x A logical scalar. See active bindings.

**Method set_flush_on_rotate():** Should the buffer be flushed if buffer_size is exceeded?
Usage:
AppenderMemory$set_flush_on_rotate(x)
Arguments:
x A logical scalar. See active bindings.
Method set_flush_threshold(): Set threshold that triggers flushing

Usage:
AppenderMemory$set_flush_threshold(level)

Arguments:
level A numeric or character threshold. See active bindings.

Method show(): Display the contents of the log table. Relies on the $format_event method of the Layout attached to this Appender.

Usage:
AppenderMemory$show(threshold = NA_integer_, n = 20L)

Arguments:
threshold character or integer scalar. The minimum log level that should be displayed.
n integer scalar. Show only the last n log entries that match threshold.

Method format():

Usage:
AppenderMemory$format(color = FALSE, ...)

See Also

LayoutFormat

Other abstract classes: AppenderTable, Appender, Filterable

AppenderTable Abstract class for logging to tabular structures

Description

NOTE: This is an abstract class. Abstract classes cannot be instantiated directly, but are exported for package developers that want to extend lgr - for example by creating their own Appenders or Layouts. Please refer to the see also section for actual implementations of this class.

AppenderTable is extended by Appenders that write to a data source that can be interpreted as tables, (usually a data.frame). Examples are AppenderDbi, AppenderRjdbc and AppenderDt from the lgrExtra package.

Super classes

lgr::Filterable -> lgr::Appender -> AppenderTable

Active bindings

data character scalar. Contents of the table, parsed to a data.frame.

data character scalar. Like $data, but returns a data.table instead (requires the data.table package).
Methods

Public methods:

• AppenderTable$new()
• AppenderTable$show()
• AppenderTable$format()

Method new():

Usage:
AppenderTable$new(...)

Method show(): Show recent log entries

Usage:
AppenderTable$show(threshold = NA_integer_, n = 20L)

Arguments:
threshold an integer or character threshold. Only show events with a log level at or below this threshold.
n a positive integer scalar. Show at most that many entries

Method format():

Usage:
AppenderTable$format(color = FALSE, ...)

See Also

Other abstract classes: AppenderMemory, Appender, Filterable
Other Appenders: AppenderBuffer, AppenderConsole, AppenderFileRotatingDate, AppenderFileRotatingTime, AppenderFileRotating, AppenderFile, Appender

---

as.data.frame.LogEvent

Coerce LogEvents to Data Frames

Description

Coerce LogEvents to data.frames, data.tables, or tibbles.

Usage

## S3 method for class 'LogEvent'
as.data.frame(
x, 
row.names = NULL, 
optional = FALSE, 
stringsAsFactors = FALSE,
as.data.frame.LogEvent

..., 
  box_if = function(.) !(is.atomic(.) && identical(length(.), 1L)), 
  cols_expand = NULL 
)

as.data.table.LogEvent(
  x,
  ...
  box_if = function(.) !(is.atomic(.) && identical(length(.), 1L)),
  cols_expand = "msg"
)

as_tibble.LogEvent(
  x,
  ...
  box_if = function(.) !(is.atomic(.) && identical(length(.), 1L)),
  cols_expand = "msg"
)

Arguments

x any R object.
row.names NULL or a character vector giving the row names for the data frame. Missing values are not allowed.
optional currently ignored and only included for compatibility.
stringsAsFactors logical scalar: should character vectors be converted to factors? Defaults to FALSE (as opposed to base::as.data.frame()) and is only included for compatibility.
... passed on to data.frame()
box_if a function that returns TRUE or FALSE to determine which values are to be boxed (i.e. placed as single elements in a list column). See example
cols_expand character vector. Columns to not box (even if box_if() returns TRUE). Vectors in these columns will result in multiple rows in the result (rather than a single list-column row). This defaults to "msg" for vectorized logging over the log message.

See Also
data.table::data.table, tibble::tibble

Examples

lg <- get_logger("test")
lg$info("lorem ipsum")
as.data.frame(lg$last_event)

lg$info("LogEvents can store any custom log values", df = iris)
as.data.frame(lg$last_event)
head(as.data.frame(lg$last_event)$df[[1]])

# how boxing works

# by default non-scalars are boxed
lg$info("letters", letters = letters)
as.data.frame(lg$last_event)

# this behaviour can be modified by supplying a custom boxing function
as.data.frame(lg$last_event, box_if = function(.) FALSE)
as.data.frame(lg$last_event, cols_expand = "letters")

# The 'msg' argument of a log event is always vectorized
lg$info(c("a vectorized", "log message"))
as.data.frame(lg$last_event)

lg$config(NULL)

---

**as_LogEvent**

Coerce objects to LogEvent

### Description

Smartly coerce R objects that look like LogEvents to LogEvents. Mainly useful for developing Appenders.

### Usage

as_LogEvent(x, ...)

### Arguments

- **x** any supported R object
- **...** currently ignored

### Details

**Note:** as_LogEvent.data.frame() only supports single-row data.frames

### Value

a LogEvent
See Also

Other docs relevant for extending lgr: LogEvent, event_list(), standardize_threshold()

---

**basic_config**

**Basic Setup for the Logging System**

**Description**

A quick and easy way to configure the root logger. This is less powerful then using lgr$config() or lgr$set_*() (see Logger), but reduces the most common configurations to a single line of code.

**Usage**

```r
basic_config(
  file = NULL,
  fmt = "%L [%t] %m",
  timestamp_fmt = "%Y-%m-%d %H:%M:%OS3",
  threshold = "info",
  appenders = NULL,
  console = if (is.null(appenders)) "all" else FALSE,
  console_fmt = "%L [%t] %m %f",
  console_timestamp_fmt = "%H:%M:%OS3",
  memory = FALSE
)
```

**Arguments**

- **file** character scalar: If not NULL a AppenderFile will be created that logs to this file. If the filename ends in .jsonl, the Appender will be set up to use the JSON Lines format instead of plain text (see AppenderFile and AppenderJson).
- **fmt** character scalar: Format to use if file is supplied and not a .jsonl file. If NULL it defaults to "%L [%t] %m" (see format.LogEvent)
- **timestamp_fmt** see format.POSIXct()
- **threshold** character or integer scalar. The minimum log level that should be processed by the root logger.
- **appenders** a single Appender or a list thereof.
- **console** logical scalar or a threshold (see above). Add an appender logs to the console (i.e. displays messages in an interactive R session)
- **console_fmt** character scalar: like fmt but used for console output
- **console_timestamp_fmt** character scalar: like timestamp_fmt but used for console output
- **memory** logical scalar. or a threshold (see above). Add an Appender that logs to a memory buffer, see also show_log() and AppenderBuffer
CannotInitializeAbstractClassError

Value

the root Logger (lgr)

Examples

# log to a file
basic_config(file = tempfile())
unlink(lgr$appenders$file$file)  # cleanup

basic_config(file = tempfile(fileext = "jsonl"))
unlink(lgr$appenders$file$file)  # cleanup

# log debug messages to a memory buffer
basic_config(threshold = "all", memory = "all", console = "info")
lgr$info("an info message")
lgr$debug("a hidden message")
show_log()

# reset to default config
basic_config()

---------------------------------------------

CannotInitializeAbstractClassError

Logger Error Conditions

Description

Logger Error Conditions

Usage

CannotInitializeAbstractClassError(class = parent.frame(2)[["classes"]])

Arguments

class character scalar. The abstract class that was mistakenly tried to initialize. The
default is to discover the class name automatically if called inside $initialize(){...}
in an R6::R6 class definition

Value

a condition object
**colorize_levels**  

**Colorize Levels**

**Description**

Colorize Levels

**Usage**

```r
colorize_levels(
  x,
  colors = getOption("lgr.colors", NULL),
  transform = identity
)
```

**Arguments**

- `x` numeric or character levels to be colored. Unlike in many other functions in lgr, character levels are not case sensitive in this function and leading/trailing whitespace is ignored to make it more comfortable to use `colorize_levels()` inside formatting functions.

- `colors` A list of functions that will be used to color the log levels (likely from `crayon::crayon`).

- `transform` a function to transform x (for example `toupper()`)

**Value**

a character vector wit color ANSI codes

**See Also**

Other formatting utils: `label_levels()`

**Examples**

```r
cat(colorize_levels(c(100, 200)))
cat(colorize_levels(c("trace", "warn ", "DEBUG")))
cat(colorize_levels(c("trace", "warn ", "DEBUG"), transform = function(x) strtrim(x, 1)))
```
**default_exception_handler**

*Demote an exception to a warning*

**Description**

Throws a timestamped warning instead of stopping the program. This is the default exception handler used by Loggers.

**Usage**

```r
default_exception_handler(e)
```

**Arguments**

- `e` an error condition object

**Value**

The warning as character vector

**Examples**

```r
tryCatch(stop("an error has occurred"), error = default_exception_handler)
```

---

**EventFilter**

**Event Filters**

**Description**

EventFilters specify arbitrarily complex logic for whether or not a LogEvent should be processed by a Logger or Appender. They are attached to Loggers/Appenders via their `$set_filter()` or `$add_filter()` methods. If any EventFilter evaluates to FALSE for a given event, that event is ignored - similarly to when it does not pass the objects’ threshold.

Usually you do not need to instantiate a formal EventFilter object as you can just use any function that has the single argument event instead. If you need to implement more complex filter logic - for example a filter that is dependent on a dataset - it might be desirable to subclass EventFilter, as R6::R6 objects can store data and functions together.

`.obj()` is a special function that can only be used within the `$filter()` methods of EventFilters. It returns the Logger or Appender that the EventFilter is attached to.

**Usage**

```r
$obj()
```
Modifying LogEvents with EventFilters

Since LogEvents are R6 objects with reference semantics, EventFilters can be abused to modify events before passing them on. lgr comes with a few preset filters that use this property: FilterInject (similar to `with_log_level()`) and FilterForceLevel (similar to `with_log_value()`).

**NOTE:** The base class for Filters is called `EventFilter` so that it doesn’t conflict with `base::Filter()`. The recommended convention for Filter subclasses is to call them `FilterSomething` and leave out the Event prefix.

Methods

**Public methods:**

- `EventFilter$new()`
- `EventFilter$clone()`

**Method** `new()`: Initialize a new EventFilter

**Usage:**

```
EventFilter$new(fun = function(event) TRUE)
```

**Arguments:**

- `fun` a function with a single argument `event` that must return either TRUE or FALSE. Any non-FALSE will be interpreted as TRUE (= no filtering takes place) and a warning will be thrown.

**Method** `clone()`: The objects of this class are cloneable with this method.

**Usage:**

```
EventFilter$clone(deep = FALSE)
```

**Arguments:**

- `deep` Whether to make a deep clone.

**See Also**

`is_filter()`

**Examples**

```
lg <- get_logger("test")
f <- function(event) {
  cat("via event$.logger:", event$.logger$threshold, "\n") # works for loggers only
  cat("via .obj(): ", .obj()$threshold, "\n") # works for loggers and appenders
  TRUE
}
lg$add_filter(f)
lg$fatal("test")
lg$config(NULL)
```
An event_list is a class for list()s whose only elements are LogEvents. This structure is occasionally used internally in lgr (for example by AppenderBuffer) and can be useful for developers that want to write their own Appenders.

### Usage

```r
event_list(...)  
```

```r
as_event_list(x, ...)  
```

```r
## S3 method for class 'list'  
as_event_list(x, ..., scalarize = FALSE)  
```

```r
## S3 method for class 'LogEvent'  
as_event_list(x, ..., scalarize = FALSE)  
```

```r
## S3 method for class 'data.frame'  
as_event_list(x, na.rm = TRUE, ...)  
```

```r
as.data.table.event_list(x, na.rm = TRUE)  
```

```r
## S3 method for class 'event_list'  
as.data.frame(  
  x,  
  row.names = NULL,  
  optional = FALSE,  
  stringsAsFactors = FALSE,  
  na.rm = TRUE,  
  ...  
)  
```

### Arguments

- `...` for event elements to be added to the list, for the as_*() functions parameters passed on to methods.
- `x` any R object
- `scalarize` logical scalar. Turn LogEvents with non-scalar msg field into separate log events
- `na.rm` remove NA values before coercing a data.frame to an event_list().
- `row.names` NULL or a character vector giving the row names for the data frame. Missing values are not allowed.
optional currently ignored and only included for compatibility.
stringsAsFactors logical scalar: should character vectors be converted to factors? Defaults to FALSE (as opposed to base::as.data.frame()) and is only included for compatibility.

Details

For convenience, as.data.frame() and as.data.table() methods exist for event lists.

Value

an event_list() and as_event_list() return a flat list of LogEvents. Nested lists get automatically flattened.
as.data.frame and as.data.table return a data.frame or data.table respectively

See Also

Other docs relevant for extending lgr: LogEvent, as_LogEvent(), standardize_threshold()

Examples

e <- LogEvent$new(level = 300, msg = "a", logger = lgr)
as_event_list(e)
as_event_list(c(e, e))
# nested lists get automatically unnested
as_event_list(c(e, list(nested_event = e)))

# scalarize = TRUE "unpacks" events with vector log messages
e <- LogEvent$new(level = 300, msg = c("A", "B"), logger = lgr)
as_event_list(e, scalarize = FALSE)
as_event_list(e, scalarize = TRUE)
Methods

Public methods:

- Filterable$filter()
- Filterable$add_filter()
- Filterable$remove_filter()
- Filterable$set_filters()

Method filter(): Determine whether the LogEvent x should be passed on to Appenders (TRUE) or not (FALSE). See also the active binding filters.

Usage:
Filterable$filter(event)

Arguments:

- event a LogEvent

Method add_filter(): Attach a filter

Usage:
Filterable$add_filter(filter, name = NULL)

Arguments:

- filter • a function with the single argument event that returns TRUE or FALSE;
  - an EventFilter R6::R6 object; or
  - any R object with a $filter() method.
  If a Filter returns a non-FALSE value, will be interpreted as TRUE (= no filtering takes place) and a warning will be thrown.
- name character scalar or NULL. An optional name which makes it easier to access (or remove) the filter

Method remove_filter(): Remove a filter

Usage:
Filterable$remove_filter(pos)

Arguments:

- pos character or integer scalar. The name or index of the Filter to be removed.

Method set_filters(): Set or replace (all) Filters of parent object. See EventFilter for how Filters work.

Usage:
Filterable$set_filters(filters)

Arguments:

- filters a list (named or unnamed) of EventFilters or predicate functions. See is_filter().

See Also

Other abstract classes: AppenderMemory, AppenderTable, Appender
FilterForceLevel

Override the log level of all events processed by a Logger/Appender

Description

Override the log level of the Appender/Logger that this filter is attached to with level. See also with_log_level(). It is recommended to use filters that modify LogEvents only with Loggers, but they will also work with Appenders.

Super class

lgr::EventFilter -> FilterForceLevel

Public fields

level an integer log level used to override the log levels of each LogEvent processed by this filter.

Methods

Public methods:

• FilterForceLevel$new()
• FilterForceLevel$clone()

Method new(): Initialize a new FilterForceLevel

Usage:
FilterForceLevel$new(level)

Arguments:
level an integer or character log level

Method clone(): The objects of this class are cloneable with this method.

Usage:
FilterForceLevel$clone(deep = FALSE)

Arguments:
deep Whether to make a deep clone.

Examples

lg <- get_logger("test")

analyse <- function(){
  lg$add_filter(FilterForceLevel$new("info"), "force")
on.exit(lg$remove_filter("force"))
  lg$error("an error with forced log level INFO")
}
FilterInject

Inject values into all events processed by a Logger/Appender

Description

Inject arbitrary values into all LogEvents processed by a Logger/Appender. It is recommended to use filters that modify LogEvents only with Loggers, but they will also work with Appenders.

Super class

lg: EventFilter -> FilterInject

Public fields

values a named list of values to be injected into each LogEvent processed by this filter

Methods

Public methods:

• FilterInject$new()
• FilterInject$clone()

Method new(): Initialize a new FilterInject

Usage:
FilterInject$new(..., .list = list())

Arguments:
..., .list any number of named R objects that will be injected as custom fields into all LogEvents processed by the Appender/Logger that this filter is attached to. See also with_log_value().

Method clone(): The objects of this class are cloneable with this method.

Usage:
FilterInject$clone(deep = FALSE)

Arguments:
deep Whether to make a deep clone.
Examples

```r
lg <- get_logger("test")

analyse <- function()
  lg$add_filter(FilterInject$new(type = "analysis"), "inject")
  on.exit(lg$remove_filter("inject"))
  lg$error("an error with forced custom 'type'-field")
}

analyse()
lg$error("an normal error")
lg$config(NULL) # reset config
```

### get_caller

#### Information About the System

**Description**

`get_caller()` Tries to determine the calling functions based on `where`.

**Usage**

```r
get_caller(where = -1L)
get_user(fallback = "unknown user")
```

**Arguments**

- `where` integer scalar (usually negative). Look up that many frames up the call stack
- `fallback` A fallback in case the user name could not be determined

**Value**

a character scalar.

**See Also**

`base::sys.call()`

`whoami::whoami()`

**Examples**

```r
foo <- function() get_caller(-1L)
foo()
get_user()
```
**Get/Create a Logger**

**Description**

Get/Create a Logger

**Usage**

```r
get_logger(name, class = Logger, reset = FALSE)
get_logger_glue(name)
```

**Arguments**

- **name**: a character scalar or vector. The qualified name of the Logger as a hierarchical value.
- **class**: An `R6ClassGenerator` object. Usually `Logger` or `LoggerGlue` are the only valid choices.
- **reset**: a logical scalar. If TRUE the logger is reset to an unconfigured state. Unlike `$config(NULL)` this also replaces a `LoggerGlue` with vanilla `Logger`. Please note that this will invalidate Logger references created before the reset call (see examples).

**Value**

a `Logger`

**Examples**

```r
lg <- get_logger("log/ger/test")
# equivalent to
lg <- get_logger(c("log", "ger", "test"))
lg$warn("a %s message", "warning")
lg
lg$parent

if (requireNamespace('glue')){
  lg <- get_logger_glue("log/ger")
}
lg$warn("a {.text} message", .text = "warning")

# completely reset 'glue' to an unconfigured vanilla Logger
get_logger("log/ger", reset = TRUE)
# WARNING: this invalidates existing references to the Logger
try(lg$info("lg has been invalidated an no longer works"))

lg <- get_logger("log/ger")
lg$info("now all is well again")
```
get_log_levels

Manage Log Levels

Description
Display, add and remove character labels for log levels.

Usage
get_log_levels()
add_log_levels(levels)
remove_log_levels(level_names)

Arguments
levels a named character vector (see examples)
level_names a character vector of the names of the levels to remove

Value
a named character vector of the globally available log levels (add_log_levels() and remove_log_levels() return invisibly).

Default Log Levels
lgr comes with the following predefined log levels that are identical to the log levels of log4j.

<table>
<thead>
<tr>
<th>Level</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>off</td>
<td>A log level of 0/off tells a Logger or Appender to suspend all logging</td>
</tr>
<tr>
<td>100</td>
<td>fatal</td>
<td>Critical error that leads to program abort. Should always indicate a stop() or similar</td>
</tr>
<tr>
<td>200</td>
<td>error</td>
<td>A severe error that does not trigger program abort</td>
</tr>
<tr>
<td>300</td>
<td>warn</td>
<td>A potentially harmful situation, like warning()</td>
</tr>
<tr>
<td>400</td>
<td>info</td>
<td>An informational message on the progress of the application</td>
</tr>
<tr>
<td>500</td>
<td>debug</td>
<td>Finer grained informational messages that are mostly useful for debugging</td>
</tr>
<tr>
<td>600</td>
<td>trace</td>
<td>An even finer grained message than debug</td>
</tr>
<tr>
<td>NA</td>
<td>all</td>
<td>A log level of NA/all tells a Logger or Appender to process all log events</td>
</tr>
</tbody>
</table>

Examples
get_log_levels()
add_log_levels(c(errorish = 250))
get_log_levels()
remove_log_levels("errorish")
get_log_levels()
is_filter  

Check if an R Object is a Filter

Description

Returns TRUE for any R object that can be used as a Filter for Loggers or Appenders:

- a function with the single argument event;
- an EventFilter R6::R6 object; or
- any object with a $filter(event) method.

Note: A Filter must return a scalar TRUE or FALSE, but this property cannot be checked by is_filter().

Usage

is_filter(x)

Arguments

x any R Object

Value

TRUE or FALSE

See Also

EventFilter, Filterable

label_levels  

Label/Unlabel Log Levels

Description

Label/Unlabel Log Levels

Usage

label_levels(levels, log_levels = getOption("lgr.log_levels"))

unlabel_levels(labels, log_levels = getOption("lgr.log_levels"))
Arguments

levels an integer vector of log levels
log_levels named integer vector of valid log levels
labels a character vector of log level labels. Please note that log levels are lowercase by default, even if many appenders print them in uppercase.

Value

a character vector for label_levels() and an integer vector for unlabel_levels

See Also

get_log_levels()

Other formatting utils: colorize_levels()

Examples

x <- label_levels(c(seq(0, 600, by = 100), NA))
print(x)
unlabel_levels(x)

Description

Abstract Class for Layouts

Details

Appenders pass LogEvents to a Layout which formats it for output. For the Layouts included in lgr that means turning the LogEvent into a character string.

For each Appender exist one more more possible Layouts, but not every Layout will work with every Appender. See the package lgrExtra for examples for Layouts that return different data types (such as data.frames) and Appenders that can handle them.

Notes for developers

Layouts may have an additional $read(file, threshold, n) method that returns a character vector, and/or an $parse(file) method that returns a data.frame. These can be used by Appenders to $show() methods and $data active bindings respectively (see source code of AppenderFile).
Methods

Public methods:

• `Layout$format_event()`
• `Layout$toString()`
• `Layout$clone()`

Method `format_event()`: Format a log event
Function that the Layout uses to transform a `LogEvent` into something that an `Appender` can write to an output destination.

Usage:
`Layout$format_event(event)`

Arguments:
`event` a `LogEvent`

Method `toString()`:

Usage:
`Layout$toString()`

Method `clone()`: The objects of this class are cloneable with this method.

Usage:
`Layout$clone(deep = FALSE)`

Arguments:
`deep` Whether to make a deep clone.

See Also

Other Layouts: `LayoutFormat`, `LayoutGlue`, `LayoutJson`

<table>
<thead>
<tr>
<th>LayoutFormat</th>
<th>Format Log Events as Text</th>
</tr>
</thead>
</table>

Description

Format Log Events as Text
Format Log Events as Text

Details

Format a `LogEvent` as human readable text using `format.LogEvent()`, which provides a quick and easy way to customize log messages. If you need more control and flexibility, consider using `LayoutGlue` instead.

see Fields
see Fields
see Fields
see Fields

Convert Layout to a character string Read a log file written using `LayoutFormat`
Format Tokens

This is the same list of format tokens as for `format.LogEvent()

%t The timestamp of the message, formatted according to `timestamp_fmt`
%l the log level, lowercase character representation
%L the log level, uppercase character representation
%k the log level, first letter of lowercase character representation
%K the log level, first letter of uppercase character representation
%n the log level, integer representation
%g the name of the logger
%p the PID (process ID). Useful when logging code that uses multiple threads.
%c the calling function
%m the log message
%f all custom fields of x in a pseudo-JSON like format that is optimized for human readability and console output
%j all custom fields of x in proper JSON. This requires that you have `jsonlite` installed and does not support colors as opposed to %f

Super class

`lgr::Layout` -> `LayoutFormat`

Active bindings

fmt a character scalar containing format tokens. See `format.LogEvent()`.
timestamp_fmt a character scalar. See `base::format.POSIXct()`.
colors a named list of functions (like the ones provided by the package `crayon`) passed on on `format.LogEvent()`.
pad_levels "right", "left" or NULL. See `format.LogEvent()`.

Methods

Public methods:

• `LayoutFormat$new()`
• `LayoutFormat/format_event()`
• `LayoutFormat/set_fmt()`
• `LayoutFormat/set_timestampFmt()`
• `LayoutFormat/set_colors()`
• `LayoutFormat/set_pad_levels()`
• `LayoutFormat/toString()`
• `LayoutFormat/read()`
• `LayoutFormat/clone()`
Method new():
Usage:
`LayoutFormat$new()
fmt = "%L [%t] %m %j",
timestamp_fmt = "%Y-%m-%d %H:%M:%OS3",
colors = NULL,
pad_levels = "right"
)`

Method format_event(): Format a LogEvent
Usage:
`LayoutFormat$format_event(event)
Arguments:
  event a LogEvent`

Method set_fmt():
Usage:
`LayoutFormat$set_fmt(x)
Method set_timestamp_fmt():
Usage:
`LayoutFormat$set_timestamp_fmt(x)
Method set_colors():
Usage:
`LayoutFormat$set_colors(x)
Method set_pad_levels():
Usage:
`LayoutFormat$set_pad_levels(x)
Method toString():
Usage:
`LayoutFormat$toString()
Method read():
Usage:
`LayoutFormat$read(file, threshold = NA_integer_, n = 20L)
Arguments:
  threshold a character or integer threshold
  n number of log entries to display`

Method clone(): The objects of this class are cloneable with this method.
Usage:
`LayoutFormat$clone(deep = FALSE)
Arguments:
  deep Whether to make a deep clone.`
See Also

Other Layouts: LayoutGlue, LayoutJson, Layout

Examples

```r
# setup a dummy LogEvent
event <- LogEvent$new(
  logger = Logger$new("dummy logger"),
  level = 200,
  timestamp = Sys.time(),
  caller = NA_character_,
  msg = "a test message"
)
lo <- LayoutFormat$new()
lo$format_event(event)
```

Description

Format a LogEvent as human readable text using glue::glue. The function is evaluated in an environment in which it has access to all elements of the LogEvent (see examples). This is more flexible than LayoutFormat, but also more complex and slightly less performant.

Super class

lgr::Layout -> LayoutGlue

Active bindings

fmt A string that will be interpreted by glue::glue()

Methods

Public methods:

- LayoutGlue$new()
- LayoutGlue$format_event()
- LayoutGlue$set_fmt()
- LayoutGlue$set_colors()
- LayoutGlue$toString()
- LayoutGlue$clone()

Method new():

Usage:
LayoutGlue$new(
  fmt = "{pad_right(colorize_levels(toupper(level_name)), 5)) [[timestamp]] (msg)"
)

Method format_event():
  Usage:
  LayoutGlue$format_event(event)

Method set_fmt():
  Usage:
  LayoutGlue$set_fmt(x)

Method set_colors():
  Usage:
  LayoutGlue$set_colors(x)

Method toString():
  Usage:
  LayoutGlue$toString()

Method clone(): The objects of this class are cloneable with this method.
  Usage:
  LayoutGlue$clone(deep = FALSE)
  Arguments:
  deep Whether to make a deep clone.

See Also

lgr exports a number of formatting utility functions that are useful for layout glue: colorize_levels(),
 pad_left(), pad_right().
Other Layouts: LayoutFormat, LayoutJson, Layout

Examples

lg <- get_logger("test")$
  set_appenders(AppenderConsole$new())$
  set_propagate(FALSE)

lg$appenders[[1]]$set_layout(LayoutGlue$new())
lg$fatal("test")

# All fields of the LogEvent are available, even custom ones
lg$appenders[[1]]$layout$set_fmt(
  "({logger}) {level_name}(({level}) {caller}: {toupper(msg)}) {{custom: {custom}}})"
)
lg$fatal("test", custom = "foobar")
lg$config(NULL) # reset logger config
Description

A format for formatting LogEvents as jsonlines log files. This provides a nice balance between human- and machine-readability.

Super class

lgr::Layout -> LayoutJson

Active bindings

toJSON_args a list of values passed on to jsonlite::toJSON()
timestamp_fmt Used by $format_event() to format timestamps.

Methods

Public methods:

• LayoutJson$new()
• LayoutJson$format_event()
• LayoutJson$set_toJSON_args()
• LayoutJson$set_timestamp_fmt()
• LayoutJson$toString()
• LayoutJson$parse()
• LayoutJson$read()
• LayoutJson$clone()

Method new():
Usage:
LayoutJson$new(toJSON_args = list(auto_unbox = TRUE), timestamp_fmt = NULL)

Method format_event():
Usage:
LayoutJson$format_event(event)

Method set_toJSON_args(): Set arguments to pass on to jsonlite::toJSON()

Usage:
LayoutJson$set_toJSON_args(x)
Arguments:
x a named list

Method set_timestamp_fmt(): Set a format that this Layout will apply to timestamps.
Usage:
LayoutJson$set_timestamp_fmt(x)

Arguments:
x • NULL (the default): formatting of the timestamp is left to `jsonlite::toJSON()
  • a character scalar as for `format.POSIXct()
  • a function that returns a vector of the same length as its (POSIXct) input. The returned
    vector can be of any type supported by `jsonlite::toJSON()`, but should usually be
    character.

Method toString():
Usage:
LayoutJson$toString()

Method parse():
Usage:
LayoutJson$parse(file)

Method read():
Usage:
LayoutJson$read(file, threshold = NA_integer_, n = 20L)

Method clone(): The objects of this class are cloneable with this method.

Usage:
LayoutJson$clone(deep = FALSE)

Arguments:
  deep  Whether to make a deep clone.

See Also

`read_json_lines()`, https://jsonlines.org/

Other Layouts: LayoutFormat, LayoutGlue, Layout

Examples

# setup a dummy LogEvent
event <- LogEvent$new(
  logger = Logger$new("dummy logger"),
  level = 200,
  timestamp = Sys.time(),
  caller = NA_character_,
  msg = "a test message",
  custom_field = "LayoutJson can handle arbitrary fields"
)

# Default settings show all event fals
lo <- LayoutJson$new()
lo$format_event(event)
LogEvent

LogEvents - The atomic unit of logging

Description

A LogEvent is a single unit of data that should be logged. LogEvents are usually created by a Logger, and then processed by one more Appenders. They do not need to be instantiated manually except for testing and experimentation; however, if you plan on writing your own Appenders or Layouts you need to understand LogEvents.

Public fields

- **level** integer. The log_level / priority of the LogEvent. Use the active binding level_name to get the character representation instead.
- **timestamp** POSIXct. The time when then the LogEvent was created.
- **caller** character. The name of the calling function.
- **msg** character. The log message.
- **.logger** Logger. A reference to the Logger that created the event (equivalent to get_logger(event$logger)).

Active bindings

- **values** list. All values stored in the LogEvent, including all custom fields, but not including event$.logger.
- **level_name** character. The log_level / priority of the LogEvent labelled according to getOption("lgr.log_levels")
- **logger** character scalar. The name of the Logger that created this event, equivalent to event$.logger$name

Methods

Public methods:

- LogEvent$new()
- LogEvent$clone()

Method **new()** : The arguments to LogEvent$new() directly translate to the fields stored in the LogEvent. Usually these values will be scalars, but (except for "logger") they can also be vectors if they are all of the same length (or scalars that will be recycled). In this case the event will be treated by the Appenders and Layouts as if several separate events.

Usage:

LogEvent$new(
  logger,
  level = 400,
  timestamp = Sys.time(),
  caller = NA,
  msg = NA,
  ...
)

Arguments:
logger, level, timestamp, caller, msg see Public fields.
... All named arguments in ... will be added to the LogEvent as custom fields. You can store arbitrary R objects in LogEvents this way, but not all Appenders will support them. See AppenderJson for

Method clone(): The objects of this class are cloneable with this method.

Usage:
LogEvent$clone(deep = FALSE)

Arguments:
deepl Whether to make a deep clone.

See Also
as.data.frame.LogEvent()

Other docs relevant for extending lgr: as_LogEvent(), event_list(), standardize_threshold()

Examples
lg <- get_logger("test")
lg$error("foo bar")

# The last LogEvent produced by a Logger is stored in its \last_event\ field
lg$last_event # formatted console output
lg$last_event$values # values stored in the event

# Also contains the Logger that created it as .logger
lg$last_event$logger
# equivalent to
lg$last_event$.logger$name

# This is really a reference to the complete Logger, so the following is # possible (though nonsensical)
lg$last_event$.logger$last_event$msg
identical(lg, lg$last_event$.logger)
lg$config(NULL) # reset logger config

Logger

Loggers

Description
A Logger produces a LogEvent that contains a log message along with metadata (timestamp, calling function, ...) and dispatches it to one or more Appenders which are responsible for the output (console, file, ...) of the event. lgr comes with a single pre-configured Logger called the root Logger that can be accessed via lgr$<...>. Instantiation of new Loggers is done with get_logger(). It is advisable to instantiate a separate Logger with a descriptive name for each package/script in which you use lgr.
Super class

`lgr::Filterable` -> `Logger`

Active bindings

- **name** A character scalar. The unique name of each logger, which also includes the names of its ancestors (separated by `/`).
- **threshold** integer scalar. The threshold of the `Logger`, or if it NULL the threshold it inherits from its closest ancestor with a non-NULL threshold.
- **propagate** A TRUE or FALSE. The unique name of each logger, which also includes the names of its ancestors (separated by `/`).
- **ancestry** A named logical vector of containing the propagate value of each `Logger` upper the inheritance tree. The names are the names of the appenders. ancestry is an S3 class with a custom `format()`/`print()` method, so if you want to use the plain logical vector use `unclass(lg$ancestry)`.
- **parent** a `Logger`. The direct ancestor of the `Logger`.
- **last_event** The last LogEvent produced by the current `Logger`.
- **appenders** a list of all `Appenders` of the `Logger`.
- **inherited_appenders** A list of all appenders that the `Logger` inherits from its ancestors.
- **exception_handler** a function. See `$set_exception_handler` and `$handle_exception`.

Methods

**Public methods:**

- `Logger$new()`
- `Logger$log()`
- `Logger$fatal()`
- `Logger$error()`
- `Logger$warn()`
- `Logger$info()`
- `Logger$debug()`
- `Logger$trace()`
- `Logger$list_log()`
- `Logger$config()`
- `Logger$add_appender()`
- `Logger$remove_appender()`
- `Logger$handle_exception()`
- `Logger$set_exception_handler()`
- `Logger$set_propagate()`
- `Logger$set_threshold()`
- `Logger$set_appenders()`
- `Logger$spawn()`
**Method** `new()`: Loggers should never be instantiated directly with `Logger$new()` but rather via `get_logger("name")`. This way new Loggers are registered in a global namespace which ensures uniqueness and facilitates inheritance between Loggers. If "name" does not exist, a new Logger with that name will be created, otherwise the function returns a Reference to the existing Logger.

name is potentially a "/" separated hierarchical value like foo/bar/baz. Loggers further down the hierarchy are descendants of the loggers above and (by default) inherit threshold and Appenders from their ancestors.

**Usage:**
```r
Logger$new(
  name = "(unnamed logger)",
  appenders = list(),
  threshold = NULL,
  filters = list(),
  exception_handler = default_exception_handler,
  propagate = TRUE
)
```

**Arguments:**
name, appenders, threshold, filters, exception_handler, propagate See section Active bindings.

**Method** `log()`: Log an event.
If level passes the Logger's threshold a new LogEvent with level, msg, timestamp and caller is created. If the new LogEvent also passes the Loggers Filters, it is be dispatched to the relevant Appenders.

**Usage:**
```r
Logger$log(level, msg, ..., timestamp = Sys.time(), caller = get_caller(-7))
```

**Arguments:**
level a character or integer scalar. See log_levels.
msg character. A log message. If unnamed arguments are supplied in ..., msg is passed on to `base::sprintf()` (which means "%" have to be escaped), otherwise msg is left as-is.
... unnamed arguments in ... must be character scalars and are passed to `base::sprintf()`.
Named arguments must have unique names but can be arbitrary R objects that are passed to `LogEvent$new()` and will be turned into custom fields.
timestamp POSIXct. Timestamp of the event.
caller a character scalar. The name of the calling function.

**Method** `fatal()`: Log an Event fatal priority

**Usage:**
```r
Logger$fatal(msg, ..., caller = get_caller(-8L))
```

**Arguments:**
msg, ..., caller see $log()

**Method** `error()`: Log an Event error priority

**Usage:**
Logger$error(msg, ..., caller = get_caller(-8L))

Arguments:
msg, ..., caller see $log()

Method warn(): Log an Event warn priority

Usage:
Logger$warn(msg, ..., caller = get_caller(-8L))

Arguments:
msg, ..., caller see $log()

Method info(): Log an Event info priority

Usage:
Logger$info(msg, ..., caller = get_caller(-8L))

Arguments:
msg, ..., caller see $log()

Method debug(): Log an Event debug priority

Usage:
Logger$debug(msg, ..., caller = get_caller(-8L))

Arguments:
msg, ..., caller see $log()

Method trace(): Log an Event trace priority

Usage:
Logger$trace(msg, ..., caller = get_caller(-8L))

Arguments:
msg, ..., caller see $log()

Method list_log(): list_log() is a shortcut for do.call(Logger$log, x). See https://github.com/s-fleck/joblog for an R package that leverages this feature to create custom log event types for tracking the status of cron jobs.

Usage:
Logger$list_log(x)

Arguments:
x a named list that must at least contain the named elements level and timestamp

Examples:
lg <- get_logger("test")
lg$list_log(list(level = 400, msg = "example"))

Method config(): Load a Logger configuration.

Usage:
Logger$config(cfg, file, text, list)
**Arguments:**
cfg • a special list object with any or all of the following elements: appenders, threshold, filters, propagate, exception_handler,
• the path to a YAML/JSON config file,
• a character scalar containing YAML/JSON,
• NULL (to reset the logger config to the default/unconfigured state)

file, text, list can be used as an alternative to cfg that enforces that the supplied argument is of the specified type. See logger_config for details.

**Method** add_appender(): Add an Appender to the Logger

*Usage:*
Logger$add_appender(appender, name = NULL)

*Arguments:*
appender a single Appender
name a character scalar. Optional but recommended.

*Examples:*
lg <- get_logger("test")
lg$add_appender(AppenderConsole$new(), name = "myconsole")
lg$appenders[[1]]
lg$appenders$myconsole
lg$remove_appender("myconsole")
lg$config(NULL) # reset config

**Method** remove_appender(): remove an appender

*Usage:*
Logger$remove_appender(pos)

*Arguments:*
pos integer index or character name of the Appender(s) to remove

**Method** handle_exception(): To prevent errors in the logging logic from crashing the whole script, Loggers pass errors they encounter to an exception handler. The default behaviour is to demote errors to warnings. See also set_exception_handler().

*Usage:*
Logger$handle_exception(expr)

*Arguments:*
expr expression to be evaluated.

**Method** set_exception_handler(): Set the exception handler of a logger

*Usage:*
Logger$set_exception_handler(fun)

*Arguments:*
fun a function with the single argument e (an error condition)

*Examples:*
lgr$info(stop("this produces a warning instead of an error"))

**Method** set_propagate(): Should a Logger propagate events to the Appenders of its ancestors?

*Usage:*

Logger$set_propagate(x)

*Arguments:*

x TRUE or FALSE. Should LogEvents be passed on to the appenders of the ancestral Loggers?

**Method** set_threshold(): Set the minimum log level of events that a Logger should process

*Usage:*

Logger$set_threshold(level)

*Arguments:*

level character or integer scalar. The minimum log level that triggers this Logger

**Method** set_appenders(): Set the Logger's Appenders

*Usage:*

Logger$set_appenders(x)

*Arguments:*

x single Appender or a list thereof. Appenders control the output of a Logger. Be aware that a Logger also inherits the Appenders of its ancestors (see vignette("lgr", package = "lgr") for more info about Logger inheritance).

**Method** spawn(): Spawn a child Logger. This is very similar to using get_logger(), but can be useful in some cases where Loggers are created programmatically

*Usage:*

Logger$spawn(name)

*Arguments:*

name character vector. Name of the child logger get_logger("foo/bar")$spawn("baz") is equivalent to get_logger("foo/bar/baz")

**Note**

If you are a package developer you should define a new Logger for each package, but you do not need to configure it. The user of the package should decide how and where to output logging, usually by configuring the root Logger (new Appenders added/removed, Layouts modified, etc...).

**See Also**

  glue

  get_logger()
Examples

# lgr::lgr is the root logger that is always available
lgr$info("Today is a good day")
lgr$fatal("This is a serious error")

# Loggers use sprintf() for string formatting by default
lgr$info("Today is %s", Sys.Date() )

# If no unnamed `...` are present, msg is not passed through sprintf()
lgr$fatal("100% bad") # so this works
lgr$fatal("%s%% bad", 100) # if you use unnamed arguments, you must escape %

# You can create new loggers with get_logger()
tf <- tempfile()
lg <- get_logger("mylogger")$set_appenders(AppenderFile$new(tf))

# The new logger passes the log message on to the appenders of its parent
# logger, which is by default the root logger. This is why the following
# writes not only the file 'tf', but also to the console.
lg$fatal("blubb")
readLines(tf)

# This logger's print() method depicts this relationship.
child <- get_logger("lg/child")
print(child)
print(child$name)

# use formatting strings and custom fields
tf2 <- tempfile()
lg$add_appender(AppenderFile$new(tf2, layout = LayoutJson$new()))
lg$info("Not all %s support custom fields", "appenders", type = "test")
cat(readLines(tf), sep = "\n")
cat(readLines(tf2), sep = "\n")

# cleanup
unlink(c(tf, tf2))
lg$config(NULL) # reset logger config

# LoggerGlue
# You can also create a new logger that uses the awesome glue library for
# string formatting instead of sprintf

if (requireNamespace("glue")){
  lg <- get_logger_glue("glue")
  lg$fatal("blah ", "fizz is set to: {fizz}", foo = "bar", fizz = "buzz")
  # prevent creation of custom fields with prefixing a dot
  lg$fatal("blah ", "fizz is set to: {.fizz}", foo = "bar", .fizz = "buzz")

  # completely reset 'glue' to an unconfigured vanilla Logger
  get_logger("glue", reset = TRUE)
# Configuring a Logger

```r
lg <- get_logger("test")
lg$config(NULL) # resets logger to unconfigured state
```

# With setters

```r
lg$
  set_threshold("error")$
  set_propagate(FALSE)$
  set_appenders(AppenderConsole$new(threshold = "info"))
```

```r
lg$config(NULL)
```

# With a list

```r
lg$config(list(
  threshold = "error",
  propagate = FALSE,
  appenders = list(AppenderConsole$new(threshold = "info"))
))
```

```r
lg$config(NULL) # resets logger to unconfigured state
```

# Via YAML

```r
cfg <- "
Logger:
  threshold: error
  propagate: false
  appenders:
    AppenderConsole:
      threshold: info
"
```

```r
lg$config(cfg)
lg$config(NULL)
```

## Method `Logger$set_log`

```r
lg <- get_logger("test")
lg$list_log(list(level = 400, msg = "example"))
```

## Method `Logger$add_appender`

```r
lg <- get_logger("test")
lg$add_appender(AppenderConsole$new(), name = "myconsole")
lg$appenders[[1]]
lg$appenders$myconsole
lg$remove_appender("myconsole")
```
lg$cfg(NULL)  # reset config

## ------------------------------------------------
## Method `Logger$set_exception_handler`
## ------------------------------------------------

lgr$info(stop("this produces a warning instead of an error"))

**Description**

LoggerGlue uses `glue::glue()` instead of `base::sprintf()` to construct log messages. `glue` is a very well designed package for string interpolation. It makes composing log messages more flexible and comfortable at the price of an additional dependency and slightly less performance than `sprintf()`.

**Details**

`glue()` lets you define temporary named variables inside the call. As with the normal Logger, these named arguments get turned into custom fields; however, you can suppress this behaviour by making named argument start with a ".". Please refer to `vignette("lgr", package = "lgr")` for examples.

**Super classes**

`lgr::Filterable` -> `lgr::Logger` -> `LoggerGlue`

**Methods**

**Public methods:**

- `LoggerGlue$fatal()`
- `LoggerGlue$error()`
- `LoggerGlue$warn()`
- `LoggerGlue$info()`
- `LoggerGlue$debug()`
- `LoggerGlue$trace()`
- `LoggerGlue$log()`
- `LoggerGlue$list_log()`
- `LoggerGlue$spawn()`

**Method `fatal()`:**

*Usage:*

LoggerGlue$fatal(..., caller = get_caller(-8L), .envir = parent.frame())
Method `error()`:
Usage:
LoggerGlue$error(..., caller = get_caller(-8L), .envir = parent.frame())

Method `warn()`:
Usage:
LoggerGlue$warn(..., caller = get_caller(-8L), .envir = parent.frame())

Method `info()`:
Usage:
LoggerGlue$info(..., caller = get_caller(-8L), .envir = parent.frame())

Method `debug()`:
Usage:
LoggerGlue$debug(..., caller = get_caller(-8L), .envir = parent.frame())

Method `trace()`:
Usage:
LoggerGlue$trace(..., caller = get_caller(-8L), .envir = parent.frame())

Method `log()`:
Usage:
LoggerGlue$log(
    level,
    ...,
    timestamp = Sys.time(),
    caller = get_caller(-7),
    .envir = parent.frame()
)

Method `list_log()`:
Usage:
LoggerGlue$list_log(x)

Method `spawn()`:
Usage:
LoggerGlue$spawn(name)
Description

logger_config() is an S3 constructor for logger_config objects that can be passed to the $config method of a Logger. You can just pass a normal list instead, but using this constructor is a more formal way that includes additional argument checking.

Usage

```r
logger_config(
    appenders = NULL,
    threshold = NULL,
    filters = NULL,
    exception_handler = NULL,
    propagate = TRUE
)
```

```r
as_logger_config(x)
```

## S3 method for class 'list'
```r
as_logger_config(x)
```

## S3 method for class 'character'
```r
as_logger_config(x)
```

Arguments

- appenders: see Logger
- threshold: see Logger
- filters: see Logger
- exception_handler: see Logger
- propagate: see Logger
- x: any R object. Especially:
  - A character scalar. This can either be the path to a YAML file or a character scalar containing valid YAML
  - a list containing the elements appenders, threshold, exception_handler, propagate and filters. See the section Fields in Logger for details.
  - a Logger object, to clone its configuration.

Value

- a list with the subclass "logger_config"
- a logger_config object
logger_index

See Also

https://yaml.org/

logger_index

Return a data.frame of all registered loggers

Description

Return a data.frame of all registered loggers

Usage

logger_index()

Value

a logger_index data.frame

See Also

logger_tree() for a more visual representation of registered loggers

Examples

get_logger("tree/leaf")
get_logger("shrub/leaf")
get_logger("plant/shrub/leaf")
logger_index()

logger_tree

Logger Tree

Description

Displays a tree structure of all registered Loggers.

Usage

logger_tree()

Value

data.frame with subclass "logger_tree"
Symbology

- unconfigured Loggers are displayed in gray (if your terminal supports colors and you have the package crayon installed).
- If a logger’s threshold is set, it is displayed in square brackets next to its name (reminder: if the threshold is not set, it is inherited from next logger up the logger tree).
- If a logger’s propagate field is set to FALSE an red hash (#) sign is displayed in front of the logger name, to imply that it does not pass LogEvents up the tree.

See Also

logger_index() for a tidy data.frame representation of all registered loggers

Examples

```r
get_logger("fancymodel")
get_logger("fancymodel/shiny")$set_propagate(FALSE)
get_logger("fancymodel/shiny/ui")$set_appenders(AppenderConsole$new())
get_logger("fancymodel/shiny/server")$set_appenders(list(AppenderConsole$new(), AppenderConsole$new()))$set_threshold("trace")
get_logger("fancymodel/plumber")
if (requireNamespace("cli")) {
  print(logger_tree())
}
```

---

**Pad Character Vectors**

Description

Pad Character Vectors

Arguments

- `x` a character vector
- `width` integer scalar. target string width
- `pad` character scalar. the symbol to pad with
Examples

pad_left("foo", 5)
pad_right("foo", 5, ".")
pad_left(c("foo", "foooooo"), pad = ".")

print.Appender

Print an Appender object

Description

The print() method for Loggers displays the most important aspects of the Appender.

Usage

## S3 method for class 'Appender'
print(x, color = requireNamespace("crayon", quietly = TRUE), ...)

Arguments

x any R Object

color TRUE or FALSE: Output with color? Requires the Package crayon

... ignored

Value

print() returns x (invisibly), format() returns a character vector.

Examples

# print most important details of logger
print(lgr$console)

print.LogEvent

Print or Format Logging Data

Description

Print or Format Logging Data
Usage

```r
## S3 method for class 'LogEvent'
print(
  x,
  fmt = "%L [%t] %m %f",
  timestamp_fmt = "%Y-%m-%d %H:%M:%S",
  colors = getOption("lgr.colors"),
  log_levels = getOption("lgr.log_levels"),
  pad_levels = "right",
  ...
)
```

```r
## S3 method for class 'LogEvent'
format(
  x,
  fmt = "%L [%t] %m %f",
  timestamp_fmt = "%Y-%m-%d %H:%M:%S",
  colors = NULL,
  log_levels = getOption("lgr.log_levels"),
  pad_levels = "right",
  ...
)
```

Arguments

- `x`: a `LogEvent`
- `fmt`: A character scalar that may contain any of the tokens listed below in the section Format Tokens.
- `timestamp_fmt`: see `format.POSIXct()`
- `colors`: A list of functions that will be used to color the log levels (likely from `crayon::crayon`).
- `log_levels`: named integer vector of valid log levels
- `pad_levels`: right, left or NULL. Whether or not to pad the log level names to the same width on the left or right side, or not at all.
- `...`: ignored

Value

- `x` for `print()` and a character scalar for `format()`

Format Tokens

- `%t`: The timestamp of the message, formatted according to `timestamp_fmt`
- `%l`: the log level, lowercase character representation
- `%L`: the log level, uppercase character representation
- `%k`: the log level, first letter of lowercase character representation
print.Logger

Print a Logger Object

Description

The `print()` method for Loggers displays the most important aspects of the Logger.

You can also print just the ancestry of a Logger which can be accessed with `logger$ancestry()`. This returns a named character vector whose names correspond to the names of the Loggers `logger` inherits from. The TRUE/FALSE status of its elements correspond to the `propagate` values of these Loggers.

Examples

# standard fields can be printed using special tokens
x <- LogEvent$new(
  level = 300, msg = "a test event", caller = "testfun()", logger = lgr
)
print(x)
print(x, fmt = c("%t (%p) %c: %n - %m"))
print(x, colors = NULL)

# custom values
y <- LogEvent$new(
  level = 300, msg = "a gps track", logger = lgr,
  waypoints = 10, location = "Austria"
)

# default output with %f
print(y)

# proper JSON output with %j
if (requireNamespace("jsonlite") ){
  print(y, fmt = "%L [%t] %m %j")
}
## S3 method for class 'Logger'
print(x, color = requireNamespace("crayon", quietly = TRUE), ...)

## S3 method for class 'Logger'
format(x, color = FALSE, ...)

## S3 method for class 'ancestry'
print(x, color = requireNamespace("crayon", quietly = TRUE), ...)

## S3 method for class 'ancestry'
format(x, color = FALSE, ...)

### Arguments

- **x**: any R Object
- **color**: TRUE or FALSE: Output with color? Requires the Package crayon
- **...**: ignored

### Value

print() returns x (invisibly), format() returns a character vector.

### Examples

```r
# print most important details of logger
print(lgr)
# print only the ancestry of a logger
lg <- get_logger("AegonV/Aerys/Rheagar/Aegon")
get_logger("AegonV/Aerys/Rheagar")$set_propagate(FALSE)
print(lg$ancestry)
unclass(lg$ancestry)
```

---

### Description

Print Logger Trees

### Usage

```r
## S3 method for class 'logger_tree'
print(x, color = requireNamespace("crayon", quietly = TRUE), ...)

## S3 method for class 'logger_tree'
format(x, color = FALSE, ...)
```
Arguments

- `x`: a `logger_tree`
- `color`: logical scalar. If TRUE terminal output is colorized via the package `crayon`?
- `...`: passed on to `cli::tree()`

Value

- `x` (invisibly)

---

**read_json_lines**

*Read a JSON logfile*

Description

Read a JSON logfile

Usage

```r
read_json_lines(file, ...)
```

Arguments

- `file`: character scalar. path to a JSON logfile (one JSON object per line)
- `...`: passed on to `jsonlite::stream_in()`

Value

- a `data.frame`

See Also

- `LayoutJson`
**simple_logging**  
**Simple Logging**

**Description**

`lgr` provides convenience functions managing the root Logger. These are designed chiefly for interactive use and are less verbose than their R6 method counterparts.

`threshold()` sets or retrieves the threshold for an Appender or Logger (the minimum level of log messages it processes). Its target defaults to the root logger. (equivalent to `lgr::lgr$threshold` and `lgr::lgr$set_threshold`)

`console_threshold()` is a shortcut to set the threshold of the root loggers AppenderConsole, which is usually the only Appender that manages console output for a given R session. (equivalent to `lgr::lgr$appenders$console$threshold` and `lgr::lgr$appenders$console$set_threshold`)

`add_appender()` and `remove_appender()` add Appenders to Loggers and other Appenders. (equivalent to `lgr::lgr$add_appender` and `lgr::lgr$remove_appender`)

`show_log()` displays the last n log entries of an Appender (or a Logger with such an Appender attached) with a `$show()` method. Most, but not all Appenders support this function (try AppenderFile or AppenderBuffer).

`show_data()` and `show_dt()` work similar to `show_log()`, except that they return the log as data.frame or data.table respectively. Only Appenders that log to formats that can easily be converted to data.frames are supported (try AppenderJson or AppenderBuffer).

The easiest way to try out this features is by adding an AppenderBuffer to the root logger with `basic_config(memory = TRUE)`.

**Usage**

```r
log_exception(code, logfun = lgr$fatal, caller = get_caller(-3))
threshold(level, target = lgr::lgr)
console_threshold(level, target = lgr::lgr$appenders$console)
add_appender(appender, name = NULL, target = lgr::lgr)
remove_appender(pos, target = lgr::lgr)
show_log(threshold = NA_integer_, n = 20L, target = lgr::lgr)
show_dt(target = lgr::lgr)
show_data(target = lgr::lgr)
```

**Arguments**

- `code`  Any R code
logfun  a function for processing the log request, usually lgr$info(), lgr$debug(), etc...

caller  a character scalar. The name of the calling function

level   integer or character scalar: the desired log level

target  a Logger or Appender or the name of a Logger as character scalar

appender  an Appender

name    character scalar. An optional name for the new Appender.

pos     integer index or character names of the appenders to remove

threshold character or integer scalar. The minimum log level that should be processed by the root logger.

n       integer scalar. Show only the last n log entries that match threshold

Value

threshold() and console_threshold() return the log_level of target as integer (invisibly)

add_appender() and remove_appender() return target.

show_log() prints to the console and returns whatever the target Appender's $show() method returns, usually a character vector, data.frame or data.table (invisibly).

show_data() always returns a data.frame and show_dt() always returns a data.table.

Examples

# Get and set the threshold of the root logger
threshold("error")
threshold()
lgr$info("this will be supressed")
lgr$error("an important error message")

# you can also specify a target to modify other loggers
lg <- get_logger("test")
threshold("fatal", target = lg)
threshold(target = lg)

# If a Logger's threshold is not set, the threshold is inherited from
# its parent, in this case the root logger (that we set to error/200 before)
threshold(NULL, target = lg)
threshold(target = lg)

# Alternative R6 API for getting/setting thresholds
lg$set_threshold("info")
lg$threshold
lg$set_threshold(300)
lg$threshold
lg$set_threshold(NULL)
lg$threshold

# cleanup
lgr$config(NULL)
standardize_threshold

Standardize User-Input Log Levels to Their Integer Representation

Description

These are helper functions for verifying log levels and converting them from their character to their integer representations. This is primarily useful if you want to build your own Loggers, Appenders or Layouts and need to handle log levels in a way that is consistent with lgr.

Usage

standardize_threshold(
  x,
  log_levels = c(getOption("lgr.log_levels"), c(all = NA_integer_, off = 0L))
)

is_threshold(x)

standardize_log_level(x, log_levels = getOption("lgr.log_levels"))

is_log_level(x)

standardize_log_levels(x, log_levels = getOption("lgr.log_levels"))

is_log_levels(x)
**Arguments**

- **x**: a character or integer scalar, or vector for `standardize_log_levels`
- **log_levels**: named integer vector of valid log levels

**Value**

An unnamed integer vector

**See Also**

Other docs relevant for extending lgr: `LogEvent, as_LogEvent(), event_list()`

**Examples**

```r
standardize_threshold("info")
standardize_threshold("all")
is_threshold("all")
is_threshold("foobar")

standardize_log_level("info")
# all is a valid threshold, but not a valid log level
try(is.na(standardize_log_level("all")))
is_log_level("all")

# standardized_log_level intentionally only works with scalars, because many
# functions require scalar log level inputs
try(standardize_log_level(c("info", "fatal")))

# You can still use standardize_log_levels() (plural) to work with vectors
standardize_log_levels(c("info", "fatal"))
```

---

**string_repr**

*Short string representation for R objects*

**Description**

This is inspired by the python function `repr` and produces a short string representation of any R object that is suitable for logging and error messages. It is a generic so you can implement methods for custom S3 objects.

**Usage**

```r
string_repr(x, width = 32, ...)
```

## S3 method for class `function`

```r
string_repr(x, width = 32L, ...)
```
## S3 method for class 'data.frame'
string_repr(x, width = 32L, ...)

## S3 method for class 'matrix'
string_repr(x, width = 32L, ...)

## Default S3 method:
string_repr(x, width = 32L, ...)

### Arguments
- **x**
  - Any R object.
- **width**
  - a scalar integer
- **...**
  - passed on to methods

### Value
- a scalar character

### Examples
```r
string_repr(iris)
string_repr(LETTERS)
string_repr(LETTERS, 10)
```

---

### suspend_logging

**Suspend All Logging**

#### Description

Completely disable logging for all loggers. This is for example useful for automated test code.

**suspend_logging()** globally disables all logging with lgr until **unsuspend_logging()** is invoked, while **without_logging()** and **with_logging()** temporarily disable/enable logging.

#### Usage
```
suspend_logging()
unsuspend_logging()
without_logging(code)
with_logging(code)
```

#### Arguments
- **code**
  - Any R code
Value

`suspend_logging()` and `unsuspend_logging()` return NULL (invisibly), `without_logging()` and `with_logging()` returns whatever code returns.

Examples

```r
lg <- get_logger("test")

# temporarily disable logging
lg$fatal("foo")
without_logging({
  lg$info("everything in this codeblock will be suppressed")
  lg$fatal("bar")
})

# globally disable logging
suspend_logging()
lg$fatal("bar")
with_logging(lg$fatal("foo"))  # log anyways

# globally enable logging again
unsuspend_logging()
lg$fatal("foo")
```

---

`toString.LogEvent`  *Convert a LogEvent to a character string*

**Description**

Convert a LogEvent to a character string

**Usage**

```r
## S3 method for class 'LogEvent'
toString(x, ...)
```

**Arguments**

- `x` a `LogEvent`
- `...` ignored

**Value**

a character scalar

**Examples**

```r
toString(LogEvent$new(logger = lgr::lgr))
```
use_logger  

Setup a Simple Logger for a Package

Description
This gives you a minimal logger with no appenders that you can use inside your package under the name \( \text{lg} \) (e.g. \( \text{lg}\text{fatal}("test") \)). \text{use_logger()} \ does not modify any files but only prints code for you to copy and paste.

Usage
\[
\text{use_logger(} \\
\quad \text{pkg = desc::desc_get("Package", rprojroot::find_package_root_file("DESCRIPTION"))[[1]]} \\
\text{)}
\]

Arguments
- **pkg** character scalar. Name of the package. The default is to try to get the Package name automatically using the packages \text{rprojroot} and \text{desc}.

Value
- a character scalar containing R code.

Examples
\[
\text{use_logger("testpkg")}
\]

with_log_level  

Inject Values into Logging Calls

Description
\text{with_log_level} \ temporarily overrides the log level of all \text{LogEvents} created by target \text{Logger}.

Usage
\[
\text{with_log_level(level, code, logger = lgr::lgr)} \\
\text{with_log_value(values, code, logger = lgr::lgr)}
\]
**with_log_level**

**Arguments**

- **level**: integer or character scalar: the desired log level
- **code**: Any R code
- **logger**: a Logger or the name of one (see `get_logger()`). Defaults to the root logger (lgr::lgr).
- **values**: a named list of values to be injected into the logging calls

**Details**

These functions abuses lgr's filter mechanic to modify LogEvents in-place before they passed on the Appenders. Use with care as they can produce hard to reason about code.

**Value**

whatever code would return

**Examples**

```r
with_log_level("warn", {  
  lgr$info("More important than it seems")  
  lgr$fatal("Really not so bad")  
})
with_log_value(  
  list(msg = "overriden msg"), {  
    lgr$info("bar")  
    lgr$fatal("FOO")  
  })
```
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