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# **logzero Documentation**

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Robust and effective logging for Python 2 and 3.



## Features

- Easy logging to console and/or (rotating) file.
- Provides a fully configured standard Python logger object.
- Pretty formatting, including level-specific colors in the console.
- Windows color output supported by `colorama`
- Robust against str/bytes encoding problems, works with all kinds of character encodings and special characters.
- Multiple loggers can write to the same logfile (also works across multiple Python files).
- Global default logger with `logzero.logger` and custom loggers with `logzero.setup_logger(..)`.
- Compatible with Python 2 and 3.
- All contained in a [single file](#).
- Licensed under the MIT license.
- Heavily inspired by the Tornado web framework.
- Hosted on GitHub: <https://github.com/metachris/logzero>

```
$ python demo.py
[D 170628 09:30:53 demo:4] hello
[I 170628 09:30:53 demo:5] info
[W 170628 09:30:53 demo:6] warn
[E 170628 09:30:53 demo:7] error
```



# CHAPTER 1

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## Installation

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Install *logzero* with `pip`:

```
$ pip install -U logzero
```

If you don't have `pip` installed, this [Python installation guide](#) can guide you through the process.

You can also install *logzero* from the public [Github repo](#):

```
$ git clone https://github.com/metachris/logzero.git
$ cd logzero
$ python setup.py install
```

On openSUSE you can install the current version from repos: [python2-logzero](#), [python3-logzero](#). In the newest openSUSE release you can install it with zypper: `sudo zypper in python2-logzero`.





## CHAPTER 2

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### Example Usage

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You can use *logzero* like this (logs only to the console by default):

```
from logzero import logger

# These log messages are sent to the console
logger.debug("hello")
logger.info("info")
logger.warn("warn")
logger.error("error")

# This is how you'd log an exception
try:
    raise Exception("this is a demo exception")
except Exception as e:
    logger.exception(e)
```

If this was a file called `demo.py`, the output will look like this:

```
$ python demo.py
[D 170705 14:59:47 demo:3] hello
[I 170705 14:59:47 demo:4] info
[W 170705 14:59:47 demo:5] warn
[E 170705 14:59:47 demo:6] error
[E 170705 14:59:47 demo:12] this is a demo exception
Traceback (most recent call last):
  File "demo.py", line 10, in <module>
    raise Exception("this is a demo exception")
Exception: this is a demo exception
```

```
[D 170705 14:59:47 demo:3] hello
[I 170705 14:59:47 demo:4] info
[W 170705 14:59:47 demo:5] warn
```

```
[E 170705 14:59:47 demo:6] error
[E 170705 14:59:47 demo:12] this is a demo exception
Traceback (most recent call last):
  File "demo.py", line 10, in <module>
    raise Exception("this is a demo exception")
Exception: this is a demo exception
```

## Rotating Logfile

Adding a rotating logfile is that easy:

```
import logzero
from logzero import logger

# Setup rotating logfile with 3 rotations, each with a maximum filesize of 1MB:
logzero.logfile("/tmp/rotating-logfile.log", maxBytes=1e6, backupCount=3)

# Log messages
logger.info("This log message goes to the console and the logfile")
```

## Advanced Usage Examples

Here are more examples which show how to use logfiles, custom formatters and setting a minimum loglevel.

Outcome	Method
Set a minimum log level	<code>logzero.loglevel(..)</code>
Add logging to a logfile	<code>logzero.logfile(..)</code>
Setup a rotating logfile	<code>logzero.logfile(..)</code>
Disable logging to a logfile	<code>logzero.logfile(None)</code>
Use a custom formatter	<code>logzero.formatter(..)</code>

```
import logging
import logzero
from logzero import logger

# This log message goes to the console
logger.debug("hello")

# Set a minimum log level
logzero.loglevel(logging.INFO)

# Set a logfile (all future log messages are also saved there)
logzero.logfile("/tmp/logfile.log")

# You can also set a different loglevel for the file handler
logzero.logfile("/tmp/logfile.log", loglevel=logging.ERROR)

# Set a rotating logfile (replaces the previous logfile handler)
logzero.logfile("/tmp/rotating-logfile.log", maxBytes=1000000, backupCount=3)

# Disable logging to a file
logzero.logfile(None)
```

```
# Set a custom formatter
formatter = logging.Formatter('%(name)s - %(asctime)-15s - %(levelname)s: %(message)s
↳');
logzero.formatter(formatter)

# Log some variables
logger.info("var1: %s, var2: %s", var1, var2)
```

## Custom Logger Instances

Instead of using the default logger you can also setup specific logger instances with `logzero.setup_logger(..)`:

```
from logzero import setup_logger
logger1 = setup_logger(name="mylogger1", logfile="/tmp/test-logger1.log",
↳level=logging.INFO)
logger2 = setup_logger(name="mylogger2", logfile="/tmp/test-logger2.log",
↳level=logging.INFO)

# By default, logging
logger1.info("info for logger 1")
logger2.info("info for logger 2")
```

## Adding custom handlers (eg. SysLogHandler)

Since `logzero` uses the standard Python logger object, you can attach any Python logging handlers you can imagine!

This is how you add a `SysLogHandler`:

```
import logzero
import logging
from logging.handlers import SysLogHandler

# Setup the RotatingFileHandler
syslog_handler = SysLogHandler(address=('localhost', logging.SYSLOG_UDP_PORT))
syslog_handler.setLevel(logging.DEBUG)
syslog_handler.setFormatter(logzero.LogFormatter(color=False))

# Attach it to the logzero default logger
logzero.logger.addHandler(syslog_handler)

# Log messages
logzero.logger.info("this is a test")
```



## *logzero.logger*

*logzero.logger* is an already set up standard Python logger instance for your convenience. You can use it from all your files and modules directly like this:

```
from logzero import logger

logger.debug("hello")
logger.info("info")
logger.warn("warn")
logger.error("error")
```

You can reconfigure the default logger globally with *logzero.setup\_default\_logger(..)*.

See the documentation for the Python logger instance for more information about how you can use it.

## *logzero.loglevel(..)*

*logzero.loglevel* (*level=10, update\_custom\_handlers=False*)  
Set the minimum loglevel for the default logger (*logzero.logger*).

This reconfigures only the internal handlers of the default logger (eg. stream and logfile). You can also update the loglevel for custom handlers by using *update\_custom\_handlers=True*.

### Parameters

- **level** (*int*) – Minimum logging-level to display (default: *logging.DEBUG*).
- **update\_custom\_handlers** (*bool*) – If you added custom handlers to this logger and want this to update them too, you need to set *update\_custom\_handlers* to *True*

## logzero.logfile(..)

`logzero.logfile` (*filename*, *formatter=None*, *mode='a'*, *maxBytes=0*, *backupCount=0*, *encoding=None*, *loglevel=None*)

Setup logging to file (using a `RotatingFileHandler` internally).

By default, the file grows indefinitely (no rotation). You can use the `maxBytes` and `backupCount` values to allow the file to rollover at a predetermined size. When the size is about to be exceeded, the file is closed and a new file is silently opened for output. Rollover occurs whenever the current log file is nearly `maxBytes` in length; if either of `maxBytes` or `backupCount` is zero, rollover never occurs.

If `backupCount` is non-zero, the system will save old log files by appending the extensions `‘.1’`, `‘.2’` etc., to the filename. For example, with a `backupCount` of 5 and a base file name of `app.log`, you would get `app.log`, `app.log.1`, `app.log.2`, up to `app.log.5`. The file being written to is always `app.log`. When this file is filled, it is closed and renamed to `app.log.1`, and if files `app.log.1`, `app.log.2`, etc. exist, then they are renamed to `app.log.2`, `app.log.3` etc. respectively.

### Parameters

- **filename** (*int*) – Filename of the logfile. Set to *None* to disable logging to the logfile.
- **formatter** (*Formatter*) – Python logging `Formatter` object (by default uses the internal `LogFormatter`).
- **mode** (*string*) – mode to open the file with. Defaults to `a`
- **maxBytes** (*int*) – Size of the logfile when rollover should occur. Defaults to 0, rollover never occurs.
- **backupCount** (*int*) – Number of backups to keep. Defaults to 0, rollover never occurs.
- **encoding** (*string*) – Used to open the file with that encoding.
- **loglevel** (*int*) – Set a custom loglevel for the file logger, else uses the current global loglevel.

## logzero.formatter(..)

`logzero.formatter` (*formatter*, *update\_custom\_handlers=False*)

Set the formatter for all handlers of the default logger (`logzero.logger`).

This reconfigures only the logzero internal handlers by default, but you can also reconfigure custom handlers by using `update_custom_handlers=True`.

Beware that setting a formatter which uses colors also may write the color codes to logfiles.

### Parameters

- **formatter** (*Formatter*) – Python logging `Formatter` object (by default uses the internal `LogFormatter`).
- **update\_custom\_handlers** (*bool*) – If you added custom handlers to this logger and want this to update them too, you need to set `update_custom_handlers` to `True`

## logzero.setup\_logger(..)

`logzero.setup_logger` (*name=None, logfile=None, level=10, formatter=None, maxBytes=0, backupCount=0, fileLogLevel=None*)

Configures and returns a fully configured logger instance, no hassles. If a logger with the specified name already exists, it returns the existing instance, else creates a new one.

If you set the `logfile` parameter with a filename, the logger will save the messages to the logfile, but does not rotate by default. If you want to enable log rotation, set both `maxBytes` and `backupCount`.

Usage:

```
from logzero import setup_logger
logger = setup_logger()
logger.info("hello")
```

### Parameters

- **name** (*string*) – Name of the `Logger` object. Multiple calls to `setup_logger()` with the same name will always return a reference to the same `Logger` object. (default: `__name__`)
- **logfile** (*string*) – If set, also write logs to the specified filename.
- **level** (*int*) – Minimum `logging-level` to display (default: `logging.DEBUG`).
- **formatter** (*Formatter*) – Python `logging Formatter` object (by default uses the internal `LogFormatter`).
- **maxBytes** (*int*) – Size of the logfile when rollover should occur. Defaults to 0, rollover never occurs.
- **backupCount** (*int*) – Number of backups to keep. Defaults to 0, rollover never occurs.
- **fileLogLevel** (*int*) – Minimum `logging-level` for the file logger (is not set, it will use the `loglevel` from the `level` argument)

### Returns

A fully configured Python logging `Logger` object you can use with `.debug("msg")`, etc.

## Default Log Format

This is the default log format string:

```
DEFAULT_FORMAT = '%(color)s[%(levelname)1.1s %(asctime)s %(module)s:%(lineno)d]%(end_
↪color)s %(message)s'
```

See also the Python `LogRecord` attributes you can use.

## Custom Formatting

It is easy to use a custom formatter / a custom log format string:

- Define your log format string (you can use any of the `LogRecord` attributes).
- Create a `Formatter` object (based on `logzero.LogFormatter` to get all the encoding helpers).

- Supply the formatter object to the *formatter* argument in the *setup\_logger(..)* method.

This is a working example on how to setup logging with a custom format:

```
import logzero

log_format = '%(color)s[%(levelname)1.1s %(asctime)s %(module)s:%(lineno)d]%(end_
↳color)s %(message)s'
formatter = logzero.LogFormatter(fmt=log_format)
logzero.setup_default_logger(formatter=formatter)
```



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### Issues, Feedback & Contributions

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All kind of feedback and contributions are welcome.

- [Create an issue](#)
- [Create a pull request](#)
- <https://github.com/metachris/logzero>
- [chris@linuxuser.at](mailto:chris@linuxuser.at) // [@metachris](#)



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