

R Logging Package Metrics

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1 Introduction

The goal of this document is to collect some readily available statistics of the logging tools available in R to inform our decisions regarding which tool to use. While one of these 5 packages (`logger`) can't be used by some businesses because of current licensing (AGPL-3), it will not be excluded.

A more complete investigative approach has been presented by [[@https://doi.org/10.1002/ece3.5970](https://doi.org/10.1002/ece3.5970)]. This presentation was intended to use five of the criteria presented in that paper but not all have been done:

1 Maturity How long ago was its first release on CRAN

- Not explicitly completed though the downloads plot (Figure 1) indirectly provides that date.

2 Active development Number of updates in past two years

- Not completed.

3 Recently updated Most recent update

4 Documentation available Is there at least one vignette

5 License Can it be used in a business setting without potential risk of forcing disclosure of proprietary or sensitive code?

The most important considerations in selecting a logging system is demonstrating it will work in your environment and it has the functionality you need.

2 Most Recent Update

Once logging packages are recognized as feature complete, frequent updates are not expected. However, updates may be forced by changes in to base R or their dependencies. Note, based on the date of the most recent update, `futile.logger` is apparently stable, resilient to changes in R, and was created with security features years before they were required by CRAN. It has very few dependencies (`utils`, `lambda.r`, and

`futile.options`). Two of the three are by the same author and the third is part of the core package set. See Table 1.

Table 1: Most recent updates of packages.

Package	Latest Update
logger	2021-03-04
lgr	2021-01-10
log4r	2020-01-18
logging	2019-07-14
futile.logger	2016-07-10

3 Downloads

The number of downloads a package experiences is an indicator of interest and a weak surrogate of use. See Figure 1.

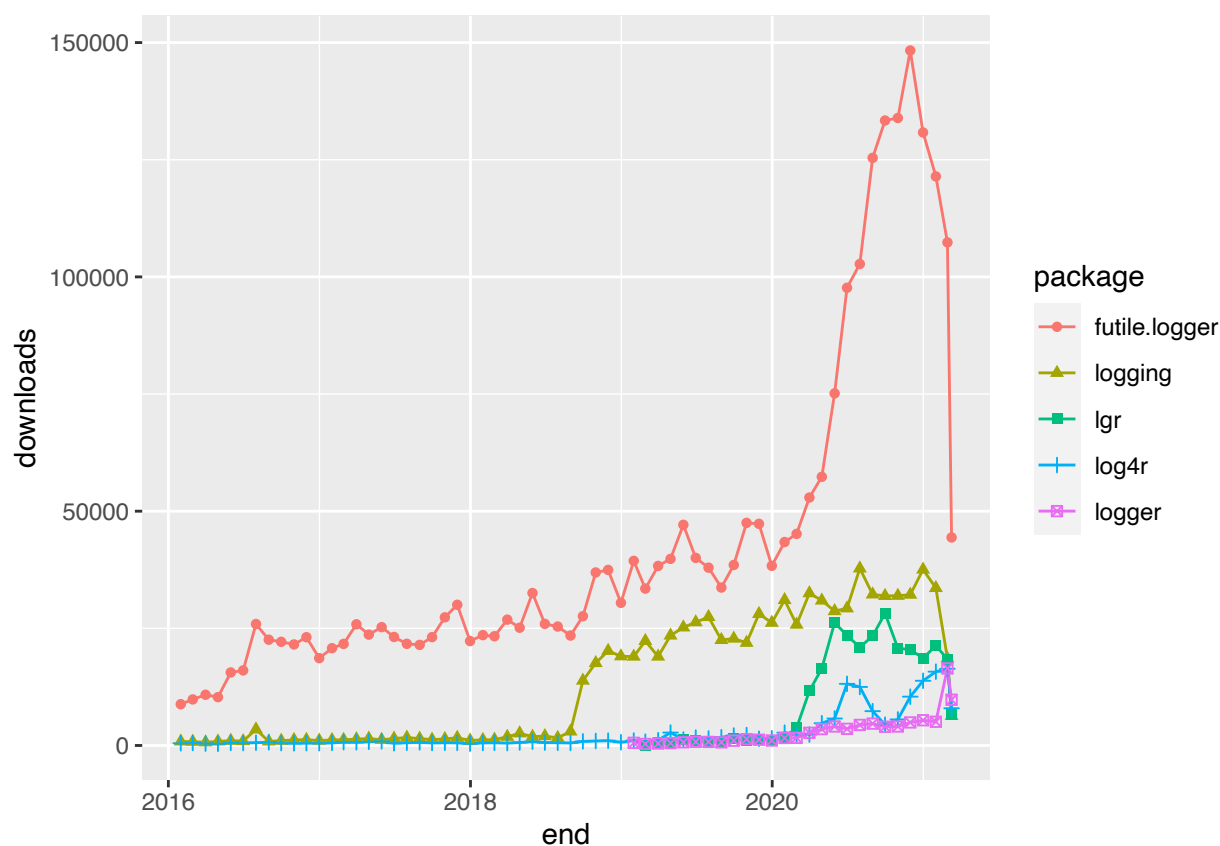


Figure 1: Number of downloads per month of logging packages

4 Number of Reverse Dependencies

Reverse dependencies are a strong surrogate for use but not necessarily a strong surrogate for use in important packages or applications.

Table 2 counts all dependences (Depends, Imports, LinkingTo, Suggests, and Enhances), which is not very meaningful since these will include examples of the other loggers in vignettes.

Table 2: Logging packages and the number of packages currently on CRAN that are using each.

Package	Number of Dependencies
futile.logger	14654
logging	24
lgr	14654
log4r	11
logger	11

Table 3 shows only the counts of essential dependences (Depends, Imports, and LinkingTo), which is a more direct measure of use, but leaves out all uses that are not in CRAN. The number of uses in CRAN is always going to be very small as logging is primarily used in applications and purpose driven scripts and in seldom desired in most general purpose packages.

Table 3: Logging packages and the number of packages currently on CRAN that are using each.

Package	Number of Dependencies
futile.logger	54
logging	7
lgr	33
log4r	2
logger	3

5 Availability of Vignettes

While not required, tutorial vignettes are a convenience. The number and even the availability of tutorials within the parent package can be misleading since the practice of including vignettes within packages was far less common in the past. Fortunately it has been growing in frequency. Counts of available vignettes are shown in Table 4.

Table 4: Count of vignettes within the packages.

Package	Number of Vignettes
futile.logger	0
logging	0
lgr	1
log4r	1
logger	7

6 Licensing

Table 5 shows the licenses used by each of the 5 packages. Note that the LGPL license is more permissive than the GPL licenses.

Table 5: The license for each package

Package	License
futile.logger	LGPL-3
lgr	MIT + file LICENSE
log4r	Artistic-2.0
logger	AGPL-3
logging	GPL-3