Package ‘reportr’

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Title A General Message and Error Reporting System
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Description Provides a system for reporting messages, which provides certain useful fea-
tures over the standard R system, such as the incorporation of output consolidation, message fil-
tering, assertions, expression substitution, automatic generation of stack traces for debug-
ging, and conditional reporting based on the current `"output level"'.
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The `reportr` message reporting system

Description

Functions for reporting informative messages, warnings and errors. These are provided as alternatives to the `message`, `warning` and `stop` functions in base R.

Usage

```r
setOutputLevel(level)

getOutputLevel()

withReportrHandlers(expr)

ask(..., default = NULL, valid = NULL, prefixFormat = NULL)

report(level, ..., prefixFormat = NULL)

flag(level, ...)

reportFlags()

clearFlags()

assert(expr, ..., level = OL$Error, prefixFormat = NULL, envir = parent.frame())
```

Arguments

- `level` The level of output message to produce, or for `setOutputLevel`, the minimum level to display. See Details.
- `expr` An expression to be evaluated.
- `...` Objects which can be coerced to mode character. These will be passed through function `es` (from the `ore` package) for expression substitution, and then printed with no space between them. Options to `es`, such as `round`, may also be given.
- `default` A default return value, to be used when the message is filtered out or the output level is above `Question`.
- `valid` For `ask`, a character vector of valid responses. If necessary, the question will be asked repeatedly until the user gives a suitable response. (Matching is not case-sensitive.)
- `prefixFormat` The format of the string prepended to the message. See Details.
- `envir` For `assert`, the environment in which to evaluate the specified expression.
The reportr system for reporting messages provides certain useful features over the standard R system, such as the incorporation of output consolidation, message filtering, expression substitution, automatic generation of stack traces for debugging, and conditional reporting based on the current "output level". Messages of level at least equal to the value of option reportrStderrLevel are written to standard error (stderr); others are written to standard output (stdout).

The output level is set by the setoutputlevel function, and governs whether a particular call to report will actually report anything. Output levels are described by the OL object, a list with components Debug, Verbose, Info, Warning, Question, Error and Fatal. Any call to report using a level lower than the current output level will produce no output. If report is called before setoutputlevel, the output level will default to Info (with a message).

The flag function is called like report, but it stores messages for later reporting, like warning, rather than reporting them immediately. Stored messages are reported when report is next called, at which point multiple instances of the same message are consolidated where possible. The user may also manually force stored messages to be reported by calling reportFlags, or remove them with clearFlags. Note that the output level at the time that reportFlags is called (implicitly or explicitly) will determine whether the flags are printed.

The ask function requests input from the user, using readline, at output level Question. The text argument then forms the text of the question, and ask returns the text entered by the user.

The assert function asserts that its first argument evaluates to TRUE, and prints an error message if not (or warning, etc., according to the specified output level for the message).

The call report(Error, ...) is largely similar to stop(...) in most cases, except that a stack trace will be printed if the current output level is Debug. The "abort" restart is invoked in any case. No other standard conditions are signalled by report. Stack traces can be generated at lower output levels, if desired, by setting the reportrStackTraceLevel option.

The withReportrHandlers function evaluates expr in a context in which R errors, warnings and messages will be handled by reportr, rather than by the standard R functions.

The prefixFormat argument to report and ask controls how the output message is formatted. It takes the form of a sprintf-style format string, but with different expansions for percent-escapes. Specifically, "%d" expands to a series of stars indicating the current stack depth; "%f" gives the name of the function calling report or ask; "%l" and "%L" give lower and upper case versions of the level of the message, respectively; and "%p" expands to the ID of the current R process (see Sys.getpid). The default is "%d%l: ", giving a prefix such as "* * INFO: ", but this default can be overridden by setting the reportrPrefixFormat option.

A number of other options influence the output produced by reportr, getoutputlevel and setoutputlevel get and set the reportrOutputLevel option, which can be set directly if preferred. The options reportrMessageFilterIn and reportrMessageFilterOut can contain a single character string representing a Perl regular expression, in which case only messages which match (reportrMessageFilterIn) or do not match (reportrMessageFilterOut) the regular expression will be retained. Likewise, the reportrStackTraceFilterIn and reportrStackTraceFilterOut options filter the call stack.

These functions are mainly called for their side effects, but getoutputlevel returns the current output level, withReportrHandlers returns the value of the evaluated expression, and ask returns a character vector of length one giving the user's response.
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See Also

es (in package ore) for expression substitution (which is performed on messages). message, warning, stop and condition for the normal R message and condition signalling framework.

Examples

```
setOutputLevel(OL$Warning)
report(Info, "Test message")  # no output
setOutputLevel(OL$Info)
report(Info, "Test message")  # prints the message

flag(Warning, "Test warning")  # no output
flag(Warning, "Test warning")  # repeated warning
reportFlags()  # consolidates the warnings and prints the message

## Not run: name <- ask("What is your name?")
report(OL$Info, "Hello, #{name}"")
## End(Not run)
```
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