Flycheck

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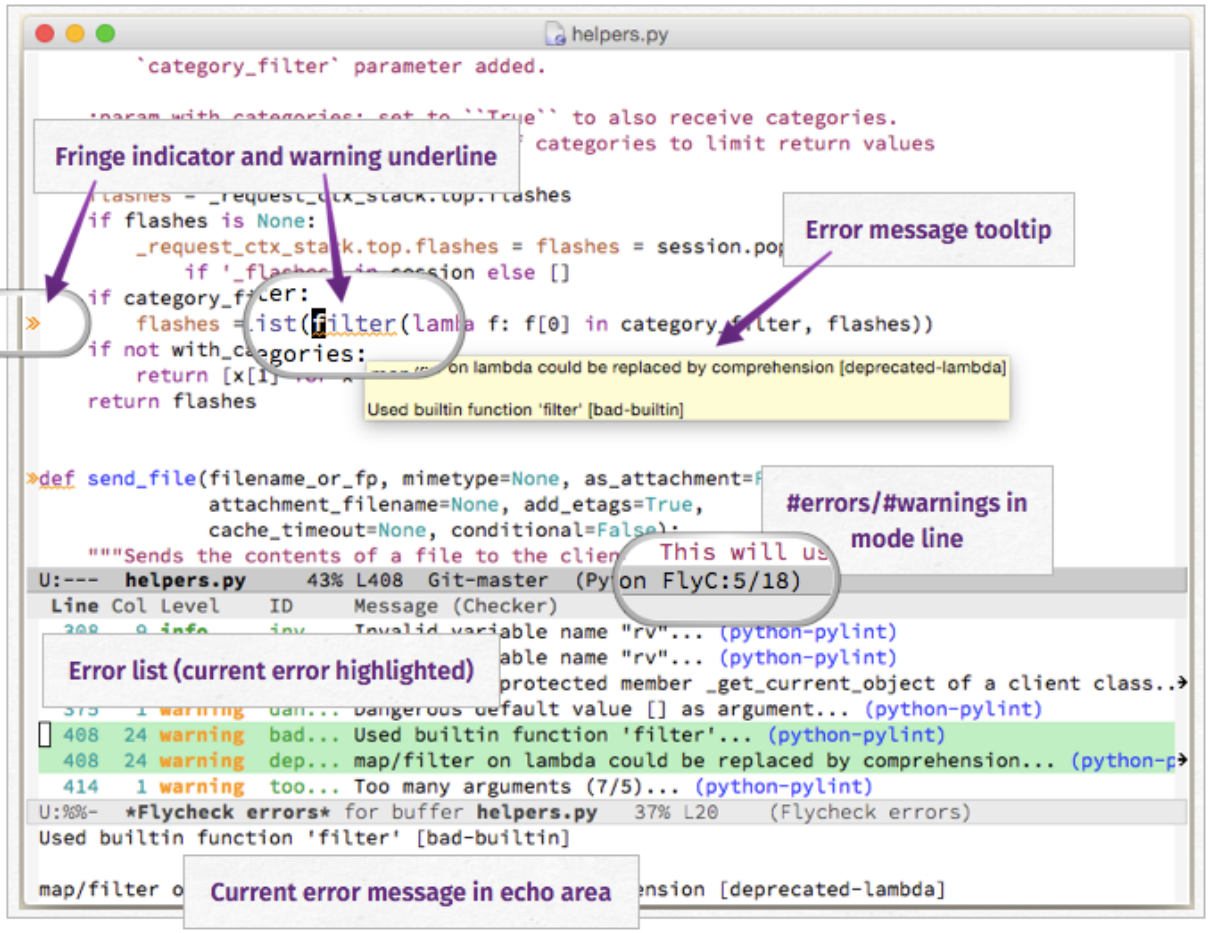
Contents

Flycheck is a modern on-the-fly syntax checking extension for GNU Emacs, intended as replacement for the older Flymake extension which is part of GNU Emacs. For a detailed comparison to Flymake see *Flycheck versus Flymake*.

It uses various syntax checking and linting tools to *automatically check the contents of buffers* while you type, and reports warnings and errors directly in the buffer, or in an optional *error list*:



Out of the box Flycheck supports over *40 different programming languages* with more than 80 different syntax checking tools, and comes with a simple interface to define new syntax checkers.

Many *3rd party extensions* provide new syntax checkers and other features like alternative error displays or mode line indicators.

CHAPTER 1

Try out

Flycheck needs GNU Emacs 24.3 or newer, and works best on Unix systems. **Windows users**, please be aware that Flycheck does not support Windows officially, although it should mostly work fine on Windows. See *Windows support* and watch out for known Windows issues!

To try Flycheck in your Emacs session install some *syntax checker tools* and type the following in your `*scratch*` buffer and run `M-x eval-buffer`:

```
(require 'package)
(add-to-list 'package-archives
             '("melpa" . "http://stable.melpa.org/packages/") t)
(package-initialize)

(package-install 'flycheck)

(global-flycheck-mode)
```

For a permanent installation of Flycheck follow the *Installation* instructions. For a gentle introduction into Flycheck features go through *Quickstart* guide.

CHAPTER 2

The User Guide

The User Guide provides installation and usage help for Flycheck. It starts with installation instructions and a quick start tutorial and then focuses on an in-depth references of all parts of Flycheck.

We are currently in the process of converting the old Texinfo manual to Sphinx. Meanwhile you can read a simple HTML version of the old manual at `flycheck.html`.

Todo

Port the Texinfo manual

2.1 Installation

This document gives you detailed instructions and information about installing Flycheck.

2.1.1 Prerequisites

Flycheck needs GNU Emacs 24.3 and works best on Unix-like systems like Linux or OS X. It does not support older releases of GNU Emacs or other flavours of Emacs (e.g. XEmacs, Aquamacs, etc.).

Windows support

Flycheck does not explicitly support Windows, but tries to maintain Windows compatibility and should generally work fine on Windows, too. However, we can neither answer questions about Windows nor fix bugs that only occur on Windows without the help of active Windows users. Please watch out for known Windows issues.

Syntax checking tools

Flycheck does not check buffers itself but relies on *external* programs to check buffers. These programs must be installed separately. Please take a look at the *list of supported languages* to find out what tools are required for a particular language.

Many of these programs are available in the package repositories of Linux distributions or in Homebrew for OS X. Others can be installed with standard package managers such as Rubygems, NPM, Cabal, etc.

2.1.2 Package installation

We recommend to install Flycheck with Emacs' built-in package manager. Flycheck is available in the popular MELPA archive which provides up to date snapshots of Flycheck's development state. The sibling repository MELPA Stable serves tagged releases of Flycheck instead. We advise to use MELPA if you are fine with weekly or even daily updates. If you would prefer longer time between releases use MELPA Stable instead.

Unfortunately neither of these repositories are available in Emacs by default. You must explicitly add them to `package-archives`, by adding the following to your *init file*:

```
(require 'package)
(add-to-list 'package-archives
             '("melpa" . "https://melpa.org/packages/") t)
(package-initialize)
```

This adds MELPA; for MELPA Stable replace `https://melpa.org` with `https://stable.melpa.org`. If you do not know where your init file is inspect the value of `user-init-file` with `C-h v user-init-file`.

Once the repository is set up you can install Flycheck from Emacs' package menu at `M-x list-packages`, or directly with `M-x package-install RET flycheck`.

use-package

You may want to take a look at use-package which provides simple syntax to declare and configure packages in your init file. In addition to the Github README the article My Emacs configuration with use-package has more information about use-package. Specifically it allows to automatically install missing packages from package archive when Emacs starts.

Add the following form to your init file to setup Flycheck with use-package:

```
(use-package flycheck
  :ensure t
  :init (global-flycheck-mode))
```

Then press `C-M-x` with point somewhere in this form to install and enable Flycheck for the current Emacs session.

2.1.3 Alternative installation methods

Some users prefer to install Flycheck via other methods such as el-get, Git submodules, etc.

We do **not** support any of these methods, and advise against any alternative installation method. We do not consider it a bug if Flycheck works when installed as above but not with a different installation method.

> **Warning:** If you install Flycheck in any way other than *our official packages* you do so **at your own risk**.

Please beware of breakage and understand that while we do not actively work against alternative installation methods we will not make compromises to support alternative installation methods. We will close issues reported for alternative installation if we fail to reproduce them with a proper installation of Flycheck.

2.2 Quickstart

This page gives a quick introduction into Flycheck and an overview of its most important features. Before you start here please make sure that Flycheck is *installed*.

2.2.1 Enable Flycheck

Now add the following code to your *init file* to permanently enable syntax checking with Flycheck:

```
(add-hook 'after-init-hook #'global-flycheck-mode)
```

2.2.2 Install syntax checker programs

Now you need to install syntax checking programs for the languages you'd like to use Flycheck with. The *list of supported languages* tells you which languages Flycheck supports and what programs it uses.

For instance, you can install Pylint for Python and ESLint for Javascript:

```
$ pip install pylint
$ npm install eslint
```

2.2.3 Check syntax in a buffer

Now you are ready to use Flycheck in a Python or Javascript buffer. Visit a Python or Javascript file and check whether your Flycheck setup is complete with `C-c ! v`.

If everything is green Flycheck will now start to check the buffer on the fly while you are editing. Whenever you make a mistake that the eslint or Pylint catch Flycheck will highlight the corresponding place in the buffer with an error underline whose color reflects the severity of the issue. Additionally Flycheck will put a symbol into the fringe for affected lines and show the total number of errors and warnings in the buffer in the mode line.

2.2.4 Navigate and list errors

With `C-c ! n` and `C-c ! p` you can now jump back and forth between erroneous places. If you keep on such a place for a little while Flycheck will show the corresponding error message in the each area. Likewise, if you hover such a place with the mouse cursor Flycheck will show the error message in a tooltip.

Press `C-c ! l` to pop up a list of all errors in the current buffer. This list automatically updates itself when you fix errors or introduce new ones, and follows the currently selected buffer. If the error list is selected you can type `n` and `p` to move up and down between errors and jump to their corresponding location in the buffer.

2.2.5 More features

All Flycheck commands are available in the Emacs Menu at *Tools -→ Syntax checking*:

The same menu also pops up when you click on the mode line lighter:

2.3 Check buffers

Flycheck provides two Emacs minor modes for automatic syntax checking: `Flycheck Mode` to enable syntax checking in the current buffer, and `Global Flycheck Mode` to enable syntax checking in all buffers whenever possible.

Minor Mode `Flycheck Mode`
Enable *automatic syntax checking* in the current buffer.

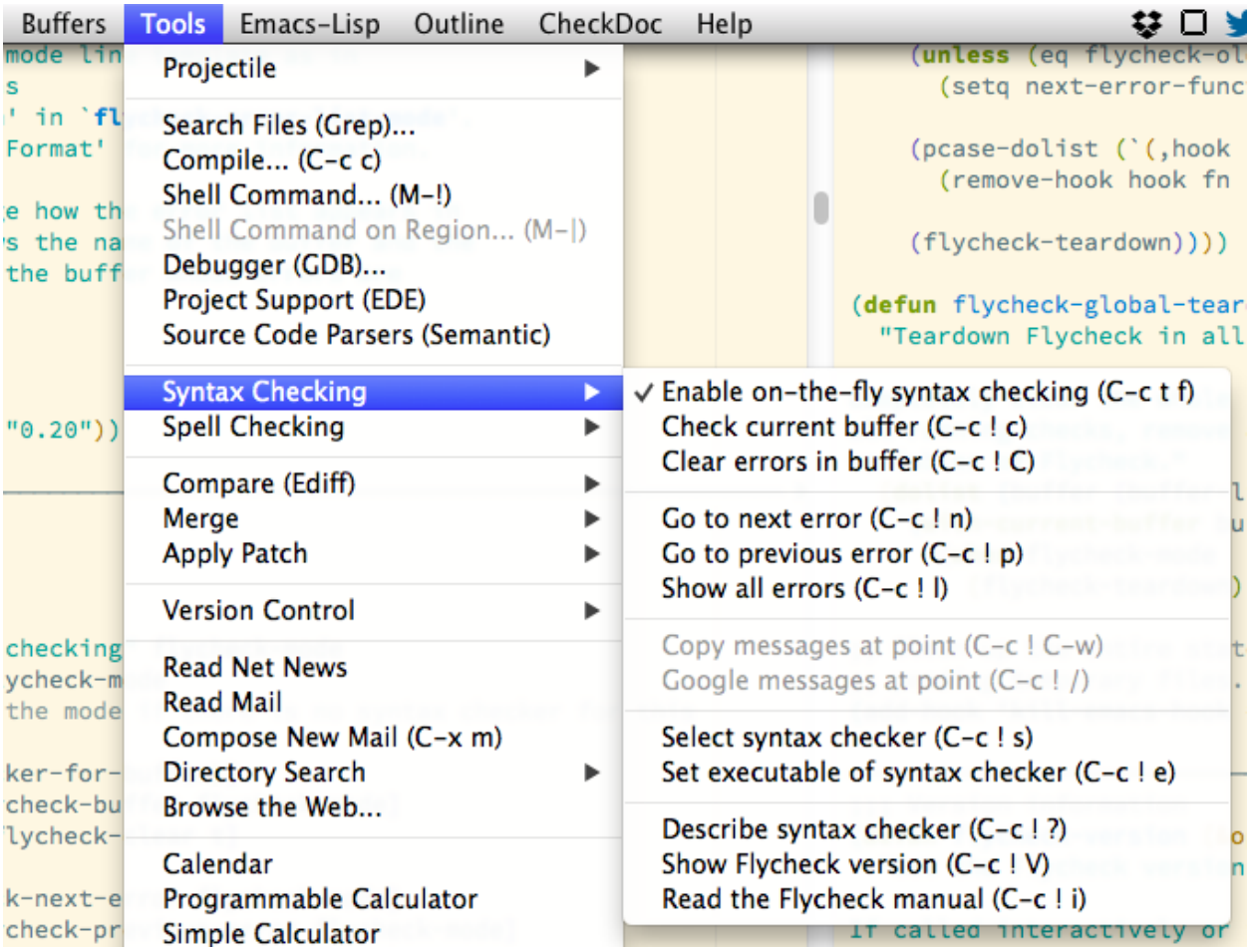


Fig. 2.1: The menu of Flycheck, showing all available Flycheck commands

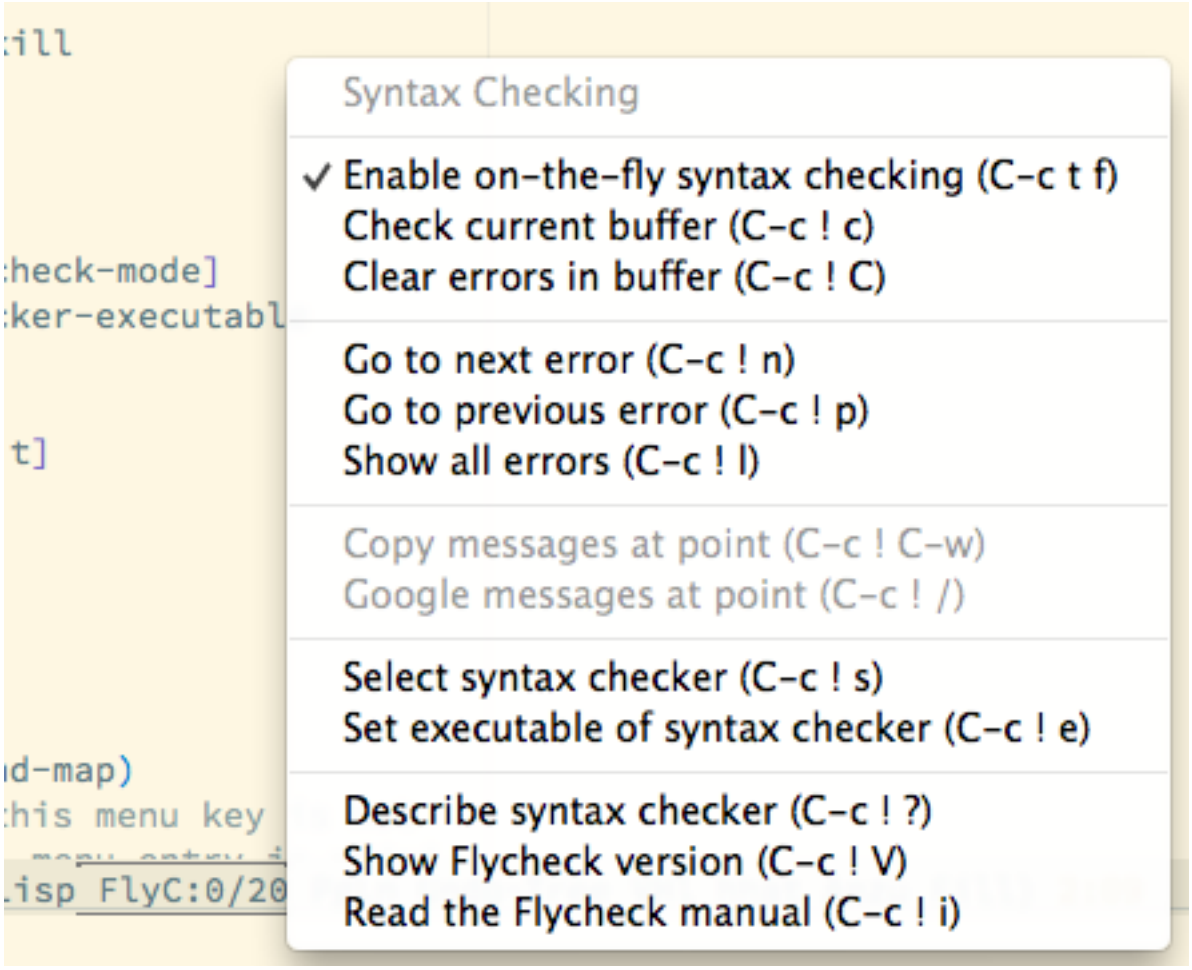


Fig. 2.2: The mode line menu of Flycheck

Minor Mode `Global Flycheck Mode`
Enable *`Flycheck Mode`* in all buffers where syntax checking is possible.

Note: This mode does not enable *`Flycheck Mode`* in remote files (via TRAMP) and encrypted files. Checking remote files may be very slow depending on the network connections, and checking encrypted files would leak confidential data to temporary files and subprocesses.

You can manually enable *`Flycheck Mode`* in these buffers nonetheless, but we do *not* recommend this for said reasons.

Add the following to your *init file* to enable syntax checking permanently:

```
(add-hook 'after-init-hook #'global-flycheck-mode)
```

You can exclude specific major modes from syntax checking with *`flycheck-global-modes`*:

defcustom `flycheck-global-modes`
Major modes for which *`Global Flycheck Mode`* turns on *`Flycheck Mode`*:

`t` (the default) Turn *`Flycheck Mode`* on for all major modes.

`(`*`foo-mode`*` ...)` Turn *`Flycheck Mode`* on for all major modes in this list, i.e. whenever the value of `major-mode` is contained in this list.

`(not `*`foo-mode`*` ...)` Turn *`Flycheck Mode`* on for all major nodes *not* in this list, i.e. whenever the value of `major-mode` is *not* contained in this list.

Note: *`Global Flycheck Mode`* never turns on *`Flycheck Mode`* in major modes whose `mode-class` property is `special`, regardless of the value of this option. Syntax checking simply makes no sense in special buffers which are typically intended for non-interactive display rather than editing.

See also:

Major Mode Conventions(elisp) Information about major modes, and modes marked as special.

2.3.1 Check automatically

By default *`Flycheck Mode`* automatically checks a buffer whenever

- it is enabled,
- the buffer is saved,
- a new line is inserted,
- or a short time after the last change was made in a buffer.

You can customise this behaviour with *`flycheck-check-syntax-automatically`*:

defcustom `flycheck-check-syntax-automatically`
A list of events which trigger a syntax check in the current buffer:

`save` Check the buffer immediately after it was saved.

`new-line` Check the buffer immediately after a new line was inserted.

`idle-change` Check the buffer a short time after the last change. The delay is customisable with *`flycheck-idle-change-delay`*:

defcustom **flycheck-idle-change-delay**
Seconds to wait after the last change to the buffer before starting a syntax check.

mode-enabled Check the buffer immediately after *Flycheck Mode* was enabled.

For instance with the following setting *Flycheck Mode* will only check the buffer when it was saved:

```
(setq flycheck-check-syntax-automatically '(mode-enabled save))
```

2.3.2 Check manually

You can also start a syntax check explicitly with *C-c ! c*:

C-c ! c
M-x flycheck-buffer
Check syntax in the current buffer.

2.3.3 Debug syntax checking

To make sure that syntax checking works correctly verify your setup:

C-c ! v
M-x flycheck-verify-setup
Show a buffer with information about your *Flycheck Mode* setup for the current buffer.

Lists all syntax checkers available for the current buffer, and potential issues with their setup.

2.4 Syntax checkers

Flycheck does not check buffers on its own. Instead it delegates this task to external *syntax checkers* which are external programs or services that receive the contents of the current buffer and return a list of errors in the buffer, together with metadata that tells Flycheck how to run the program, how to pass buffer contents to it, and how to extract errors.

See also:

Supported Languages A complete list of all syntax checkers included in Flycheck

Like everything else in Emacs syntax checkers have online documentation which you can access with *C-c ! ?*:

C-c ! ?
M-x flycheck-describe-checker
Prompt for the name of a syntax checker and pop up a Help buffer with its documentation.

The documentation includes the name of the program or service used, a list of major modes the checker supports and a list of all options for this syntax checker.

2.4.1 Select syntax checkers automatically

Normally Flycheck automatically selects the best syntax checkers for the current buffer from *flycheck-checkers* whenever it needs to check the buffer:

defcustom **flycheck-checkers**
A list of all syntax checkers available for syntax checking.

A syntax checker in this list is a *registered syntax checker*.

Flycheck picks the first syntax checker from this list which exists and supports the current major mode, and runs it over the current buffer. When the checker has finished Flycheck whether it asks for a next syntax checker to run, and if so, runs the next syntax checker, and so on, until there is no more syntax checker for the current buffer. This process repeats whenever Flycheck needs to check the buffer according to *flycheck-check-syntax-automatically*.

For instance, the first syntax checker for Emacs Lisp is *emacs-lisp* which checks Emacs Lisp with Emacs' own byte compiler. This syntax checker asks for *emacs-lisp-checkdoc* to run next, which checks for stylistic issues in Emacs Lisp docstrings. Thus Flycheck will first run the byte compiler and then checkdoc in an Emacs Lisp buffer.

2.4.2 Select syntax checkers manually

Alternatively you can tell Flycheck explicitly which syntax checker to start with in the current buffer:

C-c ! s
M-x flycheck-select-checker
Prompt for a syntax checker and use this syntax checker as the first syntax checker for the current buffer.

Flycheck may still run further syntax checkers from *flycheck-checkers* if the selected syntax checker asks for it.

Flycheck will use the selected syntax checker as "entry point" for syntax checks in the current buffer, just as if it had selected this syntax checker automatically. It will automatically run further syntax checkers from *flycheck-checkers* if the selected syntax checker asks for it.

Under the hood *C-c ! s* sets *flycheck-checker*:

defvar flycheck-checker
The name of a syntax checker to use for the current buffer.

If `nil` (the default) let Flycheck *automatically select* the best syntax checker from *flycheck-checkers*.

If set to a syntax checker Flycheck will use this syntax checker as the first one in the current buffer, and run subsequent syntax checkers just as if it had selected this one automatically.

If the syntax checker in this variable does not work in the current buffer signal an error.

This variable is buffer-local.

We recommend to set *flycheck-checker* via directory local variables to enforce a specific syntax checker for a project. For instance, Flycheck usually prefers *javascript-eslint* for Javascript buffers, but if your project uses *javascript-jshint* instead you can tell Flycheck to use *javascript-jshint* for all Javascript buffers of your project with the following command in the top-level directory of your project: `M-x add-dir-local-variable RET js-mode RET flycheck-checker RET javascript-jshint`. A new buffer pops up that shows the newly created entry in the directory variables. Save this buffer and kill it. From now on Flycheck will check all Javascript files of this project with JSHint.

See also:

Locals(emacs) General information about local variables.

Directory Variables(emacs) Information about directory variables.

To go back to automatic selection either set *flycheck-checker* to `nil` or type *C-u C-c ! s*:

C-u C-c ! s
C-u M-x flycheck-select-checker
Remove any selected syntax checker and let Flycheck again *select a syntax checker automatically*.

2.4.3 Disable syntax checkers

Even if you *select a checker manually* Flycheck may still use a syntax checker that you'd not like to use. To completely opt out from a specific syntax checker disable it:

C-c ! x
M-x flycheck-disable-checker
Prompt for a syntax checker to disable in the current buffer.

For instance if you do not care for documentation conventions of Emacs Lisp you can opt out from *emacs-lisp-checkdoc* which checks your code against these conventions with `C-c ! x emacs-lisp-checkdoc`. After the next check all checkdoc warnings will be gone from the buffer.

Internally this command changes the buffer-local *flycheck-disabled-checkers*:

defcustom flycheck-disabled-checkers
A list of disabled syntax checkers. Flycheck will *never* use disabled syntax checkers to check a buffer.

This option is buffer-local. You can customise this variable with `M-x customize-variable RET flycheck-disabled-checkers` or set the default value in your *init file* to permanently disable specific syntax checkers. For instance:

```
(setq-default flycheck-disabled-checkers '(c/c++-clang))
```

will permanently disable *c/c++-clang* in all buffers.

You can also disable syntax checkers per project with directory local variables. For instance type `M-x add-dir-local-variable RET emacs-lisp-mode RET flycheck-disabled-checkers RET emacs-lisp-checkdoc` in your *user emacs directory* to disable *emacs-lisp-checkdoc* for all Emacs Lisp files in your personal configuration.

See also:

Locals(emacs) General information about local variables.

Directory Variables(emacs) Information about directory variables.

To enable a disabled checker again, remove it from *flycheck-disabled-checkers* or use *C-u C-c ! x*:

C-u C-c ! x
C-u M-x flycheck-disable-checker
Prompt for a disabled syntax checker to enable again in the current buffer.

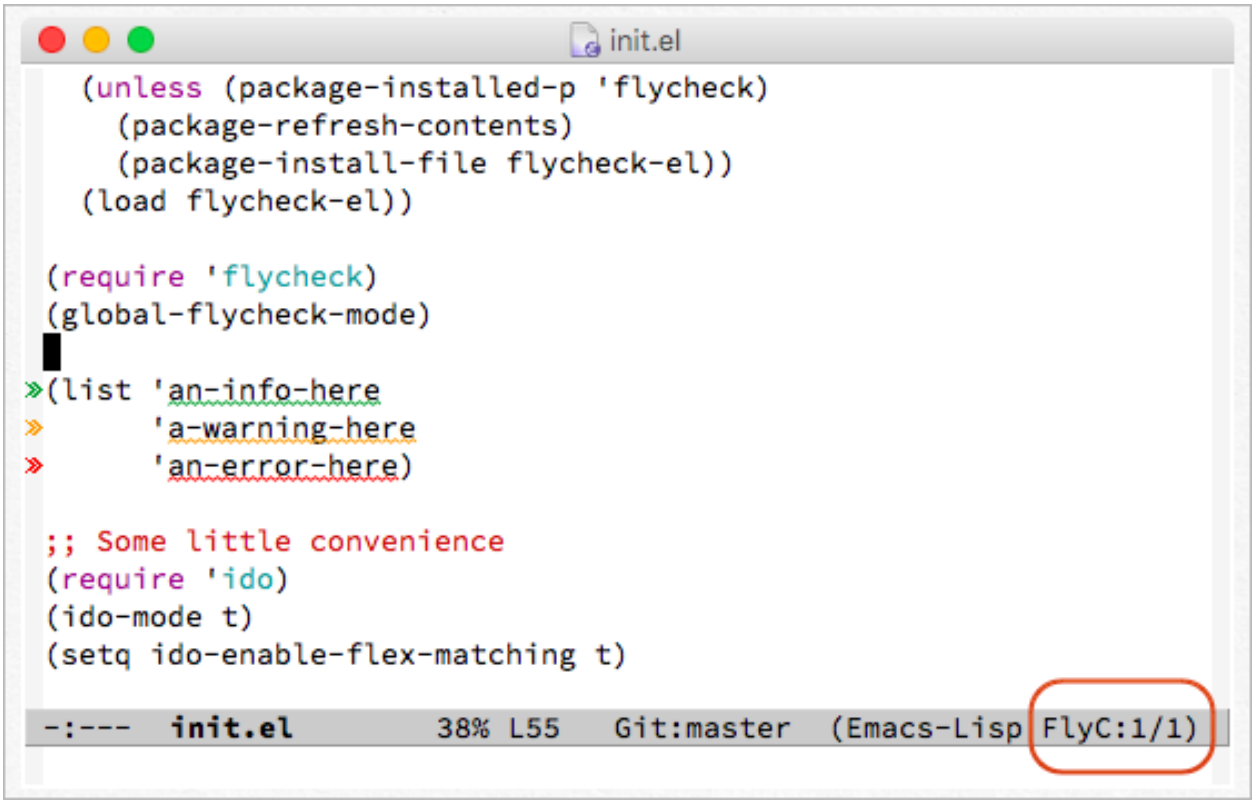
2.5 See errors in buffers

When a syntax check in the current buffer has finished Flycheck reports the results of the check in the current buffer in two ways:

- Highlight errors, warnings, etc. directly in the buffer according to *flycheck-highlighting-mode*.
- Indicate errors, warnings, etc. in the fringe according to *flycheck-indication-mode*.

Additionally Flycheck indicates its current state and the number of errors and warnings in the mode line.

The following screenshot illustrates how this looks like in the default Emacs color theme. It shows an info, a warning and an error annotation, from top to bottom. Please also note the fringe indicators on the left side and the emphasized mode line indicator in the bottom right corner:



Note: The colours of fringe icons and the whole appearance of the error highlights depend on the active color theme. Although red, orange and green or blue seem to be somewhat standard colours for Flycheck's annotations across many popular themes, please take a closer look at your color theme if you're in doubt about the meaning of a Flycheck highlight.

2.5.1 Error levels

All errors that syntax checkers report have a *level* which tells you the severity of the error. Flycheck has three built-in levels:

`error` Severe errors like syntax or type errors.

`warning` Potential but not fatal mistakes which you should likely fix nonetheless.

`info` Purely informational messages which inform about notable things in the current buffer, or provide additional help to fix errors or warnings.

Each error level has a distinct highlighting and colour which helps you to identify the severity of each error right in the buffer.

2.5.2 Error highlights

Flycheck highlights errors directly in the buffer according to `flycheck-highlighting-mode`. By default these highlights consist of a coloured wave underline which spans the whole symbol at the error location as in the screenshot above but the highlights are entirely customisable. You can change the extents of highlighting or disable it completely with `flycheck-highlighting-mode`, or customise Flycheck's faces to change the style of the underline or use different colours.

defcustom `flycheck-highlighting-mode`
How Flycheck highlights errors and warnings in the buffer:

`nil` Do not highlight anything at all.

`lines` Highlight the whole line and discard any information about the column.

`columns` Highlight the column of the error if any, otherwise like `lines`.

`symbols` Highlight the entire symbol around the error column if any, otherwise like `columns`. This is this default.

`sexps` Highlight the entire expression around the error column if any, otherwise like `columns`.

> **Warning:** In some major modes `sexps` is *very* slow, because discovering expression boundaries efficiently is hard.
> The built-in `python-mode` is known to suffer from this issue.
> Be careful when enabling this mode.

The highlights use the following faces depending on the error level:

defface `flycheck-error`
defface `flycheck-warning`
defface `flycheck-info`
The highlighting face for `error`, `warning` and `info` levels respectively.

2.5.3 Fringe icons

In GUI frames Flycheck also adds indicators to the fringe—the left or right border of an Emacs window that is—to help you identify erroneous lines quickly. These indicators consist of a rightward-pointing double arrow shape coloured in the colour of the corresponding error level.

Note: Flycheck extensions can define custom error levels with different fringe indicators. Furthermore some Emacs distributions like Spacemacs redefine Flycheck's error levels to use different indicators. If you're using such a distribution please take a look at its documentation if you're unsure about the appearance of Flycheck's indicators.

Note that we discourage you from changing the shape of Flycheck's fringe indicators.

You can customise the location of these indicators (left or right fringe) with *`flycheck-indication-mode`* which also lets you turn off these indicators completely:

defcustom `flycheck-indication-mode`
How Flycheck indicates errors and warnings in the buffer fringes:

`left-fringe` or `right-fringe` Use the left or right fringe respectively.

`nil` Do not indicate errors and warnings in the fringe.

The following faces control the colours of the fringe indicators. However they do not let you change the shape of the indicators—to achieve this you'd have to redefine the error levels with `flycheck-define-error-level`.

defface `flycheck-fringe-error`
defface `flycheck-fringe-warning`
defface `flycheck-fringe-info`
The icon faces for `error`, `warning` and `info` levels respectively.

2.5.4 Mode line

Like all minor modes Flycheck also has a mode line indicator. You can see it in the bottom right corner of the above screenshot. By default the indicator shows Flycheck's current state via one of the following texts:

`FlyC*`	Flycheck is checking the buffer currently.
`FlyC`	There are no errors or warnings in the current buffer.
`FlyC:3/5`	There are three errors and five warnings in the current buffer.
`FlyC-`	Flycheck did not find a syntax checker for the current buffer. Take a look at the *list of supported languages* and type `C-c ! v` to see what checkers are available for the current buffer.
`FlyC!`	The last syntax check failed. Inspect the `*Messages*` buffer look for error messages, and consider *reporting a bug*.
`FlyC?`	The last syntax check had a dubious result. The definition of a syntax checker may have a bug. Inspect the `*Messages*` buffer and consider *reporting a bug*.

You can entirely customise the mode line indicator with `flycheck-mode-line`:

`flycheck-mode-line`
A "mode line construct" for Flycheck's mode line indicator.

See also:

Mode Line Data(elisp) Documentation of mode line constructs.

flycheck-status-emoji A Flycheck extension which puts emojis into Flycheck's mode line indicator.

flycheck-color-mode-line A Flycheck extension which colours the entire mode line according to Flycheck's status.

2.5.5 Error thresholds

To avoid flooding a buffers with excessive highlighting, cluttering the appearance and slowing down Emacs, Flycheck takes precautions against syntax checkers that report a large number of errors exceeding `flycheck-checker-error-threshold`:

defcustom `flycheck-checker-error-threshold`
The maximum number of errors a syntax checker is allowed to report.

If a syntax checker reports more errors the error information is **discarded**. To not run into the same issue again on the next syntax check the syntax checker is automatically added to `flycheck-disabled-checkers` in this case to disable it for the next syntax check.

2.5.6 Clear results

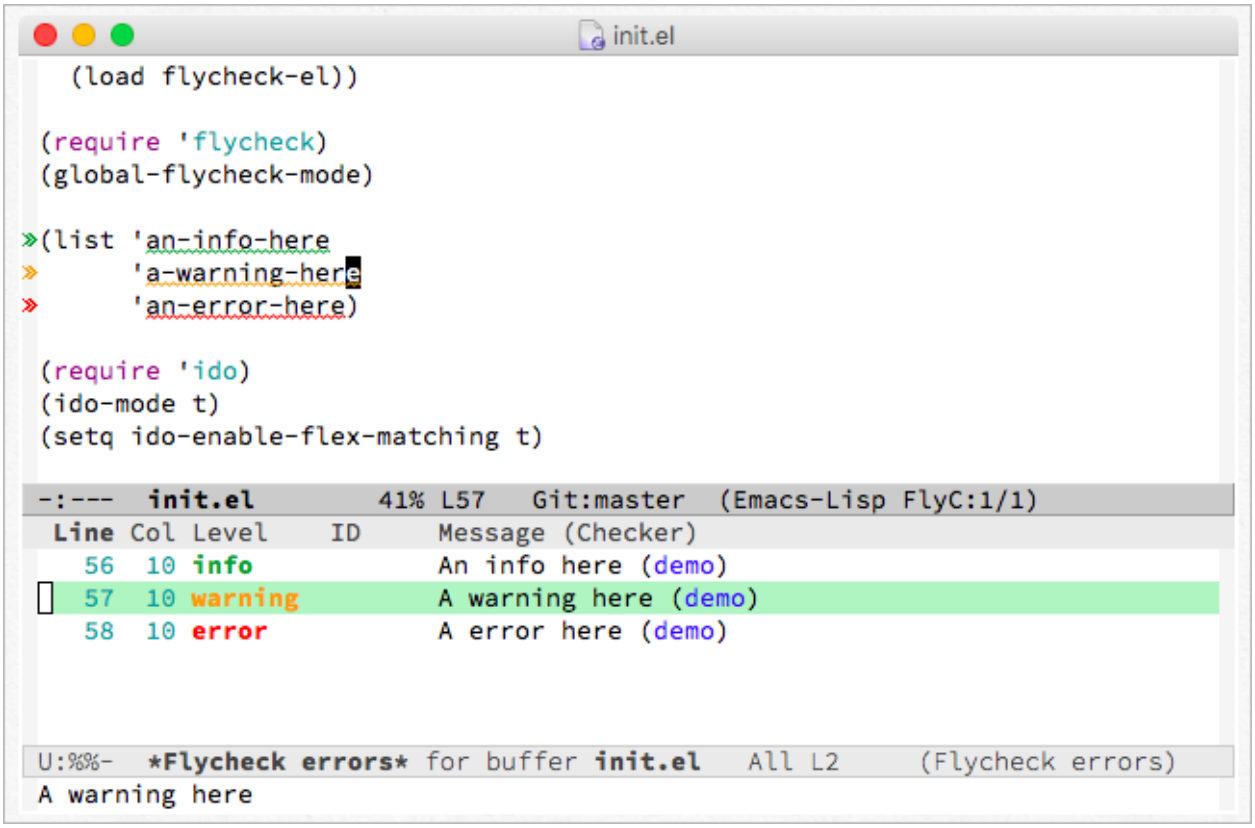
You can explicitly remove all highlighting and indication and all error information from a buffer:

`C-c ! C`
`M-x flycheck-clear`
Clear all reported errors, all highlighting and all indication icons from the current buffer.

`C-u C-c ! C`
`C-u M-x flycheck-clear`
Like `C-c ! C` but also interrupt any syntax check currently running. Use this command if you think that Flycheck is stuck.

2.6 List all errors

You can see all errors in the current buffer in Flycheck's error list:



The key `C-c ! l` pops up the error list:

C-c ! l
M-x flycheck-list-errors
M-x list-flycheck-errors
: Pop up a list of errors in the current buffer.

The error list automatically updates itself after every syntax check and follows the current buffer: If you switch to different buffer or window it automatically shows the errors of the now current buffer. The buffer whose errors are shown in the error list is the *source buffer*.

Whenever the point is on an error in the *source buffer* the error list highlights these errors—the green line in the screenshot above.

Within the error list the following key bindings are available:

`RET`	Go to the current error in the source buffer
`n`	Jump to the next error
`p`	Jump to the previous error
`f`	Filter the error list by level
`F`	Remove the filter
`S`	Sort the error list by the column at point
`g`	Check the source buffer and update the error list
`q`	Quit the error list and hide its window

2.6.1 Filter the list

By the default the error list shows all errors but sometimes you'd like to hide warnings to focus only on real errors. The error list lets you hide all errors below a certain level with `f`. This key prompts for an error level and will remove all errors of lower levels from the list. The filter is permanent as long as the error list buffer stays alive or the filter is reset with `F`.

2.6.2 Sort the list

You can press `S` or click on the column headings to sort the error list by any of the following columns:

- Line
- Level
- ID
- Message and checker

Click twice or press `S` repeatedly to flip the sort order from ascending to descending or vice versa.

2.6.3 Tune error list display

By default the error list buffer pops up like any other buffer. Flycheck does not enforce special rules on how it's displayed and where it's located in the frame so essentially the error list pops up at arbitrary places wherever Emacs can find a window for it.

However you can tell Emacs to obey certain rules when displaying buffers by customizing the built-in option `display-buffer-alist`. You can use this option to make the error list display like similar lists in contemporary IDEs like VisualStudio, Eclipse, etc. with the following code in your *init file*:

```
(add-to-list 'display-buffer-alist
             (,(rx bos "*Flycheck errors*" eos)
              (display-buffer-reuse-window
               display-buffer-in-side-window)
              (side            . bottom)
              (reusable-frames . visible)
              (window-height   . 0.33)))
```

This display rule tells Emacs to always display the error list at the bottom side of the frame, occupying a third of the entire height of the frame.

See also:

Shackle An Emacs package which provides an alternative way to control buffer display

2.7 Interact with errors

There are a couple of things that you can do with Flycheck errors in a buffer:

- You can navigate to errors, and go to the next or previous error.
- You can display errors to read their error messages.
- You can put error messages and IDs into the kill ring.

This section documents the corresponding commands and their customisation options.

2.7.1 Navigate errors

By default Flycheck hooks into Emacs' standard error navigation on `M-g n` (`next-error`) and `M-g p` (`previous-error`). When *`Flycheck Mode`* is enabled these commands will jump to the next and previous Flycheck error respectively. See *Compilation Mode(emacs)* for more information about these commands.

This way you don't need to learn special keybindings to navigate Flycheck errors; navigation should just work out of the box.

Note: Visible compilation buffers such as buffers from `M-x compile`, `M-x grep`, etc. still take *precedence* over Flycheck's errors.

The exact behaviour of these error navigation features is very context-dependent and can be very confusing at times so you can disable this integration:

defcustom `flycheck-standard-error-navigation`
Whether to integrate Flycheck errors into Emacs' standard error navigation. Defaults to `t`, set to `nil` to disable.

Important: When changing the value you must disable *`Flycheck Mode`* and enable it again for the change to take effect in any buffers where *`Flycheck Mode`* is enabled.

Flycheck provides an independent set of navigation commands which will always navigate Flycheck errors in the current buffer, regardless of visible compilation buffers and *`flycheck-standard-error-navigation`*:

`C-c ! n`
`M-x flycheck-next-error`
Jump to the next error.

With prefix argument jump forwards by as many errors as specified by the prefix argument, e.g. `M-3 C-c ! n` will move to the 3rd error from the current point. With negative prefix argument move to previous errors instead. Signal an error if there are no more Flycheck errors.

`C-c ! p`
`M-x flycheck-previous-error`
Jump to the previous Flycheck error.

With prefix argument jump backwards by as many errors as specified by the prefix argument, e.g. `M-3 C-c ! p` will move to the 3rd error before the current point. With negative prefix argument move to next errors instead. Signal an error if there are no more Flycheck errors.

`M-x flycheck-first-error`
Jump to the first Flycheck error.

With prefix argument, jump forwards to by as many errors as specified by the prefix argument, e.g. `M-3 M-x flycheck-first-error` moves to the 3rd error from the beginning of the buffer. With negative prefix argument move to the last error instead.

By default error navigation jumps to all errors but you can choose to skip over errors with low levels:

defcustom `flycheck-navigation-minimum-level`
The minimum levels of errors to consider for navigation.

If set to an error level only navigate to errors whose level is as least as severe as this one. If `nil` navigate to all errors.

2.7.2 Display errors

Whenever you move point to an error location Flycheck automatically displays all Flycheck errors at point after a short delay which you can customise:

defcustom `flycheck-display-errors-delay`
The number of seconds to wait before displaying the error at point. Floating point numbers can express fractions of seconds.

By default Flycheck shows the error messages in the minibuffer or in a separate buffer if the minibuffer is too small to hold the whole error message but this behaviour is entirely customisable:

defcustom `flycheck-display-errors-function`
A function to display errors.

The function is given the list of Flycheck errors to display as sole argument and shall display these errors to the user in some way.

Flycheck provides two built-in functions for this option:

defun `flycheck-display-error-messages` `errors`
defun `flycheck-display-error-messages-unless-error-list` `errors`
Show error messages and IDs in the echo area or in a separate buffer if the echo area is too small (using `display-message-or-buffer` which see). The latter only displays errors when the *error list* is not visible. To enable it add the following to your *init file*:

```
(setq flycheck-display-errors-function
      #'flycheck-display-error-messages-unless-error-list)
```

See also:

flycheck-pos-tip A Flycheck extension to display errors in a GUI popup.

Additionally Flycheck shows errors in a GUI tooltip whenever you hover an error location with the mouse pointer. By default the tooltip contains the messages and IDs of all errors under the pointer, but the contents are customisable:

defcustom `flycheck-help-echo-function`
A function to create the contents of the tooltip.

The function is given a list of Flycheck errors to display as sole argument and shall return a single string to use as the contents of the tooltip.

2.7.3 Kill errors

You can put errors into the kill ring with *C-c ! w*:

C-c ! w
M-x flycheck-copy-errors-as-kill
Copy all messages of the errors at point into the kill ring.

C-u C-c ! w
C-u M-x flycheck-copy-errors-as-kill
Like *C-c ! w* but with error IDs.

M-0 C-c ! w
M-0 M-x flycheck-copy-errors-as-kill
Like *C-c ! w* but do not copy the error messages but only the error IDs.

2.8 Flycheck versus Flymake

This article provides information about Flycheck compares to the *built-in* Flymake mode. It does not consider the improved Flymake fork or third-party extensions such as flymake-easy or flymake-cursor, but references them at appropriate places.

We aim for this comparison to be neutral and complete, but do not provide any guarantee for completeness or correctness of the following information. Moreover, we consider Flycheck superior to Flymake in all aspects. As such, you may find this page biased towards Flycheck. Please excuse this as well as any factual mistake or lack of information. Please suggest improvements.

Note: This comparison was written around the time Emacs 24.5 was released, and only updated infrequently since then. Flycheck has changed and hopefully improved meanwhile, and Flymake may have done so as well. As such parts of this article may be outdated and have become incorrect by now. Likewise screenshots that show particular behaviour of Flycheck or Flymake have aged; the corresponding features of Flycheck and Flymake may look different now, or have gone altogether.

Please report any incorrectness and any inconsistency you find, and feel free to edit this page and improve it.

2.8.1 Overview

This table intends to give an overview about the differences and similarities between Flycheck and the default install of Flymake. It is not a direct comparision to third-party extensions such as flymake-easy, flymake-cursor, or forks of Flymake. For a more comprehensive look compared to those extensions, please read the details in the main article and the footnotes.

Please do **not** use this table alone to make your personal judgment. Read the detailed review in the following sections, too, at least with regards to the features you are interested in.

	Flycheck	Flymake
Supports Emacs versions	24.3	22+
Built-in	no [1]	yes
Enables automatically if possible	yes	no
Checks after	save, newline, change	newline, change
Checks in background	yes	yes
Automatic syntax checker selection	By major mode and custom predicates	By file name patterns [2]
Manual syntax checker selection	yes	**no**
Multiple syntax checkers per buffer	yes	**no** [3]
Supported languages	>40	~5 [4]
Checking remote files via Tramp	said to work, but not officially supported [5]	partly?
Definition of new syntax checkers	Single declarative function/macro	Function definition and various variables [6]
Functions as syntax checkers	yes	**no** [7]
Error levels	errors, warnings, informational, custom levels	errors, warnings [8]
Error identifiers	yes	no
Error parsing	Regular expressions, custom parsers for structured formats (XML, JSON, etc.)	Regular expressions
Multiline error messages	yes	**no**
Error highlighting in buffers	yes	yes
Fringe icons for errors	yes	yes (Emacs 24.1+)
Error message display	Tooltip, echo area, fully customizable	Tooltip only [9]
List of all errors	yes	**no**
Resource consumption	low	**high** [10]
Unit tests	all syntax checkers, large parts of internals	**none?**

2.8.2 Detailed review

Relation to Emacs

Flymake is part of GNU Emacs since GNU Emacs 22. As such, contributions to Flymake are subject to the FSF policies on GNU projects. Most notably, contributors are required to assign their copyright to the FSF by signing a contributor agreement.

[1] Flycheck is **unlikely to ever become part of Emacs**, see issue 801.

[2] The 3rd party library flymake-easy allows to use syntax checkers per major mode.

[3] Various 3rd party packages thus use custom shell scripts to call multiple syntax checking tools at once.

[4] However, the Flymake page in the EmacsWiki provides recipes for many other languages, although of varying quality. Furthermore, the popular ELPA archive MELPA provides many packages which add more languages to Flymake. There is also a Flymake fork, which supports more languages out of the box, among other fixes and improvements.

[5] See for instance this comment.

[6] flymake-easy provides a function to define a new syntax checker, which sets all required variables at once.

[7] The Flymake fork adds support for info messages.

[8] flymake-easy **overrides** internal functions of Flymake to add support for multiline error messages.

[9] The 3rd party library flymake-cursor shows Flymake error messages at point in the echo area.

[10] The third-party Flymake fork mostly fixes the performance and resource consumption issues in Flymake.

Flycheck is not part of GNU Emacs, and is **unlikely to ever be** (see issue 801). However, it is free software as well, and publicly developed on the well-known code hosting platform Github. Contributing to Flycheck does not require a copyright assignments.

Enabling syntax checking

Flymake is not enabled automatically for supported languages. It must be be enabled for each mode individually and **carefully**, because it does not deal well with unavailable syntax checker tools. In a GUI frame, it signals errors in GUI dialogs. In a TTY frame, it does not signal any error at all, but instead silently hangs. The same occurs when a syntax checker tool becomes unavailable after Flymake Mode is enabled (for instance, because the underlying tool was uninstalled).

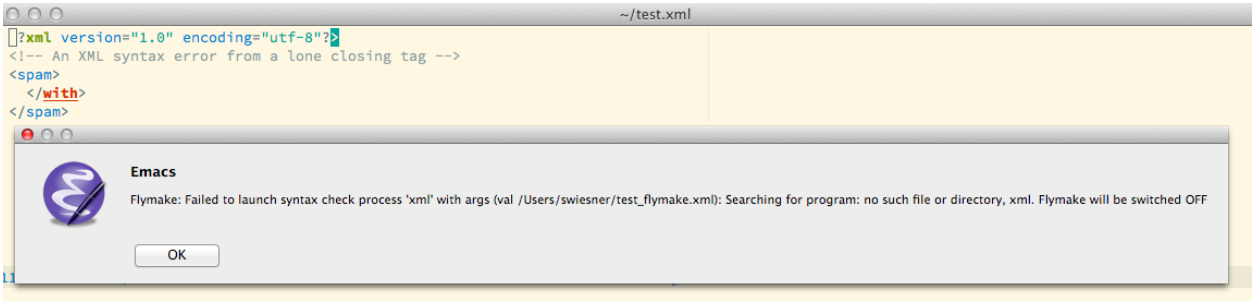


Fig. 2.3: Flymake showing a GUI dialog to inform that a syntax checker tool is not available

The third-party library flymake-easy provides an alternate way to enable Flymake Mode, which gracefully handles unavailable syntax checkers. It does not check whether the tool still exists before a syntax check, though, and thus does still exposes above behavior when a tool becomes unavailable after the mode was enabled.

Flycheck provides a global mode `global-flycheck-mode`, which enables syntax checking in every supported language. If a syntax checking tool is not available Flycheck fails gracefully, does not enable syntax checking, and just indicates the failure in the mode line.

Syntax checkers

Flymake supports Java, Makefiles, Perl, PHP, TeX/LaTeX and XML. Notably, it does *not* support Emacs Lisp. A third-party Flymake fork supports more languages, though. Furthermore there are many recipes for other languages on the Flymake page in the EmacsWiki and many extension packages for other languages in the popular ELPA archive MELPA.

Flycheck provides support for over 40 languages with over 70 syntax checkers, most of them contributed by the community. Notably, Flycheck does *not* support Java and Makefiles.

Definition of new syntax checkers

Flymake does not provide a single function to define a new syntax checker. Instead, one has to define an "init" function, which returns the command, and add this function to `flymake-allowed-file-name-masks`. Additionally, one has to add the error patterns to `flymake-err-line-patterns`. As such, defining a syntax checker is difficult for users who are not familiar with Emacs Lisp. flymake-easy provides an easier way to define new syntax checkers, though.

Flycheck provides a single function `flycheck-define-checker` to define a new syntax checker. This function uses a declarative syntax which is easy to understand even for users unfamiliar with Emacs Lisp. In fact most syntax checkers in Flycheck were contributed by the community.

For example, the Perl checker in Flymake is defined as follows:

```
(defun flymake-perl-init ()
  (let* ((temp-file   (flymake-init-create-temp-buffer-copy
                       'flymake-create-temp-inplace))
         (local-file  (file-relative-name
                       temp-file
                       (file-name-directory buffer-file-name))))
    (list "perl" (list "-wc " local-file))))

(defcustom flymake-allowed-file-name-masks
  '(;; ...
    ("\\.p[ml]\\'" flymake-perl-init)
    ;; ...
    ))

(defvar flymake-err-line-patterns
  (append
   '(;; ...
     ;; perl
     ("\\(.*\\) at \\([^ \n]+\\) line \\([0-9]+\\)[,.\n]" 2 3 nil 1)
     ;; ...
     )
   ;; ...
   ))
```

Whereas Flycheck's definition of the same checker looks like this:

```
(flycheck-define-checker perl
  "A Perl syntax checker using the Perl interpreter.

See URL `http://www.perl.org'."
  :command ("perl" "-w" "-c" source)
  :error-patterns
  ((error line-start (minimal-match (message))
          " at " (file-name) " line " line
          (or "." (and ", " (zero-or-more not-newline))) line-end))
  :modes (perl-mode cperl-mode))
```

Functions as syntax checkers

Flymake cannot check a buffer with a custom Emacs Lisp function.

Flycheck provides the `flycheck-define-generic-checker` function to define a syntax checker based on an arbitrary Emacs Lisp function. Flycheck supports synchronous as well as asynchronous functions, and provides simple callback-based protocol to communicate the status of syntax checks. This allows Flycheck to use persistent background processes for syntax checking. For instance, flycheck-ocaml uses a running Merlin process to check OCaml buffers. This is much easier and faster than invoking the OCaml compiler.

Customization of syntax checkers

Flymake does not provide built-in means to customize syntax checkers. Instead, when defining a new syntax checker the user needs to declare customization variables explicitly and explicitly check their value in the init function.

Flycheck provides built-in functions to add customization variables to syntax checkers and splice the value of these variables into the argument list of a syntax checking tool. Many syntax checkers in Flycheck provide customiza-

tion variables. For instance, you can customize the enabled warnings for C with *flycheck-clang-warnings*. Flycheck also tries to automatically find configuration files for syntax checkers.

Executables of syntax checkers

Flymake does not provide built-in means to change the executable of a syntax checker.

Flycheck implicitly defines a variable to set the path of a syntax checker tool for each defined syntax checker and provides the interactive command `flycheck-set-checker-executable` to change the executable used in a buffer.

Syntax checker selection

Flymake selects syntax checkers based on file name patterns in `flymake-allowed-file-name-masks`. Effectively this duplicates the existing logic Emacs uses to choose the right major mode, but lacks its flexibility and power. For instance, Flymake cannot pick a syntax checker based on the shebang of a file.

Flycheck uses the major mode to select a syntax checker. This reuses the existing sophisticated logic Emcas uses to choose and configure major modes. Flycheck can easily select a Python syntax checker for a Python script without file extension, but with proper shebang, simply because Emacs correctly chooses Python Mode for such a file.

Custom predicates

Flymake does not allow for custom predicates to implement more complex logic for syntax checker selection. For instance, Flymake cannot use different syntax checkers for buffer depending on the value of a local variable.

However, flymake-easy patches Flymake to allow for custom syntax checkers per buffer. This does not happen automatically though. The user still needs to explicitly register a syntax checker in a major mode hook.

Flycheck supports custom predicate function. For instance, Emacs uses a single major mode for various shell script types (e.g. Bash, Zsh, POSIX Shell, etc.), so Flycheck additionally uses a custom predicate to look at the value of the variable `sh-shell` in Sh Mode buffers to determine which shell to use for syntax checking.

Manual selection

Flymake does not provide means to manually select a specific syntax checker, either interactively, or via local variables.

Flycheck provides the local variable *flycheck-checker* to explicitly use a specific syntax checker for a buffer and the command *flycheck-select-checker* to set this variable interactively.

Multiple syntax checkers per buffer

Flymake can only use a single syntax checker per buffer. Effectively, the user can only use a single tool to check a buffer, for instance either PHP Mess Detector or PHP CheckStyle. Third party extensions to Flycheck work around this limitation by supplying custom shell scripts to call multiple syntax checking tools at once.

Flycheck can easily apply multiple syntax checkers per buffer. For instance, Flycheck will check PHP files with PHP CLI first to find syntax errors, then with PHP MessDetector to additionally find idiomatic and semantic errors, and eventually with PHP CheckStyle to find stylistic errors. The user will see all errors reported by all of these utilities in the buffer.

Errors

Error levels

Flymake supports error and warning messages. The pattern of warning messages is *hard-coded* in Emacs 24.3, and only became customizable in upcoming Emacs 24.4. The patterns to parse messages are kept separate from the actual syntax checker.

The third-party Flymake fork also supports info messages, and makes the pattern of warning messages customizable as well.

Flycheck supports error, warning and info messages. The patterns to parse messages of different levels are part of the syntax checker definition, and thus specific to each syntax checker. Flycheck allows to define new error levels for use in custom syntax checkers with `flycheck-define-error-level`.

Error identifiers

Flymake does not support unique identifiers for different kinds of errors.

Flycheck supports unique identifiers for different kinds of errors, if a syntax checker provides these. The identifiers appear in the error list and in error display, and can be copied independently, for instance for use in an inline suppression comment or to search the web for a particular kind of error.

Error parsing

Flymake parses the output of syntax checker tools with regular expressions only. As it splits the output by lines regardless of the regular expressions, it does not support error messages spanning multiple lines (such as returned by the Emacs Lisp byte compiler or by the Glasgow Haskell Compiler).

flymake-easy overrides internal Flymake functions to support multiline error messages.

Flycheck can use regular expressions as well as custom parsing functions. By means of such functions, it can parse JSON, XML or other structured output formats. Flycheck includes some ready-to-use parsing functions for well-known output formats, such as Checkstyle XML. By parsing structured output format, Flycheck can handle arbitrarily complex error messages. With regular expressions it uses the error patterns to split the output into tokens and thus handles multiline messages just as well.

Error message display

In GUI frames, **Flymake** shows error messages in a tool tip, if the user hovers the mouse over an error location. It does not provide means to show error messages in a TTY frame, or with the keyboard only.

The third-party library flymake-cursor shows Flymake error messages at point in the echo area, by overriding internal Flymake functions.

Flycheck shows error message tool tips as well, but also displays error messages in the echo area, if the point is at an error location. This feature is fully customizable via *`flycheck-display-errors-function`*.

Error list

Flymake does not provide means to list all errors in the current buffer.

Flycheck can list all errors in the current buffer in a separate window. This error list is automatically updated after each syntax check, and follows the focus.

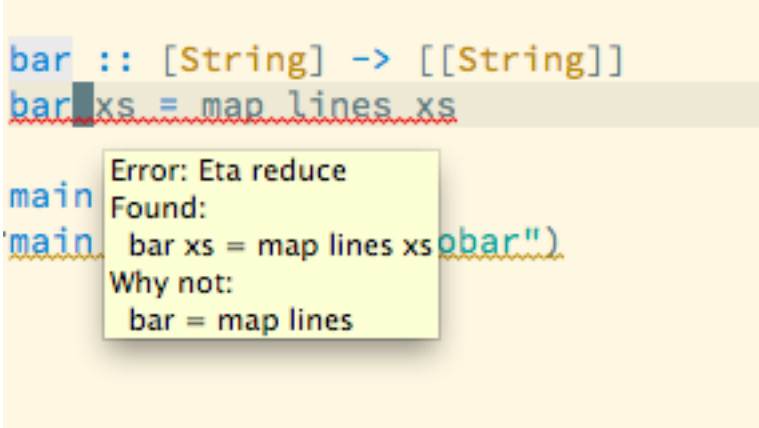


Fig. 2.4: Flymake error message in tooltip

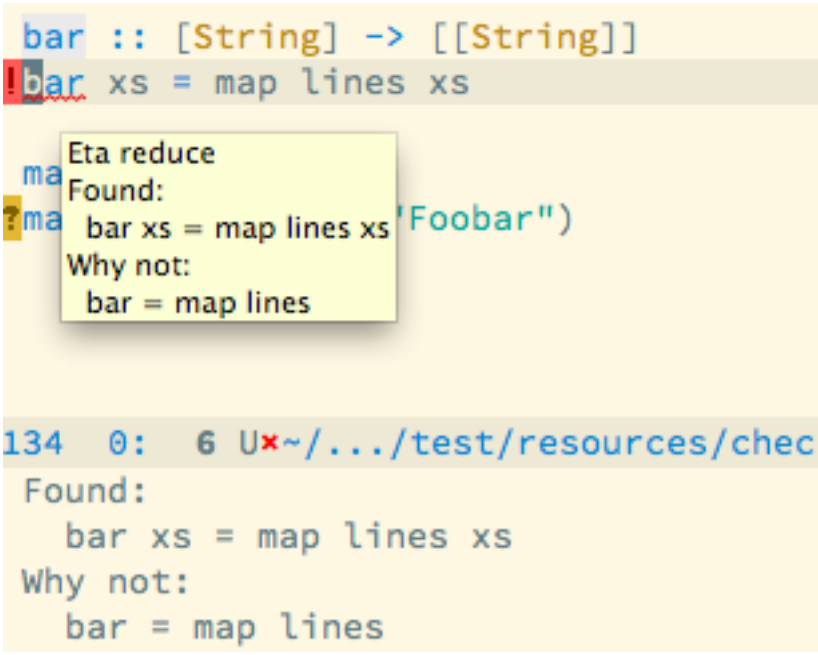


Fig. 2.5: Flycheck error message in tooltip and echo area

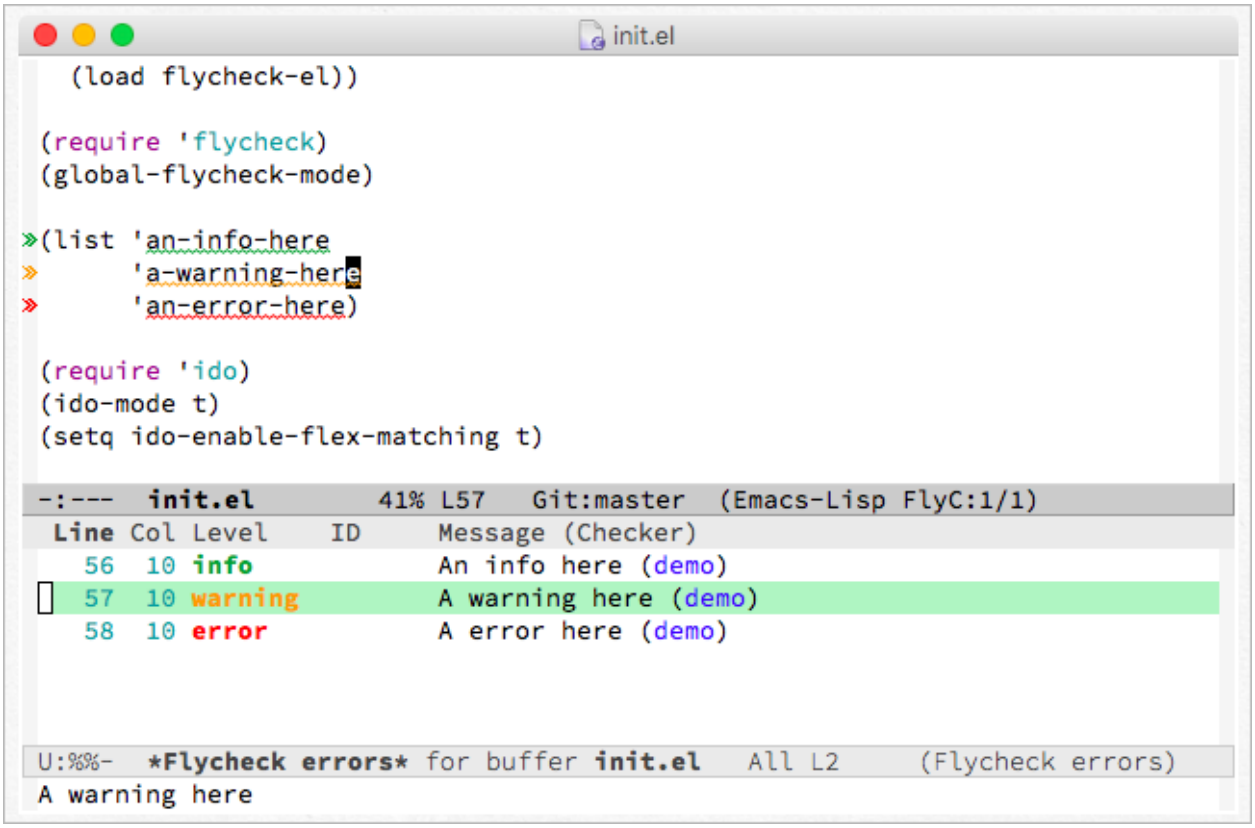


Fig. 2.6: Listing all errors in the current buffer

Resource consumption

Syntax checking

Flymake starts a syntax check after every change, regardless of whether the buffer is visible in a window or not. It does not limit the number of concurrent syntax checks. As such, Flymake starts many concurrent syntax checks when many buffers are changed at the same time (e.g. after a VCS revert), which is known to freeze Emacs temporarily.

The third-party Flymake fork limits the number of concurrent syntax checks. It does not take care to check visible buffers first, though.

Flycheck does not conduct syntax checks in buffers which are not visible in any window. Instead it defers syntax checks in such buffers until after the buffer is visible again. Hence, Flycheck does only start as many concurrent syntax checks as there are visible windows in the current Emacs session.

Checking for changes

Flymake uses a *separate* timer (in `flymake-timer`) to periodically check for changes in each buffer. These timers run even if the corresponding buffers do not change. This is known to cause considerable CPU load with many open buffers.

The third-party Flymake fork uses a single global timer to check for changes. This greatly reduces the CPU load, but still consumes some marginal CPU, even if Emacs is idle and not in use currently.

Flycheck does not use timers at all to check for changes. Instead it registers a handler for Emacs' built-in `after-change-functions` hook which is run after changes to the buffer. This handler is only invoked when the buffer actually changed and starts a one-shot timer to delay the syntax check until the editing stopped for a short time, to save resources and avoid checking half-finished editing.

Unit tests

Flymake does not appear to have a test suite at all.

Flycheck has unit tests for all built-in syntax checkers, and for large parts of the underlying machinery and API. Contributed syntax checkers are required to have test cases. A subset of the test suite is continuously run on Travis CI.

CHAPTER 3

The Developer Guide

The Developer Guide shows how to write syntax checkers for Flycheck and how to extend Flycheck.

Todo

Port the extending section from the Texinfo manual

CHAPTER 4

The Community Guide

The Community Guide provides information about Flycheck's ecosystem and community.

4.1 Flycheck Code of Conduct

Our Code of Conduct defines the social norms and policies within Flycheck's community. Whenever you interact with Flycheck or Flycheck developers, whether in our official channels or privately, you're expected to follow this Code of Conduct.

4.1.1 Conduct

Contact: *Any moderator*

- We are committed to providing a friendly, safe and welcoming environment for all, regardless of level of experience, gender, gender identity and expression, sexual orientation, disability, personal appearance, body size, race, ethnicity, age, religion, nationality, or similar personal characteristic.
- Please avoid using overtly sexual nicknames or other nicknames that might detract from a friendly, safe and welcoming environment for all.
- Please be kind and courteous. There's no need to be mean or rude.
- Please do not curse or use bad words. Foul language will not help us to build a great product.
- Respect that people have differences of opinion and that every design or implementation choice carries a trade-off and numerous costs. There is seldom a right answer.
- Please keep unstructured critique to a minimum. If you have solid ideas you want to experiment with, make a fork and see how it works.
- We will exclude you from interaction if you insult, demean or harass anyone. That is not welcome behaviour. We interpret the term "harassment" as including the definition in the Citizen Code of Conduct; if you have any lack of clarity about what might be included in that concept, please read their definition. In particular, we don't tolerate behavior that excludes people in socially marginalized groups.
- Private harassment is also unacceptable. No matter who you are, if you feel you have been or are being harassed or made uncomfortable by a community member, please contact a *moderator* immediately. Whether you're a regular contributor or a newcomer, we care about making this community a safe place for you and we've got your back.
- Likewise any spamming, trolling, flaming, baiting or other attention-stealing behaviour is not welcome.

4.1.2 Moderation

These are the policies for upholding our community's standards of conduct in our communication channels, most notably in Flycheck's Github organisation and in Flycheck's Gitter channels.

1. Remarks that violate the Flycheck code of conduct, including hateful, hurtful, oppressive, or exclusionary remarks, are not allowed.
2. Remarks that moderators find inappropriate, whether listed in the code of conduct or not, are also not allowed.
3. Moderators will first respond to such remarks with a warning.
4. If the warning is unheeded, the user will be "kicked," i.e., kicked out of the communication channel to cool off.
5. If the user comes back and continues to make trouble, they will be banned, i.e., indefinitely excluded.
6. Moderators may choose at their discretion to un-ban the user if it was a first offense and they offer the offended party a genuine apology.
7. If a moderator bans someone and you think it was unjustified, please take it up with that moderator, or with a different moderator, **in private**. Complaints about bans in-channel are not allowed.
8. Moderators are held to a higher standard than other community members. If a moderator creates an inappropriate situation, they should expect less leeway than others.

In the Flycheck community we strive to go the extra step to look out for each other. Don't just aim to be technically unimpeachable, try to be your best self. In particular, avoid flirting with offensive or sensitive issues, particularly if they're off-topic; this all too often leads to unnecessary fights, hurt feelings, and damaged trust; worse, it can drive people away from the community entirely.

And if someone takes issue with something you said or did, resist the urge to be defensive. Just stop doing what it was they complained about and apologize. Even if you feel you were misinterpreted or unfairly accused, chances are good there was something you could have communicated better — remember that it's your responsibility to make your fellow Flycheck people comfortable. Everyone wants to get along and we are all here first and foremost because we want to talk about cool technology. You will find that people will be eager to assume good intent and forgive as long as you earn their trust.

—

Adapted from the Rust Code of Conduct.

4.2 Recommended extensions

The Emacs community has produced a number of extensions to Flycheck. This page lists all that we know of and can safely recommend to our users.

Official extensions are (co-)maintained by the *Flycheck maintainers* who will take care to update official extensions in case of breaking changes in Flycheck and work to provide extra API for extensions if needed. If you'd like to make your extension an *official* one and move it into the Flycheck Github organisation please contact a *maintainer*.

If you do know extensions not in this list, or would like to see your own extension here, please feel free to add it.

We would like to thank all people who created and contributed to Flycheck extensions for their awesome work. Without your help and support Flycheck would not be what it is today.

4.2.1 User interface

- flycheck-color-mode-line (*official*) colors the mode line according to the Flycheck status.
- flycheck-pos-tip (*official*) shows Flycheck error messages in a graphical popup.
- liblit/flycheck-status-emoji adds cute emoji (e.g. for errors) to Flycheck's mode line status.

4.2.2 Language integration

- flycheck-cask (*official*) makes Flycheck use Cask packages for Emacs Lisp syntax checking in Cask projects.
- flycheck-rust (*official*) configures Flycheck according to the Cargo settings and layouts of the current Rust project.
- flycheck-haskell (*official*) configures Flycheck from the Cabal settings and sandbox in Haskell projects.
- Wilfred/flycheck-pkg-config configures Flycheck to use settings from pkg-config when checking C/C++.

4.2.3 Additional languages and syntax checkers

- Gnouc/flycheck-checkbashisms adds a shell script syntax checker using **`checkbashisms`** which is part of Debian devscripts and checks for common Bash constructs in POSIX shell scripts.
- clojure-emacs/squiggly-clojure provides syntax checking for Clojure.
- flycheck-d-unittest (*official*) adds a Flycheck checker to run unit tests for D programs on the fly.
- flycheck-google-cpplint (*official*) adds a syntax checker for Google's C++ style checker.
- cmarqu/flycheck-hdl-irun adds a syntax checker for hardware description languages (HDLs) supported by Cadence IES/irun.
- Sarcasm/flycheck-irony adds a Flycheck syntax checker for C, C++ and Objective C using Irony Mode.
- purcell/flycheck-ledger adds a syntax checker for the Ledger accounting tool.
- flycheck-mercury (*official*) adds a Flycheck syntax checker for the Mercury language.
- flycheck-ocaml (*official*) adds a syntax checker for OCaml.
- purcell/flycheck-package checks Emacs Lisp packages for common problems with package metadata.
- Wilfred/flycheck-pyflakes adds a Python syntax checker using Pyflakes.

4.3 Get help

Follow @emacs_flycheck on Twitter for updates. Feel free to mention the account for questions.

Please ask questions about Flycheck on Stack Exchange or in our Gitter chat. We try to answer all questions as fast and as precise as possible.

To report bugs and problems please please use our issue tracker. You can follow the progress of your issues on our Waffle board. Please note that we have a special policy for *Windows-only issues*.

Please follow our *Code of Conduct* in all these places.

4.4 People

4.4.1 Teams

Maintainers

- **Sebastian Wiesner** (lunaryorn, head maintainer, GPG key `5C42FE98`)
- Clément Pit–Claudel (cpitclaudel, maintainer)

We maintain Flycheck and all official extensions within the Flycheck organisation, and set the direction and scope Flycheck. We also accept or decline pull requests and feature proposals, implement changes and fix bugs in Flycheck.

Our GPG keys are used to sign commits on Github and to sign release tags for Flycheck.

Mention with `@flycheck/maintainers`.

Moderators

Our moderators help uphold our Flycheck Code of Conduct. Currently, we do not have a dedicated moderation team; all our *Maintainers* also serve as moderators in our Github organisation and in our official communication channels.

Mention with `@flycheck/moderators`.

Note: If you'd like to help out with moderation, please contact a maintainer.

Language teams

These teams provide support for particular languages in Flycheck.

Go

- Dominik Honnef (dominikh)

Mention with `@flycheck/go`.

Haskell

- Sergey Vinokurov (sergv)

Mention with `@flycheck/haskell`.

Javascript

- Sasa Jovanic (Simplify)

Mention with `@flycheck/javascript`.

Rust

- fmdkdd
- Michael Pankov (mkpankov)

Mention with `@flycheck/rust`.

TypeScript

- Sasa Jovanic (Simplify)

Mention with `@flycheck/typescript`.

4.4.2 Acknowledgements

We would also like to thank the following people and projects:

- Bozhidar Batsov (bbatsov) for his valuable feedback and his constant support and endorsement of Flycheck from the very beginning. Notably he added Flycheck to his popular Prelude project at a very early stage and thus brought Flycheck to many new users.
- Magnar Sveen (magnars) for his dash.el and s.el libraries, which support considerable parts of Flycheck internals, and greatly helped to overcome the Sebastian's initial aversion to Emacs Lisp.
- Martin Grenfell (scrooloose) for the Vim syntax checking extension Syntastic which saved Sebastian's life back when he was using Vim, and served as inspiration for Flycheck and many of its syntax checkers.
- Matthias Güdemann (mgudemann), for his invaluable work on Flycheck's logo.
- Pavel Kobyakov for his work on GNU Flymake, which is a great work on its own, despite its flaws and weaknesses.
- Simon Carter (bbbscarter), for his patient in-depth testing of automatic syntax checking, and his very constructive feedback.
- Steve Purcell (purcell) for his valuable feedback, the fruitful discussions and his important ideas about the shape and design of Flycheck, and his indispensible and dedicated work on MELPA, which drives the continuous distribution of Flycheck to its users.

4.4.3 Contributors

The following people—listed in alphabetical order—contributed substantial code to Flycheck:

- Alain Kalker (ackalker)
- Alex Reed (acr4)
- Atila Neves (atilaneves)
- Bozhidar Batsov (bbatsov)
- Clément Pit–Claudel (cpitclaudel, maintainer)
- Cristian Capdevila (capdevc)
- Damon Haley (dhaley)
- David Caldwell (caldwell)

- David Holm (dholm)
- Deokhwan Kim (dkim)
- Derek Chen-Becker (dchenbecker)
- Derek Harland (donkopotamus)
- Dominik Honnef (dominikh)
- Doug MacEachern (dougm)
- Drew Wells (drewwells)
- Erik Hetzner (egh)
- Fanael Linithien (Fanael)
- fmdkdd
- Fred Morcos (fredmorcos)
- Gereon Frey (gfrey)
- Gulshan Singh (gsingh93)
- Iain Beeston (iainbeeston)
- Jackson Ray Hamilton (jacksonrayhamilton)
- Jim Hester (jimhester)
- Jimmy Yuen Ho Wong (wyuenho)
- Krzysztof Witkowski (kwitek)
- Lee Adams (leeaustinadams)
- Lorenzo Villani (lvillani)
- Magnar Sveen (magnars)
- Malyshev Artem (proofit404)
- Marcin Antczak (marcinant)
- Marcus Majewski (hekto)
- Marian Schubert (maio)
- Mario Rodas (marsam)
- Mark Hellewell (markhellewell)
- Mark Karpov (mrkkrp)
- Matthew Curry (strawhatguy)
- Matthias Dahl (BinaryKhaos)
- Michael Pankov (mkpankov)
- Michael Alan Dorman (mdorman)
- Miro Bezjak (mbezjak)
- Mitch Tishmack (mitchty)
- Moritz Bunkus (mbunkus)
- Omair Majid (omajid)

- Per Nordlöw (nordlow)
- Peter Eisentraut (petere)
- Philipp Stephani (phst)
- Peter Vasil (ptrv)
- Robert Dallas Gray (rdallasgray)
- Robert O'Connor (robbyoconnor)
- Robert Zaremba (robert-zaremba)
- Sasa Jovanic (Simplify)
- Sean Gillespie (swgillespie)
- Sean Salmon (phatcabbage)
- Sebastian Beyer (sebastianbeyer)
- Sebastian Wiesner (lunaryorn, founder, head maintainer)
- Stephen Lewis (stephenjlewis)
- Steve Purcell (purcell)
- Sven Keidel (svenkeidel)
- Sylvain Benner (syl20bnr)
- Sylvain Rousseau (thisirs)
- Syohei Yoshida (syohex)
- Ted Zlatanov (tzz)
- Tom Jakubowski (tomjakubowski)
- Tomoya Tanjo (tom-tan)
- Victor Deryagin (vderyagin)
- Vlatko Basic (vlatkoB)
- William Cummings (wcummings)
- William Xu (xwl)
- Yannick Roehlly (yannick1974)
- Yasuyuki Oka (yasuyk)
- Zhuo Yuan (yzprofile)
- Łukasz Jędrzejewski (jedrz)

For a complete list of all code contributors see the Contributor Graph or `git shortlog --summary`.

CHAPTER 5

The Contributor Guide

The Contributor Guide explains how to contribute to Flycheck.

5.1 Contributor's Guide

Thank you very much for your interest in contributing to Flycheck! We'd like to warmly welcome you in the Flycheck community, and hope that you enjoy your time with us!

There are many ways to contribute to Flycheck, and we appreciate all of them. We hope that this document helps you to contribute. If you have questions, please ask on our issue tracker or in our Gitter chatroom.

For a gentle start please take a look at all the things we need your help with and look for beginner-friendly tasks.

Please note that all contributors are expected to follow our *Code of Conduct*.

5.1.1 Bug reports

Bugs are a sad reality in software, but we strive to have as few as possible in Flycheck. Please liberally report any bugs you find. If you are not sure whether something is a bug or not, please report anyway.

If you have the chance and time please search existing issues, as it's possible that someone else already reported your issue. Of course, this doesn't always work, and sometimes it's very hard to know what to search for, so this is absolutely optional. We definitely don't mind duplicates, please report liberally.

To open an issue simply fill out the issue form. To help us fix the issue, include as much information as possible. When in doubt, better include too much than too little. Here's a list of facts that are important:

- What you did, and what you expected to happen instead
- Whether and how you were able to reproduce the issue in emacs -Q
- Your Flycheck setup from `M-x flycheck-verify-setup`
- Your operating system
- Your Emacs version from `M-x emacs-version`
- Your Flycheck version from `M-x flycheck-version`

Windows-only issues

As Flycheck does not support Windows officially we generally do *not* attempt to fix issues that only occur on Windows. We will move all Windows-only issues to the list of open Windows issues, and leave them to Windows users and developers.

We welcome anyone who wants to fix open Windows issues, and we will merge pull requests for improved Windows compatibility. If you know Windows and Emacs, please take a look at the list of open Windows issues and try to fix any of these.

5.1.2 Feature requests

To request a new feature please open a new issue through our issue form.

A feature request needs to find a core developer or maintainer who adopts and implements it. Otherwise we will move the issue to the S-needs your love column of our Waffle board where issues sit that wait for a pull request from the community.

5.1.3 The Build system

Flycheck provides a `Makefile` with some convenient targets to compile and test Flycheck. The Makefile requires Cask, the Emacs Lisp dependency manager. Run `make help` to see a list of all available targets. Some common ones are:

- `make init` initialises the project by installing local Emacs Lisp dependencies.
- `make compile` compiles Flycheck and its libraries to byte code.
- `make specs` runs all Buttercup specs for Flycheck. Set **`PATTERN`** to run only specs matching a specific regular expression, e.g. `make PATTERN='^Mode Line' specs` to run only tests for the mode line.
- `make test` runs all ERT unit tests for Flycheck. We are phasing ERT out in favour of Buttercup; no new ERT unit tests will be added and this target will eventually be removed.
- `make integ` runs all integration tests for Flycheck syntax checkers. These tests are very dependent on the checker programs and their versions; expect failures when running this target. Set **`SELECTOR`** to run only tests matching a specific ERT selector, e.g. `make SELECTOR='(language haskell)' integ` to run only integration tests for Haskell. `make LANGUAGE=haskell integ` is a shortcut for this.

5.1.4 Pull requests

Pull Requests are the primary mechanism to submit your own changes to Flycheck. Github provides great documentation about Pull Requests.

Please make your pull requests against the `master` branch.

Use `make specs test` to test your pull request locally. When making changes to syntax checkers of a specific language, it's also a good idea to run `make LANGUAGE=`*`language`*` integ` and check whether the tests for the particular language still work. A successful `make integ` is by no means mandatory for pull requests, though, we will test your changes, too.

All pull requests are reviewed by a *maintainer*. Feel free to mention individual developers (e.g. `@lunaryorn`) to request a review from a specific person, or `@flycheck/maintainers` if you have general questions or if your pull request was waiting for review too long.

Additionally, all pull requests go through automated tests on Travis CI which check code style, run unit tests, etc. After the pull request was reviewed and if all tests passed a maintainer will eventually cherry-pick or merge your changes and close the pull request.

Commit guidelines

The art of writing good commit messages is a wide subject. This model commit message illustrates our style:

```
Fix a foo bug

The first line is the summary, 50 characters or less.  Write in the
imperative and in present tense: "Fix bug", not "fixed bug" or "fixes
bug".

After the summary more paragraphs with detailed explanations may follow,
wrapped at 72 characters.  Separate multiple paragraphs by blank lines.

You may use simple formatting like *emphasis* or _underline_, but keep
it to a minimum.  Commit messages are not in Markdown :)

Commit messages may reference issues by number, like this: See GH-42.
Please use `GH-` to prefix issue numbers.  You may also close issues
like this: Fixes GH-42 and closes GH-42.
```

Git Commit and Magit provide Emacs mode for Git commit messages, which helps you to comply to these guidelines.

5.1.5 Writing documentation

Documentation improvements are very welcome. Flycheck's manual is written in reStructuredText and built with Sphinx. The source of the manual resides in the `doc/` directory.

You need Python 3.4 or newer to install Sphinx for Flycheck's documentation. On OS X it is recommended that you use Homebrew to install the latest Python version with `brew install python3`. On Linux you should be able to obtain Python 3.4 from the package manager of your distribution.

With Python 3 installed change into the `doc/` directory and run `make init` to install Sphinx and related tools required for Flycheck's documentation. We recommend that you use virtualenv to avoid a global installation of Python modules. `make init` will warn you if you do not.

When editing documentation run `make html-auto` to view the results of your edits. This target runs a local webserver at http://localhost:8000 which serves the HTML documentation and watches the documentation sources for changes to rebuild automatically. When you finished your edits it is a good idea to run `make linkcheck` to verify all links in the documentation. Note that this target can take a while especially when run on a clean build.

Run `make help` to see a list of all available Make targets for the documentation.

Documentation pull requests work in the same way as other pull requests. To find documentation issues sort by the A-documentation label.

5.1.6 Issue management

We manage all issues and pull requests on our Waffle board. The board has six columns which correspond to `S-` labels on Github:

- The *Backlog* (no `S` label) holds all incoming issues. Pull requests waiting for review sit here, as well as bugs that were reported or stories and tasks that are not ready to work on yet.

- *Community* (`S-needs your love` label) issues are those that we will not work on ourselves. These issues need pull requests from the community to be solved. Look at this column to find spots to contribute to.
- *Blocked* (`S-blocked` label) issues are waiting for something, like a change in an upstream project or a feedback from another developer. A `B-` label may provide additional clue why the issue is blocked. Blocked issues may also appear in the backlog, but in this column we actively seek to remove the blockers and move the issue to *Ready*.
- In *Ready* (`S-ready` label) we keep issues that we are ready to work on. This includes bugs which we can reproduce and fix, and pull requests that were reviewed and are ready to be merged now. Look at this column to see what's coming next to Flycheck.
- When we start to work on an issue it moves into *In Progress* (`S-in progress` label).
- *To review* (`S-to review` label) holds pull requests and patches which need review by maintainers. All pull requests, whether from developers or external contributors start here. Once a review is complete we will either merge the pull request and thus move it to *Done*, or move the issue back to `S-in progress` if the pull request still needs work.
- Eventually issues move into *Done* when they are closed.

In addition to these columns which reflect the basic issue workflow we also use a variety of labels to group issues:

- Yellow, **A**-prefixed labels describes the area of Flycheck the issue belongs to.
- Orange, **B**-prefixed labels gives reasons why an issue is blocked.
- Green, **E**-prefixed labels denotes the level of experience necessary to address an issue.
- Blue, **K**-prefixed labels tells the kind of an issue, i.e. whether it's a bug, a feature request, etc.
- Grey, **R**-prefixed labels inform about the resolution of an issue.

5.1.7 Out of tree contributions

There are many ways that you can contribute to Flycheck that go beyond this repository.

Answer questions in our Gitter channel or on StackExchange.

Participate in Flycheck discussions in other Emacs communities and help users with troubles.

Write *extensions for Flycheck*.

This contributing guide is heavily inspired by Rust's excellent contributing information.

5.2 Maintainer's Guide

5.2.1 Git workflow

Our Git workflow is simple:

- The `master` branch is always shippable.
- Every feature and every non-trivial change goes through a pull request.

GitHub calls this the "GitHub Flow" and has a very nice visual guide for this model.

Branch rules

Our workflow implies a couple of rules about which branches to push code to:

- Please do not commit directly to `master` unless it's a trivial change, a safe refactoring, a small bug or spelling fix, etc. If in doubt please use a separate branch and open a pull request.
- Please commit new features, larger changes and refactorings and updates to documentation to separate branches and open a pull request for review and discussion.

Important: When creating a new branch please use a *descriptive name* to communicate the purpose of the branch to other developers and maintainers. `fix-bug-42` is not a great name, but `42-fix-void-function-error-in-error-list` is.

If your branch addresses a specific Github issue please name your branch *`issue-description`*, where `issue` is the number of the Github issue *without* any prefix and `description` is the description of the branch. This convention helps us to link branches to issues and has the added bonus of automatically moving issues into "In progress" on our Waffle board.

We do not enforce these rules to give you the freedom to ignore them when need be, like in the case of a very urgent but non-trivial bug fix. But please do try to follow these rules most of the time as they help us to maintain a high code quality in `master`.

For *maintainers* these rules are relaxed: They may commit to any branch at any time. Nonetheless we also recommend that maintainers open pull requests for discussion.

Pull requests

Todo

Explain how to review and merge pull requests

Signatures for commits and tags

We sign all release tags as part of our *Release process*. Thus you need a GPG key pair for Git. Github provides a great guide which helps you to generate a key and to tell Git about your key. Please also add your key to your Github account.

We also recommend that you sign all your commits with your key. Again, Github provides a good guide to sign commits.

See also:

Signing Your Work For more information about signing commits and tags take a look at the section in the Git manual.

5.2.2 Tooling and Services

In addition to Github where we host code and do code reviews we use a bit of extra tooling and some 3rd party services for Flycheck:

- ReadTheDocs hosts http://www.flycheck.org and automatically rebuilds it on every change. It works mostly automatically and requires little configuration.
- Travis CI runs our tests after every push and for every pull request. It's configured through `.travis.yml`.

All *maintainers* have administrative access to these services so in case of an issue just contact them.

5.2.3 Maintenance scripts

Administrative processes are tedious and time-consuming, so we try to automate as much as possible. The `maint/` directory contains many scripts for this purpose. `make -C maint/ help` provides an overview over all administrative tasks.

Most of these scripts require Python 3.5 and additional Python libraries. On OS X it is recommended that you use Homebrew to install the latest Python version with `brew install python3`. On Linux you should be able to obtain Python 3.5 from the package manager of your distribution.

To install all required libraries run `make -C maint init`. We recommend that you use virtualenv to avoid a global installation of Python modules. `make init` will warn you if you do not.

5.2.4 Versioning and releases

We use a single continuously increasing version number for Flycheck. Breaking changes may occur at any point.

Please feel free to make a release whenever you think it's appropriate. It's generally a good idea to release when

- you fixed an important bug that affects many users,
- there are a couple of new syntax checkers available,
- there's a major new feature in `master`,
- etc.

In doubt just make a release. We aim to release early and frequently. If anything breaks anything we can just publish another release afterwards.

Release process

First, check that

1. you are on `master`,
2. your working directory is clean, i.e. has no uncommitted changes or untracked files,
3. all commits are pushed,
4. and Travis CI passes for the latest commit on `master`.

If all is good a new release is a simple as

```
$ make -C maint release
```

This runs the release script in `maint/release.py`. If any of the above requirements isn't met the release script will signal an error and abort.

The release script bumps the version number, commits and tags a new release, and pushes it to Github.

Note: The tag is *signed*; you must configure Git for *signing commits and tags* before you make a release the first time. After pushing the new release to Github, the script bumps the version number again, to the next snapshot, and commits the changes again.

Once the script is completed please

1. Edit the release information on Github and add a short summary about the release. Don't forget to add a link to the complete changelog and upload the package TAR file.
2. Enable the new release on the ReadTheDocs versions dashboard.
3. Announce the new release in our Gitter channel, on emacs_flycheck Twitter and wherever else you see fit.

CHAPTER 6

Indices and Tables

- *Supported Languages*
- Glossary
- Changes
- genindex
- search

6.1 Supported Languages

This document lists all programming and markup languages which Flycheck supports.

Note: Extensions may provide support for additional languages or add deeper integration with existing languages.

Take a look at the *list of extensions* to see what the community can offer to you.

Each language has one or more syntax checkers whose names follow a convention of `language-tool`. All syntax checkers are listed in the order they would be applied to a buffer, with all available options. For more information about a syntax checker open Emacs and use **`flycheck-describe-checker`** to view the docstring of the syntax checker. Likewise, you may use **`describe-variable`** to read the complete docstring of any option.

6.1.1 Ada

`ada-gnat`
Check ADA syntax and types with GNAT.

`flycheck-gnat-args`
A list of additional options.

`flycheck-gnat-include-path`
A list of include directories. Relative paths are relative to the path of the buffer being checked.

`flycheck-gnat-language-standard`
The language standard to use as string.

`flycheck-gnat-warnings`
A list of additional warnings to enable. Each item is the name of a warning category to enable.

6.1.2 AsciiDoc

asciidoc
Check AsciiDoc with the standard AsciiDoc processor.

6.1.3 C/C++

Flycheck checks C and C++ with either *c/c++-clang* or *c/c++-gcc*, and then with *c/c++-cppcheck*.

c/c++-clang
c/c++-gcc
Check C/C++ for syntax and type errors with Clang or GCC respectively.

flycheck-clang-args
flycheck-gcc-args
A list of additional arguments for *c/c++-clang* and *c/c++-gcc* respectively.

flycheck-clang-blocks
Whether to enable blocks in *c/c++-clang*.

flycheck-clang-definitions
flycheck-gcc-definitions
A list of additional preprocessor definitions for *c/c++-clang* and *c/c++-gcc* respectively.

flycheck-clang-include-path
flycheck-gcc-include-path
A list of include directories for *c/c++-clang* and *c/c++-gcc* respectively, relative to the file being checked.

flycheck-clang-includes
flycheck-gcc-includes
A list of additional include files for *c/c++-clang* and *c/c++-gcc* respectively, relative to the file being checked.

flycheck-clang-language-standard
flycheck-gcc-language-standard
The language standard to use in *c/c++-clang* and *c/c++-gcc* respectively as string, via the `-std` option.

flycheck-clang-ms-extensions
Whether to enable Microsoft extensions to C/C++ in *c/c++-clang*.

flycheck-clang-no-exceptions
flycheck-gcc-no-exceptions
Whether to disable exceptions in *c/c++-clang* and *c/c++-gcc* respectively.

flycheck-clang-no-rtti
flycheck-gcc-no-rtti
Whether to disable RTTI in *c/c++-clang* and *c/c++-gcc* respectively, via `-fno-rtti`.

flycheck-clang-standard-library
The name of the standard library to use for *c/c++-clang*, as string.

flycheck-gcc-openmp
Whether to enable OpenMP in *c/c++-gcc*.

flycheck-clang-pedantic
flycheck-gcc-pedantic
Whether to warn about language extensions in *c/c++-clang* and *c/c++-gcc* respectively.

flycheck-clang-pedantic-errors
flycheck-gcc-pedantic-errors
Whether to error on language extensions in *c/c++-clang* and *c/c++-gcc* respectively.

flycheck-clang-warnings
flycheck-gcc-warnings
A list of additional warnings to enable in *c/c++-clang* and *c/c++-gcc* respectively. Each item is the name of a warning or warning category for `-W`.

c/c++-cppcheck
Check C/C++ for semantic and stylistic issues with cppcheck.

flycheck-cppcheck-checks
A list of enabled checks. Each item is the name of a check for the `--enable` option.

flycheck-cppcheck-inconclusive
Whether to enable inconclusive checks. These checks may yield more false positives than normal checks.

flycheck-cppcheck-include-path
A list of include directories. Relative paths are relative to the file being checked.

flycheck-cppcheck-standards
The C, C++ and/or POSIX standards to use via one or more `--std=` arguments.

flycheck-cppcheck-suppressions
The cppcheck suppressions list to use via one or more `--suppress=` arguments.

6.1.4 CFEngine

cfengine
Check syntax with CFEngine.

6.1.5 Chef

chef-foodcritic
Check style in Chef recipes with foodcritic.

flycheck-foodcritic-tags
A list of tags to select.

6.1.6 Coffeescript

Flycheck checks Coffeescript syntax with *coffee* and then lints with *coffee-coffeelint*.

coffee
Check syntax with the Coffeescript compiler.

coffee-coffeelint
Lint with Coffeelint.

flycheck-coffeelintrc
Configuration file for this syntax checker. See flycheck-config-files.

6.1.7 Coq

coq
Check and proof with the standard Coq compiler.

6.1.8 CSS

css-csslint
Check syntax and style with CSSLint.

6.1.9 D

d-dmd
Check syntax and types with (DMD).

flycheck-dmd-include-path
A list of include directories.

flycheck-dmd-args
A list of additional arguments.

See also:

flycheck-d-unittest Flycheck extension which provides a syntax checker to run D unittests on the fly and report the results with Flycheck.

6.1.10 Emacs Lisp

Flycheck checks Emacs Lisp with *emacs-lisp* and then with *emacs-lisp-checkdoc*.

emacs-lisp
Check syntax with the built-in byte compiler.

flycheck-emacs-lisp-load-path
The load path as list of strings. Relative directories are expanded against the `default-directory` of the buffer being checked.

flycheck-emacs-lisp-initialize-packages
Whether to initialize Emacs' package manager with `package-initialize` before checking the buffer. If set to `auto` (the default), only initialize the package managers when checking files under `user-emacs-directory`.

flycheck-emacs-lisp-package-user-dir
The package directory as string. Has no effect if *flycheck-emacs-lisp-initialize-packages* is nil.

emacs-lisp-checkdoc
Check Emacs Lisp documentation conventions with `checkdoc`.

See also:

Documentation Tips(elisp) Information about documentation conventions for Emacs Lisp.

purcell/flycheck-package Flycheck extension which adds a syntax checker to check for violation of Emacs Lisp library headers and packaging conventions.

Library Headers(elisp) Information about library headers for Emacs Lisp files.

6.1.11 Erlang

erlang
Check Erlang with the standard Erlang compiler.

flycheck-erlang-include-path
A list of include directories.

flycheck-erlang-library-path
A list of library directories.

6.1.12 ERuby

eruby-erubis
Check ERuby with erubis.

6.1.13 Fortran

fortran-gfortran
Check Fortran syntax and type with GFortran.

flycheck-gfortran-args
A list of additional arguments.

flycheck-gfortran-include-path
A list of include directories. Relative paths are relative to the file being checked.

flycheck-gfortran-language-standard
The language standard to use via the `-std` option.

flycheck-gfortran-layout
The source code layout to use. Set to `free` or `fixed` for free or fixed layout respectively, or nil (the default) to let GFortran automatically determine the layout.

flycheck-gfortran-warnings
A list of warnings enabled via the `-W` option.

6.1.14 Go

Flycheck checks Go with the following checkers:

1. *go-gofmt*
2. *go-golint*
3. *go-vet*
4. *go-build* or *go-test*
5. *go-errcheck*
6. *go-unconvert*

go-gofmt
Check Go syntax with gofmt.

go-golint
Check Go code style with Golint.

go-vet
Check Go for suspicious code with vet.

flycheck-go-vet-print-functions
A list of print-like functions to check calls for format string problems.

flycheck-go-vet-shadow
Whether to check for shadowed variables, in Go 1.6 or newer.

go-build
Check syntax and type with the Go compiler.

flycheck-go-build-install-deps
Whether to install dependencies while checking.

flycheck-go-build-tags
A list of build tags.

go-test
Check syntax and types of Go tests with the Go compiler.

go-errcheck
Check for unhandled error returns in Go with errcheck.

go-unconvert
Check for unnecessary type conversions with unconvert.

6.1.15 Groovy

groovy
Check syntax using the Groovy compiler.

6.1.16 Haml

haml
Check syntax with the Haml compiler.

6.1.17 Handlebars

handlebars
Check syntax with the Handlebars compiler.

6.1.18 Haskell

Flycheck checks Haskell with *haskell-stack-ghc* (in Stack projects) or *haskell-ghc*, and then with *haskell-hlint*.

See also:

flycheck-haskell Flycheck extension to configure Flycheck's Haskell checkers from the metadata, with support for Cabal sandboxes.

flycheck-hdevtools Flycheck extension which adds an alternative syntax checker for GHC using hdevtools.

haskell-stack-ghc

haskell-ghc
Check syntax and type GHC. In Stack projects invoke GHC through Stack to bring package dependencies from Stack in.

flycheck-ghc-args
A list of additional arguments.

flycheck-ghc-no-user-package-database
Whether to disable the user package database (only for *haskell-ghc*).

flycheck-ghc-stack-use-nix
Whether to enable Nix support for Stack (only for *haskell-stack-ghc*).

flycheck-ghc-package-databases
A list of additional package databases for GHC (only for *haskell-ghc*). Each item points to a directory containing a package directory, via `-package-db`.

flycheck-ghc-search-path
A list of module directories, via `-i`.

flycheck-ghc-language-extensions
A list of language extensions, via `-X`.

haskell-hlint
Lint with hlint.

flycheck-hlint-args
A list of additional arguments.

flycheck-hlint-language-extensions
A list of language extensions to enable.

flycheck-hlint-ignore-rules
A list of rules to ignore.

flycheck-hlint-hint-packages
A list of additional hint packages to include.

flycheck-hlintrc
Configuration file for this syntax checker. See flycheck-config-files.

6.1.19 HTML

html-tidy
Check HTML syntax and style with Tidy HTML5.

flycheck-tidyrc
Configuration file for this syntax checker. See flycheck-config-files.

6.1.20 Jade

jade
Check syntax using the Jade compiler.

6.1.21 Javascript

Flycheck checks Javascript with one of *javascript-eslint*, *javascript-jshint* or *javascript-gjslint*, and then with *javascript-jscs*.

Alternatively *javascript-standard* is used instead all of the former ones.

javascript-eslint
Check syntax and lint with ESLint.

flycheck-eslint-rulesdir
A directory with custom rules.

flycheck-eslintrc
Configuration file for this syntax checker. See flycheck-config-files.

javascript-jshint
Check syntax and lint with JSHint.

flycheck-jshint-extract-javascript
Whether to extract Javascript from HTML before linting.

flycheck-jshintrc
Configuration file for this syntax checker. See flycheck-config-files.

javascript-gjslint
Lint with Closure Linter.

flycheck-gjslintrc
Configuration file for this syntax checker. See flycheck-config-files.

javascript-jscs
Check code style with JSCS.

flycheck-jscsrc
Configuration file for this syntax checker. See flycheck-config-files.

javascript-standard
Check syntax and code style with Standard or Semistandard.

6.1.22 JSON

Flycheck checks JSON with *json-jsonlint* or *json-python-json*.

json-jsonlint
Check JSON with jsonlint.

json-python-json
Check JSON with Python's built-in `json` module.

6.1.23 Less

less
Check syntax with the Less compiler.

6.1.24 Lua

Flycheck checks Lua with *lua-luacheck*, falling back to *lua*.

lua-luacheck
Check syntax and lint with Luacheck.

flycheck-luacheckrc
Configuration file for this syntax checker. See flycheck-config-files.

lua
Check syntax with the Lua compiler.

6.1.25 Markdown

markdown-mdl
Check Markdown with markdownlint.

flycheck-markdown-mdl-rules
A list of enabled rules.

flycheck-markdown-mdl-tags
A list of enabled rule tags.

flycheck-markdown-mdl-style
Configuration file for this syntax checker. See flycheck-config-files.

6.1.26 Perl

Flycheck checks Perl with *perl* and *perl-perlcritic*.

perl
Check syntax with the Perl interpreter.

flycheck-perl-include-path
A list of include directories, relative to the file being checked.

perl-perlcritic
Lint and check style with Perl::Critic.

flycheck-perlcritic-severity
The severity level as integer for the `--severity`.

flycheck-perlcriticrc
Configuration file for this syntax checker. See flycheck-config-files.

6.1.27 PHP

Flycheck checks PHP with *php*, *php-phpmd* and *php-phpcs*.

php
Check syntax with PHP CLI

php-phpmd
Lint with PHP Mess Detector.

flycheck-phpmd-rulesets
A list of rule sets. Each item is either the name of a default rule set, or the path to a custom rule set file.

php-phpcs
Check style with PHP Code Sniffer.

Needs PHP Code Sniffer 2.6 or newer.

flycheck-phpcs-standard
The coding standard, either as name of a built-in standard, or as path to a standard specification.

6.1.28 Processing

processing
Check syntax using the Processing compiler.

6.1.29 Puppet

Flycheck checks Puppet with *puppet-parser* and lints with *puppet-lint*.

puppet-parser
Check syntax with the Puppet compiler.

puppet-lint
Link with Puppet Lint.

flycheck-puppet-lint-disabled-checks
A list of checks to disable.

flycheck-puppet-lint-rc
Configuration file for this syntax checker. See flycheck-config-files.

6.1.30 Python

Flycheck checks Python with *python-flake8* or *python-pylint*, and falls back to *python-pycompile* if neither of those is available.

See also:

flycheck-pyflakes Flycheck extension which adds a syntax checker using Pyflakes.

python-flake8
Check syntax and lint with flake8.

flycheck-flake8-error-level-alist
An alist mapping Flake8 error IDs to Flycheck error levels.

flycheck-flake8-maximum-complexity
The maximum McCabe complexity allowed for methods.

flycheck-flake8-maximum-line-length
The maximum length of lines.

flycheck-flake8rc
Configuration file for this syntax checker. See flycheck-config-files.

python-pylint
Check syntax and lint with Pylint.

flycheck-pylint-use-symbolic-id
Whether to report symbolic (e.g. `no-name-in-module`) or numeric (e.g. `E0611`) message identifiers.

flycheck-pylintrc
Configuration file for this syntax checker. See flycheck-config-files.

python-pycompile
Check syntax with Python's byte compiler (see `py_compile`).

6.1.31 R

r-lintr
Check syntax and lint with lintr.

flycheck-lintr-caching
Whether to enable caching in lintr. On by default; it is not recommended to disable caching unless it causes actual problems.

flycheck-lintr-linters
Linters to use as a string with an R expression which selects the linters to use.

6.1.32 Racket

racket
Check syntax with raco expand from the `compiler-lib` package.

6.1.33 RPM Spec

rpm-rpmlint
Lint with rpmlint.

6.1.34 reStructuredText

Flycheck checks reStructuredText with *`rst-sphinx`* in Sphinx projects and with *`rst`* otherwise.

rst-sphinx
Check documents with Sphinx.

flycheck-sphinx-warn-on-missing-references
Whether to emit warnings for all missing references.

rst
Check documents with docutils.

6.1.35 Ruby

Flycheck checks Ruby with *`ruby-rubocop`* and *`ruby-rubylint`*, falling back to *`ruby`* or *`ruby-jruby`* for basic syntax checking if those are not available.

ruby-rubocop
Check syntax and lint with RuboCop.

flycheck-rubocop-lint-only
Whether to suppress warnings about style issues, via the `--lint` option.

flycheck-rubocoprc
Configuration file for this syntax checker. See flycheck-config-files.

ruby-rubylint
Check syntax and lint with ruby-lint.

flycheck-rubylintrc
Configuration file for this syntax checker. See flycheck-config-files.

ruby
Check syntax with the Ruby interpreter.

ruby-jruby
Check syntax with the JRuby interpreter.

6.1.36 Rust

Flycheck checks Rust with *rust-cargo* in Cargo projects, or *rust* otherwise.

rust-cargo
rust
Check syntax and types with the Rust compiler. In a Cargo project the compiler is invoked through `cargo rustc` to take Cargo dependencies into account.

See also:

flycheck-rust Flycheck extension to configure Rust syntax checkers according to the current Cargo project.

flycheck-rust-args
A list of additional arguments.

flycheck-rust-check-tests
Whether to check test code in Rust.

flycheck-rust-crate-root
A path to the crate root for the current buffer, or nil if the current buffer is a crate by itself.

rust-cargo ignores this option as the crate root is given by Cargo.

flycheck-rust-crate-type
The type of the crate to check, as string for the `--crate-type` option.

flycheck-rust-binary-name
The name of the binary to pass to `cargo rustc --bin`, as a string.

Only required when *flycheck-rust-crate-type* is `bin` and the crate has multiple targets.

flycheck-rust-library-path
A list of additional library directories. Relative paths are relative to the buffer being checked.

6.1.37 Sass

sass
Check syntax with the Sass compiler.

flycheck-sass-compass
Whether to enable the Compass CSS framework via `--compass`.

6.1.38 Scala

Flycheck checks Scala with *scala* and *scala-scalastyle*.

scala
Check syntax and types with the Scala compiler.

Note: This syntax checker is fairly primitive. For a better Scala experience we recommend Ensime.

scala-scalastyle
Check style with Scalastyle.

flycheck-scalastylerc
Configuration file for this syntax checker. See flycheck-config-files.

Important: A configuration file is mandatory for this syntax checker. If *flycheck-scalastylerc* is not set or the configuration file not found this syntax checker will not be applied.

6.1.39 SCSS

Flycheck checks SCSS with *scss-lint*, falling back to *scss*.

scss-lint
Check syntax and lint with SCSS-Lint.

flycheck-scss-lintrc
Configuration file for this syntax checker. See flycheck-config-files.

scss
Check syntax with the SCSS compiler.

flycheck-scss-compass
Whether to enable the Compass CSS framework with `--compass`.

6.1.40 Shell scripting languages

Flycheck checks various shell scripting languages:

- Bash with *sh-bash* and *sh-shellcheck*
- POSIX shell (i.e. `/bin/sh`) with *sh-posix-dash* or *sh-posix-bash*
- Zsh with *sh-zsh*

sh-bash
Check Bash syntax.

sh-posix-dash
Check POSIX shell syntax with Dash.

sh-posix-bash
Check POSIX shell syntax with Bash.

sh-zsh
Check Zsh syntax.

sh-shellcheck
Lint Bash and POSIX shell with ShellCheck.

flycheck-shellcheck-excluded-warnings
A list of excluded warnings.

6.1.41 Slim

slim
Check Slim using the Slim compiler.

6.1.42 SQL

sql-sqlint
Check SQL syntax with Sqlint.

6.1.43 TeX/LaTeX

Flycheck checks TeX and LaTeX with either *tex-chktex* or *tex-lacheck*.

tex-chktex
Check style with ChkTeX.

flycheck-chktexrc
Configuration file for this syntax checker. See flycheck-config-files.

tex-lacheck
Check style with Lacheck.

6.1.44 Texinfo

texinfo
Check syntax with **makeinfo** from Texinfo.

6.1.45 TypeScript

typescript-tslint
Check syntax and style with TSLint.

flycheck-typescript-tslint-config
Configuration file for this syntax checker. See flycheck-config-files.

flycheck-typescript-tslint-rulesdir
Additional rules directory, for user created rules.

6.1.46 Verilog

verilog-verilator
Check syntax with Verilator.

flycheck-verilator-include-path
A list of include directories. Relative paths are relative to the file being checked.

6.1.47 XML

Flycheck checks XML with *xml-xmlstarlet* or *xml-xmllint*.

xml-xmlstarlet
Check syntax with XMLStarlet.

xml-xmllint
Check syntax with **xmllint** from Libxml2.

6.1.48 YAML

Flycheck checks YAML with *yaml-jsyaml* or *yaml-ruby*.

yaml-jsyaml
Check syntax with js-yaml.

yaml-ruby
Check syntax with Ruby's YAML parser.

6.2 Glossary

The glossary explains most of the special terms we use in this documentation. some of these are originally explained in the Emacs manual or the Emacs Lisp reference, but we reproduce them here for convenience.

init file, user init file Your main Emacs configuration file. It's typically located in your *user emacs directory* at `$HOME/.emacs.d/init.el`. Emacs also looks at `$HOME/.emacs`, but this location is not recommended anymore. To find out the actual path to your init file of your Emacs session inspect the value of the variable `user-init-file` with `C-h v user-init-file`. You can visit it directly with `M-: (find-file user-init-file)`.

See also:

Init File(emacs) More information about the init file.

Init File(elisp) Programming interface for the init file.

user emacs directory The directory for all Emacs related files of the current user, at `~/.emacs.d/`. Many Emacs packages create data files in this directory, and it holds the recommended location for the *init file* at `~/.emacs.d/init.el`.

registered syntax checker A syntax checker in *flycheck-checkers*. Flycheck will only use these syntax checkers when checking buffers automatically.

6.3 Changes

6.3.1 28 (Jun 05, 2016)

- **Breaking changes**:
  - Rename `luacheck` to `lua-luacheck` to comply with our naming conventions
  - Remove `flycheck-cppcheck-language-standard` in favour of `flycheck-cppcheck-standards` which is a list of standards [GH-960]
- New features:

  - Add option to set binary name for `rust-cargo` [GH-958]
  - Add `flycheck-cppcheck-standards` to pass multiple code standards to cppcheck [GH-960]
  - Add `flycheck-cppcheck-suppressions` to suppress warnings for cppcheck [GH-960]
- Improvements:
  - Check Racket syntax in Geiser Mode [GH-979]
- Bug fixes
  - Do not signal errors when tslint reports no output [GH-981]
  - Do not generate invalid temporary filenames on Windows [GH-983]

6.3.2 27 (May 08, 2016)

- **Breaking changes**
  - Require PHP Code Sniffer 2.6 or newer for `php-phpcs` [GH-921]
- New syntax checkers:
  - Go with `go-unconvert` [GH-905]
  - Markdown with `mdl` [GH-839] [GH-916]
  - TypeScript with `tslint` [GH-947] [GH-949]
- Improvements:
  - Pass checkdoc settings from Emacs to *`emacs-lisp-checkdoc`* [GH-741] [GH-937]
- Bug fixes:
  - Fix parsing of syntax errors in triple-quoted strings for `python-pycompile` [GH-948]
  - Correctly handle rules based on the current file name in `php-phpcs` [GH-921]

6.3.3 26 (Apr 27, 2016)

Flycheck now has a Code of Conduct which defines the acceptable behaviour and the moderation guidelines for the Flycheck community. [GH-819]

Flycheck also provides a Gitter channel now for questions and discussions about development. [GH-820]

The native Texinfo manual is again replaced with a Sphinx based documentation. We hope that this change makes the manual easier to edit and to maintain and more welcoming for new contributors. The downside is that we can not longer include a Info manual in Flycheck's MELPA packages.

From this release onward Flycheck will use a single continuously increasing version number. Breaking changes may occur at any point.

- **Breaking changes**:
  - Remove `flycheck-copy-messages-as-kill`, obsolete since Flycheck 0.22
  - Remove `flycheck-perlcritic-verbosity`, obsolete since Flycheck 0.22
  - Replace `flycheck-completion-system` with `flycheck-completing-read-function` [GH-870]
  - JSON syntax checkers now require `json-mode` and do not check in Javascript Mode anymore

  - Prefer eslint over jshint for Javascript
  - Obsolete `flycheck-info` in favour of the new `flycheck-manual` command
- New syntax checkers:
  - Processing [GH-793] [GH-812]
  - Racket [GH-799] [GH-873]
- New features:
  - Add `flycheck-puppet-lint-rc` to customise the location of the puppetlint configuration file [GH-846]
  - Add `flycheck-puppet-lint-disabled-checks` to disable specific checks of puppetlint [GH-824]
  - New library `flycheck-buttercup` to support writing Buttercup specs for Flycheck
  - Add `flycheck-perlcriticrc` to set a configuration file for Perl::Critic [GH-851]
  - Add `flycheck-jshint-extract-javascript` to extract Javascript from HTML [GH-825]
  - Add `flycheck-cppcheck-language-standard` to set the language standard for cppcheck [GH-862]
  - Add `flycheck-mode-line-prefix` to customise the prefix of Flycheck's mode line lighter [GH-879] [GH-880]
  - Add `flycheck-go-vet-shadow` to check for shadowed variables with `go vet` [GH-765] [GH-897]
  - Add `flycheck-ghc-stack-use-nix` to enable Nix support for Stack GHC [GH-913]
- Improvements:
  - Map error IDs from flake8-pep257 to Flycheck error levels
  - Explicitly display errors at point with `C-c ! h` [GH-834]
  - Merge message and checker columns in the error list to remove redundant ellipsis [GH-828]
  - Indicate disabled checkers in verification buffers [GH-749]
  - Do not enable Flycheck Mode in `fundamental-mode` buffers [GH-883]
  - Write `go test` output to a temporary files [GH-887]
  - Check whether `lintr` is actually installed [GH-911]
- Bug fixes:
  - Fix folding of C/C++ errors from included files [GH-783]
  - Fix verification of SCSS-Lint checkstyle reporter
  - Don't fall back to `rust` if `rust-cargo` should be used [GH-817]
  - Don't change current buffer when closing the error message buffer [GH-648]
  - Never display error message buffer in current window [GH-822]
  - Work around a caching issue in Rubocop [GH-844]
  - Fix checkdoc failure with some Emacs Lisp syntax [GH-833] [GH-845] [GH-898]
  - Correctly parse Haskell module name with exports right after the module name [GH-848]
  - Don't hang when sending buffers to node.js processes on Windows [GH-794][GH-850]

- Parse suggestions from `hlint` [GH-874]
- Go errcheck handles multiple `$GOPATH` entries correctly now [GH-580][GH-906]
- Properly handle Go build failing in a directory with multiple packages [GH-676] [GH-904]
- Make cppcheck recognise C++ header files [GH-909]
- Don't run phpcs on empty buffers [GH-907]

CHAPTER 7

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7.1 Flycheck licenses

7.1.1 GNU General Public License 3

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```

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  To "modify" a work means to copy from or adapt all or part of the work
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  To "propagate" a work means to do anything with it that, without
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interfaces specified for a particular programming language, one that
is widely used among developers working in that language.

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Major Component, or to implement a Standard Interface for which an
implementation is available to the public in source code form.  A
"Major Component", in this context, means a major essential component
(kernel, window system, and so on) of the specific operating system
(if any) on which the executable work runs, or a compiler used to
produce the work, or an object code interpreter used to run it.

  The "Corresponding Source" for a work in object code form means all
the source code needed to generate, install, and (for an executable
work) run the object code and to modify the work, including scripts to
control those activities.  However, it does not include the work's
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```
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which are not part of the work.  For example, Corresponding Source
includes interface definition files associated with source files for
the work, and the source code for shared libraries and dynamically
linked subprograms that the work is specifically designed to require,
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    (including a physical distribution medium), accompanied by the
    Corresponding Source fixed on a durable physical medium
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    customarily used for software interchange.

    b) Convey the object code in, or embodied in, a physical product
    (including a physical distribution medium), accompanied by a
    written offer, valid for at least three years and valid for as
    long as you offer spare parts or customer support for that product
    model, to give anyone who possesses the object code either (1) a
    copy of the Corresponding Source for all the software in the
    product that is covered by this License, on a durable physical
    medium customarily used for software interchange, for a price no
    more than your reasonable cost of physically performing this
    conveying of source, or (2) access to copy the
    Corresponding Source from a network server at no charge.

    c) Convey individual copies of the object code with a copy of the
    written offer to provide the Corresponding Source.  This
    alternative is allowed only occasionally and noncommercially, and
    only if you received the object code with such an offer, in accord
    with subsection 6b.

    d) Convey the object code by offering access from a designated
    place (gratis or for a charge), and offer equivalent access to the
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    clear directions next to the object code saying where to find the
    Corresponding Source.  Regardless of what server hosts the
    Corresponding Source, you remain obligated to ensure that it is
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    e) Convey the object code using peer-to-peer transmission, provided
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code is in no case prevented or interfered with solely because
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CHAPTER 8

TODO

Todo

Explain how to review and merge pull requests

(The original entry is located in /home/docs/checkouts/readthedocs.org/user_builds/flycheck/checkouts/28/doc/contributor/maintaining.r
line 67.)

Todo

Port the Texinfo manual

(The original entry is located in /home/docs/checkouts/readthedocs.org/user_builds/flycheck/checkouts/28/doc/index.rst,
line 70.)

Todo

Port the extending section from the Texinfo manual

(The original entry is located in /home/docs/checkouts/readthedocs.org/user_builds/flycheck/checkouts/28/doc/index.rst,
line 89.)

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