SaltyCrane Blog (/blog/)

Notes on Python, Django, and web development on Ubuntu Linux

My Emacs Python environment

Date: May 10, 2010 | Modified: April 24, 2011 | Tags: **emacs (/blog/tag/emacs/)** , **notestoself (/blog/tag/notestoself/)** , **python (/blog/tag/python/)** , **wide (/blog/tag/wide/)** | **15 Comments (/blog/2010/05/my-emacs-python-environment/#comments)**

Python mode

There are two Python modes: `python-mode.el` **(https://launchpad.net/python-mode)** created by the Python community and `python.el` **(http://www.loveshack.ukfsn.org/emacs/#python.el)** created by the Emacs community (David Love). The first version of `python.el` was included in Emacs 22 and an improved version was included in Emacs 23. I am currently using the default `python.el` included with Emacs 23. Below are some useful commands. For a complete list, open a Python file and run `M-x apropos RET python RET`

`python-shift-left`, `C-c C-<`
> Decrease indentation of the region

`python-shift-right`, `C-c C-<`
> Increase indentation of the region

`python-switch-to-python`, `C-c C-z`
> Start (or switch) to a Python shell

`python-send-buffer`, `C-c C-c`
> Run the current buffer in the Python interpreter

`python-send-region`, `C-c C-r`
> Run the selected code in the Python interpreter

`python-describe-symbol`, `C-c C-f`
> Get help on a Python symbol (Better than visiting the slow Python website, right?)

Configuration (`~/.emacs` changes)

```
(setq-default indent-tabs-mode nil)   ; use only spaces and no tabs
(setq default-tab-width 4)
```

Ropemacs

Ropemacs (http://rope.sourceforge.net/ropemacs.html) is an Emacs plugin to use **Rope (http://rope.sourceforge.net/)** , a powerful Python refactoring library. It supports code completion, renaming, and other refactoring. **Pymacs (http://pymacs.progiciels-bpi.ca/)** is a prerequisite for Ropemacs. Below are some useful commands. For more information, look in the Rope menu.

`rope-code-assist`, `M-/`
> Code completion

```
rope-rename, C-c r r
```
Rename a variable, function, etc.

Installation

Note: pip install does not work with v0.25. Need to use `make install`

- Install Pymacs (Emacs part)

```
$ curl -L https://github.com/pinard/Pymacs/tarball/v0.24-beta2 | tar zx
$ cd pinard-Pymacs-016b0bc
$ make
$ mkdir -p ~/.emacs.d/vendor/pymacs-0.24-beta2
$ cp pymacs.el ~/.emacs.d/vendor/pymacs-0.24-beta2/pymacs.el
$ emacs -batch -eval '(byte-compile-file "~/.emacs.d/vendor/pymacs-0.24-beta2/pymacs.el")'
```

- Install Pymacs (Python part)

```
$ sudo pip install https://github.com/pinard/Pymacs/tarball/v0.24-beta2
```

- Install Ropemacs and Rope

```
$ sudo pip install http://bitbucket.org/agr/ropemacs/get/tip.tar.gz
```

- Edit ~/.emacs to use Ropemacs

```
(add-to-list 'load-path "~/.emacs.d/vendor/pymacs-0.24-beta2")
(require 'pymacs)
(pymacs-load "ropemacs" "rope-")
(setq ropemacs-enable-autoimport t)
```

Auto Complete Mode

Auto Complete Mode (http://cx4a.org/software/auto-complete/) is an extension to make Emacs auto-completion nicer. It creates a drowpdown in the middle of your text. It can use Ropemacs as a backend.

- Download, unpack and byte-compile

```
$ cd ~/.emacs.d/vendor
$ curl http://cx4a.org/pub/auto-complete/auto-complete-1.2.tar.bz2 | tar jx
$ cd auto-complete-1.2
$ make byte-compile
```

- Edit ~/.emacs

```
(add-to-list 'load-path "~/.emacs.d/vendor/auto-complete-1.2")
(require 'auto-complete-config)
(add-to-list 'ac-dictionary-directories "~/.emacs.d/vendor/auto-complete-1.2/dict")
(ac-config-default)
```

Yasnippet

YASnippet (http://code.google.com/p/yasnippet/) is a template system inspired by Textmate. **Demo on YouTube (http://www.youtube.com/watch?v=76Ygeg9miao#t=01m47s)**

Code checking option 1: On-the-fly w/ Flymake

Flymake (http://flymake.sourceforge.net/) is part of Emacs 23. **PyFlakes (http://pypi.python.org/pypi/pyflakes)** .

[pep8 (http://pypi.python.org/pypi/pep8)](http://pypi.python.org/pypi/pep8) . See also **[pylint (http://pypi.python.org/pypi/pylint)](http://pypi.python.org/pypi/pylint)** . **[Reference (http://stackoverflow.com/questions/1259873/how-can-i-use-emacs-flymake-mode-for-python-with-pyflakes-and-pylint-checking-cod)](http://stackoverflow.com/questions/1259873/how-can-i-use-emacs-flymake-mode-for-python-with-pyflakes-and-pylint-checking-cod)** . Note: `flymake-cursor.el` is not required, but it makes flymake less obtrusive.

- Install PyFlakes and pep8

  ```
  $ sudo pip install pyflakes pep8
  ```

- Get `flymake-cursor.el` **[(http://www.emacswiki.org/emacs/flymake-cursor.el)](http://www.emacswiki.org/emacs/flymake-cursor.el)** and save it as `~/.emacs.d/vendor/flymake-cursor.el`.

- Edit `~/.emacs`:

  ```
  (add-to-list 'load-path "~/.emacs.d/vendor")

  (add-hook 'find-file-hook 'flymake-find-file-hook)
  (when (load "flymake" t)
    (defun flymake-pyflakes-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 "pycheckers"  (list local-file))))
      (add-to-list 'flymake-allowed-file-name-masks
             '("\\.py\\'" flymake-pyflakes-init)))
  (load-library "flymake-cursor")
  (global-set-key [f10] 'flymake-goto-prev-error)
  (global-set-key [f11] 'flymake-goto-next-error)
  ```

- Create `pycheckers`, make it executable, and put it on your PATH

  ```
  #!/bin/bash

  pyflakes "$1"
  pep8 --ignore=E221,E701,E202 --repeat "$1"
  true
  ```

Code checking option 2: Manual checking w/ python-check

[PyFlakes (http://divmod.org/trac/wiki/DivmodPyflakes)](http://divmod.org/trac/wiki/DivmodPyflakes) is a Lint-like tool for Python. It is like **[PyChecker (http://pychecker.sourceforge.net/)](http://pychecker.sourceforge.net/)** , but it is fast. PyFlakes can be run from within Emacs using the default python mode in Emacs23.

- Install PyFlakes

  ```
  $ sudo pip install pyflakes
  ```

- Edit `~/.emacs`

  ```
  (setq python-check-command "pyflakes")
  ```

- From Emacs, while visiting a Python file, run `M-x python-check` or `C-c C-v` or `C-c C-w`.

Django

[Reference (http://code.djangoproject.com/wiki/Emacs)](http://code.djangoproject.com/wiki/Emacs)

```
$ wget http://ourcomments.org/Emacs/DL/elisp/nxhtml/zip/nxhtml-2.08-100425.zip
$ unzip nxhtml-2.08-100425.zip
```

```
(load "~/.emacs.d/nxhtml/autostart.el")
(setq mumamo-background-colors nil)
(add-to-list 'auto-mode-alist '("\\.html$" . django-html-mumamo-mode))
```

References

- **EnigmaCurry: Emacs as a powerful Python IDE (http://www.enigmacurry.com/2008/05/09/emacs-as-a-powerful-python-ide/)** (*2008-03-09*)
- **EnigmaCurry: AutoComplete.el : Python Code Completion in Emacs (http://www.enigmacurry.com/2009/01/21/autocompleteel-python-code-completion-in-emacs/)** (*2009-01-21*)
- **Lei Chen: Setup Perfect Python Environment In Emacs (http://hide1713.wordpress.com/2009/01/30/setup-perfect-python-environment-in-emacs/)** (*2009-01-30*)
- **Stack Overflow: Switching from python-mode.el to python.el (http://stackoverflow.com/questions/362522/switching-from-python-mode-el-to-python-el)** (*2008-12-12*)
- **Stack Overflow: python emacs completion (http://stackoverflow.com/questions/750267/python-emacs-completion)** (*2009-04-15*)
- **Stack Overflow: How can I use Emacs Flymake mode for python with pyflakes and pylint checking code? (http://stackoverflow.com/questions/1259873/how-can-i-use-emacs-flymake-mode-for-python-with-pyflakes-and-pylint-checking-cod)**
- **Jesse D. Legg: Emacs for Python Programmers: Basics (http://jesselegg.com/archives/2010/02/25/emacs-python-programmers-part-1/)** (*2010-03-14*)
- **Jesse D. Legg: Emacs for Python Programmers #2: Virtualenv, IPython & Daemon Mode (http://jesselegg.com/archives/2010/03/14/emacs-python-programmers-2-virtualenv-ipython-daemon-mode/)** (*2010-03-14*)
- **Pymacs installation documentation (http://pymacs.progiciels-bpi.ca/pymacs.html#installation)**
- **Edward O'Connor: ropemacs (http://edward.oconnor.cx/2008/02/ropemacs)** (*2008-02-27*)
- **NIPY Documentation: Tricked out emacs for python coding (http://neuroimaging.scipy.org/site/doc/manual/html/devel/tools/tricked_out_emacs.html#ropemacs)**
- **Richard Riley: Emacs programming customisations (http://richardriley.net/projects/emacs/dotprogramming)**
- **Emacs Documentation: Flymake (http://www.gnu.org/software/emacs/manual/html_mono/flymake.html)**
- **amix.dk: Static checking Python code (http://amix.dk/blog/post/19361)**

See also

- **Emacs Python completion (library) (http://www.rwdev.eu/articles/emacspyeng)**
- **CEDET (library) (http://cedet.sourceforge.net/)**
- **Doug Hellmann: Switching development contexts *[in Emacs]* with virtualenvwrapper (http://blog.doughellmann.com/2009/12/switching-development-contexts-with.html)**
- **Lacking Credibility: Mimicing source virtualenv/bin/activate in Emacs (http://blog.dreid.org/2010/02/mimicing-source-virtualenvbinactivate.html)**

15 Comments — Comments feed for this post (/feeds/comments/304/)

Jake commented on 2010-07-16:

This has been the best written (and up to date using current packages!) page I've seen so far for ropemacs, python, and emacs.

Thanks so much.

commented on 2010-08-06:

Very concise and helpful to take python and emacs to the next level, thank you. Just a note too that Auto Complete mode is now at v1.3 instead of 1.2.

commented on 2010-08-07:

K: Great, I will have to update to Auto Complete 1.3

Anders Rønningen commented on 2010-10-22:

Works great on my system, except for two things.

1. Every time I edit a C-file, a warning pops up that flymake is disabled. I'm guessing either load flymake only for python files, or disable warnings.

2. Both warnings and errors use the flymake-errline face. Since the messages most often contain "W:" and "E:", it should be possible to fix this somewhere.

I'll dig more into this, but I posted in case you already have the answers.

Thanks for the setup :)

Anders Rønningen commented on 2010-10-22:

1. was of course trivial:

(defun anr78/flymake-hook () ; your flymake-stuff here)

(add-hook 'python-mode-hook 'anr78/flymake-hook)

commented on 2010-10-22:

Anders: Thanks for your comments. I will have to look into #2. I would like to fix this also. Let me know if you figure it out.

Anders Rønningen commented on 2010-11-15:

Using pylint instead of pyflakes, I have the colors working. The pylint-checker looks like:

```
#!/usr/bin/env python

import re
import sys
from subprocess import *

p = Popen("pylint --rcfile=pylint.rc -f parseable -r n --disable=W0613,C,R %s" %
          sys.argv[1], shell = True, stdout = PIPE).stdout

for line in p.readlines():
    match = re.search("\\[([WE])(, (.+?))?\\]", line)
```

```
    if match:
        kind = match.group(1)
        func = match.group(3)

        if kind == "W":
            msg = "Warning"
        else:
            msg = "Error"

        if func:
            line = re.sub("\\[([WE])(, (.+?))?\\]",
                          "%s (%s):" % (msg, func), line)
        else:
            line = re.sub("\\[([WE])?\\]", "%s:" % msg, line)
    print line,
p.close()
```

Anders: Thanks for the code.

Finally I did python autocompletion as I wanted!! Thanks a lot!

Anders: Since the option --disable doesn't seem to exist anymore I switched the command line to

```
p = Popen("pylint --rcfile=pylint.rc -f parseable -r n --disable-msg=W0613 --disable-msg-c
          sys.argv[1], shell = True, stdout = PIPE).stdout
```

Hi, thanks for the code. But one problem is my yasnippet doesn't work...

Thanks a lot. Getting lots of troubles with the other manuals (I'm an Emacs newbie). This guide is concise, easy to follow and works like charm.

Hi

Thanks for the tutorial.

i am having the following error when starting emacs:

"error: Pymacs helper did not start within 30 seconds"

It seems i forgot something... Any help would be appreciated.

i follow your steps up to yasnippet.

Thanks simplynitaai

[#14 (#c38256) AlexS (http://emacs.vote-system.com/)](#) commented on 2011-09-11:

Emacs VS

Post some plugins on : **[Emacs VS (http://emacs.vote-system.com)](#)**

Thanks !

[#15 (#c41749)](#) Ricopan commented on 2011-11-22:

This was really great. Unfortunately I've now moved to python 3 so ... yuck. Still, any advice on what can be salvaged? Found pymacs and rope for py3k but no ropemode, ropemacs. Autocomplete for py3k apparently here http://www.rwdev.eu/articles/emacspyeng.

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  - *Code blocks: prefix each line by at least 4 spaces or 1 tab (and a blank line before and after)*
  - *Code span: surround with backticks*
  - *Blockquotes: prefix lines to be quoted with >*
  - *Links: <URL>*
  - *Links w/ description: [description](URL)*

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