


Spacemacs

...

Vim? Emacs? ¿Porque no los dos?

Attendance

<https://tinyurl.com/spacemacsextra>



¿Porque no los dos?

Emacs Background

History of Emacs

- Originally grew out of the ITS operating system in 1976 at MIT
- Modern Emacs dates from 1984 with the GNU project to reimplement UNIX
- Like Vi, it predates modern GUIs and uses different terminology from both Vi and modern applications

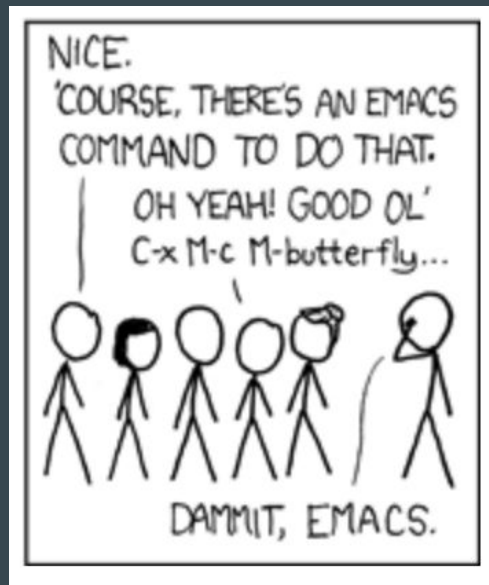


Emacs is not (originally) a Unix program

- The original developers of Emacs were Lisp and AI hackers
- The original developers of Unix were C programmers
 - C and UNIX were quite literally written for each other
- This is one reason why the Emacs/Vi tension exists

Emacs Philosophy

- Endlessly customizable
- Non-modal editing
 - No normal, insert, or visual modes
 - All keybindings work the same, all the time
- All-encompassing
 - Vim is intended to work with shell
 - Emacs wants you to stay in Emacs



Emacs and Vim as languages, and as platforms

- Think of Vim and Emacs as languages for manipulating text
 - Most IDEs implement these languages as extensions
 - Vim and Emacs have extensions for each others
- Also think of them as platforms for building editors
 - How configurable an editor is can be as important as the default editing experience

Emacs as a platform

- Emacs is best a platform for building text editors
 - It isn't very useful without customization
- The Emacs language isn't very good
 - That's why we teach Vim
- There exist “starter packs” similar to our GPI .vimrc to simplify / complicate editing
 - Emacs Prelude
 - Spacemacs

Emacs Lisp

```
;; Eshell C-l support
(defun eshell-clear-buffer ()
  "Clear terminal"
  (interactive)
  (let ((inhibit-read-only t))
    (erase-buffer)
    (eshell-send-input)))
(add-hook 'eshell-mode-hook
  '(lambda()
      (local-set-key (kbd
"C-l") 'eshell-clear-buffer)))
```

- Configuration language for Emacs
- Somewhat archaic
 - Dynamic scope
 - Weakly typed
 - Parentheses!!!
- Powerful enough to write very useful extensions
- Better than Vimscript

Dot Emacs (.emacs)

- Emacs equivalent of the .vimrc
 - Single file holding configuration information written in Emacs Lisp
 - .emacs.d directory often used to hold multiple files

Emacs modes

- Emacs is a non-modal editor
 - Contrast with Vim, which has Normal, Insert, and Visual modes
- But Emacs has modal editing at a **higher level**
- Which keys do which things depends on
 - What type of file you are editing
 - Arbitrary “hooks” to change keybindings in response to events
 - Manually changing the modes with M-x

Major and minor modes

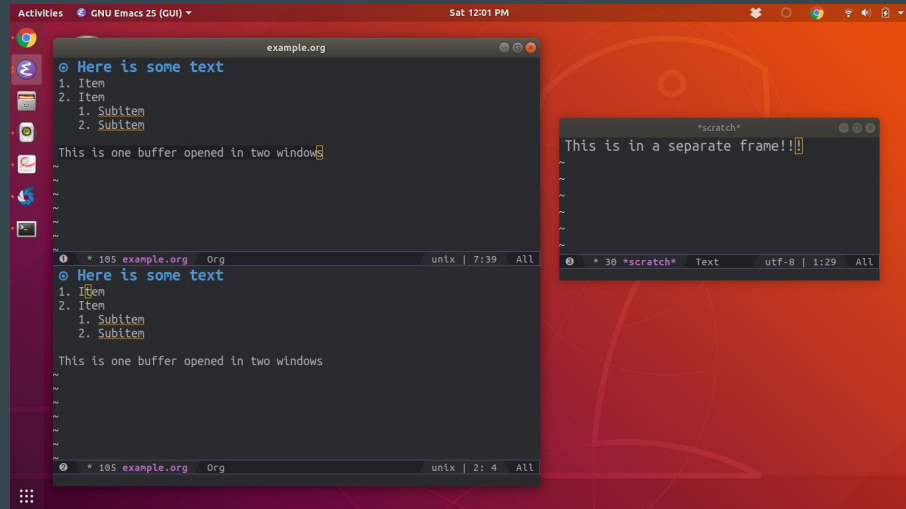
- Each “buffer” has one major mode and several minor modes
- Modes can “inherit” from other modes
 - For example, prog-mode is the parent of python-mode and c++-mode
- Each major mode redefines tons of keybindings in ways that are useful for the particular file you are editing
- Minor modes are less intrusive, and define smaller sets of commands that are more generally useful
 - Like spellcheck through flyspell-mode

Emacs is Self-Documenting!

- C-h i
 - Open Emacs manual
- C-h b
 - List all bindings in scope
- C-h c
 - Describe what command is bound to a key

Emacs terminology for GUIs is kind of weird

- Windowing commands
- Buffers vs Windows vs Frames
- Split view on a single buffer



“Emacs is a great operating system...”

...lacking only a decent text editor.

Maybe Vim can be that text editor?

Vim emulation using evil-mode

- Evil-mode changes the Emacs editing language to the vim editing language
 - Everything we've taught you in class will work
 - Emacs M-x commands are still available
- Configured by default in Spacemacs

Spacemacs

Spacemacs

<http://spacemacs.org>

Four pillars:

1. Mnemonic
2. Discoverable
3. Consistent
4. Crowd-Configured



Demo: Spacemacs in the browser

1. Mnemonic

- Remember that Vim is a language. It's helpful to subvocalize, for example:
 - `di (` as the phrase “delete inside parentheses”
 - `“qyw` as the phrase “register ‘q’ yank word”
- With Spacemacs, this language is heavily extended from core editing commands to basically everything
 - `SPC ff` becomes “<base command key> file find”
 - `SPC gs` becomes “<base command key> git status”

2. Discoverable

- Remember that Emacs is “self-documenting”, with universal keybindings to discover exactly the command you need to run at the time you need it
- Spacemacs improves discoverability by showing submenus of available keybindings as you type
- Also has fuzzy file / buffer / everything search with Helm mode

The most important command

<SPC> <SPC>

3. Consistent

- All layers (collections of packages) that ship with Spacemacs are documented and conform to conventions
- Spacemacs makes the choice that backwards compatibility and stability are secondary to having a consistent editor
 - When you update, things will break
 - They can only really get away with this because everything is so discoverable...

4. Crowd-Configured

- When was the last time a normal person wrote an Eclipse or Visual Studio plugin?
- Spacemacs is completely open source and developed transparently on Github
- Emacs Lisp and great documentation lowers the barrier for entry to contribute to the project

Installation

- Spacemacs turns your .emacs.d directory into a git repository
- Just run the following command and start Emacs:
 - `git clone https://github.com/syl20bnr/spacemacs ~/.emacs.d`
- Note: the Emacs on Andrew is too old
- Note: Windows (WSL) should work, but without extra configuration Emacs will only work in terminal (less pretty)
- Note: For Mac OS we recommend installing Emacs from brew
 - <https://sourabhbajaj.com/mac-setup/Emacs/>

.spacemacs

- This is where user configuration is stored
- Sets which layers are installed
- Custom Lisp code typically goes in the `dotspacemacs/user-config` function

Spacemacs Layers

- Spacemacs organizes extensions into layers by topic
- Can also install emacs extensions manually from the ELPA or MELPA repositories
 - Or just copy the Emacs Lisp files into .emacs.d

Emacs packages

tramp-mode

- Edit files over ssh
- Very useful for editing files on Andrew
- Open file dialog (SPC-f-f in Spacemacs) and use the following syntax
 - `ssh:andrew:private/gpi-labs`

shell-mode

- Open bash inside of Emacs
- M-x shell

magit-mode

- Git client for Emacs

org-mode

- Outline and todo list
 - Great for note-taking
 - Can write latex inline

avy-mode

- Like the t and f commands from Vim, but more general
- Simplify movement across entire files

helm

- File browsing and completion framework
 - Find commands and files

docview-mode

- View pdfs and images inside of emacs
- Works in combination with tramp-mode to view writeup files on Andrew

flycheck-mode

- Syntax-checking for several different programming languages
- IDE-like discovery of syntax errors before compilation

Language-specific modes

- Most languages have their own spacemacs layer providing an editing mode specific to that language