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1 Introduction

This is a talk for programmers as well as non-programmers who don't use emacs as their integrated development environment (IDE) or text editor. This is also for those who say "Wait a minute, emacs isn't an IDE, its just a text editor". Emacs, when combined with a `*nix` system, is in fact the original IDE and remains the best choice for programmers everywhere. Not only can it match all the features you may currently enjoy in Eclipse, JetBrains products, `vIsUaL sTuDiO`, etc, but it offers more efficient tools that are easier to setup for programming and typing.

1.1 Text Editors and IDE's

- Text Editor Holy War (spoiler: emacs won)
- Modal editing vs CTRL combos and extensibility
- It's a good idea to learn both sets anyway
- Emacs can emulate vim, the reverse is not true
- Vi is ubiquitous on servers
- Vi is a penance not a sin

Some common text editors:

- Notepad++ (BSD)
- Vim (BSD)
- Gedit (GPL)
- Sublime Text (Proprietary)
- Atom (MIT)
- VS Code (MIT, Proprietary MS Binary)

Some common IDE's:

- JetBrains Products (BSD, Proprietary)
- Eclipse (MIT)
- Visual Studio (Proprietary)

The ultimate IDE:

- Emacs (GPL)
 - Extensible text editor
 - Easy (relative) to use and thorough documentation
 - Original IDE when combined with *nix system
 - Stands apart by how well it integrates with your system compared to vim, etc.
 - Many useful and fun features
 - An OS that just needs a decent text editor

1.2 The learning curve

2 Some Emacs Fu

Let's start from vanilla Emacs. You don't need to use Spacemacs to get all the IDE features you can just install what you need or want starting from scratch. Spacemacs is just a helpful tool to get things up and running right away.

```
mv ~/.emacs.d ~/.emacs.d.bak
```

2.1 Emacs keybindings

- M=Meta (Usually alt on keyboard)
- C=Ctrl
- M-x: named command
- M-w: copy
- C-y: paste (y for yank)

- C-f: forward
- C-b: back
- C-p: previous
- C-n: next

Do the built in tutorial for more.

2.2 The dotfile

`~/.emacs ~/.emacs.d/init.el`

2.3 Adding Packages

Emacs Lisp Package Archive (ELPA) Milkypostman's Emacs Lisp Package Archive (MELPA)

<https://melpa.org/#/>

```
(require 'package)
(let* ((no-ssl (and (memq system-type '(windows-nt ms-dos))
                  (not (gnutls-available-p))))
      (proto (if no-ssl "http" "https")))
  (when no-ssl
    (warn "\
Your version of Emacs does not support SSL connections, which is
unsafe because it allows man-in-the-middle attacks. There are two
things you can do about this warning: 1. Install an Emacs version
that does support SSL and be safe. 2. Remove this warning from
your init file so you won't see it again.))
    ;; Comment/uncomment these two lines to enable/disable MELPA and MELPA Stable
    ;; as desired
    (add-to-list 'package-archives (cons "melpa" (concat
      proto "://melpa.org/packages/"))) t)
    ;;(add-to-list 'package-archives (cons "melpa-stable" (concat proto
      ;; "://stable.melpa.org/packages/"))) t)
    (when (< emacs-major-version 24)
      ;; For important compatibility libraries like cl-lib
      (add-to-list 'package-archives (cons "gnu" (concat
        proto "://elpa.gnu.org/packages/")))))
  (package-initialize)
```

2.4 Fun Games

- M-x tetris
- M-x snake
- M-x pong
- M-x doctor

2.5 Introspection and extensibility

- man
- info
- describe-function
- describe-variable

3 Spacemacs

3.1 Installing

```
git clone https://github.com/syl20bnr/spacemacs ~/.emacs.d
# In order to use most recent features checkout develop branch
cd ~/.emacs.d/
git checkout develop
```

3.2 Spacemacs specific binding

- Evil (vim bindings) or Holy (emacs bindings)
- SPC key followed by sequence of mnemonic key presses (SPC f f == file-find)
 - Help buffer pops up if you need help remembering
- SPC SPC for named command, can still use M-x

3.3 Packages and layers

- Layers are useful groupings of packages
 - c-c++ layer probably has every packages you might want to program in C++
 - `SPC h 1` (help-layers) will show available layers and let you see their docs
 - Just add to layer list in `~/ .spacemacs` `SPC f e d` (file-emacs-dotfile)
 - * Useful command is `SPC s s` (search-swoop) and type `dotspacemacs-configuration-layer` to jump right to it
- Can still install individual packages just go to `dotspacemacs-additional-packages` and add to list

4 IDE Features

Disclaimer: Emacs, **combined with a *nix system**, is an IDE. You usually have to install extra packages to get full IDE features. For example `rtags` with `c++` or `jedi/importmagic/rope` with `python`. `SPC h 1` will show the docs for the layer and will tell you what you need.

- 4.1 Syntax Highlighting/Checking
- 4.2 Autocompletion
- 4.3 Snippets/Templates
- 4.4 Refactoring
- 4.5 Version Control
- 4.6 Project Management
- 4.7 Debugging
- 4.8 Navigaton
- 4.9 Compilation
- 4.10 Multi Language
- 4.11 Intuitive

The built in help and using helm makes it so you don't have to have every key combination memorized. This makes things just as easy as a having a full IDE GUI

5 Other Useful Stuff

5.1 Languages/Unicode Support

5.2 Org Mode

- Organizaiton/Agenda/GTD
- Literate programming

```
(org-babel-do-load-languages
 'org-babel-load-languages
 '((python . t)
 (shell . t))
```

- Inline images
- Inline Latex
- Exporting (pdf, html, etc) , e e
- Create static website

5.3 Spell Check

5.4 IRC (erc)

5.5 Web Browsing

- eww
- SPC s w w
- SPC s w g

5.6 Avy

5.7 Eshell

5.8 Undo tree

5.9 Grepping

5.10 Man/Info Pages

5.11 Tramp

SPC f f /ssh:bandit0@bandit.labs.overthewire.com#2220:/home/bandit0/readme

5.12 Emacs