

Setting up a decent dev box for OSS work

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I'm a huge OSS community wannabe

- Python
- django
- Gnome
- Freedesktop
- Open Embedded
- Linux kernel / linux power management



Why are you here?

- Using bleeding edge OSS stuff?
- To be part of an OSS community?

Slides and additional content on :
www.thegnar.org/devbox



Overview / outline

- getting most of the tools needed to work with upstream bits
- Setting up email for busy OSS mailing lists
- Random things as long as we have time...
 - quilt
 - git
 - Linux kernel development
 - IRC
 - xrandr
 - minicom
 - Python

Some resources

- www.mutt.org
- www.procmail.org
- msmtp.sourceforge.net
- fetchmail.berlios.de
- git.or.cz
- savannah.nongnu.org/projects/quilt
- www.thegnar.org/devbox

Base Install

- Option 1. Basic 8.04.1 desktop install
- Uses up 2200MB.
- Option 2. Alternate 8.04.1 command line only install
- storage challenged systems
- without desktop clutter
- From the CD boot loader select F3 and choose command line only install
- Uses up 645MB.

Adding packages needed for OSS work

- start off with the Distro versions
- Apt-get build-dep is **magic**
- Apt-get install is cool too.
- <http://www.thegnar.org/devbox>



Apt-get examples from my website

- #kernel development

```
sudo apt-get build-dep linux-generic linux-image-generic  
linux-doc
```

```
sudo apt-get install linux-kernel-devel kernel-package  
libncurses-dev linux-source docbook-utils xmlto
```

#xorg development

```
sudo apt-get build-dep xorg x11-apps xserver-xorg
```

```
sudo apt-get install xorg-dev libssl-dev
```


When build-dep misses

- Google
- Use Synaptic Package manager to search for the missing package.

Additional apt-get friends

- Use `dpkg -l`
- `dpkg` and `apt-get` man pages should be read.
- `apt-get clean`
- `apt-get purge <name>` will remove name (d) package

Email

- Based on www.andrews-corner.org/mutt.html



Strange names

- Mail Transfer Agent (MTA)
 - Mail Retrieval Agent (MRA) -- fetchmail
 - Mail Sending Agent (MSA) -- msmtmp/ssmpt
- Mail Delivery Agent (MDA) -- procmail
- Mail User Agent (MUA) -- mutt

Tools I use

- Mutt : www.mutt.org
- Procmail : www.procmail.org
- Msmtplib : msmtplib.sourceforge.net
- Fetchmail : fetchmail.berlios.de
- “working” config file examples on my web site
www.thegnar.org/devbox/email.html

fetchmail configuration highlights

poll pop.gmail.com

protocol POP3

user 'dec0cb5a'

password 'oscon(123)'

mda "/usr/bin/procmail -d %T"

options no keep ssl sslcertck sslcertpath /etc/ssl/certs

- `chmod 600 ~/.fetchmailrc`

msmtp config highlights

host smtp.gmail.com

port 587 # gmail specific

tls on **#Transport Layer Security**

tls_starttls on

tls_trust_file /usr/share/ca-
certificates/mozilla/Thawte_Premium_Server_CA.crt

- `chmod 600 ~/.msmtprc`
- <http://msmtp.sourceforge.net/doc/msmtp.html>

gmail account settings

- Forwarding and POP/IMAP
- POP Download
- 1 : enable POP download
- 2 : delete Gmail's copy when accessed
- Save Changes.

procmail config highlights

```
# Recipes see "man procmailex"
```

```
:0:
```

```
* ^TOdec0cb5a
```

```
IN.dec0cb5a
```

```
#add more rules here:
```

```
# Last rule: Put mail into mbox #
```

```
:0:
```

```
mbox
```

procmail examples

:0:

```
* ^X-Mailing-List:. *linux-rt-users.vger.kernel.org
```

```
IN.linux-rt-users
```

:0:

```
* ^X-Mailing-List:. *linux-kernel.vger.kernel.org
```

```
IN.lkml
```

Procmail help

- Man procmailrc
- Man procmailex
- Google for example .procmailrc files

mutt

- mutt is old school
 - www.mutt.org
- “alias” file set up in the .muttrc file.
 - alias dorkbotpdx
dorkbotpdx-blabber@dorkbot.org
 - alias AHRS ahrs user1@isp1.com,
user2@isp2.org, ...

mutt configuration highlights

```
set realname = "oscon 2008"
```

```
set from = "dec0cb5a@gmail.com"
```

```
set use_from = "yes"
```

```
set envelope_from = "yes"
```

```
set sendmail=/usr/bin/msmtp
```

```
set alias_file=~/.mutt/aliases
```

```
source ~/.mutt/aliases
```

```
macro index,pager I '<shell-escape> fetchmail  
-v<enter>'
```

finishing touches

- `chmod 600 .fetchmailrc`
- `chmod 600 .msmtprc`
- `mkdir ~/.mutt`
- `touch ~/.mutt/aliases`

SCM related



Using quilt

- Quilt is awesome!
- Many folks use quilt within a git tree.
 - use git to track upstream kernels
 - use quilt to keep track of their work
- Use:
 - `quilt new my_cool_feature.diff`
 - `quilt add <existing file>`
 - `quilt refresh`
- `Quilt edit <filename>` is a good way to add file before editing.

Using quilt

- quilt -h
- quilt pop
- quilt push
- quilt series
- quilt refresh
- Gotchas
 - parent directories with a directory named “patches”
 - forgetting to add files

GIT

- Git is a distributed version control system.
- hard to wrap my head around
- none of the tutorials cover : **git-remote**
- See my git page
<http://www.thegnar.org/devbox/GitTipsThatHe>
for more detail

common git commands

- git-remote :

- `git-remote add linus git://git.kernel.org/.../torvalds/linux-2.6.git`
- `git-remote add fboot git://git.kernel.org/.../arjan/linux-2.6-fastboot.git`
- `git-remote add internal mgross@linux-repo.jf.intel.com:/internal/kernel`

- git-status

- git-reset -hard

- git-clean -d

- git-merge

more common git commands

- git-rebase
- git-branch -a
 - git-branch fastboot fboot/master
- git-fetch
 - **git-fetch fboot**
- git-checkout
 - git-checkout -b fastboot fboot/master

git with quilt

- checkout your code base with git
- create your new working patch with quilt
 - add files and work work work
- quilt refresh then quilt pop all your patches
- git-fetch - git-merge
- quilt push your work and fix up any issues you may have.
- When ready or just post the patch to LKML.

Kernel related

- Read `./Documentation/{SubmitChecklist, SubmittingDrivers, SubmittingPatches}`



tools

- Make help
- Ctags : make tags
 - `gvim` works well with the TAGS file
- CSCOPE : old school code browser
 - `make cscope`
 - `cscope -kd`
 - To exit `cscope` you hit `^d`
- Make {htmldocs, mandocs,...} output are interesting.

./scripts/checkpatch

- It's a format and style checking tool that codifies the Linux kernel coding standards
- “./scripts/checkpatch <pathname of patch>”
from within the kernel root tree.

Web and communications



IRC

- clients:
 - xchat seems to be the easiest for me to use
 - irssi
- Don't post large traces, like a failed compile, to IRC.
 - <http://rafb.net>
- naming a person in your text will “beep” on their remote.

More IRC

- type-oh correction is normally expressed:
- `s/<your-type-oh>/<what you wanted it to say>/`
- it won't redact your screw up
- / commands are how IRC works.
 - `/msg <nick> <message text>`
 - `/kick`
 - `/me`

Simple web site updates

- ncftp is the nicest FTP client I know
- ncftp -u <loginname> IP/site URL
- Seamonkey (mozilla) Composer.
- its dumb, but works
- It has some warts (save work often)

Utilities



xrandr

- kitchen sink full of options
- Options that I've used:
 - `xrandr -auto`
 - `xrandr -output LVDS -off`
 - `xrandr -output VGA -mode 800x600`
 - `xrandr -output VGA -mode 1024x768 -output LVDS -mode 1024x768`
 - `xrandr -output VGA -mode 1280x1024`
- `xrandr` with no options shows available modes per output device

minicom

- (the?) serial terminal program.
- very old school
- ^a^z gets a help menu of sorts
- some distros give it permission issues with the /dev/ devices
- minicom -s
- minicom

Python stuff



Python must haves (for me)

- code checkers : pylint, pyflakes
- python shell : ipython
- python docs
- graphing tools : matplotlib
- scientific stuff : scipy, numpy
- serial port tools : python-serial.
- image processing tools : python-imaging

iPython is cool

- ? will provide basic help
- help() will give access to all of the python help on your system.
- See Jeff Rush's showmedo videos on iPython
- <http://showmedo.com/videos/series?name=C>

ipython dynamic features

- running someone else's code with ipython can help debug issues found within that code.
- set magic “%pdb on” to enable the python debugger to trigger on exception.
- %prun / %run -p profiling
- %time / %timeit
- %xmode
- %colors, %cpaste

THANK YOU



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