

Intro to Knoppmyth

Michael Labowicz

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Intro

- Personal Video Recorders (PVR) like the TiVo have become popular in recent years...
- Content providers have started pushing for more DRM in these devices
- Proprietary devices are becoming harder and harder to customize!
- With Linux and Open Source software, you can build your own PVR and customize it to do what YOU want to!

What can you do with your own custom PVR?

- Record TV shows, store them on separate computer
- Play music/movies, show pictures, run games (SNES, etc...)
- Get RSS feeds, schedule recordings from web browser



Picking the Right Hardware

- Video capture card depends on what CPU/hardware you have
- Lower-End CPU (< P3 700) needs hardware MPEG-2 encoder card
- Higher-End CPU (> P3 700) can get away with a frame grabber
- HDTV requires specialized card (HD-2000/3000, Air2PC-ATSC-PCI)
- At least 100 GB drive to store all the captured video
- 700 megabytes/hour for MPEG-4, 2 GB/hour for MPEG-2

My Hardware Setup

- IBM Thinkcentre S50 (~ 200 off of eBay)
- 512 MB Ram, 100 GB Harddrive
- Knoppmyth Linux Distro
- Geforce4 MX w/ TV out
- Hauppauge WinTV – Frame Buffer Capture Card
- Linksys 802.11b USB WiFi (fast enough)
- On-board sound card just fine...
- Overall, cost was about 300 dollars...



Knoppmyth

- Combines MythTV and Knoppix
- MythTV is open source PVR software that runs on Linux
- Knoppix is a LiveCD Linux distribution based on Debian, a popular community-driven Linux distro
- Knoppmyth has it's own, active community at <http://mysettopbox.tv/phpBB2/>



Freevo Alternative

Freevo is another open source PVR solution. Here are some key differences between it and MythTV:

- Made up of individual programs (more in tune with unix way of thinking...)
- SQLite Database (less resource intensive than MySQL)
- Can Choose between Mplayer or TvTime/Xine/XMMS for playback
- Has many more plugins including most game emulators
- Drawbacks: Cannot pause/rewind live TV, not included in easy to install distro like Knoppmyth, more parts means easier to break
- Written in Python, easy to modify if you need to



Installation

- Enable Boot from CD in your BIOS
- Pop in the Knoppmyth CD and press enter at prompt (or type TV and press enter if you want to enable TV mode)
- Select “Auto Install” and proceed with installation
- Setup your capture card, TV listing source (zap2it.com) and channels

Some issues to look out for:

- TV out setup for video card (use vendor driver... Nvidia)
- WiFi Network Setup (I had to use ndiswrapper)

Nvidia TV-Out Setup

- Install Nvidia drivers, do not use generic “nv” driver...
- If you have an nForce chipset or any nVidia card, before running the command below, you may want to edit /etc/X11/XFConfig-4 and add:

Option "ConnectedMonitor" "TV"

- If you have the system hooked up to a TV, then **ENSURE** that /etc/X11/XF86Config-4 contains:

HorizSync "30 – 50"

VertRefresh "60"

- *A sample XF86Config-4 for nVidia w/ TV-Out is in /etc/X11/*
- For more options, please see:
<ftp://download.nvidia.com/XFree86/Linux-x86/1.0-6629/README.txt>



Post-Install

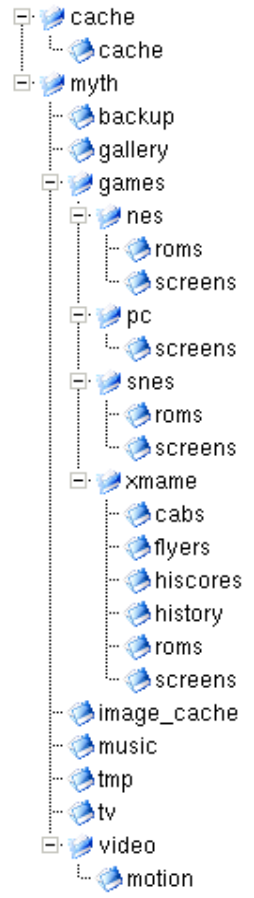
- Provide the root password
- Configure your system time and date
- Configure IP address
- Setup shared network drives (via samba/nfs)
- Share music/video/emulator roms from your desktop pc
- Setup recording schedule
- Install any additional programs you want with:

apt-get update

apt-get install <package name>

Knoppmyth Filesystem

KnoppMyth uses the following filesystem layout:

TEXT	IMAGE
<pre>/cache/cache (for the ring buffer) /myth /backup (used to backup the database, /home and /etc, so upgrading between releases will be easy!) /gallery (for your photos) /game (for games) /nes (for Nintendo emulation) /roms (for roms) /screens (for screenshots) /pc (for "regular" computer games) /screens (for screenshots) /snes (for Super Nintendo emulation) /roms (for roms) /screens (for screenshots) /xmame (for xmame) the binary is in /usr/games/xmame /cabs (for cabinet photos) /flyers (for flyer photos) /hiscores (for Hi-Scores!) /history (for gameplay history) /roms (for your roms) /screens (for screenshots) /music /tv (where recorded programs are kept) /video (for various video formats) /motion (MPEGs created by MythDVD) /tmp (temp space used by MythDVD)</pre>	 <pre>graph TD cache --> myth cache --> cache_cache[cache] myth --> backup myth --> gallery myth --> games myth --> image_cache[image_cache] myth --> music myth --> tmp myth --> tv myth --> video games --> nes games --> pc games --> snes games --> xmame nes --> nes_roms[roms] nes --> nes_screens[screens] pc --> pc_screens[screens] snes --> snes_roms[roms] snes --> snes_screens[screens] xmame --> xmame_cabs[cabs] xmame --> xmame_flyers[flyers] xmame --> xmame_hiscores[hiscores] xmame --> xmame_history[history] xmame --> xmame_roms[roms] xmame --> xmame_screens[screens] video --> motion</pre>

For more info...

- Notes for system video
<http://revision3.com/system/mythtv/>
- Knoppmyth Website
<http://www.mysettopbox.tv/knoppmyth.html>
- Zap2it.com TV Listings
<http://labs.zap2it.com/>
- Hauppauge Card Manufacturer
<http://www.hauppauge.com/>
- MythTV Howto Docs
<http://www.mythtv.org/docs/mythtv-HOWTO.html>