

Linux Entertain Me!

By

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Linux is a highly capable operating system, it can scale from embedded devices to clustered super computers. Using Linux and other Open Source software, you can create a powerful, flexible and easy to use home entertainment system. We all know Tivo uses Linux. One could easily purchase a Tivo and be done with it. However if you want greater flexibility, “rolling your own” is the way to go. The purpose of this document is to show you what options currently exist.

Basic overview of the available software that allows you to run a “media center”.

- MythTV: One developer's goal of achieving the “mythical convergence box”. [Http://mythtv.org](http://mythtv.org)
- Freevo: A “open-source home theatre PC platform”. [Http://freevo.org](http://freevo.org)
- vdr: Video Disk Recorder, a DVB based DVR. <http://www.cadsoft.de/vdr/>
- Elisa: “Elisa is an open source cross-platform media center solution designed to be simple for people not particularly familiar with computers.” <http://elisa.fluendo.com>
- My Media System: “My Media System is an application that manages, displays and plays media content such as videos, music, pictures, and more.” <http://mymediasystem.org/>
- Entertainer: “Entertainer aims to be a simple and easy-to-use media center solution for Gnome and XFce desktop environments.” <http://www.entertainer-project.com>

All in one solutions:

- KnoppMyth: KnoppMyth is my attempt at making the Linux and MythTV installation as trivial as possible. <http://mysettopbox.tv> or <http://knoppmyth.net>
- MiniMyth: “MiniMyth is a small Linux distribution that turns a diskless computer into a [MythTV](#) frontend”. <http://linpvr.org/>
- MythDora: “MythDora is a self contained custom FC6 distribution.” <http://g-ding.tv/>
- Mythbuntu: “Mythbuntu is an Ubuntu derivative focused upon setting up a standalone MythTV system similar to Knoppmyth or Mythdora.” <http://mythbuntu.org/>
- PlutoHome: “Pluto is the only all-in-one solution for your home that seamlessly combines media & entertainment, home automation, security, telecom and computing. “
<http://plutohome.org/>
- LinuxMCE: “a free, open source add-on to Kubuntu including a 10' UI, complete whole-house media solution with pvr + distributed media, and the most advanced smarhome solution available.” <http://www.linuxmce.org/>

Hardware:

The most integral step in creating stable PVR is choosing the right hardware. Before purchasing hardware or using existing hardware, you should have an idea of how you intend to set up your

home entertainment system.

MythTV's Architecture: MythTV has a frontend/backend architecture, which means frontend (user interface) is separate from the backend. This means you can have multiple systems communicating with one another to form a powerful yet easy-to-use home entertainment system. In a typical multi-system configuration, the backend will house the tuner cards and have a large storage (i.e. hard drive) capacity. The frontends, won't have tuners or large hard drives – they will access the backend's resources. Multiple frontends can connect simultaneously to a single back end. The backend machine may or may not also run a front end. Many people just have a single machine that runs both the frontend and backend.

TV Tuner: In order to watch TV on a computer, you need a TV tuner. Tuners can be placed in three categories:

1. “Software” tuners: The central processing unit is used to encode the stream.
2. “Hardware” tuners: The tuner has capability of encoding the stream. This method uses your CPU less, so a powerful system isn't required.
3. “Digital” tuners: Digital tuners are ATSC/HDTV or DVB tuners that basically just write the digital broadcast data stream to your hard drive.

Recommendations:

I wouldn't recommend getting the latest greatest fastest processor and video card. While video processing is CPU intensive, getting the latest and greatest is a waste of money. You may also find that the latest hardware may not work with Linux right away. We live in a world where numbers matter, so manufacturers will offer their products to the OS with the greatest market share. Unfortunately, this means Linux users may have to wait months for support. This however isn't a big issue as you'll find even a 4 year old system can be used as a capable PVR. Before you purchase anything, you'll have to ensure that it is Linux compatible.

If you are going to use your set-top box like a traditional VCR, that is record a program at a set time and watch it at a later time, a system built around an AMD Duron 700 and a software tuner would be my recommended starting point. At a minimum, I'd recommend a hard drive no smaller than 40 gigabytes. This system needs no more than 256 megabytes of RAM.

If you intend to record two programs at once or watch one while recording, then I'd recommend a system built around an AMD Athlon 1800+ with one software tuner and one hardware tuner. At a minimum, I'd recommend a hard drive no smaller than 80 gigabytes. This system needs no more than 256 megabytes of RAM.

If you intend to watch HDTV, then a system built around an Athlon XP 2800+ and a video card based on the nVidia GeForce 5200 would be my recommendation. With the GeForce 5200, you can enable X Video Motion Compensation which reduces CPU overhead. I recommend no less than 512 megabytes of RAM.

These recommendations are based on my personal experience. If you search the KnoppMyth forum, you'll find that some folks are using a Pentium II 250 w/ a Hauppauge 350 with great success. I'd recommend no more than a gigabyte of RAM in your PVR.

The forum is a great place to research your hardware before purchasing. The hardware section is divided into three sections:

- Tier One: If you've installed KnoppMyth and things just worked without having edit anything.
- Tier Two: If you've installed KnoppMyth and had edit any file to get things working. Please explain what you did to get things working.
- Tier Three: Hardware to avoid, couldn't get it working no matter what you did. Please provide steps taken(someone may have the same problem and got it to work).

Considerations:

I want my HDTV! Currently, MythTV can record HDTV using the following methodologies:

- Over The Air (OTA).
- Firewire from set-top box.
- Cable via Quadrature amplitude modulation (QAM).
- Over the network via HDHomeRun tuner. <http://www.silicondust.com/>

Currently, there are no capture cards that will record via component, DVI or HDMI.

My TV provider states I must have a "cable box":

The typical setup, is that the output of the provider's set-top box goes to tuner's input. MythTV then control the set-top box via an "IR Blaster".

Live demonstration of MythTV.

Live demonstration of Elisa.

Notes/Questions and answers:
