

Installing and using MythTV

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Initially, installation of MythTV seems like a huge task. There are lots of dependencies, and various distributions seem to do the same thing different ways. This document will attempt to give general installation instructions, as well as including distribution-specific instructions where necessary.

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1 How to obtain this document.

This HOWTO document is maintained at the primary MythTV website: <http://www.mythtv.org> <<http://www.mythtv.org>>. The latest version of this document can be found in CVS, accessible either through the ViewCVS <<http://cvs.mythtv.org/cgi-bin/viewcvs.cgi/>> web interface, or directly from the CVS repository. You may download the latest copy of MythTV and the documentation from CVS this way:

```
$ mkdir mythtv
$ cd mythtv
$ cvs -d :pserver:mythtv@cvs.mythtv.org:/var/lib/cvs login
Logging in to :pserver:mythtv@cvs.mythtv.org:/var/lib/cvs
CVS password: mythtv
$ cvs -z3 -d :pserver:mythtv@cvs.mythtv.org:/var/lib/cvs checkout MC
```

This documentation will be in the docs/ subdirectory.

NOTE : If you are going to use CVS to compile MythTV rather than using the distribution tarball, it is strongly recommended that you join <<http://www.snowman.net/mailman/listinfo/mythtv-commits/>> the mythtv-dev mailing list.

This HOWTO is for MythTV v0.7.

2 Introduction.

This HOWTO document will focus on MythTV in a North American environment. If you have installation instructions for a different region or Linux distribution, please send them to the author so that it can be included in other versions of this document.

Erik Arendse has setup a website that focuses on running MythTV in a non-North American environment. See the website at http://www.home.zonnet.nl/erik_nospam.arendse/ <http://www.home.zonnet.nl/erik_nospam.arendse/> .

The contributors to MythTV are:

Lead developer: Isaac Richardson, <<mailto:ijr@po.cwru.edu>>

Developer: Matthew Zimmerman, <<mailto:mdz@debian.org>>

Developer: John Danner, <<mailto:jdanner@untzuntz.com>>

Overall structure of HOWTO and Mandrake 9.0 documentation: Robert Kulagowski, <<mailto:rkulagow@rocketmail.com>>

Red Hat Linux 8.0 documentation: Cedar McKay, <<mailto:mythhowto.3.ohthetrees@spamgourmet.com>>

Gentoo documentation and package: Tony Clark, <<mailto:tclark@telia.com>>

Debian package: Matthew Zimmerman, <<mailto:mdz@debian.org>>

Mandrake 8.2 documentation: Harondel J. Sibble, <<mailto:help@pdscc.com>>

3 Checking prerequisites.

3.1 Hardware.

MythTV is a software video encoder, which means that it uses a fairly generic "dumb" video capture card to get frames of video, encodes them using the CPU on your motherboard and writes them to disk. High-end video capture cards and devices like the Tivo and RePlay have dedicated encoder chips which use specialized hardware to convert the video stream to the MPEG-2 format without using the motherboard CPU. The main CPU has the responsibility of running the Operating System and reading and writing the encoded frames to the disk. These tasks have fairly low CPU requirements compared to encoding video, which is why a device like a Series 1 Tivo can run with only 16MB of RAM and a 54Mhz CPU.

Currently, there are no known MPEG-2 encoder cards that have video4linux drivers which would be suitable for use with MythTV. Once the drivers are written, support for hardware MPEG-2 encoders can be integrated.

There are many variables that go into the question: "How fast a CPU do I need to run MythTV"? Obviously, the faster your CPU, the better your experience will be with MythTV. Performing the "Watch TV" function, where the CPU is both encoding and decoding video simultaneously to allow Pause, Fast Forward and Rewind functions for live TV requires more CPU then just encoding or decoding. MythTV also supports multiple encoder cards in a single PC, thereby increasing the CPU requirements if you plan on simultaneously encoding multiple programs.

Here are a few data points:

A PIII/733Mhz system can encode one video stream using the RTJPEG codec using 512x480 capture resolution. This does not allow for live TV watching, but does allow for encoding video and then watching it later.

The developer states that his AMD1800+ system can almost encode two MPEG4 video streams and watch one program simultaneously.

A PIII/800Mhz system with 512MB RAM can encode one video stream using the RTJPEG codec with 480x480 capture resolution and play it back simultaneously, thereby allowing live TV watching.

A dual Celeron/450Mhz is able to view a 480x480 MPEG4/3300Kbps file created on a different system with 30% CPU usage.

NOTE : You must use DMA for hard drive access to prevent choppy or jittery video. Red Hat Linux 8.0 apparently does not enable DMA at boot time. See the Troubleshooting Section for 17.4 (instructions) on how to do this.

Mark Cooper has setup a hardware database at <http://www.goldfish.org/~mcooper/pvrhw/> <<http://www.goldfish.org/~mcooper/pvrhw/>>. The website will let you browse what other users have reported as their hardware configuration, and how happy they are with the results.

3.2 Software.

There are a few ways of installing programs on Linux systems; you can either use the graphical tools that come with your distribution, or you can use command-line utilities. Either system will get the job done, and it all depends on your comfort level with Linux.

NOTE : If you are using MythTV on multiple systems, at least one of them will maintain the master database and will need mysql installed.

In order to compile MythTV, we need to make sure that the software it needs is installed. As of 2003-02-15, this list includes perl, mysql, gcc, freetype2-devel, XFree86-devel, qt-devel and lame. If you're going to use a remote control with MythTV, you're going to need the cdialog package in order to compile lircd.

NOTE : If you are going to be using RPMs to install various components, you should be aware that not all packages include the necessary headers for compiling packages. If you're having trouble compiling, ensure that you've installed the -devel version of a prerequisite.

There appears to be issues with ALSA and simultaneously recording and playing sound, which is a core requirement for MythTV. If you are not running ALSA 0.9.0rc6 or higher and experience lock-ups of your system when trying to use MythTV, then please check the main ALSA website and upgrade to the latest version, or see if your distribution has already packaged the latest ALSA drivers.

3.2.1 Graphical installation tools.

Mandrake 9.0 On systems running KDE, a tool which will allow you to see what packages are available and if they're installed on your system can be accessed by clicking **K-Configuration->Packaging->KPackage**

There are many inter-related modules, so make sure that you've got the main package for each one, and not a sub package for an unrelated item. For example, there are many modules that have "perl" in them; some are a part of the apache web server, others are a part of the perl distribution. In each case, we're looking to make sure that the primary module is getting installed.

Click the magnifying glass or press CTRL-F and enter "perl" as your search term. You should find it under the "Perl" folder. You need at least the perl 5.8.0 base package installed. If not, click on the "Mark" button.

If you are going to be installing mysql on this system, search for mysql - it should be under "Databases". Make sure that mysql and mysql-clients are installed. If not, click on "Mark".

Search for gcc. You're going to need gcc and gcc-c++ installed.

Search for freetype2. Make sure that you've got freetype2 and freetype2-devel installed.

Search for XFree86-devel.

Finally, check for qt. You'll need libqt3-devel (under folder "KDE and Qt") and libqt3 ("Libraries").

NOTE : Mandrake 9.1 has removed the MySQL modules from the default installation. Ensure that you install libqt3-mysql .

Make sure that cdialog is installed if you want to use MythTV with a remote control.

alsa-utils is needed for setting the volume.

If you marked anything to install, click on Install Marked. Click "Yes" or OK if you get a message about satisfying dependencies.

Red Hat Linux 8.0 Red Hat Linux 8.0 does not have the same graphical package manager used by other distributions, so you will need to use Red Hat's package manager. This is the same utility you saw upon installation from the Red Hat Linux 8.0 installation CD, and it allows you to select packages at installation time, or once the system is up and running. You can access this program by selecting

RedHatMenu>System Settings>Packages

If you did a typical Desktop install of Red Hat Linux 8.0 make sure you have selected:

KDE Desktop Environment

SQL Database Server - you will have to click on "details" and make sure "mysql-server" is checked. (only required on the master system)

Development Tools

X Software Development

KDE Software Development

Kernel Development

Click Install to continue.

You can not install qt-MySQL, a necessary prerequisite, graphically. To install this package using the command line do

```
$ up2date --solvedeps qt-MySQL
```

NOTE : Red Hat Linux users, ensure that the correct symlinks have been created for the XFree-86 development libraries:

```
# ln -s /usr/X11R6/lib/libXext.so.6 /usr/X11R6/lib/libXext.so
# ln -s /usr/X11R6/lib/libX11.so.6 /usr/X11R6/lib/libX11.so
```

3.2.2 Command-line installation.

This section details the various methods for installing pre-requisites from the command line.

Mandrake `urpmi` is the simplest tool for installation of packages from the command line. The difficult part is the configuration aspect. The following website <http://plf.zarb.org/~nanardon/urpmiweb.php> <<http://plf.zarb.org/~nanardon/urpmiweb.php>> will allow you to choose a mirror site and then present the command-line configuration text for that mirror. You will most likely need to add a "Contrib" mirror to your setup.

Special instructions for Mandrake 8.2 Mandrake 8.2 does not have a pre-packaged `libqt3-devel`, so you must compile and install this manually. The following command will install the pre-requisites for `qt3`, so don't skip this step. The simplest tool for installing packages from the command line is `urpmi`.

Open a shell, and execute the following. You may get asked a number of questions regarding dependencies. It's best to answer "YES".

```
$ urpmi mesa-common-devel libpng1-devel mysql-devel libunixodbc2-devel
$ urpmi postgresql-devel xfree86-static-libs
```

Once all of the pre-requisites have been installed, the next step is to obtain and compile the source RPM.

Go to <http://www.rpmfind.net> <<http://www.rpmfind.net>> and search for `qt3`. There will be a number of different versions available. As of 2002-12-02, the latest version for Mandrake is called `qt3-3.0.5-7mdk.src.rpm`. Unless you are running Mandrake Cooker (the beta version of the next release of Mandrake), make sure to download the standard "Mandrake" release. Download the `src.rpm` file to a directory that you can find.

```
$ su
# cp qt3-3.0.5-7mdk.src.rpm /usr/src/RPMS/SRPMS
# cd /usr/src/RPMS/SRPMS
# rpm --rebuild qt3-3.0.5-7mdk.src.rpm
# cd ../RPMS
# ls -l
```

The "`ls -l`" command will show you a directory listing. There should be two files, one will be named "`qt3`" and the other will be "`qt3-devel`". The full filenames will vary, so once you know the filename, you can install them with

```
# rpm -Uvh [filename1]
# rpm -Uvh [filename2]
```

Once this has completed (it can take a while, so please be patient), continue by following the Mandrake 9.0 instructions.

Mandrake 8.2 and 9.0 The simplest tool for installing packages from the command line is `urpmi`.

Open a shell, and execute the following, all on the same line. You may get asked a number of questions regarding dependencies. It's best to answer "YES".


```
$ su
# urpmi perl mysql gcc gcc-c++ freetype2-devel cdialog alsa-utils
# urpmi XFree86-devel
```

NOTE : Mandrake 8.2 users, do not execute the following command. You've already manually installed the libraries in the previous section.

```
# urpmi libqt3-devel
```

NOTE : Mandrake 9.1 users, execute the following command.

```
# urpmi libqt3-mysql
```

However, you might get this when you execute the command above:

```
[root@pvr root]# urpmi perl mysql gcc gcc-c++ freetype2-devel libqt3-devel cdialog alsa-utils XFree86-devel
everything already installed
```

In that case, you're ready to move to the next [4](#) (section).

Red Hat Linux 8.0 [Please submit instructions]

Gentoo. If KDE has not been installed on your system: Edit `/etc/make.conf` and locate the "USE" variable. If the line is commented out, remove the comment. The line should have at least:

```
USE="mysql qt alsa"
```

Next you need to build KDE. If you don't plan on using the ebuilds as described in the Gentoo section then you also need to install lame.

```
$ emerge kde lame mysql
```

If KDE has already been installed, by default, QT libraries with SQL support are not built. To enable SQL support, add "mysql qt" to your USE variable in `/etc/make.conf` and rebuild QT by running

```
$ emerge qt
```

Install MySQL if this is the master system:

```
$ emerge mysql
```

All the necessary libraries will be downloaded and built. This will take a lot of time, even on a fast machine if you have to do a full KDE build.

4 Setting up paths, ldconfig and other shell variables.

There are modifications that need to be made to your system before you start compiling.

QTDIR needs to be set, and `/usr/lib/qt3/bin` must be added to your path. Your distribution may already be making these changes as a part of the installation of the software pre-requisites detailed earlier.

4.1 Distribution-specific information.

4.1.1 Mandrake 9.0

The following instructions work for Mandrake 9.0 using bash as the shell, and may be applicable for a distribution which uses /etc/profile.d .

As root, create the following file in /etc/profile.d . The example filename is "mythtv.sh". Use what you feel is appropriate.

Open a shell, and switch to superuser modeNOTE: ^D means pressCTRL and d at the same time.

```
$ su
# cd /etc/profile.d
cat > mythtv.sh
export QTDIR=/usr/lib/qt3
export PATH=$PATH:/usr/lib/qt3/bin
^D

# chmod a+x mythtv.sh
# exit
$ exit
```

The last two commands are to exit out of the shell. This way, when you next open a shell your new commands will take effect.

4.1.2 Red Hat Linux 8.0

Red Hat Linux 8.0 uses an unusual character encoding scheme which causes problems when running certain programs. As a result, whenever you run setup or mythl1database you will have to set a variable to correct this problem. Failure to set this variable will result in a lot of UTF-8 errors.

There are two modifications that you can make to your system to avoid this problem. The first is a system wide solution, the second will only apply to your current user.

The global change is to modify the/etc/sysconfig/i18n file and set LANG="en_US". If you want the change to only affect a single user, you could create a file called ~/.i18n :

```
$ cat > ~/.i18n
LANG="en_US"
^D
$ exit
```

4.2 Checking QTDIR and the PATH.

Open a new shell and switch to superuser mode.

```
$ su
# set
```

```
[lots of text]
QTDIR=/usr/lib/qt3
PATH=/usr/local/bin:/bin:/usr/bin:/usr/X11R6/bin:/usr/games:/usr/lib/qt3/bin:/home/mythtv/bin:/usr/lib/qt3/bin
```

You should see QTDIR and /usr/lib/qt3/bin in your path.

If you don't, do not proceed past this step until you have resolved this error. You may need to manually specify the QTDIR and PATH at the shell prompt before compiling.

Next, we need to make sure that the libraries that we're building will be found when we need them.

4.3 Modifying /etc/ld.so.conf

Switch to /etc and execute the following:

```
# cd /etc
# cat >> ld.so.conf
/usr/local/lib
^D

# /sbin/ldconfig
# exit
$
```

NOTE : It appears that Red Hat Linux 8.0 requires that the ldconfig command needs to be run twice. Red Hat will also frequently "forget" about the path. It's recommended to run /sbin/ldconfig after installing every package. Failing that, always run it if you get an unexpected error about not finding libraries.

5 Downloading and compiling.

Get MythTV from the mythtv.org <<http://www.mythtv.org>>

web site. Save the tarball to a directory you can find.

Get XMLTV from <http://xmltv.sourceforge.net> <<http://xmltv.sourceforge.net>> . Download version 0.5.8

Get lame from <http://www.mp3dev.org/mp3> <<http://www.mp3dev.org/mp3>> . Download the source code to v3.93.1 by following the links to sourceforge.net

5.1 Notes on compiling on a system with non-Intel processors.

If you've got a system with an AMD K6-2 or a VIA C3 processor, make the following change in the settings.profile.

Look for

```
-march=pentiumpro
```

and replace it with

```
-march=i586
```

before you compile.

Recent AMD processors, like the Duron, Thunderbird and Athlon don't need this change.

5.2 Building LAME.

Open a shell and switch to the directory where you saved lame.

```
$ tar -xzf lame-3.93.1.tar.gz
$ cd lame-3.93.1
$ ./configure
$ make
$ make test
$ su
# make install
```

Check that it worked:

```
# ls -l /usr/local/lib
-rw-r--r-- 1 root root 381706 Nov 4 14:22 libmp3lame.a
-rwxr-xr-x 1 root root 674 Nov 4 14:22 libmp3lame.la*
lrwxrwxrwx 1 root root 19 Nov 4 14:22 libmp3lame.so ->
libmp3lame.so.0.0.0*
lrwxrwxrwx 1 root root 19 Nov 4 14:22 libmp3lame.so.0 ->
libmp3lame.so.0.0.0*
-rwxr-xr-x 1 root root 360197 Nov 4 14:22
libmp3lame.so.0.0.0*

# exit
$
```

5.3 Building XMLTV.

NOTE : Red Hat Linux 8.0 and Suse 8.1 users, you must download and install an updated version of libexpat. The version that ships with Red Hat Linux 8.0 and Suse 8.1 (version 1.95.4) is buggy, and will cause problems with XML::Twig. All other distributions may skip this step and proceed with 5.3 (untar'ing) the xmltv le.

If you get errors installing XML::Twig or other XMLTV prerequisites, try deleting the old versions of libexpat

```
$ su
# rm -f /usr/lib/libexpat*
# /sbin/ldconfig
# exit
```

Download version 1.95.5 from sourceforge.net: <http://sourceforge.net/projects/expat/> <<http://sourceforge.net/projects/expat/>>

Open a shell prompt:

```
$ tar -xzf expat-1.95.5.tar.gz
$ cd expat-1.95.5
$ ./configure
$ make
$ su
# make install
# /sbin/ldconfig
# exit
$
```

NOTE : Red Hat Linux 8.0 users, make sure that you set your LANG as described in [4.1.2](#) (Section 4).

Continuing on:

Untar the xmltv le:

```
$ tar -xjf xmltv-0.5.8.tar.bz2
$ cd xmltv-0.5.8
```

Install the xmltv prerequisites:

```
$ su
# perl -MCPAN -e shell
cpan> install XML::Twig
cpan> install Date::Manip
Date::Manip is up to date.
cpan> install LWP
cpan> install XML::Writer
cpan> exit
```

Change to the XMLTV directory and compile it:

```
$ cd xmltv-0.5.8
$ perl Makefile.PL
```

You can answer "N" to the tv_check, tv_pick.cgi questions. Say "yes" to the grabber required for your location.

You may get errors about modules not being installed. They shouldn't matter if you're installing North America and have followed the instructions to this point.

```
$ make
$ make test
$ su
# make install
# exit
```

5.4 Manually building MythTV.

Unpack MythTV

```
$ tar -xjf mythtv-0.7.tar.bz2
$ cd mythtv-0.7
$ ./configure
$ make
```

NOTE for Red Hat 8 users only : You must manually modify a Makefile within the themes directory, otherwise your on screen display (OSD) will be "generic" rather than themed. The solution is to edit the Makefile within the themes directory and comment out (using a # symbol before each line) every line that starts with the word "strip". Make sure you switch back to the MythTV build directory before executing the next step.

Switch to superuser:

```
$ su
# make install
# exit
```

5.5 Gentoo.

Installation of MythTV on Gentoo consists of making a local portage directory with the necessary ebuild and digest files. Tony Clark <<mailto:tclark@telia.net>> has created a portage file which can be downloaded from

<http://smalltime.com/mythtv/mythtv-gentoo-portage.tar.bz2> <<http://smalltime.com/mythtv/mythtv-gentoo-portage.tar.bz2>>

Once you have downloaded the portage file, installation is simple.

```
$ su -
# emerge rsync # make sure portage is up to date.
# cd /usr/local
# tar xvfjp Path_To/mythtv-gentoo-portage.tar.bz2
# vi /etc/make.conf
```

Add mysql to your USE variable. ie USE="mysql"

Locate the line that contains: #/usr/local/portage and remove the #

```
# ACCEPT_KEYWORDS="-x86" emerge mythtv
```

NOTE : If you have perl dependency problems update to =ExtUtils-MakeMaker-6.05-r4

5.6 Debian.

Debian packages for MythTV and some of its add-on modules have been packaged by Matt Zimmerman <<mailto:mdz@debian.org>> and are available at <http://dijkstra.csh.rit.edu:8088/~mdz/debian/dists/woody/mythtv/> <<http://dijkstra.csh.rit.edu:8088/~mdz/debian/dists/woody/mythtv/>>, including installation instructions. All of the prerequisites for MythTV are available as Debian packages.

The mailing list message for this announcement can be accessed at <http://www.snowman.net/pipermail/mythtv-dev/2002-November/001116.html> <<http://www.snowman.net/pipermail/mythtv-dev/2002-November/001116.html>> .

6 MySQL.

6.1 Mandrake 9.0

If this is the master system, make sure that mysql is running and started at boot. Click on Mandrake Control Center-> System-> Services, nd mysql and click the "On Boot" button and the "Start" button if the mysql status shows that it isn't running yet.

NOTE : There have been reports that mysql isn't starting at boot.

```
$ su
# chkconfig --level 35 mysql on
# /etc/rc.d/init.d/mysql start
# exit
```

6.2 Red Hat Linux 8.0

If this is the master system, make sure that mysql is running and started at boot. Click on Redhat menu-> Server Settings-> Services and enter the root password when asked. Check "mysqld" and then click Start. Click Save, then close the window.

6.3 Gentoo.

After installing mysql you need to initialise the database by running `mysql_install_db` as root.

6.4 Setting up the initial database.

This step is only required for systems that will be maintaining a database of listings. If you are running multiple MythTV systems you can either have one master database read by all the other systems, or you can have each system maintaining its own. To setup the initial mysql databases:

```
$ cd database
```

6.4.1 Mandrake 9.0

```
$ mysql -u root < mc.sql
```

6.4.2 Debian 3.0

```
$ mysql < mc.sql
```

6.4.3 Red Hat Linux 8.0

```
$ su
# mysql < mc.sql
```

6.4.4 Gentoo

```
$ su
# mysql < /usr/share/mythtv/database/mc.sql
```

7 Setting up ALSA and the mixer.

If your video doesn't appear to be in-sync with your audio, it could be because you are listening to the real-time audio from your video card rather than after it's been processed and synchronized to the video by MythTV.

What you need to do is to mute the "line-in" of your sound card and also set it as the recording source.

There are two ways to do this. Graphically, and from the command line.

7.1 Graphically setting up the mixer.

7.1.1 Mandrake 9.0

Open Kmix by K- > Multimedia- > Sound > Kmix

Click on Settings-> Configure Make sure that "Tick Marks" and "Show labels" have "X"s in them. This will make it easier to find the correct audio source. Click OK.

On the mixer page, look for Line-In on your sound card. You should see two LED's - a green one at the top, and a red one at the bottom. The green one at the top is for muting; you want to make sure that the green LED is a dark green, meaning that it's "off". You also want to click on the red LED so that it turns bright red, indicating that it's "ON"; this insures that the Line-in is used as the source. Click OK, and make sure that you save the settings so that this is your default.

7.1.2 Red Hat Linux 8.0

Using OSS drivers. Red Hat Linux 8.0 ships with OSS sound drivers rather than the ALSA drivers recommended by the MythTV team. The OSS drivers do work for some people, and for some cards, but others report problems (sync and jitter) with OSS. In addition, OSS does not support full duplex on some cards, which is required if you want to record and play sound using just one sound card. ALSA has good full duplex support, and also has drivers for some built-in (motherboard) sound cards that OSS does not. Installing ALSA is less painful than you might think, so we encourage you to go that route. For those of you who do not wish to install ALSA you must do this:

To configure sound to work with MythTV, select

RedHat Menu>Sound & Video>Volume Control

to open up a mixer. Make sure your global volume (on the far left) is up. Also make sure that the "line in" section has "mute" and "record" checked and that the gain is turned up. You may have to experiment with volume/gain levels to get the best sound. If you experience difficulty with sound try moving your patch cord from "Line in" to "Mic in". You will need to go back to the mixer and select "mute" and "record" on the "Mic in" and turn up the gain for the Mic rather than Line.

Using ALSA drivers. For those of you who do want to install ALSA please follow the directions below, compiled with much assistance from Gregorio Gervasio.

First you must find out the name of your driver, which isn't necessarily the same as the name of your sound card. Go to <http://www.alsa-project.org/alsa-doc/> [<http://www.alsa-project.org/alsa-doc/>](http://www.alsa-project.org/alsa-doc/), find your sound card on the list and click "details". Near the top it will say something like "The module options for snd-XXX", where XXX is the name of your driver. In the instructions below, replace "XXX" with the name of your driver.

Download the development release (0.9.x) from the ALSA web site <http://www.alsa-project.org> [<http://www.alsa-project.org>](http://www.alsa-project.org). You need at least three files:

```
alsa-driver-0.9.x.tar.bz2
```

```
alsa-lib-0.9.x.tar.bz2
```

```
alsa-utils-0.9.x.tar.bz2
```

Start with the alsa-driver package:

```
$ tar -xjf alsa-driver-0.9.x.tar.bz2
$ cd alsa-driver-0.9.x
$ ./configure --with-cards=XXX --with-sequencer=yes
$ make
$ su
# make install
# ./snddevices
# exit
$
```

This will compile and install the kernel modules and initialization scripts, as well as create device nodes in /dev.

Install the rest of the packages:

```
$ cd ~
$ tar -xjf alsa-lib-0.9.x.tar.bz2
$ cd alsa-lib-0.9.x
$ ./configure
$ make
$ su
# make install
# exit
$ cd ..
$ tar -xjf alsa-utils-0.9.x.tar.bz2
```

```
$ cd alsa-utils-0.9.x
$ ./configure
$ make
$ su
# make install
```

Next, you must edit `/etc/modules.conf` so that the ALSA modules are loaded automatically. The first step is to remove your old OSS configuration to ensure that you don't end up with mysterious conflicts in the future. You should end up with a `/etc/modules.conf` file that has this configuration:

```
alias char-major-116 snd
alias snd-card-0 snd-XXX
# module options should go here
# OSS/Free portion
alias char-major-14 soundcore
alias sound-slot-0 snd-card-0
# card #1
alias sound-service-0-0 snd-mixer-oss
alias sound-service-0-1 snd-seq-oss
alias sound-service-0-3 snd-pcm-oss
alias sound-service-0-8 snd-seq-oss
alias sound-service-0-12 snd-pcm-oss
```

"XXX" should be the ALSA driver name for your sound card/chip. In some rare cases you need to supply extra options to the driver. These options are described in the "INSTALL" file in the `alsa-driver` directory or at <http://www.alsa-project.org/alsa-doc/> <<http://www.alsa-project.org/alsa-doc/>> .

For now we will assume that no extra options are required. The next step is to ensure that the ALSA drivers are started during boot-up.

```
$ su
# cd /etc/rc.d/init.d
# /sbin/chkconfig --add alsasound
```

The next set of instructions will cause the ALSA volume/mixer/etc. state to be saved when the machine is shut down properly. Note that the mixer settings won't get restored the next time you boot unless you ran the shutdown script or you've explicitly saved the state which you can do as root with:

```
# alsactl -f /etc/asound.state store
```

Reboot your machine. Login and adjust the sound levels using "alsamixer". You should increase the main volume (the first slider) and the PCM volume, and unmute them by hitting "m". For MythTV, if your tuner card audio output is patched to the Line-In input of your sound card, set the Line input for capture by pressing SPACE at the slider and mute it by pressing "M". If you've patched your tuner card to the Mic-In port of your soundcard, follow the same instructions but make sure that you're on the Mic slider.

Test the driver by playing a simple file:

```
$ aplay /usr/share/sounds/info.wav
```

If it works, you're done installing ALSA!

7.2 Setting the mixer from the command line.

If you're running Mandrake 9.0 and have installed the `alsa-utils` package, then the `amixer` program can be used to setup the mixer.

```
$ amixer set Master,0 100%,100% unmute
$ amixer set Line,0 100%,100% mute capture
$ su
# alsactl store
# exit
$
```

That takes care of setting the volume correctly, and the ALSA startup script will restore the volume after a reboot.

You may also use the `alsamixer` program to set the volume. First, start `alsamixer` from the command line. You should start out on the "Master" volume control slider. Use the up and down cursor to set the master volume to around 75%. Next, use the left and right cursor keys to move around on the screen until you find the "Line" slider. Press SPACE to set it as the capture source, set the level to around 50-75% and press "M" to mute it. You can now press ESC to exit out of the `alsamixer` program.

8 Setting up a remote control.

MythTV does not have native remote control receiver and decoder software built-in. Instead, remote control functions are implemented by cooperating with `lirc`, the Linux Infra Red Control program. `lirc` handles the IR hardware and passes keystrokes to MythTV, which then acts as if the user had pressed the keys on the keyboard.

Some IR devices require a kernel recompile, and some don't. However, all at least require having the kernel source available as a resource for the `lirc` build process.

8.1 Gentoo

To install `lirc` on Gentoo, all you need to do is:

```
$ emerge lirc
```

8.2 Mandrake

NOTE :If you are running Mandrake 9.1, you may install `lirc` by executing: `# urpmi lirc` and bypass the manual compilation step described below.

`lircd` has two prerequisites: `dialog`, available in Mandrake through the "cdialog" RPM, and the kernel source. Mandrake 9.0 is using the 2.4.19 kernel, so the easiest thing is to go to <http://www.kernel.org> <<http://www.kernel.org>> and download the full 2.4.19 tar file from <http://www.kernel.org/pub/linux/kernel/v2.4/> <<http://www.kernel.org/pub/linux/kernel/v2.4/>> .

8.2.1 Obtaining the kernel.

An easy way is to use the wget command:

```
$ wget http://www.kernel.org/pub/linux/kernel/v2.4/linux-2.4.19.tar.bz2
```

Next, open a shell and login as superuser.

```
$ su
# mkdir /usr/src
# mv linux-2.4.19.tar.bz2 /usr/src
# cd /usr/src
# tar -xjf linux-2.4.19.tar.bz2
# chown -R root.root linux-2.4.19
# ln -sf linux-2.4.19 linux
# exit
$
```

8.3 Red Hat Linux 8.0

You should already have the source from the "Kernel Development" package you installed in section 3.2. Ensure that a symlink has been created:

```
$ cd /usr/src
$ su
# ln -s linux-2.4.18-x.x.x linux
# exit
```

8.4 Obtaining and compiling lirc.

You're going to need to download and compile lircd. Go to <http://www.lirc.org> <<http://www.lirc.org>> and download lirc; as of 2002-11-07, the version available is 0.6.6. Grab the remotes.tgz file as well.

```
$ tar -xjf lirc-0.6.6.tar.bz2
$ cd lirc-0.6.6
$ ./setup.sh
```

You're going to need to know what sort of receiver you have and where it's connected. In the case of the Pinnacle Studio TV card, with the IR receiver connected to COM1 (/dev/ttyS0), once the configuration menu comes up, perform the configuration by going to Driver Configuration -> Other Serial Port Devices> Pinnacle Systems Receiver> OK and on the next page select COM1> OK.

Each remote is different; some remote receivers connect directly to your capture card and not to a serial port, so make sure that you've got the correct one.

You then click "Save Configuration and run configure" to continue.

Make sure you read the last text generated by the configure step. It will tell you if you require a kernel recompile, and what the name of your kernel module will be (if necessary). For instance a home-built receiver may require a kernel recompile, so you would be notified that you will have to load the lirc.serial module.

If you did not get any such messages skip the kernel recompile steps below and go directly to making and installing the lirc driver.

Once the configuration step is complete:

```
$ make
$ su
# make install
# chmod 666 /dev/lircd
```

At this point, if you're using a serial receiver, check that the link has been correctly made in /dev

```
$ ls -l /dev/li*
lr-xr-xr-x  1 root  root          5 Jan 27 09:00 /dev/lirc -> ttyS0
srw-rw-rw-  1 root  root          0 Jan 27 15:01 /dev/lircd=
prw-r--r--  1 root  root          0 Jan 27 09:00 /dev/lircm|
```

As you can see, there's a link from /dev/lirc to ttyS0, aka "COM1".

If the link was not created, ensure that you ran the `make install` step as root. If it still doesn't work, then you must create the link manually. In this example, the IR device is connected to ttyS0. If it were connected to "COM2", then use ttyS1, etc.

```
$ su
# cd /dev
# ln -sf ttyS0 lirc
# exit
$
```

8.4.1 Recompiling your kernel on Red Hat Linux

Don't Panic! Red Hat makes a kernel recompile very easy. They provide configuration files that make it so you can recompile your kernel with Red Hat defaults. And as a side benefit, your kernel will be compiled specially for your architecture. For a more detailed description (or if you run into trouble) of how to do this go to

<http://www.redhat.com/docs/manuals/linux/RHL-8.0-Manual/custom-guide/ch-custom-kernel.html> <[http:](http://www.redhat.com/docs/manuals/linux/RHL-8.0-Manual/custom-guide/ch-custom-kernel.html)
www.redhat.com/docs/manuals/linux/RHL-8.0-Manual/custom-guide/ch-custom-kernel.html >

For the impatient: Make sure you have an emergency floppy boot disk available!

```
$ cd /usr/src/linux
$ su
# make mrproper
# cd configs
# ls
```

at this point you must look at the file names and determine which config file is right for you. For instance if you have an Athlon XP you should choose "kernel-2.4.18-athlon.config" but if you have a dual processor P4 you might choose "kernel-2.4.18-i686-smp.config"

```
# cp yourconfig.config ../config
# cd ../
# make xconfig
```

At this point you will get a graphical configuration utility. All that you must do to make lirc work is go to the "character devices" section and change "Standard/generic (8250/16550 and compatible UARTs) serial support" from "y" to "m". Now if you want you can have a look around. For instance, you might wish to turn off ham radio support, or perhaps turn off pcmcia support if you are not on a laptop. But be careful! Only change things you know you can change. If you are not sure, just stick to the one required change. Click "save and exit". Next:

```
# make dep
# make clean
# make bzImage modules
# make modules_install
# make install
```

if you are using grub, that should be it, reboot and select your custom kernel upon boot. If you are using lilo, change your lilo configuration according to

<http://www.redhat.com/docs/manuals/linux/RHL-8.0-Manual/custom-guide/s1-custom-kernel-bootloader.html> <<http://www.redhat.com/docs/manuals/linux/RHL-8.0-Manual/custom-guide/s1-custom-kernel-bootloader.html>> Remember, if you have any custom kernel modules (alsa, etc) you will have to recompile/reinstall those.

8.5 Completing the lirc install.

If configure did not mention anything about a kernel module, then you are finished. If it did mention a kernel module, you must edit the /etc/modules.conf file. Add this line as the first thing in the file. It must come first, or it may not work.

```
alias char-major-61 XXX
```

replace XXX with the name which you determined earlier, which in this example was "lirc_serial"

```
$ su
# modprobe lirc_serial
# /sbin/ldconfig
```

Next, we're going to manually start lircd the first time:

```
# /usr/local/sbin/lircd
```

If this fails, complaining of a missing lircd.conf file, then you must find or make one. First look for a pre-made configuration file at <http://lirc.sourceforge.net/remotes/> <<http://lirc.sourceforge.net/remotes/>>. If you find one your remote there, download the file, name it lircd.conf and put it in your /etc directory. If you couldn't find your remote, you must make your own lircd.conf file.

To make your own lircd.conf file

```
$ irrecord myremote
```

Follow the on-screen directions to train your remote and define keys. If your remote ends up working well, you should consider submitting your `lircd.conf` file back to the lirc developers. Once finished:

```
$ su
# cp myremote /etc/lircd.conf
```

now try to start `lircd` again:

```
# /usr/local/sbin/lircd
```

Now, we're going to add the commands necessary for `lircd` to run each time we boot:

```
# cd /etc/rc.d
# cat >> rc.local
echo "Starting lircd"
/usr/local/sbin/lircd
^D
# exit
$
```

This takes care of the `lircd` portion, which "listens" for the IR signals. If everything went well, the install script for `lircd` put an appropriate configuration file for your remote into `/etc/lircd.conf`. This file maps the buttons on the remote control to the IR pulses coming from the receiver.

The next step is to convert those signals into something that can be used to control MythTV.

```
$ cd ~/mythtv-0.7/configfiles
$ cp lircrc.example ~/.lircrc
```

or

```
$ cp lircrc.example.pinnaclestudiopctv ~/.lircrc
```

if you've got a Pinnacle Studio PCTV remote.

```
$ irw
```

Start pressing the keys on your remote; `irw` will print the name of the button as it is defined in your `/etc/lircd.conf`. If you don't see anything at this point, you need to troubleshoot further by going back to the lirc home page and investigating from there.

If it is working, then press CTRL-C to abort the program. Once you know that your remote is working, you need to run the `irxevent` program, which takes the key presses and sends them to MythTV. `irxevent` isn't a daemon, so if you know that your remote is working you need to invoke it like this:

```
$ irxevent &
```

If `irxevent` isn't running, then MythTV will not respond to your remote control.

Currently, MythTV doesn't have native support for controlling the mixer volume and mute settings. A workaround at this time is to invoke the `amixer` program. If you wish to define keys to control the mixer, the `irxexec` program can accomplish this fairly easily. The `configfiles/lircrc.example.pinnaclestudiopctv` file has an example of calling an external program from a remote control button.

8.6 Additional information for lirc.

Take a look at the `lircrc.example` files in the `configfiles/` directory. In my case, (Pinnacle Studio card) the channel up and down functions weren't working, due to the fact that the button names were different than the default `lircrc.example` file that came with MythTV.

The `lircrc.example` file has this:

```
begin
    prog = irxevent
    button = ChannelUp
    config = Key Up CurrentWindow
end

begin
    prog = irxevent
    button = ChannelDown
    config = Key Down CurrentWindow
end
```

but the `/etc/lircd.conf` that comes in the `lircd` package defines the buttons for the Pinnacle Studio PCTV as:

```
channel+      0x000000000000000017
channel-      0x00000000000000001C
```

rather than "ChannelUp" and "ChannelDown". I added the following to my `/home/[yourusername]/.lircrc` file:

```
begin
    prog = irxevent
    button = channel+
    config = Key Up CurrentWindow
end

begin
    prog = irxevent
    button = channel-
    config = Key Down CurrentWindow
end
```

which took care of basic functionality. Because the PCTV Studio remote has additional buttons, look at the `configfiles/lircrc.example.pinnaclestudiopctv` for an example of how to define additional buttons,

and how to debug potential button name conflicts between the lircrc.example file and how your remote defines the button names.

By examining the button names defined in `/etc/lircd.conf` and using the `irw` program to make sure that your remote is working, you can create the appropriate mappings in `lircrc` to get excellent remote functionality with MythTV.

8.7 Configuring lirc for use with an IR blaster.

By Carlos Talbot, <<mailto:carlos@talbot.net>>

Lirc has support for various IR transmitters. A popular model is the Actisys IR-200L <http://store.yahoo.com/snapstreammedia/irblasbun.html> <<http://store.yahoo.com/snapstreammedia/irblasbun.html>>. It was originally designed for IRDA communication, but can be used to transmit A/V remote control codes. By using the lirc SIR driver, this device can easily be integrated with MythTV. I have tested this device with an AT&T DCT2000 digital cable box but the instructions can be used to configure other IRDA devices and A/V remotes.

Follow the steps in the previous section. When you run `setup.sh`, select option 1, driver configuration. From here select option 6, IrDA hardware. Select your appropriate device and the corresponding serial port, then Save configuration & run configure from the main menu. Once configure is done type:

\$ make

Please note: unlike the Pinnacle receiver above you will be compiling lircd in addition to a kernel module for the SIR transmitter. Depending on whether you have your serial port driver configured as a kernel module you might see the following message during make:

```
lirc_sir.c:56:2: warning: #warning
*****!!

lirc_sir.c:57:2: warning: #warning "Your serial port driver is compiled into "

lirc_sir.c:58:2: warning: #warning "the kernel. You will have to release the "

lirc_sir.c:59:2: warning: #warning "port you want to use for LIRC with:"

lirc_sir.c:60:2: warning: #warning "setserial /dev/ttySx uart none"

lirc_sir.c:61:2: warning: #warning
*****!!
```

If you do receive this statement make sure to run `thesetserial` command before you load the `lircsir` module. Follow this with the install:

```
$ su
# make install
```

You will notice that lirc installs the kernel module in `/lib/modules/uname -a/misc`.

The configuration for starting `lircd` differs if you're going to be sending and receiving IR versus just receiving.

```
# cd /etc/rc.d
# cat >> rc.local
echo "Starting lircd"
setserial /dev/ttySx uart none      # (if required)
modprobe lirc_sir
/usr/local/sbin/lircd
^D
# exit
$
```

At this point you have to populate the `/etc/lircd.conf` file with the proper codes for your A/V remote. You should be able to find your remote within the lirc remote tar file located at <http://www.lirc.org/remotes.tar.bz2> <http://www.lirc.org/remotes.tar.bz2> > . In my case I extracted the file from `remotes/motorola/DCT2000` (`gi-motorola-dct2000`)

To test the `lirc_sir` module you can run `irw` to verify the codes are being received. If everything is configured correctly you should see something similar to the following:

```
$ irw
0000000000007ff0 00 1 gi-motorola-dct2000
000000000000bff8 00 2 gi-motorola-dct2000
000000000000f7f0 00 ENTER gi-motorola-dct2000
```

Once you've verified lirc is working you can press `CTRL-C` to exit `irw` and configure the channel changing script.

Within `/usr/local/share/mythtv/settings.txt` (or `~/mythtv/settings.txt`) you need to add the following line:

```
str ExternalChannelCommand=/usr/local/bin/change_channel
```

This `csh` script will be called each time MythTV needs to change the channel. Below is a copy of the script followed by the corresponding perl script. Make sure both are in your path. Also make sure you leave the `#!/bin/csh` setting and not change it to `bourne` or `bash`. This will create a frustrating symptom to diagnose where MythTV cannot open `/dev/device`. Unlike `bourne` or `bash`, `csh` scripts automatically close parent file descriptors before they start.

```
$ cd /usr/local/bin
# su
# cat > change_channel.csh
#!/bin/csh
echo "changing to $1"
/usr/local/bin/channel.pl $1 &
^D
# chmod a+x change_channel.csh
# exit
$ exit
```

The following file should be saved as `/usr/local/bin/channel.pl`

```
#!/usr/bin/perl

# make sure to set this string to
# the corresponding remote in /etc/lircd.conf
$remote_name = "gi-motorola-dct2000";

sub change_channel {
    my($channel_digit) = @_ ;
    system ("rc SEND_ONCE $remote_name $channel_digit");
    sleep 1;
}

$channel=$ARGV[0];
sleep 1;
if (length($channel) > 2) {
    change_channel(substr($channel,0,1));
    change_channel(substr($channel,1,1));
    change_channel(substr($channel,2,1));
} elsif (length($channel) > 1) {
    change_channel(substr($channel,0,1));
    change_channel(substr($channel,1,1));
} else {
    change_channel(substr($channel,0,1));
}
system ("rc SEND_ONCE $remote_name ENTER");
```

The last statement within the perl script is the lirc rc command. This is the command that transmits the code to your cable/dss box. Make sure to have the IRDA device within a few feet of the box.

9 Configuring MythTV.

By this point, all of the prerequisites have been installed,mysql is running and has had its initial database setup. It's now time to configure MythTV.

9.1 Editing the settings.txt file.

Open a shell and switch to the /usr/local/share/mythtv directory. You MUST edit the settings.txt file so that it's appropriate for your system. At a minimum, ensure that the BufferName, RecordFilePrefix and PIPBuffername variables are set to directories that exist on your system. By default, these point to /mnt/store . For example, you may wish to create a /var/video subdirectory, so you would change /mnt/store to /var/video

```
$ su
# mkdir /var/video
# chmod a+rwX /var/video
# exit
```

The settings.txt file is fairly self-explanatory. Currently, MythTV supports two different video encoders, MPEG4 and RTJPEG. Take note that RTJPEG has lower CPU demands, but makes large files, and MPEG4

has high CPU demands, but makes smaller files.

NOTE : although the width and height can be changed to almost anything, if you start MythTV and don't see video or you get "segmentation fault" errors, it is likely that the video4linux (v4l) subsystem did not like the height and width parameters specified. It's best to leave the default as-is until you're sure that MythTV is operational.

NOTE : the `int Deinterlace=1` variable controls the deinterlacer. Support for deinterlacing requires that your processor has SSE (Streaming SIMD Extensions, aka "MMX2"). Early Intel Celeron (those that don't use the Coppermine 0.18um core and are usually 600Mhz), Pentium Pro and Pentium II CPUs do not have SSE, so make sure that you've got this set to "0" if you have one of these. If you don't, you will get "Illegal Instruction" errors.

To determine if you've got SSE, you can:

```
$ cat /proc/cpuinfo
[snip]
flags           : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca
cmov pat pse36 mmx fxsr sse
```

Notice the sse at the end of the line.

Users in North America can now exit and save the file. Users in other parts of the world need to modify the first line and modify the XMLTVGrabber variable to the correct grabber for their region. `tv_grab_uk` for the UK, etc. Use the name from the xmltv directory.

9.2 Running setup.

Now that you've edited your `settings.txt` file, it's time to run the setup program and perform the initial configuration.

NOTE : Red Hat 8.0 users, if you haven't followed [4.1.2](#) (these) steps, you must do so before continuing.

Open a shell, and switch to the setup directory:

```
$ cd setup
$ ./setup
```

The setup program will ask you a few questions and then proceed to run the XMLTV grabber program.

9.3 Running mythlldatabase.

Now that the setup program has completed, run `mythlldatabase` to get one week of data inserted into the database.

```
$ mythfilldatabase
```

NOTE : `mythlldatabase` might take a while to complete, depending on any number of factors, most of which you can't control. It's best to just let the program run to completion.

`mythlldatabase {manual` is another option; the manual option will allow you to tune channel frequencies and specify which channels will be added to the database. If you are not using the `grabna` grabber, you must use the `{manual` option.

`mythlldatabase {le` is an option if there isn't an XMLTV grabber for your country, but you do have an XML formatted listings file created by some other program.

`mythlldatabase {xawchannels` is an option if you have used `xawtv` to tune your channels and would like to import the tune sets into MythTV.

9.3.1 Setting mythlldatabase to run from cron

In order to keep your database filled, `mythlldatabase` should be run once a day.

There are two ways to accomplish this: either as a user-based cron job, or as a system based cron. If you use a user-based cron, you can select the time that the cron job will be run. A system-based cron job will run at the same time as any other system cron jobs.

If you are a Mandrake 9.0 user and wish to use a system cron job, you can perform the following steps:

```
$ cd configfiles
$ su
# cp mythfilldatabasecron /etc/cron.daily
```

If you want to know what time your job will run, you can do the following:

```
# cat /etc/crontab
SHELL=/bin/bash
PATH=/sbin:/bin:/usr/sbin:/usr/bin
MAILTO=root
HOME=/

# run-parts
01 * * * * root nice -n 19 run-parts /etc/cron.hourly
02 4 * * * root nice -n 19 run-parts /etc/cron.daily
22 4 * * 0 root nice -n 19 run-parts /etc/cron.weekly
42 4 1 * * root nice -n 19 run-parts /etc/cron.monthly
# exit
$
```

We can see from the display that the cron.daily job will run at 0402 every morning.

If you wish to specify a custom time, then the user-based cron job is the better method.

The default `configfiles/mythcrontab` file will run the `mythlldatabase` program every day at 0430. If you want to change this, then open `configfiles/mythcrontab` file in your favorite editor and modify it as you like. Once you're satisfied with the time that `mythlldatabase` will run, save and exit, and return to the shell prompt.

```
$ cd configfiles
$ crontab mythcrontab
$ crontab -l NOTE: this is a lowercase L.
```

```
# The following will run the mythfilldatabase shell script at 0430
# every day. Format is
# minutes hour day_of_month month day_of_week
# man 5 crontab for more information
# Need to use a shell script because the QTDIR environment variable isn't
# being honored by crontab?
# The next text should be all on the same line.
30 04 * * * /bin/bash $HOME/mythtv-0.7/MC/configfiles/mythfilldatabasecron
$
```

As you can see, `mythlldatabase` will now be run at 0430 every day.

If you decide to alter the time that the `mythlldatabase` runs, you can use the `crontab` command to open your existing job and edit it in place.

```
$ crontab -e
```

The `crontab -e` command will allow you to edit the existing crontab. NOTE : By default, the `crontab` will use `vi` as your editor. If you don't like to use `vi`, make sure that you've set `VISUAL` to something other than `vi`.

```
$ export VISUAL=/usr/bin/joe
$ crontab -e
```

This will cause `crontab` to use `joe`, a visual editor that uses the Wordstar command sequence. You may use `emacs`, or any other editor that you're comfortable with. You may also add the `EXPORT` command to your `.bashrc` or to the `/etc/profile.d/mythtv.sh` file.

Once you've completed this step, run the `mythepg` program to check that the database has been filled. The cursor keys will move you around the grid, the "I" key will give you more information on a program and ESC will exit out back to the shell.

10 Using MythTV.

NOTE to Red Hat 8.0 users : Red Hat Linux 8.0 ships with Gnome as the default desktop environment. However, Gnome seems to have issues with window focus and window switching which sometimes cause `mythfrontend` to obscure the video. KDE does not seem to have any such issues. Therefore you will need to switch to KDE by selecting RedHatMenu> Extras> System Settings> Desktop Switching Tool and choose "KDE".

`mythfrontend` is the main interface to the MythTV program. This program allows you to choose which of the other modules you'd like to run and ensures that programs that you've scheduled for recording actually get recorded, so it's important that this program is always running.

10.1 Using themes with MythTV.

MythTV is "themeable", meaning that the visual appearance of the program can be modified by the user without re-compiling or altering the program functionality. `/usr/local/share/mythtv/theme.txt` allows

you to alter the theme for MythTV. The default theme is called "blue". Other themes that ship with MythTV can be found in the `/usr/local/share/mythtv/themes` directory. Change the `rst` variable in the `theme.txt` file and exit and restart `mythfrontend` for it to take effect.

NOTE : Exiting `mythfrontend` will stop any recordings you have in progress, so make sure that the system isn't busy if you modify the theme while `mythfrontend` is still running.

10.2 Adding DirecTV information to the database.

A script for adding DirecTV information into the database has been written by tarek Lubani <<mailto:tarek@tarek.2y.net>> and is available at <http://tarek.2y.net/myth/ppv.pl> <<http://tarek.2y.net/myth/ppv.pl>>. This is currently an external user-supplied program, so if you have issues with the script, please contact the author.

10.3 Adding support for an external tuner.

MythTV supports changing the channel on an external tuner. If you have an external tuner, such as a DirecTV or digital cable set top box, the following command should be added to your `settings.txt` file:

```
str ExternalChannelCommand=/usr/local/bin/changechannel
```

The `changechannel` program is not supplied with MythTV, so this is going to be dependent on what sort of external tuner you have. Example scripts for Sony and RCA receivers can be obtained from <http://tarek.2y.net/myth/> <<http://tarek.2y.net/myth/>>. This is currently an external user-supplied program, so if you have issues with the script, please contact the author.

Feel free to browse some of what sort of hardware is available at <http://shop.store.yahoo.com/snapstreammedia/cablepacks.html> <<http://shop.store.yahoo.com/snapstreammedia/cablepacks.html>>, or if you wish to assemble your own, rather than purchase, the following may be helpful: <http://www.snapstream.com/products/irblaster/sonydss.htm> <<http://www.snapstream.com/products/irblaster/sonydss.htm>> for cable pinouts for RCA DSS receivers.

11 MythWeb.

MythWeb allows you to use a web page to control various aspects of your MythTV system. MythWeb is a separate application, but it's dependent on MythTV being installed and operational.

11.1 Installation and pre-requisites.

Download mythweb from <http://www.mythtv.org/> <<http://www.mythtv.org/>> and save it to a location where you can find it. The next step depends on whether your distribution has a web server and if you have php support.

11.1.1 Mandrake 9.0

Mandrake 9.0 has apache and php pre-packaged, so installation is quite simple. Once you have installed the two programs, either with the graphical installer (see instructions in [3.2.1](#) (Graphic Install Tools)) or through the command line (section [3.2.2](#) (Command Line)), and you've ensured that the apache server will start at boot using the Mandrake Control Center.

11.2 Completing the installation.

```
$ tar -xjf mythweb-0.7.tar.bz2
$ cd mythweb-0.7
$ su
# mkdir /var/www/html/mythweb
# cp -r . /var/www/html/mythweb
# exit
$
```

To access the web page, open a web browser and use `http://[name or ip address]/mythweb/`

NOTE : Make sure that you have a trailing slash on the URL, otherwise you will get a 404 Page not Found error.

12 MythGallery.

MythGallery is a photo and slideshow application. MythGallery is a separate application, but it's dependent on MythTV being installed and operational.

12.1 Installation and pre-requisites.

Download MythGallery from `http://www.mythtv.org/` [<http://www.mythtv.org/](http://www.mythtv.org/) and save it to a location where you can find it.

```
$ tar -xjf mythgallery-0.7.tar.bz2
$ cd mythgallery-0.7
$ make
# su
# make install
# exit
$
```

The configuration file for MythGallery is located in `/usr/local/share/mythtv`. This file needs to be edited: ensure that your `GalleryDir` variable is set to the directory where your pictures are stored.

Use the arrow keys to move around the thumbnails.

Use SPACE or ENTER to maximize a photo.


```
{ Use p or P to start the slideshow of all the files in the directory. "Play" or "Pause" on your
remote may also work.
```

```
{ Use SPACE or ENTER to advance to the next photo.
```

Use ESC to go up one level, or to exit out of the module if you're at the first level.

13 MythGame.

14 MythMusic.

[Documentation still being developed.]

MythMusic has a number of pre-requisites that must be satisfied before it is operational. Depending on your distribution, some of these prerequisites can be satisfied through the various package managers. If your distribution doesn't offer pre-compiled versions of the software below, then follow the generic instructions for manually compiling and installing the software.

The pre-requisites for MythMusic are:

MAD

libvorbis-devel

FLAC

libcdaudio

CDParanoia

14.1 Manual installation of pre-requisites

These instructions are for distributions which don't have pre-compiled versions of the software necessary to run MythTV.

Download MAD from <http://www.mars.org/home/rob/proj/mpeg/> <<http://www.mars.org/home/rob/proj/mpeg/>> Save it to a directory you can find later.

```
$ tar -xzf mad-0.14.2b.tar.gz
$ cd mad-0.14.2b
$ ./configure
$ make
$ su
# make install
# exit
$
```

Download FLAC from <http://ac.sourceforge.net> <<http://flac.sourceforge.net>> and install:

```
$ tar -xzf flac-1.0.4.tar.gz
$ cd flac-1.0.4
$ ./configure
$ make
$ su
# make install
# exit
$
```

Download libcdaudio from libcdaudio.sourceforge.net <http://sourceforge.net/project/showfiles.php?group_id=27134> and install:

```
$ tar -xzf libcdaudio-0.99-6.tar.gz
$ cd libcdaudio-0.99.6
$ ./configure
$ make
$ su
# make install
# exit
$
```

Download cdparanoia from <http://www.xiph.org/paranoia/down.html> <<http://www.xiph.org/paranoia/download/cdparanoia-III-alpha9.8.src.tgz>> .

```
$ tar -xzf cdparanoia-III-alpha9.8.src.tgz
$ cd cdparanoia-III-alpha9.8
$ ./configure
$ make
$ su
# make install
# cd /usr/lib
# ln -sf libcdca_interface.so.0.9.8 libcdca_interface.so
# ln -sf libcdca_paranoia.so.0.9.8 libcdca_paranoia.so
# exit
$
```

14.2 Mandrake 9.0

Mandrake 9.0 has a number of the pre-requisites available on the installation CD. Some of the software you're going to need will have to be obtained from the "contrib" or "cooker" development repositories. Applications downloaded from "cooker" come from the development branch, so there may be issues with some software.

urpmi is the simplest tool for installation of packages from the command line. The difficult part is the configuration aspect. The following website <http://plf.zarb.org/~nanardon/urpmiweb.php> <<http://plf.zarb.org/~nanardon/urpmiweb.php>> will allow you to choose a mirror site and then present the command-line configuration text for that mirror. You will most likely need to add a "Contrib" mirror to your setup. Once you have done that, you can proceed.

```
# urpmi libmad0 libmad0-devel libflac4 libflac4-devel libcdaudio cdparanoia
# urpmi libcdca0 libcdca0-devel libvorbis0 libvorbis0-devel
```

14.2.1 Additional options with CVS MythMusic

Additional visualizations have been added to MythMusic. If you wish to use these, there are some prerequisites you must install prior to compiling.

tw

OpenGL

SDL

fftw may be obtained from <http://www.tw.org/> <<http://www.fftw.org/>> . It may also be installed in Mandrake 9.1 with # `urpmi libfftw2 libfftw2-devel`

OpenGL should be installed on practically all distributions. However, you will need the devel module. On Mandrake 9.1, you would need to install # `urpmi libMesaGLU1-devel` .

SDL may be obtained from <http://www.libsdl.org> <<http://www.libsdl.org>> . On Mandrake 9.1, you may install it by executing: # `urpmi libsdl1.2 libsdl1.2-devel`

14.3 Compiling MythMusic.

Once all the pre-requisites have been installed, you can proceed with getting MythMusic going. NOTE : If you are running the CVS version of MythMusic, make sure that you run `./configure --rst`. If you wish to use the new visualizations, make sure you install the prerequisites. Run `./configure --help` for help.

```
$ make
$ su
# make install
# exit
$ cd musicdb
$ mysql -u root < metadata.sql
```

Edit the `/usr/local/share/mythtv/mythmusic-settings.txt` file for your particular system.

14.4 Using MythMusic.

MythMusic is fairly simple to use. It is recommended that you insert the CD before selecting "Import CD". You should also ensure that your system doesn't try to automount the CD and begin playing it automatically.

Another item to consider: there are some CD's that contain computer data that runs as a "CD Extra". After the CD information lookup, ensure that the "(Data for CD Extra)" track is not selected for encoding, otherwise MythMusic will hang attempting to encode the non-audio data.

15 MythWeather

The MythWeather module will obtain the weather information for the location that you specify. You must be running the CVS version of MythTV in order to use MythWeather.

Change into the MythWeather directory, then make and make install:

```
$ cd mythweather
$ make
$ su
# make install
# exit
```

MythWeather uses MSNBC.com as its source for weather data. You may specify a number of identifiers in order to obtain your local weather.

Your zip code.

An airport code.

The "accid".

In order to determine your accid, access the msnbc.com weather site at the following URL: http://www.msnbc.com/news/wea_front.asp?0wl=w3&tab=oth&ta=y <http://www.msnbc.com/news/wea_front.asp?0wl=w3&tab=oth&ta=y> Once there, fill in your location. After the MSNBC server completes your request, check the URL in the address bar for "accid=XXXXX". The "XXXXX" portion is the area id you will need for the next configuration step.

To configure MythWeather, go to Mythfrontend- > Watch TV- > Setup-> Weather

These are the keyboard commands for MythWeather:

Left Key	Goes back one page, and extends the time spent on the page you are on.
Right Key	Goes forward one page, see above.
Space	Pause, wait on the current page until space is hit again.
Numeric Keys	You can check other weather by keying in other ZIP codes.
Enter Key	Switch between Celsius and Fahrenheit. Can also be used a way to force a data update.
"m" Key	Resets the location to the database default, then updates the data.

MythWeather also has an "Aggressiveness" setting. This affects how long MythWeather waits for data from the msnbc.com website before timing out. If you are on a slow connection, or have a slow DNS, or MythWeather just doesn't seem to be working and you've already tried everything else, then try increasing the aggressiveness level parameter. This parameter is inverse; a higher number actually means that MythWeather will be less aggressive, and will therefore wait longer before timing out.

MythWeather will print debugging information on the terminal. If you wish to see additional debugging information while MythWeather is running, you'll need to modify the source and recompile.

Open the weather.cpp and go to line 40. You should see `debug = false`. Change this to true, go back to the main mythweather directory and run `make clean distclean`; `make` then switch to superuser and run `make install`. MythWeather will now print additional data to the terminal to allow you to troubleshoot MythWeather issues.

16 MythVideo

The MythVideo application will allow you to use an external program to watch media files that are not directly supported by MythTV.

Change into the MythVideo directory, then make and make install:

```
$ cd mythvideo
$ make
$ su
# make install
# exit
```

The next step is to edit the `/usr/local/share/mythvideo/mythexplorer-settings.txt` file. Change the `StartDir` to a valid mount point on your system.

17 Troubleshooting.

17.1 Illegal Instruction.

This error can happen for the following reasons:

You have an AMD K6-2 or VIA C3 processor. If you have either of these, make sure that you followed the instructions in this [5.1](#) (section).

You have an early production Intel Celeron, Pentium Pro or Pentium II. If you have any of these processors, make sure that you [0.1](#) (deinterlace) variable is set correctly. Your CPU needs to support SSE instructions for deinterlace support. You may check this by doing `$ cat /proc/cpuinfo` and looking for "sse" in the processor flags section.

17.2 mythl1database failing.

If `mythl1database` suddenly appears to be failing, check to see what version of XMLTV you're running. Versions prior to 0.5.4 need to have the following change made: edit the `/usr/lib/perl5/site_perl/5.8.0/XMLTV/ZapListings.pm` file and perform a global search and replace, searching for "tvlistings2" and replacing it with "tvlistings". NOTE : It is highly recommended to run the latest version of XMLTV available. In North America, zap2it, the listings provider, has been making numerous changes to their website which negatively impact XMLTV.

17.3 MythTV seems to disappear; can't see video

If you're using Gnome as your window manager, try switching to KDE. For Red Hat Linux 8.0 users, edit `/etc/sysconfig/desktop` and change "GNOME" to "KDE".

17.4 Fast CPU, choppy or jittery video.

This is most likely because your hard drive isn't setup to use DMA. Use the `hdparm` program to check and enable DMA.

```
# hdparm -d /dev/hd?
```

will tell you the DMA status for your hard drives. If you run `hdparm` with the `-d1` parameter, it will turn DMA on.

You may also setup your PC to do this at boot time, either by adding the command to your `/etc/rc.local` file, or by adding lines to `/etc/sysconfig`.

On Mandrake and other distributions, if you install `hdparm` from an RPM you will most likely get a `/etc/sysconfig/harddisks` file installed. This file will be parsed by the `/etc/rc.sysinit` script. If you use the default `harddisks` file, your changes will affect all IDE devices (including CD ROMs). If you wish to use different parameters for various devices, rename and/or copy the file to `harddiskhda`, `harddiskhdb`, etc. Edit the file to your liking and on the next reboot your setting will be preserved.

17.5 I keep losing all of my settings every time I compile!

MythTV will overwrite any settings in `/usr/local/share/mythtv`. If you want to make sure that you don't lose your modifications, make a directory `~/mythtv` and copy your `settings.txt` file to this location.

17.6 Compile errors.

Some compile errors are worse than others. If you get an error that doesn't abort the compilation, and says something like:

```
cc1plus: warning: changing search order for system directory
"/usr/local/include"
cc1plus: warning: as it has already been specified as a non-system
directory
```

then it shouldn't be a problem.

If you get an error like `/usr/bin/ld: cannot find -lXext`, the compiler is telling you that you don't have `XFree86-devel` installed, or that your distribution hasn't set it up [3.2.1](#) (correctly). This needs to be fixed before MythTV will compile.

17.7 My screen goes blank, but comes back when I wiggle the mouse or use the keyboard.

This is due to DPMS, the Display Power Management System, which is used to save power by turning off your monitor when the system decides that it's not being used. Since it's likely that watching TV will not generate keyboard or mouse events for a time, you need to turn off DPMS. There are a few ways to do this. You may also need to check your BIOS for power saving modes and disable screen blanking there as well.

Edit your `/etc/X11/XF86Config-4` file, and look for:

Section "ServerFlags"

#DontZap # disable <Ctrl><Alt><BS> (server abort)

#DontZoom # disable <Ctrl><Alt><KP_+>/<KP_-> (resolution switching)

AllowMouseOpenFail # allows the server to start up even if the mouse doesn't work

EndSection

Add Option "NoPM" "true" and Option "BlankTime" "0" to the ServerFlags section.

Also, look for:

Section "Device"

Identifier "device1"

VendorName "nVidia Corporation"

BoardName "NVIDIA GeForce 256 (generic)"

Driver "nv"

Option "DPMS"

EndSection

In this case, you would need to either delete the Option "DPMS" line, or change it to # Option "DPMS" to comment it out. The next time you start XFree this change will take effect.

Finally, check:

Section "Monitor"

Identifier "monitor1"

VendorName "Plug'n Play"

HorizSync 30-85

VertRefresh 50-160

Sony Vaio C1(X,XS,VE,VN)?

1024x480 @ 85.6 Hz, 48 kHz hsync

ModeLine "1024x480" 65.00 1024 1032 1176 1344 480 488 494 563 -hsync -vsync

TV fullscreen mode or DVD fullscreen output.

768x576 @ 79 Hz, 50 kHz hsync

ModeLine "768x576" 50.00 768 832 846 1000 576 590 595 630

768x576 @ 100 Hz, 61.6 kHz hsync

ModeLine "768x576" 63.07 768 800 960 1024 576 578 590 616

EndSection

Ensure that there isn't an Option "DPMS" in the Monitor configuration.

You can also turn off DPMS from the Command Line, but this will not survive a reboot.

```
$ xset -dpms
```

Using xset +dpms will turn it back on.

Finally, depending on your distribution, you may be able to turn it off from within the control panel.

17.8 I can't checkout using CVS anymore!

Isaac has changed some things around. The CVS repository is now known `svn.mythtv.org`, rather than `www.mythtv.org` or `mythtv.org`. Make sure you change your CVSROOT to point to the new server, delete your old tree, and re-do the checkout.

17.9 I get segfaults / MythTV isn't doing anything.

Without details, the developers will not be able to determine if you have discovered a genuine code-bug, or if the problem is with your system. In order to determine what's going on, you must recompile MythTV with debugging support and run MythTV within `gdb`, the GNU debugger.

Edit the `settings.pro` file. Make sure that the top of the file looks like this:

```
$ cat settings.pro
CONFIG += debug
#CONFIG += release
```

Now, you need to clear out the old versions of the software to ensure that you're running with the debugging code, then compile and install.

```
$ make clean distclean
$ ./configure
$ make
$ su
# make install
# exit
```

At this point, you now have debug-enabled software ready. Let's assume that the problem you're having is in the `setup` program.

```
$ cd setup
$ gdb ./setup
```

```
GNU gdb 5.3-1mdk (Mandrake Linux)
Copyright 2002 Free Software Foundation, Inc.
GDB is free software, covered by the GNU General Public License, and you are
welcome to change it and/or distribute copies of it under certain
conditions.
Type "show copying" to see the conditions.
There is absolutely no warranty for GDB. Type "show warranty" for details.
This GDB was configured as "i586-mandrake-linux-gnu"...
(gdb)
```

`gdb` has a number of options, read `manpage` for more information.

Once at the `(gdb)` prompt, type `run` to start program execution. When the program segfaults, type `bt` to get the backtrace. The backtrace should be posted to the `mythtv-dev` mailing list, along with the steps you followed to get the program to crash.

17.10 MythTV makes my system crash.

MythTV can not crash your system - it is a user-level program. If your system is crashing when you run MythTV, then you have some issue with the drivers for your capture card or other hardware, or the CPU fan has fallen out/broken and your system is overheating when asked to perform a CPU intensive task like encoding video.

17.11 Troubleshooting audio

By Bruce Markey, <mailto:bjm@lvcm.com><<mailto:bjm@lvcm.com>>

Audio appears to be one of the bigger issues that users run into on the mailing list. If the audio isn't configured correctly, then MythTV will often appear to hang, when in fact it is trying to manipulate the audio subsystem and failing. You may or may not receive error messages indicating that the source of the error is the audio subsystem.

You can not use `xawtv` to determine if your audio is working correctly, since `xawtv` is simply using the the analog sound patched through line-in to line-out. It doesn't need to digitize the sound unless you are using the recording function.

A better test to verify that sound will work for MythTV (and recording with `xawtv` for that matter) is to startup `xawtv`, mute the line-in then run `aplay /dev/dsp`. Once this test succeeds, MythTV should also work correctly because it writes to and read from `/dev/dsp` in the same way that `aplay` does.

To record audio along with video the audio signal must be digitized by a DSP so that the audio data can be stored in a file. On playback, the audio data is written to `/dev/dsp` and converted back to an analog signal. This analog signal should then be sent to your speakers. Here is what is needed in `alsamixer`:

CAPTURE source - the analog source to be sent to the DSP. This should be set to the input source from the tuner card to the sound card. In most cases this is Line but this could also be Aux, CD, Mic, etc., depending on how you connect the input cable. This source should be muted to prevent patching through the analog sound. The volume of this source will not affect the record level.

Capture mixer - this sets the level for the analog to digital recording. While a volume of 100% is recommended for testing, distortion may occur. Lowering this level to 75% to 85% may result in better audio quality. "Capture" should be marked as the CAPTURE destination.

PCM mixer - this sets the level for the digital to analog playback. While a volume of 100% is recommended for testing, distortion may occur. Lowering this level to 75% to 85% may result in better audio quality.

Master mixer - sets the level for the analog signal sent to line-out or the speakers.

You may also want to ensure that `/dev/dsp` hasn't already been grabbed by another process, like `esd` or `artsd`. If `/dev/dsp` isn't available, then MythTV won't work. Check your `windowmanager` documentation for instructions on disabling the sound manager. If you wish to see what application is grabbing a resource, you can use the `fuser` command:

```
# fuser -v /dev/dsp
```

To disable aRts in KDE, go to KDE->Control Center->Sound->Sound System and uncheck the "Start aRts soundserver on KDE startup" box.

If you're using multiple sound cards and multiple tuners, use `alsamixer -c 1` to work with the second sound card. The first card is #0, the second card is #1, etc.

17.12 MythWeather is showing me the weather in the Bahamas!

You didn't read the documentation. Ensure that you set your locale correctly.

17.13 I can't see parts of the On Screen Display.

If you're a Red Hat 8.0 user, make sure that you've followed the instructions which tell you how to modify the Themes make le. [5.4 \(Link\)](#).

18 Miscellaneous.

18.1 I'd like to watch the les without using MythTV / I'd like to convert the les to some other format.

Matthew Zimmerman has created a patch for MPlayer / Mencoder <http://www.mplayerhq.hu> <<http://www.mplayerhq.hu>> that allows you view the les created by MythTV. MythTV doesn't use standard Nuppelvideo les, which is why you MPlayer complains if you try to view them.

Download the patch to MPlayer from Matt's website.

```
http://dijkstra.csh.rit.edu:8088/~mdz/mythtv/ <http://dijkstra.csh.rit.edu:8088/~mdz/mythtv/> .
```

```
$ wget http://dijkstra.csh.rit.edu:8088/~mdz/mythtv/mplayer-0.90pre10+mythtv.patch
```

Download the source to MPlayer and patch:

```
$ wget http://ftp.lug.udel.edu/MPlayer/releases/MPlayer-0.90rc1.tar.bz2
$ tar -xjf MPlayer-0.90rc1.tar.bz2
$ cp mplayer-0.90pre10+mythtv.patch MPlayer-0.90rc1
$ cd MPlayer-0.90rc1
$ patch -p1 < mplayer-0.90pre10+mythtv.patch
```

At this point, you can read the MPlayer documentation and start the compile process.

18.2 I'd like to use some other window manager.

MythTV is not dependent on any particular window manager. If you wish to run a lightweight window manager, the `configfiles/` directory has an example of a `twmrc` le you may use.

18.3 I'd like MythTV to automatically startup.

Here's an example submitted to the mythtv-dev list by Pat P aum
<mailto:pat@netburp.com><<mailto:pat@netburp.com>> using fvwm:

```
$ cat > .xinitrc
fvwm &
mythfrontend
^D
$ cat > .fvwmrc
Style "myth*"      NoTitle, NoHandles, Sticky, WindowListSkip, BorderWidth 0
^D
$
```

18.4 What capture resolution should I use? How does video work?

While MythTV allows you to set various GUI and capture resolutions, not all combinations make sense.

First, analog video signals have a defined vertical resolution. In NTSC, the video standard specifies that there are 525 vertical scan lines. Once the "extra" lines are removed (they're used to synchronize the video signal, and encode closed captioning data), you have 480 vertical lines.

In PAL, there are 625 "raw" lines of resolution, with a net of 576 vertical lines.

Horizontally, the maximum you can expect from a Bt8X8 chip is 720.

With this in mind, there are certain commonly accepted values for resolution. While other values may be accepted, they will cause scan lines to be repeated or dropped.

From "best" to "worst", in NTSC:

720x480 (but more commonly, 704x480. "DVD" resolution)

640x480 4:3

544x480 (TiVo high resolution)

480x480 (Video CD resolution)

352x480 (ReplayTV "Standard" quality)

320x480

544x240

480x240

352x240

320x240

As you can see, the lower quality values are half of the better ones. 720x240 is possible, but isn't a good tradeoff relative to the number of vertical lines lost. In a PAL country, the you would use values like 720x576 or x288.

The higher resolutions will be more CPU intensive. If the CPU is overtaxed, frames will be dropped causing uneven motion. You will likely see the best results at resolutions which average at least 10% CPU idle time (meaning that the first value shown in the load average using `w` or `top` is no more than .90) while recording. If the load average is consistently exceeding .90, your CPU will not have enough cycles to service other

system events, thereby causing frame drops when it context switches away from MythTV to service other processes.

If you'd like to read more on this, go to the vcdhelp website at <http://www.vcdhelp.com/forum/userguides/94382.php> <<http://www.vcdhelp.com/forum/userguides/94382.php>> .

18.5 MythTV GUI and X Display Sizes.

MythTV is designed to be run as dedicated full screen TV application but can also be run as a desktop application on a computer monitor. Here are a few consideration for configuring sizes to best suit your needs.

There are three sizes that are important for matching the MythTV GUI and full screen TV playback to the screen:

- the X display size
- the X Desktop (virtual) dimensions
- the MythTV GUI dimensions

The MythTV GUI uses its GUI dimensions regardless of the other two and is anchored to the upper left corner of the X Desktop.

The MythTV full screen mode uses the X display size dimensions regardless of the other two and is anchored to the upper left corner of the X display.

18.5.1 X Dimensions

For output to a Television, common resolutions are 640x480, 800x600, and some rare devices support 1024x768. Generally, higher resolutions are better. However, you may find that you prefer the picture quality at one of the lower resolutions. Everything in MythTV is scalable and should 'fit' regardless of the resolution you choose.

Edit your X configuration file, usually "XF86Config-4", so that the resolution you want to use is listed first in the lists under "Screen". If this resolution is higher than the resolutions supported by your output device, you will see a 'panning' effect where moving the mouse to the edge will scroll around a desktop area which is larger than the display size. If this happens, edit your X configuration file to match the display size then restart X.

18.5.2 MythTV Dimensions

Set the MythTV GUI size to these same dimensions as the X display. In 0.7, edit the `lethemes.txt` . In 0.8, from "mythfrontend" go to Setup->Appearance. To ensure that your new dimension settings, exit and restart MythTV.

NOTE : When the GUI is full screen, you may need to set your window manager to 'Click to Focus' for windows to stack properly.

The fonts for the GUI and OSD will scale to whatever sizes you use. Most font sizes can be changed in setup selections. Make sure to use fonts large enough to be read on a TV screen from a distance.

The full screen TV size is based on the X display size. For Xinerama, you can specify a screen in Setup->General. The picture will be stretched to fit the entire screen regardless of the resolution used.

18.5.3 Overscan Dimensions

Because picture edges can be ragged and screen edges aren't straight, Television is designed to project an image larger than the physical screen. This is called "overscan". Underscan is fitting the entire image inside the screen. This is useful for computer monitors so that toolbars and scrollbars at the edges can be seen.

For best results, match the X display area as close as possible to the edges of the physical screen. This can only be adjusted by your tv-out device or by the settings for the television set. Many sets have these adjustments in a 'service mode'.

MythTV has settings for "Overscan" in Setup->Playback. These can not, and do not, cause the image to display beyond the edge of the X display area. The purpose of these settings are to cut off rough edges and to expand the image so that objects will appear to be the same size as a normal overscanned TV picture.

18.5.4 MythTV on the Desktop

When using MythTV on a high resolution desktop monitor, set the MythTV GUI dimensions to something much smaller than your X display resolution but still large enough to read the fonts. The GUI screens will always be in the upper left hand corner. However, your window manager may be able to minimize these (ALT-F4 in KDE for example).

The TV picture will start in full screen mode. Press "f" to put the picture in a window that can be moved and resized. By default, the picture uses the recording resolution for its dimensions. If you check the box "Fixed Aspect Ratio" in Setup->Playback, the windowed picture will always be resized to normal 4:3 shape.

18.6 I'd like to delete the mysql database.

NOTE : Performing this step will remove the entire database. You will lose all of your settings and will need to re-run the mc.sql script to setup the database structure before running the setup program.

```
$ mysql -u root
mysql> drop database mythconverg;
mysql> quit
```

18.7 I'd like to start using the development version of MythTV.

[Content under development]

NOTE :It should be clear that using the development version of MythTV may cause loss of data on your system. There is no guarantee that the development version of MythTV will work for you.

THERE IS NO GUARANTEE THAT THESE INSTRUCTIONS WILL WORK. USE AT YOUR OWN RISK.

Here are some of the features in version 0.8:

A front-end and back-end system. The back-end is responsible for maintaining the database and capturing and encoding the video. The front-end is responsible for displaying the video. This allows you to put a lightweight, quiet, diskless and fanless machine in "the living room", with a large server-type machine in "the basement". The front-end and back-end communicate over TCP on a specified port.

GUI-based configuration. Much of the configuration of MythTV can now be done using a GUI-based setup, avoiding the necessity to edit `thesettings.txt` file.

Themes. MythTV now has more themes for the user to choose from.

Recording profiles. You may now setup various encoder profiles from the GUI, giving you the flexibility to record programs using various quality levels.

Increased hardware encoder support. MythTV can now use the MJPEG encoder/decoder found on Matrox G200 series cards. This greatly reduces the CPU utilization.

Commercial Skipping

Mixer control for volume and muting functionality

NOTE : Problem reports for version 0.8 posted to the mailing list should have accompanying solutions.

Before you begin, shutdown all running instances of 0.7. You should perform `make clean distclean` before starting the compile process.

Compile and install the system as you would MythTV 0.7 by following the instructions found in this HOWTO. If you are installing MythTV on a new machine, install the database by running the `database/mc.sql` script as detailed in earlier sections of this document.

However, if you are upgrading an existing 0.7 system, you must run the `database/0-7-to-0-8.sql` script before running the setup program to ensure that the database structure is up to date.

Next, you must edit the `/usr/local/share/mythtv/backend/settings.txt` file. Specify the IP address or hostname of the back-end server and port. You may specify `localhost` if the front-end and back-end programs will be running on the same machine. This file is read by the backend server during start-up.

NOTE : Do not change the port settings. Leave them as-is.

Once you're done editing the file, start the setup program:

```
$ cd setup
$ ./setup
```

This will open the setup wizard which will allow you to graphically configure your system.

Once the setup wizard is done: to run the new version of MythTV, you must first start the back-end server:

```
$ mythbackend &
```

and then run the front-end client:

```
$ mythfrontend
```

You should see the connection established between the front-end and back-end systems by examining the mythbackend window; it will display the client connection attempts.

The cvs version of MythTV now supports pressing the ESC key to exit the application. If you wish to configure MythTV to exit on ESC, go to the mythfrontend setup screen (not the setup program used to initially configure MythTV) and enter the General configuration screen. Move through the setup until you get to the System Shutdown parameter. By default, this is set to "No exit key", which means there is no defined exit key for MythTV. If you set it to "ESC", this will mean that the ESC key is used to exit MythTV. Control, Meta and ALT modifiers mean that the Modifier + ESC key must be pressed to activate the exit from MythTV function.

NOTE : Users that have been running the frontend and the backend on different machines using Red Hat Linux 8.0 have stated that they have been having issues with remote access of the MySQL database. This is not yet a supported configuration. The following instructions may or may not work. Add the following to /etc/my.cnf on the backend machine.

```
skip-innodb
set-variable=thread_stack=256k
```