



# Mythbuntu 8.04 Installation Manual

**Authors**

Mythbuntu Team

**Translators**

None

# License

THE WORK (AS DEFINED BELOW) IS PROVIDED UNDER THE TERMS OF THIS CREATIVE COMMONS PUBLIC LICENSE ("CCPL" OR "LICENSE"). THE WORK IS PROTECTED BY COPYRIGHT AND/OR OTHER APPLICABLE LAW. ANY USE OF THE WORK OTHER THAN AS AUTHORIZED UNDER THIS LICENSE OR COPYRIGHT LAW IS PROHIBITED.

BY EXERCISING ANY RIGHTS TO THE WORK PROVIDED HERE, YOU ACCEPT AND AGREE TO BE BOUND BY THE TERMS OF THIS LICENSE. TO THE EXTENT THIS LICENSE MAY BE CONSIDERED TO BE A CONTRACT, THE LICENSOR GRANTS YOU THE RIGHTS CONTAINED HERE IN CONSIDERATION OF YOUR ACCEPTANCE OF SUCH TERMS AND CONDITIONS.

## 1. Definitions

- (a) "Adaptation" means a work based upon the Work, or upon the Work and other pre-existing works, such as a translation, adaptation, derivative work, arrangement of music or other alterations of a literary or artistic work, or phonogram or performance and includes cinematographic adaptations or any other form in which the Work may be recast, transformed, or adapted including in any form recognizably derived from the original, except that a work that constitutes a Collection will not be considered an Adaptation for the purpose of this License. For the avoidance of doubt, where the Work is a musical work, performance or phonogram, the synchronization of the Work in timed-relation with a moving image ("synching") will be considered an Adaptation for the purpose of this License.
  - (b) "Collection" means a collection of literary or artistic works, such as encyclopedias and anthologies, or performances, phonograms or broadcasts, or other works or subject matter other than works listed in Section 1(f) below, which, by reason of the selection and arrangement of their contents, constitute intellectual creations, in which the Work is included in its entirety in unmodified form along with one or more other contributions, each constituting separate and independent works in themselves, which together are assembled into a collective whole. A work that constitutes a Collection will not be considered an Adaptation (as defined below) for the purposes of this License.
  - (c) "Creative Commons Compatible License" means a license that is listed at <http://creativecommons.org/compatiblelicenses> that has been approved by Creative Commons as being essentially equivalent to this License, including, at a minimum, because that license: (i) contains terms that have the same purpose, meaning and effect as the License Elements of this License; and, (ii) explicitly permits the relicensing of adaptations of works made available under that license under this License or a Creative Commons jurisdiction license with the same License Elements as this License.
  - (d) "Distribute" means to make available to the public the original and copies of the Work or Adaptation, as appropriate, through sale or other transfer of ownership.
  - (e) "License Elements" means the following high-level license attributes as selected by Licensor and indicated in the title of this License: Attribution, ShareAlike.
  - (f) "Licensor" means the individual, individuals, entity or entities that offer(s) the Work under the terms of this License.
  - (g) "Original Author" means, in the case of a literary or artistic work, the individual, individuals, entity or entities who created the Work or if no individual or entity can be identified, the publisher; and in addition (i) in the case of a performance the actors, singers, musicians, dancers, and other persons who act, sing, deliver, declaim, play in, interpret or otherwise perform literary or artistic works or expressions of folklore; (ii) in the case of a phonogram the producer being the person or legal entity who first fixes the sounds of a performance or other sounds; and, (iii) in the case of broadcasts, the organization that transmits the broadcast.
  - (h) "Work" means the literary and/or artistic work offered under the terms of this License including without limitation any production in the literary, scientific and artistic domain, whatever may be the mode or form of its expression including digital form, such as a book, pamphlet and other writing; a lecture, address, sermon or other work of the same nature; a dramatic or dramatico-musical work; a choreographic work or entertainment in dumb show; a musical composition with or without words; a cinematographic work to which are assimilated works expressed by a process analogous to cinematography; a work of drawing, painting, architecture, sculpture, engraving or lithography; a photographic work to which are assimilated works expressed by a process analogous to photography; a work of applied art; an illustration, map, plan, sketch or three-dimensional work relative to geography, topography, architecture or science; a performance; a broadcast; a phonogram; a compilation of data to the extent it is protected as a copyrightable work; or a work performed by a variety or circus performer to the extent it is not otherwise considered a literary or artistic work.
  - (i) "You" means an individual or entity exercising rights under this License who has not previously violated the terms of this License with respect to the Work, or who has received express permission from the Licensor to exercise rights under this License despite a previous violation.
  - (j) "Publicly Perform" means to perform public recitations of the Work and to communicate to the public those public recitations, by any means or process, including by wire or wireless means or public digital performances; to make available to the public Works in such a way that members of the public may access these Works from a place and at a place individually chosen by them; to perform the Work to the public by any means or process and the communication to the public of the performances of the Work, including by public digital performance; to broadcast and rebroadcast the Work by any means including signs, sounds or images.
  - (k) "Reproduce" means to make copies of the Work by any means including without limitation by sound or visual recordings and the right of fixation and reproducing fixations of the Work, including storage of a protected performance or phonogram in digital form or other electronic medium.
2. Fair Dealing Rights. Nothing in this License is intended to reduce, limit, or restrict any uses free from copyright or rights arising from limitations or exceptions that are provided for in connection with the copyright protection under copyright law or other applicable laws.
  3. License Grant. Subject to the terms and conditions of this License, Licensor hereby grants You a worldwide, royalty-free, non-exclusive, perpetual (for the duration of the applicable copyright) license to exercise the rights in the Work as stated below:

- (a) to Reproduce the Work, to incorporate the Work into one or more Collections, and to Reproduce the Work as incorporated in the Collections;
- (b) to create and Reproduce Adaptations provided that any such Adaptation, including any translation in any medium, takes reasonable steps to clearly label, demarcate or otherwise identify that changes were made to the original Work. For example, a translation could be marked "The original work was translated from English to Spanish," or a modification could indicate "The original work has been modified.";
- (c) to Distribute and Publicly Perform the Work including as incorporated in Collections; and,
- (d) to Distribute and Publicly Perform Adaptations.
- (e) For the avoidance of doubt:
  - i. Non-waivable Compulsory License Schemes. In those jurisdictions in which the right to collect royalties through any statutory or compulsory licensing scheme cannot be waived, the Licensor reserves the exclusive right to collect such royalties for any exercise by You of the rights granted under this License;
  - ii. Waivable Compulsory License Schemes. In those jurisdictions in which the right to collect royalties through any statutory or compulsory licensing scheme can be waived, the Licensor waives the exclusive right to collect such royalties for any exercise by You of the rights granted under this License; and,
  - iii. Voluntary License Schemes. The Licensor waives the right to collect royalties, whether individually or, in the event that the Licensor is a member of a collecting society that administers voluntary licensing schemes, via that society, from any exercise by You of the rights granted under this License.

The above rights may be exercised in all media and formats whether now known or hereafter devised. The above rights include the right to make such modifications as are technically necessary to exercise the rights in other media and formats. Subject to Section 8(f), all rights not expressly granted by Licensor are hereby reserved.

4. Restrictions. The license granted in Section 3 above is expressly made subject to and limited by the following restrictions:

- (a) You may Distribute or Publicly Perform the Work only under the terms of this License. You must include a copy of, or the Uniform Resource Identifier (URI) for, this License with every copy of the Work You Distribute or Publicly Perform. You may not offer or impose any terms on the Work that restrict the terms of this License or the ability of the recipient of the Work to exercise the rights granted to that recipient under the terms of the License. You may not sublicense the Work. You must keep intact all notices that refer to this License and to the disclaimer of warranties with every copy of the Work You Distribute or Publicly Perform. When You Distribute or Publicly Perform the Work, You may not impose any effective technological measures on the Work that restrict the ability of a recipient of the Work from You to exercise the rights granted to that recipient under the terms of the License. This Section 4(a) applies to the Work as incorporated in a Collection, but this does not require the Collection apart from the Work itself to be made subject to the terms of this License. If You create a Collection, upon notice from any Licensor You must, to the extent practicable, remove from the Collection any credit as required by Section 4(c), as requested. If You create an Adaptation, upon notice from any Licensor You must, to the extent practicable, remove from the Adaptation any credit as required by Section 4(c), as requested.
- (b) You may Distribute or Publicly Perform an Adaptation only under the terms of: (i) this License; (ii) a later version of this License with the same License Elements as this License; (iii) a Creative Commons jurisdiction license (either this or a later license version) that contains the same License Elements as this License (e.g., Attribution-ShareAlike 3.0 US); (iv) a Creative Commons Compatible License. If you license the Adaptation under one of the licenses mentioned in (iv), you must comply with the terms of that license. If you license the Adaptation under the terms of any of the licenses mentioned in (i), (ii) or (iii) (the "Applicable License"), you must comply with the terms of the Applicable License generally and the following provisions: (I) You must include a copy of, or the URI for, the Applicable License with every copy of each Adaptation You Distribute or Publicly Perform; (II) You may not offer or impose any terms on the Adaptation that restrict the terms of the Applicable License or the ability of the recipient of the Adaptation to exercise the rights granted to that recipient under the terms of the Applicable License; (III) You must keep intact all notices that refer to the Applicable License and to the disclaimer of warranties with every copy of the Work as included in the Adaptation You Distribute or Publicly Perform; (IV) when You Distribute or Publicly Perform the Adaptation, You may not impose any effective technological measures on the Adaptation that restrict the ability of a recipient of the Adaptation from You to exercise the rights granted to that recipient under the terms of the Applicable License. This Section 4(b) applies to the Adaptation as incorporated in a Collection, but this does not require the Collection apart from the Adaptation itself to be made subject to the terms of the Applicable License.
- (c) If You Distribute, or Publicly Perform the Work or any Adaptations or Collections, You must, unless a request has been made pursuant to Section 4(a), keep intact all copyright notices for the Work and provide, reasonable to the medium or means You are utilizing: (i) the name of the Original Author (or pseudonym, if applicable) if supplied, and/or if the Original Author and/or Licensor designate another party or parties (e.g., a sponsor institute, publishing entity, journal) for attribution ("Attribution Parties") in Licensor's copyright notice, terms of service or by other reasonable means, the name of such party or parties; (ii) the title of the Work if supplied; (iii) to the extent reasonably practicable, the URI, if any, that Licensor specifies to be associated with the Work, unless such URI does not refer to the copyright notice or licensing information for the Work; and (iv) , consistent with Section 3(b), in the case of an Adaptation, a credit identifying the use of the Work in the Adaptation (e.g., "French translation of the Work by Original Author," or "Screenplay based on original Work by Original Author"). The credit required by this Section 4(c) may be implemented in any reasonable manner; provided, however, that in the case of a Adaptation or Collection, at a minimum such credit will appear, if a credit for all contributing authors of the Adaptation or Collection appears, then as part of these credits and in a manner at least as prominent as the credits for the other contributing authors. For the avoidance of doubt, You may only use the credit required by this Section for the purpose of attribution in the manner set out above and, by exercising Your rights under this License, You may not implicitly or explicitly assert or imply any connection with, sponsorship or endorsement by the Original Author, Licensor and/or Attribution Parties, as appropriate, of You or Your use of the Work, without the separate, express prior written permission of the Original Author, Licensor and/or Attribution Parties.
- (d) Except as otherwise agreed in writing by the Licensor or as may be otherwise permitted by applicable law, if You Reproduce, Distribute or Publicly Perform the Work either by itself or as part of any Adaptations or Collections, You must not distort, mutilate, modify or take other derogatory action in relation to the Work which would be prejudicial to the Original Author's honor or reputation. Licensor agrees that in those jurisdictions (e.g. Japan), in which any exercise of the right granted in Section 3(b) of this License (the right to make Adaptations) would be deemed to be a distortion, mutilation, modification or other derogatory action prejudicial to the Original Author's honor and reputation, the Licensor will waive or not assert, as appropriate, this Section, to the fullest extent permitted by the applicable national law, to enable You to reasonably exercise Your right under Section 3(b) of this License (right to make Adaptations) but not otherwise.

## 5. Representations, Warranties and Disclaimer

UNLESS OTHERWISE MUTUALLY AGREED TO BY THE PARTIES IN WRITING, LICENSOR OFFERS THE WORK AS-IS AND MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND CONCERNING THE WORK, EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT, OR THE ABSENCE OF LATENT OR OTHER DEFECTS, ACCURACY, OR THE PRESENCE OF ABSENCE OF ERRORS, WHETHER OR NOT DISCOVERABLE. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES, SO SUCH EXCLUSION MAY NOT APPLY TO YOU.

**Limitation on Liability.** EXCEPT TO THE EXTENT REQUIRED BY APPLICABLE LAW, IN NO EVENT WILL LICENSOR BE LIABLE TO YOU ON ANY LEGAL THEORY FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES ARISING OUT OF THIS LICENSE OR THE USE OF THE WORK, EVEN IF LICENSOR HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

## 6. Termination

- (a) This License and the rights granted hereunder will terminate automatically upon any breach by You of the terms of this License. Individuals or entities who have received Adaptations or Collections from You under this License, however, will not have their licenses terminated provided such individuals or entities remain in full compliance with those licenses. Sections 1, 2, 5, 6, 7, and 8 will survive any termination of this License.
- (b) Subject to the above terms and conditions, the license granted here is perpetual (for the duration of the applicable copyright in the Work). Notwithstanding the above, Licensor reserves the right to release the Work under different license terms or to stop distributing the Work at any time; provided, however that any such election will not serve to withdraw this License (or any other license that has been, or is required to be, granted under the terms of this License), and this License will continue in full force and effect unless terminated as stated above.

## 7. Miscellaneous

- (a) Each time You Distribute or Publicly Perform the Work or a Collection, the Licensor offers to the recipient a license to the Work on the same terms and conditions as the license granted to You under this License.
- (b) Each time You Distribute or Publicly Perform an Adaptation, Licensor offers to the recipient a license to the original Work on the same terms and conditions as the license granted to You under this License.
- (c) If any provision of this License is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of the remainder of the terms of this License, and without further action by the parties to this agreement, such provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable.
- (d) No term or provision of this License shall be deemed waived and no breach consented to unless such waiver or consent shall be in writing and signed by the party to be charged with such waiver or consent.
- (e) This License constitutes the entire agreement between the parties with respect to the Work licensed here. There are no understandings, agreements or representations with respect to the Work not specified here. Licensor shall not be bound by any additional provisions that may appear in any communication from You. This License may not be modified without the mutual written agreement of the Licensor and You.
- (f) The rights granted under, and the subject matter referenced, in this License were drafted utilizing the terminology of the Berne Convention for the Protection of Literary and Artistic Works (as amended on September 28, 1979), the Rome Convention of 1961, the WIPO Copyright Treaty of 1996, the WIPO Performances and Phonograms Treaty of 1996 and the Universal Copyright Convention (as revised on July 24, 1971). These rights and subject matter take effect in the relevant jurisdiction in which the License terms are sought to be enforced according to the corresponding provisions of the implementation of those treaty provisions in the applicable national law. If the standard suite of rights granted under applicable copyright law includes additional rights not granted under this License, such additional rights are deemed to be included in the License; this License is not intended to restrict the license of any rights under applicable law.

# Creative Commons Notice

Creative Commons is not a party to this License, and makes no warranty whatsoever in connection with the Work. Creative Commons will not be liable to You or any party on any legal theory for any damages whatsoever, including without limitation any general, special, incidental or consequential damages arising in connection to this license. Notwithstanding the foregoing two (2) sentences, if Creative Commons has expressly identified itself as the Licensor hereunder, it shall have all rights and obligations of Licensor.

Except for the limited purpose of indicating to the public that the Work is licensed under the CCPL, Creative Commons does not authorize the use by either party of the trademark "Creative Commons" or any related trademark or logo of Creative Commons without the prior written consent of Creative Commons. Any permitted use will be in compliance with Creative Commons' then-current trademark usage guidelines, as may be published on its website or otherwise made available upon request from time to time. For the avoidance of doubt, this trademark restriction does not form part of the License.

Creative Commons may be contacted at <http://creativecommons.org/>.

# Contents

<b>1</b>	<b>Introduction</b>	<b>7</b>
1.1	What is Mythbuntu . . . . .	7
<b>2</b>	<b>Hardware</b>	<b>8</b>
2.1	CPU Type and Speed . . . . .	8
2.2	Memory . . . . .	9
2.3	Hard Disk(s) . . . . .	9
2.4	Video Capture Devices . . . . .	9
2.4.1	Frame Grabbers . . . . .	9
2.4.2	Hardware MPEG-2 encoders . . . . .	10
2.4.3	DVB capture cards . . . . .	10
2.4.4	HDTV . . . . .	11
2.4.5	Firewire . . . . .	11
2.4.6	DBoxII or other devices running Neutrino . . . . .	11
2.4.7	USB Capture Devices . . . . .	12
2.4.8	Hardware known NOT to work and other issues . . . . .	12
2.5	Sound Card . . . . .	12
2.6	Video Display Card . . . . .	13
2.6.1	ATI . . . . .	13
2.6.2	NVIDIA . . . . .	13
2.6.3	Hauppauge PVR-350 . . . . .	14
2.6.4	Other Options . . . . .	14
2.6.5	External Adapters . . . . .	14
<b>3</b>	<b>Installation Types</b>	<b>15</b>
3.1	Live CD . . . . .	15
3.2	Alternate CD . . . . .	15
3.3	Metapackage . . . . .	16
<b>4</b>	<b>Booting the Mythbuntu Live CD</b>	<b>17</b>
<b>5</b>	<b>Live CD Environment</b>	<b>19</b>
5.1	Running a Frontend from CD . . . . .	19
<b>6</b>	<b>Networking Configuration</b>	<b>26</b>
6.1	Wireless Support . . . . .	26
6.1.1	Advanced Wireless . . . . .	27
6.2	Wired support . . . . .	28
6.2.1	Advanced Wired . . . . .	28
<b>7</b>	<b>Installing Mythbuntu from Live CD</b>	<b>30</b>
7.1	Starting Off . . . . .	30
7.2	Standard Installation . . . . .	35
7.3	Advanced Installation . . . . .	39
7.4	Primary Backend with Frontend . . . . .	41
7.5	Secondary Backend with Frontend . . . . .	48

7.6	Primary Backend . . . . .	55
7.7	Secondary Backend . . . . .	61
7.8	Frontend . . . . .	67
<b>8</b>	<b>Bootng the Mythbuntu Alternate CD</b>	<b>74</b>
<b>9</b>	<b>MythTV Backend Setup</b>	<b>75</b>
9.1	Initial Configuration Page . . . . .	75
9.2	General . . . . .	76
9.3	Capture Cards . . . . .	85
9.4	Video Sources . . . . .	87
9.5	Input Connections . . . . .	89
9.6	Channel Editor . . . . .	92
<b>10</b>	<b>Mythbuntu Control Center (MCC)</b>	<b>95</b>
10.1	Starting MCC . . . . .	96
10.1.1	Inside MythTV . . . . .	96
10.1.2	From Xfce . . . . .	96
10.1.3	From Gnome . . . . .	97
10.2	Using MCC . . . . .	97
10.2.1	System Roles . . . . .	97
10.2.2	MythTV Configuration . . . . .	99
10.2.3	Applications and Plugins . . . . .	100
10.2.4	Proprietary Drivers . . . . .	101
10.2.5	Remote Control . . . . .	101
10.2.6	System Services . . . . .	101
10.2.7	Artwork and Login Behavior . . . . .	101
10.2.8	Proprietary Codecs . . . . .	101
10.2.9	Advanced Management . . . . .	101
<b>11</b>	<b>Configuring Mythtv Plugins</b>	<b>104</b>
11.1	Myth Web . . . . .	104
11.2	Myth Archive . . . . .	104
11.3	Myth Browser . . . . .	105
11.4	Myth Controls . . . . .	105
11.5	Myth Dvd . . . . .	105
11.6	Myth Flix . . . . .	106
11.7	Myth Gallery . . . . .	106
11.8	Myth Game . . . . .	107
11.9	Myth Music . . . . .	108
11.10	Myth News . . . . .	109
11.11	Myth Phone . . . . .	109
11.12	Myth Video . . . . .	109
11.13	Myth Weather . . . . .	110
<b>12</b>	<b>Remote Control (LIRC)</b>	<b>111</b>
12.1	Drivers needing extra effort . . . . .	111
12.2	IR Transmitting . . . . .	111
12.2.1	Serial IR Transmitter . . . . .	112
12.2.2	Command IR Receiver / Quadruple Transmitter . . . . .	112
12.2.3	Microsoft Media Center Remote Version 2 . . . . .	112
12.2.4	Hauppauge PVR-150 . . . . .	113
12.3	General Setup and Usage . . . . .	114
12.4	Setting up Multiple Devices . . . . .	116

<b>13 Diskless Clients</b>	<b>118</b>
13.1 Installing the packages . . . . .	118
13.2 Server Preparation . . . . .	119
13.3 Booting your diskless client . . . . .	120
13.3.1 Block devices . . . . .	120
13.3.2 PXE . . . . .	120
13.3.3 Maintenance . . . . .	122
13.3.4 Troubleshooting . . . . .	122
13.3.5 FAQ . . . . .	123
13.3.6 Interesting Files/further configuration . . . . .	123
<b>14 Advanced Setup Options</b>	<b>124</b>
14.1 Windows Frontend . . . . .	124
14.2 Xbox Frontend . . . . .	124
<b>15 Frequently Asked Questions</b>	<b>125</b>
<b>16 Trouble Shooting</b>	<b>126</b>
<b>17 Reference</b>	<b>127</b>
17.1 MythTV Plugins . . . . .	127
17.1.1 Backend Plugins . . . . .	127
17.1.2 Frontend Plugins . . . . .	127
17.2 TV-OUT . . . . .	129
17.2.1 Connections Explained . . . . .	129
17.2.2 TV Formats . . . . .	129
17.3 References . . . . .	130

# Chapter 1

## Introduction

### 1.1 What is Mythbuntu

Mythbuntu is a combination of MythTV and Ubuntu. MythTV is a GPL licensed suite of programs that allow you to build the mythical home media convergence box on your own using Open Source software and operating systems. MythTV is known to work on Linux and Mac OS X (PowerPC and Intel). It does not run on Windows.

MythTV's robust PVR functions allow you to do the following:

- You may pause, fast-forward and rewind live Television.
- You may install multiple video capture cards to record more than one program at a time or use for picture-in-picture functions.
- You may watch and record SDTV and HDTV via firewire if you have a firewire-enabled cable or satellite tuner.
- You can have multiple servers (called “backends” in MythTV parlance), each with multiple capture cards in them. All servers are centrally managed and all programs are scheduled by the Master backend.
- You can have multiple clients (called “frontend” in MythTV parlance), each with a common view of all available programs. Each client can watch all programs recorded by any of the servers, assuming that they have the hardware capabilities to view the content; a low-powered frontend, for example, will not be able to watch HDTV. Clients can be diskless and controlled entirely by a remote control.
- You may use combinations of standard analog capture cards, MPEG-2, MJPEG, DVB, HDTV, USB and firewire capture devices. With a firewire capable backend, MythTV can control a variety of set top boxes often found in digital cable and satellite TV systems.
- Program Guide Data in North America is downloaded from Schedules Direct, a third party provider that licenses the data provided by Tribue Media Services. Schedules Direct charges a nominal rate for the data, broken up into several month increments. Schedules Direct accounts can be made at their website, <http://www.schedulesdirect.org>. Program Guide Data in other countries is obtained using XMLTV. MythTV uses this information to create a schedule that maximizes the number of programs that can be recorded if you don't have enough tuners.
- MythTV implements a UPNP server, so a UPNP client may automatically see content from your MythTV system. N.B.: this feature has not been verified to work on every available UPNP client.
- Plugins from the MythTV community provide functionality for: DVDs, Personal Video Collection, Music, Weather, News, Gaming, Netflix and much, much more. See section [17.1](#).



## Chapter 2

# Hardware

Hardware selection is a complex topic, one this HOWTO will only discuss briefly and in general terms. The following subsections offer some general guidance but stop short of offering specific recommendations.

For a good MythTV experience, you must understand that MythTV exercises your hardware more than a typical desktop. Encoder cards generate DMA across the PCI bus. The CPU is busy encoding / decoding video. Hard drives are constantly reading and writing data. Building a MythTV system on older / “spare” hardware may be an exercise in frustration and can waste many hours of valuable time.

For more detail about actual configurations that others have used, Mark Cooper has setup a hardware database at <http://pvrhw.goldfish.org/>. The website will let you browse what other users have reported as their hardware configuration, and how happy they are with the results.

If you have specific questions about the suitability of specific hardware choices, you can consult the archives of the mythtv-users mailing list at <http://www.gossamer-threads.com/lists/mythtv/> or post a question to the list.

## 2.1 CPU Type and Speed

Selection of CPU type and speed is one of the trickiest elements of hardware selection, mainly because there are so many tradeoffs which can be made. For example, if you have plenty of CPU, you can use higher bitrates or capture sizes, etc.

MythTV has two modes of operation. First, it can function as 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 ReplayTV 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.

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. If you are using the software MPEG-4 encoder and 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 than 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. As a general guideline, plan on 1GHz per encoder if you are doing software-based encoding, less if you are using a hardware-based encoder.

Here are a few data points:

- A PIII/733MHz system can encode one video stream using the MPEG-4 codec using 480x480 capture resolution. This does not allow for live TV watching, but does allow for encoding video and then watching it later.
- A developer states that his AMD1800+ system can almost encode two MPEG-4 video streams and watch one program simultaneously.
- A dual Celeron/450MHz is able to view a 480x480 MPEG-4/3300kbps file created on a different system with 30% CPU usage.
- A P4 2.4GHz machine can encode two 3300Kbps 480x480 MPEG-4 files and simultaneously serve content to a remote frontend.
- A PIII/733MHz system can capture two DVB streams and serve them both up for live TV - but is slow at commercial flagging.

If you have a Via mini-itx board with MPEG2 decoder or a Hauppauge PVR-350, MythTV can use the hardware-based video decoder for playback, which further reduces CPU requirements.

## 2.2 Memory

A MythTV host that is both a backend and a frontend and using software encoding with a single capture card should run adequately in 256MB of RAM. Additional RAM above 256MB will not necessarily increase performance, but may be useful if you are running multiple encoders.

## 2.3 Hard Disk(s)

Encoded video takes up a lot of hard disk space. The exact amount depends on the encoding scheme, the size of the raw images and the frames per second, but typical values for MythTV range from 700 megabytes/hour for MPEG-4, 2 GB/hour for MPEG-2 and RTjpeg and 7 GB/hour for ATSC HDTV.

If your building a separate backend machine it can be advisable to install Mythbuntu on a smaller >10GB disk with your recordings located on a second larger disk. This is because of all the additional read/writes made to a disk with the recordings it can cause disks to fail earlier than when used with desktops.

## 2.4 Video Capture Devices

In order to capture video, MythTV will need one or more video capture devices with Linux drivers. There are a number of classes of hardware available for capturing video.

### 2.4.1 Frame Grabbers

This class of card is the simplest and is usually the cheapest. There is no on-board encoding of the analog video; hardware known as a Digital-Analog Converter (DAC) takes the video and presents it to the computer in an essentially raw digital form.

For a list of video capture cards known to work with Linux, please see `/usr/src/linux/Documentation/video4linux/bttv` for a partial listing; even if your specific card is not listed, it may be that the vendor is actually using a standard reference design and placing their own name on it. See the video4linux mailing list

<https://listman.redhat.com/mailman/listinfo/video4linux-list> for more information and for specific hardware questions.

The most common inexpensive cards available use the Bt848, Bt878 or CX2388x series of video capture chips; examples are the “Hauppauge WinTV Go” card and the “AverTV Desktop PVR” card, both of which use the bttv kernel module.

**NOTE:** *The ATI TV Wonder series and the ATI All-in-Wonder series of cards are not the same. The All-in-Wonder cards will not work with MythTV.*

The ATI All-in-Wonder cards (which are not the same as the ATI TV Wonder, TV Wonder VE or TV Wonder Pro) will not work as a MythTV capture device because the GATOS <http://gatos.sourceforge.net> drivers that are available provide only a limited subset of the V4L API. The TV Wonder series of cards are supported by the Bt8x8 Video4Linux driver.

After you have installed a suitable capture device, you can check that the kernel sees it with `lspci`. Look for an entry labeled “Multimedia video controller”. To get more detailed information about the card, use `lspci -v` or `lspci -vv`. Ensure that your system is loading the bttv modules by typing:

```
# lsmod —grep bttv
```

You want to see the bttv module listed.

### 2.4.2 Hardware MPEG-2 encoders

While inexpensive video-capture cards simply capture raw frames, leaving encoding to software, some higher-end cards incorporate hardware-based encoding. Using either a G200 MJPEG encoder card, or a MPEG-2 encoder card supported by the IvyTV project <http://ivtvdriver.org> such as the Hauppauge PVR-150/250/350/500, Avermedia M179, Hauppauge “Freestyle” or Yuan M600 cards will allow you to use dedicated hardware encoders rather than your CPU. (The PVR-350 can simultaneously be used as an output device.) Using the on-board MPEG-2 encoder greatly reduces the CPU requirements for encoding.

**NOTE:** Motherboards with the Via chipset are notoriously bad with DMA and have caused numerous issues with ivtv, including hard locks. See the ivtv website <http://ivtvdriver.org> for the latest information on what works and what doesn’t.

Here are some data points for encoding:

- A Celeron 450 uses 2

Here are some data points for decoding:

- An Athlon 1800XP can decode a 720x480 8Mbps MPEG-2 file using 10% CPU
- An Athlon 1GHz can decode a 720x480 16Mbps MPEG-2 file using 30-50% CPU, can decode a 480x480 16Mbps MPEG-2 using 30% CPU and approximately 30% for Live TV at 416x480.
- A P3-550 can decode a 480x480 16Mbps MPEG-2 file with 55% CPU.
- A Celeron 450 (no SSE) can decode a 480x480 16Mbps MPEG-2 file with 80% CPU.

### 2.4.3 DVB capture cards

DVB is a video standard primarily found in Europe (where it comes in DVB-C, DVB-T and DVB-S varieties for Cable, Terrestrial and Satellite) and is also used as the programming interface for HDTV capture cards in Linux. To see if your DVB card is supported, see the list of cards in the “Supported Hardware” section of the DVB Wiki at [http://www.linuxtv.org/wiki/index.php/Main\\_Page](http://www.linuxtv.org/wiki/index.php/Main_Page) for more information.

In the United States, you may use a card such as the TwinHan to obtain unencrypted Free-To-Air satellite channels. See <http://www.lyngsat.com/> for the types of content which is available.

### 2.4.4 HDTV

There are a number of HDTV cards with Linux drivers which are known to operate in the United States; a complete list of cards with DVB drivers can be found at [http://www.linuxtv.org/wiki/index.php/ATSC\\_devices](http://www.linuxtv.org/wiki/index.php/ATSC_devices). Some cards support capture of unencrypted digital cable TV (utilizing QAM256), others will only work with Over The Air signals captured with an antenna (with 8VSB).

Cards that have been reported to work include:

- pcHDTV HD-2000, Air2PC PCI rev 1-3 (8VSB only)
- SiliconDust HDHomeRun (8VSB, QAM256)
- pcHDTV HD-3000/5500 (8VSB, QAM256)
- Air2PC HD-5000 (8VSB, QAM256)
- DViCO Fusion HDTV Lite/Gold 5 (8VSB, QAM256)

**NOTE:** There are no known consumer-level capture devices which will allow you to capture the HDTV output (DVI, HDMI, VGA, YPbPr / Component) from a set-top box commonly found with digital cable systems or satellite systems. None of the capture devices listed above perform any encoding; they merely allow your computer to save a copy of a HDTV stream which has already been converted to MPEG-2 at the broadcast facility.

**NOTE:** All of the cards listed above (except for the HD-2000 and HDHomeRun) should be configured as DVB cards. The HD-2000 can be configured as a pcHDTV card if you use the V4L drivers from <http://www.pchdtv.com> and use Linux kernel 2.6.9 or earlier. With kernel 2.6.10 and higher it must be configured as a DVB card, but you lose access to the second antenna input in ATSC mode. The HDHomeRun should be configured as two HDHomeRun cards, one for each tuner.

To playback HDTV content, plan on a powerful CPU. “How powerful?” depends on a number of factors, such as the capture resolution, whether the video is progressive or interlaced, and whether your display card has hardware-assist support for Linux.

The Simple Answer: Once you are in the 3.2 Ghz P4-class of CPU you should have no issues with viewing HDTV.

The Complicated Answer:

- For 720p content (1280x720), a 2.4GHz P4 should be sufficient.
- For 1920x1080i-¿1920x1080p with the better deinterlacing methods done in real time a 2.4GHz CPU is taxed, but should work if you use “Bob and Weave” deinterlacing, or if you have an NVIDIA card with MPEG-2 hardware acceleration. If you enable the hardware acceleration, you may be able to use a 1.8GHz processor.

### 2.4.5 Firewire

You may use the Firewire output of the Motorola DCT6200 or the SA3250. If your provider uses 5C encryption on a particular channel, you won’t be able to get any content.

### 2.4.6 DBoxII or other devices running Neutrino

You may use the Ethernet port of an DBoxII or a similar device to capture MPEG2. Your set top box has to be running the Neutrino GUI.

### 2.4.7 USB Capture Devices

The Plextor ConvertX PVR devices are supported through Linux drivers available from <http://www.plextor.com/english/support/LinuxSDK.htm>. MythTV uses the Plextor to capture hardware encoded MPEG-4, so the host CPU requirements are low.

Hauppauge WinTV-PVR-USB2 (driver available at <http://www.isely.net/pvrusb2/>) emulates a PVR-x50 card. IP Recorder (RTSP, RTS, UDP)

MPEG-2, MPEG-4 and H.264 internet TS stream recording is supported using the IPTV recorder in MythTV. This recorder expects the channels to be supplied as a m3u playlist. If your DSL/Fiber provider supplies television service, but does not provide a m3u playlist for the channels, you can construct one for your own use. You do not need to download it from the same server as the streams themselves, and can also read it from a file if this is more convenient.

**NOTE:** Some DSL providers only allow you to use one recorder at a time, so you may need to limit yourself to one recorder in MythTV and turn off any set top box the cable provider sold or rented to you with your service. This limitation is independent of the bandwidth you have purchased.

### 2.4.8 Hardware known NOT to work and other issues

- Hauppauge WinTV-D or -HD (no driver)
- Hauppauge WinTV-USB series
- Hauppauge WinTV-PVR-usb (model 602), or WinTV-PVR-PCI (model 880) cards (no driver - this is not the PVR-250/350 series of cards supported by the IvyTV driver)
- Hauppauge HVR-1600. (no driver). NOTE: There have been reports (2006-12 timeframe) that Hauppauge is putting the HVR-1600 inside of the PVR-150 box; if you're purchasing a retail PVR-150, carefully examine the packaging - there should be some indication that the hardware inside is actually a HVR-1600 and not a PVR-150. Check the Supported Hardware ( [http://www.ivtvdriver.org/index.php/Supported\\_hardware](http://www.ivtvdriver.org/index.php/Supported_hardware)) page of the ivtv driver for updated support information.
- ATI All-in-Wonder series

## 2.5 Sound Card

The system needs a sound card or an on-board equivalent on the motherboard to play back and in most cases, to record sound. Any sound card that can be operated by the ALSA (Advanced Linux Sound Architecture) kernel modules will work with MythTV. However, some cards and drivers will provide better quality or compatibility than others. In particular, many audio devices included on motherboards can be problematic.

The usual practice for capturing the audio associated with the video is to run a cable from an audio output on the video capture card to the Line input on a sound card. However, some video capture cards provide on-board audio capabilities that work with the kernel btaudio module instead, thereby eliminating the need for a cable. This is useful if you will be using multiple capture cards in a single chassis, since each capture card will not need its own sound card. Note that a separate sound card is still required for playback when using btaudio, and that often the audio recorded in this way will be mono only. See the btaudio section for more information.

**NOTE:** Analog video capture cards are the only ones which require a sound card for capturing audio. DVB, HDTV, and other hardware encoder cards all provide a combined audio / video stream.

**NOTE:** Plugging a Line-level device into the Mic input is not recommended. Line-level devices have higher voltages and can damage the sound card. In addition, even if it doesn't break your card, you will

be getting Mono sound. See the Linux MP3 HOWTO at <http://www.tldp.org/HOWTO/MP3-HOWTO.html> for additional information.

## 2.6 Video Display Card

MythTV will work with just about any video card. However, it is highly recommended that you use a card which supports XVideo (XV) extensions. If your card does not support XV, color conversion and scaling will be performed by your CPU rather than the video card. This is very CPU and memory intensive and will often result in dropped frames and a corresponding degradation of quality. Check the X documentation for details if you are uncertain about your preferred card. You may also run `xvinfo`; look for your video card to be listed as one of the adapters.

If you want to use MythTV with a standard television, you will need a physical connection from your video card to your TV set, which can either be a TV-out port on the card itself or an external adapter that converts the VGA signal to an appropriate video signal. “Appropriate” depends on a number of factors, such as video standard (NTSC vs. PAL), the type of input connection (Composite vs. SVideo), etc.

**Note** that with some video cards and X drivers, XVideo extensions are only supported on the VGA output, and not on the TV output. Cards with TV-out

The next section deals with a number of cards that are known to have TV-out ports. The list is unlikely to be complete, so if you know of others, please post a message to the mythtv-users mailing list so the information can be included in future versions of the HOWTO. The list is organized by manufacturer.

### 2.6.1 ATI

ATI makes many cards with TV-out capability, but only offers Linux drivers for Radeon 8500 and above cards. See the Drivers and Software section of <http://www.ati.com> for the driver and additional information.

The enhanced ati.2 X driver created by the GATOS <http://gatos.sourceforge.net> project offers some support for TV-out on other ATI cards, but only in its “experimental” version, available through CVS. There have been reports from people who say they have made this driver work with one or another ATI card. For example, Bruce Markey <mailto:bjm@lvcn.com> writes (on the mythtv-users mailing list): “I got this to work. You can quote me on that. I’ve used TV-out on several models of ATI cards both All-In-Wonder and regular cards with TV-out.” See the “Adventurous Setup” section of [http://gatos.sourceforge.net/watching\\_tv.php](http://gatos.sourceforge.net/watching_tv.php) for details. Also see <http://www.retinalburn.net/linux/tvout.html> for more information.

### 2.6.2 NVIDIA

Some NVIDIA cards with TV-out can be run using the standard `nv` driver in X, combined with the userspace application `nvtv` to control the TV-out port. See <http://sourceforge.net/projects/nv-tv-out/> for details. Recent versions of the NVIDIA driver have better support for overscan and other features useful with TV-Out, so the `nvtv` application may not be required.

Some NVIDIA cards can be run with a proprietary NVIDIA X driver made available by NVIDIA. See <http://www.nvidia.com/object/unix.html> for more information.

**NOTE:** It’s strongly recommended that you use the proprietary NVIDIA drivers; they have excellent support for XvMC and ship with a good configuration utility. XvMC provides MPEG-2 hardware acceleration, which is important if you want to display HDTV.

### 2.6.3 Hauppauge PVR-350

MythTV supports the TV-out and MPEG-2 decoder functions in the IvyTV driver.

The PVR-350 is unique amongst the Hauppauge PVR-x50 cards in that it also supports audio output, but you need to connect that audio output to something. There are two courses of action you may take:

1. Take the audio output from the PVR-350 and plug it into an input on a sound card on your machine. You may then use MythTV's internal audio controls.
2. Take the audio output from the PVR-350 and connect it directly to your television / audio system. You must indicate that you are using external audio control on the PVR-350 setup page.

### 2.6.4 Other Options

Some devices with on-board TV-out capability, such as mini-itx boards, Xboxes converted to Linux and some laptops can be used as MythTV frontends to display on a television screen. Please consult the mythtv-users mailing list for messages that report the details of these special arrangements.

### 2.6.5 External Adapters

External adapters convert standard VGA output to a form suitable for display on a television. The output format varies by region, since different countries have different TV standards. People on the mythtv-users list have mentioned these adapters:

- AITech Web Cable Plus, powered by external transformer or takes power from PS/2 keyboard connector, support resolutions up to 1024x768, outputs composite and SVideo, provides position adjustment.
- Averkey lite, powered by a USB port, has Composite, SVideo, YPbPr outputs; pan, brightness, overscan/underscan controls; supports up to 1024x768 outputs; and supports PAL and NTSC.
- ADS TV Elite XGA
- AverKey iMicro (comments are generally favorable)
- AITech Web Cable (comments are generally unfavorable, different than the "Plus" version above)
- TVIEW Gold (mentioned once, favorably)

## Chapter 3

# Installation Types

A new Mythbuntu installation may be performed via three methods. Each of the methods has distinct advantages, so compare your circumstances before selecting one:

1. Installation from a Mythbuntu Live CD.
2. Installation from a Mythbuntu Alternate CD.
3. Installation of the *mythbuntu-desktop* meta-package on top of an existing ubuntu install.

### 3.1 Live CD

Most people will want to install using the Live CD. Of the three options, this is the fastest selection. It also provides the most granularity for selecting options, and configuring packages. The GUI for installation is very easy to follow and friendly for new users.

Another advantage to performing a Mythbuntu installation from CD is the higher level of automation that the Mythbuntu ubiquity CD installer provides. To achieve the same results in method [2](#) or [3](#) as those of [1](#) would require additional configuration steps to be performed.

Installation method [1](#) provides several options immediately during the installation process that are not available in method [3](#) or [2](#) until the Mythbuntu Control Center (MCC) can be run post-install. For example, installation of the *mythbuntu-desktop* meta-package does not install any plugins. Installation of plugins in method [3](#) requires installing plugins as a separate step. Additional tasks that can be performed during install include:

- configuring remote controls supported by LIRC,
- enabling and configuring proprietary front-end video drivers, including TV-OUT function,
- configuring backend drivers, including installing the Silicon Dust HDHomerun configuration utility, and enabling XMLTV guide data provider for subscribers of Schedules Direct.

Also, you may choose to install the mythweb plugin in order to access myhttv functions from a remote web browser. To prevent unauthorized external access to your Mythbuntu installation, the CD installation method allows you to setup an access password. No steps are taken to secure mythweb in method [3](#). Mythweb must be secured post-install via the MCC in method [3](#).

### 3.2 Altenate CD

As previously mentioned, the preferred method of installation on a new system is the Live CD. That being said, the Mythbuntu Alternate CD has three main intended uses.

The first use is for people who have troubles with the Live CD. Sometimes people with older graphics cards or too little memory aren't able to start up the Live CD. For these users, the Alternate CD may be able to perform an installation, allowing a user to defer configuration of this dysfunctional hardware later.



The second use is for people who want to use Logical Volume Management (LVM). LVM can allow multiple physical drives to appear to the system as a single *logical* partition. This has become less of an issue with the advent of storage groups, which are available in Mythbuntu 8.04+ and *MythTV 0.21+*. Users that would still like to use LVM however, can install via the alternate disk.

The last use is for pre-configuring and installing a diskless server role. Diskless servers have been introduced with Mythbuntu 8.04. Unfortunately, the only way to install and configure one at installation time is via the Alternate disk. If a user installs using any other method, the diskless server will have to be created and configured after installation. Doing it during installation has the distinct speed advantage of all packages (debs) being cached on the CD rather than needing to download them after install.

By choosing this method, unfortunately the only selectable options will be the **type** of install, *Frontend*, *Backend*, etc.

### 3.3 Metapackage

There may be a variety of reasons for installing the *mythbuntu-desktop* meta-package on an existing ubuntu install.

The most common reason users follow this is because they have already configured the box that they intend to use Mythbuntu on to their liking. Adding on the Mythbuntu tasks makes more sense in that case. NOTE: If you are setting up a new mythtv box, please use the Live CD or Alternate CD. For assistance with installation method 3, please refer to the instructions on <http://www.mythbuntu.org/existing-ubuntu>. These instructions will enable you to add any of the Mythbuntu roles directly to an existing Ubuntu installation.

The biggest reason to stay away from this method on a new install is because Mythbuntu uses the XFCE4 desktop. Applications such as OpenOffice, Evolution, and a full Gnome desktop are not installed for a Mythbuntu installation. Thus, if these applications are unnecessary for your Mythbuntu box, this excess bloat of an existing install can be easily avoided by installation method 1.

## Chapter 4

# Booting the Mythbuntu Live CD

In this chapter we will walk you through the booting from the Mythbuntu CD. If you haven't downloaded it yet you should visit <http://www.mythbuntu.org/downloads> to download and burn it to a disc.

Once the ISO has been downloaded and burned to a disc, simply pop it into your CD-ROM drive with your BIOS set to boot from CD. You will be presented with a boot loader menu as shown in figure 8.1 From this screen you can start the installer two ways. If you select the **Mythbuntu Live Environment**, you will be booted into LiveCD mode. From this mode, you can operate any applications available on the Mythbuntu disk, including the installer. If you won't be needing anything *other* than the installer, select the **Install Mythbuntu** option by selecting it via the up-down keys and pressing enter. This option is particularly useful on memory limited systems that may not be able to handle the entire live environment.

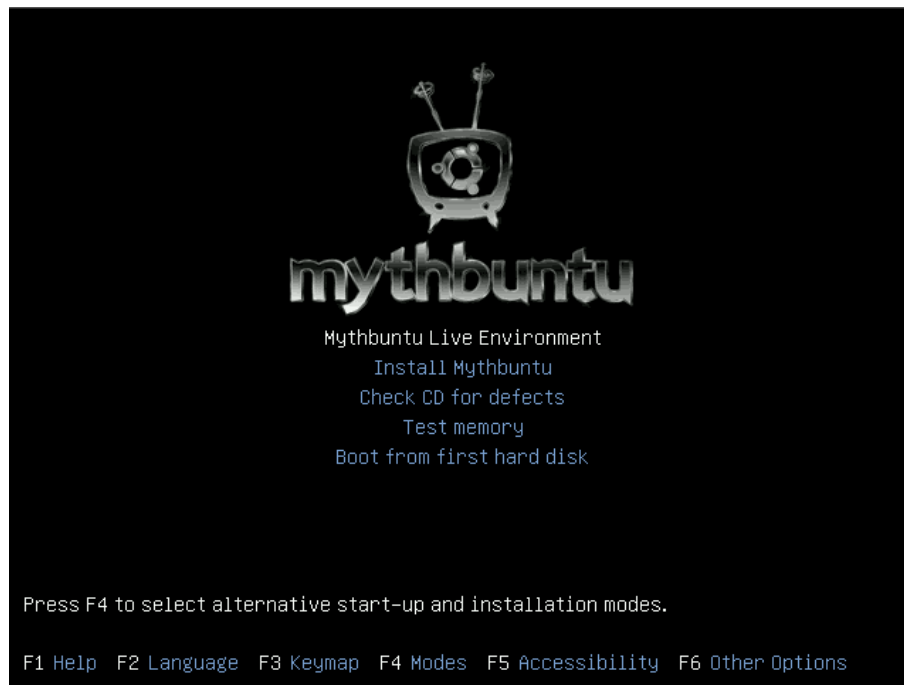


Figure 4.1: ISOLinux Boot Screen

Once the disc has booted you'll be presented with the screen shown in figure 4.2

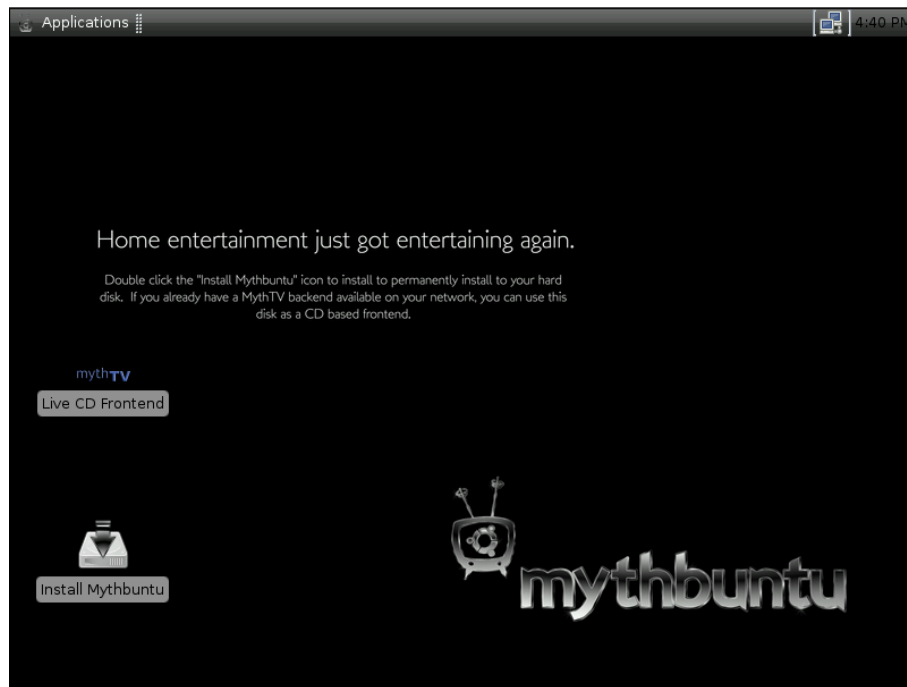


Figure 4.2: The Mythbuntu desktop

From this environment, you will be able to either run a Live CD Frontend, Install Mythbuntu, or use any preinstalled applications on the disk. Feel free to explore around the disk. No changes will be made to your system unless you proceed with **Install Mythbuntu**.

## Chapter 5

# Live CD Environment

### 5.1 Running a Frontend from CD

After launching the “Live CD Frontend” you’ll be shown the following screen where you can configure the plugins you’ll like to use and enter your master backend connection information. You can either launch the session straight away or save your settings to a usb stick / mounted network drive and then launch mythtv. If you choose to save your settings you’ll be prompted with a choice of where you’d like the settings saved to.

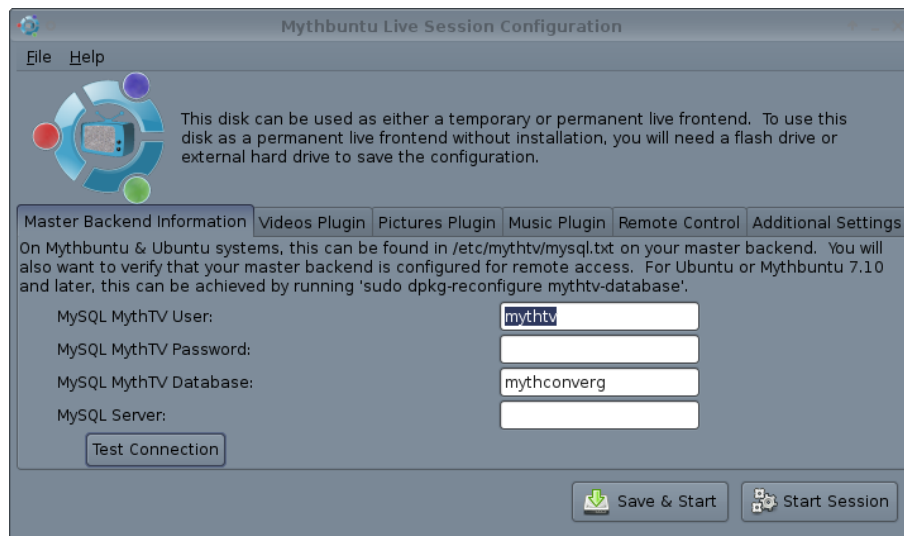


Figure 5.1:

## Master Backend Information

To connect to your Master Backend you'll need to enter the database connection details here, these can be found on your backend in `/etc/mythtv/mysql.txt` although the host in file will mostly like need to be replaced with the ip address of the machine. Once your settings have been entered test your connection to make sure everything is working.

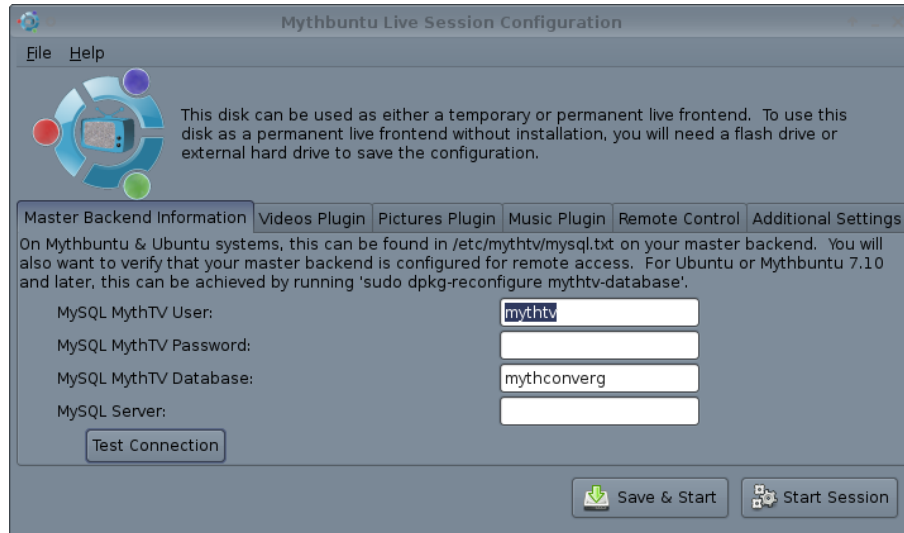


Figure 5.2: Master Backend Information Tab

## Videos Plugin

Within the LiveCD you can also watch videos which is mounted via either SMB or NFS. Simply select the share type from the box and enter the details required.

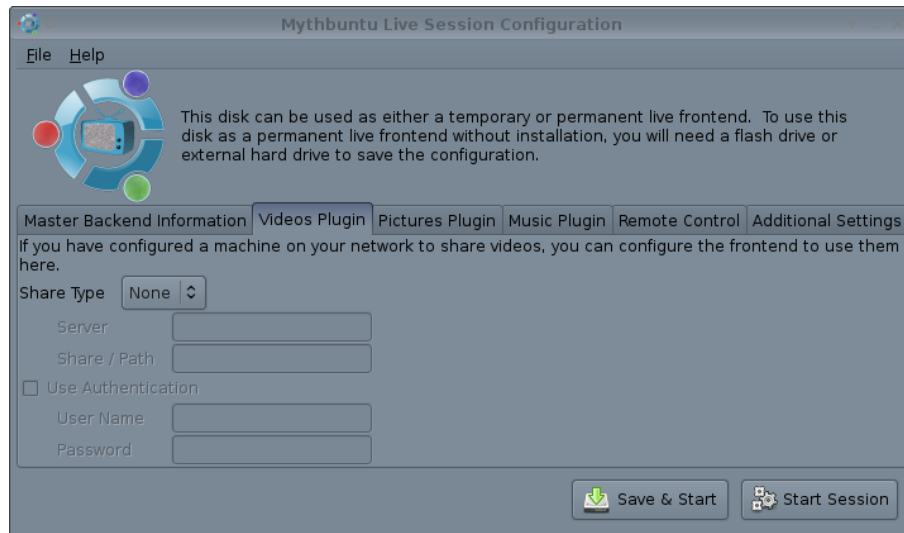


Figure 5.3: Video Plugin Tab

## Pictures Plugin

Within the LiveCD you can also look at pictures which is mounted via either SMB or NFS. Simply select the share type from the box and enter the details required.

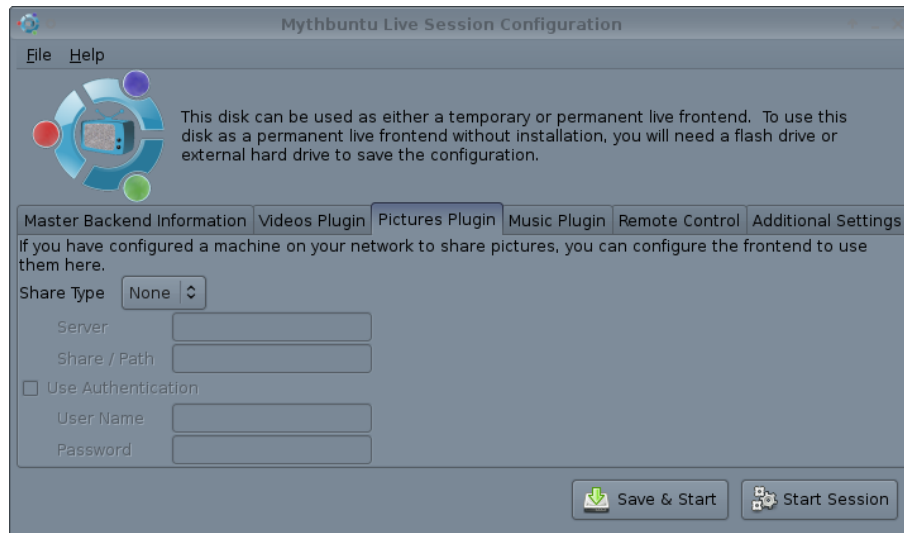


Figure 5.4: Picture Plugin Tab

## Music Plugin

Within the LiveCD you can also listen to music which is mounted via either SMB or NFS. Simply select the share type from the box and enter the details required.

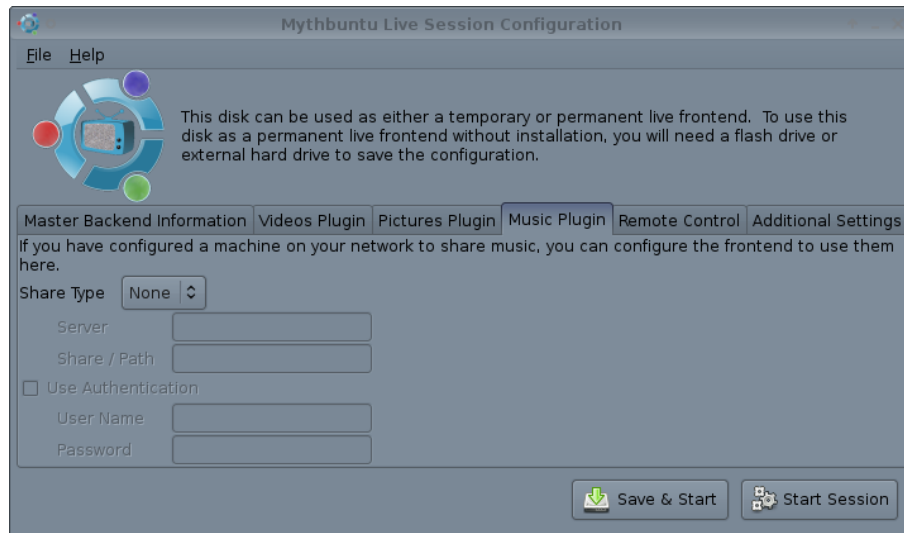


Figure 5.5: Music Plugin Tab



## Remote Plugin

Another great thing with the LiveCD is the ability to use preset controls, simply enable the remote control and then choose your control type from the drop down menus.

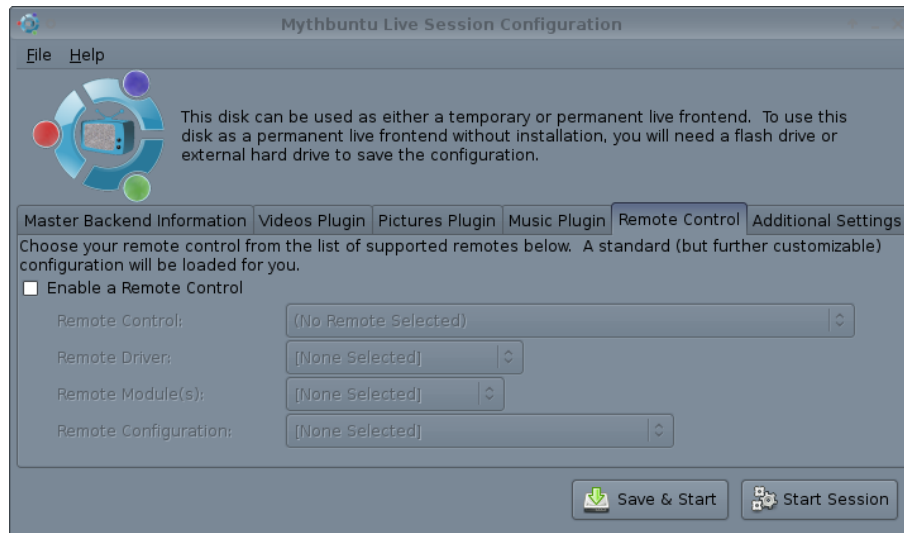


Figure 5.6: Remote Control Plugin Tab

## Additional Settings

Under additional settings you can set the LiveCD to autostart MythTV on boot (only worthwhile if you save the settings) along with setting the home dir to an external disk. The hostname can also be changed here if you wished.

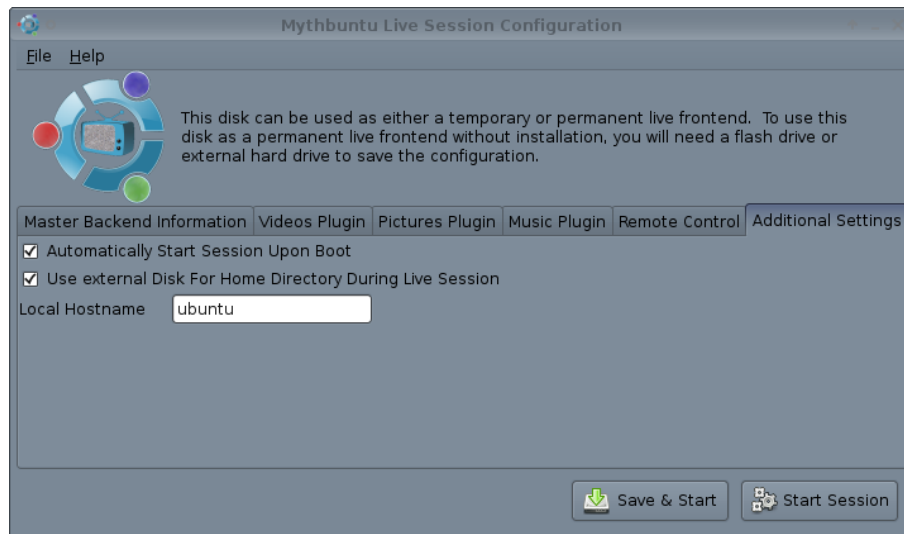


Figure 5.7: Additional Settings Tab

## Chapter 6

# Networking Configuration

By default, the Mythbuntu networking configuration will use DHCP via ethernet. If you have a need for wireless support, or a static network you will need to adjust your configuration. This can be done both on the Live disk as well as after the system is installed.

### 6.1 Wireless Support

If you have a wireless card, you will need to use Network Manager to modify your networking settings. At the top right of the Xfce environment, click the network icon. You should see a list of wireless networks that are not blocking their ESSID. Click a network to connect to it.

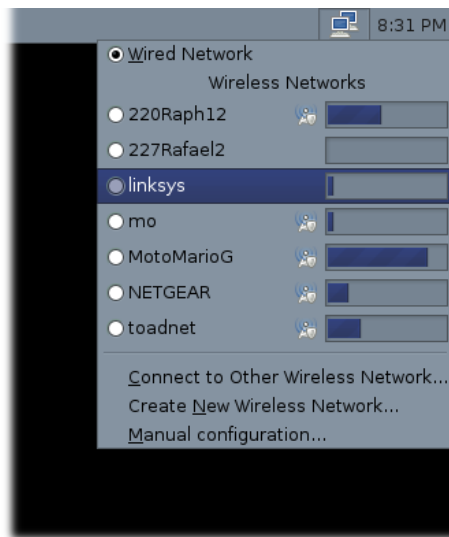


Figure 6.1: Network Manager (Automatic)

### 6.1.1 Advanced Wireless

If you will be moving among different networks with this machine, it is recommended that you use Network Manager. There are a few caveats to using wireless via Network Manager:

- If you have a network with a protected key, you will need to enter a password to unlock the keyring every time you login.
- Network Manager can't handle networks with static IP addresses.
- Hidden networks will not show up in the list.

All of these items can be handled by setting up a wireless network manually. To do so, choose the Network Manager icon and choose **Manual configuration**.

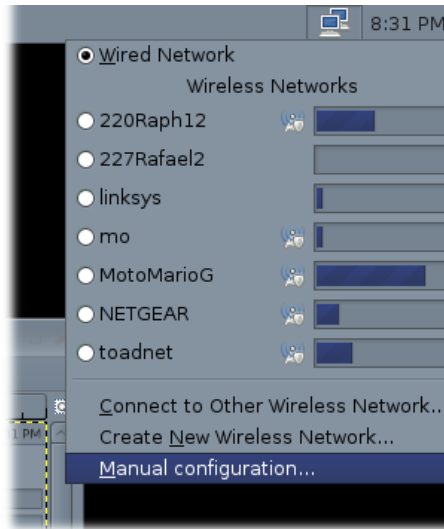


Figure 6.2: Network Manager (Manual Step 1)

In the dialog that appears, choose your wireless card and hit properties.

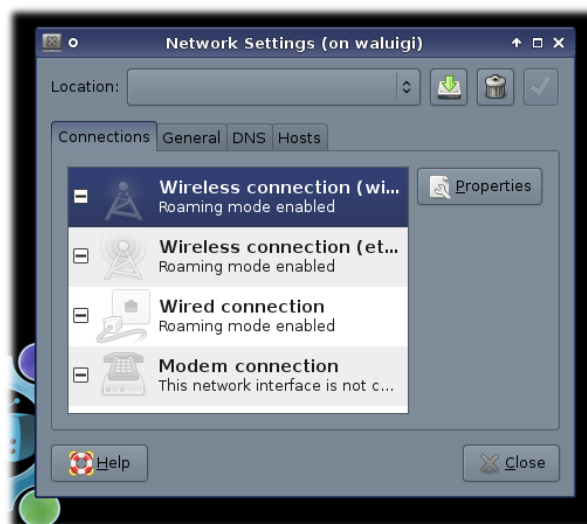


Figure 6.3: Network Manager (Manual Step 2)

In the dialog that appears, uncheck **Enable roaming mode**. Select (or enter) your network information in the Network Name (ESSID) box, and fill out the rest of the dialog.

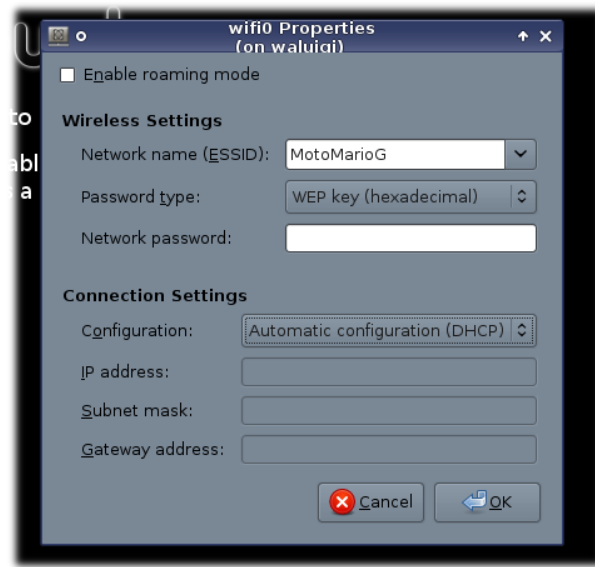


Figure 6.4: Network Manager (Manual Step 3)

## 6.2 Wired support

By default, Network Manager will configure your network for DHCP via ethernet.

### 6.2.1 Advanced Wired

If you have a need for a static IP address, you will need to disable Network manager from handling your wired network. To do so, choose the Network Manager icon and choose **Manual configuration**.

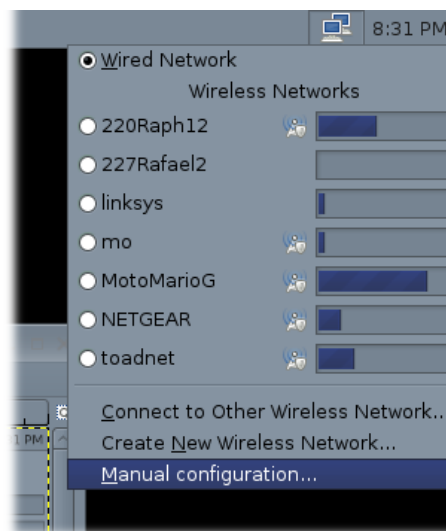


Figure 6.5: Network Manager Wired (Manual Step 1)

In the dialog that appears, choose your wired card and hit properties.

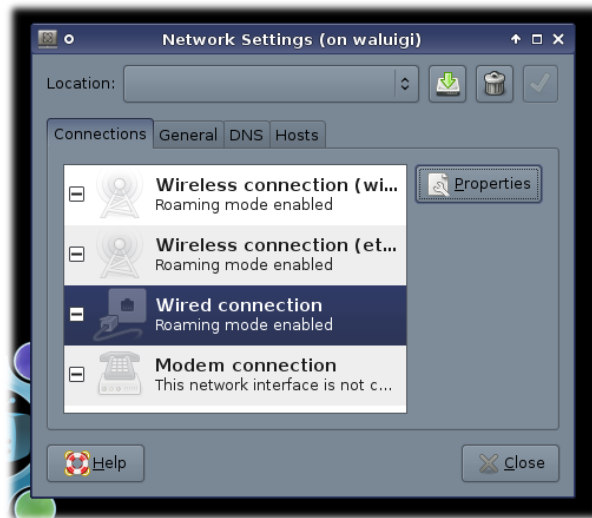


Figure 6.6: Network Manager Wired (Manual Step 2)

Fill out the dialog that appears.

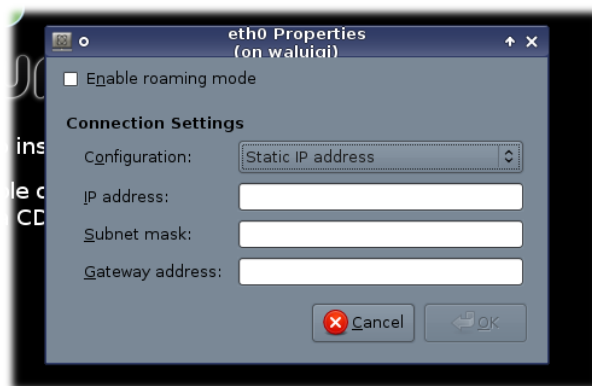


Figure 6.7: Network Manager Wired (Manual Step 3)

## Chapter 7

# Installing Mythbuntu from Live CD

### 7.1 Starting Off

To launch the installation program double click on the **Install Mythbuntu** icon located on the desktop, this will launch the screen shown in figure 7.1. You can now select the language to be used once installed and during installation, select your chosen language and click on the *Forward* button.

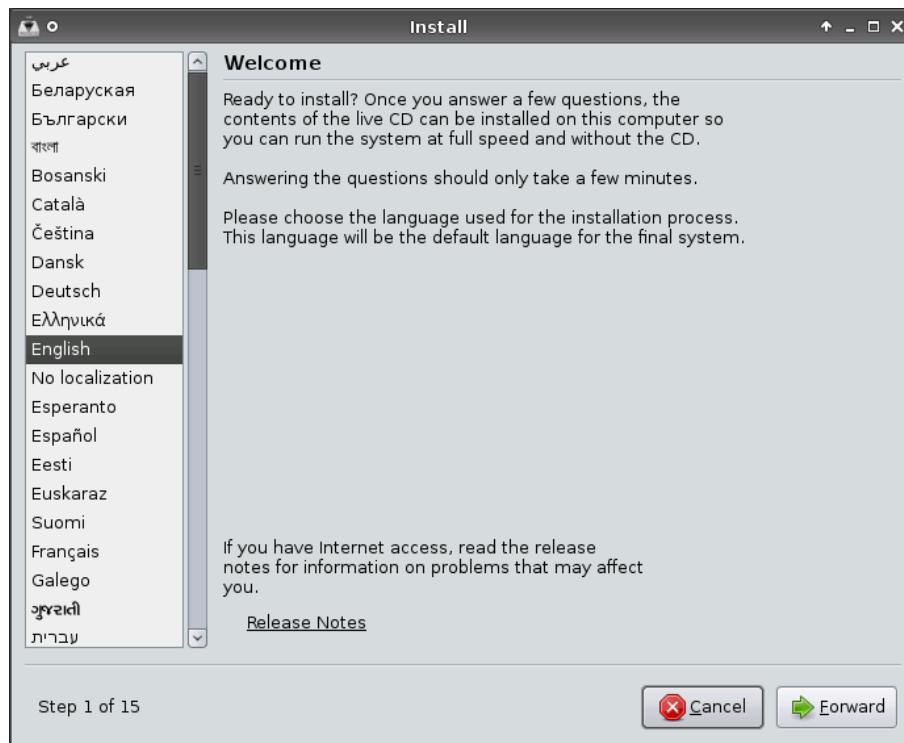


Figure 7.1: Step 1 of 15

This brings us to figure 7.2. On this screen you need to select the a city that located within your country and timezone, this allows for automatic changes for day light savings etc. You can select your city either by selecting it on the map or via the selection box. Once your happy with your choice click on the *Forward* button.

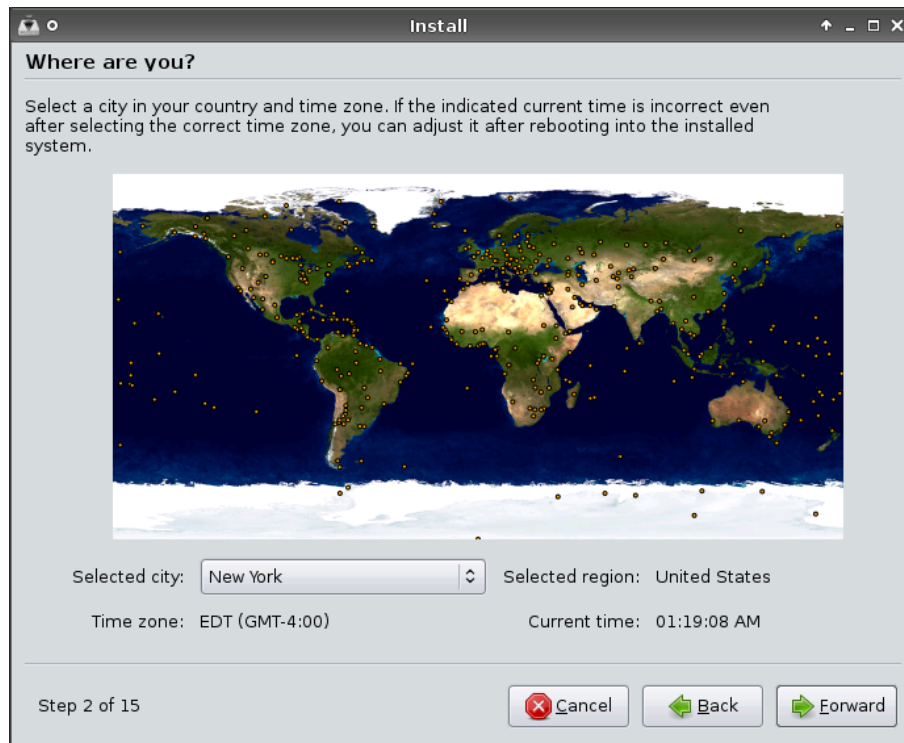


Figure 7.2: Step 2 of 15



You are now able to choose your keyboard layout. Select your keyboard layout from the options and test the keys to ensure they behave as expected. Once your happy click on the *Forward* button.

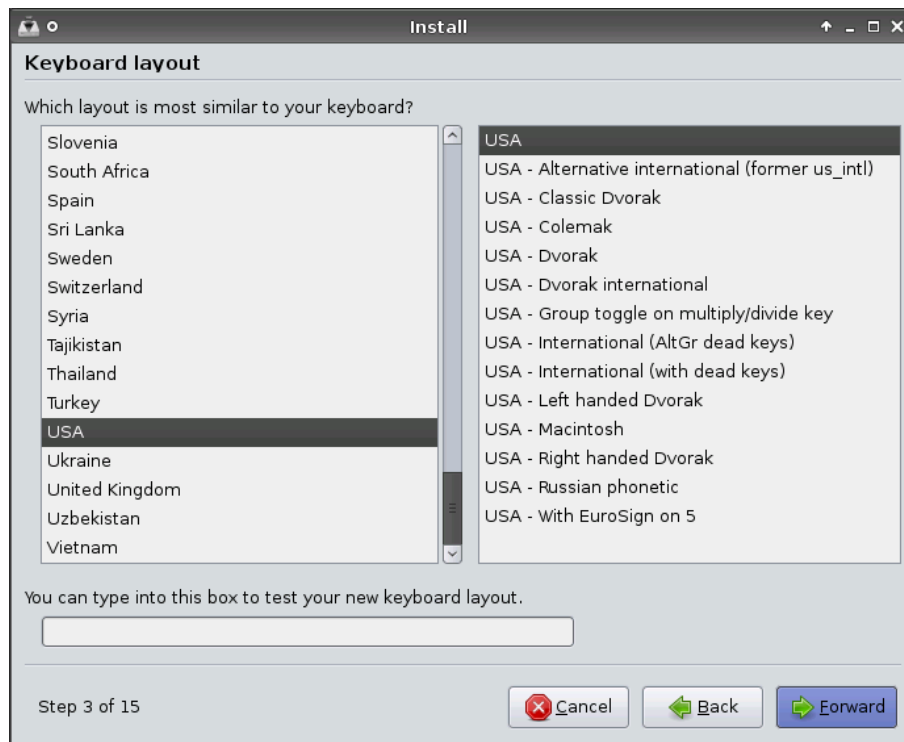


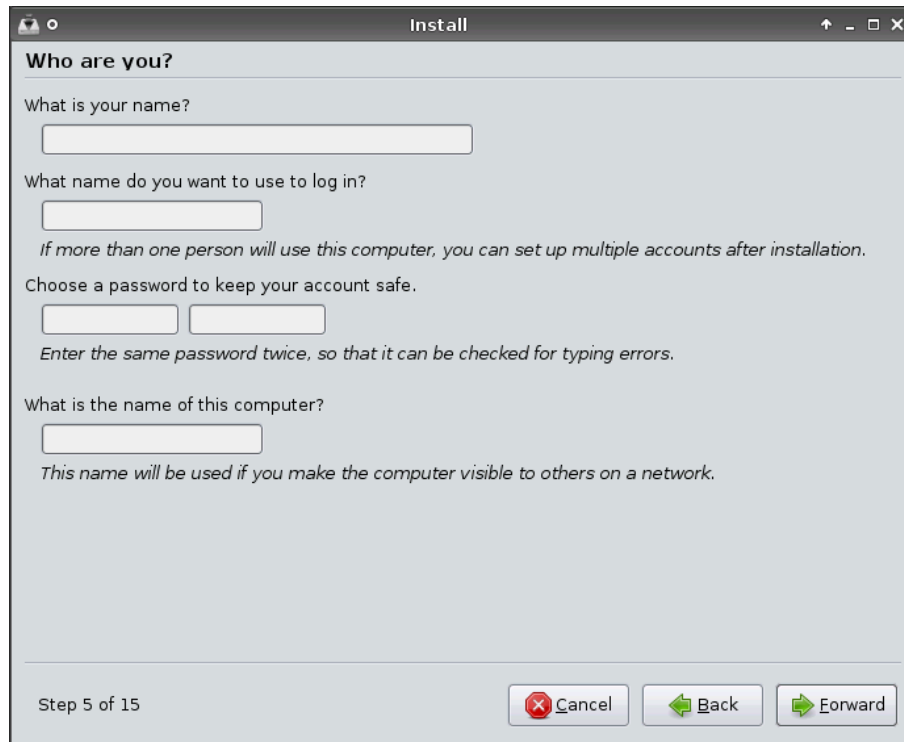
Figure 7.3: Step 3 of 15

You are now able to choose how you wish to partition the disk space. It's recommended that you select **Guided Partition** and the drive you wish to partition, and click the *forward* button. You can however manually partition your drive but it won't be covered here. You would do this if you were to install the OS onto one drive and your recordings onto another.



Figure 7.4: Step 4 of 14

It's now time to enter your login details, password and your computers name. So enter the required details and continue by clicking the *forward* button. **NOTE: Please don't use the userid mythtv.**



The screenshot shows a window titled "Install" with a standard Ubuntu window header. The main content area is titled "Who are you?". It contains the following elements:

- A text prompt "What is your name?" followed by a single-line text input field.
- A text prompt "What name do you want to use to log in?" followed by a single-line text input field.
- A note: "If more than one person will use this computer, you can set up multiple accounts after installation."
- A text prompt "Choose a password to keep your account safe." followed by two single-line text input fields for password confirmation.
- A note: "Enter the same password twice, so that it can be checked for typing errors."
- A text prompt "What is the name of this computer?" followed by a single-line text input field.
- A note: "This name will be used if you make the computer visible to others on a network."

At the bottom of the window, there is a status bar that says "Step 5 of 15" on the left and three buttons on the right: "Cancel" (with a red X icon), "Back" (with a green left arrow icon), and "Forward" (with a green right arrow icon).

Figure 7.5: Step 5 of 15

## 7.2 Standard Installation

**NOTE:** *This installation should only be used if it is your first Mythbuntu machine on the network, otherwise follow the [Advanced Installation 7.3](#) guide.*

A standard installation will install and configure every option with minimal user interaction, it configures the system up to run as a frontend and a backend as well as installing all the plugins, themes. Samba and ssh are also install and configured to allow for easier maintenance. You should have a screen similar to figure 7.6, select the **Standard Installation** option and click on the *Forward* button.

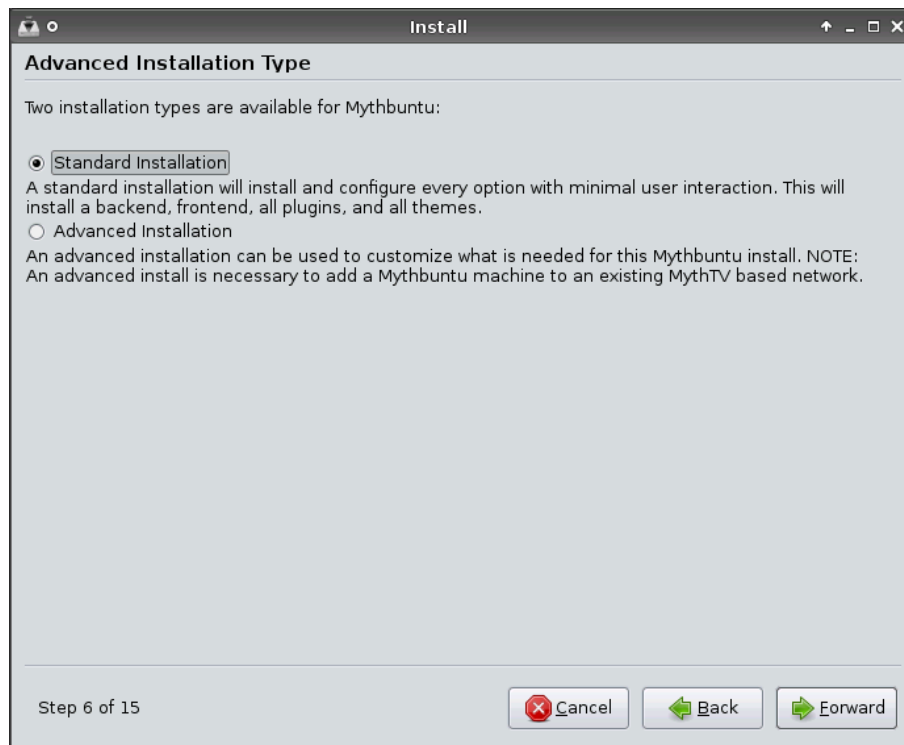


Figure 7.6: Step 6 of 15

Mythbuntu is able to make use of any remote which is supported by the LIRC project, a list of them is available at <http://www.lirc.org/html/table.html>. If you wish to configure one then click on the **Enable a Remote Control** checkbox. This will provide a drop down menu to enable the selection of a supported remote. Upon selection the required fields are automatically filled in. However if your remote isn't listed you can either select **Other Remote** option and fill the required info in or file a bug at <https://bugs.launchpad.net/mythbuntu/+filebug> with details of the remote and we'll try and get it added for the future.

You can also enable an IR transmitter at this stage as well. Click on the **Enable an IR Transmitter** checkbox. This will provide a drop down menu to enable the selection of a supported blaster. Upon selection the required field should automatically be filled in.

When your satisfied with the options click on the *Forward* button.

Remotes which require extra work once mythbuntu is installed are:

- AppleTV remotes
- Remotes supported via dev/input

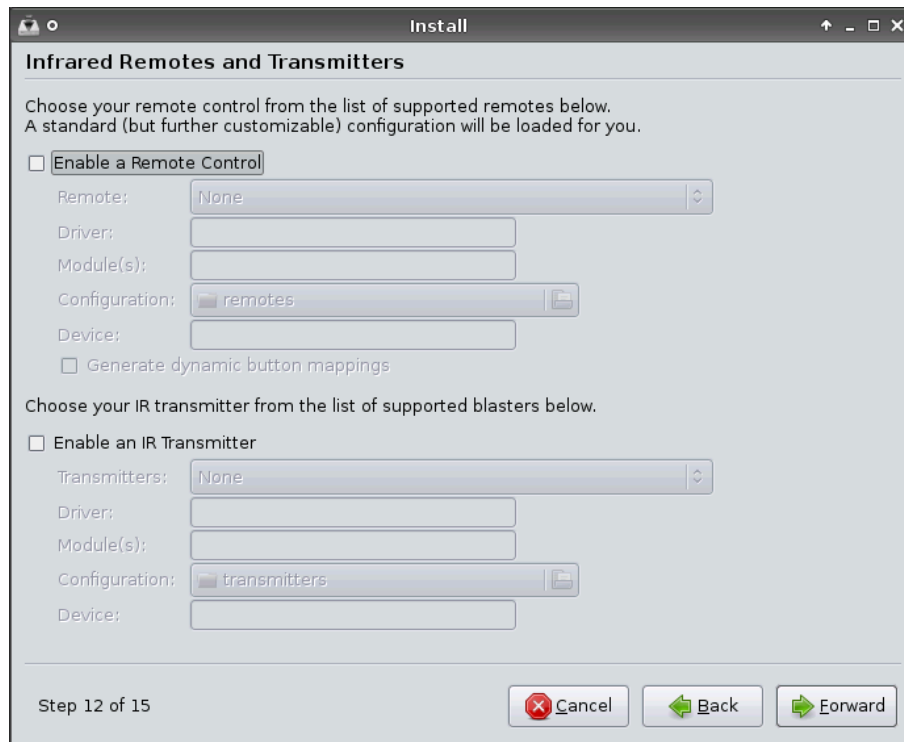


Figure 7.7: Step 12 of 15

Proprietary drivers can be enabled for your video cards here if you choose to use them. This is done by selecting *Modify Video Driver & Settings* and selecting the driver you wish to use. If you chose to enable the proprietary drivers then your now able to configure TV-OUT. Refer to the TV-OUT reference section 17.2 for more information as to the settings you'll likely require.

The Silicon Dust HDHomerun Configuration Utility should be enabled if you wish to use your backend with HD Homerun. If your in USA or Canada you'll want to enable the *XMLTV guide data* option here to enable Schedules Direct to work.

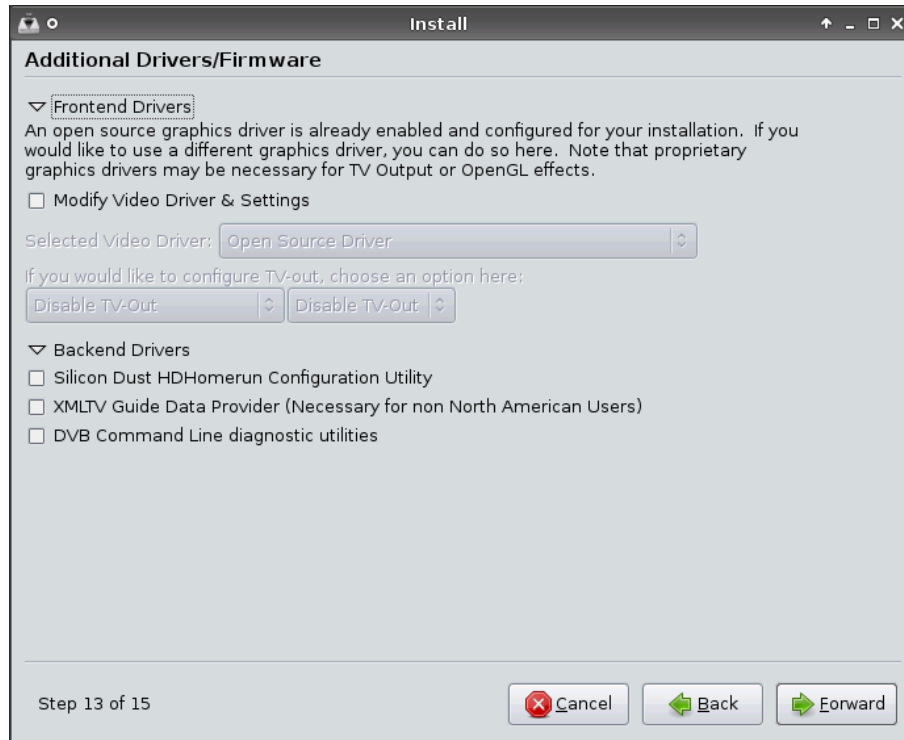


Figure 7.8: Step 13 of 15

At this stage you can review the selection you've made, where if your unhappy with any of them you can return and change your choices. If your happy with the settings you've chosen, click on the *Install* button to install.

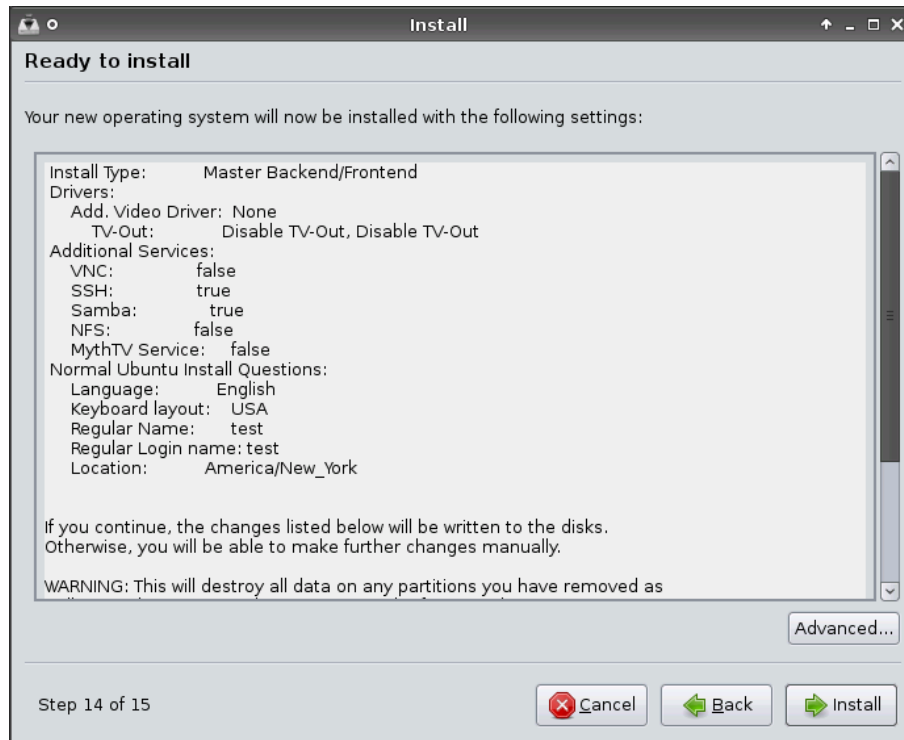


Figure 7.9: Step 14 of 15

**Note** The installer may appear to hang around 94%-95% however alot of packages are installed and setup in this stage which take a while

Once your installation has completed move along to Chapter 9

## 7.3 Advanced Installation

An advanced installation can be used to customize what is needed for the Mythbuntu install. It is however required to be used if you wish to add this Mythbuntu installation to an existing MythTV setup. You should have a screen similar to figure 7.6, select the **Advanced Installation** option and click on the *Forward* button.



Figure 7.10: Step 6 of 15



You are now presented with a screen similar to figure ???. After reading the options outlined below follow the relevant section.

**Primary Backend with Frontend** A Backend/Frontend combination machine. This will be the most common setup for people wanting to use Mythbuntu for HTPC/PVR applications. This type of installations is intended for use as a component in your home theatre and where an existing MythTV setup isn't in existence. See section 7.4

**Secondary Backend with Frontend** A Backend/Frontend combination machine. This will be the most common setup for people wanting to use Mythbuntu for HTPC/PVR applications. This type of installations is intended for use as a component in your home theatre and where an existing MythTV backend server is already in existence. See section 7.5

**Primary Backend** A Backend only machine is typically designed to function like an appliance; requiring very little maintenance. This is intended to be installed as the first backend on a network. This should be chosen if you wish to run your frontend and backend on physically different computers. See section 7.6

**Secondary Backend** A Backend only machine is typically designed to function like an appliance; requiring very little maintenance. This is intended to be installed as an additional backend on a network. See section 7.7

**Frontend** A frontend only machine's main function is to receive media content from the backend(s) and play it back. This requires a backend to already exist on the network. See section 7.8

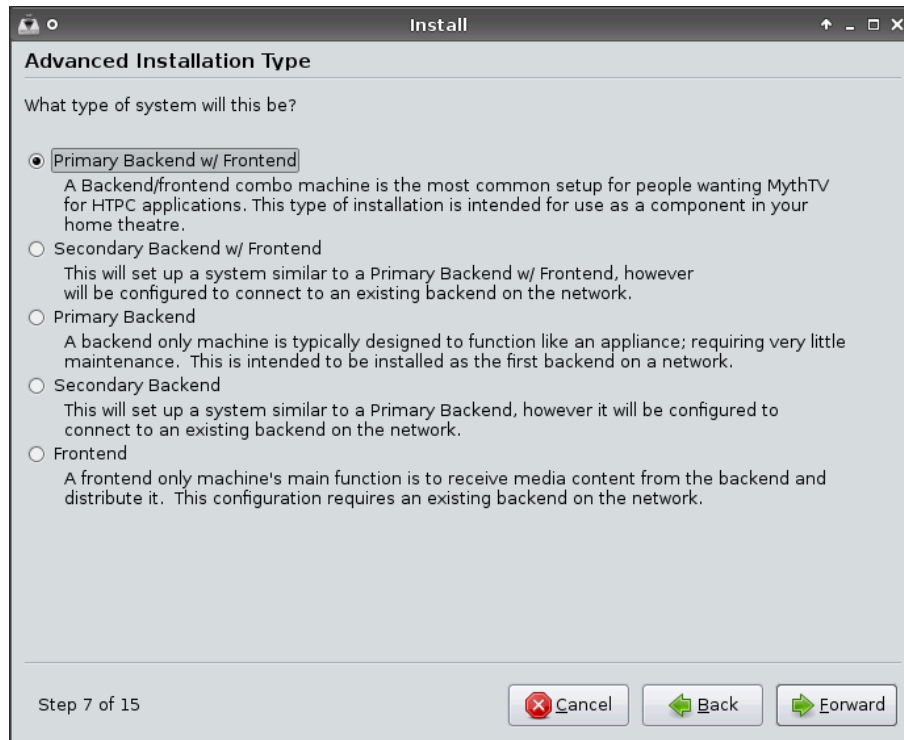


Figure 7.11: Step 7 of 15

## 7.4 Primary Backend with Frontend

Select the **Primary Backend w/Frontend** option and click on the *Forward* button

You are offered the choice of various Myth plugin's which can be installed, for a list of these and what they do please look at myth plugin reference section located at [17.1](#). Select the plugins you require and click the *forward* button.

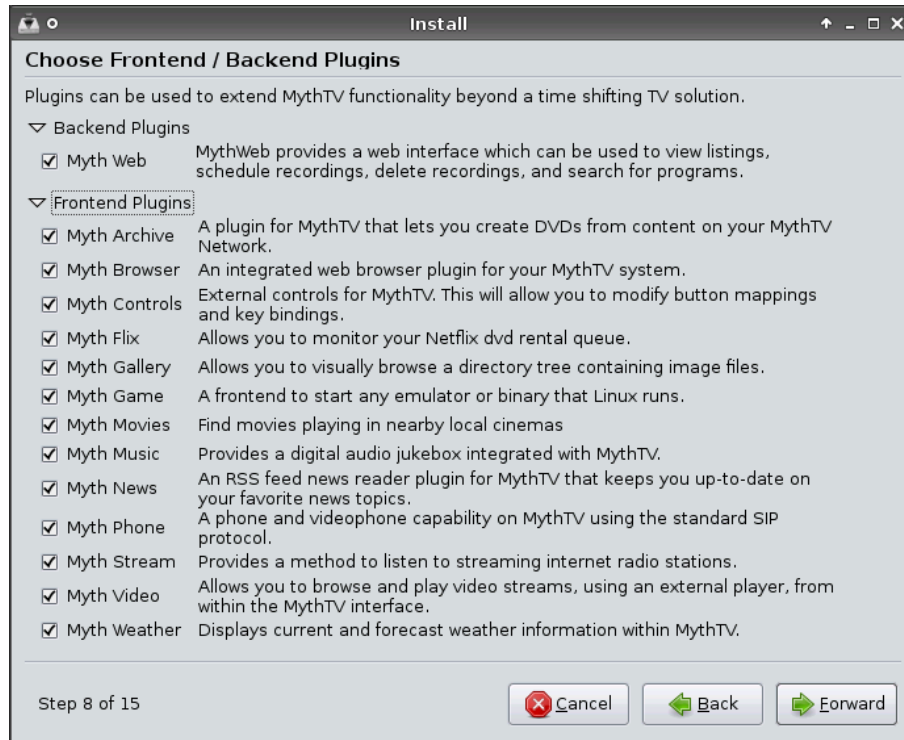


Figure 7.12: Step 8 of 15

You are now offered with the chance to choose the themes you require. Select your themes and click the *forward* button.

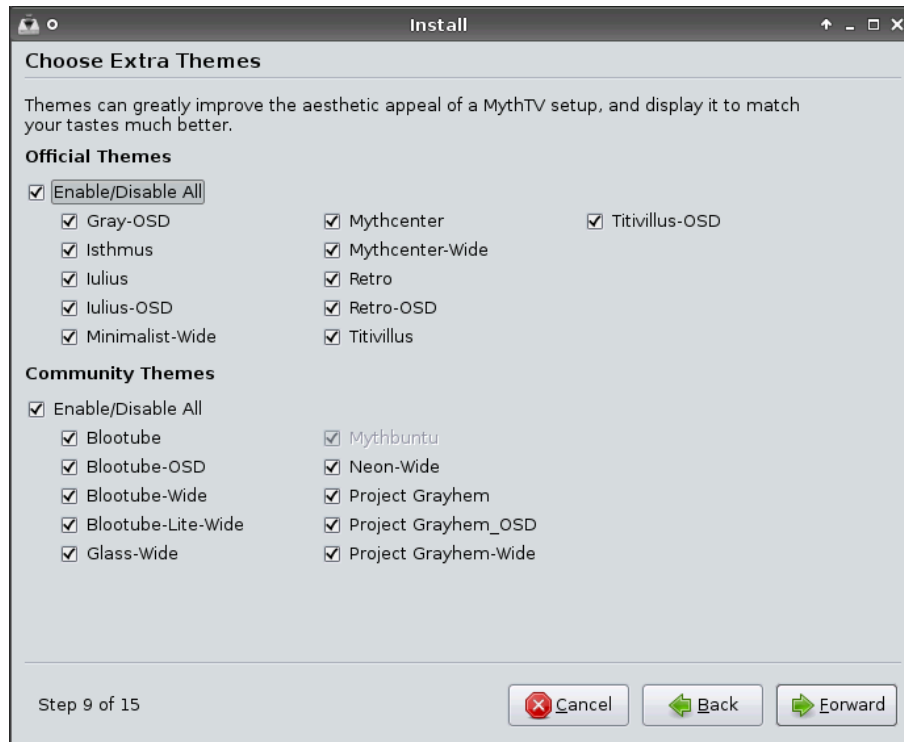


Figure 7.13: Step 9 of 15

You can now choose the additional services which you wish to have installed and configured to run here. Beside each option is a description of the service, select the ones you want and click the *forward* button. If your going to have remote backends/frontends then you need to enable the “MythTV Service” so that they can connect.

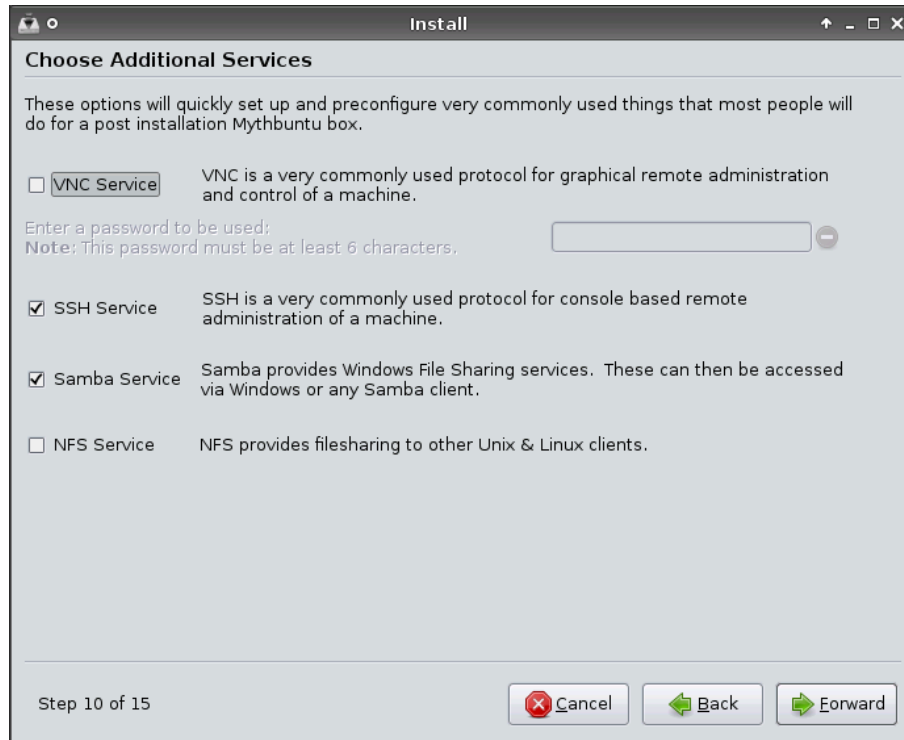


Figure 7.14: Step 10 of 15

Security. Its a advisable to set a password for the root account of your database. If you opted to install Myth Web you can also set a password here. Enter your passwords and click the *forward* button.



Figure 7.15: Step 11 of 15

Mythbuntu is able to make use of any remote which is supported by the LIRC project, a list of them is available at <http://www.lirc.org/html/table.html>. If you wish to configure one then click on the **Enable a Remote Control** checkbox. This will provide a drop down menu to enable the selection of a supported remote. Upon selection the required fields are automatically filled in. However if your remote isn't listed you can either select **Other Remote** option and fill the required info in or file a bug at <https://bugs.launchpad.net/mythbuntu/+filebug> with details of the remote and we'll try and get it added for the future.

You can also enable an IR transmitter at this stage as well. Click on the **Enable an IR Transmitter** checkbox. This will provide a drop down menu to enable the selection of a supported blaster. Upon selection the required field should automatically be filled in.

When your satisfied with the options click on the *Forward* button.

Remotes which require extra work once mythbuntu is installed are:

- AppleTV remotes
- Remotes supported via dev/input

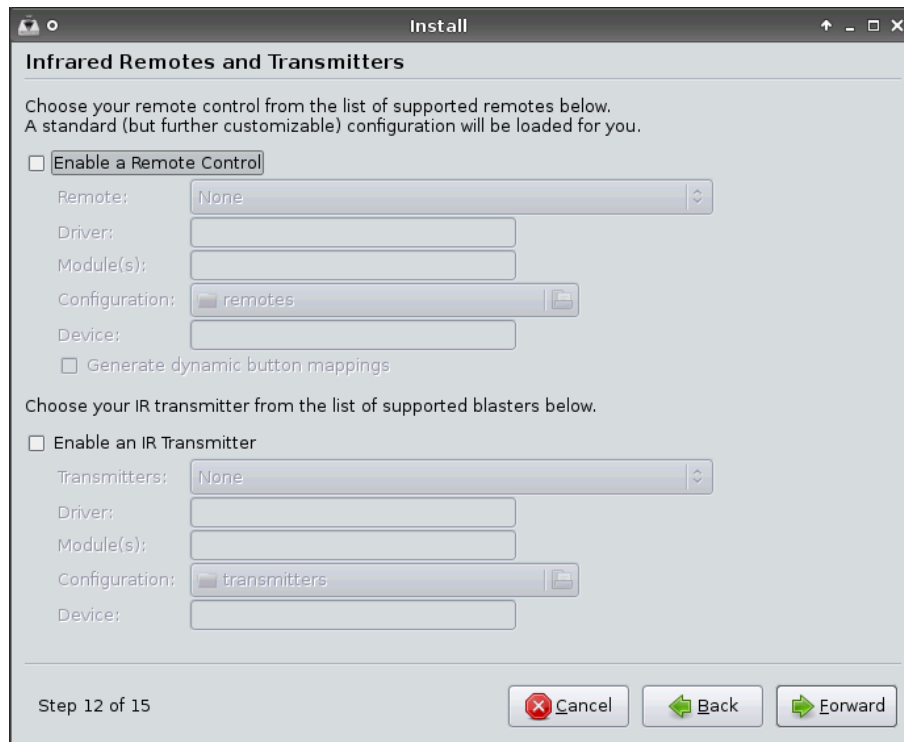


Figure 7.16: Step 12 of 15

Proprietary drivers can be enabled for your video cards here if you choose to use them. This is done by selecting *Modify Video Driver & Settings* and selecting the driver you wish to use. If you chose to enable the proprietary drivers then your now able to configure TV-OUT. Refer to the TV-OUT reference section 17.2 for more information as to the settings you'll likely require.

The Silicon Dust HDHomerun Configuration Utility should be enabled if you wish to use your backend with HD Homerun. If your in USA or Canada you'll want to enable the *XMLTV guide data* option here to enable Schedules Direct to work.

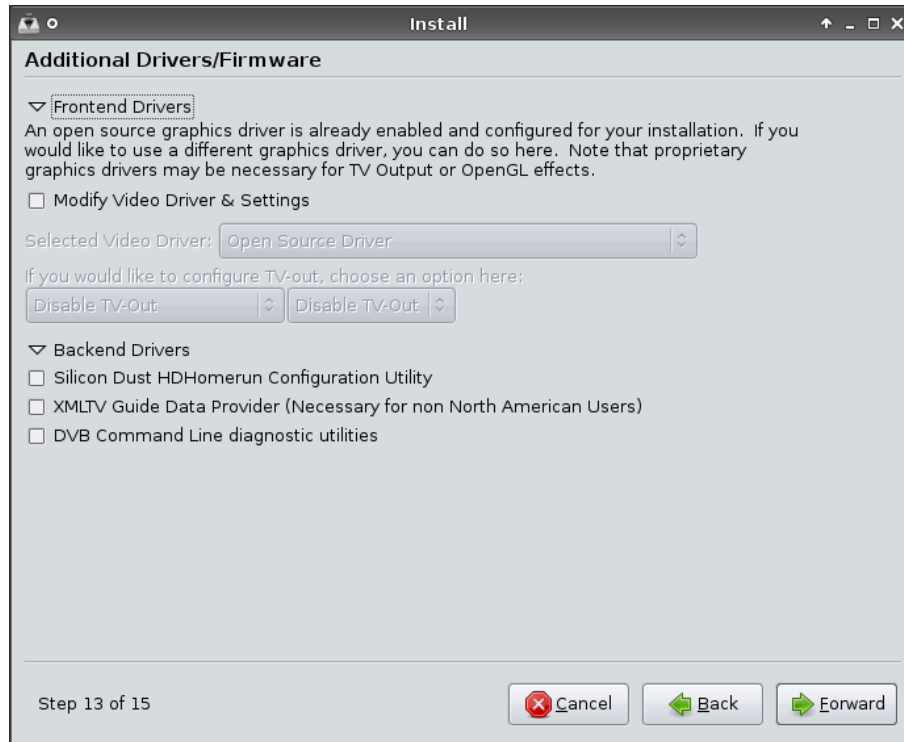


Figure 7.17: Step 13 of 15

At this stage you can review the selection you've made, where if your unhappy with any of them you can return and change your choices. If your happy with the settings you've chosen, click on the *Install* button to install.

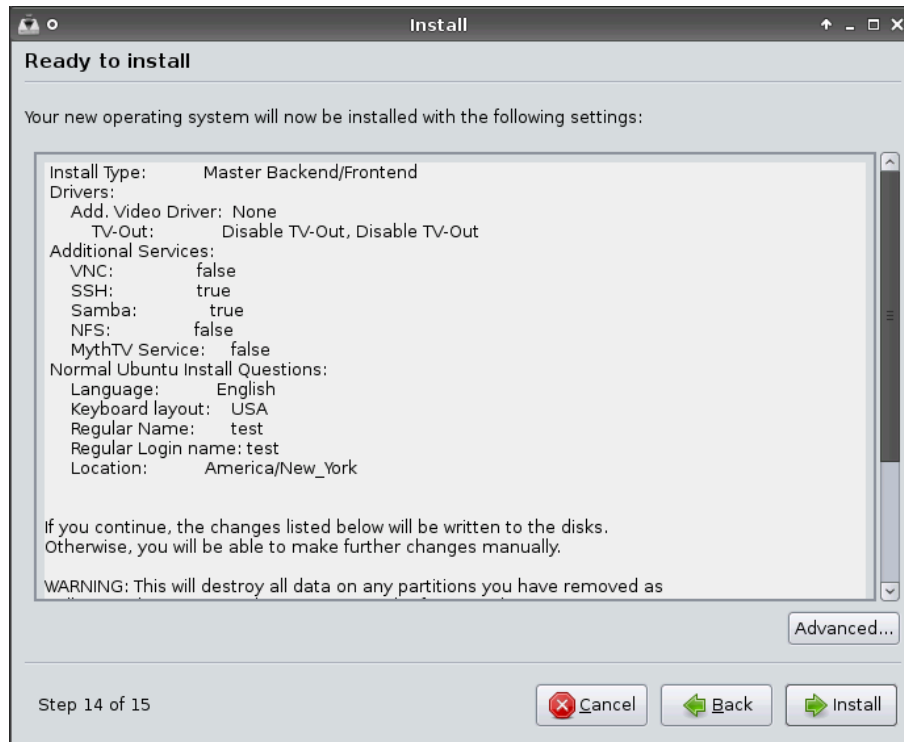


Figure 7.18: Step 14 of 15

**Note** The installer may appear to hang around 94%-95% however alot of packages are installed and setup in this stage which take a while

Once your installation has completed move along to Chapter 9



## 7.5 Secondary Backend with Frontend

Select the **Secondary Backend w/Frontend** option and click on the *Forward* button

You are offered the choice of various Myth plugin's which can be installed, for a list of these and what they do please look at myth plugin reference section located at [17.1](#). Select the plugins you require and click the *forward* button.

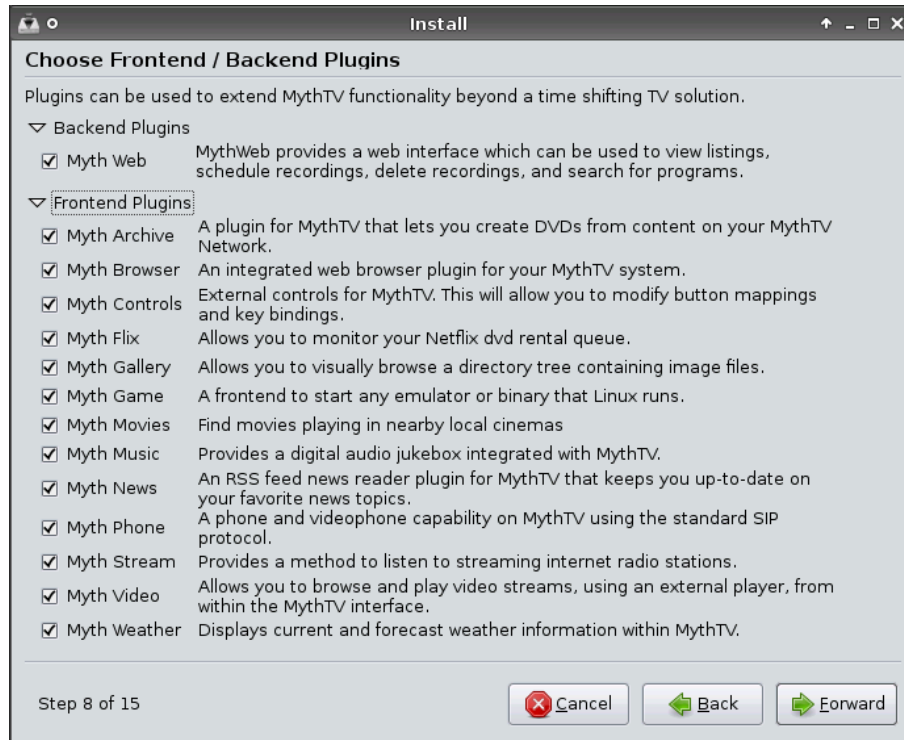


Figure 7.19: Step 8 of 15

You are now offered with the chance to choose the themes you require. Select your themes and click the *forward* button.

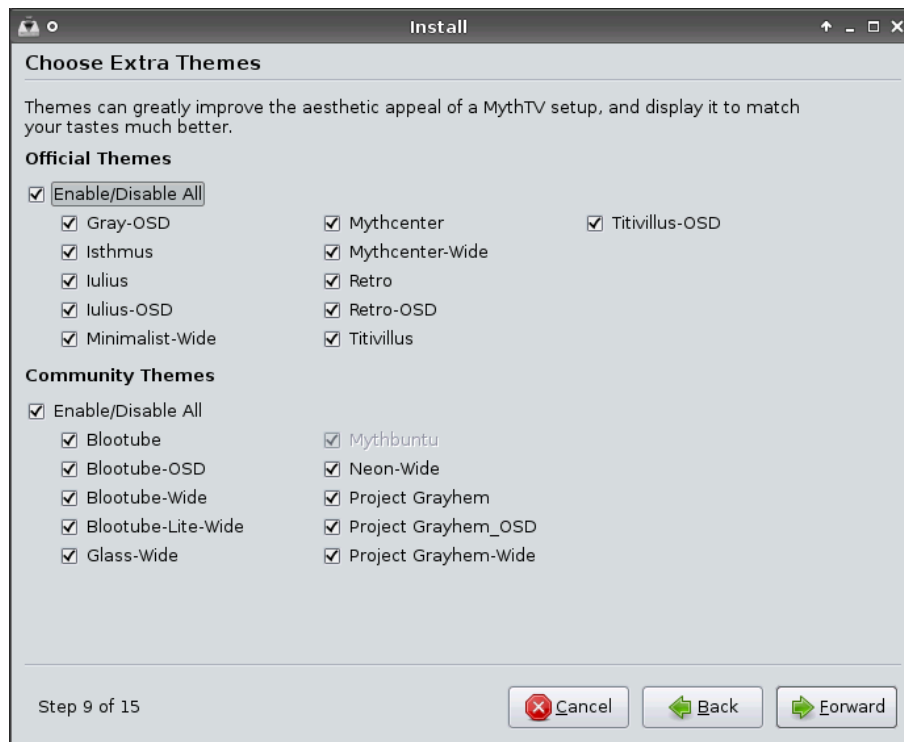


Figure 7.20: Step 9 of 15

You can now choose the additional services which you wish to have installed and configured to run here. Beside each option is a description of the service, select the ones you want and click the *forward* button.

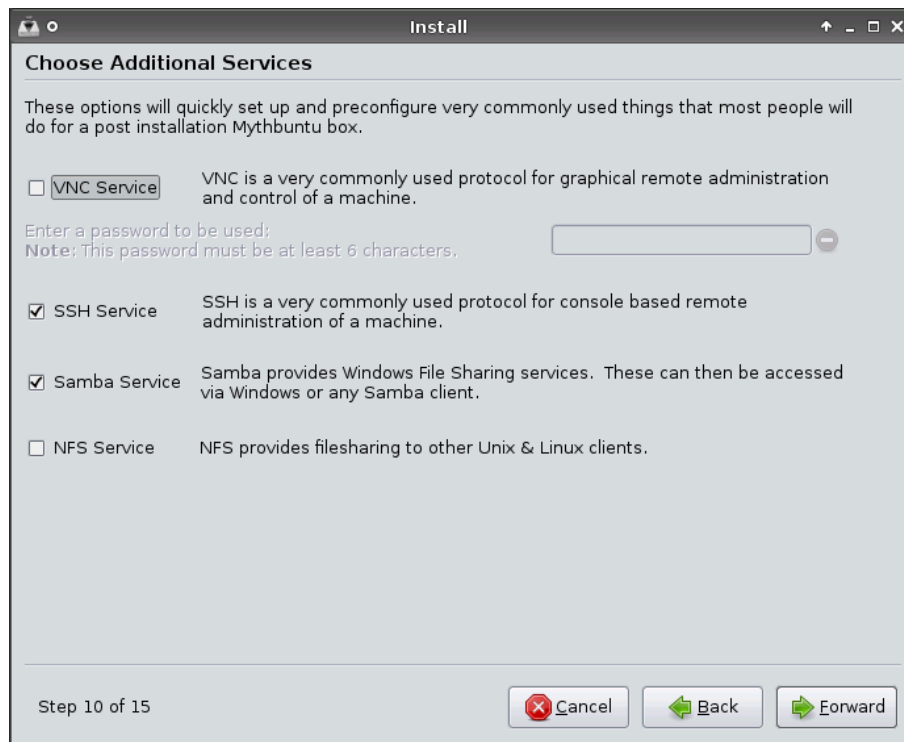


Figure 7.21: Step 10 of 15

Mythbackend connection information, this is where you enter the details to connect to your master backend, the MySQL server box should take an ip address or hostname of the backend. Once your details are entered test the connection to save problems later on. If you opted to install Myth Web you can also set a password here. Enter your passwords and click the *forward* button.



The screenshot shows a window titled "Install" with a standard Linux window header. The main content area is titled "MythTV Related Passwords". Under the "Master Backend Connection Information" section, there is explanatory text about the `mysql.txt` file and a checkbox for "Copy MySQL information from Live Environment". Below this are four input fields: "MySQL Server", "MySQL Database" (containing "mythconverg"), "MySQL User Name" (containing "mythtv"), and "MySQL Password". A "Test Connection" button is present, with a note "Please **Test** your connection to proceed." The "Mythweb Access Password" section includes text about security and a checkbox for "Set Mythweb Security". At the bottom, it says "Step 11 of 15" and has three buttons: "Cancel", "Back", and "Forward".

Figure 7.22: Step 11 of 15

Mythbuntu is able to make use of any remote which is supported by the LIRC project, a list of them is available at <http://www.lirc.org/html/table.html>. If you wish to configure one then click on the **Enable a Remote Control** checkbox. This will provide a drop down menu to enable the selection of a supported remote. Upon selection the required fields are automatically filled in. However if your remote isn't listed you can either select **Other Remote** option and fill the required info in or file a bug at <https://bugs.launchpad.net/mythbuntu/+filebug> with details of the remote and we'll try and get it added for the future.

You can also enable an IR transmitter at this stage as well. Click on the **Enable an IR Transmitter** checkbox. This will provide a drop down menu to enable the selection of a supported blaster. Upon selection the required field should automatically be filled in.

When your satisfied with the options click on the *Forward* button.

Remotes which require extra work once mythbuntu is installed are:

- AppleTV remotes
- Remotes supported via dev/input

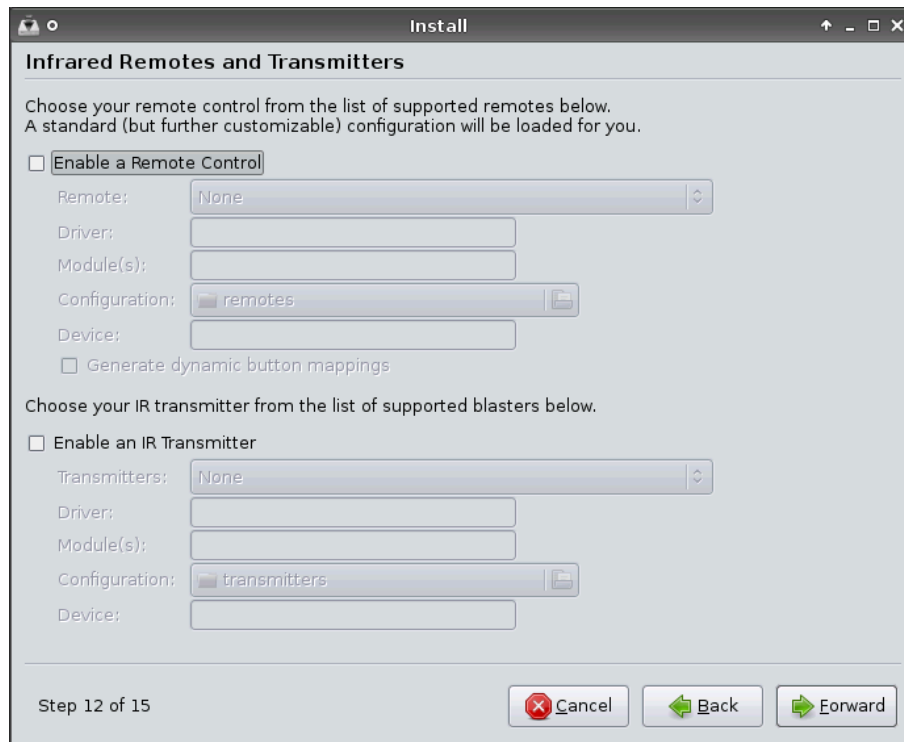


Figure 7.23: Step 12 of 15

Proprietary drivers can be enabled for your video cards here if you choose to use them. This is done by selecting *Modify Video Driver & Settings* and selecting the driver you wish to use. If you chose to enable the proprietary drivers then your now able to configure TV-OUT. Refer to the TV-OUT reference section 17.2 for more information as to the settings you'll likely require.

The Silicon Dust HDHomerun Configuration Utility should be enabled if you wish to use your backend with HD Homerun. If your in USA or Canada you'll want to enable the *XMLTV guide data* option here to enable Schedules Direct to work.

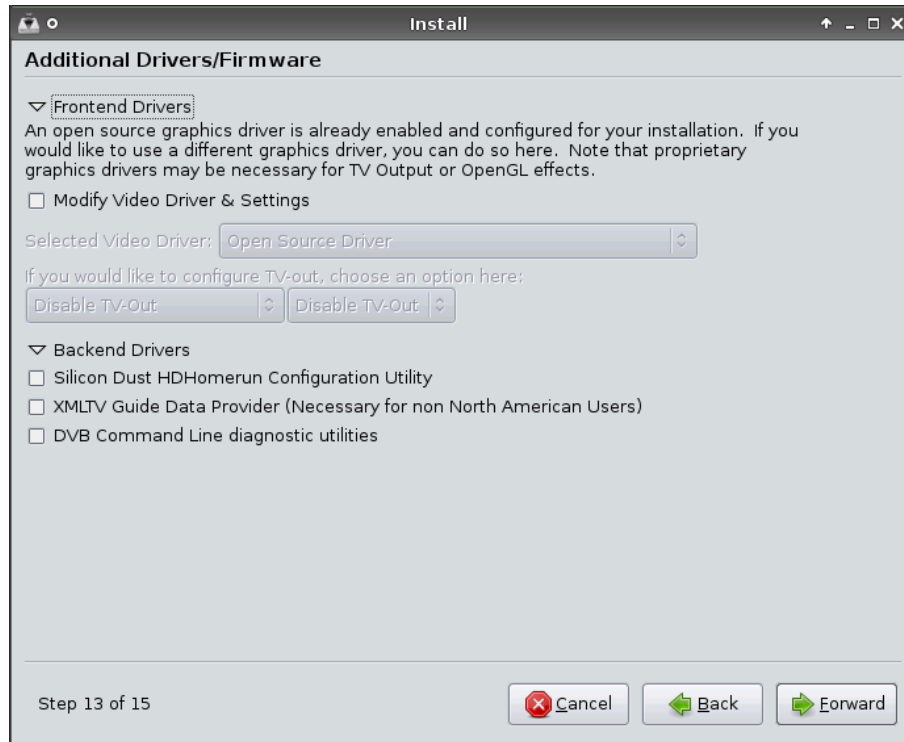


Figure 7.24: Step 13 of 15

At this stage you can review the selection you've made, where if your unhappy with any of them you can return and change your choices. If your happy with the settings you've chosen, click on the *Install* button to install.

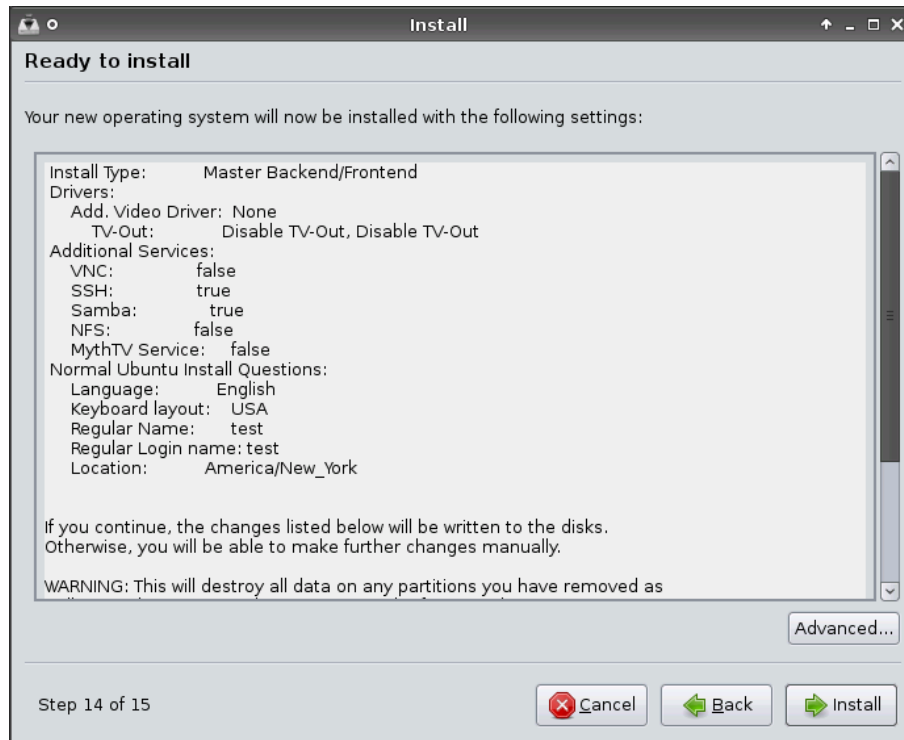


Figure 7.25: Step 14 of 15

**Note** The installer may appear to hang around 94%-95% however alot of packages are installed and setup in this stage which take a while

Once your installation has completed move along to Chapter 9

## 7.6 Primary Backend

Select the **Primary Backend** option and click on the *Forward* button

You are offered the choice of various Myth plugin's which can be installed, for a list of these and what they do please look at myth plugin reference section located at [17.1](#). Select the plugins you require and click the *forward* button.

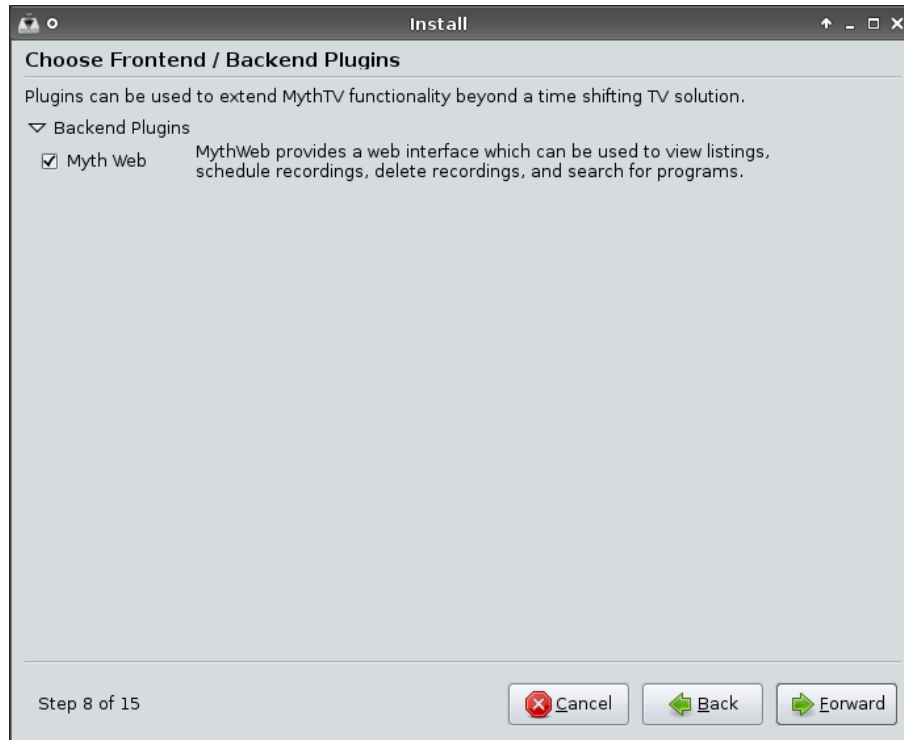


Figure 7.26: Step 8 of 15



You are now offered with the chance to choose the themes you require. Select your themes and click the *forward* button.

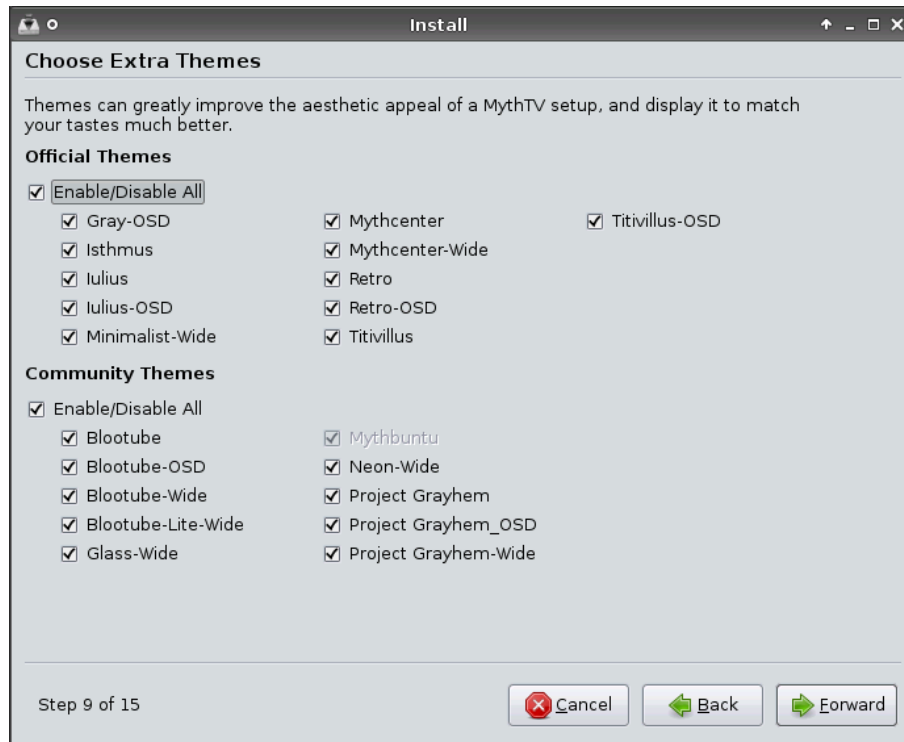


Figure 7.27: Step 9 of 15

You can now choose the additional services which you wish to have installed and configured to run here. Beside each option is a description of the service, select the ones you want and click the *forward* button. If your going to have remote backends/frontends then you need to enable the “MythtTV Service” so that they can connect.

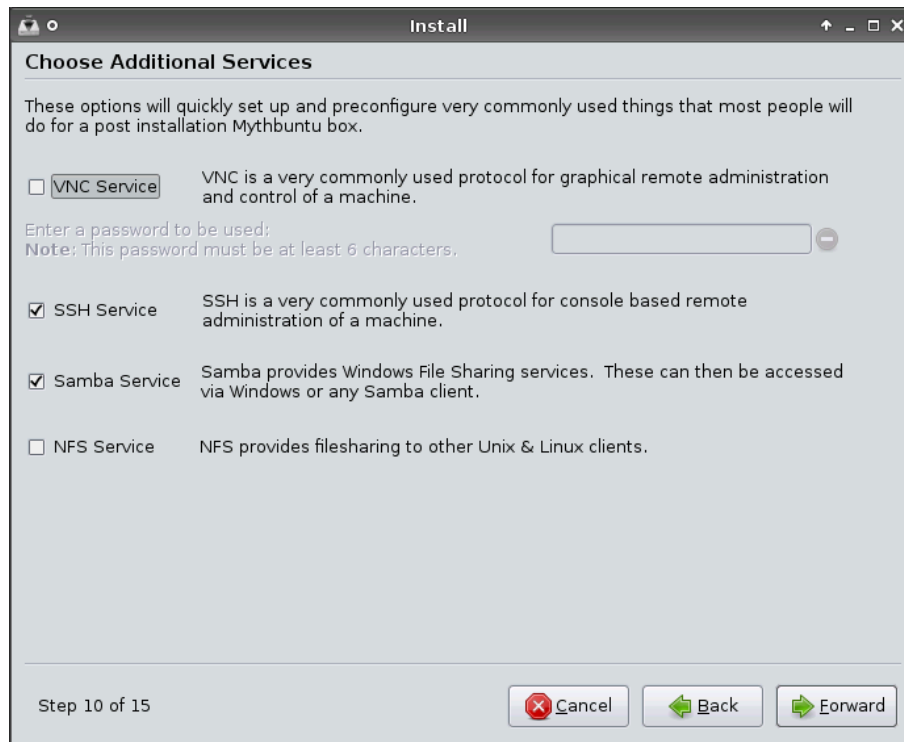


Figure 7.28: Step 10 of 15

Security. Its a advisable to set a password for the root account of your database. If you opted to install Myth Web you can also set a password here. Enter your passwords and click the *forward* button.



Figure 7.29: Step 11 of 15

The Silicon Dust HDHomerun Configuration Utility should be enabled if you wish to use your backend with HD Homerun. If your in USA or Canada you'll want to enable the *XMLTV guide data* option here to enable Schedules Direct to work.



Figure 7.30: Step 13 of 15

At this stage you can review the selection you've made, where if your unhappy with any of them you can return and change your choices. If your happy with the settings you've chosen, click on the *Install* button to install.

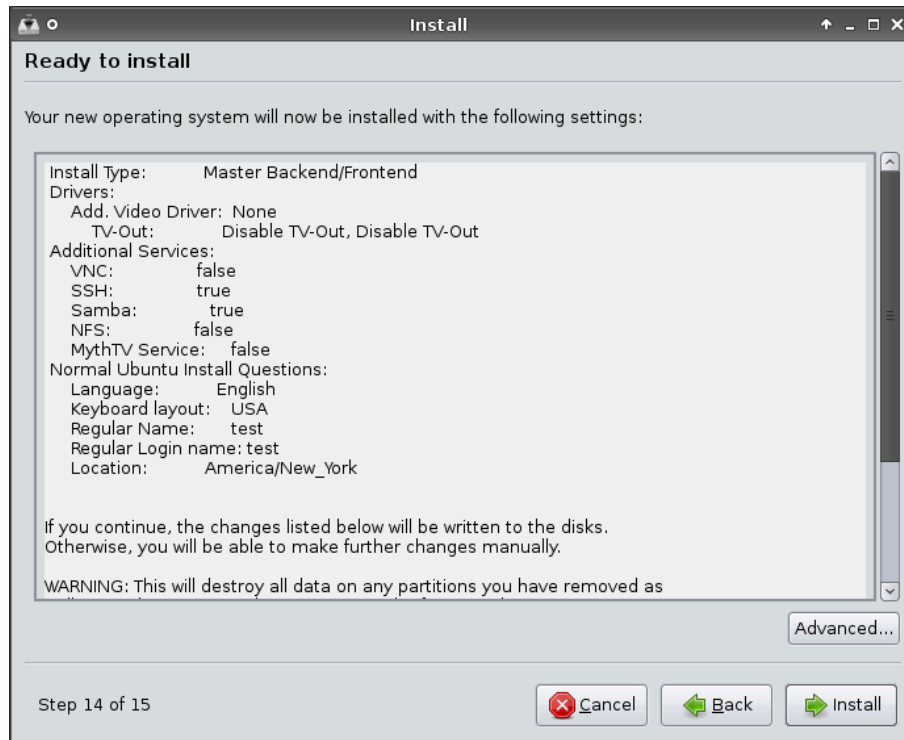


Figure 7.31: Step 14 of 15

**Note** The installer may appear to hang around 94%-95% however alot of packages are installed and setup in this stage which take a while

Once your installation has completed move along to Chapter 9

## 7.7 Secondary Backend

Select the **Secondary Backend** option and click on the *Forward* button

You are offered the choice of various Myth plugin's which can be installed, for a list of these and what they do please look at myth plugin reference section located at [17.1](#). Select the plugins you require and click the *forward* button.

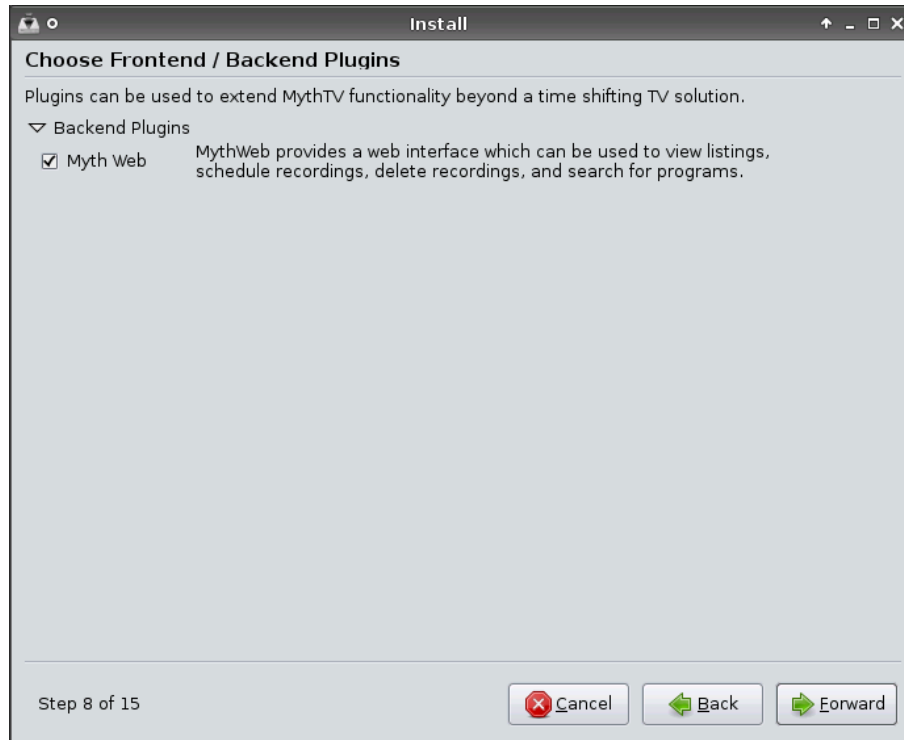


Figure 7.32: Step 8 of 15

You are now offered with the chance to choose the themes you require. Select your themes and click the *forward* button.

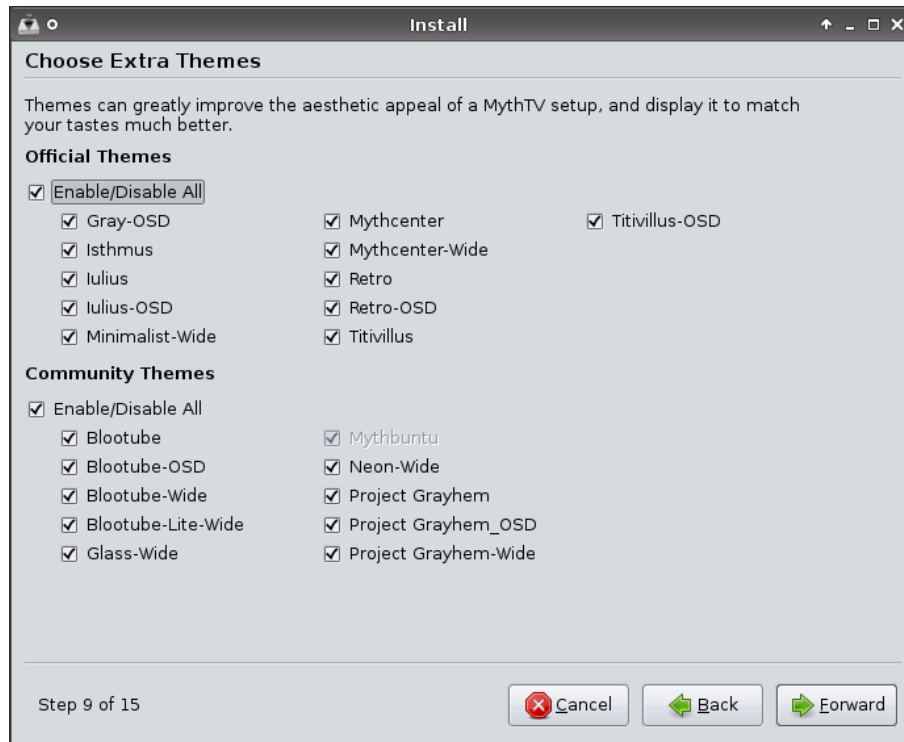


Figure 7.33: Step 9 of 15

You can now choose the additional services which you wish to have installed and configured to run here. Beside each option is a description of the service, select the ones you want and click the *forward* button.

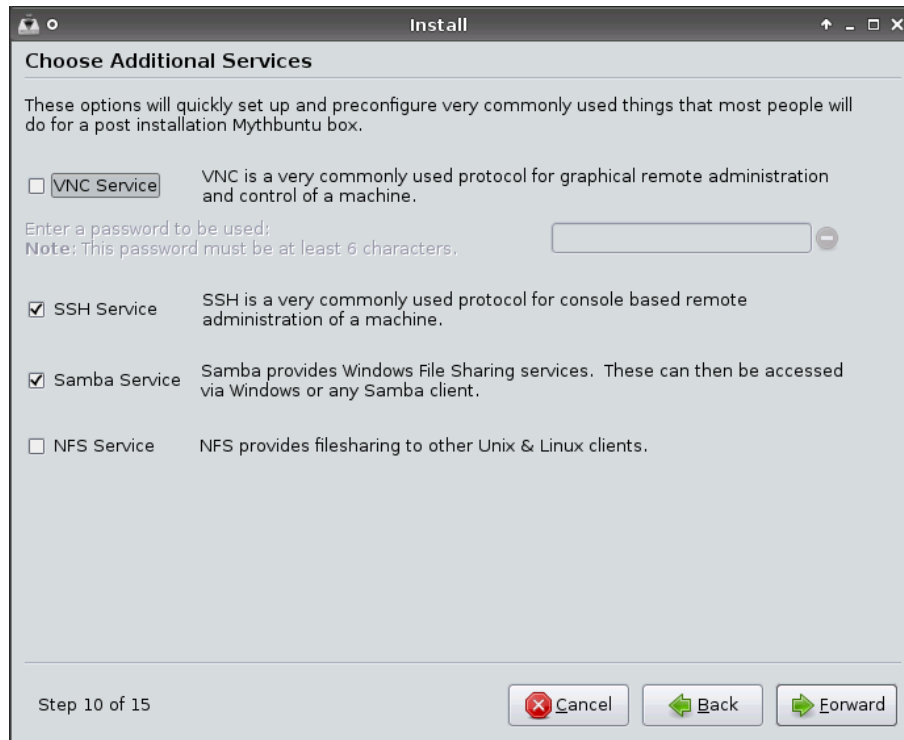


Figure 7.34: Step 10 of 15



Mythbackend connection information, this is where you enter the details to connect to your master backend, the MySQL server box should take an ip address or hostname of the backend. Once your details are entered test the connection to save problems later on. If you opted to install Myth Web you can also set a password here. Enter your passwords and click the *forward* button.



The screenshot shows a window titled "Install" with a standard Linux window header. The main content area is titled "MythTV Related Passwords". Under the "Master Backend Connection Information" section, there is explanatory text about the `mysql.txt` file and a checkbox for "Copy MySQL information from Live Environment". Below this are four input fields: "MySQL Server", "MySQL Database" (containing "mythconverg"), "MySQL User Name" (containing "mythtv"), and "MySQL Password". A "Test Connection" button is present next to the text "Please **Test** your connection to proceed." The "Mythweb Access Password" section includes text about security and a checkbox for "Set Mythweb Security". At the bottom, it says "Step 11 of 15" and has three buttons: "Cancel", "Back", and "Forward".

Figure 7.35: Step 11 of 15

The Silicon Dust HDHomerun Configuration Utility should be enabled if you wish to use your backend with HD Homerun. If your in USA or Canada you'll want to enable the *XMLTV guide data* option here to enable Schedules Direct to work.



Figure 7.36: Step 13 of 15

At this stage you can review the selection you've made, where if your unhappy with any of them you can return and change your choices. If your happy with the settings you've chosen, click on the *Install* button to install.

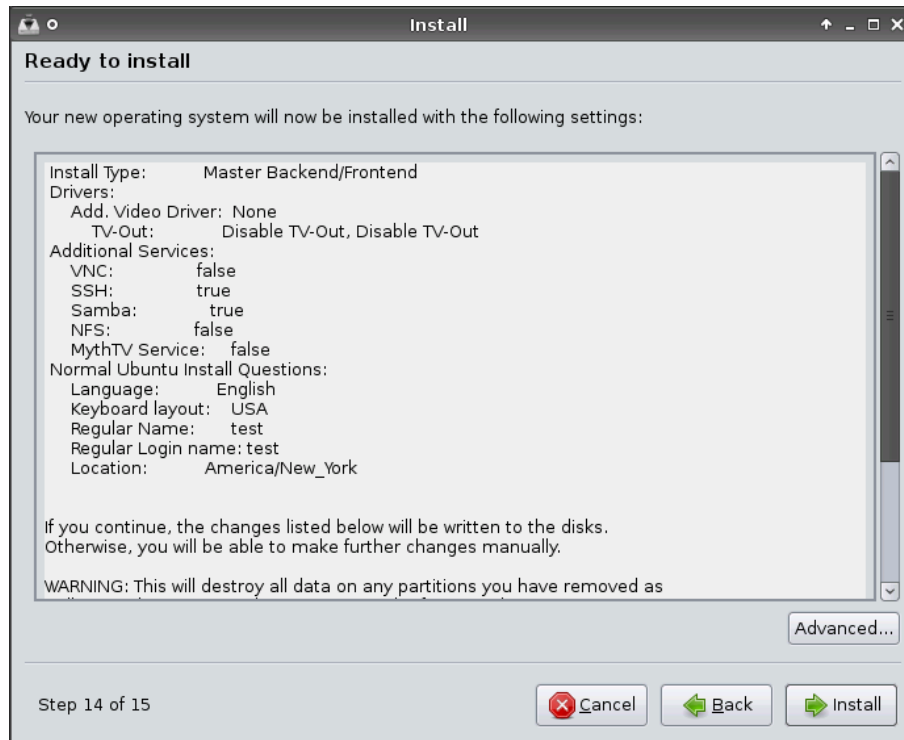


Figure 7.37: Step 14 of 15

**Note** The installer may appear to hang around 94%-95% however alot of packages are installed and setup in this stage which take a while

Once your installation has completed move along to Chapter 9

## 7.8 Frontend

Select the **Frontend** option and click on the *Forward* button

You are offered the choice of various Myth plugin's which can be installed, for a list of these and what they do please look at myth plugin reference section located at [17.1](#). Select the plugins you require and click the *forward* button.

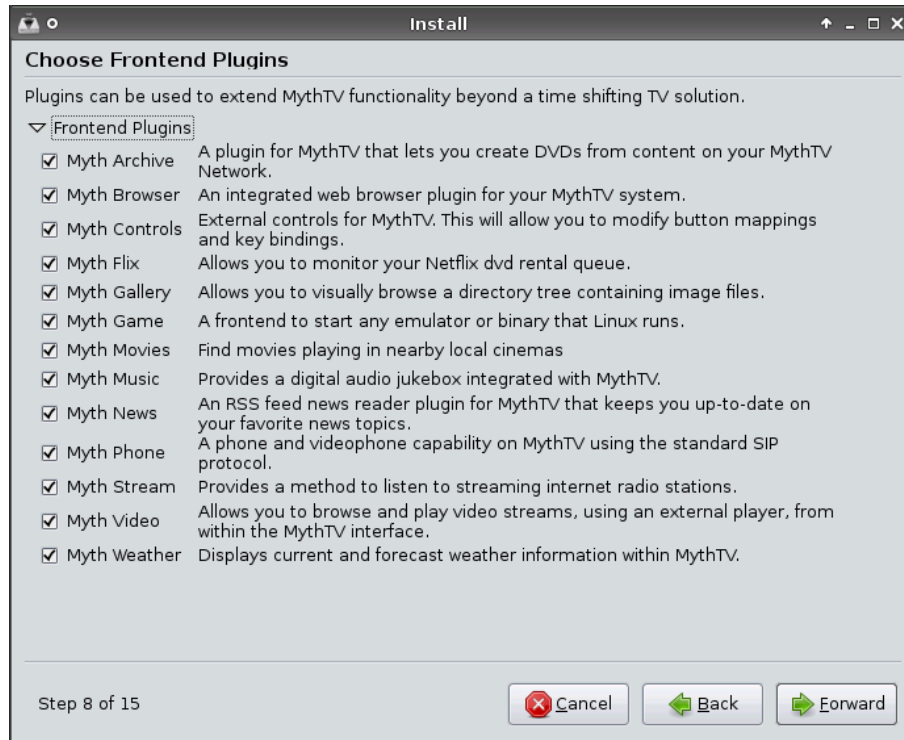


Figure 7.38: Step 8 of 15

You are now offered with the chance to choose the themes you require. Select your themes and click the *forward* button.



Figure 7.39: Step 9 of 15

You can now choose the additional services which you wish to have installed and configured to run here. Beside each option is a description of the service, select the ones you want and click the *forward* button.

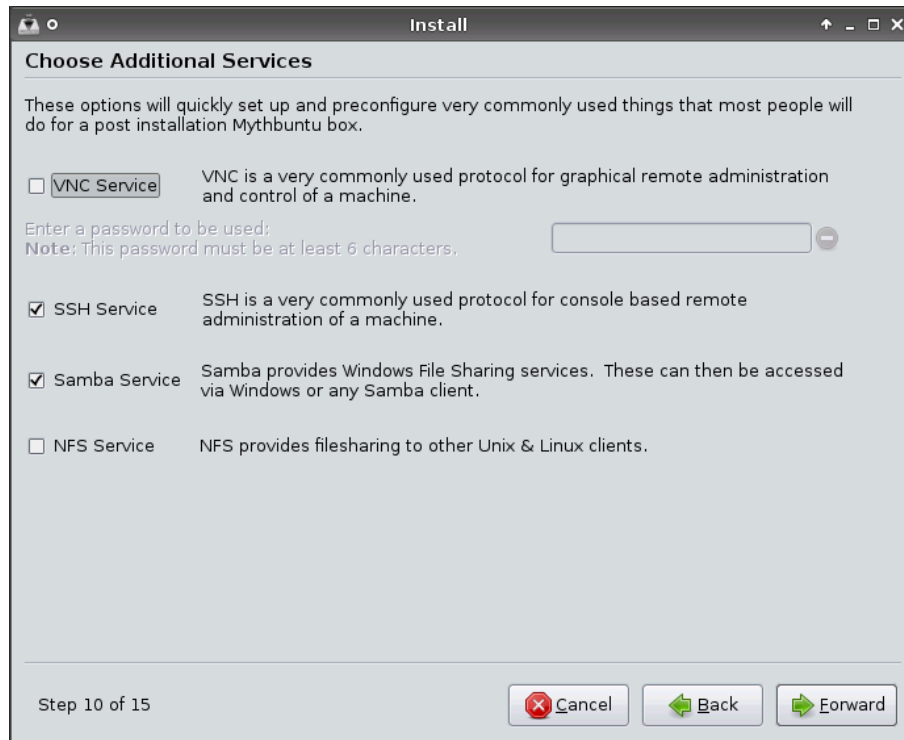


Figure 7.40: Step 10 of 15

Mythbackend connection information, this is where you enter the details to connect to your master backend, the MySQL server box should take an ip address or hostname of the backend. Once your details are entered test the connection to save problems later on.



Figure 7.41: Step 11 of 15

Mythbuntu is able to make use of any remote which is supported by the LIRC project, a list of them is available at <http://www.lirc.org/html/table.html>. If you wish to configure one then click on the **Enable a Remote Control** checkbox. This will provide a drop down menu to enable the selection of a supported remote. Upon selection the required fields are automatically filled in. However if your remote isn't listed you can either select **Other Remote** option and fill the required info in or file a bug at <https://bugs.launchpad.net/mythbuntu/+filebug> with details of the remote and we'll try and get it added for the future.

You can also enable an IR transmitter at this stage as well. Click on the **Enable an IR Transmitter** checkbox. This will provide a drop down menu to enable the selection of a supported blaster. Upon selection the required field should automatically be filled in.

When your satisfied with the options click on the *Forward* button.

Remotes which require extra work once mythbuntu is installed are:

- AppleTV remotes
- Remotes supported via dev/input

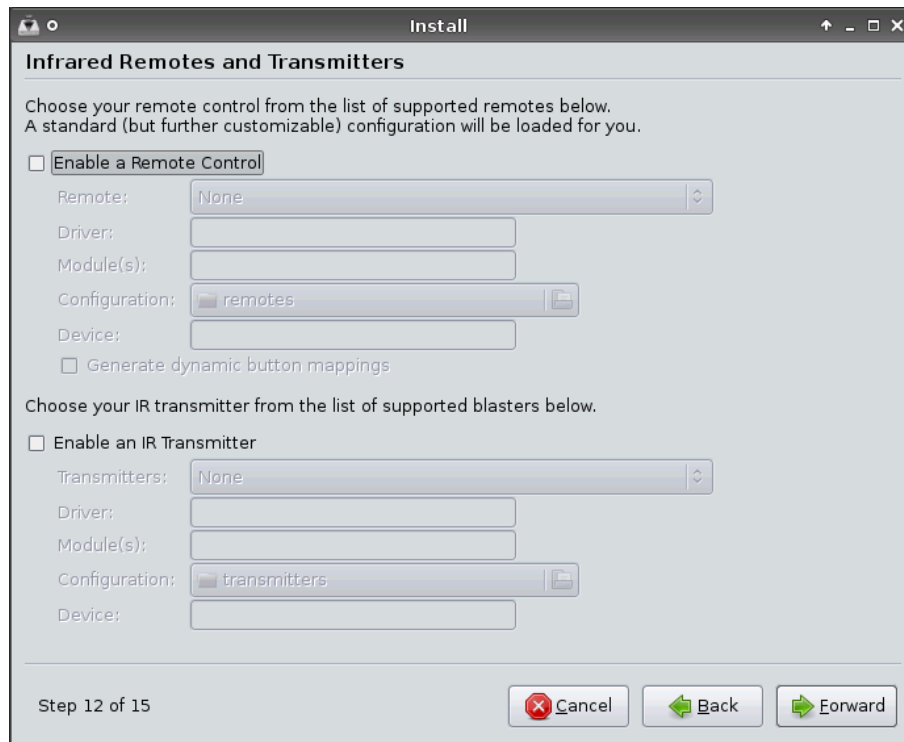


Figure 7.42: Step 12 of 15



Proprietary drivers can be enabled for your video cards here if you choose to use them. This is done by selecting *Modify Video Driver & Settings* and selecting the driver you wish to use. If you chose to enable the proprietary drivers then your now able to configure TV-OUT. Refer to the TV-OUT reference section 17.2 for more information as to the settings you'll likely require.

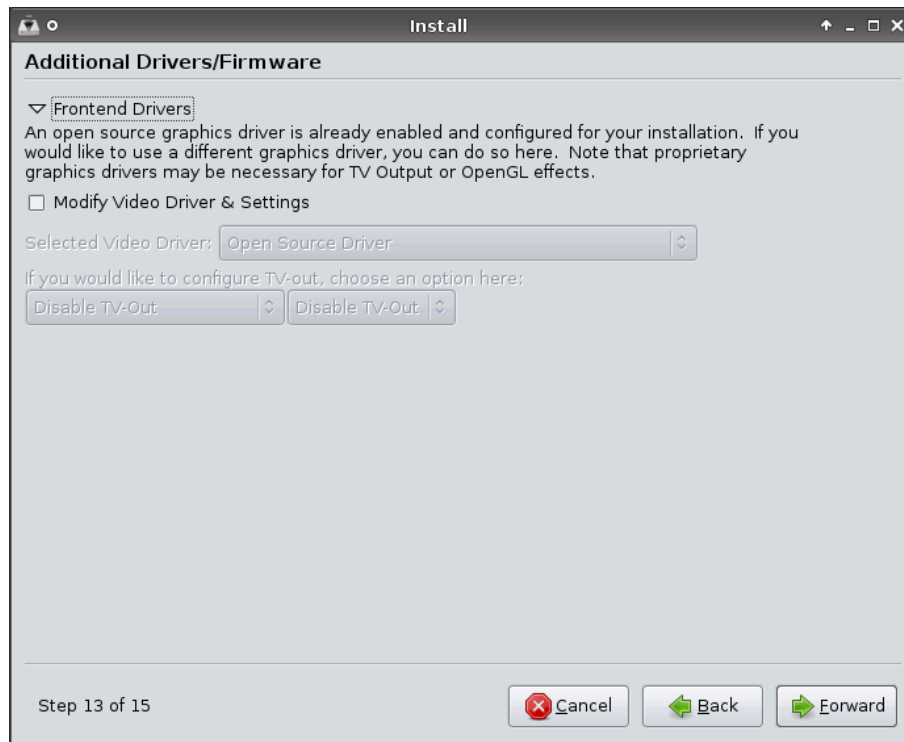


Figure 7.43: Step 13 of 15

At this stage you can review the selection you've made, where if your unhappy with any of them you can return and change your choices. If your happy with the settings you've chosen, click on the *Install* button to install.

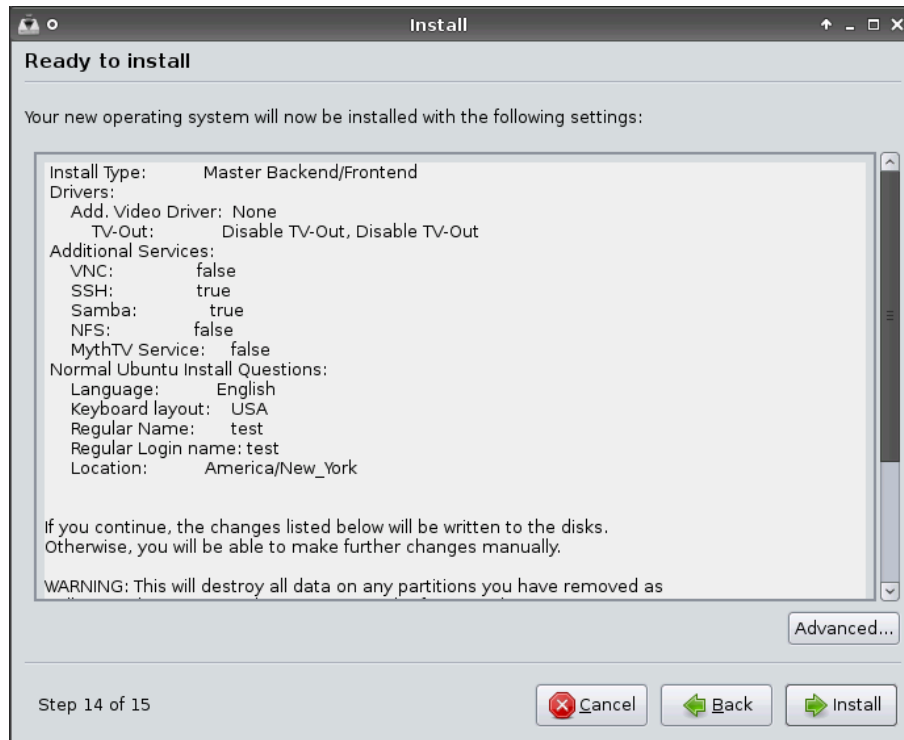


Figure 7.44: Step 14 of 15

**Note** The installer may appear to hang around 94%-95% however alot of packages are installed and setup in this stage which take a while

Once your installation has completed move along to Chapter 9

## Chapter 8

# Booting the Mythbuntu Alternate CD

In this chapter we will walk you through the booting from the Mythbuntu Alternate CD. If you haven't downloaded it yet you should visit now <http://www.mythbuntu.org/downloads> to download and burn it to a disc.

Once the ISO has been downloaded and burned to a disc, simply pop it into your CD-ROM drive with your BIOS set to boot from CD. You will be presented with a boot loader menu as shown in figure 8.1 From this screen you can either directly start the installer, or activate the diskless server task.



Figure 8.1: ISOLinux Boot Screen

If you would like to activate the diskless server task, press F4 and select **Install a Diskless Server**

## Chapter 9

# MythTV Backend Setup

### 9.1 Initial Configuration Page

The initial configuration page will present you with 5 options. *It is strongly recommended you follow these in order the first time you configure a backend installation.*



Figure 9.1: Initial configuration page

## 9.2 General

The general section is where you will set up the major information related to the master backend, job scheduling, and default locale information. It is setup in a sequential design with Back and Next buttons.

The first screen of the General configuration deals with IP addresses of the backend system that you're running mythtv-setup on. If you are setting up only one backend/frontend installation, then the default values are fine and you can move to the next page by pressing the enter. If you need to move around the screen, use the arrow keys to move focus between settings.

The default value shown on install will be 127.0.0.1, which is the internal loopback for the local machine. If you plan on deploying multiple backends, running mythweb from another computer, or if your backend is on one system and you're running the frontend on another machine then do not use the "127.0.0.1" IP address. Set this to the ip address of the backend as recognized by other machines on your network. If you are using a router on your network that only hands out dynamic addresses, you might consider setting up this machine with a static IP address instead.

*NOTE:* If you modify the 127.0.0.1 address and use a "real" IP address, you must use real IP addresses in both fields, otherwise your frontend machines will generate "Unexpected response to MYTH\_PROTO\_VERSION" errors.

*Changing any of the port settings is very strongly discouraged. (If you do accidentally change them, the defaults are 6543 for the master/backend server, and 6544 for the HTTP requests)*

Once you're satisfied with the values, move the focus down to Next and hit Enter.

**Host Address Backend Setup**

**Local Backend (flora)**

IP address: 127.0.0.1

Port: 6543 Status Port: 6544

Security Pin (Required):

**Master Backend**

IP address: 192.168.0.176

Port: 6543

Cancel < Back Next >

Figure 9.2: Host Address Backend Setup

The next screen details the Host-specific Backend setup. This is where you will set the specific directory path for this particular backend.

As long as you setup a separate partition for `/var/lib` during the initial setup, the default option here - `/var/lib/mythtv` will work fine. If you setup a different mount point or won't be recording with this machine, be sure to set this accordingly. (Also, if you used a non-default location, be sure and set the ownership and permissions to match `/var/lib/mythtv`.)

If for some reason you chose a file system other than XFS or JFS for this partition, choose to delete the files slowly. This will avoid some nasty bugs related to using ReiserFS or ext3.

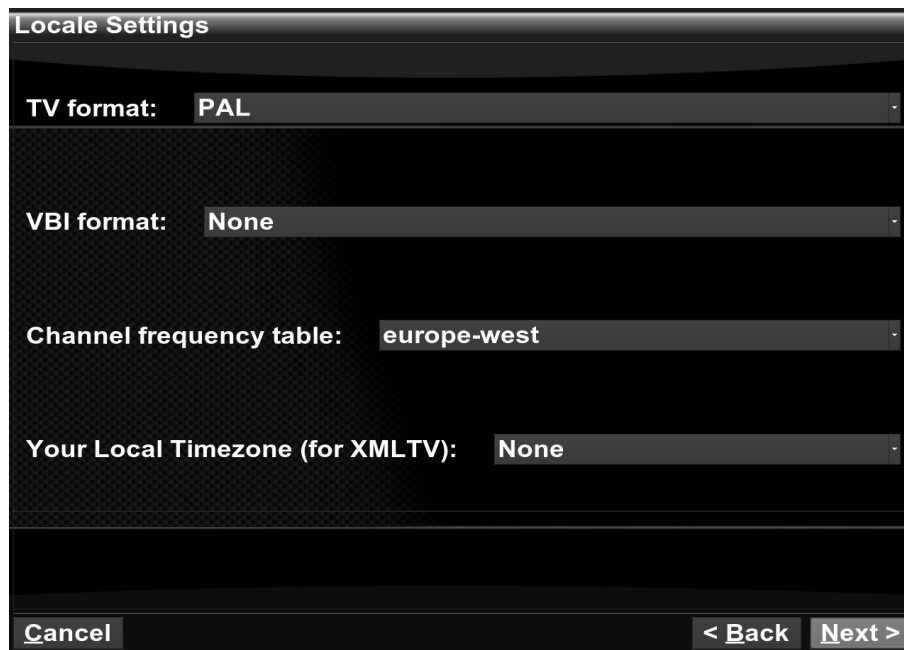


Figure 9.3: Host-specific Backend Setup

The Global Backend Setup screen will change settings that affect all backends.

Your TV standard should be determined based on your locale. US users should choose NTSC. European users should chose PAL

The VBI Format is used for closed captioning.

The channel frequency table is also based on your locale.

US and Canadian users using Schedules Direct can skip the time offset for xmltv listings. International users will need to set this appropriately so that their data matches up at the correct time.

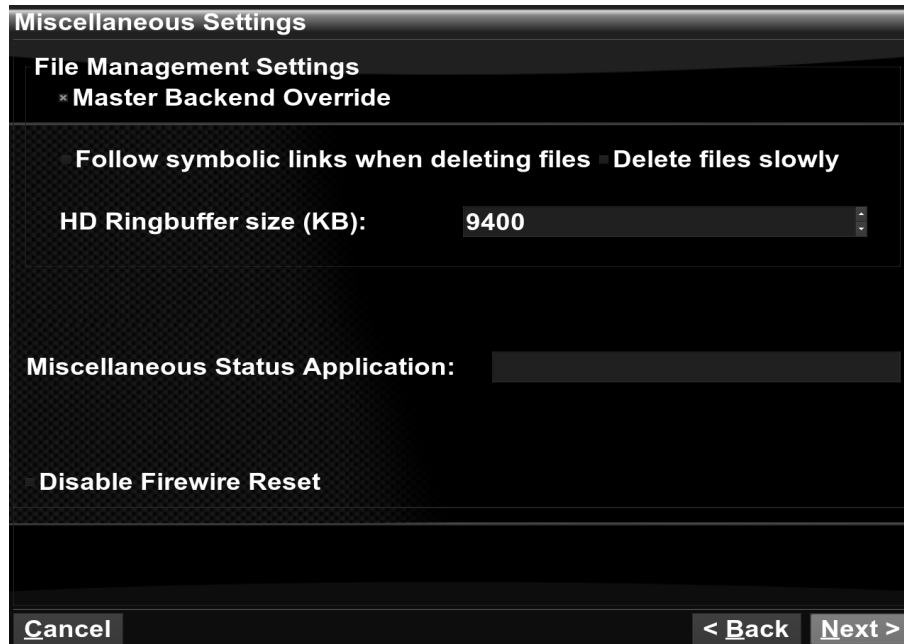
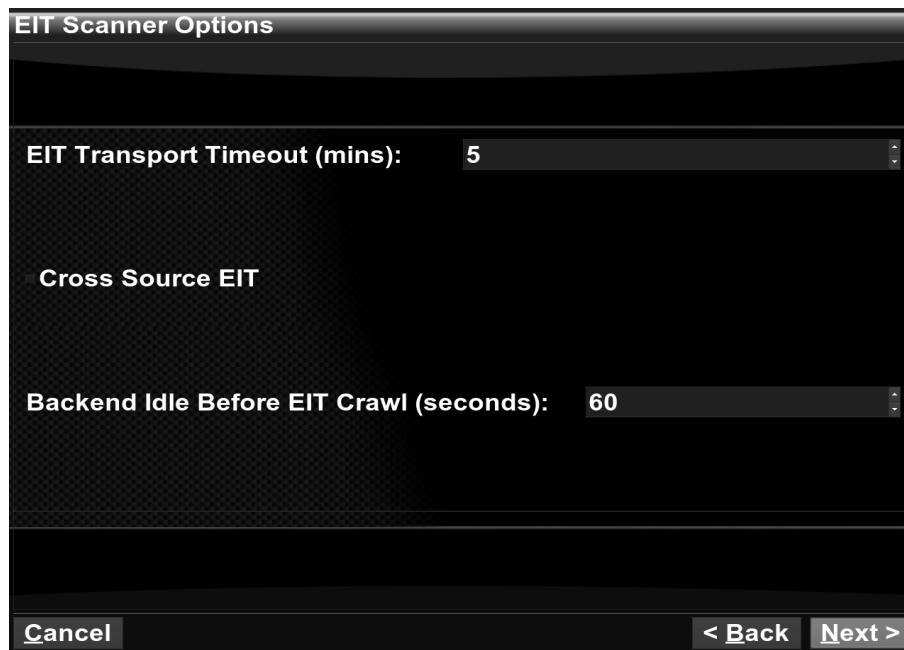


Figure 9.4: Global Backend Setup

The EIT scanner is used to gather data on the fly. If you have a DVB based source or a source providing this data, you will configure it here



The image shows a dark-themed dialog box titled "EIT Scanner Options". It contains three settings, each with a label and a numeric input field with up/down arrows:

- EIT Transport Timeout (mins):** The input field contains the value "5".
- Cross Source EIT**: This is a section header, not a setting.
- Backend Idle Before EIT Crawl (seconds):** The input field contains the value "60".

At the bottom of the dialog, there are three buttons: "Cancel" on the left, and "< Back" and "Next >" on the right.

Figure 9.5: EIT scanner



The Shutdown/Wakeup options are used for suspending or shutting down the backend server when it has been idle for the set limit. You can configure the master and/or secondary backend(s) to go into a sleep, suspend, or shutdown mode when not in use- depending on the capabilities of your motherboard.

There are different methods you can use to accomplish this. A tutorial on ACPI wakeup/shutdown can be found on the ACPIWake page <https://help.ubuntu.com/community/MythTV/Install/WhatNext/ACPIWake>. You should complete MythTV installation and ensure the backend is properly functioning before trying to set up this function.

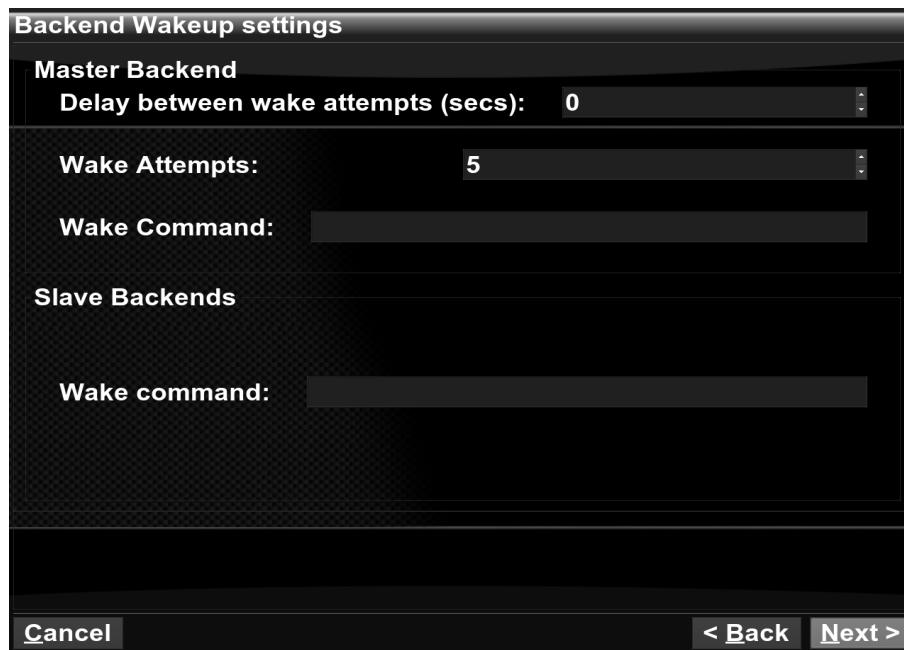


The screenshot shows a 'Shutdown/Wakeup Options' dialog box with a dark theme. It contains several configuration fields: 'Startup command:' (empty), a checked checkbox for 'Block shutdown before client connected', 'Idle shutdown timeout (secs):' set to 0, 'Max. wait for recording (min):' set to 15, 'Startup before rec. (secs):' set to 120, 'Wakeup time format:' set to 'hh:mm yyyy-MM-dd', 'Command to set Wakeup Time:' (empty), 'Server halt command:' set to 'sudo /sbin/halt -p', and 'Pre Shutdown check-command:' (empty). At the bottom are three buttons: 'Cancel', '< Back', and 'Next >'.

Shutdown/Wakeup Options	
Startup command:	
<input checked="" type="checkbox"/> Block shutdown before client connected	
Idle shutdown timeout (secs):	0
Max. wait for recording (min):	15
Startup before rec. (secs):	120
Wakeup time format:	hh:mm yyyy-MM-dd
Command to set Wakeup Time:	
Server halt command:	sudo /sbin/halt -p
Pre Shutdown check-command:	
Cancel      < Back      Next >	

Figure 9.6: Shutdown/Wakeup

WakeOnLan is another method of configuring secondary backends to wakeup. <https://help.ubuntu.com/community/WakeOnLan>



The image shows a 'Backend Wakeup settings' dialog box with a dark theme. It is divided into two main sections: 'Master Backend' and 'Slave Backends'. The 'Master Backend' section contains three settings: 'Delay between wake attempts (secs):' with a value of 0, 'Wake Attempts:' with a value of 5, and 'Wake Command:' with an empty text field. The 'Slave Backends' section contains a 'Wake command:' with an empty text field. At the bottom of the dialog, there are three buttons: 'Cancel', '< Back', and 'Next >'.

Backend Wakeup settings	
<b>Master Backend</b>	
Delay between wake attempts (secs):	0
Wake Attempts:	5
Wake Command:	
<b>Slave Backends</b>	
Wake command:	
Cancel      < Back      Next >	

Figure 9.7: Wake On Lan

The Host Specific Job Queue sets up the types of jobs that are allowed to run on this machine. If you have multiple backends, you can configure certain backends to only handle particular types of jobs. This is especially useful if some are much more underpowered than others.

It isn't recommended to have more than 2 simultaneous jobs running on any backend at any given time.

The default job queue frequency of 60 seconds is adequate and doesn't need to be changed typically.

Unless this backend is dedicated to only Transcoding/Commercial flagging jobs, don't change the CPU usage. Anything set higher than "Low" may jeopardize the ability to record programs due to being starved for IO/CPU usage.

**Job Queue (Backend-Specific)**

**Maximum simultaneous jobs on this backend:** 1

**Job Queue Check frequency (in seconds):** 60

**Job Queue Start Time:** 00:00

**Job Queue End Time:** 23:59

**CPU Usage:** Low

\* Allow Advert Detection jobs

\* Allow Transcoding jobs

Allow User Job #1 jobs

Allow User Job #2 jobs

Allow User Job #3 jobs

Allow User Job #4 jobs

Cancel < Back Next >

Figure 9.8: Job Queue - Host Specific

The Global Specific Job Queue sets up things affecting any and all backends on a mythtv network.

If you don't check "Run Jobs only on original recording host", each of the jobs will be evenly distributed against possible backends. This will lessen the load on each machine.

A decently powered backend with hardware encoding cards (1Ghz+) should be able to flag commercials at the same time as the recording is going. This helps if you ever plan to time shift your recording viewing by 10 or 20 minutes and want to have the commercials flagged as you watch.

Typically you won't want to run your transcode jobs before commercial flagging. The idea should be that you will flag commercials, verify they are right and manually queue them up to be transcoded and removed. If you have a particular reason to transcode first, check this box.

If you set up the backend to save the original files after transcoding, these will not be automatically deleted, but rather fill up your recordings directory with .old files. You will have to manually go in there and delete them to free up recording space as necessary.

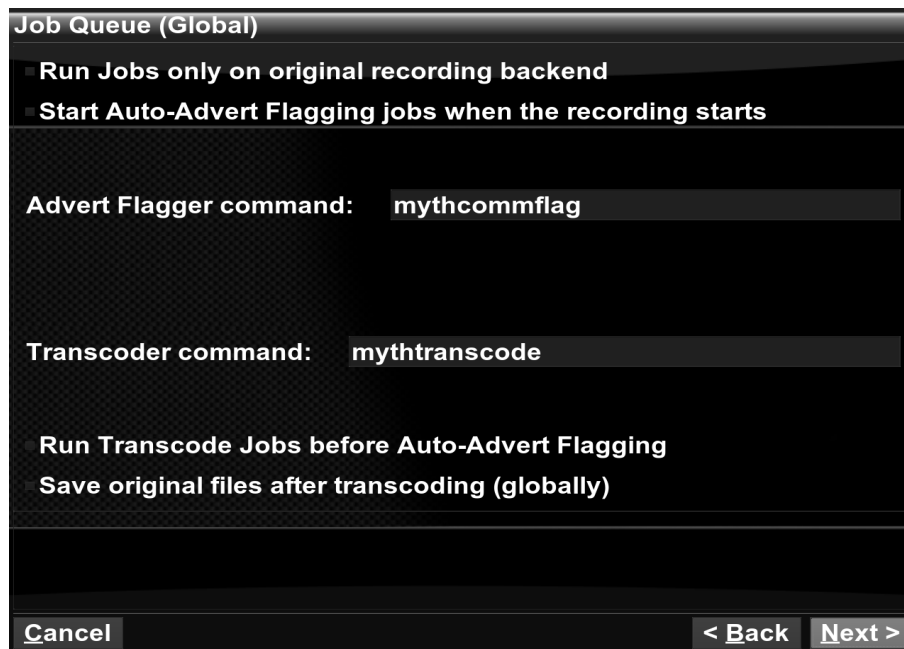


Figure 9.9: Job Queue - Global Specific

The Job Queue page provides an area to add your own scripts to perform on recordings.

Some ideas for additional things can range from scp'ing a recording somewhere, transcoding it to fit on an ipod and copying it to a directory, or running it through a denoising filter.



The screenshot shows a web interface titled "Job Queue (Job Commands)". It contains four rows of input fields for user-defined jobs. Each row has a "Description" field and a "Command" field. The first three rows are pre-filled with "User Job #1", "User Job #2", and "User Job #3" respectively. The fourth row is empty. At the bottom of the interface, there are three buttons: "Cancel", "< Back", and "Finish".

Job Queue (Job Commands)	
User Job #1 Description:	User Job #1
User Job #1 Command:	
User Job #2 Description:	User Job #2
User Job #2 Command:	
User Job #3 Description:	User Job #3
User Job #3 Command:	
User Job #4 Description:	User Job #4
User Job #4 Command:	

Cancel < Back Finish

Figure 9.10: Job Queue

## 9.3 Capture Cards

The capture cards section will list all capture cards setup locally on this backend.

The initial capture cards page will list all cards in this backend.

Choose “New Capture Card” to begin and add your tuner(s).

If you need to reset the order of the tuners recognized, you can either delete these capture cards, or all capture cards in the mythtv network from this screen.

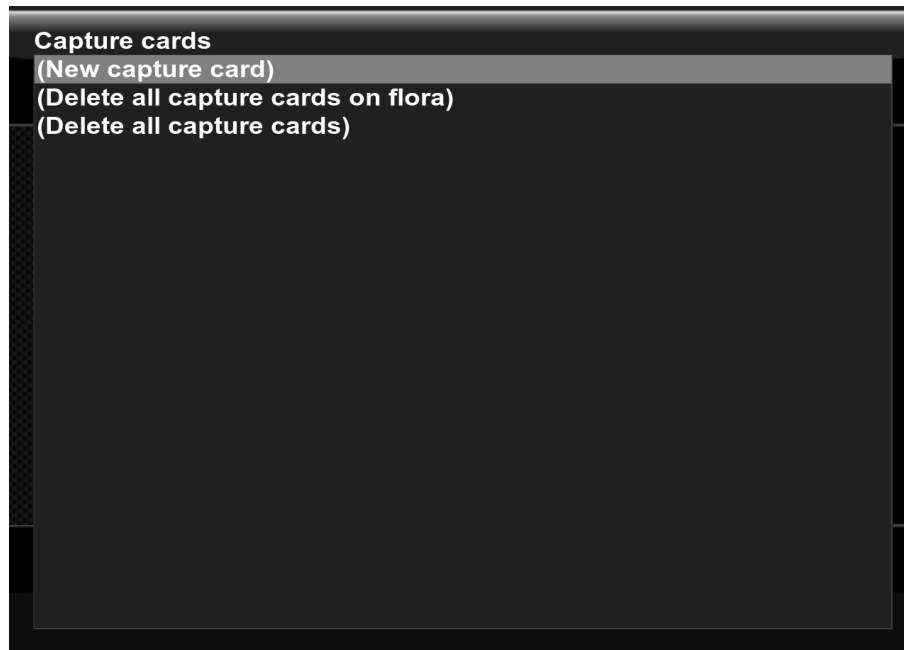


Figure 9.11: Capture Cards

When choosing a capture source, it's important to choose the correct type.

A very common error is when choosing the Hauppauge PVR Cards. There is an option for MPEG-2 Encoder Card (PVR-X50, PVR-500) as well as for standard V4L card. Be sure to choose the MPEG-2 encoder option here if you use a Hauppauge card.

Each of the different types of sources has several options available to it.

If you are confused about any of the options, see the mythtv documentation, mailing list, MythTV wiki [http://mythtv.org/wiki/index.php/Video\\_capture\\_card](http://mythtv.org/wiki/index.php/Video_capture_card), or LinuxTV wiki <http://linuxtv.org/v4lwiki/>.

If you are configuring a firewire connection, settings can be found on the MythTV Firewire Page [https://help.ubuntu.com/community/MythTV\\_Firewire](https://help.ubuntu.com/community/MythTV_Firewire).

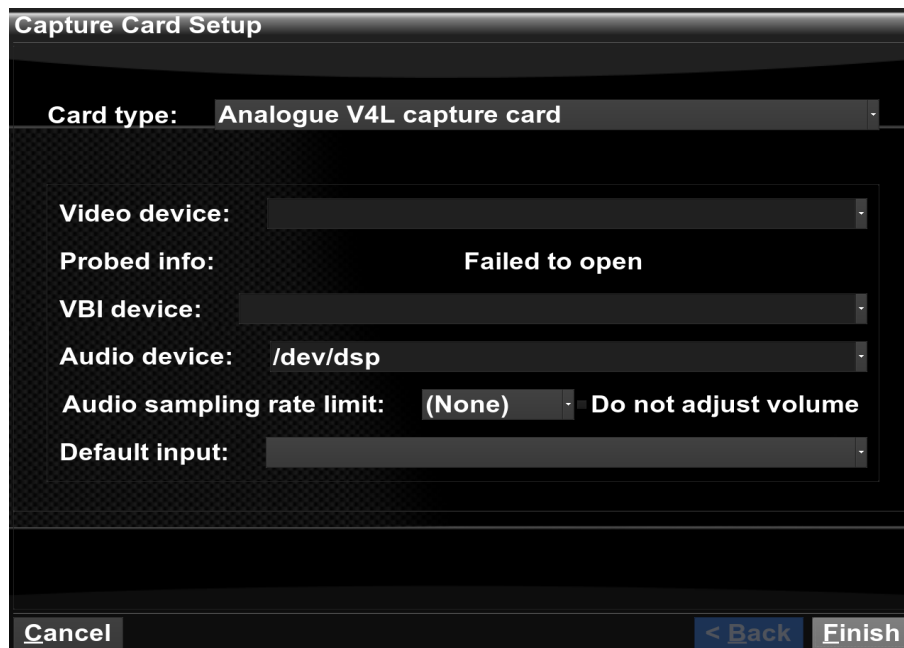


Figure 9.12: Capture Card Setup

## 9.4 Video Sources

Video sources section will list all video sources in use for the mythtv database. The video sources will be configured to connect to the listing service you are using such as Data-Direct, XMLTV, EIT. Select “New video source” as shown below.



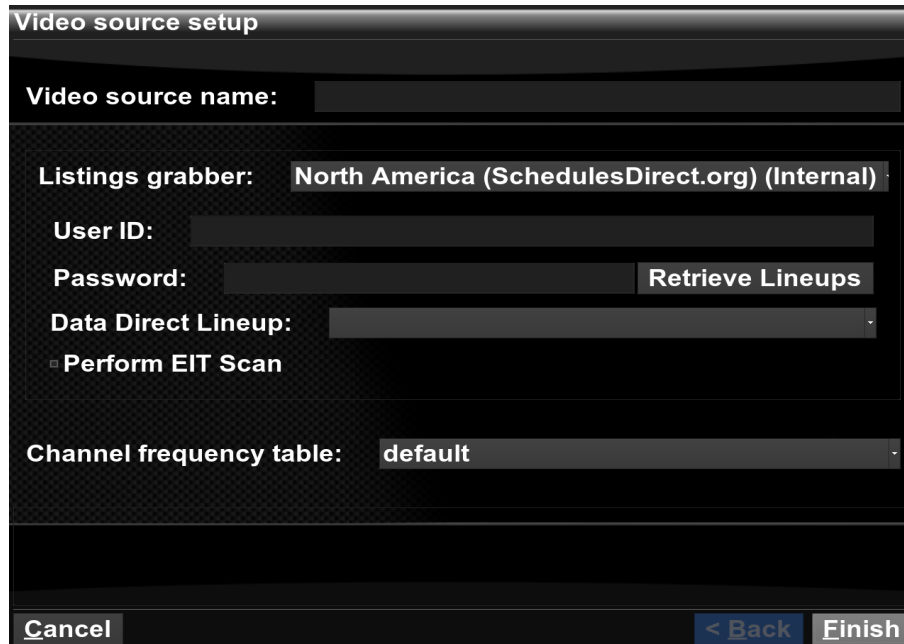
Figure 9.13: Video Source Setup



Provide your video source with a logical name into the “Video source name” text area. Its a good idea to provide detail now, because later you may end up adding more tuners, digital cable, satellite, etc.

For the “XMLTV listings grabber” choose Data-Direct for North America or XMLTV for elsewhere. For Schedules Direct, enter the username and password you obtained during Schedules Direct registration. Retrieve the lineup and choose your option.

If the “Channel frequency table” needs changing for a different frequency then set it here.



The screenshot shows a "Video source setup" dialog box with a dark theme. It contains several input fields and buttons. The "Video source name" field is at the top. Below it is the "Listings grabber" dropdown menu, which is set to "North America (SchedulesDirect.org) (Internal)". Under this, there are fields for "User ID" and "Password", followed by a "Retrieve Lineups" button. Below the password field is a "Data Direct Lineup" dropdown menu. There is a checkbox labeled "Perform EIT Scan". At the bottom of the main area is a "Channel frequency table" dropdown menu, currently set to "default". At the very bottom of the dialog are three buttons: "Cancel", "< Back", and "Finish".

Figure 9.14: Video Source Setup

## 9.5 Input Connections

The input connections page allows you assign any Video Sources to Inputs on your capture sources before. Choose the particular input you will need to assign and press enter.

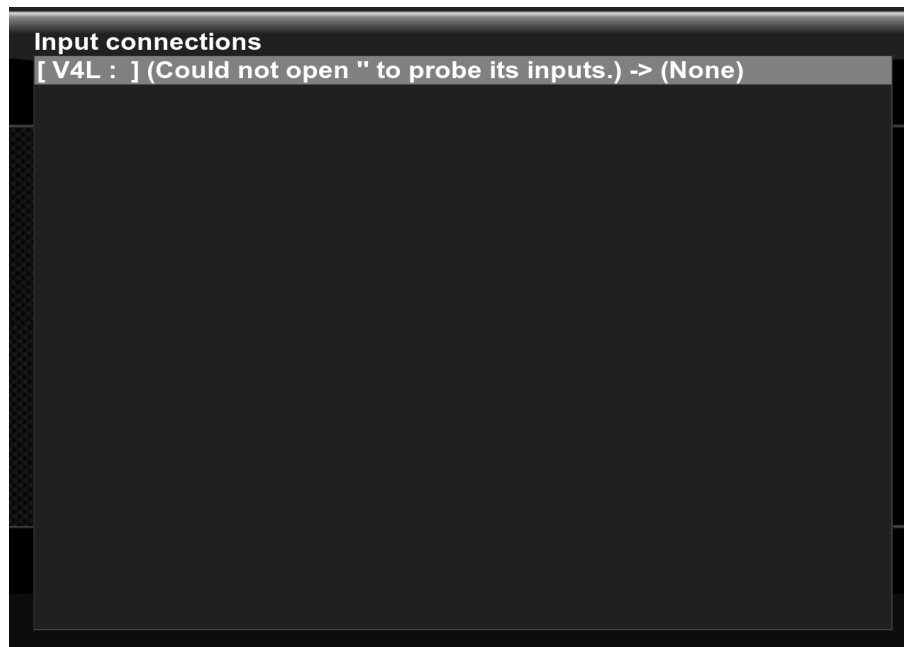


Figure 9.15: Video Input Setup

Again, it's a good idea to provide a name for your Input here. Later on, if you have a tuner not working, it's easier to debug if it says "Digital Cable" in the frontend and then doesn't work. Choose the Video source associated with the input in the "Video source". If you need to use an external channel changer script (firewire, serial, IR), you will need to enter the name of the binary/script that needs to be launched here. See [https://help.ubuntu.com/community/MythTV\\_External\\_Channel\\_Changer](https://help.ubuntu.com/community/MythTV_External_Channel_Changer) for more information.

If you are using a static channel listing, fetch channels from your listings source via "Fetch channels from listings source". If you are using something that scans on the fly via EIT or OTA HD, scan for the initial channels by selecting "Scan for channels".

**Connect source to input**

**Capture device:** [ V4L : ]

**Input:** Could not open " to probe its inputs.

**Display Name (optional):**

**Video source:** (None)

**External channel change command:**

**Preset tuner to channel:**

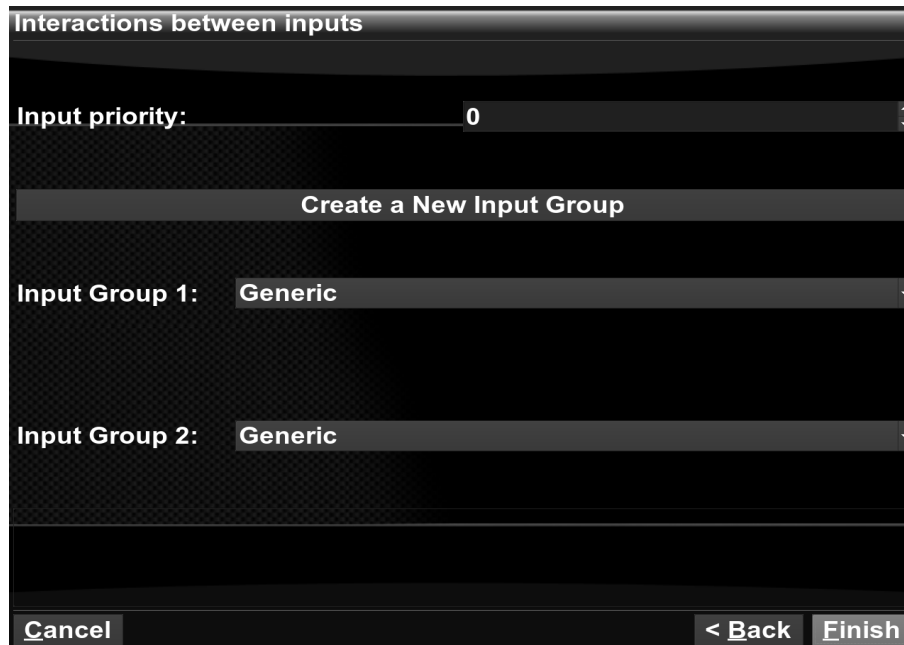
**Scan for channels** **Fetch channels from listings source**

**Starting channel:**

**Cancel** **< Back** **Next >**

Figure 9.16: Video Input Setup

You can assign the priority you wish to have for the card. These enables you to prefer certain tunner cards over others, for instance to prefer DVB-T over DVB-S when both can record the same show. Input groups can also be created to provide a way to manage groups of cards, such as all DVB-T cards and all DVB-S cards.



The screenshot shows a dialog box titled "Interactions between inputs". It has a dark background with a grid pattern. The first section is "Input priority:" with a dropdown menu showing the value "0". Below this is a button labeled "Create a New Input Group". The next section is "Input Group 1:" with a dropdown menu showing the value "Generic". Below this is "Input Group 2:" with a dropdown menu showing the value "Generic". At the bottom, there are three buttons: "Cancel", "< Back", and "Finish".

Figure 9.17: Video Input Setup

## 9.6 Channel Editor

**Warning** *The delete channels button deletes **ALL** channels. If you want to delete just one, choose it in the list and press the delete key.*

The channel editor isn't necessary for the initial setup. You can safely ignore it for now, but remember to come here if you need to modify transports, change channel numbers, or delete channels.

The listing of all channels is on the top half of the screen. If you need to repeat a scan for any sources already setup, you can preform this via "Channel Scanner".

If your DVB trasports are messed up, you can adjust them in the Transport Editor via "Transport Editor".

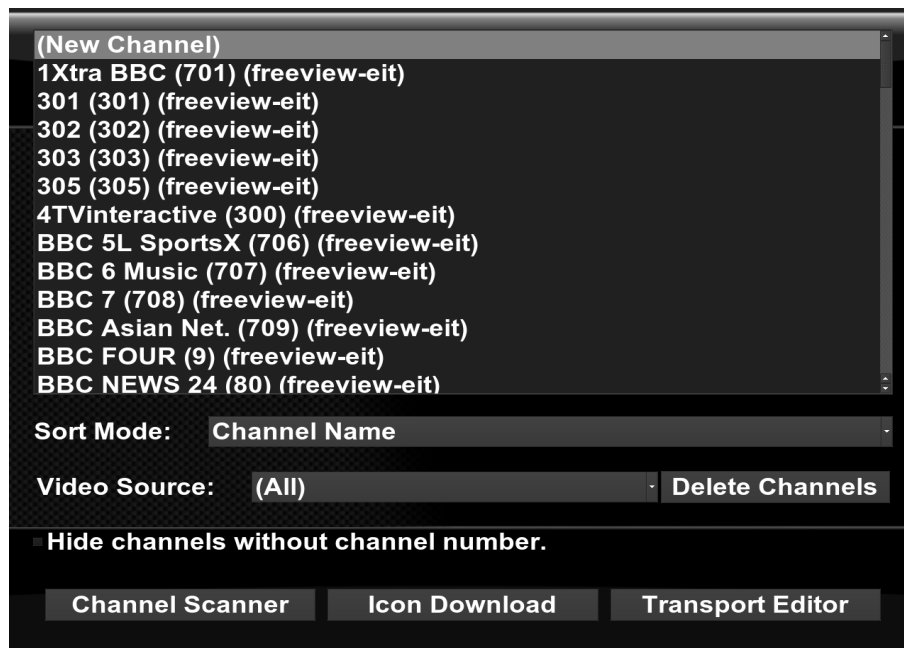


Figure 9.18: Channel Editor

Storage groups can be created which allows for recordings to be spread out across different disks. This allows you to avoid the use of LVM or raid arrays. You simply define the storage groups you require. Then when you setup the recording rule you have an option for which storage group to write to. It's also possible to define storage groups for the automatic database backup and live TV.



Figure 9.19: Storage Groups

Once you've chosen to create or edit a storage group you're presented with a screen similar to the one below. This allows you to add, edit and delete directories within this group.



Figure 9.20: Storage Groups

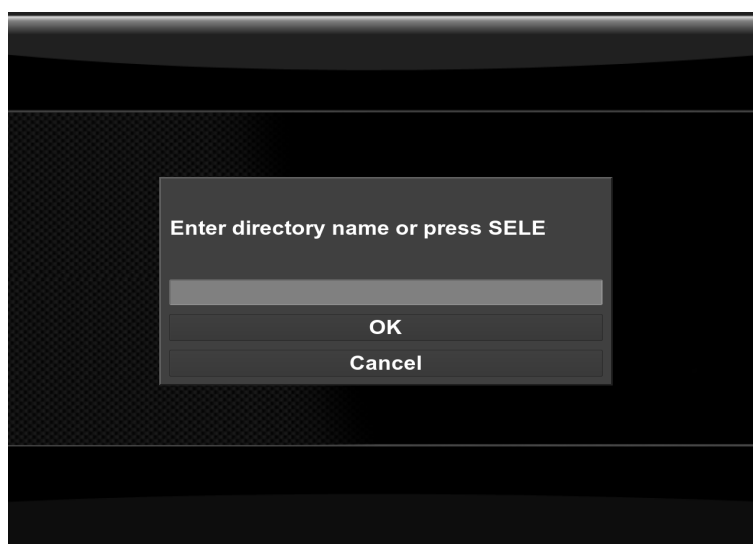


Figure 9.21: Storage Groups

## Chapter 10

# Mythbuntu Control Center (MCC)

The Mythbuntu Control Centre is the main area for configuring different items within Mythbuntu. It strives to prevent having to use the command line to reconfigure items. Instead, an easy to use pyGTK interface is provided.

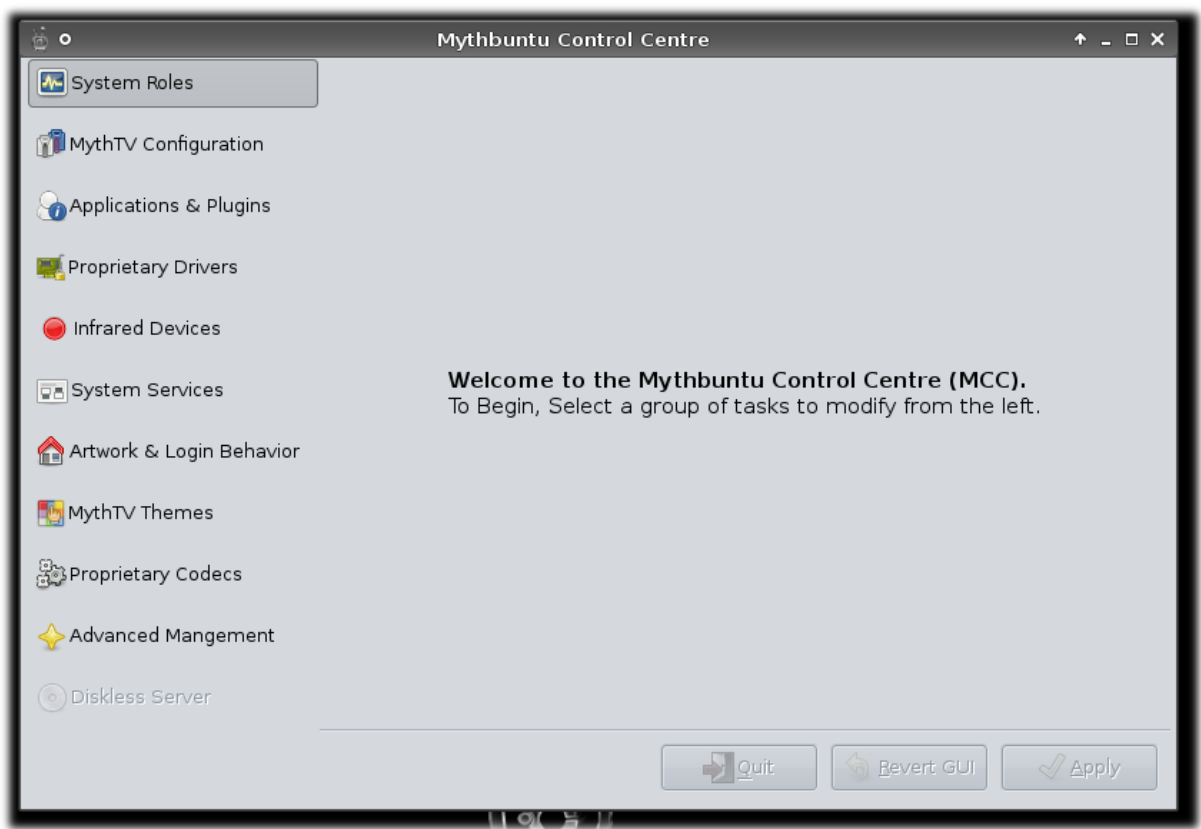


Figure 10.1: MCC Main Screen



## 10.1 Starting MCC

There are three ways to launch the Mythbuntu Control Centre. Depending on what your goal of the interaction and your current system setup is will depend on the way you decide to launch it.

### 10.1.1 Inside MythTV

If you have a MythTV frontend running, you can access the control centre by Choosing **Utilities/Setup, Setup, Mythbuntu**. MCC will request you to enter your user password, and then will launch on top of MythTV frontend. If you accidentally click outside the MCC window, simply press *alt-tab* to switch back to MCC.



Figure 10.2: Starting MCC From MythTV

### 10.1.2 From Xfce

Mythbuntu uses the Xfce desktop. All applications are directly available from an Applications menu at the top left corner of the screen. To get to the Xfce desktop, you will need to quit MythTV Frontend. Choose the **Applications** Menu, and then **System**. MCC will be an item listed in this menu.

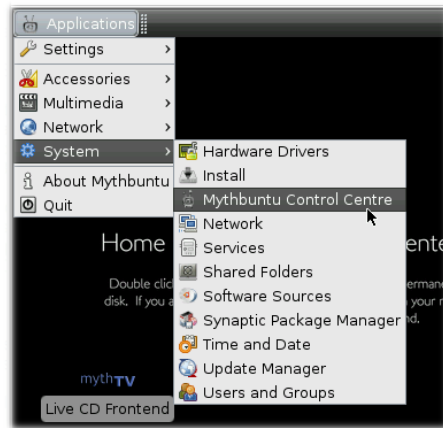


Figure 10.3: Starting MCC From Xfce

### 10.1.3 From Gnome

If you have installed from an Ubuntu desktop, or added an Ubuntu desktop to your Mythbuntu system, you will be able to access MCC from your gnome menu system. Simply click the **System** menu, and choose **Administration**. MCC will be one of the menu items listed in this menu.



Figure 10.4: Starting MCC From Gnome

## 10.2 Using MCC

As previously discussed, MCC attempts to provide an easy to use interface for reconfiguring all important items on a Mythbuntu system. The interface is broken up into logical groups of items. Each item is discussed in detail below.

### 10.2.1 System Roles

The *System Roles* tab is used to determine what type of box you have configured.

- **Primary Backend:** All MythTV setups must have a single Primary Backend. All backends and frontends will connect to this machine.
- **Secondary Backend:** Secondary backends are useful to expand the power of a MythTV network by harnessing additional power from more machines.

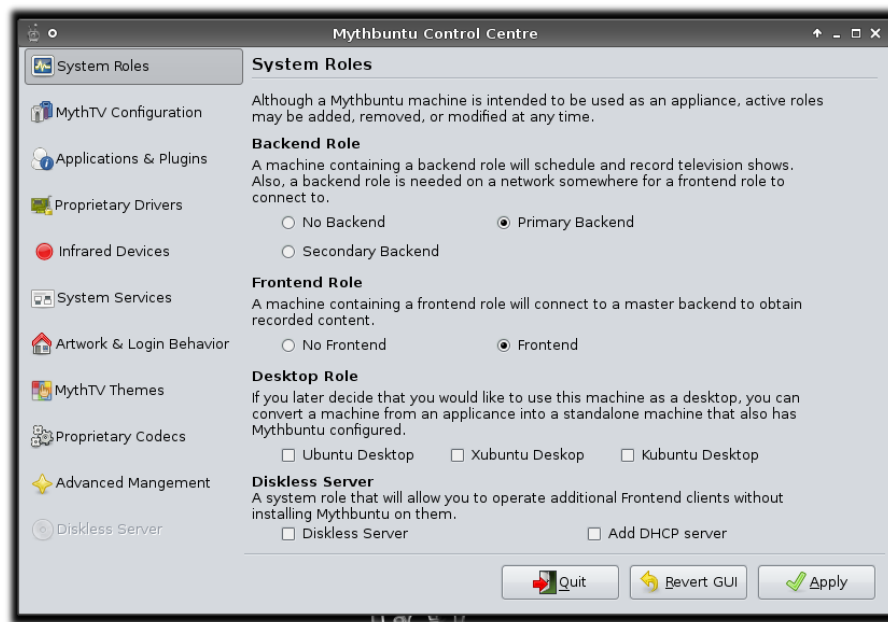


Figure 10.5: MCC System Roles Tab

- **Frontend:** Frontends are used to view any content recorded on a MythTV network.
- **Desktop:** If you decide that you would like to use this machine as a normal desktop at any time, you can add as many desktop roles as desired.

A **Standard** Mythbuntu installation will have a *Primary Backend*, and *Frontend* role installed. If at any time you decide that you would like to change the behavior of the box to add or remove functional roles, you can do so here. After installing a Secondary Backend or Frontend role, you will want to update the information listed on the MythTV Configuration tab [10.2.2](#).

**NOTE:** You must apply changes to the System Roles tab before proceeding to modify other tabs. If you try to switch to another tab without applying, you will be forced to revert changes or apply them at that time.

## 10.2.2 MythTV Configuration

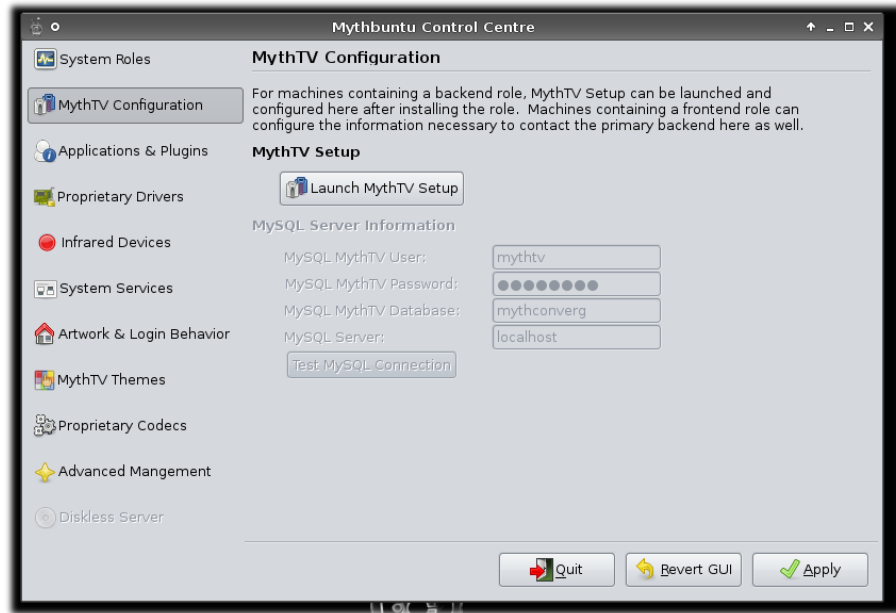


Figure 10.6: MCC MythTV Configuration Tab

The *MythTV configuration* tab has different purposes depending on which role(s) you have installed. If you have either a **Primary** or **Secondary** backend role installed, you will be able to launch MythTV Setup from here to reconfigure backend specific items.

If you have any Mythbuntu roles other than a **Primary Backend**, you will be able to reconfigure any MySQL information used for contacting the **Primary Backend**. This information can be found on your **Primary Backend** under the file `/etc/mythtv/mysql.txt`. Before applying the changes, be sure to test your MySQL connection.

### 10.2.3 Applications and Plugins

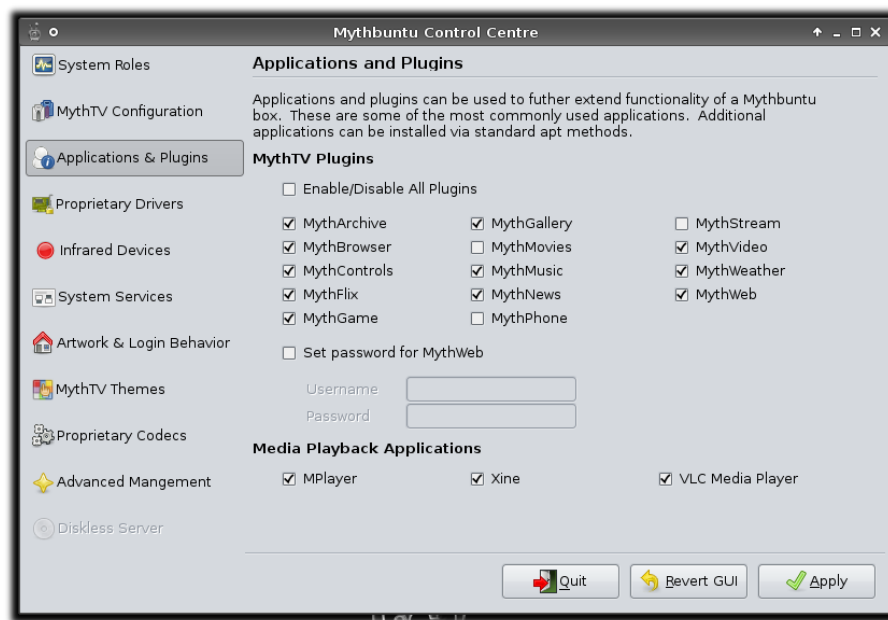


Figure 10.7: MCC Applications and Plugins Tab

The *Applications and Plugins* tab can be used to install all available MythTV plugins as well as applications that are well paired with them. You can also enable or disable a password for Mythweb on this page.

The following plugins are installable:

1. Mytharchive
2. Mythbrowser
3. Mythcontrols
4. Mythdvd
5. Mythflix
6. Mythgame
7. Mythgallery
8. Mythmusic
9. Mythnews
10. Mythphone
11. Mythstream
12. Mythvideo
13. Mythweather
14. Mythweb

The following applications are installable:

1. Mplayer
2. Xine
3. VLC

**NOTE:** Plugins may or may not be greyed out. If a plugin is greyed out, this is because it isn't applicable to the chosen role.

### 10.2.4 Proprietary Drivers

Proprietary drivers provide enhanced performance for video playback and allow for OpenGL effects within the MythTV menus. To install a proprietary driver, you can open up Restricted Manager.

Depending on which proprietary driver is installed, one of the buttons for configuration of your particular graphics card will be available. You can modify the tv out settings using the configuration utility here.

Also in this area you can modify which resolutions are available by modifying your monitor type.

### 10.2.5 Remote Control

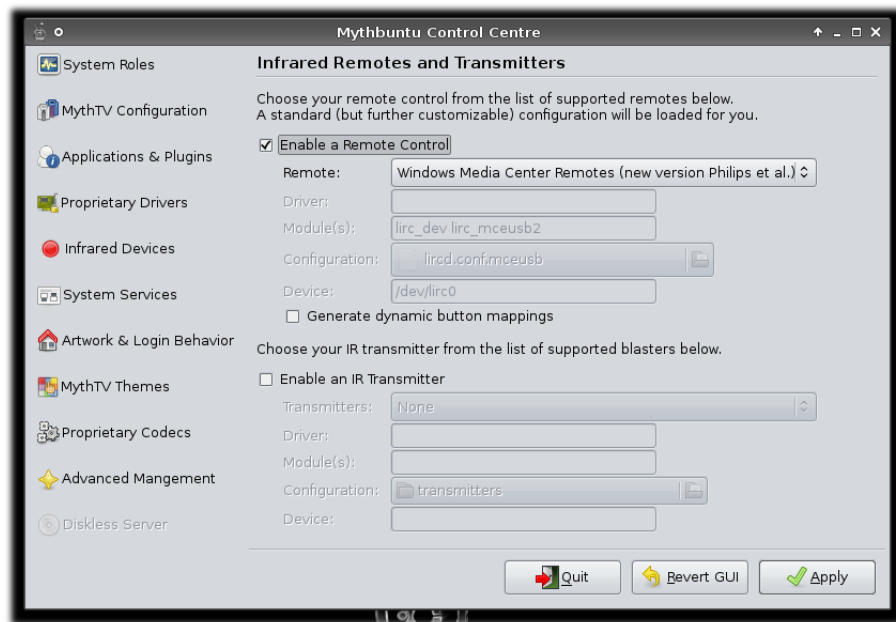


Figure 10.8: MCC Remote Control Tab

### 10.2.6 System Services

### 10.2.7 Artwork and Login Behavior

### 10.2.8 Proprietary Codecs

### 10.2.9 Advanced Management

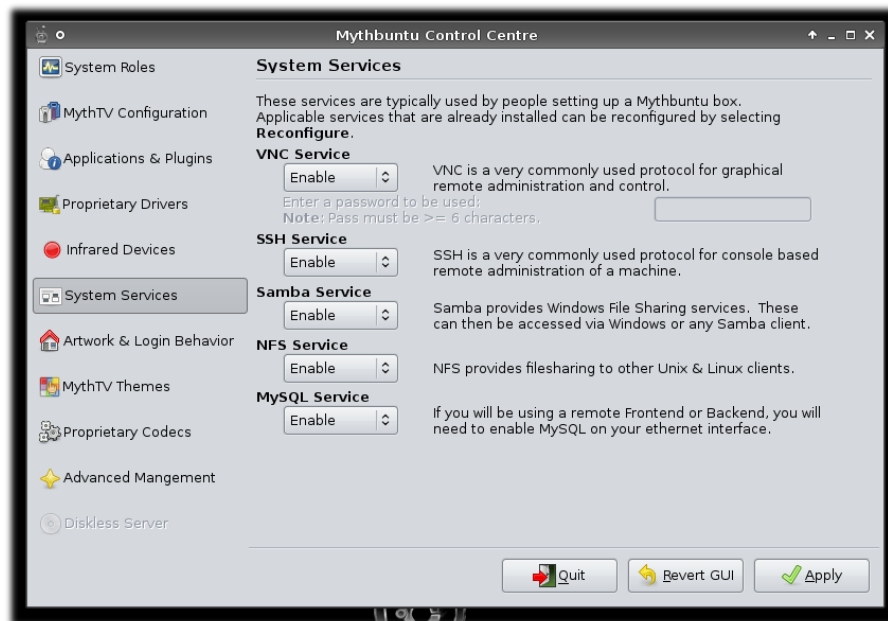


Figure 10.9: MCC Services Tab

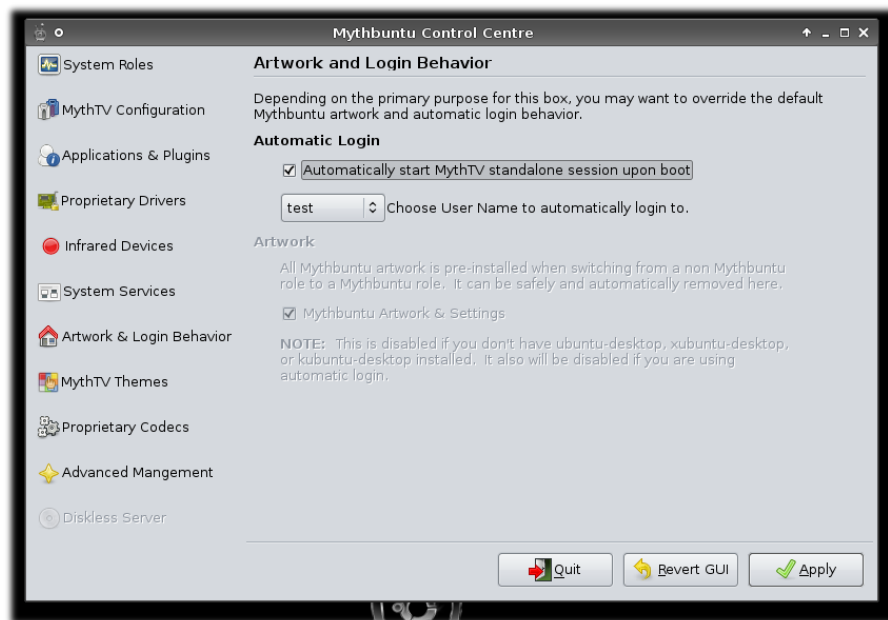


Figure 10.10: MCC Artwork and Login Tab

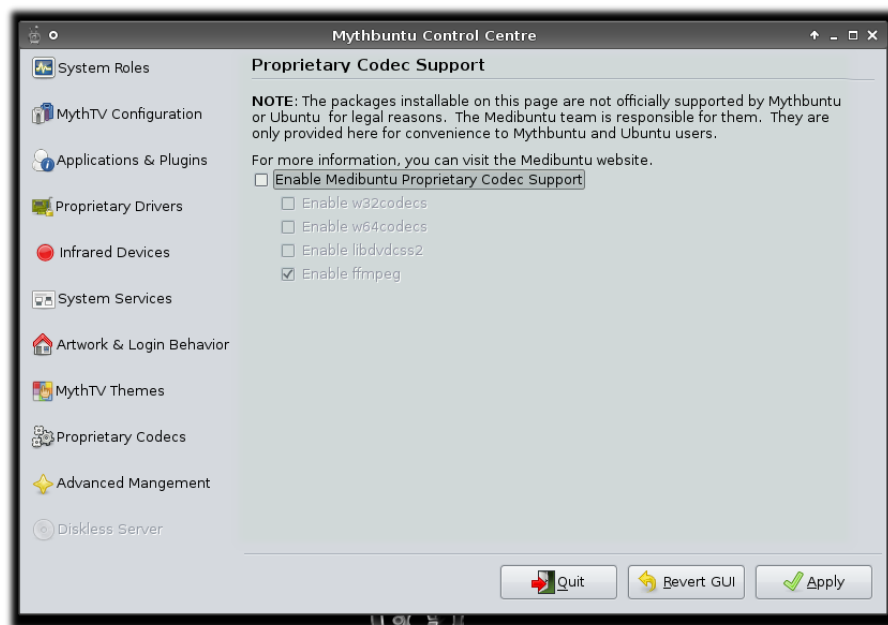


Figure 10.11: MCC Proprietary Codecs Tab

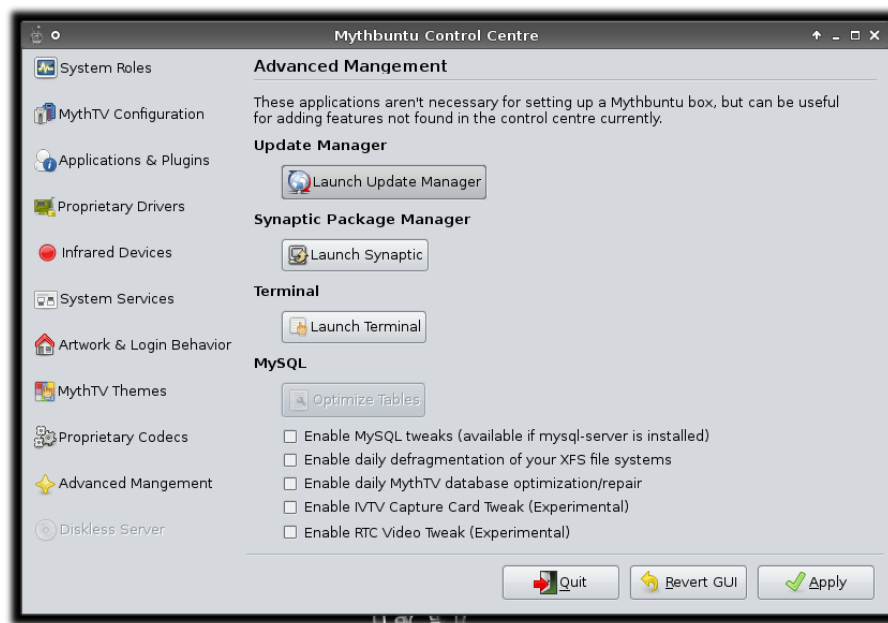


Figure 10.12: MCC Advanced Tab



## Chapter 11

# Configuring Mythtv Plugins

### 11.1 Myth Web

### 11.2 Myth Archive

To configure the Archive plugin, using the default theme, navigate to *Music Settings* via *Utilities / Setup -> Setup -> Media Settings*. You'll then be presented with a screen as below:

Figure 11.1: Archive Plugin

### 11.3 Myth Browser

### 11.4 Myth Controls

### 11.5 Myth Dvd

To configure the Dvd plugin, using the default theme, navigate to *Music Settings* via *Utilities / Setup -> Setup -> Media Settings*. You'll then be presented with a screen as below:

Figure 11.2: Archive Plugin

## 11.6 Myth Flix

## 11.7 Myth Gallery

To configure the Gallery plugin, using the default theme, navigate to *Music Settings* via *Utilities / Setup -> Setup -> Media Settings*. You'll then be presented with a screen as below:

Figure 11.3: Gallery Plugin

## 11.8 Myth Game

To configure the Game plugin, using the default theme, navigate to *Music Settings* via *Utilities / Setup* -> *Setup* -> *Media Settings*. You'll then be presented with a screen as below:

Figure 11.4: Myth Game

## 11.9 Myth Music

To configure the Music plugin, using the default theme, navigate to *Music Settings* via *Utilities / Setup -> Setup -> Media Settings*. You'll then be presented with a screen as below:

Figure 11.5: Music Tools

There are various options you can change here most of which are self explanatory, however below is some info for those which aren't.

**Tree Sorting** Determines the order in which the music tree is sorted, this should be entered as a space-separated list. Options are **album**, **artist**, **genre**, **splitartist**, **splitartist1** and **title** *OR* use the keyword **directory** to mirror the filesystem tree.

**Filename Format** This is the filename format which your music collection is stored in, and used used to determine Album, Artist, Genre, Title and Track Number when Ignore ID3 Tags is set to true or when no ID3 information is found. Options are **ALBUM**, **ARTIST**, **GENRE**, **TRACK\_TITLE**.

**Ignore ID3 Tags** MythMusic will determine the Album, Artist, Genre, Title and Track Number from the ID3 tags of the music files to play. If this option is set to true then it'll determine the information from the path and filename of the music file instead. For this to work the Filename Format needs to be correctly set for your collection.

## 11.10 Myth News

## 11.11 Myth Phone

## 11.12 Myth Video

To configure the Video plugin, using the default theme, navigate to *Music Settings* via *Utilities / Setup -> Setup -> Media Settings*. You'll then be presented with a screen as below:

Figure 11.6: Video Plugin

## **11.13 Myth Weather**

# Chapter 12

## Remote Control (LIRC)

Most remote control configuration occurs from within the Mythbuntu Control Centre. From there, you can choose and change your remote control as well as re-generate button mappings. See [chapter 10](#) for more information.

Some remote controls require additional setup that has not yet been automated. See [section 12.1](#) for more information what remotes need extra design.

Also, for more advanced setups, such as IR and RF transmitting, or multiple remotes, you will need to refer to the [section 12.2](#).

### 12.1 Drivers needing extra effort

The Ubuntu 8.04 packaging can't currently handle the extra work required for some remotes. The parts necessary for these are detailed here.

**Serial Receiver** The serial port needs to be disabled from kernel usage so that lirc\_serial can use it. See [section 12.2](#) for how to do this.

**GPIO Devices** Kernel 2.6.22 no longer allows the lirc\_gpio driver to be used. Instead all gpio devices will load from the dev/input native lirc driver. See this specification for more information about what needs to be done. <https://blueprints.launchpad.net/mythbuntu/+spec/lirc-gpio-alternative>

**Apple Remote** You will need to find your event device in /dev and set the **DEVICE** item in /etc/lirc/hardware.conf

### 12.2 IR Transmitting

As installed, the default Lirc init scripts are properly setup to handle a single device, but the driver build scripts can be adapted to handle multiple devices. If you are looking to set up a transmitter and a receiver, multiple transmitters, or multiple receivers, set up a Single Device first and verify functionality.

IR transmitters can be used to control external devices such as cable boxes or television sets. They are very useful in home theatre automation by reducing the number of remotes necessary to control your devices.

The following drivers have support for IR transmission

- Serial IR Transmitter (Supported by lirc\_serial module). [12.2.1](#)
- Command IR Receiver / Quadruple Transmitter (Supported by lirc\_cmdir module). [12.2.2](#)
- Microsoft Media Center Remote Version 2 (Supported by lirc\_mceusb2 module). [12.2.3](#)



- Hauppauge PVR-150 (Supported by lirc\_pvr150 module). 12.2.4
- USB-UIRT (Supported by native lircd binary).

### 12.2.1 Serial IR Transmitter

When installing lirc or reconfiguring (sudo dpkg-reconfigure lirc) , choose the option for either “Serial Receiver” or “Serial receiver (igor cesko’s variant)”. Depending upon which port you have your serial transmitter attached to, you may have to modify the modprobe options that are used for loading the kernel module. Create a file entitled /etc/modprobe.d/lirc with these contents:

```
#COM1 equivalent , /dev/ttyS0
options lirc\_serial irq=4 io=0x3f8
#COM2 equivalent , /dev/ttyS1
#options lirc\_serial irq=3 io=0x2f8
```

Uncomment the appropriate line to represent serial port you have connected your transmitter.

If you are running the lirc\_serial driver either for a transmitter or receiver, you will need to disable kernel serial support.

- First you will need the **setserial** utility to do this.

```
$ sudo apt-get install setserial
```

- Reconfigure setserial.

```
$ sudo dpkg-reconfigure setserial
```

- Choose manual.
- Modify /var/lib/setserial/autoserial.conf  
Add (or modify if its there already) (switch to ttyS1 if your using that instead)

```
$ /dev/ttyS0 uart none
```

- Copy that script to /etc/serial.conf

```
$ sudo cp /var/lib/setserial/autoserial.conf /etc/serial.conf
```

### 12.2.2 Command IR Receiver / Quadruple Transmitter

One site (<http://support.commandir.com/guides/index.php?distro-ubuntu-gutsy>) has automated the above procedure for their CommandIR Mini transceiver which has a remote receiver and 4 IR blasters (<http://www.commandir.com/>). The device’s emitters allow control of multiple devices and **do not require different codesets** since each emitter can be individually selected for transmitting using irsend set\_transmitters. It is possible to use their script to setup LIRC on Mythbuntu for CommandIR then make minor modifications for other hardware.

### 12.2.3 Microsoft Media Center Remote Version 2

Gutsy packages include support for the mceusb2 IR transmitter. Simply select a **Microsoft Media Center (New Version)** remote from the list of remotes during lirc installation.

### 12.2.4 Hauppauge PVR-150

You need to download the Hauppauge firmware and add the appropriate codeset to your `lircd.conf` for the device you want to control. The firmware can be found at <http://www.blushingpenguin.com/mark/lmilk/haup-ir-blaster.bin>. Download it and put it in `/lib/firmware`. The codesets can be found at <http://www.blushingpenguin.com/mark/lmilk/lircd.conf>. This file contains the codesets for every device in the database. You will need to extract the information for the device you want to control, and append it to your `/etc/lirc/lircd.conf` – but for now, just save it someplace safe. When you have downloaded and moved the firmware and have the codeset file, **Reboot** before continuing.

You will need to determine the codeset of your device. To help you determine the possible codeset, consult the list here: <http://www.blushingpenguin.com/mark/lmilk/IRcodesets.html>. Note that finding the correct codeset for your device can be tricky- but the master list can usually help you track them down by process of elimination. Once you have determined a codeset, you need to extract those codes from the master file you downloaded and add them to your `/etc/lirc/lircd.conf` as another remote.

For example, to blast a Power Button a Motorola DCT6200 series cable box, you would use the POWER button raw code from codeset 85. If you are linking it to a key on your remote, you want to change the button name to the name reported by `irw`.

```
$ sudo nano /etc/lirc/lircd.conf
```

First, add the blaster header:

```
begin remote

name          blaster
bits          32
flags         RAW_CODES
eps           0
aeps          0
plead         0
gap           333333
repeat_bit    0
begin raw_codes
```

Next, find the power button in codeset 85- since this is a cable box, it is prefixed in the master file as 0.85:

```
name 0.85_KEY_POWER
5570570
```

Then make it conform to how `irw` reports the keypress- in this case, `irw` reports it as POWER, so that is what to name it:

```
name 0.85_KEY_POWER
5570570
```

Keep adding your buttons (only the ones you want to control with the blaster). When you are finished, add:

```
end raw_codes
end remote
```

To close out that remote definition. In this example, the entire remote definition for the power button only looks like:

```

begin remote

name          blaster
bits          32
flags         RAW_CODES
eps           0
aeps          0
plead         0
gap           333333
repeat_bit    0
begin raw_codes
name 0_85_KEY_POWER
5570570
end raw_codes
end remote

```

After saving the new `lircd.conf`, restart lirc:

```
$ sudo /etc/init.d/lirc restart
```

and test it. In the example the command:

```
$ irsend SEND_ONCE blaster POWEROFF
```

turns the DCT6200 cable box on and off. Even if it does not control the device as intended, you should see the blaster flashing.

Troubleshooting codeset selection, blaster placement, etc. is beyond the scope of this guide. A wealth of information is readily available via Google.

## 12.3 General Setup and Usage

### Unlisted Remotes

If your remote isn't listed in the lirc installation, you should file a bug on Launchpad (<https://bugs.launchpad.net/ubuntu/+source/lirc/+filebug>)

### Using a premade lircd.com

```
$ wget "<download link>" -O lircd.conf
```

For other remotes, a good place to start looking is the Lirc Website Remotes list (<http://lirc.sourceforge.net/remotes/>). The online remote configuration tool LIRC Config (<http://lircconfig.commandir.com/>) also maintains a customizable database of `lircd.conf`'s.

To replace `/etc/lirc/lircd.conf` with the `lircd.conf` that you have found:

```
$ sudo cp <name of downloaded.conf> /etc/lirc
```

## Recording a Remote

Insert the module that you intend to record from. For example

```
$ sudo modprobe lirc_mceusb2
```

Record the remote using `irrecord`

### Using a premade `lircd.com`

```
$ sudo irrecord -d /dev/lirc0 lircd.conf
```

Once you have completed your configuration, move this `lircd.conf` to `/etc/lirc/lircd.conf`

```
$ sudo mv lircd.conf /etc/lirc
```

Add the modules for the remote to `/etc/lirc/hardware.conf` under `MODULES==`

## Additional `lircrc` information

Multiple applications can be listed in the `.lircrc` file, but you will need a separate begin and end block for each button in each application.

### MythTV `lircrc`

If you are using this for mythtv, you will either need to create a standalone `lircrc` for mythtv in `/.mythtv/lircrc` or create a symbolic link to this file and place all the `lircrc` related content in `.lircrc`.

- Creating a symbolic link. [All mythtv buttons will need to be placed in `.lircrc` with the rest of the applications you use lirc for]

```
$ ln -s ~/.lircrc ~/.mythtv/lircrc
```

- Creating a standalone file. [All mythtv buttons will be placed in `/.mythtv/lircrc`]
  - Here is an example using a mceusb/mceusb2 remote:
  - Here is an example using a hauppauge remote: <http://wilsonet.com/mythtv/lircrc-haupgrey-g3.txt>
- IRexec  
irexec is able to interpret keypresses and launch applications when the keys are pressed. The syntax is:

```
begin
prog = irexec
button = REMOTEBUTTON
config = APPLICATION
end
```

APPLICATION is simply the path and name of a file marked executable.

### Configuring a lircrc by hand

If you are intending on using lirc for only IR transmitting, you don't need to create a `/.lircrc` file. If you are going to use it for IR receiving, you will need to create a `/.lircrc` file describing what each of the buttons does for each application you will use lirc in.

The basic syntax is as follows:

```
begin
prog = PROGRAM
button = REMOTE_BUTTON
config = ACTION
end
```

Where:

PROGRAM is the program you are recording buttons for. Some examples for PROGRAM are **mythtv**, **mplayer**, **xine**, **vlc** and **irexec**.

REMOTE\_BUTTON is the name of the button in accordance with what is listed in your `/etc/lirc/lircd.conf`

ACTION is the action that will be performed when this button is pressed. You can find a list of actions in the attached `.lircrc` example file.

For a `mceusb2` remote, you might need to change the button names from "chan-", "chan+", "vol-", "vol+" to "chandown", "chanup", "voldown", "volup".

### Restarting Lirc

Should you ever need to restart lirc due to adding a remote, or after a suspend or anything like that:

```
$ sudo /etc/init.d/lirc [start | stop | restart]
```

## 12.4 Setting up Multiple Devices

After you have proven LIRC works with a single device, you can modify your scripts to include support for multiple devices. The first thing you will have to make sure you have kernel modules for the additional devices. If during the single device setup, you built modules for all the devices you thought you would need, you can skip the next step.

### Modify Init Scripts

• Modify `/etc/lirc/hardware.conf`

- Make sure that all of your modules are now added to the list of `MODULES=""`. Take note of the order you provide these modules. This will be the order that lirc recognizes the devices, and important if you are going to need to differentiate between different lirc devices.
- Modify `LIRCD_ARGS=""` to match

```
LIRCD_ARGS="-d /dev/lirc0 --output=/dev/lircd --listen"
LIRCD2_ARGS="-d /dev/lirc1 --output=/dev/lircd1 \
--connect=localhost:8765 --pidfile=/var/run/lircd2.pid"
```

- Modify `/etc/init.d/lirc`
- Change this block:

```
LIRCD_ARGS='build_args \${LIRCD_ARGS}'
start-stop-daemon --start --quiet --exec /usr/sbin/lircd \
-- \${LIRCD_ARGS} < /dev/null
```

- To be:

```
LIRCD_ARGS='build_args \${LIRCD_ARGS}'
LIRCD2_ARGS='build_args \${LIRCD2_ARGS}'
start-stop-daemon --start --quiet --exec /usr/sbin/lircd
\-- \${LIRCD_ARGS} < /dev/null
/usr/sbin/lircd \${LIRCD2_ARGS} < /dev/null
```

- If you have more than 2 LIRC devices, you will need to add additional blocks to `/etc/lirc/hardware.conf` and `/etc/init.d/lirc` to connect to the main lirc process.

## Testing Lirc

Start lirc via

```
$ sudo /etc/init.d/lirc start
```

You should have two `lircd` processes running. You will need to provide a parameter to any lirc process trying to interact with `lircd` now to indicate which `lircd` you want to interact with.

## Chapter 13

# Diskless Clients

### 13.1 Installing the packages

If you want to use diskless clients, you need to install the appropriate packages first. In 13.1, you should select the "Diskless Server" checkbox. If you also want your MythTV computer to act as a DHCP server, also select **Add DHCP server**. The upsides and downsides of this option are discussed a bit later in this document. Hit **Apply** to install the packages.

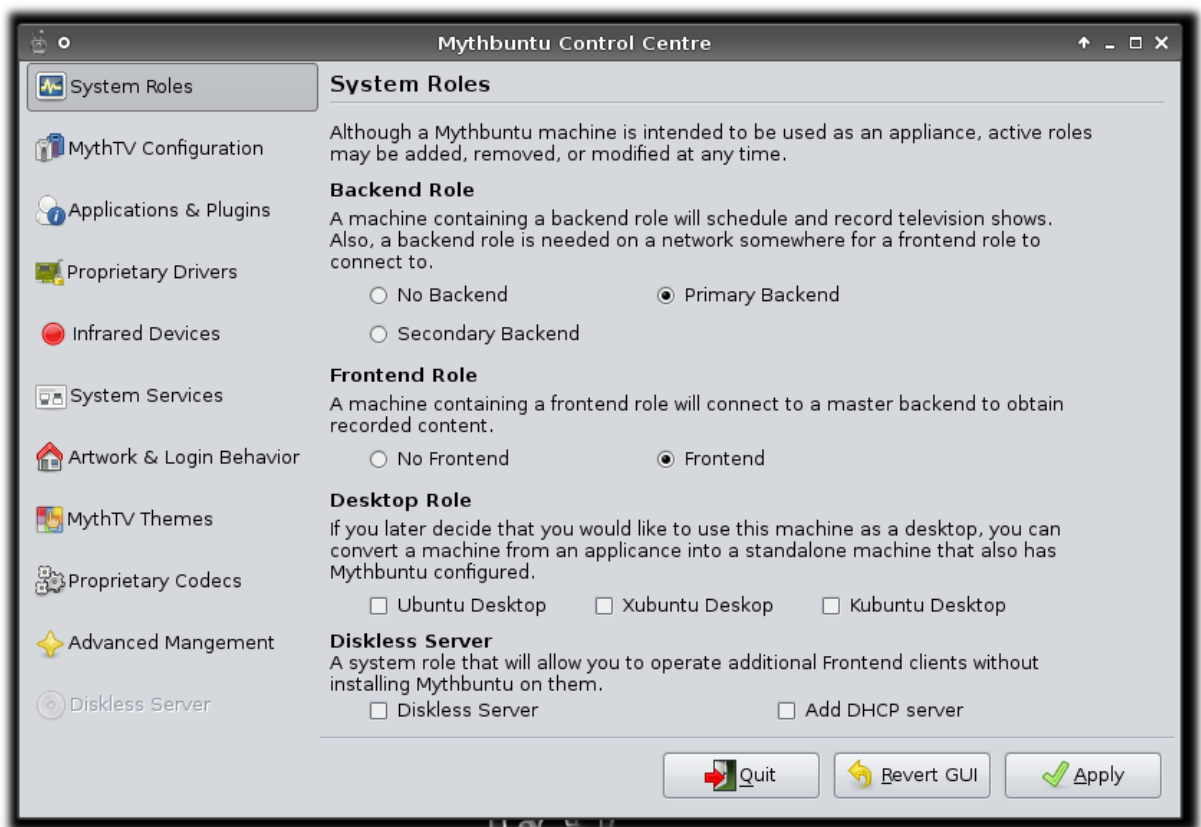


Figure 13.1: MCC System Roles

## 13.2 Server Preparation

Once the packages are installed, switch to the "Diskless Server" tab as shown in 13.2. For now, we will concentrate on the upper part of that screen where you can see the **Server Preparation** section.

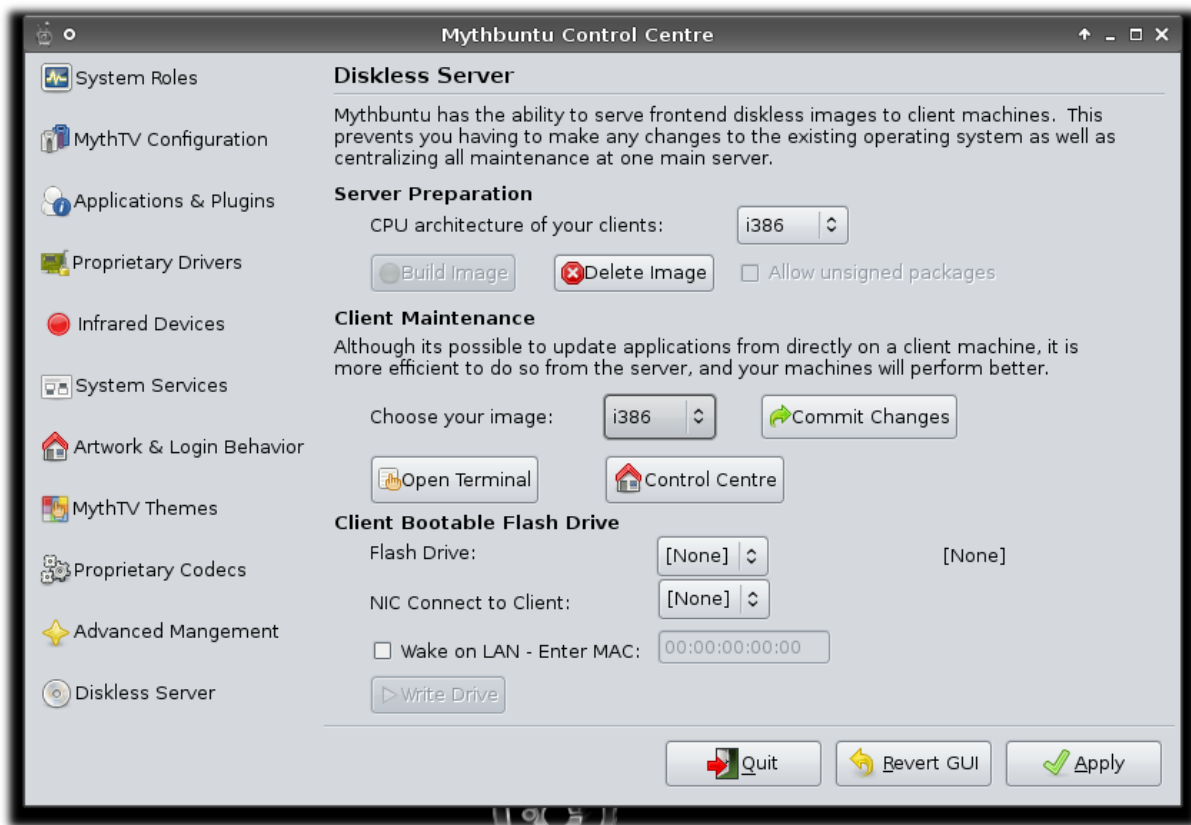


Figure 13.2: MCC Diskless tab



First, you need to select a CPU architecture for your clients. Unless you have installed an amd64 or ppc version of Mythbuntu, the only choice available will be **i386** which will work for most clients. Now select **Build Image** and click **Apply**. Building the image for your diskless clients will take a while, depending on the speed of your internet connection and of your computer. Please note that a copy of your `/etc/apt/sources.list` will be used to build the image. If you have any third-party package repositories, it is a good idea to select **Allow unsigned packages** before building the image.

## 13.3 Booting your diskless client

There are several options available for booting your diskless clients. Let's start with a little bit of theory:

In order to boot successfully, your client must load the Linux kernel and the corresponding "initramfs" (basically a very minimal linux system which is used to mount the root file system). Inside the initramfs, a connection is made to the nbdrootd ("NBD" meaning "network block device") to mount the diskless image you created earlier. Additional, the overlay file system is mounted over NFS from your server. Because the diskless image is mounted read-only, the image and the overlay NFS share are merged using a stacking file system called 'aufs' ('another unionfs'). The client then boots. Any changes you make to the file system end up on the overlay file system.

You can either load the kernel (and its initramfs) from a normal block device like a hard disk or a CD-R or you can use PXE. With PXE, you don't need to have any disks in your client but it can be a bit harder to set up.

### 13.3.1 Block devices

#### Boot your client from a USB thumb drive

Any recent computer today has USB ports, and most can boot from them. The Mythbuntu Control Centre can prepare your thumb drive for you. Please make sure there is no valuable data on that drive as data loss might occur!

All you need is a thumb drive where the first partition is formatted as fat32/vfat. As you can see in figure 13.2, the settings for preparing flash drives are located in the **Client Bootable Flash Drive** section. Before anything can be done in this section, please select your image in the **Client Maintenance** section above.

Now you need to choose your flash drive. In the empty area next to that drop-down menu, the name of your flash drive will be displayed. Make sure you select the correct one to avoid data loss. Next, select the network interface which is connected to the network where your clients reside. This will often be "eth0". If your server is not running all the time, you can also enable Wake on Lan there. The initramfs will attempt to wake up the server before mounting the root file system.

Now select **Write Drive** and click **Apply**.

#### Boot your client from hard disk

Write me!

#### Boot your client from CD-R

Write me!

### 13.3.2 PXE

If you want to use PXE instead, you will need two things: a DHCP server and a PXE stack on your client.

## The DHCP server

Again, we have a few options.

### DHCP server on your diskless server

Simply select **Add DHCP server** in the **System Roles** tab in the Control Centre (figure 13.1) and click **Apply**. It'll try to customize the DHCP configuration to suit your network, but you might want to make corrections in `/etc/ltsp/dhcpd.conf`. If you adjust that file, issue 'sudo /etc/init.d/dhcp3-server restart' in a terminal to reload the DHCP server.

This option works best if there's not other DHCP server on your network. However, many people will already have small SOHO routers/NAT boxes which act as DHCP servers, so please be careful here. It is still possible to use a second DHCP server in addition to your existing one; read on:

### Unauthoritative DHCP server on your diskless server

This document explains it quite well: <http://www.etherboot.org/wiki/twodhcpservers> Note: you'll need to use etherboot, see below.

### Using alternate DHCP ports for the DHCP server on your diskless server

You can run your whole mythbuntu-diskless DHCP setup on different ports so it never conflicts with your current DHCP setup. It'll only work if you use etherboot as your PXE stack (see below)

Prepare the initramfs Open a Terminal and chroot to the your diskless base system: `sudo chroot /opt/ltsp/i386` Now that you're inside the chroot, open `/etc/initramfs-tools/conf.d/ltsp` in your favourite editor:

```
nano /etc/initramfs-tools/conf.d/ltsp
```

Modify the DHCPBOOT variable. A value of 1068 works well there. Save your changes and run

```
update-initramfs -k all -c
```

to update the initramfs. Now type

```
exit
```

to exit the chroot and run

```
sudo ltsp-update-kernels
```

Prepare the DHCP server

Open `/etc/init.d/dhcp3-server` in your favourite text editor:

```
sudo nano /etc/init.d/dhcp3-server
```

Around line 90, you'll find a line saying:

```
--exec /usr/sbin/dhcpd3 \-- -q -pf \${DHCPD PID} -cf \${CONFIG\_FILE} \${INTERFACES}
```

Modify it to say:

```
--exec /usr/sbin/dhcpd3 -- -p 1067 -q -pf \${DHCPD PID} -cf \${CONFIG\_FILE} \${INTERFACES}
```

Prepare the PXE stack When you create the etherboot image for your hardware at <http://rom-omatic.net/>, click **Configure** during step 3. Select

```
ALTERNATE\DHCP\PORTS\_1067\_1068
```

there and proceed as usual.

Done.

**DHCP server on a SOHO router/different computer**

It's possible that your SOHO router will grant you enough control over its DHCP server. Refer to its documentation to find out how to set up PXE booting. If you're running an alternate firmware like OpenWRT, you should have no problem adding a config entry.

On your diskless server, you can find example configuration files for the ISC `dhcpd` and for `dnsmasq` in `/usr/share/doc/ltsp-server/examples/`. You probably have to expand these configuration files by adding a 'next-server' statement to point to your mythbuntu server where the tftp server with the kernel resides.

**PXE**

'PXE' stands for 'Preboot eXecution Environment'. In our case, PXE talks to the DHCP server to get an IP address and to download a boot loader (`pxelinux`), which will in turn download the kernel and the `initramfs`.

**PXE stack supplied with your computer/network card**

A lot of computers today come with a PXE stack as a part of their BIOS ROM for their onboard network interface card (NIC). It's also possible to buy NICs which have a PXE stack.

**PXE stack from the etherboot project**

If you don't have a PXE stack already or if you think yours might be buggy, you can download a PXE stack for many NICs at <http://rom-o-matic.net/>. Make sure to select the correct **ROM output format**. This will allow you to load a PXE stack from a floppy disk, hard drive or from CD-ROM.

**13.3.3 Maintenance**

Of course, most things you can do with your normal Mythbuntu installation can also be done with a diskless client.

**Installing packages** Packages should always be installed inside the client image. Only hardware-specific packages like proprietary drivers should be installed on the clients themselves (see below for further explanation).

To install new software inside the client image, bring up Mythbuntu control centre on your server and switch to the diskless tab (13.2). Select your image below the **Client Maintenance** heading and click the **Control Centre** button to start a new instance of the Mythbuntu control centre. You can now perform packages updates and configuration tasks as usual.

Note: take care not to mistake the newly started Control Centre instance diskless image for the Control Centre of your server as they look very similar.

**Why shouldn't I install packages on the client itself?** One of the few limitations of the diskless clients is the way packages are handled. All packages you've installed are listed in a database which resides inside the diskless image. When a client changes a file in the diskless image, the image 13.2 itself is not changed. Instead, the modified file is copied to the overlay directory.

When you install a package on your client, a copy of the package database is created which means that the database on the client won't know about any updates or new packages inside the image. This can lead to awkward situations where the client uses a version of a proprietary driver which doesn't match a newer kernel

**Configuration** Any configuration on the client can be performed as usual in the Control Centre or using your favourite editor. For example, one thing that most people might want to enable on a diskless client is automatic login.

**13.3.4 Troubleshooting**

If something goes wrong, don't panic. There are several log files waiting for you:

On the server, `textbf/var/log/daemon.log` will contain some information concerning NFS and tftp, so

it's a good idea to look there if your client doesn't boot. Another option to find out more is removing the two words "quiet" and "splash" from the boot line in `/var/lib/tftpboot/ltsp/i386/pxelinux.cfg/default`. You can then see all kinds of information when you boot your clients. If your client manages to boot but shows other problems, it's a good idea to look in `/var/cache/mythbuntu-diskless/overlay/$KEY/var/log/` (where \$KEY is the MAC address of your client without colons) to find log files for your client.

### 13.3.5 FAQ

#### I've switched my network card and I want my settings back!

You can either move the overlay directory in `/var/cache/mythbuntu-diskless/overlay/` to the new MAC address or you can pass the "overlaykey=" boot option. The argument passed to "overlaykeys=" is the name of the directory inside `/var/cache/mythbuntu-diskless/overlay/`.

### 13.3.6 Interesting Files/further configuration

Here is a (possibly incomplete) list of configuration files used by mythbuntu-diskless.

On the server:

`/etc/inetd.conf`: used to launch nbdrootd which serves the diskless images. Often, the tftpd is started from here. \* `/etc/exports`: Used to export `/var/cache/mythbuntu-diskless/overlay` \* `/var/lib/tftpboot/ltsp/i386/pxelinux.cfg/default`: Bootloader configuration. Note that this will be overwritten every time 'ltsp-update-kernels' is ran. You can create client-specific pxelinux configuration files if you don't want to lose your custom configuration. Refer to the pxelinux documentation to find out how. Alternatively, you can specify additional boot arguments inside the image.

Inside the chroot:

After you've switched to the chroot environment using

```
chroot /opt/ltsp/i386
```

or simply by clicking "Open Terminal" in the Control Centre (see 13.2), you can edit the following files:

\* `/etc/ltsp/update-kernels.conf`: If you create this file, you can add a BOOTPROMPT\_OPTS variable to specify your boot options. To apply your changes, run

```
/etc/kernel/postinst.d/ltsp-update-kernels
```

On the server (outside the chroot), you need to run

```
sudo ltsp-update-kernels
```

to copy the new bootloader configuration (and possibly a new version of the kernel) to the TFTP directory.

\* `/etc/initramfs-tools/conf.d/ltsp`: This is the configuration file for the initramfs script used to bring up your client. It's not recommended to change anything here, but someone might benefit from changing \$HOSTNAMEOVERRIDE or \$OVERLAYKEY.

## Chapter 14

# Advanced Setup Options

### 14.1 Windows Frontend

For a MS Windows Frontend we recommend MythTV Player. It is available at [http://www.sudoku.mythtvplayer/](http://www.sudoku/mythtvplayer/) Be sure to remember to turn on the MySQL Service on your backend.

### 14.2 Xbox Frontend

A python based frontend for MythTV which runs on xboxmediacenter can be found at <http://sourceforge.net/projects/xbmcmythtv/>

## Chapter 15

# Frequently Asked Questions

- **Q. I've successfully installed Mythbuntu and have it up and running, but I'd like to install the Ubuntu desktop on it now to add other features. I switched to the Ubuntu flag in the Mythbuntu settings and it downloaded and installed the packages, but when exiting MythTV, I still get the old xfce interface. What else do I need to do?** (gtr33m)

A. You need to change your session type. Log out and at the login screen hit the session button. Choose GNOME. It will ask you to change settings, and then hit yes.

- **Q. I am looking to do a nightly backup of my Mythbuntu backend to my server. I am looking to compile a list configuration files, etc. that would be useful in restoring the machine, should something happen to it. The database backups are a given.** (dmfrey)

A. The database is setup currently to backup already via a cron job, but I believe its a weekly backup rather than a nightly. You probably just need to move that cron job over from cron.weekly to cron.daily. So now if you are looking for a backup that you can literally press a key and restore the entire drive, I almost think you are better off using a full out rsync of the entire system partition. Most installations are only 1-1.5gb so this is doable especially if you use compression. Comparatively, you probably can get away with backing up , as well as any config files that you have to tweak post installation. All the information about your tuners, storage areas, etc are all stored in the mysql database. You might want to record the options you chose during installation to make sure you remember to set them up next time, but otherwise I think this is the way to go. The backups are saved to /var/backups with rotation done on them so a few weeks worth is there.

## Chapter 16

# Trouble Shooting

If you have problems with your installation of Mythbuntu then you can get help within IRC (chat) in `#ubuntu-mythtv` or `#mythtv-users` on `freenode.net`. You can also get help on the Mythbuntu forums at <http://ubuntuforums.org/forumdisplay.php?f=301>

# Chapter 17

## Reference

### 17.1 MythTV Plugins

#### 17.1.1 Backend Plugins

**Myth Web** MythWeb provides a web interface which can be used to view listings, schedule recordings, delete recordings, and search for programs. It can also browse mythmusic's music database, and may eventually support playing music streams as well. *packname:mythweb*

#### 17.1.2 Frontend Plugins

**Myth Archive** MythArchive is a plugin for MythTV that lets you create DVDs from your recorded shows, MythVideo files and any video files available on your system. It can also archive recordings in a proprietary format that archives not only the file but also all the associated metadata like title, description and cut list information which will mean you can create backups of myth recordings which can later be restored or it will also allow you to move recordings between myth systems without losing any of the metadata. It is a complete rewrite of the old MythBurn bash scripts, now using python, and the mythfrontend UI plugin. *packagename:mytharchive*

**Myth Browser** Mythbrowser is an integrated web browser plugin for your MythTV system. *packagename:mythbrowser*

**Myth Controls** External controls for MythTV. This will allow you to modify button mappings and key bindings. *packagename:mythcontrols*

**Myth Dvd** MythDVD provides an interface for launching your preferred DVD player from MythTV, and also supports transcoding DVDs into audio/video streams which can be played by MythVideo, using the transcode package. *packagename:mythdvd*

**Myth Flix** Allows you to monitor your Netflix dvd rental queue. <http://www.netflix.com/> *packagename:mythflix*

**Myth Gallery** MythGallery allows you to visually browse a directory tree containing image files. It can display any image file format supported by Qt, and supports image rotation and simple slideshows. *packagename:mythgallery*

**Myth Game** MythGame can be used as a frontend to start any emulator that your host OS runs. *packagename:mythgame*

**Myth Music** MythMusic provides a digital audio jukebox integrated with MythTV. It supports Ogg Vorbis, FLAC and MP3 streams, displays visualizations, and can also encode new Ogg Vorbis or FLAC streams from audio CDs using a CD-ROM drive. *packagename:mythmusic*

**Myth News** An RSS feed news reader module for MythTV. *packagename:mythnews*



**Myth Phone** Mythphone is a phone and videophone capability on MYTH using the standard SIP protocol. It is compatible with Microsoft XP Messenger (see caveat below) and with SIP Service Providers such as Free World Dialup <http://fwd.pulver.com>. *packagename:mythphone*

**Myth Video** MythVideo allows you to browse and play video streams, using an external player, from within the MythTV interface. *packagename:mythvideo*

**Myth Weather** MythWeather displays current and forecast weather information within MythTV. *packagename:mythvideo*

## 17.2 TV-OUT

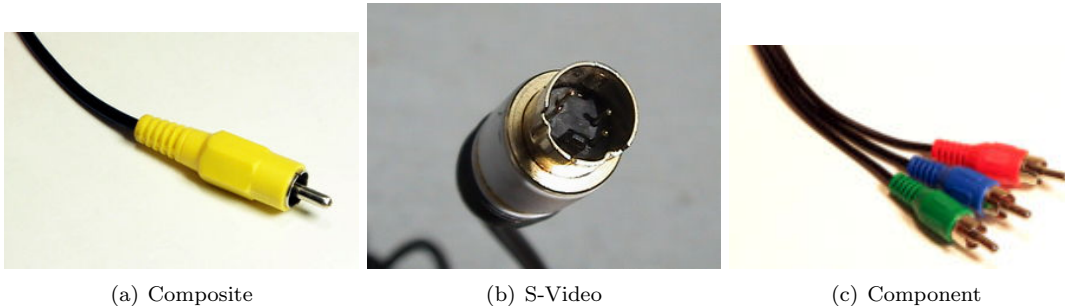
The images and information on this page have mainly come from wikipedia.

### 17.2.1 Connections Explained

**Composite Video** Composite video, also called CVBS (Composite Video Blanking and Sync), is the format of an analog television (picture only) signal before it is combined with a sound signal and modulated onto an RF carrier. See figure 17.1(a)

**S-Video** Separate video, abbreviated S-Video and also known as Y/C (or erroneously, S-VHS and "super video") is an analog video signal that carries the video data as two separate signals (brightness and color), unlike composite video which carries the entire set of signals in one signal line. S-Video, as most commonly implemented, carries high-bandwidth 480i or 576i resolution video, i.e. standard definition video. It does not carry audio on the same cable. See figure 17.1(b)

**Component Video** Component video is a video signal that has been split into two or more components. In popular use, it refers to a type of analog video information that is transmitted or stored as three separate signals. Component video can be contrasted with composite video (such as NTSC or PAL) in which all the video information is combined into a single line level signal. See figure 17.1(c)



(a) Composite

(b) S-Video

(c) Component

Figure 17.1: Pictures of connections

### 17.2.2 TV Formats

## 17.3 References

- The information for section 2 is mainly based upon the mythtv docs found at <http://www.mythtv.org/docs/mythtv-HOWTO-3.html>
- The information for ?? was posted by apauna on the Mythbuntu forms and can be found at <http://ubuntuforums.org/showthread.php?t=584473>
- The pictures and information in 17.2 is from wikipedia.