The Next Unit of Computing
Drive your 10 foot experience.
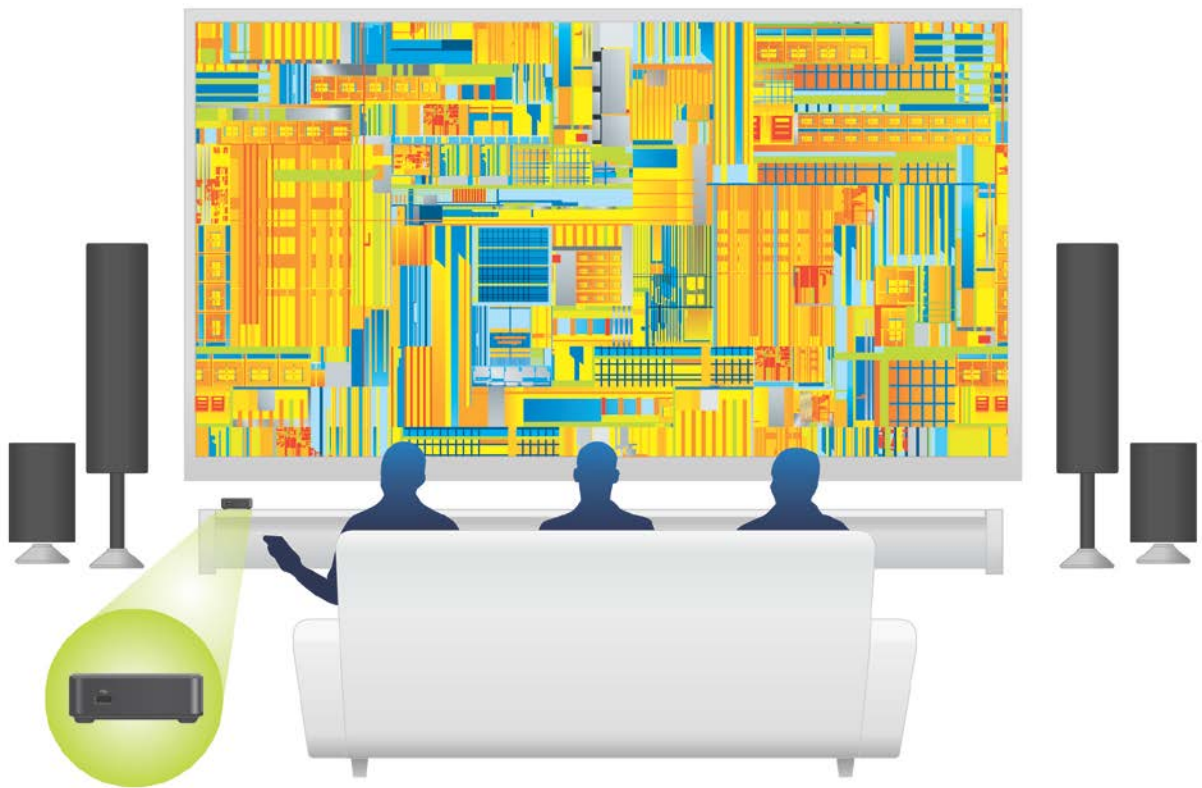
Revision History

Revision	Revision History	Date
1.0	First release of the Intel® NUC Home Theatre Personal Computer on the Linux* Mint Platform using XBMC	May 2013
2.0	Second release of the Intel® NUC Home Theatre Personal Computer on the Linux* Mint Platform using XBMC	July 2013

Intel® NUC and the Home Theatre Personal Computer on the Linux* Mint Platform Using XBMC

Table of Contents

This Solution Guide describes the components necessary to build a Home Theater Personal Computer (HTPC) using Intel® NUC line of boards.

The focus of the HTPC builds described in this guide will center on the Linux* Mint operating system using the media center application XBMC. The builds will take advantage of open source platforms to construct a dynamic HTPC. Each SKU will be reviewed along with compatible components needed to build an HTPC that is small, whisper quiet, and powerful.

The initial sections will review the hardware and software components necessary to build an HTPC with Intel NUC followed by detailed instructions on how to install Linux Mint and XBMC.

The target audience for this document includes:

- System integrators
- Consumers interested in a DIY solution

References

Intel Boards Resource Center	http://www.intelbettertogether.com
Intel NUC	http://www.intel.com/nextunitofcomputing
Intel Boards Youtube channel	http://www.youtube.com/intelboards
BIOS and driver updates	http://downloadcenter.intel.com
Integration information	http://www.intel.com/support/go/buildit
Tested memory	http://www.intel.com/support/motherboards/desktop/sb /CS-025414.htm

Intel® NUC

The Intel® NUC family of products delivers stunning visuals and edge-of-your-seat performance in an ultra-small package. Powered by a visibly smart 3rd generation Intel® Core™ i3 processor in a 4.6″ x 4.4″ x 1.5″ case, the Intel NUC is big on performance yet surprisingly small in size. It's an ideal engine for home theater systems or a living room PC.

The Intel NUC features two SO-DIMM sockets for expandability with up to 16 GB of memory and two PCI Express* Mini Card connectors for flexible support of wireless and Solid State Drive (SSD) configurations. It offers High Definition Multimedia Interface* (HDMI*) with full HD 1080p display output and 7.1 digital audio output (AV capable receiver required) along with three USB 2.0 ports for external expandability.

Figure 1 shows an example of a Home Theater Installation.

Figure 1. Home Theater Installation

Intel® NUC DCCP847DYE/ DC3217IYE/ DC3217BY Home Theater Personal Computer Overview

Supported Storage Drives

- Intel® Solid-State Drive 525 Series 30 GB mSATA (SSDMCEAC030B301)
- Intel® Solid-State Drive 525 Series 60 GB mSATA (SSDMCEAC060B301)
- Intel® Solid-State Drive 525 Series 120 GB mSATA (SSDMCEAC120B301)
- Intel® Solid-State Drive 525 Series 240 GB mSATA (SSDMCEAC240B301)

http://www.intel.com/support/motherboards/desktop/sb/CS-033763.htm

Supported Memory

http://www.intel.com/support/motherboards/desktop/dc3217iye/sb/CS-033885.htm

Minimum System Configuration

Quantity	Item	Manufacturer	Model
1	Intel NUC DCCP847DYE/ DC3217IYE/ DC3217BY	Intel	Intel Next Unit of Computing DCCP847DYE/ DC3217IYE/ DC3217BY
1	Memory	Any	4 GB DDR3 1600/1333 SODIMM
1	Hard Drive	Intel	Intel Solid-State Drive 525 Series
1	Intel® Centrino® Wireless	Intel	Intel Centrino 6235 IEEE 802.11n Mini PCI Express* Bluetooth* 4.0 - Wi-Fi/Bluetooth Combo Adapter

Software Components

Item	Manufacturer	Comment
Linux Mint 14 Nadia	Open Source	http://www.linuxmint.com
XBMC Media Player	Memory	http://xbmc.org/

Peripherals

Item	Manufacturer	Comment
Wireless keyboard/mouse	Any	Suggested: Logitech K400 Wireless keyboard with touchpad
Remote Controller	Any	Windows MCE-Compatible Remote Controller

Linux Mint

Linux Mint is the 4th most widely used operating system behind Microsoft* Windows*, Apple* Mac*, and Canonical* Ubuntu. Linux Mint is a full featured modern operating system that is free of cost and open source. Linux Mint is safe and reliable and requires little maintenance. The following sections of this guide will give detailed instructions on how to install Linux Mint and XBMC.

Downloading Linux Mint

- Navigate to http://www.linuxmint.com/
- Click on the Download link.
- The version that is installed in these builds is the Cinnamon edition.
- Click on the 32 or 64 bit Cinnamon edition.

The different regions that Linux Mint can be downloaded from will appear.

- Choose a region to download from.

Linux Mint will begin to download. Save the compressed iso file in a convenient location.

Once the file is downloaded, a bootable USB drive containing Linux Mint will have to be created.

Preparing a Bootable USB Drive with Linux Mint

In order to install Linux Mint, a USB drive containing Linux Mint will have to be created. The following steps display how to create a bootable Linux Mint USB drive.

Downloading USB Installer

- Navigate to http://www.pendrivelinux.com/ to download the Universal USB Installer - Easy as 1 2 3.
- Click on *Popular* Universal USB Installer - Easy as 1 2 3.

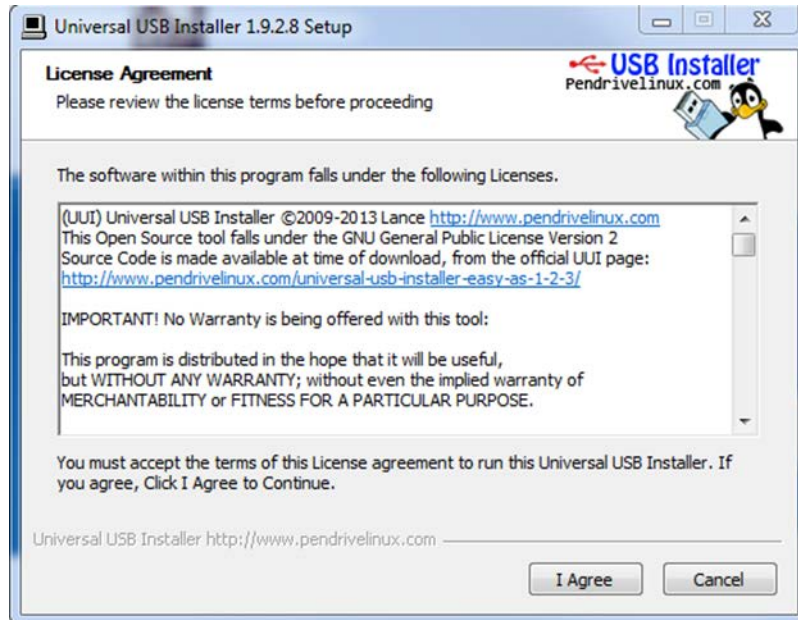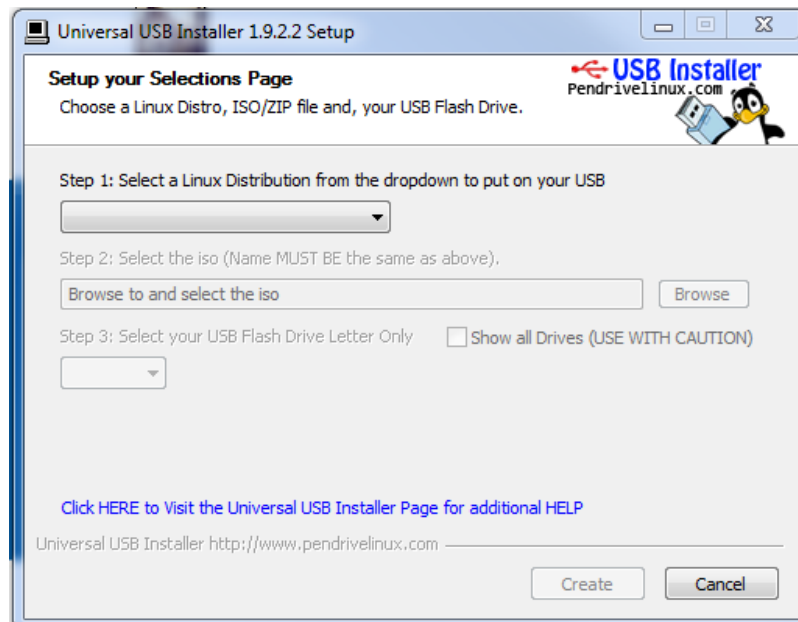- Scroll down and click the Download UUI button.

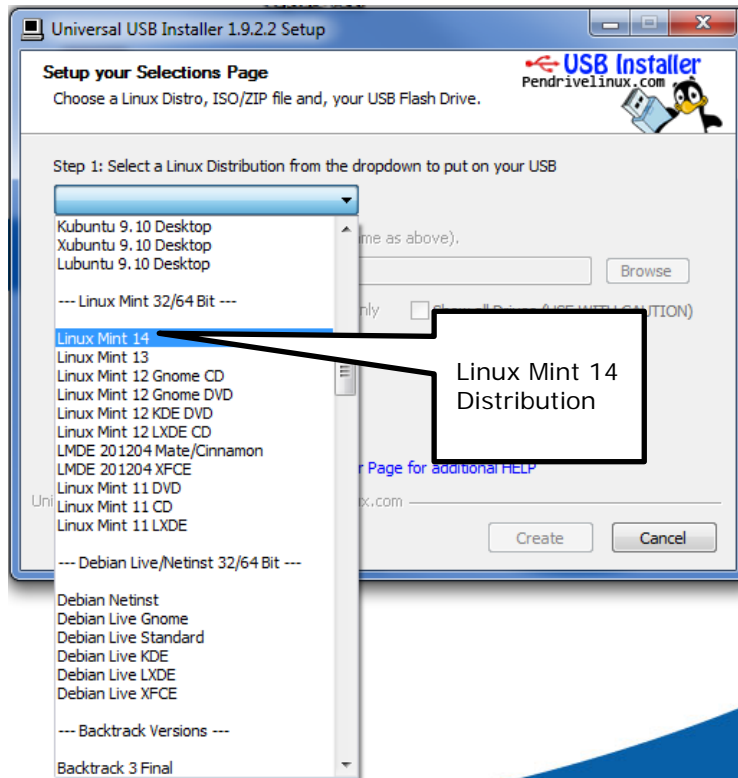## Creating the Bootable Linux USB Drive

- Run Universal USB Installer - Easy as 1 2 3.
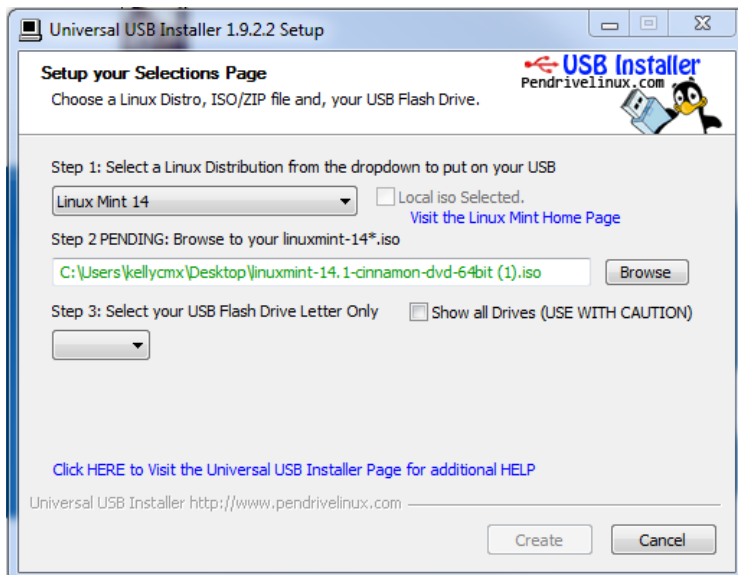- Agree to the License Agreement.

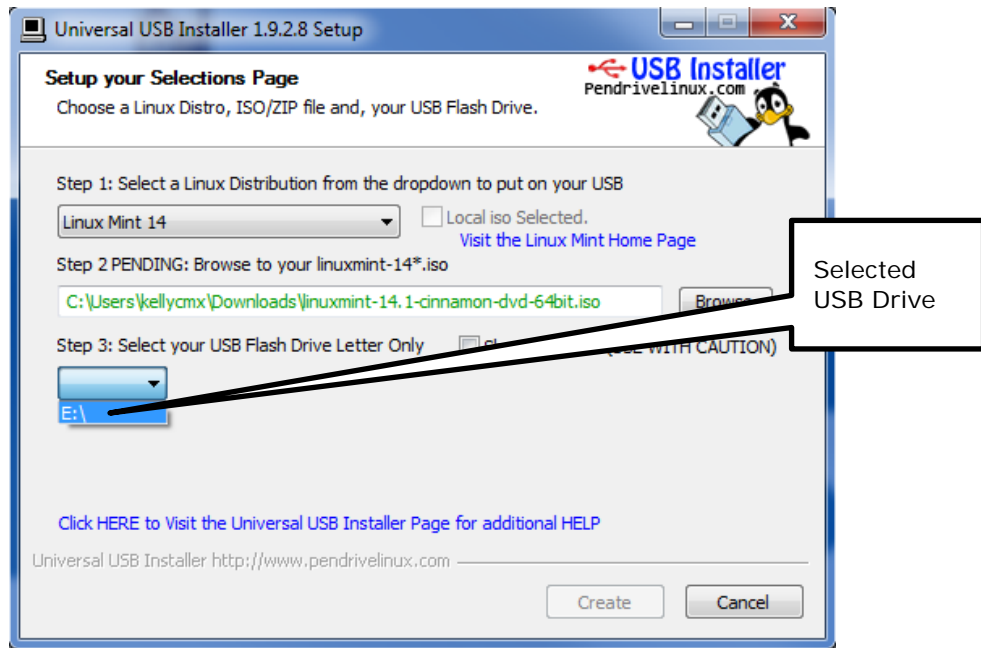- The Universal USB Installer main form.

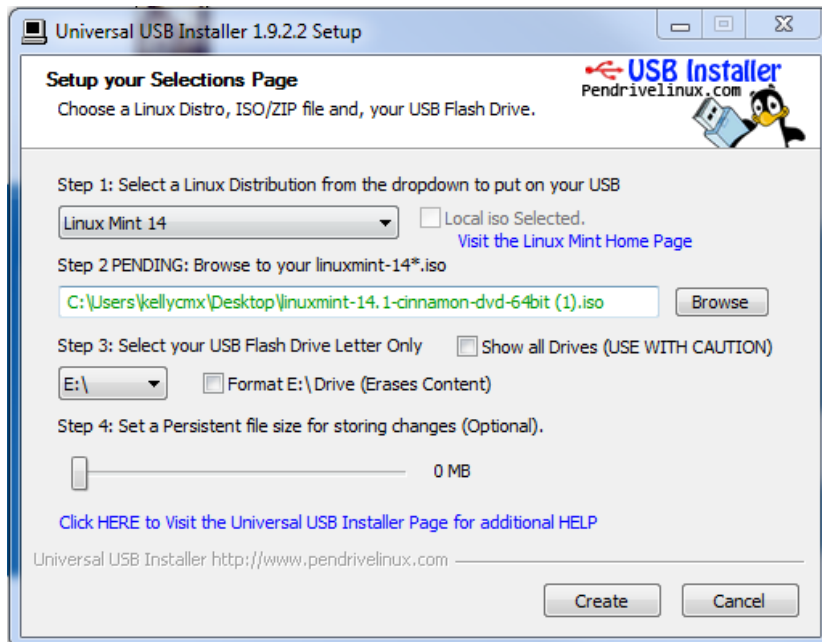- Select the Linux Mint distribution from drop down menu.

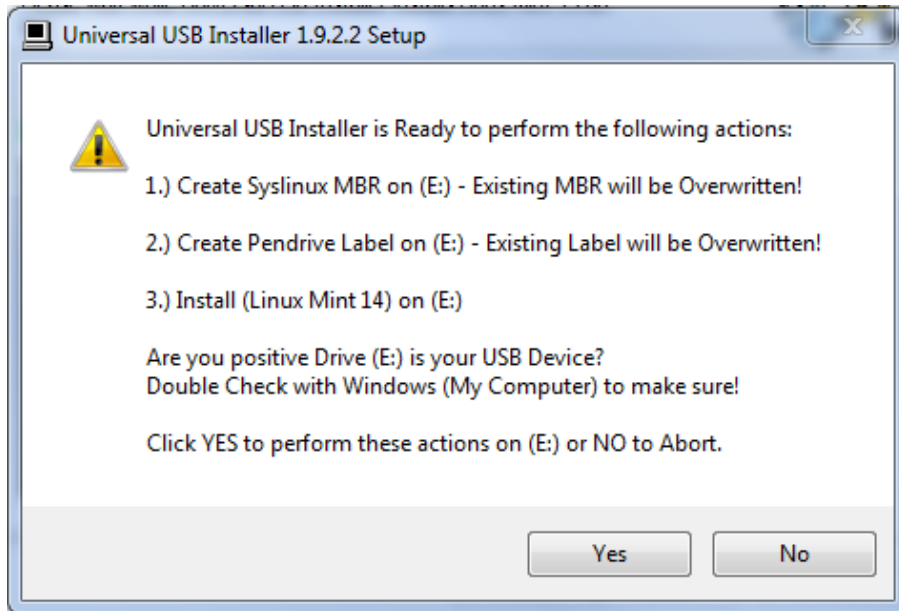- Click Browse to select the Linux Mint compressed iso file.
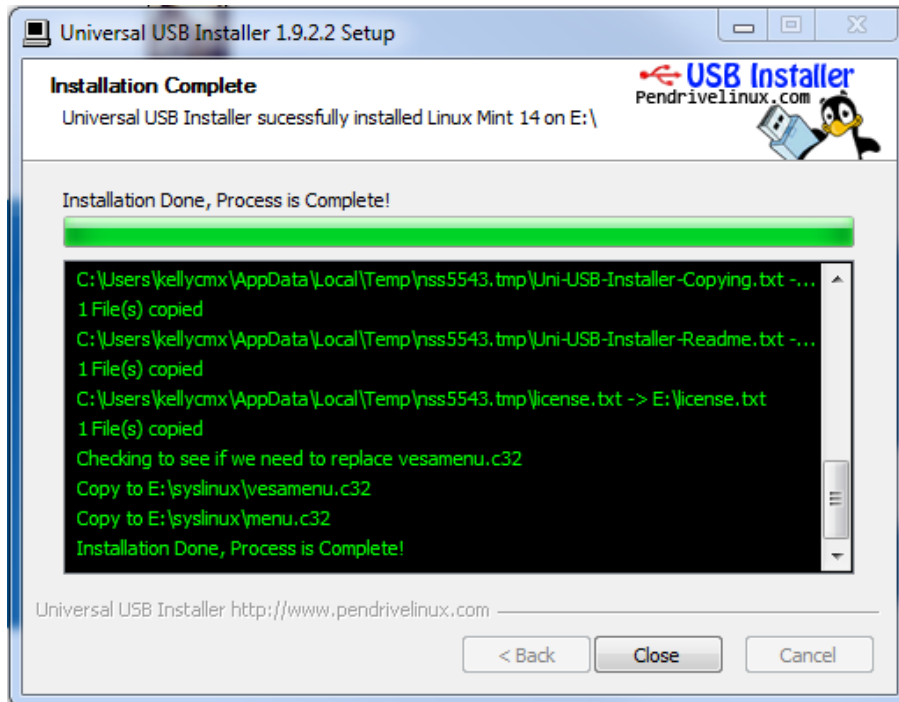
- Select USB drive from the drop down menu.

- Click Create.

- A warning screen will appear, click yes to write the Linux Mint install on to the USB drive.

- Creation of the bootable Linux Mint USB drive is complete.

- Once the USB drive is complete, Linux Mint can be installed.

Installing Linux Mint

The Linux Mint Operating System will be installed using the USB drive that was created. In order to use the USB bootable drive, the USB must be the primary boot device. This can be done by selecting the USB drive in the boot menu.
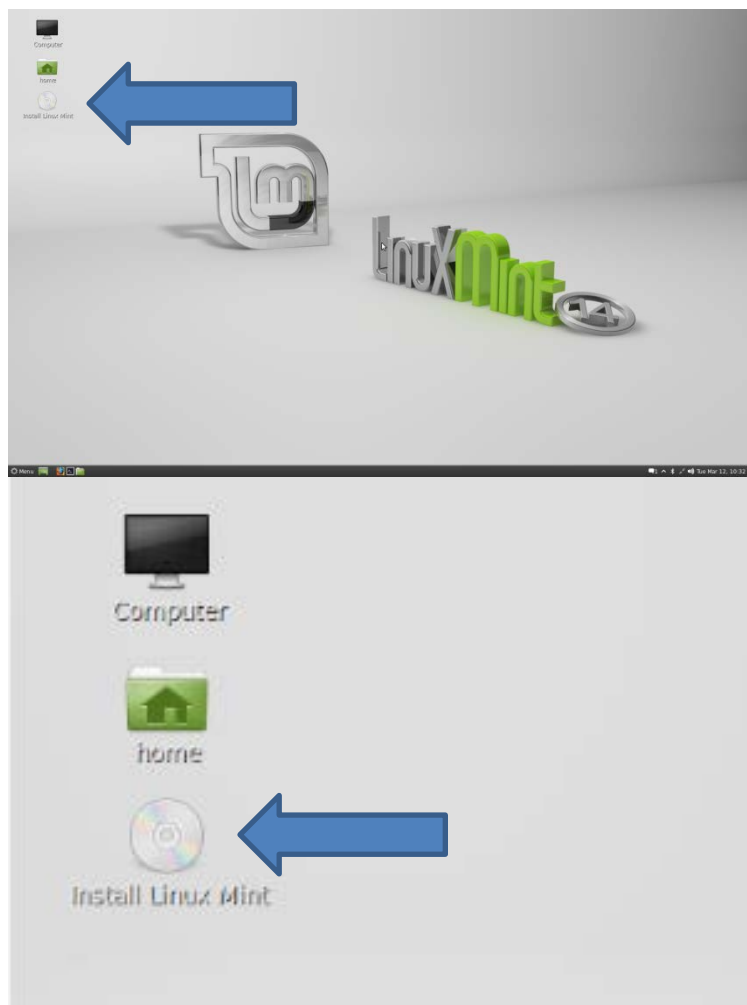
- As the computer starts up, press F10 to bring up the boot menu.
- Select the USB drive.
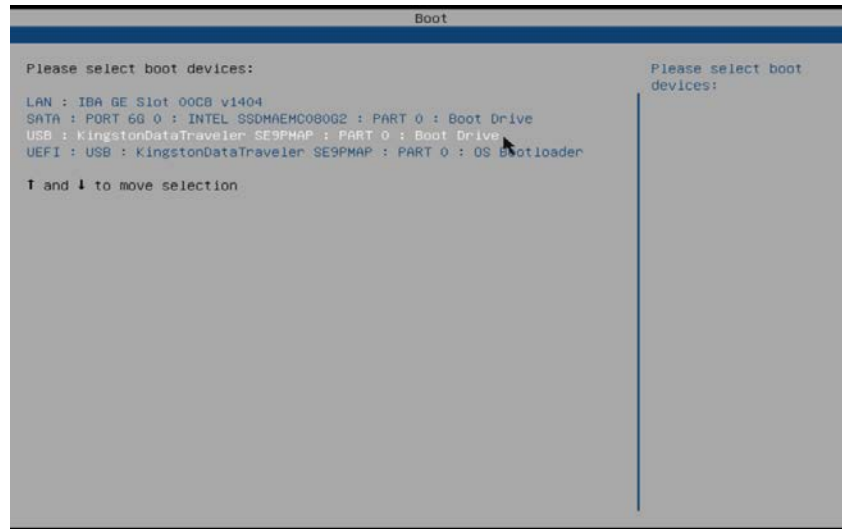
- Linux Mint will start and the desktop should appear similar to the screen below.
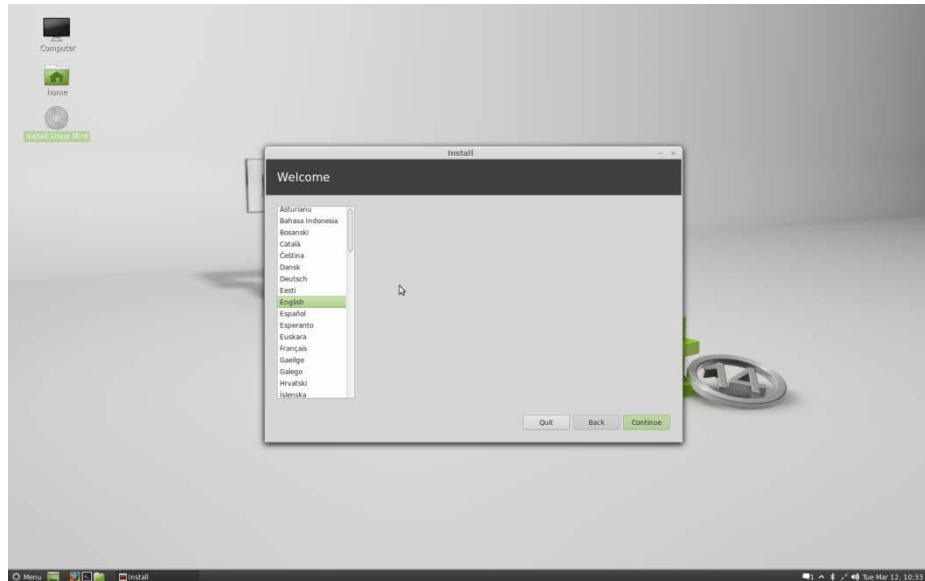
- To install Linux Mint, double-click Install Linux Mint.
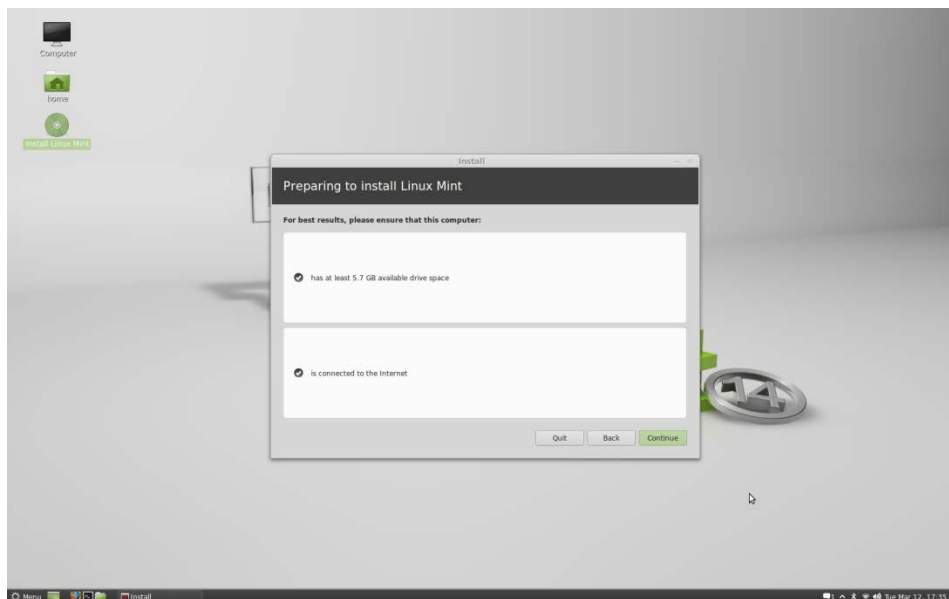

- The installation process will begin.

- Select Language.
- Click Continue.

Linux Mint will check to see if the system is prepared for installation. It is required that at least 5.7 GB of drive space is available and it is recommended that the system be connected to the internet. (Linux Mint will install even without an internet connection)
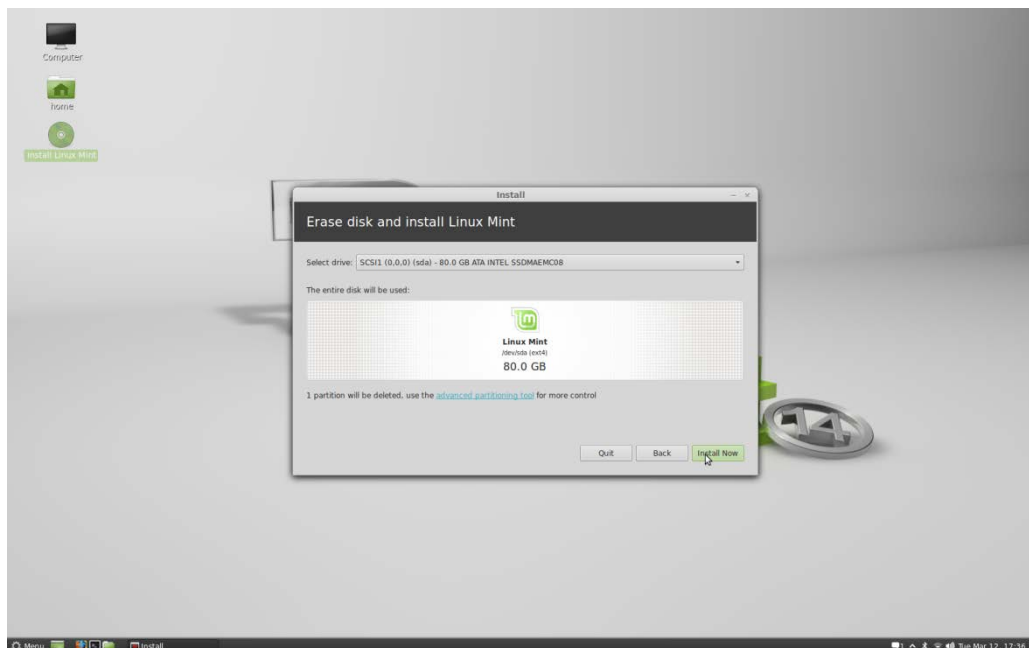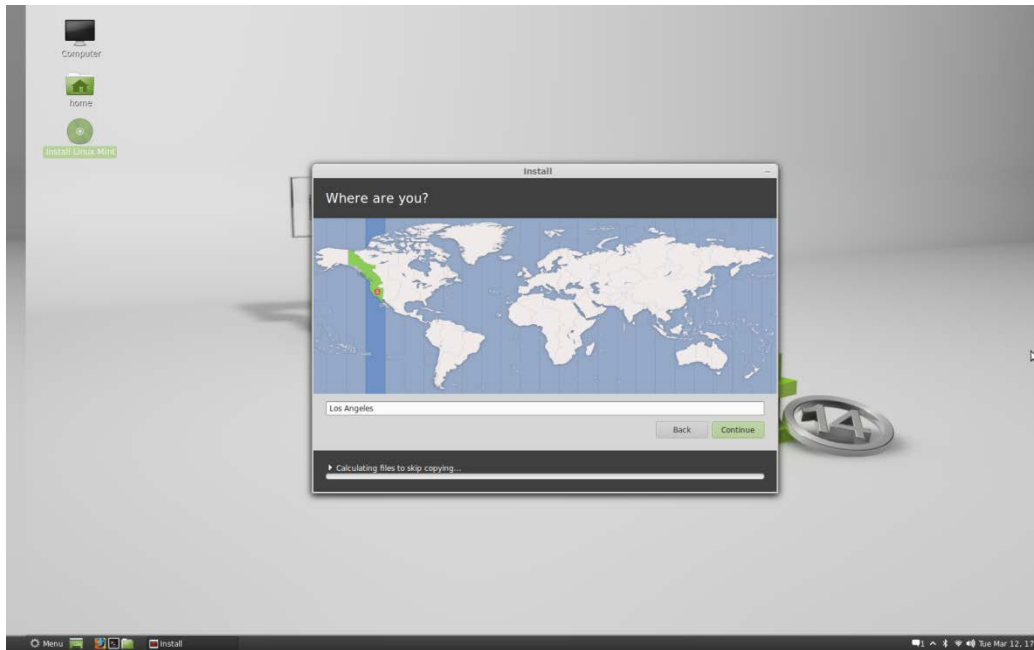
- Click Continue.

- Select Erase disk and install Linux Mint.
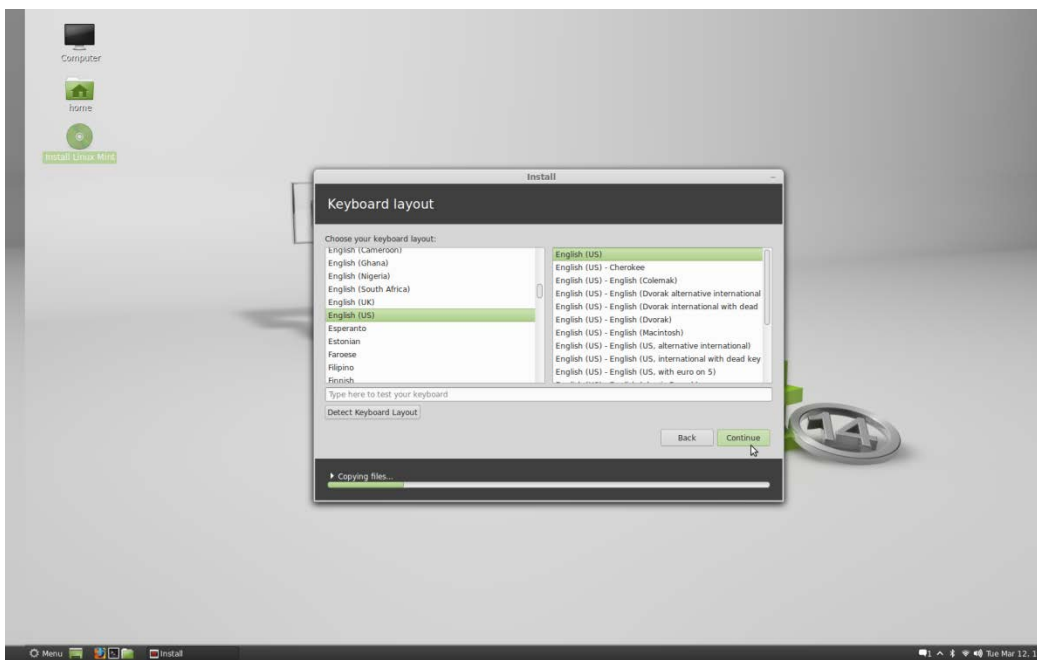- Click Continue.
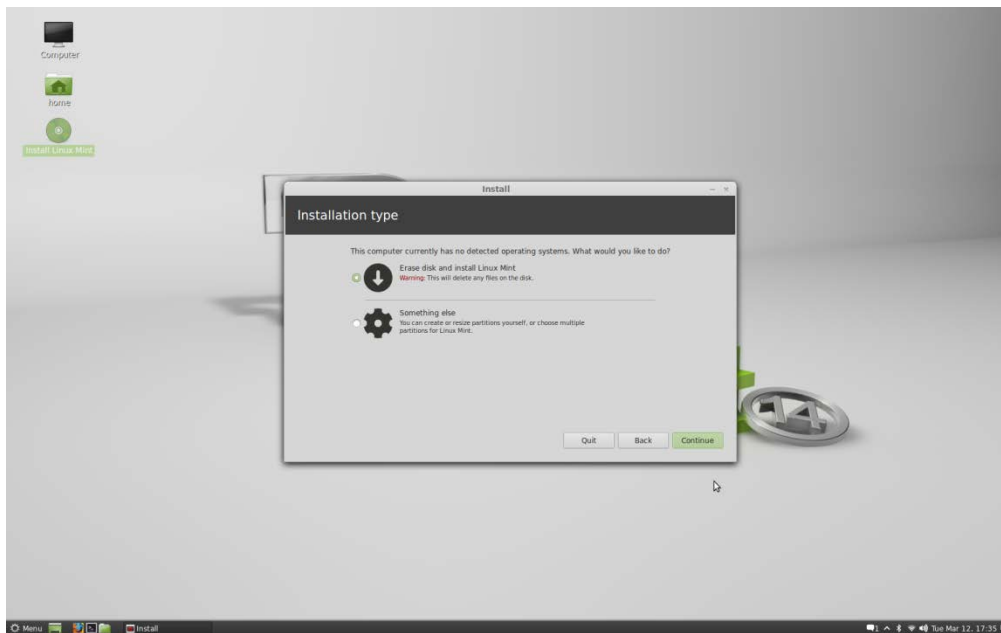
- Select appropriate drive.
- Click Install Now.

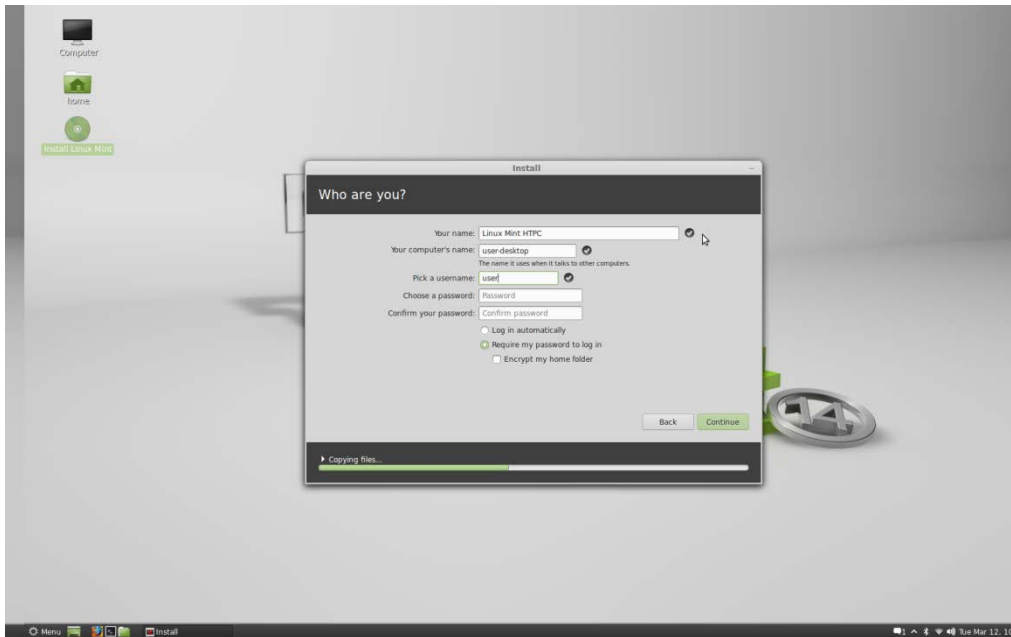- Select the appropriate region.
- Click Continue.

- Select Keyboard Layout.
- Click Continue.

- Enter:
  — Name
  — Computer Name
  — User Name
  — Password

- Choose if log in will be automatic or will require a password.
- Click Continue.

Linux Mint will complete its installation and be ready for use.

For more information on Linux Mint go to: http://www.linuxmint.com/

XBMC

XBMC is an award-winning free and open source (GPL) software media player and entertainment hub for digital media. XBMC is a non-profit project run and developed by volunteers located around the world. While XBMC functions very well as a standard media player application for your computer, it has been designed to be the perfect companion for your Home Theater PC. Supporting an almost endless range of remote controls, and combined with its beautiful interface and powerful skinning engine, XBMC feels very natural to use from the couch and is the ideal solution for your home theater .

With built-in, as well as third party, repositories for add-ons, the capabilities of XBMC running on the Intel NUC are endless. This is a major advantage of the Intel NUC versus standalone media player devices.

Installing XBMC

XBMC can be easily installed using the Software Manager contained within the Linux Mint Operating System. The Software Manger will download and install XBMC with relative ease. In order to install XBMC, the Linux Mint operating system will have to be updated. This update is done through the Update Manager tool.

To Open the Update Manager

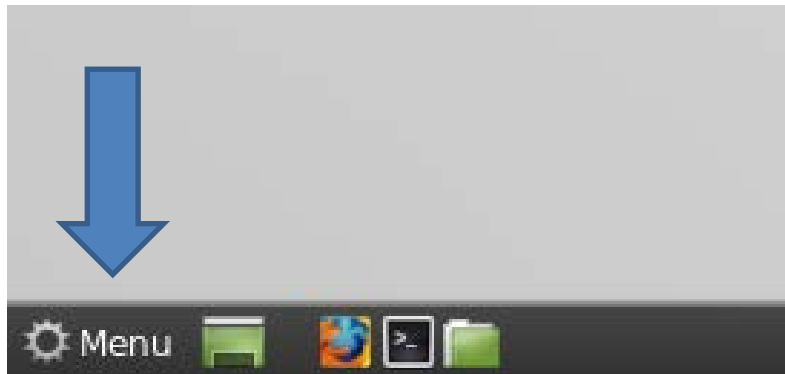- Click on the Update Manager icon on the bottom right taskbar.
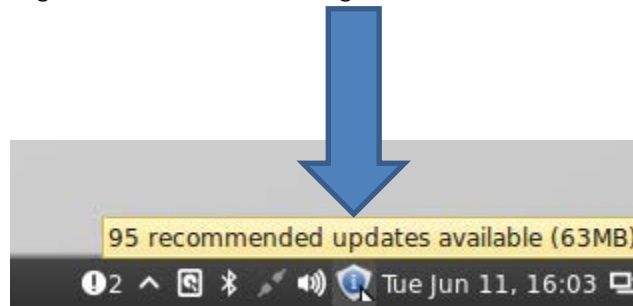
- A dialog box will appear requesting the password. Enter the password and the Update Manager will open.
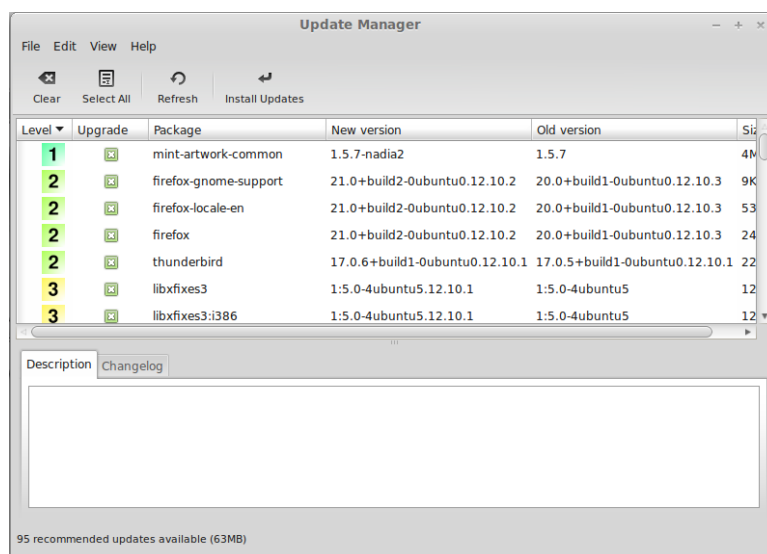
- Click on Install Updates. Linux Mint will begin to update, once it is finished, close the Update Manager.

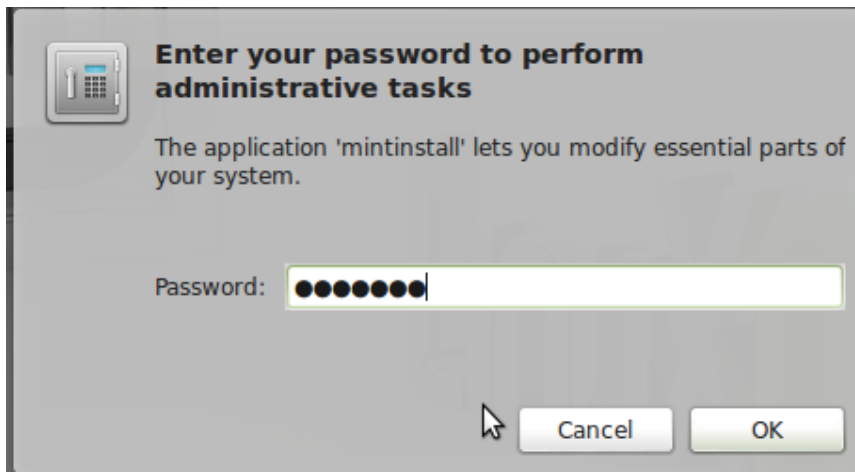## Begin to Install XBMC

- Click the Menu button.

- Mouse over Administration
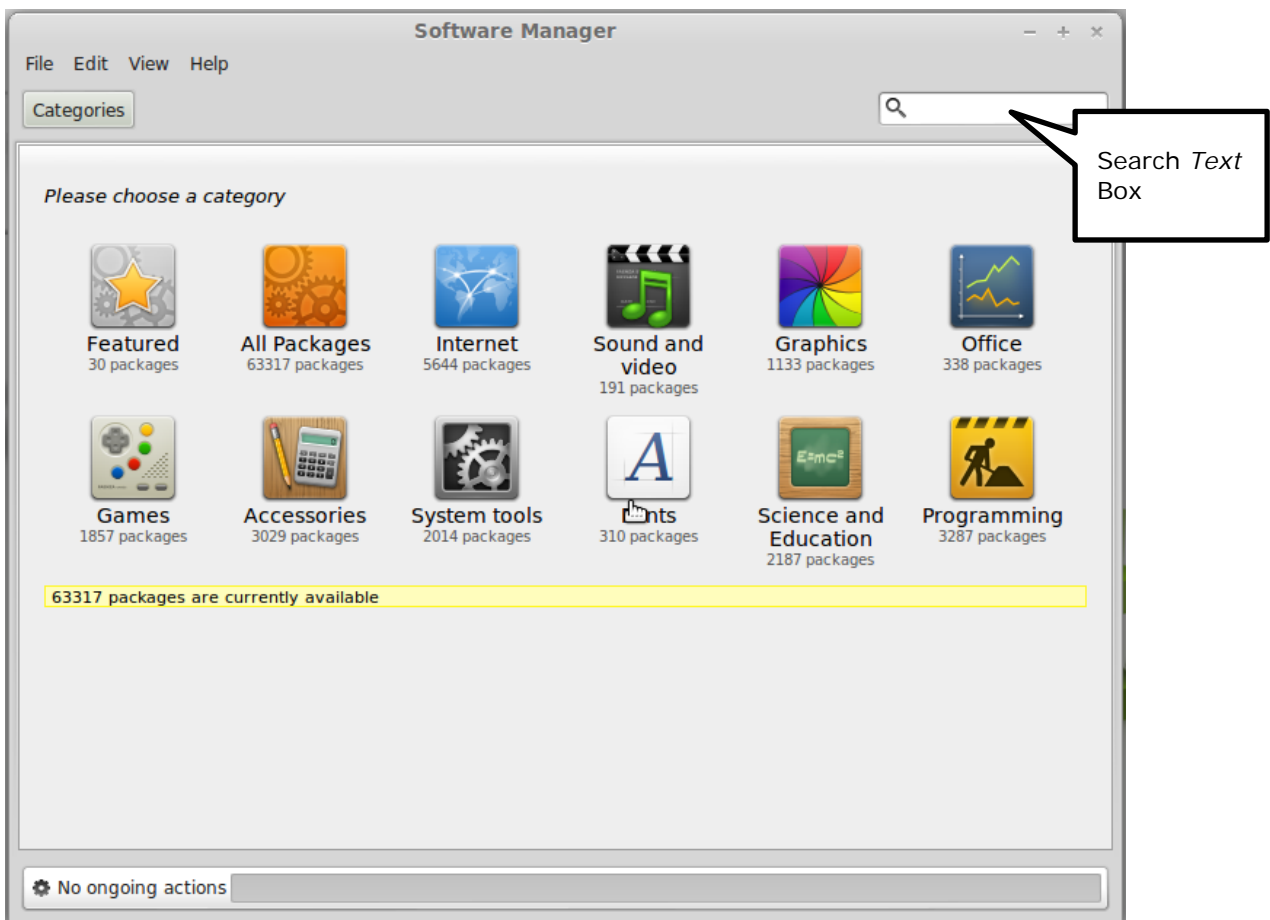- Double Click Software Manager
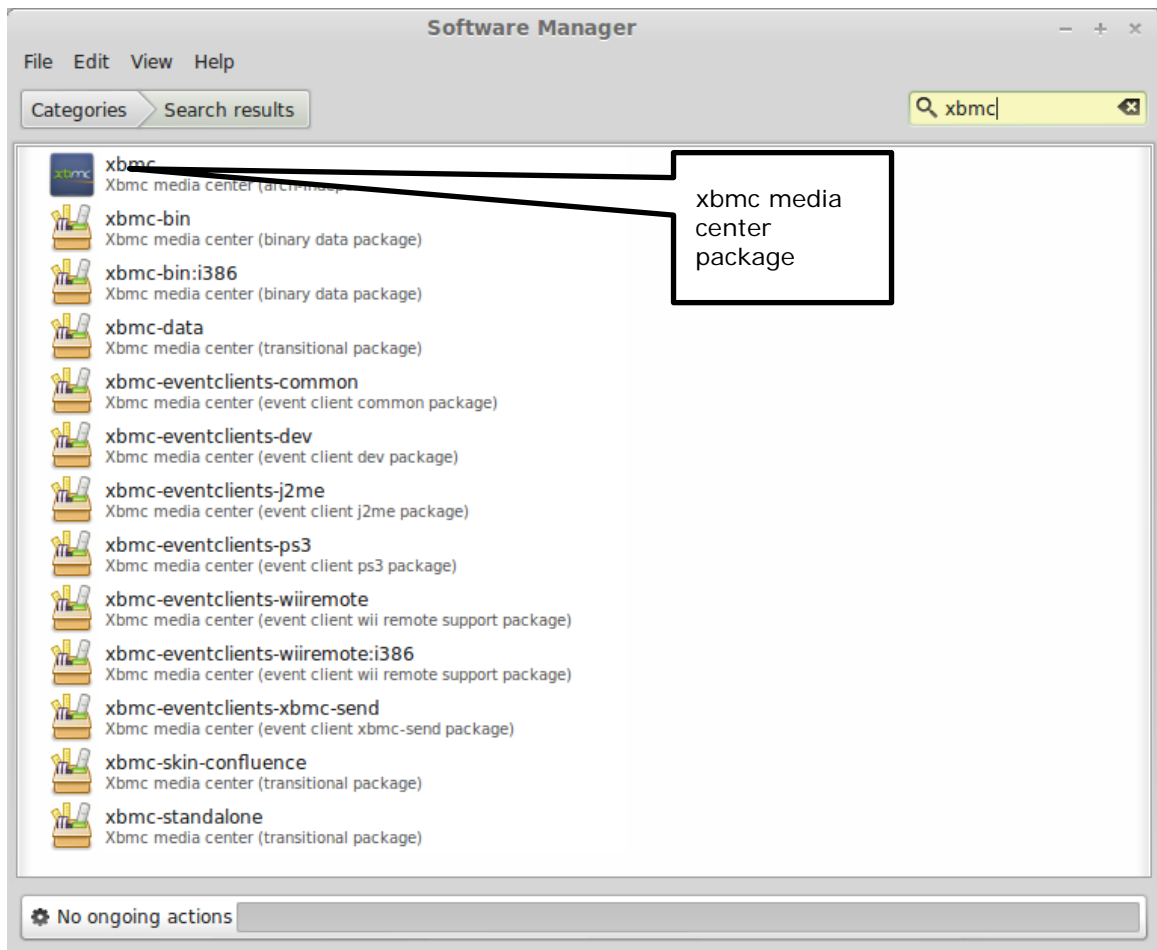
- Enter in the computer's password.

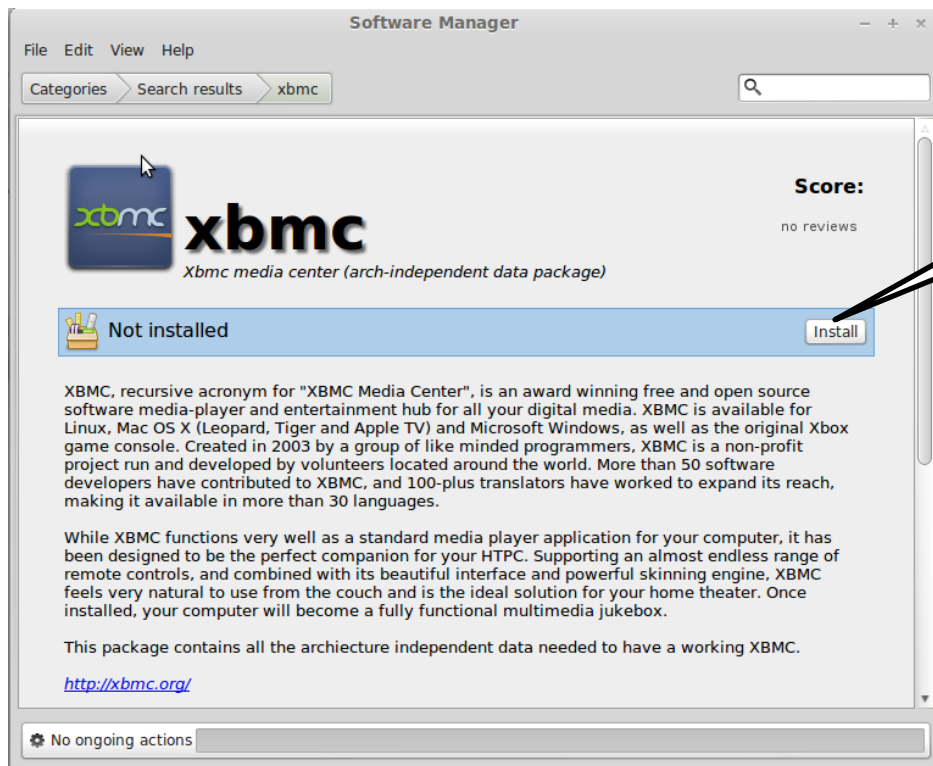The Software Manager will open.

- Enter xbmc into search text box.

A list of XBMC packages will appear.

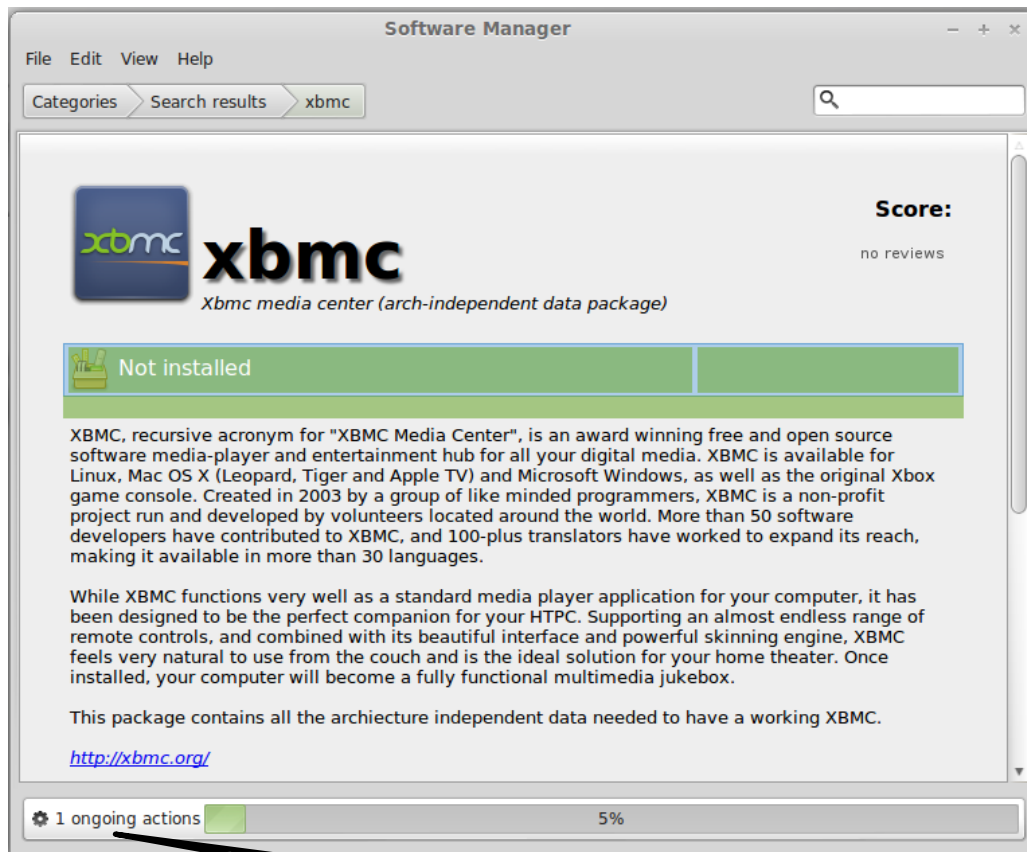- Double Click on the xbmc media center package.

The xmbc media center package will open.
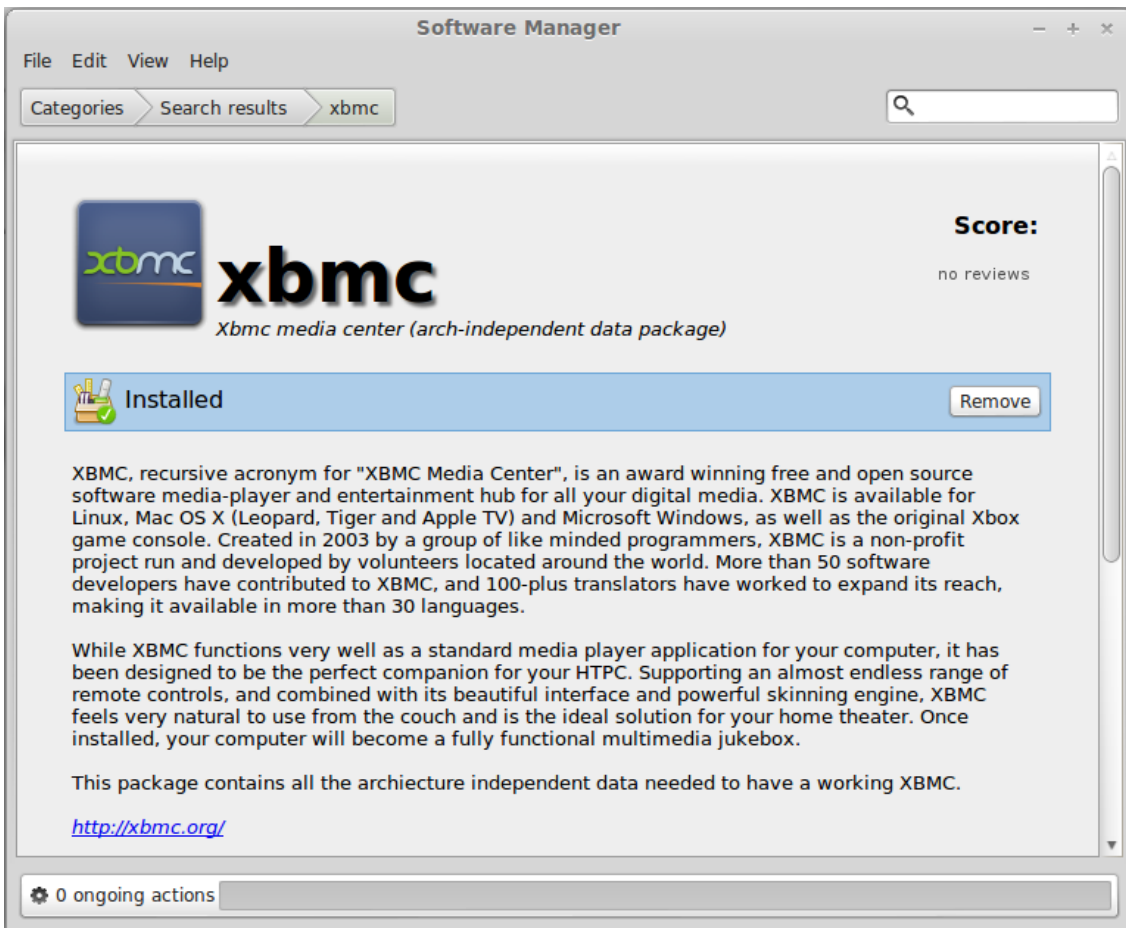
- Click Install.

XBMC will begin to install.

The progress of the installation will be shown at the bottom of the window.
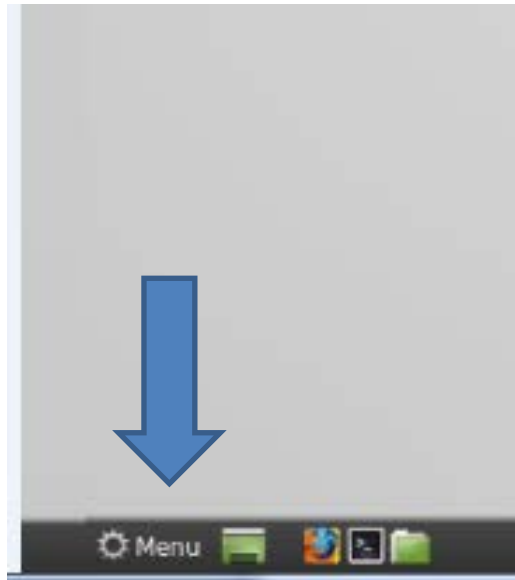

Installation
Progress

After installation is complete the Software Manager Window will appear as below.

- Close Software Manager by clicking x in the top right corner of window.
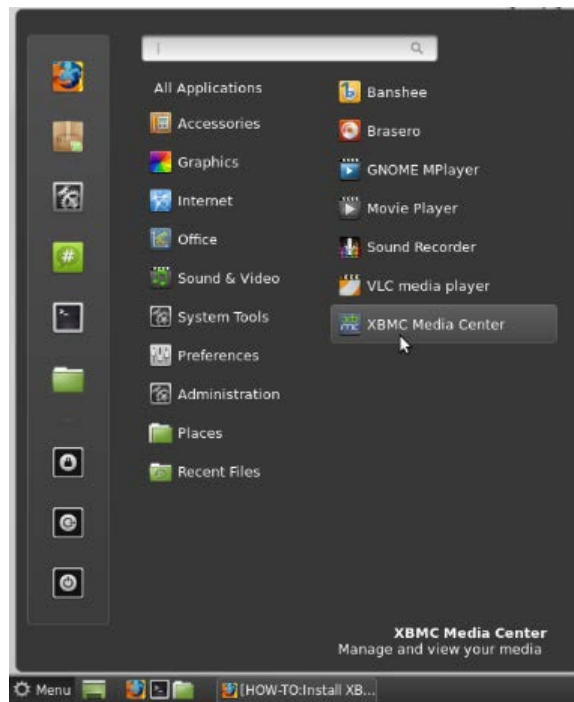
Opening XBMC
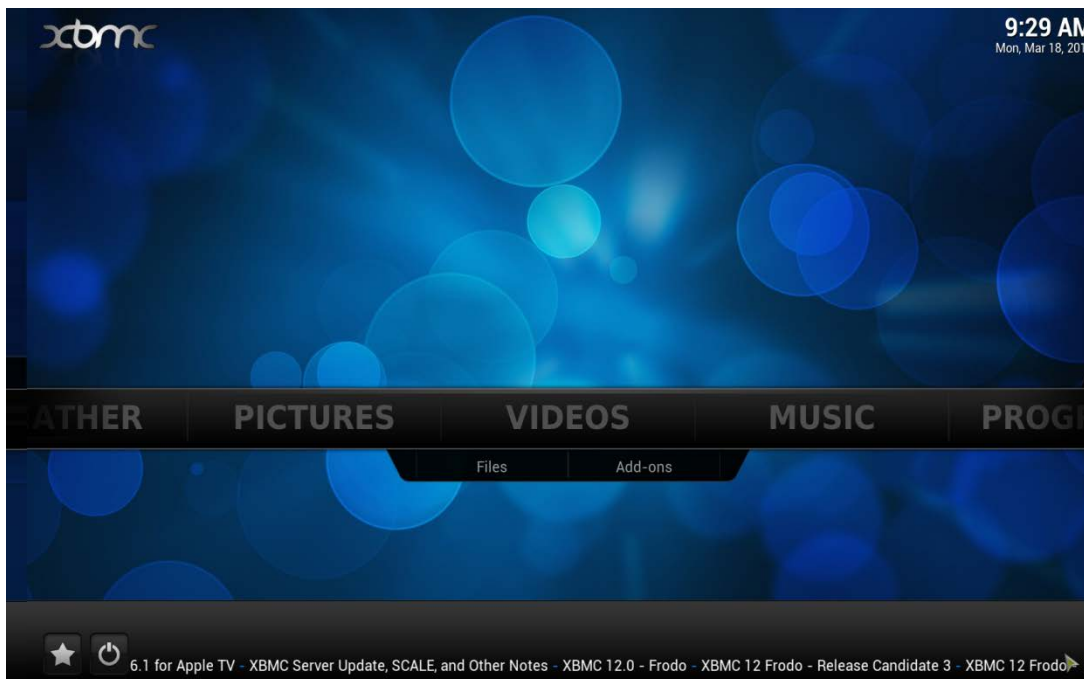
- **Click the Menu Button on the task bar**

- **Mouse over Sound & Video.**

- Double Click on XBMC Media Center.

- The XBMC home screen will open.

For more information on XBMC go to: http://xbmc.org/

Configuring Content Path for XBMC

If you have locally stored content, such as movie, music, and photo files, you can configure XBMC to recognize the path to those content files so you may access them easily via the Movies, Music, or Pictures link from the main XBMC screen.
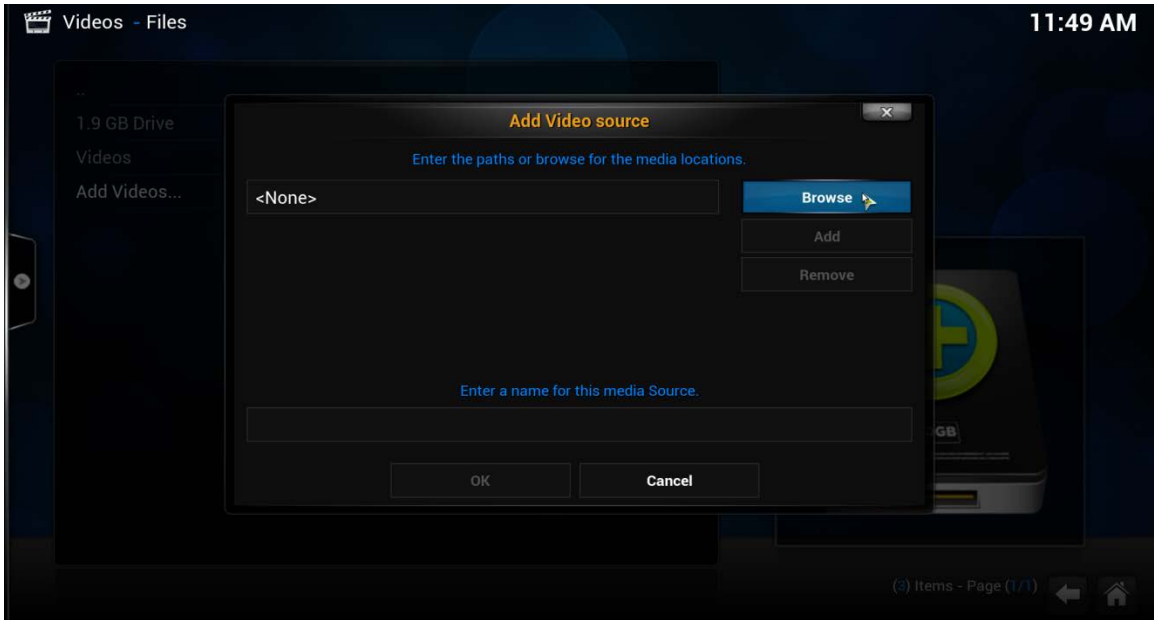
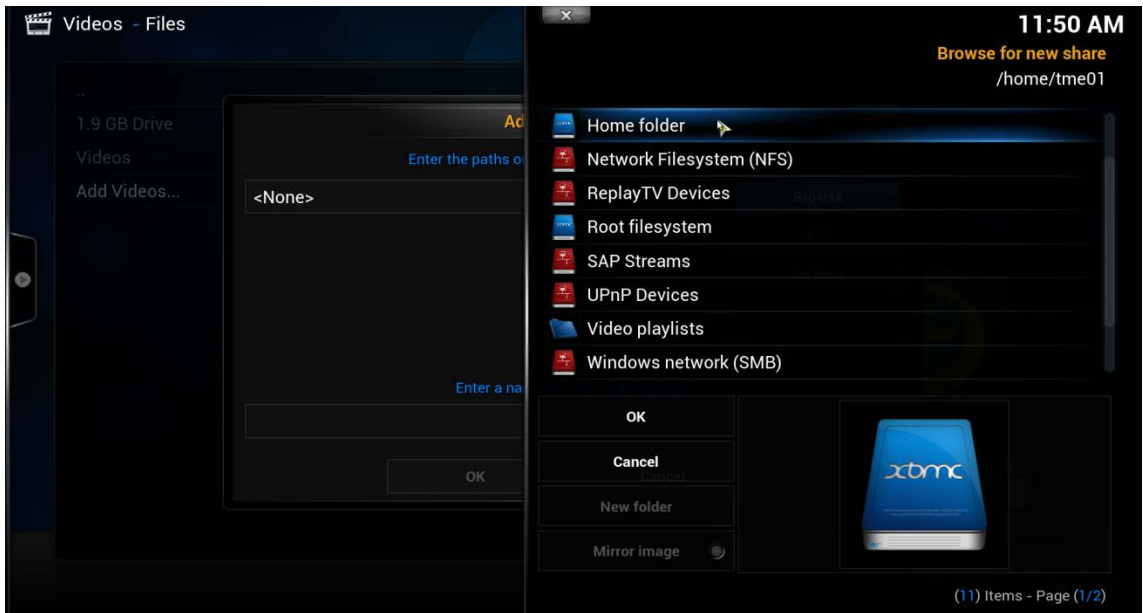- Move the cursor over Videos and then click on Files.


- Click on Add Videos.
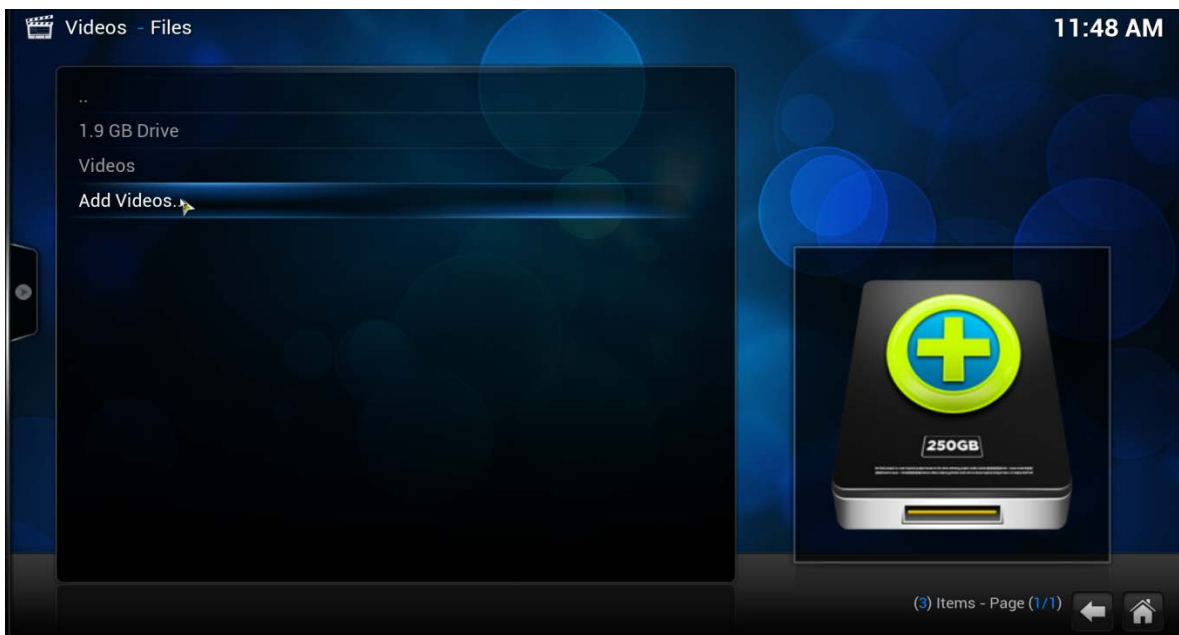
- Click on Browse.

- Choose the path to your video content folders. The content can be local or via other sources such as Windows Network (SMB) path or from a UPNP (Universal Plug and Play) device. In this example, we will use a local folder. Click on Home Folder.

- The path to the local folder is now shown. You may enter a different name for the media source. Click OK when done.
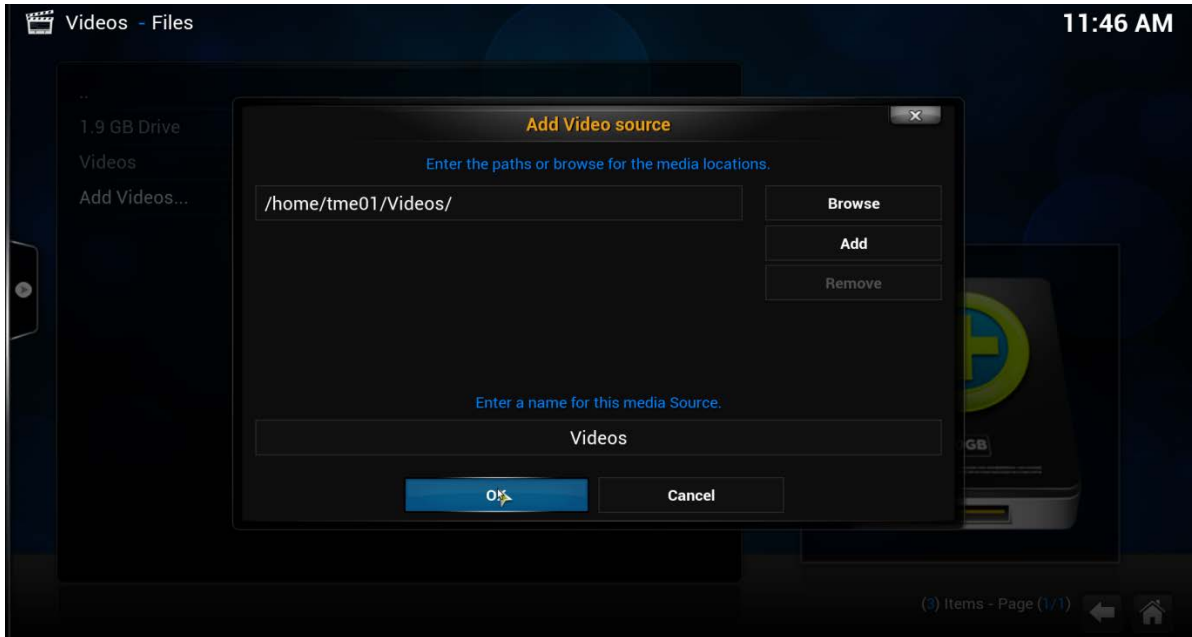
- The next screen is Set Content. You may choose if the media content stored are Movies, TV Shows, or Music. Once you have chosen the media content type, you are given a choice of Scraper tool. The Scraper tool will connect to its online server and download relevant information such as Rating, Length, Cast, and Synopsis for your media files. Click OK when done.
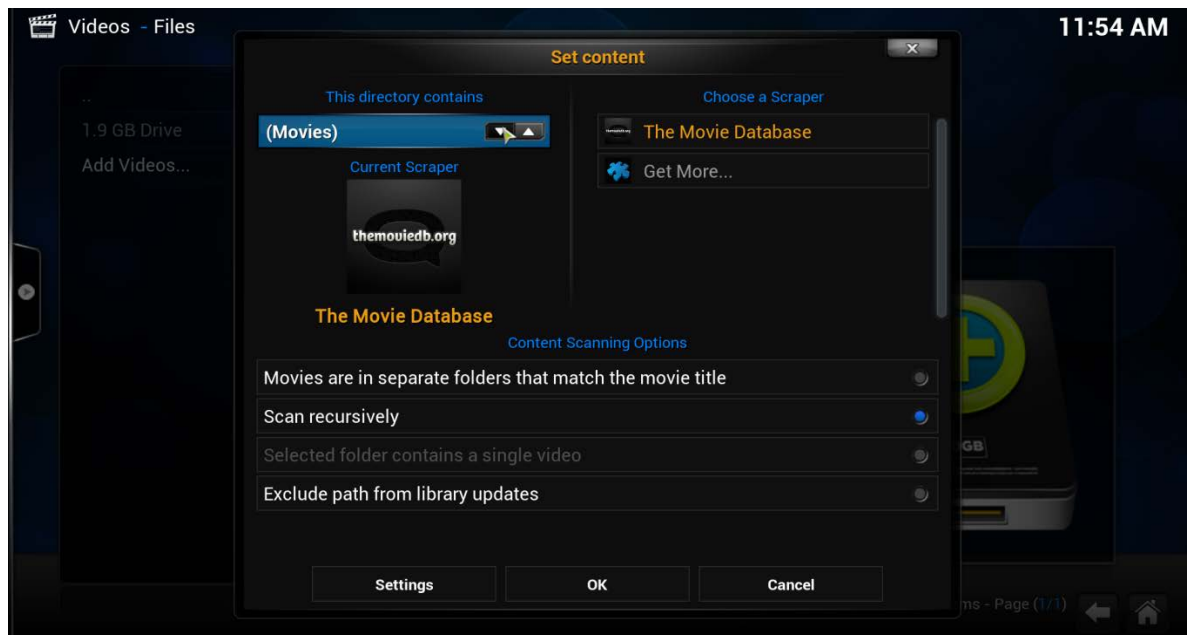
- Once completed, a new category called Movies will now appear on the main XBMC screen.


- By using similar steps as above, you may configure the path for your Music and Picture content.

Configuring Add-Ons

One of the biggest features of XBMC is Add-Ons. Add-ons are packages that add functionalities not included by default on XBMC. There are Video, Music, and Program Add-ons which provides a wealth of new online content accessible from your HTPC. Internet connection is required to install and access Add-ons contents.
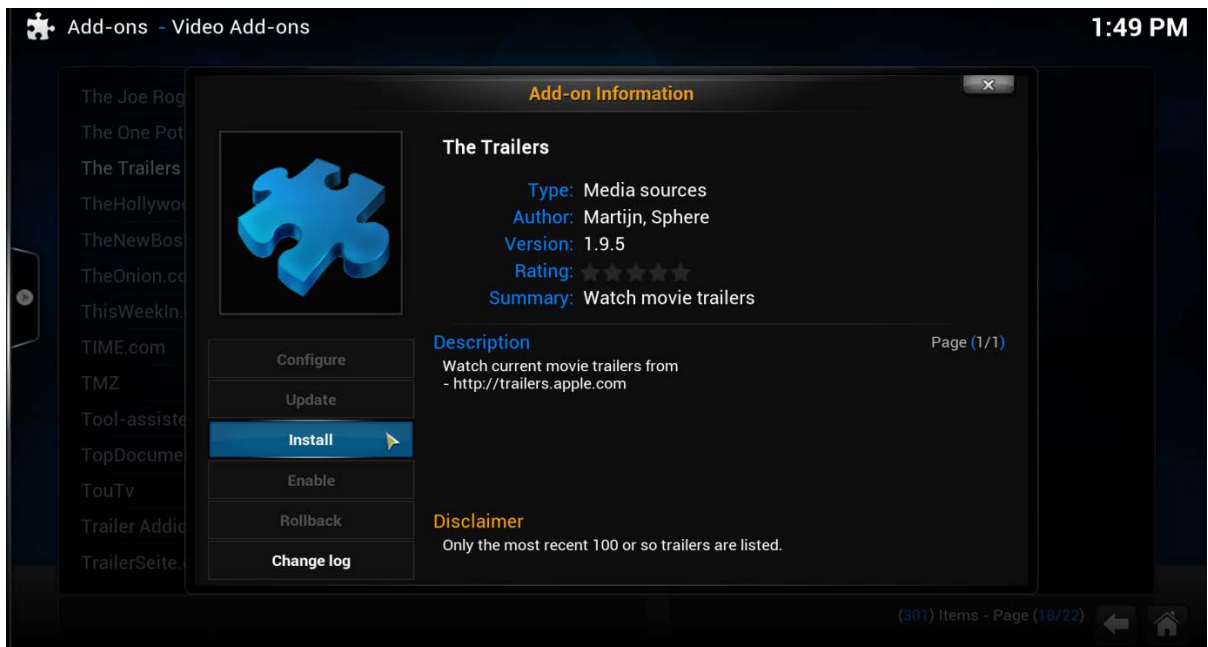
- Move the cursor over to Videos and then click on Add-ons.
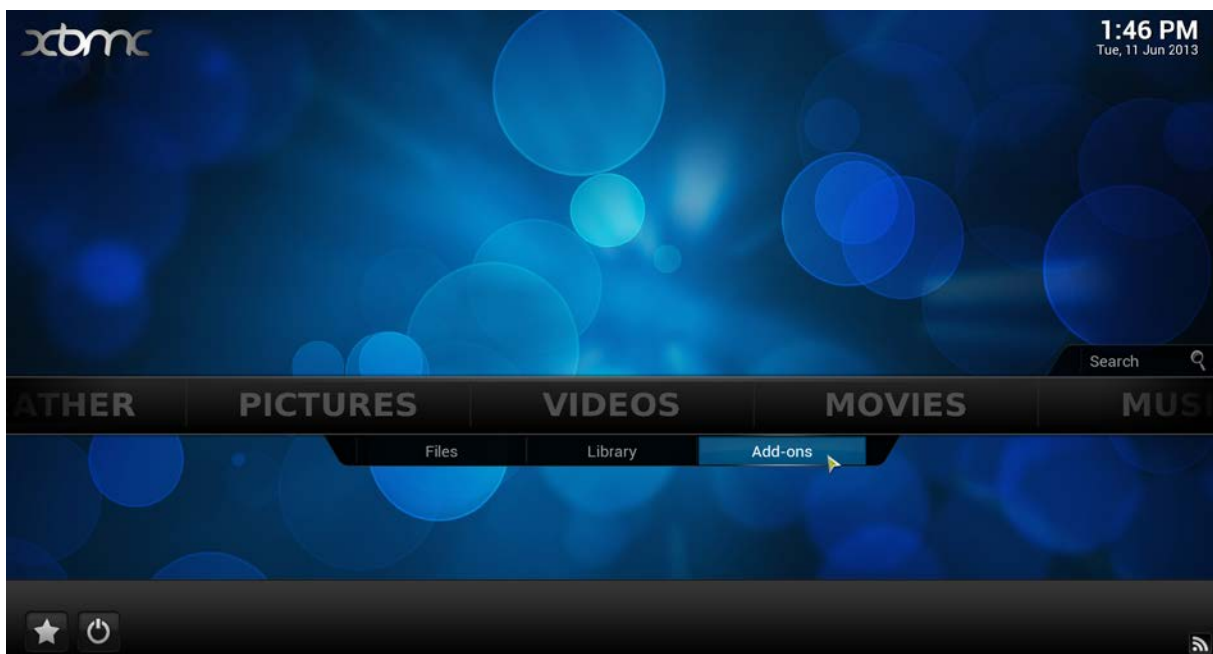
- You will see an empty Video Add-ons screen, and a link to Get More. Click on Get More. The next screen will contain a list of Video Add-ons provided by the default XBMC Add-ons repository. Browse through the list and choose a suitable Add-on.
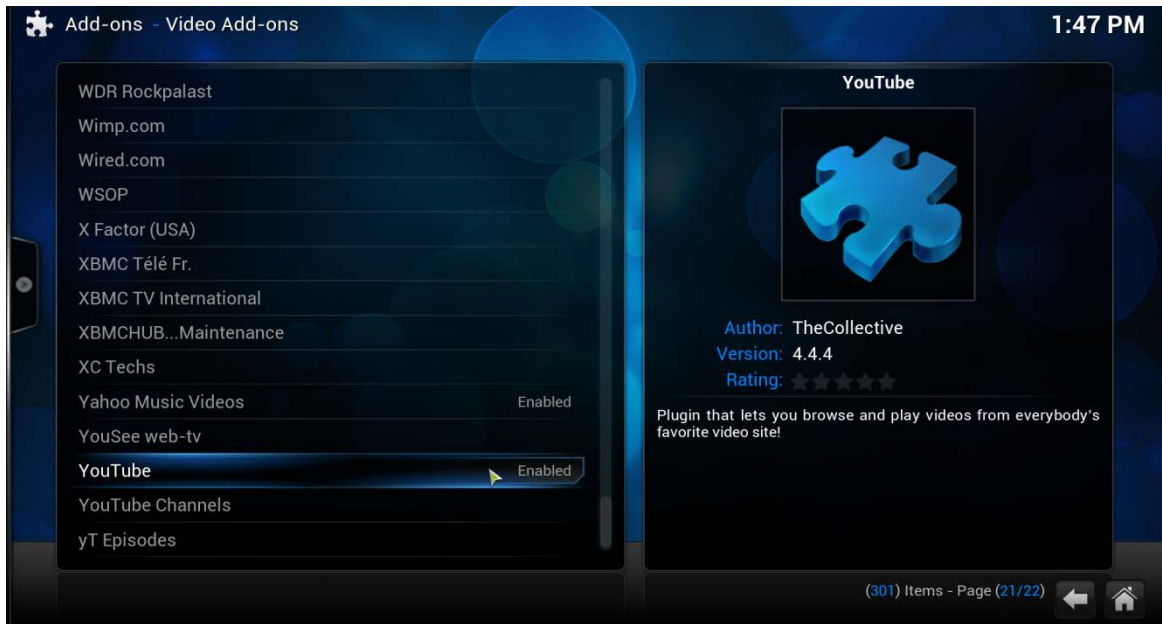
- Once you have chosen a particular Add-on, click on it and then choose Install.

- The Add-on will be downloaded and installed within XBMC. It will also appear in the Videos Add-ons screen list. You are ready to enjoy additional content via XBMC Add-ons.
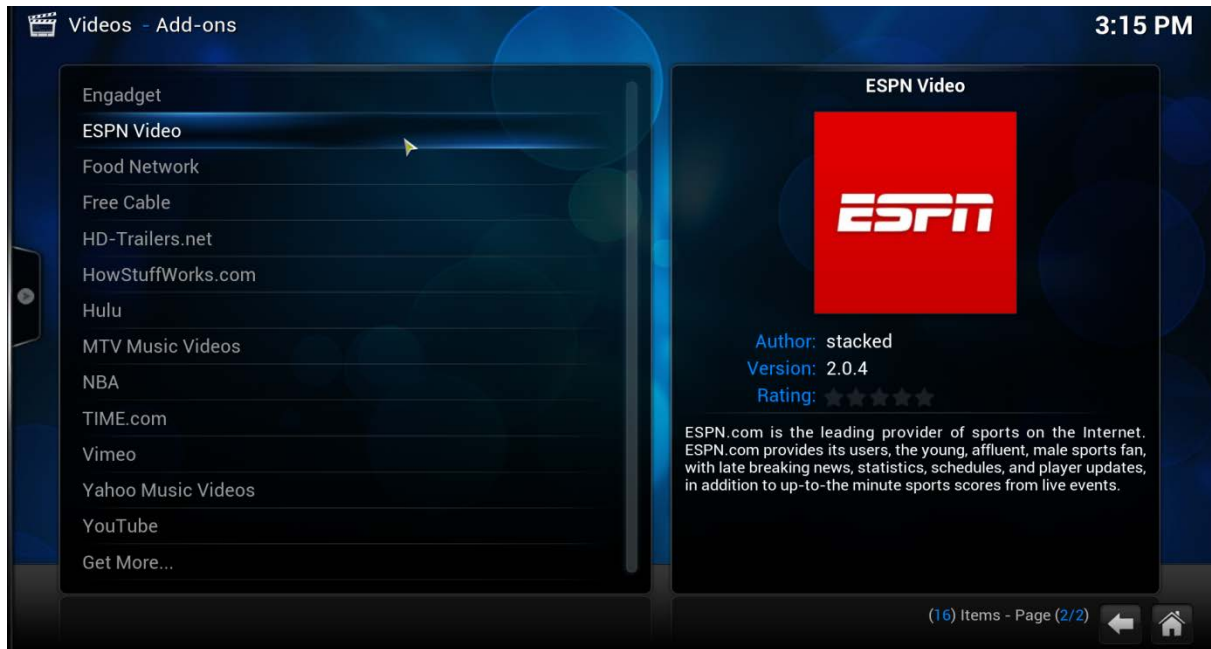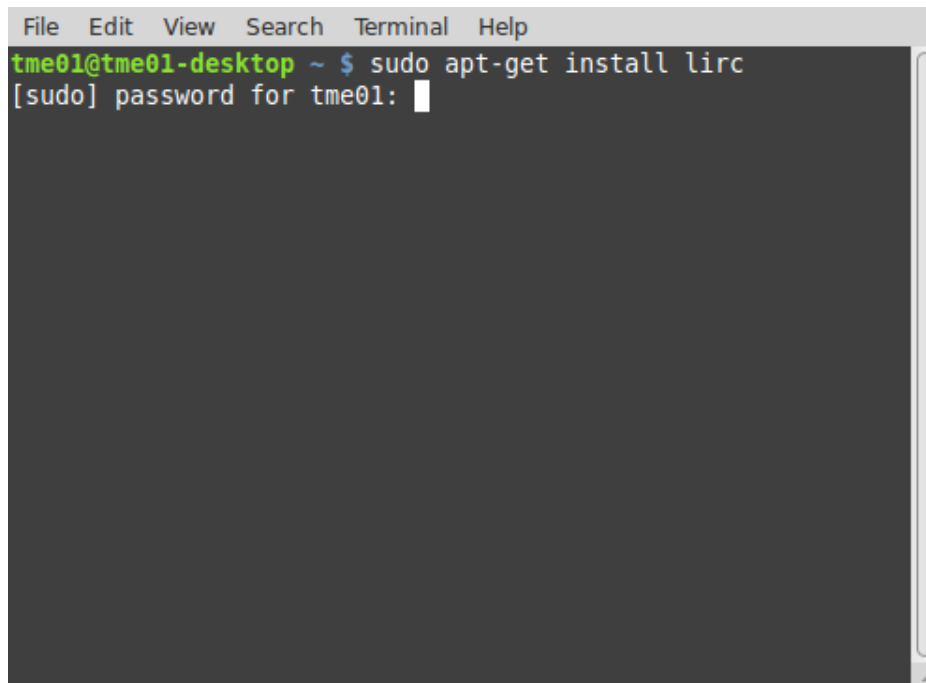
Configuring MCE Remote Control to XBMC Mapping

Once you have completed configuring your media content paths within XBMC, you may want to start using XBMC with a remote controller instead of a keyboard and mouse, especially if your HTPC will be setup in the living room with a big screen TV and a couch.

The following will help you map the buttons of a Microsoft MCE-compatible Remote Controller according to the XBMC menu. We will use a tool called LIRC (Linux Infrared Remote Control).

- Exit XBMC by navigating to the power button on the bottom left and choosing Exit. Click on Terminal to open up a Terminal for command line. Type the command 'sudo apt-get install lirc'. Then enter the password that you created during the installation of Linux Mint.

- The lirc tool will downloaded. The terminal will prompt you before installing it. Press 'Y' for the installation to start.

- Once completed, lirc configuration process will start. For Remote Control configuration, scroll down the list until you see an entry called 'Windows Media Center Transceivers/Remotes (all)'. Press Enter.


- The next screen is to choose an IR transmitter. If you do not have one, choose None and press Enter. You are now ready to use XBMC with your Windows MCE-compatible remote controller.

Configuring XBMC to Auto-Start

If you plan to use the Intel NUC purely as a HTPC, you may want the XBMC software to auto-start every time you boot up the system. This way you can use the HTPC only with the remote controller as you would for a DVD or Blu-Ray disc player. The following describes the steps to configure XBMC as the default boot session for Linux Mint.

- Exit from XBMC. Click on the Linux Mint Menu button, and choose to Logout. Then click on the Log Out button. Next, you will see the Login screen as shown below. Click on the button for Session.
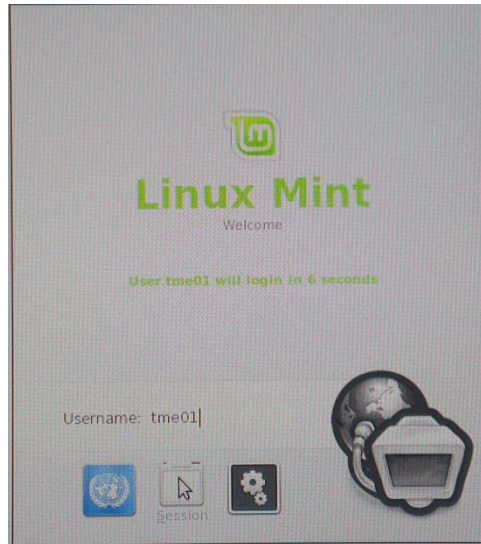
- In the Sessions screen, choose XBMC and then click on the Change Session button.
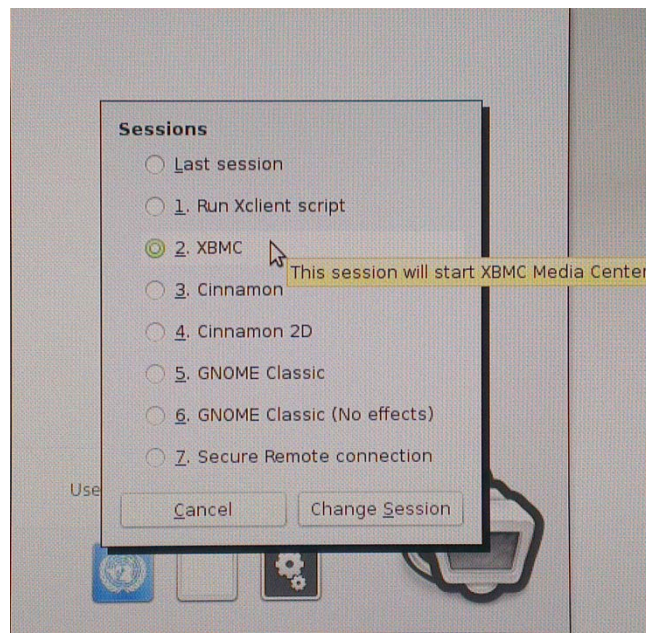
- A dialog box will appear, "Do you wish to make XBMC the default for future sessions?" Click on Make Default if you would like this system to Auto-Boot into XBMC.
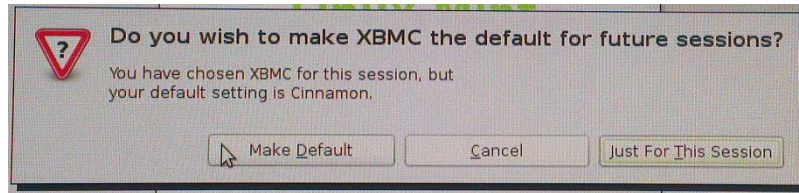
- The system will now boot directly into XBMC making it a perfect Home Theater PC.