

ULI101: INTRODUCTION TO UNIX / LINUX AND THE INTERNET

WEEK 7:

INSTALLING LINUX / LIVE LINUX DISTRIBUTIONS

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LESSON 1 TOPICS

Installing Linux

- Purpose / Linux Distributions
- Linux Installation Methods

Live Linux Distributions

- Purpose
- Run **Knoppix** from your **home** computer (as a **Virtual Machine**)

Week 7 Tutorial (Optional, but really cool!)

- INVESTIGATIONS 1 & 2

Work on **Assignment 2** (sections: **1, 2** and **3**)

INSTALLING LINUX

Having a Linux system on your home computer provides access to a large library of **open source software**.

Also, installing your own version of Linux on your notebook or desktop computer teaches you how to:

- **Work in the Linux environment**
- **Run graphical applications**
- **Perform routine Linux OS administration tasks**



TRADITIONAL LINUX INSTALLATION

STEPS:

1. Select a **Linux Distribution** and **download** a Linux Distribution Install **ISO** file to your Computer (**Note:** Be aware of any required Hardware Requirements for the Linux OS prior to installation.)

Knoppix Link: <https://www.knopper.net/knoppix-mirrors/index-en.html>

2. Burn a Linux Distribution **CD/DVD**, or **USB Key**.

How to Burn CD: [Install Knoppix Linux](#)

How to Burn USB Key: [How to Boot Knoppix from USB](#)

3. For most distributions, the installation involves a **guided graphical environment**.

Download KNOPPIX via BitTorrent
<http://torrent.unix-ag.uni-kl.de/>

Download KNOPPIX from Mirrors

Most of the following institutions have good connections to the German research networks (this is particularly useful for students and educators). They have graciously agreed to set up limited hosting areas for downloading the bootable KNOPPIX GNU/Linux ISO images:

Download from	Protocol	Site Sponsor	
ftp.uni-kl.de	(rsync CD) (rsync DVD) [ftp CD] [ftp DVD] (http CD) (http DVD)	Technische Universität Kaiserslautern *	
ftp.knoppix.nl	(rsync CD) (rsync DVD) [ftp CD] [ftp DVD] (http CD) (http DVD)	HCC Unix gp 2.5GBit Line (Netherlands)†	
mirror.knoppix.net	(rsync CD) (rsync DVD)	KoCOS Net Dronten (Netherlands)	
ftp.gwdg.de	[ftp CD] [ftp DVD] (http CD) (http DVD)	Gesellschaft für wissenschaftliche Datenverarbeitung mbH Göttingen	
wwwita.informatik.rwth-aachen.de	[ftp]	Rheinisch-Westfälische Technische Hochschule Aachen	
hullfax.rwth-aachen.de	(rsync)	[http]	Rheinisch-Westfälische Technische Hochschule Aachen
ftp.tu-chemnitz.de	[ftp]	[http]	TU Chemnitz
www.techsize.com		[http CD] (http DVD)	Techni3D (Online Hardware Magazin)
ftp.gloaliac.de	(rsync)	[ftp]	Plus Line AG (Internet Provider)
ftp.uni-erlangen.de	[ftp]	[http]	Friedrich-Alexander-Universität Erlangen-Nürnberg (also IPv6)
knoppix.ftp.fu-berlin.de	[ftp]		Freie Universität Berlin
ftp.fu-ber.de	(rsync)	[ftp]	Technische Universität Braunschweig
ftp.de.uni-frankfurt.de	[ftp]		Johann Wolfgang Goethe-Universität Frankfurt am Main
www.artfilez.org		[http]	Artfilez New Media GmbH
ftp.freenet.de	[ftp]	[http]	Freenet.de
ftp.tu-linnea.de	[ftp]	[http]	TU Linneaus
ftp.fu.uni-wuerzburg.de	[ftp]		Universität Würzburg
ftp.uni.de	[ftp]	[http]	UXB.De
mirror.netcologne.de	(rsync)	[ftp]	NetCologne GmbH
ftp.free.fr	[ftp]	[http]	ProXad (France)
Buda.Bud-De	(rsync)	[ftp]	Szemleves Orvosudományi Egyetem (Budapest, Hungary)
mirror.csi.csi.org	(rsync)	[http]	Universidad de Chile (Santiago, Chile)
ftp.klid.dk	[ftp]	[http]	Kommercielle Linux-interesser i Danmark

LINUX INSTALLATION METHODS

Standalone Installation

Linux is the only OS on the computer.

Any existing data on disk will be **erased**.



LINUX INSTALLATION METHODS

Dual-boot / Multi-boot Installation

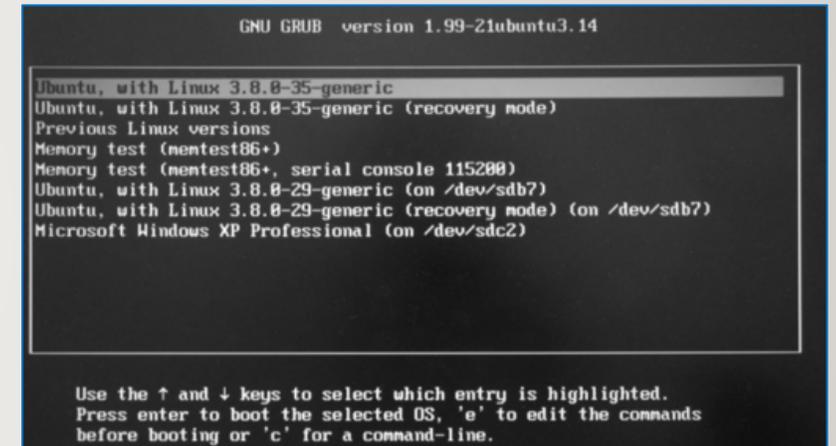
A **boot menu** allows the user to select the desired OS.

Advantages of Dual-Boot or Multi-Boot:

- This option provides a method to access your computer if one OS **fails to boot-up**.
- **Access the Windows partition** if your Windows OS cannot boot-up.
- This booting method is great for **troubleshooting** (for example: boot into Linux OS to eliminate a hardware issue).

Installation Tips:

- It is recommended to **back up important data** before proceeding.
- It is recommended to **install** the Linux operating system **last**, as other operating systems may NOT offer a **multi-boot option**.



```
GNU GRUB version 1.99-21ubuntu3.14

Ubuntu, with Linux 3.8.0-35-generic
Ubuntu, with Linux 3.8.0-35-generic (recovery mode)
Previous Linux versions
Memory test (memtest86+)
Memory test (memtest86+, serial console 115200)
Ubuntu, with Linux 3.8.0-29-generic (on /dev/sdb7)
Ubuntu, with Linux 3.8.0-29-generic (recovery mode) (on /dev/sdb7)
Microsoft Windows XP Professional (on /dev/sdc2)

Use the ↑ and ↓ keys to select which entry is highlighted.
Press enter to boot the selected OS, 'e' to edit the commands
before booting or 'c' for a command-line.
```

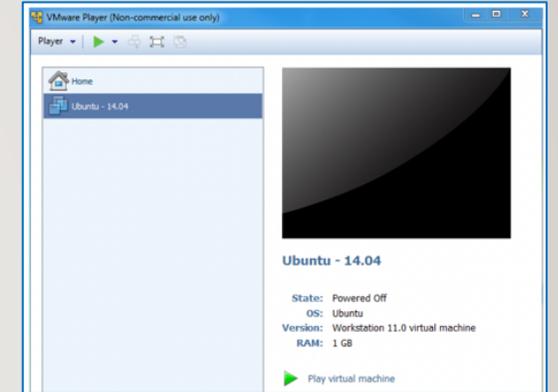
LINUX INSTALLATION METHODS

Virtualization Machine Installation

Virtualization is the process of running a **virtual instance** of a computer system in a layer **abstracted** from the actual hardware.

Reference: <https://opensource.com/resources/virtualization>

The virtualized (**guest**) operating system is installed and run in a window under another (**host**) computer's operating system. Special **software** is used to manage the entire process, referred to as the **hypervisor**.



LINUX INSTALLATION METHODS

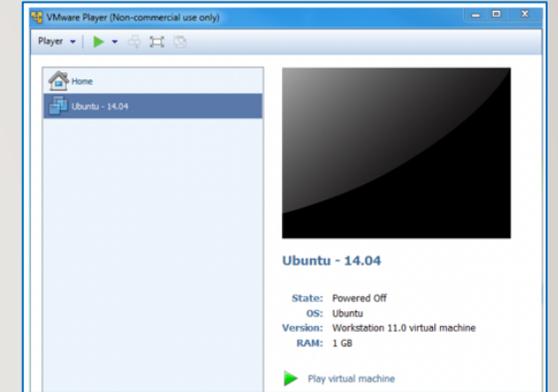
Virtualization Machine Installation

Advantages of Virtualization:

- You can run VM from an **ISO image file** or a **VM file**.
- One or more virtual machines can be run at the same time.
- The **guest OS shares hardware** with the **host OS** and possibly other virtualized systems.
- The **guest** systems have **network access** through the host.

Installation Tips:

- Virtualization requires a **compatible processor**: not all processors support that feature.
- Your **BIOS** should be set to enable **Virtualization**.
- Popular VM software for **Windows, Apple** and **Linux** OS include:
 - VMware
 - Oracle Virtual Box



RUNNING LIVE LINUX

Live Linux CD/DVD/USB

A live CD (also live DVD, live disc, or live operating system) is a complete bootable computer installation including operating system which runs directly from a CD-ROM or similar storage device into a computer's memory, rather than loading from a hard disk drive.

A Live CD allows users to run an operating system for any purpose without installing it or making any changes to the computer's configuration. Live CDs can run on a computer without secondary storage, such as a hard disk drive, or with a corrupted hard disk drive or file system, allowing data recovery.

Reference: https://en.wikipedia.org/wiki/Live_CD

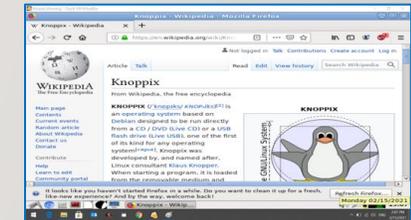


RUNNING LIVE LINUX (KNOPPIX)

Tutorial 7 (in ULI101 WIKI)

Tutorial 7 contained in the Weekly Schedule of the ULI101 WIKI allows a person to **run** the Knoppix Live Linux distribution without installing the Linux OS to your home computer.

In this tutorial, you can run **graphical applications** and download and run a **shell script** that runs graphical **dialog boxes** for user input and to display output.



LIVE LINUX

Getting Practice

Although NOT required for this course's evaluation, you can get practice by performing the **OPTIONAL Week 7 Tutorial:**

- [INVESTIGATION 1: BOOTING KNOPPIX \(LIVE LINUX\) VIA VIRTUALBOX](#)
- [INVESTIGATION 2: USING THE GRAPHICAL KNOPPIX VM](#)
- **Work on Assignment 2 (sections: 1, 2 and 3)**