

Linux: Powering the Internet

Computer Tech 2018

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AUDIENCE EXPECTATIONS

What do you expect from this presentation?

OBJECTIVE

My purpose is to give you more details on Linux and how to get it.

I hope the parents and grandparents of children interested in a technical career can benefit from the information and pass that on.

Linux: What is it?

GNU/Linux is a general name for an operating system (*OS*, sometime written as *O/S*) with a Linux kernel plus a suite of GNU (Free Software Foundation) software tools that, together, provide nearly the equivalent of a POSIX-certified OS like UNIX, HPUNIX, or IRIX.

GNU/Linux OS's come in many complete forms, called *distributions* (or *distros*). One of the most well-known distros is Ubuntu, which, up until very recently, was used by Google, but they just announced they were moving to *Debian*, my distro of choice for over 10 years.

Note that Microsoft now provides a version of Ubuntu as an add-on to Windows 10.

My distro of choice is *Debian*, and an easier-to-use distro, with a similar desktop, I recommend to new users is *Linux Mint*. It's running on this laptop.

Linux: Why should I care?

Linux drives a significant part of the Internet and the cloud.

Linux has a huge number of FOSS packages available to meet almost ever need.

Pertinent attributes:

- Powerful operating system (O/S or OS) that can be used in place of Windows or Mac
- More usable command-line-interface (CLI) that permits complex pipeline tasks and GUI-less programming
- Especially valuable as a modern slide-rule or calculator for scientists, mathematicians, engineers, and analytical professionals in all fields
- Kitbashing (chaining tools)
- More control over your system
- Case-sensitive file systems
- Tool box atmosphere

Linux: How do I get it?

You can get Ubuntu now with Windows 10 and that is probably the easiest way to get familiar with it, but you'll eventually want a native installation for more general-purpose use.

Testing Linux distros (distributions)

Several methods

- VirtualBox
- Live CD/DVD
- Bootable USB drive
- Spare computer (native install; dual or single boot)

We'll use VirtualBox for this presentation

Note at the website the **Downloads** and **End-user docs** links and the **News Flash** section



The screenshot shows the Oracle VM VirtualBox website homepage. The browser address bar displays <https://www.virtualbox.org>. The page features the VirtualBox logo, a navigation menu on the left, a main content area with a welcome message and a large 'Download VirtualBox 5.0' button, and a 'News Flash' section on the right.

VirtualBox

Welcome to VirtualBox.org!

VirtualBox is a powerful x86 and AMD64/Intel64 virtualization product for enterprise as well as home use. Not only is VirtualBox an extremely feature rich, high performance product for enterprise customers, it is also the only professional solution that is freely available as Open Source Software under the terms of the GNU General Public License (GPL) version 2. See "About VirtualBox" for an introduction.

Presently, VirtualBox runs on Windows, Linux, Macintosh, and Solaris hosts and supports a large number of guest operating systems including but not limited to Windows (NT 4.0, 2000, XP, Server 2003, Vista, Windows 7, Windows 8), DOS/Windows 3.x, Linux (2.4, 2.6 and 3.x), Solaris and OpenSolaris, OS/2, and OpenBSD.

VirtualBox is being actively developed with frequent releases and has an ever growing list of features, supported guest operating systems and platforms it runs on. VirtualBox is a community effort backed by a dedicated company: everyone is encouraged to contribute while Oracle ensures the product always meets professional quality criteria.

Download VirtualBox 5.0

<https://www.virtualbox.org/wiki/Downloads>

News Flash

- Hot!** **October 2nd, 2015**
VirtualBox 5.0.6 released!
Oracle today released the first 5.0 maintenance release which improves stability and fixes regressions. See the [ChangeLog](#) for details.
- Hot!** **July 9th, 2015**
VirtualBox 5.0 released!
Install the official [See press release](#) for details.
- Hot!** **July 30th, 2015**
VirtualBox 4.3.30, 4.2.32, 4.1.16, and 4.0.32 released!
Oracle today released maintenance releases which improve stability and fix regressions. See the [respective change logs](#) for details.
- Hot!** **February, 2015**
We're hiring!
Looking for a new challenge? Were looking for generic product developers (Plurals).

[More information...](#)

After selecting “Downloads”



The screenshot shows a web browser window with the address bar displaying `https://www.virtualbox.org/wiki/Downloads`. The page features the VirtualBox logo on the left and a navigation menu with links for About, Screenshots, Downloads, Documentation, Technical docs, Contribute, and Community. The main content area is titled "Download VirtualBox" and includes a sub-section for "VirtualBox binaries".

VirtualBox

Download VirtualBox

Here, you will find links to VirtualBox binaries and its source code.

VirtualBox binaries

By downloading, you agree to the terms and conditions of the respective license.

- **VirtualBox platform packages.** The binaries are released under the terms of the GPL version 2.
 - **VirtualBox 5.0.6 for Windows hosts** [\(x86/amd64\)](#)
 - **VirtualBox 5.0.6 for OS X hosts** [\(amd64\)](#)
 - **VirtualBox 5.0.6 for Linux hosts**
 - **VirtualBox 5.0.6 for Solaris hosts** [\(amd64\)](#)
- **VirtualBox 5.0.6 Oracle VM VirtualBox Extension Pack** [\(All supported platforms\)](#)
Support for USB 2.0 devices, VirtualBox RDP and PXE boot for Intel cards. See this chapter from the User Manual for an introduction to this Extension Pack. The Extension Pack binaries are released under the VirtualBox Personal Use and Evaluation License (PUEL).
Please install the extension pack with the same version as your installed version of VirtualBox
if you are using **VirtualBox 4.3.30**, please download the extension pack [\(here\)](#)
if you are using **VirtualBox 4.3.32**, please download the extension pack [\(here\)](#)
if you are using **VirtualBox 4.3.40**, please download the extension pack [\(here\)](#)
if you are using **VirtualBox 4.6.32**, please download the extension pack [\(here\)](#).
- **VirtualBox 5.0.6 Software Developer Kit (SDK)** [\(All platforms\)](#)

See the [changelog](#) for what has changed.
You might want to compare the

- **SHA256 checksums** or the

`download.virtualbox.org/virtualbox/5.0.6/VirtualBox-5.0.6-103037-Win.exe`

Don't forget the “Extension Pack” (for USB 2/3)

The “Extension Pack” is not distributable



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if you are using [VirtualBox 4.1.40](#), please download the extension pack → [here](#)
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download.virtualbox.org/virtualbox/5.0.6/Oracle_VM_VirtualBox_Extension_Pack-5.0.6-103037.vbox-extpack

Upgrading or installing

After downloading the main file, double-click on it and install it as usual on Windows (or the equivalent on Mac).

When upgrading or installing, you lose network access temporarily. You may have to uninstall an old version when upgrading.

Considerations (* recommended)

- amount of RAM (* 2 GB+)
- 32- or 64-bit (* 64-bit)
- 64-bit guest on 32-bit host? (NOT recommended)
- type network interface (remote access needed?)

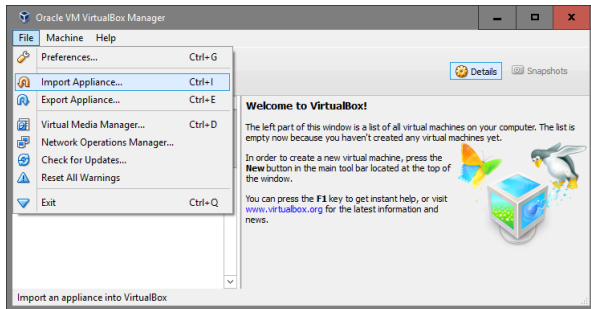
We have a VM already prepared for you here through a link on the Computer Tech NWF home page:

- <https://computertechnwf.org/virtualbox-vm.html>

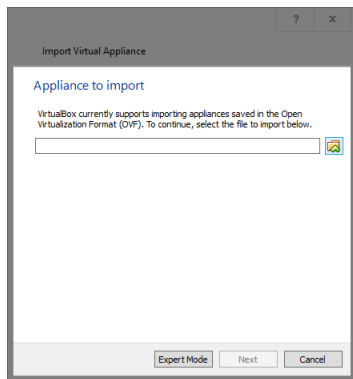
Download and import it

At 4+ Gb it will take a while to download!

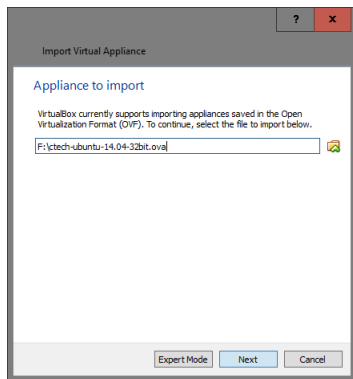
Importing the VM (1)



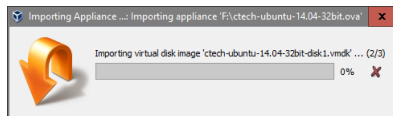
Importing the VM (2)



Importing the VM (3)

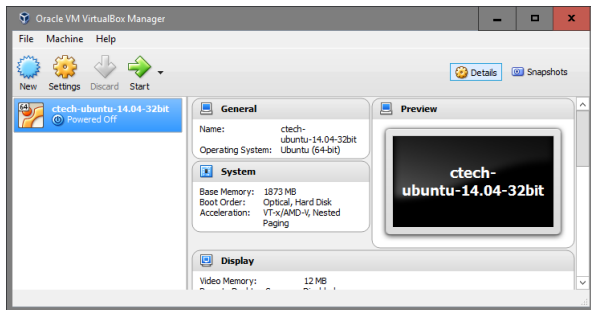


Importing the VM (4)

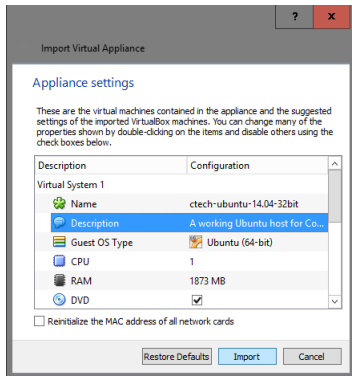


Importing the VM (5)

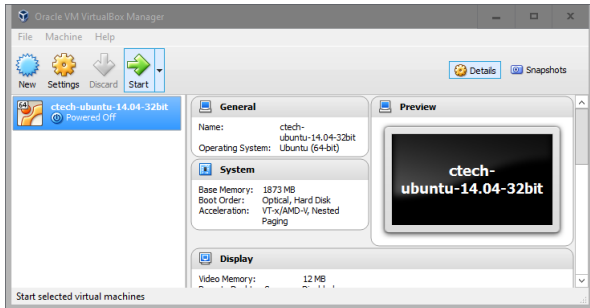
Complete, now check settings



Importing the VM (6)



Now start the VM



The VM has a few things added over the initial installation:

- a simple Emacs customization file (`~/.emacs.d/init.el`)
- Perl 6

- Using the VM (**demo**)
 - Terminal window
 - Package manager
 - Emacs
 - Perl 6

Linux: How do I learn to use it?

A free online course is offered under the auspices of the Linux Foundation:

`<https://www.edx.org/course/introduction-linux-linuxfoundationx-lfs101x-1>`

My group, the NWFLUG, can provide assistance with installation and use.

`<https://nwflug.org>`

- Today we have taken a look at getting a usable Linux installation for learning.
- If you find Linux useful, consider joining our local Linux user group.
- There is something out there in Linux land for nearly any interest. I encourage you to venture forth, have fun, and expand your knowledge and skills.

- Please make sure you're on the attendance roster.
- Feel free to contact me at any time regarding this session or any other of my sessions (please mention CTech '18 in the subject):
 - Tom Browder
 - tom.browder@gmail.com