### VirtualBox

FRITA Noob Hour 2016-08-03 Lachele Foley

# Outline

- What VirtualBox is
- Reasons to use it
- Quick safety notes
- How to obtain and install it
- How to build a virtual machine
- How to install an operating system on it
- Live demo

I welcome questions during the presentation! This is being recorded (FYI). What Is VirtualBox?

### A computer that you can't kick

- Software that pretends to be computer hardware
  - Keyboard, Mouse, Monitor, Hard Drive (etc.)
- You specify the hardware it should imitate
  - How large a drive
  - How much memory
- It builds for you a Virtual Machine (VM)
- You install software just like with any regular machine

### Here's a screenshot

Regular computer

screen



Why you might use VirtualBox

### No need for more hardware

- VirtualBox can emulate other types of hardware
  - Need a 32-bit machine? No problem.
  - Need an old OS installed? No problem.
- Try out operating systems
  - Different versions of Linux
- Play with fire (see next about safety!)
  - Practice customizing the system
  - Learn why you shouldn't run as root
  - Try dangerous commands
  - Use software you don't trust (but be careful still!)

Quick note on safety

# Mostly a jail

- VirtualBox does a nice job of isolating the VM
- Only allow connections to/from the VM if you aren't doing something that might be dangerous.
  - Connections include:
    - Network ports (ethernet, etc.)
    - Directories mounted from the host
    - Drag/drop copy/paste between VM and host
- Just think carefully if you're using it to contain

### Obtaining and Installing VirtualBox

### Obtaining VirtualBox – Lubuntu



#### Enter password when prompted

These instructions are for Lubuntu 16.04, but other Lubuntu versions probably aren't very different.



File	e Machine	clone target wit	s Help	Running] -	Oracle VM Virtu	alBox	- + ×	
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This window will appear. Click Mark.

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	Synaptic Package Manager	- + ×			
File Edit Package Settings	Help				
C 📀	les Apply Properties Search				
All	ply all marked changes Instal	ed Version Latest Version C			
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	virtualbox-dbg	5.0.18-dfsg-2ubunt x			
	✓ virtualbox-dkms	5.0.24-dfsg-0ubunt x			
	virtualbox-ext-pack	5.0.24-0ubuntu1.1( e			
Sections	x86 virtualization solution - base bir	naries			
Status	Get Screenshot Get Changelog Visit	: Homepage			
Origin	VirtualBox is a free x86 virtualization solution allowing a wide range of x86 operating systems such as Windows, DOS, BSD or Linux to run				
Custom Filters	on a				
Search Results					
Architecture	This package provides the binaries for Vi virtualbox-dkms	rtualBox. Either the			
29 packages listed, 1402 insta	alled, 0 broken. 50 to install/upgrade, 0 to re	move; 219 MB will be used			
	Synaptic Packa	(II) 🗲 🗗 00:28 🕛			
		💿 🗗 🖉 🚍 🔜 🕼 🔘 🐼 💽 Right Ctrl			

This window will appear. Click Apply.

<b>i</b>	Synaptic Package Manager - + ×				
File E	dit Package Settings Help				
6	Summary - + ×				
?	Apply the following changes?				
	This is your last opportunity to look through the list of marked changes before they are applied.				
	<ul> <li>To be upgraded</li> <li>To be installed</li> <li>Unchanged</li> </ul>				
	Summary 228 packages will be held back and not upgraded 45 new packages will be installed 5 packages will be upgraded 219 MB of extra space will be used 38.6 MB have to be downloaded				
	Download package files only Cancel Apply Apply all marked chan	nge			

This window will appear. Click *Apply* Again. The next bits might take a while. Synaptic will keep you up on what it is doing.

<b>=</b>		Synaptic Package Ma	nager	- + ×		
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C Reload M	<b>⊘</b> Mark All Upgrades	✓ Øroperties	Search			
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Architecture						
29 packages l	isted, 1398 installe	d, 0 broken. 50 to install/up	grade, 0 to remove; 219 MB v	will be used		

### When finished, this will appear. Click *Close* and then close Synaptic.

## Obtaining VirtualBox – Other

Oracle VM VirtualBox - Mozilla Firefox		-	+ ×
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# 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, Windows 10), DOS/Windows 3.x, Linux (2.4, 2.6, 3.x and 4.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 5.1 VirtualBox 5.1

#### Hot picks:

- Pre-built virtual machines for developers at ⊖Oracle Tech Network
- Hyperbox Open-source Virtual Infrastructure Manager ⇒project site
- phpVirtualBox AJAX web interface ⇒project site
- IQEmu automated Windows VM creation, application integration ⇔http://mirage335-site.member.hacdc.org:6380/wiki/Category:IQEmu

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About



#### News Flash

 New July 21st, 2016
 VirtualBox 5.1.2 released!
 Oracle today released a 5.1 maintenance release which improves stability and fixes regressions. See the Changelog for details.

search... Login Preferences

- New July 18th, 2016
   VirtualBox 5.0.26 released!
   Oracle today released a 5.0 maintenance release which improves stability and fixes regressions. See the Changelog for details.
- New July 12th, 2016
   VirtualBox 5.1 released!
   Many enhancements and improvements. Read more in the announcement.
- Important February, 2015
   We're hiring!
   Looking for a new challenge? We're looking for generic product developers (Russia).

More information...

# Obtaining VirtualBox – Other Linux

### **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.
  - o VirtualBox 5.1.2 for Windows hosts ⇒x86/amd64
  - VirtualBox 5.1.2 for OS X hosts Bamd64
  - VirtualBox 5.1.2 for Linux hosts
  - o VirtualBox 5.1.2 for Solaris hosts ⇒amd64
- VirtualBox 5.1.2 Oracle VM VirtualBox Extension Pack ⇒ All supported platforms Support for USB 2.0 and USB 3.0 devices, VirtualBox RDP and PXE boot for Intel cards. See this chapte Extension Pack. The Extension Pack binaries are released under the VirtualBox Personal Use and Evalu Please install the extension pack with the same version as your installed version of VirtualBox: If you are using VirtualBox 5.0.26, please download the extension pack ⇒ here. If you are using VirtualBox 4.3.38, please download the extension pack ⇒ here.
- VirtualBox 5.1.2 Software Developer Kit (SDK) ⇒All platforms

See the changelog for what has changed. You might want to compare the Once comfortable, come back for the Extension Pack to get USB Support

Click

Here

# Obtaining VirtualBox – Other Linux

### **Download VirtualBox for Linux Hosts**

#### VirtualBox 5.1.2 for Linux

**Note:** The package architecture has to match the Linux kernel architecture, that is, if you are running a 64-bit kernel and the set of the set

Please choose the appropriate package for your Linux distribution:

- Ubuntu 16.04 ("Xenial") ⇒i386 | ⇒AMD64
- Ubuntu 15.10 ("Wily") ⇔i386 | ⇔AMD64
- Ubuntu 14.04 ("Trusty") / 14.10 ("Utopic") / 15.04 ("Vivid") 🖙i386 | 🖙 AMD64
- Ubuntu 12.04 LTS ("Precise") ⇒i386 | ⇒AMD64
- Debian 9 ("Stretch") ⇒i386 | ⇒AMD64
- Debian 8 ("Jessie") ⇔i386 | ⇔AMD64
- Debian 7 ("Wheezy") ⇒i386 | ⇒AMD64
- openSUSE 13.2 ("Harlequin") / Leap 42.1 ("Malachite") ⇒i386 | ⇒AMD64
- Fedora 24 ⇔i386 | ⇔AMD64
- Fedora 22 / 23 ↔i386 | ↔AMD64
- Oracle Linux 7 ("OL7") / Red Hat Enterprise Linux 7 ("RHEL7") / CentOS 7 ↔ AMD64
- Oracle Linux 6 ("OL6") / Red Hat Enterprise Linux 6 ("RHEL6") / CentOS 6 ⇒i386 | ⇒AMD64
- Oracle Linux 5 ("OL5") / Red Hat Enterprise Linux 5 ("RHEL5") / CentOS 5 ⇒i386 | ⇒AMD64
- All distributions (built on EL5 and therefore do not require recent system libraries) ⇒i386 | ⇒AMD64

Choose your Linux type and follow the instructions. In the interest of time, we will not cover this further today. Using VirtualBox

### Under Oracle in the menu



### When it has just opened



Click New to make a new machine.

### Name your machine

Create Virtual Machine - + ×				
				
Expert Mode < Back Next > Cancel				

#### If it doesn't guess the *Type* and *Version* right, choose the right ones.

### Set the amount of memory

Cre	ate Virtual Machine - + ×
	Memory size Select the amount of memory (RAM) in megabytes to be allocated to the virtual machine. The recommended memory size is <b>1024</b> MB 1024 MB 4 MB 4 096 MB
	< <u>B</u> ack <u>N</u> ext > Cancel

Remember, your computer will be having to do all the work of this machine as well as its normal tasks!

### Add a hard drive

State Cre	eate Virtual Machine - + ×				
	Hard disk				
	If you wish you can add a virtual hard disk to the new machine. You can either create a new hard disk file or select one from the list or from another location using the folder icon.				
	If you need a more complex storage set-up you can skip this step and make the changes to the machine settings once the machine is created.				
	The recommended size of the hard disk is 8.00 GB.				
	<ul> <li><u>D</u>o not add a virtual hard disk</li> </ul>				
	<u>Create a virtual hard disk now</u>				
	<ul> <li><u>U</u>se an existing virtual hard disk file</li> </ul>				
	clone target.vmdk (Normal, 90.00 GB) 🗾 🗖				
< <u>B</u> ack Create Cancel					

You choose the size shortly.

### Choose the type of virtual hard drive



Keeping the default is usually fine..

### Choose how the HD uses space



### Keeping the default (Dynamic) is usually good.

### Choose the maximum size of the HD

-	Create Virtual Hard Disk		- + ×
	File location and size		
	Please type the name of the new virtual h box below or click on the folder icon to se create the file in.	ard disk file i lect a differe	nto the nt folder to
	Lubuntu		
	Select the size of the virtual hard disk in r the limit on the amount of file data that a able to store on the hard disk.	negabytes. T virtual mach	his size is ine will be
			50.00 GB
	4.00 MB	2.00 TB	\$
	< <u>B</u> ack	Create	Cancel

#### A full install of many distros is 20+ GB, so don't get stingy.

### Your new VM is made; click Settings



You won't see the groups initially – but you can make your own if you want.

## This is where you control the hardware

۲		lubuntu 16.04.1 oem Clone - Settings - + ×
	General	System
	System	Motherboard Processor Acceleration
	Display	Base Memory:
$\bigcirc$	Storage	4 MB 4096 MB
	Audio	Boot Order:
₽	Network	► V V Hard Disk
	Serial Ports	Floppy
Ø	USB	<u>C</u> hipset: PIIX3 -
	Shared Folders	Pointing Device: USB Tablet
	User Interface	Extended Features: 🖌 Enable I/O APIC
		Enable <u>E</u> FI (special OSes only)
		✓ Hardware Clock in UTC Time
		OK Cancel

Now, we'll go see this in action.

### Installing an OS

## Download an ISO (CD) image

• This is the one we will use in the demo



### Click on the VM, then click Start



### Click file icon to open browser



### Find and choose your iso to open

Please choose a virtual optical disk file						
Look in:	🚞 /home/frita/Downloads		- G	0 0 🙈 🗉 🗏		
frita	Name antiX-16_x64-full.iso lubuntu-16.04-desktop-amd64.iso	<ul> <li>▼ Size</li> <li>675.0 MI</li> <li>840.0 MI</li> </ul>	Type 3 iso File 3 iso File	Date Modified 8/2/16 1:32 AM 7/27/16 6:59 PM		
File <u>n</u> ame:	antiX-16_x64-full.iso All virtual optical disk files (*.dmg *.iso *.e	:dr)		 Cancel		

### Click Start



### It should look just like any other install



Except that it's inside a virtual computer inside your real computer.

## The Host Key (usually right Ctrl)



Host Key

Now, let's explore VirtualBox a little more, but live.

### Live Demo