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How to boot from a USB drive in VirtualBox?

Asked 6 years, 9 months ago   Modified 11 months ago   Viewed 231k times

The question is simple and straight forward:
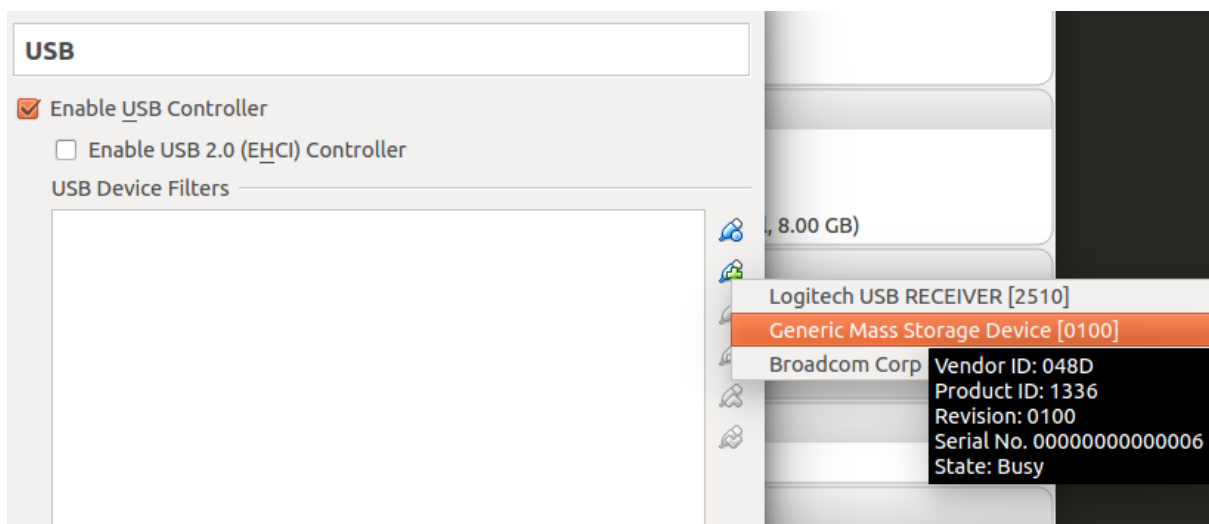
90

How to boot from an USB drive in VirtualBox?

EDIT:

44

I have attached `usb` to VirtualBox as shown in the screenshot.

But it is not possible to boot from an USB drive even when attached [(reference)](#).

So I would like to know if there is any other possiblity to boot from an USB drive?

`virtualbox`   `live-usb`

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edited Nov 6, 2015 at 15:48

cl cl-netbox
30.3k   7   91   129

asked Nov 4, 2015 at 5:16

Ravan
9,019   17   55   80

You can just open your USB, compress everything into an ISO file and boot it normally. – dat tutbrus Nov 4, 2015 at 11:14

@Ravan - not to forget often users do not attach in gparted the property "boot" to the usb-stick. This is in menu 'partition' of gparted and there you can edit the flag resp. the label of the usb-stick and activate the parameter "boot". – dschinn1001 Nov 13, 2015 at 13:20 ✎

1   @dattutbrus That won't work if you want to change files on the USB – Paul Mar 12, 2019 at 14:18

@dattutbrus, it doesn't work, your ISO won't be bootable – danilo Oct 3, 2020 at 18:29
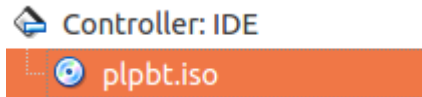

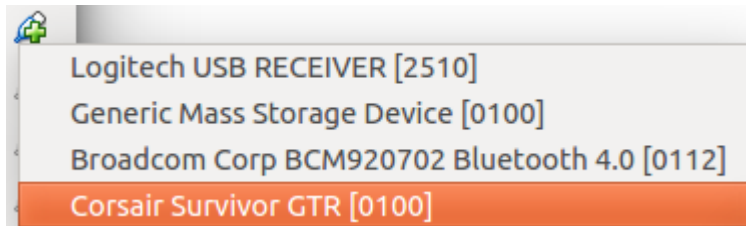## 8 Answers

Sorted by: Highest score (default)   ⇕

110

VirtualBox itself does not support booting from a USB device. In order to boot from a USB device, another bootloader is required. The steps below provide one possible way to accomplish this:
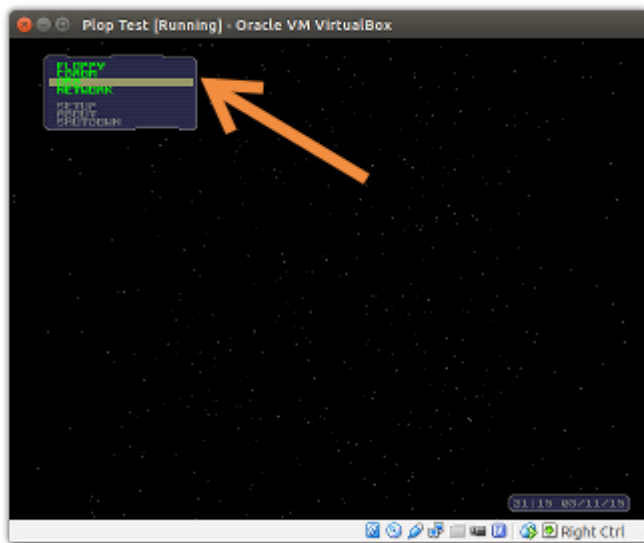
1. Download [Plop Boot Manager](#) (currently v5.0.15)

2. Extract the file `plpbt.iso` from the ZIP archive and save it somewhere.

3. Open the settings for the virtual machine and attach the ISO file:

   Controller: IDE
   ⊙ plpbt.iso

4. Add a filter for the USB device:

   Logitech USB RECEIVER [2510]
   Generic Mass Storage Device [0100]
   Broadcom Corp BCM920702 Bluetooth 4.0 [0112]
   Corsair Survivor GTR [0100]

5. Boot the VM and select the "USB" option in the menu:

If all went well, the machine should now boot from the USB device.

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answered Nov 4, 2015 at 5:24

Nathan Osman
31.5k   40   174   257

4   This answer should include that you have to be part of the *vboxusers* group. – musiKk Jan 15, 2016 at 16:53

6   It does not work for me. When I select usb I wait forever with his screen. Any idea? postimg.org/image/dv8w83pi3 – John Feb 11, 2016 at 17:19

9   I wanted to add that Plop Boot Manager only officially supports EHCI. If you're like me, and you're trying to use a USB 3.0 drive with Plop Boot Manager, it won't work. You could try to use the method mentioned in the other post, but VirtualBox also doesn't seem very fond of working with raw vmdks from USB 3.0 devices. If you only have USB 3 ports on your computer, you can order a USB 2.0 hub and connect the drive through that. It will behave essentially like a USB 2.0 drive. – fakedad Mar 21, 2016 at 0:02 ✎

3   If you combine this solution with the VMDK one, you can get native USB performance. Otherwise this only works with USB 1.1. – Will Bickford Aug 16, 2016 at 16:56

3   Note that Plop Boot Manager does *not* support UEFI. You should really mention that in your answer, because people (like me) wanting to install a UEFI-only OS have to go the other way around, ie using Terrance's answer below. – fkorsa Apr 12, 2017 at 12:51

EDIT: 7 Mar 2018

59

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+50

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Something to note here. Leaving the USB drive in the computer when you reboot can change the `/dev/sd` drive letter designation causing the raw `usb.vmdk` file to point to the incorrect drive so it does not boot in VirtualBox. As a test I left one in my system. It was `/dev/sdi` before I rebooted, after reboot it was `/dev/sdc`. When you reboot your computer for any changes please remove the USB drive prior to rebooting. I am looking into if the raw disk can be created from the UUID of the drive instead as that will not change.

Since VirtualBox does not boot to USB drives, you can create a `.vmdk` file that points to your USB drive for booting to it.

NOTE: You MUST add your user account to the `vboxusers` group for VirtualBox to see your USB. You MUST also add your account to the `disk` group as well, or you cannot add the `.vmdk` file to your Virtual Machine. Added instructions below in **EDIT**. This also does not copy the USB drive to the hard drive and uses the USB directly. This can be helpful if there is persistence on the USB that you want to keep. *Not every situation is the same so this may not work for every case.*

First, you need to have your USB you created in your system, and determine what the physical drive is. We are going to assume that your drive is mounted as `/dev/sdb1`. So, the physical drive would be `/dev/sdb`.

Next, type in the following from a terminal window to create the `.vmdk` file that points to the USB drive:

```
sudo vboxmanage internalcommands createrawvmdk -filename  ~/usb.vmdk -rawdisk
/dev/sdb
```

Or

```
sudo VBoxManage internalcommands createrawvmdk -filename  ~/usb.vmdk -rawdisk
/dev/sdb
```

Then you should see something similar to this:

```
RAW host disk access VMDK file /home/ravan/usb.vmdk created successfully.
```

Note: Some people have had issues of ownership of the newly created file. Take ownership of the new file:

```
sudo chown $USER:$USER ~/usb.vmdk
```

Then all you should have to do is to add the `.vmdk` file to your VirtualBox Virtual Machine and make sure that you can boot to it.

EDIT:

To add your user to the `vboxusers` group, run the following command:

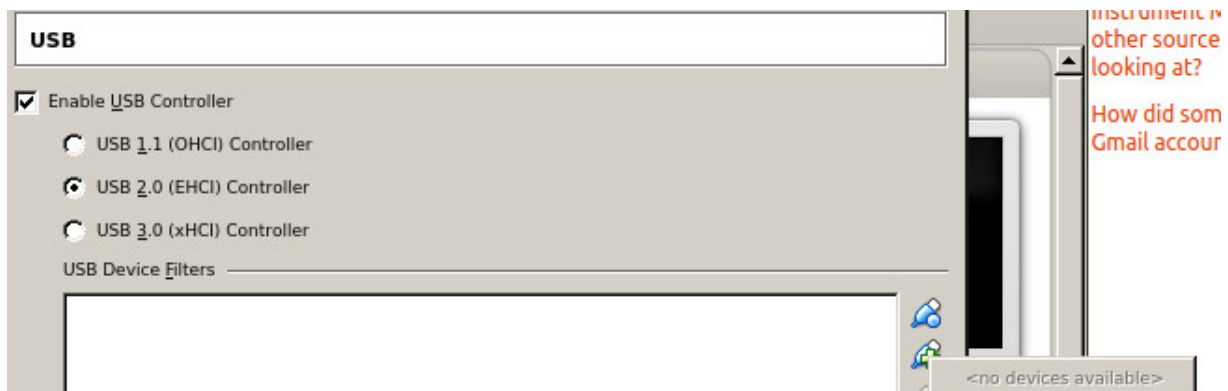```
sudo usermod -a -G vboxusers username
```

To add your user to the `disk` group, run the following command:

*Note: Adding your user to the disk group can be dangerous and a security risk. It is as dangerous as having sudo access to write to a raw disk.*

```
sudo usermod -a -G disk username
```
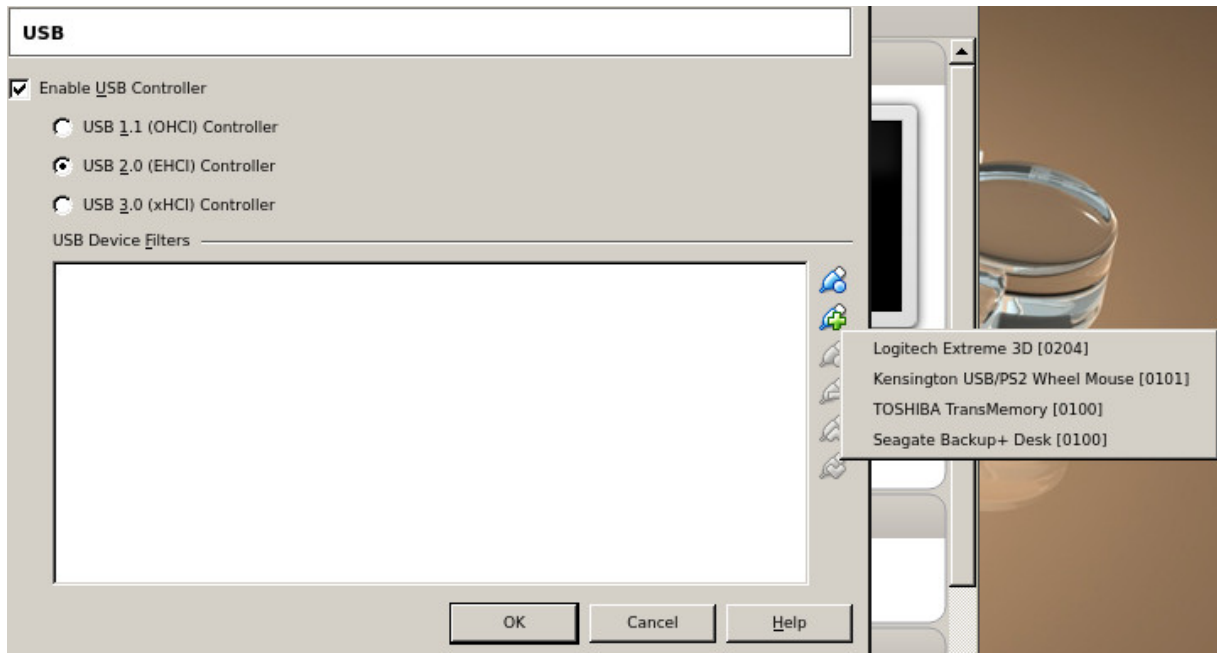
Then you **MUST REBOOT** your system in order for the changes to take effect.

*Before reboot:*

*After reboot:*



Hope this helps!

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edited Aug 21, 2018 at 14:15

answered Nov 4, 2015 at 5:46

Terrance
**36.4k** 7 106 164

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1   I got this error: VBoxManage: error: VMDK: could not open raw disk file '/dev/sdc' VBoxManage: error: Error code VERR_WRITE_PROTECT at /build/virtualbox-VDAABr/virtualbox-4.3.36-dfsg/src /VBox/Storage/VMDK.cpp(3390) in function int vmdkCreateRawImage(PVMDKIMAGE, PVBOXHDDRAW, uint64_t) VBoxManage: error: Cannot create the raw disk VMDK: VERR_WRITE_PROTECT VBoxManage: error: The raw disk vmdk file was not created – John Feb 11, 2016 at 17:33

1   @John Did you add your account to the `disk` group then logout and back in or reboot after you added the group? – Terrance Feb 11, 2016 at 17:36

3   works well for me. Remarks: do not need to reboot, just to logout/login. Once in the disk group, one should not need to use sudo. – Karl Forner Apr 21, 2017 at 9:08

1   I followed the instructions, but when trying to boot Windows 10 from usb-drive in virtualbox it says "FATAL: Could not read from the boot medium! System halted.". Any suggestions? Thank you for your help! – Marcus Mönius Nov 18, 2017 at 19:28

1   I'm also getting "FATAL: Could not read from the boot medium! System halted." – brandones Oct 15,

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**19**

I came to this post just few days ago. I don't want to use Plop Boot Manager, because my USB stick is already bootable.

So I tried to point the USB stick to a VMDK disk (as in Terrance answer) by creating

```
vboxmanage internalcommands createrawvmdk -filename  ~/usb.vmdk -rawdisk /dev/sdb
```

Unfortunately, this refused to work... I `chmod` and `chown` the `usb.vmdk` disk, and so I was able to attach it to a VM but it simply didn't work.

Finally, I tried another solution and this one has worked flawlessly. Here it is (thanks to **Gean Santos** for the research):

1. Insert USB stick and identify it (mine is `/dev/sdb`, running Sabayon Linux);

2. Create a `.vmdk` disk by **converting the raw device (i.e. the USB stick) to a VirtualBox disk**

   ```
   sudo VBoxManage convertfromraw /dev/sdb ./usb.vmdk --format vmdk
   ```

3. Now you have a `usb.vmdk` disk created from your bootable USB stick. I tried also `dd` the USB stick to an image file and create the `.vmdk` disk from the image file. It works, as well as `.vdi` disks created the former way (or from the image file)

4. Now, give permissions to the created disk in order VirtualBox can access the file. It just means *change the file owner to an user that are in vboxusers group*. If your VirtualBox install is running OK, than this owner would be, probably, you:

   ```
   sudo chown `whoami`:`whoami` ./usb.vmdk
   ```

5. Now, you just have to attach the `usb.vmdk` disk to a Virtual Machine. But it **must be attached to an IDE controller**. I tried `SATA` with no success.
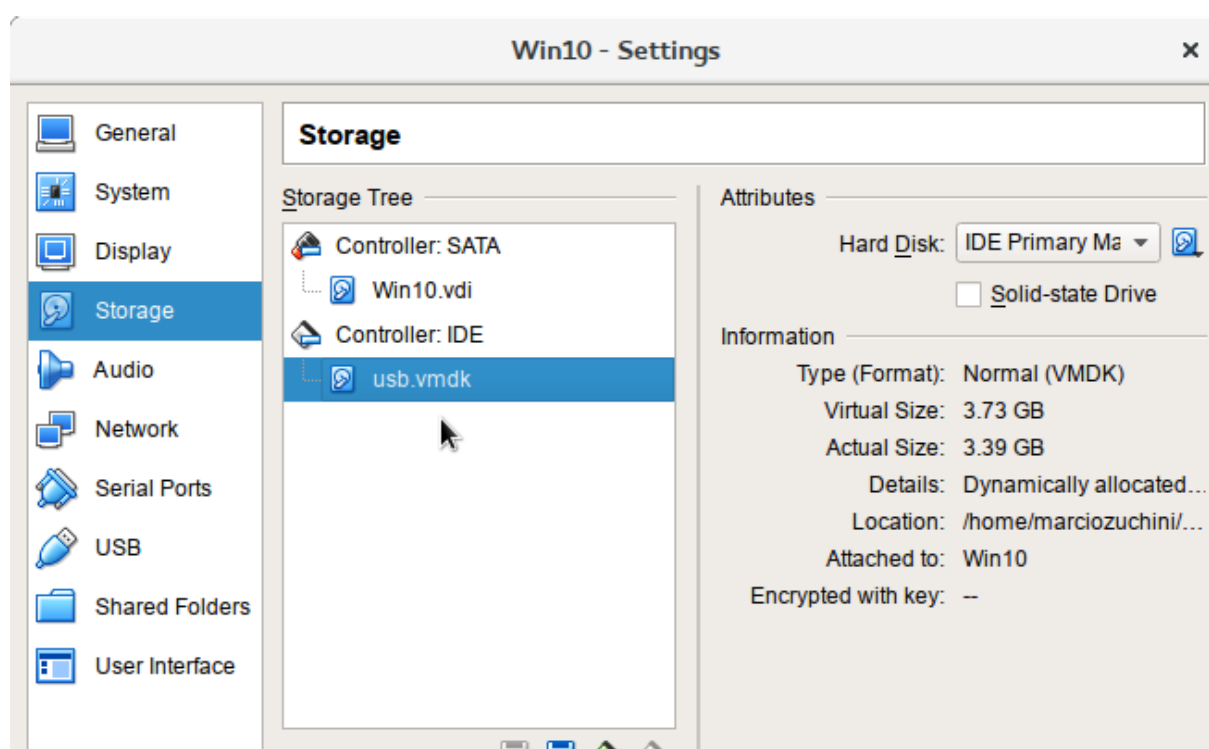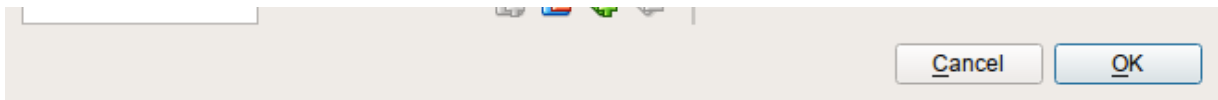
At this point, you're OK.

Just boot the new VM, press `F12` and choose the bootable drive.

Enjoy!

Share Improve this answer   edited Oct 14, 2016 at 21:20   answered Oct 14, 2016 at 18:57

Follow   Marcio H Zuchini
                                                                          191   1   6

Does this work with USB 3.0 (cf. comments here askubuntu.com/questions/693719/…) ?
– nutty about natty Jul 4, 2017 at 18:54

1   I just checked and you basically copied your usb stick drive, and not using original usb stick this
way. – Fedcomp May 14, 2019 at 5:41

Perfect, this is the shortest and most reliable answer. – pylover Jan 26, 2021 at 17:26

Perfect! Allows me to boot and install of a virtual disk of custom size. – Elad Weiss Jan 30, 2021 at
18:38

There is no `convertfromraw` command supported by `vboxmanage` for VirtualBox 6.1.26, only
`converttoraw` , `converthd` , and `createrawvmdk` . – Luke Hutchison Nov 10, 2021 at 1:45 ✎

The easiest solution is to copy the contents of the USB key into an iso file (well, next time
I'll just download the iso on the right machine, no USB key needed in the first place)

18

```
dd if=/dev/sdc of=myusbkey.iso
```

And then add this .iso as an optical drive in the VirtualBox settings, under Storage,
Controller: IDE (or SATA, I guess).

No need to make a .vmdk file, VirtualBox supports .iso files.

Share Improve this answer Follow   answered Nov 13, 2016 at 10:00

                                                                David Faure
                                                                414   4   9

1　The thing here is if you have a partition with a bootable image of about 40GB it will generate a file with that size 😅 – Sposmen May 10, 2018 at 19:47

1　@DavidFaure The original answer about using "VBoxManage internalcommands createrawvmdk ..." just creates something that you could think of as equivalent to a shortcut to the USB drive that you have attached to the system at the time that you run the above command. So you don't end up with a potentially huge image of the USB stick as mentioned by user33845 – ConceptRat Oct 10, 2018 at 2:45

1　I don't think this approach works with all USB images. For example, the bootable Chromium images from Arnold the Bat's website are multi-partition and do not correspond to the ISO format. – Troy Folger Apr 3, 2020 at 22:21

2　@TroyFolger Actually, `dd` command will not work with standard ISOs, because the ISO 9660 spec doesn't describe a full disk image with partition tables, but rather a "filesystem-image" (see man mkisofs). Only hybrid ISOs which have a MBR partition table can be conflated with disk images, and thus compatible with dd (see isohybrid documentation)! – Jules Sam. Randolph May 10, 2020 at 15:29 ✎

1　Add `status=progress` to see the `dd` progression – Eido95 Aug 27, 2021 at 10:50

I would suggest the following steps.

▲

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1. Open Disks.

2. Look for the USB.

3. Click there and at the top right corner you will see a settings icon that has 3 parallel lines.

4. Click there and choose *Create Disk Image...*

5. Select the location and click *Create*. It will create an .img file which you can use in VirtualBox.

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edited Feb 22, 2017 at 10:32
karel
101k　85　245　274

answered Feb 22, 2017 at 9:17
Madhurjya Dasgupta
51　1　1

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If your USB drive is an EFI bootable drive then Plop Boot Manager will not work as it does not support EFI boot. What worked for me in such case was using rEFInd boot manager (http://www.rodsbooks.com/refind/).

1. Download rEFInd bootable iso from http://sourceforge.net/projects/refind/files/0.11.4/refind-cd-0.11.4.zip/download and unzip it.

2. Open virtual machine settings in VirtualBox and attach the rEFInd CD ISO file.

3. Make sure that "Enable EFI (special OSes only)" option in virtual machine settings in "System" tab is enabled.

4. Boot the virtual machine and you should see rEFInd boot menu:
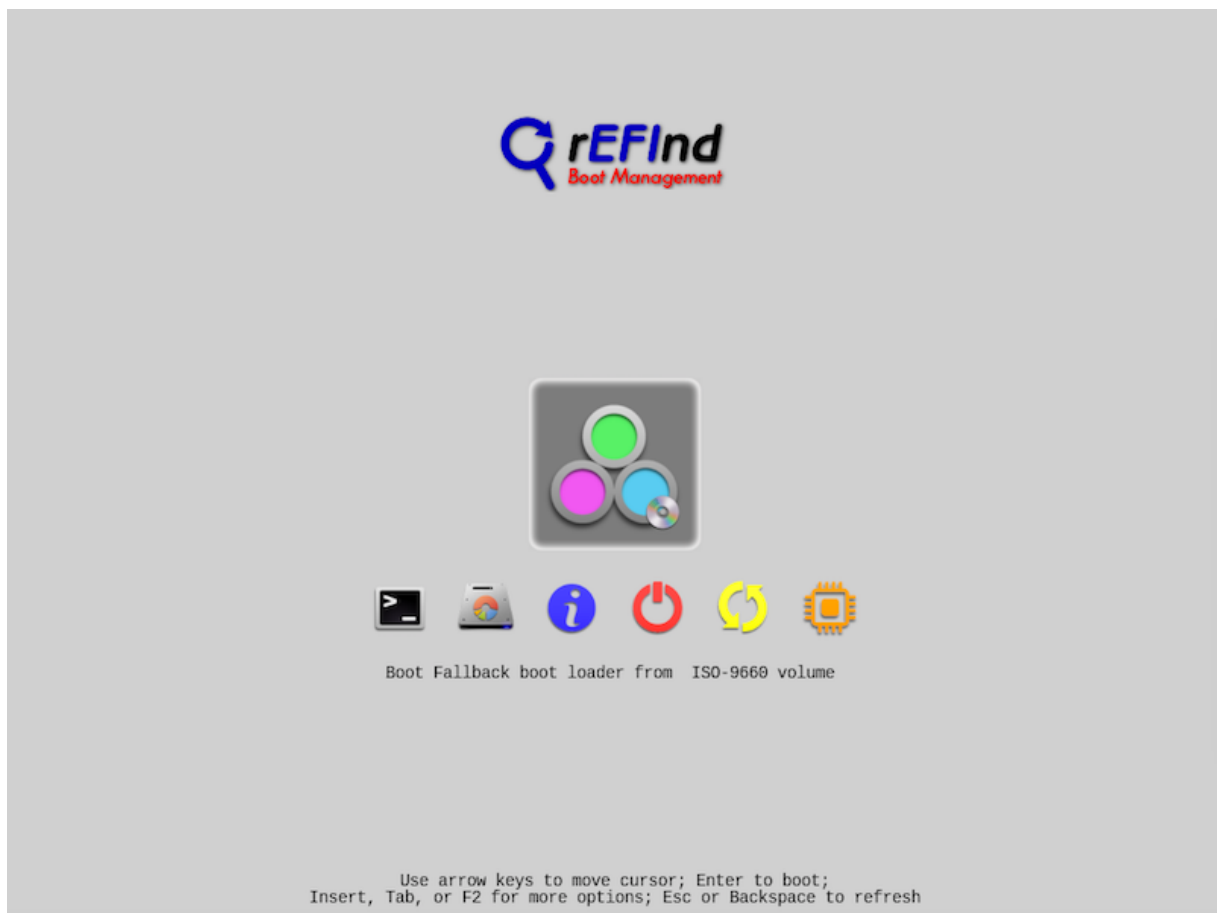
5. Attach your USB drive in VirtualBox.

6. Press backspace to refresh the menu or just wait few seconds and drive should appear in the menu.

7. Select your USB drive and hit enter and your USB drive should start booting.

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answered Jul 13, 2019 at 23:00

Leszek Szary
151   1   2

Newer rEFInd bootable iso can be obtained from official site under "A CD-R image file" section.
– Eido95 Aug 27, 2021 at 14:10 ✎

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2

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I did not want to run Virtualbox as root. I did not want my user to be of the disk group, having full permissions to all disks.

So here is what I got to work:

Find out what sd the memory stick is. In the following instructions it's `sdc` .

- Unmount memory Stick

  ```
  su -
  chmod 666 /dev/sdc1
  chmod 666 /dev/sdc
  exit # Run the following command as regular user:
  VBoxManage internalcommands createrawvmdk -filename usb.vmdk -rawdisk
  /dev/sdc
  su - # Back as root again:
  chmod 777 usb.vmdk
  chmod 666 /dev/sdc
  ```

- Attach usb.vmdk virtualbox machine

  ```
  chmod 666 /dev/sdc
  ```

- Start virtualbox machine

- After done, reset sdc1 permission for security:

  ```
  chmod 660 /dev/sdc1
  ```

In the above you can see that I had to reset the permissions for the memory stick a few times, because it would get set back to root each time.

I'm using Mandriva Linux, but it should be about the same in Ubuntu

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edited Feb 19, 2019 at 18:45

answered May 11, 2016 at 19:37

Wayne Sallee

21　3

The permission fiddling here is very bad advice. First of all, you are doing it as root, so you don't really need to change the permissions to make those commands work. Secondly, it is better to add the appropriate user into the disk group so it isn't even necessary. – Evan Teran Feb 14, 2019 at 20:40

@ Evan Teran Have you even tried it? And yes the user is part of the disk group. This is the method that I still use to today with my own linux operating system. Wayne Sallee Wayne@WayneSallee.com – Wayne Sallee Feb 15, 2019 at 21:10 ✎

I didn't say it wouldn't work, I said it's not good advice. Regardless of the user's groups, if you are running the commands as root, you shouldn't even need to muck with the permissions because root access anyway. Also, making files and folders with 777 and 666 is bad practice, you shouldn't make things world readable or writeable unless they need to be. – Evan Teran Feb 16, 2019 at 1:12

@ Evan Teran it's not good advice to run a program as root, that does not need to be root. The memory stick is only in for a little while, and it is not on a server. It's a matter of where you want to put the risk. I choose to put the risk on the memory stick rather than the system. Wayne@WayneSallee.com – Wayne Sallee Feb 17, 2019 at 16:27

1   @ Evan Teran It looks like you are trying to justify your position, One has to be root to run cmod. Yes there is sudo, but it's the same thing, and I don't like sudo. One thing that I hate about Stack Exchange, is that people can edit your answers. Your comment has caused me to realize that the answer shows VBoxManage being run as root. I don't run VBoxManage as root. I don't know if that was my mistake, or if it is from someone's edit, so now I will edit it to correct that, if the system will let me edit it. Wayne@WayneSallee.com – Wayne Sallee Feb 19, 2019 at 18:41

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For those attempting to do this using VirtualBox on a Windows host, a fully working solution for this is presented here: https://www.howtogeek.com/187721/how-to-boot-from-a-usb-drive-in-virtualbox/

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answered Aug 29, 2021 at 3:30

pbr
248   2   8