

## Lab - Creating a Virtual install of Kali using VirtualBox

### **Caveat**

Be sure to read through the lab in its entirety before starting this or any lab in the course! Skipping a step in any part of the lab will cause the lab to fail. Trying to blow through this lab will result in epic failure! Slow and steady wins the race.

### **Requirements:**

1. Kali Linux Preinstalled Image: (~3.01 GB)
2. VirtualBox: (~107 MB)
3. CPU that supports Virtualization.
4. 8GB of RAM preferred. (4 GB of RAM will Suffice but is not optimal)
5. At least 60 GB of free hard drive space. (An external hard drive or thumb drive can also be used as storage)

### **Using Other Hypervisors**

For all the gunslingers in the course, if you are using some other hypervisor to create your virtual lab environment, you are good to go. No need to check with the instructor.

This lab will walk through creating and installing a Kali Linux virtual machine inside VirtualBox using a prebuilt image. Kali will function as our attack machine for all subsequent labs.

### **Install using a prebuilt Kali VB Image (preferred)**

This install process can take as much time as your resources will allow or depending on your situation's specifics, i.e., computer, internet connection speed, and so on.

All the software used in the lab is free and open-source, just like Kali.

As the lab begins, students will be taken through the download process for all downloads. All software has been verified to be malware and crapware free.

### **Begin the lab!**

#### **Install Kali Linux in VirtualBox (using ova file)**

##### **1. Download and install VirtualBox**

The first step is to download and install the **VirtualBox** software package onto the host machine chosen for your lab setup. Make sure you download the correct version for your operating system and hardware architecture (32 bit vs. 64 bit). Instructions for installation on various operating systems are readily available if you run into any snags. Also, make sure to keep a handy copy of the [VirtualBox user manual](#), which comes packaged with the software and can also be found online.

Once downloaded, **VirtualBox** installs like any other software program. Find your download and begin installing it. **VirtualBox** is malware and crapware free. Once you install VirtualBox and run it for the first time, you'll be presented with the application's welcome prompt, which provides an orientation for the interface. Navigate through the menus to get a feel for the software.

[Download here!](#)

## 2. Download and install Free Download Manager

Download managers allow you to schedule, start, stop, and resume a download without the loss of any downloaded progress. When we download gigabytes of data, and the download becomes interrupted, starting over becomes very frustrating. Download managers can also reduce your download time.

For this lab, I used a download manager called **Free Download Manager**.

Install the Free Download Manager on your host machine. Find your download and begin installing it. The **Free Download Manager** is malware and crapware free.

[Download here!](#)

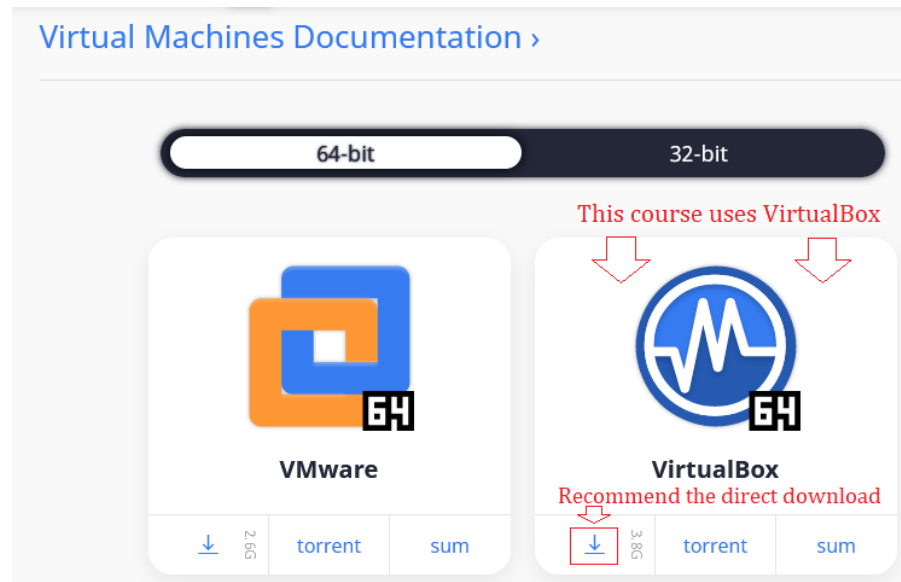
## 3. Download the Kali VirtualBox image

Using a pre-installed file saves us a lot of time as we won't have to step through the installation process.

We need to use the Free Download Manager to ensure our download is uninterrupted and timely for this install method.

Since the Kali images are updated over time, the download file version may differ from what is in the lab. Regardless, it remains the same file but with significant revisions. Visit the [Offensive Security download page](#) for the latest image.

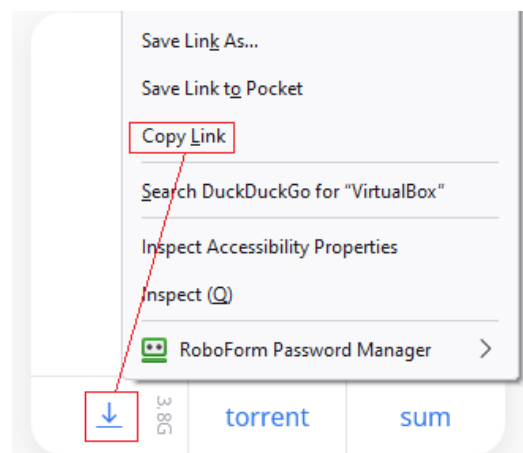
Once you're on the correct download page, your choice of which download to choose from is either number 1 or number 2. If your system 64bit, use the first download. If your system is 32 bit, use the other download. Select your download method.



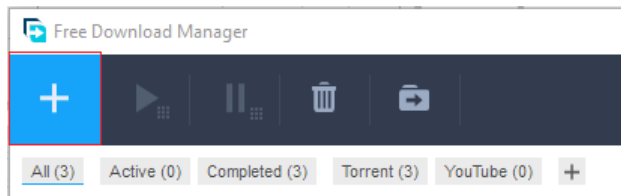
If you choose the torrent download and your Free Download Manager is associated with your browser, it should automatically open and prompt you to start the download. To avoid any issues with file corruption, I recommend avoid using the torrent method. Download the OVA file directly.

### Download the OVA file directly

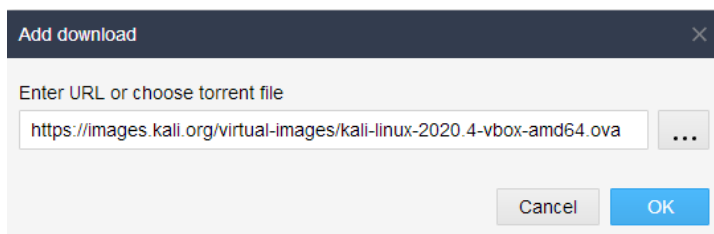
Right click on the direct download link. From the context menu, select, **Copy Link**.



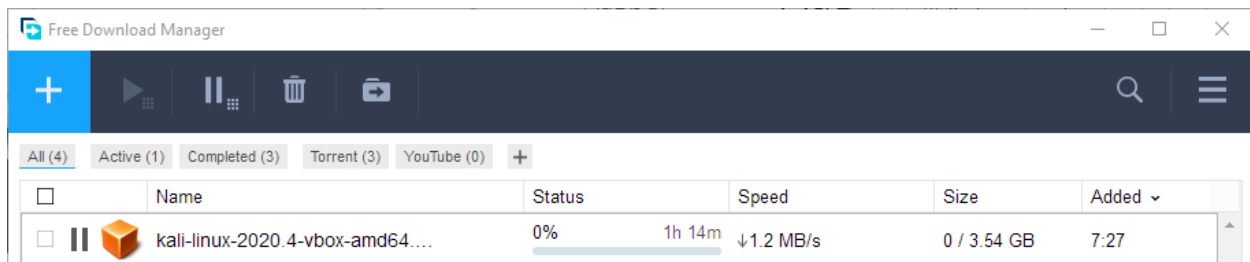
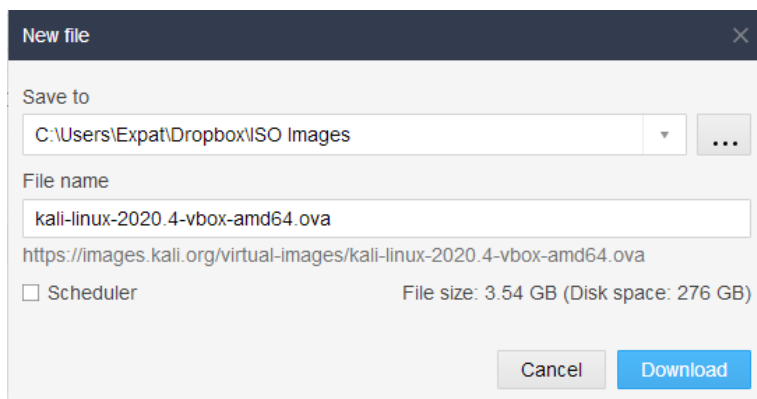
Open your Free Download Manager and click on the + sign in the upper left corner.




The **Add Download** box appears. The link is already inserted. Click, OK, the download starts.



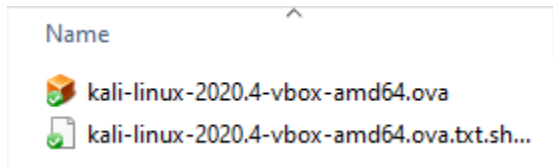
I choose to use the straight download option, and I get a dialog box letting me know what I am downloading. Click download.



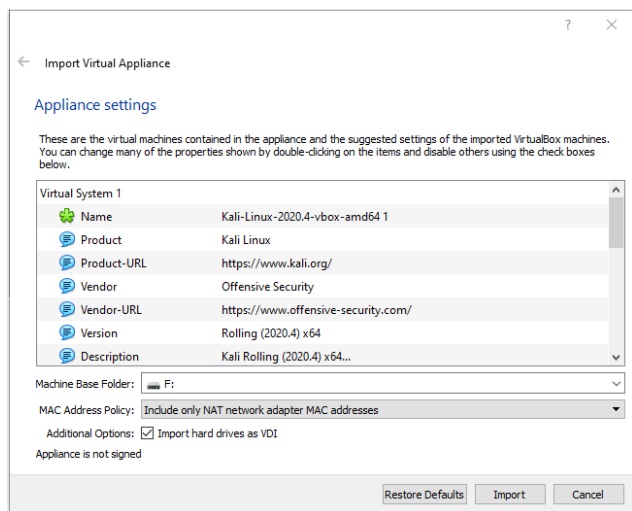
Once the download has been completed, browse over to the download location where the image was saved.

 Kali-Linux-2016.2-vbox-amd64

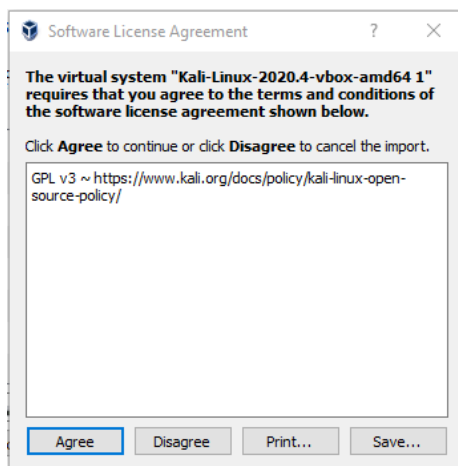
Open the folder, and inside, double-click the OVA file.



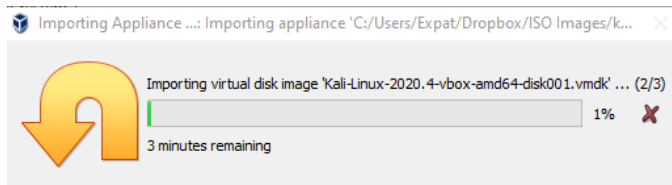
VirtualBox opens and is ready to import Kali. Click on Import.



Agree to the terms.



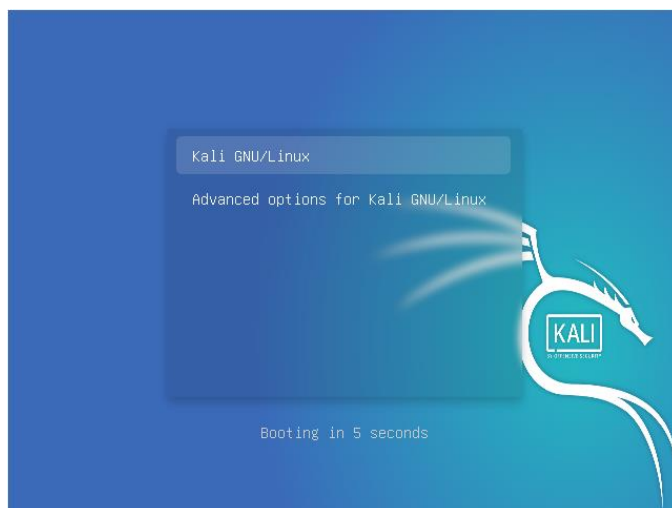
The image import process begins.



Once the image has been imported, highlight Kali, x2 click to start from the left Windows pane.

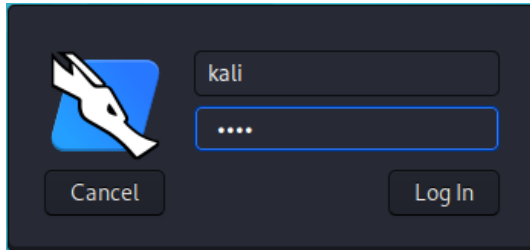


When Kali starts to boot, select the default install option, and hit enter.



### Username and password update for Kali 2020.4

Starting with **Kali Linux 2020.4**, the ethical hacking **Linux** distribution has replaced the **default** root user with a standard, unprivileged user. The new default user is **kali**, with a default password of **kali**.

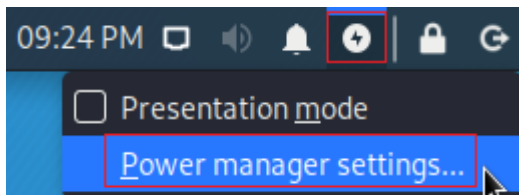


Congratulations, you now have a virtual instance of Kali Linux installed on your computer!

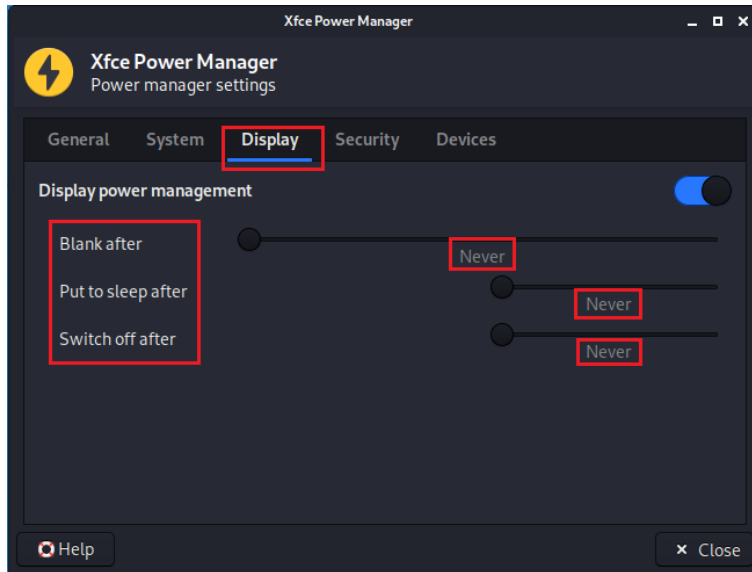
### Stop Kali from logging you off for inactivity

After being idle for just 5 minutes, Kali, will you log off. To get back to the login box, hit the enter key. Type in your password of `kali`

To prevent this from happening, we can adjust the power setting to **never**. At the top right corner, click on the lightning bolt icon for the power settings.



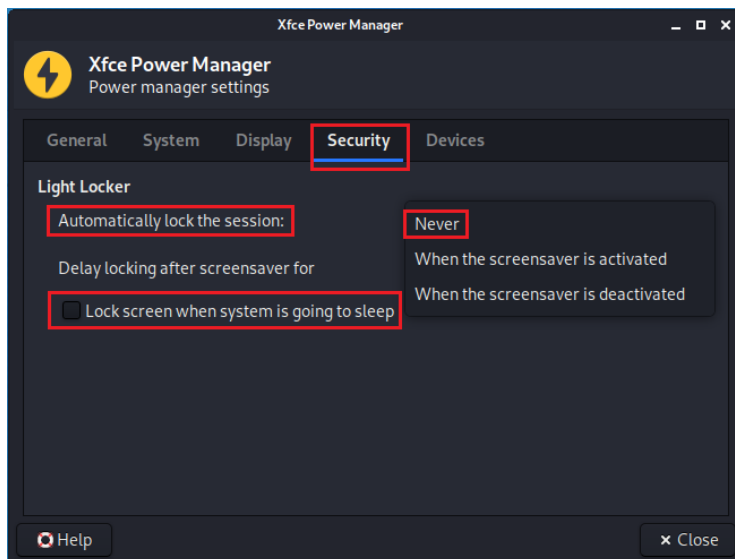
Click on the Power program.



Under Display, move all three sliders to the left and select 'never.'

Under Security,

- From the drop-down window, select "Automatically lock this session" to "Never."
- Uncheck "Lock screen when system is going to sleep."





Close the Power Manager window.

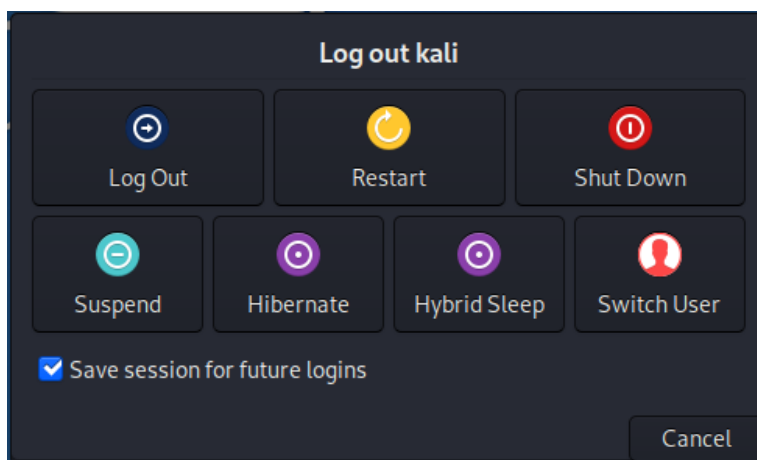
### How to Restart or Power Off Kali Gracefully

To shut down or restart Kali, do it just as if you were gracefully shutting down or restarting your host machine. **Do not just power off VirtualBox, as this will corrupt your Kali install!**

To log-off, restart, or shut down, click on the power button icon from the top right of your Kali screen.



The following screen pops up. Select your option.

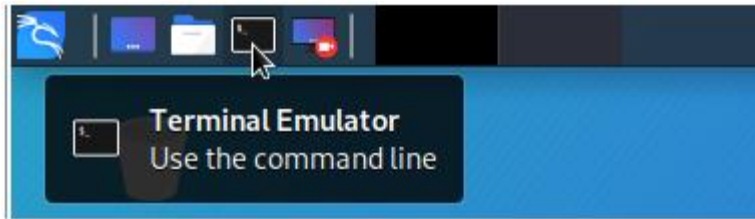


### Updating Your Kali Install

#### Rules to follow when updating Kali:

- **You must be patient!**
- **You must not interrupt the update process!**
- **You need to update, or things will not work as described in the lab.**

To update Kali, open a terminal session.

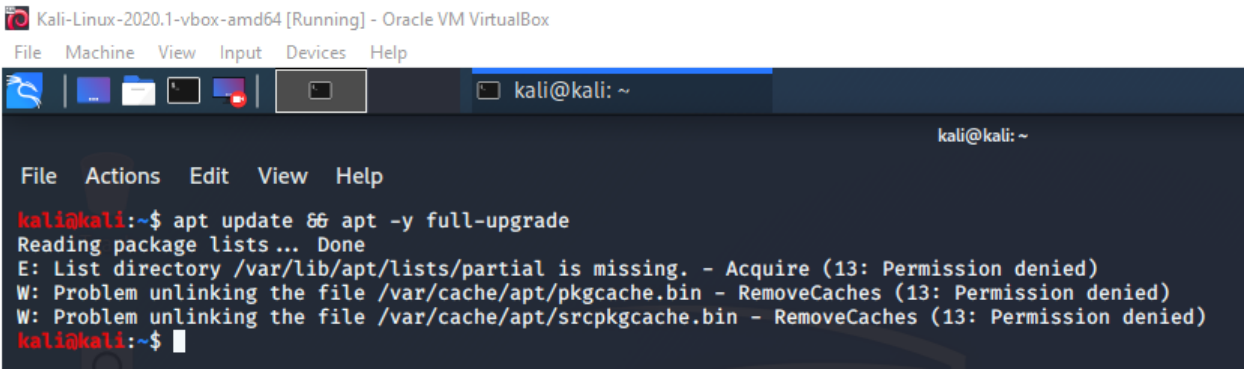


Type the following.

```
apt update && apt -y full-upgrade
```

### Logging on as a Root

Whoops! We cannot update Kali as a regular user. We first need to be logged on or change the current user to a root user. (permission denied)



```
Kali-Linux-2020.1-vbox-amd64 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
kali@kali: ~
kali@kali: ~
File Actions Edit View Help
kali@kali:~$ apt update && apt -y full-upgrade
Reading package lists ... Done
E: List directory /var/lib/apt/lists/partial is missing. - Acquire (13: Permission denied)
W: Problem unlinking the file /var/cache/apt/pkgcache.bin - RemoveCaches (13: Permission denied)
W: Problem unlinking the file /var/cache/apt/srcpkgcache.bin - RemoveCaches (13: Permission denied)
kali@kali:~$
```

### Grant yourself root access

At the terminal prompt, issue the command 'sudo su' without the quotes.

```
kali@kali: ~  
File Actions Edit View Help  
kali@kali:~$ sudo su  
We trust you have received the usual lecture from the local System  
Administrator. It usually boils down to these three things:  
  
#1) Respect the privacy of others.  
#2) Think before you type.  
#3) With great power comes great responsibility.  
  
[sudo] password for kali: Type the current user's password  
root@kali:/home/kali# passwd root  
New password: Type in your new root password  
Retype new password: Retype your new root password  
passwd: password updated successfully  
root@kali:/home/kali#
```

Enter the password for your current kali user account. The current password is 'kali' without the quotes.

As a security precaution, you cannot see the password as you type into the terminal.

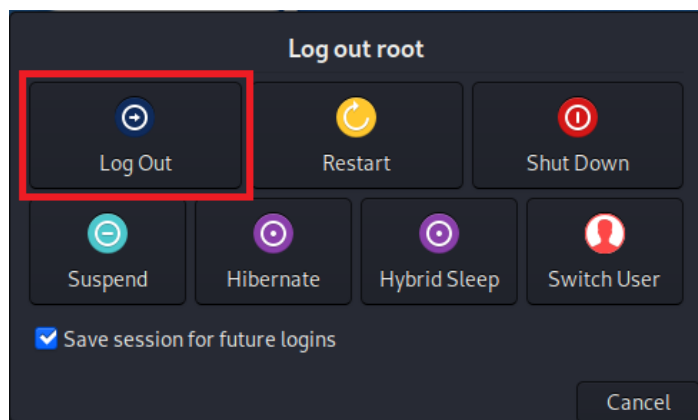
Issue the command 'passwd root' without the quotes.

Type in your new root password for your root access. I kept mine simple, as should you. My new root password is 'toor' without the quotes.

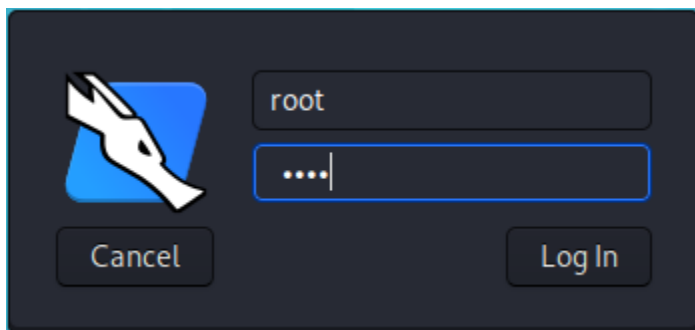
Type in your password again.

Notice that the prompt changes. You are now logged on as root.

Log off.



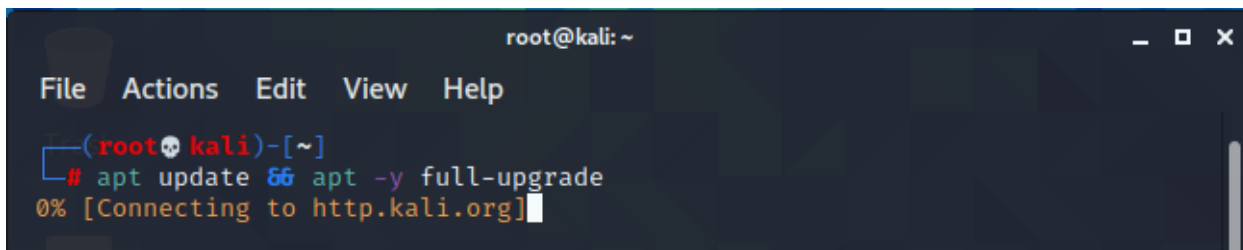
Change the user to 'root' without the quotes — type in your new root password.



Open a new terminal. At the terminal prompt type, the following update command.

```
apt update && apt -y full-upgrade
```

Kali checks its list of repositories for any software updates.



Ignore any ignorant virus protection warnings about an infected downloader from the Kali download site. Disable your virus protective shields until the update is complete. If needed, close the terminal and restart the update.

### Troubleshooting Kali not updating

Kali can get squirrely from time to time when it comes to updating. The best thing to do is copy and paste the error or message into Google to search for a result.

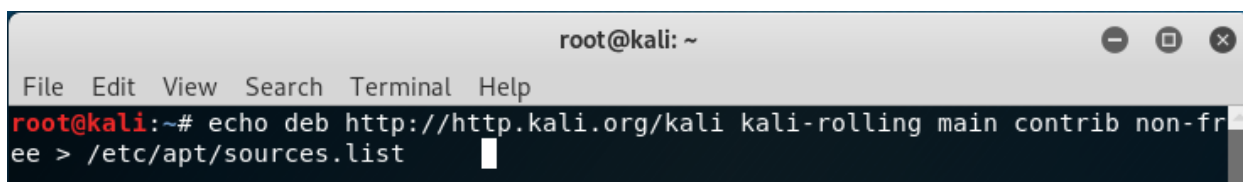
Kali only wants you to use repositories signed and secured, but that is not always going to be the case. See the following example:

```
E: The repository 'file:/media/cdrom0 kali-rolling Release' is not signed.  
N: Updating from such a repository can't be done securely, and is therefore disabled by default.  
N: See apt-secure(8) manpage for repository creation and user configuration details.
```

The repository for the file is not signed and secured. This could be for any number of files and not just the one shown in the image.

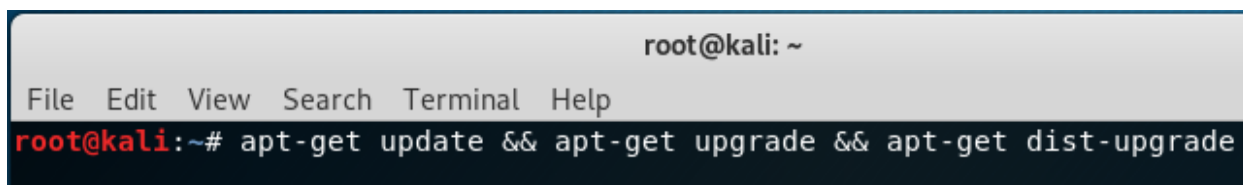
When this happens, open a terminal and type or copy and paste the following commands one at a time:

```
echo deb http://http.kali.org/kali kali-rolling main contrib  
non-free > /etc/apt/sources.list
```



```
root@kali: ~  
File Edit View Search Terminal Help  
root@kali:~# echo deb http://http.kali.org/kali kali-rolling main contrib non-free > /etc/apt/sources.list
```

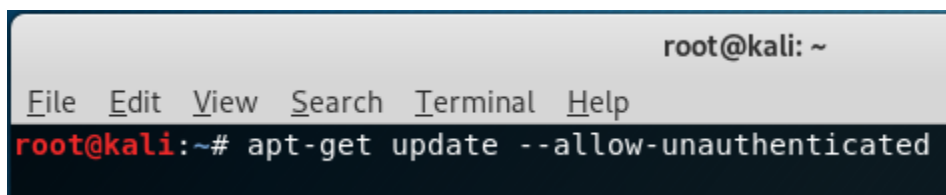
```
apt-get update && apt-get upgrade && apt-get dist-upgrade
```



```
root@kali: ~  
File Edit View Search Terminal Help  
root@kali:~# apt-get update && apt-get upgrade && apt-get dist-upgrade
```

To allow the update of unauthenticated packages:

```
apt-get update --allow-unauthenticated
```



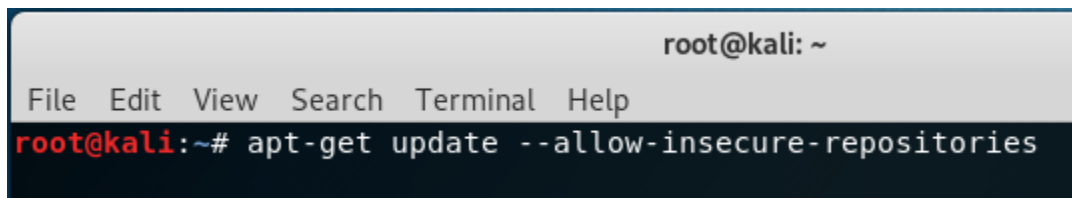
```
root@kali: ~  
File Edit View Search Terminal Help  
root@kali:~# apt-get update --allow-unauthenticated
```

About this command:

Ignore if packages can't be authenticated and don't prompt about it. This can be useful while working with local repositories, but is a huge security risk if data authenticity isn't ensured in another way by the user itself. The usage of the Trusted option for sources.list(5) entries should usually be preferred over this global override. Configuration Item: APT::Get::AllowUnauthenticated.

Here's another command you can try:

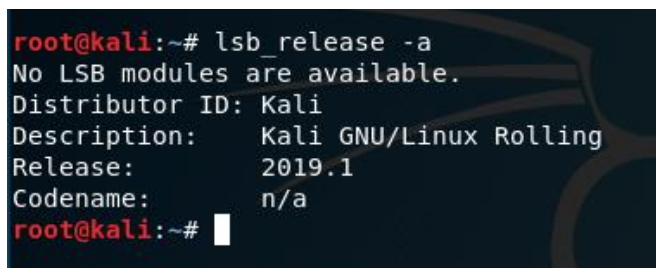
```
apt-get update --allow-insecure-repositories
```



```
root@kali: ~  
File Edit View Search Terminal Help  
root@kali:~# apt-get update --allow-insecure-repositories
```

### Check your version of Kali

```
lsb_release -a
```

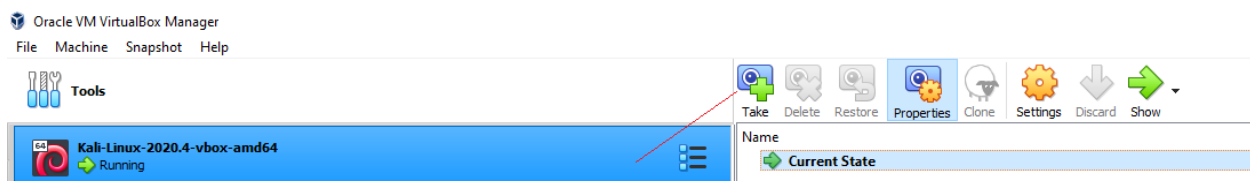


```
root@kali:~# lsb_release -a  
No LSB modules are available.  
Distributor ID: Kali  
Description:   Kali GNU/Linux Rolling  
Release:      2019.1  
Codename:     n/a  
root@kali:~#
```

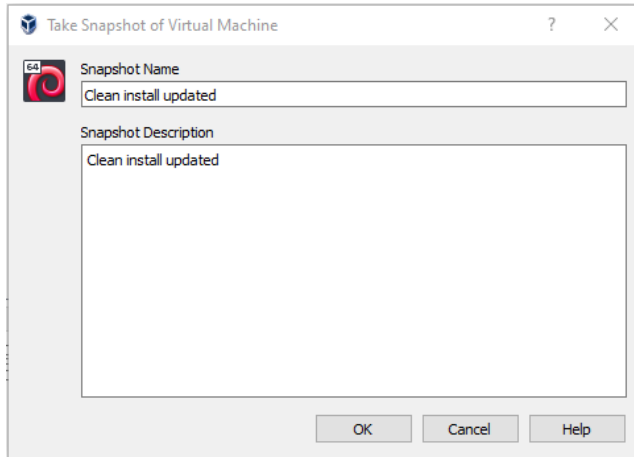
### Taking a Snapshot of Kali

The basic idea of a snapshot is you have set up your virtual machine precisely the way you want it. Once we take a snapshot, we can make any changes we want. If Kali becomes corrupted or we would like a fresh install, all you need to do is roll back the snapshot, and our virtual machine will be exactly how it was before when we took the snapshot.

With Kali up and running, from the left window pane, click on the machine, and from the top of the right window pane, select the Take snapshot icon.



Give the Snapshot a user-friendly name. Click OK.



VirtualBox saves the machine state.

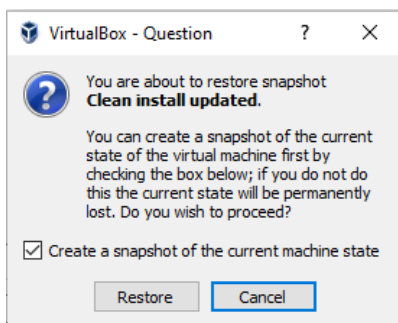
## Restore your machine state using Snapshot

To restore using your newly created snapshot, shut Kali down (gracefully!)

From the VirtualBox management console, from the right window pane, highlighting the saved snapshot.



If the current state has changed and you feel comfortable making another snapshot, feel free to do so by checking the box to create a snapshot of the current machine state.





When you click on restore, the "Current State" will become the same as the snapshot you selected to restore to.

### **Power on the Virtual Machine**

When you power on the virtual machine, you will see the virtual machine quickly reverting itself to its previous state.

**End of the lab!**