
Using Kali Linux

You can use Kali Linux in one of the following ways:

- You can run Kali Linux directly from the Live DVD
- You can install Kali Linux on the hard disk and then run it
- You can install Kali Linux on the USB disk (as a portable Kali Linux)

In the following sections, we will briefly describe each of those methods.

Running Kali using Live DVD

If you want to use Kali Linux without installing it first, you can do so by burning the ISO image file to a DVD. After the burn process finishes successfully, boot up your machine with that DVD. You need to make sure that you have set the machine to boot from the DVD.

The advantage of using Kali Linux as a Live DVD is that it is very fast to set up and is very easy to use.

Unfortunately, the Live DVD has several drawbacks; for example, any files or configuration changes will not be saved after the reboot. Additionally, running Kali Linux from the DVD is slow as compared to running Kali Linux from the hard disk because the DVD's reading speed is slower than the hard disk's reading speed.

This method of running Kali is recommended only if you just want to test Kali. However, if you want to work with Kali Linux extensively, we suggest that you install Kali Linux.

Installing on a hard disk

To install Kali Linux on your hard disk, you can choose one of the following methods:

- Installation on a physical/real machine (regular installation)
- Installation on a virtual machine

You can choose whichever method is suitable for you, but we personally prefer to install Kali Linux on a virtual machine.

Installing Kali on a physical machine

Before you install Kali Linux on a physical/real machine, make sure that you install it on an empty hard drive. If your hard drive already has some data on it, that data will be lost during the installation process because the installer will format the hard drive. For easy installation, we suggest that you use all of the available space in the hard disk. If your machine contains another operating system, you need to create a separate disk partition for Kali Linux. Be careful while doing this or you could end up corrupting your operating system.

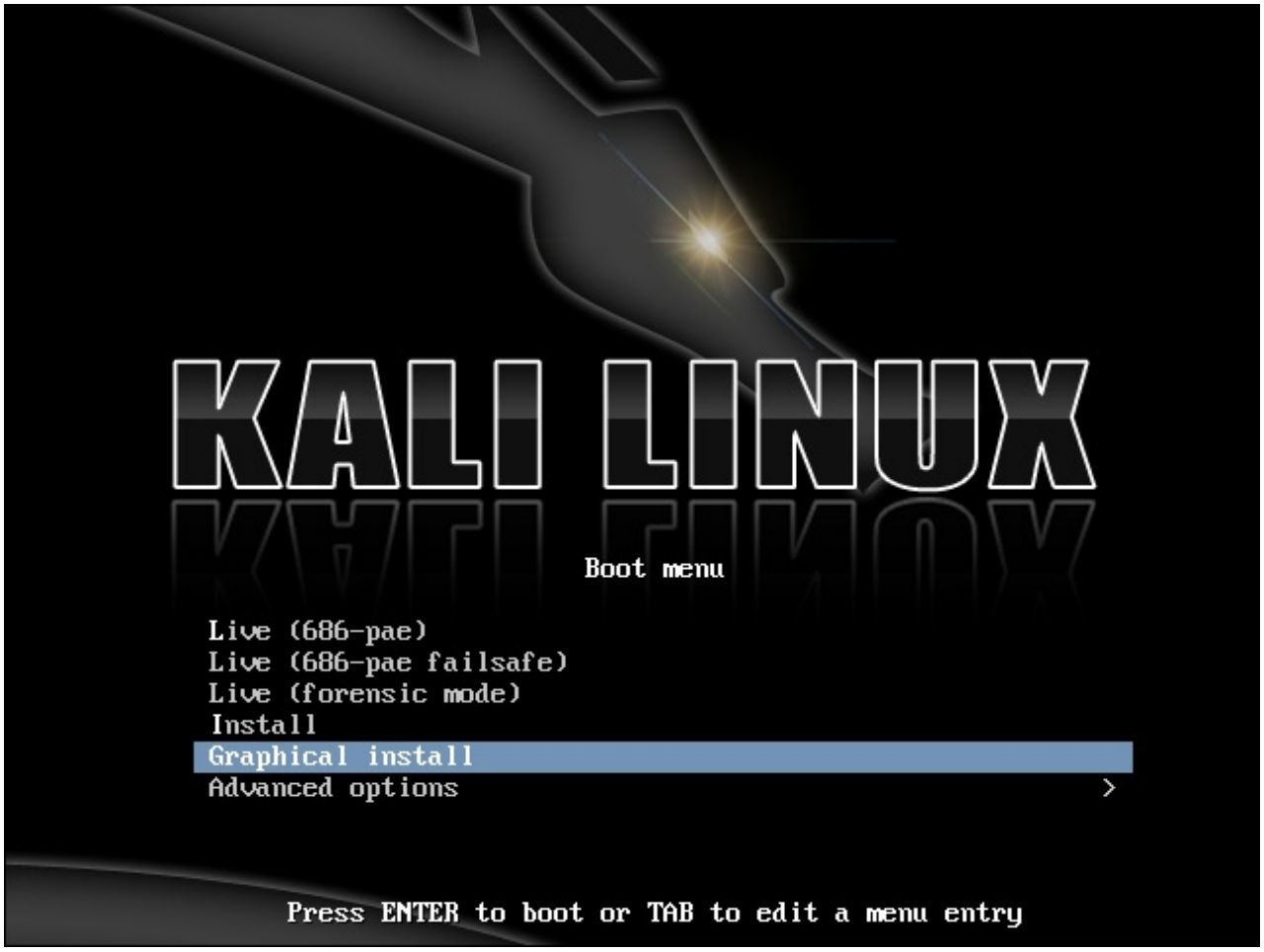
> **Note**
>
> The official Kali Linux documentation that describes how to install Kali Linux with the Windows operating system can be found at http://docs.kali.org/installation/dual-boot-kali-with-windows.

There are several tools that can be used to help you perform disk partitioning. In the open source area, the following Linux Live CDs are available:

- SystemRescueCD (http://www.sysresccd.org/)
- GParted Live (http://gparted.sourceforge.net/livecd.php)
- Kali Linux (http://www.kali.org)

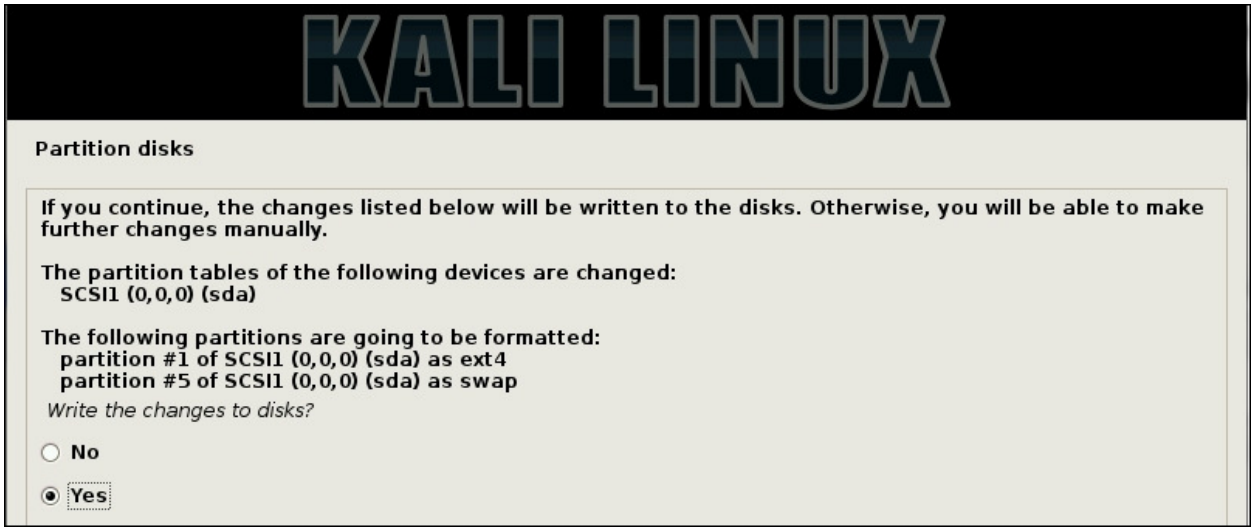
To use the Linux Live CD, you just need to boot it up and you are ready for disk partitioning. Make sure that you back up your data before you use the Linux Live CD disk partitioning tool. Even though they are safe for use in our experience, there is nothing wrong with being cautious, especially if you have important data on the hard disk.

After you are done with the disk partitioning or you just want to use all the hard disk space, you can boot your machine using the Kali Linux Live DVD and select the **Install** or **Graphical install** option when you are prompted with the Kali Linux Live CD menu:



After that, you will see an installation window. You need to set up several things during the installation process:

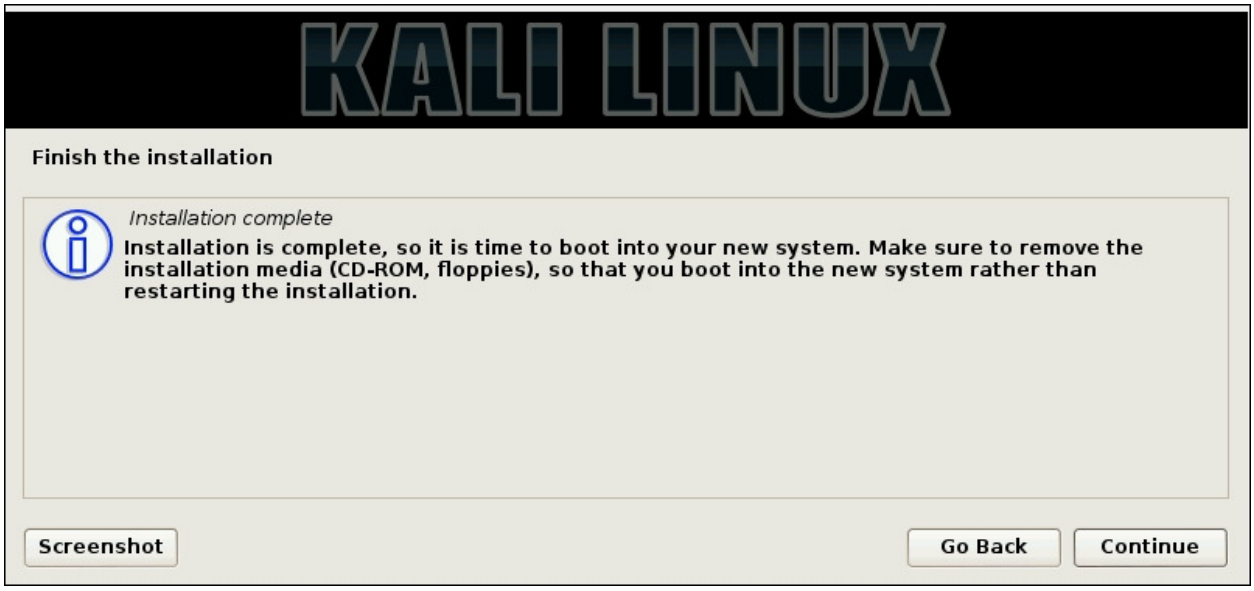
1. First, you need to set the installation language. The default language used is English.
2. Select the country you live in using the drop-down box.
3. Next, set the locale setting. The default value is **United States – en_US.UTF-8**.
4. The keymap value comes next. You can use the suggested keymap value (**American English**) if don't have a specific keyboard layout.
5. Next, you will be asked to configure the network, starting with setting the hostname. Then, you are asked to fill in the domain name.
6. Later on, you will need to set the root password.
7. The installer then asks you to select your time zone.
8. In the disk partitioning segment, the installer will guide you through the disk partitioning process. If you use an empty hard disk, just select the default **Guided - use entire disk** option for better ease. If you have some other operating system installed on your machine, you might first want to create a separate partition for Kali Linux and then select **Manual** in this menu. After you have selected the suitable menu, the installer will create the partition.
9. The installer will ask you about the partitioning scheme; the default scheme is **All files in one partition**. Remember that if you want to store files in the home directory, you should select **Separate /home partition** so that those files won't be deleted if you reinstall the system. The `/home` partition's size really depends on your needs. If you want to put all your data in that directory, you may want a big partition size (more than 50 GB). For average usage, you can go ahead with 10 to 20 GB.
10. The installer will display an overview of your currently configured partitions, as shown in the following screenshot:



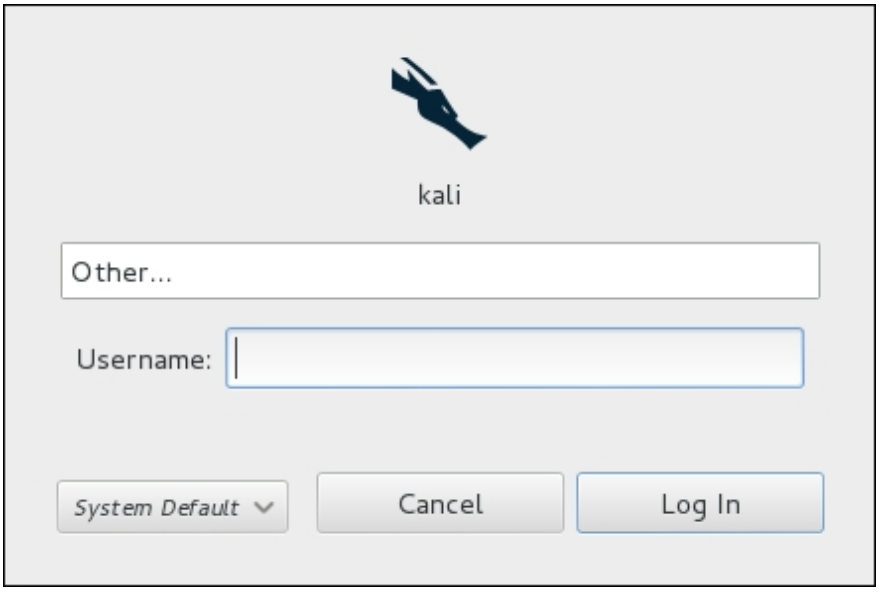
11. Next, the installer will install the Kali Linux system. The installation will be completed in several minutes and you will have Kali Linux installed on your hard disk afterwards. In our test machine, the installation took around 20 minutes.

12. After the installation is finished, the installer will ask you to configure the package manager. Next, it will ask you to install GRUB to the Master Boot Record. You can just choose the default values for these two questions. Beware if you have some other operating system on the same machine, you should *not* choose to install GRUB to the Master Boot Record.

13. If you see the following message, it means that your Kali installation is complete:



14. You can restart the machine to test your new Kali installation by selecting the **Continue** button. After restarting, you will see the following Kali login screen:



15. You can log in using the credentials that you configured in the installation process.

Installing Kali on a virtual machine

You can also install Kali Linux to a virtual machine environment as a guest operating system. The advantages of this type of installation are that you do not need to prepare a separate physical hard disk partition for the Kali Linux image and can use your existing operating system as is.

> **Note**
>
> We will use **VirtualBox** (http://www.virtualbox.org) as the virtual machine software. VirtualBox is an open source virtualization software that is available for Windows, Linux, OS X, and Solaris operating systems.

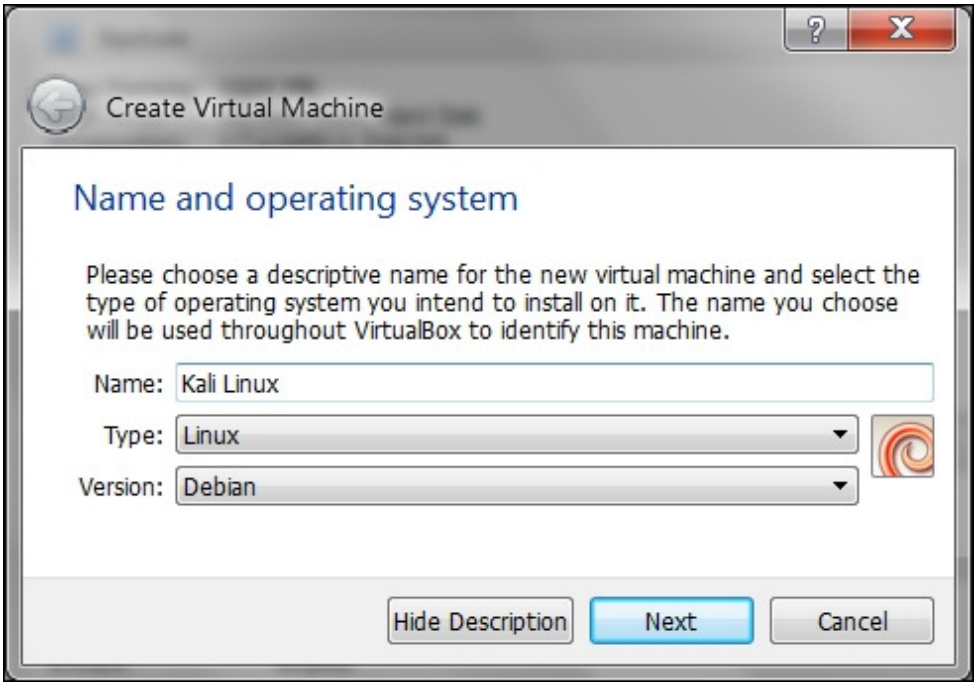
Unfortunately, there is also a disadvantage of running Kali Linux on a virtual machine; it is slower as compared to running Kali Linux on a physical machine.

There are two options that can be utilized for installing Kali Linux on a virtual machine. The first option is to install the Kali Linux ISO image into a virtual machine. This option will take more time compared to the VMware image installation. The advantage of this method is that you can customize your Kali installation.

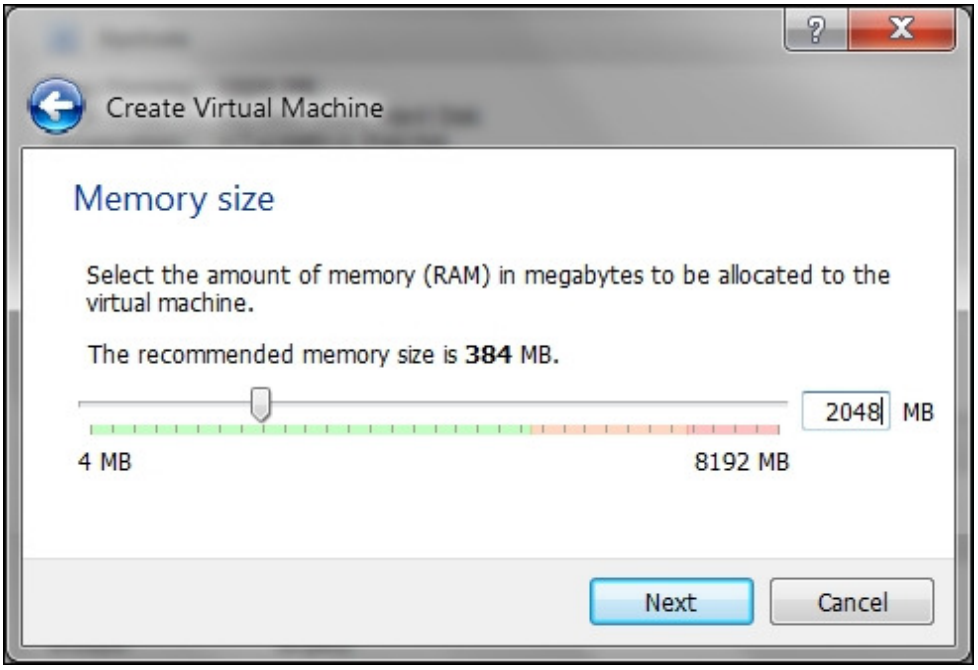
Installing Kali on a virtual machine from the ISO image

To install a Kali Linux ISO image on a virtual machine, the following steps can be used:

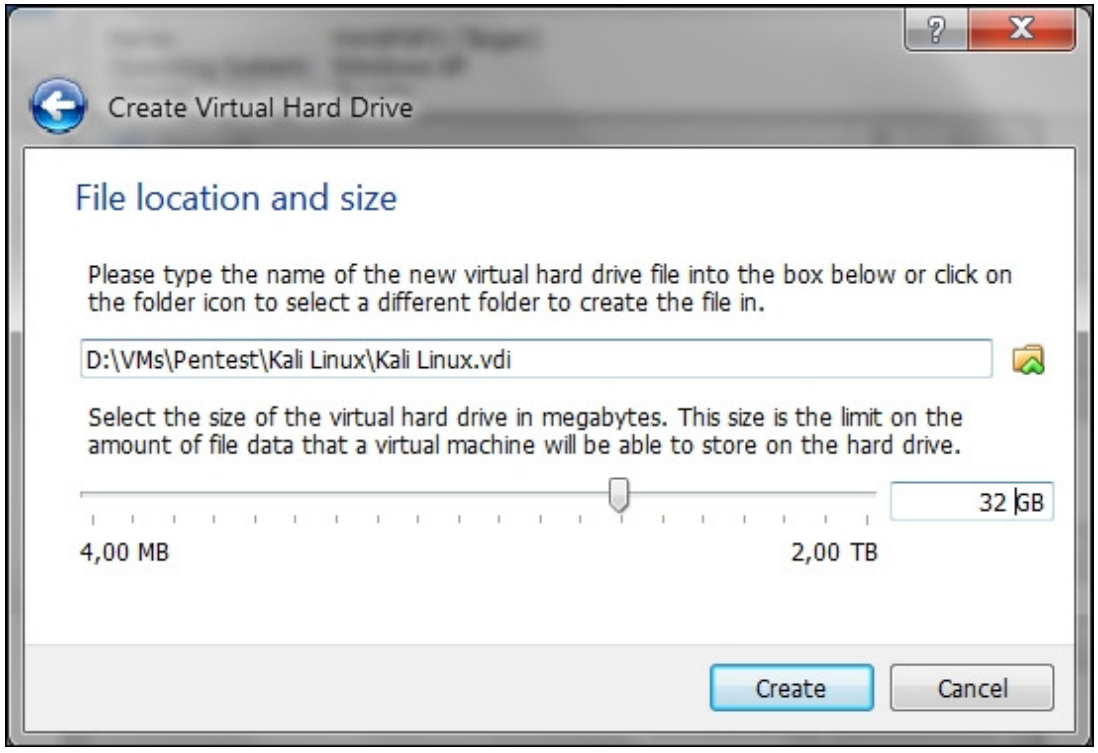
1. Create a new virtual machine by selecting **New** from the VirtualBox toolbar menu.
2. After that, you need to define the virtual machine's name and the operating system's type. Here, we set the VM's name to `Kali Linux` and we choose **Linux** for the OS type and **Debian** for the version:



3. Then, you need to define the VM's base memory size. The more memory you provide, the better the virtual machine will be. Here, we allocated 2048 MB of memory to the Kali Linux virtual machine. Remember that you can't give all of your physical memory to the VM because you still need the memory to run your host operating system:

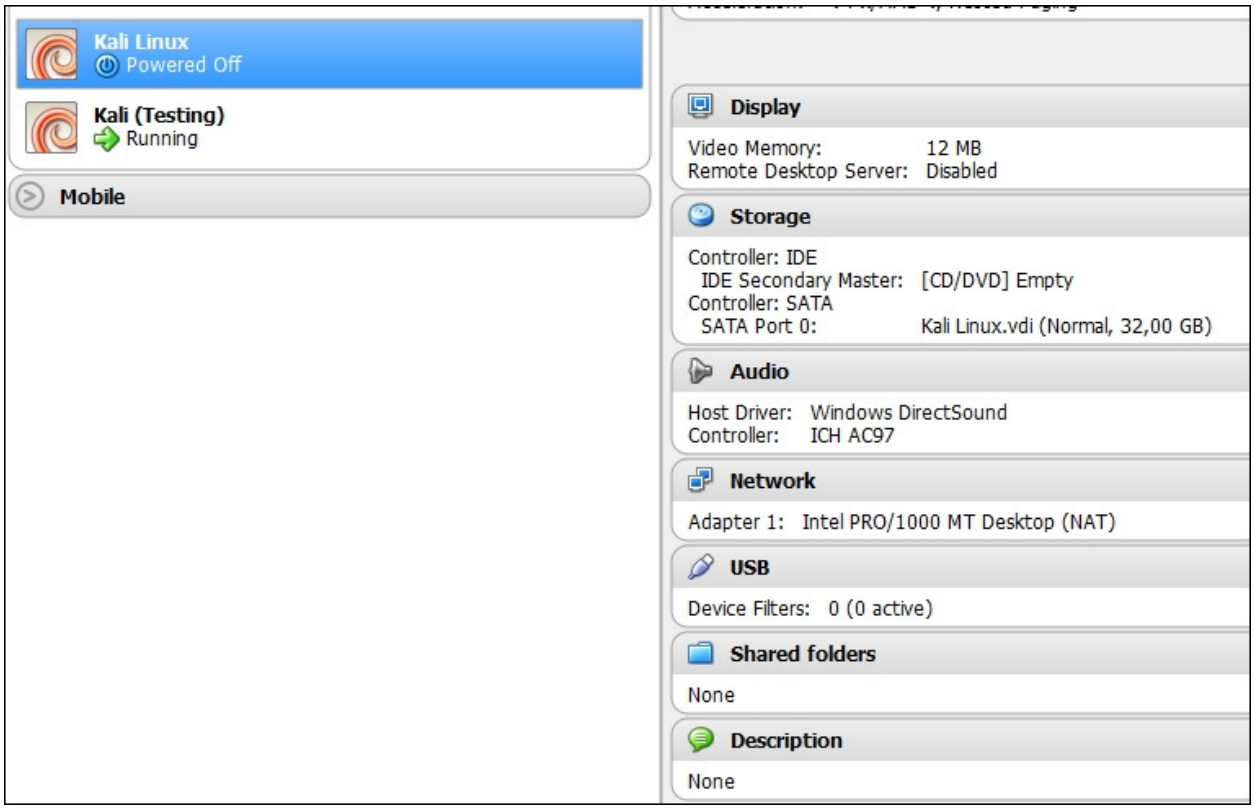


4. Next, you will be asked to create a virtual hard disk. You can just select the VDI as the hard disk type along with a dynamically allocated virtual disk file. We suggest creating at least a 32 GB virtual hard disk. If you want to install some software packages later on, you may want to create a larger virtual hard disk:

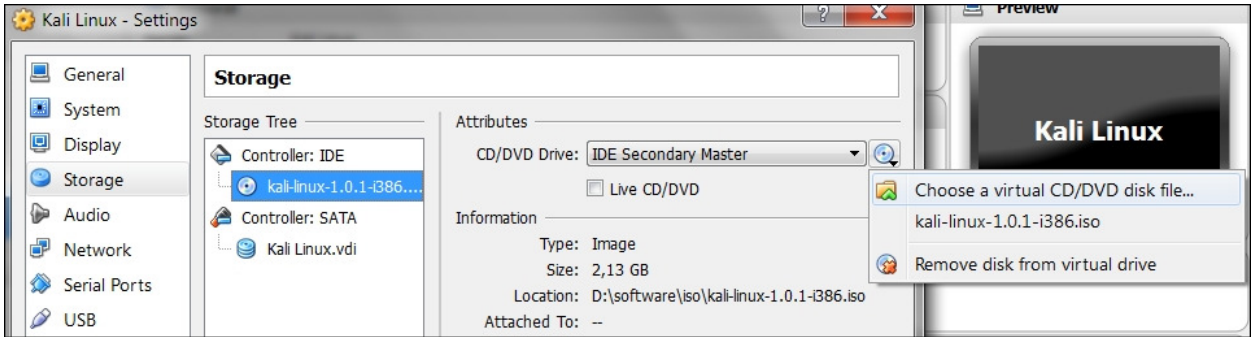


5. After this, your newly created VM will be listed on the VirtualBox menu.

6. To use the Kali Linux ISO image, select the VM from the VirtualBox menu and then click on the **Storage** menu to configure it:



7. From **Storage Tree**, select **IDE Controller** and in the **Attributes**, select Kali Linux ISO image file; in this case the filename for the CD/DVD drive is `kali-linux-1.0.1-i386.iso` . If successful, you will see the ISO image name in the **Controller: IDE** field:



8. To install the Kali Linux ISO image, just run your new virtual machine. You can refer to the *Installing Kali on a physical machine* section for guidance on how to install Kali Linux.

Installing Kali in a virtual machine using the provided Kali VM image

The second option is using the VMWare image provided by Kali Linux.

> **Note**
>
> The Kali Linux team only provides Kali Linux GNOME VMware image for an i386 machine.

With this option, you can install Kali Linux on a virtual machine with ease.

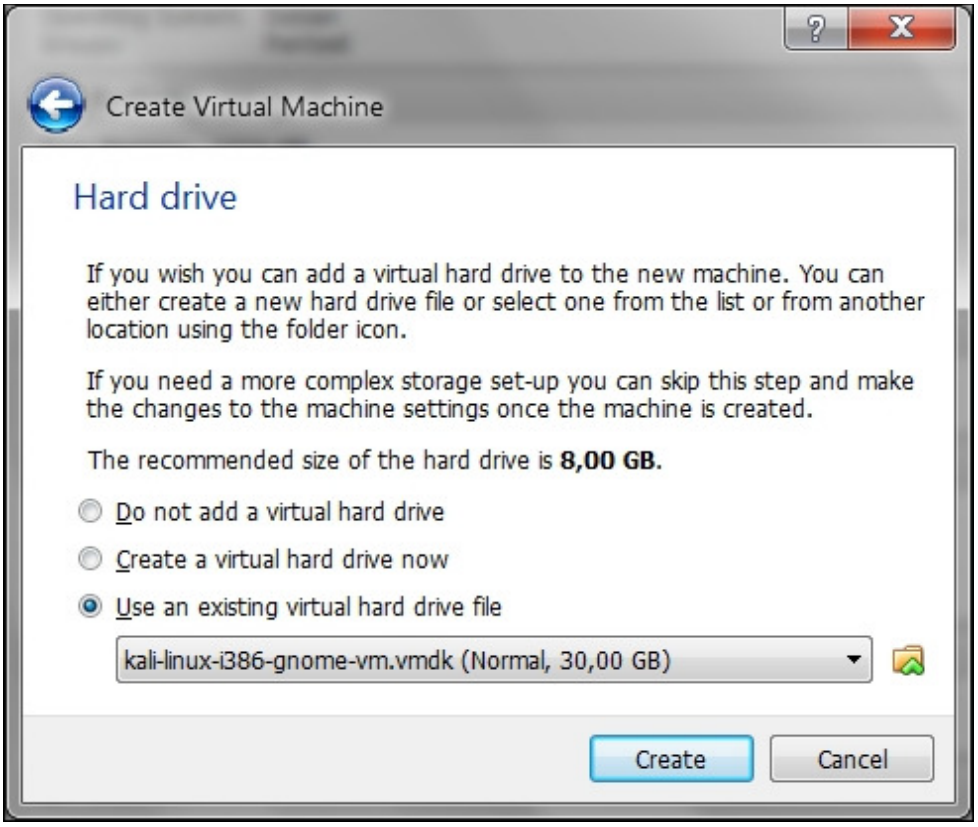
After downloading the Kali Linux VMware image (`kali-linux-1.0-i386-gnome-vm.tar.gz`), you need to verify the SHA1 hash of the downloaded file with the hash value provided in the download page. If the hash value is the same, you can extract the image file to the appropriate folder.

As the VMware image is compressed in the GZ format, you can use any software that can extract a `.gz` file such as gzip or 7-Zip if you use a Windows operating system. If you have extracted it successfully, you will find 21 files in the directory:

kali-linux-i386-gnome-vm	nvram	8.684	11/03/2013 23:25	-a—
kali-linux-i386-gnome-vm	vmdk	1.358	11/03/2013 23:19	-a—
kali-linux-i386-gnome-vm	vmsd	0	09/03/2013 02:59	-a—
kali-linux-i386-gnome-vm	vmx	2.736	11/03/2013 23:25	-a—
kali-linux-i386-gnome-vm	vmxf	382	09/03/2013 03:26	-a—
kali-linux-i386-gnome-vm-s001	vmdk	1.936.130.048	11/03/2013 23:36	-a—
kali-linux-i386-gnome-vm-s002	vmdk	953.548.800	11/03/2013 23:36	-a—
kali-linux-i386-gnome-vm-s003	vmdk	100.007.936	11/03/2013 23:36	-a—
kali-linux-i386-gnome-vm-s004	vmdk	1.101.004.800	11/03/2013 23:36	-a—
kali-linux-i386-gnome-vm-s005	vmdk	586.285.056	11/03/2013 23:36	-a—
kali-linux-i386-gnome-vm-s006	vmdk	337.772.544	11/03/2013 23:36	-a—
kali-linux-i386-gnome-vm-s007	vmdk	830.144.512	11/03/2013 23:36	-a—
kali-linux-i386-gnome-vm-s008	vmdk	565.968.896	11/03/2013 23:36	-a—
kali-linux-i386-gnome-vm-s009	vmdk	390.529.024	11/03/2013 23:36	-a—
kali-linux-i386-gnome-vm-s010	vmdk	299.565.056	11/03/2013 23:36	-a—
kali-linux-i386-gnome-vm-s011	vmdk	196.411.392	11/03/2013 23:36	-a—
kali-linux-i386-gnome-vm-s012	vmdk	364.773.376	11/03/2013 23:36	-a—
kali-linux-i386-gnome-vm-s013	vmdk	203.292.672	11/03/2013 23:36	-a—
kali-linux-i386-gnome-vm-s014	vmdk	294.191.104	11/03/2013 23:36	-a—
kali-linux-i386-gnome-vm-s015	vmdk	1.441.792	11/03/2013 23:36	-a—
kali-linux-i386-gnome-vm-s016	vmdk	65.536	11/03/2013 23:36	-a—

To create the new virtual machine using this VM image file, select **New** from the VirtualBox icon toolbar. Next, you will need to answer the following questions:

1. We use `kali-gnome-vm-32` as the VM name and choose **Linux** as the operating system and **Debian** as the version.
2. We configure the Kali Linux virtual machine to use 2048 MB as its memory size.
3. Next, we define the virtual hard disk to **Use an existing virtual hard drive file**. Then, we select the `kali-linux-i386-gnome-vm.vmdk` file for the hard disk. After that, we choose **Create** to create the virtual machine, as shown in the following screenshot:



Note

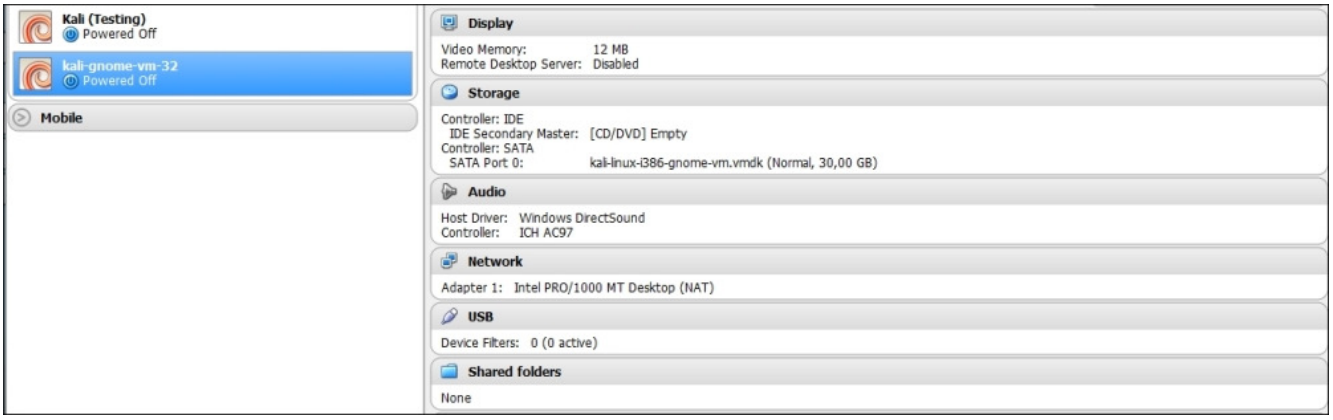
The following is the default configuration of the Kali Linux VMware image:

- Hard disk size: 30 GB
- Network type: NAT
- Username: `root`
- Password: `toor`

For penetration purposes, we should avoid using NAT as the network type. The recommended network type is bridged.

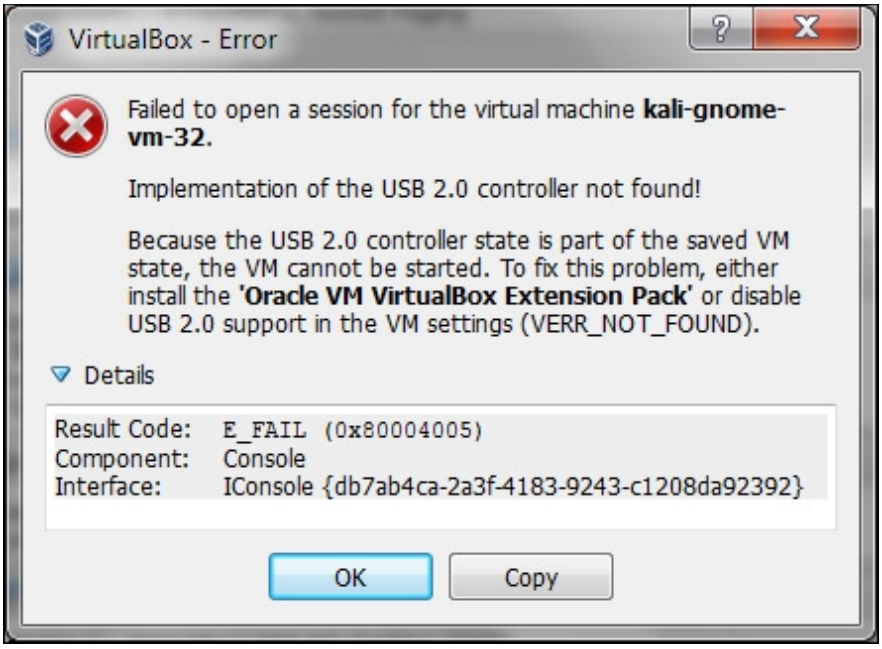
Change the default password for Kali when you configure the Kali VM.

If successful, you will see the new virtual machine in the virtual manager list:



To run the Kali Linux virtual machine, click on the Start icon at the top of the VirtualBox menu bar. After the boot process, Kali Linux will display its login prompt.

If you got the following error message, you need to install the **VirtualBox Extension Pack** . You can get it from http://www.virtualbox.org/wiki/Downloads.

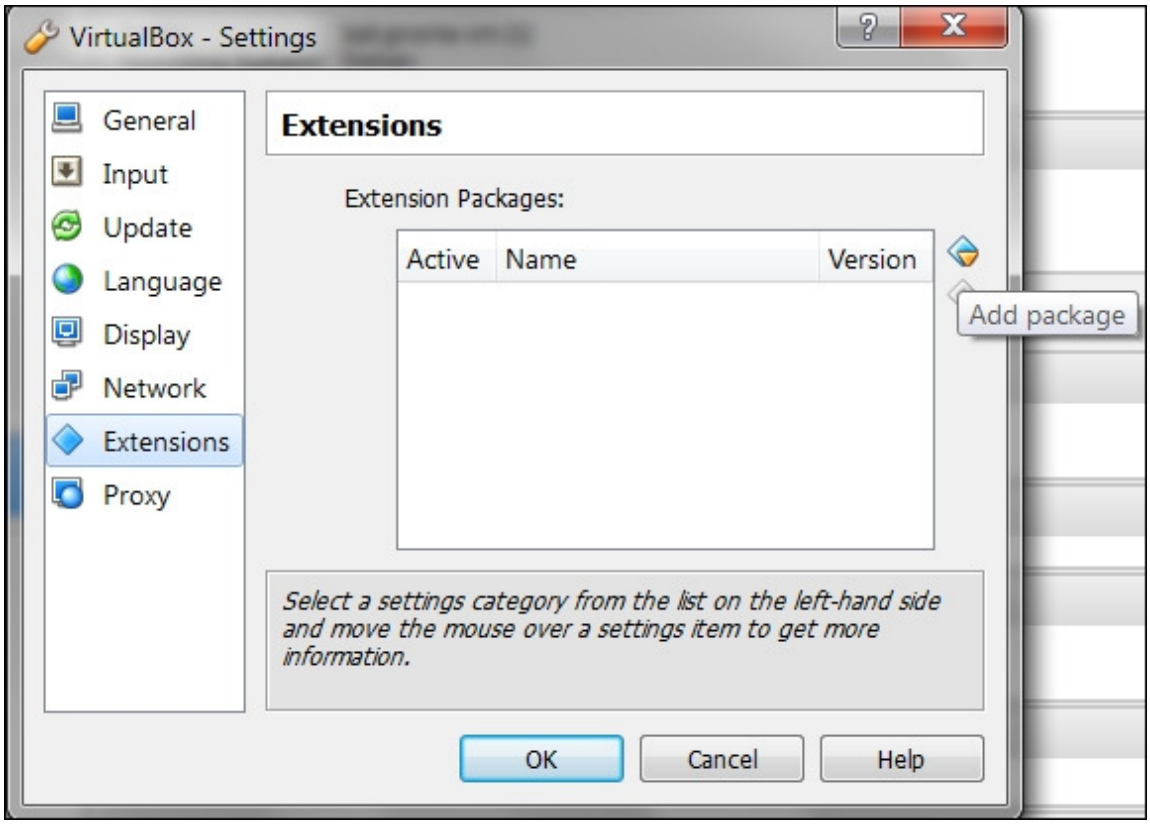


Note

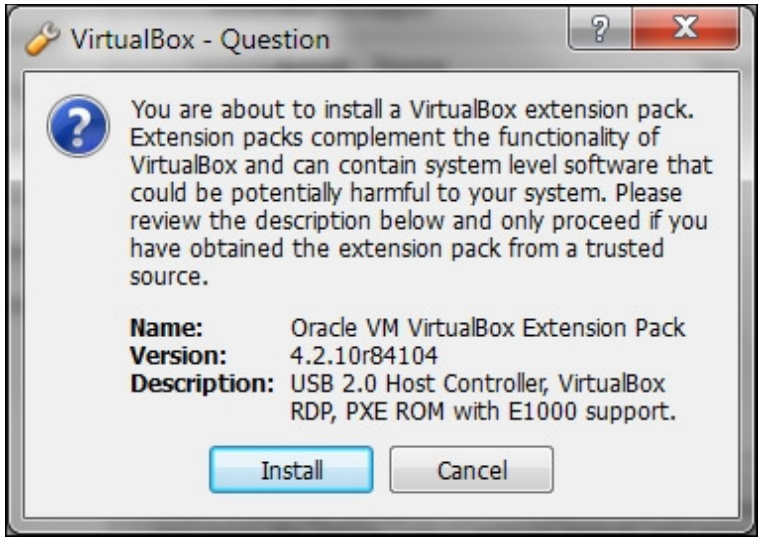
Remember to download the VirtualBox Extension Pack with the same version as the VirtualBox. For example, if you use VirtualBox Version 4.3.0, you should use the Extension Pack Version 4.3.0 too.

To install the extension pack from the VirtualBox Manager, perform the following steps:

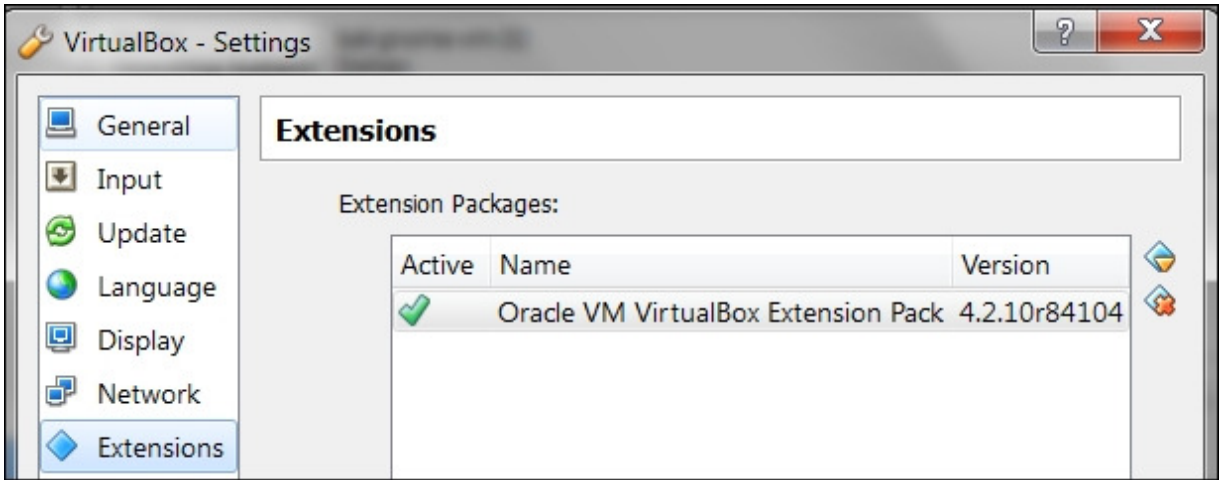
1. Navigate to **File** | **Preferences**; it will then display the **Settings** window. Next, select the **Extensions** menu:



2. Click on the **Add package** button to select the VirtualBox Extension Pack. VirtualBox will then display a pop-up window that will ask you to review the description and then proceed:



3. Select **Install** to install the extension pack and follow the given instructions. If the installation is successful, you will see the extension pack in the list:



4. You can then log in to Kali Linux using the default username and password.

Installing Kali on a USB disk

The third option to use Kali Linux is by installing it to a USB flash disk; we call this method **Portable Kali Linux** . According to the official Kali documentation, this is the Kali developers' favorite and fastest method of booting and installing Kali. Compared to the hard disk installation, you can run Kali Linux using any computer that supports booting from the USB flash disk with this method.

> **Note**
>
> The installation procedure for the USB flash disk is also applicable to the installation of memory cards (SSD, SDHC, SDXC, and so on).

There are several tools available to create portable Kali Linux. One of them is **Rufus** (http://rufus.akeo.ie/). This tool can be run only from a Windows operating system.

You can use other tools to create a bootable disk from the ISO image, such as:

- **Win32DiskImager** (https://launchpad.net/win32-image-writer)
- **Universal USB Installer** (http://www.pendrivelinux.com/universal-usb-installer-easy-as-1-2-3/)
- **Linux Live USB Creator** (http://www.linuxliveusb.com)

Before creating portable Kali Linux, you need to prepare a couple of things:

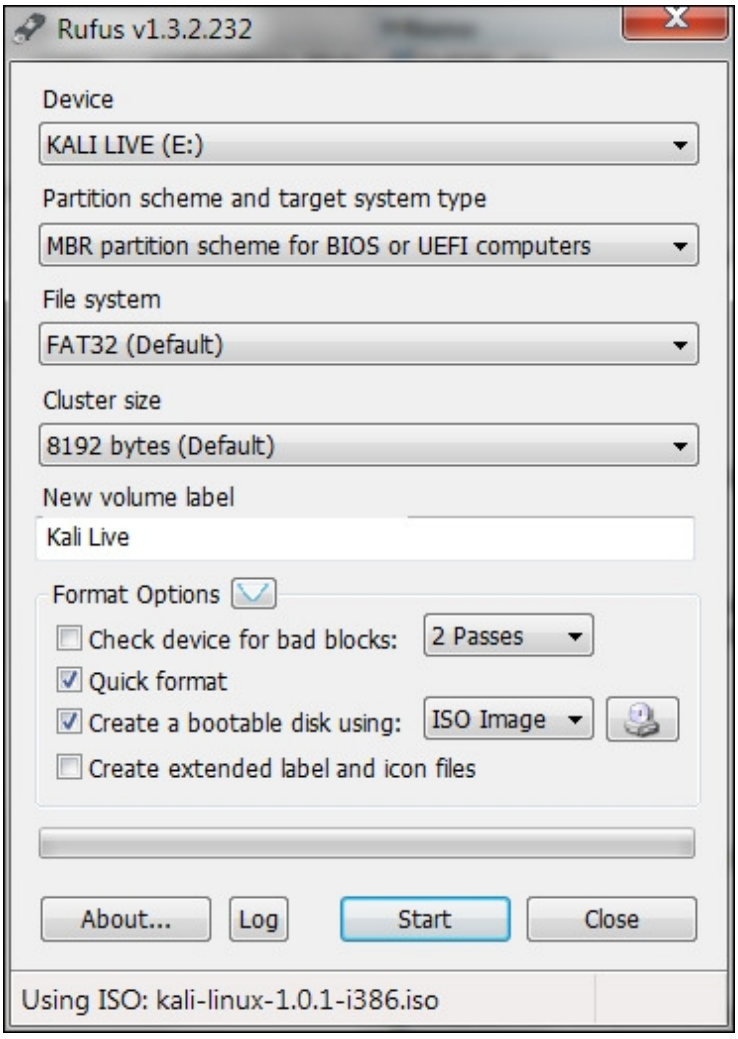
- **Kali Linux ISO image**: Even though you can use the portable creator tool to download the image directly while making the Kali Linux portable, we think it's much better to download the ISO first and then configure Rufus to use the image file.
- **USB flash disk**: You need an empty USB flash disk with enough space on it. We suggest using a USB flash disk with a minimum size of 16 GB.

After downloading Rufus, you can run it on your Windows computer by double-clicking on the `rufus.exe` file. You will then see the Rufus window.

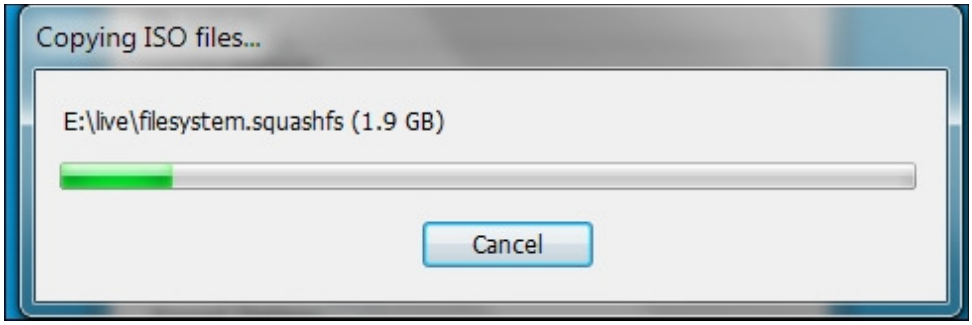
> **Note**
>
> If you use a UNIX-based operating system, you can create the image using the `dd` command. The following is an example of imaging:
>
> ```
> dd if=kali-linux-1.0.1-i386.iso of=/dev/sdb bs=512k
> ```
>
> Here, `/dev/sdb` is your USB flash disk.

To create a bootable Kali USB flash disk, we need to fill in the following options:

- For **Device**, we choose the location of the USB flash disk. In my case, it is the E drive in my Windows system.
- For **Partition scheme and target system type**, set it to **MBR partition scheme for BIOS or UEFI computers**.
- In the **Create a bootable disk using** option, set the value to **ISO image** and select the ISO image using the disk icon:



Click on **Start** to create the bootable image:



After the process is complete, save all your work first and then reboot your system if you want to try the USB flash disk right away. You may want to configure your **Basic Input Output System** (**BIOS**) to boot it from the USB disk. If there is no error, you can boot up the Kali Linux from the USB flash disk.

Note

If you want to add persistence capabilities to the USB flash disk, you can follow the steps described in the documentation section **Adding Persistence to Your Kali Live USB** located at http://docs.kali.org/installation/kali-linux-live-usb-install.