Lab Assignment

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Cybersecurity Professional Program

Introductory Course

Linux OS

IC-05-L1

Kali Linux Installation

Lab Objective

Become familiar with setting up virtual machines and Kali Linux installations.

Lab Mission

Learn how to install Kali Linux on a virtual machine.

Lab Duration

45–60 minutes

Requirements

- Basic working knowledge of VirtualBox

Resources

- Environment & Tools
  - VirtualBox
- Extra Lab Files
  - ***Kali-linux-2020.3-installer-amd64.iso***

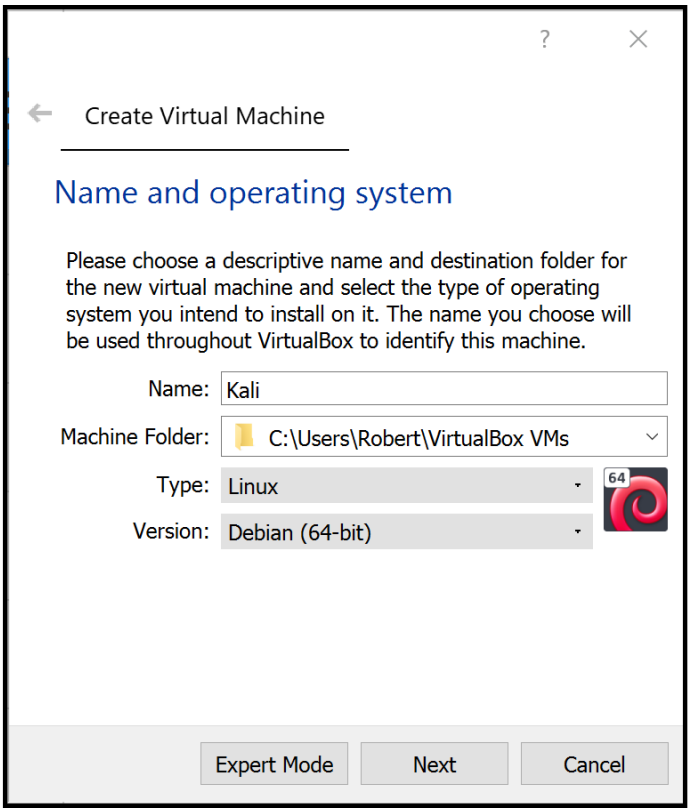
Textbook References

- Chapter 5: Linux OS
  - Section 1: Introduction

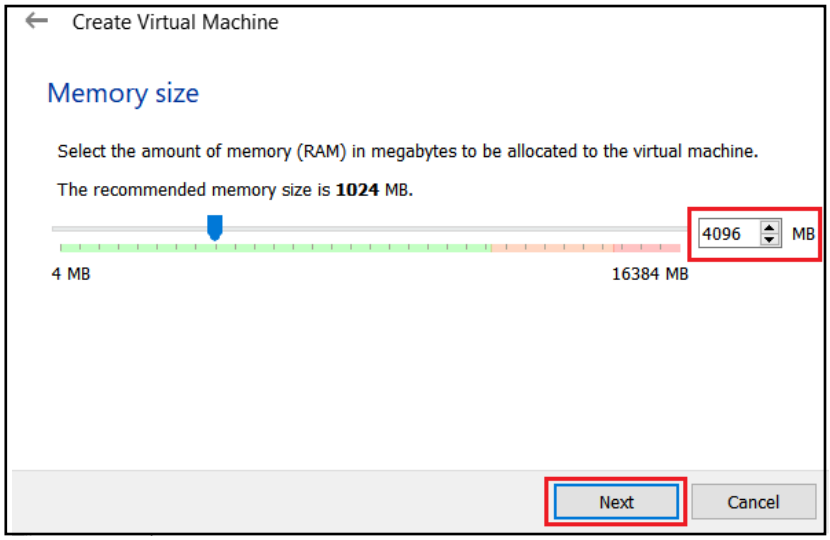
Lab Task 1: Configure VirtualBox for Kali Linux Installation

In this task, you will prepare a virtual machine for Kali Linux OS installation.

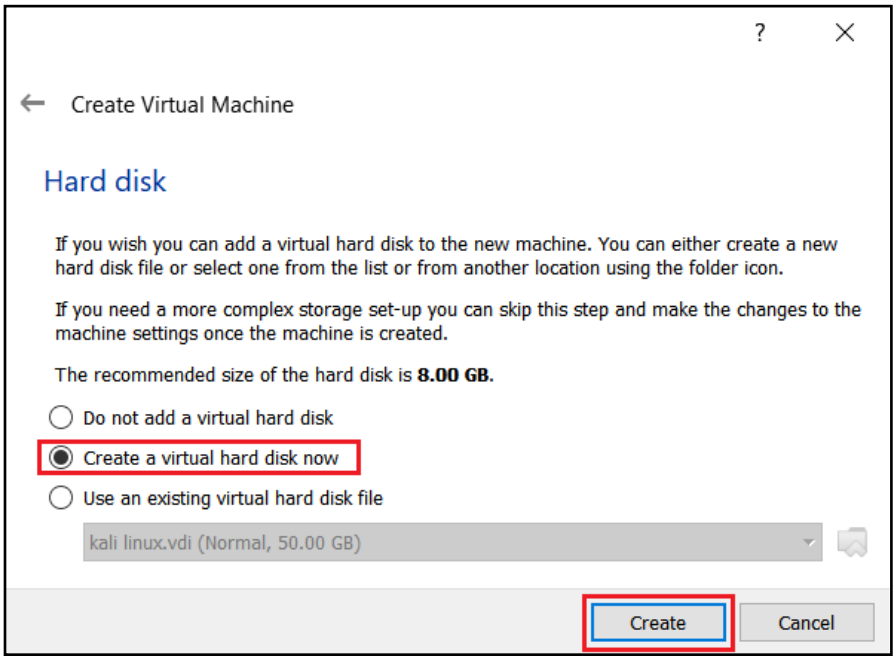
1 Open VirtualBox, click the **Machine** tab, click **New**, and name the VM *Kali Linux*.



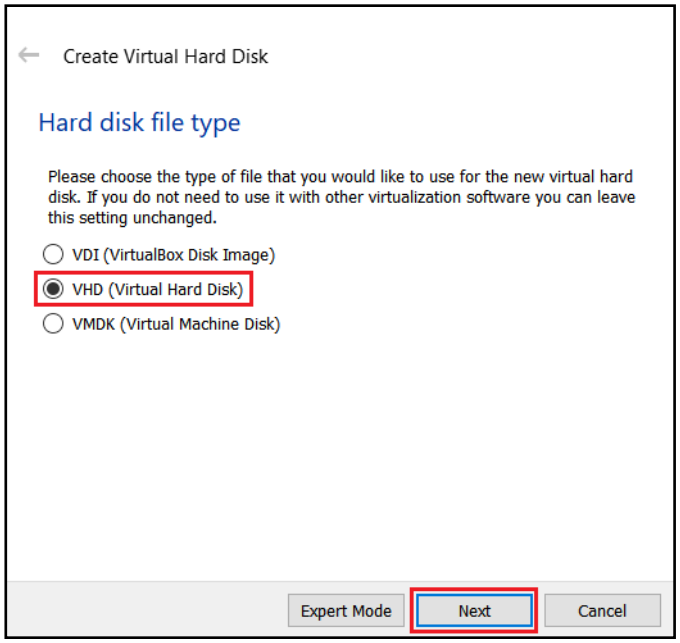
2 Set the memory to **4096 MB** for proper functionality. You can use a larger setting (in accordance with the computer's available resources) for enhanced functionality.



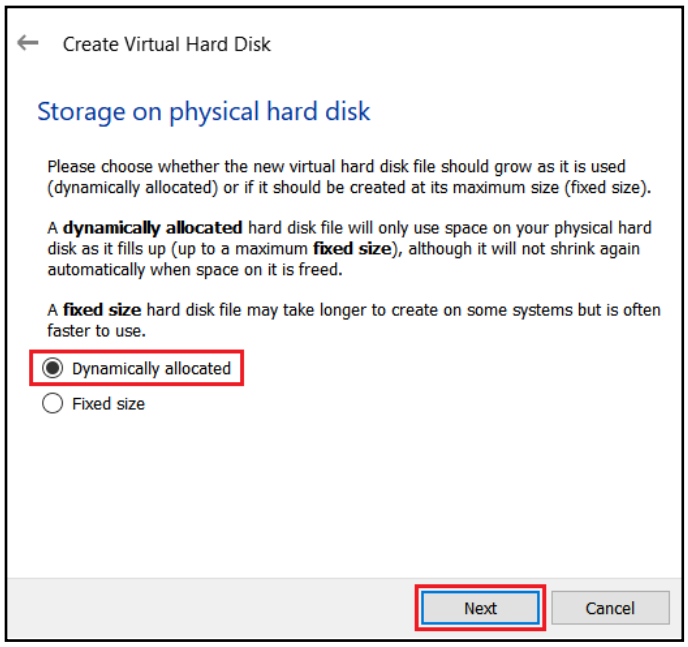
3 On the next window, select ***Create a virtual hard disk now*** and click **Create**.



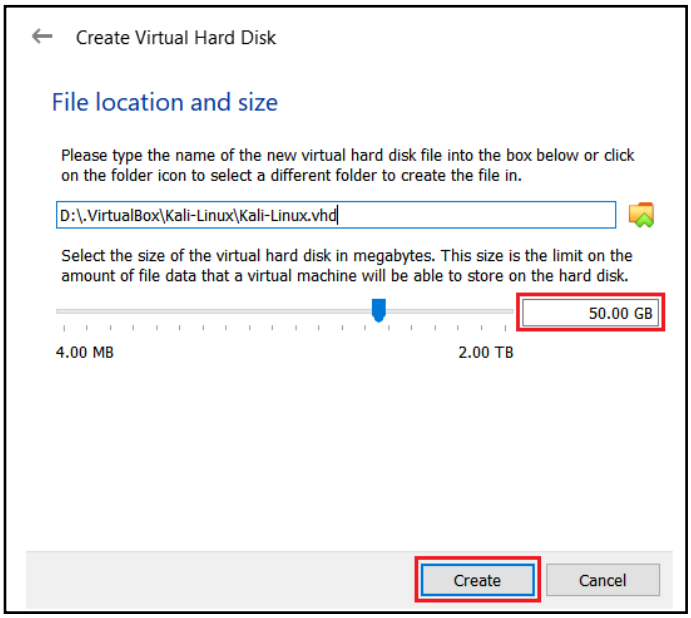
4 Select ***VHD (Virtual Hard Disk)*** for the hard disk file type and click **Next**.



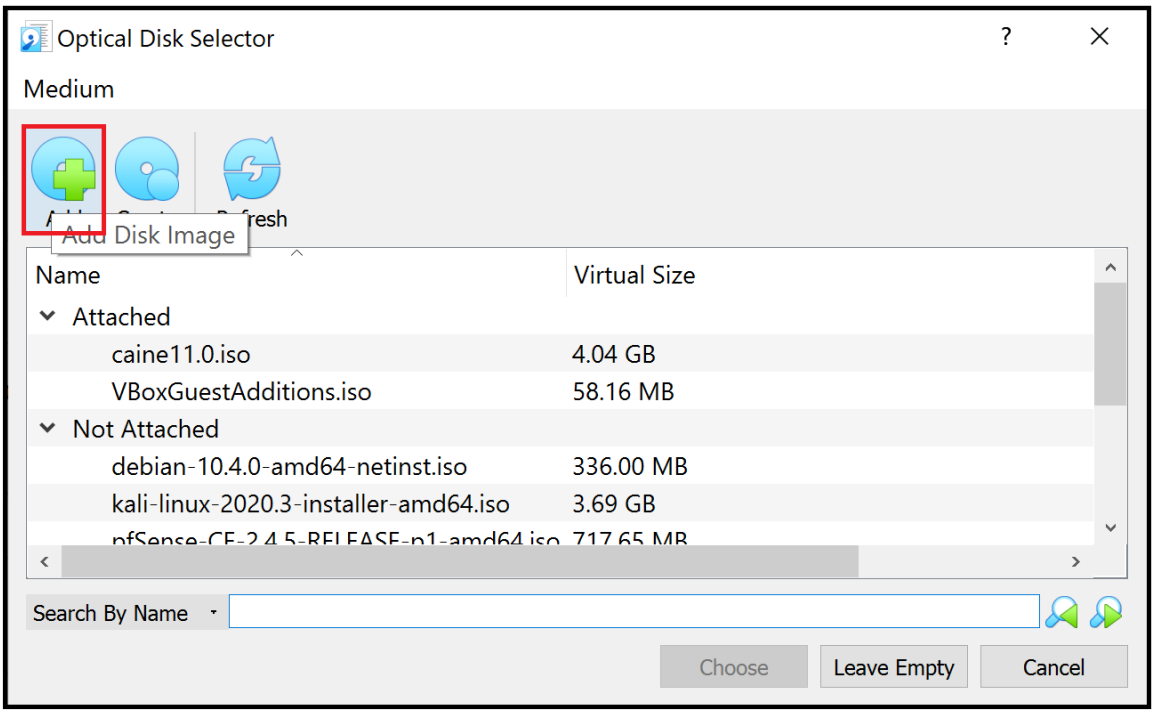
5 Select ***Dynamically allocated*** and click **Next**.

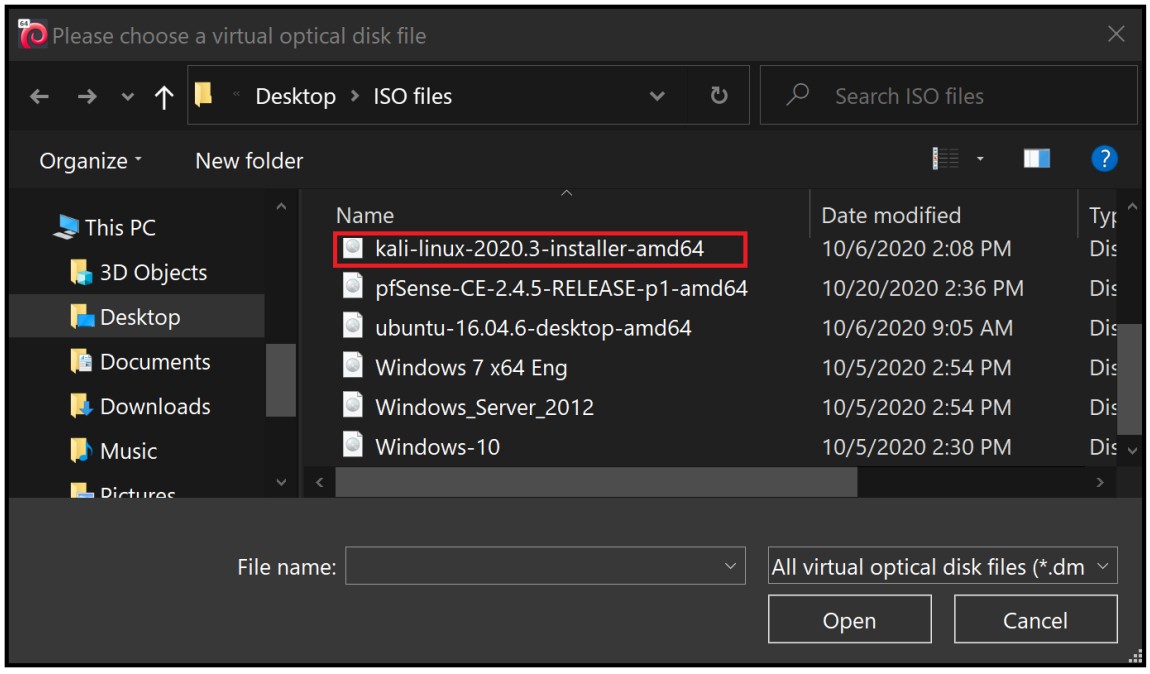


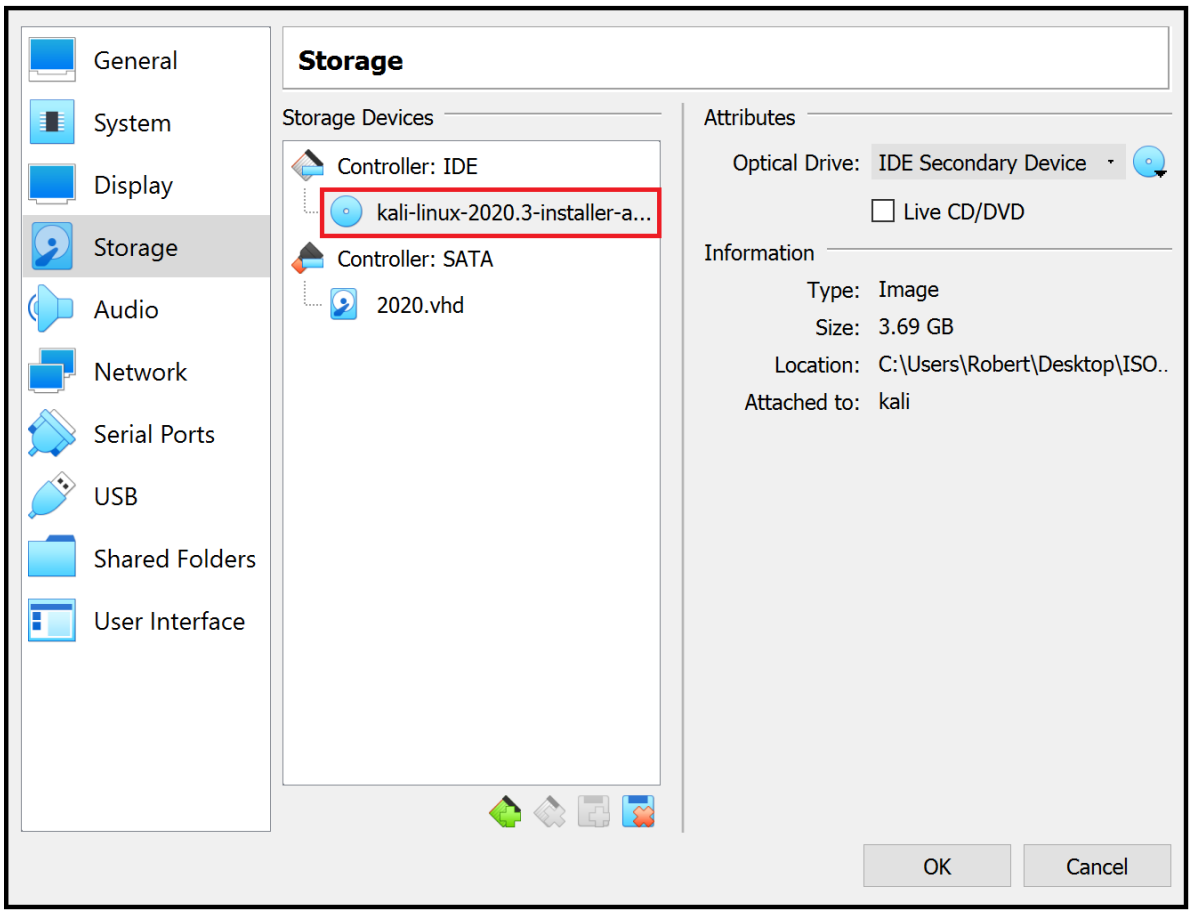
6 Select the file location and set the storage size to **50GB**. If your computer does not have enough storage, you can set it to **20GB**.



7 Right-click the Kali VM, go to **Settings > *Storage***, and under Controller: IDE, insert the ***Kali-linux-2020.3-installer-amd64.iso*** in the drive.



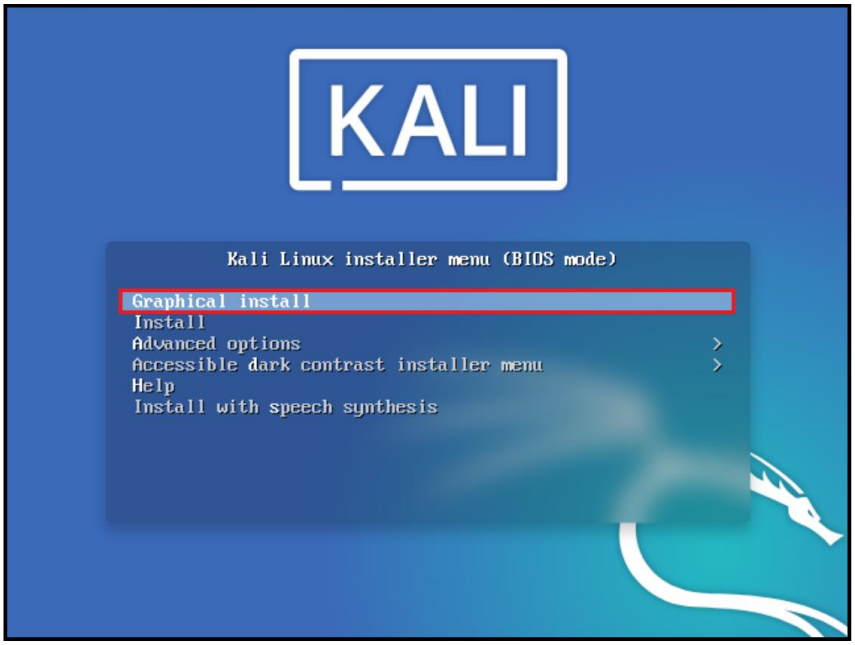



General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface
Storage
Storage Devices
Controller: IDE
kali-linux-2020.3-installer-a...
Controller: SATA
2020.vhd
Attributes
Optical Drive:
IDE Secondary Device
Live CD/DVD
Information
Type: Image
Size: 3.69 GB
Location: C:\Users\Robert\Desktop\ISO..
Attached to: kali
OK
Cancel

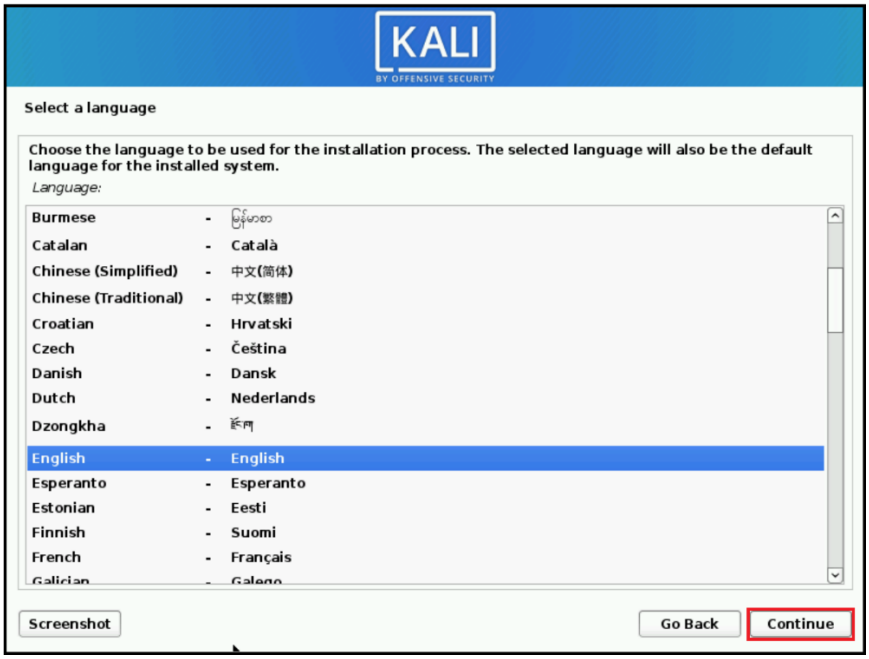
Lab Task 2: Install Kali Linux on the VM

Now that the virtual machine is configured, proceed with the Kali Linux installation.

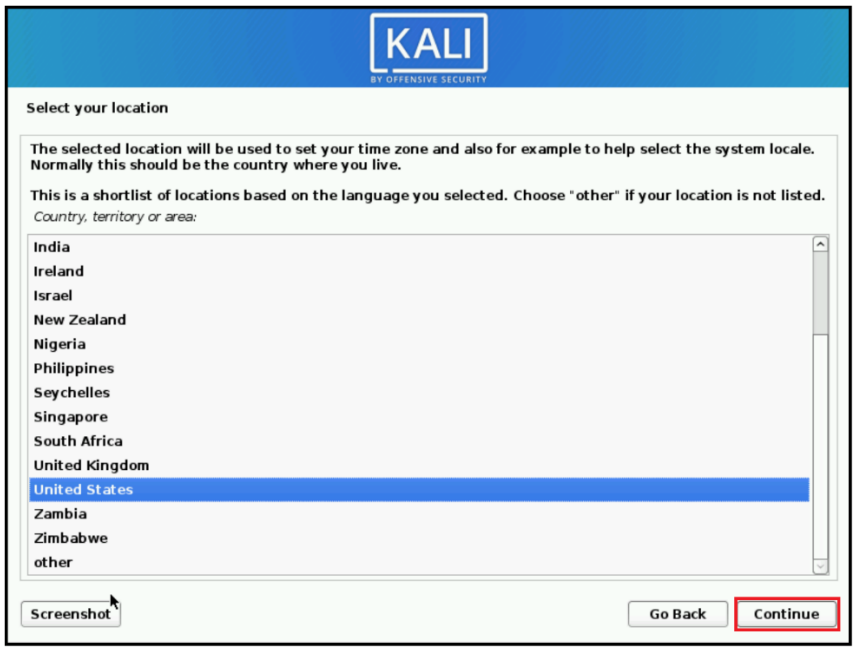
1 Start the VM. If prompted to enter a disk, click **Cancel**. Select ***Graphical install*** for easier installation with a graphical interface and press ***Enter***.



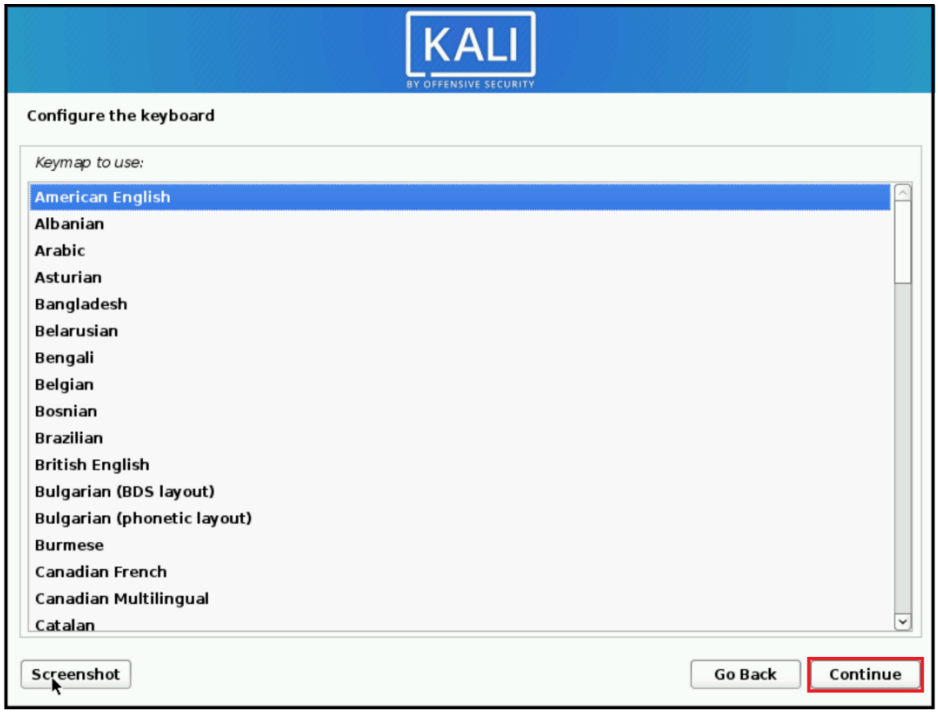
2 Choose the English language for the system and click **Continue**.



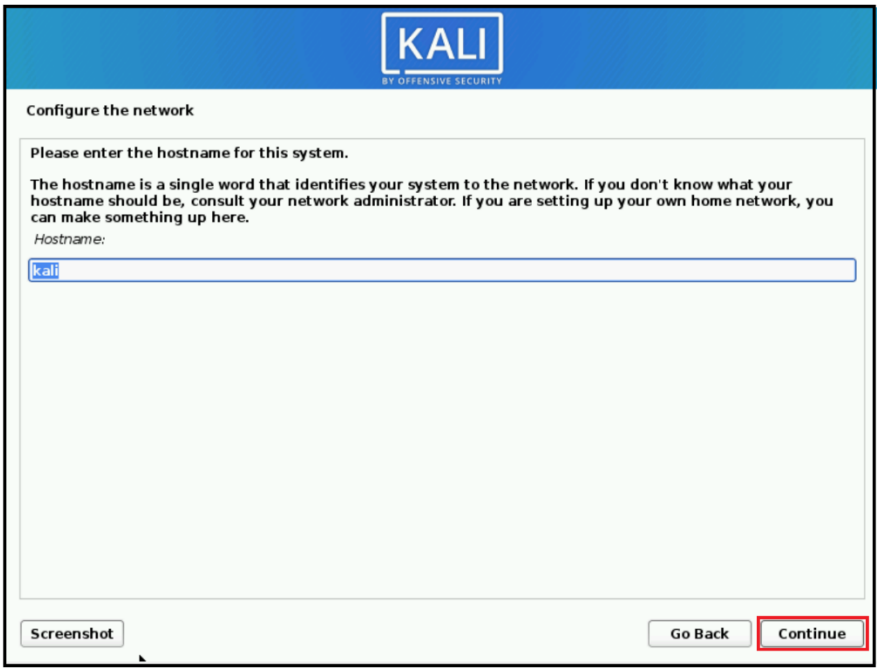
3 Select the United States as your location so the system can set the correct time and click **Continue**.



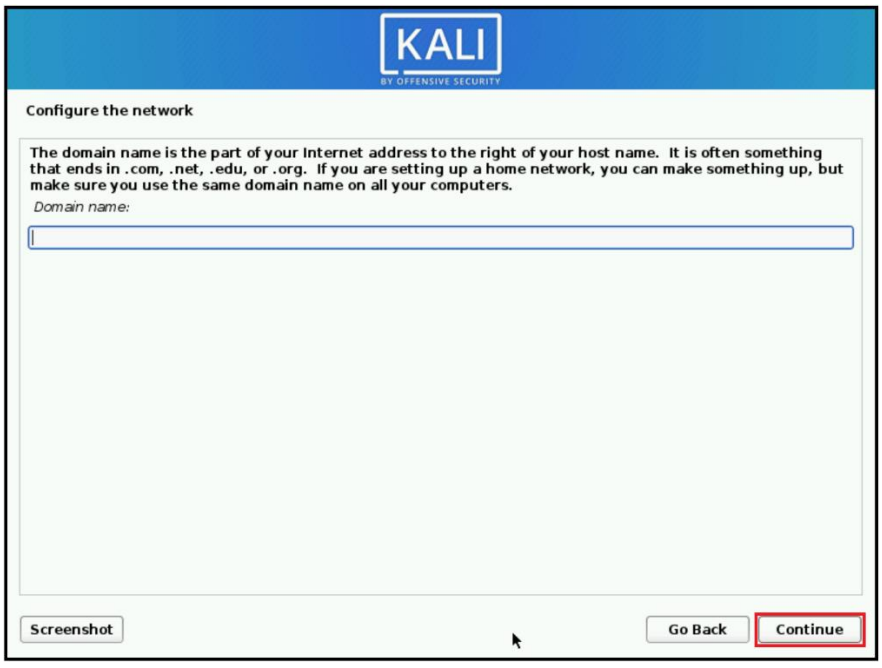
4 Select ***American English*** for the keyboard and click **Continue**.



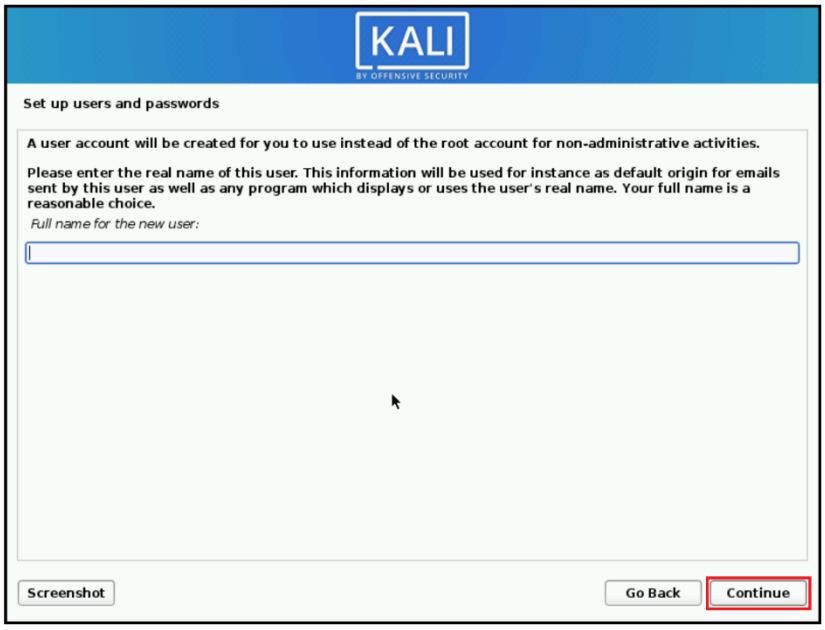
5 Set the hostname (network identification name) to *Kali* and click **Continue**.

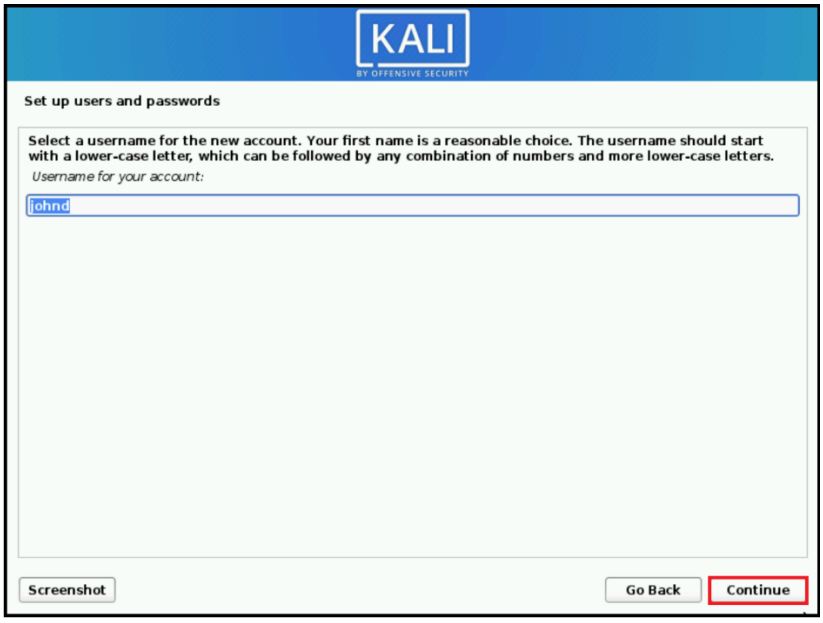


6 Leave the domain name field empty, since you are not part of an enterprise network, and click **Continue**.

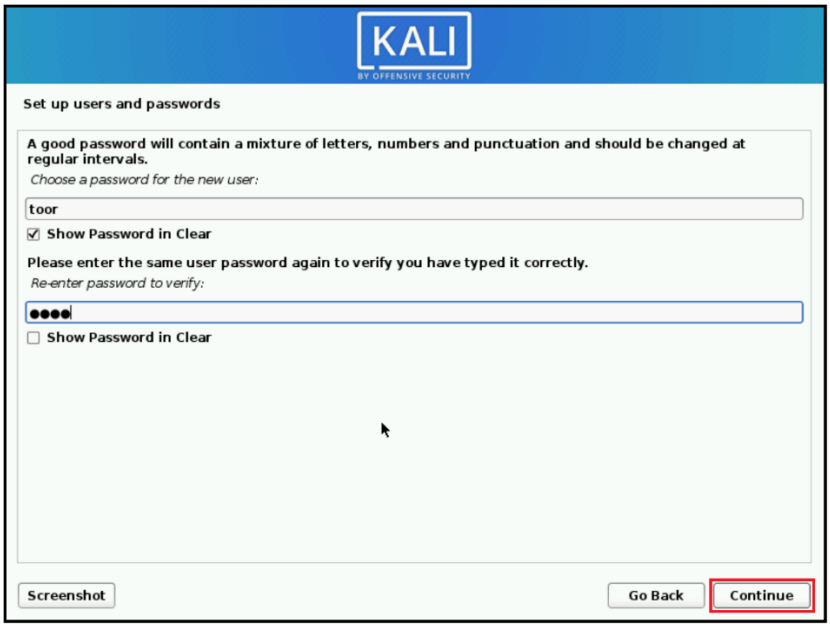


7 Enter **Johnd** as the name of the user.

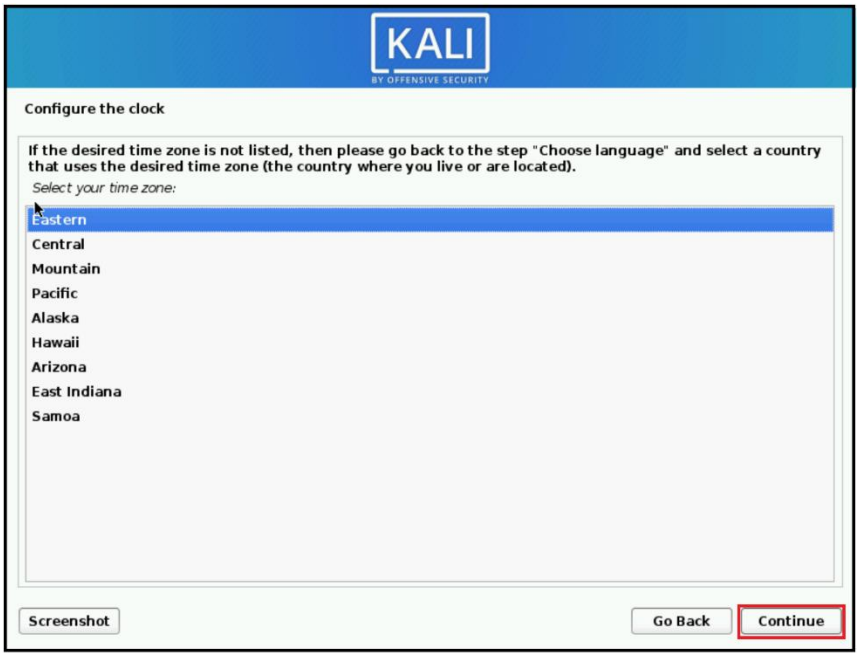




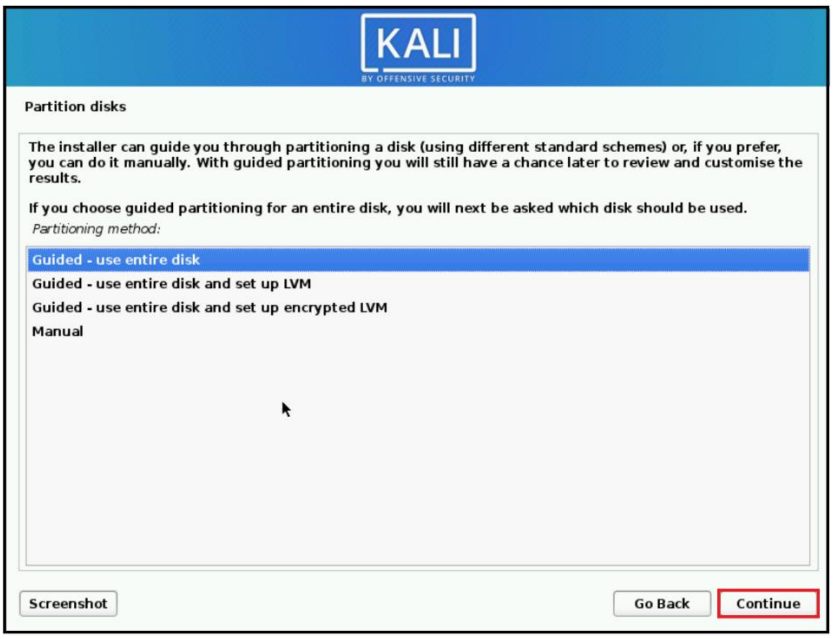
8 Set the password to **toor** for this lab and click **Continue**. The password will be used to log in later.



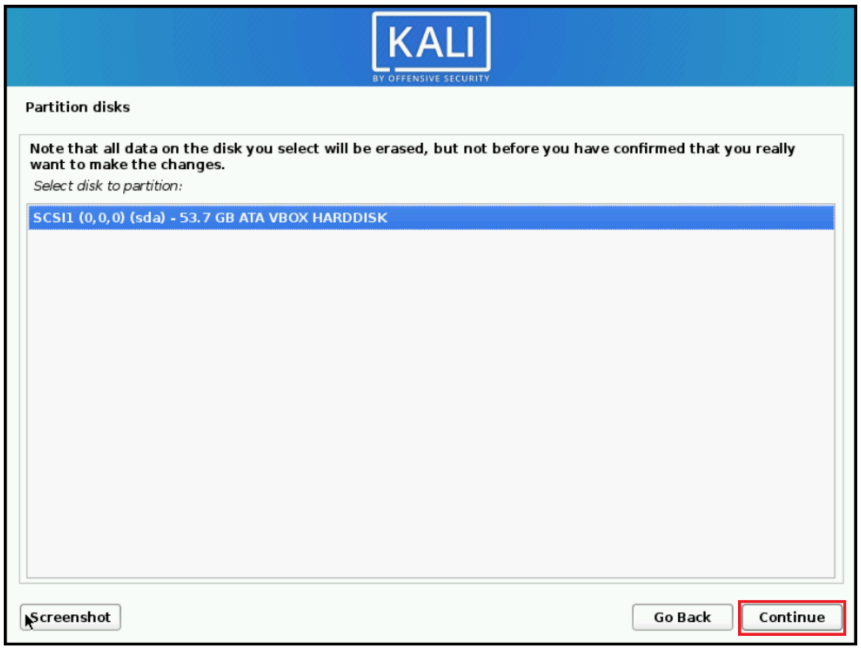
9 Set your time zone and click **Continue**.



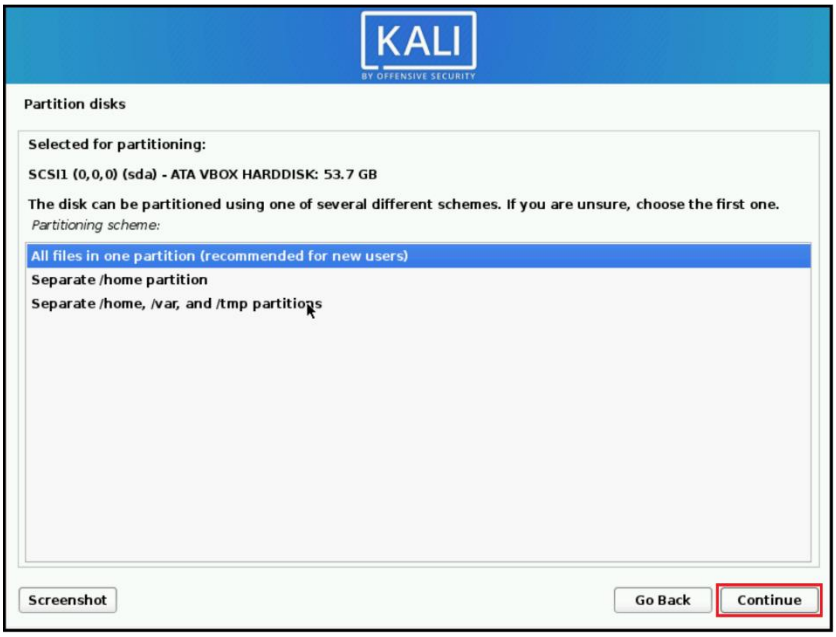
10 Select ***Guided – use entire disk*** for easy installation and click **Continue**. The system will detect the settings and set them automatically.



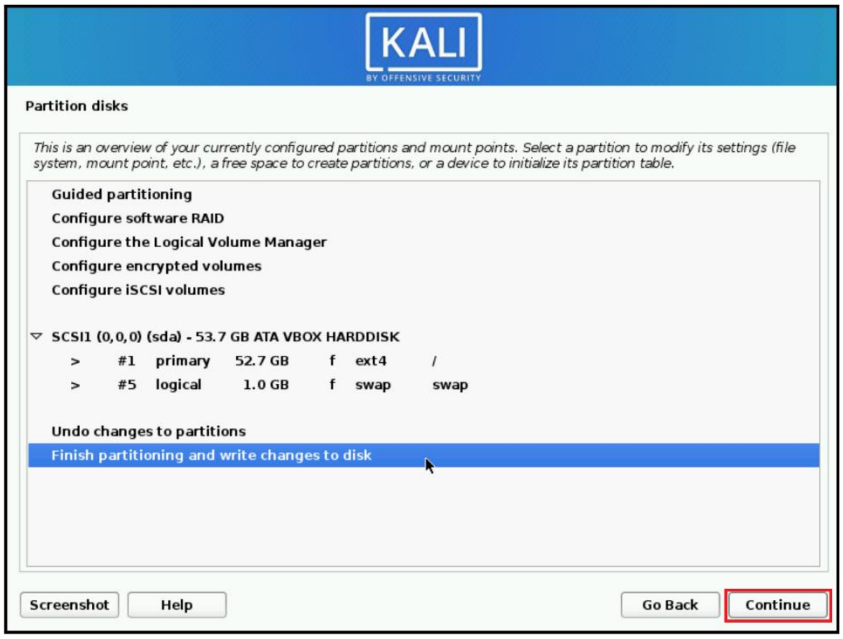
11 Select the disk to remove everything on the virtual disk (it is empty) and install Kali, then click **Continue**.



12 Select ***All files in one partition*** and click **Continue**.

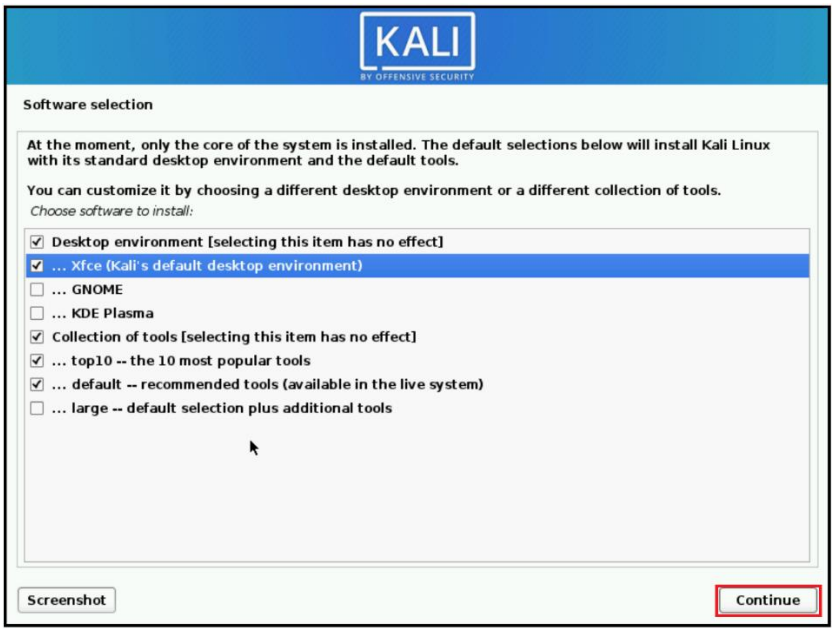


13 Select ***Finish partitioning and write changes to disk*** and click **Continue**.

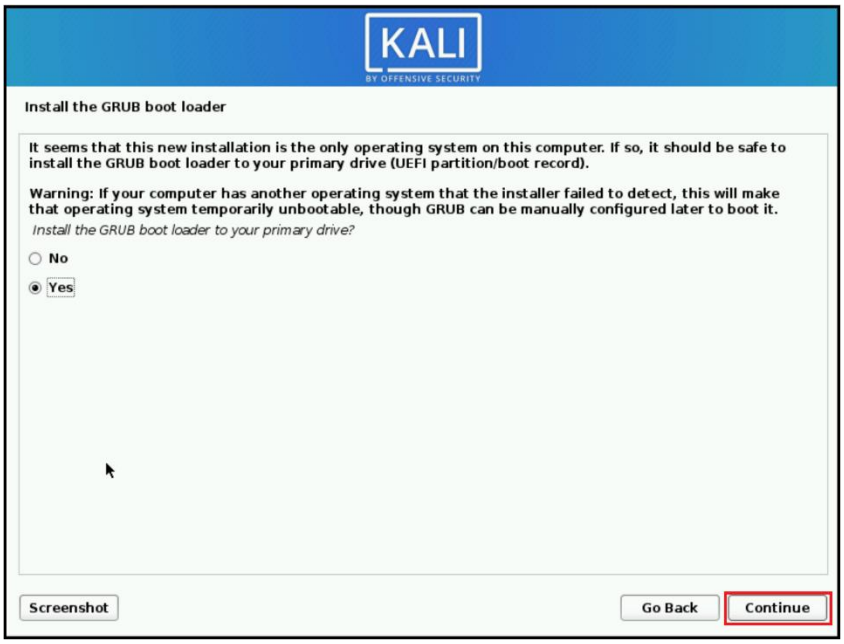


14 Select ***Yes*** to confirm the changes and click **Continue**.

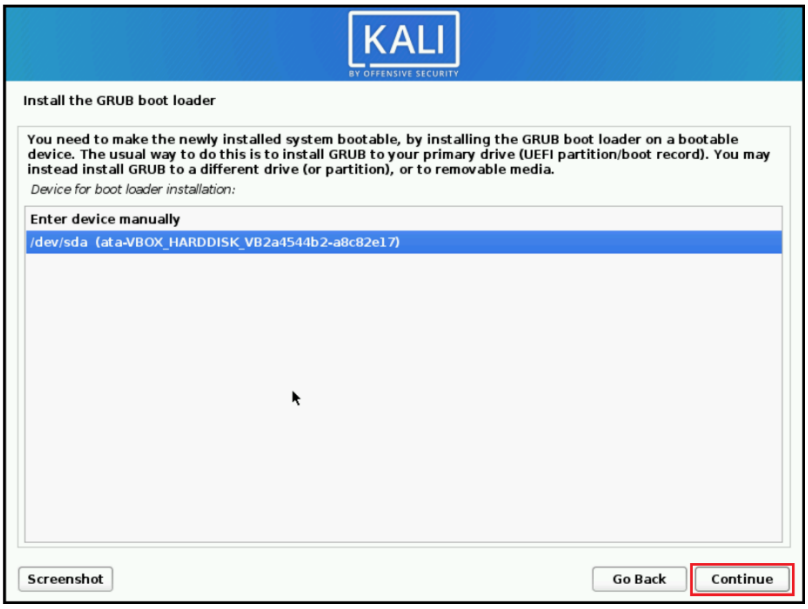
15 Select **Continue** to install the graphical user interface and default tools.



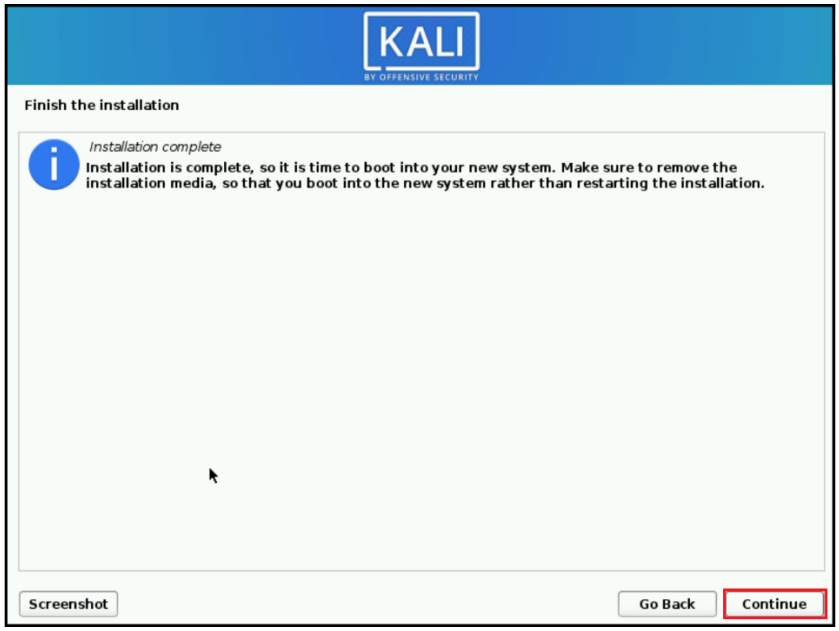
16 Select ***Yes*** and click **Continue**. GRUB is an essential part of the OS booting process.



17 Select ***/dev/sda***, which is the default location (there is no need to change it) and click **Continue**.



18 Click **Continue** to complete the installation.

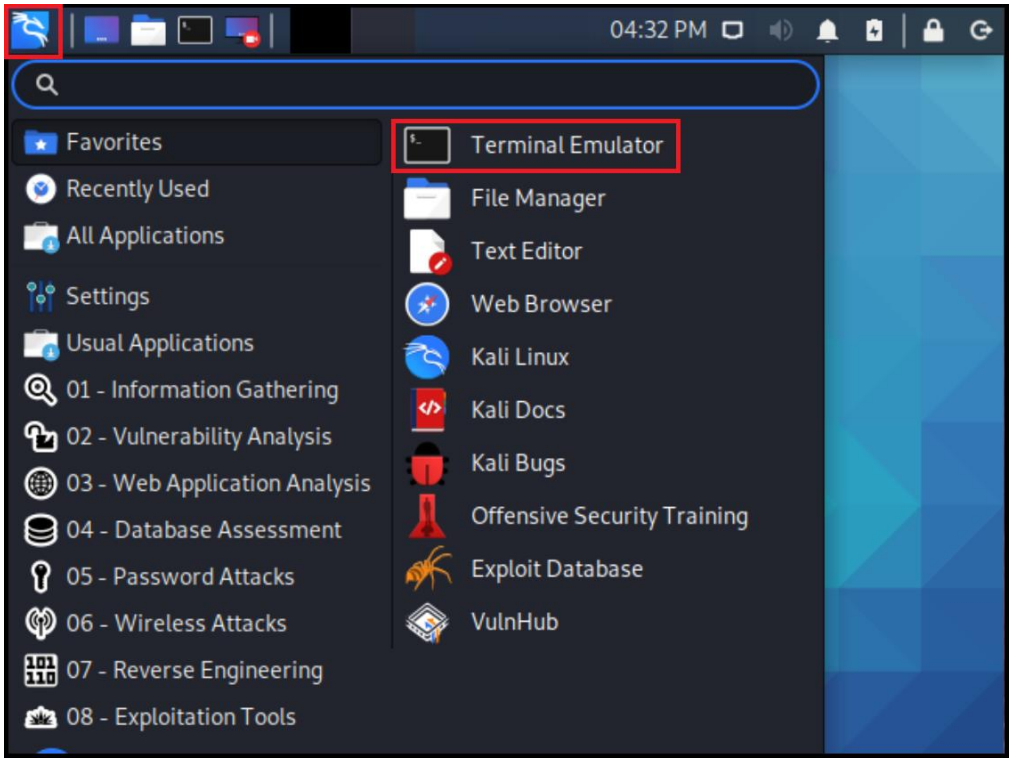


Lab Task 3: Post Installation Update

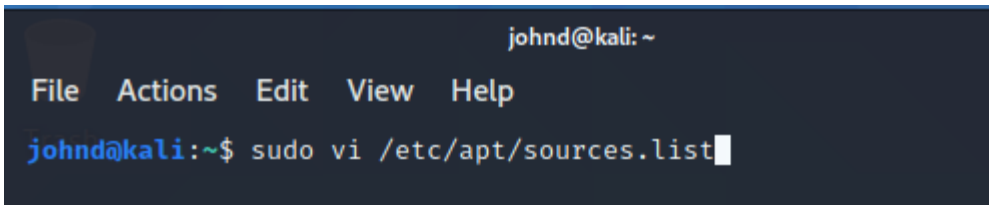
In this task, you will update the information required for future Kali Linux OS updates.

1 Log in with the **johnd** user and **toor** password.

2 Open the application menu by clicking the dotted icon in the access bar on the left.



3 Type **sudo vi /etc/apt/sources.list** in the terminal window.



4 Within the **vi** editor window, use the arrow keys to navigate to the appropriate line, then press **I** and begin entering the following information, which is also shown in the screenshot below:

deb *http://http.kali.org/kali kali-rolling main non-free contrib*

deb-src http://http.kali.org/kali kali-rolling main contrib non-free

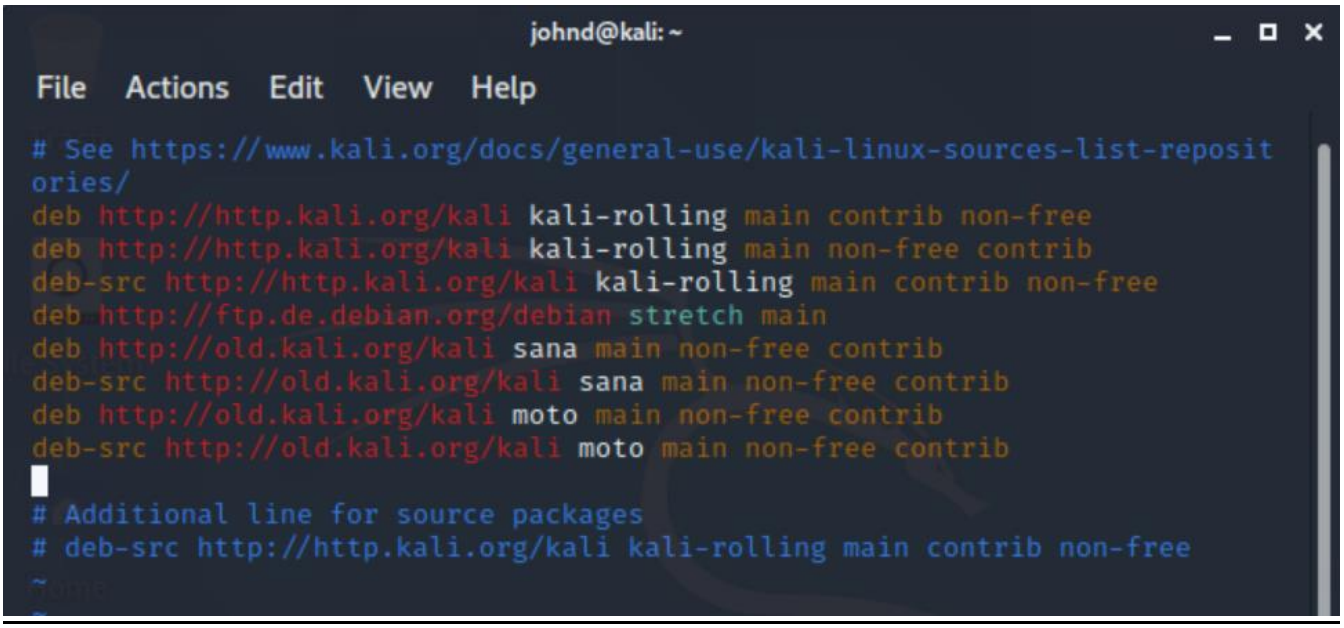
deb http://ftp.de.debian.org/debian stretch main

deb http://old.kali.org/kali sana main non-free contrib

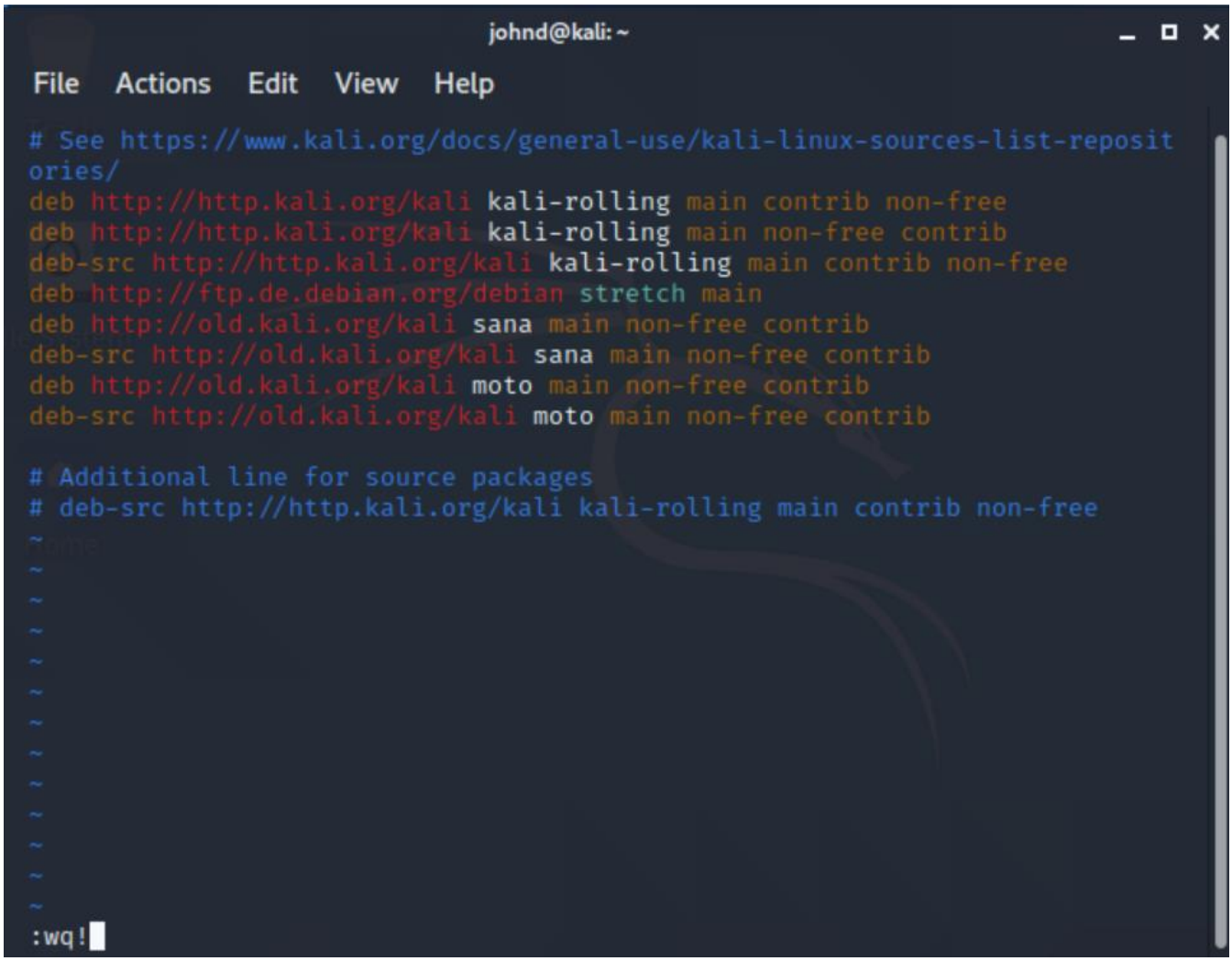
deb-src http://old.kali.org/kali sana main non-free contrib

deb http://old.kali.org/kali moto main non-free contrib

deb-src http://old.kali.org/kali moto main non-free contrib



5 After you have entered the text, press ***Esc*** to exit **Insert mode**. Then type **:wq!** in the vi editor to save the file.



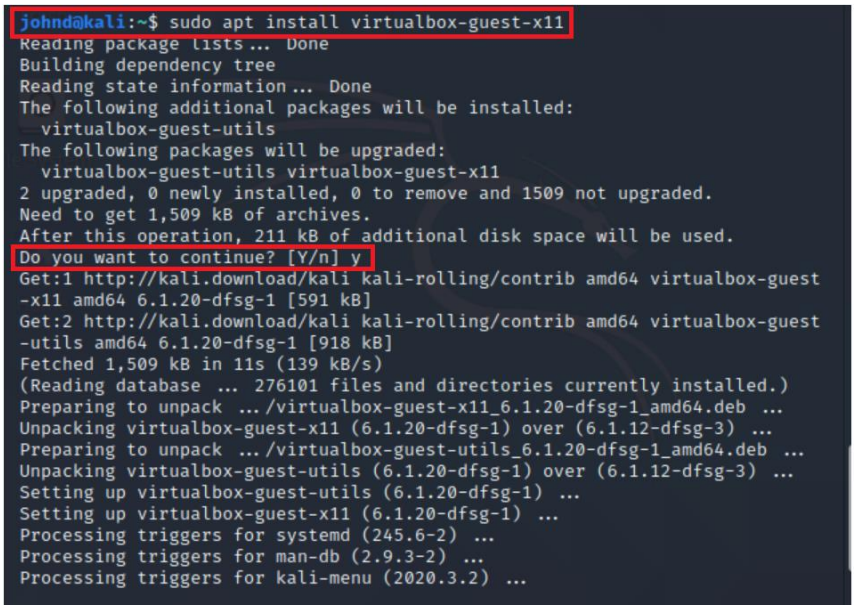
Lab Task 4: Installing a Guest Addition

In this task, you will install a guest addition to your Kali machine.

1 Type **sudo apt-get update** and press ***Enter*** to update the repositories.

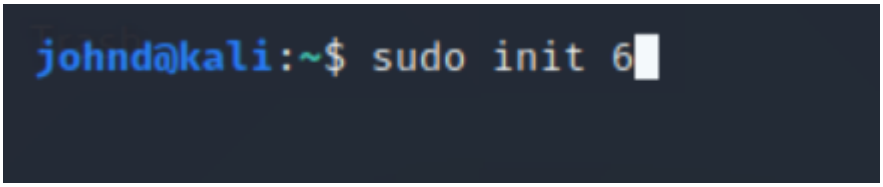
```
johnd@kali:~$ sudo apt-get update
Ign:1 http://ftp.de.debian.org/debian stretch InRelease
Get:3 http://ftp.de.debian.org/debian stretch Release [118 kB]
Get:4 http://old.kali.org/kali sana InRelease [20.3 kB]
Get:5 http://old.kali.org/kali moto InRelease [20.3 kB]
Get:6 http://old.kali.org/kali sana/non-free Sources [122 kB]
Get:7 http://old.kali.org/kali sana/main Sources [9,091 kB]
Get:8 http://ftp.de.debian.org/debian stretch Release.gpg [2,410 B]
Get:9 http://ftp.de.debian.org/debian stretch/main amd64 Packages [7,080 kB
]
Get:10 http://old.kali.org/kali sana/contrib Sources [58.3 kB]
Get:11 http://old.kali.org/kali sana/main amd64 Packages [12.8 MB]
Get:12 http://ftp.de.debian.org/debian stretch/main Translation-en [5,377 k
B]
Get:13 http://old.kali.org/kali sana/non-free amd64 Packages [163 kB]
Get:14 http://old.kali.org/kali sana/contrib amd64 Packages [87.7 kB]
Get:15 http://old.kali.org/kali moto/non-free Sources [119 kB]
Get:16 http://old.kali.org/kali moto/contrib Sources [56.8 kB]
Get:17 http://old.kali.org/kali moto/main Sources [7,555 kB]
Get:18 http://old.kali.org/kali moto/main amd64 Packages [10.9 MB]
Get:19 http://old.kali.org/kali moto/non-free amd64 Packages [169 kB]
Get:20 http://old.kali.org/kali moto/contrib amd64 Packages [78.6 kB]
Get:2 http://kali.download/kali kali-rolling InRelease [30.5 kB]
Get:21 http://kali.download/kali kali-rolling/contrib Sources [64.4 kB]
Get:22 http://kali.download/kali kali-rolling/main Sources [14.0 MB]
Get:23 http://kali.download/kali kali-rolling/non-free Sources [127 kB]
Get:24 http://kali.download/kali kali-rolling/main amd64 Packages [17.7 MB]
```

2 Type **sudo apt install virtualbox-guest-x11** and press ***Enter*** to download Guest Additions. Then press ***y*** to continue.



3 Type **sudo init 6** and press ***Enter*** to reboot the machine.

Notes: Guest Additions should now be applied. If the resolution does not change, press ***Ctrl+F*** to enter full-screen mode. Press ***Ctrl+F*** again to return to the previous mode. The resolution should now be changed.



Lab Task 5: Configuring VirtualBox Guest Additions Features

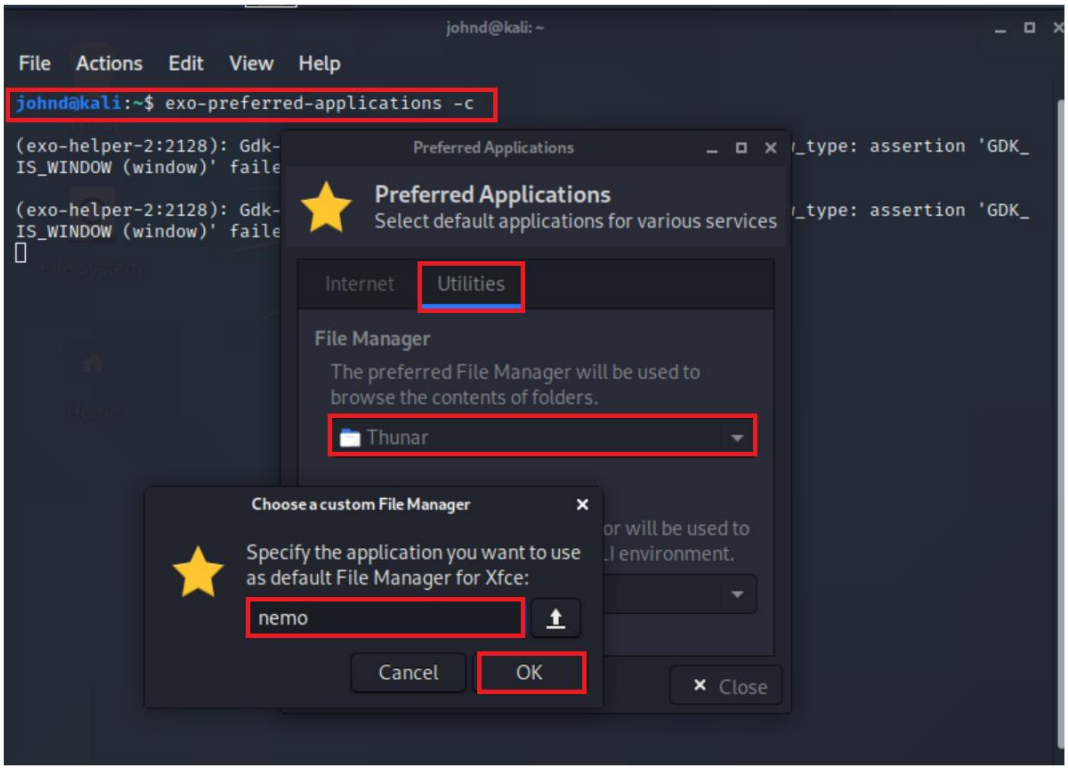
Several additional steps are required for VirtualBox Guest Additions to function properly. These steps are described next.

1 Install the ***nemo*** file manager by issuing the following command from a terminal window: ***sudo apt-get install nemo***

```
johnd@kali:~$ sudo apt-get install nemo
[sudo] password for johnd:
Reading package lists ... Done
Building dependency tree
Reading state information ... Done
The following additional packages will be installed:
  cinnamon-desktop-data cinnamon-l10n docbook-xml file-roller
  fonts-dejavu gir1.2-harfbuzz-0.0 gir1.2-pango-1.0 gist hddtemp hwdata
  inxi libcinnamon-desktop4 libexempi8 libgail-3-0 libgdk-pixbuf-2.0-0
  libgdk-pixbuf-xlib-2.0-0 libgdk-pixbuf2.0-0 libgdk-pixbuf2.0-common
  libglew2.1 libgnomekbd-common libgnomekbd8 libgtk-3-0 libgtk-3-common
  libharfbuzz0b libjson-glib-1.0-0 libjson-glib-1.0-common
  libnautilus-extension1a libnemo-extension1 libpango-1.0-0
  libpangocairo-1.0-0 libpangoft2-1.0-0 libpangoxft-1.0-0 libselinux1
  libxapp1 libyelp0 lm-sensors mesa-utils nemo-data nemo-fileroller
  sgml-base sgml-data tree xapps-common xml-core yelp yelp-xsl
Suggested packages:
  docbook docbook-dsssl docbook-xsl docbook-defguide lha lzip lzop
  rpm2cpio rzip sharutils unace unalz zoo libcpanel-json-xs-perl
  | libjson-xs-perl libxml-dumper-perl glew-utils fancontrol eog totem
  | mp3-decoder sgml-base-doc perlsgml w3-recs opensp debhelper
The following NEW packages will be installed:
  cinnamon-desktop-data cinnamon-l10n docbook-xml file-roller
  fonts-dejavu gir1.2-harfbuzz-0.0 gist hddtemp hwdata inxi
  libcinnamon-desktop4 libexempi8 libgail-3-0 libgdk-pixbuf-2.0-0
  libgdk-pixbuf-xlib-2.0-0 libglew2.1 libgnomekbd-common libgnomekbd8
  libnautilus-extension1a libnemo-extension1 libxapp1 libyelp0 lm-sensors
  mesa-utils nemo nemo-data nemo-fileroller sgml-base sgml-data tree
  xapps-common xml-core yelp yelp-xsl
The following packages will be upgraded:
  gir1.2-pango-1.0 libgdk-pixbuf2.0-0 libgdk-pixbuf2.0-common libgtk-3-0
```

```
Do you want to continue? [Y/n] y
Get:1 http://kali.download/kali kali-rolling/main amd64 sgml-base all 1.30 [15.1 kB]
Get:2 http://kali.download/kali kali-rolling/main amd64 libselinux1 amd64 3.1-3 [88.1 kB]
Get:3 http://kali.download/kali kali-rolling/main amd64 cinnamon-desktop-data all 4.8.1-2 [154
kB]
Get:4 http://kali.download/kali kali-rolling/main amd64 cinnamon-l10n all 4.8.3-1 [3,159 kB]
Get:5 http://kali.download/kali kali-rolling/main amd64 xml-core all 0.18+nmu1 [23.8 kB]
Get:6 http://kali.download/kali kali-rolling/main amd64 sgml-data all 2.0.11+nmu1 [179 kB]
Get:7 http://kali.download/kali kali-rolling/main amd64 docbook-xml all 4.5-9 [84.4 kB]
Get:8 http://kali.download/kali kali-rolling/main amd64 libgdk-pixbuf2.0-0 amd64 2.40.2-2 [14.1
 kB]
Get:9 http://kali.download/kali kali-rolling/main amd64 libgdk-pixbuf-xlib-2.0-0 amd64 2.40.2-2
 [47.9 kB]
```

2 Issue the following command, ***exo-preferred-applications -c***, then click the **Utilities** tab and select ***nemo*** from the drop-down menu. Click **OK** then **Close**.

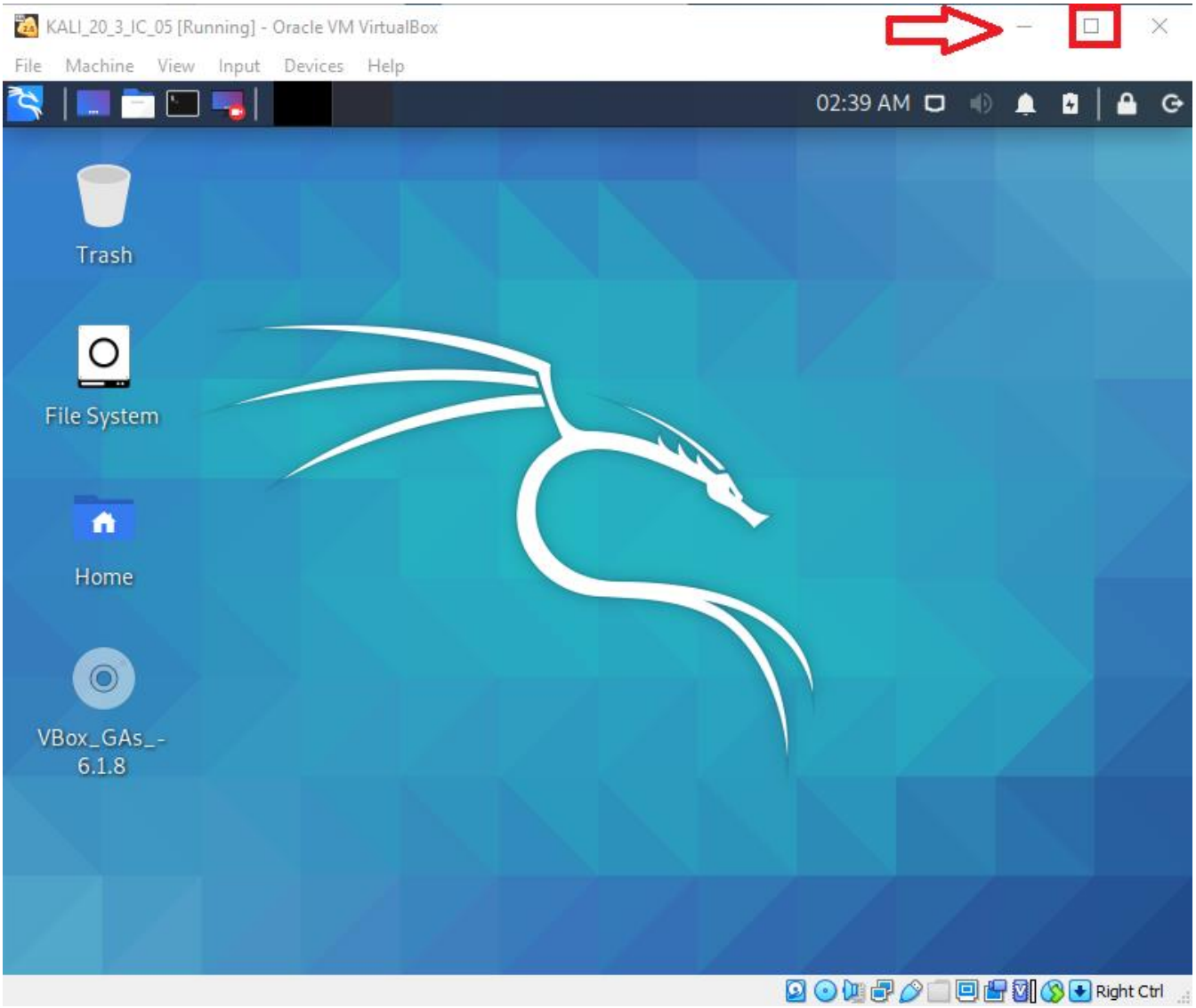


3 The system is now ready to work with Guest Addition Features.

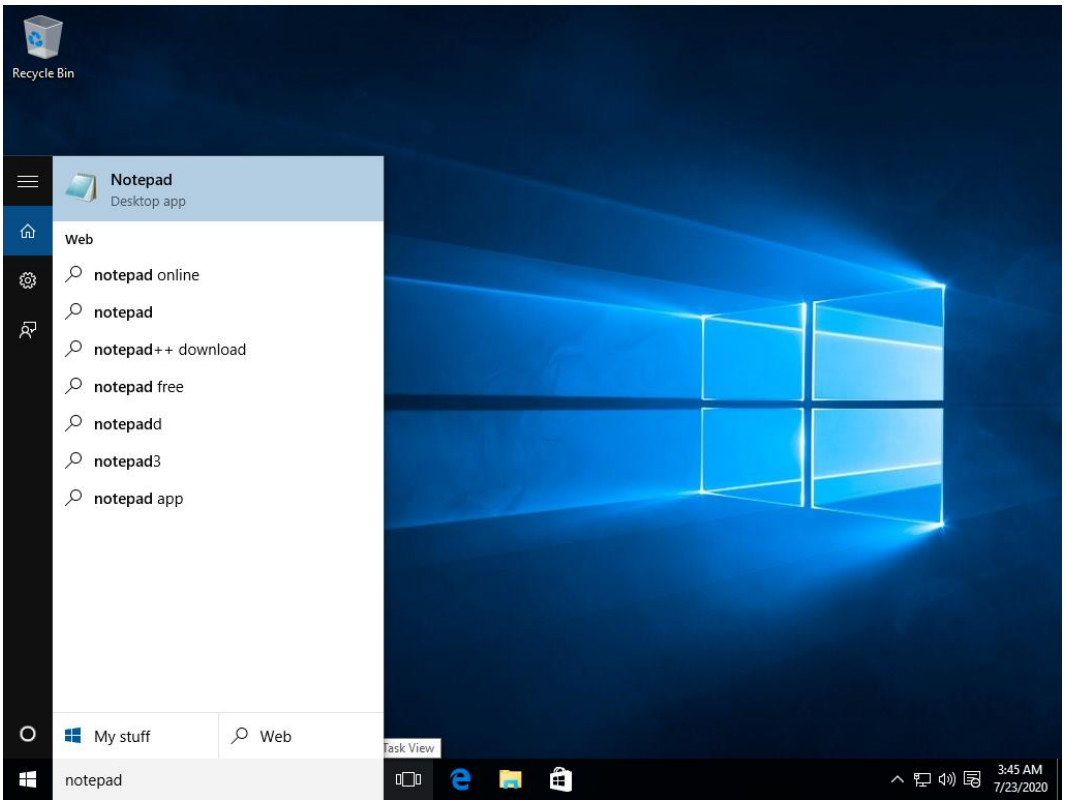
Lab Task 6: Working with Guest Additions Features

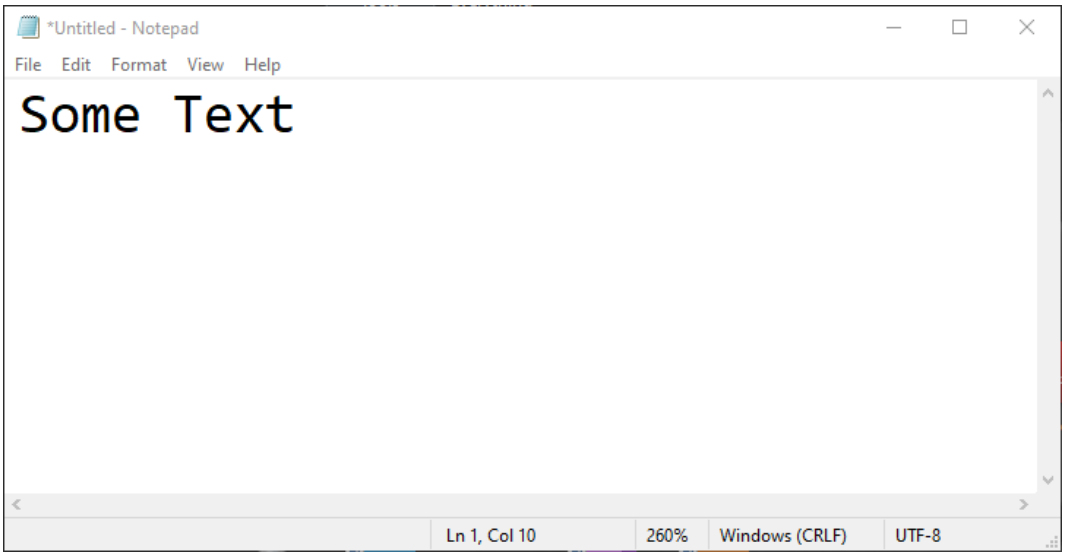
In this procedure, you will learn how to use some of the Guest Additions features.

1 Click the maximize icon in the VirtualBox window to expand the window to fit the entire screen.

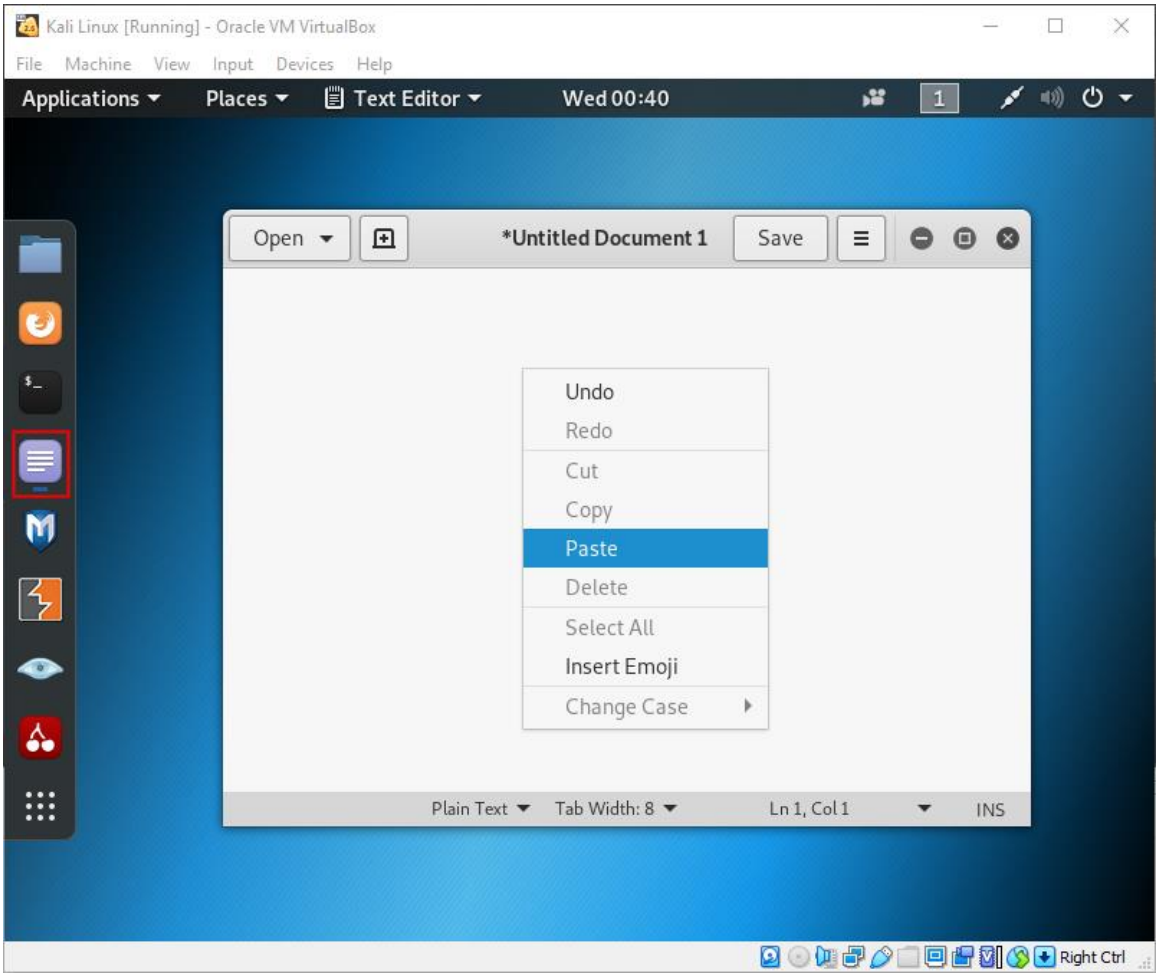


2 Open Notepad on the host machine and write some text.

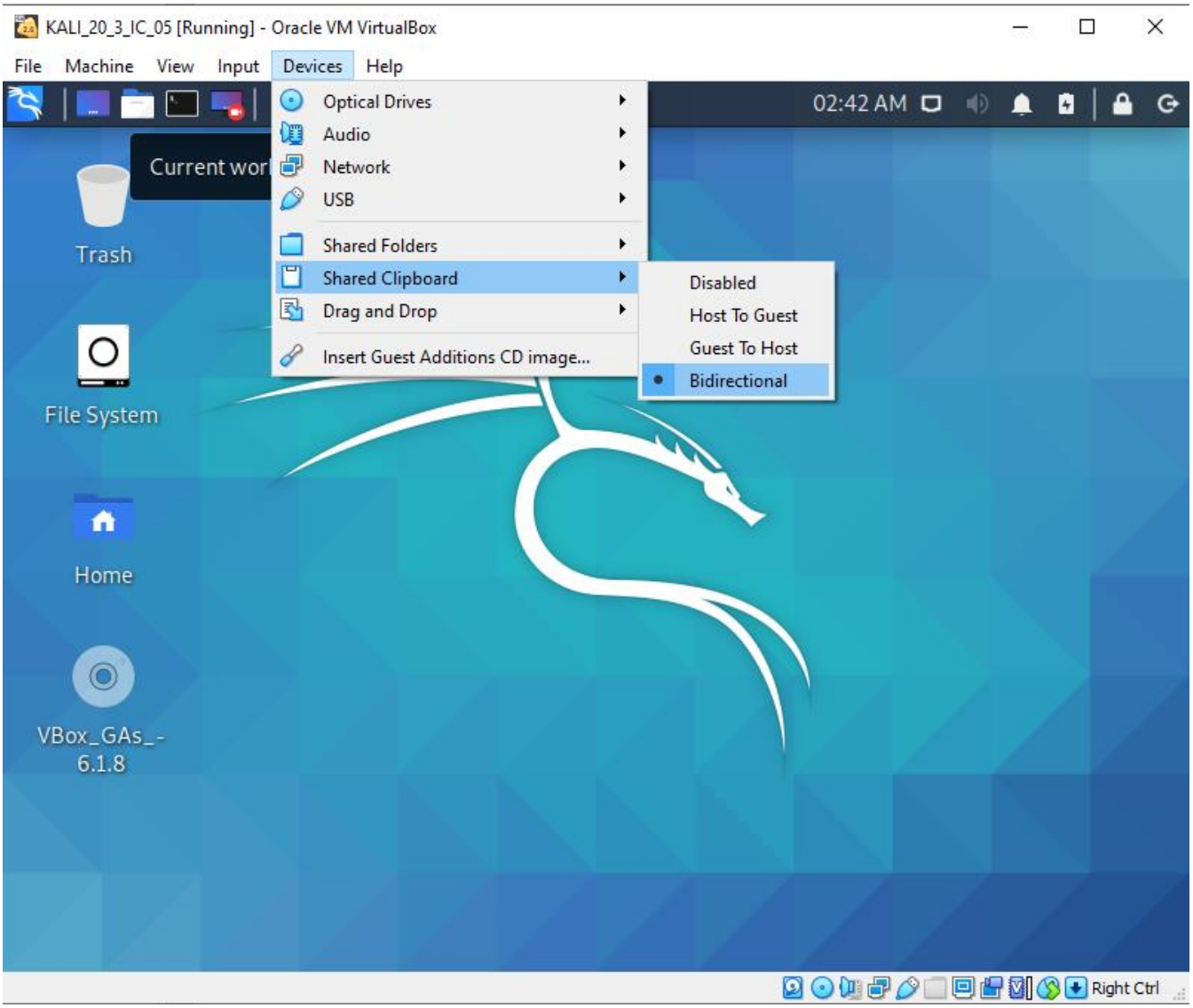




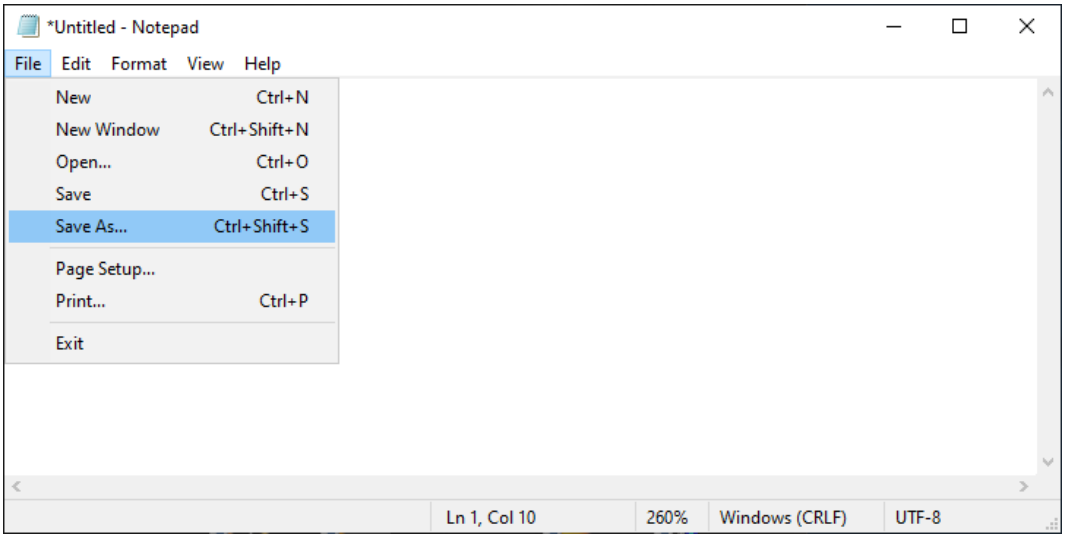
3 Copy the text and open Text Editor on the virtual machine. Try to paste the text in the application. Note that nothing is pasted.

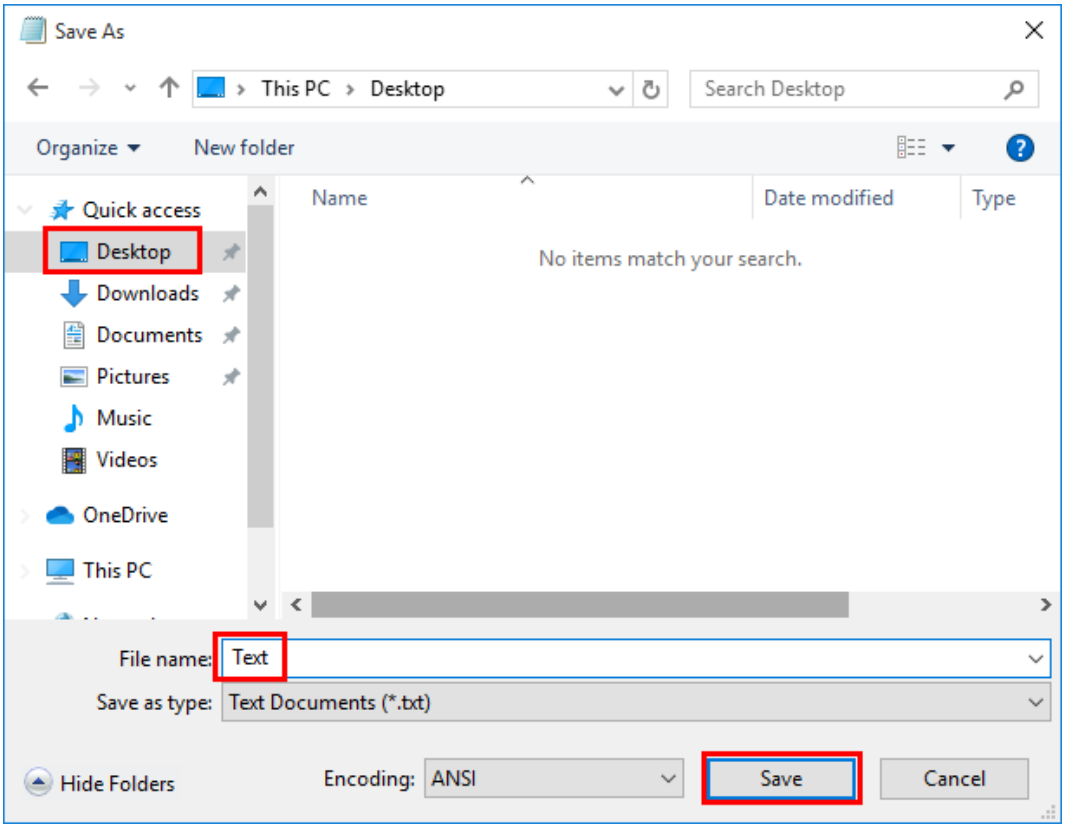


4 From the virtual machine's menu, click **Devices**, place the mouse over ***Shared Clipboard***, and select ***Bidirectional***. Repeat step 3 and note that the text is pasted this time.

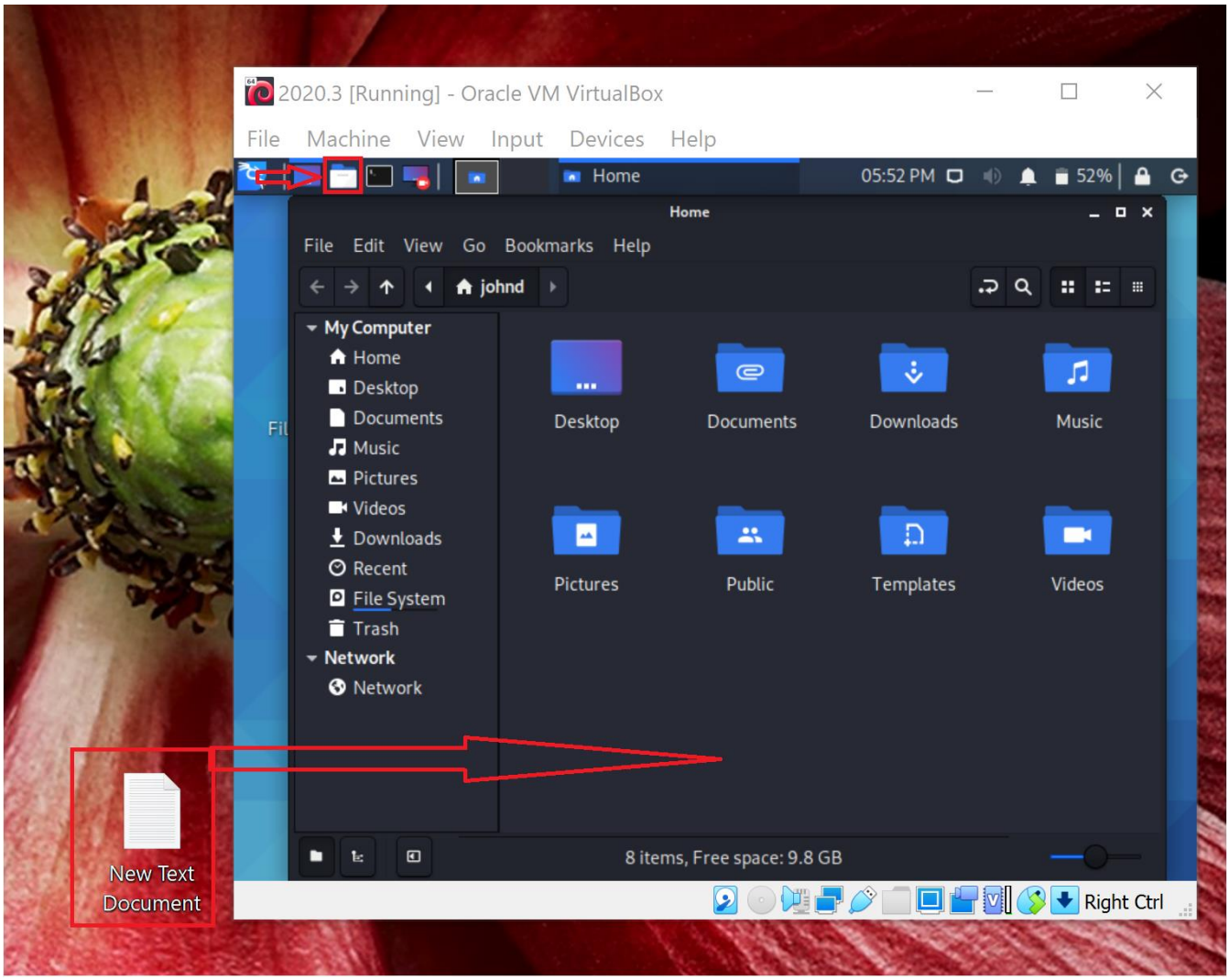


5 On the host machine, save the text file to the desktop. Click **File** > ***Save As...*** Make sure to select ***Desktop*** as the location, name the file, and click **Save**.

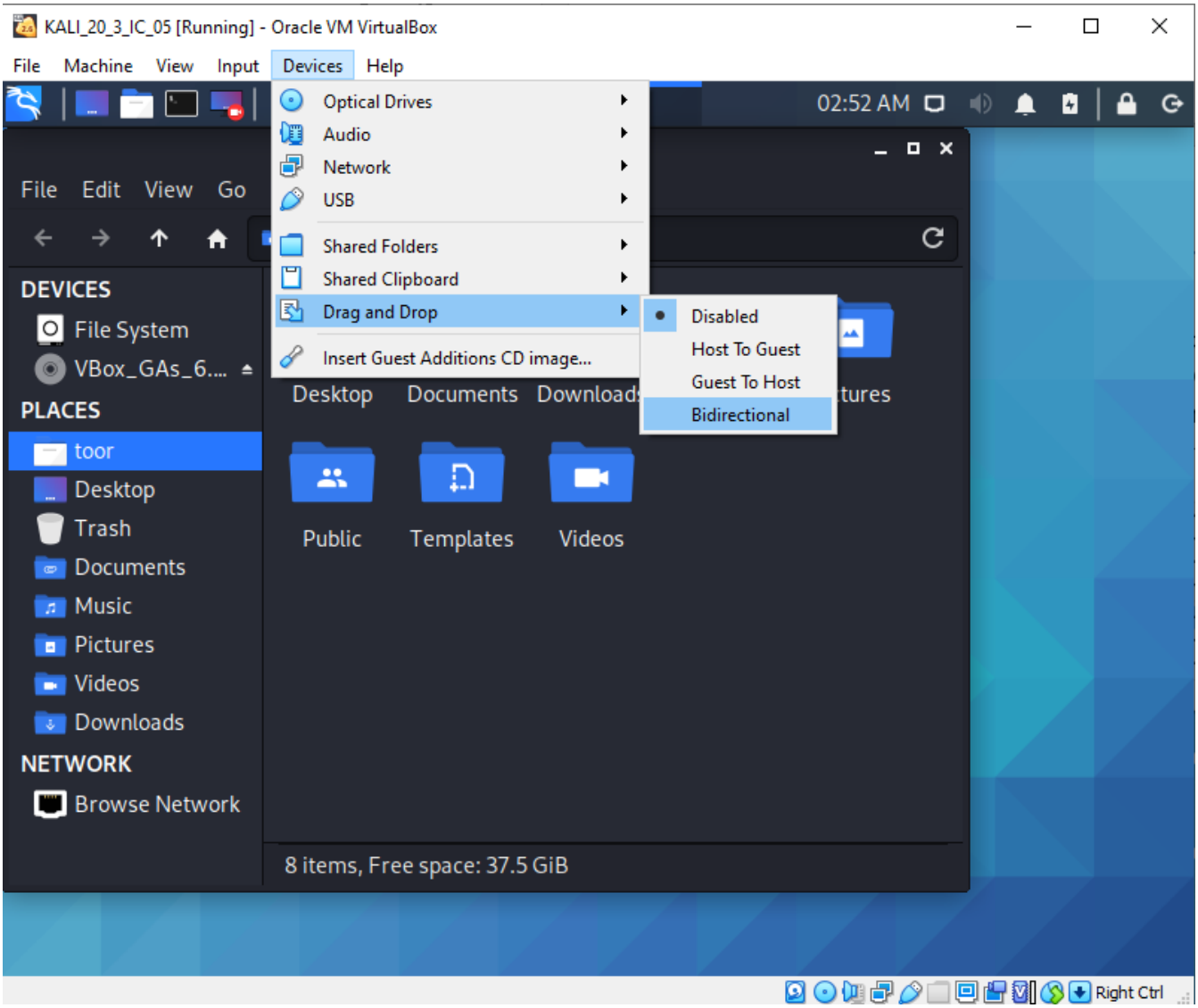




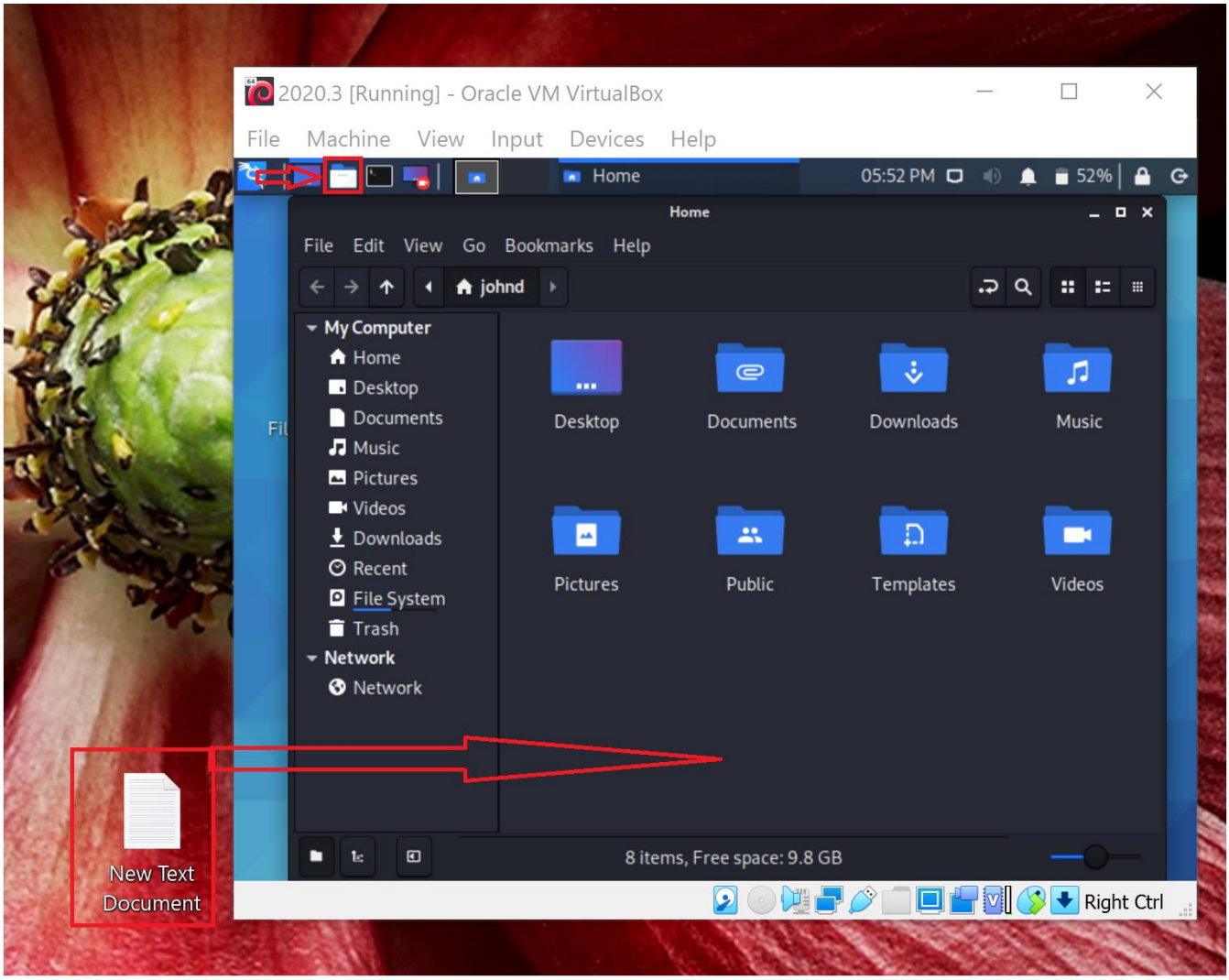
6 Open a File Manager window by clicking the *File Manager* icon in the task bar as indicated below. Then, try to drag the saved file from the host's desktop to the virtual machine's directory. Note that it does not transfer the file.



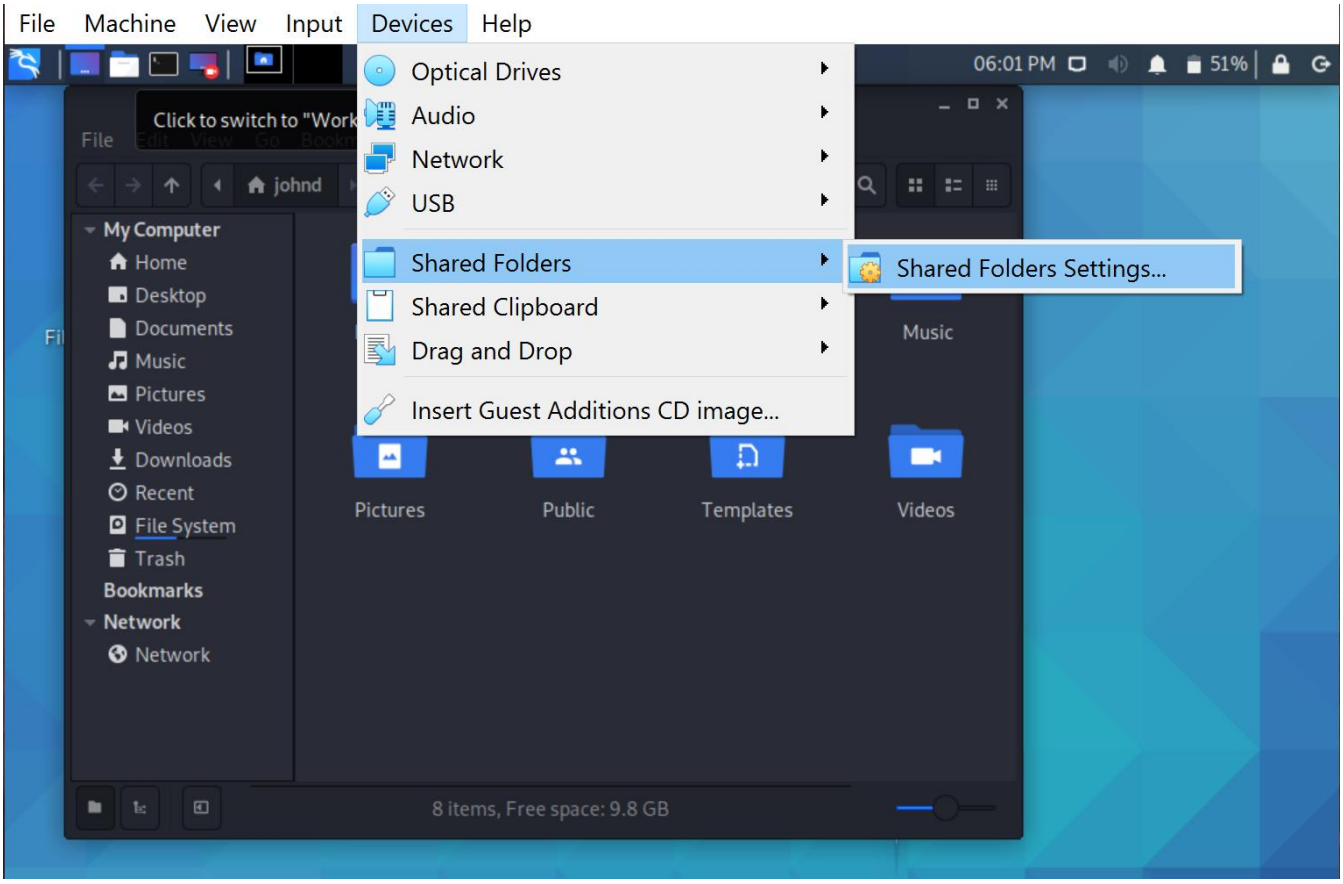
7 From the virtual machine's menu, click **Devices**, place the mouse over ***Drag and Drop***, and select ***Bidirectional***.



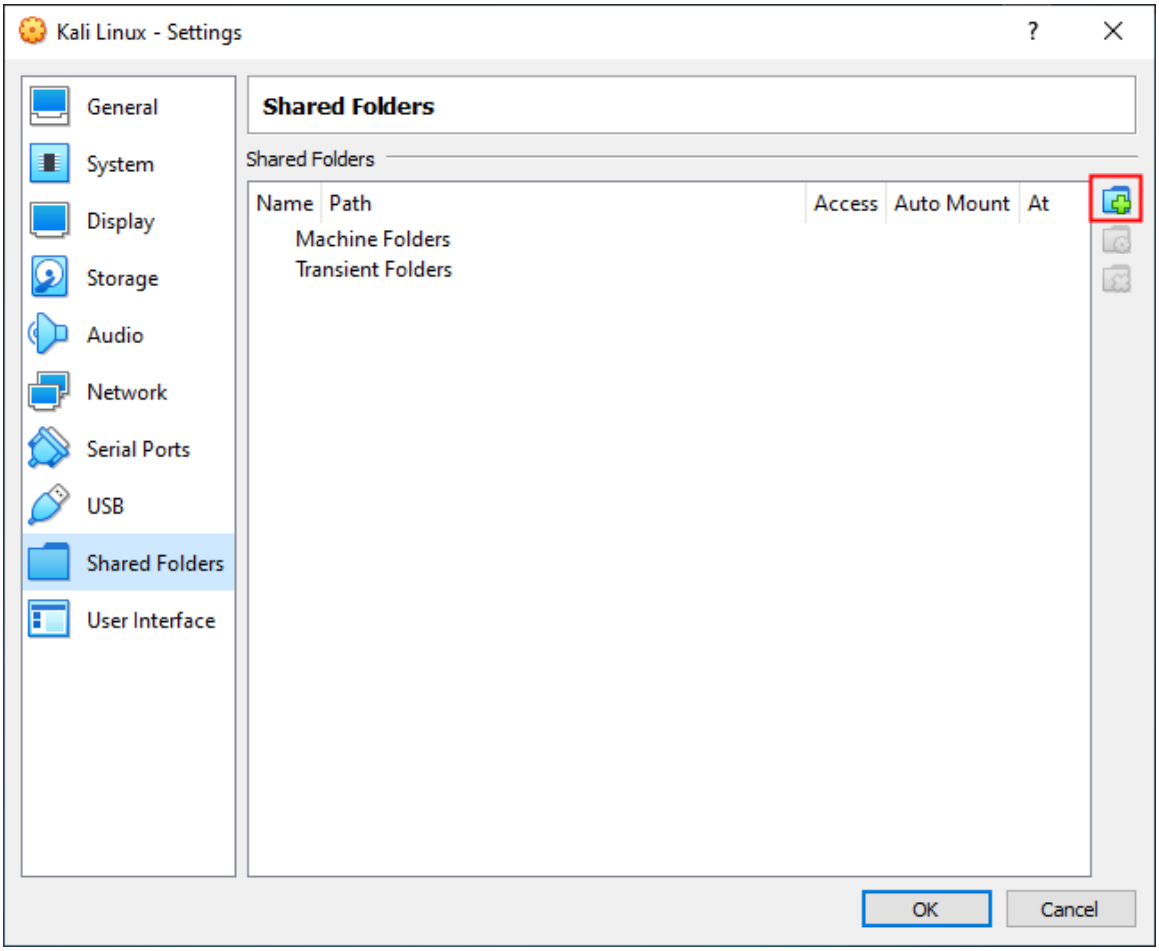
8 After enabling bidirectional drag-and-drop, you will notice that you are able to copy/move the file from the host onto the Kali Linux guest machine.

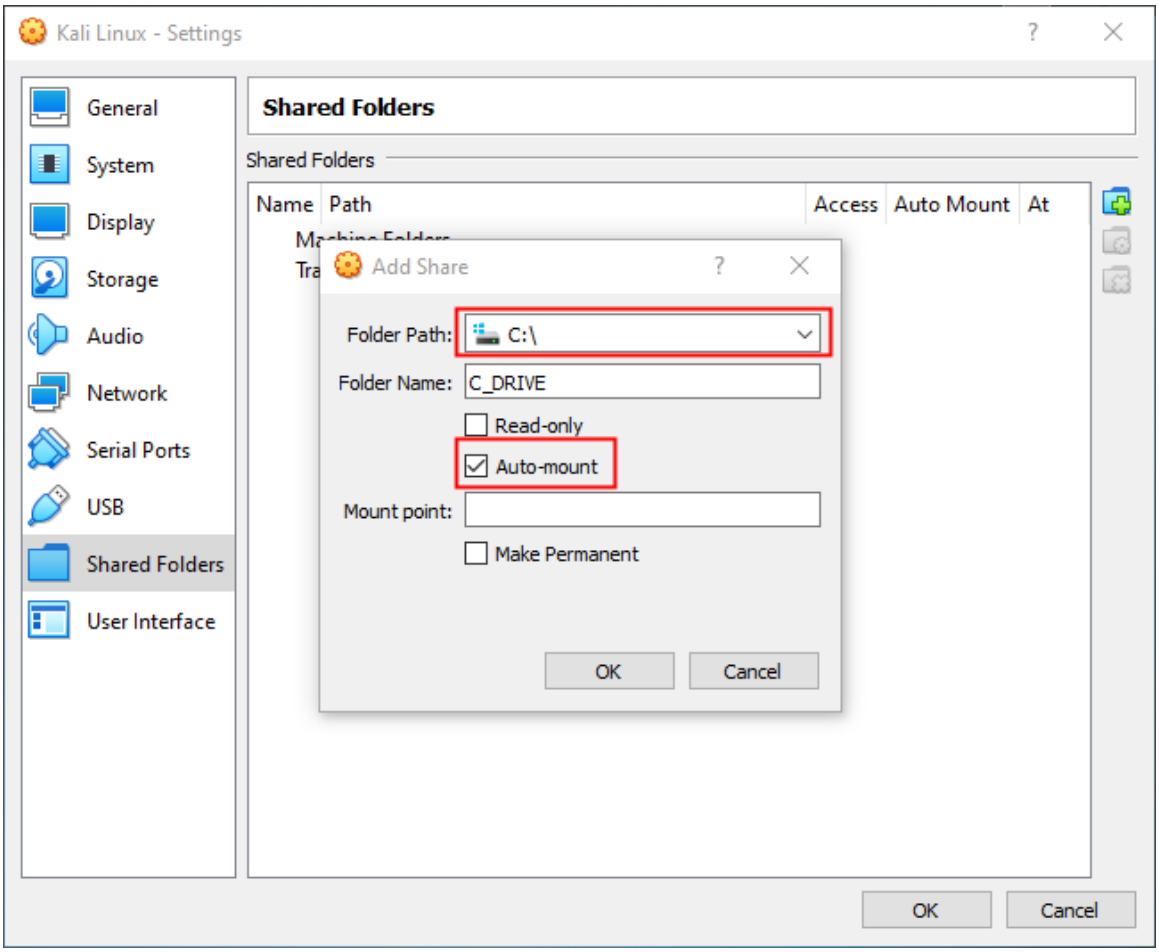
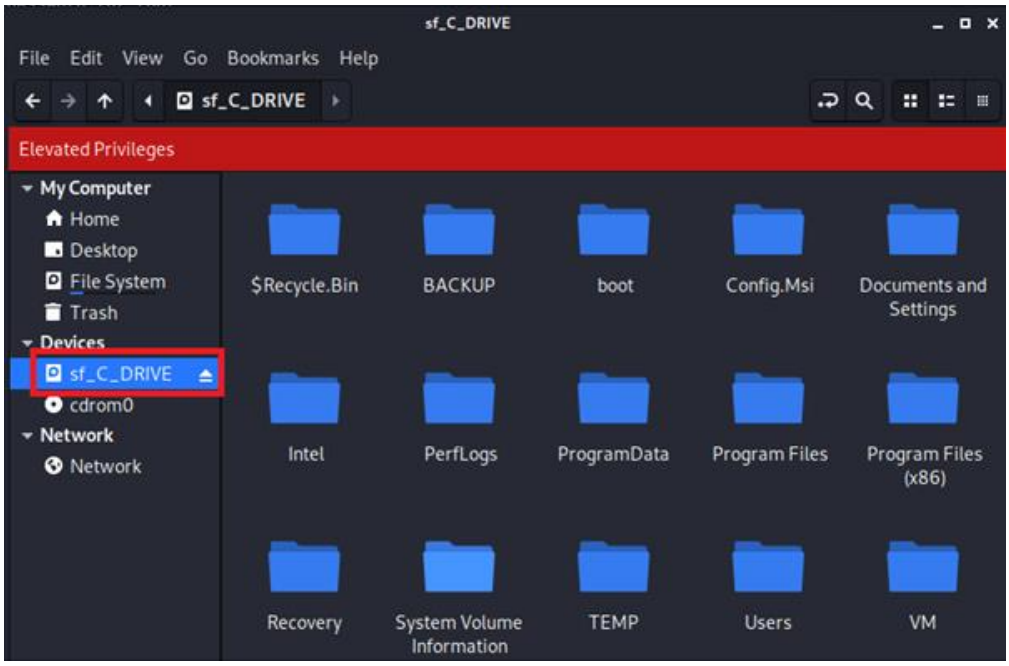


9 There is an option to share directories between the host and the virtual machine. On the virtual machine, click **Devices**, place the mouse over ***Shared Folders***, and click ***Shared Folders Settings…***



10 In the **Settings** window, click the add folder icon. Then select the path for the folder you want to share, select ***Auto-mount***, and click **OK** in both windows.




Kali Linux - Settings
General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface
Shared Folders
Shared Folders
Name
Path
Access
Auto Mount
At
Add Share
Folder Path:
C:\
Folder Name:
C_DRIVE
Read-only
Auto-mount
Mount point:
Make Permanent
OK
Cancel
OK
Cancel

11 From the terminal, issue the command ***sudo nemo*** then click the shared folder you created. Note that you can see files from the host from within the guest Kali Linux VM.