ABS Enterprise®

Virtualization Guide – SPX - VirtualBox
March 2019

Windows 8/2012 appliances

Contents

This guide is divided into sections for ease of use. The initial connection and VM build segments are repeated at the beginning of each segment to make it easier to navigate the guide.

Once the desired type of Virtualization is selected and the machine built and configured, the Advanced Configuration and VM Troubleshooting chapters may be referred to as needed.

It is highly recommended that you complete the Advanced Troubleshooting section for Production Failover Mode virtualizations.

The four types of virtualizations described in this guide are:

Production Failover Mode – Used where you need to replace a failed machine with a virtualized instance for users to access. The virtual machine will continue to be backed up and those backups can be used to restore to whatever platform is desired.

Testing with Host Only Mode – This allows isolated network communication between virtual machines booted on the appliance. This connects the VMs to a virtual switch.

Single Machine Testing (Quick Test) – This allows for very quick boot testing of backup images.

Testing with Secondary Network – On appliances with multiple NICs, you may test connectivity between VMs and networks using the secondary NIC.

Production Failover Mode

1. Access the Appliance

ⓘ The following steps must be performed on a computer that is connected to the **same network** as the ABS Appliance
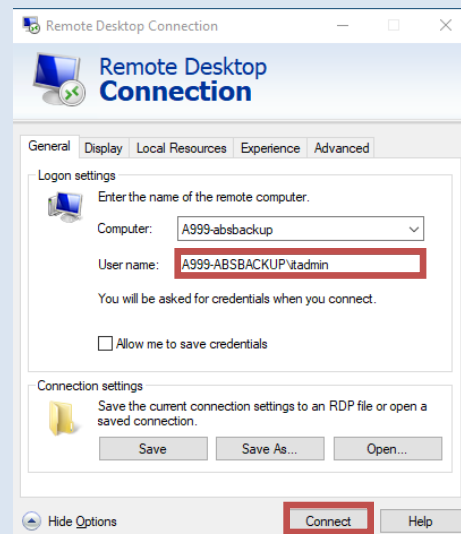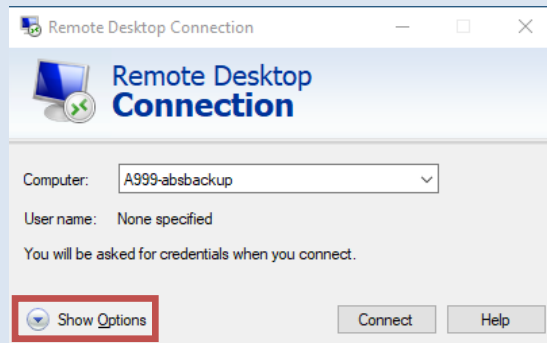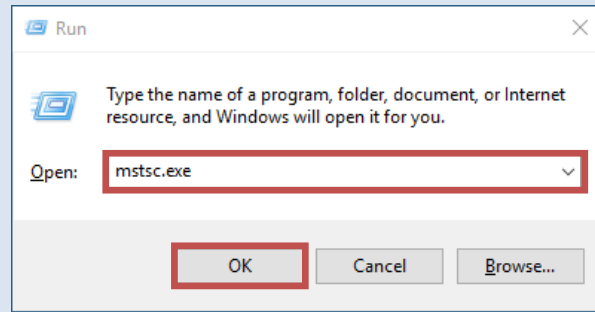
   a. Right-Click on **Start**

   b. Click **Run**

   c. In the run box, type **mstsc.exe**, click **OK**

ⓘ You can also access Remote Desktop by going to:
Start>All Programs> Accessories>Remote Desktop Connection

   d. In the **Computer** section, type in the name of the ABS Appliance or the static IP you assigned to the appliance and click **Show Options**
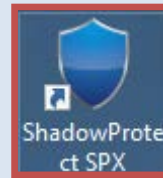
ⓘ If you do not know the name of the ABS Appliance, refer to your **Activation Letter**

   e. Use the following username to log in:
       axxx-absbackup\itadmin
       (replace "xxx" with the appliance number)

   f. Use the password provided in the **Activation Letter**

   g. Click **Connect**

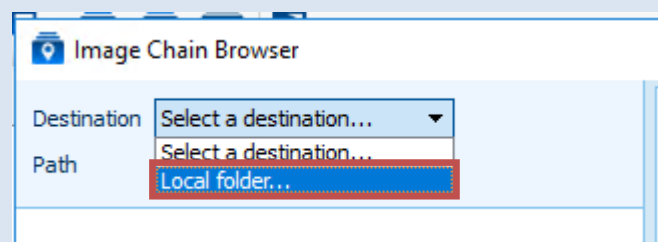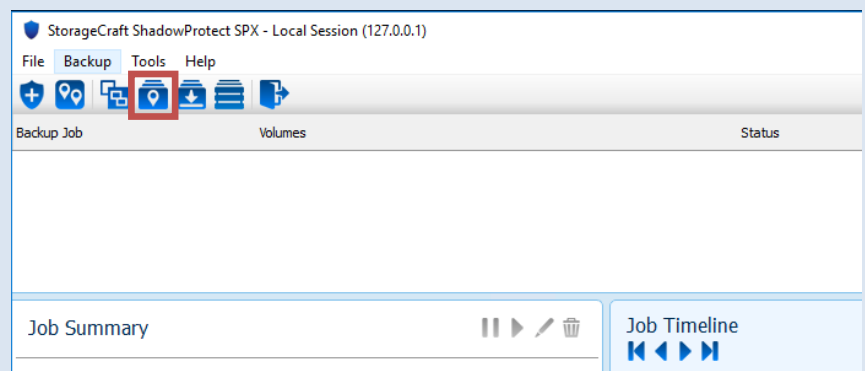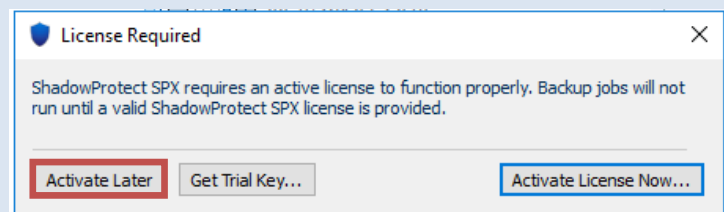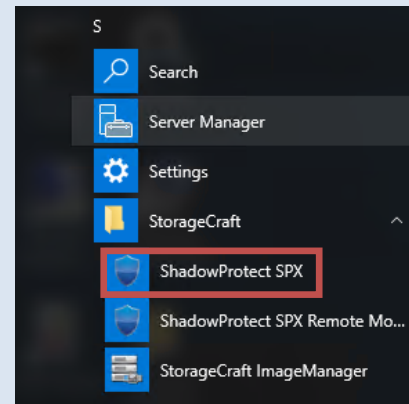## 2. Create the Virtual Machine

a. Launch ShadowProtect SPX from the desktop or Start Menu (do not use the Remote Monitor for this)

or

b. Click **Activate Later** at the license prompt (backups do not run on the appliance so no license is needed)

c. Click the Image Chain Browser button in the SPX console

d. Use the dropdown at Destination to select **Local folder**

e. Click on the Browse button to location the backup image chains on the appliance

f. Locate the Dropbox folder (usually on D) and double-click to expand it.
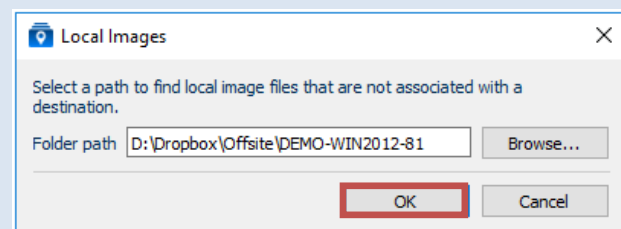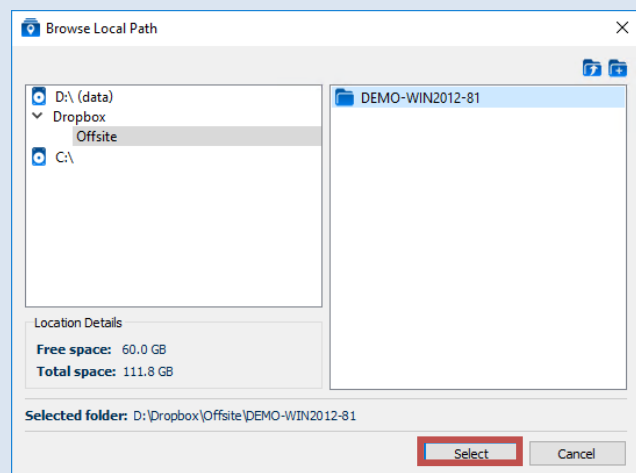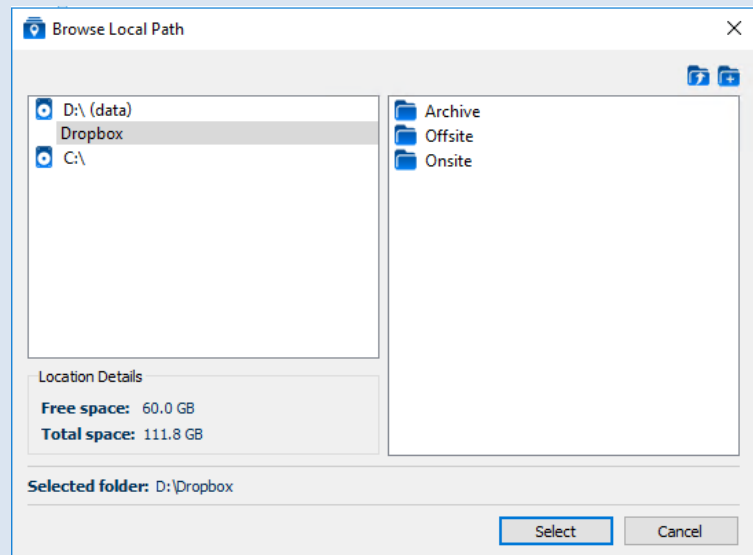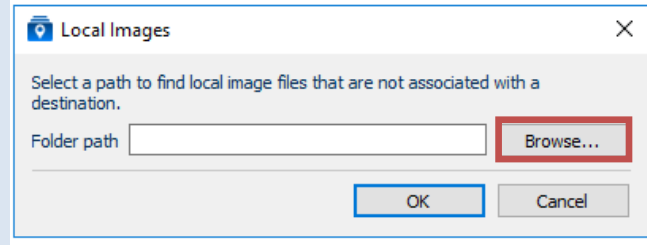
ⓘ You will find an **offsite** and an **onsite** folder under **dropbox**

The **offsite** folder is used for storing snapshots that are being replicated to the **ABS Cloud**

The **onsite** folder is used for storing snapshots locally on the appliance (not replicated to the **ABS Cloud**)

g. Locate and open the folder of the machine you want to virtualize and click **Select**

h. The folder will be shown next to Folder path. Click **OK**

i. The image chains will be shown at left. Click the Boot volume (usually C) to enumerate the image chain at right

j. The image chain for the volume selected will appear at right showing the available points in time for virtualization

ⓘ The naming scheme for consolidated images follows this format:
Volume name-Base number-Incremental number
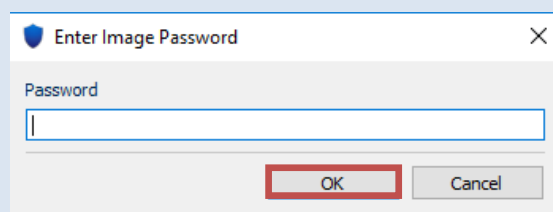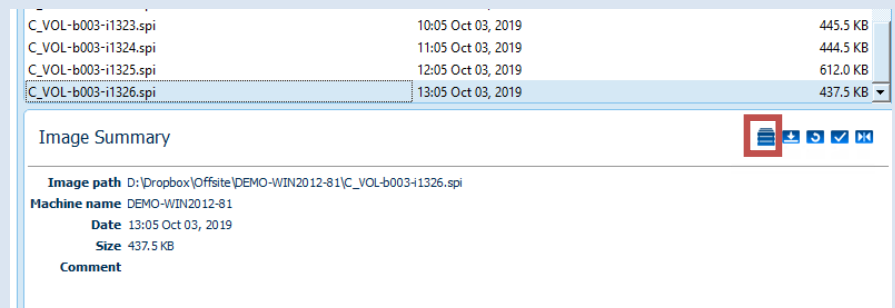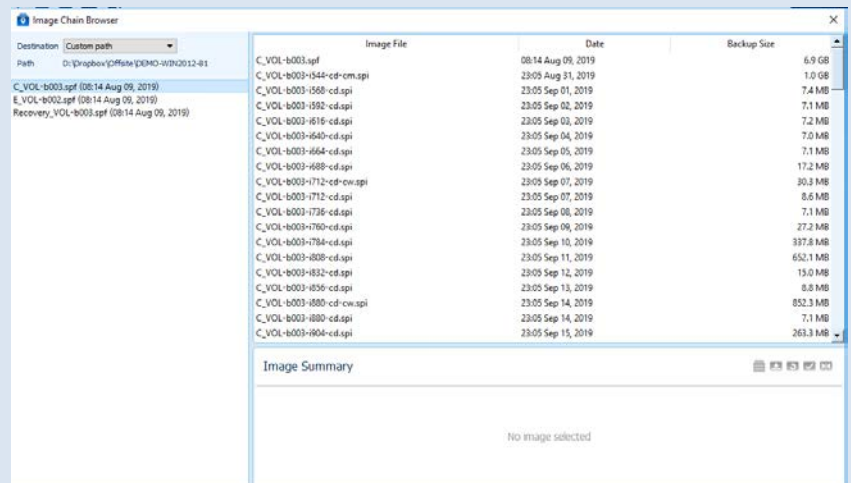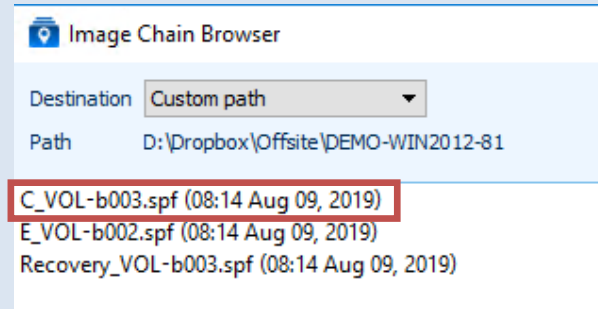CD = Consolidated Daily
CW = Consolidated Weekly
CM = Consolidated Monthly

k. Once you select a point in time to virtualize, information about it will show at bottom. Click the VirtualBoot icon 🗄

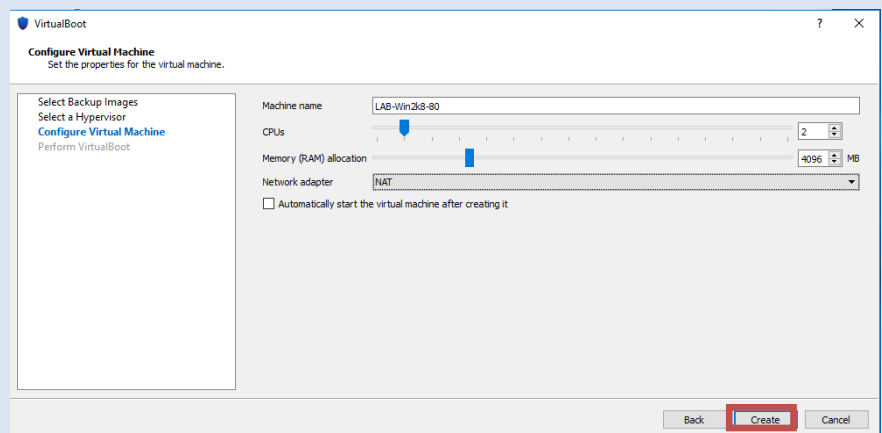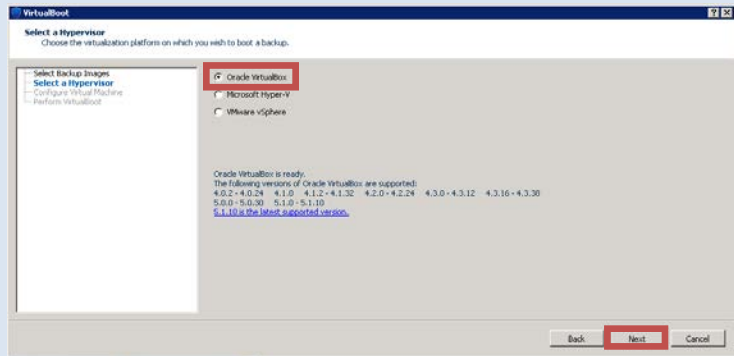l. Enter the Encryption password (see your Activation letter) at the prompt and click **OK**
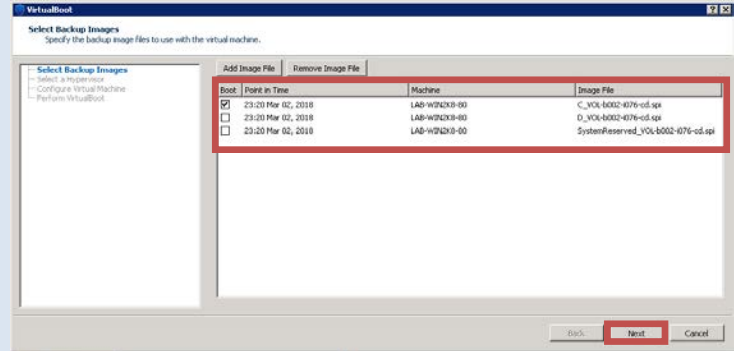
m. Verify the volumes, point(s) in time for virtualization and click **Next**

ⓘ If the machine you are virtualizing has more than one volume, you will see all of the volumes in the list. You may use the Remove/Add Image File buttons to build a VM with volumes from multiple points in time. Ensure that the correct volume boot volume is selected. (You should select and use the Remove button for System, System Reserved and Recovery partitions as they are generally not needed for virtualizations)

n. Select Oracle VirtualBox as the Hypervisor and click **Next**

o. Enter a name (you may use the machine's name) assign CPU cores and RAM to the VM. Select **NAT** for the adapter; **Uncheck** the "Automatically start the virtual machine…" box and click **Create**
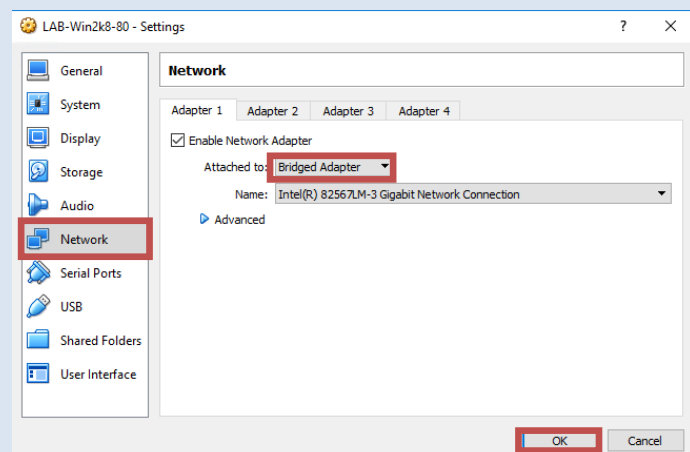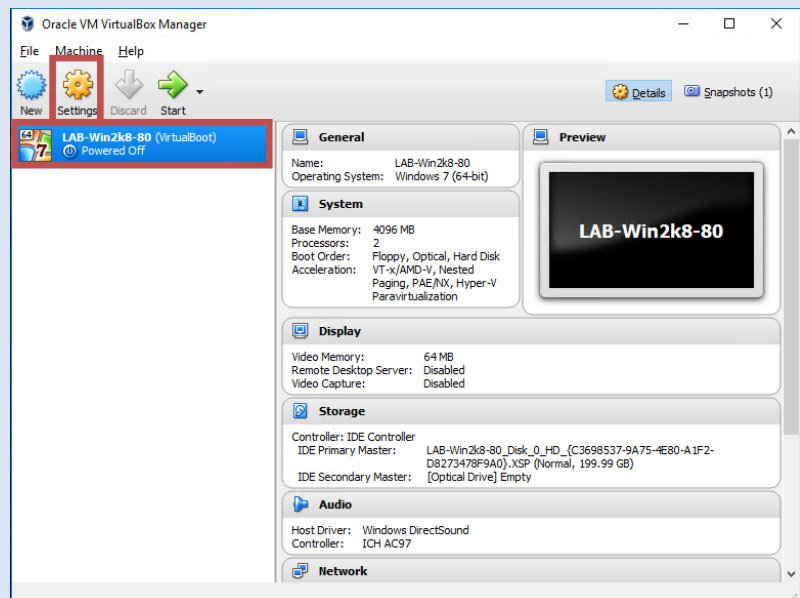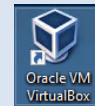
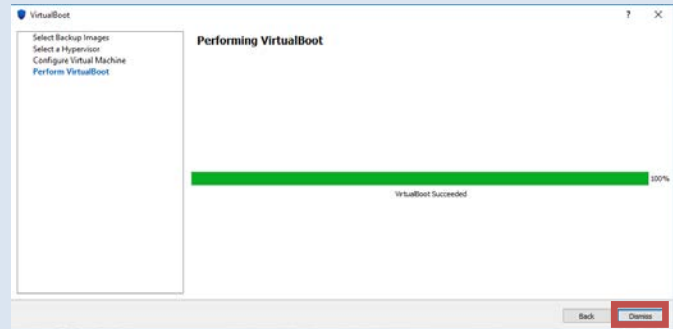## 3. Edit VM Settings

a. Once the VirtualBoot succeeds, you may **Dismiss** the VirtualBoot window

b. Launch **Oracle VirtualBox**

c. Click on the Virtual Machine that was created

d. Click **Settings**

e. Click **Network**

f. Select **Bridged Adapter**

g. Select the Network Card attached to the LAN

h. Click **OK**

i. Go to **Advanced Configuration of Virtual Machine** (P 27)

Testing with Host Only Mode

This mode allows isolated network communication between virtual machines booted on the appliance. This connects the VMs to a virtual switch.

1. Access the Appliance

ⓘ The following steps must be performed on a computer that is connected to the **same network** as the ABS Appliance
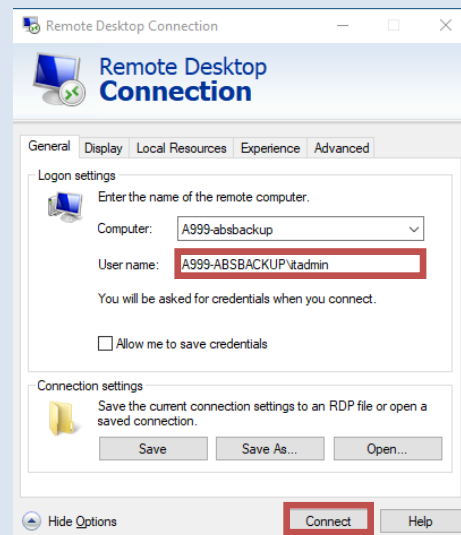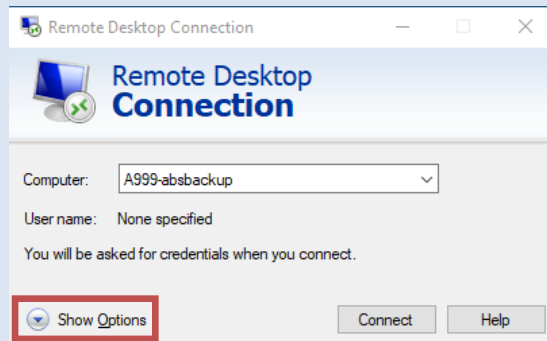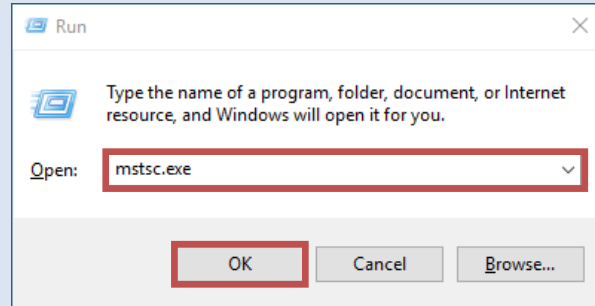
a. Right-Click on **Start**

b. Click **Run**

c. In the run box, type **mstsc.exe**, click **OK**

ⓘ You can also access Remote Desktop by going to:
Start>All Programs> Accessories>Remote Desktop Connection

d. In the **Computer** section, type in the name of the ABS Appliance or the static IP you assigned to the appliance and click **Show Options**

ⓘ If you do not know the name of the ABS Appliance, refer to your **Activation Letter**

e. Use the following username to log in:
axxx-absbackup\itadmin (replace "xxx" with the appliance number)

f. Use the password provided in the **Activation Letter**
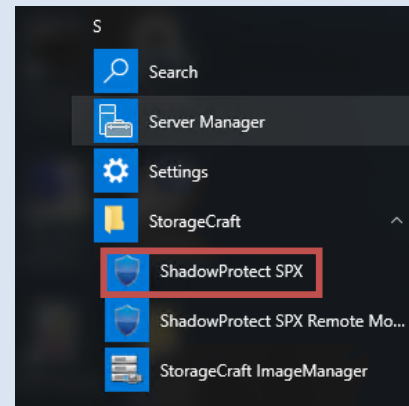
g. Click **Connect**
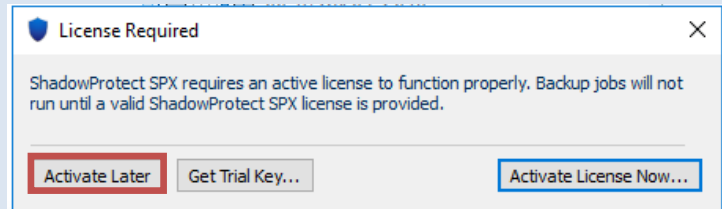
2. Create the Virtual Machine

a. Launch ShadowProtect SPX from the desktop or Start Menu (do not use the Remote Monitor for this)

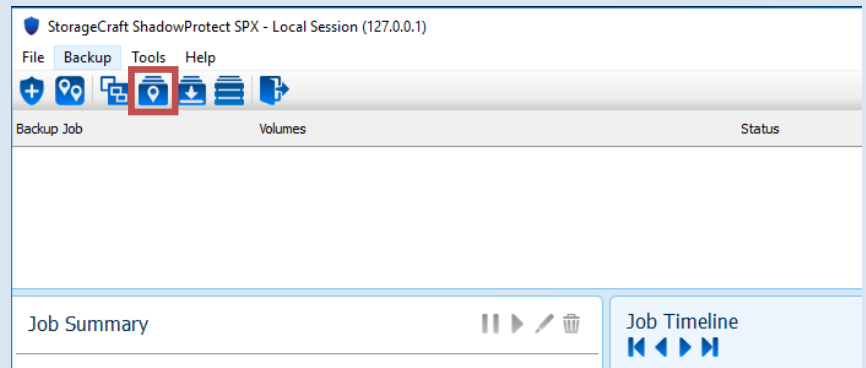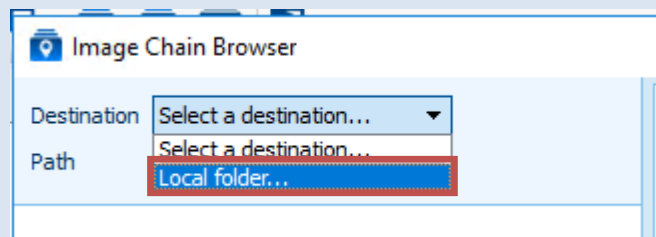**or**

b. Click **Activate Later** at the license prompt (backups do not run on the appliance so no license is needed)

c. Click the Image Chain Browser button in the SPX console

d. Use the dropdown at Destination to select **Local folder**

e. Click on the Browse button to location the backup image chains on the appliance

Local Images

Select a path to find local image files that are not associated with a destination.

Folder path [   ] [Browse...]

[OK] [Cancel]

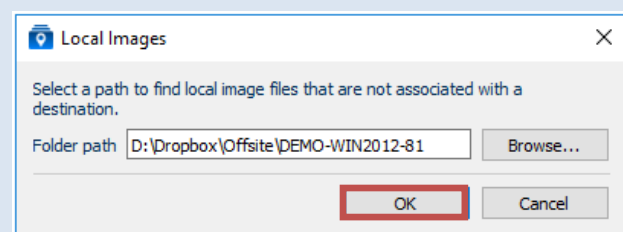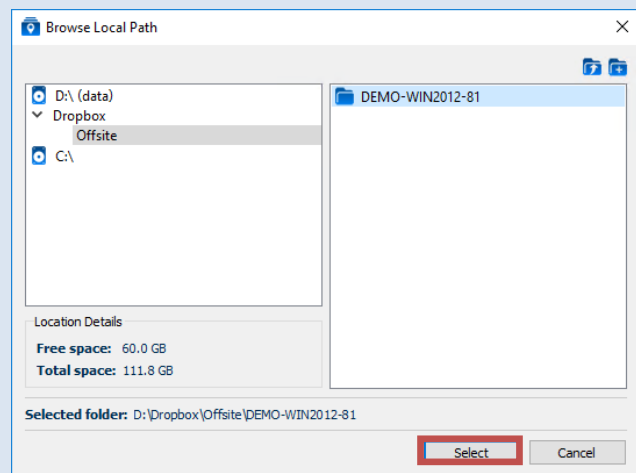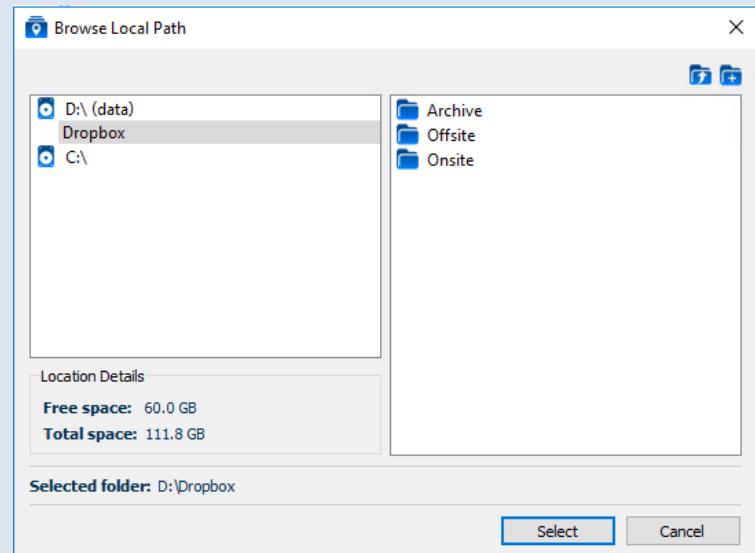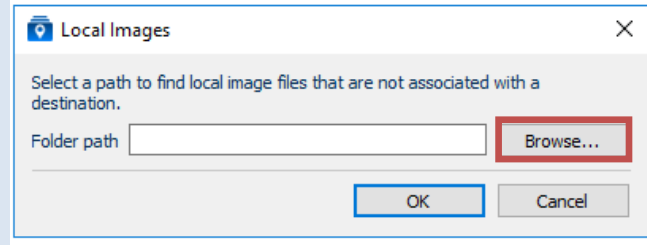f. Locate the Dropbox folder (usually on D) and double-click to expand it.

ⓘ You will find an **offsite** and an **onsite** folder under **dropbox**

The **offsite** folder is used for storing snapshots that are being replicated to the **ABS Cloud**
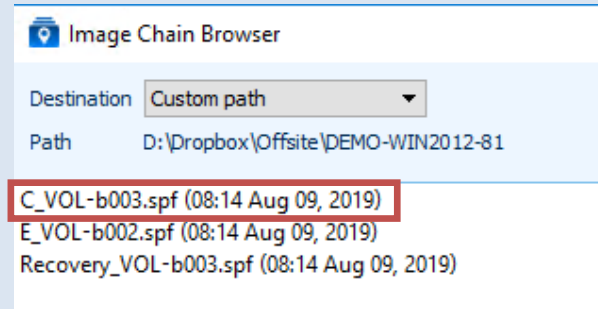
The **onsite** folder is used for storing snapshots locally on the appliance (not replicated to the **ABS Cloud**)

Browse Local Path

- D:\ (data)
  Dropbox
- C:\

Archive
Offsite
Onsite

Location Details
Free space: 60.0 GB
Total space: 111.8 GB

Selected folder: D:\Dropbox

[Select] [Cancel]

g. Locate and open the folder of the machine you want to virtualize and click **Select**

Browse Local Path

- D:\ (data)
  ∨ Dropbox
     Offsite
- C:\

DEMO-WIN2012-81

Location Details
Free space: 60.0 GB
Total space: 111.8 GB

Selected folder: D:\Dropbox\Offsite\DEMO-WIN2012-81

[Select] [Cancel]

h. The folder will be shown next to Folder path. Click **OK**

Local Images

Select a path to find local image files that are not associated with a destination.

Folder path [D:\Dropbox\Offsite\DEMO-WIN2012-81] [Browse...]

[OK] [Cancel]

i. The image chains will be shown at left. Click the Boot volume (usually C) to enumerate the image chain at right

j. The image chain for the volume selected will appear at right showing the available points in time for virtualization

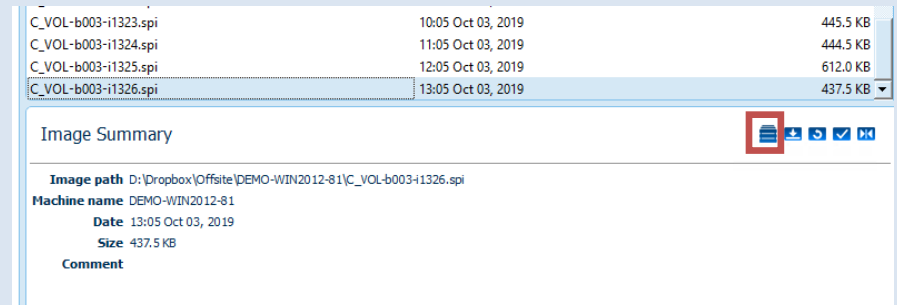(i) The naming scheme for consolidated images follows this format:
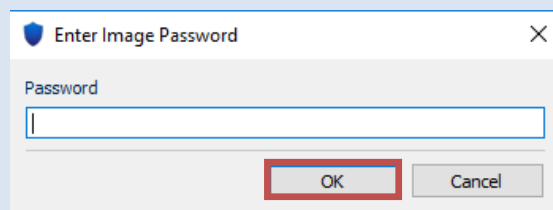**Volume name-Base number-Incremental number**
CD = Consolidated Daily
CW = Consolidated Weekly
CM = Consolidated Monthly

k. Once you select a point in time to virtualize, information about it will show at bottom. Click the VirtualBoot icon 🖥

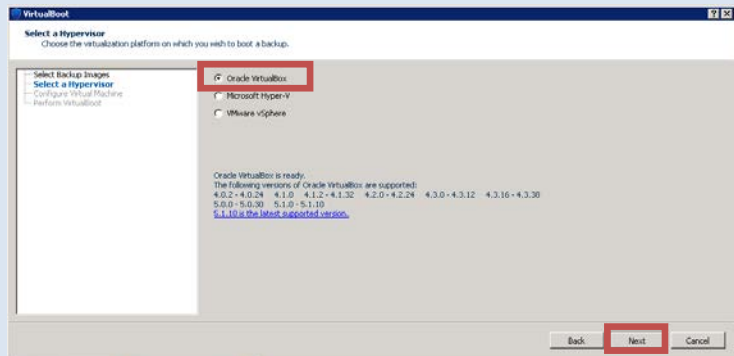l. Enter the Encryption password (see your Activation letter) at the prompt and click **OK**

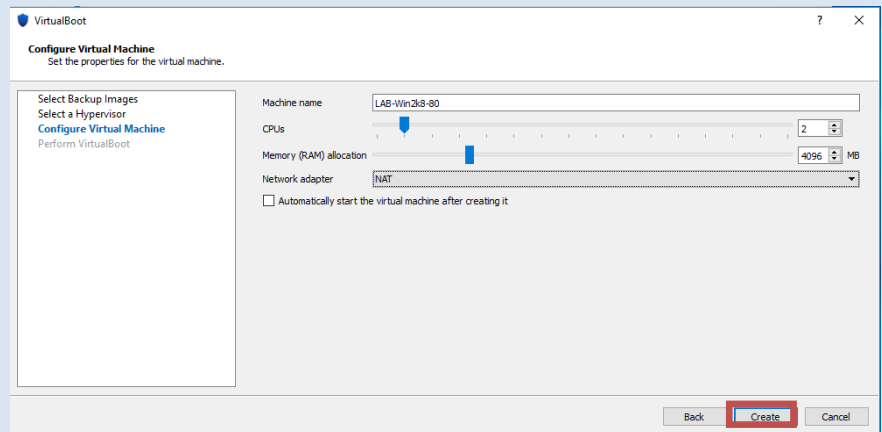m. Verify the volumes, point(s) in time for virtualization and click **Next**

ⓘ If the machine you are virtualizing has more than one volume, you will see all of the volumes in the list. You may use the Remove/Add Image File buttons to build a VM with volumes from multiple points in time. Ensure that the correct volume boot volume is selected. (You should select and use the Remove button for System, System Reserved and Recovery partitions as they are generally not needed for virtualizations)

n. Select Oracle VirtualBox as the Hypervisor and click **Next**

o. Enter a name (you may use the machine's name) assign CPU cores and RAM to the VM. Select **NAT** for the adapter; **Uncheck** the "Automatically start the virtual machine…" box and click **Create** …
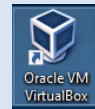
3. Edit VM Settings

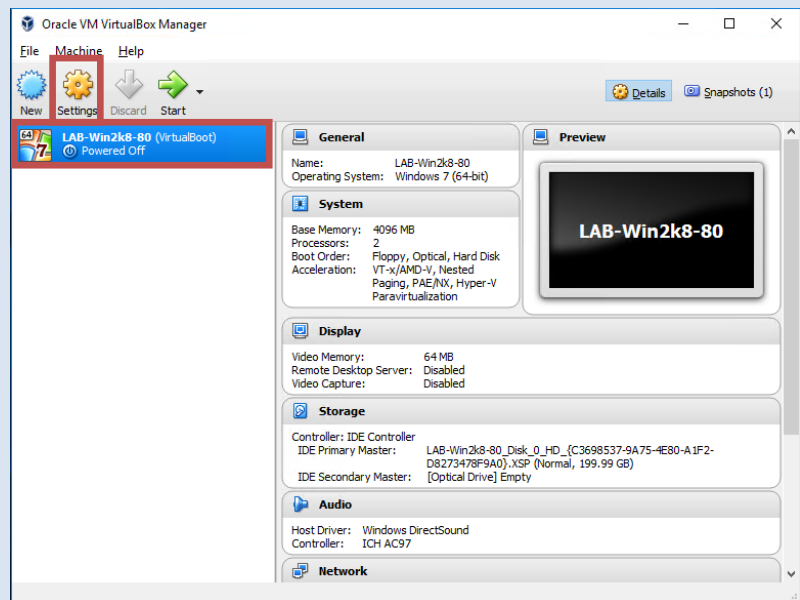a. Once the VirtualBoot succeeds, you may **Dismiss** the VirtualBoot window

b. Launch **Oracle VirtualBox**

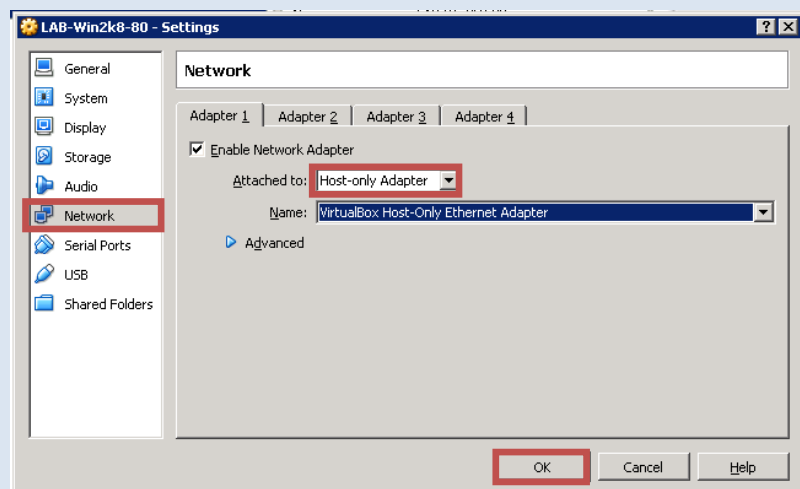c. Click on the Virtual Machine that was created

d. Click **Settings**

e. Click **Network**

f. Select **Host-Only Adapter**

g. Click **OK**

h. Proceed to **Advanced Configuration of Virtual Machine (P 27) (You may skip to section 4 – Configure Network for quick-testing.)**

Single Machine Testing (Quick Test)

1. Access the Appliance

(i) The following steps must be performed on a computer that is connected to the **same network** as the ABS Appliance
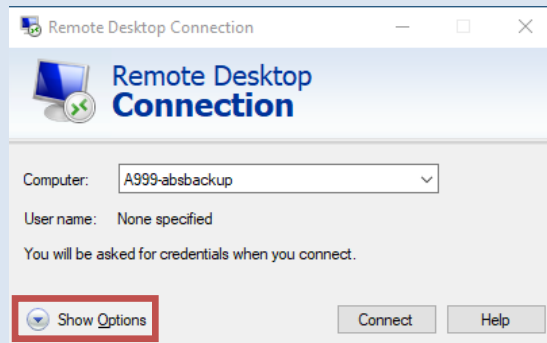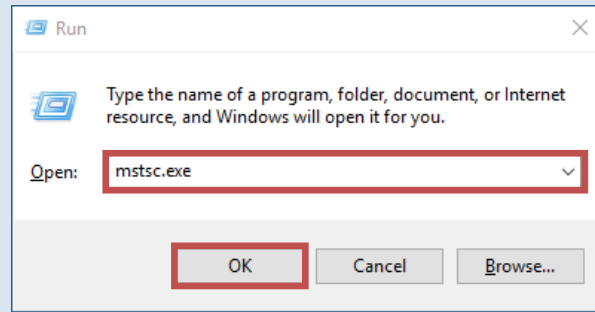
  a. Right-Click on **Start**

  b. Click **Run**

  c. In the run box, type **mstsc.exe**, click **OK**

(i) You can also access Remote Desktop by going to: **Start>All Programs> Accessories>Remote Desktop Connection**

  d. In the **Computer** section, type in the name of the ABS Appliance or the static IP you assigned to the appliance and click **Show Options**

(i) If you do not know the name of the ABS Appliance, refer to your **Activation Letter**

  e. Use the following username to log in: **axxx-absbackup\itadmin** (replace "xxx" with the appliance number)

  f. Use the password provided in the **Activation Letter**
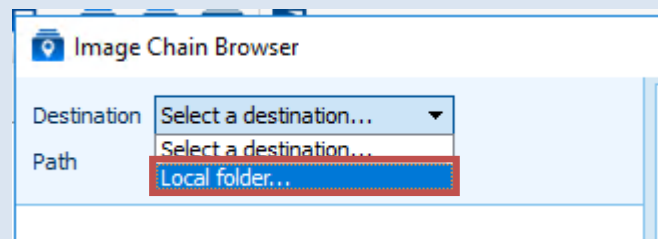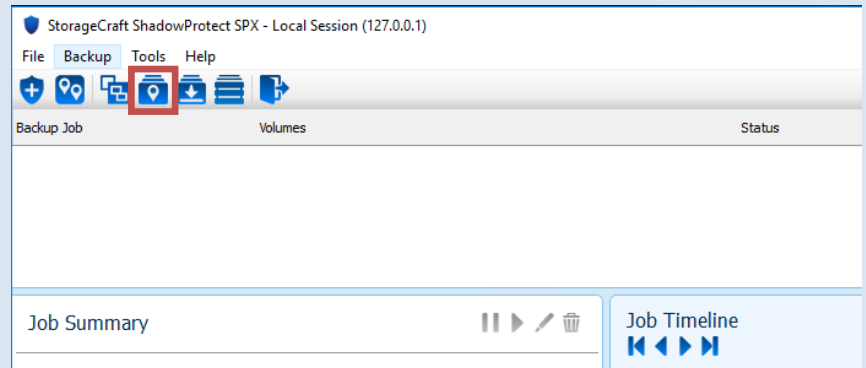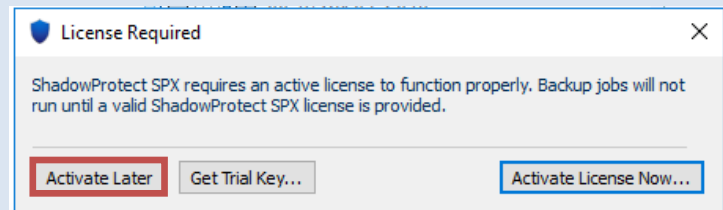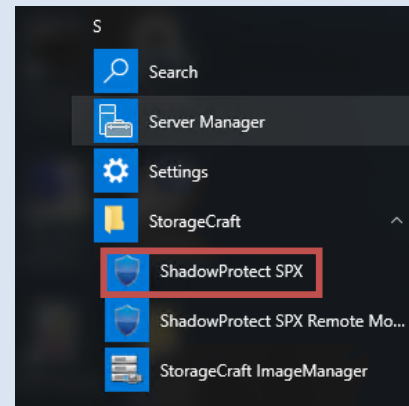
  g. Click **Connect**

2. Create the Virtual Machine

a. Launch ShadowProtect SPX from the desktop or Start Menu (do not use the Remote Monitor for this)

b. Click **Activate Later** at the license prompt (backups do not run on the appliance so no license is needed)

c. Click the Image Chain Browser button in the SPX console

d. Use the dropdown at Destination to select **Local folder**

e. Click on the Browse button to location the backup image chains on the appliance

Local Images ✕

Select a path to find local image files that are not associated with a destination.

Folder path [   ] [Browse...]

[OK] [Cancel]

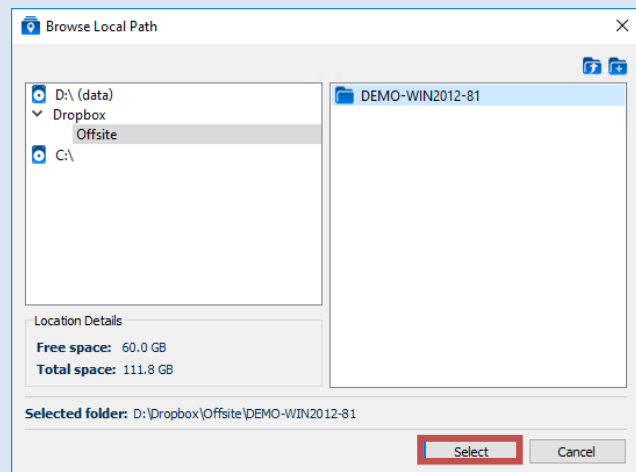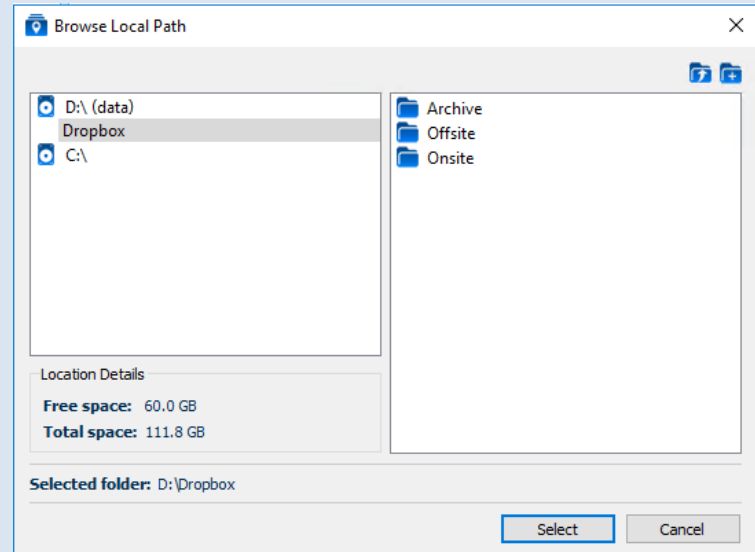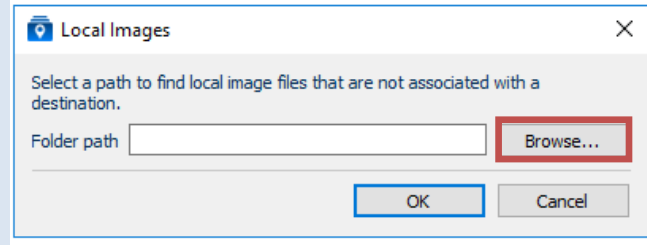f. Locate the Dropbox folder (usually on D) and double-click to expand it.

ⓘ You will find an **offsite** and an **onsite** folder under **dropbox**

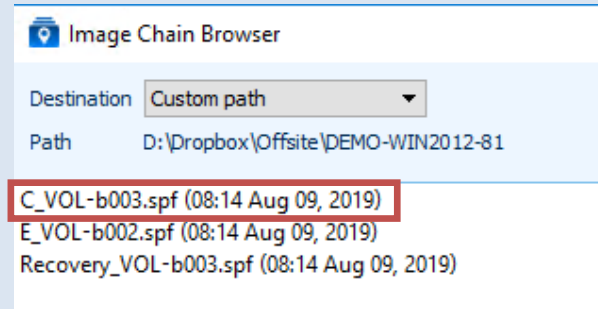The **offsite** folder is used for storing snapshots that are being replicated to the **ABS Cloud**

The **onsite** folder is used for storing snapshots locally on the appliance (not replicated to the **ABS Cloud**)

Browse Local Path ✕

D:\ (data)
Dropbox
C:\

📁 Archive
📁 Offsite
📁 Onsite

Location Details
Free space: 60.0 GB
Total space: 111.8 GB

Selected folder: D:\Dropbox

[Select] [Cancel]

g. Locate and open the folder of the machine you want to virtualize and click **Select**

Browse Local Path ✕

D:\ (data)
∨ Dropbox
    Offsite
C:\

📁 DEMO-WIN2012-81

Location Details
Free space: 60.0 GB
Total space: 111.8 GB

Selected folder: D:\Dropbox\Offsite\DEMO-WIN2012-81

[Select] [Cancel]

h. The folder will be shown next to Folder path. Click **OK**

Local Images ✕

Select a path to find local image files that are not associated with a destination.

Folder path [D:\Dropbox\Offsite\DEMO-WIN2012-81] [Browse...]

[OK] [Cancel]

i. The image chains will be shown at left. Click the Boot volume (usually C) to enumerate the image chain at right

Image Chain Browser

Destination Custom path
Path D:\Dropbox\Offsite\DEMO-WIN2012-81

C_VOL-b003.spf (08:14 Aug 09, 2019)
E_VOL-b002.spf (08:14 Aug 09, 2019)
Recovery_VOL-b003.spf (08:14 Aug 09, 2019)

j. The image chain for the volume selected will appear at right showing the available points in time for virtualization
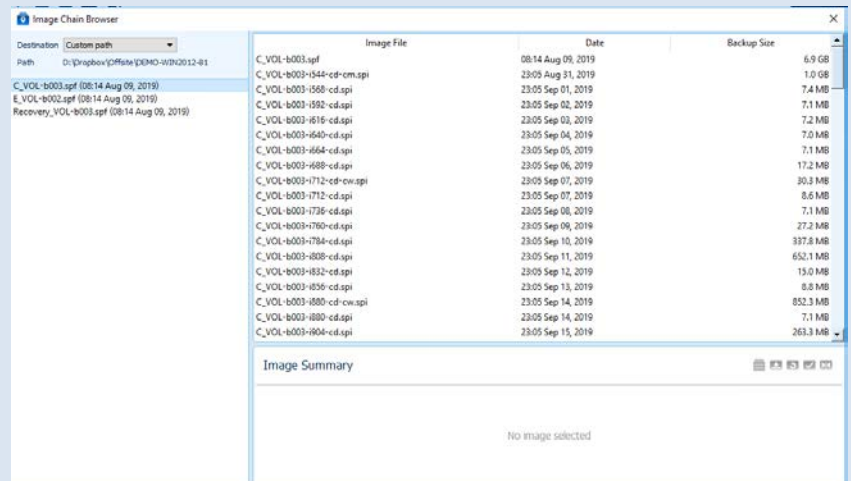
ⓘ The naming scheme for consolidated images follows this format:
Volume name-Base number-Incremental number
CD = Consolidated Daily
CW = Consolidated Weekly
CM = Consolidated Monthly

k. Once you select a point in time to virtualize, information about it will show at bottom. Click the VirtualBoot icon 🗎

l. Enter the Encryption password (see your Activation letter) at the prompt and click **OK**

m. Verify the volumes, point(s) in time for virtualization and click **Next**

ⓘ If the machine you are virtualizing has more than one volume, you will see all of the volumes in the list. You may use the Remove/Add Image File buttons to build a VM with volumes from multiple points in time. Ensure that the correct volume boot volume is selected. (You should select and use the Remove button for System, System Reserved and Recovery partitions as they are generally not needed for virtualizations)

n. Select Oracle VirtualBox as the Hypervisor and click **Next**

o. Enter a name (you may use the machine's name) assign CPU cores and RAM to the VM. Leave the Network Adapter as **Not Attached** and the **Automatically start** box checked and click **Create**

p. Once the VirtualBoot succeeds, you may **Dismiss** the VirtualBoot window.
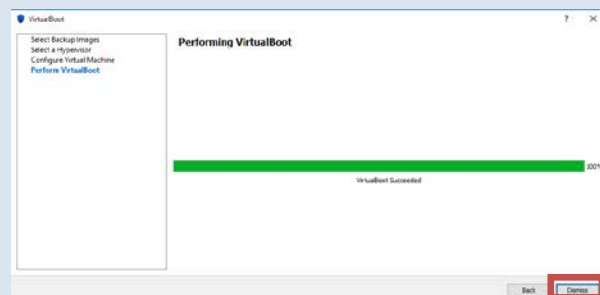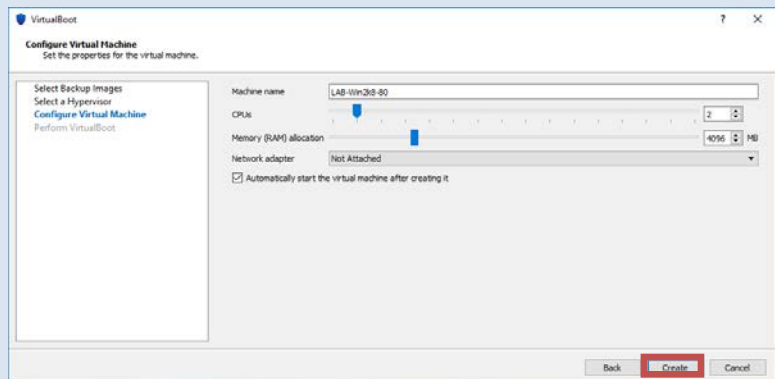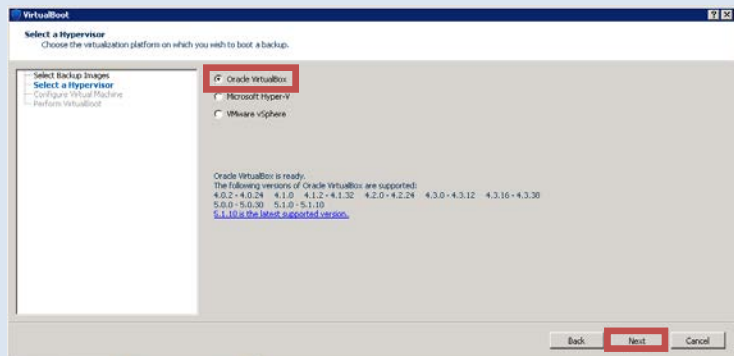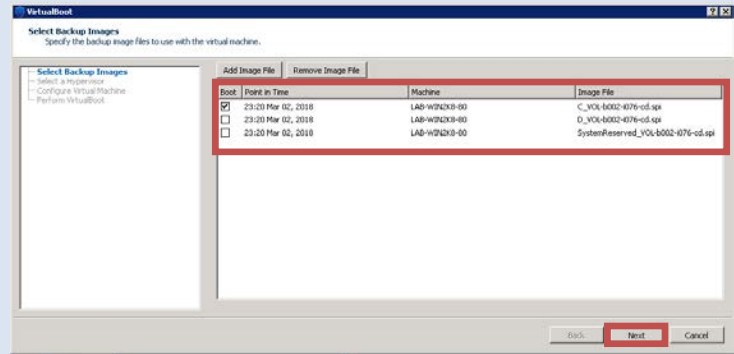
q. The VM will start, and you may test as desired. Go to **Shutdown and Cleanup of Virtual Machine** when done

⚠ The Right Ctrl Key + Delete will serve as Ctrl+Alt+Del. Use the Right Ctrl key to toggle out of the VM window. If you want better performance from the VM, see **Advanced Configuration of Virtual Machine** and install the Guess Additions CD.
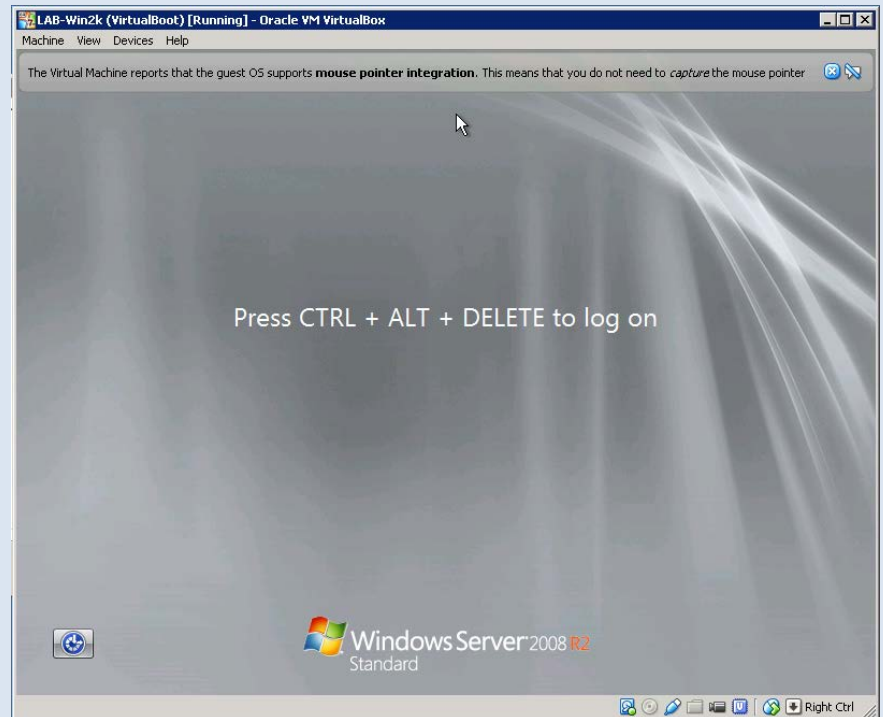
Testing with Secondary Network

This configuration is designed to be used as a testing platform which allows isolated network communication between virtual machines on the appliance and networks connected to the selected network card.

1. Access the Appliance

ⓘ The following steps must be performed on a computer that is connected to the **same network** as the ABS Appliance

a. Right-Click on **Start**

b. Click **Run**

c. In the run box, type **mstsc.exe**, click **OK**

ⓘ You can also access Remote Desktop by going to:
Start>All Programs> Accessories>Remote Desktop Connection

d. In the **Computer** section, type in the name of the ABS Appliance or the static IP you assigned to the appliance and click **Show Options**

ⓘ If you do not know the name of the ABS Appliance, refer to your **Activation Letter**

e. Use the following username to log in:
axxx-absbackup\itadmin
(replace "xxx" with the appliance number)

f. Use the password provided in the **Activation Letter**

g. Click **Connect**

2. Create the Virtual Machine

a. Launch ShadowProtect SPX from the desktop or Start Menu (do not use the Remote Monitor for this)

or

b. Click **Activate Later** at the license prompt (backups do not run on the appliance so no license is needed)

c. Click the Image Chain Browser button in the SPX console

d. Use the dropdown at Destination to select **Local folder**

e. Click on the Browse button to location the backup image chains on the appliance

f. Locate the Dropbox folder (usually on D) and double-click to expand it.

ⓘ You will find an **offsite** and an **onsite** folder under **dropbox**

The **offsite** folder is used for storing snapshots that are being replicated to the **ABS Cloud**

The **onsite** folder is used for storing snapshots locally on the appliance (not replicated to the **ABS Cloud**)

g. Locate and open the folder of the machine you want to virtualize and click **Select**

h. The folder will be shown next to Folder path. Click **OK**

i. The image chains will be shown at left. Click the Boot volume (usually C) to enumerate the image chain at right

j. The image chain for the volume selected will appear at right showing the available points in time for virtualization

ⓘ The naming scheme for consolidated images follows this format:
Volume name-Base number-Incremental number
CD = Consolidated Daily
CW = Consolidated Weekly
CM = Consolidated Monthly

k. Once you select a point in time to virtualize, information about it will show at bottom. Click the VirtualBoot icon 🗒

l. Enter the Encryption password (see your Activation letter) at the prompt and click **OK**

m. Verify the volumes, point(s) in time for virtualization and click **Next**

ⓘ If the machine you are virtualizing has more than one volume, you will see all of the volumes in the list. You may use the Remove/Add Image File buttons to build a VM with volumes from multiple points in time. Ensure that the correct volume boot volume is selected. (You should select and use the Remove button for System, System Reserved and Recovery partitions as they are generally not needed for virtualizations)

n. Select Oracle VirtualBox as the Hypervisor and click **Next**

o. Enter a name (you may use the machine's name) assign CPU cores and RAM to the VM. Select **NAT** for the adapter; **Uncheck** the "Automatically start the virtual machine…" box and click **Create** …

3. Edit VM Settings

a. Once the VirtualBoot succeeds, you may **Dismiss** the VirtualBoot window

b. Launch **Oracle VirtualBox**

c. Click on the Virtual Machine that was created

d. Click **Settings**

e. Click **Network**

f. From the **Attached to:** drop down, select **Bridged Adapter**

g. Select the network adapter that is either **unused** or connected to a **test network**

ⓘ To verify what network adapter of the ABS Appliance is connected to the testing network, go to the desktop, right click **Network**, click **Properties** and click **Change Adapter Settings**

h. Click **OK**

i. Continue to **Advanced Configuration of Virtual Machine** (Skip to #4 – Configure Network for quick-testing.)
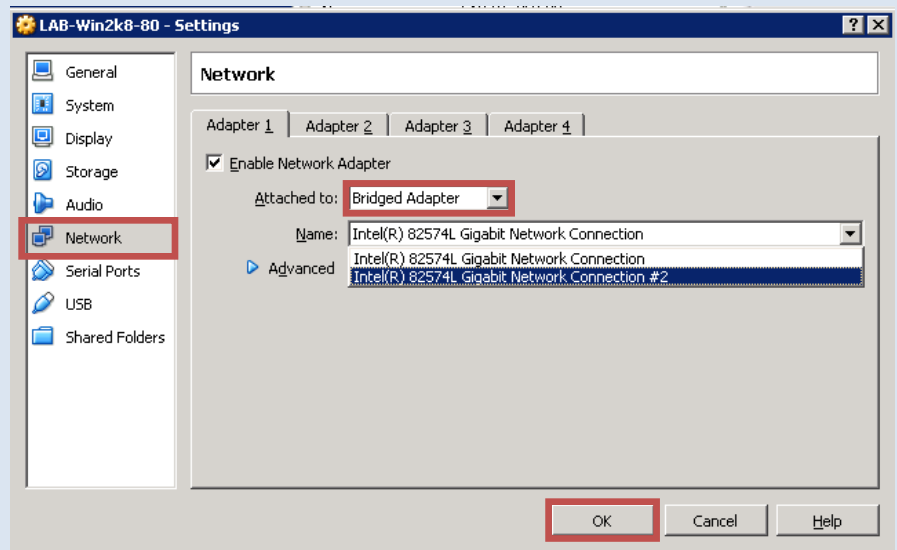
Advanced Configuration of Virtual Machine

1. Safe Mode

a. Click the **Virtual Machine**

b. Click **Start**

c. Click inside the Virtual Machine window and keep pressing **F8** until the **Advanced Boot Options** comes up

d. Select **Safe Mode with Networking** using the arrow keys

e. Hit **Enter**

ⓘ The VM will now begin booting, this might take a few minutes

f. Log into the machine using normal credentials
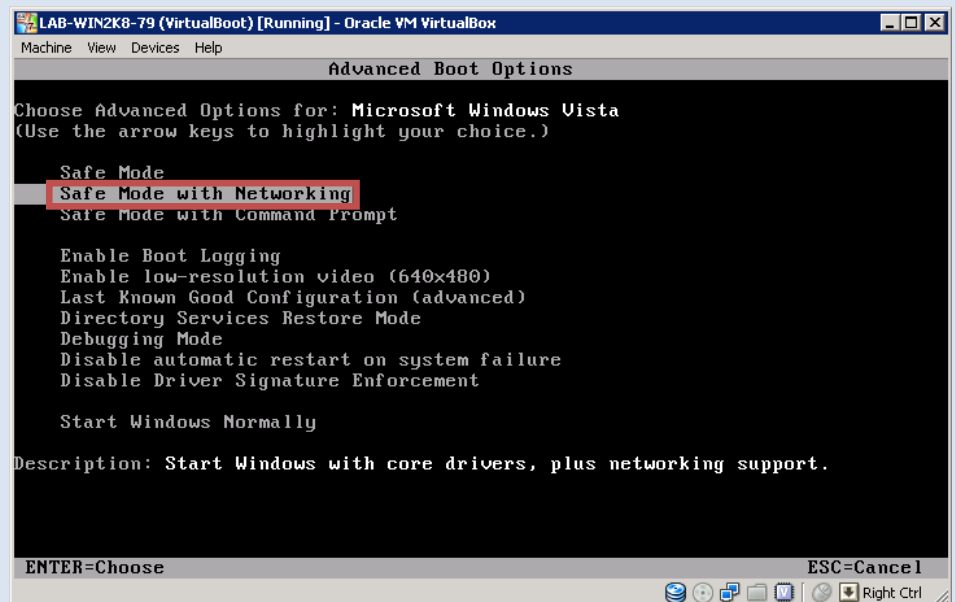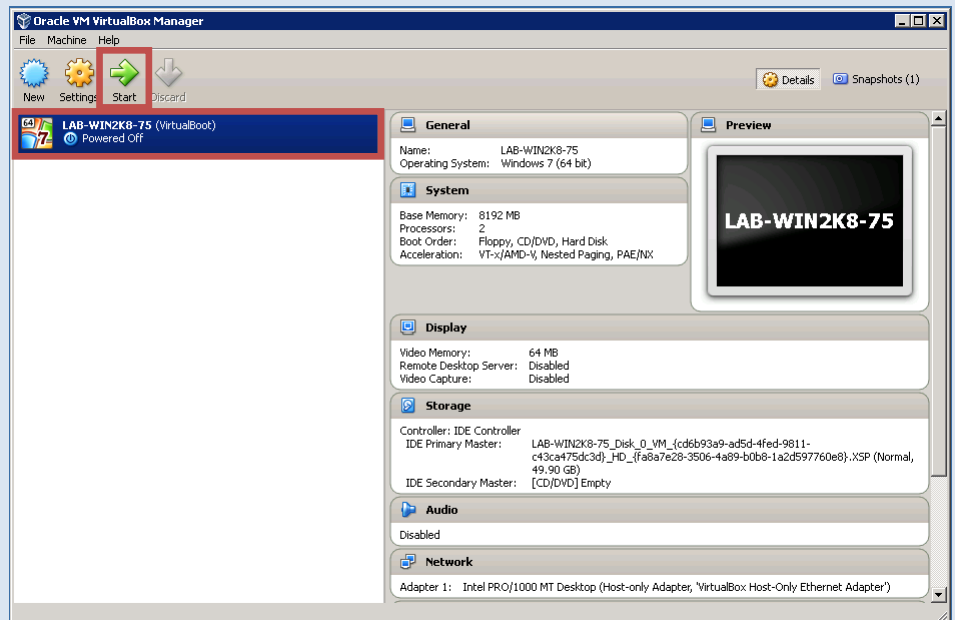
2. Phantom Network Adapter

a. Click **Start**

b. In the search window, type in **cmd**, hit **Enter**
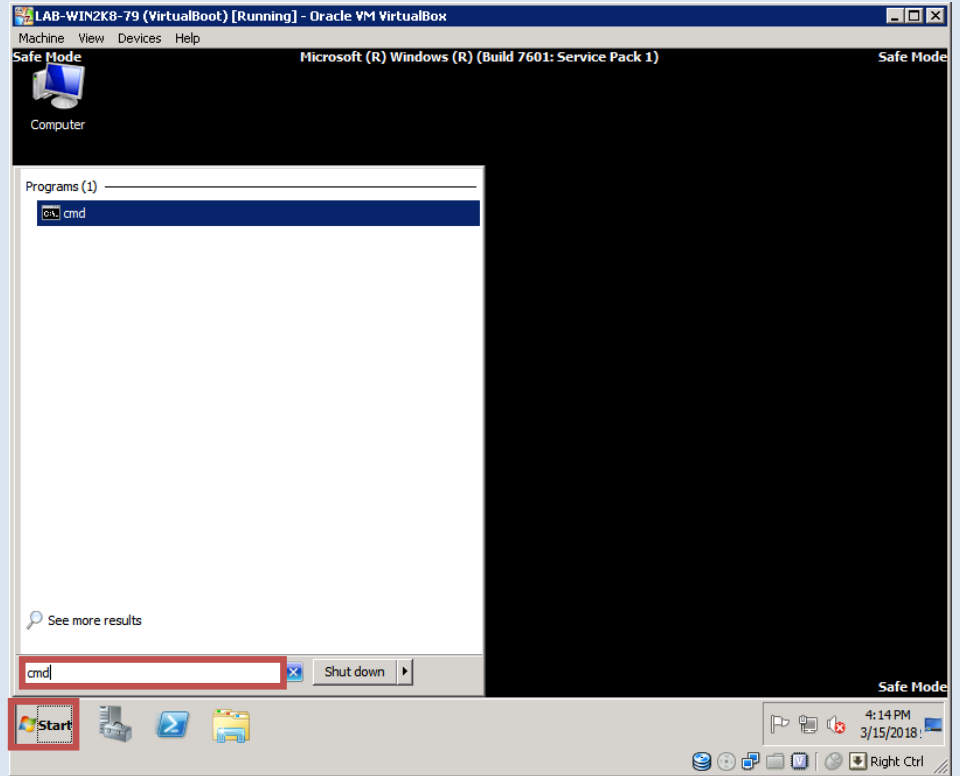
c. Type in the following command:
set devmgr_show_nonpresent_devices=1
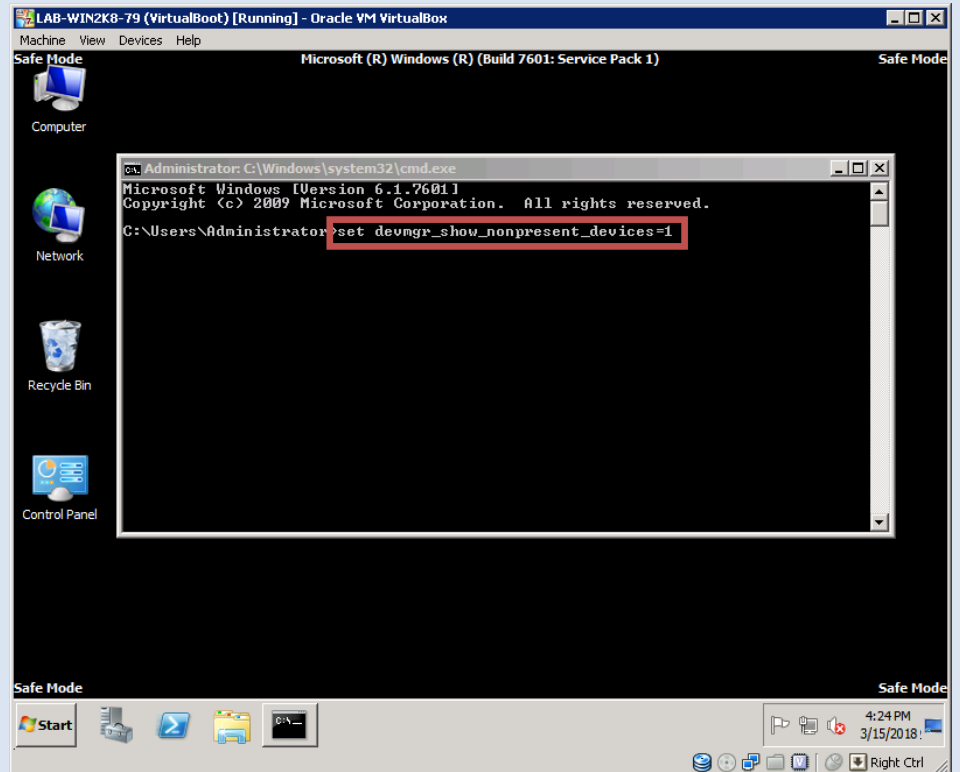
d. Hit **Enter**

e. Type in **devmgmt.msc**

f. Hit **Enter**
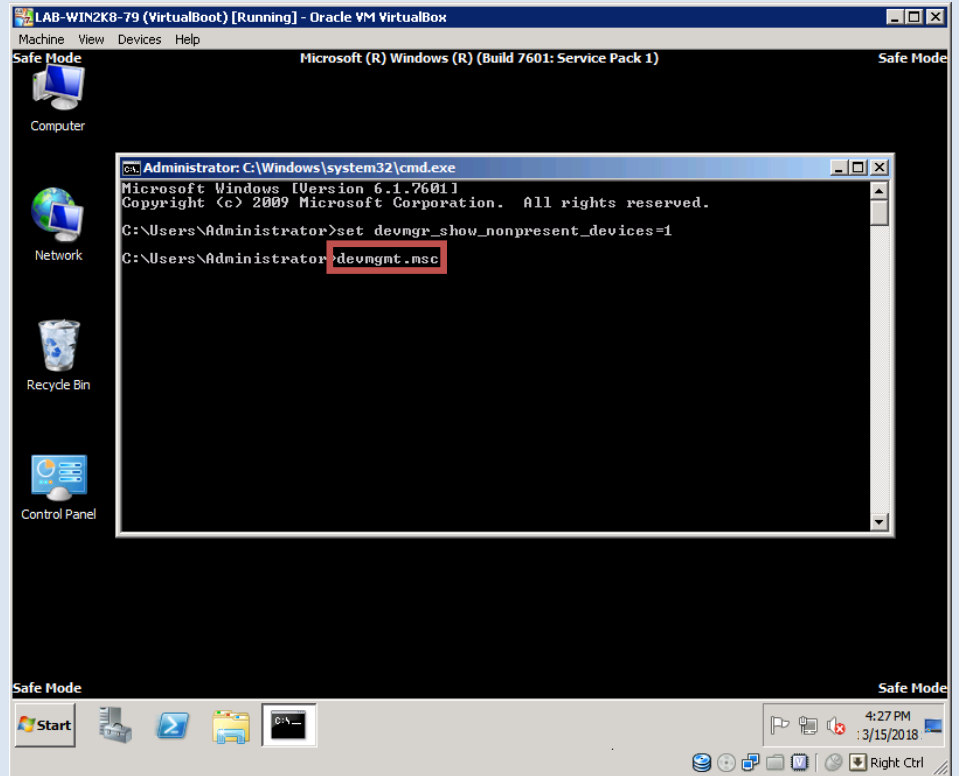
g. In **Device Manager**, click **View**

h. Click **Show hidden devices**
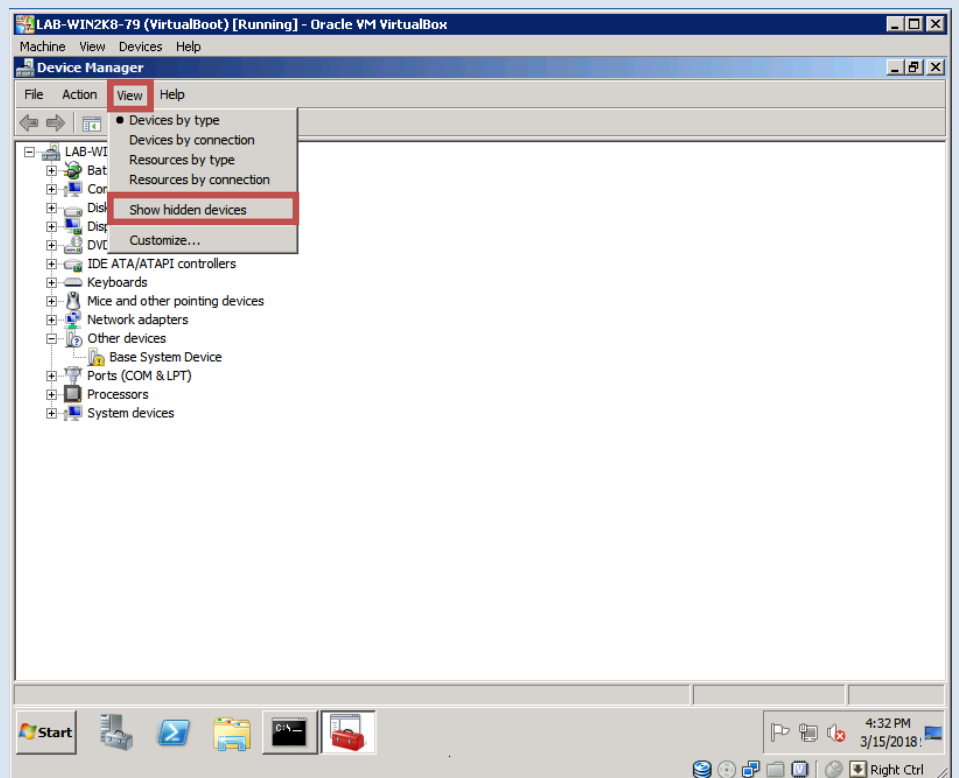
i. Expand **Network adapters**

j. Find any **Grayed Out**
(Network icon is transparent)
network adapters

k. Right click the adapters and
select **Uninstall**
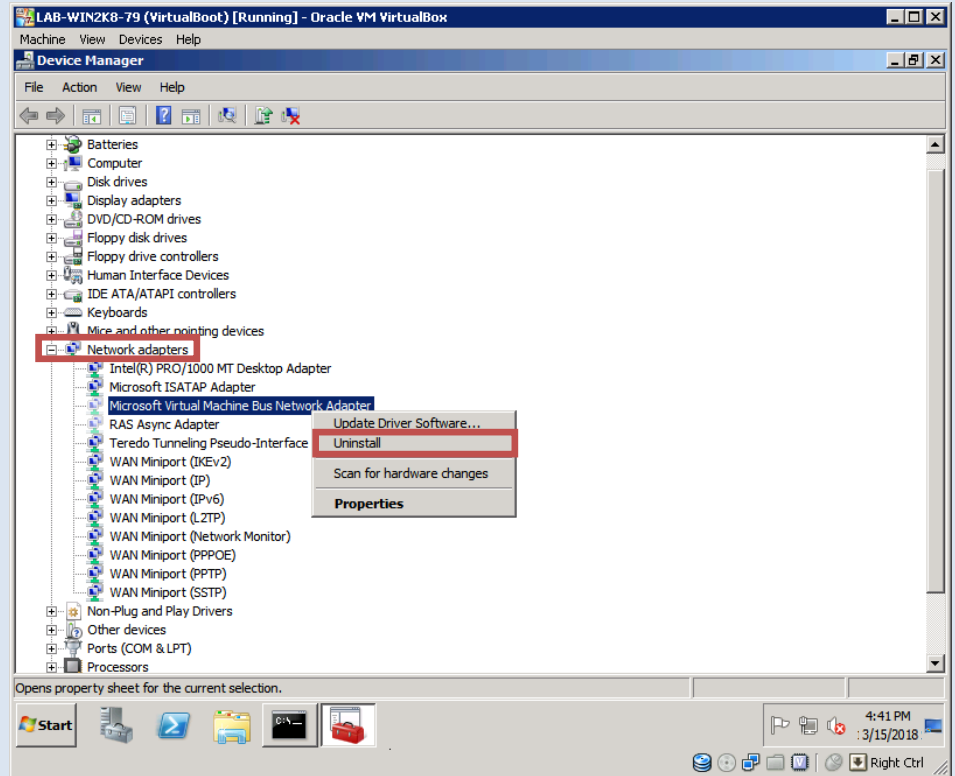
l. Click **OK**

ⓘ Repeat with any other **Grayed
Out** network adapters
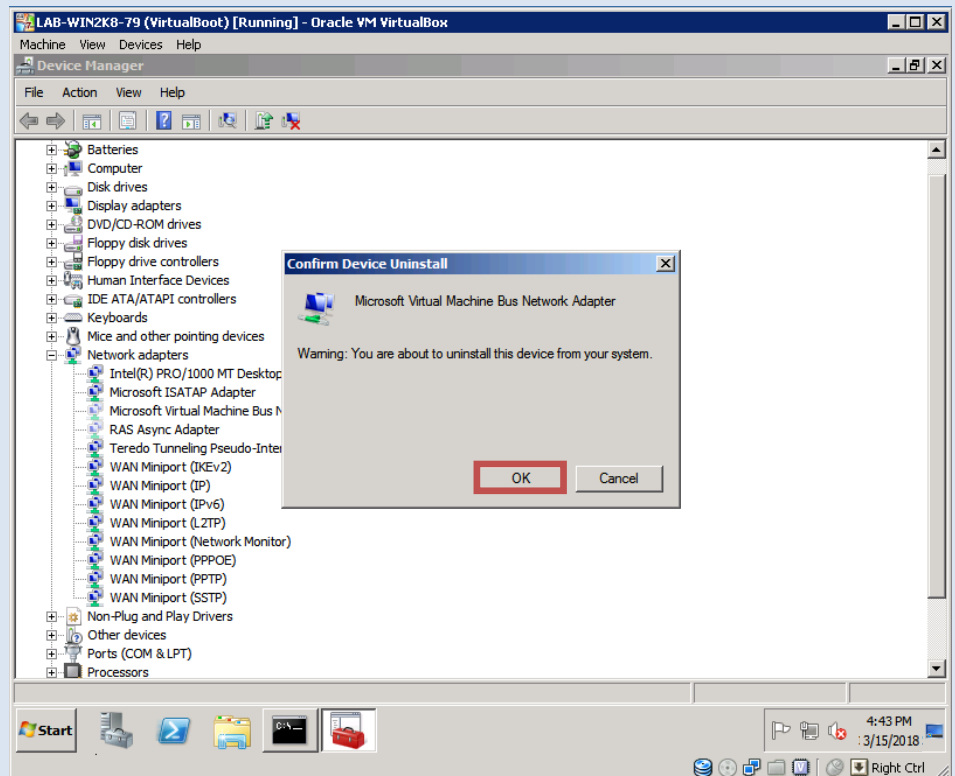
3. Install Guest Additions

a. Click **Devices**

b. Click **Insert Guest Additions CD image**
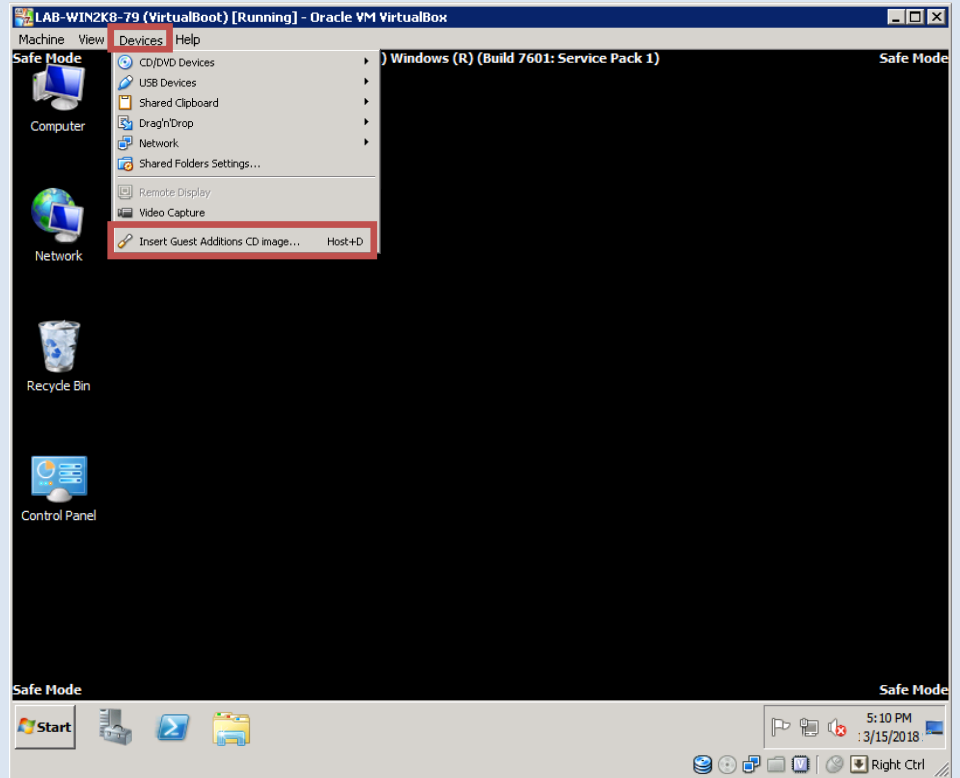
c. Click on **Run VBoxWindowsAdditions.exe**
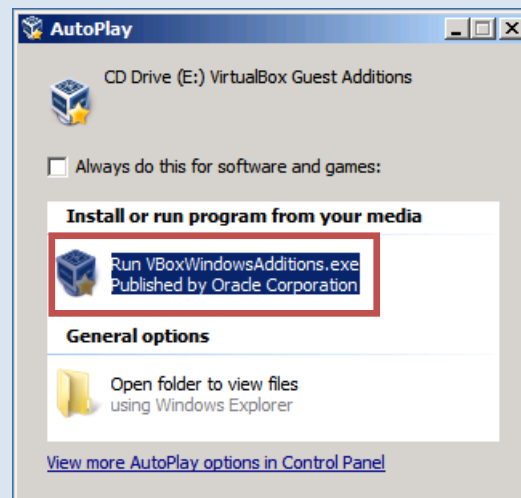
ⓘ If the CD does not Autorun: Open the CD volume using Computer or Windows Explorer and Double-Click on **VBoxWindowsAdditions** to launch the Installation
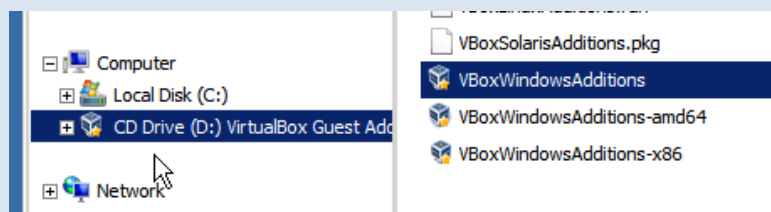
d. Click **Next**
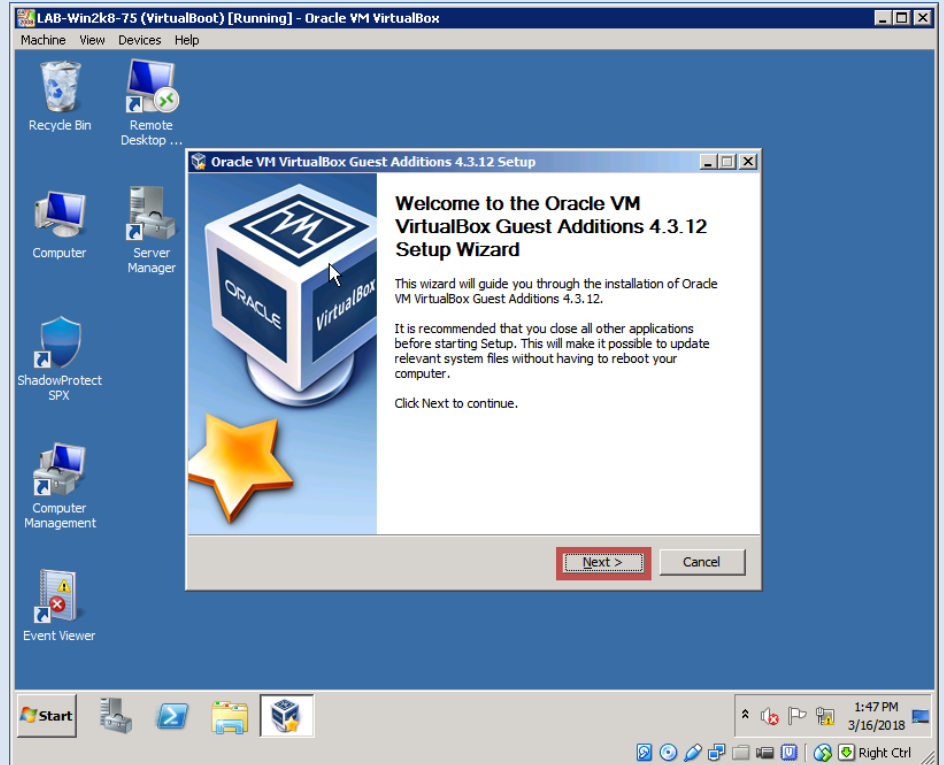
e. Click **Next**
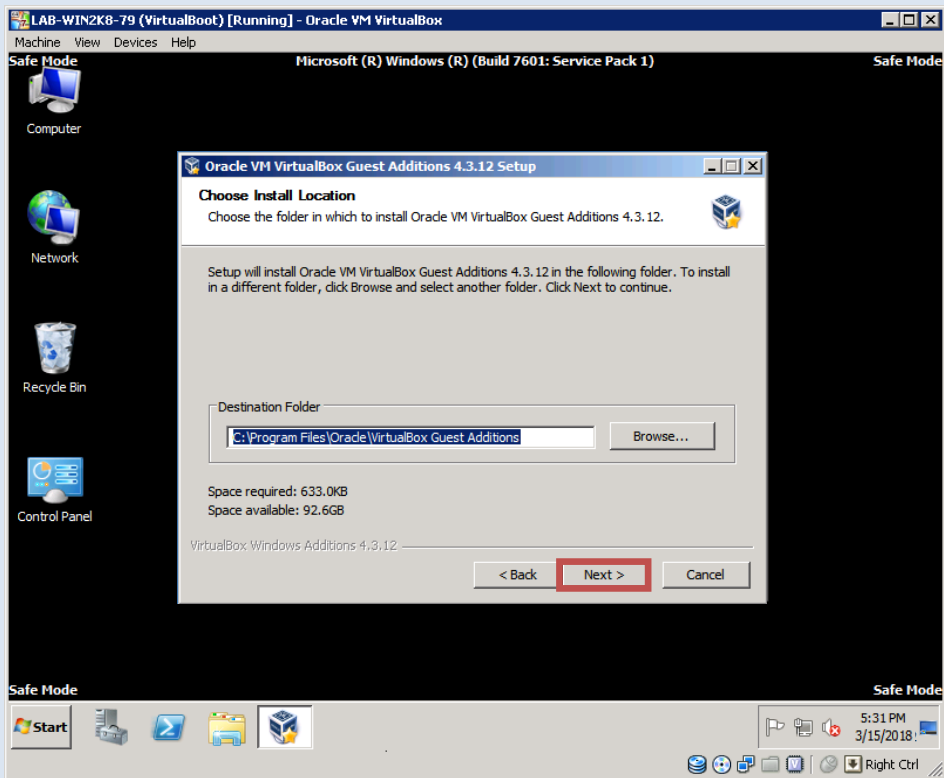
f. Click **Install**
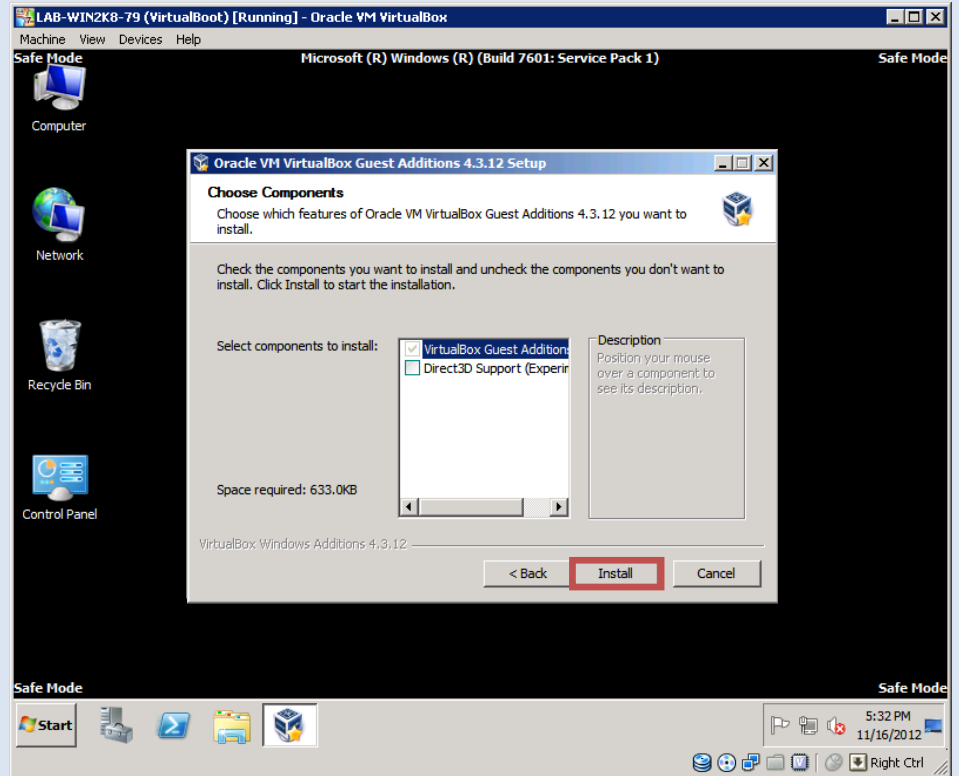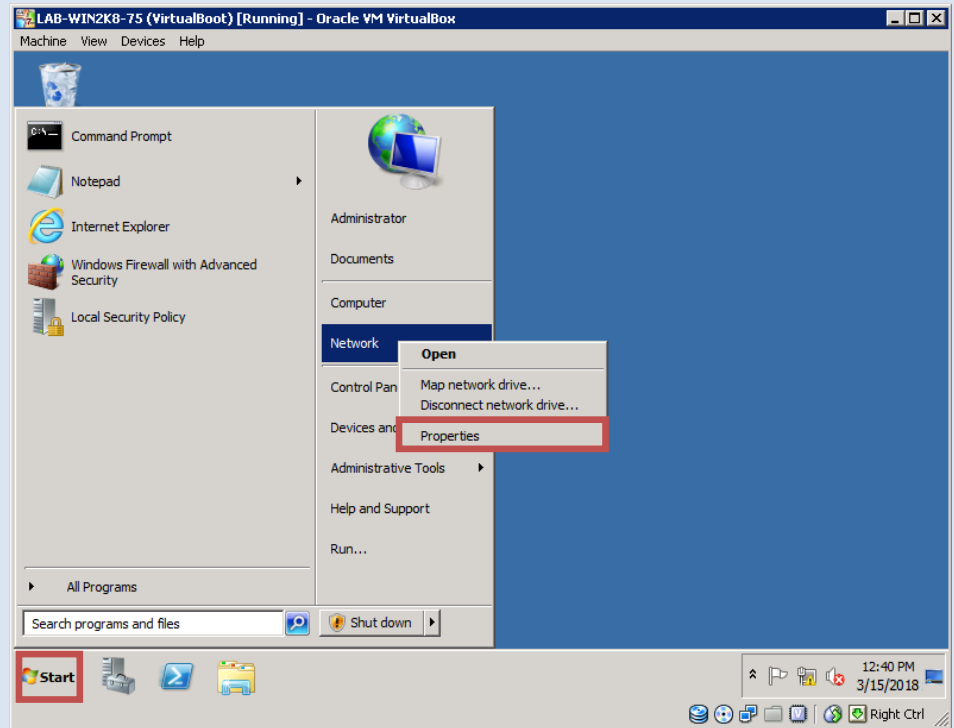

g. Select **Reboot now**

h. Click **Finish**
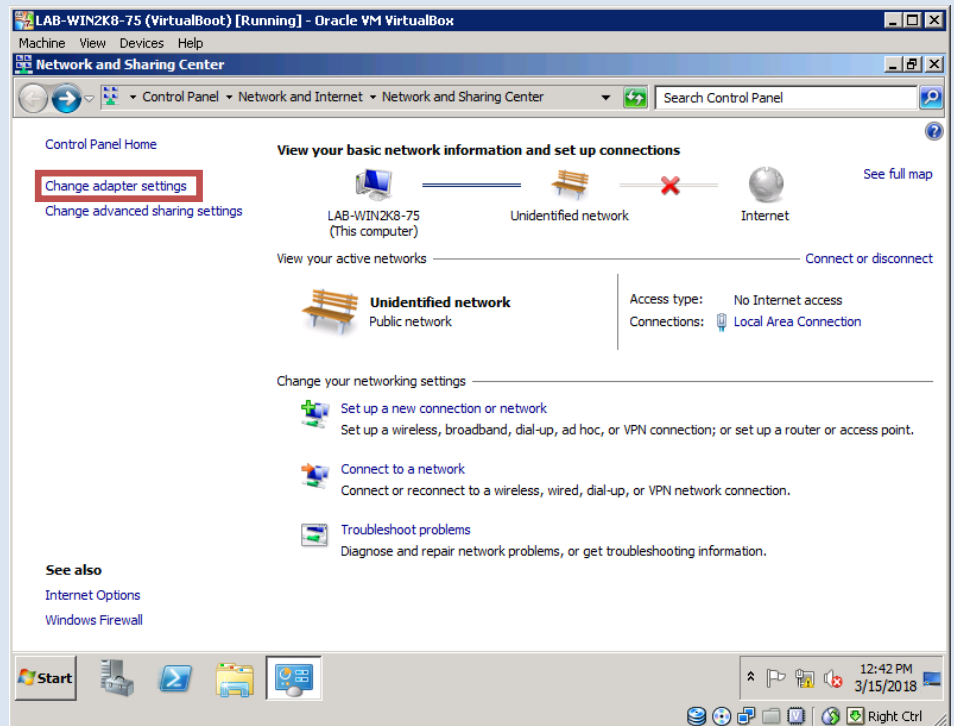
i. Allow the machine to boot into **Normal Mode**
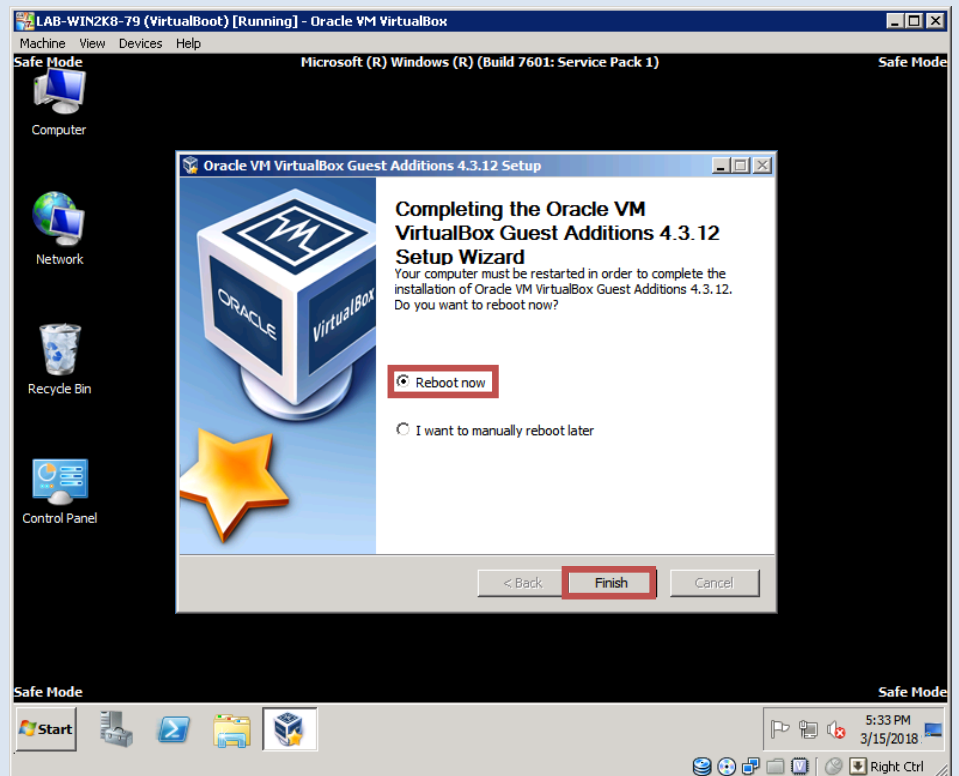
4. Configure Networking

a. Click the **Start Button**

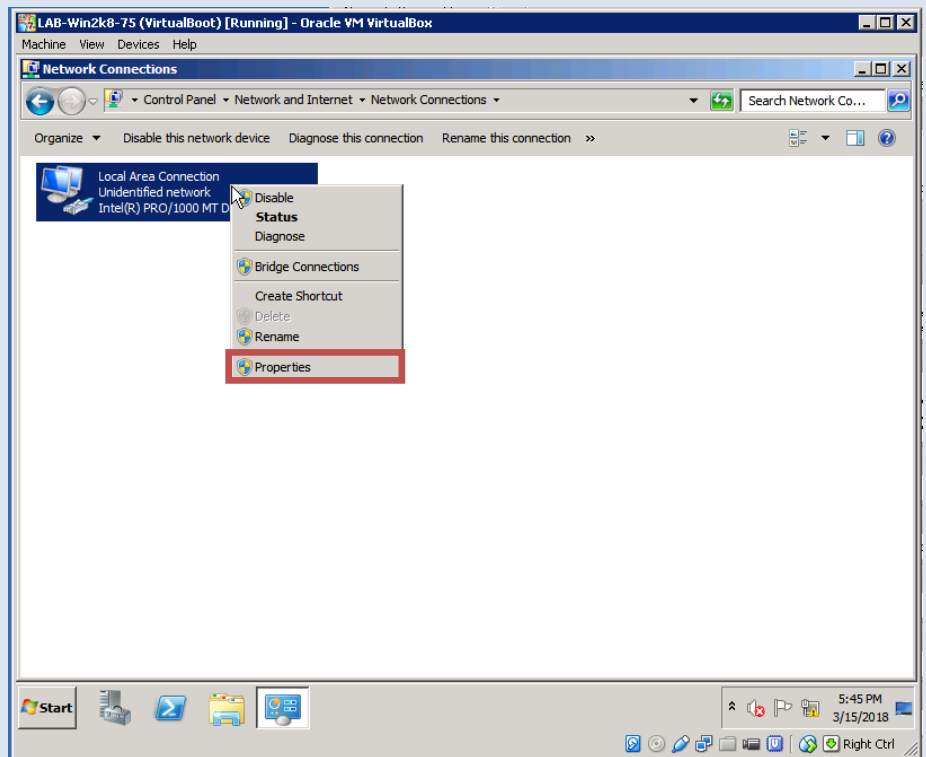b. Right click **Network**

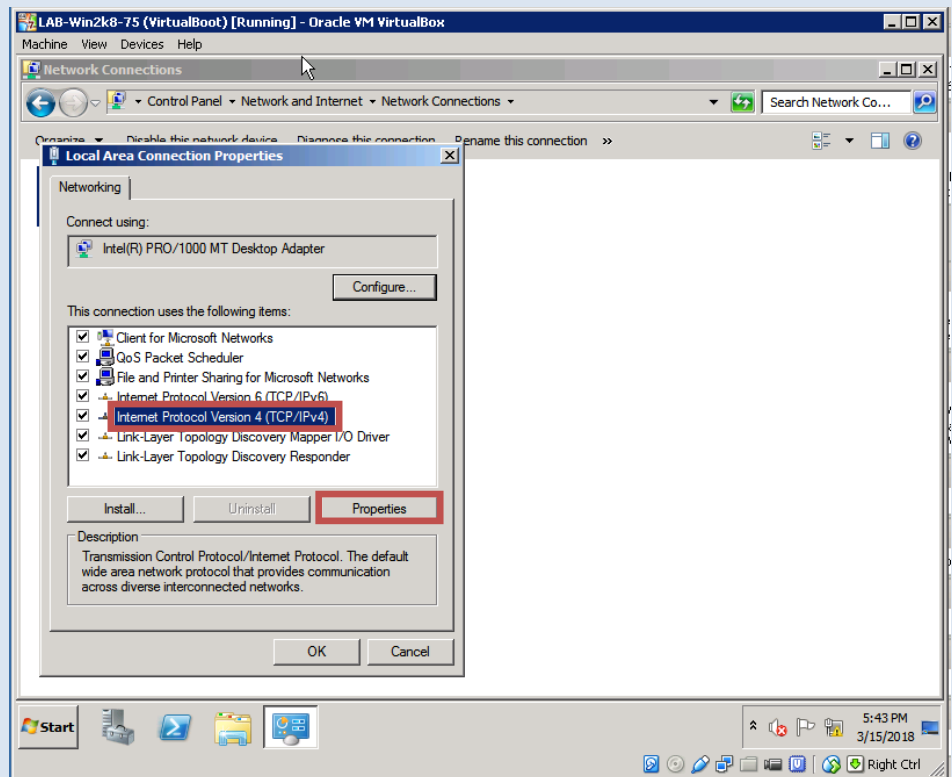c. Click **Properties**

d. Click **Change adapter settings**

e. Right click the available **Network Adapter**

f. Click **Properties**

g. Select **Internet Protocol Version 4 (TCP/IPv4)**

h. Click **Properties**

i. Populate the network configuration according to the type of VirtualBoot network required

Failover Mode - populate network settings identical to the original client machine.

Host-Only Mode - an automatic IP address will be provided using DHCP. If you wish to configure a different IP address, you may do so.

Secondary Network - populate the network settings according to the network requirements of the testing network.

j. Click **OK**

ⓘ The machine should now be operational and accessed on the network. Remember to **Disconnect** the Remote Desktop session on the ABS Appliance. **Logging Off** would result in a VM shutdown and is not recommended.
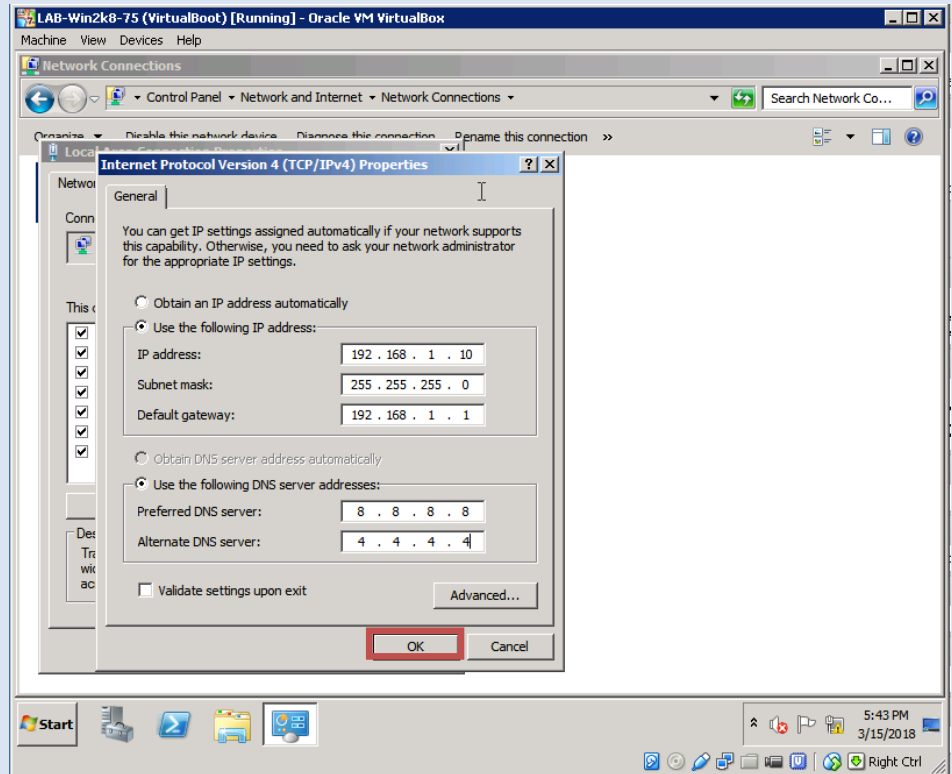
## Virtual Machine Troubleshooting

1. Connectivity

In rare cases, you may find, after completing the setup and configuration as described, that you do not have network connectivity, and there seems no reasonable cause.

When this happens, try the following:

Go to Settings for the VM in Virtual Box, select Network and click **Advanced**

Use the Dropdown for the Promiscuous Mode and select **Allow All**

Click **OK**
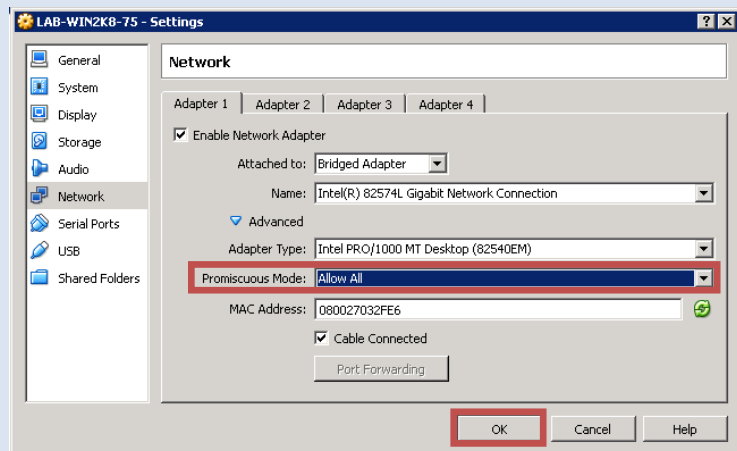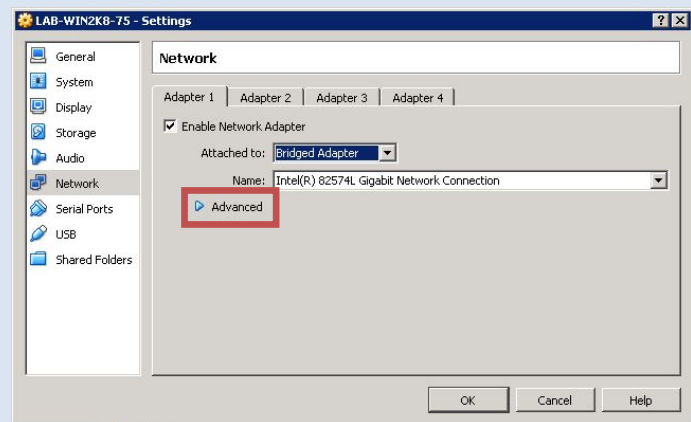
2. Physical Machine

If booting a previously physical machine, some proprietary manufacturer's services might cause slow performance or failure to boot in normal mode.
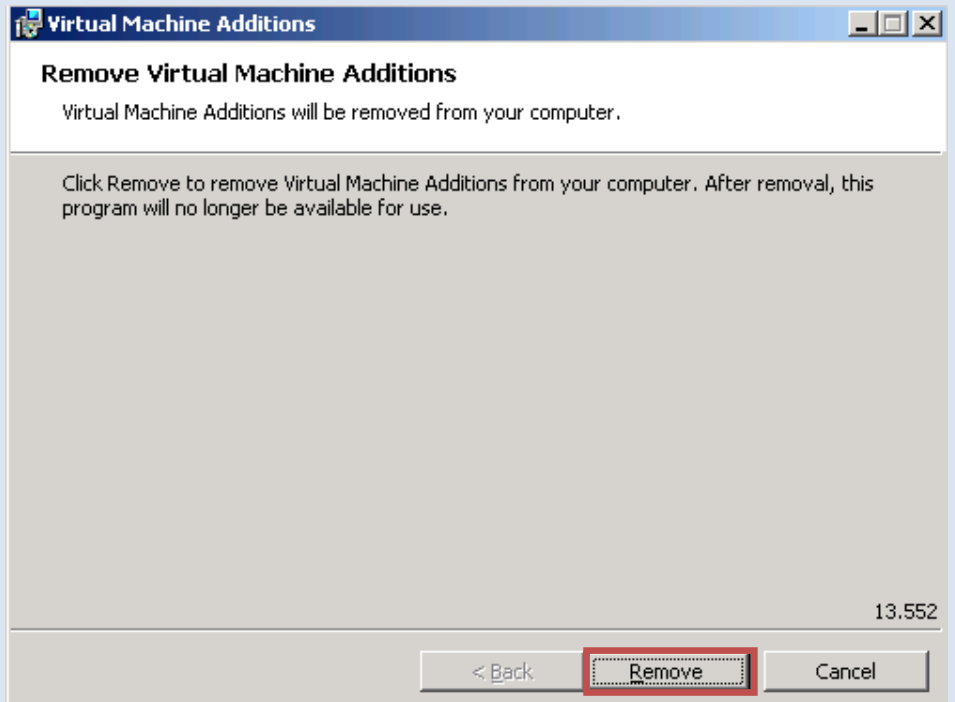
a. Boot into **Safe Mode**

b. Open **Services.msc**

c. Locate any manufacturer's services

d. Change the Startup type to **Disabled** for these services
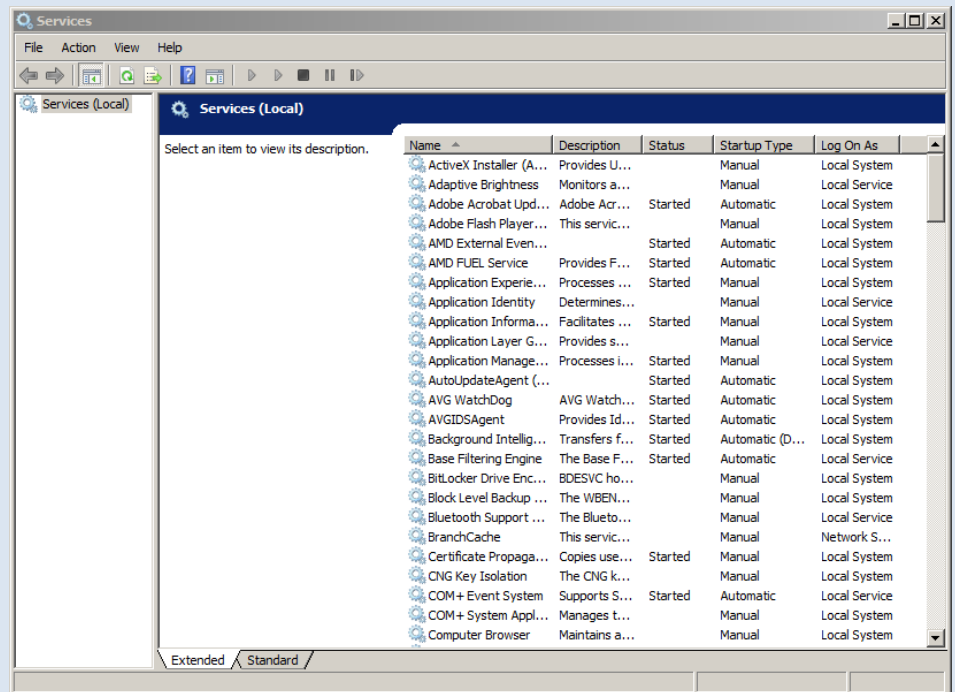
3. Hyper-V Extensions

If booting a previously Hyper-V virtual machine, Hyper-V Extensions might cause an issue booting the machine up.

a. Boot into **Safe Mode**

b. Open **Uninstall Programs and Features**

c. Remove Virtual Machine Additions

4. Hardware Independent Restore

In extreme cases, a StorageCraft HIR utility needs to be run on the operating system volume to resolve some boot issues.
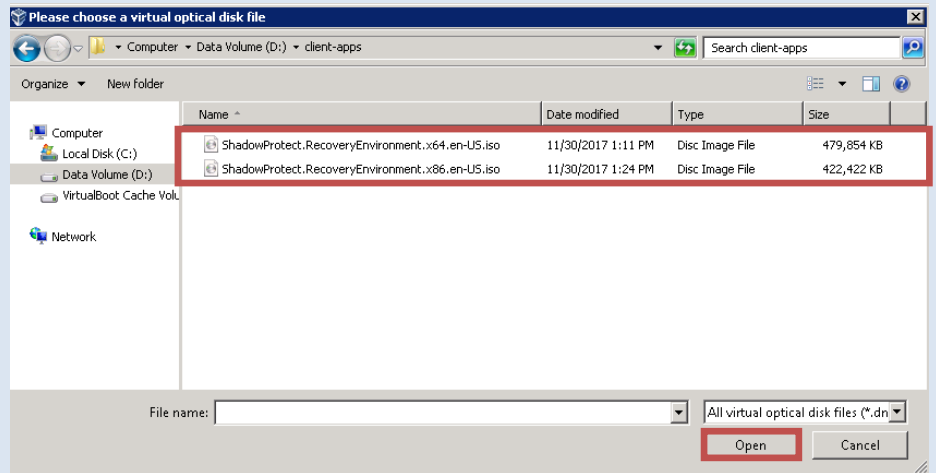
a. Under VM Settings, select the **Storage** category

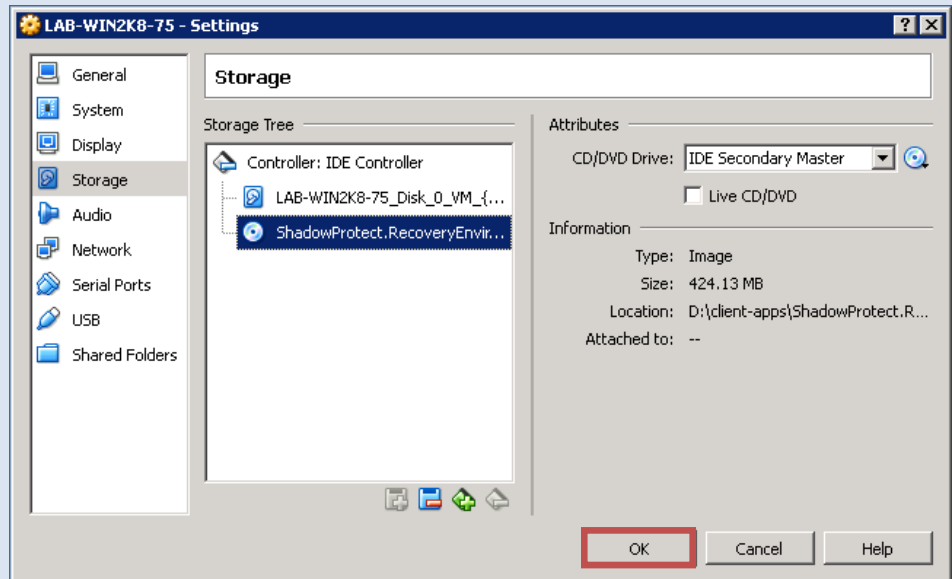b. Select the **Empty Disk Drive**

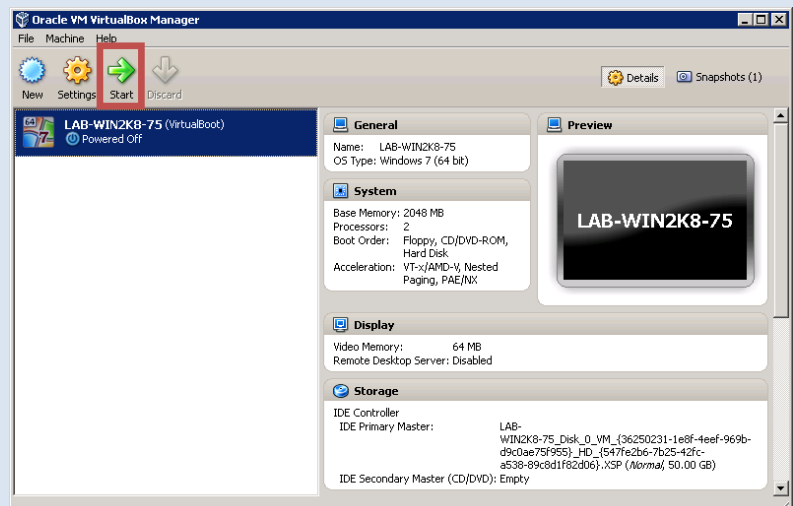c. Click the **Disk Icon**
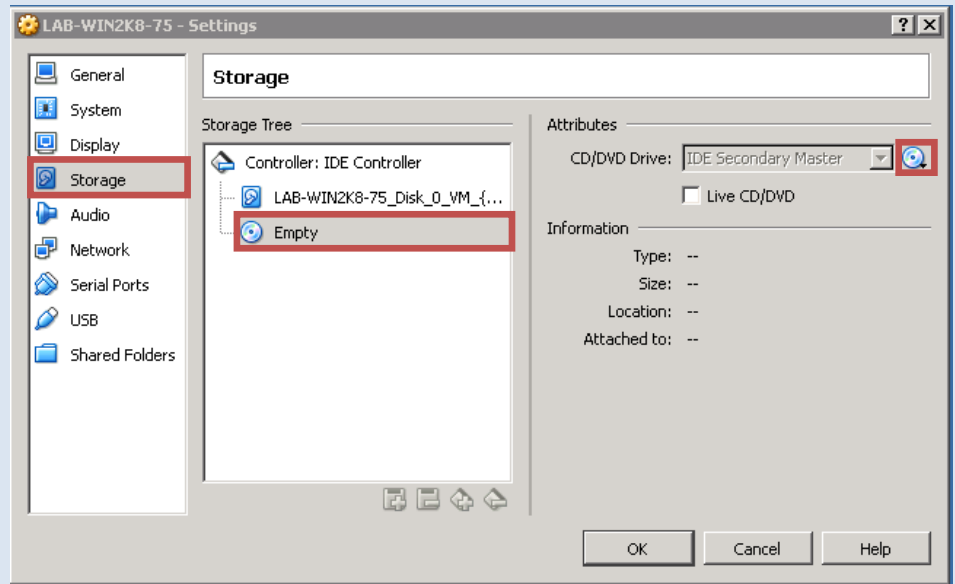
d. Click **Chose a virtual CD...**
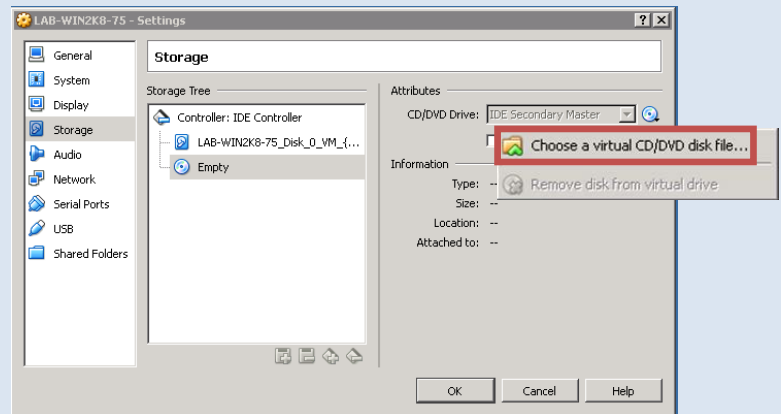
e. Navigate to the D:\client-apps folder.

f. Select the appropriate **ShadowProtect ISO**
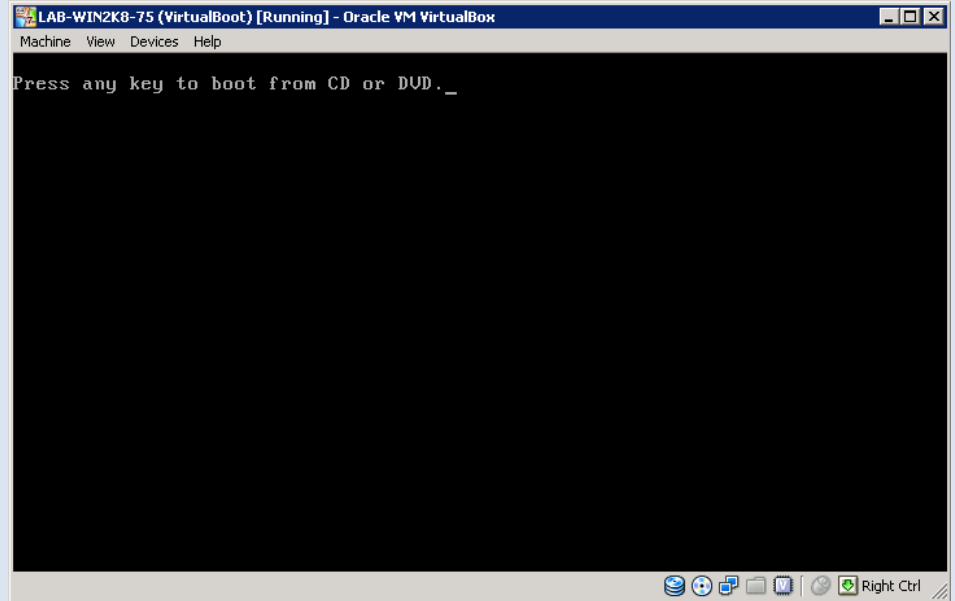
g. Click **Open**

h. Click **OK**
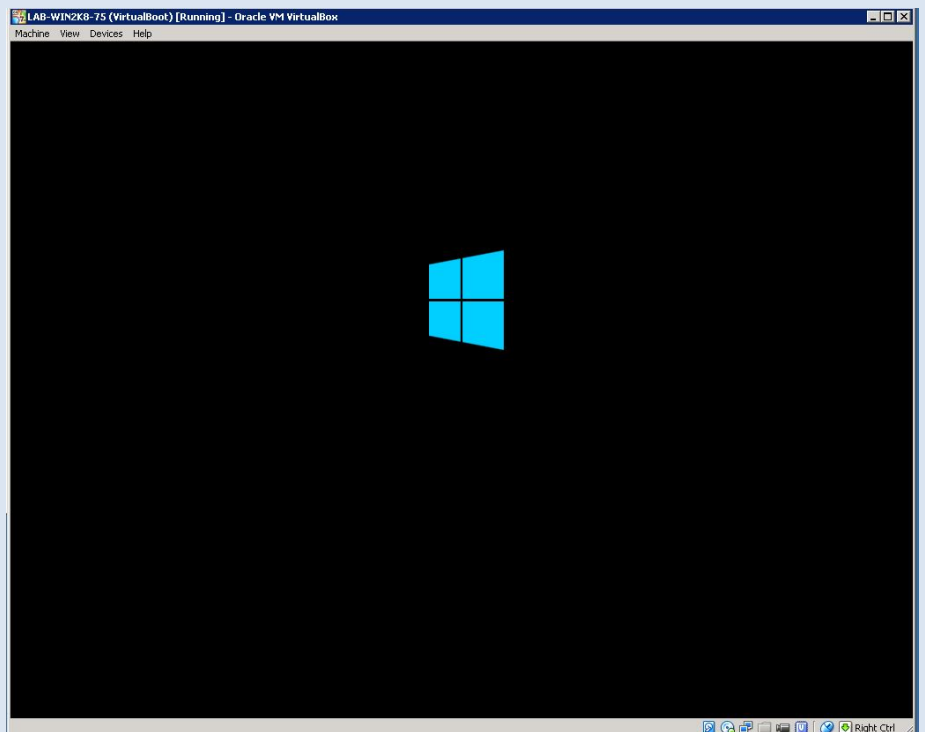

i. Click **Start**

j. Double click the VirtualBox window
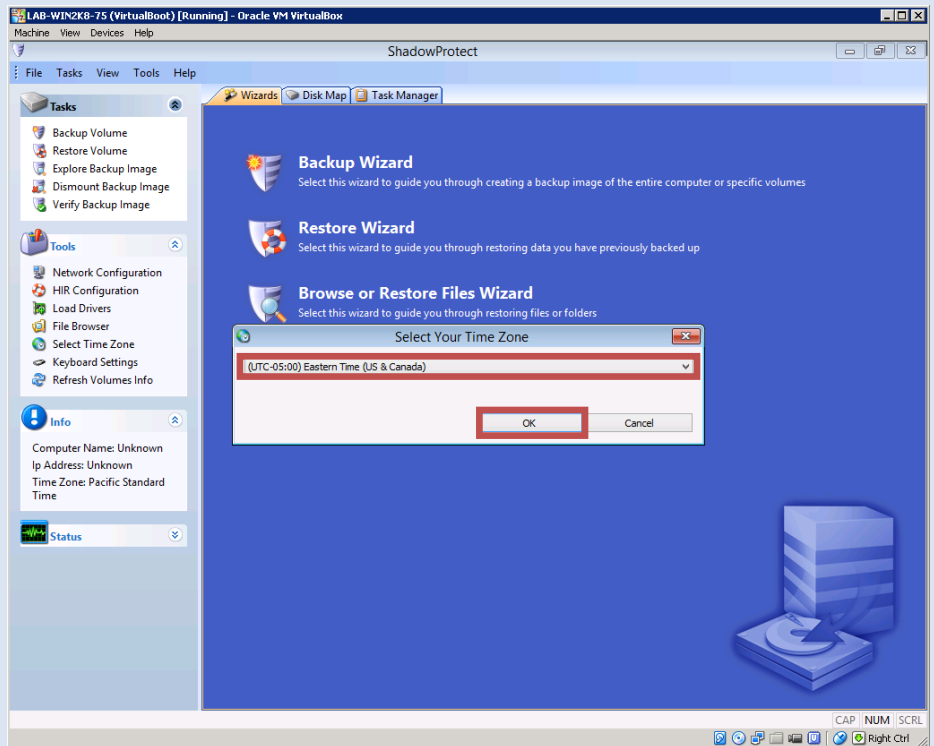
k. Hit the **Space Bar** on the keyboard
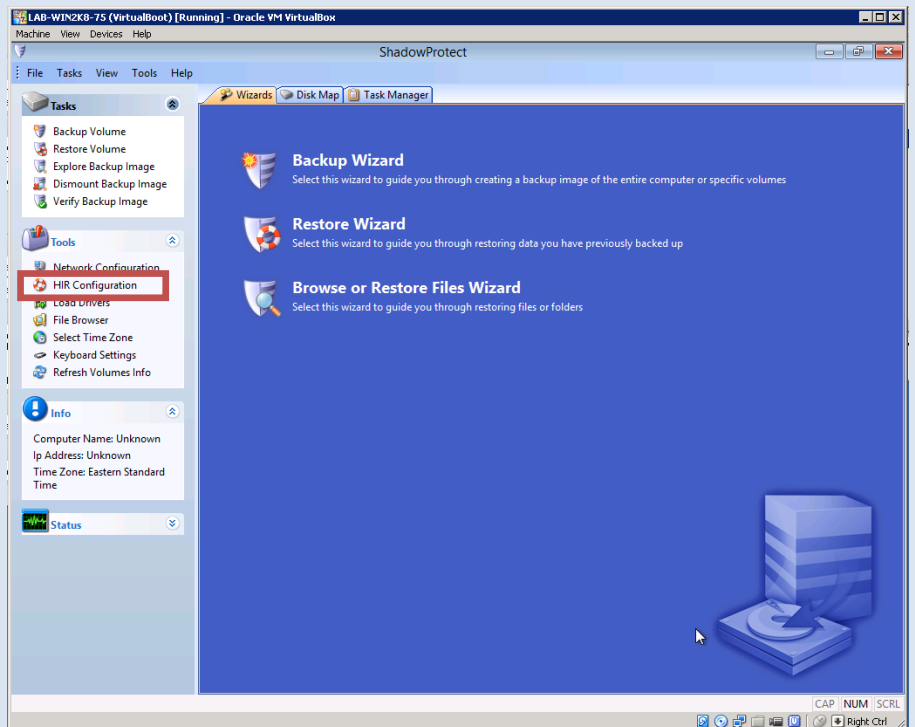
l. You will see the WinCE boot screen

m. Select the appropriate time zone

n. Click **OK**

⚠️ It is critical to select the proper time zone to ensure a successful HIR process
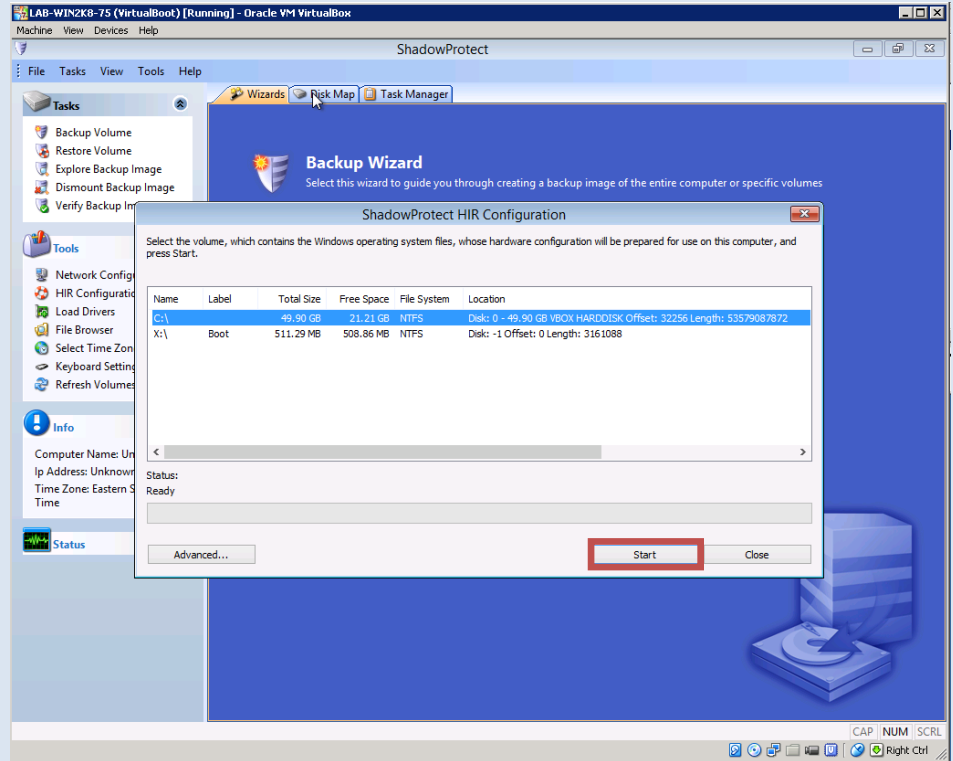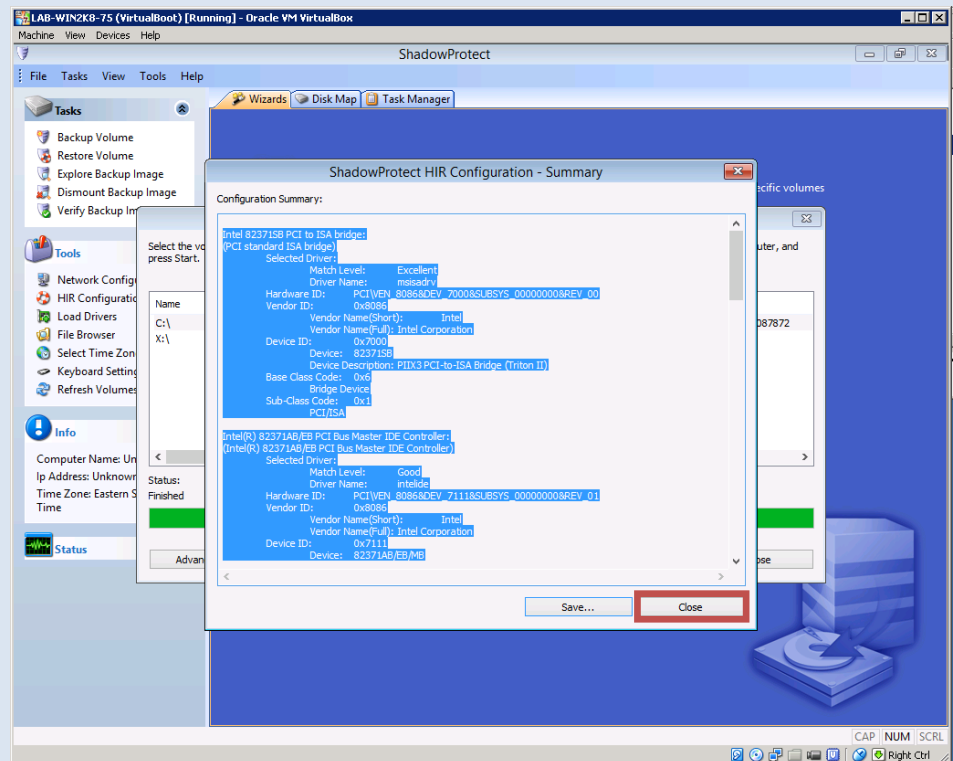

o. Click **HIR Configuration**

p. Select the volume which contains the operating system files
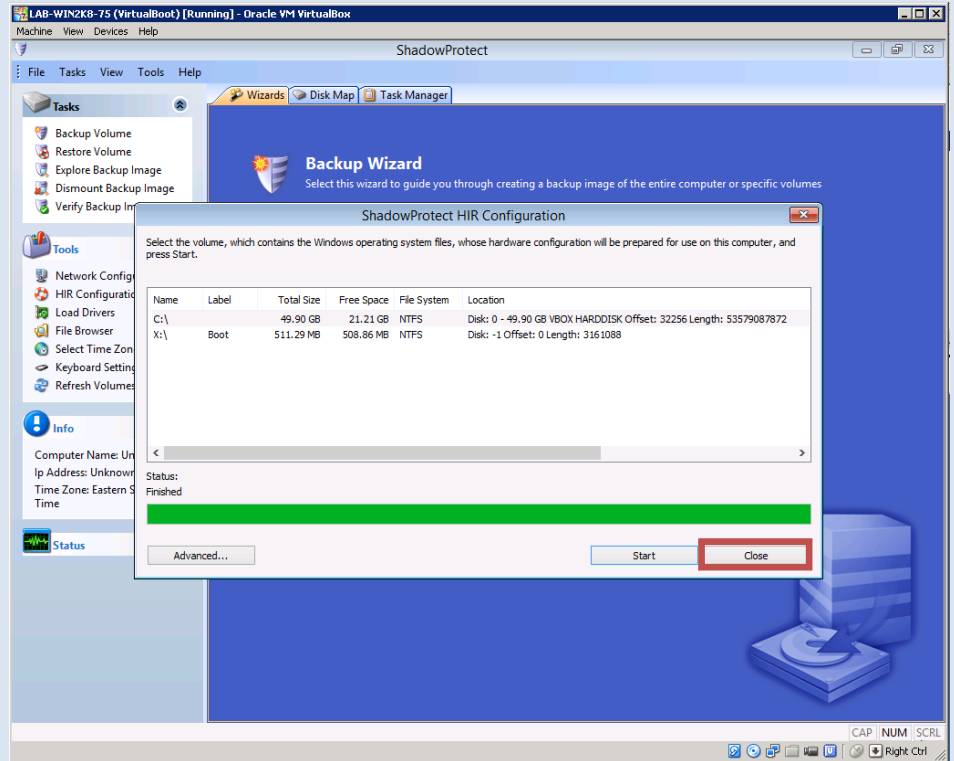
q. Click **Start**

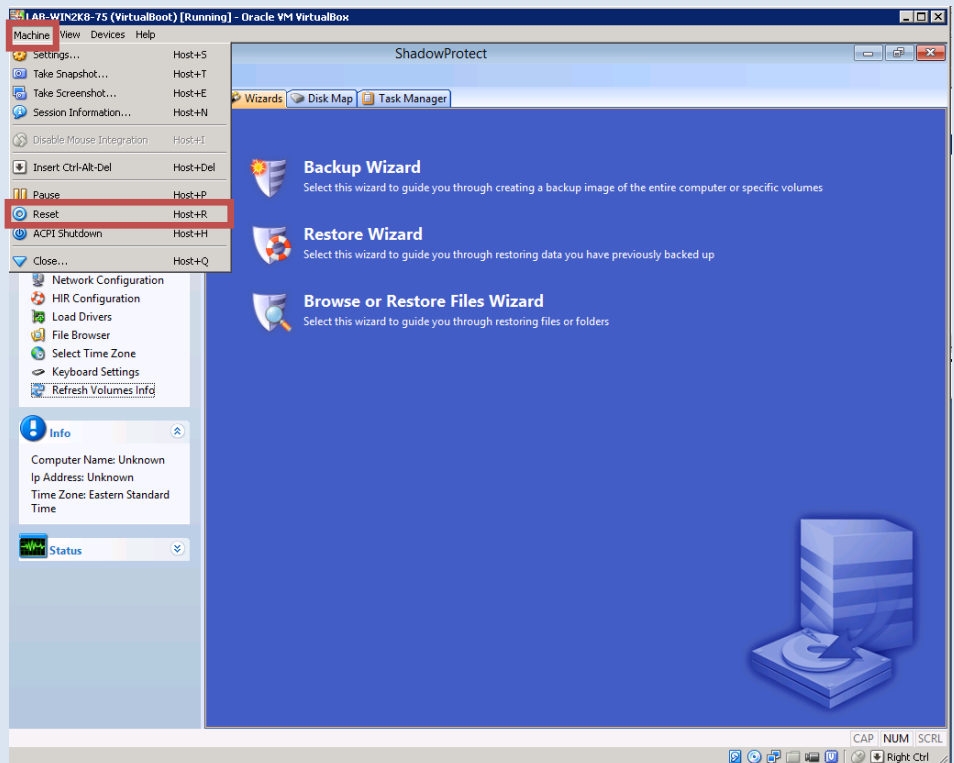r. A summary window will pop up when the process is complete

s. Click **Close**

t. Click **Close**

u. Click **Machine**

v. Click **Reset**

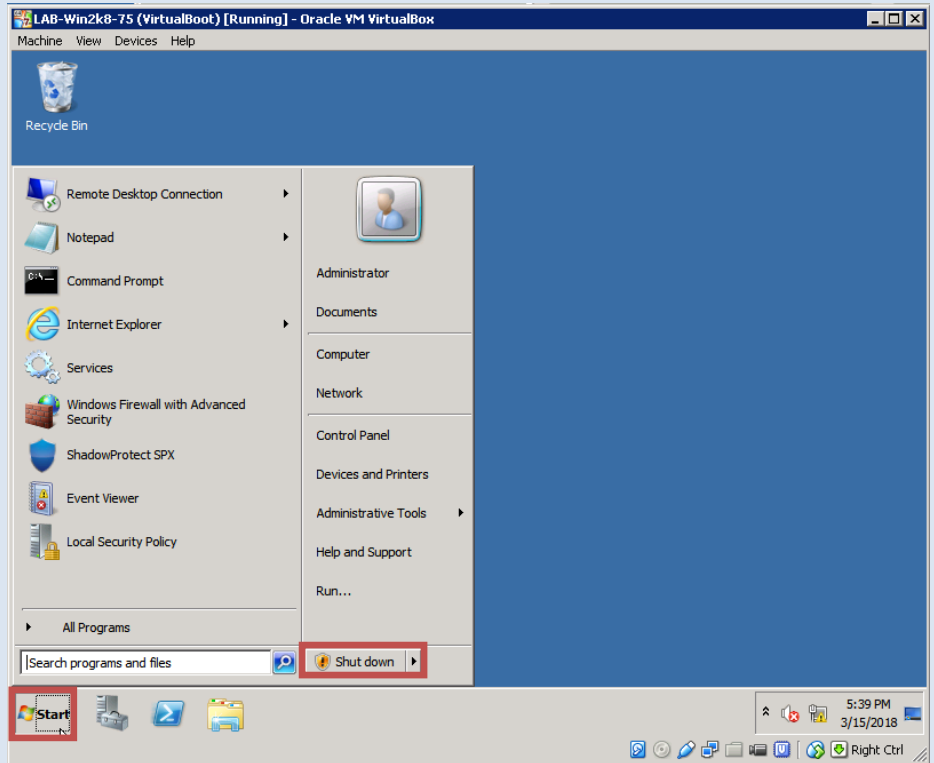Allow the system to reboot into normal mode and see if the issue is resolved.

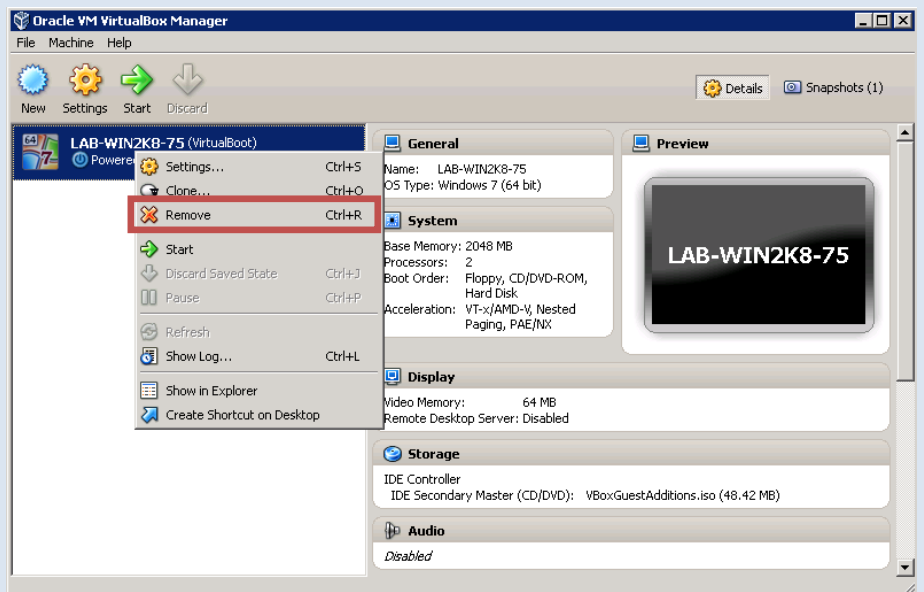## Shutdown and Cleanup of Virtual Machine

1. Shutdown

ⓘ Perform these steps on the Virtual Machine after it is no longer needed.

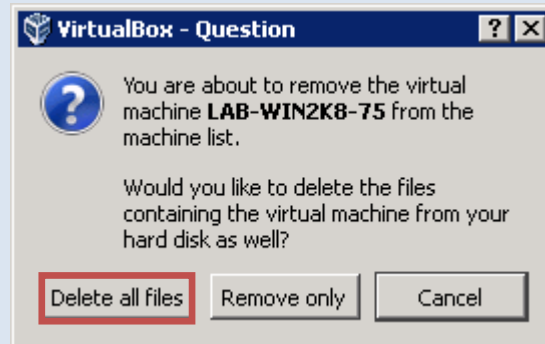a. Click the **Start Button**

b. Click **Shut down**

2. Cleanup

a. Right click the **Virtual Machine**

b. Click **Remove**

c. Click **Delete all files**

ⓘ Once the deletion process is complete and all machines have been removed from VirtualBox, you may close VirtualBox and Log off.