

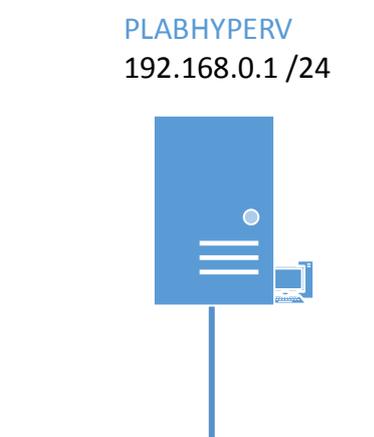
Introduction

The **Install and Configure Windows Deployment Services** module provides you with the instruction and Server hardware to develop your hands on skills. This module includes the following exercises:

- 1) Install and Configure Windows Deployment Services
- 2) Update Images with Patches and Drivers

Lab Diagram

During your session you will have access to the following lab configuration.



Connecting to your lab

In this module you will be working on the following equipment to carry out the steps defined in each exercise.

- PLABHYPERV

Each exercise will detail which console you are required to work on.

To start simply click on the named Server from the device list (located on the left hand side of the screen) and click the **Power on** from the in tools bar. In some cases the devices may power on automatically.

During the boot up process an activity indicator will be displayed in the name tab:

- Black - Powered Off
- Orange - Working on your request
- Green - Ready to access

If the remote console is not displayed automatically in the main window (or popup) click the **Connect** icon located in the tools bar to start your session.

If the remote console does not appear please try the following option:

- Switch between the HTML 5 and Java client versions in the tools bar.

In the event this does not resolve your connectivity problems please visit our [Help / Support](#) pages for additional resolution options.

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Exercise 1 – Install and Configure Windows Deployment Services

In this exercise, you will install Windows Deployment Services on Windows Server 2012 R2 to create different operating system image types.

The different image types (boot, install) from WDS can be used to streamline the deployment of Windows 8.1 and other operating systems on bare-metal computers.

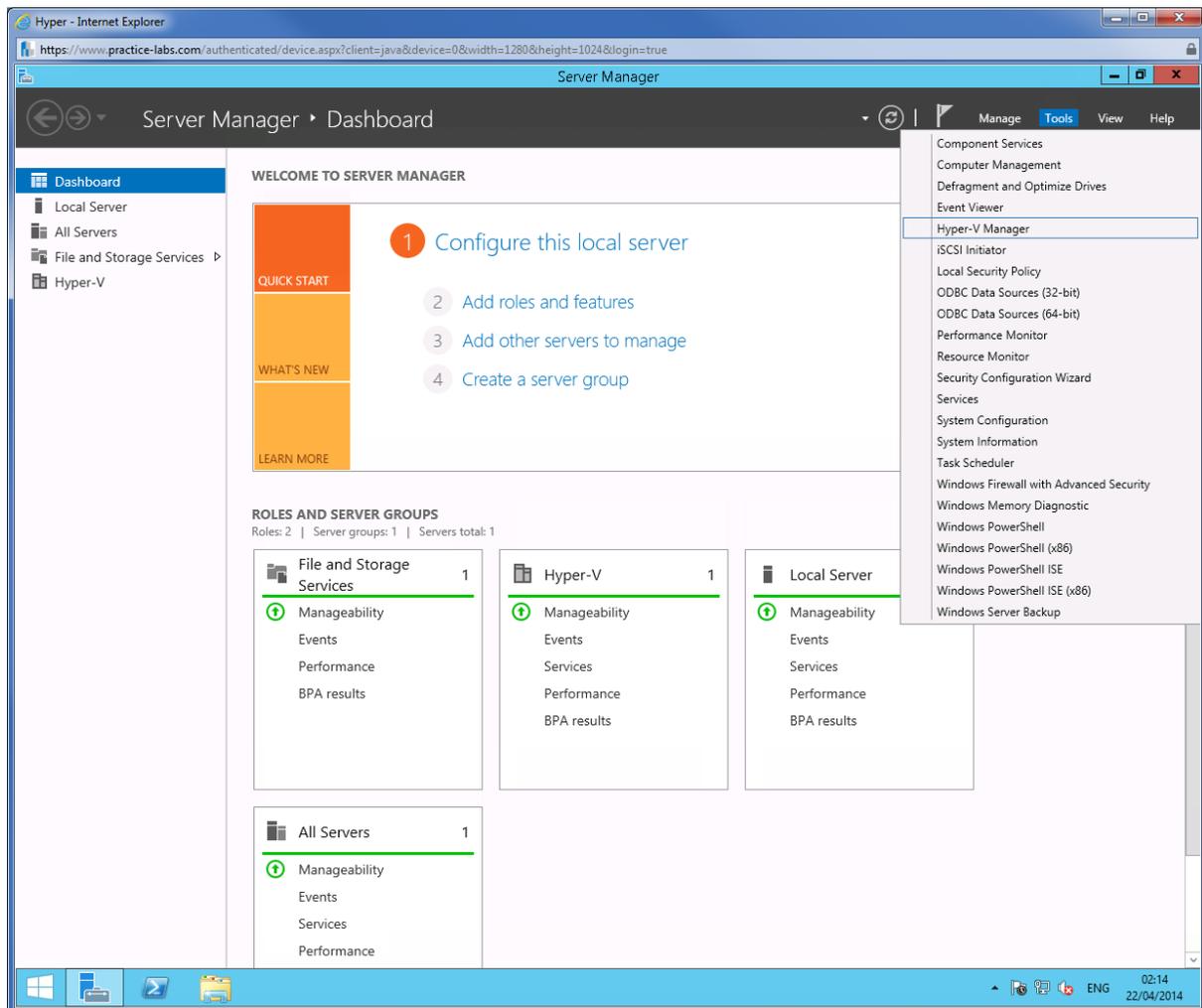
Please refer to your course material or use your preferred search engine to research this topic in more detail.

Task 1: Create a new Volume for WDS image

Step 1

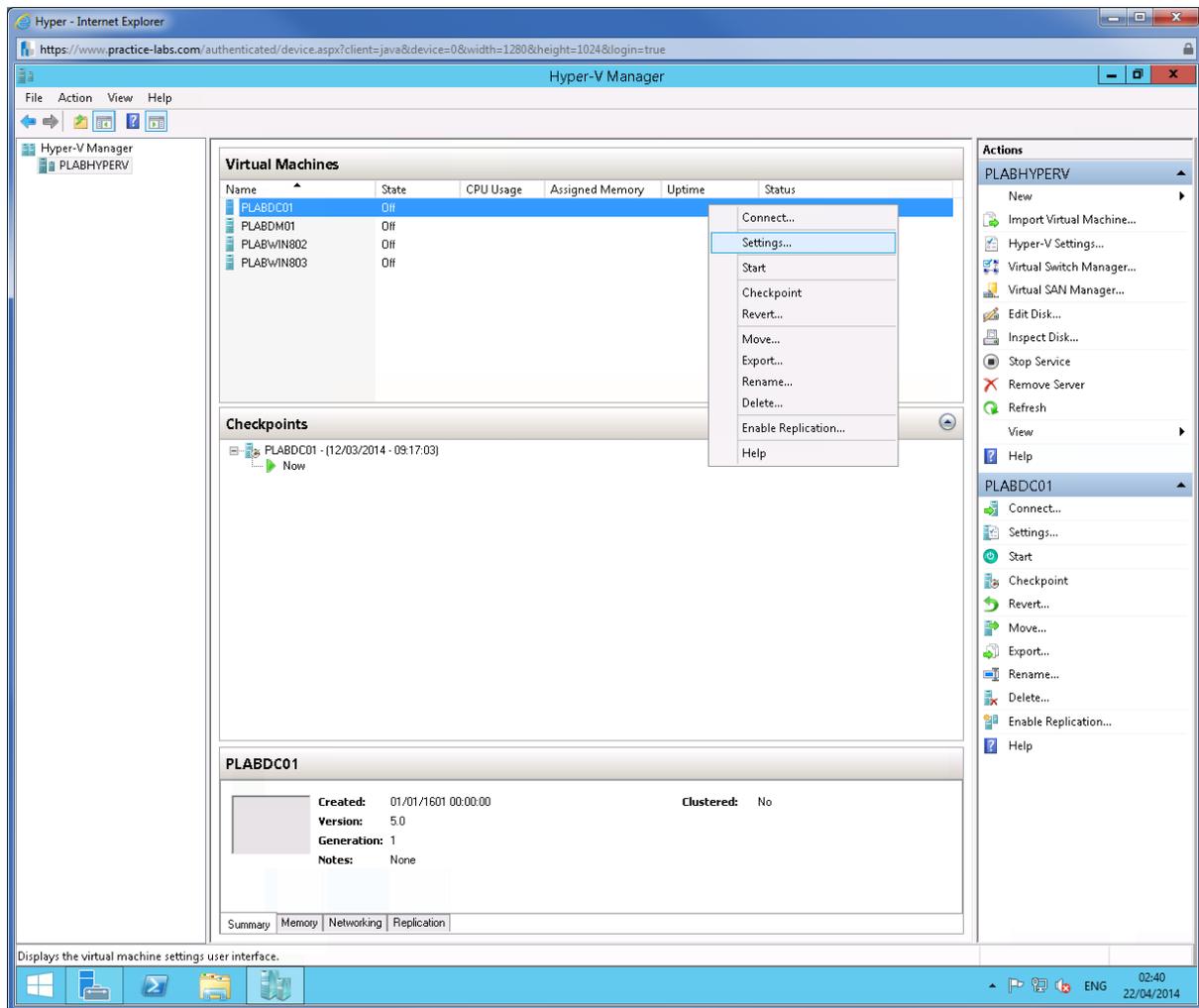
Ensure you have powered on the required devices and connect to **PLABHYPERV**.

From Server Manager, click **Tools > Hyper-V Manager**.



Step 2

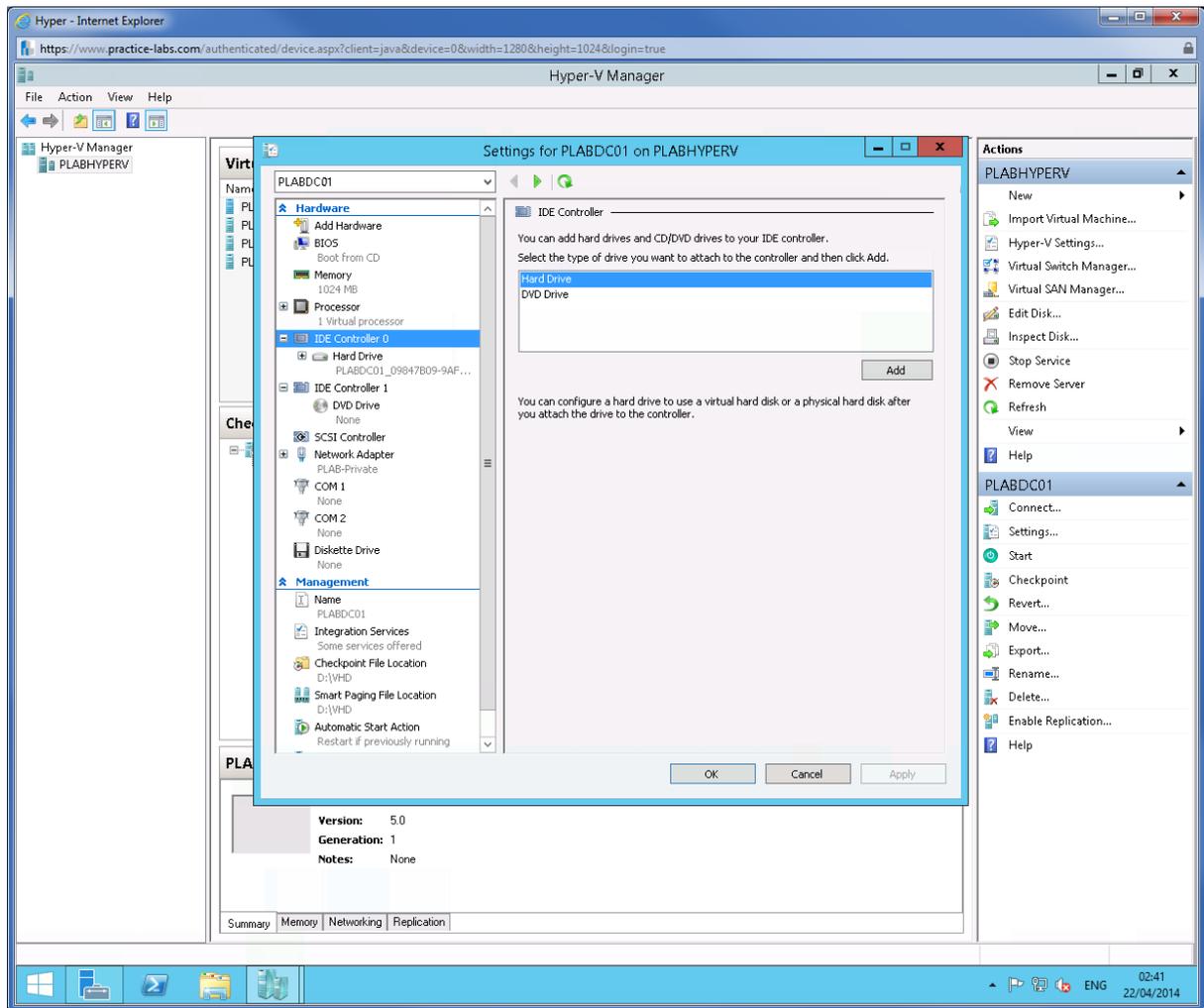
From Hyper-V Manager, right-click on **PLABDC01** and choose **Settings...**



Step 3

In Settings for PLABDC01, click **IDE Controller 0**.

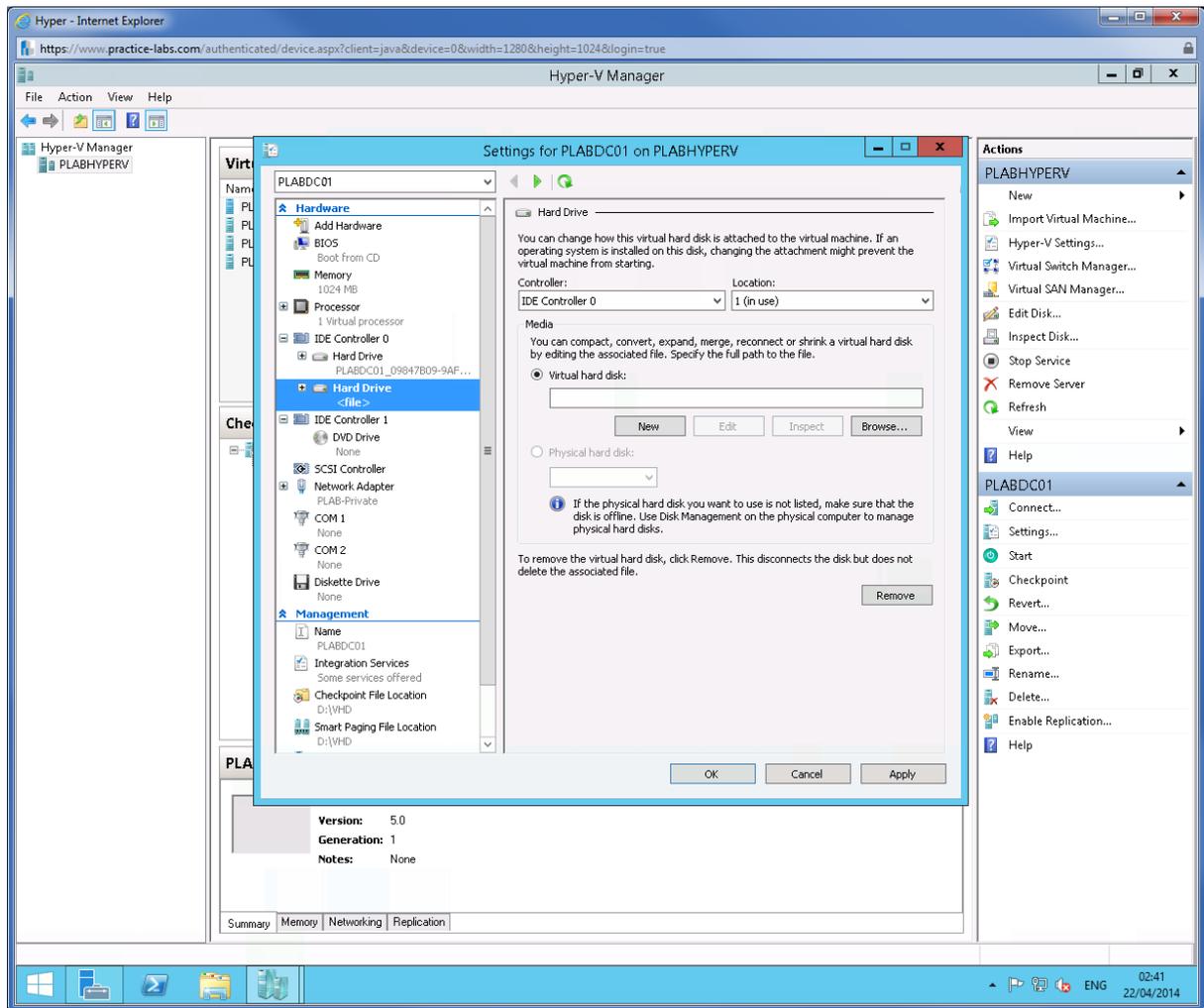
From details pane, click **Hard Drive** and choose **Add**.



Step 4

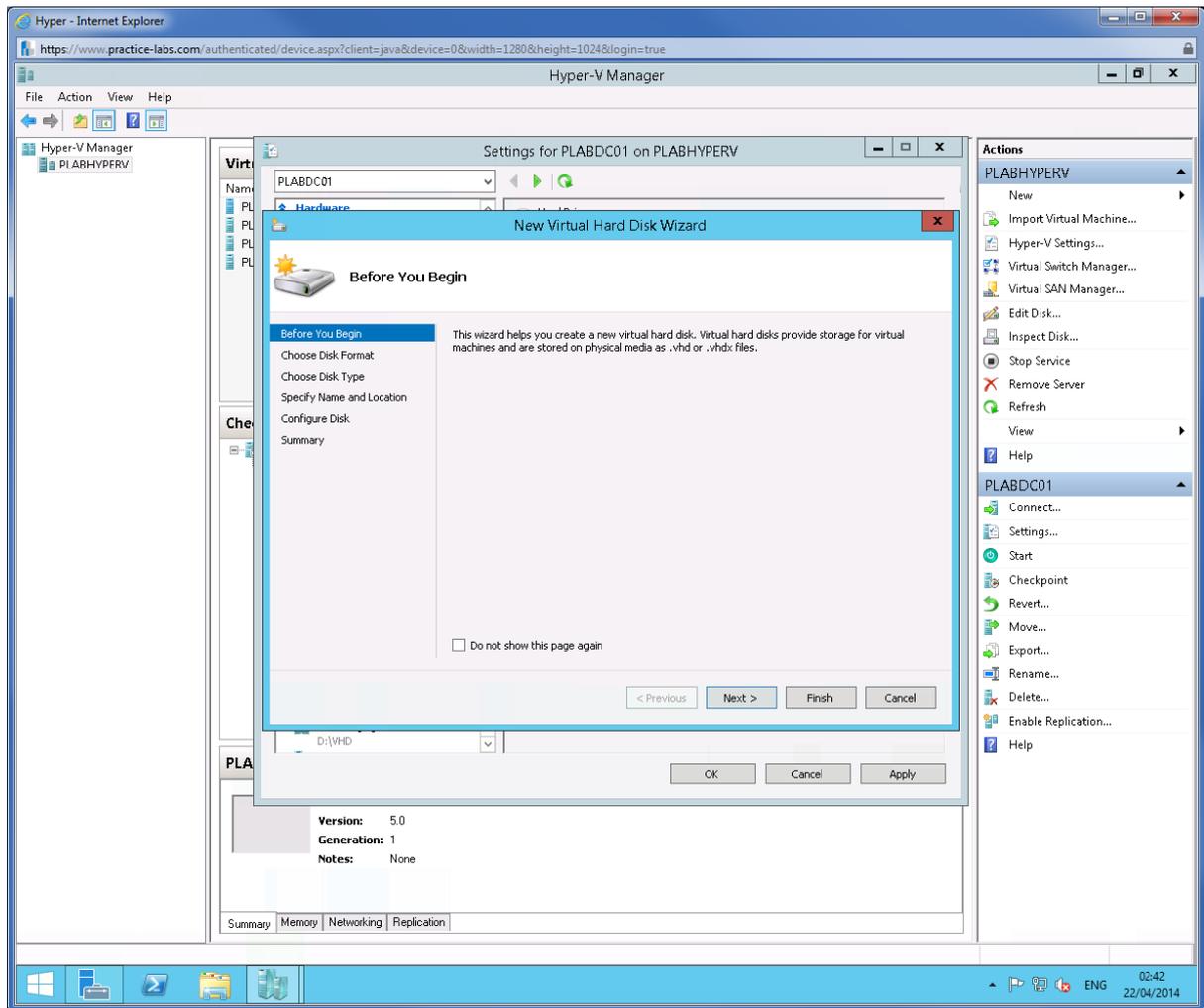
A new Hard Drive <file> is added.

In the details pane, click **New**.



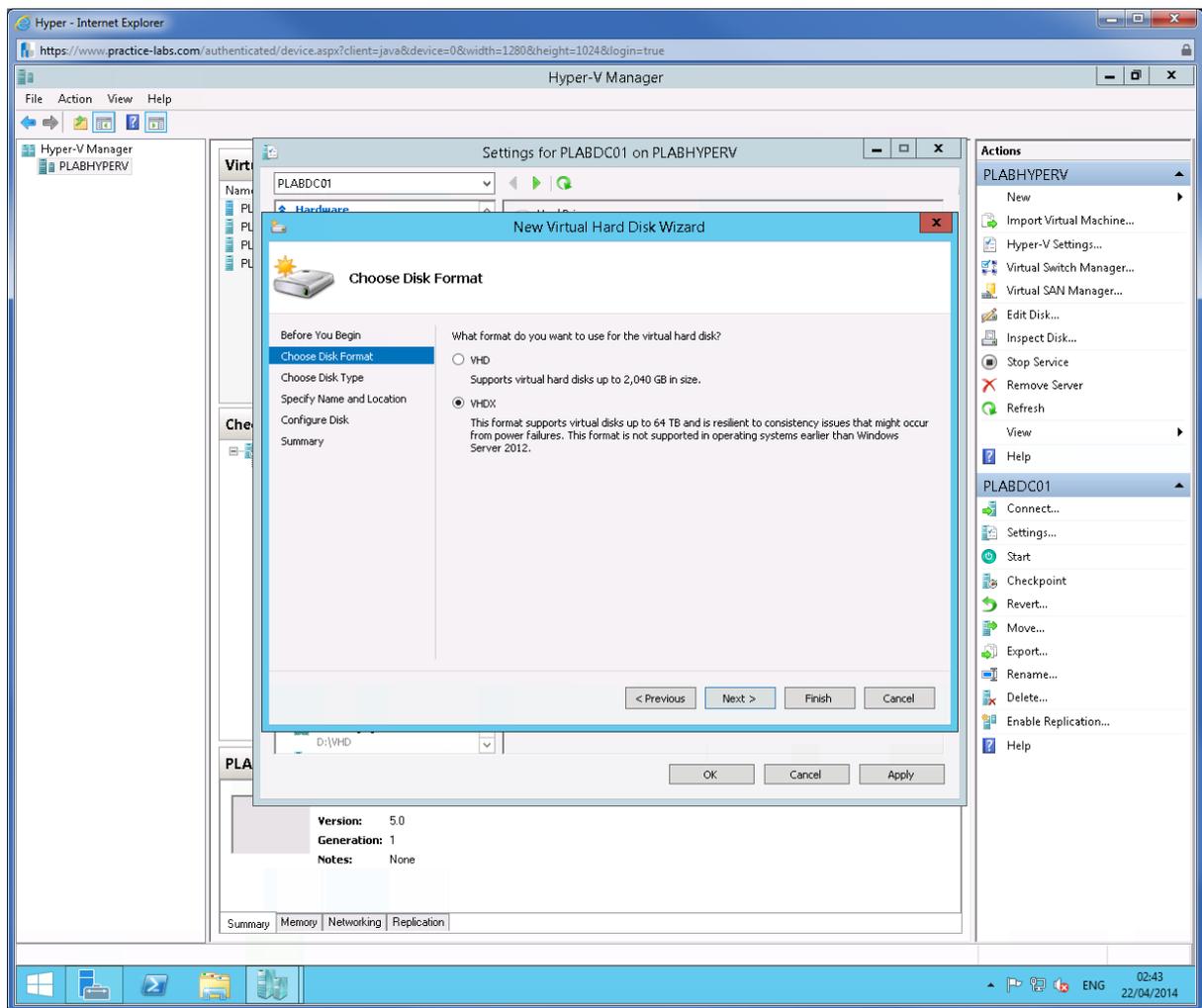
Step 5

In Before you begin page, click **Next**.



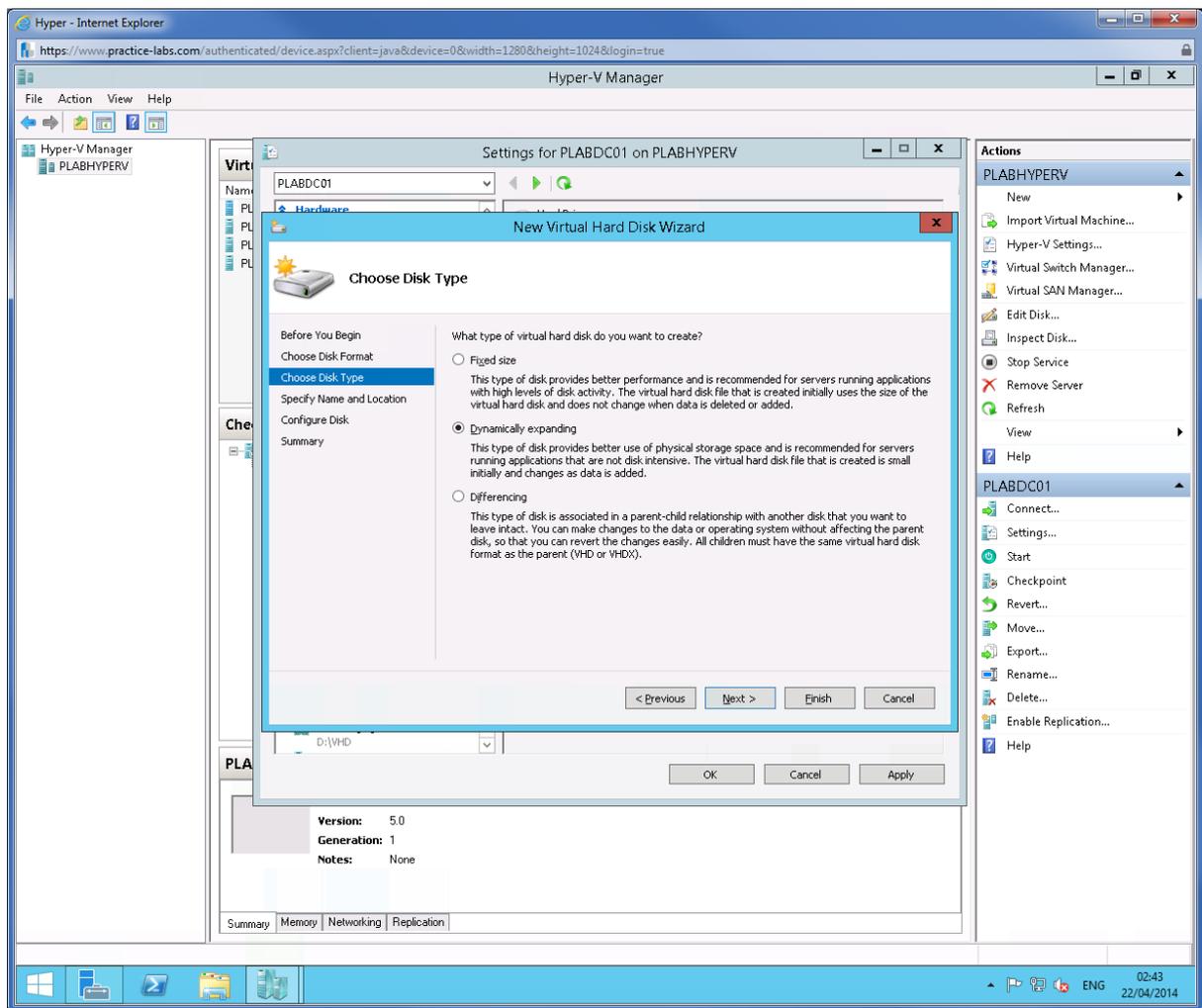
Step 6

From Choose Disk Format, click **Next**.



Step 7

From Choose Disk Type, verify that **Dynamically expanding** is selected. Click **Next**.

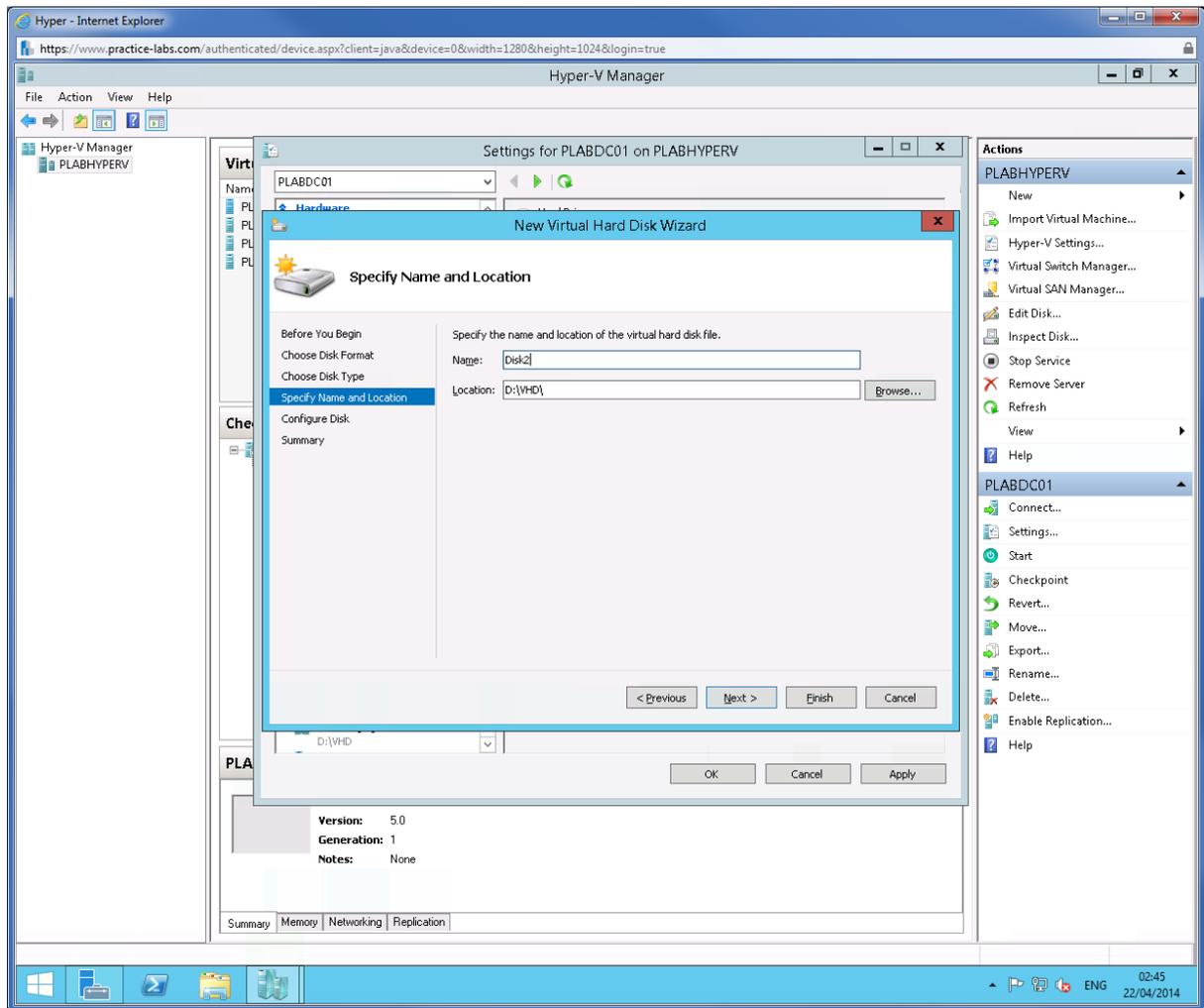


Step 8

In Specify Name and Location, click in **Name** box and type

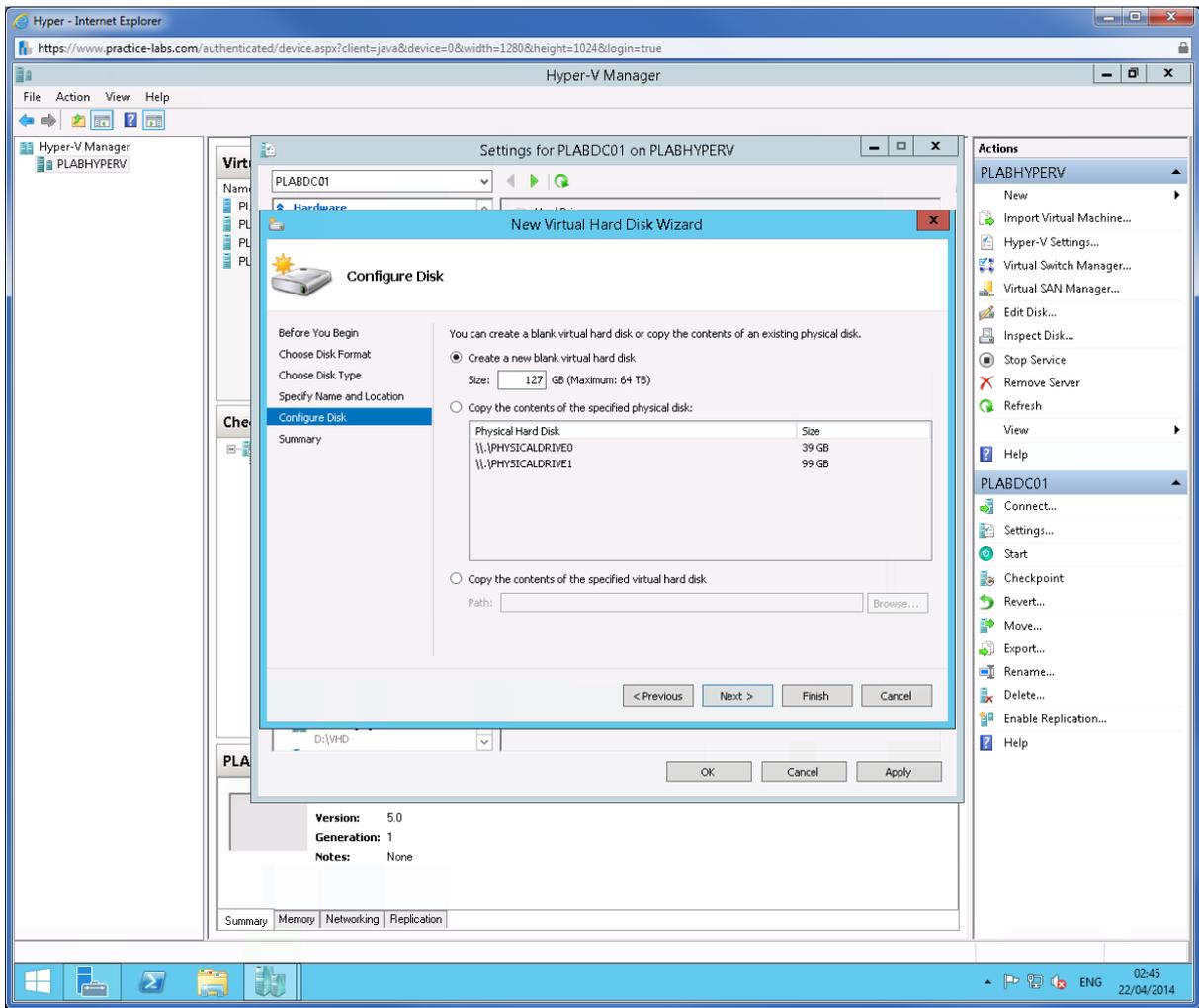
Disk2

Click **Next**.



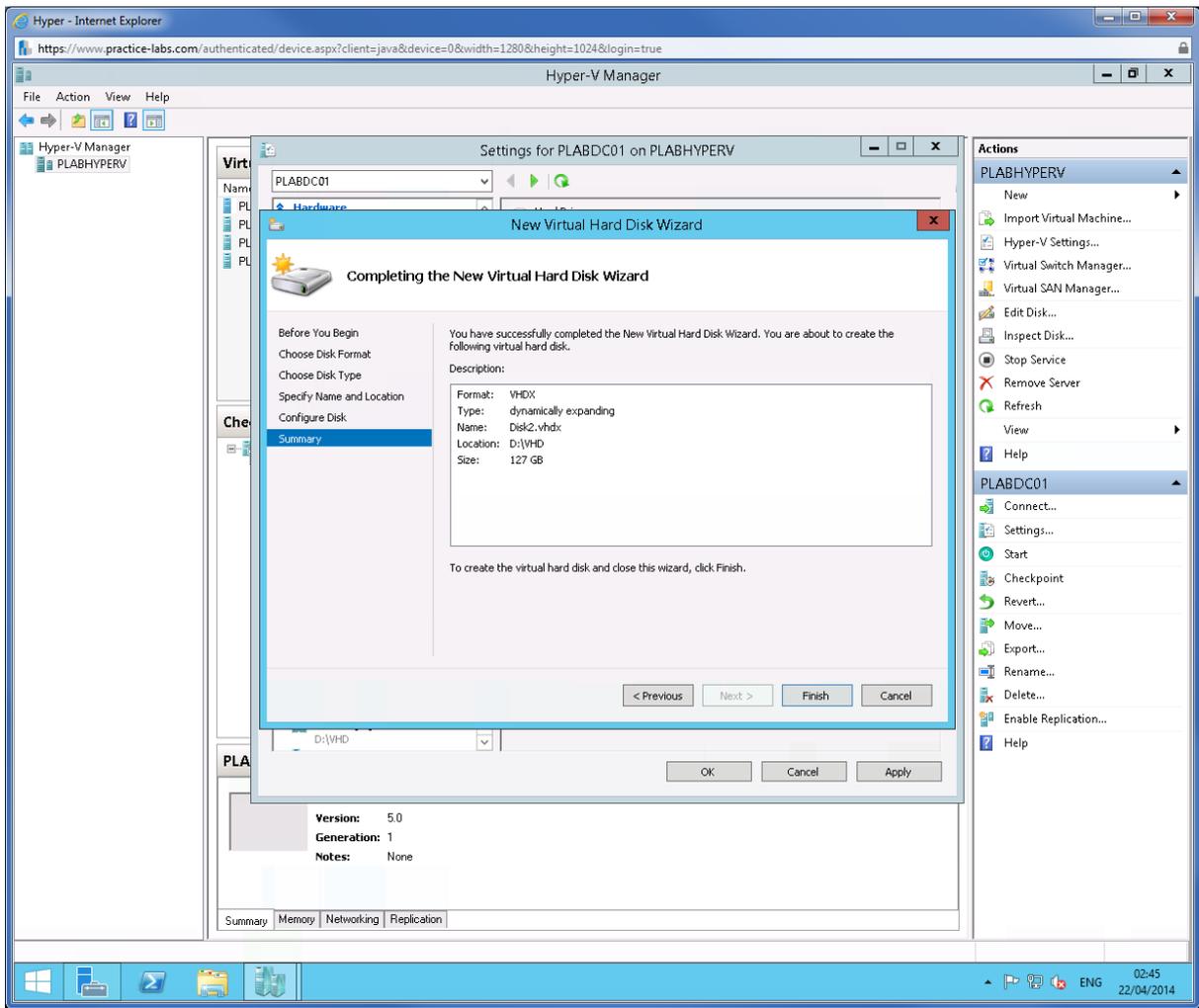
Step 9

In Configure Disk page, click **Next**.



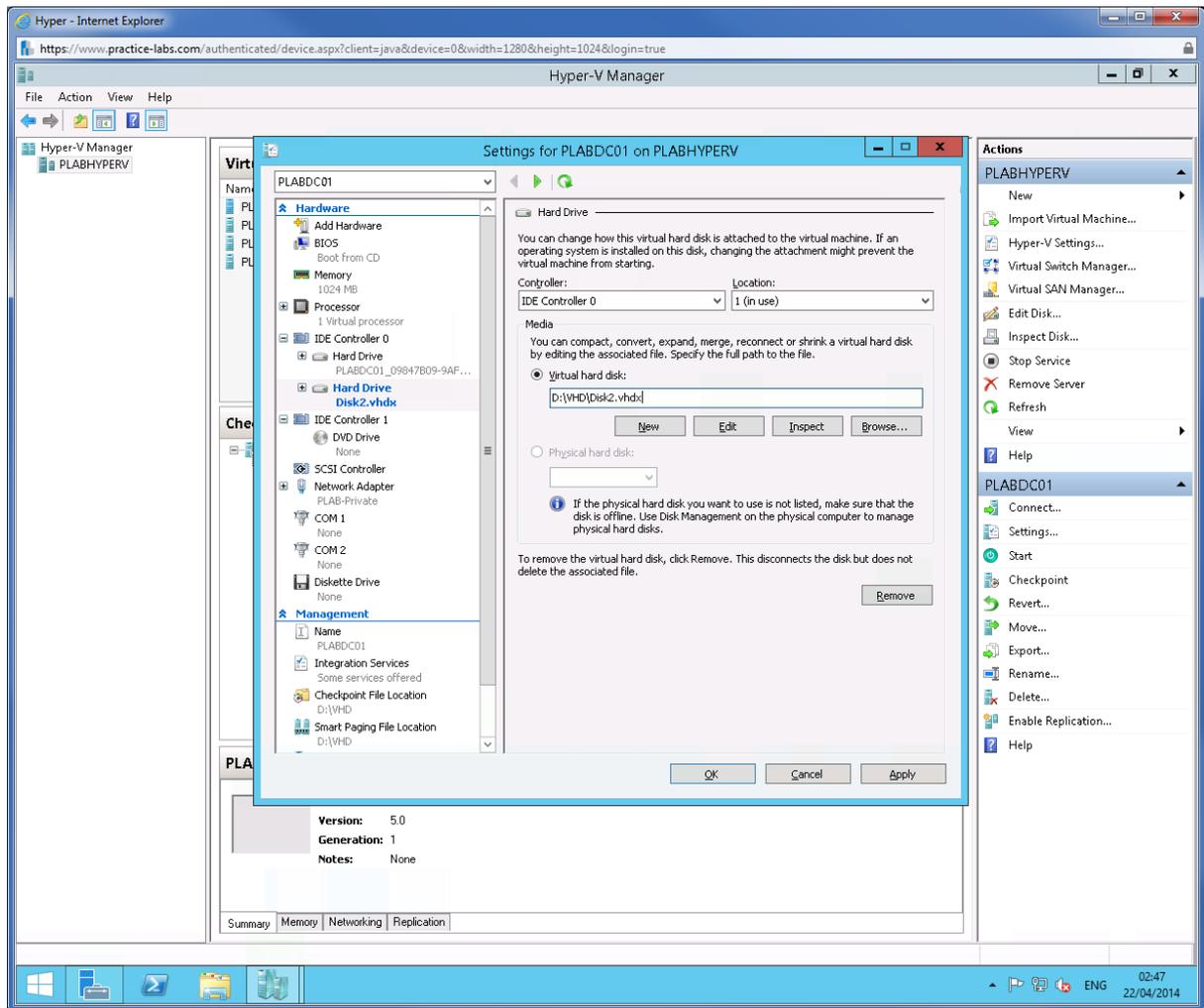
Step 10

From Completing the New Virtual Hard Disk Wizard page, click **Finish**.



Step 11

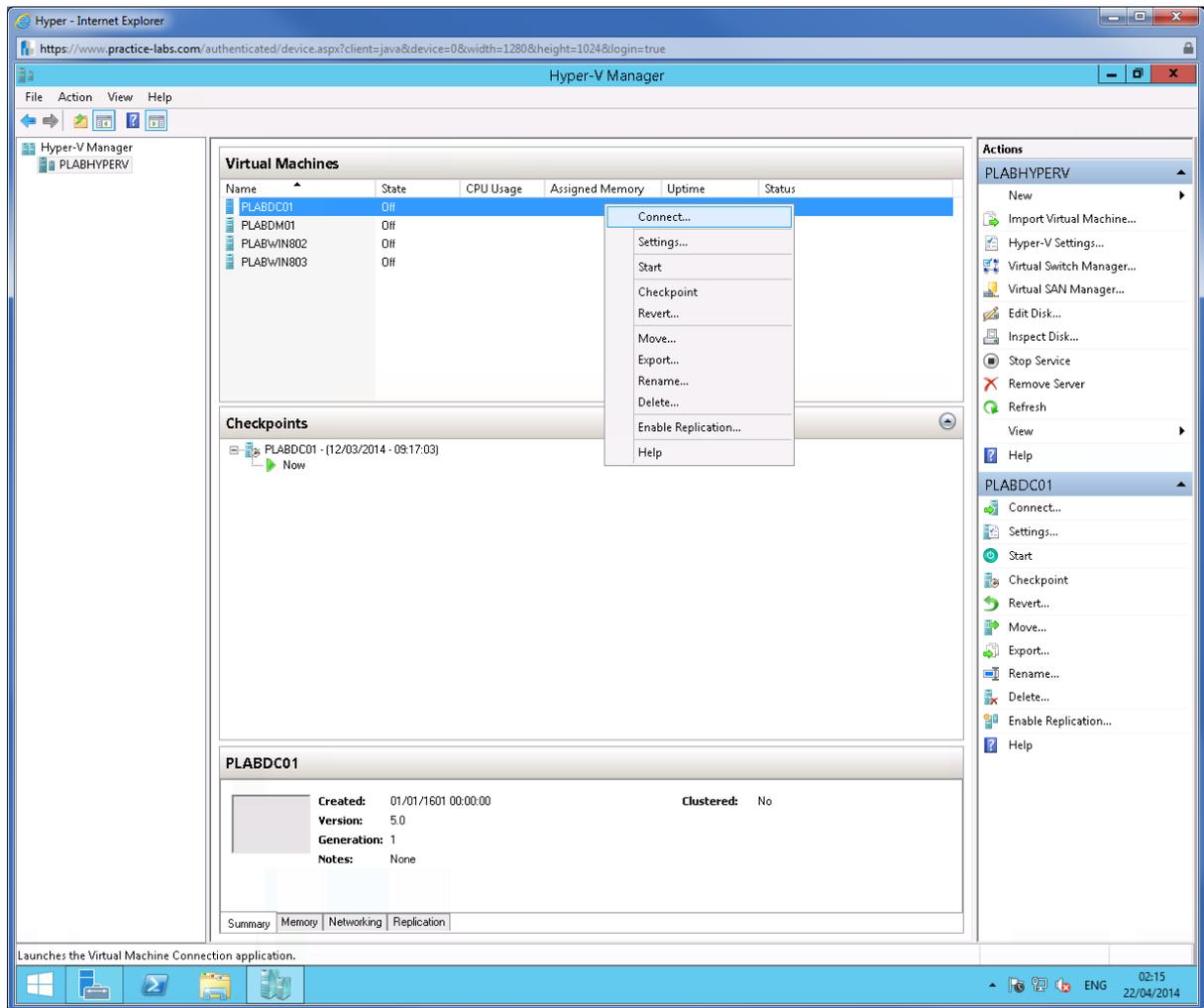
Click **OK** to close Settings for PLABDC01 properties box.



Task 2: Install and Configure Windows Deployment Services

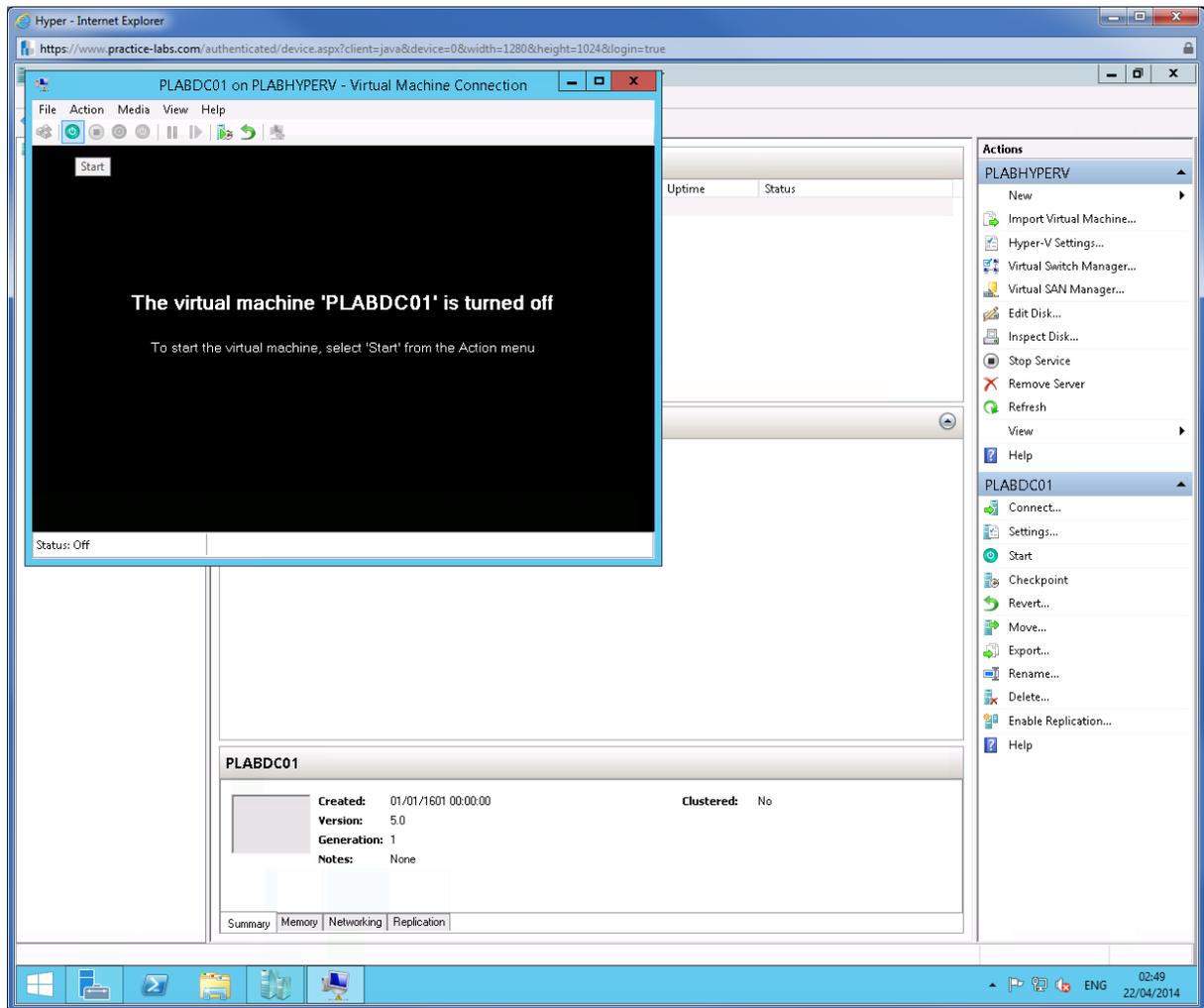
Step 1

From Hyper-V Manager, right-click on **PLABDC01** and choose **Connect**.



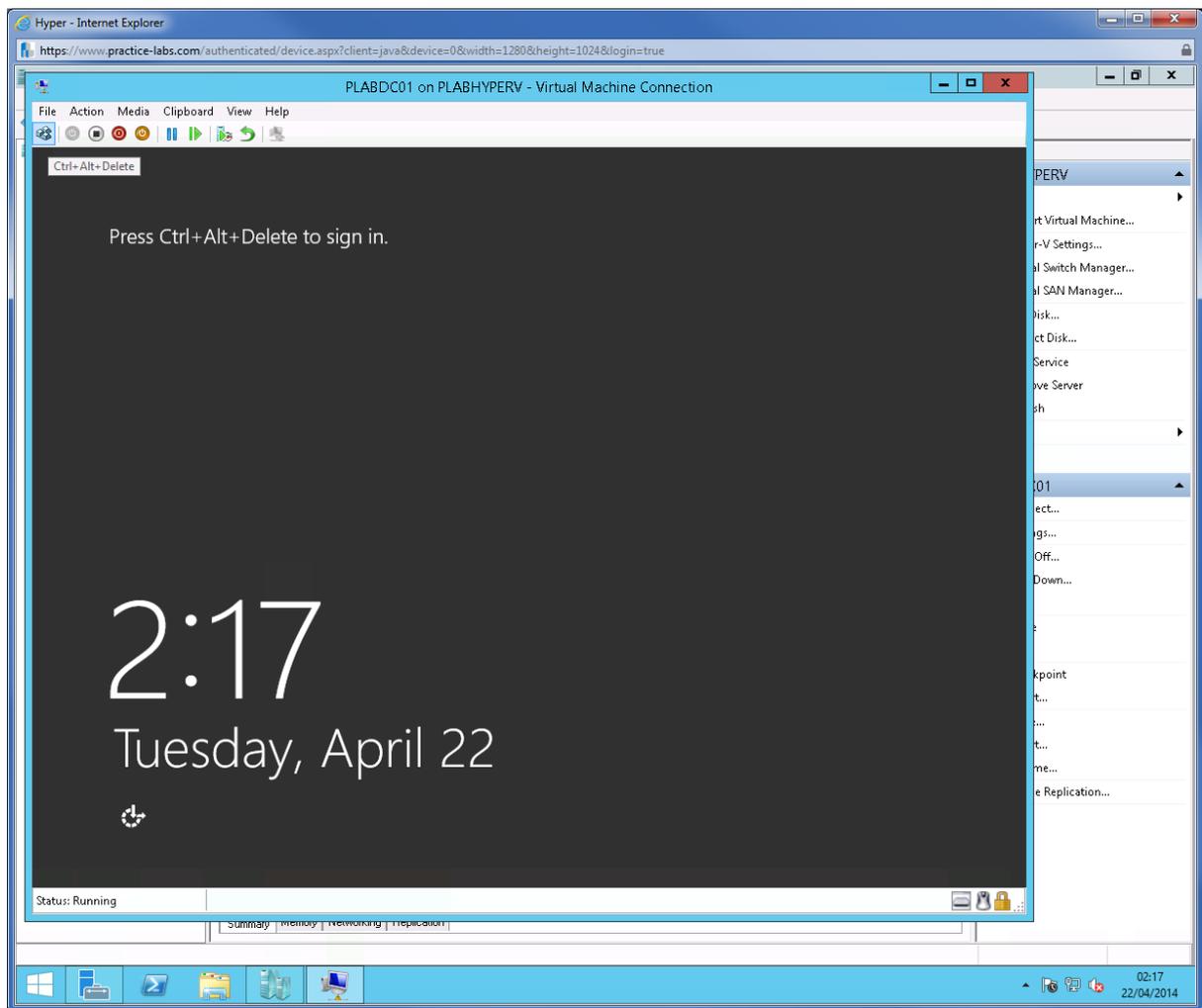
Step 2

Click **Start** (green) button.



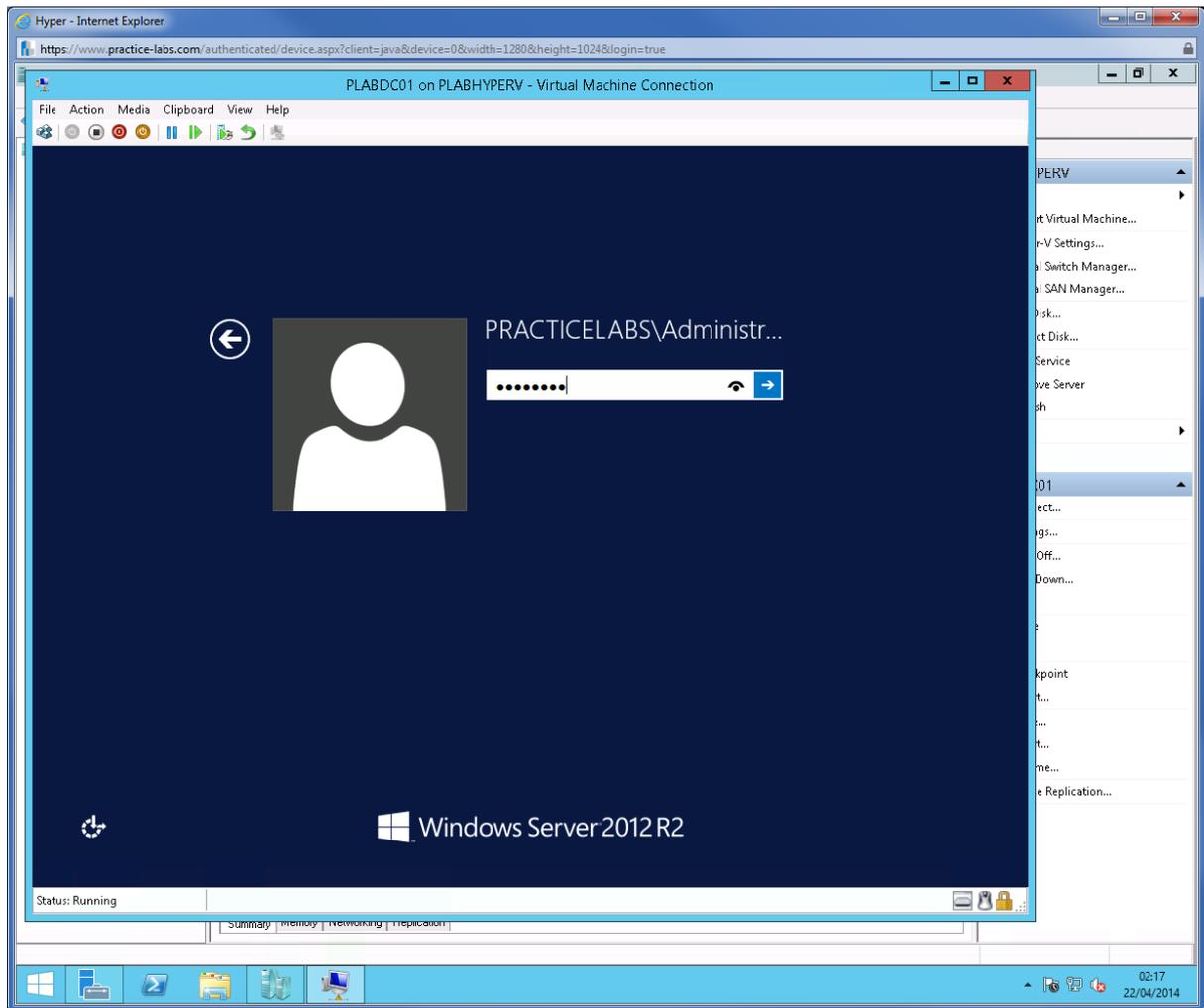
Step 3

Click **Ctrl Alt Delete**



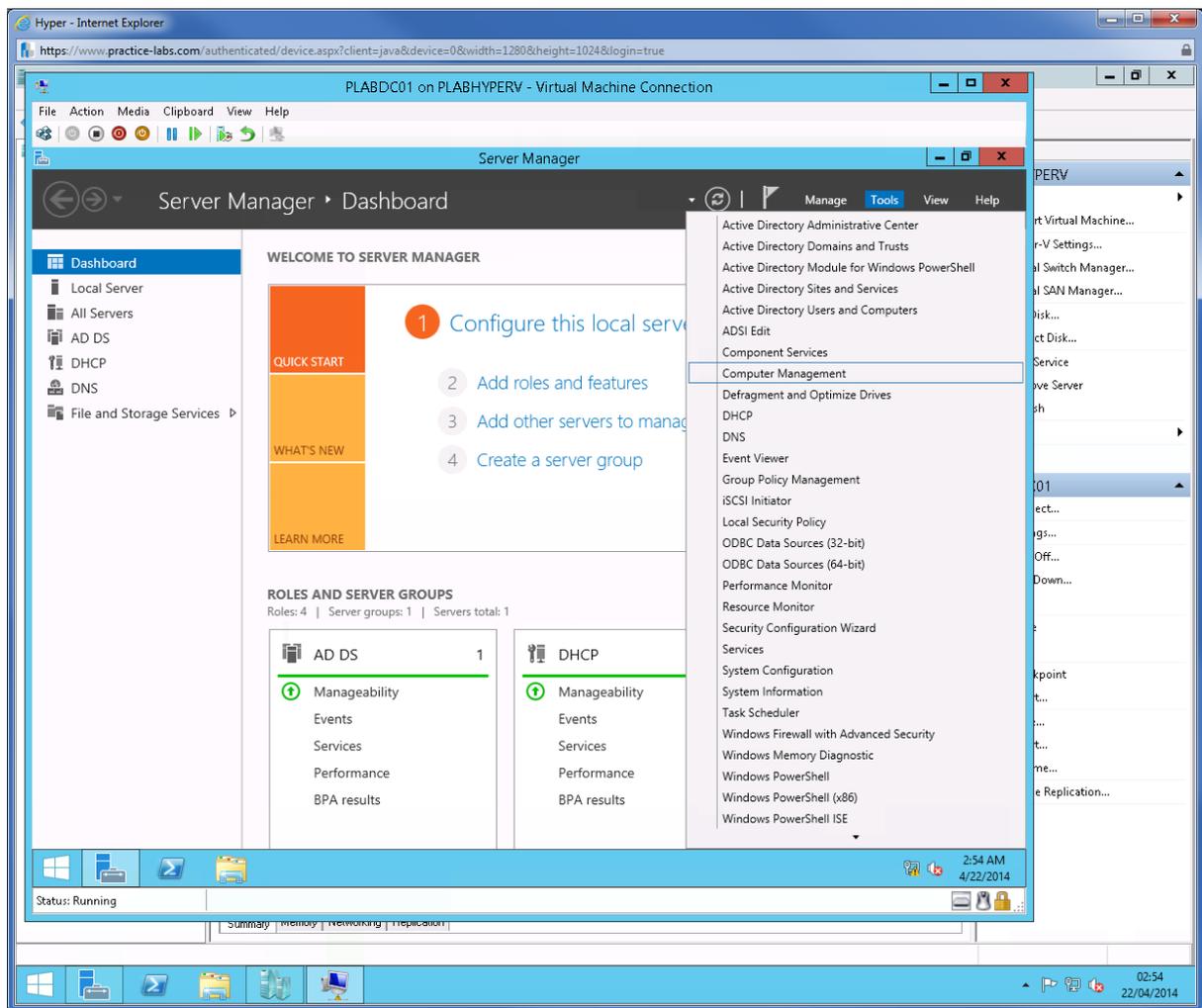
Step 4

Sign on to PLABDC01 as **practicelabs\administrator** password is **Passw0rd**



Step 5

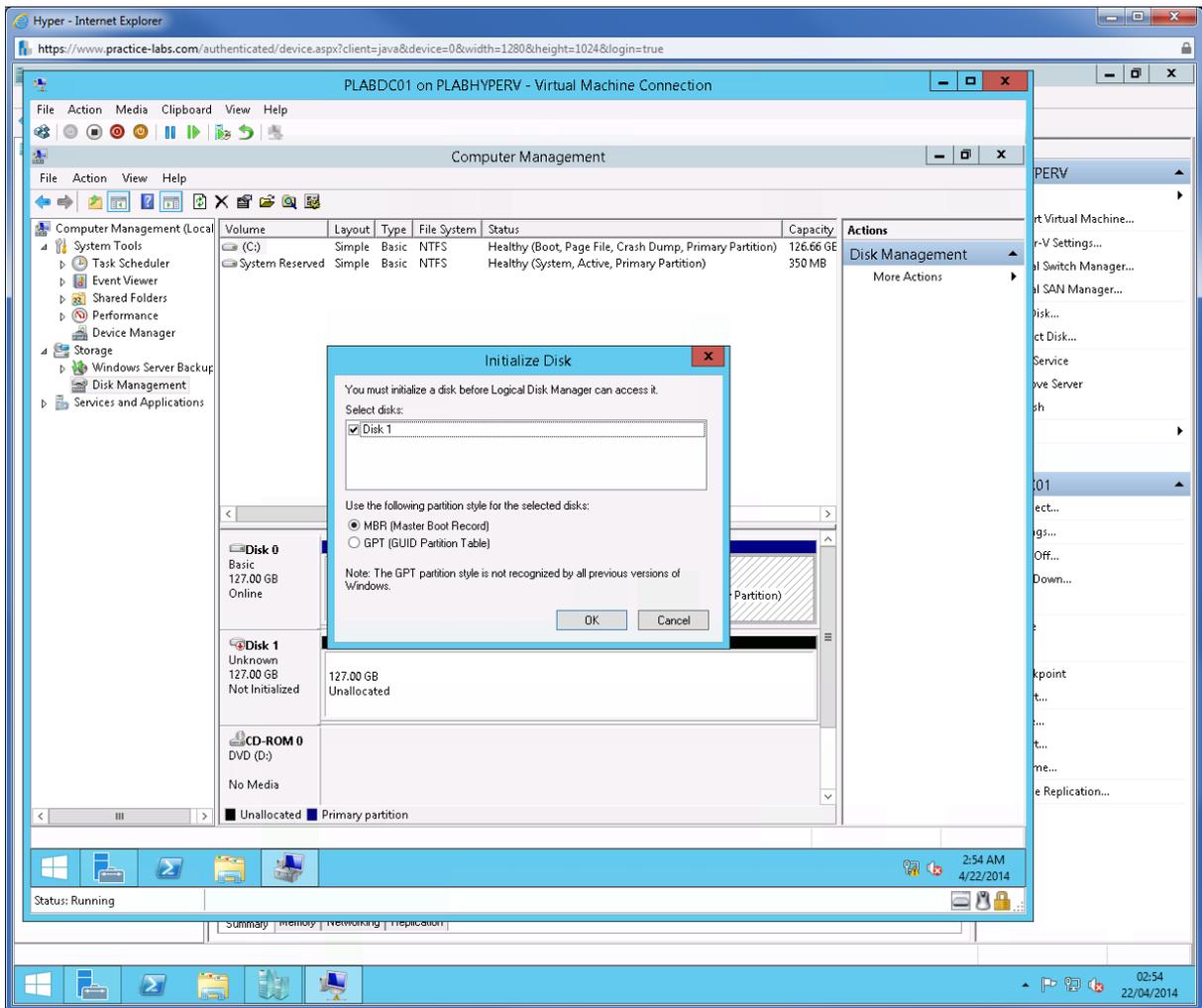
In Server Manager, click **Tools > Computer Management**.



Step 6

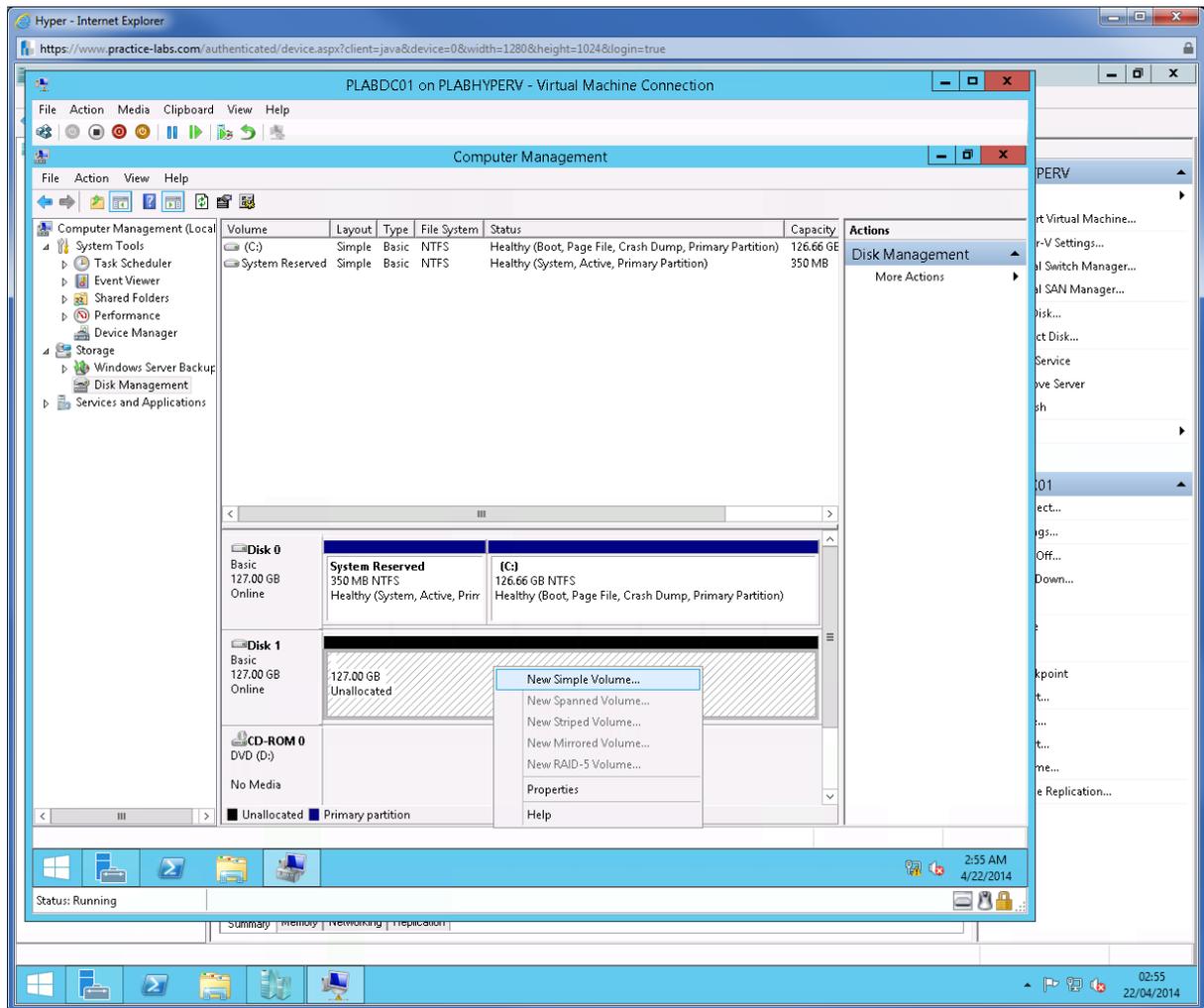
From Computer Management, go to **Storage** and click **Disk Management**.

The Initialize Disk dialogue box appears, click **OK**.



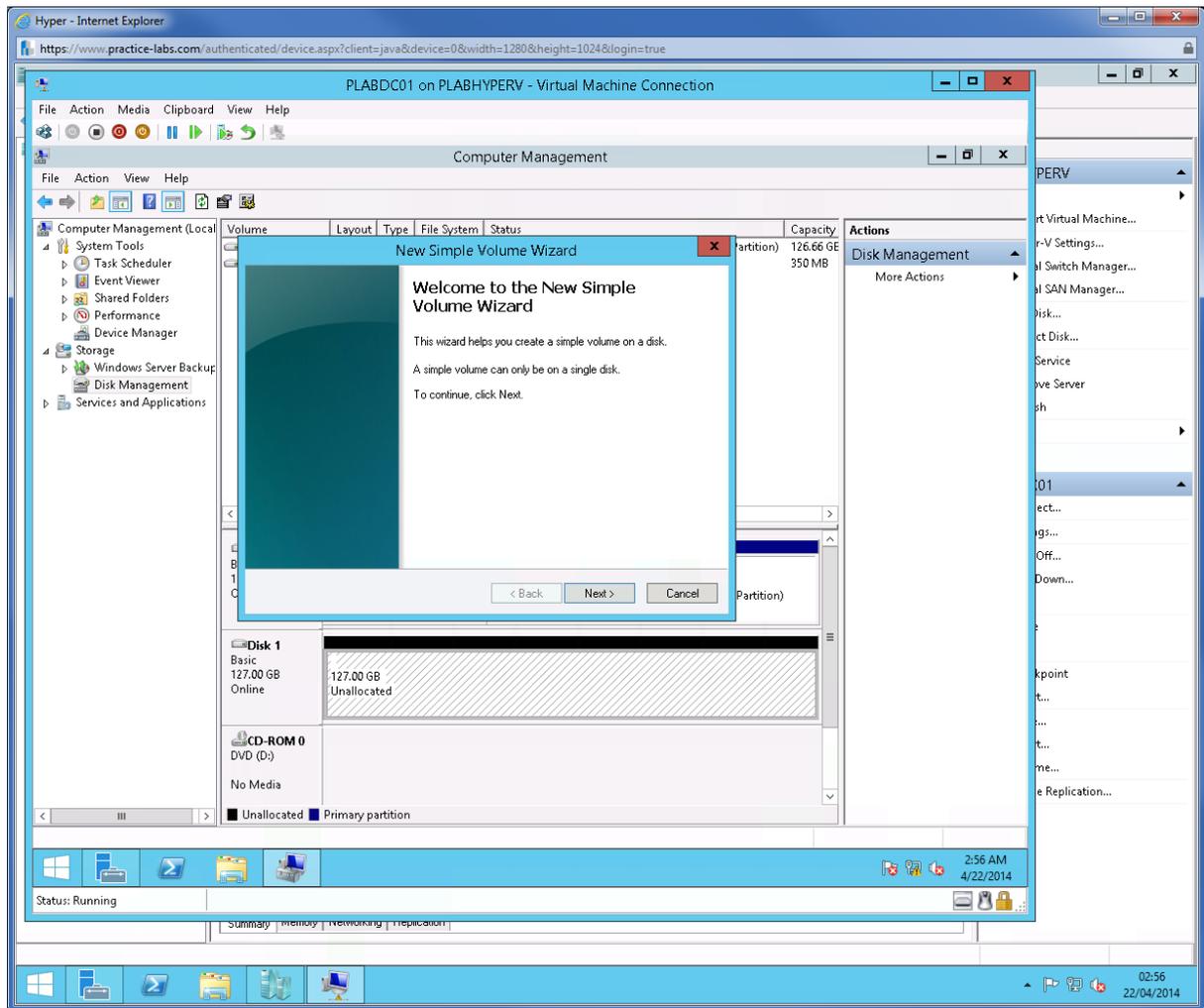
Step 7

Right-click on **Disk 1's Unallocated** partition and choose **New Simple Volume...**



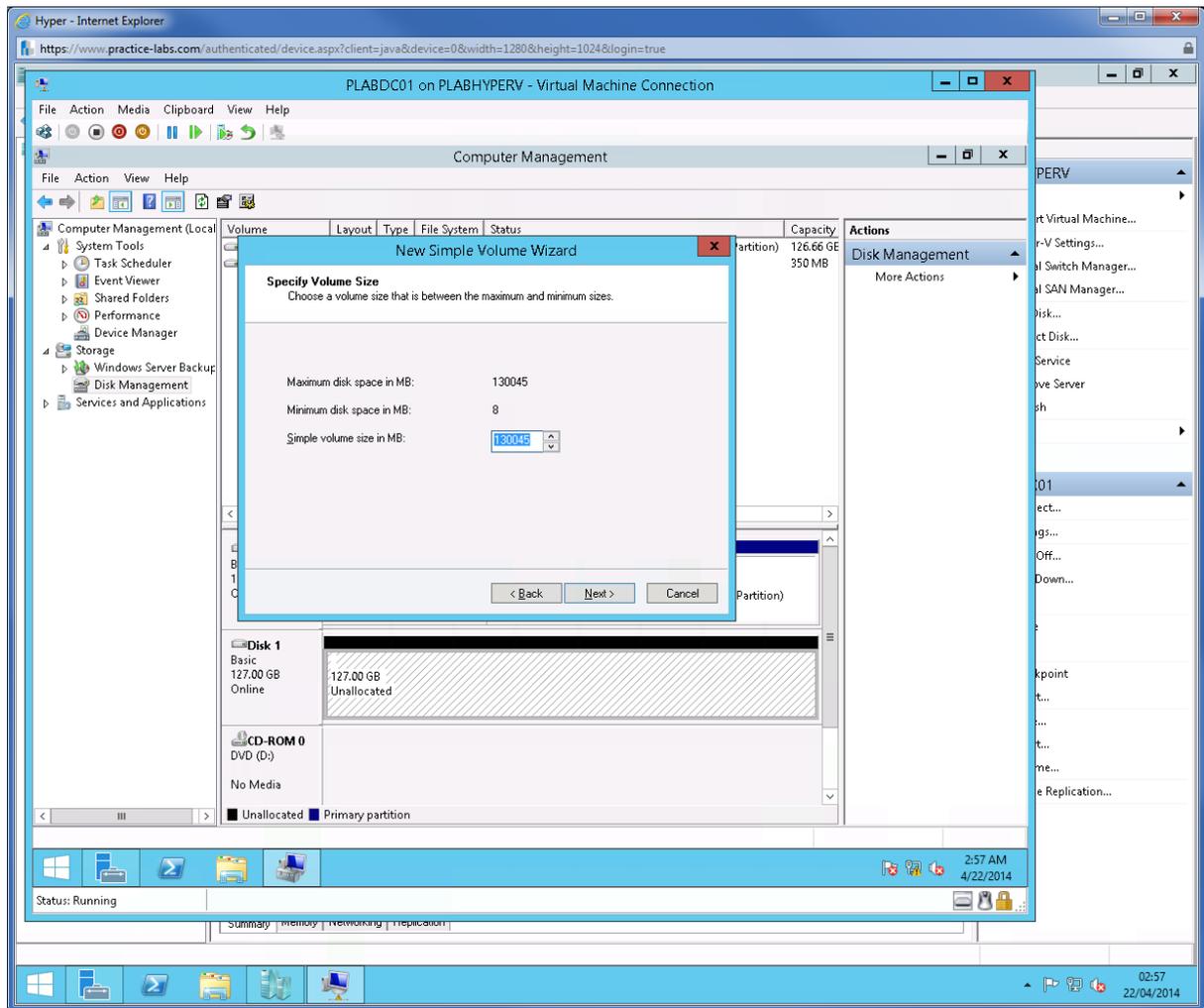
Step 8

From Welcome to the New Simple Volume Wizard, click **Next**.



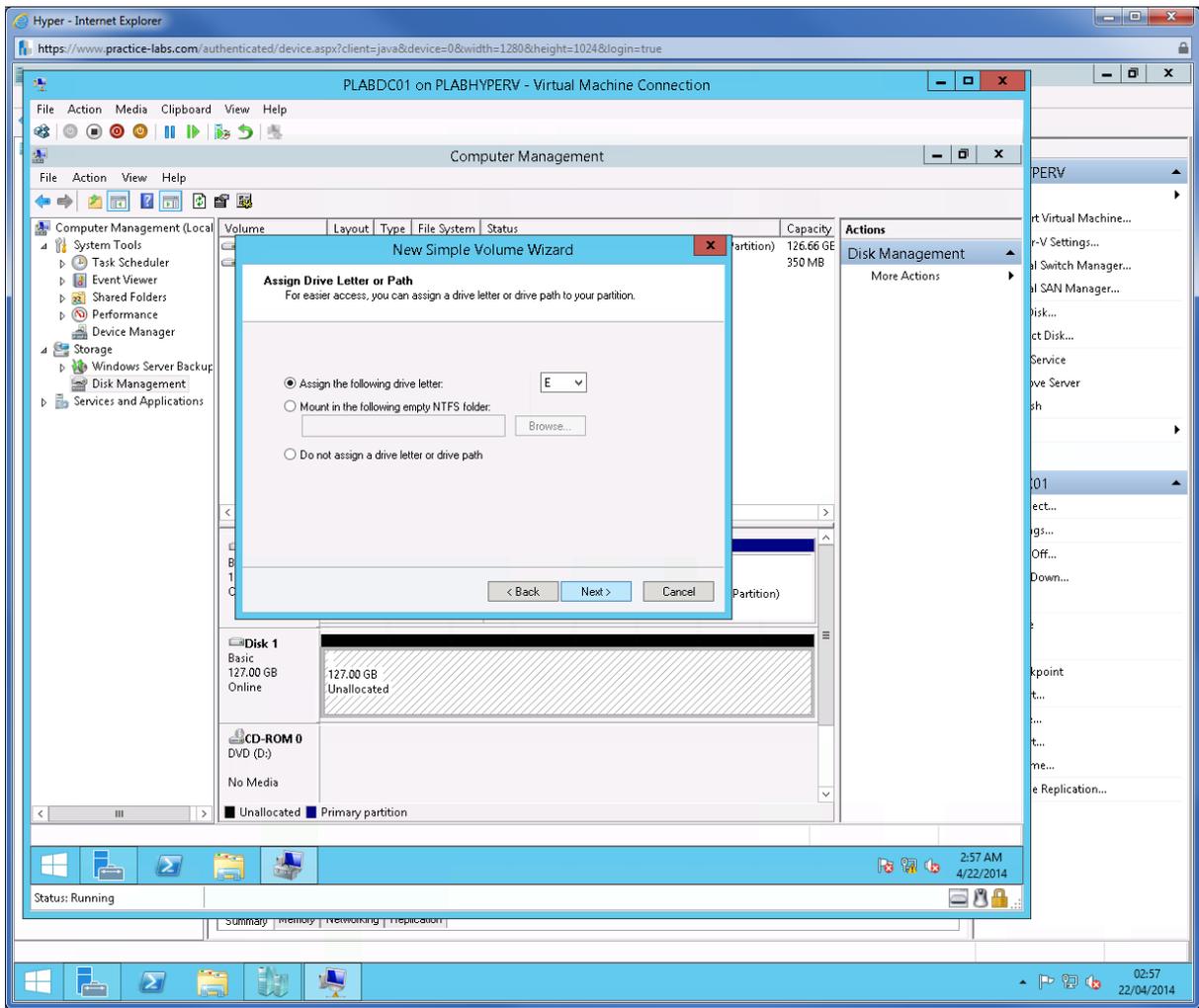
Step 9

From Specify Volume Size, click **Next**.



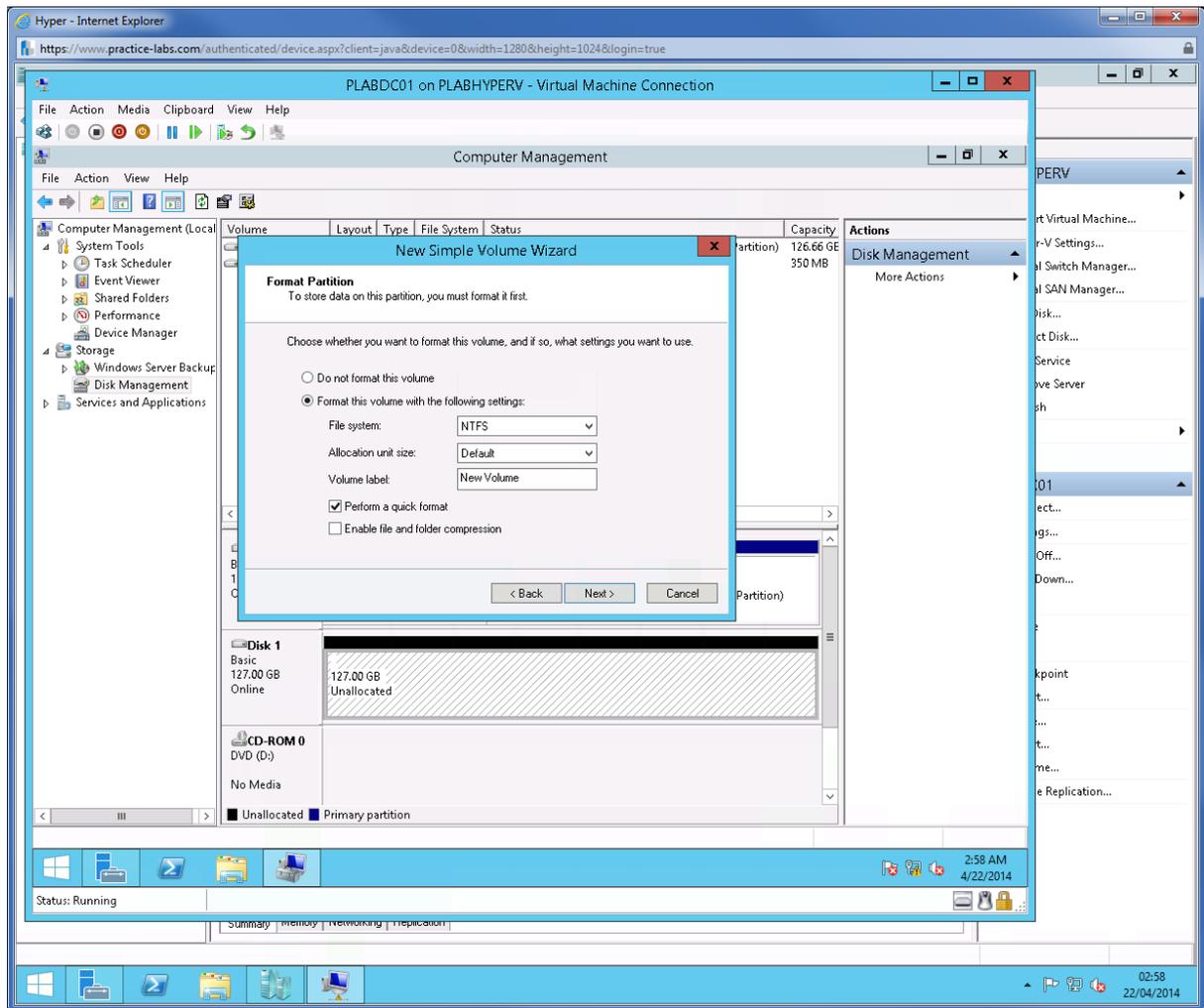
Step 10

In Assign Drive Letter or Path, click **Next**.



Step 11

In Format Partition page, click **Next**.



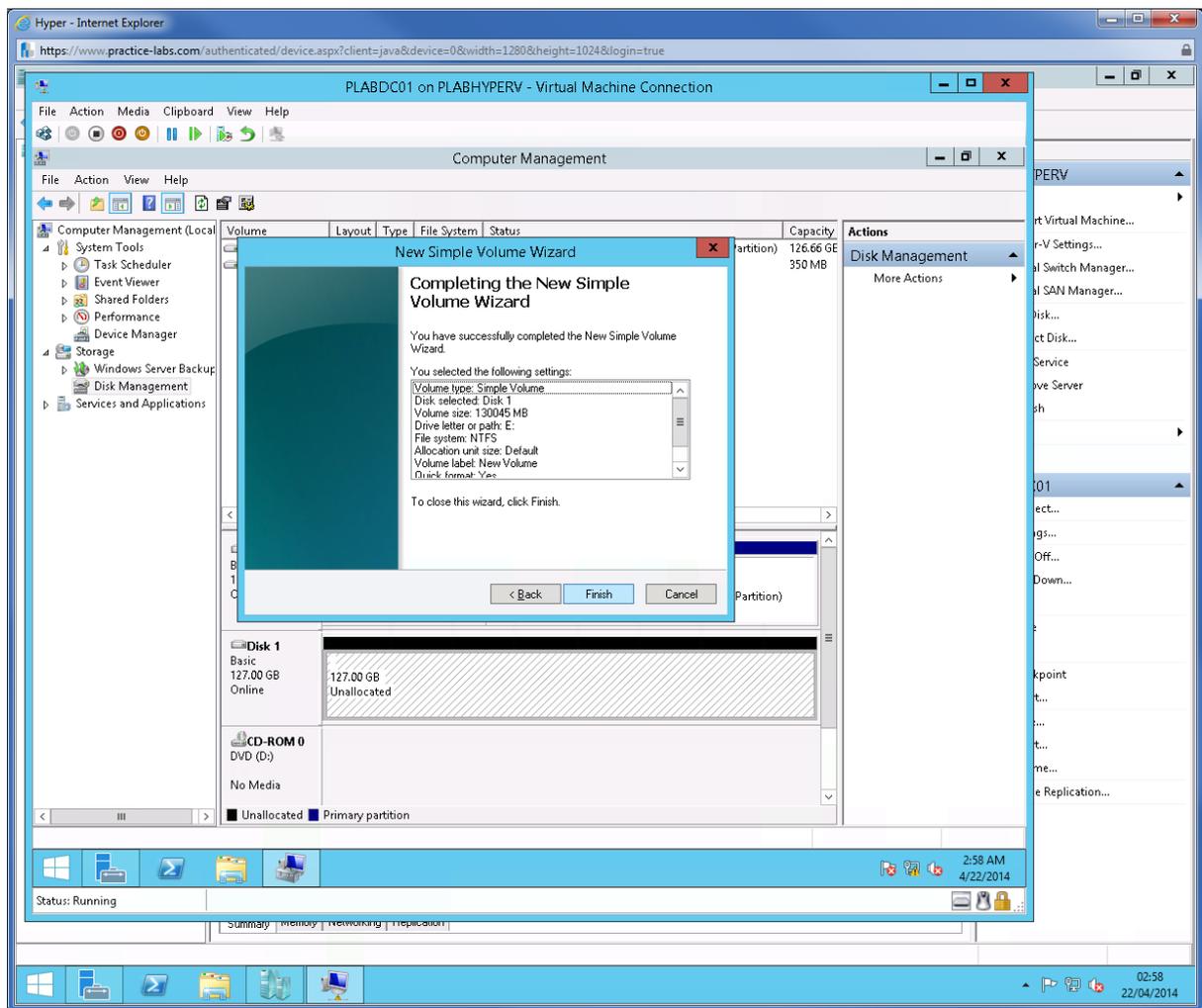
Step 12

In Completing the New Simple Volume Wizard, click **Finish**.

Close Computer Management.

Ignore the prompt to format the new volume.

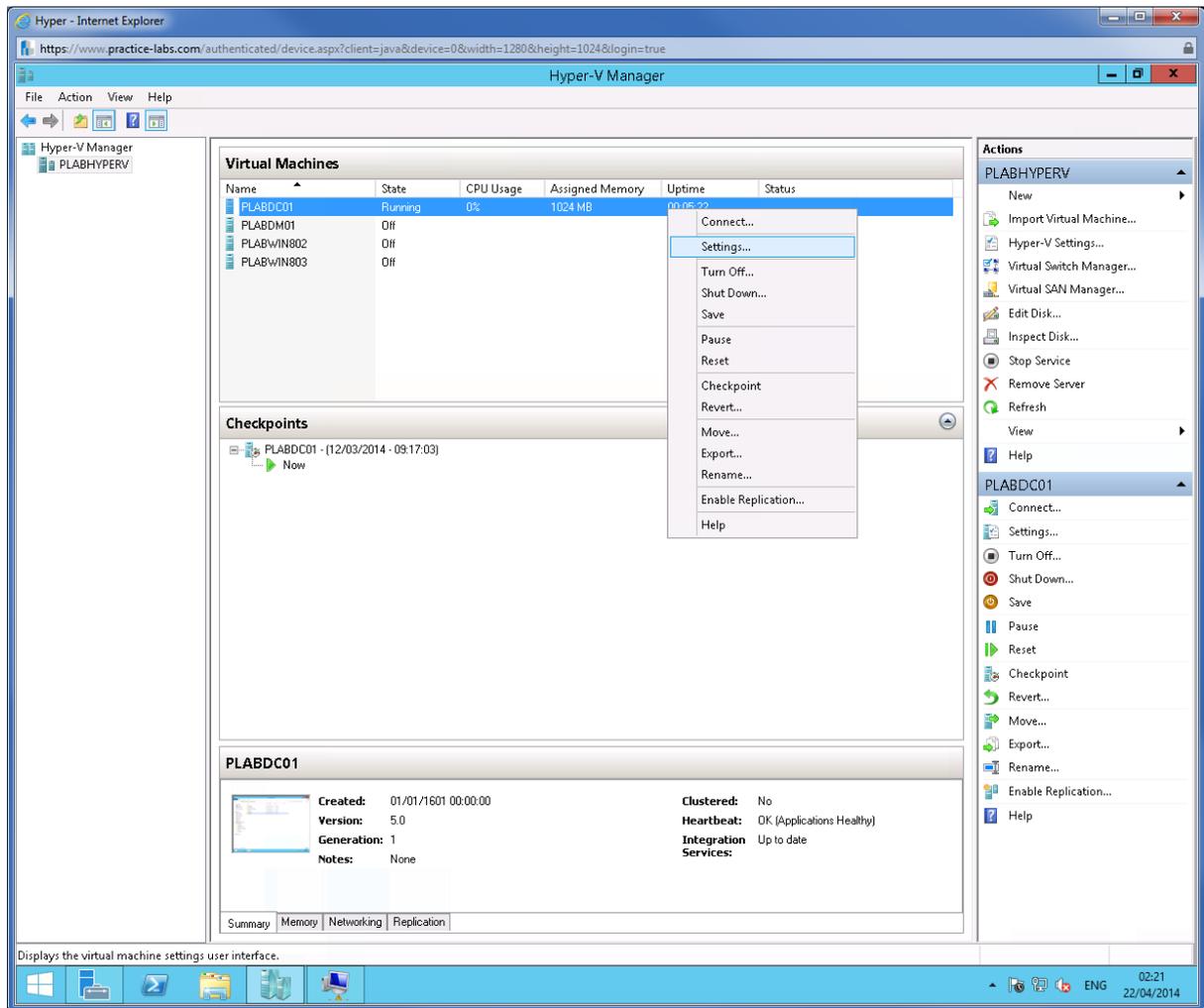
Minimize PLABDC01 window.



Step 13

Go to PLABHYPERV host and reopen Hyper-V Manager.

Right-click on **PLABDC01** and choose **Settings...**

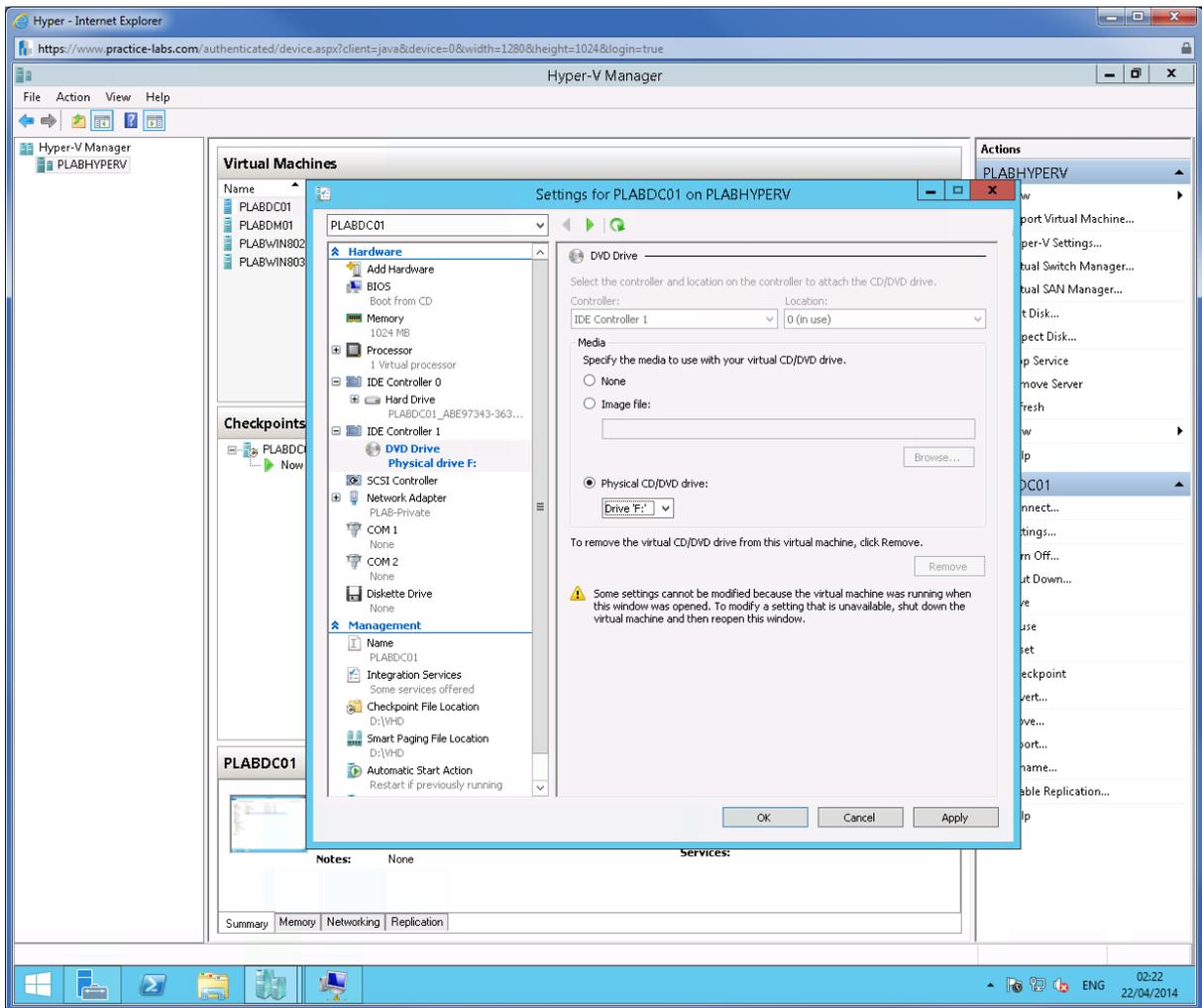


Step 14

On Settings for PLABDC01 on PLABHYPERV, go to **IDE Controller 1** and click on **DVD Drive**.

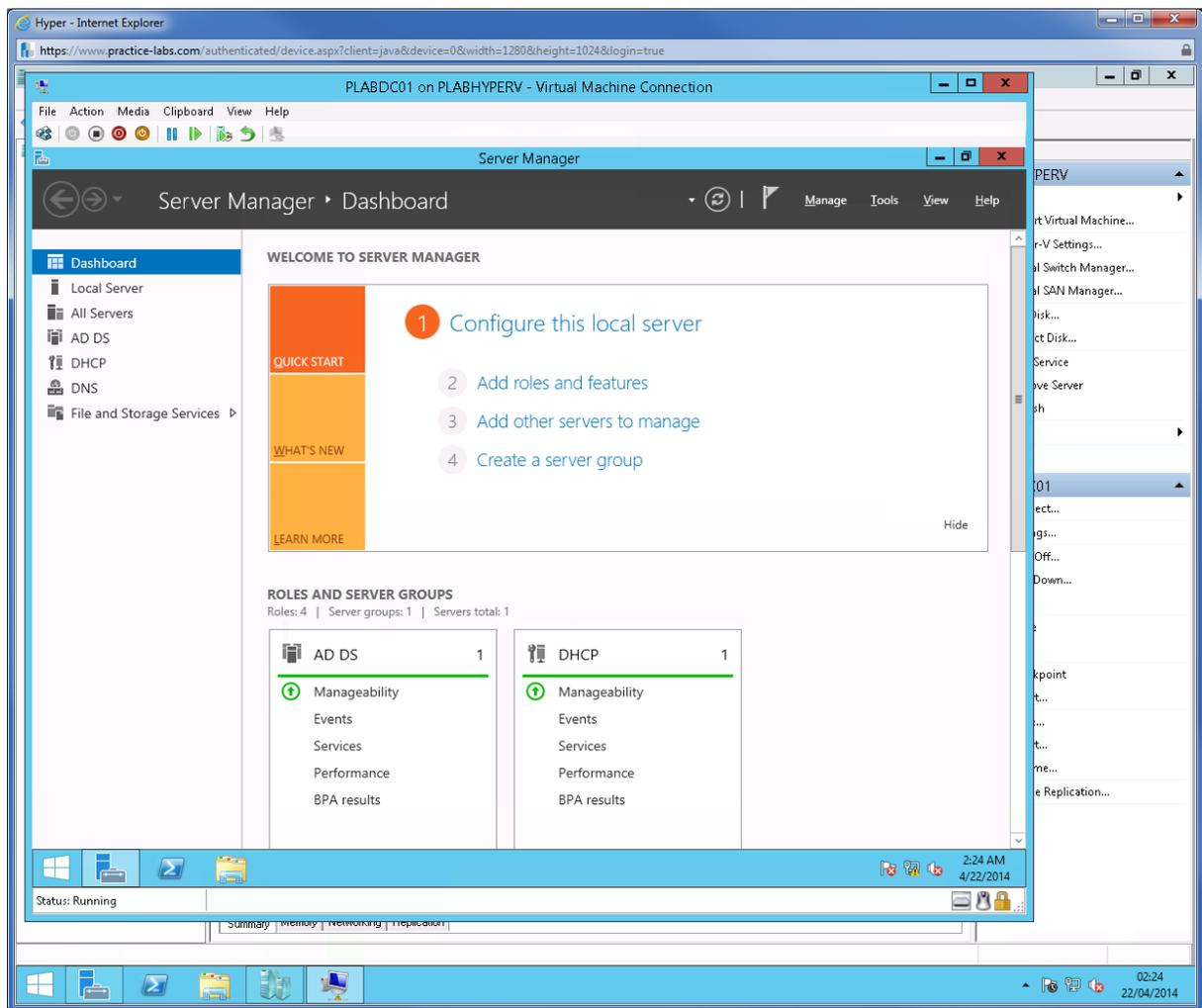
Go to details pane and click the **Physical CD/DVD drive** then change to **Drive F**.

Click **OK** to save changes.



Step 15

Restore PLABDC01 window.

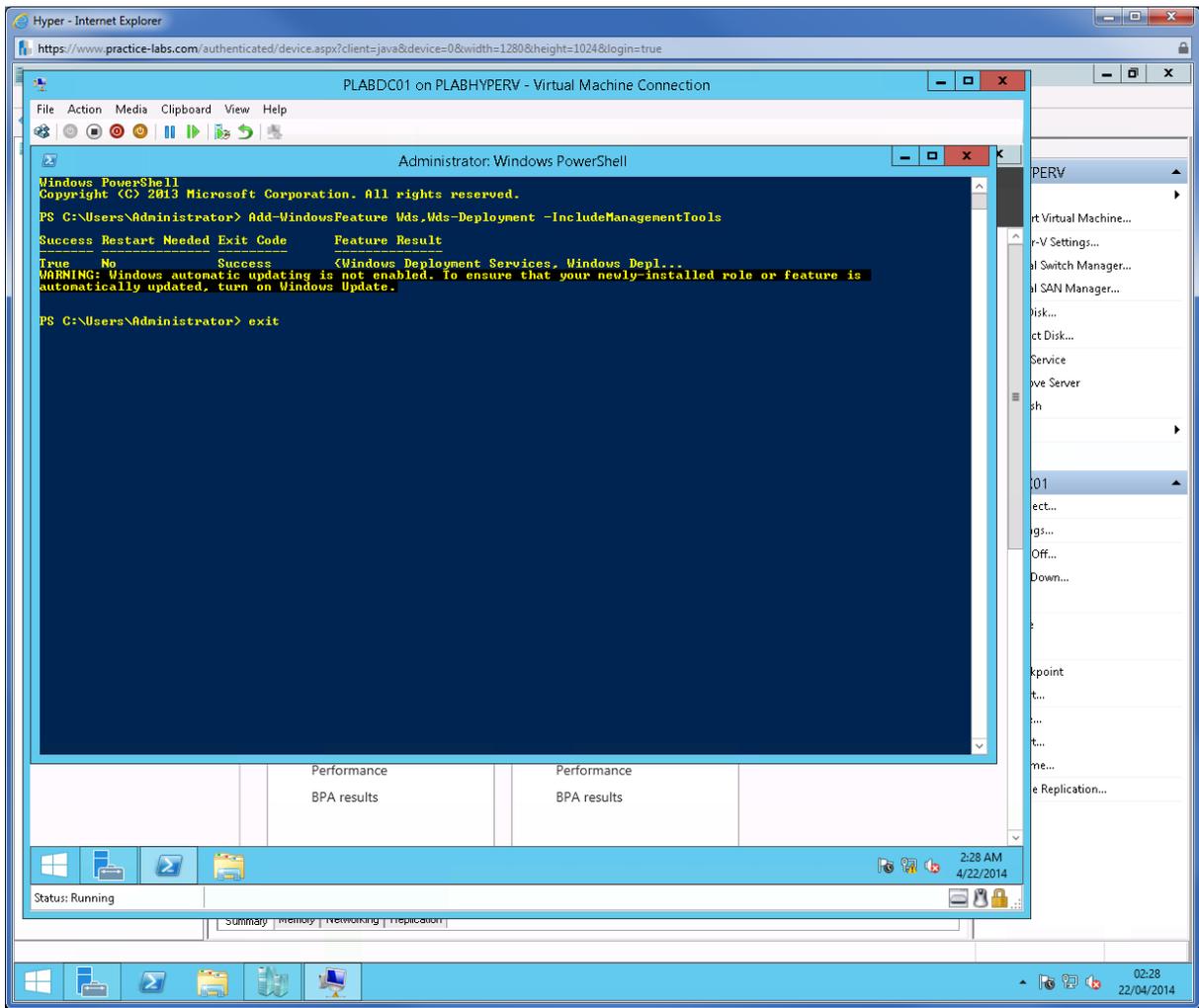


Step 16

Click PowerShell on taskbar and type the following:

```
Add-WindowsFeature Wds,Wds-Deployment -IncludeManagementTools
```

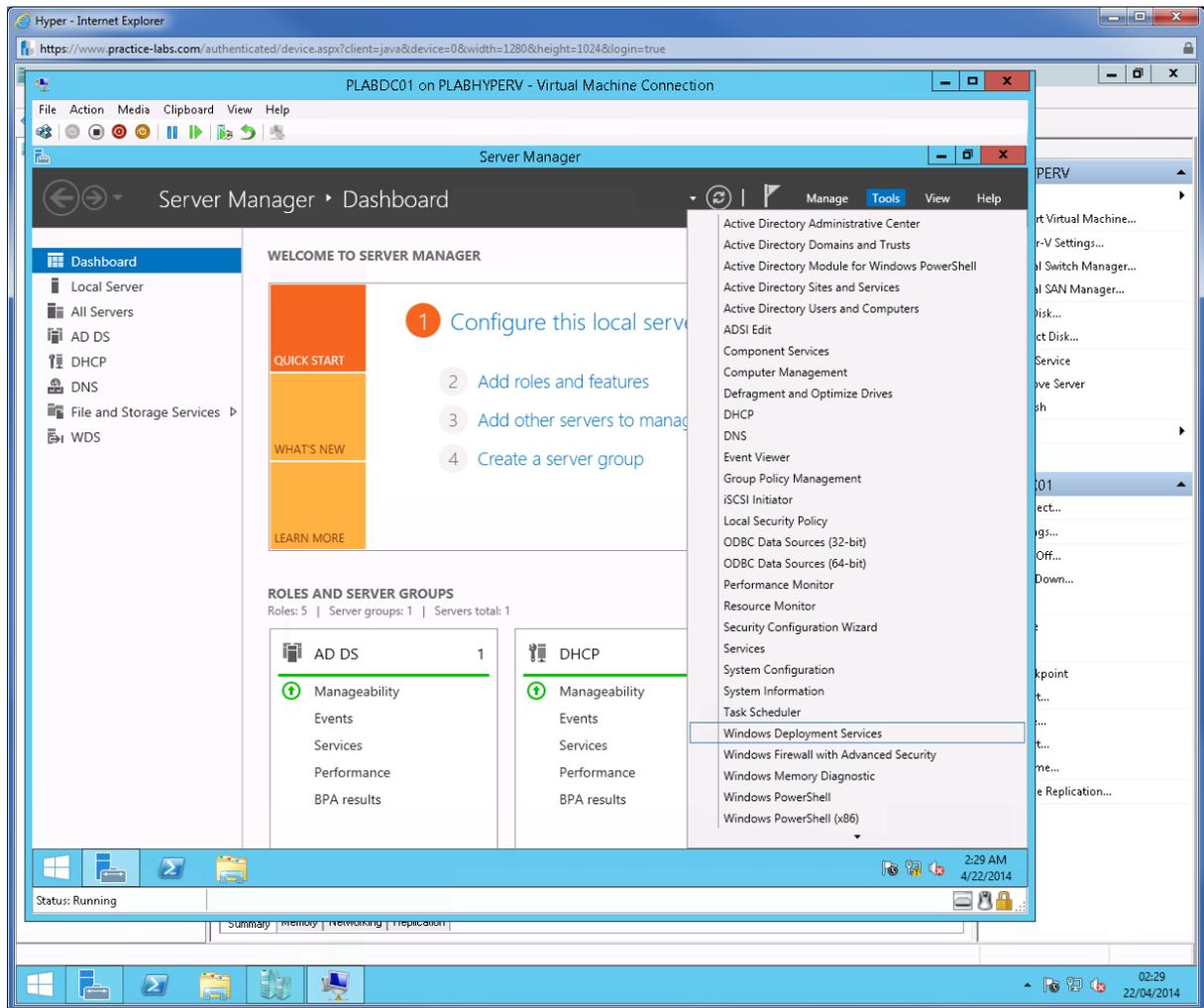
Exit



Step 17

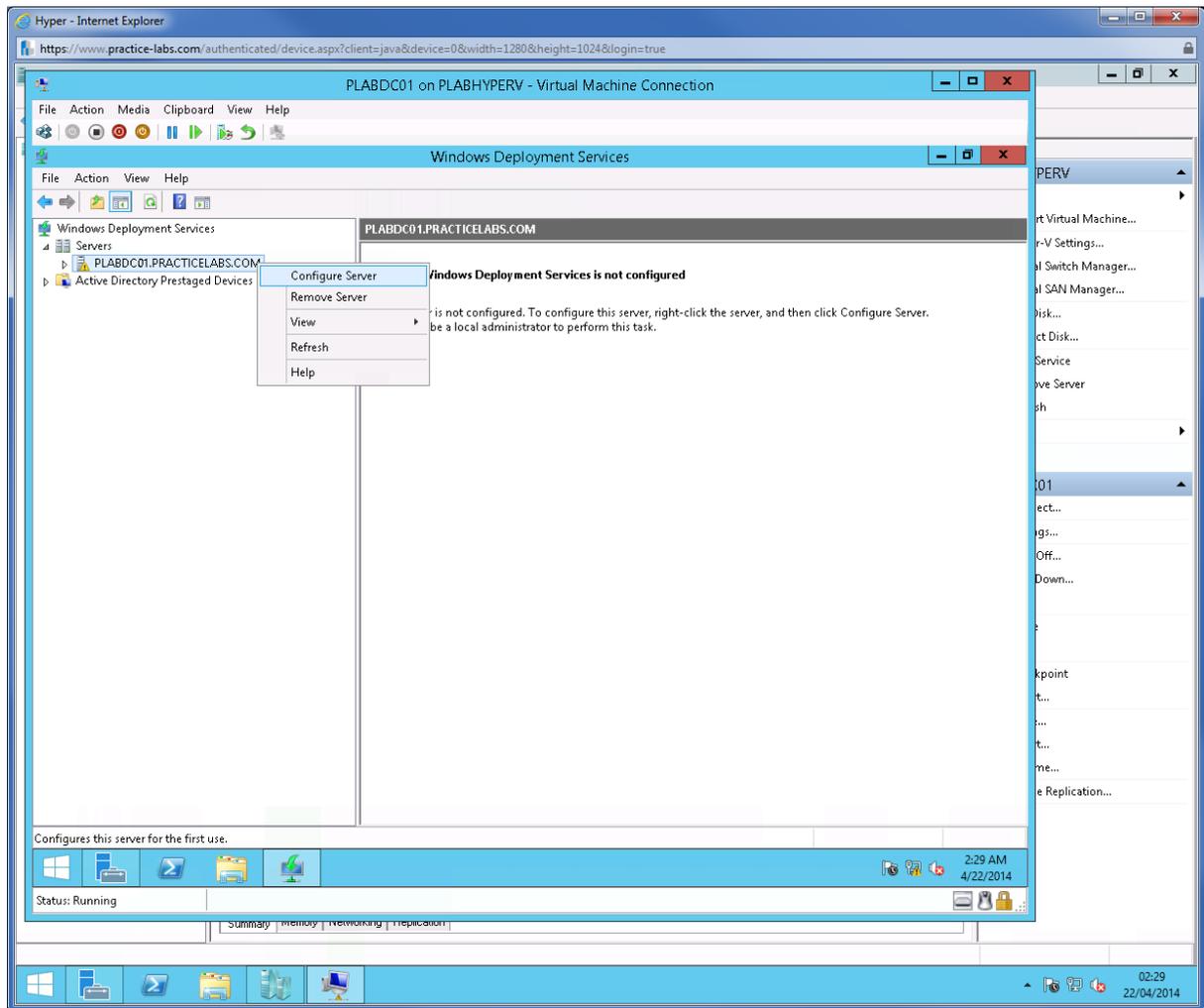
Go to Server Manager.

Click **Tools > Windows Deployment Services**.



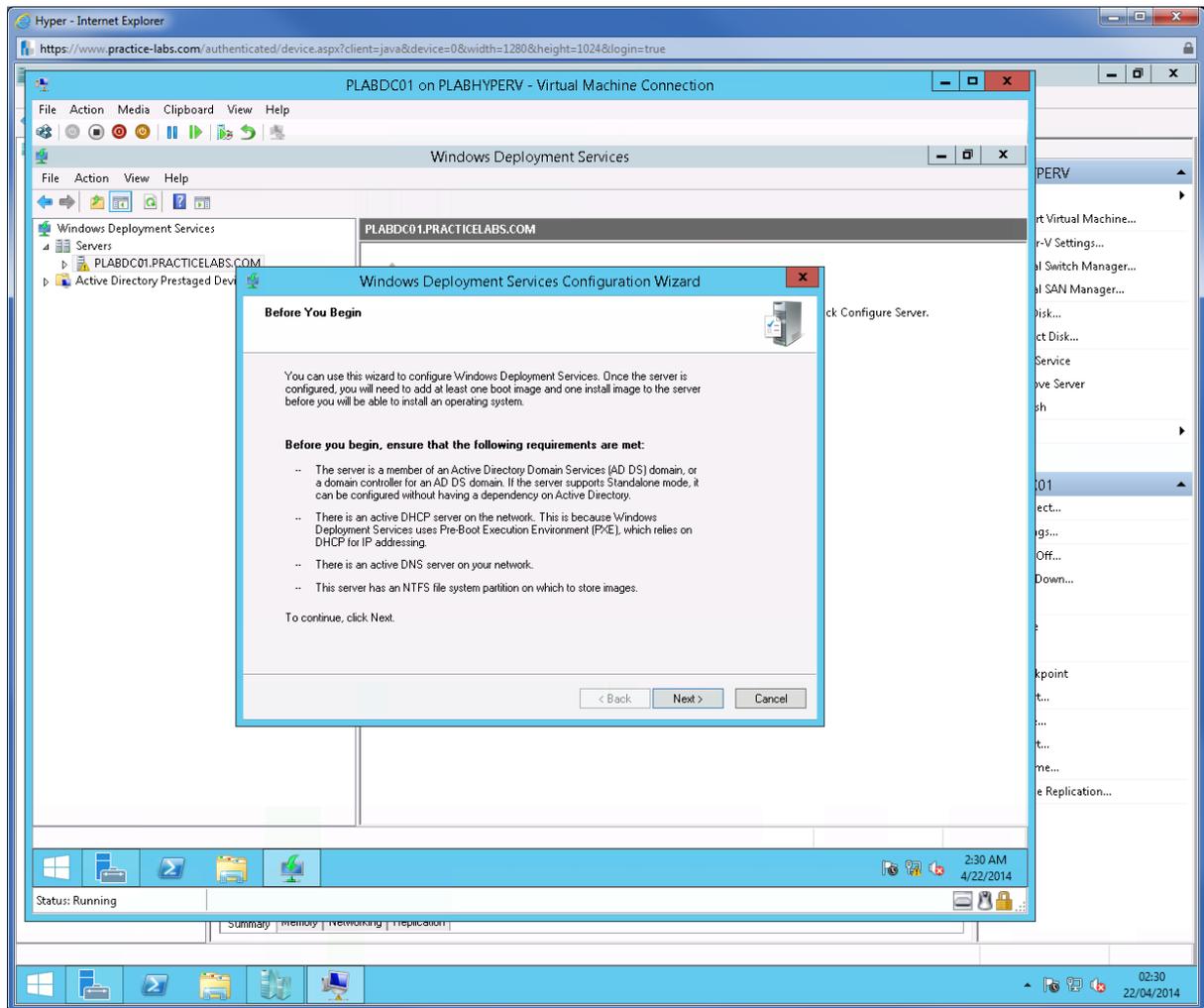
Step 18

Expand Servers and right-click on **PLABDC01.PRACTICELABS.COM**, then choose **Configure Server**.



Step 19

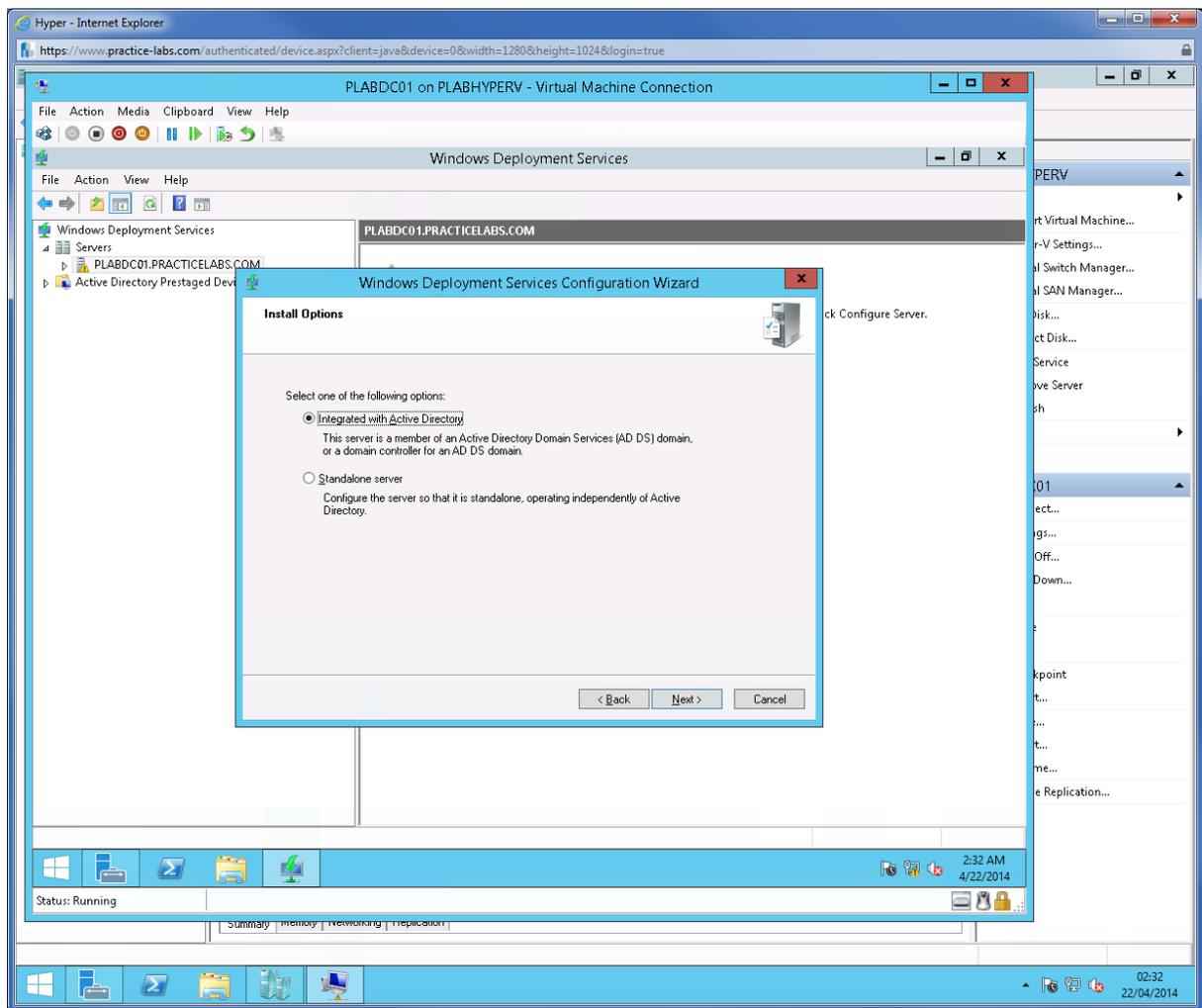
From Before you begin page, click **Next**.



Step 20

On Install Options, ensure that **Integrated with Active Directory** is selected.

Click **Next**.

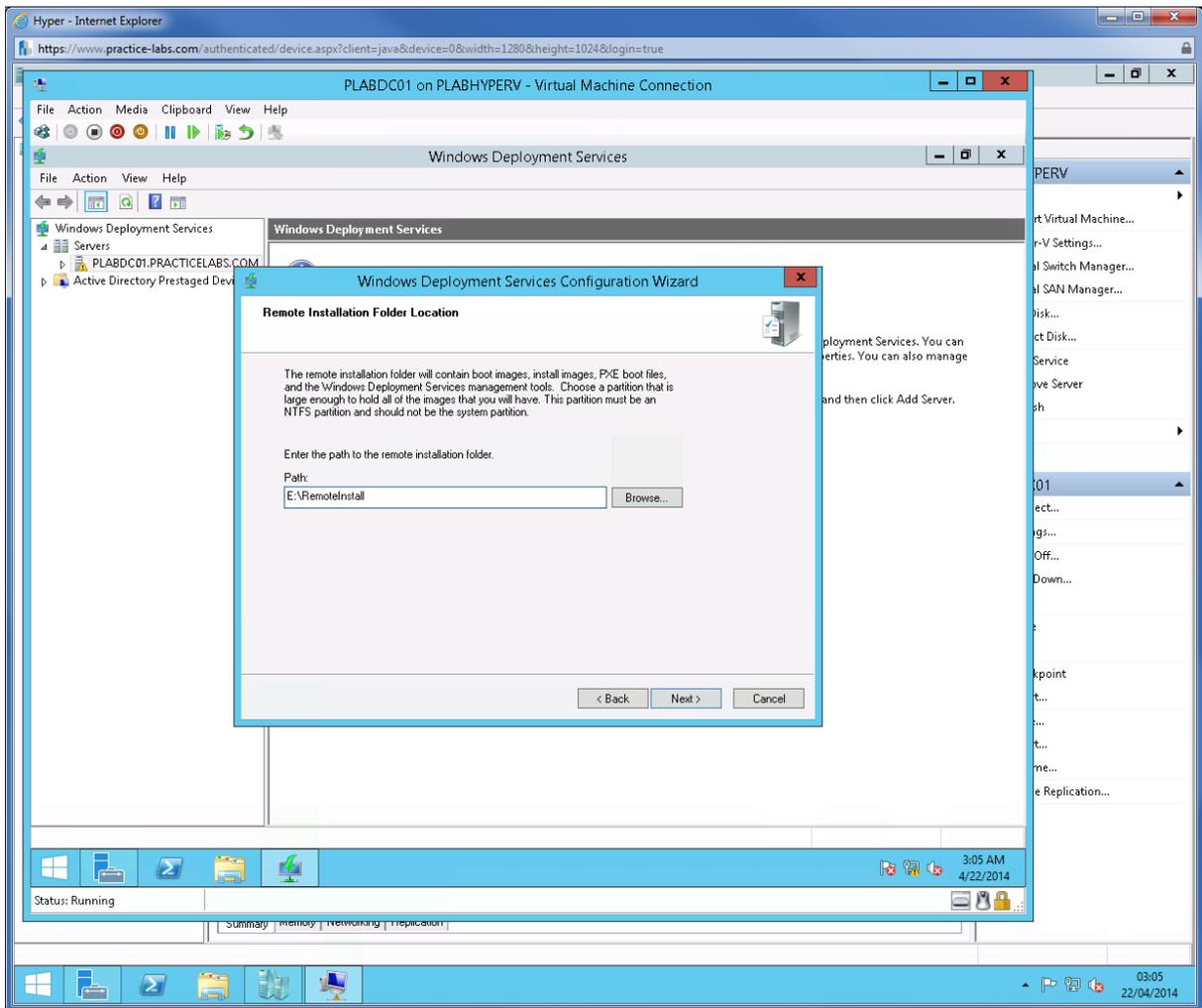


Step 21

On Remote Installation Folder Location, change it to

E:\RemoteInstall

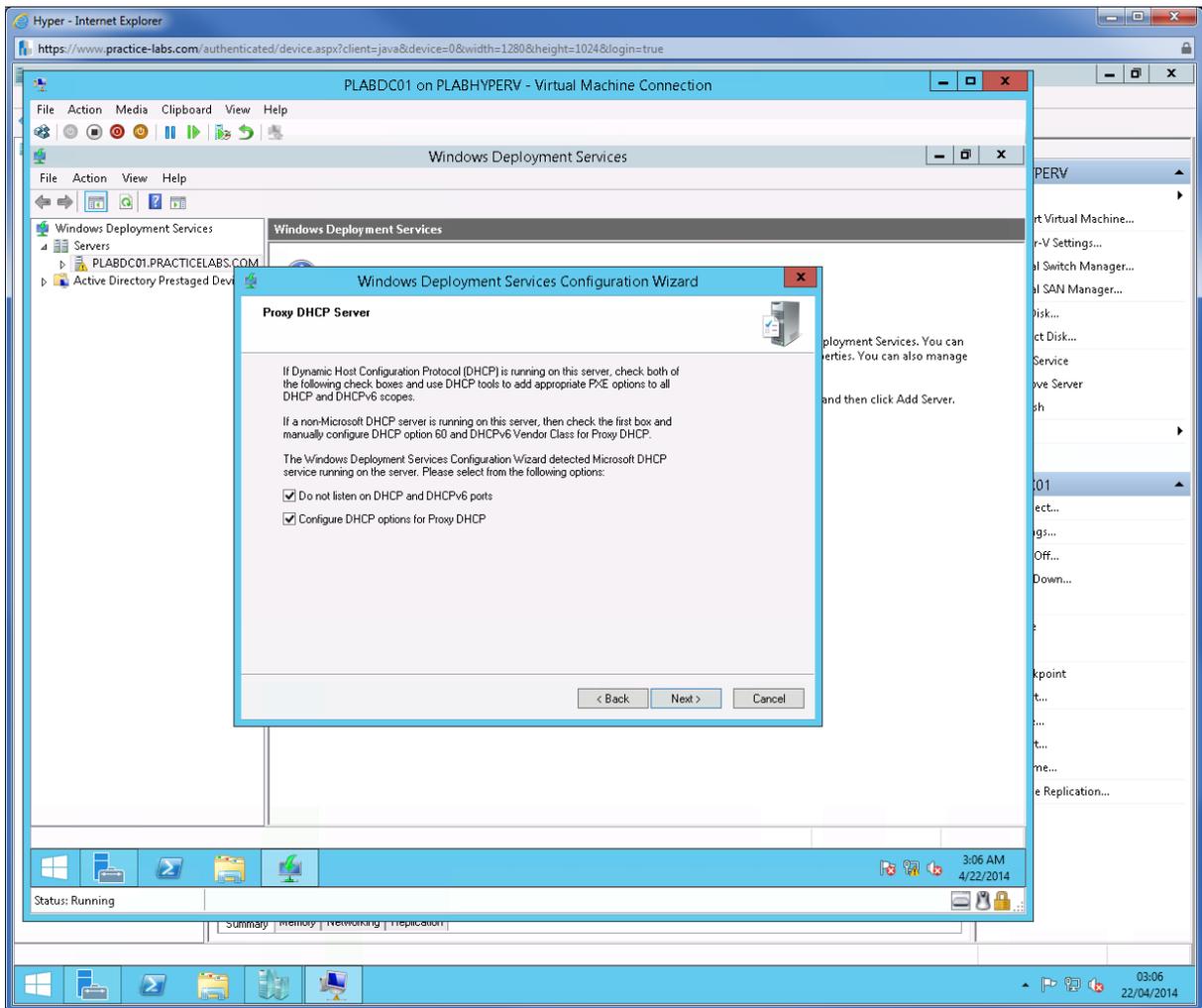
Click **Next**



Step 22

Since WDS is running on a domain controller, leave the settings as it is.

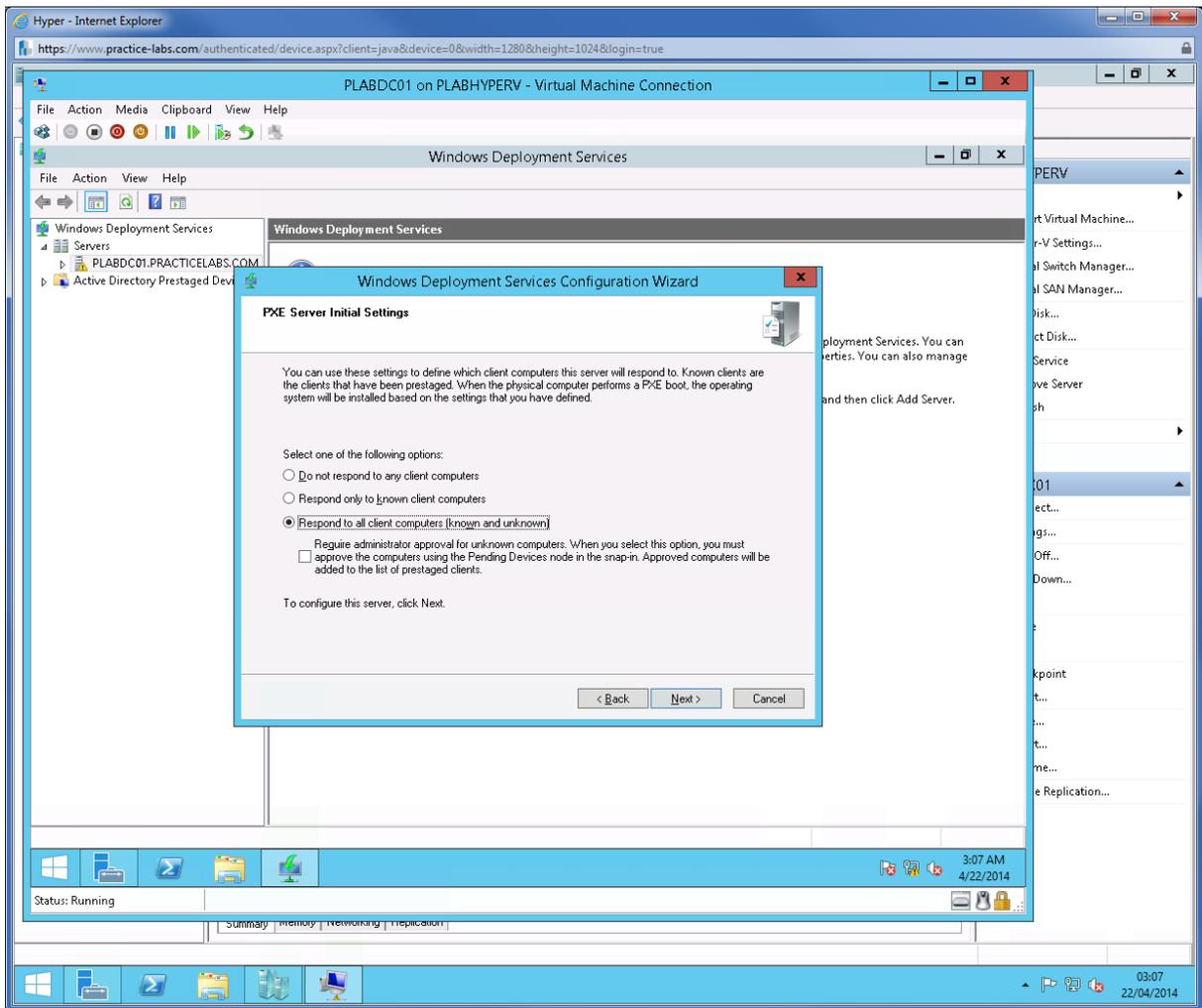
Click **Next**.



Step 23

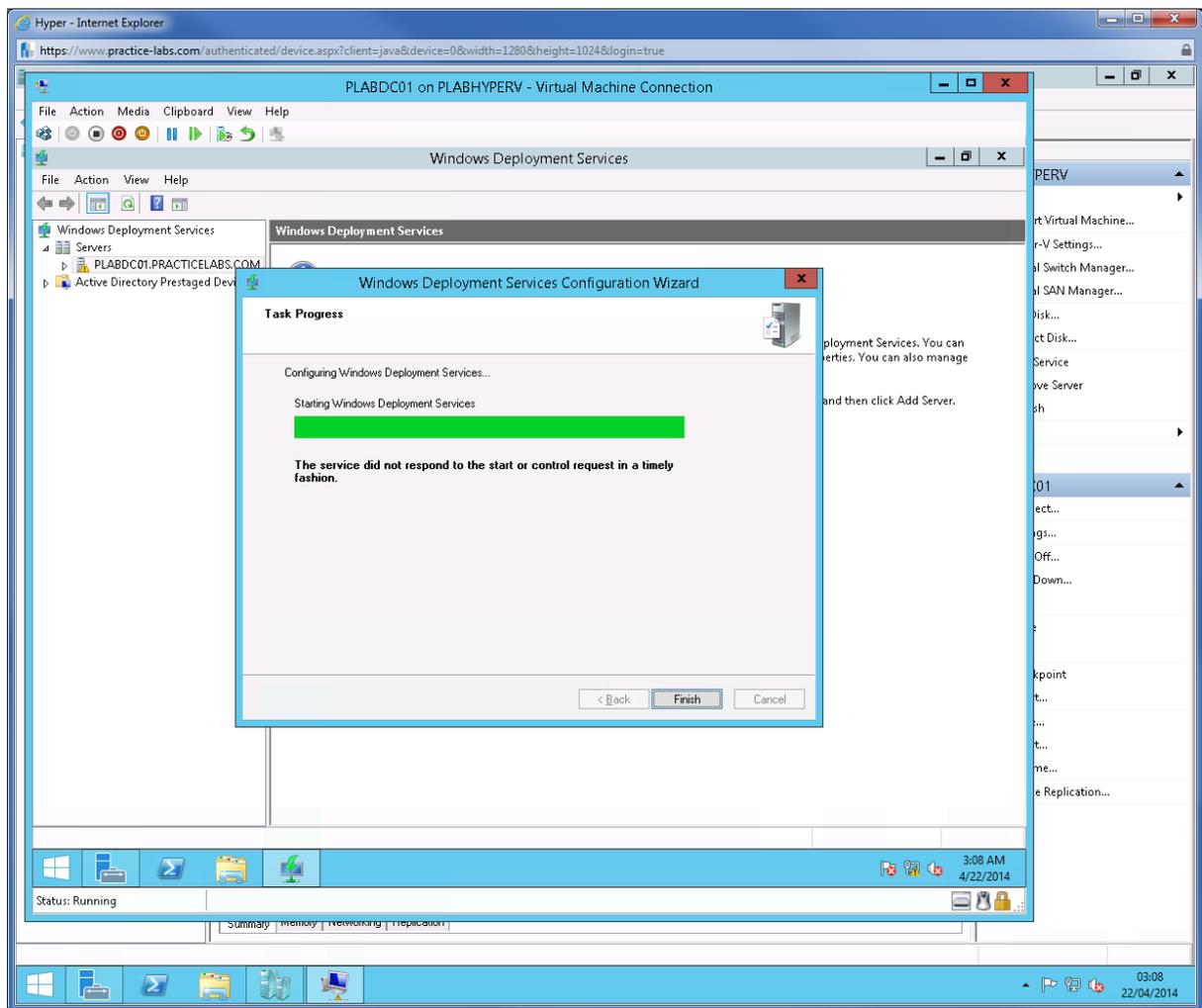
From PXE Server Initial Settings, click **Respond to all client computers (known and unknown)**.

Click **Next**.



Step 24

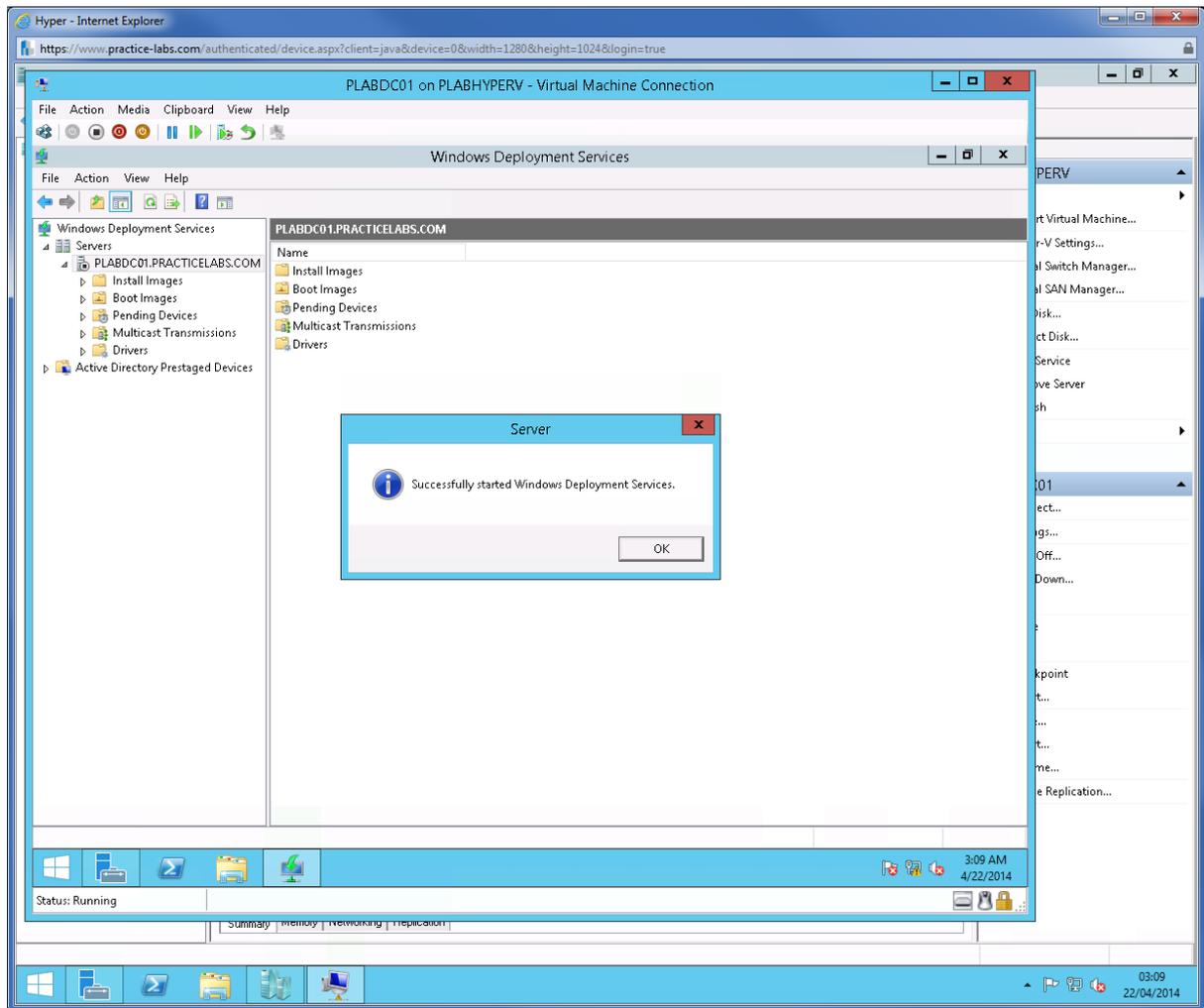
If you get the following message saying Windows Deployment Service did not start in a timely fashion, click **Finish**.



Step 25

Right-click on **PLABDC01.PRACTICELABS.COM** and choose **All Tasks > Start**.

Click **OK** when the system says the service was successfully started.

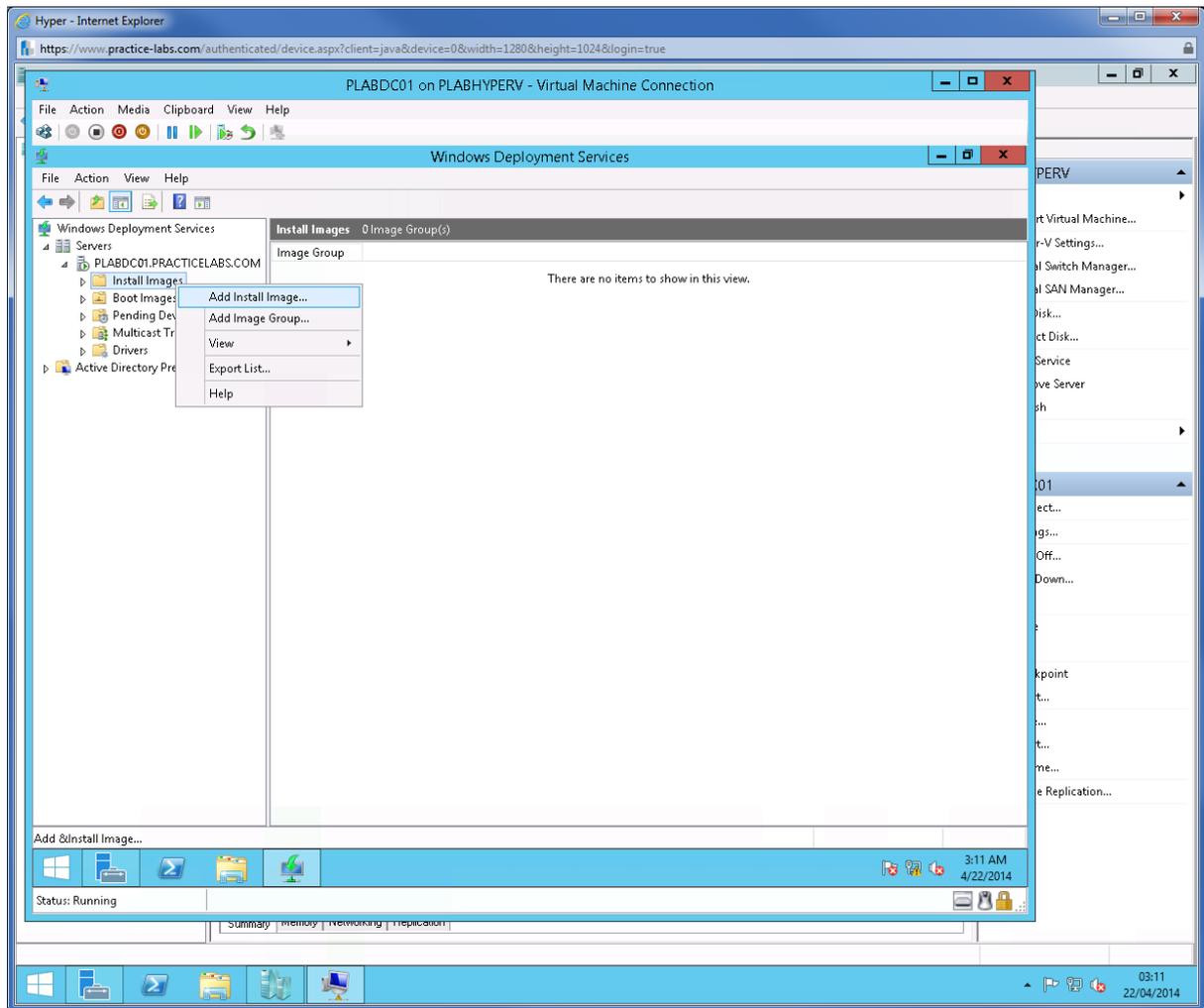


Task 2: Add Install image in WDS

In this task you will add Windows 8.x DVD image that will be rolled out for new client computers.

Step 1

Right-click on Install Images and choose **Add Install Image...**

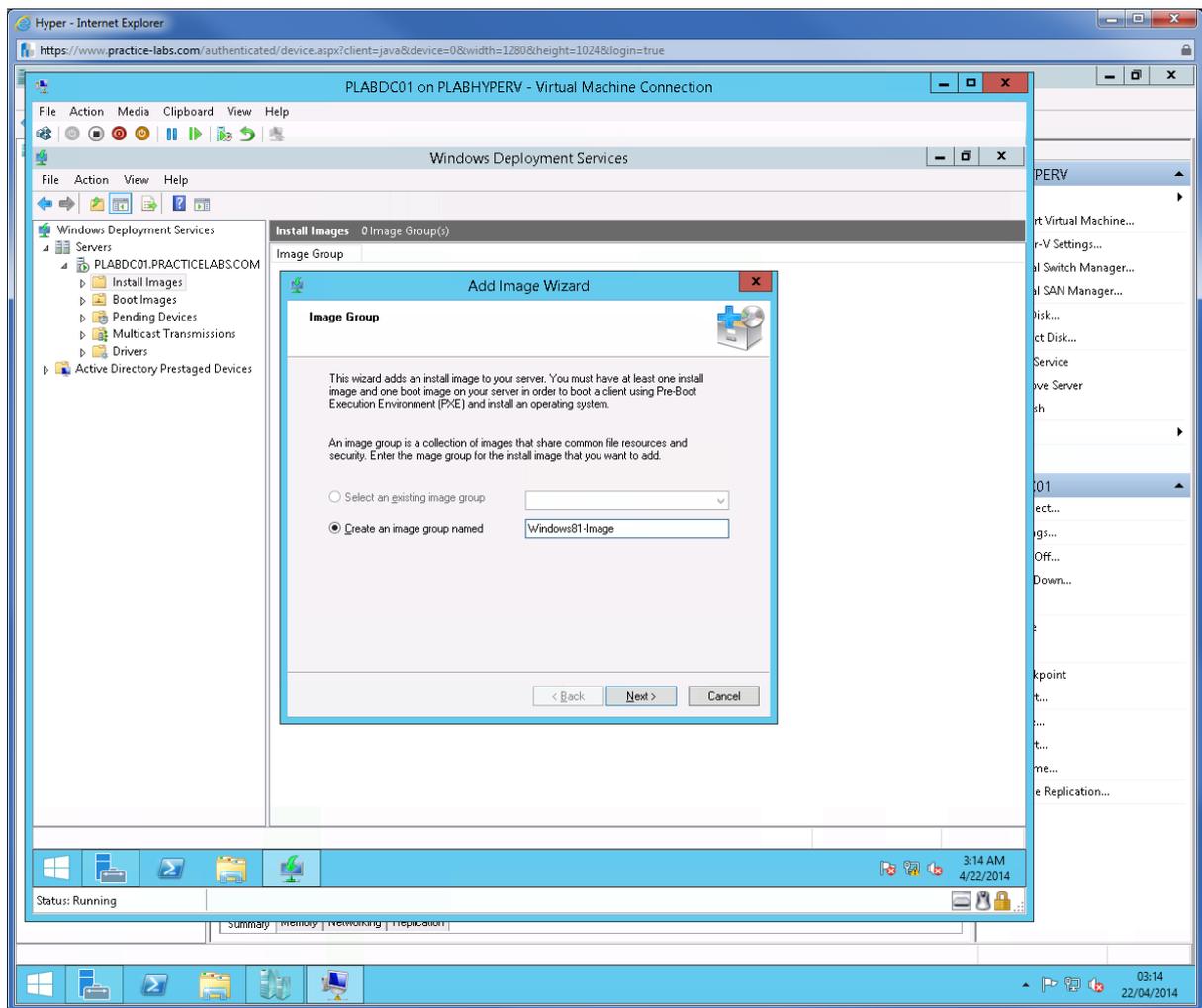


Step 2

In Image Group page, click in Create an image group named box and type

Windows81-Image

Click **Next**.

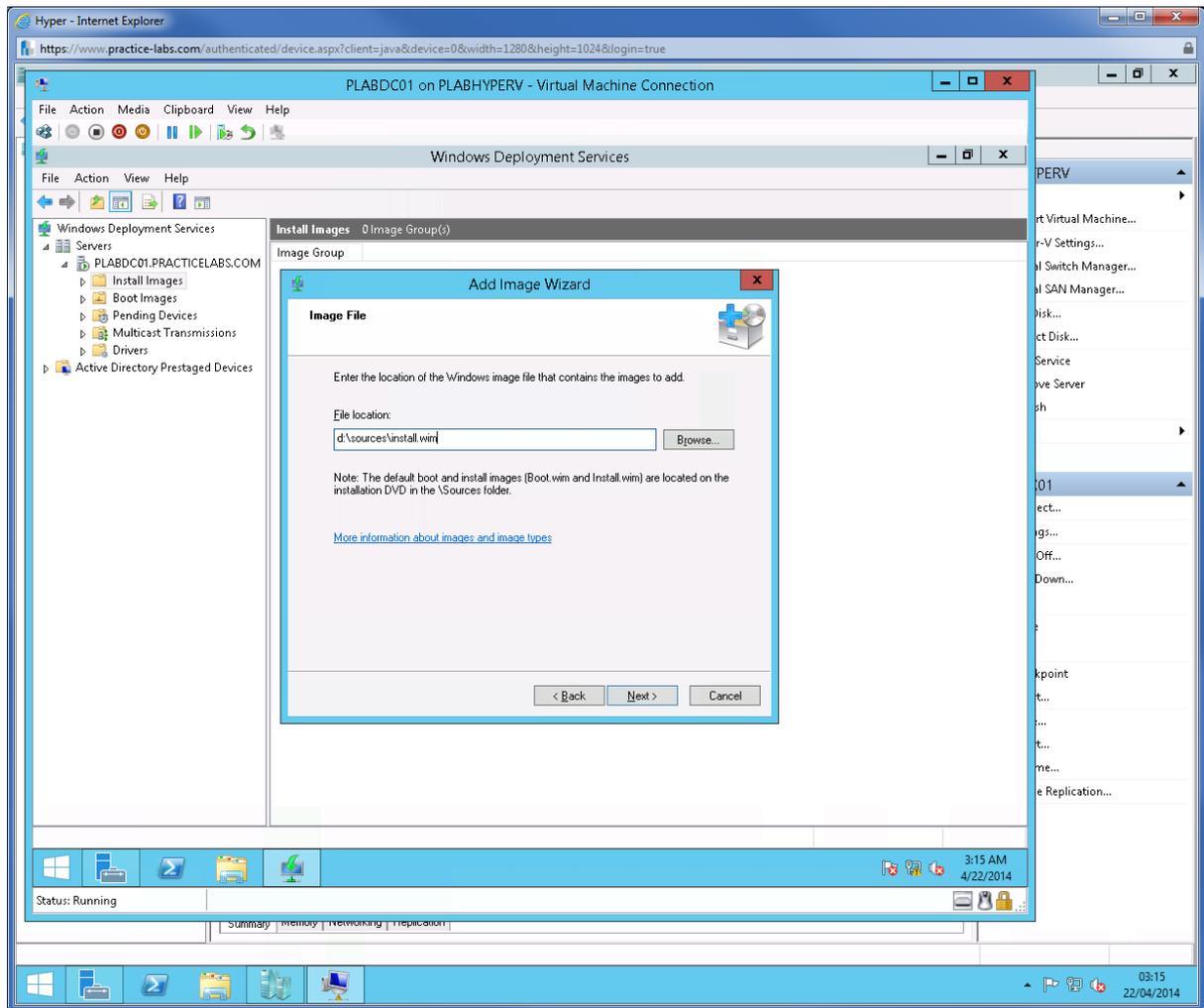


Step 3

In Image File page, type

```
D:\sources\install.wim
```

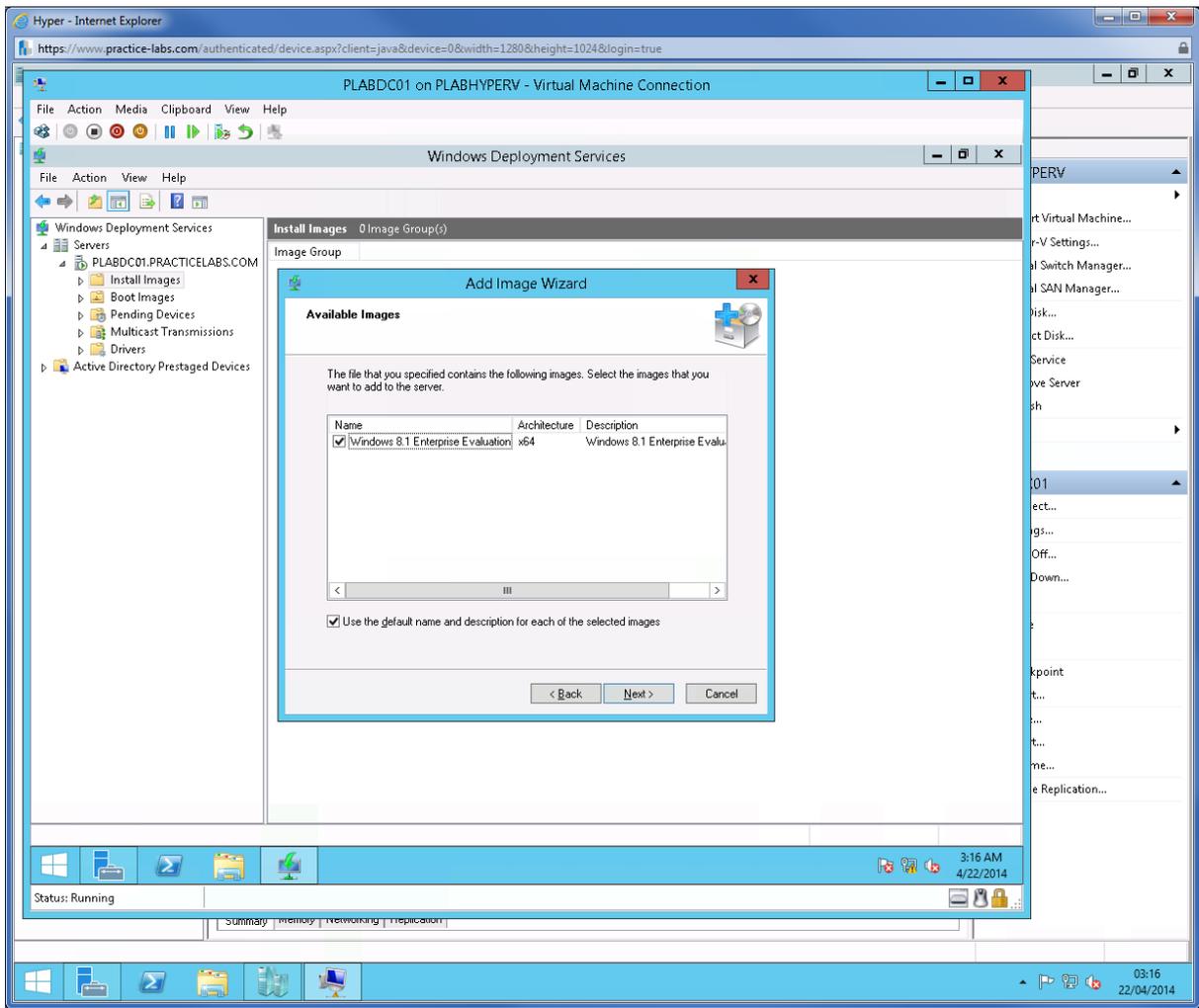
Click **Next**.



Step 4

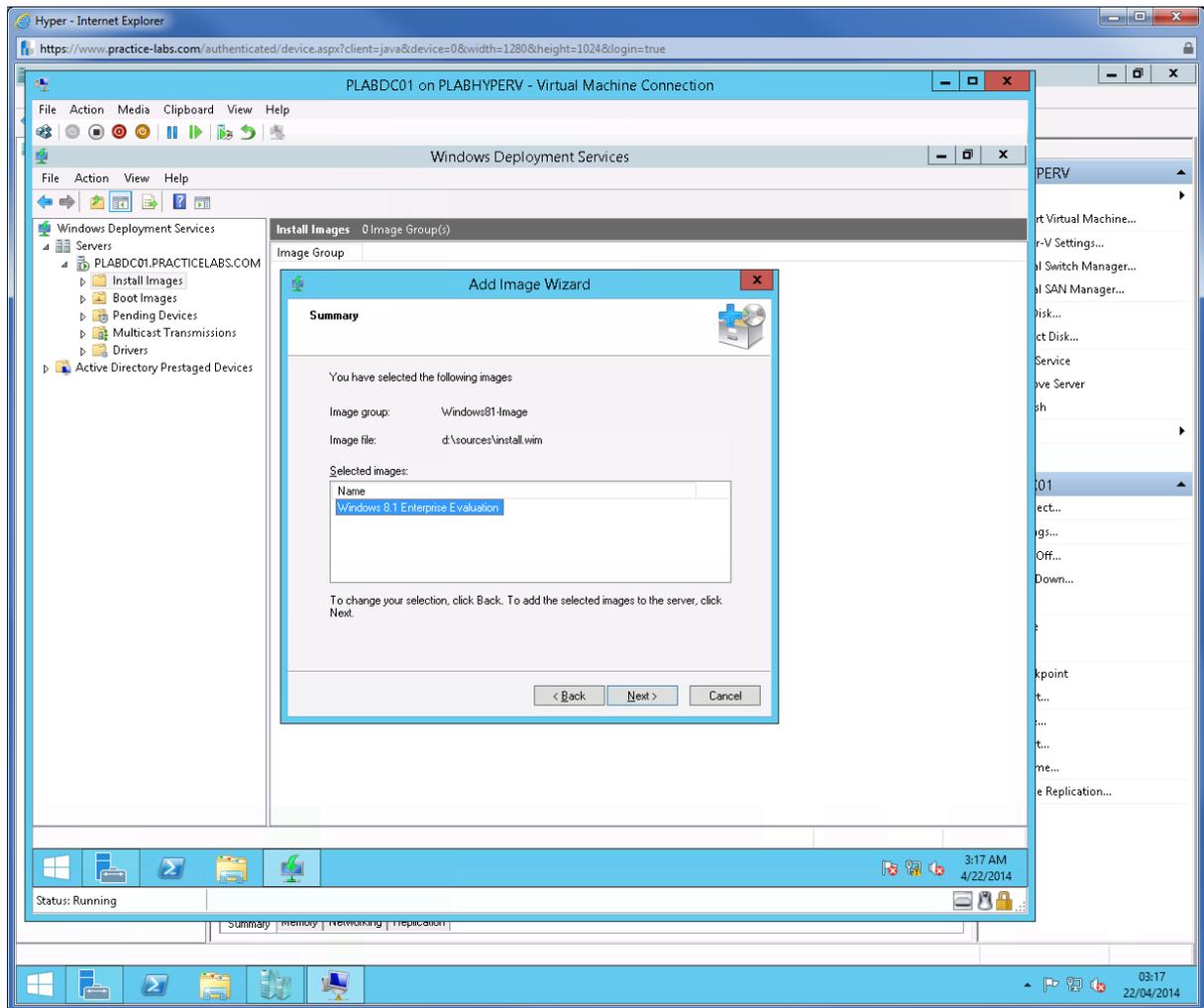
In Available Images page, find Windows 8.1 Enterprise Evaluation added.

Click **Next**.



Step 5

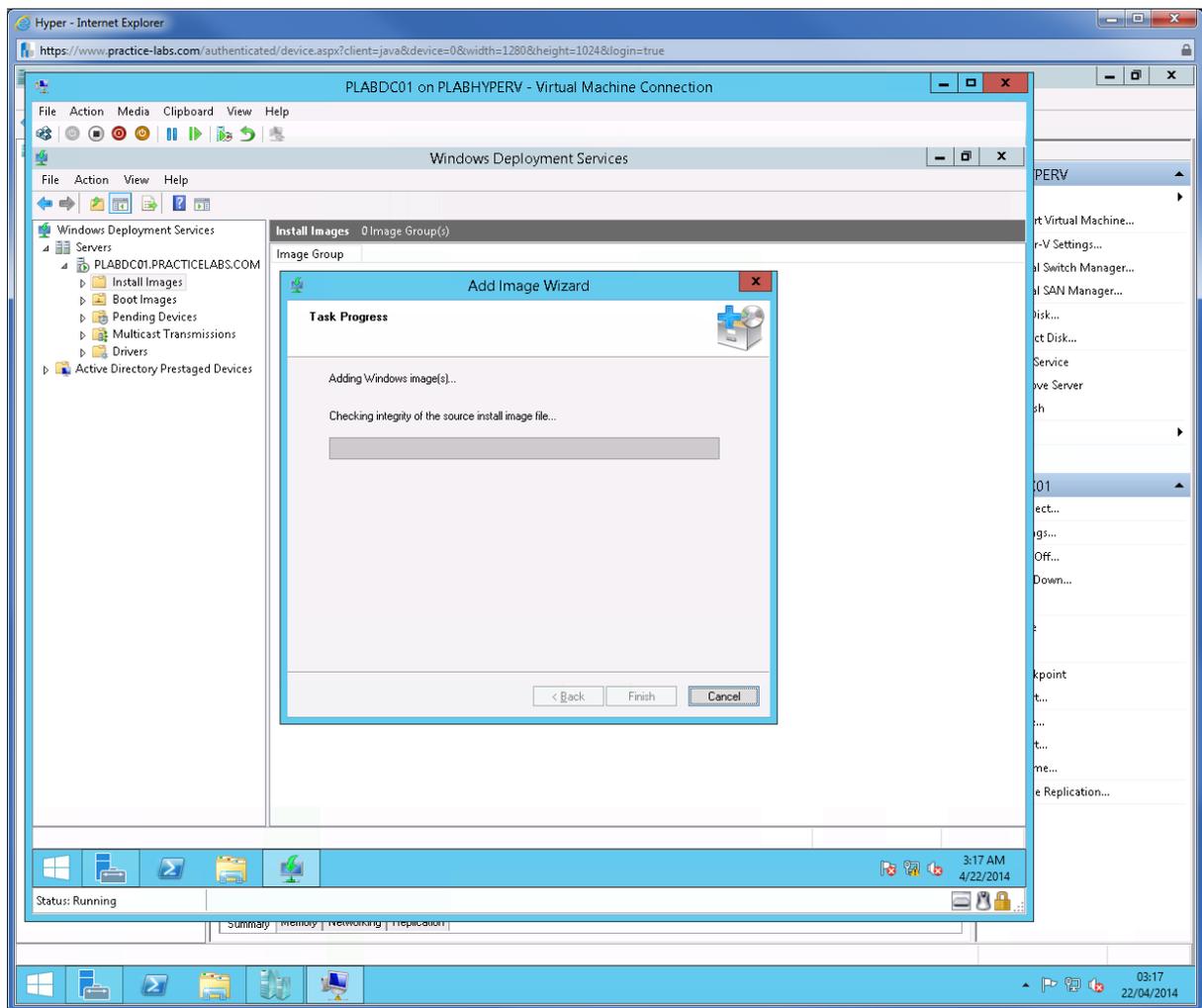
In Summary page, click **Next**.



Step 6

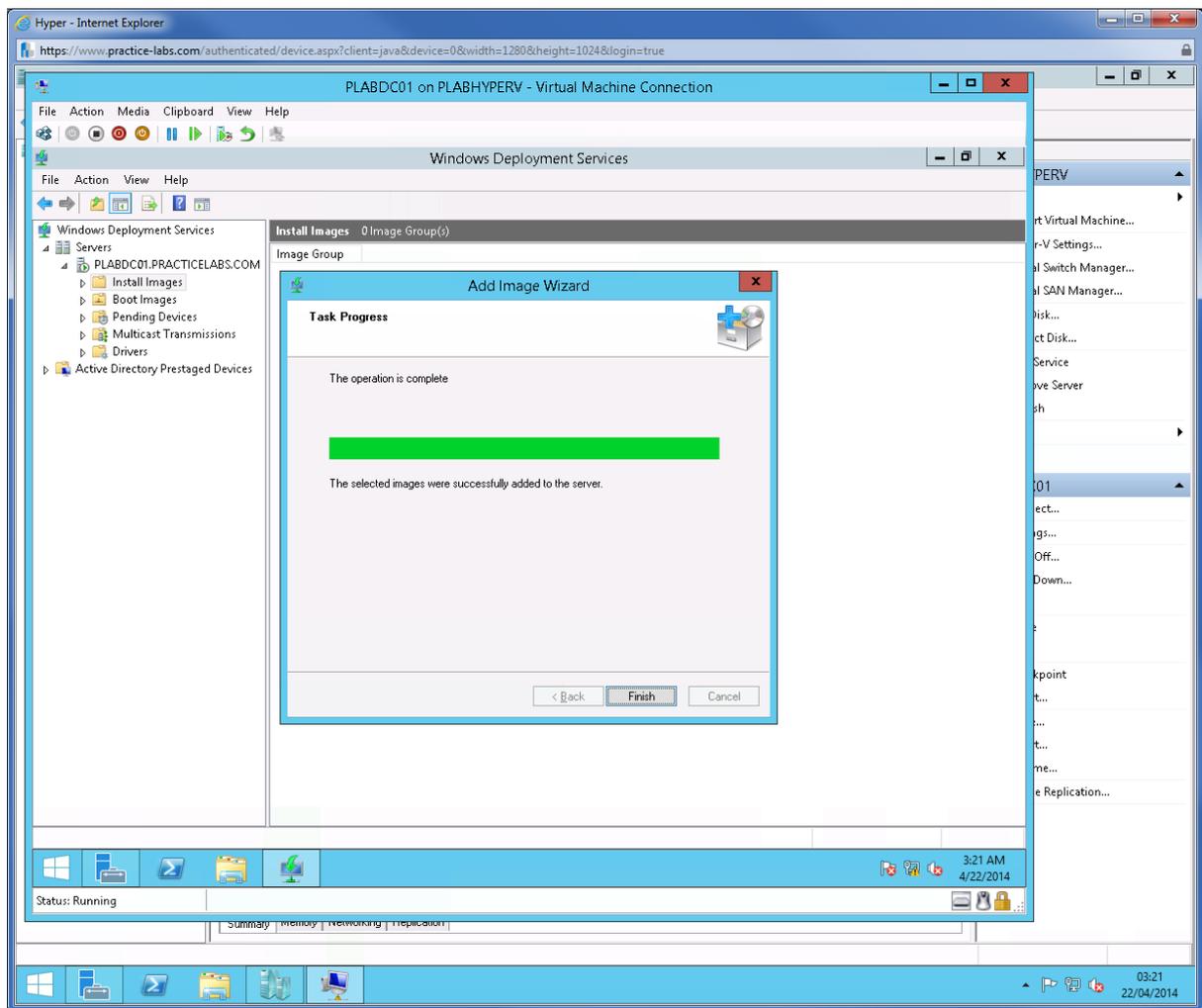
Wait while the image is being added to WDS server.

This may take a few minutes.



Step 7

Click **Finish** when operation is complete.

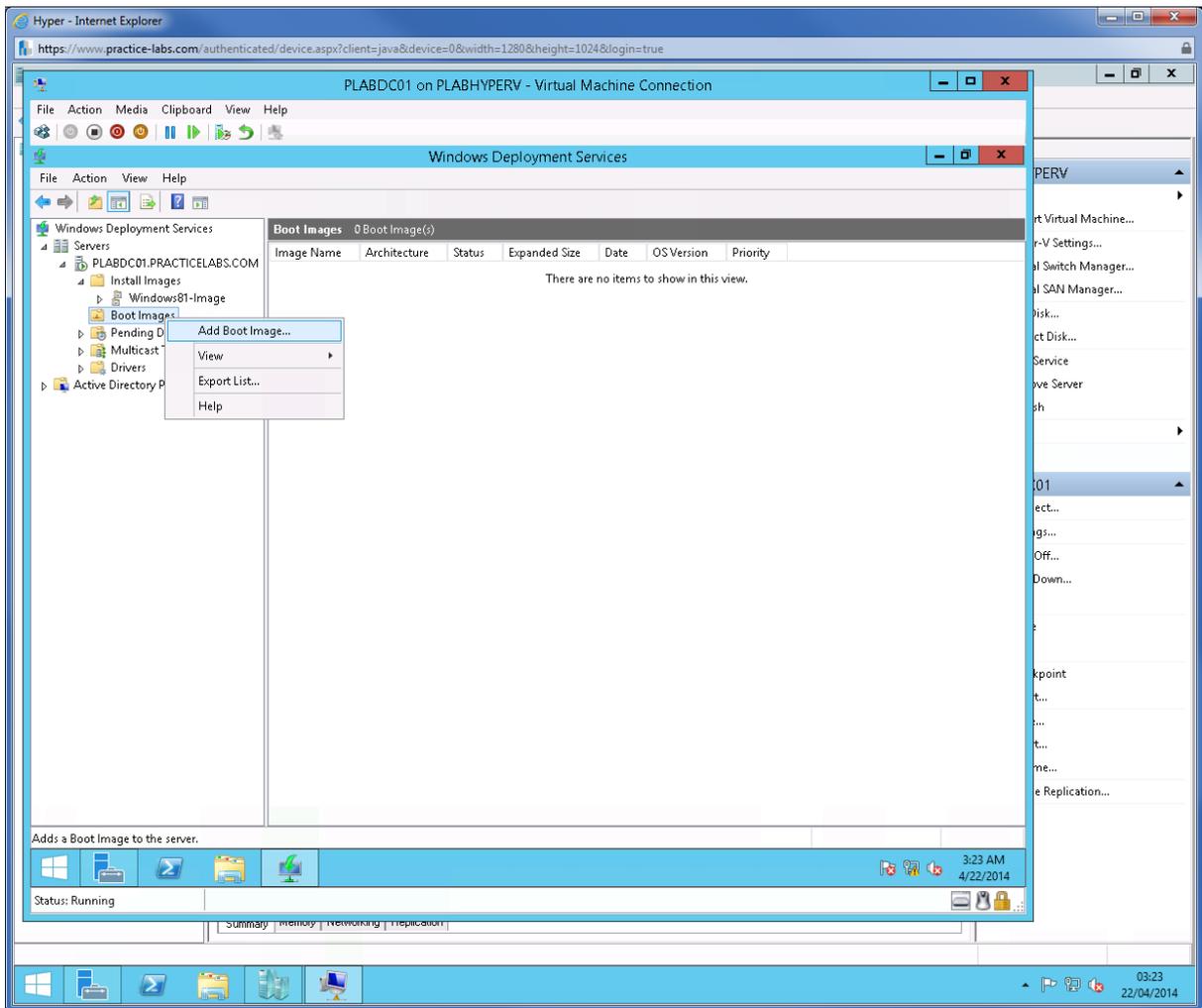


Task 3: Add Boot Image

In this task you will add a boot image that will be used to boot bare metal computers to connect to WDS server.

Step 1

Under **PLABDC01.PRACTICELABS.COM**, right-click on **Boot Images** and choose **Add Boot Image**.

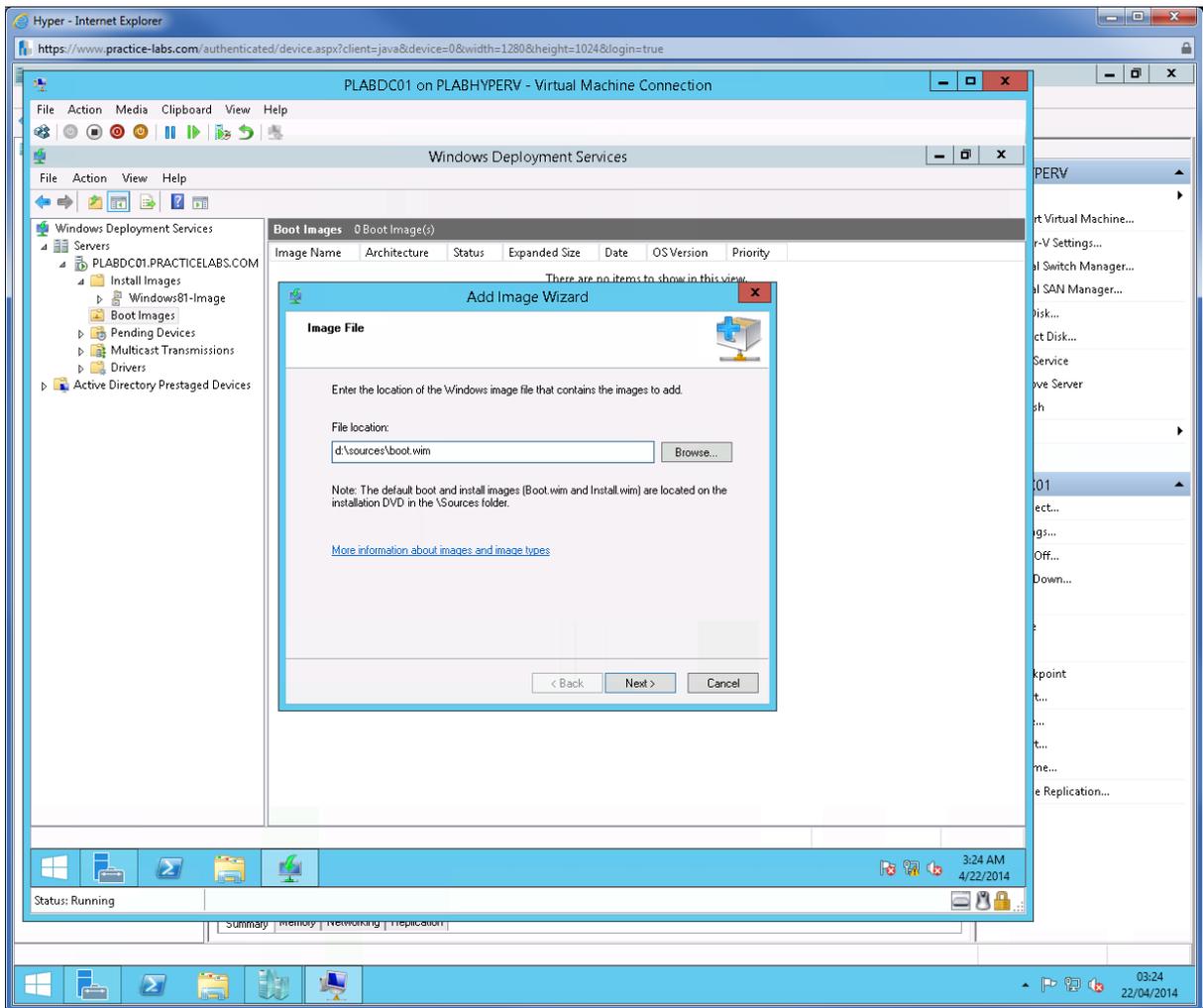


Step 2

In Image File page, type

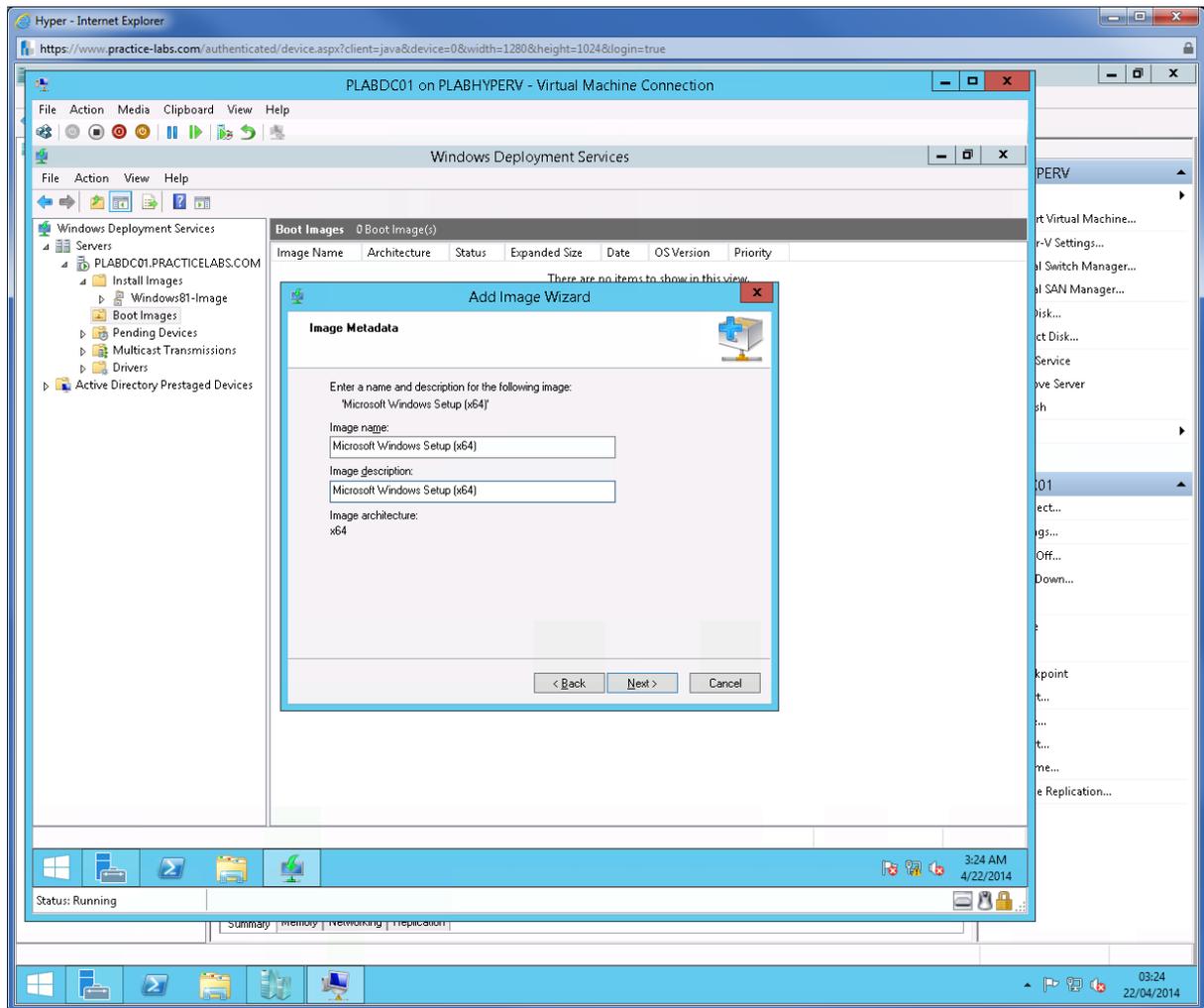
D:\sources\boot.wim

Click **Next**.



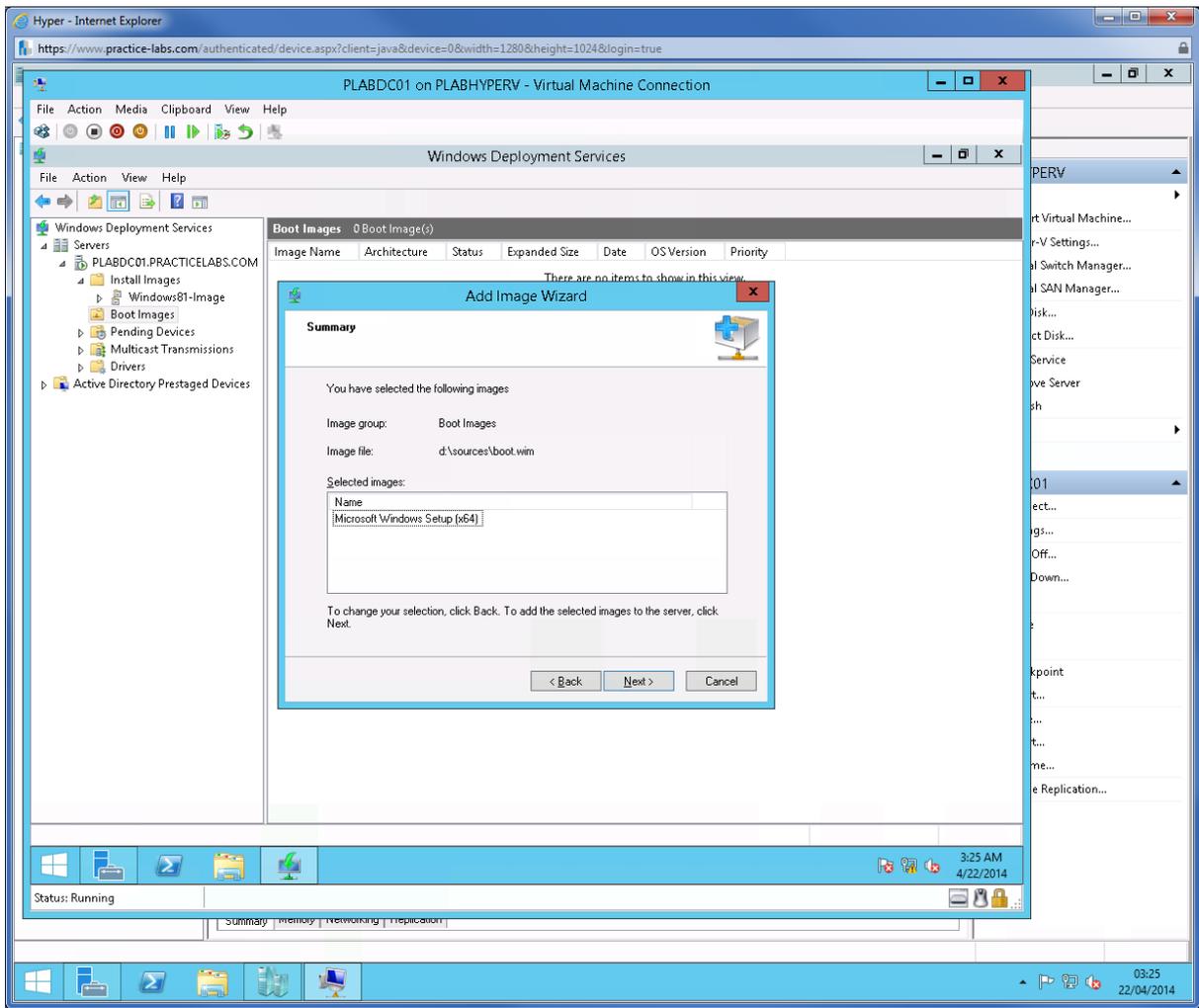
Step 3

From Image Metadata, click **Next**.



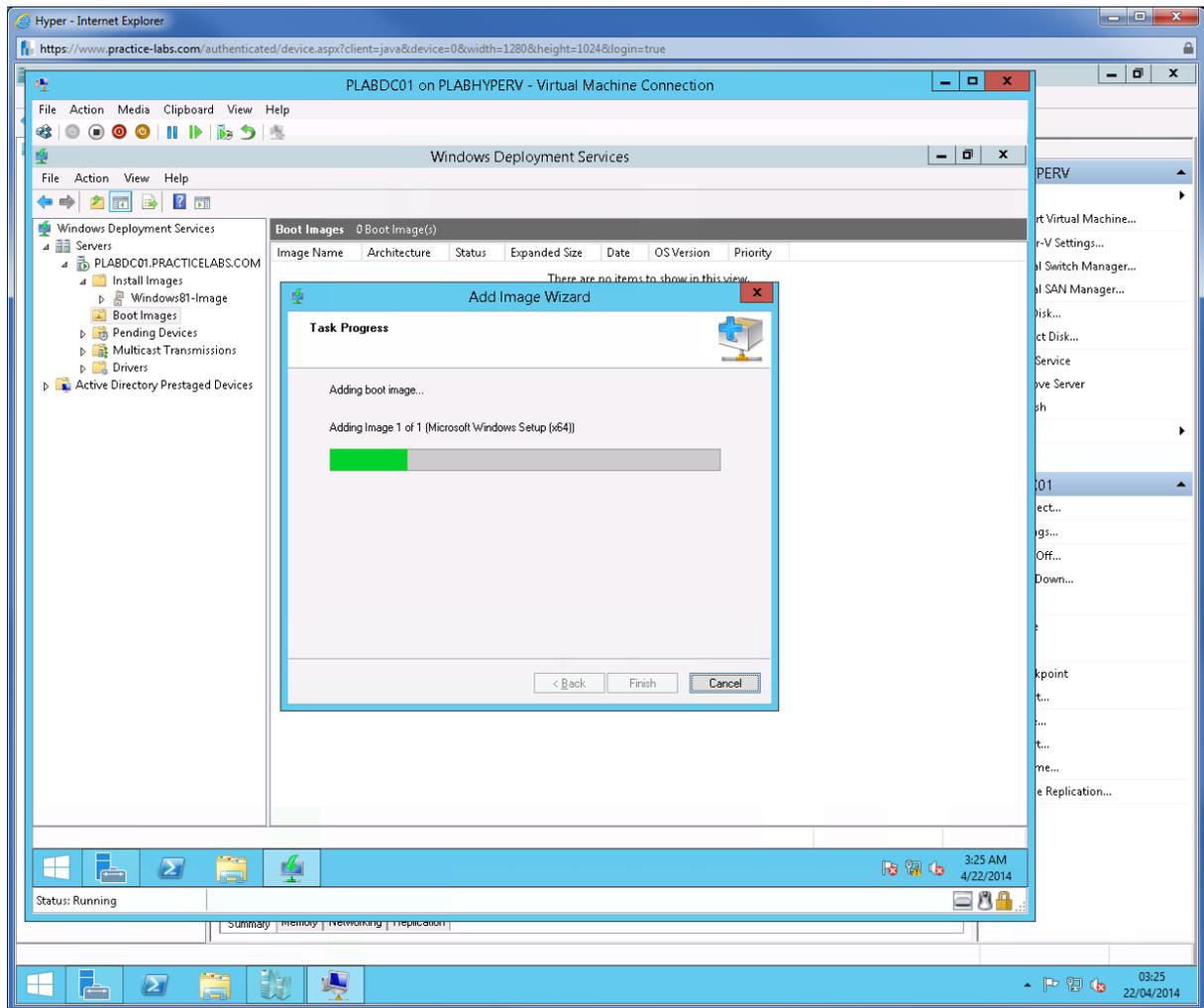
Step 4

From Summary page, click **Next**.



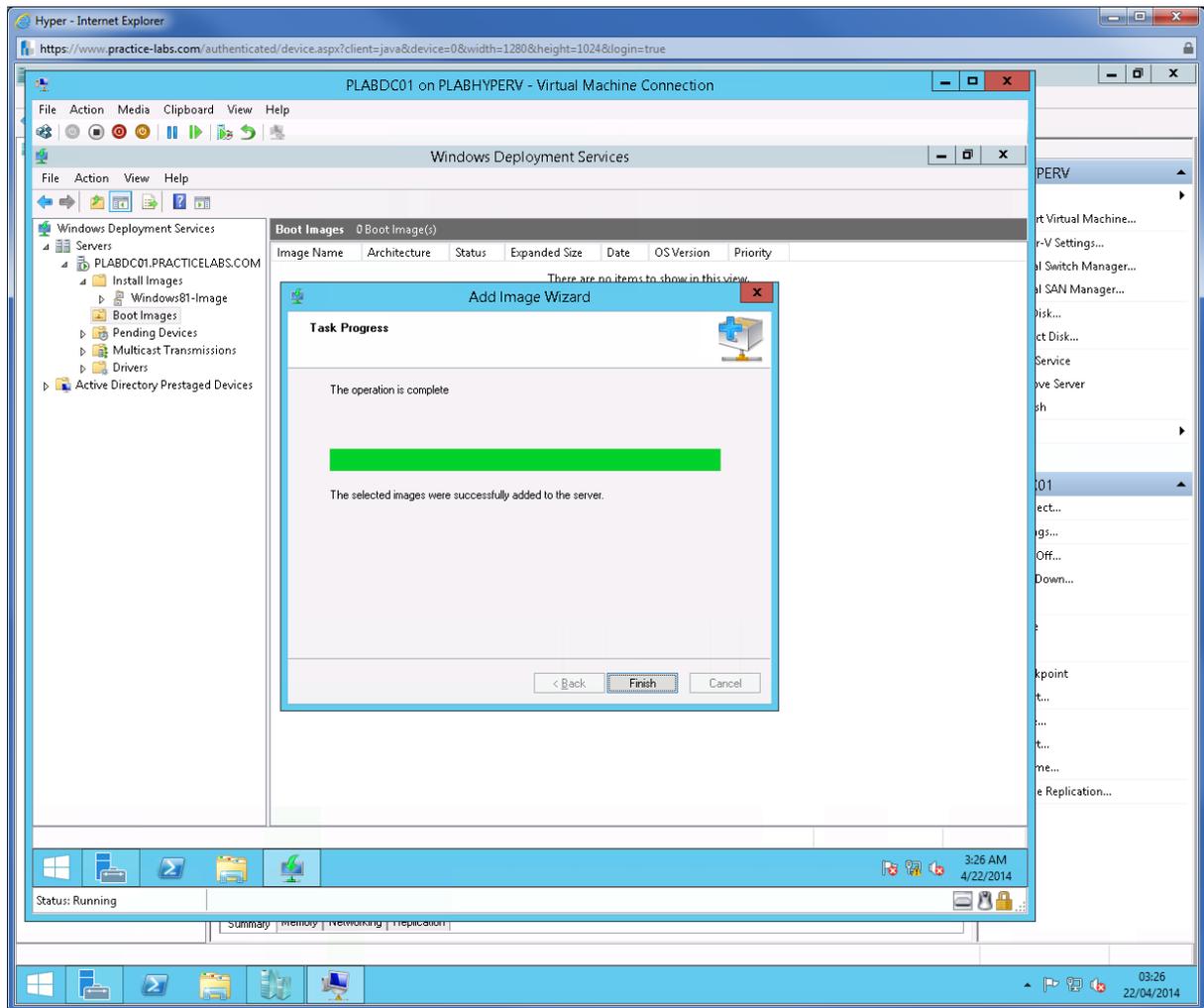
Step 5

Wait while the boot image is added.



Step 6

Click **Finish** when the operation is completed.

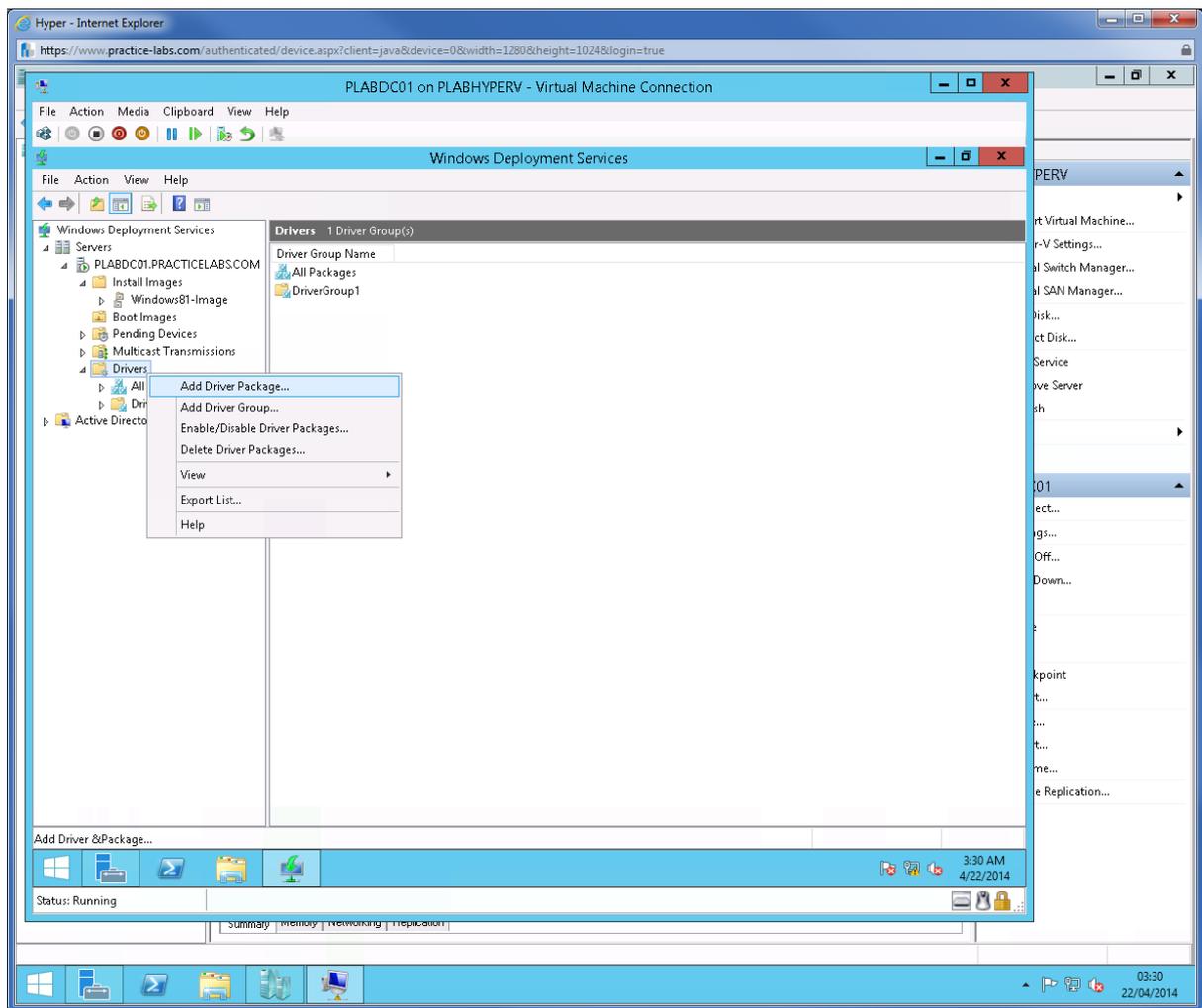


Task 4: Add Driver packages

You can add driver packages which are downloaded separately and integrate them with WDS

Step 1

From PLABDC01.PRACTICELABS.COM, right-click **Drivers** folder and choose **Add Driver Package**.



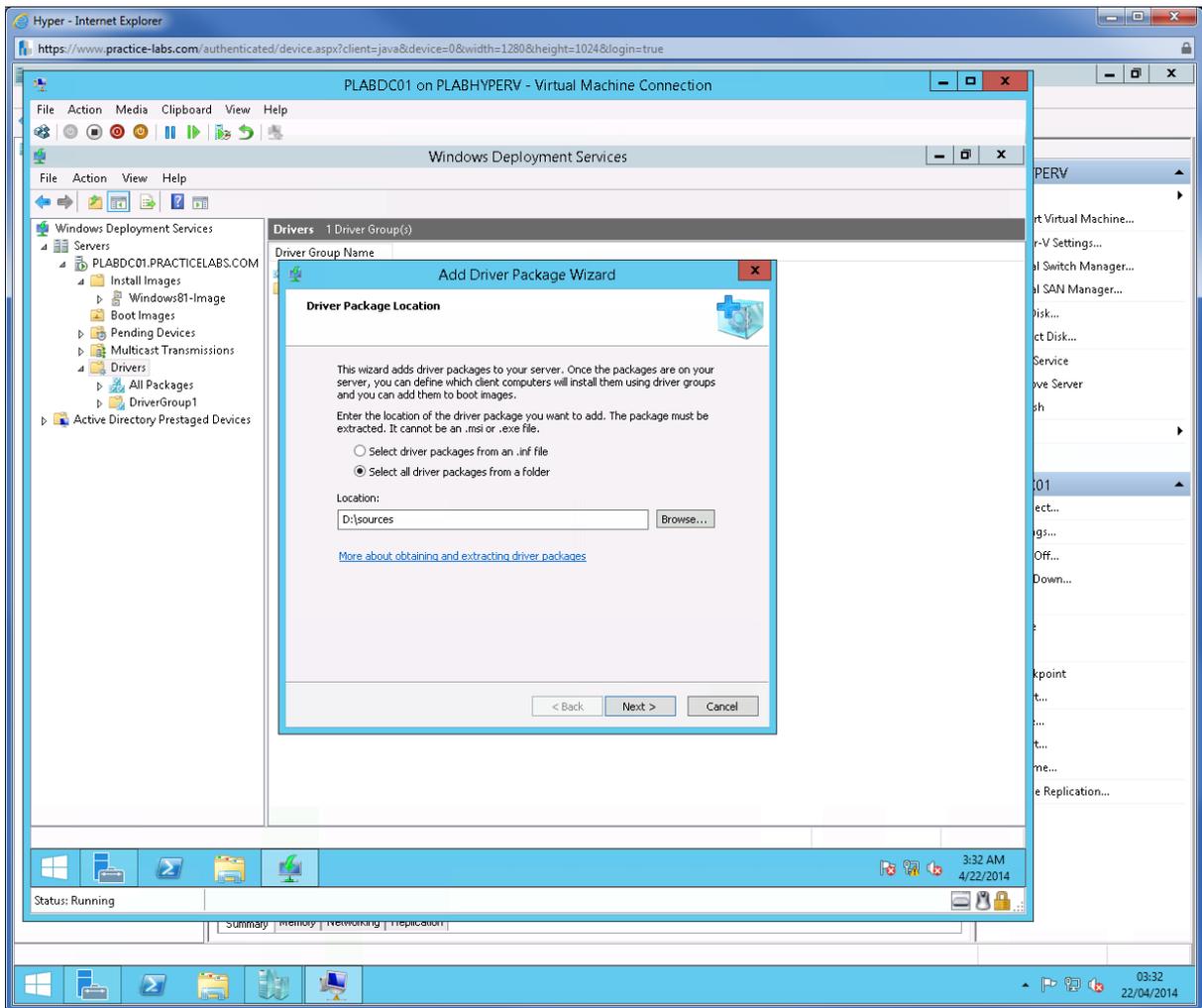
Step 2

In Driver Package Location page, click **Select all driver packages from a folder** option.

Click in **Location** box and type

D:\sources

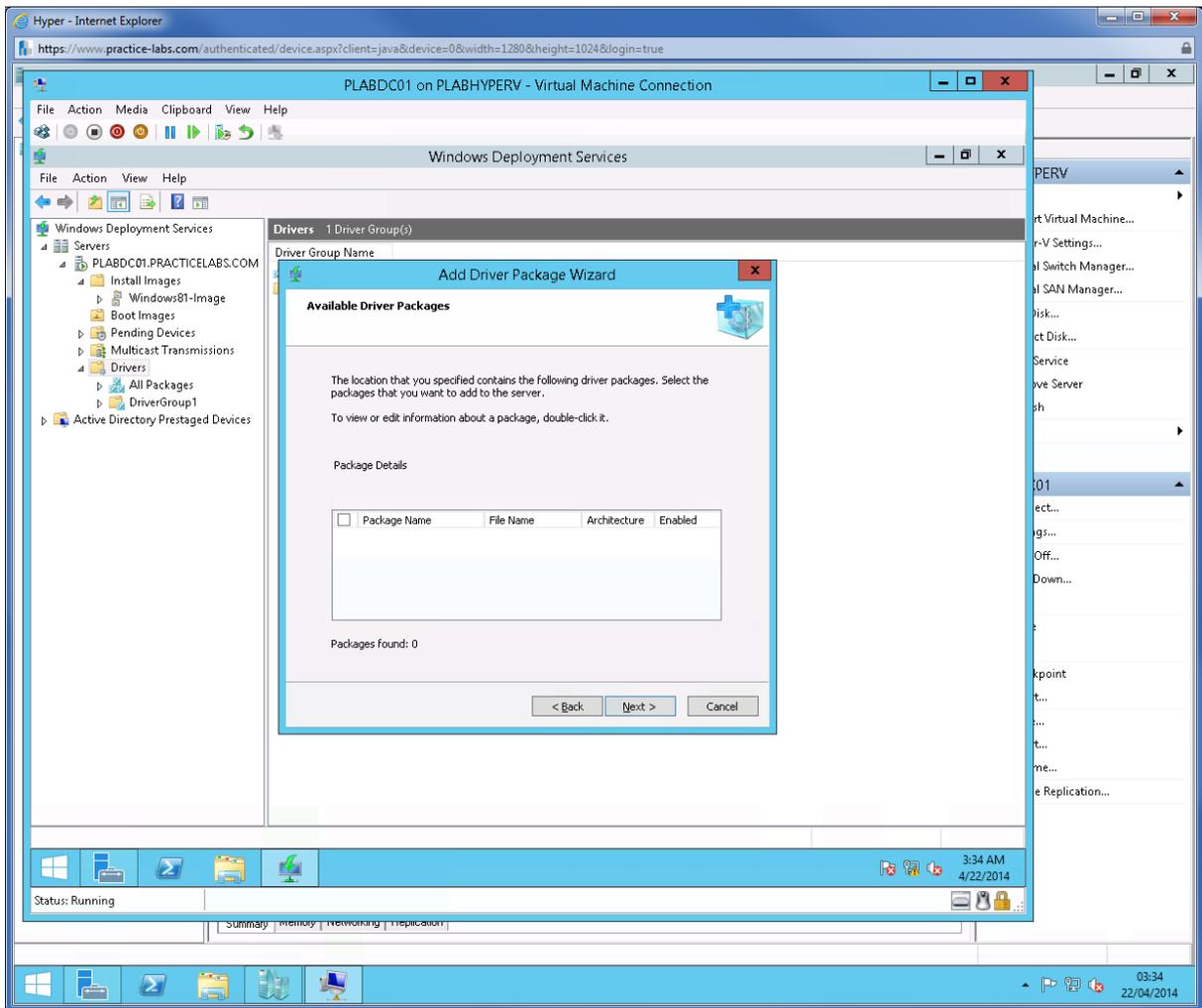
Click **Next**.



Step 3

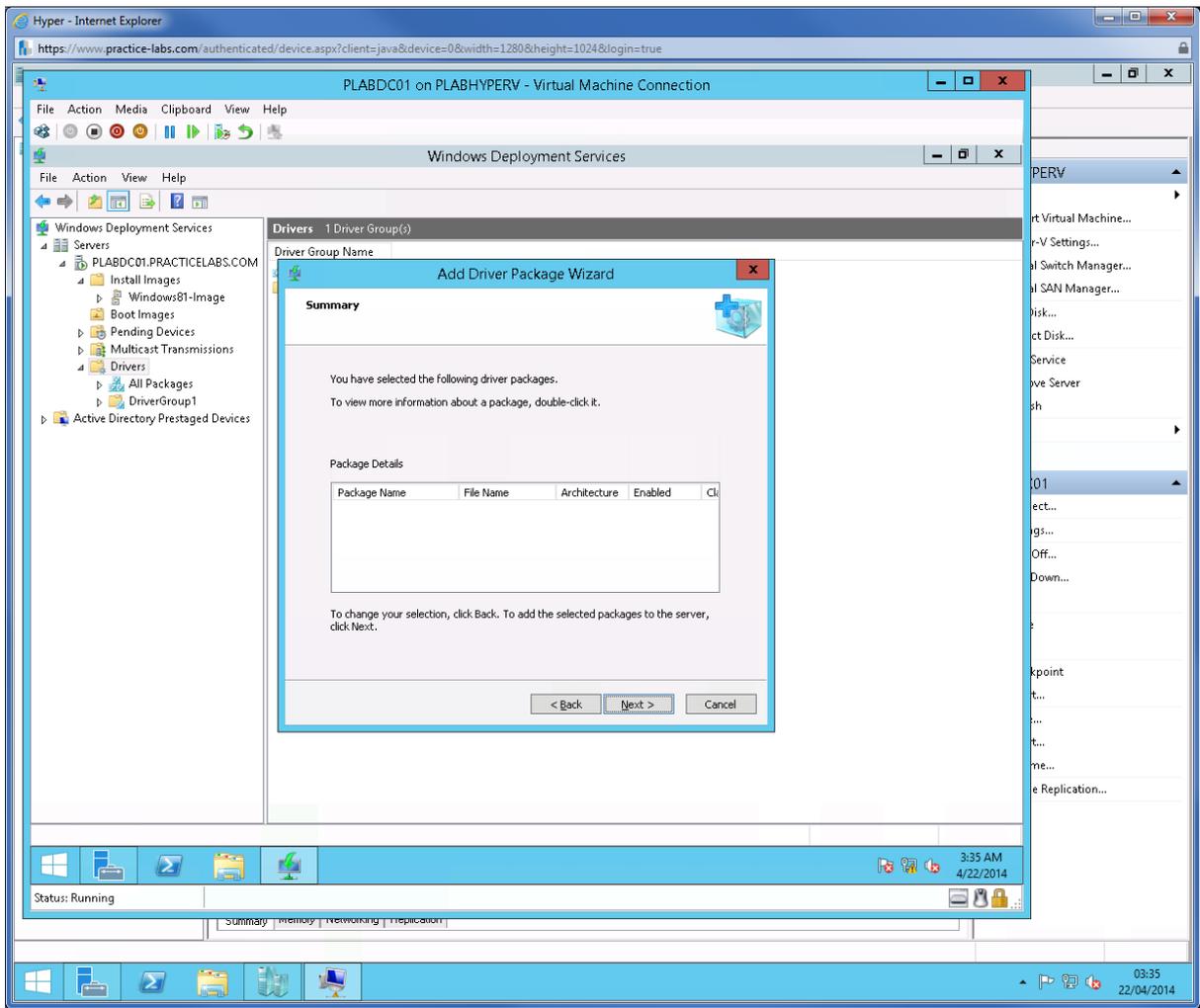
The system will read the driver files located in the directory.

Click **Next** when it becomes available.



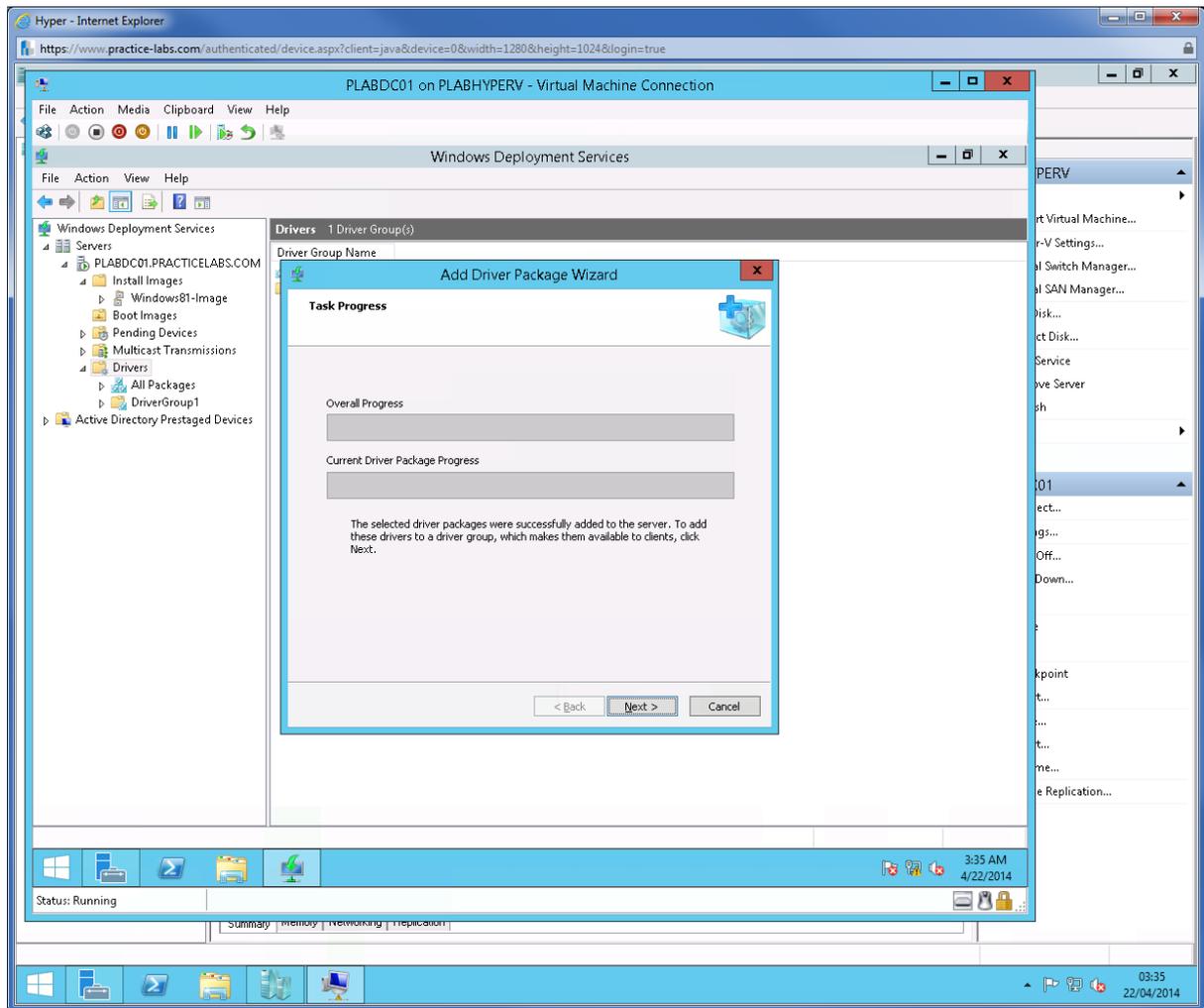
Step 4

From Summary page, click **Next**.



Step 5

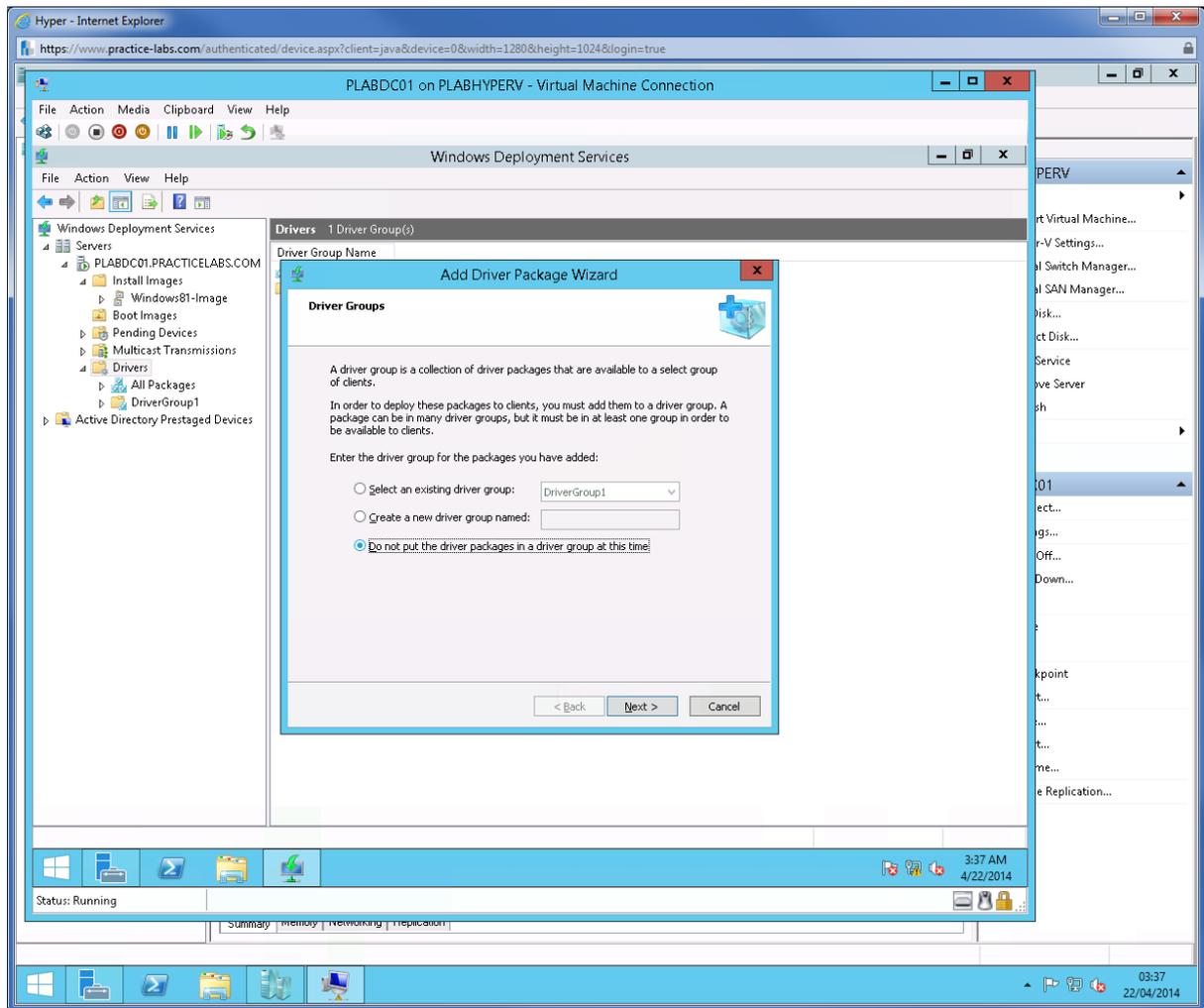
In Task Progress page, click **Next**.



Step 6

From Driver Groups page, select **Do not put the driver packages at this time.**

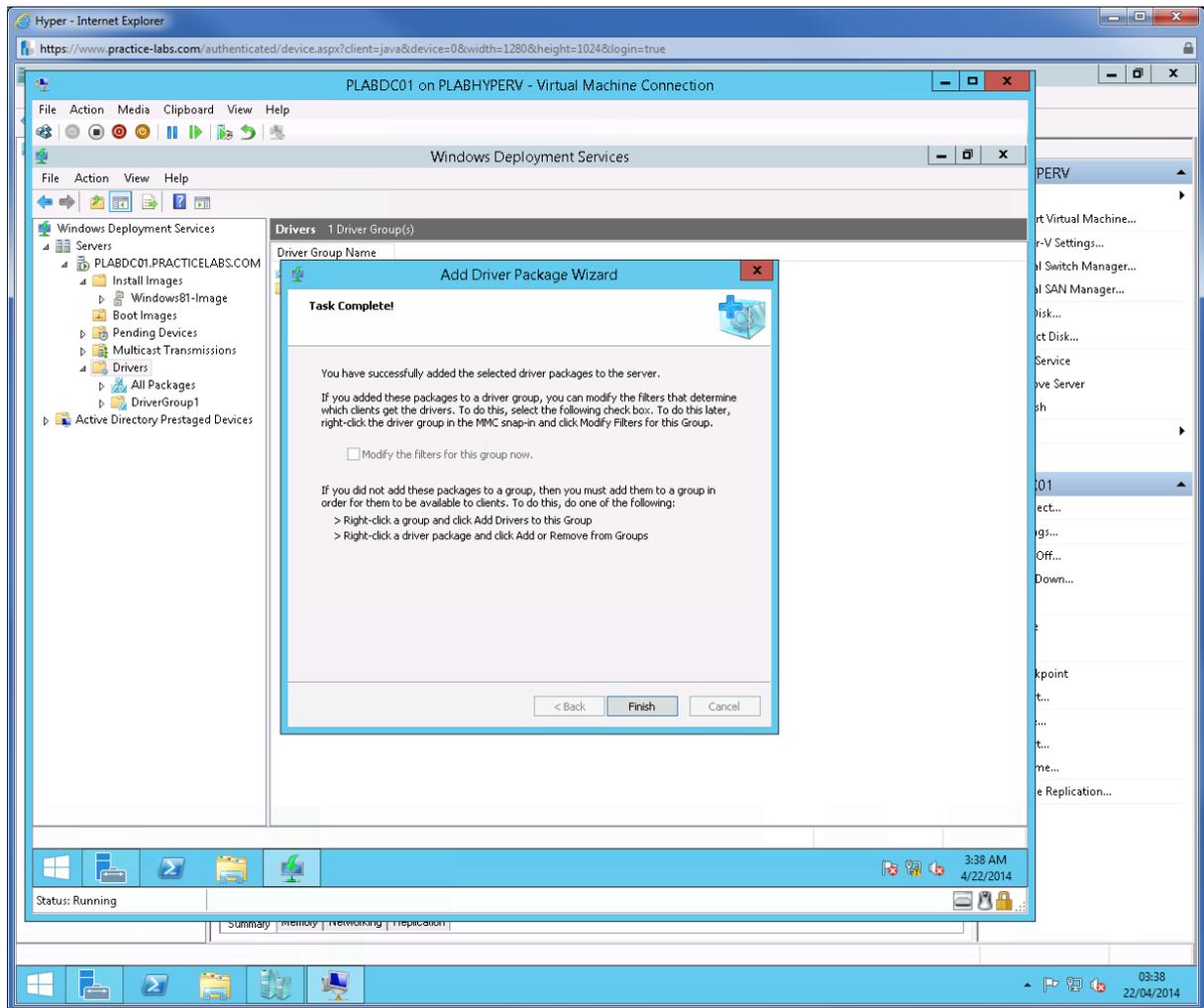
Click **Next.**



Step 7

In Task Complete page, click **Finish**.

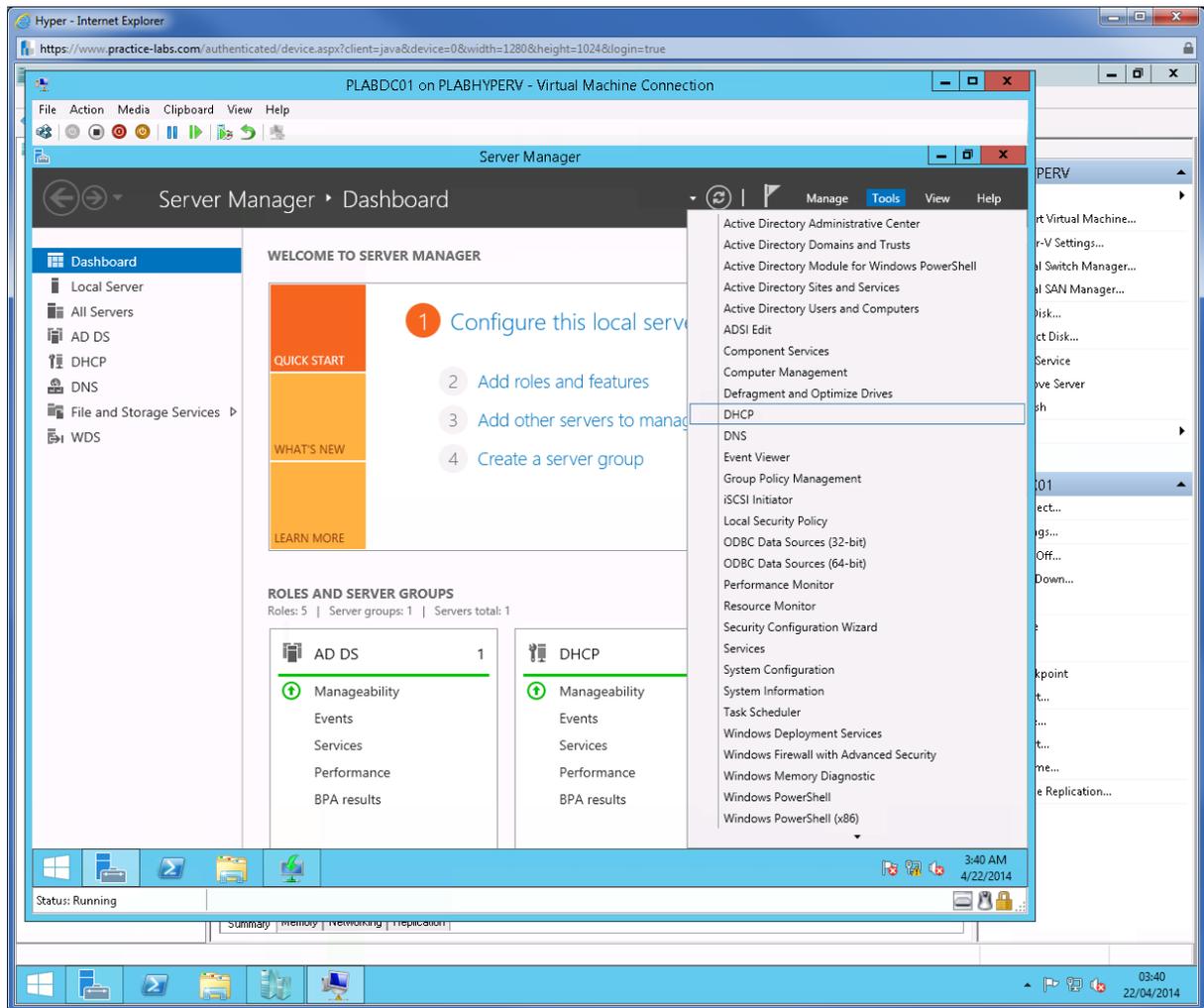
Minimize Windows Deployment Services.



Task 5: Configure DHCP to support WDS

Step 1

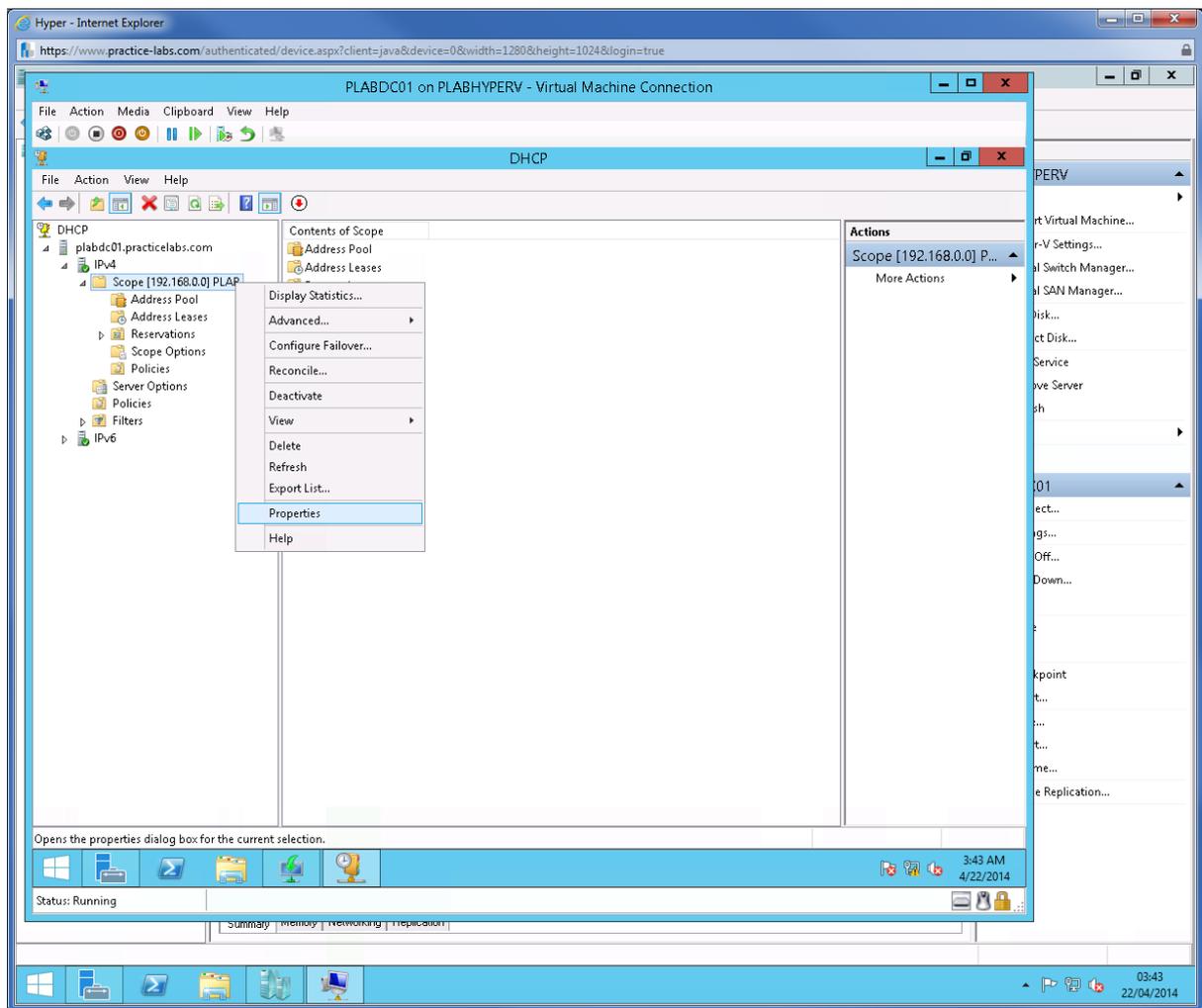
Reopen Server Manager and go to **Tools > DHCP**.



Step 2

Expand **plabdc01.practicelabs.com** > **IPv4**.

Right-click on **Scope [192.168.0.0]** and choose **Properties**.

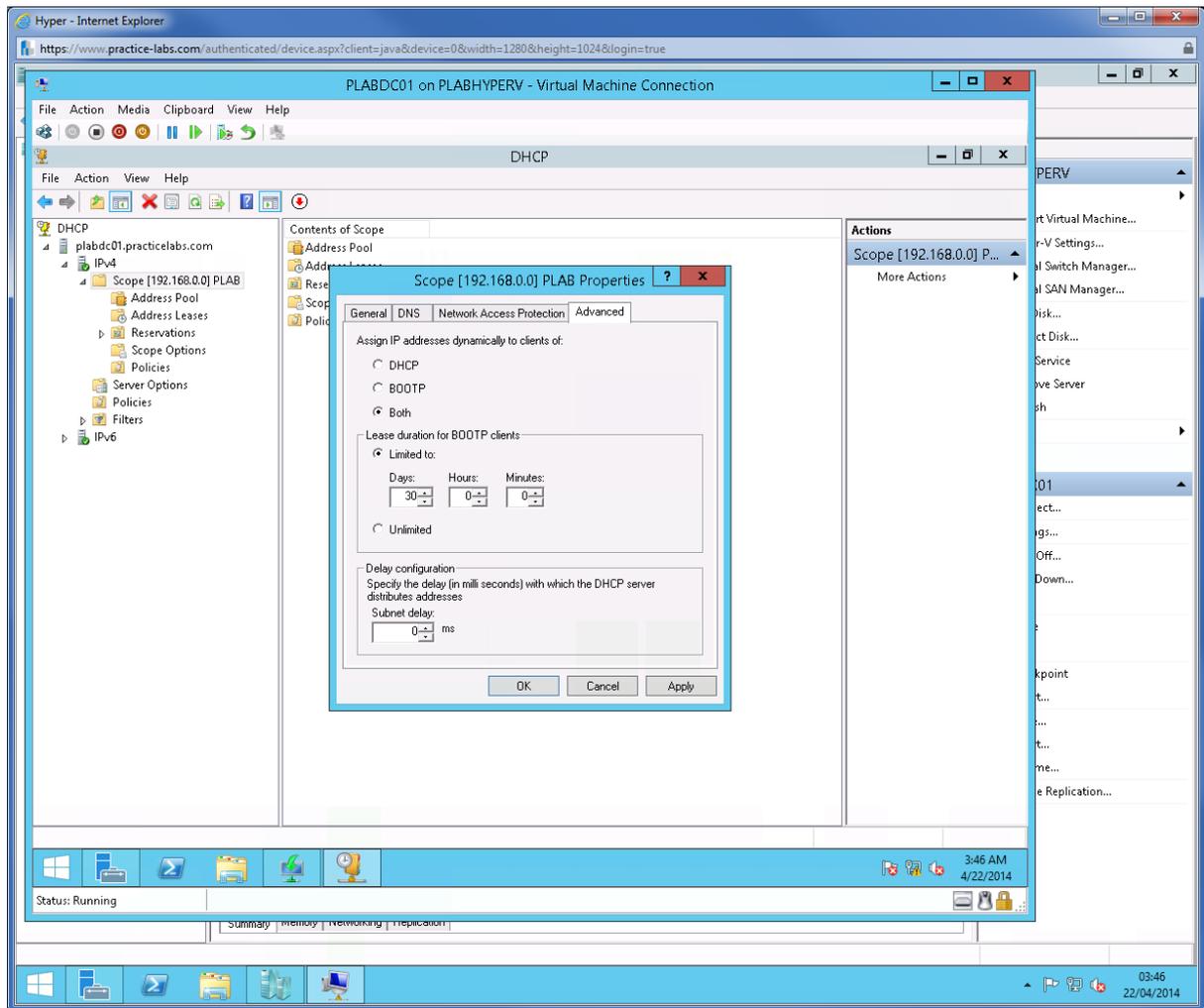


Step 3

In Scope [192.168.0.0] PLAB Properties, click **Both**.

Click **OK** and close DHCP Manager.

Minimize PLABDC01 window.

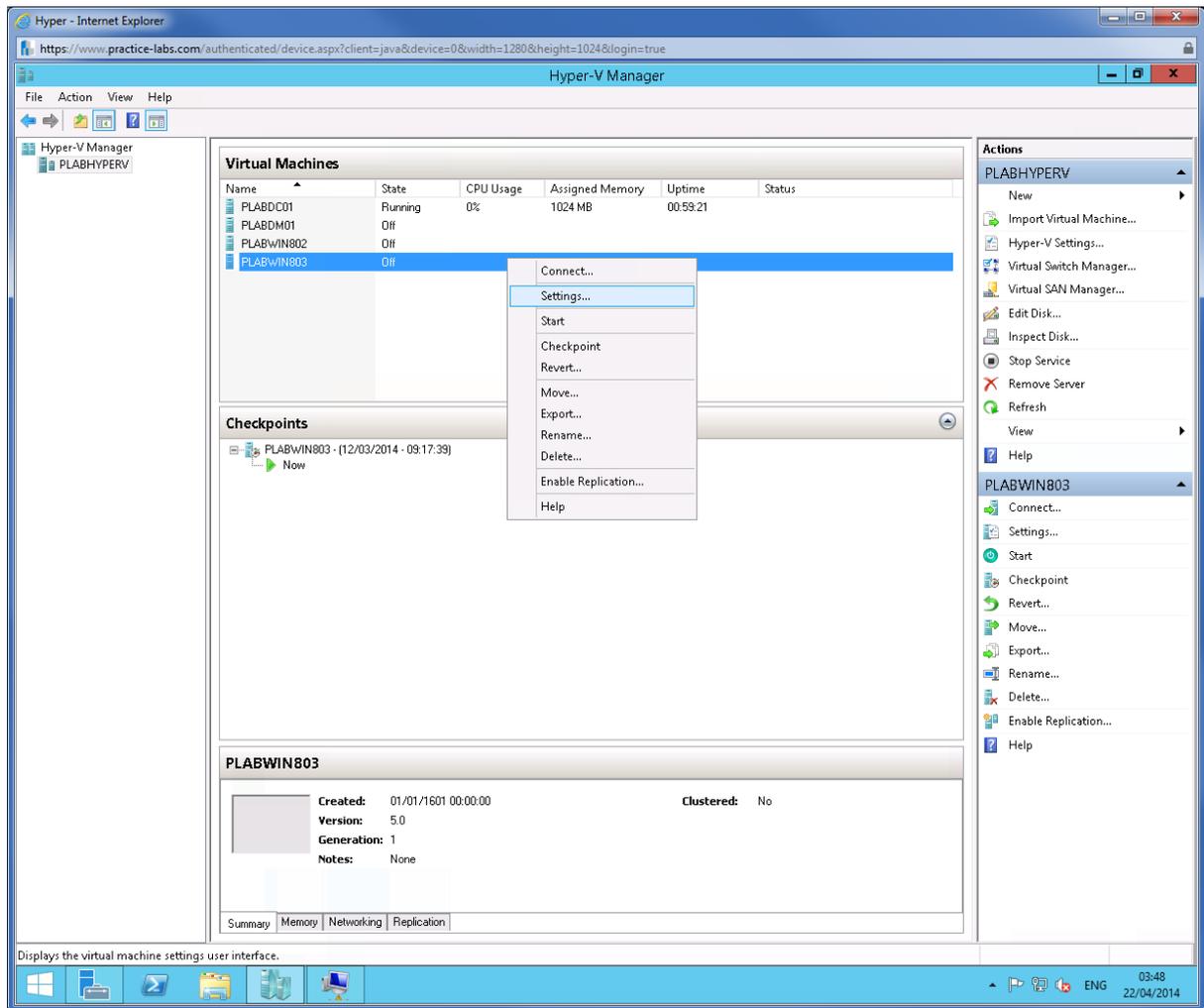


Task 6: Apply the image on a new computer

Step 1

Switch to PLABHYPERV host, reopen Hyper-V Manager.

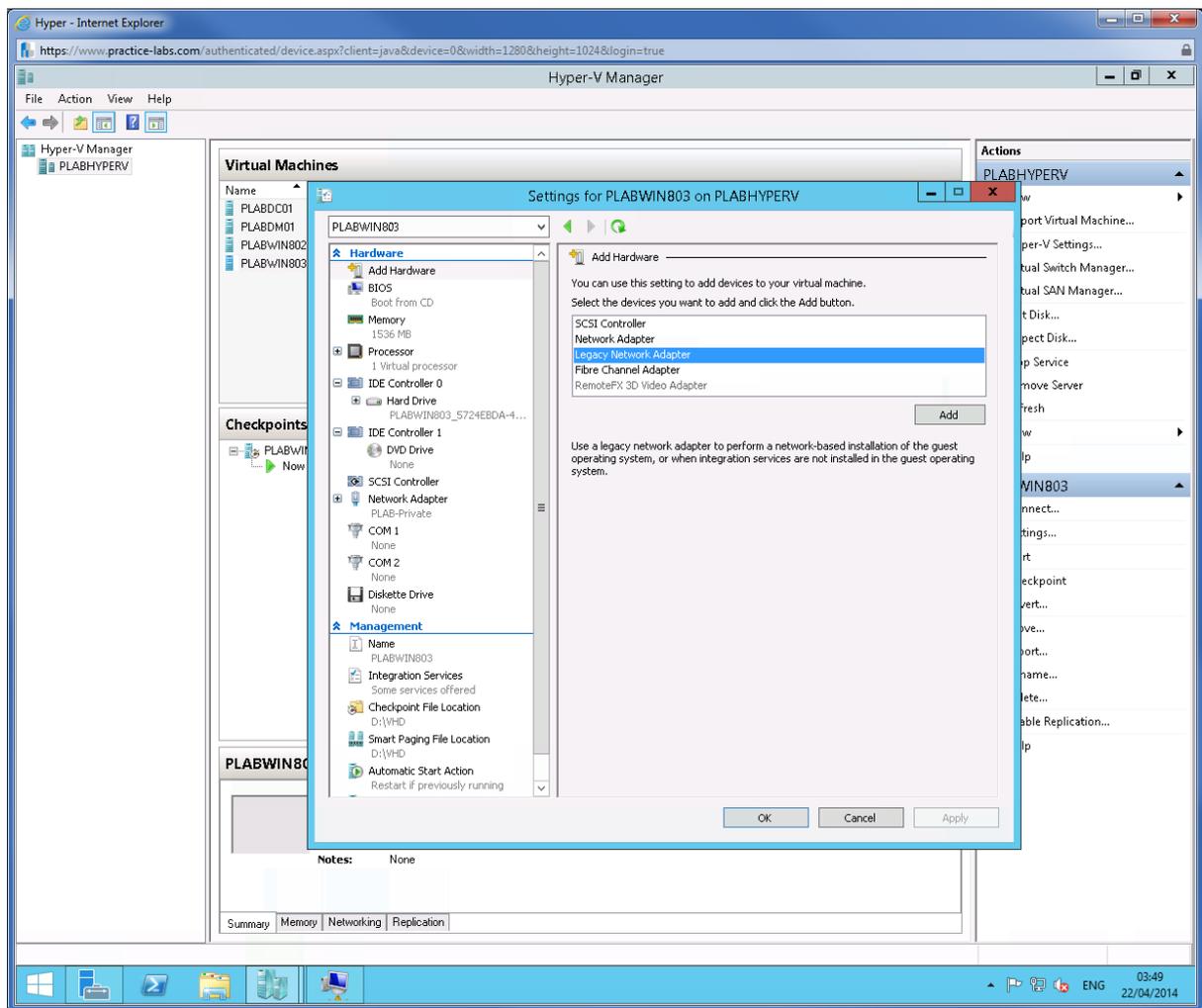
Right-click on **PLABWIN803** and choose **Settings**.



Step 2

On Settings for PLABWIN803, click **Add Hardware**.

On Details pane, select **Legacy Network Adapter** and then click **Add**.

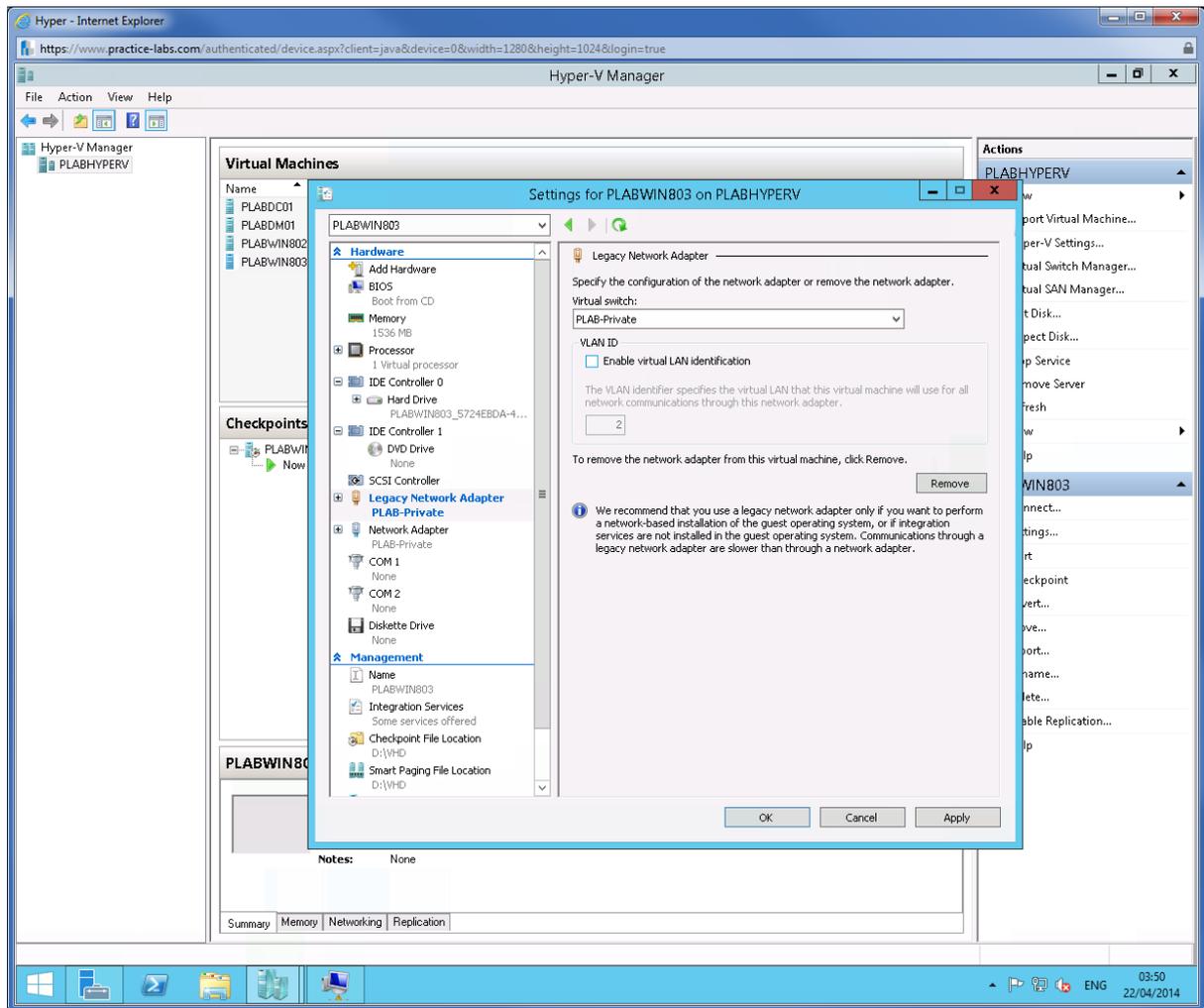


Step 3

The Legacy Network Adapter will automatically be added.

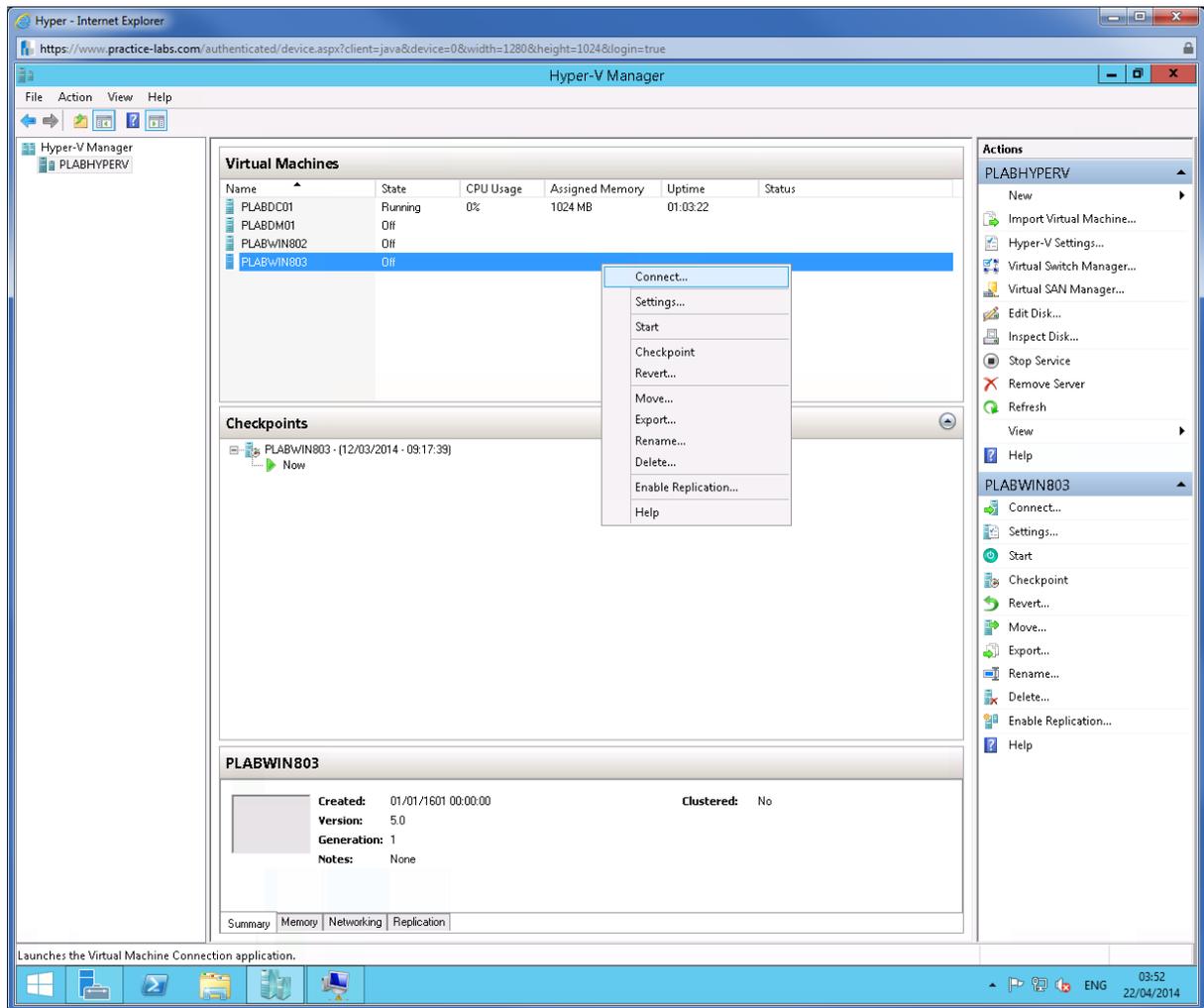
On right details pane, go to **Virtual switch** section change it to **PLAB-Private**.

Click **OK** to save settings.



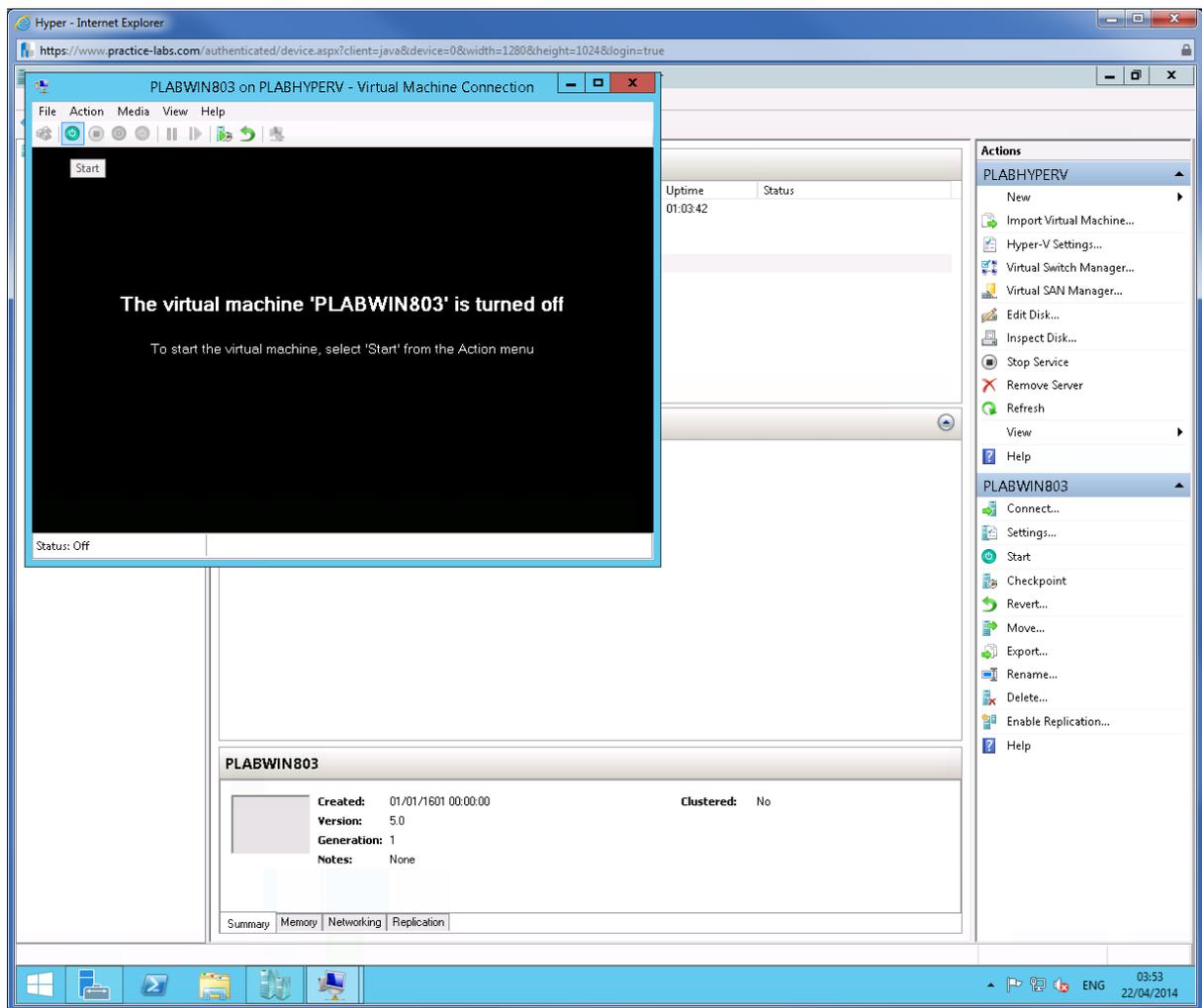
Step 4

Right-click on **PLABWIN803** and choose **Connect**.



Step 5

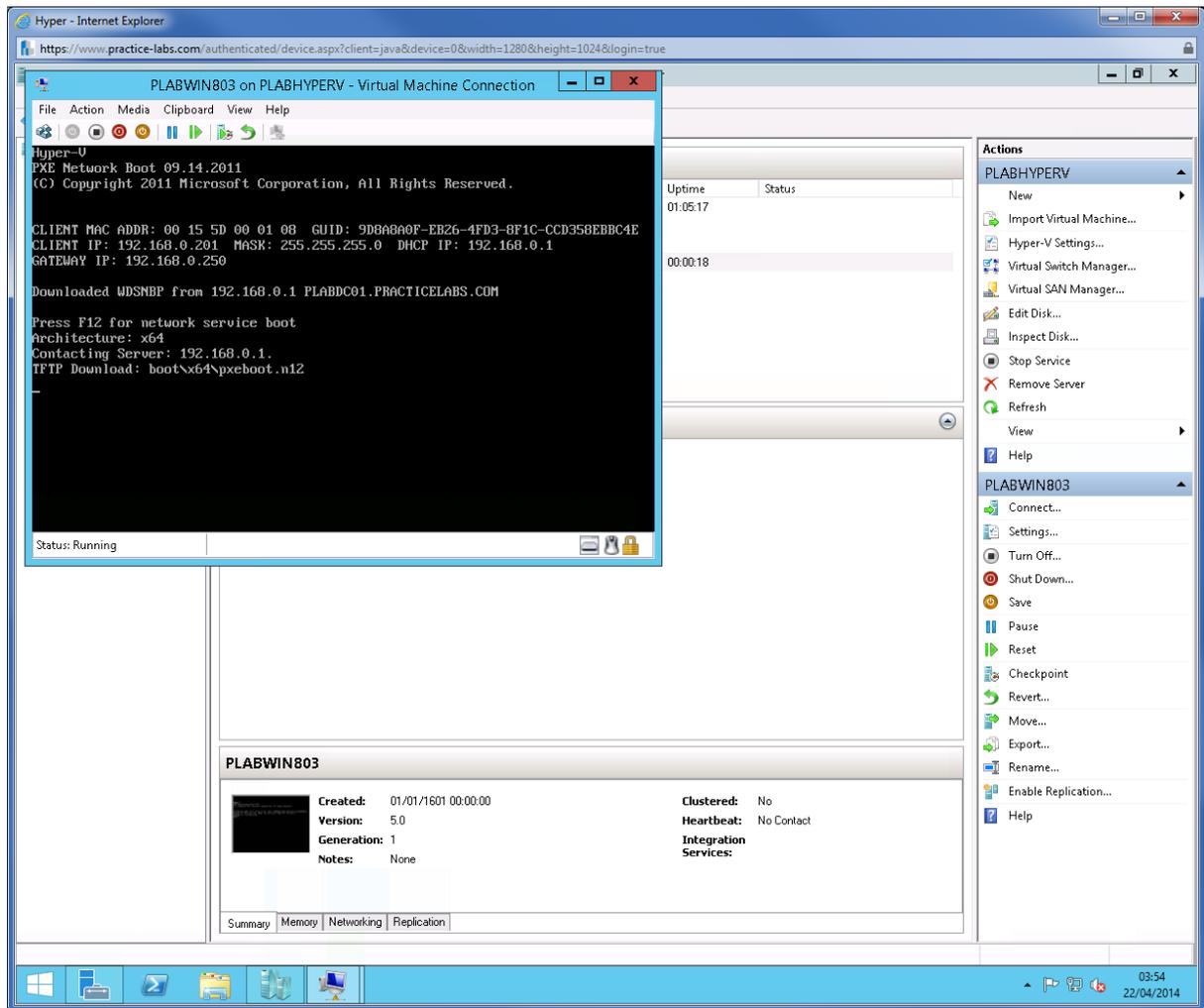
Click **Start** (green) button.



Step 6

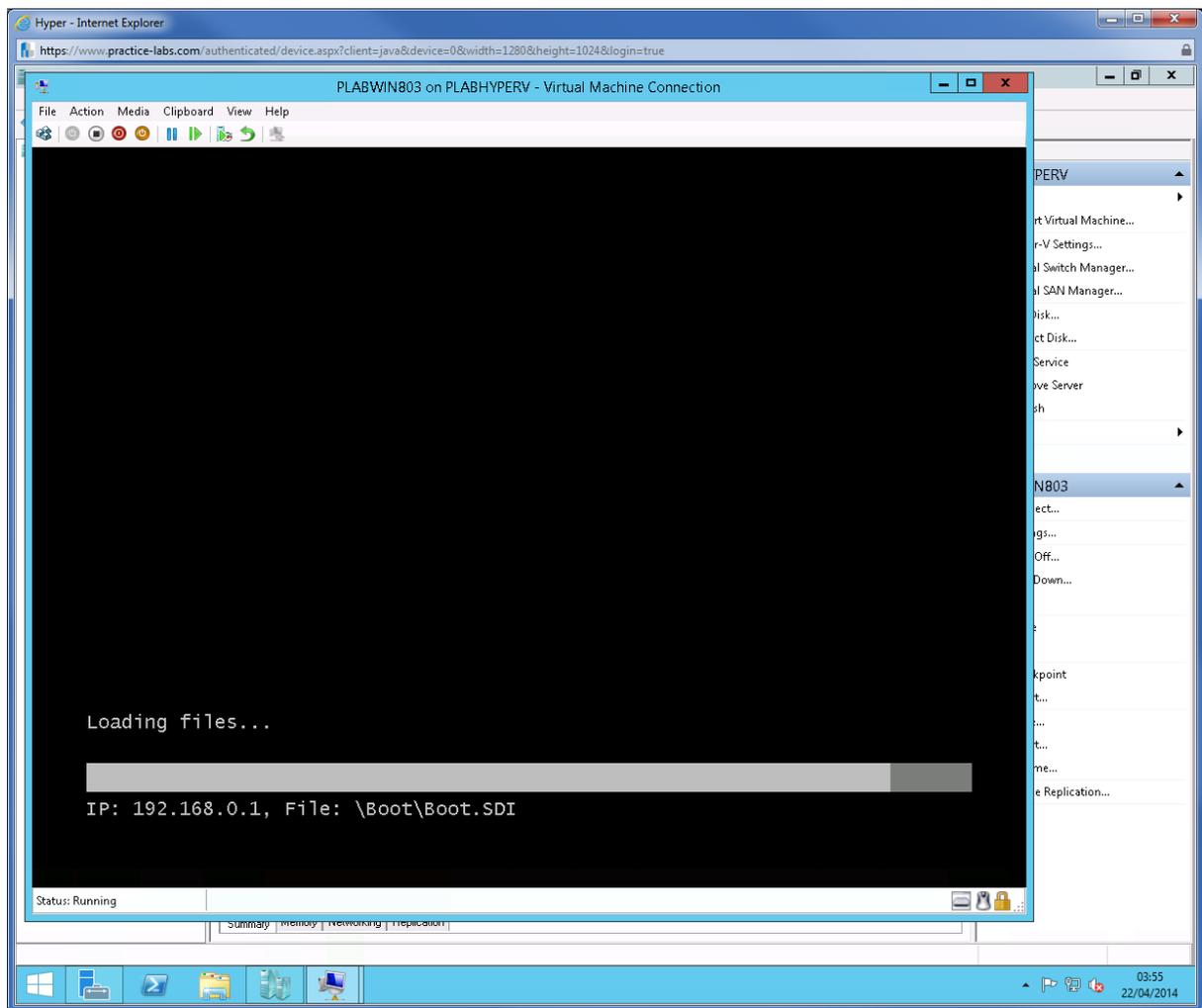
PLABWIN803 boots up and will contact DHCP to lease an IP address.

Press **F12** when prompted.



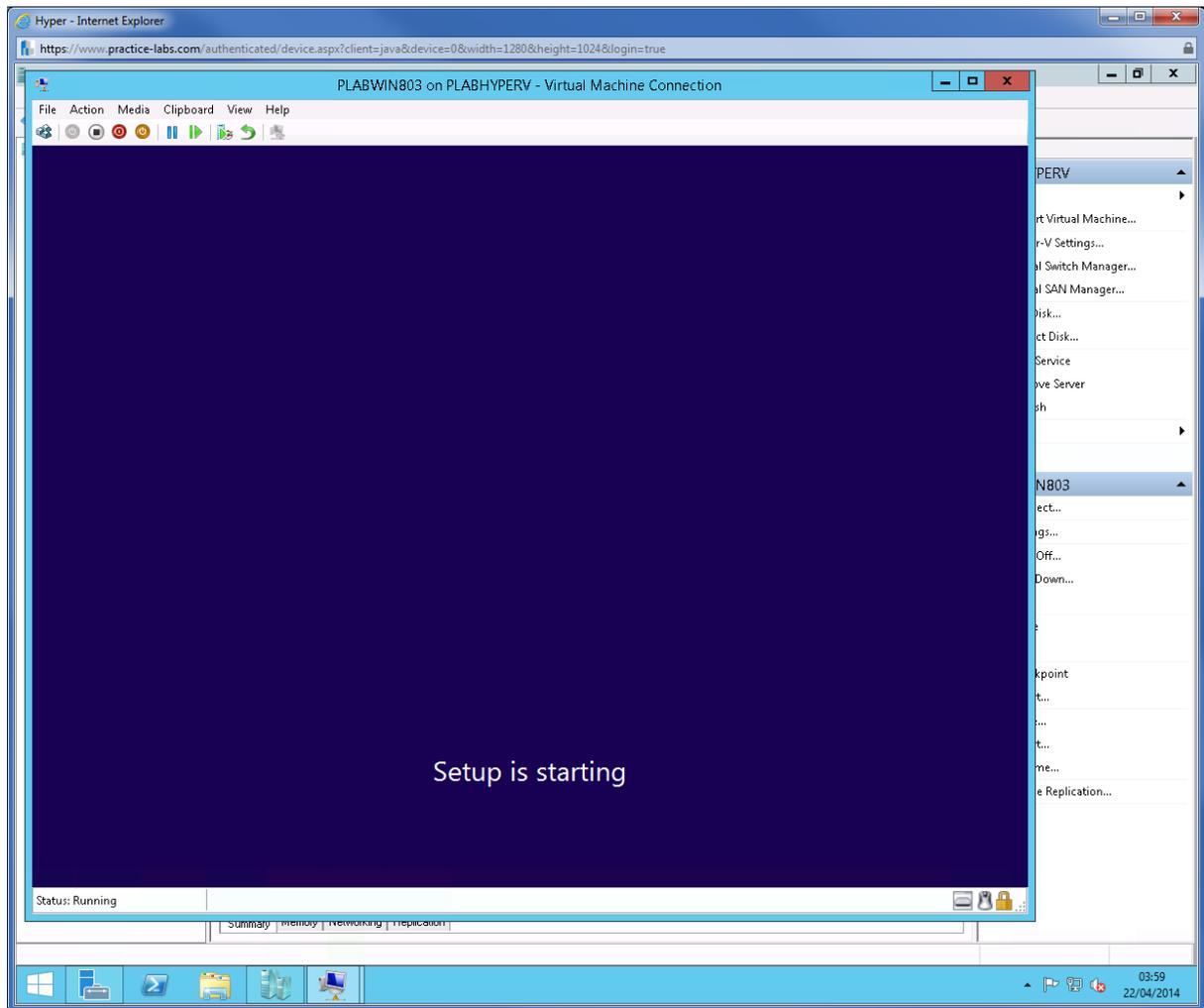
Step 7

Boot files will now be loaded. This may take a few minutes.



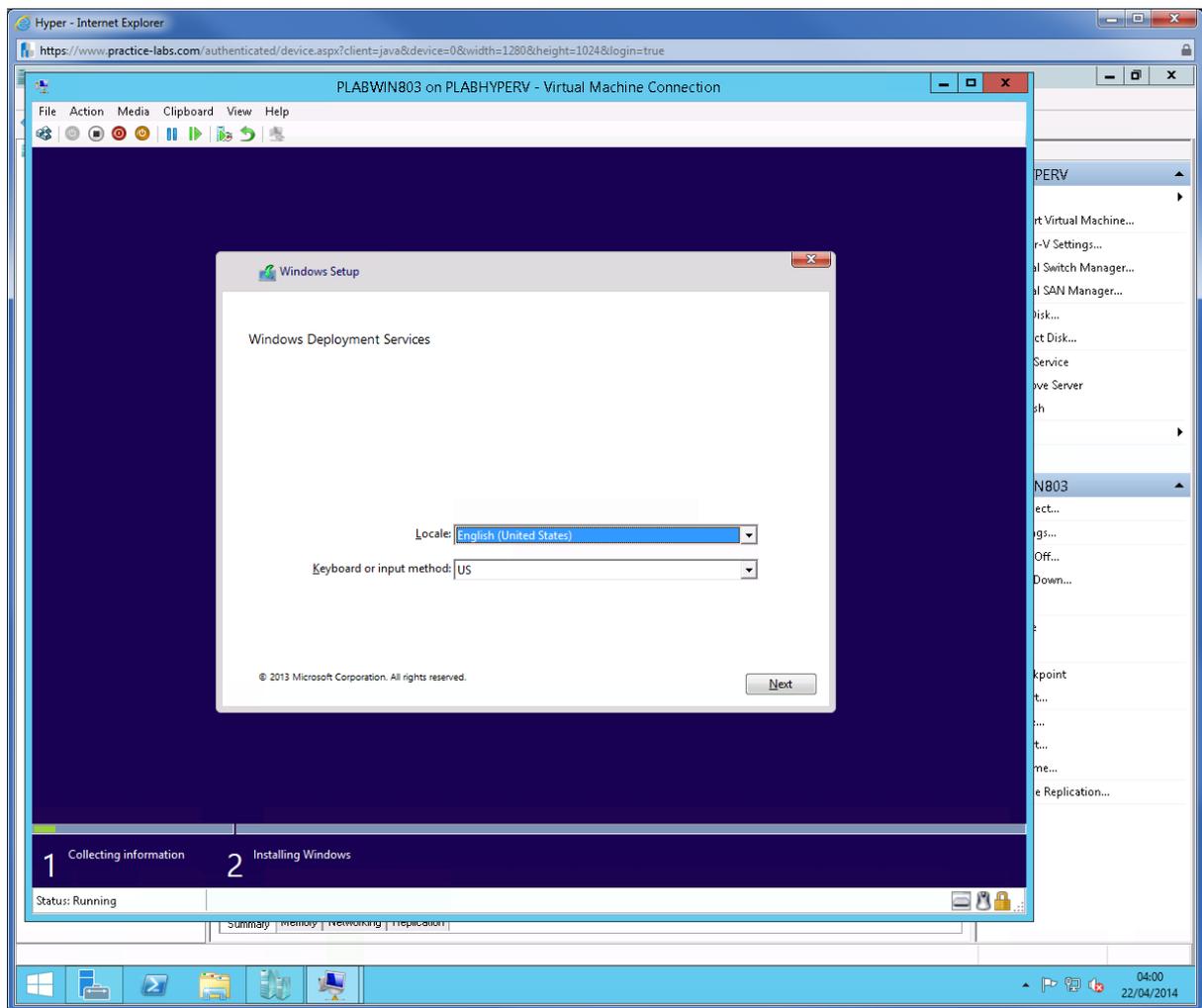
Step 8

Windows graphical setup begins.



Step 9

From Windows Deployment Services screen, click **Next**.



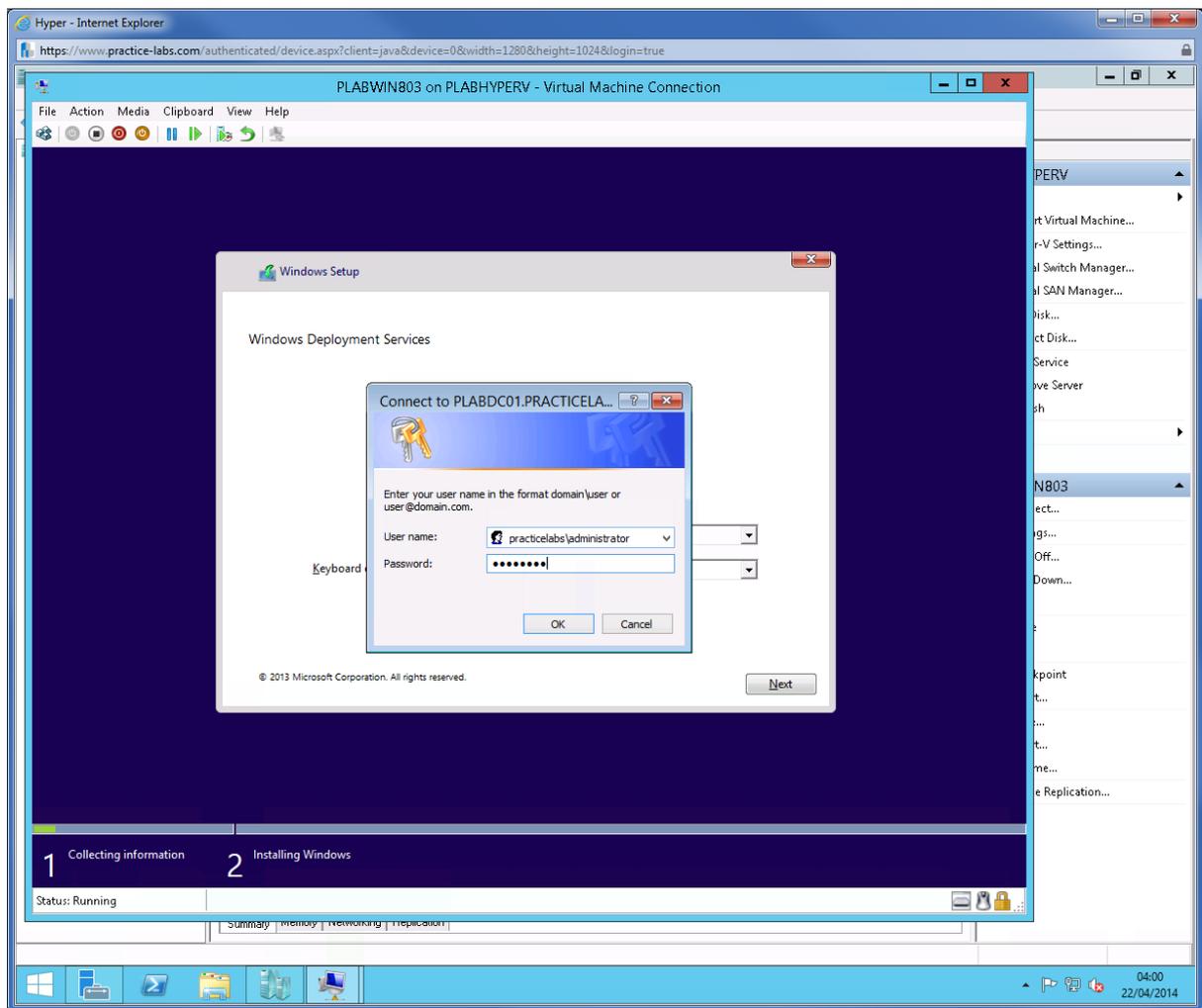
Step 10

When asked for user credentials, type

Practicelabs\administrator

Passw0rd

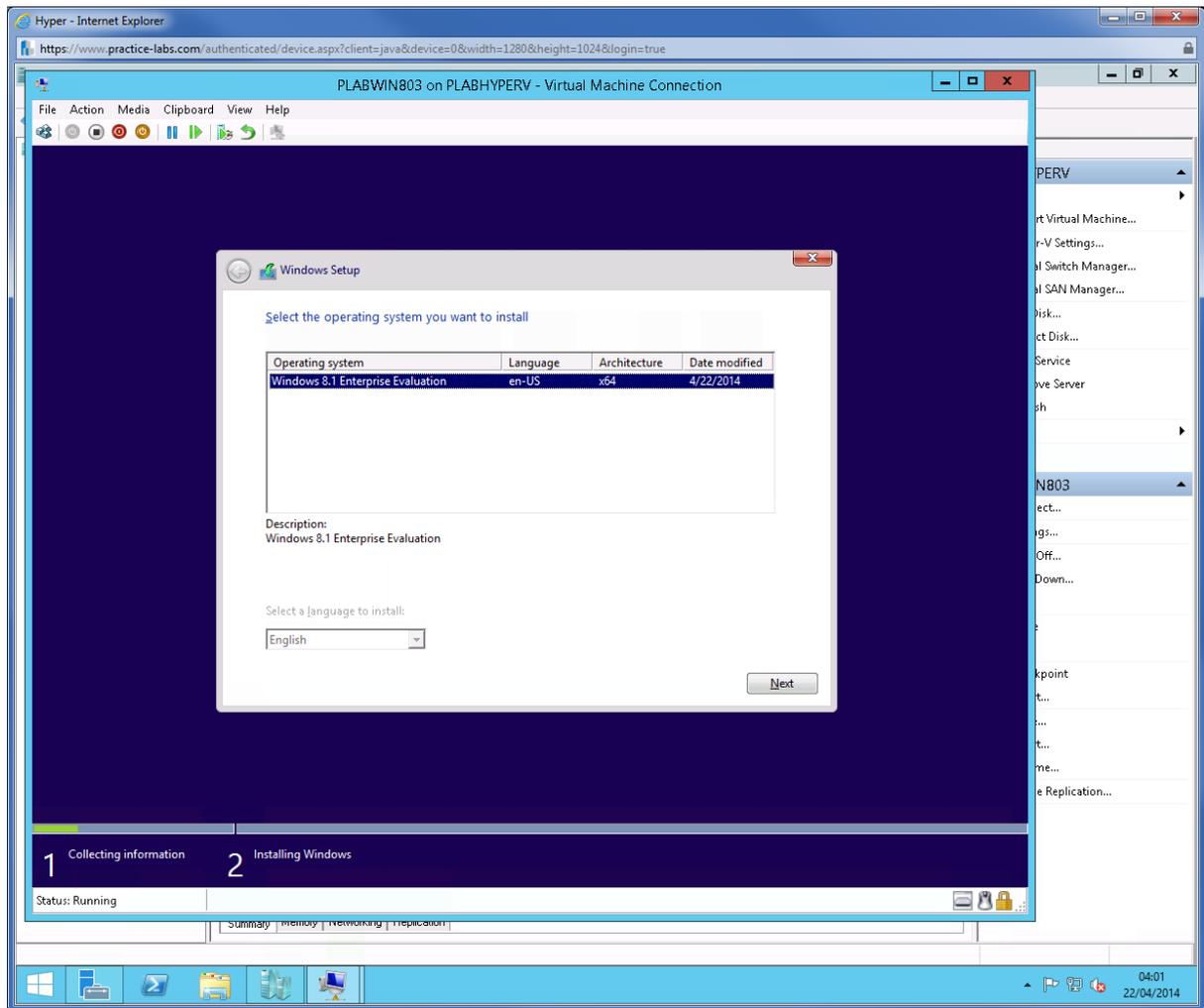
Click **OK**.



Step 11

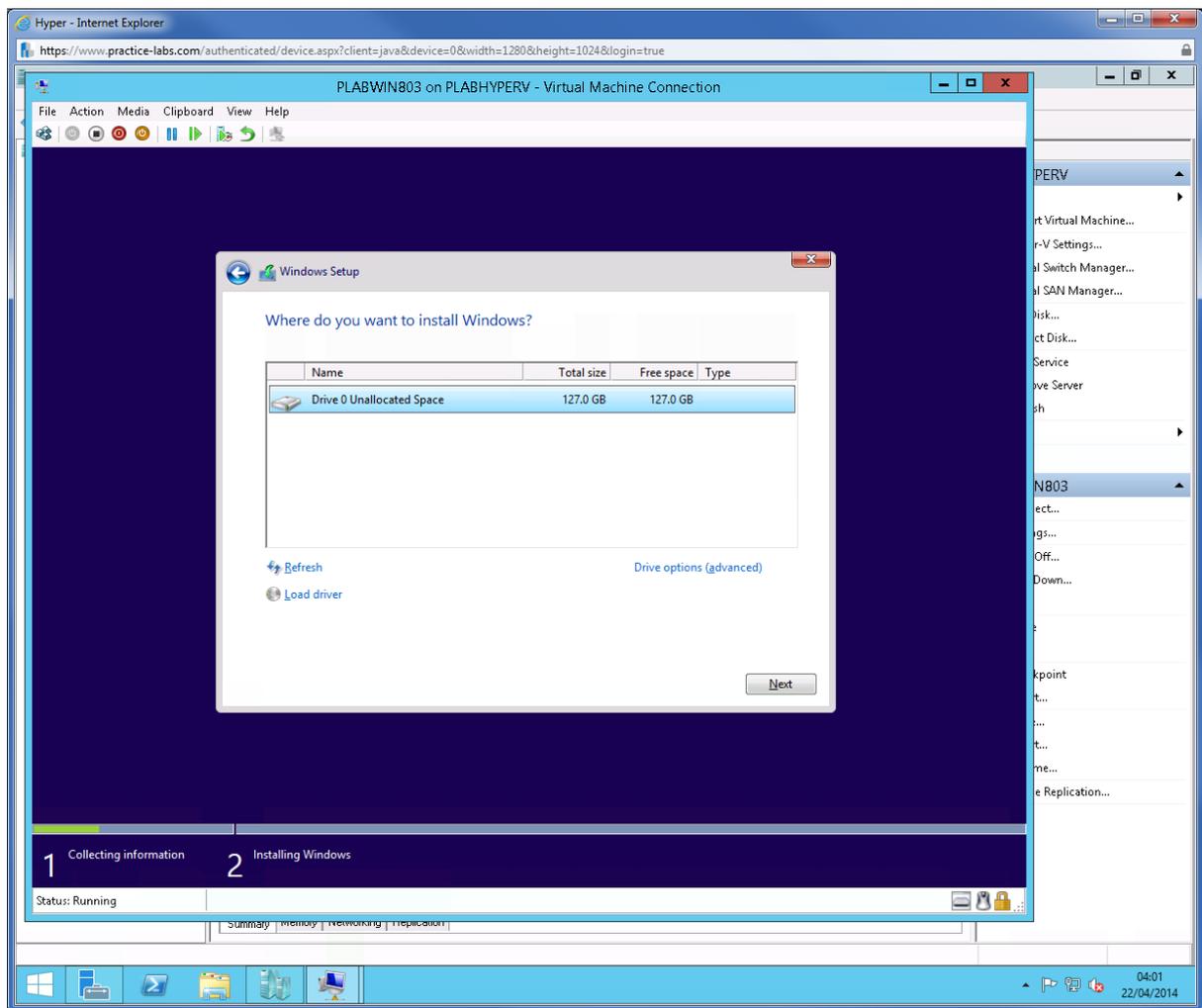
WDS will display the available install images from PLABDC01.

Click **Next**.



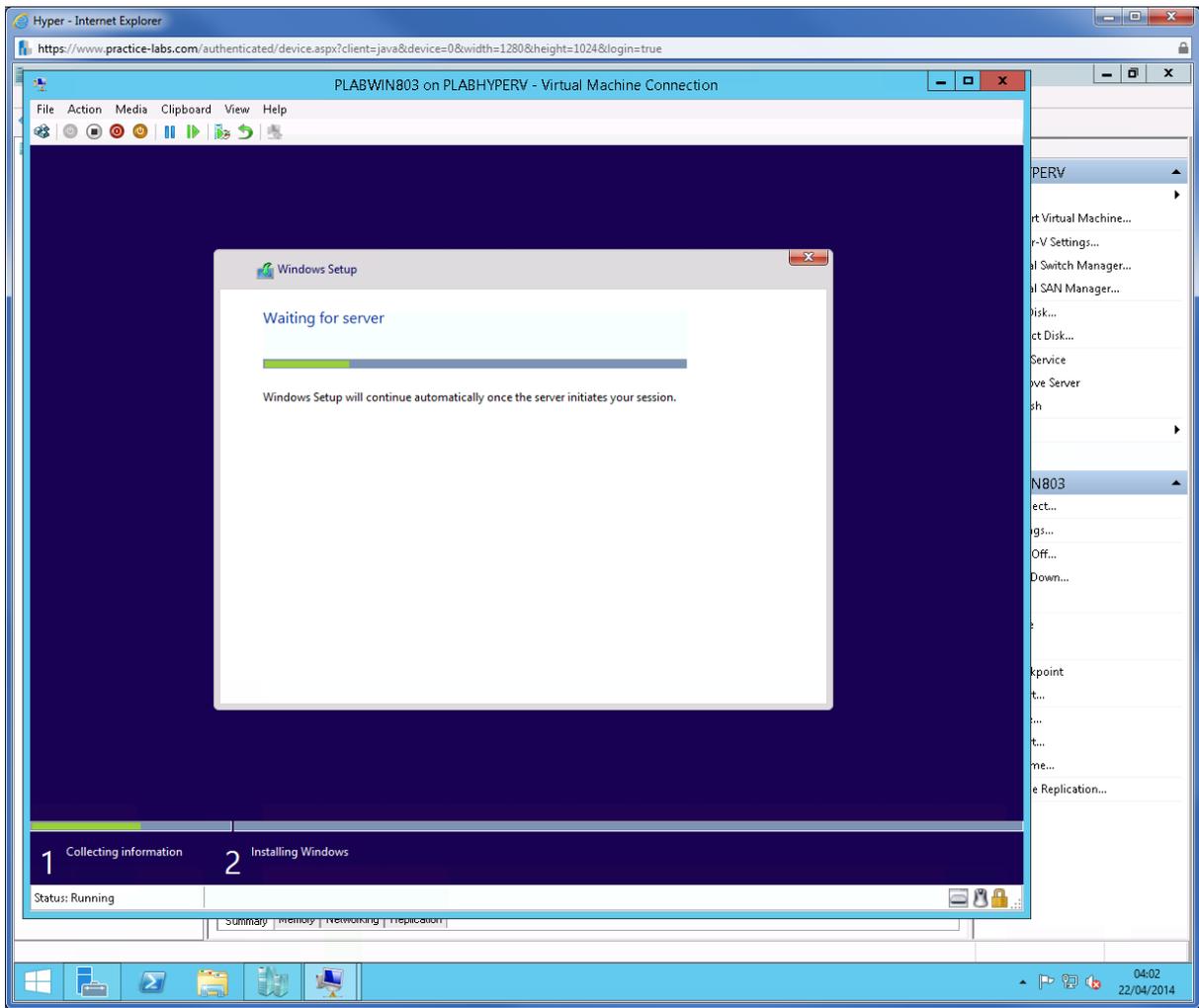
Step 12

In Where do you want to install Windows page, select **Drive 0** and click **Next**.



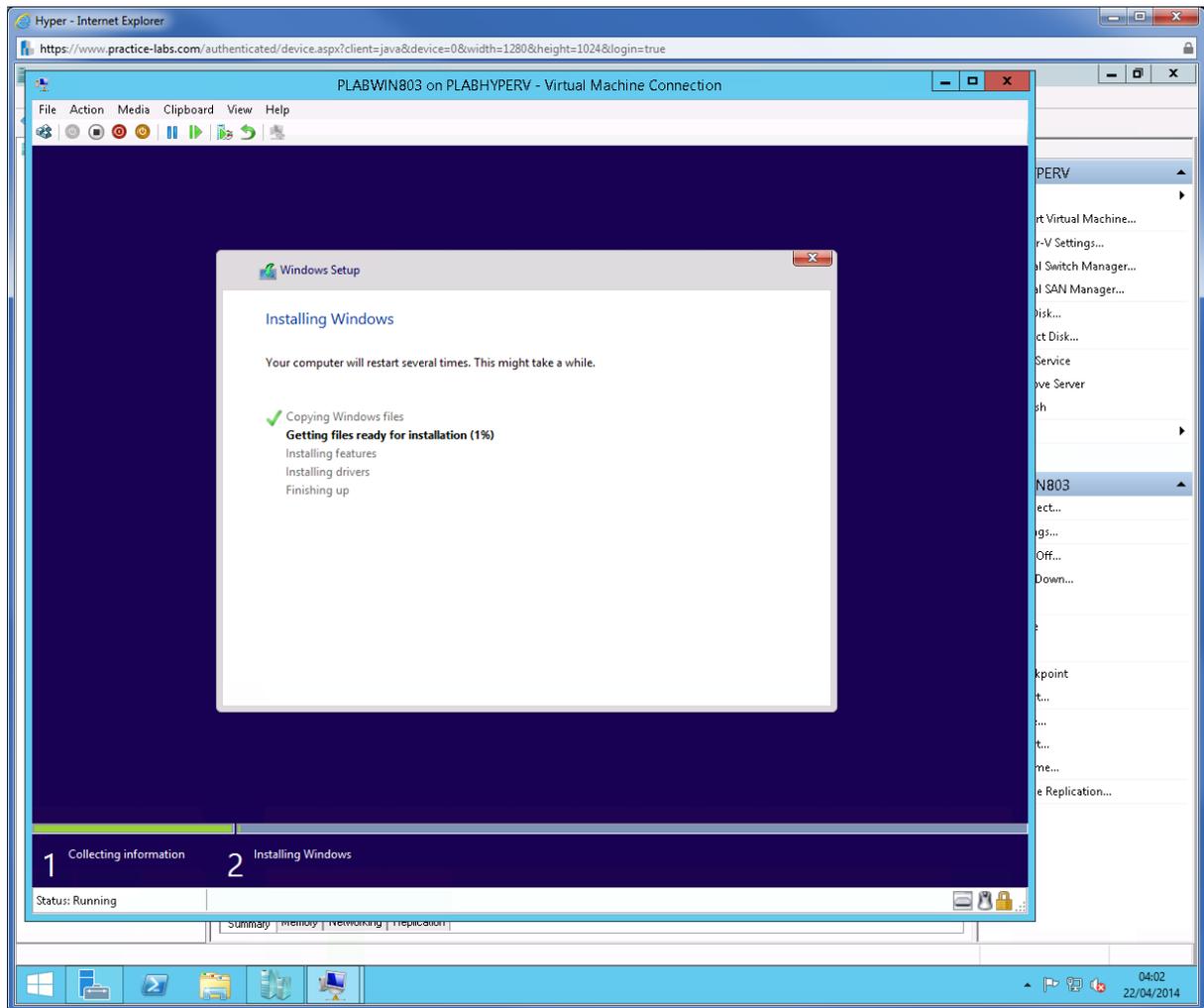
Step 13

The system will initialize file copying.



Step 14

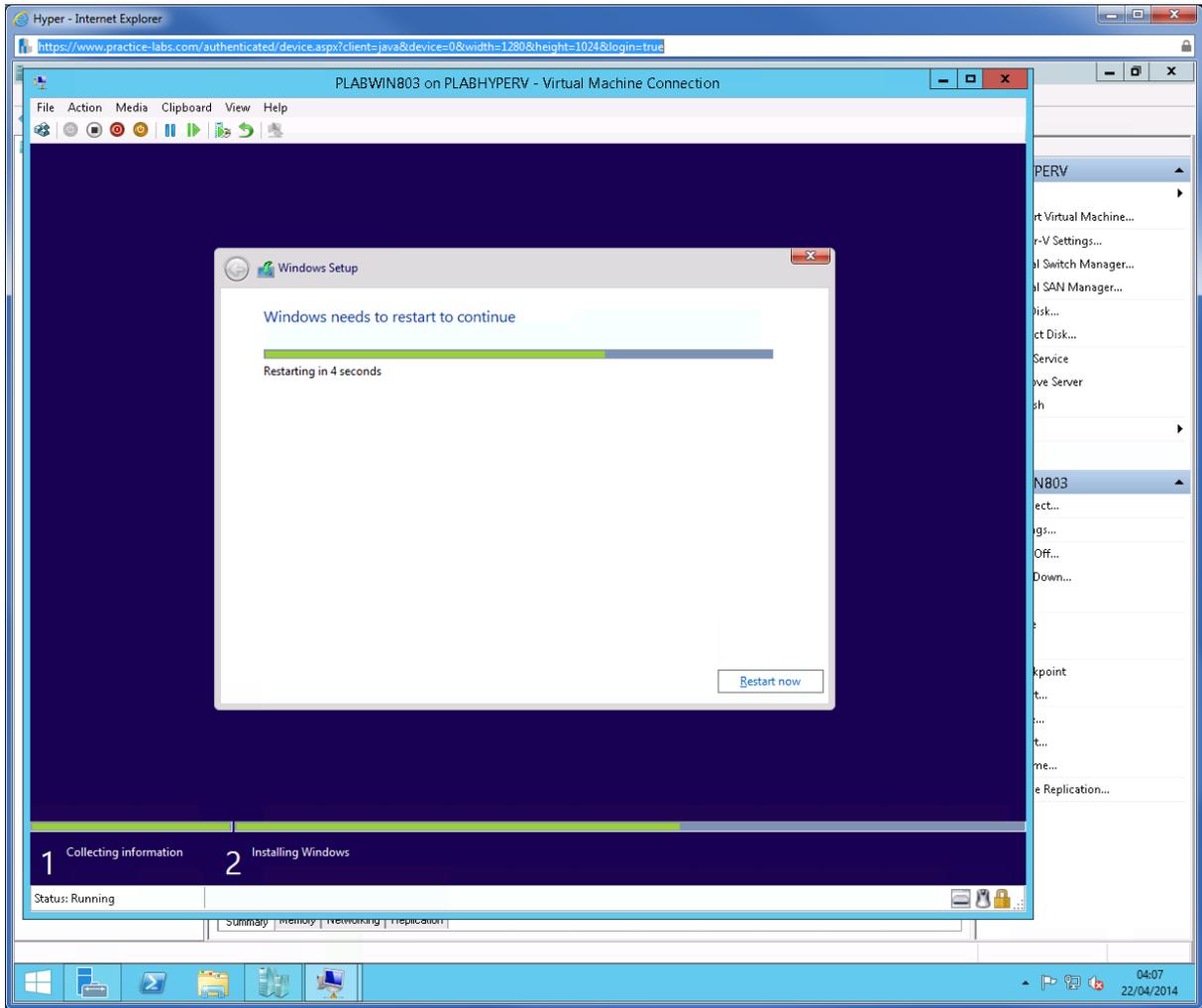
Installation of Windows begins. This will take a few minutes.



Step 15

Windows will automatically restart after this step.

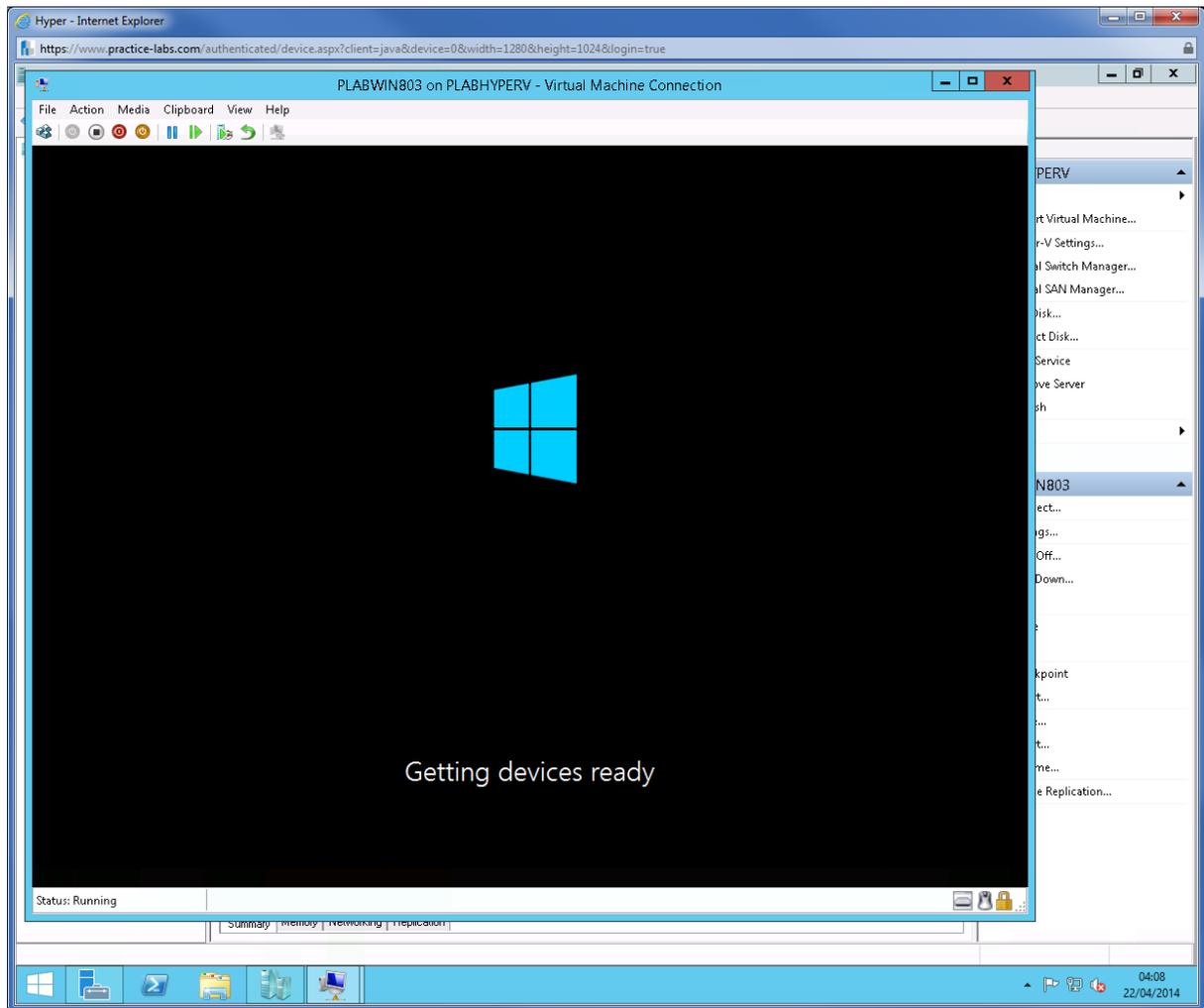
S



Step 16

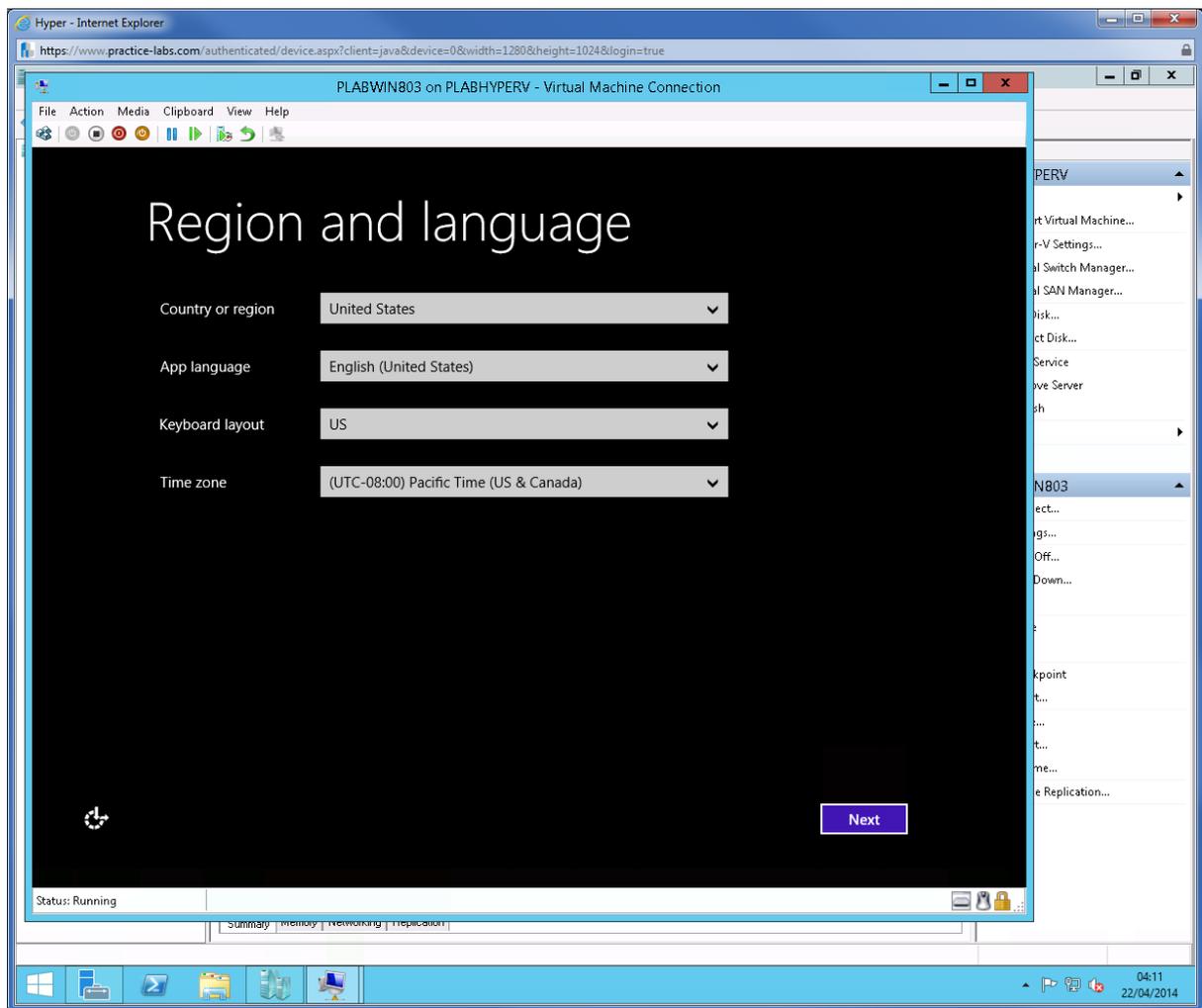
Like a regular Windows setup, devices will be initialized.

Windows will restart a few times during setup.



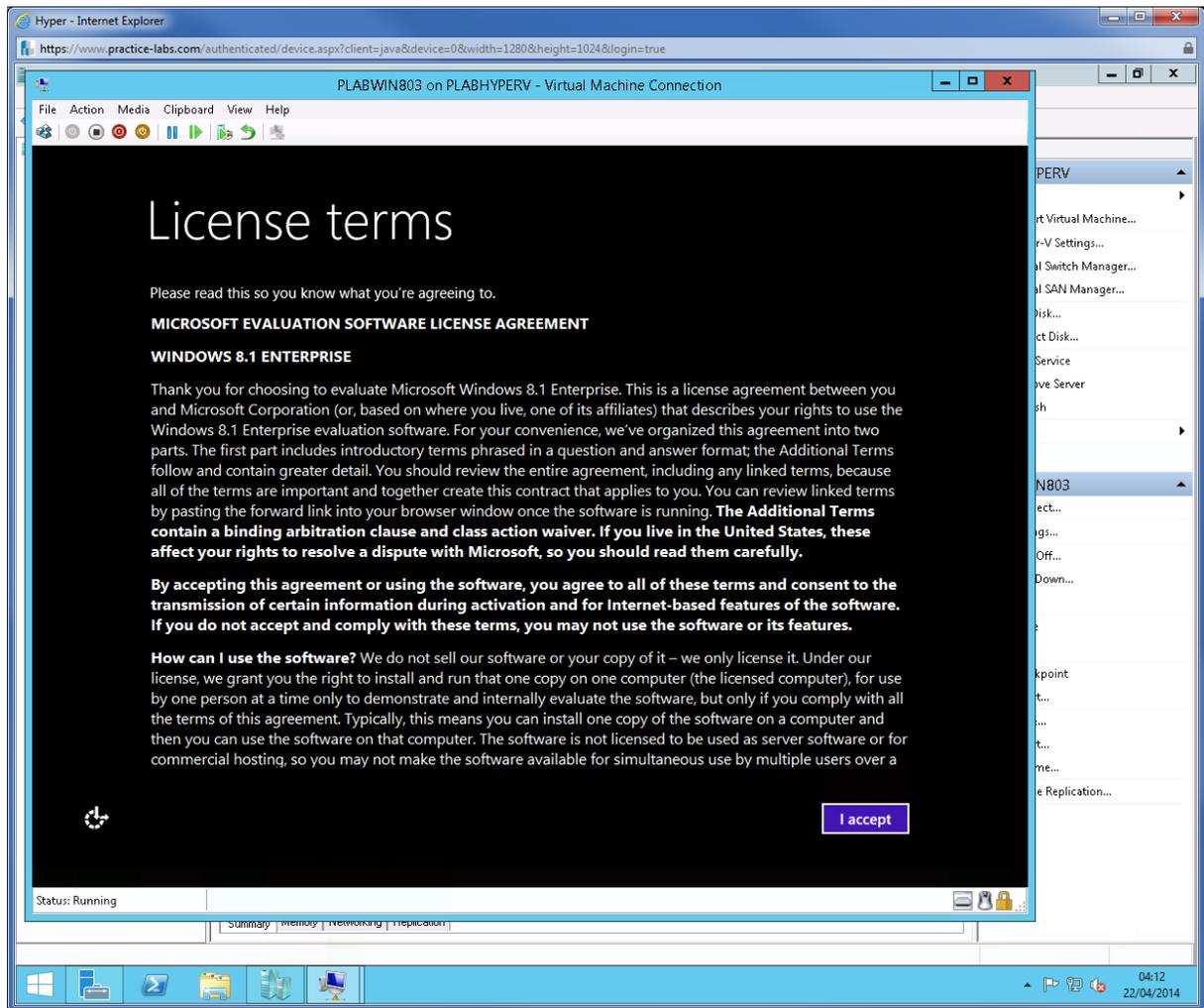
Step 17

From Region and Language page, click **Next**.



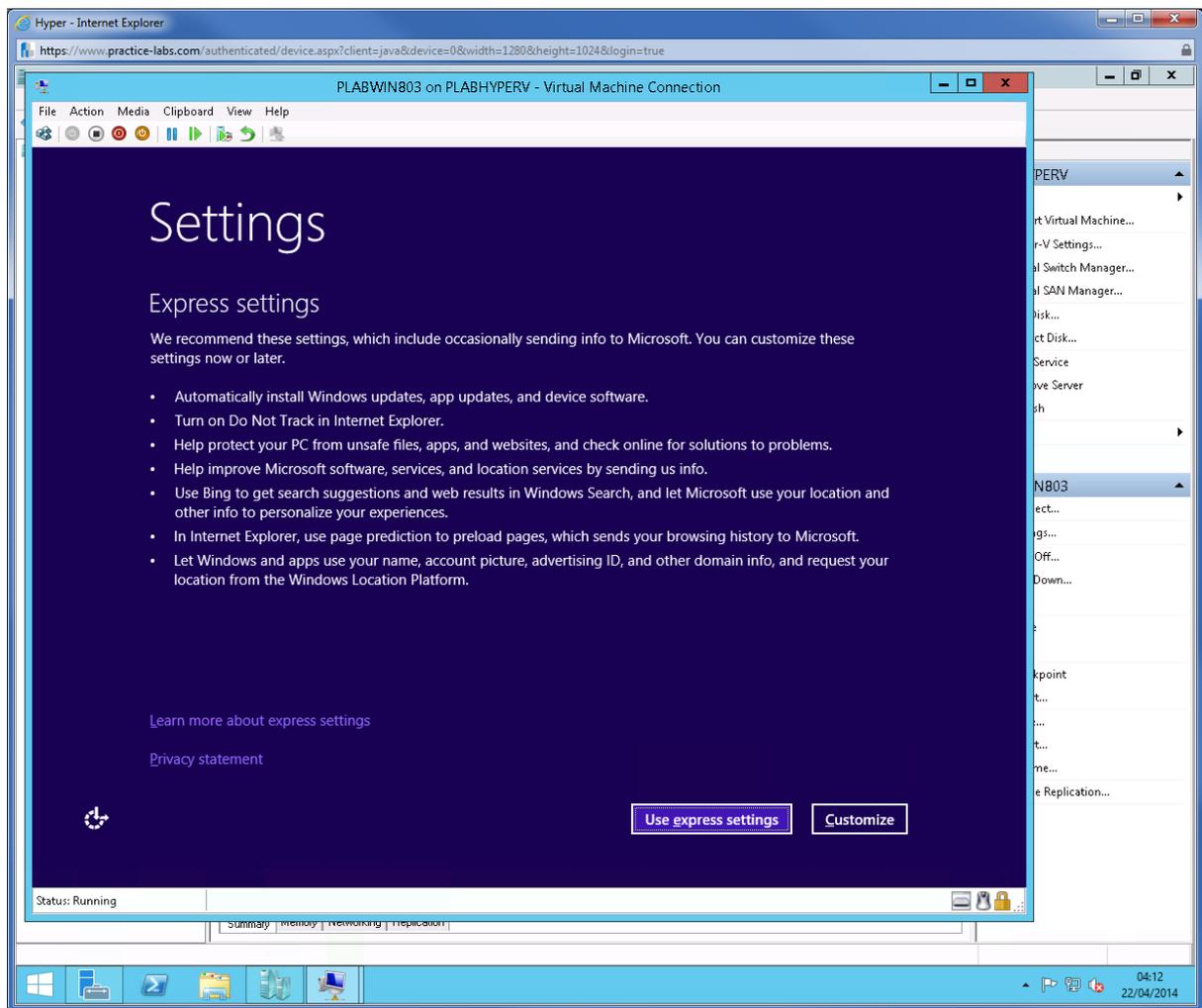
Step 18

From License Terms page, click **I accept**.



Step 19

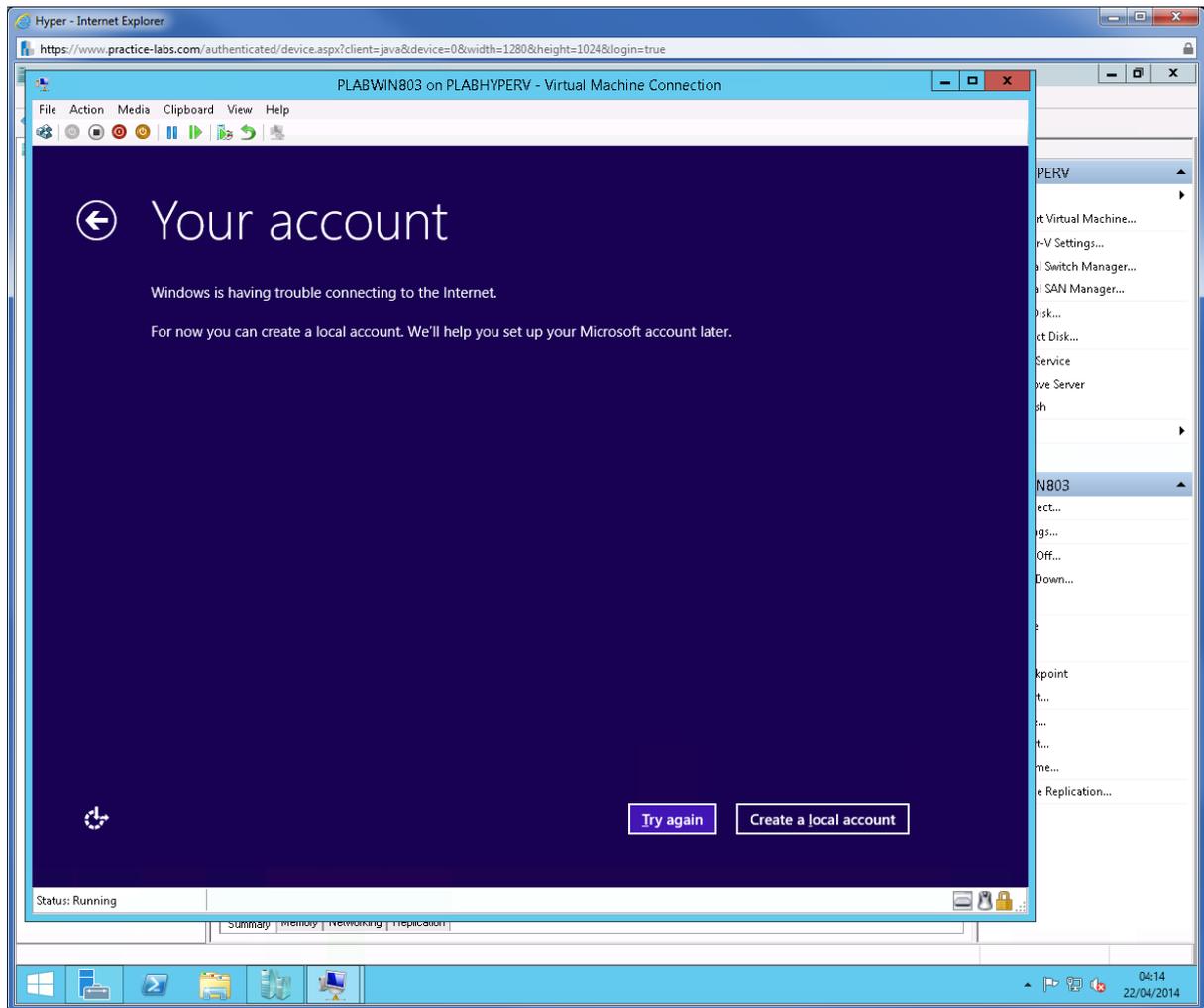
In Settings page, click **Use express settings**.



Step 20

Setup will attempt to connect to the Internet but will not be able to do so.

In Your account page, click **Create a local account**.



Step 21

In Your account page, use the following values:

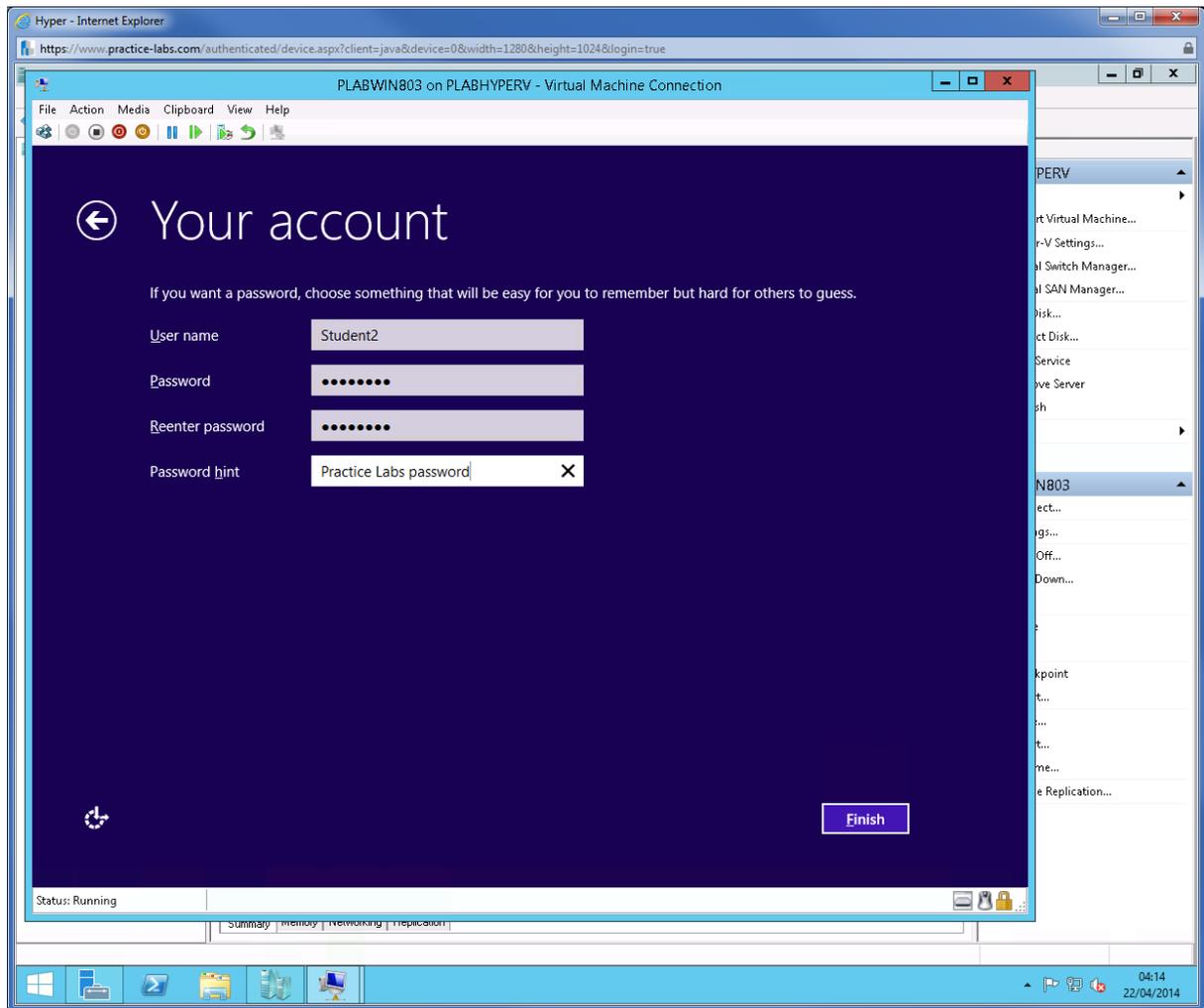
User name: **Student2**

Password: **Passw0rd**

Reenter password: **Passw0rd**

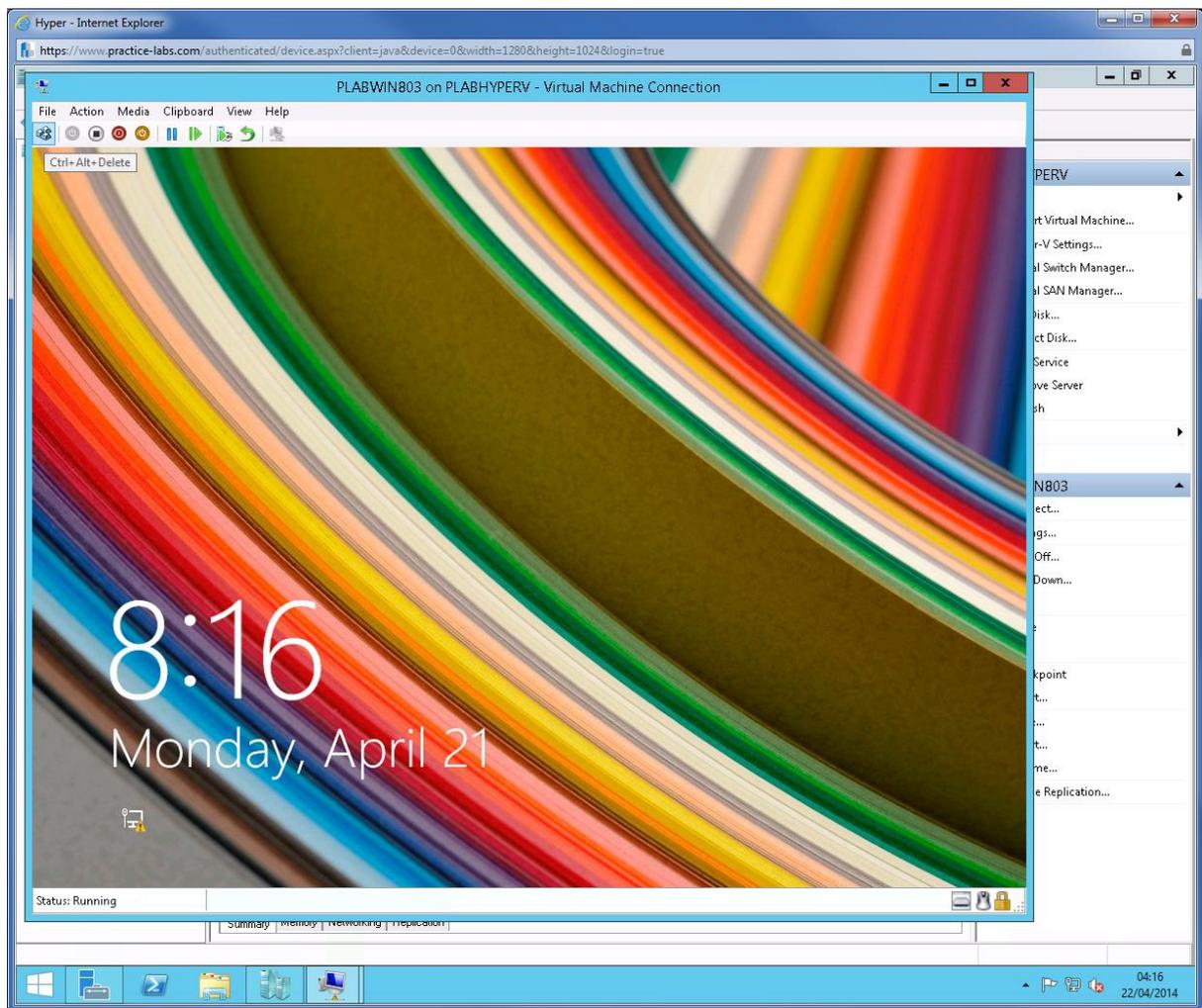
Password hint: **Practice Labs password**

Click **Finish**.



Step 22

Click **Ctrl Alt Delete** button.



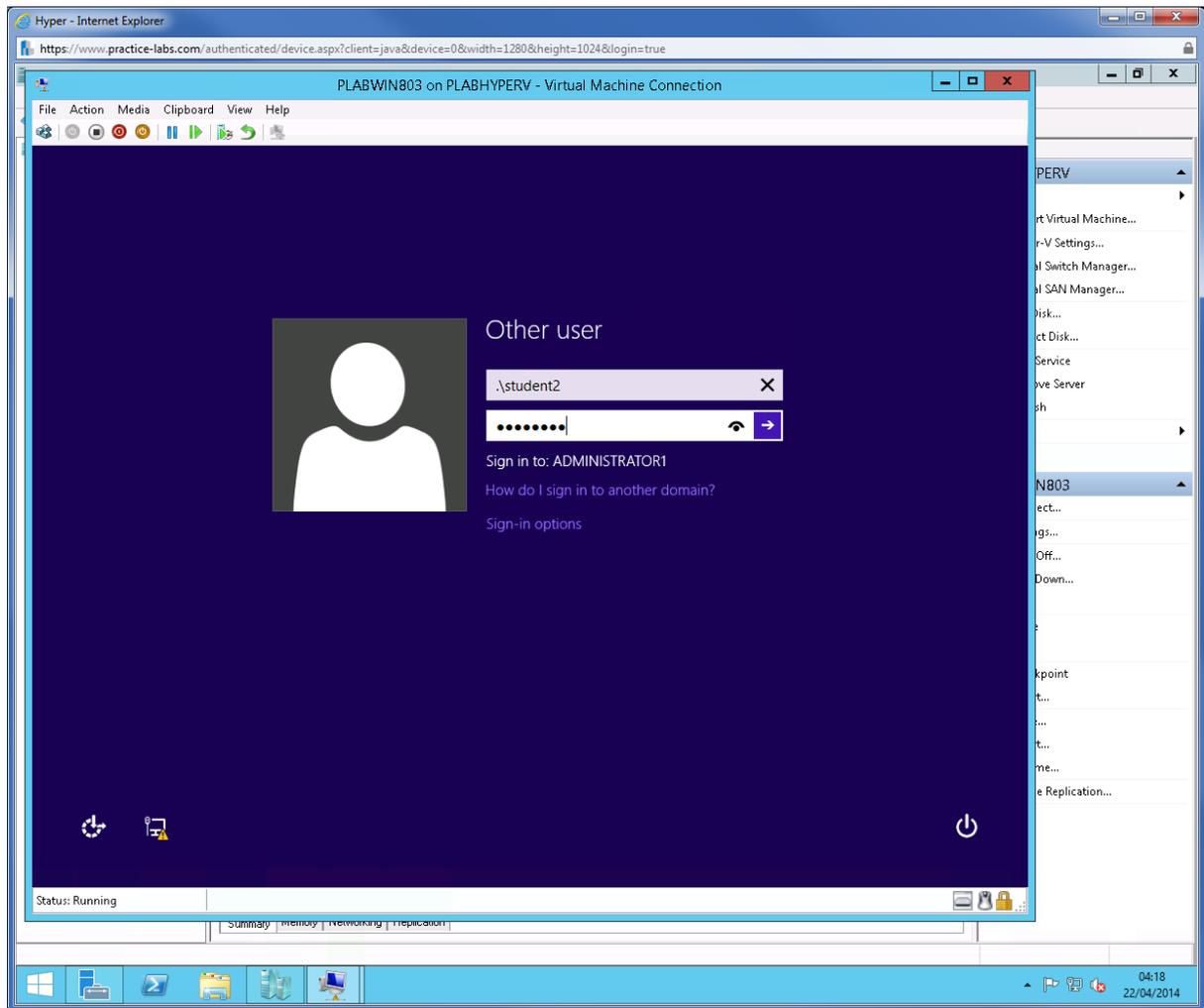
Step 24

In Windows logon page, use the following credential to sign on

.\Student2

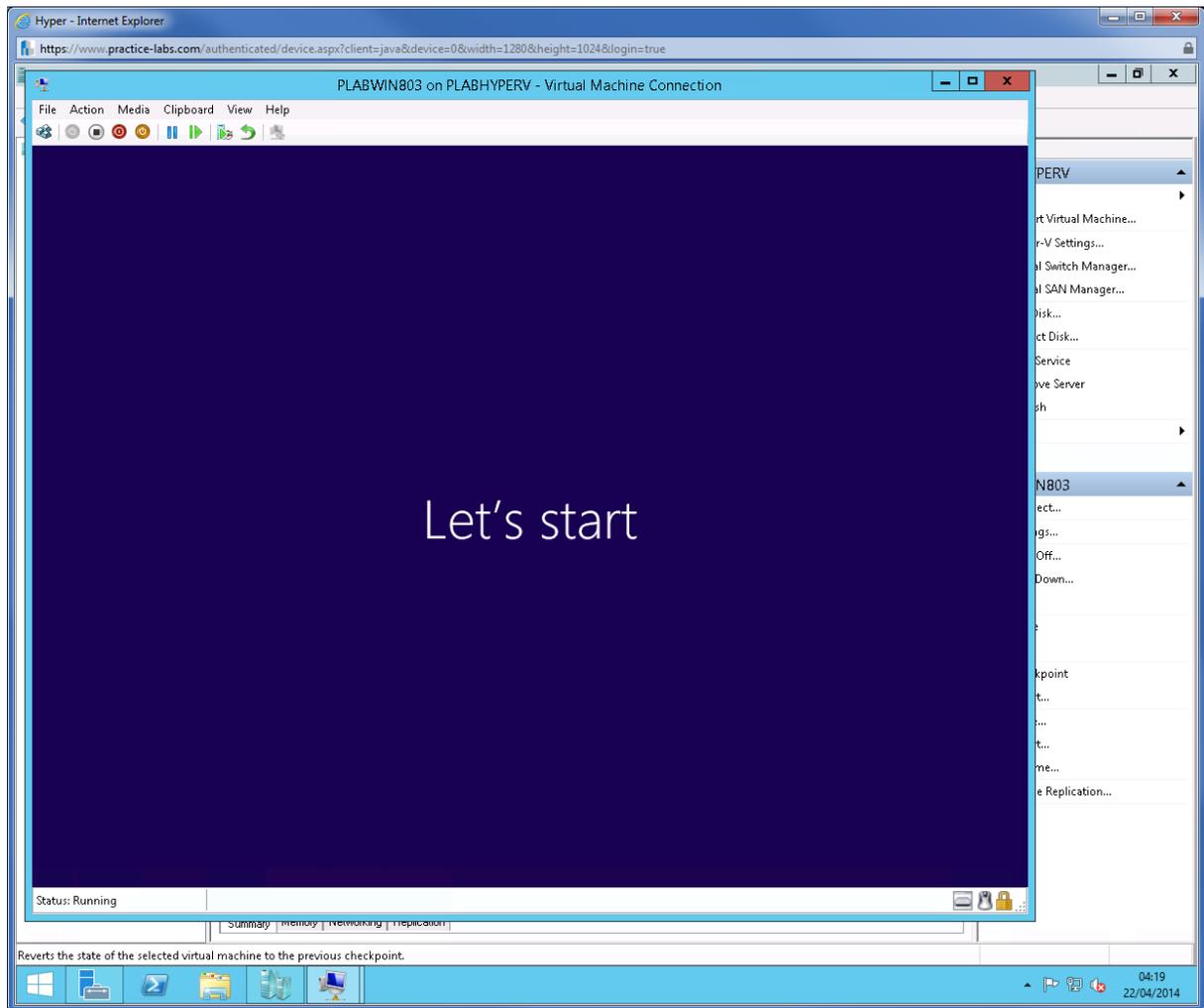
Passw0rd

Press **Enter**.



Step 25

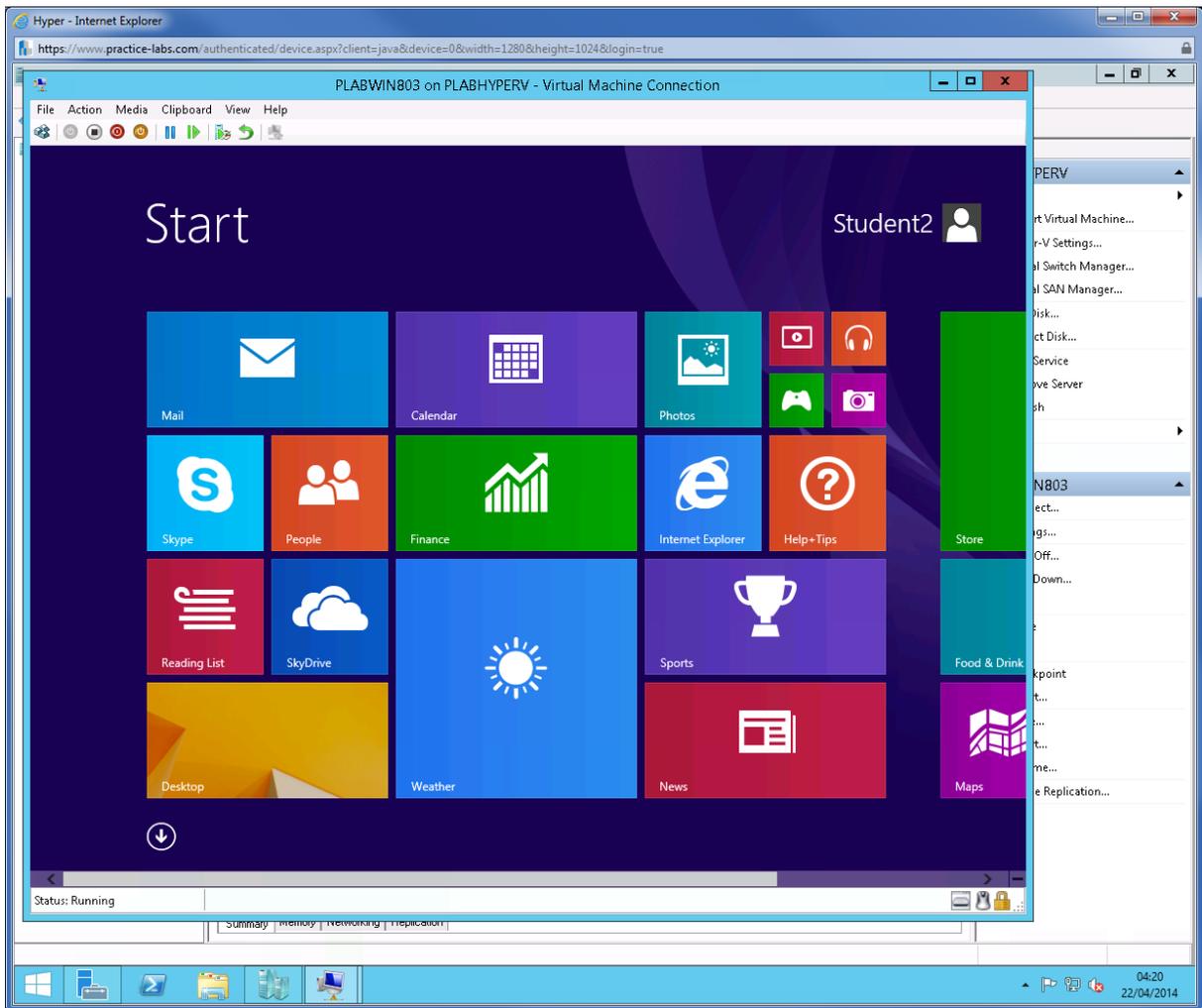
Windows will setup the computer for first use by the user.



Step 26

Windows start screen is now available.

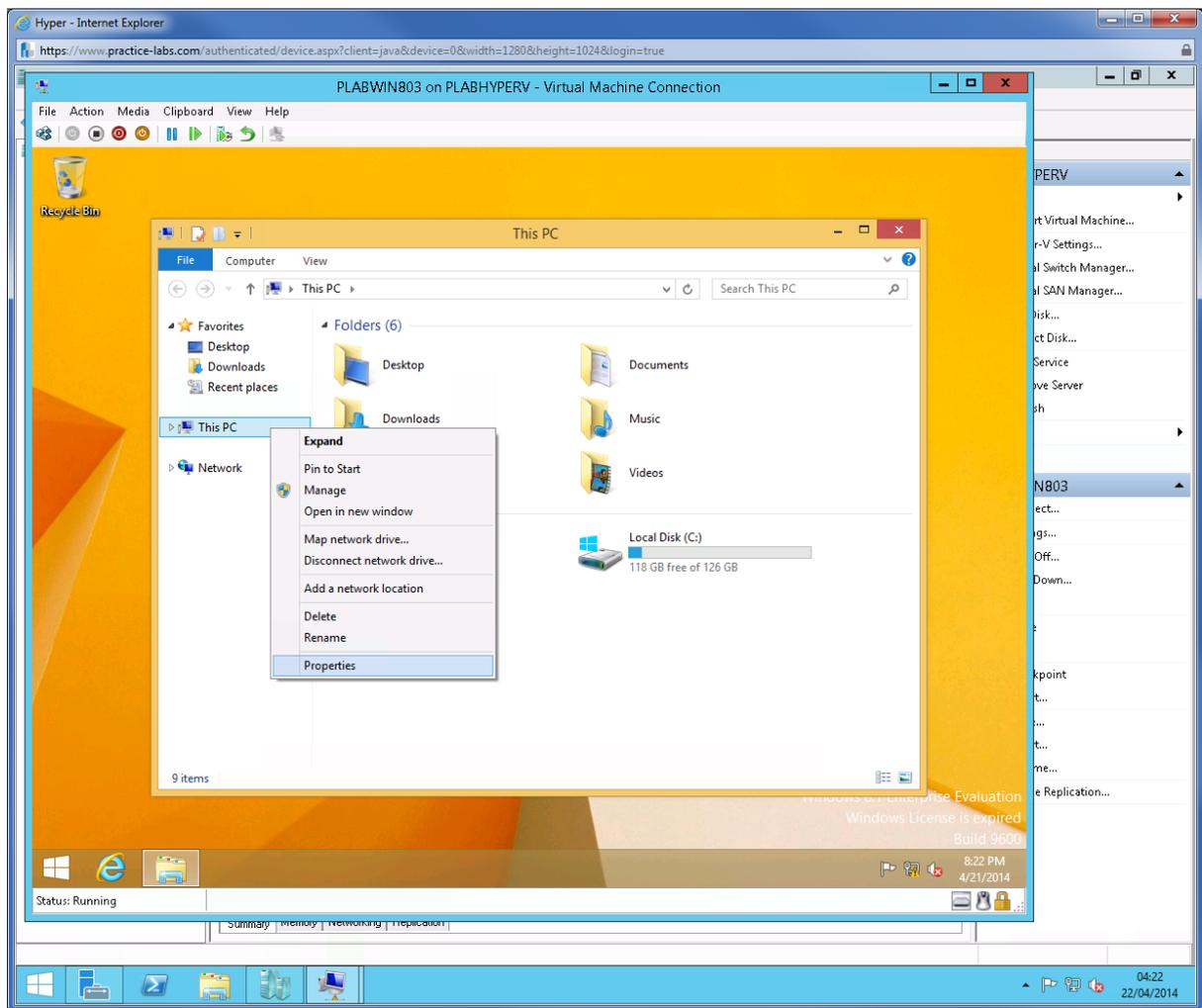
Click **Desktop** tile.



Step 27

Click File Explorer on task bar.

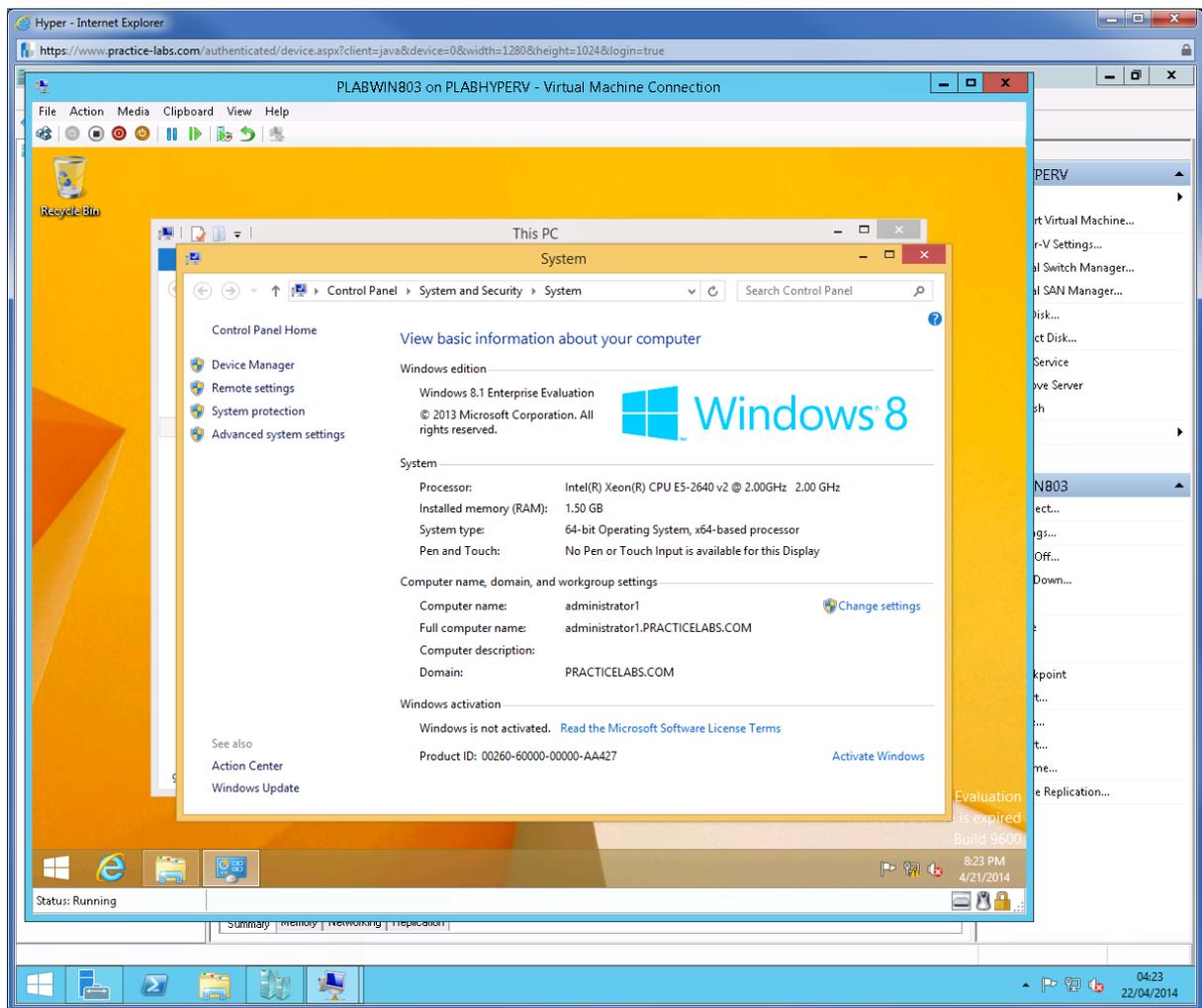
Right-click **This PC** and choose **Properties**.



Step 28

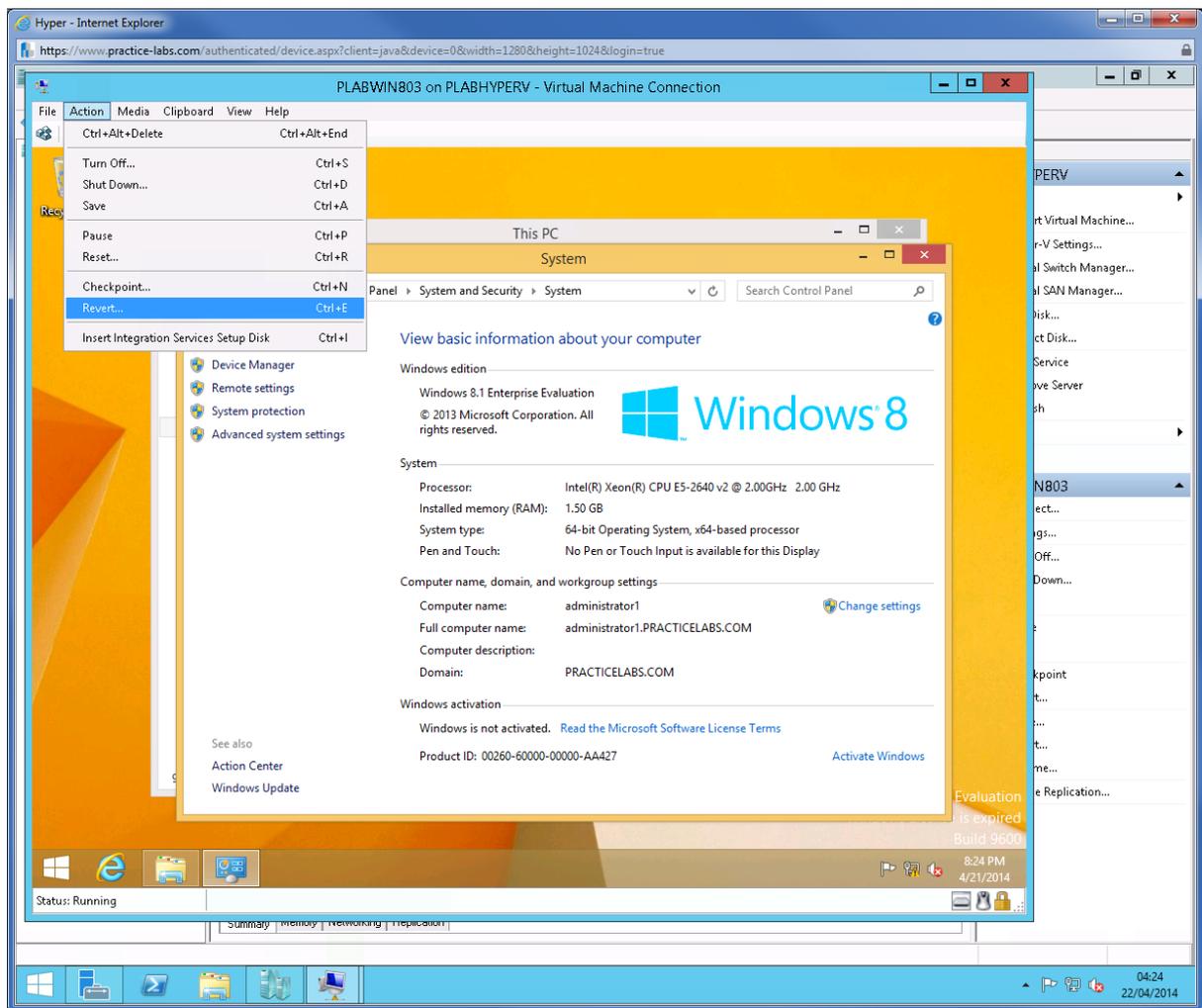
Find the system information about this computer.

Note: In an organization a computer name can be changed based on the naming system adopted by your network.



Step 29

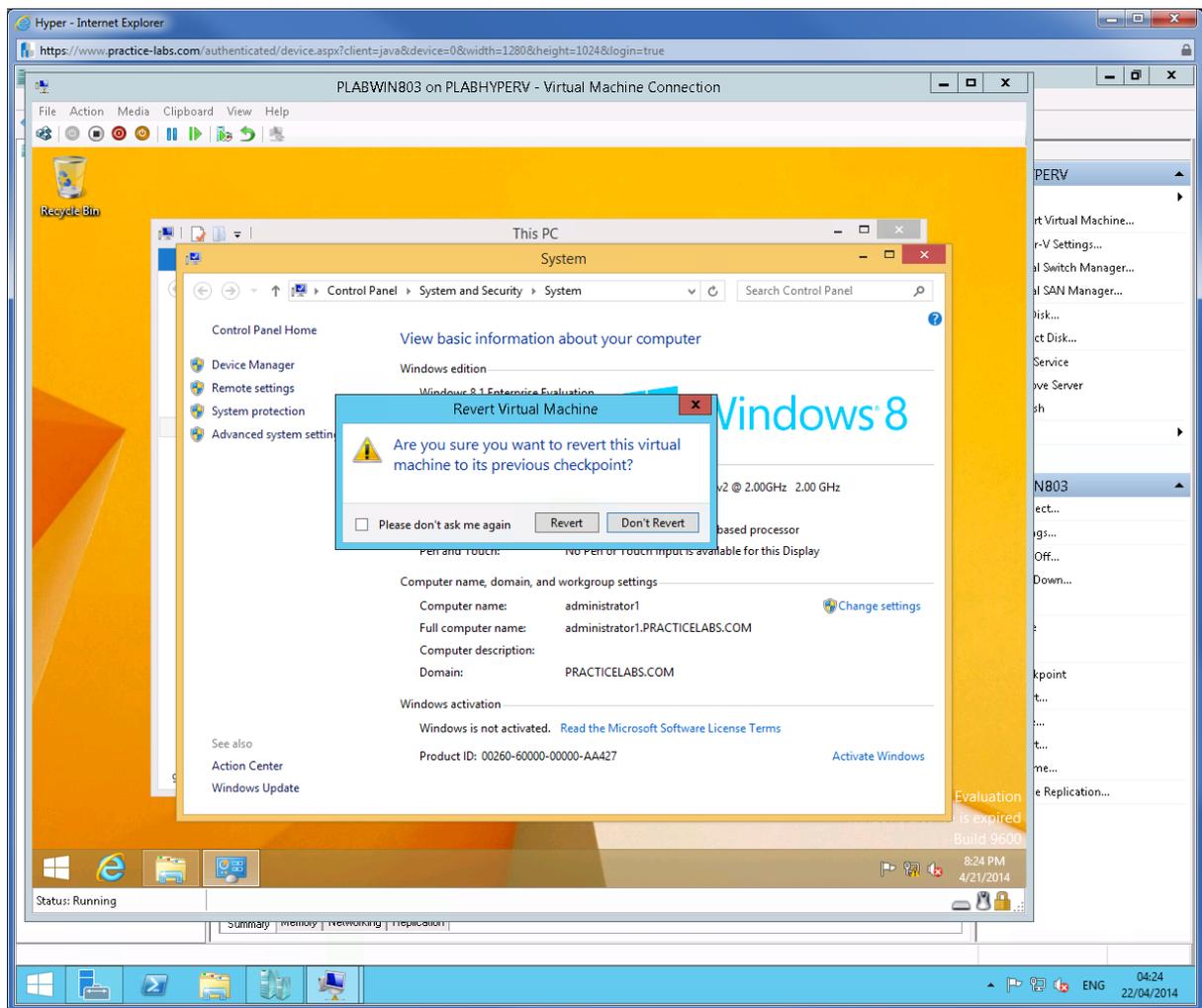
Click **Action** menu and choose **Revert**.



Step 30

Click **Revert**.

Close PLABWIN803 window.



Keep PLABHYPERV host in its powered on state and proceed to the next exercise.

Exercise 2 – Update Images with Patches and Drivers

Windows Assessment and Deployment Kit (WADK) is a suite of utilities that you can use to customise, assess and rollout Windows operating systems to new computers.

Please refer to your course material or use your preferred search engine to research this topic in more detail.

Task 1: Prepare Windows Image for customization

Step 1

From PLABHYPERV host, click File Explorer on task bar.

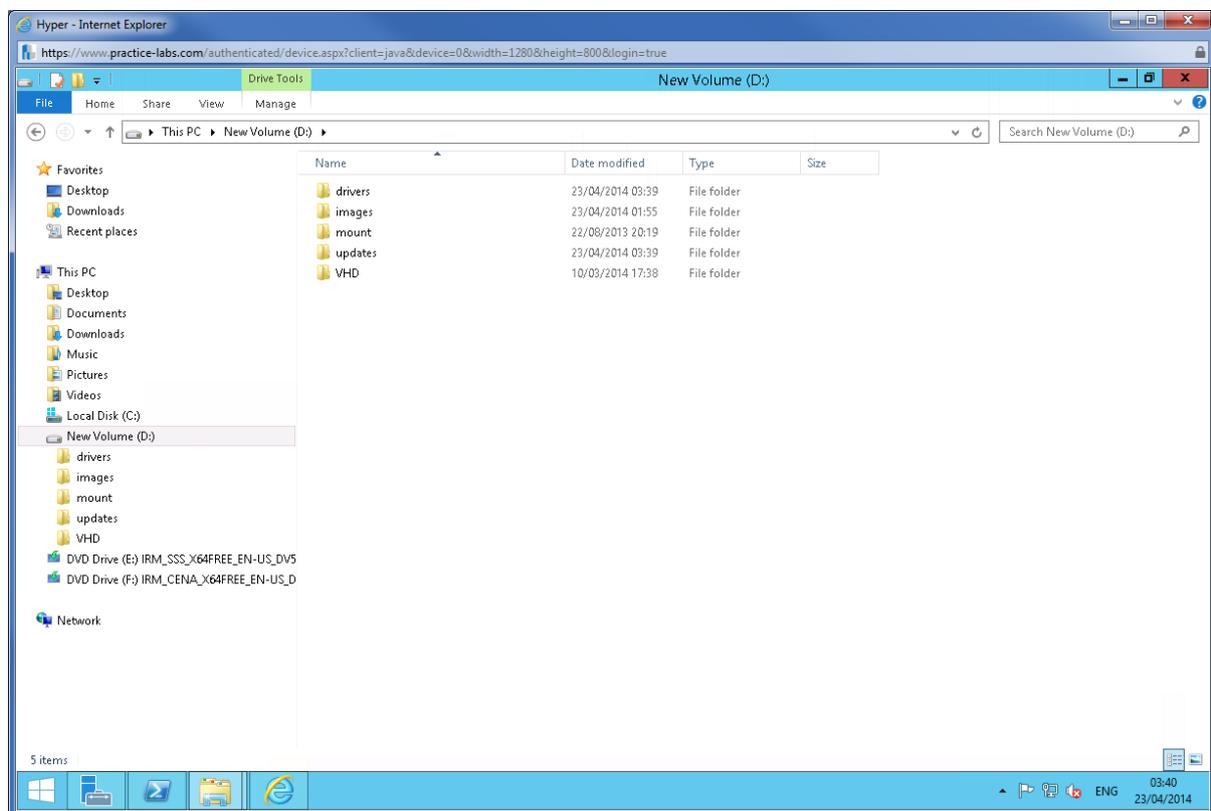
Go to New Volume (D) and create the following folders:

images

mount

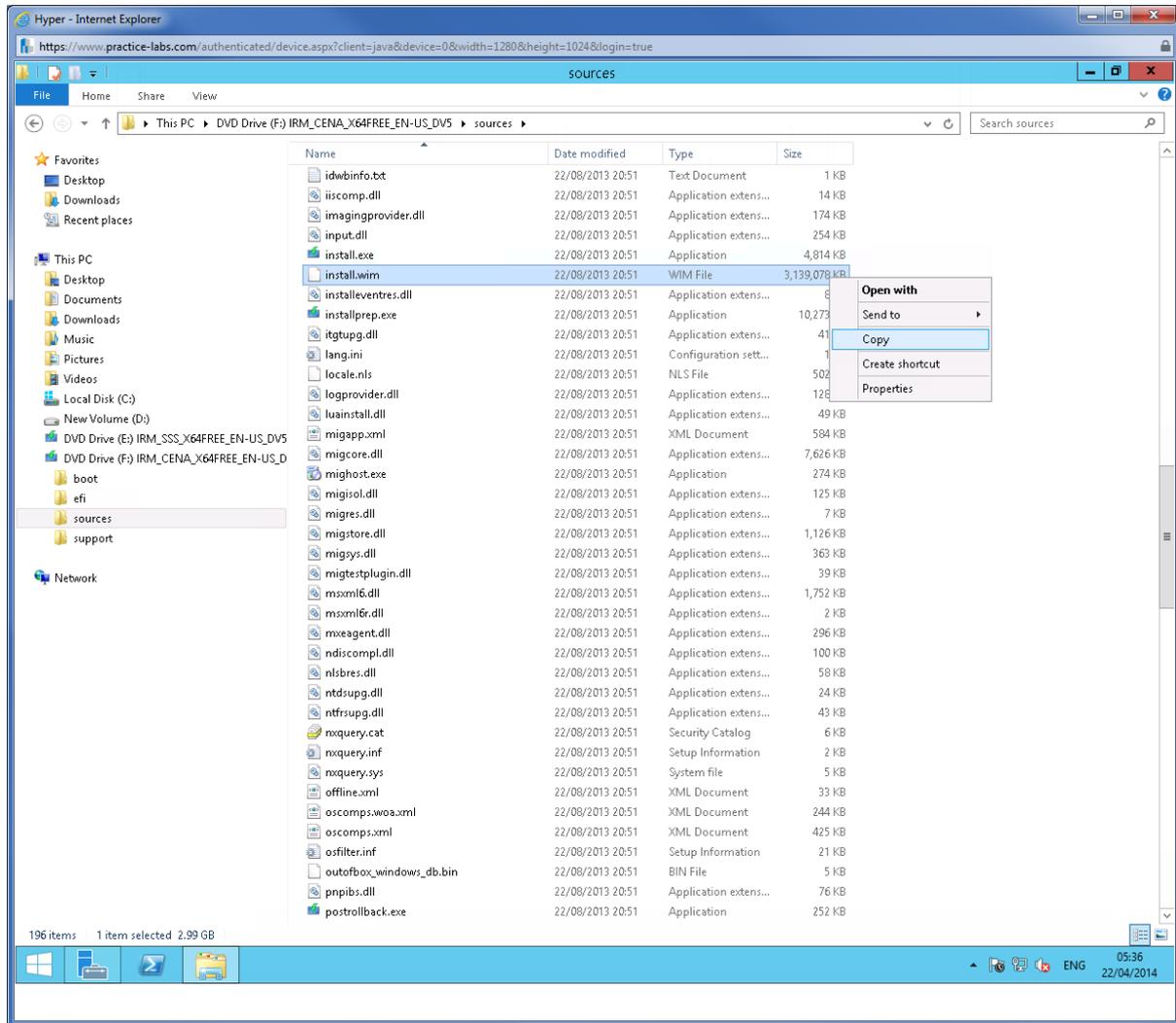
updates

drivers



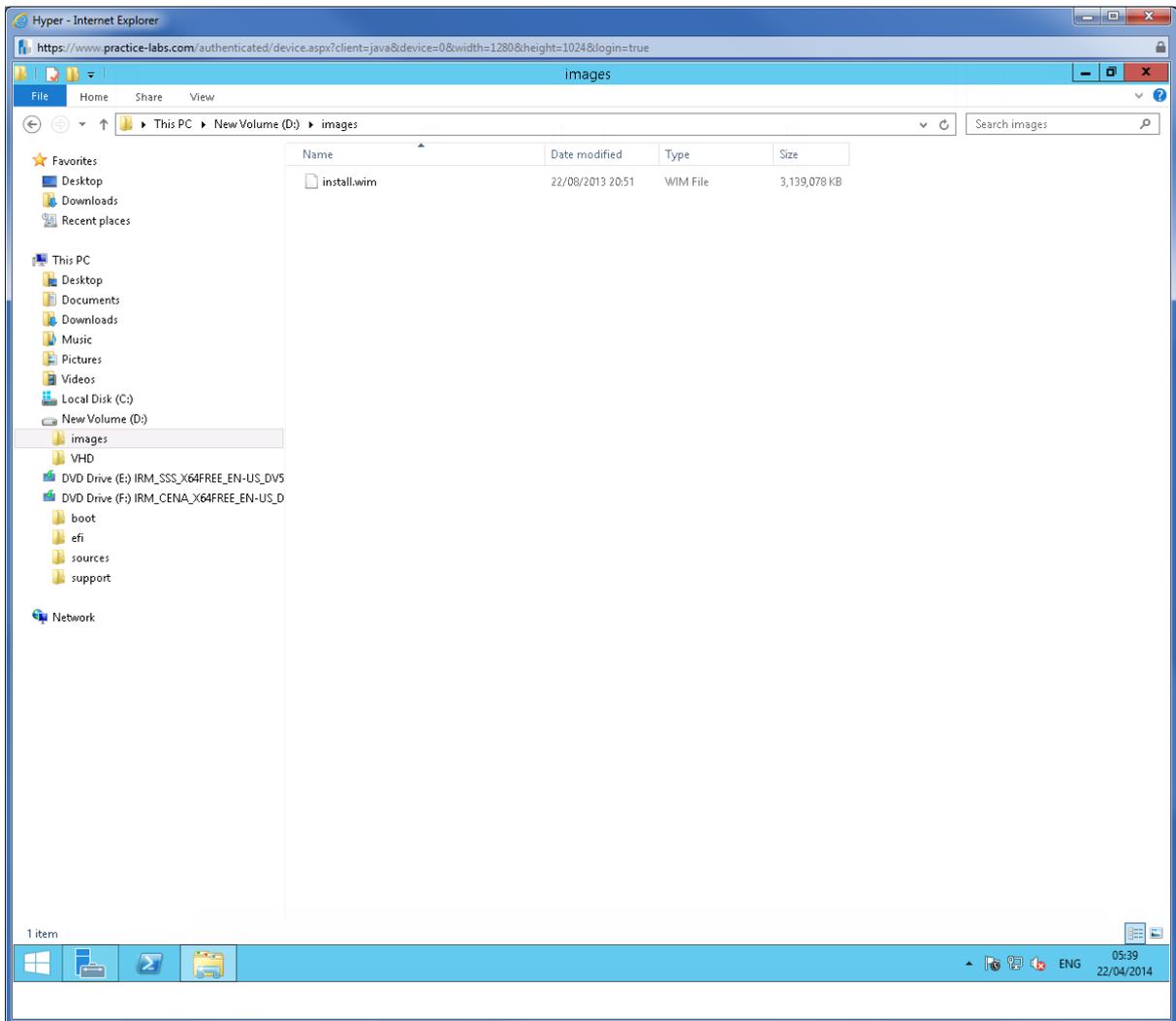
Step 2

Go to **Drive F** and navigate to `\sources` folder. Right-click on **install.wim** and choose **Copy**.



Step 3

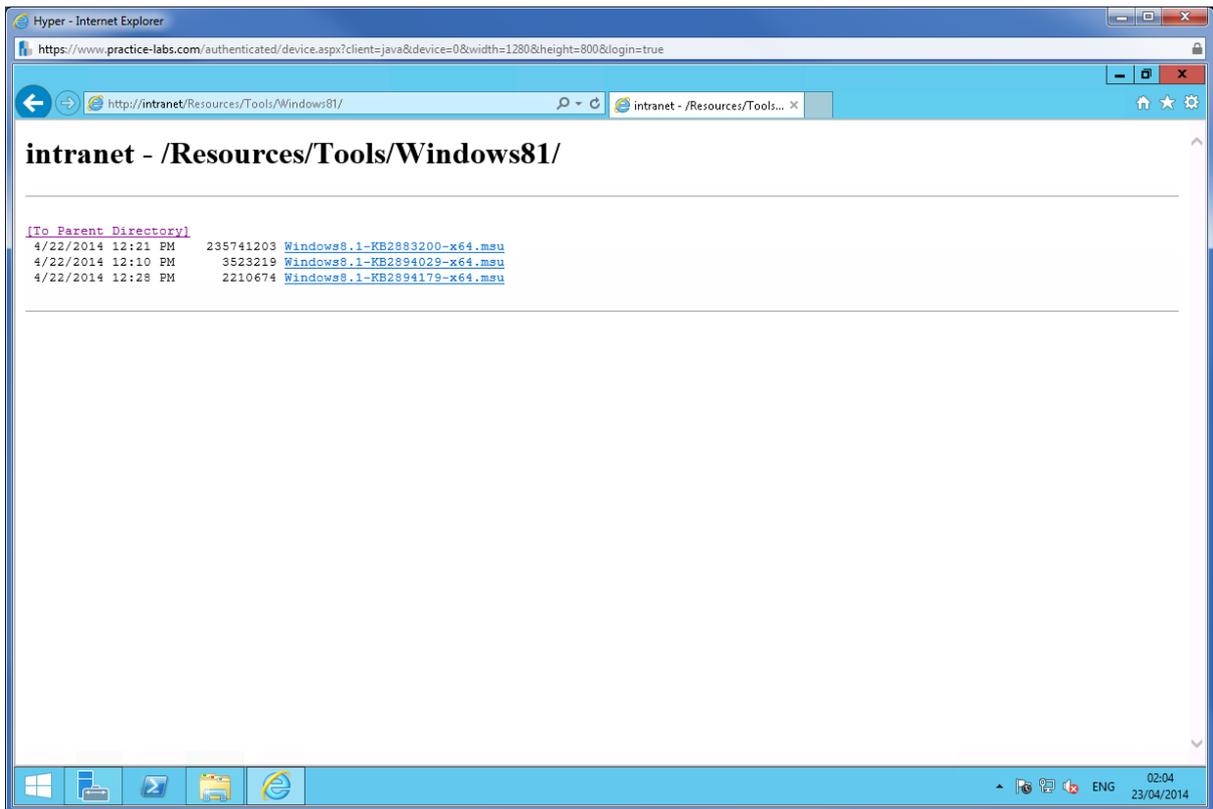
Paste **install.wim** in `D:\images` folder. This may take a few seconds to complete.



Step 4

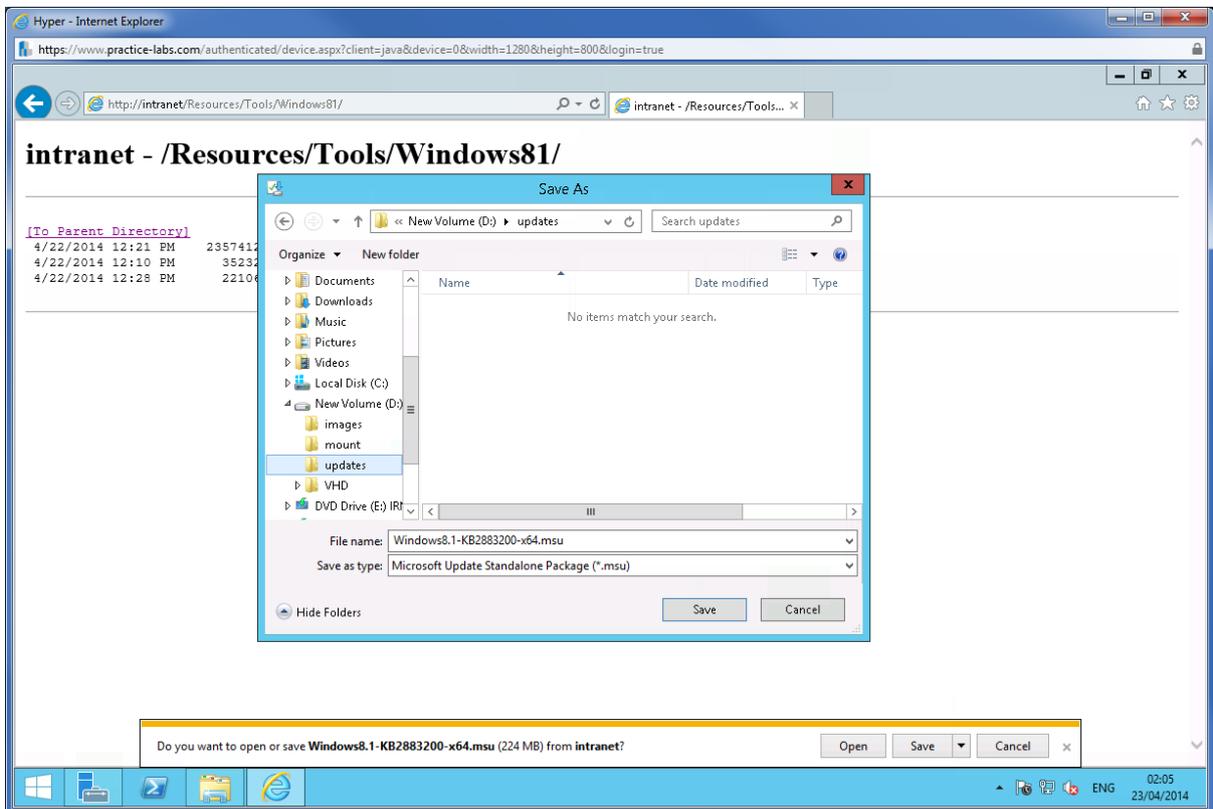
Minimize File Explorer.

Launch Internet Explorer. Go <http://intranet/Resources/Tools/Windows81>



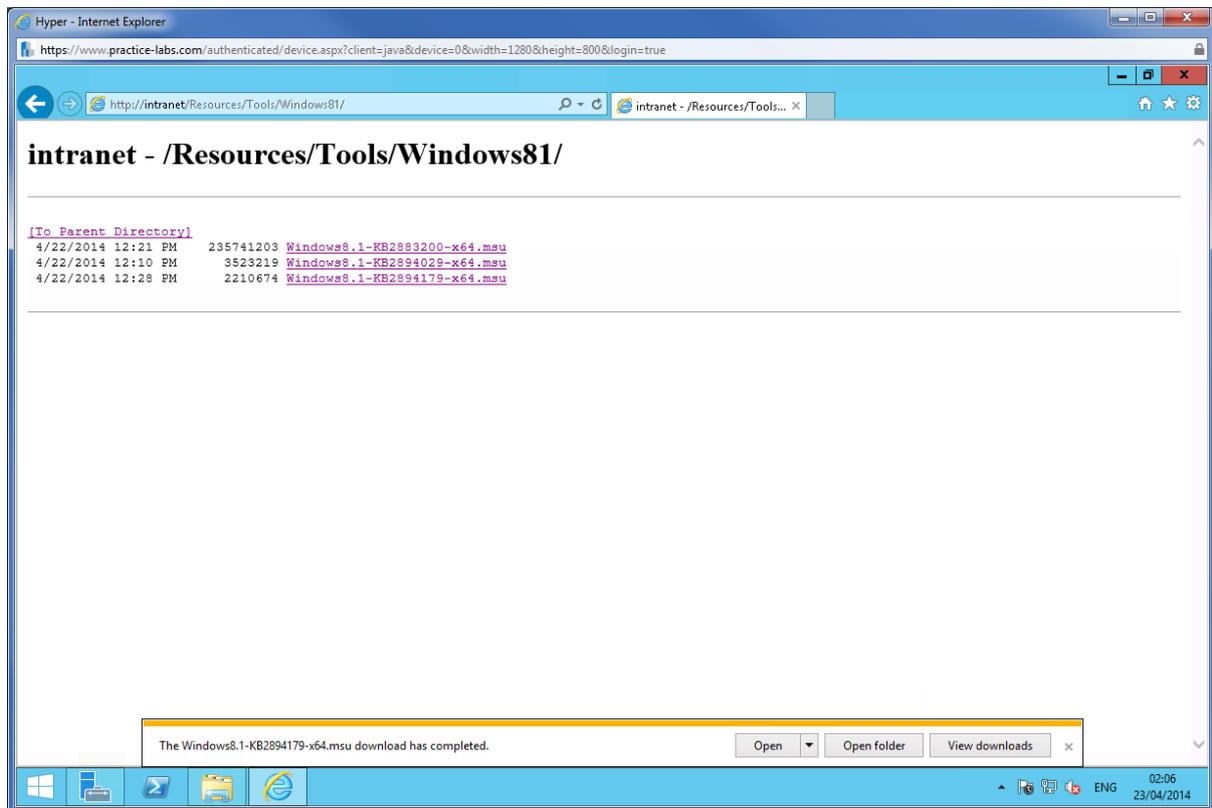
Step 5

Download the three standalone updates .msu and save them in `d:\updates` folder.



Step 6

Minimize Internet Explorer after downloading the updates.



Task 2: Use DISM to customize images

Deployment Image and Servicing Management (DISM) is tool that can be used for updating the .wim image file for patches and drivers.

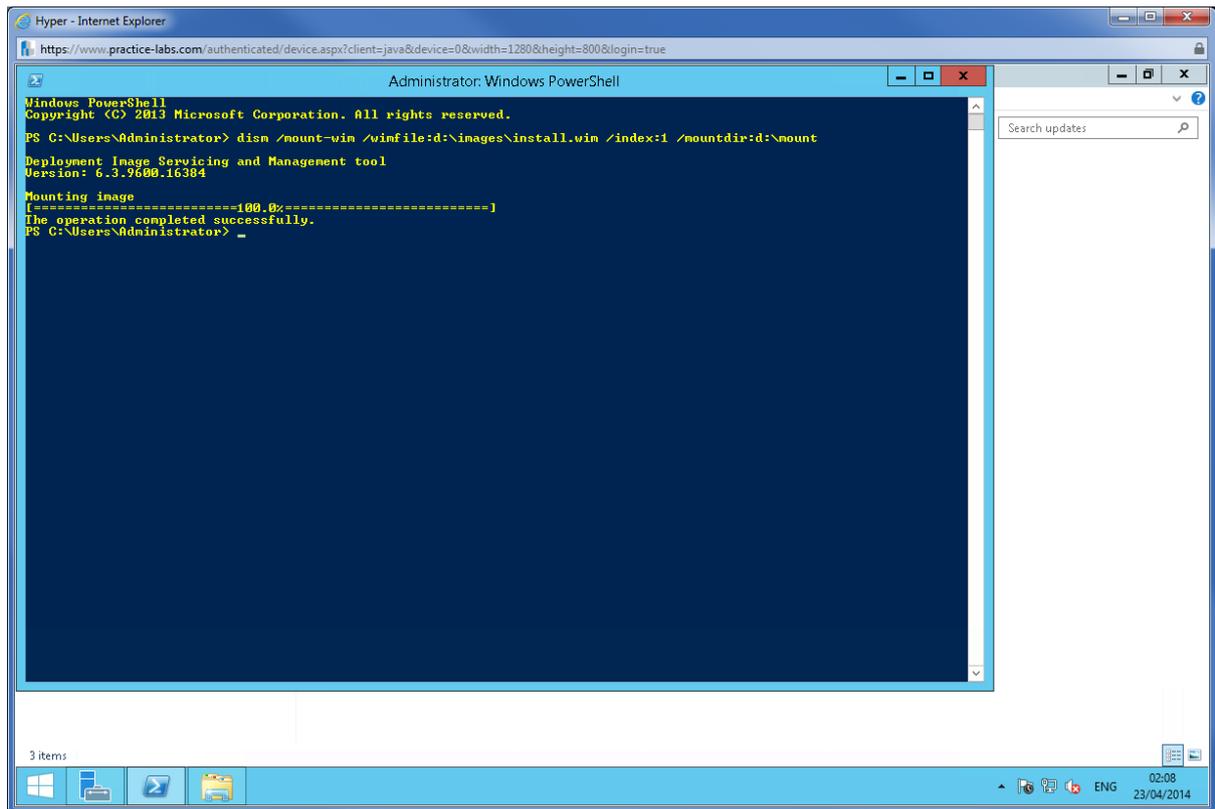
Step 1

Click on PowerShell icon on taskbar. You will mount the **install.wim** file that you copied from the DVD media into \mount folder using dism.exe.

Type the following:

```
dism /mount-wim /wimfile:d:\images\install.wim /index:1 /mountdir:d:\mount
```

Minimize Windows PowerShell.

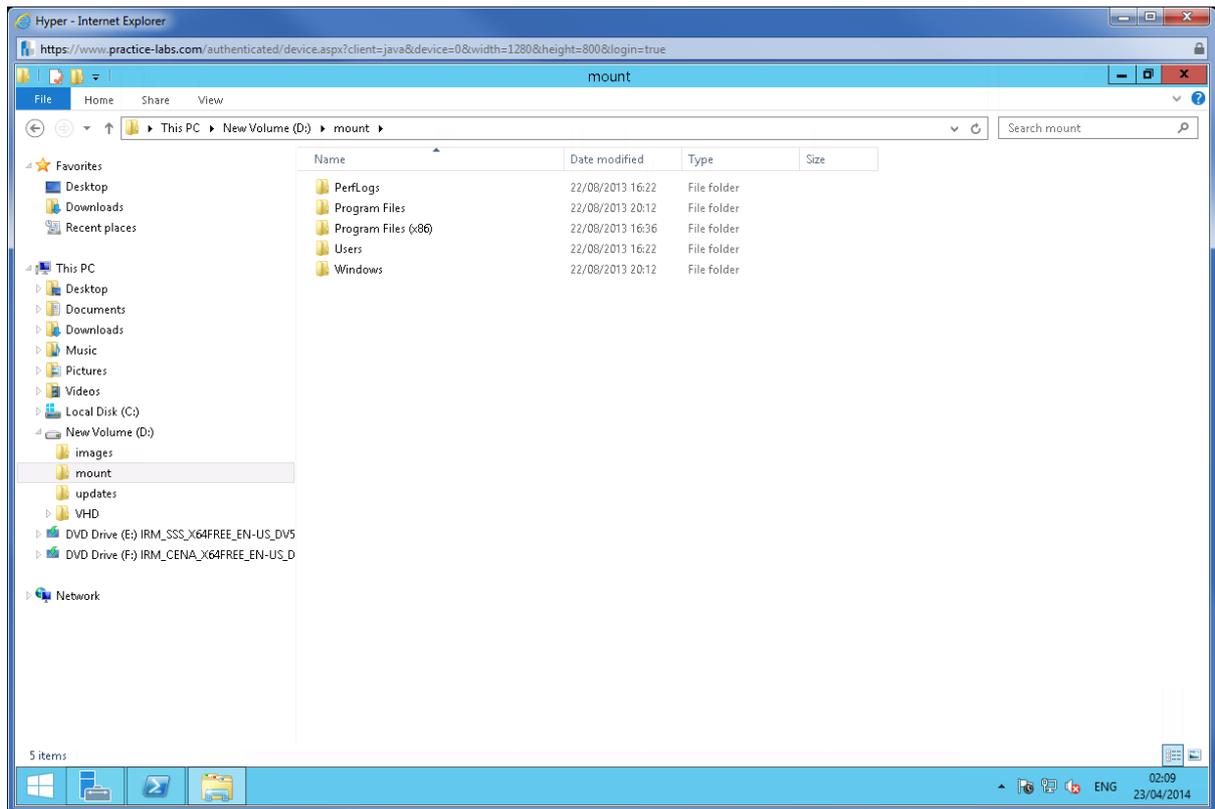


Step 2

Restore File Explorer.

After mounting the .wim image, you will see them as a set of folders in d:\mount directory.

Minimize File Explorer.



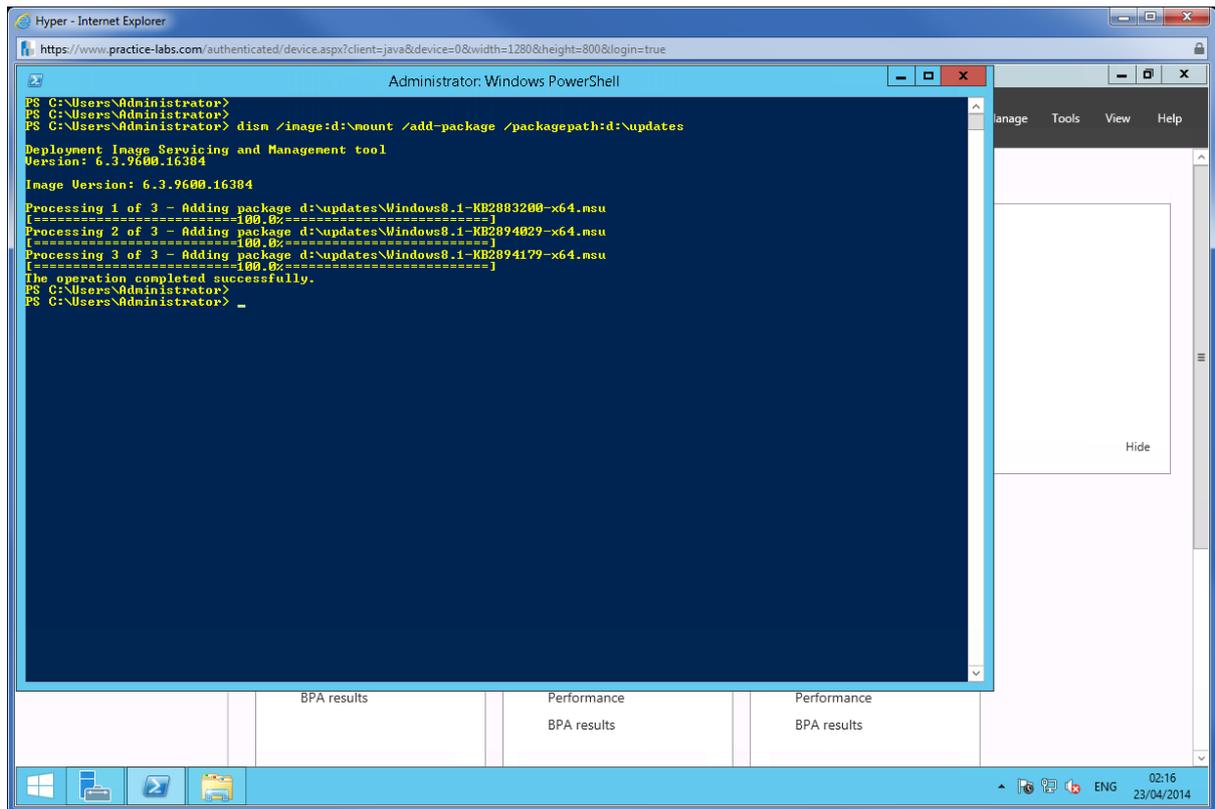
Step 3

Restore PowerShell prompt and type

```
dism /image:d:\mount /add-package /packagepath:d:\updates
```

Note: This may take a few minutes.

You have just added the three standalone updates to the offline image. Minimize PowerShell.

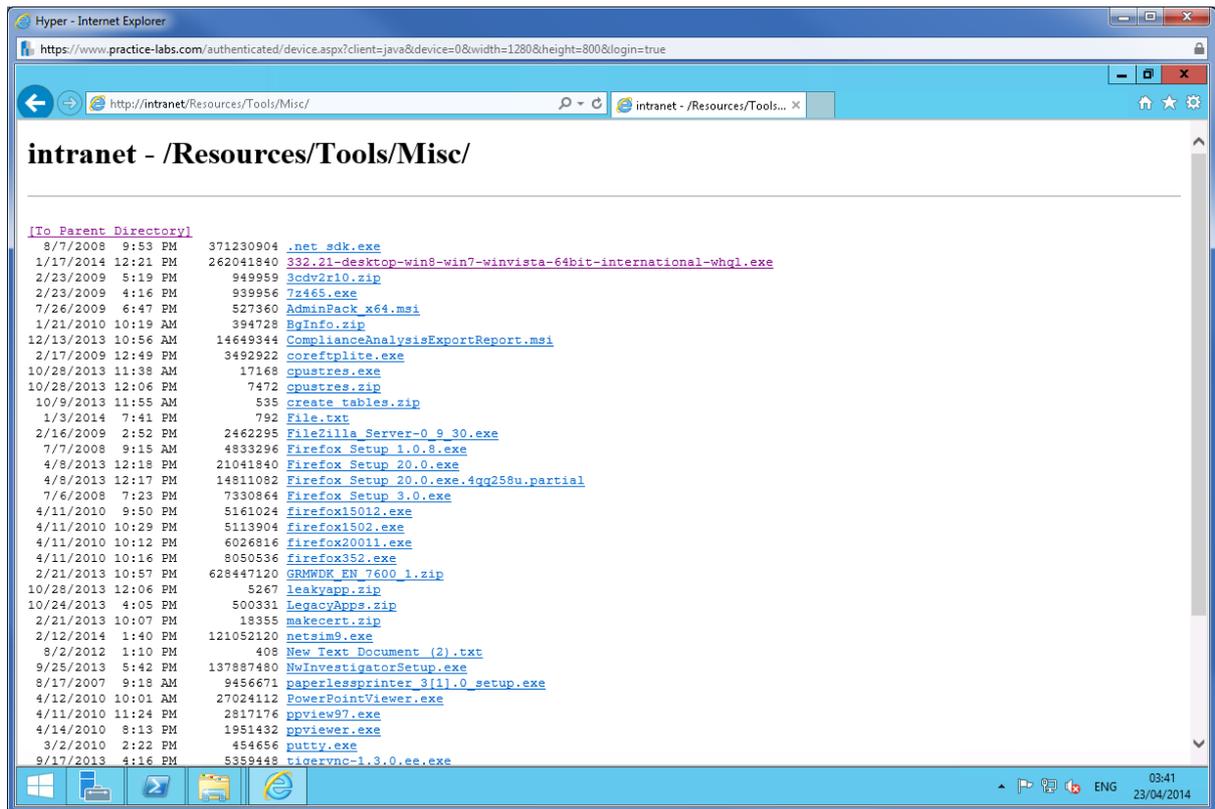


Task 3: Add a Device Driver to Offline Image

Step 1

On PLABHYPERV, open Internet Explorer and go to

<http://intranet/Resources/Tools/Misc/>

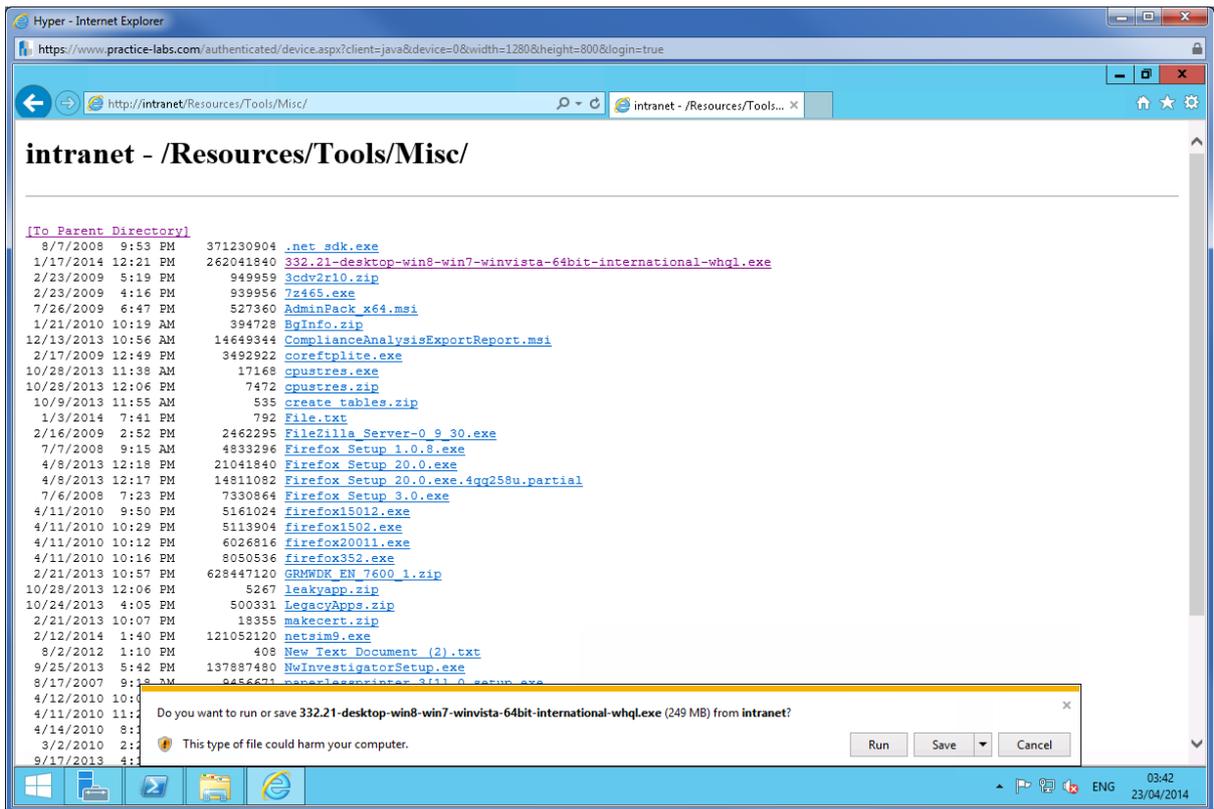


Step 2

Once there find and download the following file:

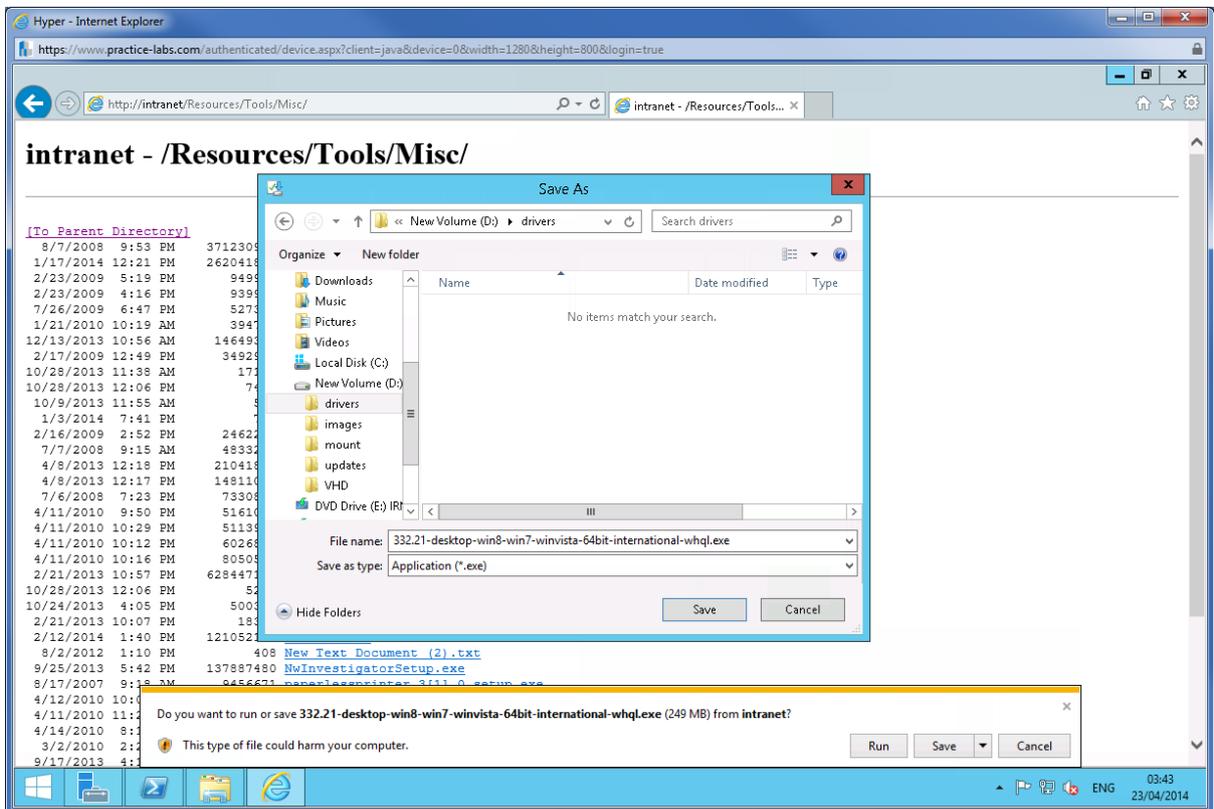
332.21-desktop-win8-win7-winvista-64bit-international-whq

When prompted choose **Save As**.



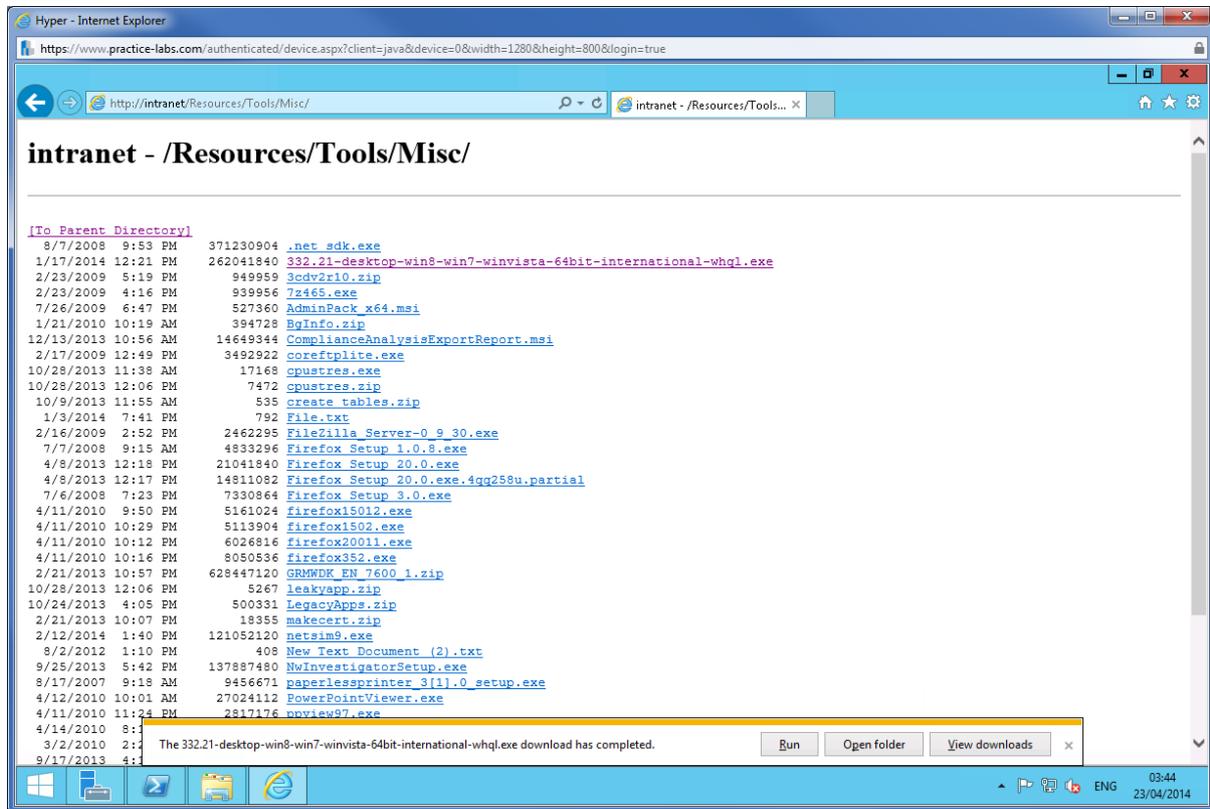
Step 3

In Save As dialogue box, go to **d:\drivers** folder, then click **Save**.



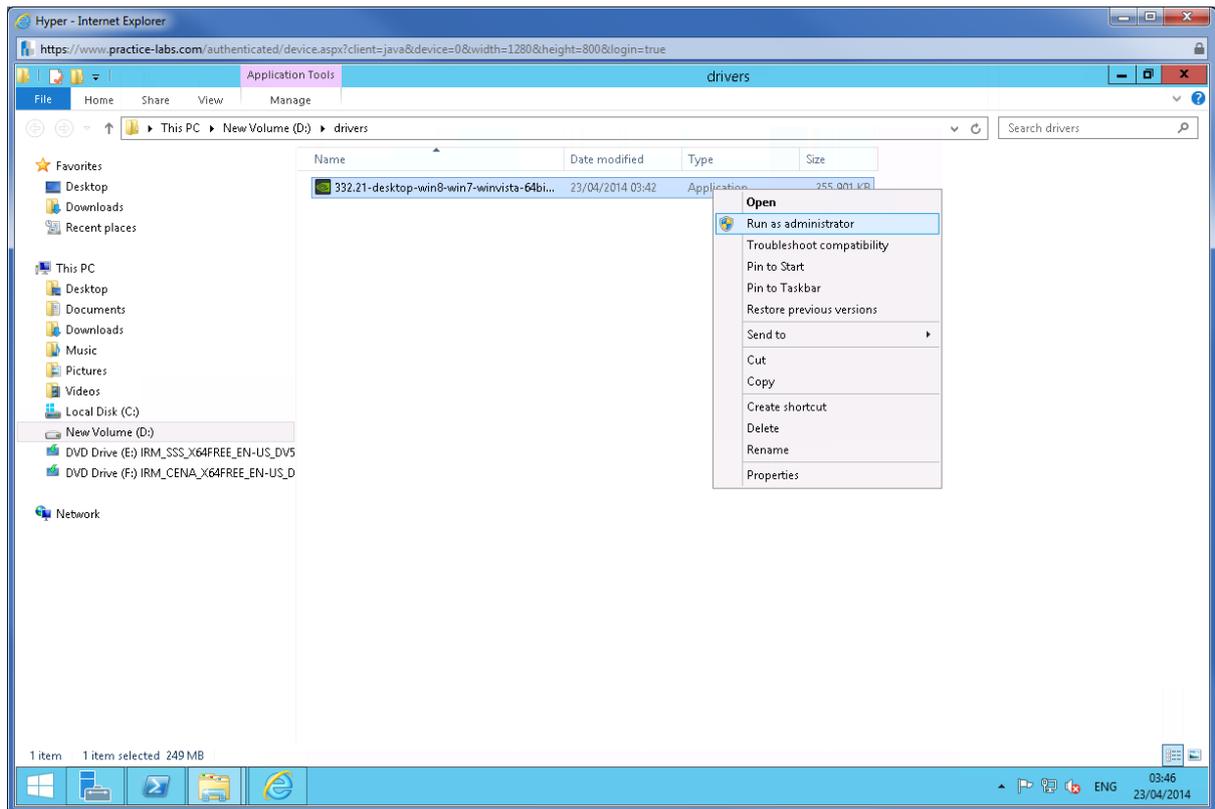
Step 4

When download is complete, click **Open folder**.



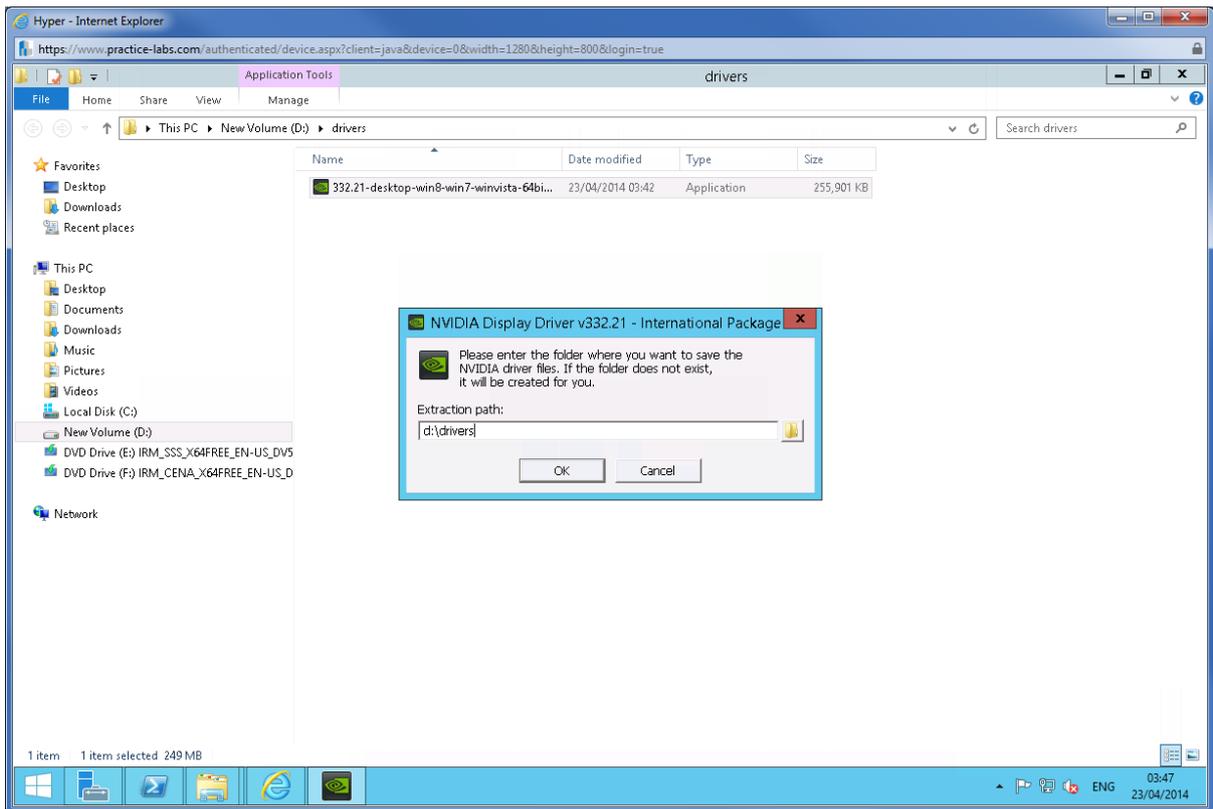
Step 5

Right-click on **332.21-desktop** file and choose **Run as administrator**.



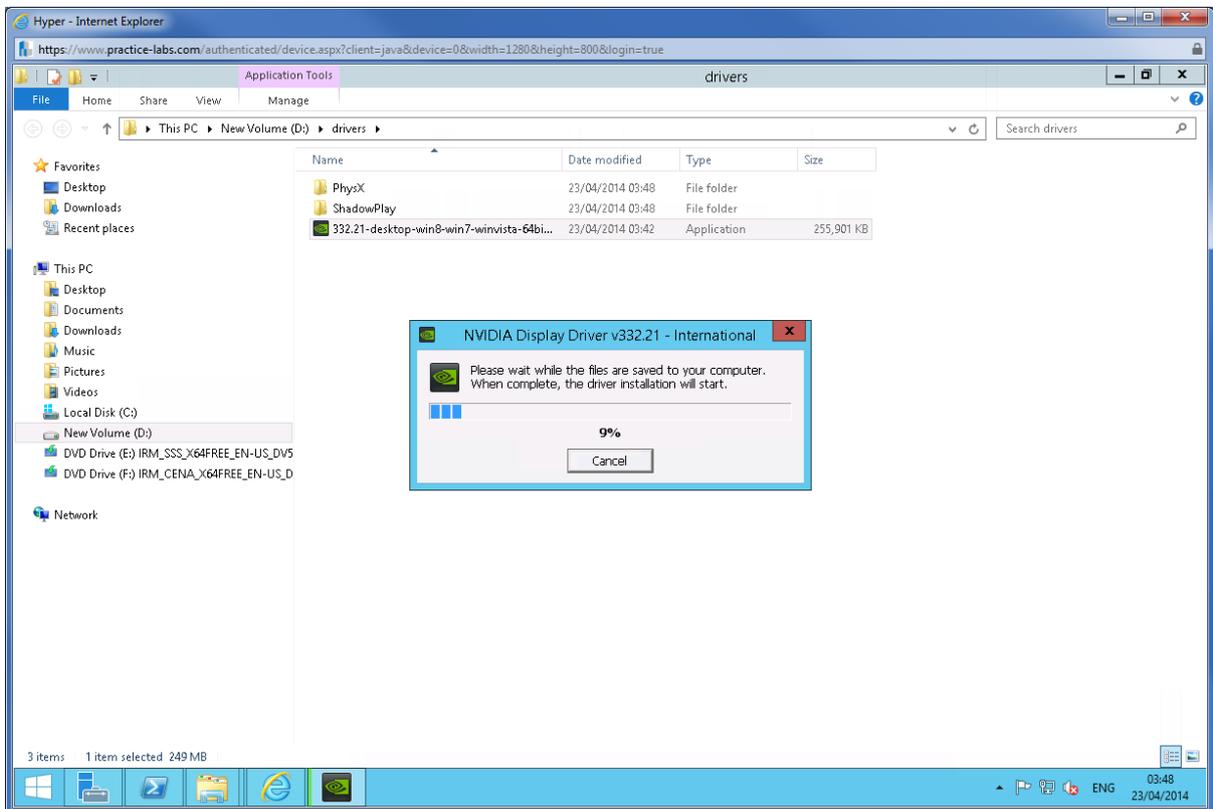
Step 6

Change the Extraction path to **d:\drivers** and click **OK**.



Step 7

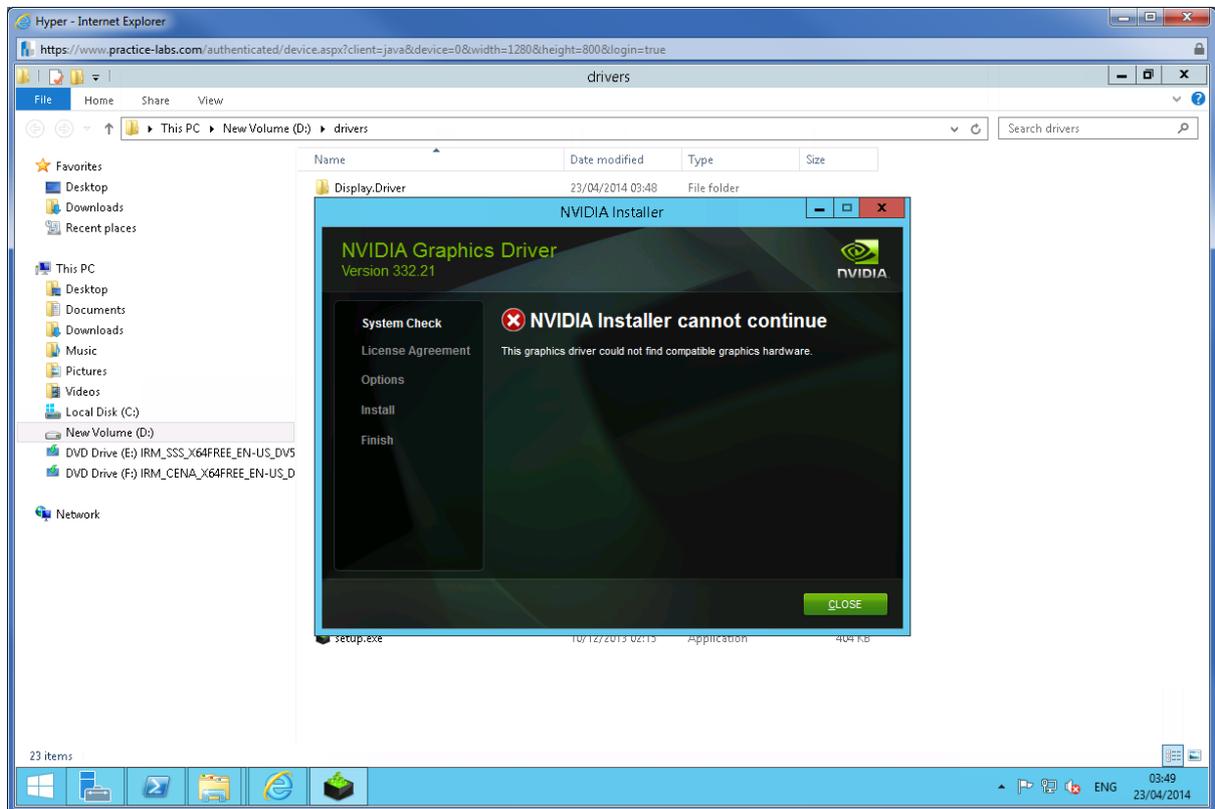
Wait while the system extracts the contents of the driver.



Step 8

As expected the driver will not be compatible with the system.

Click **Close**. Minimize File Explorer.

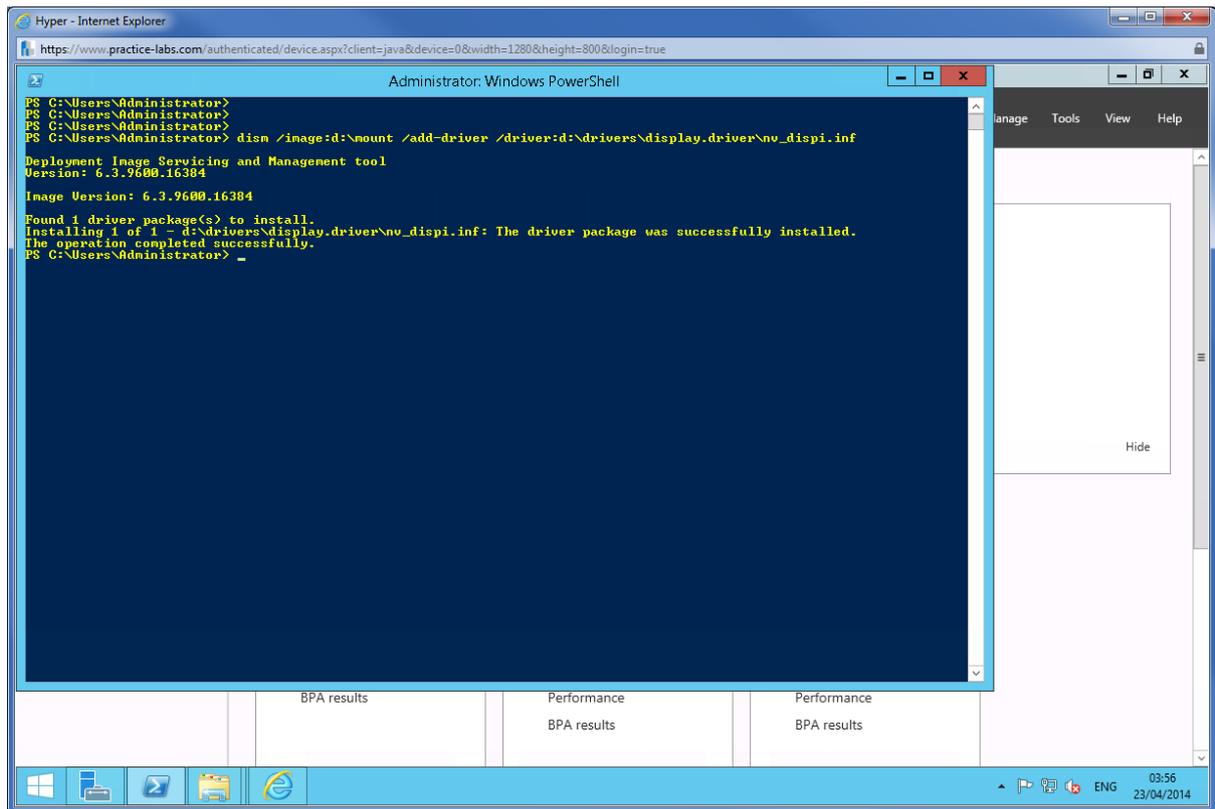


Step 9

Reopen PowerShell and type the following:

```
DISM /image:d:\mount /add-driver /driver:d:\drivers\display.driver\nv_dispi.inf
```

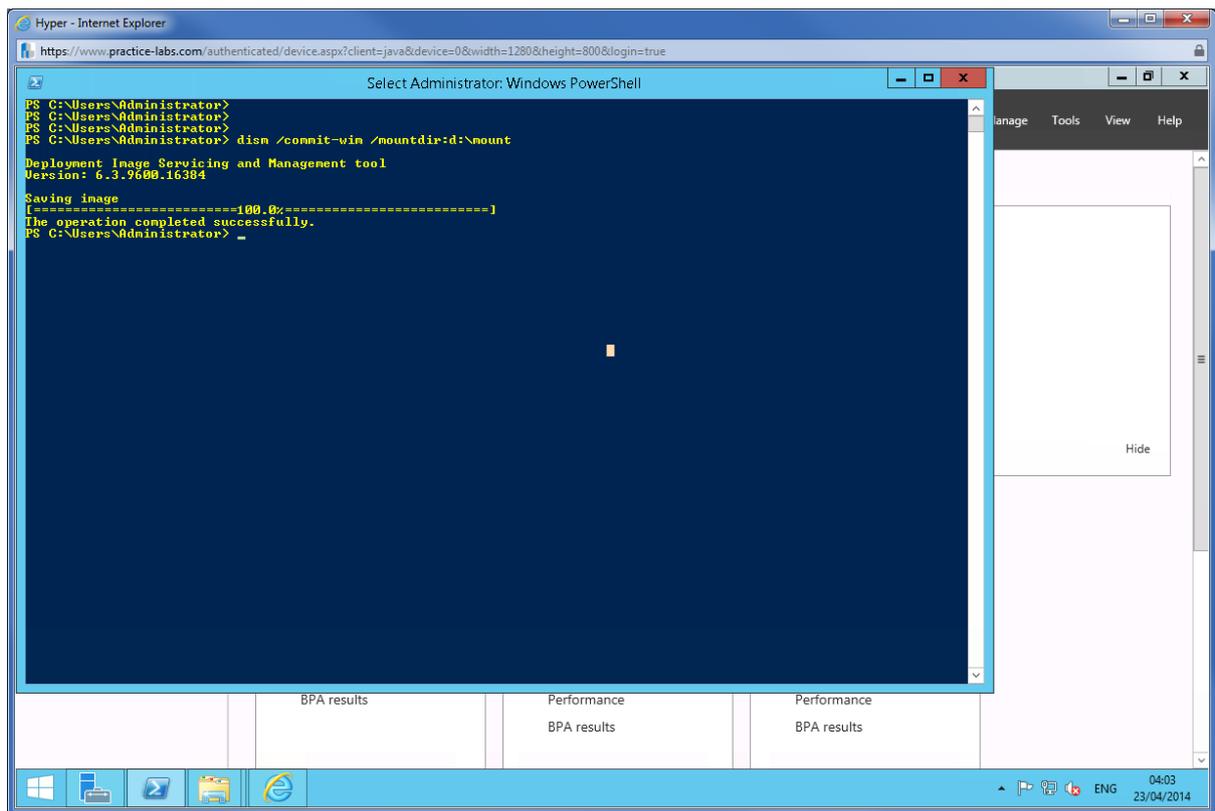
Note: We are assuming that nvidia is the driver being used by Windows 8.1. The use of the above driver is for illustrative purposes only.



Step 10

After adding the update and the driver, you can commit those changes by typing the following:

```
dism /commit-wim /mountdir:d:\mount
```

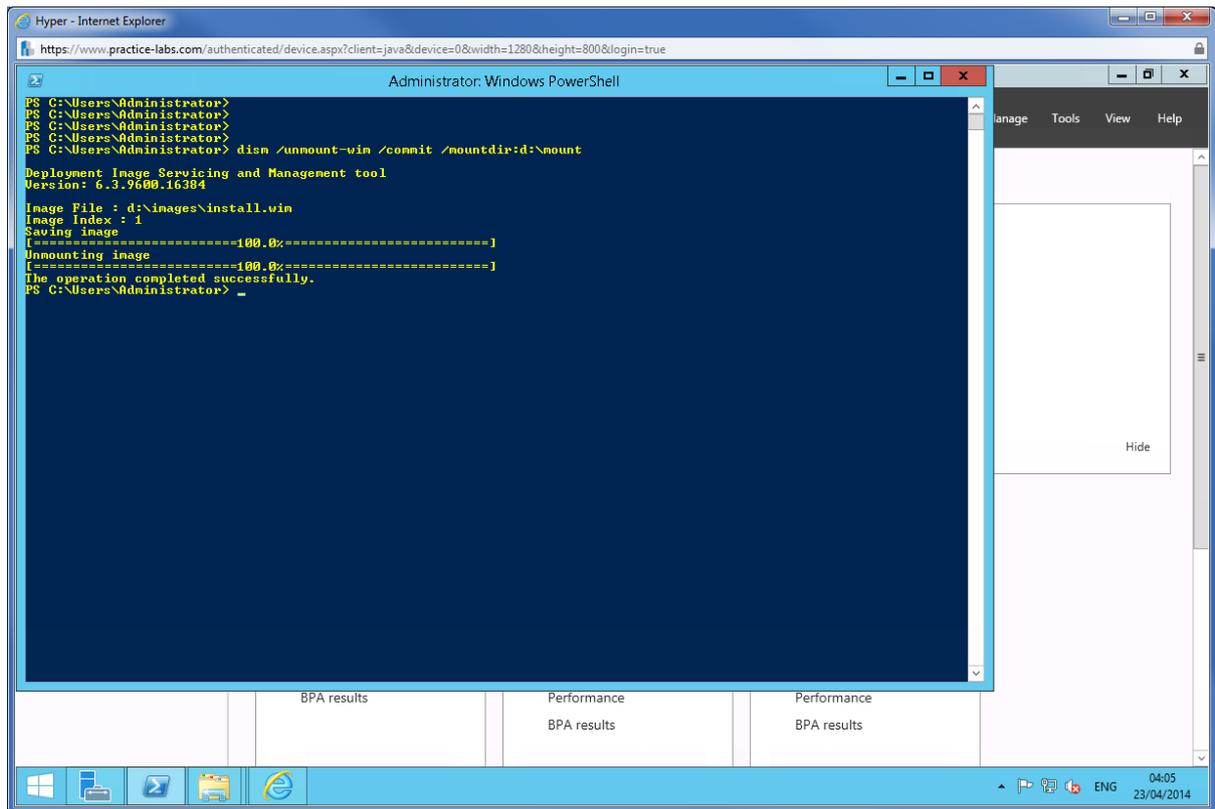


Step 11

Once the changes have been committed, you can unmount the folders and put them back in the .wim image file.

Type

```
Dism /unmount-wim /commit /mountdir:d:\mount
```



Shut down PLABHYPERV host to revert it to its default settings using Practice Labs web application. Alternatively, you can sign out of the lab platform to turn off the virtual machines.

Summary

In this lab, you learnt how to create different type of images for simplified roll out of Windows 8.1 to a network. An install image could be the DVD image of a Windows 8.1 installer which can be used for manual installation of the operating system. A boot image coming from a Windows 8.1 DVD is used by new computers to boot from the network and connect to the WDS install image available on the server.

Windows Assessment and Deployment Kit – WADK includes `dism.exe`. Deployment Image and Service Management tool is used for managing windows image files `.wim` for adding operating system updates and device drivers.