# Introduction

The **Install and Configure Servers** module provides you with the instruction and server hardware to develop your hands on skills in the defined topics. This module includes the following exercises:

1) Install and Configure a Server

2) Convert a Windows Server 2012 GUI to Server Core and back

3) Features On-Demand

4) Delegate Server Administration

5) Configure NIC Teaming

Lab Diagram

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

PLABHYPERV
192.168.0.1 /24
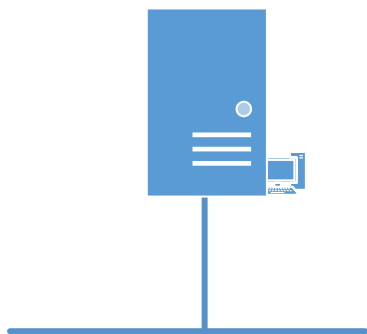
Connecting to your lab

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

- **PLABHYPERV** (Hyper-V Host)

Each exercise will detail which console you are required to work on to carry out the steps.

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.

Copyright Notice

Exercise 1 – Install and Configure Server

In this exercise, you will perform a full installation and then configure a Windows Server 2012 R2 computer.

Please refer to your course material or use your favourite search engine to research for more information about this topic.
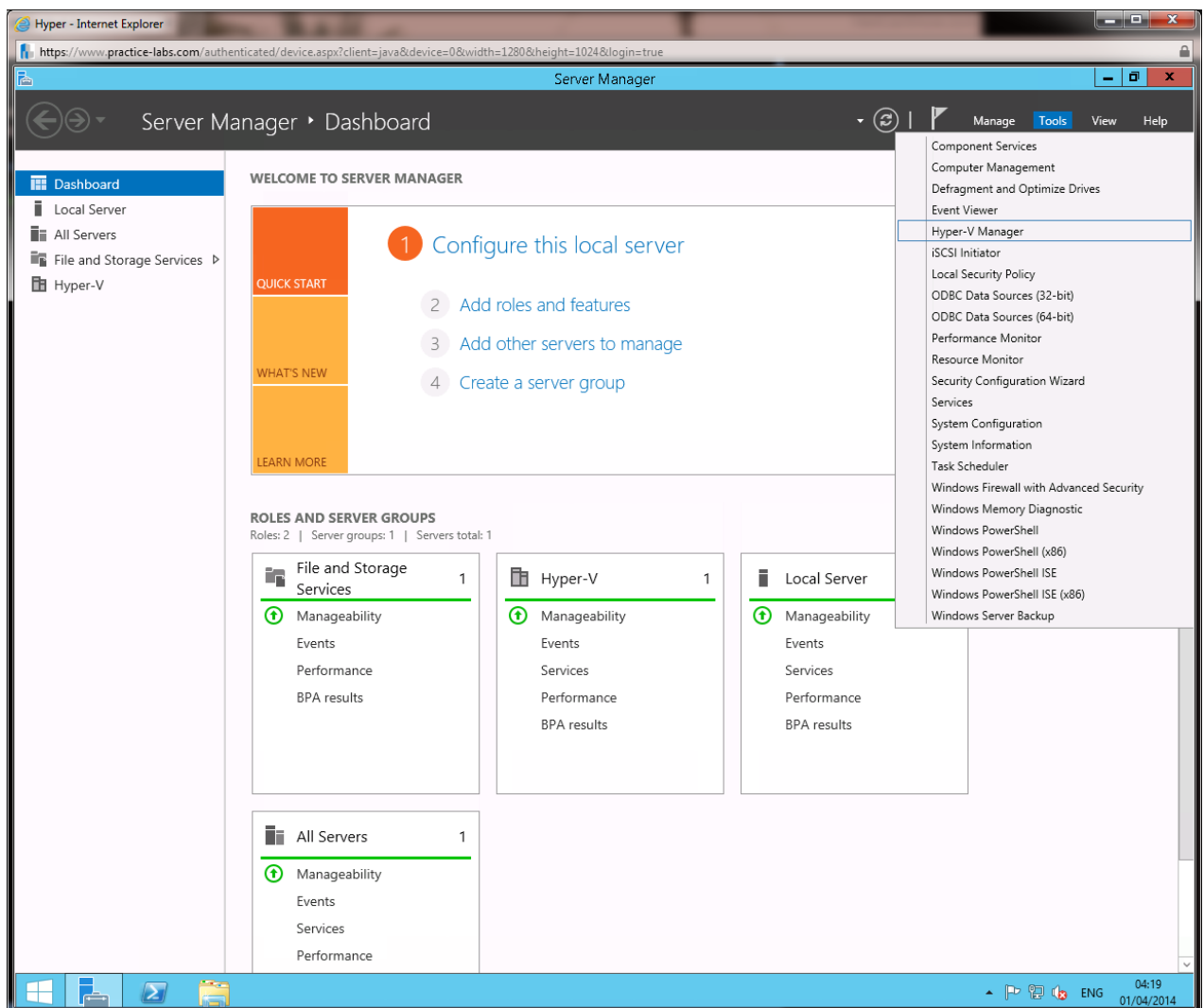
Task 1: Create PLABDM02 Virtual Machine

You will create a virtual machine where Windows Server 2012 R2 will be installed.
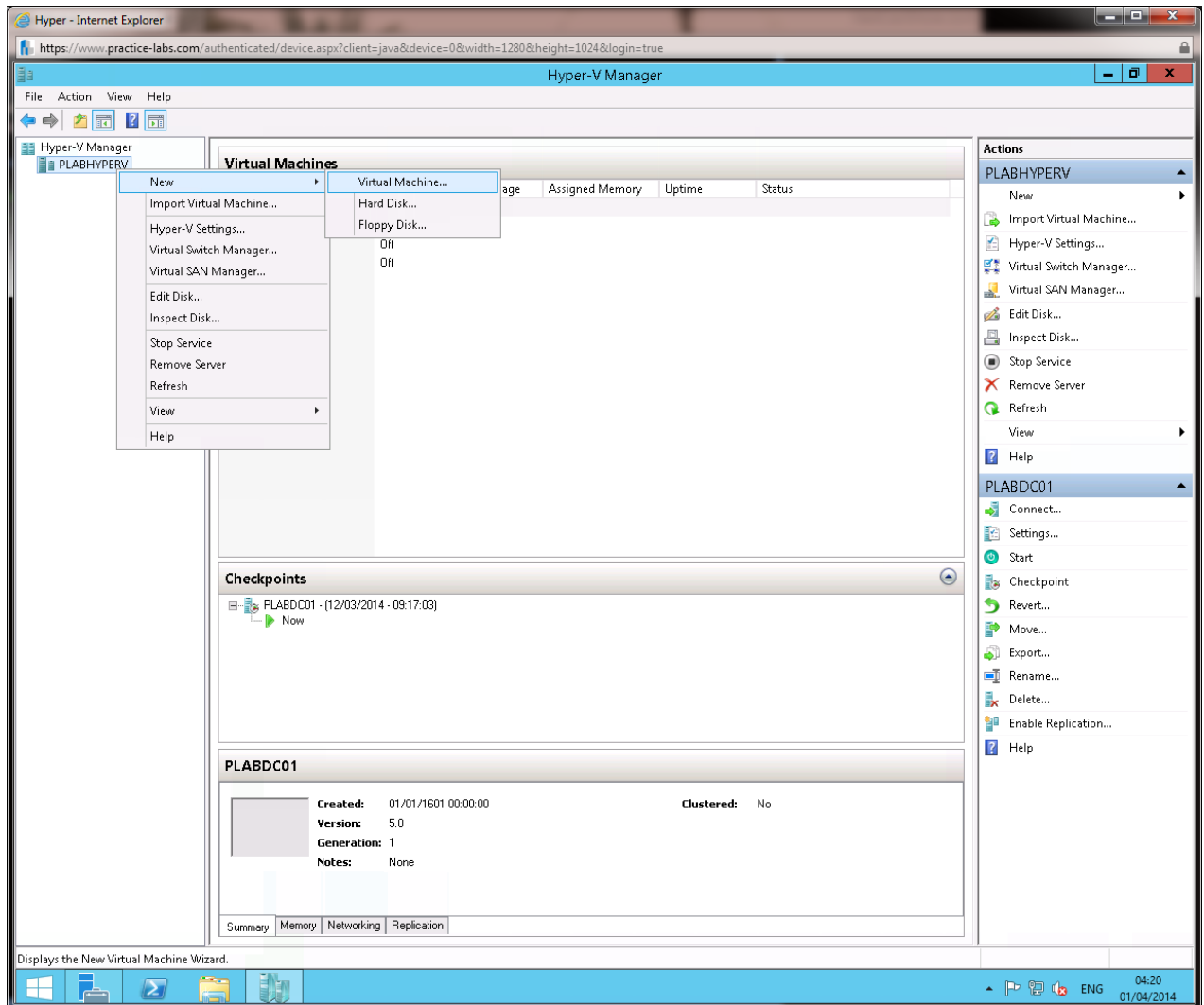
Step 1

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

From Server Manager console, click **Tools** and select **Hyper-V Manager**.

Step 2

Right-click on PLABHYPERV and choose **New** > **Virtual Machine**…
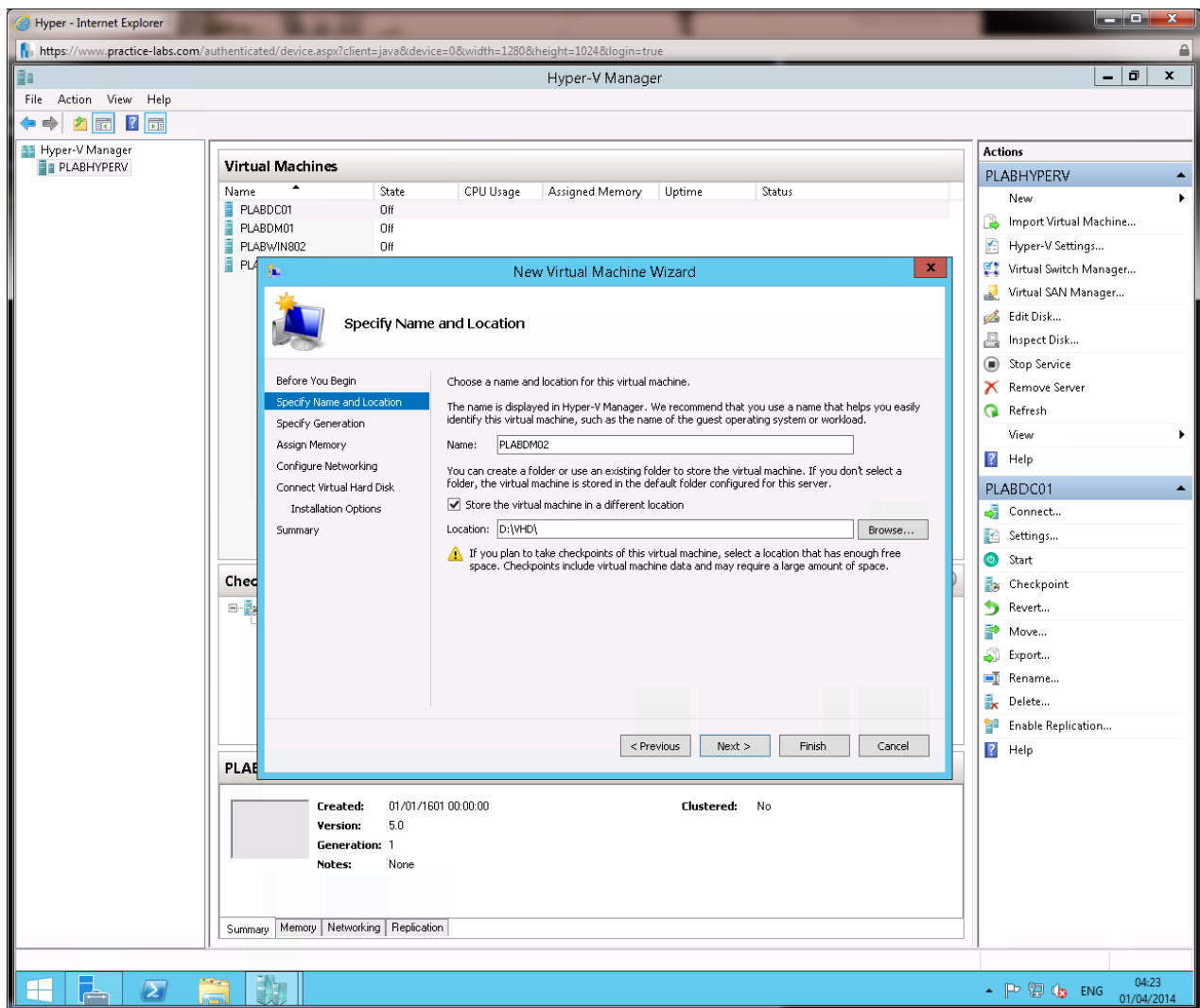

Step 3

On Before you begin page, click **Next**.
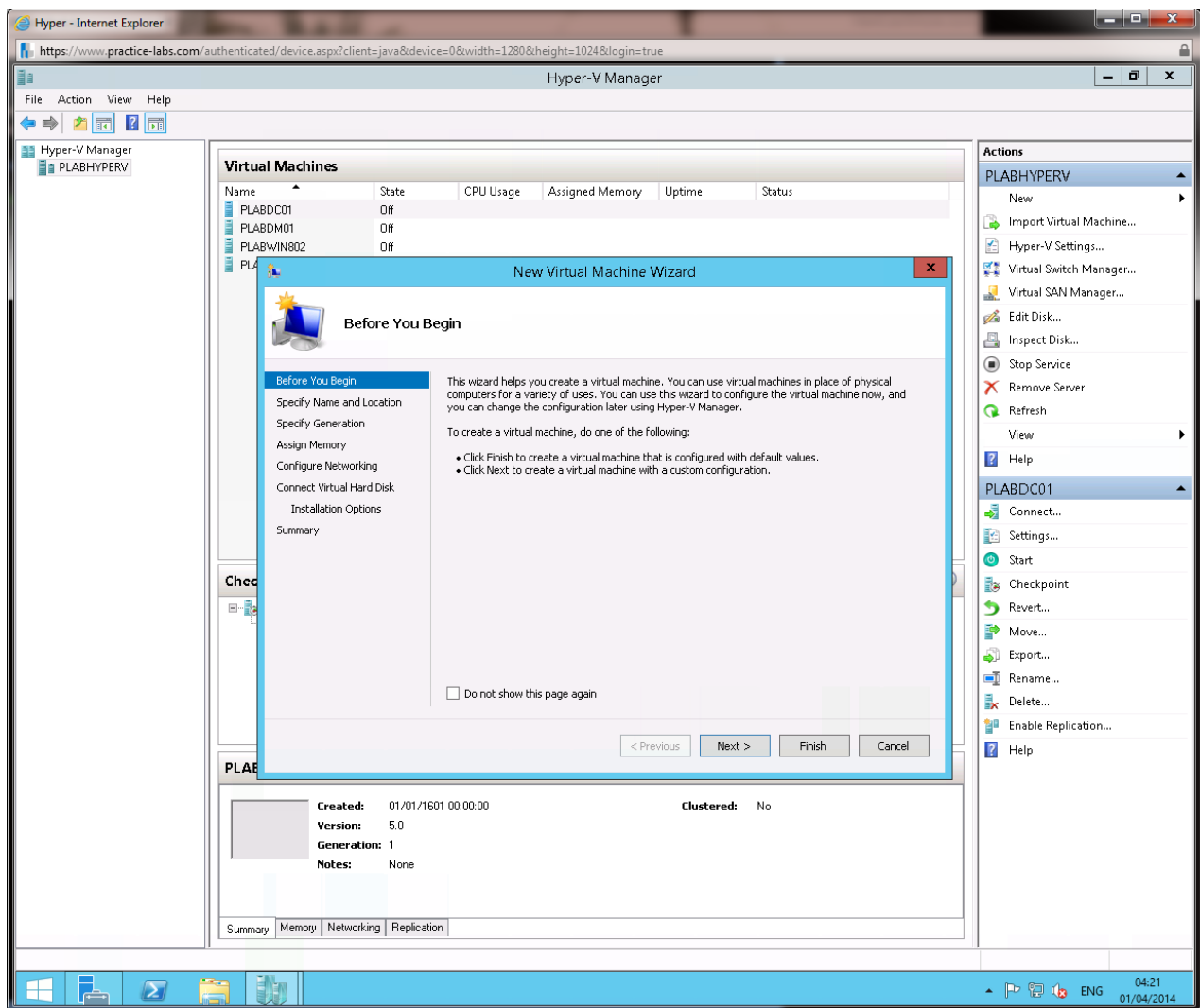
Step 4

On Specify Name and Location page, use the following settings:

Name: **PLABDM02**

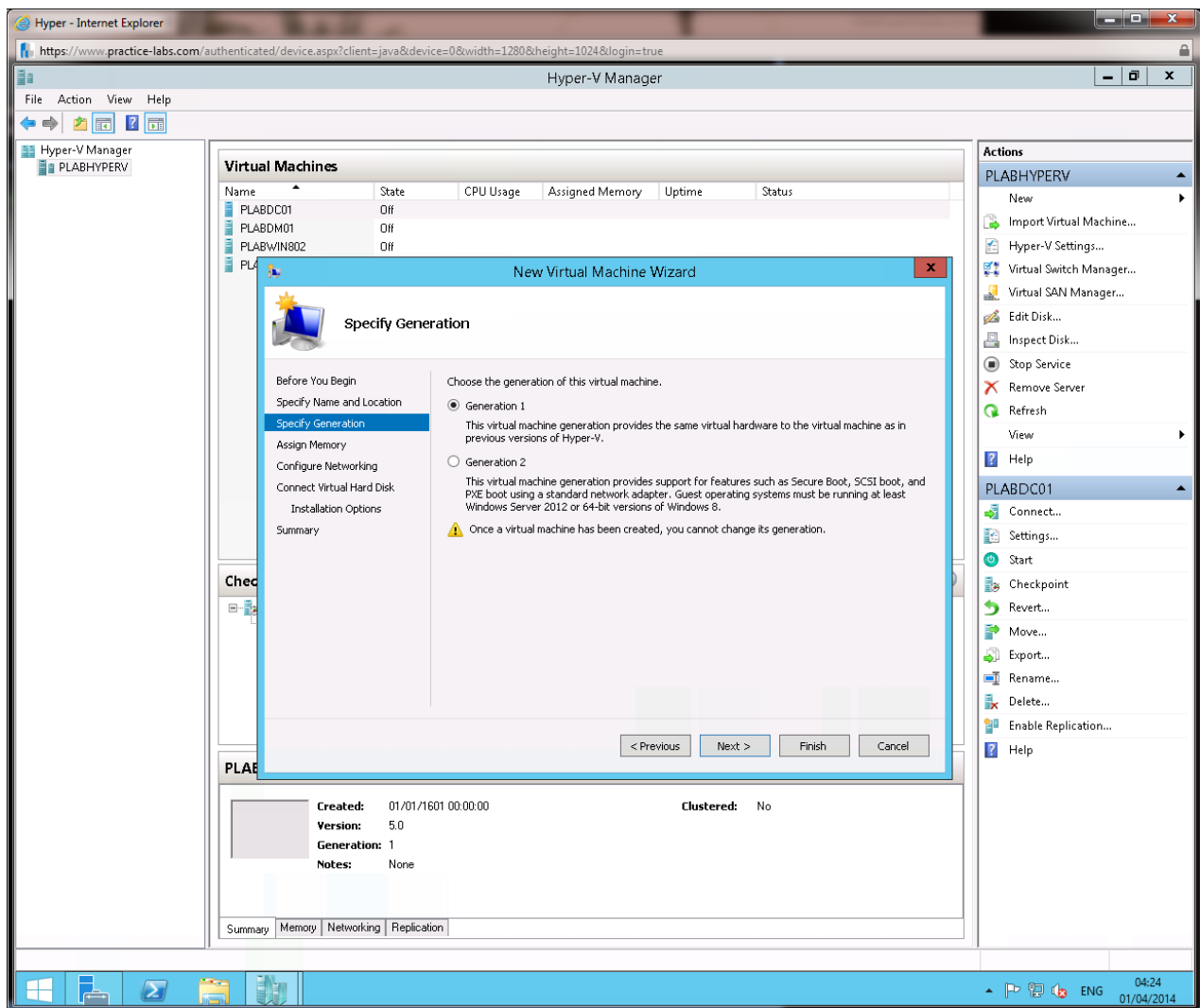Select **Store the virtual machine in a different location**

Click **Next**.

Step 5

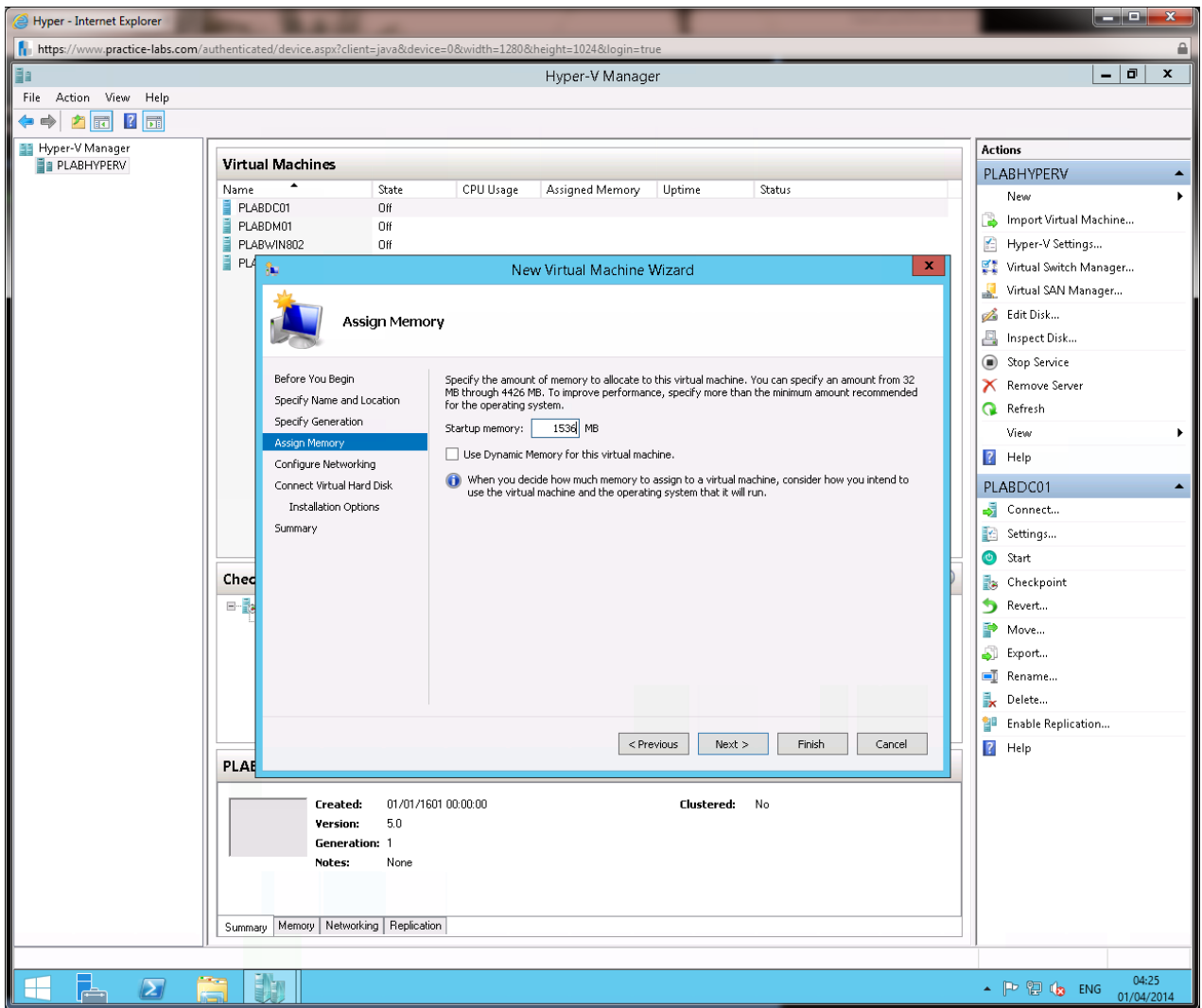In Specify Generation page, verify that **Generation 1** is selected
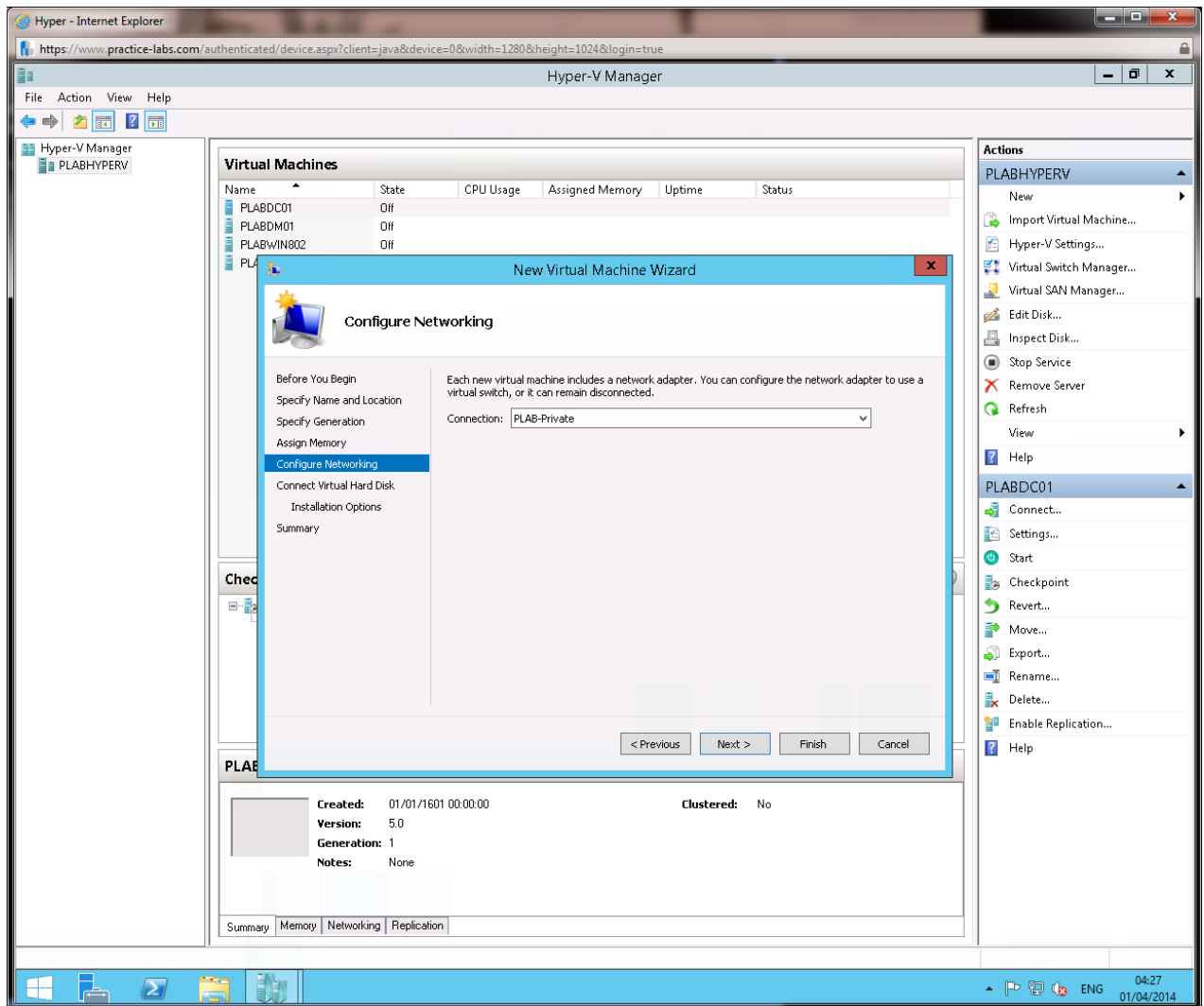
Click **Next**.

Step 6

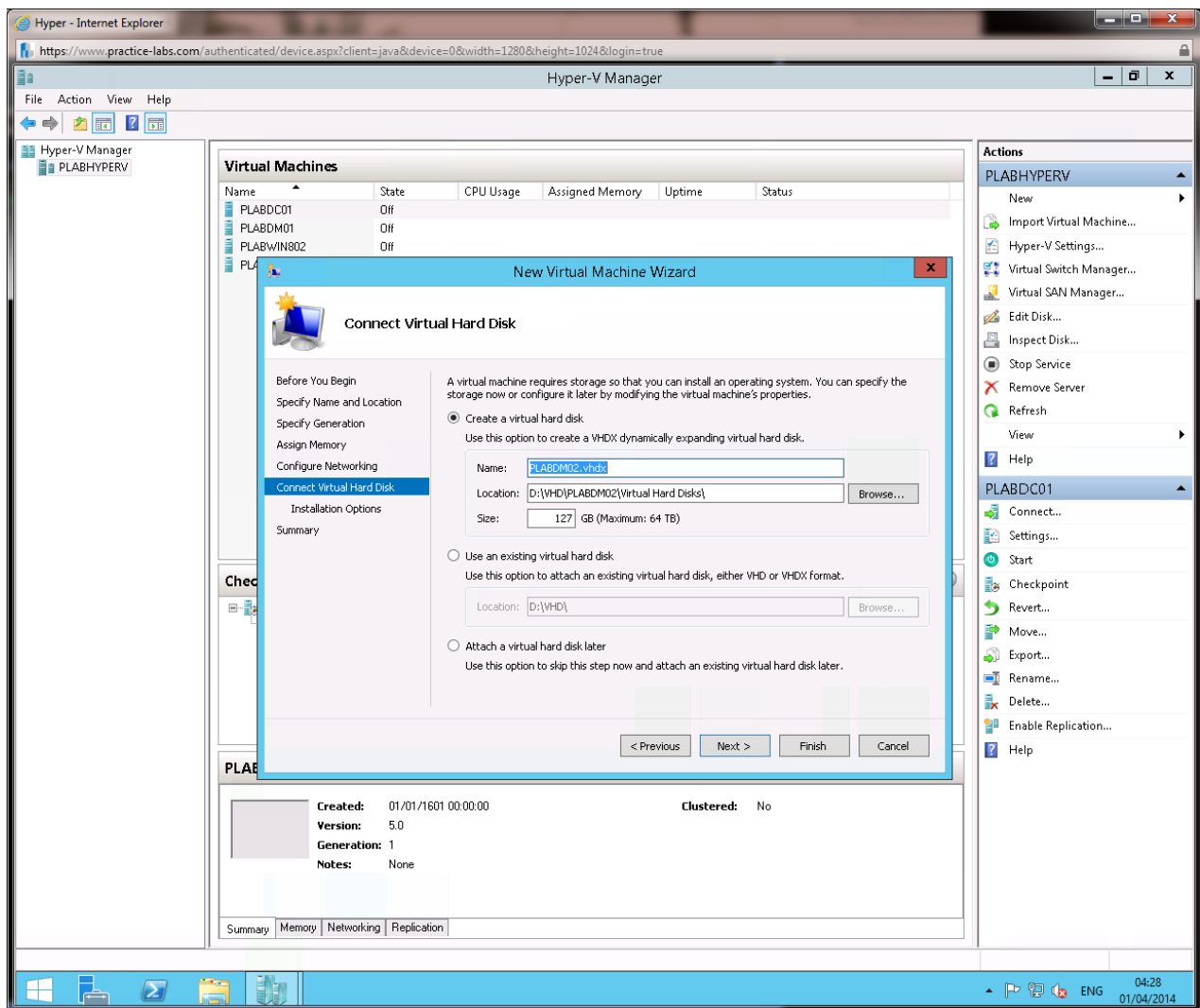In Assign Memory page, change Startup Memory to **1536 MB**.

Click **Next**.

Step 7

In Configure Networking page, change **Connection** to **PLAB**-**Private**. Click **Next**.

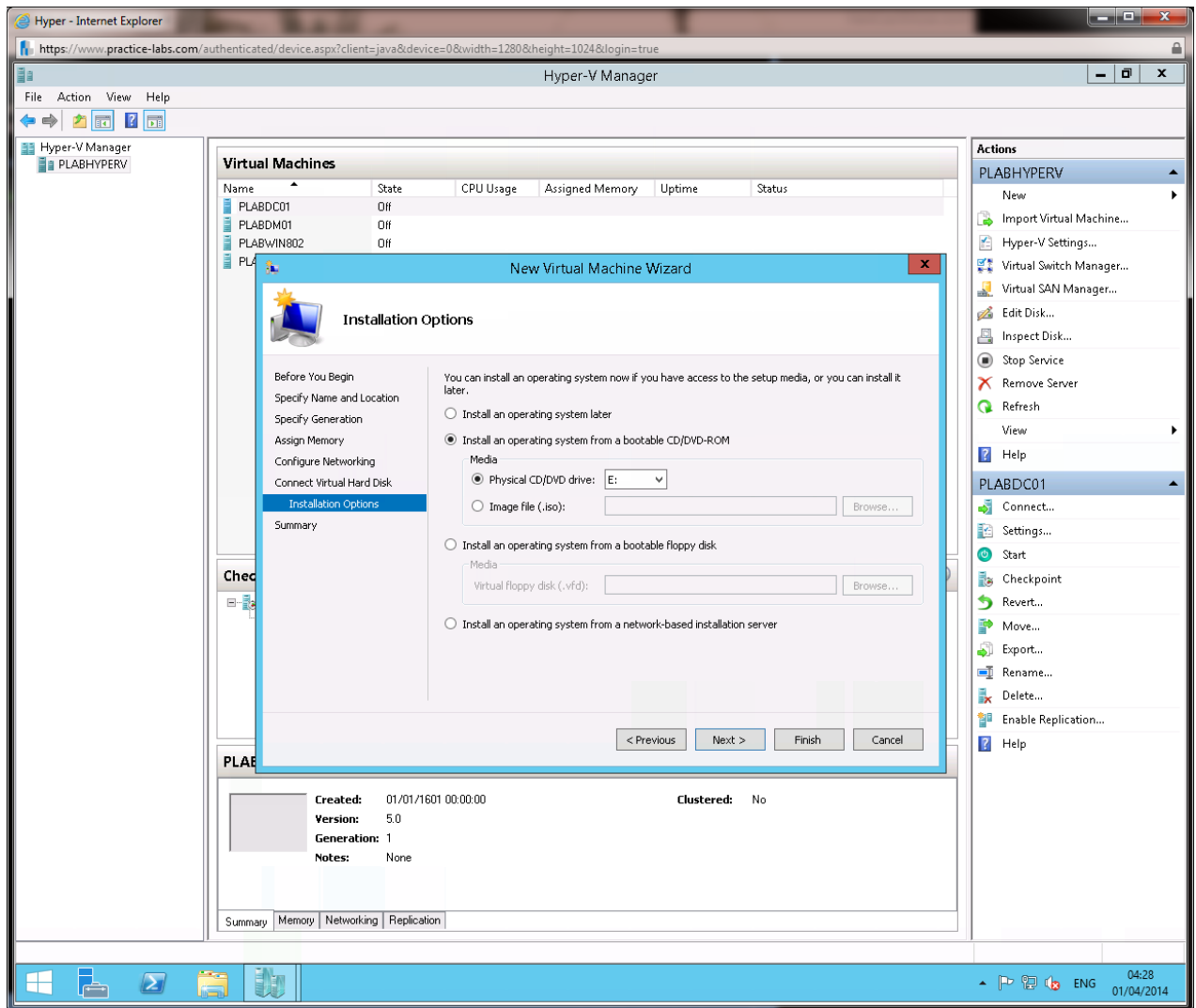## Step 8

In Connect Virtual Hard Disk, click **Next**.

Step 9

On Installation Options, use the following settings:

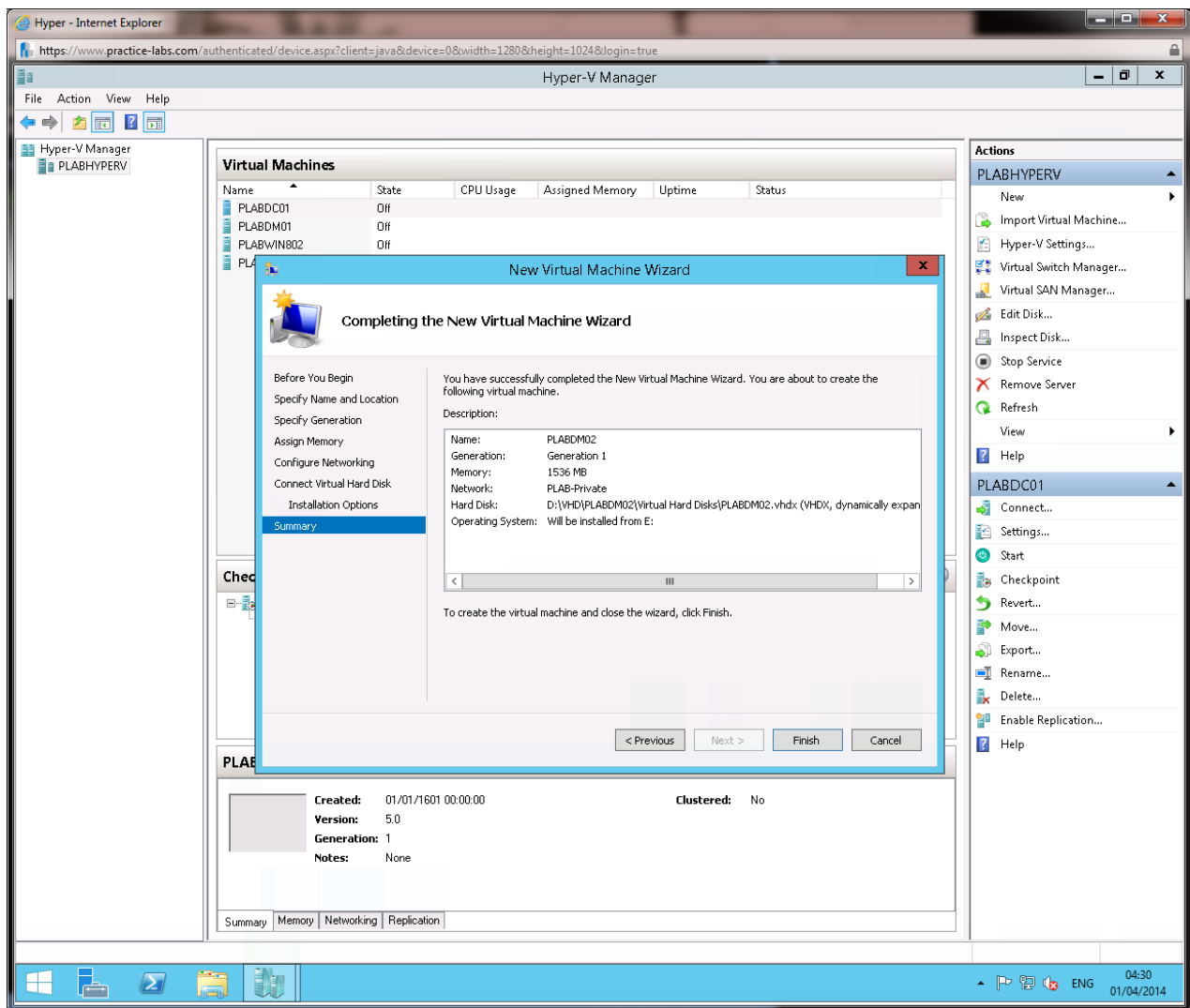**Install an operating system from a bootable CD/DVD-ROM**

Physical CD/DVD drive: E:

Click **Next**.

Step 10

In Completing the New Virtual Machine Wizard, click **Finish**.
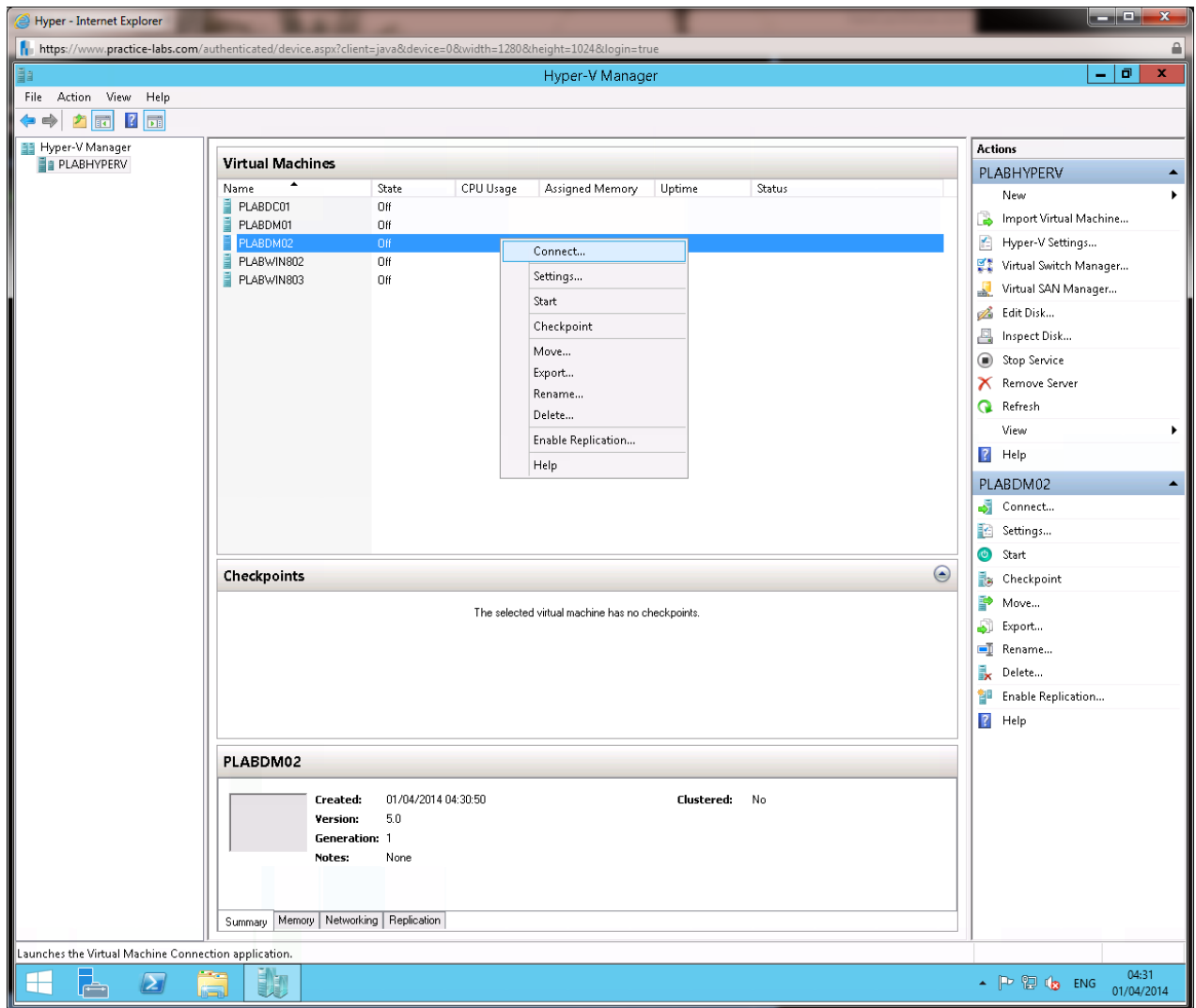
Task 2: Install Windows Server 2012 R2 in PLABDM02
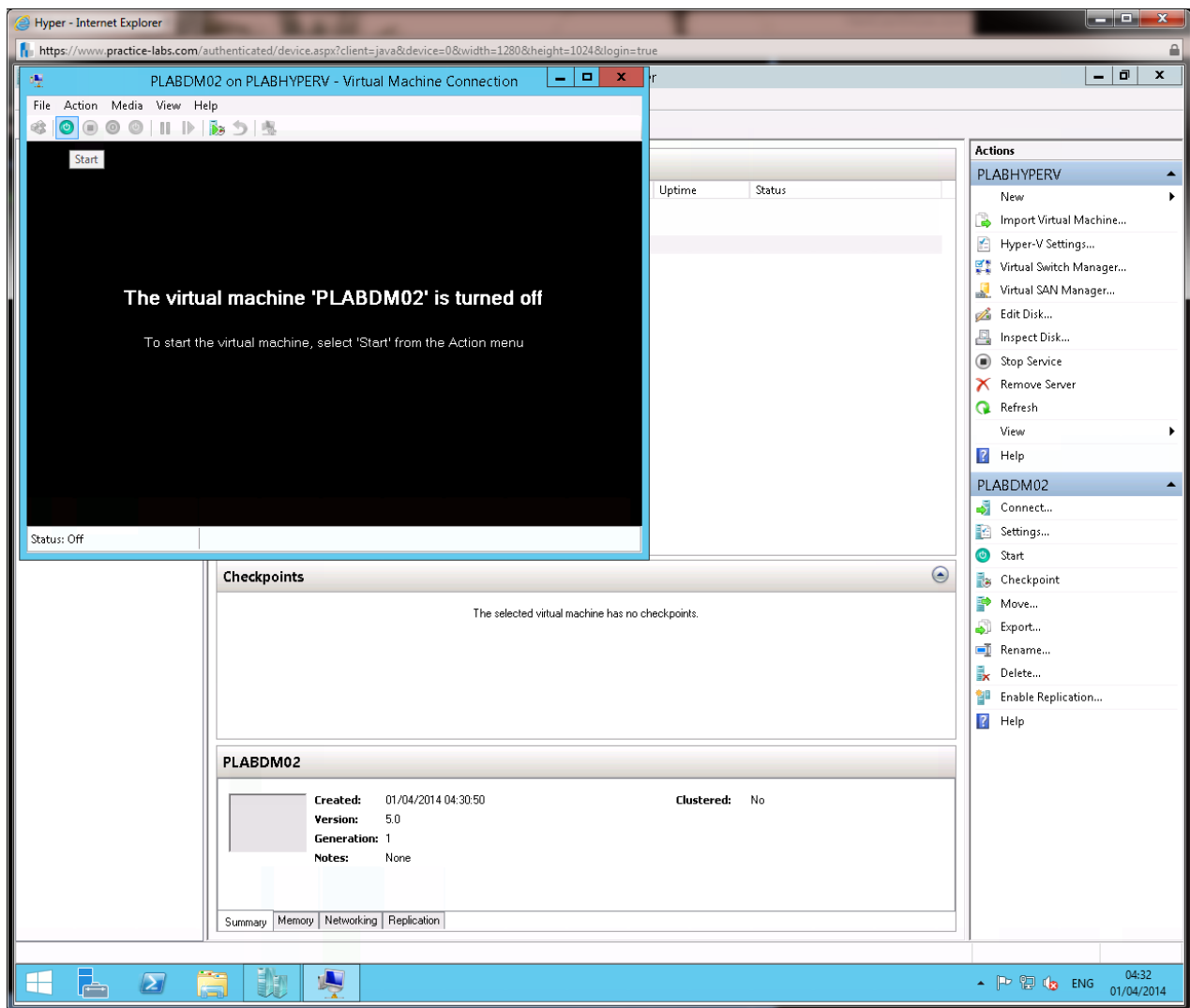
Step 1
Right-click on **PLABDM02** and choose **Connect**…

Step 2

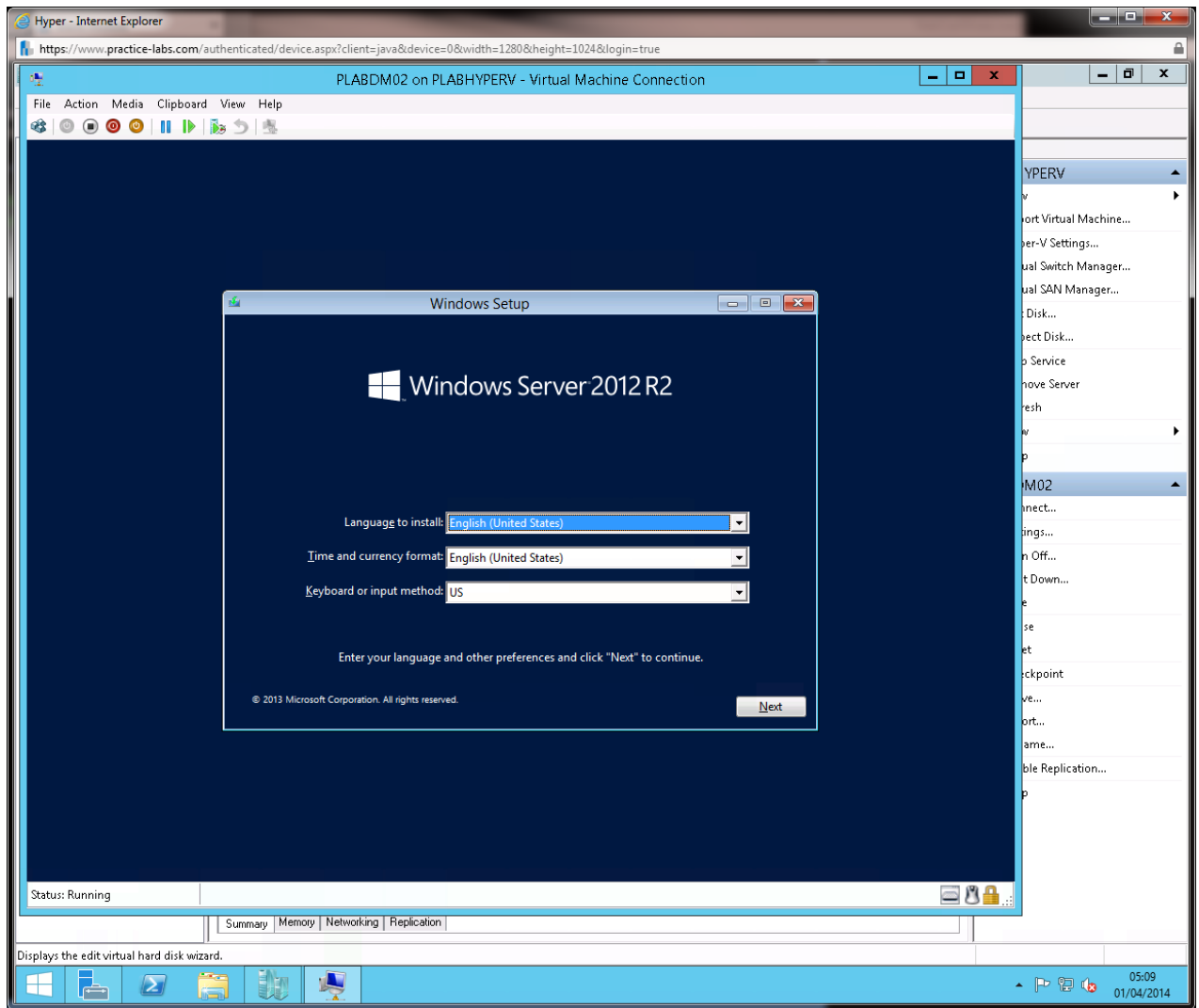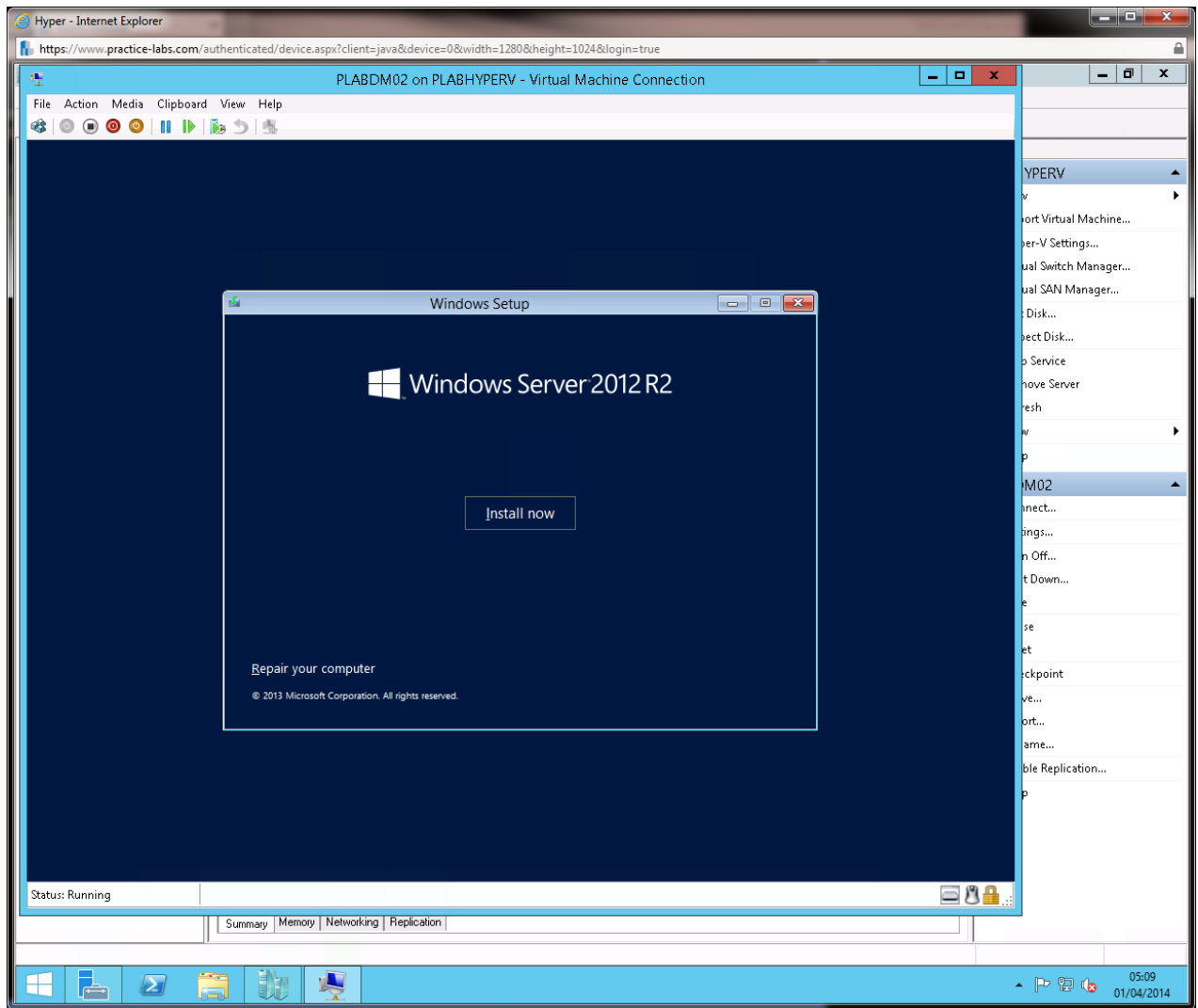Click **Start** (green) button.

Step 3

Wait for Windows setup files to be loaded.

Setup screen, accept the default locale and click **Next**.
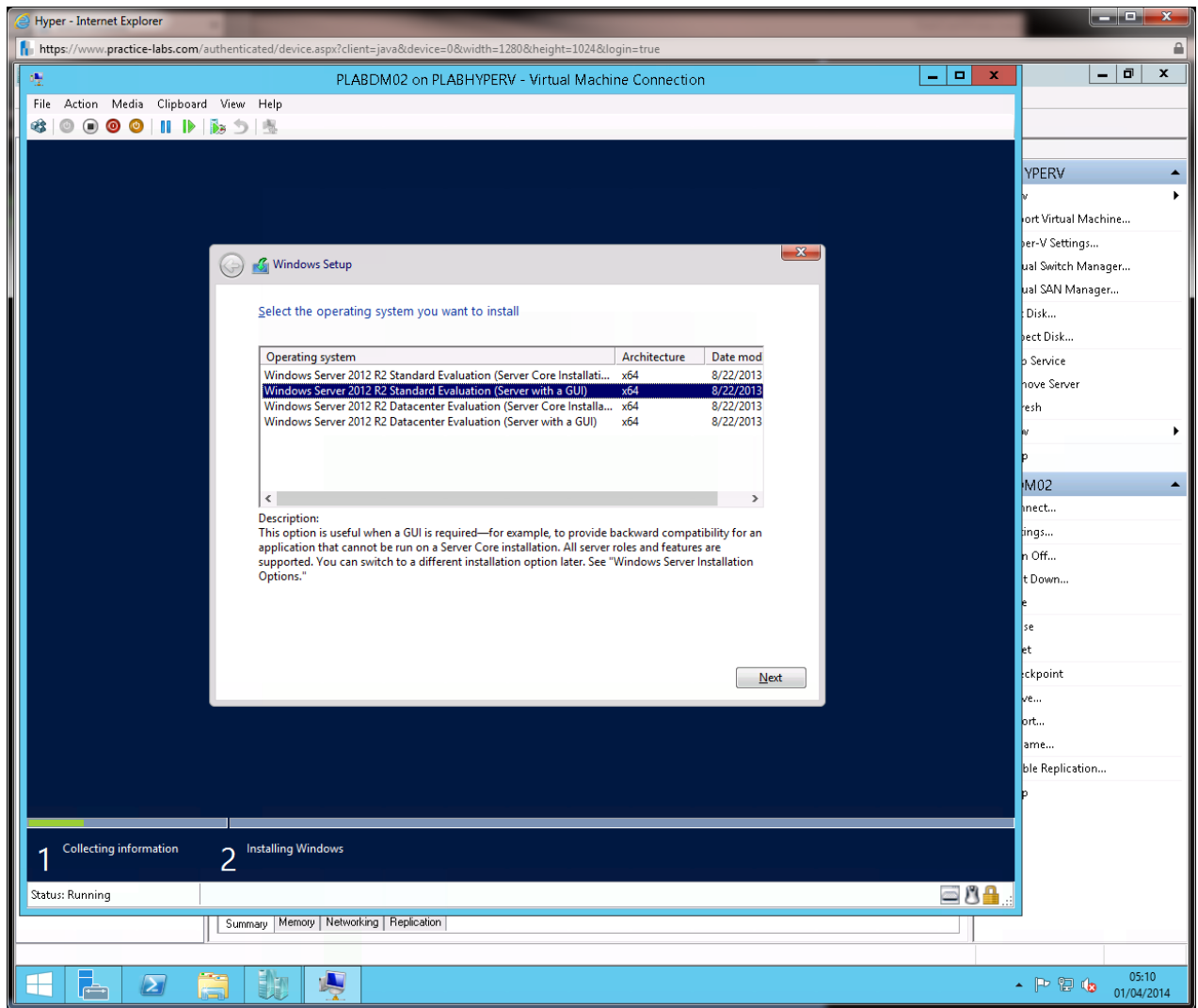
Step 4

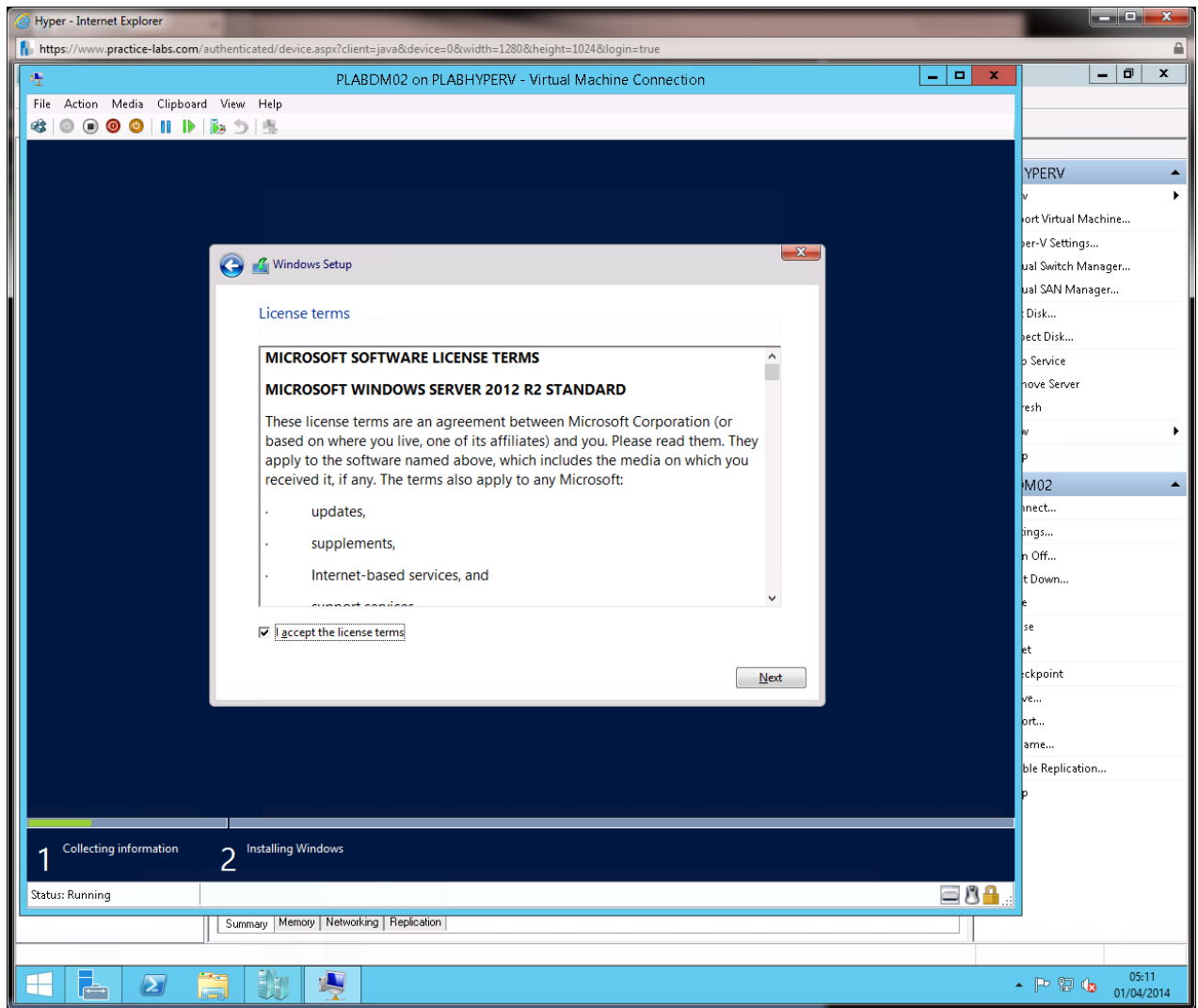Click **Install now**.

Step 5

On Select the operating system you want to install, click **Windows Server 2012 Standard Evaluation (Server with a GUI).**
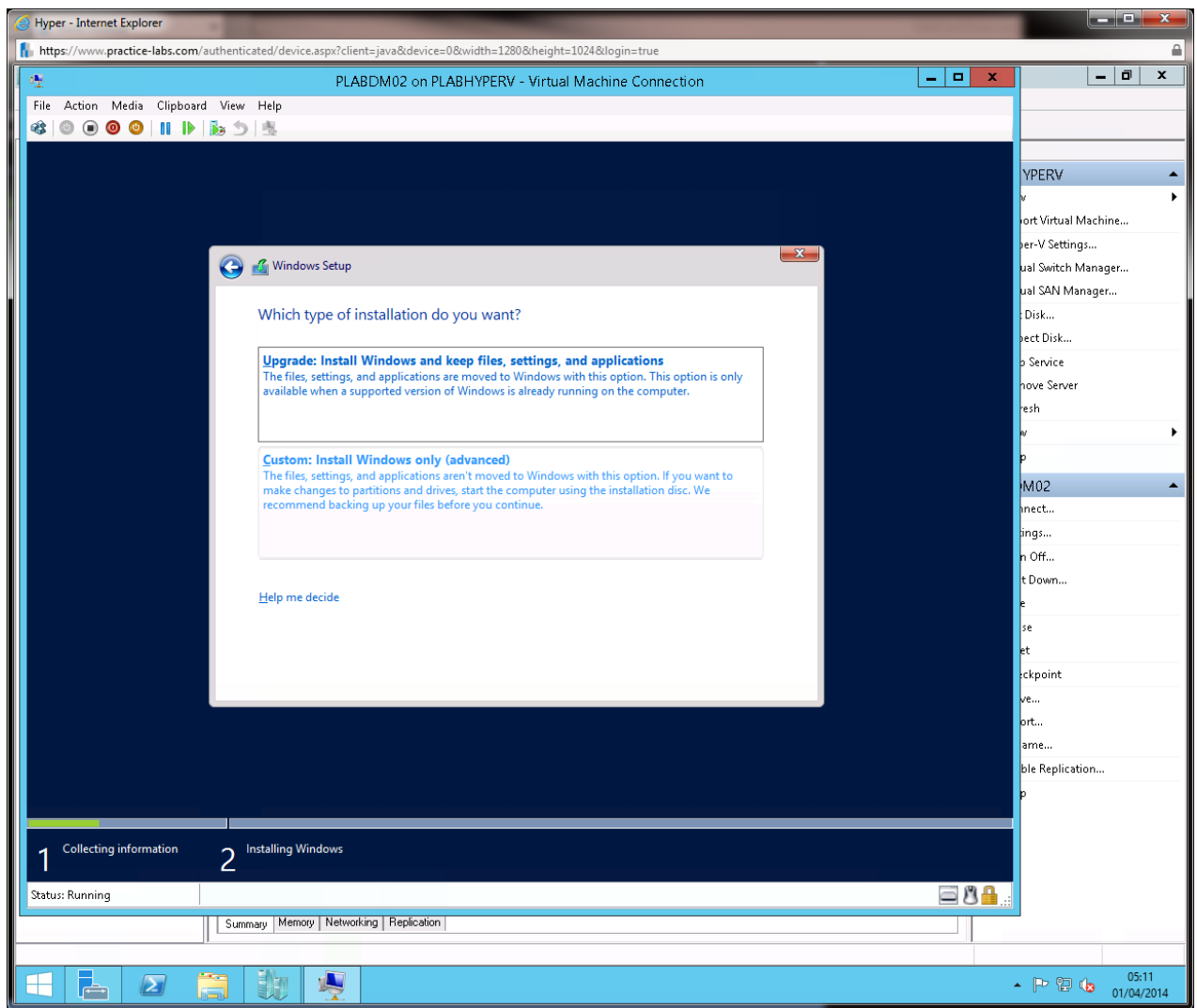
Click **Next**.

Step 6

On License Terms, click **I accept the license terms** and choose **Next**.
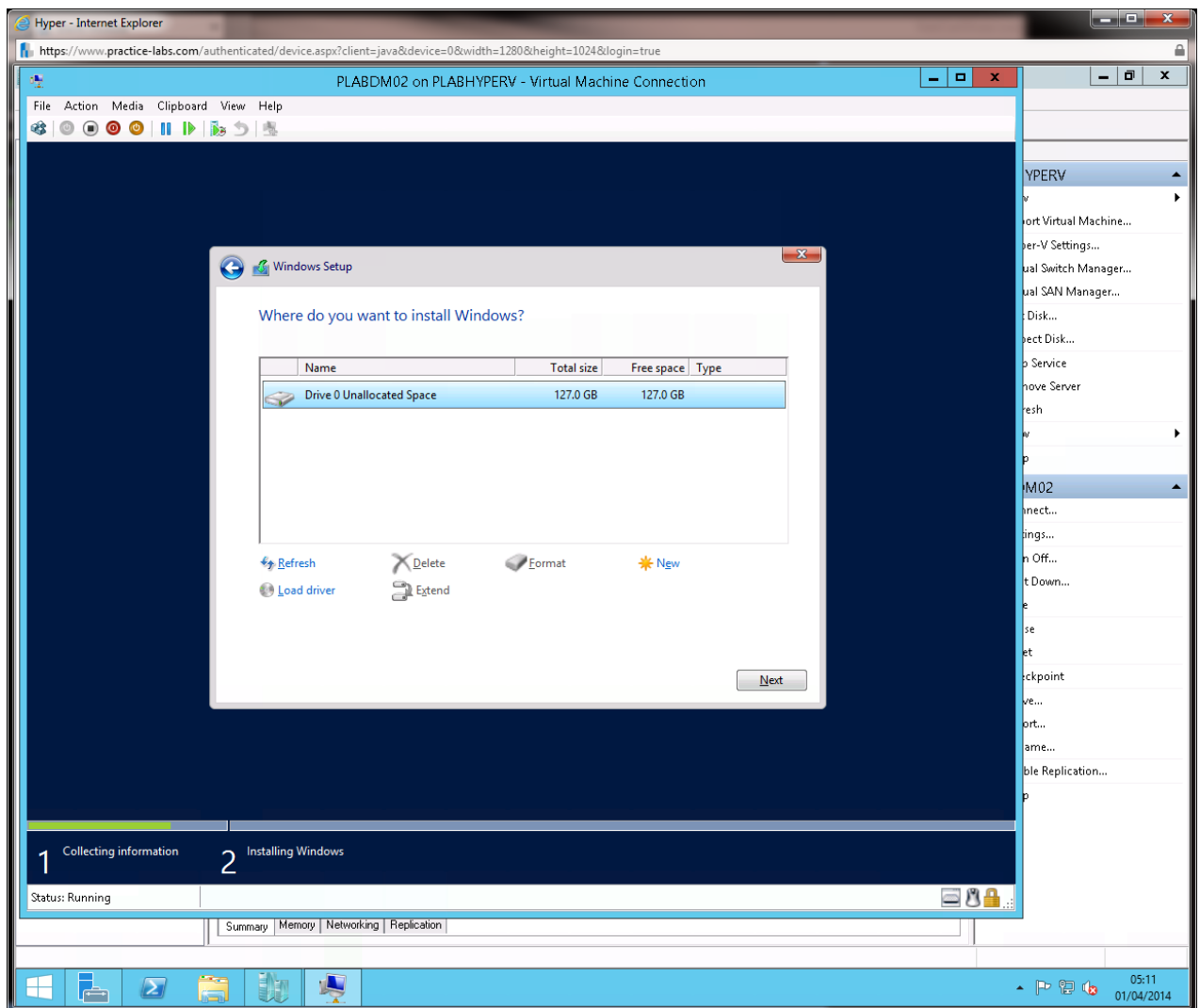
Step 7

From Which type of installation do you want? Click **Custom: Install Windows only (advanced).**

Step 8

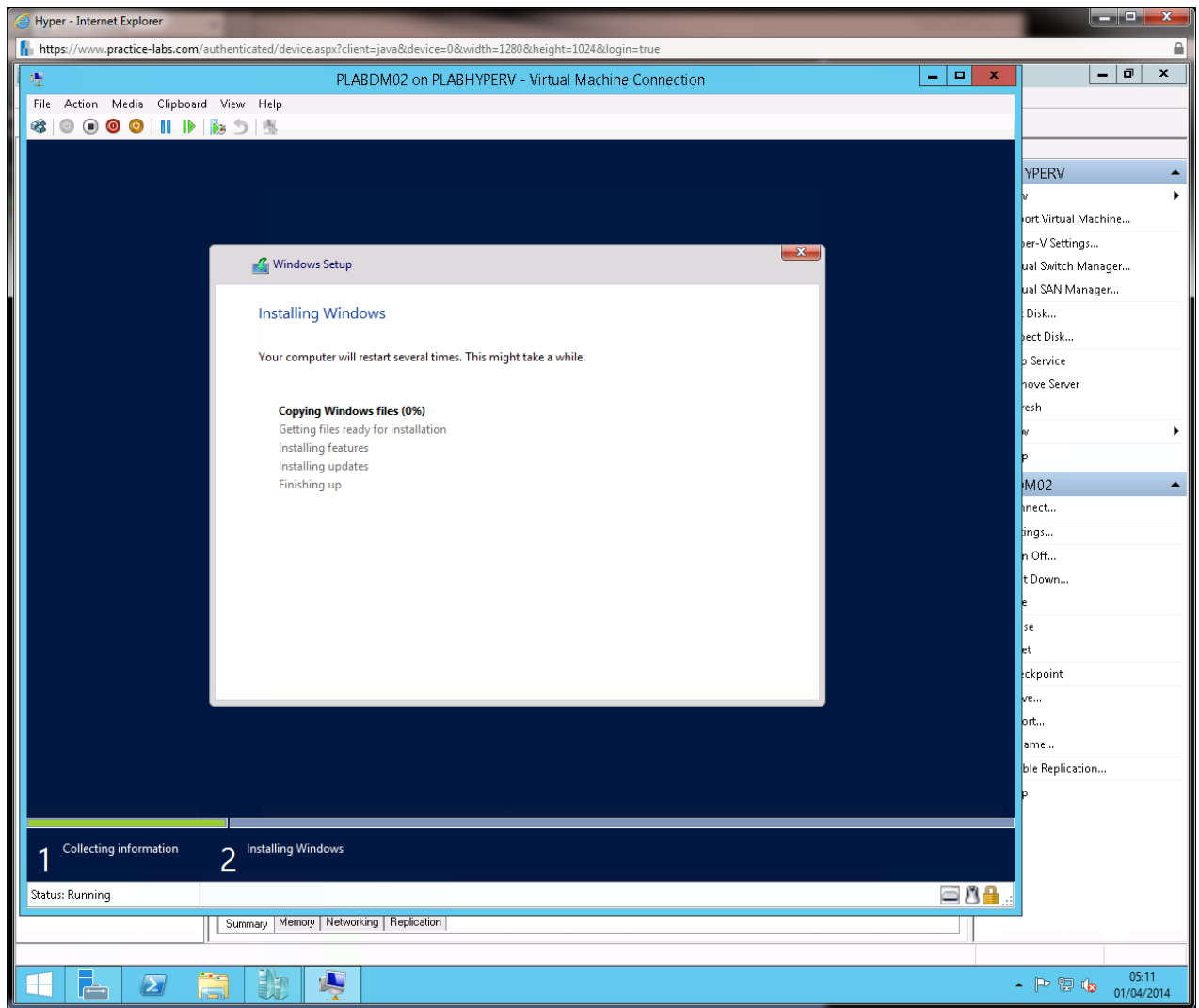In Where do you want to install Windows? Click **Next**.

Step 9

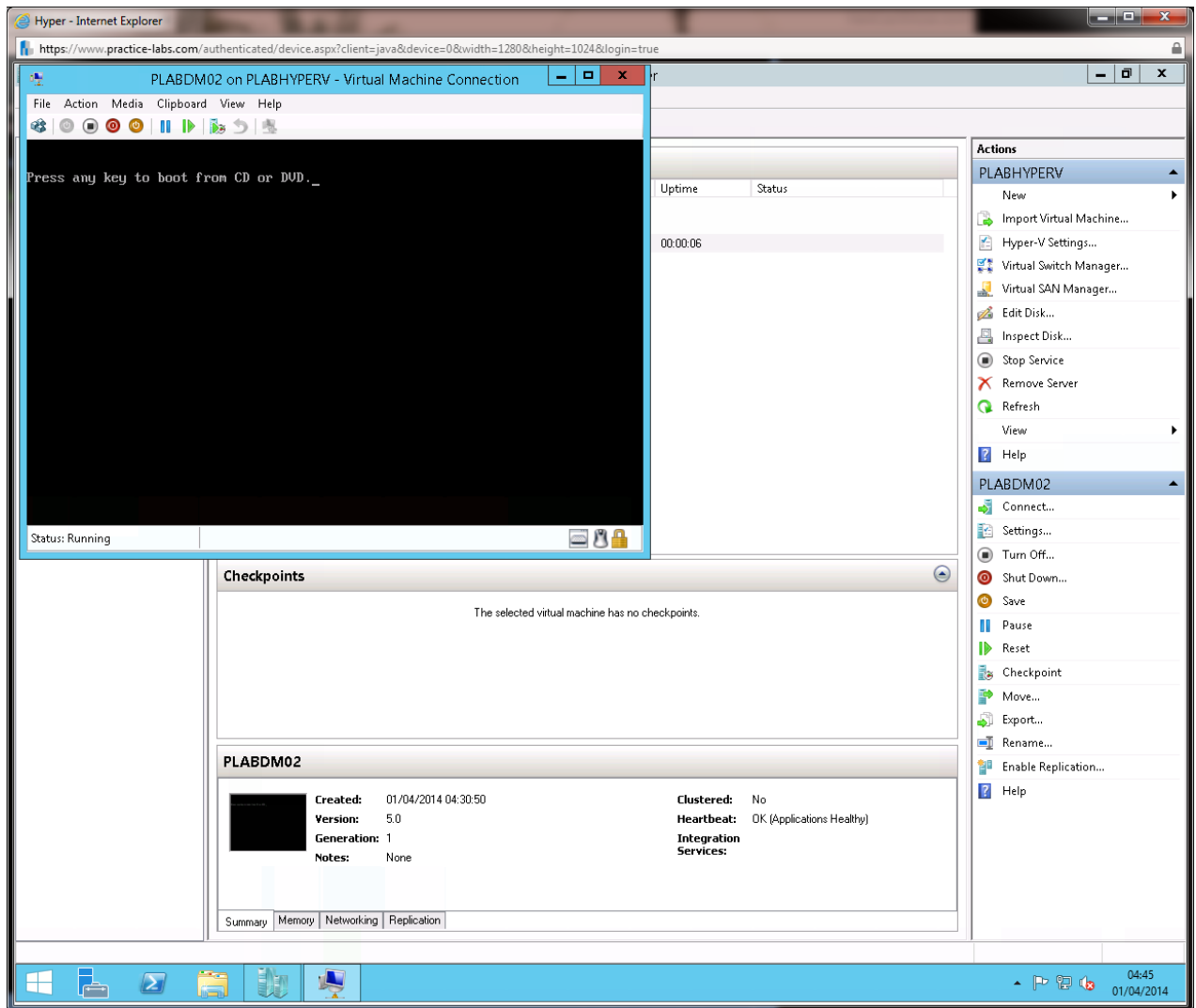Installing Windows will take a few minutes to configure.

Let the installation finish and setup will automatically restart this computer.
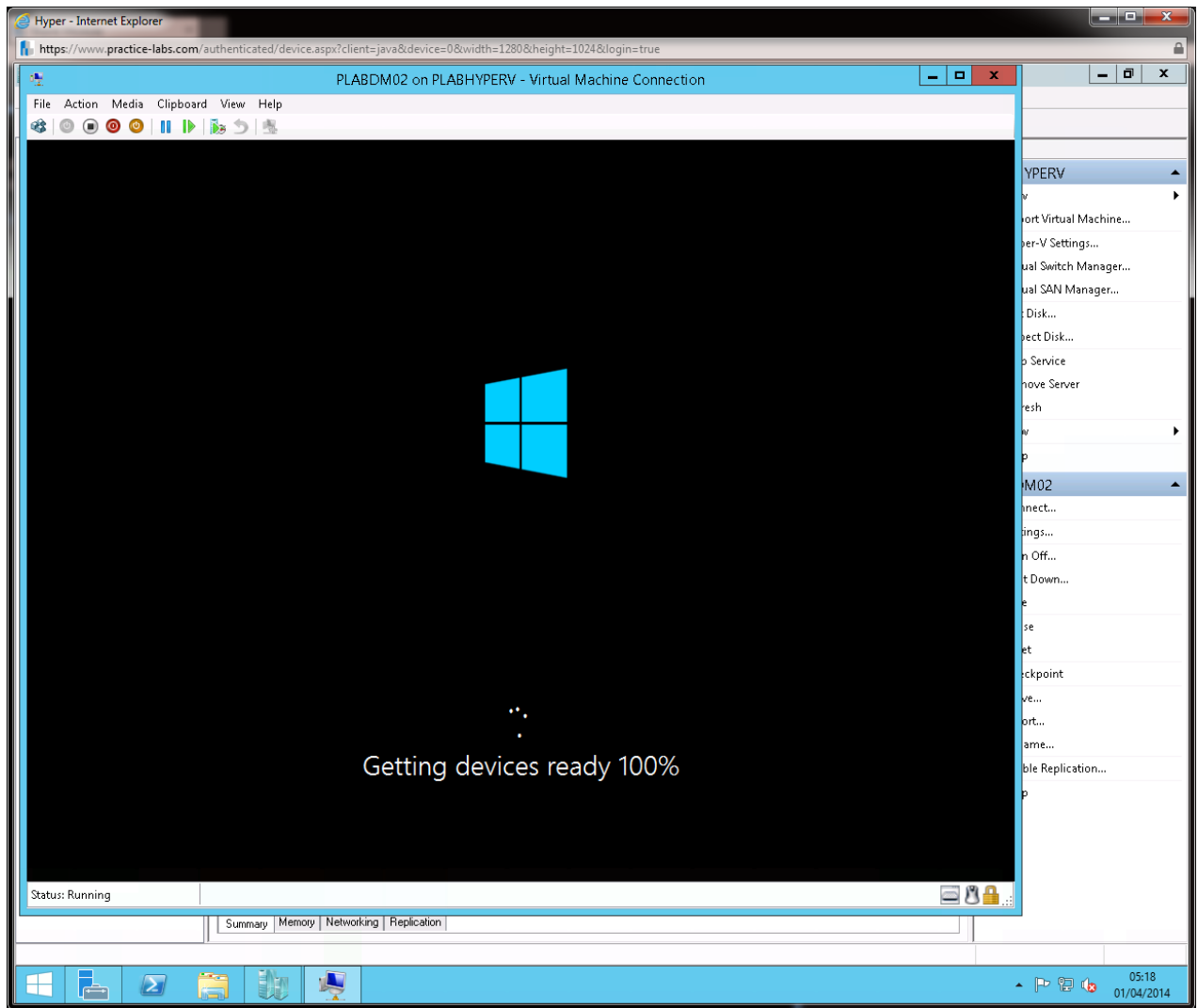
Step 10

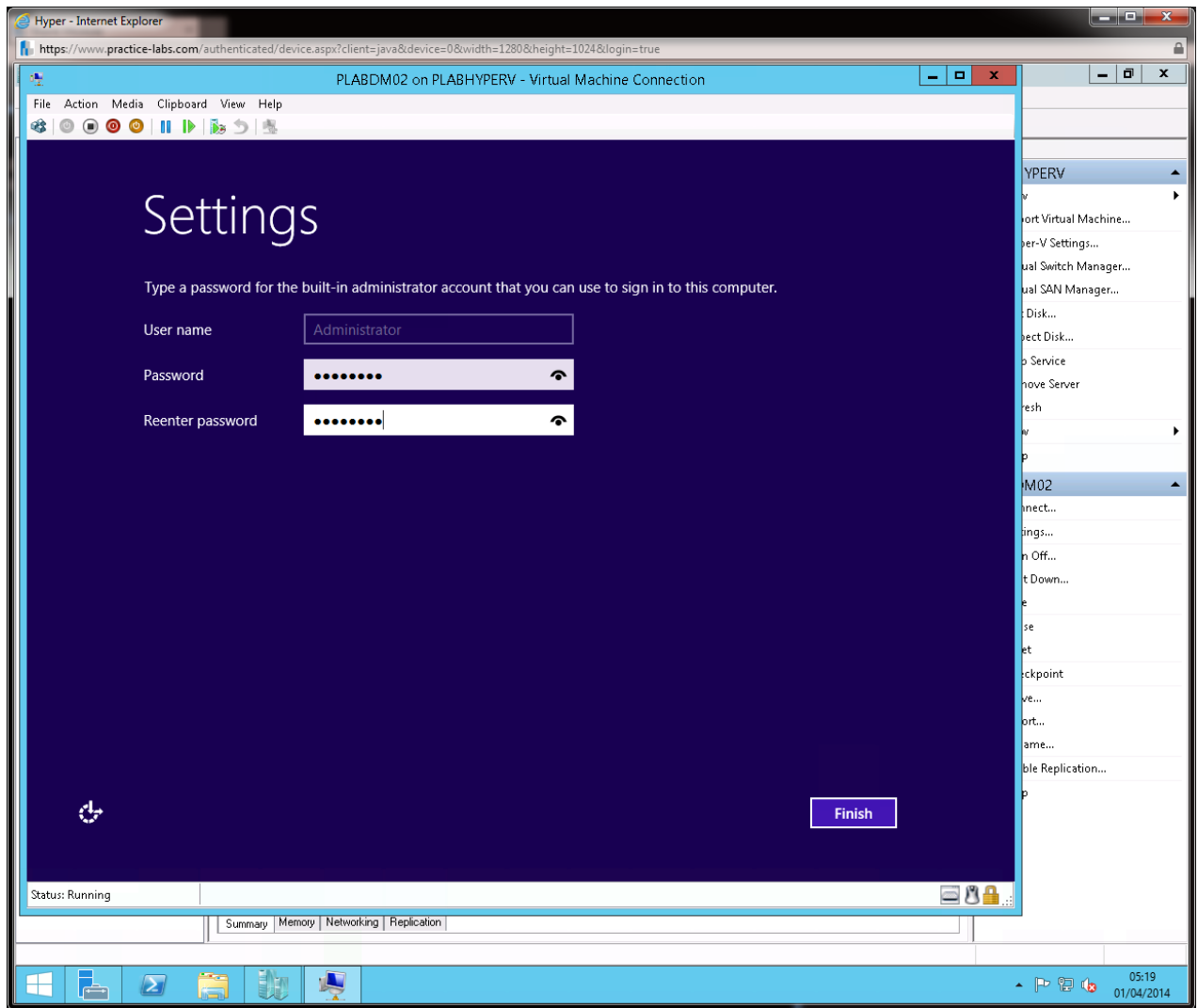Ignore Press any key to boot from CD/DVD… message.

Step 11

Setup will automatically restart PLABDM02 a few times to configure Windows Server 2012 R2.
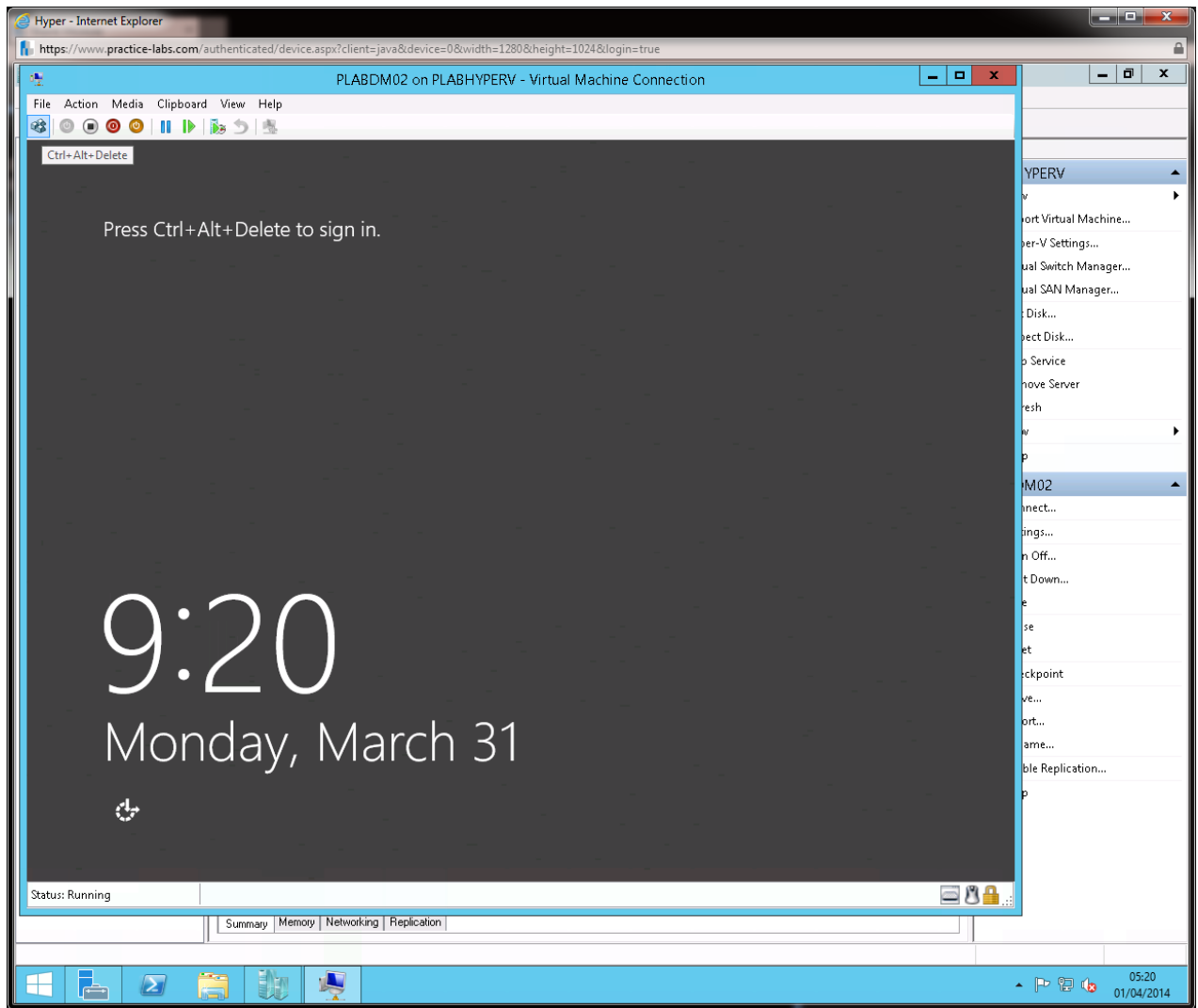
Step 12

In Settings page, type **Passw0rd** in each text box provided.

Click **Finish**.

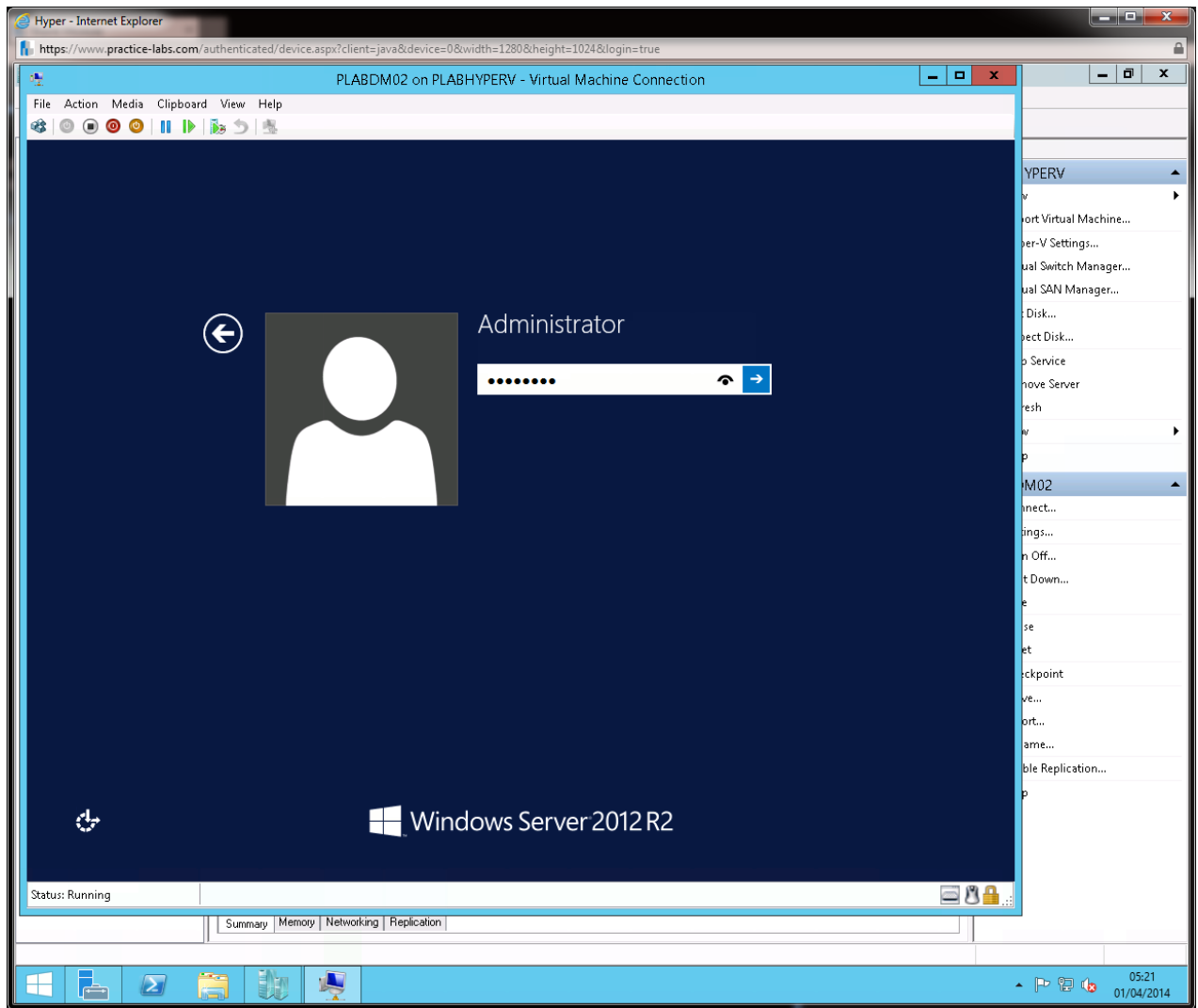**Step 13**

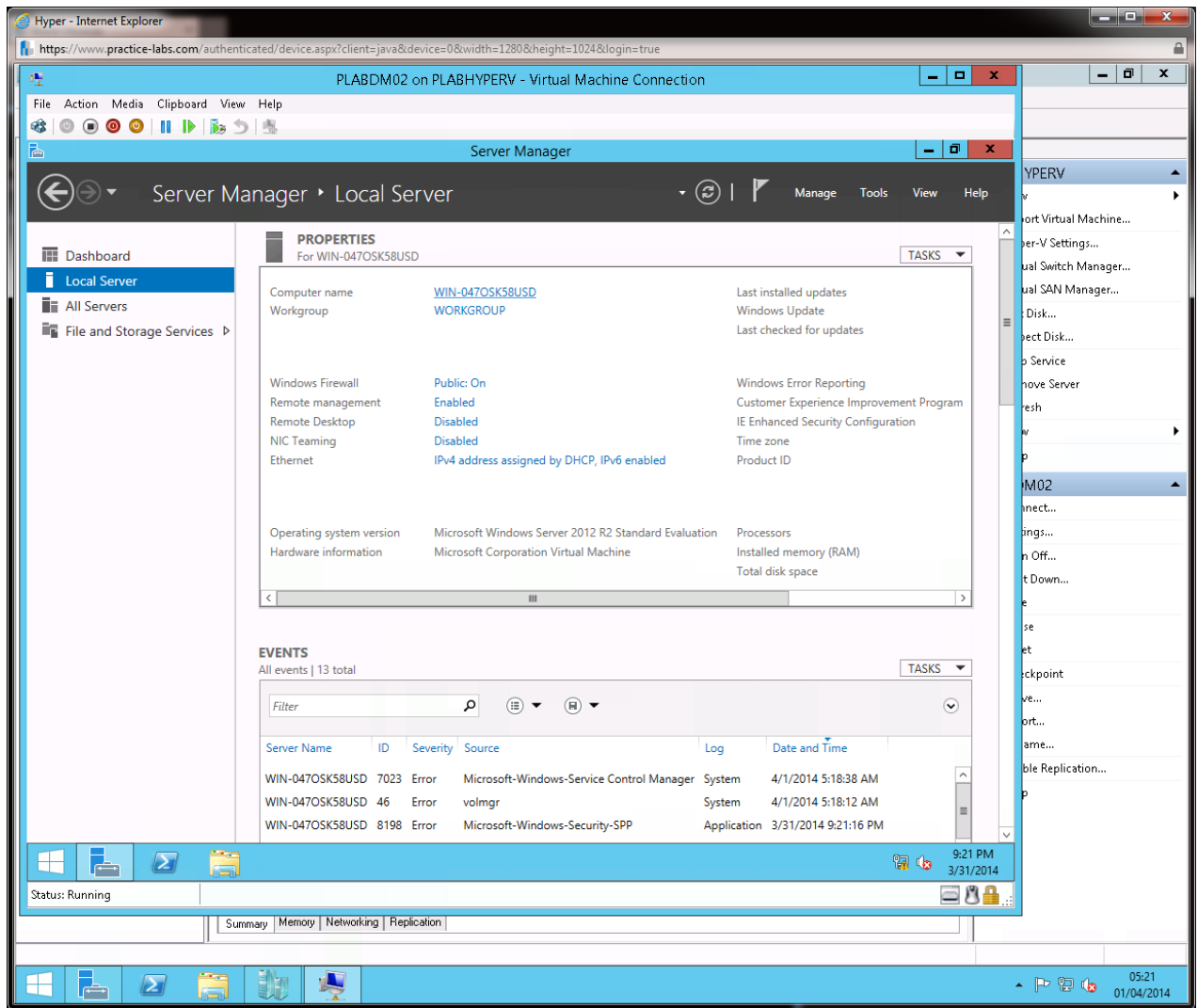Click **Ctrl Alt Delete**.

Step 14

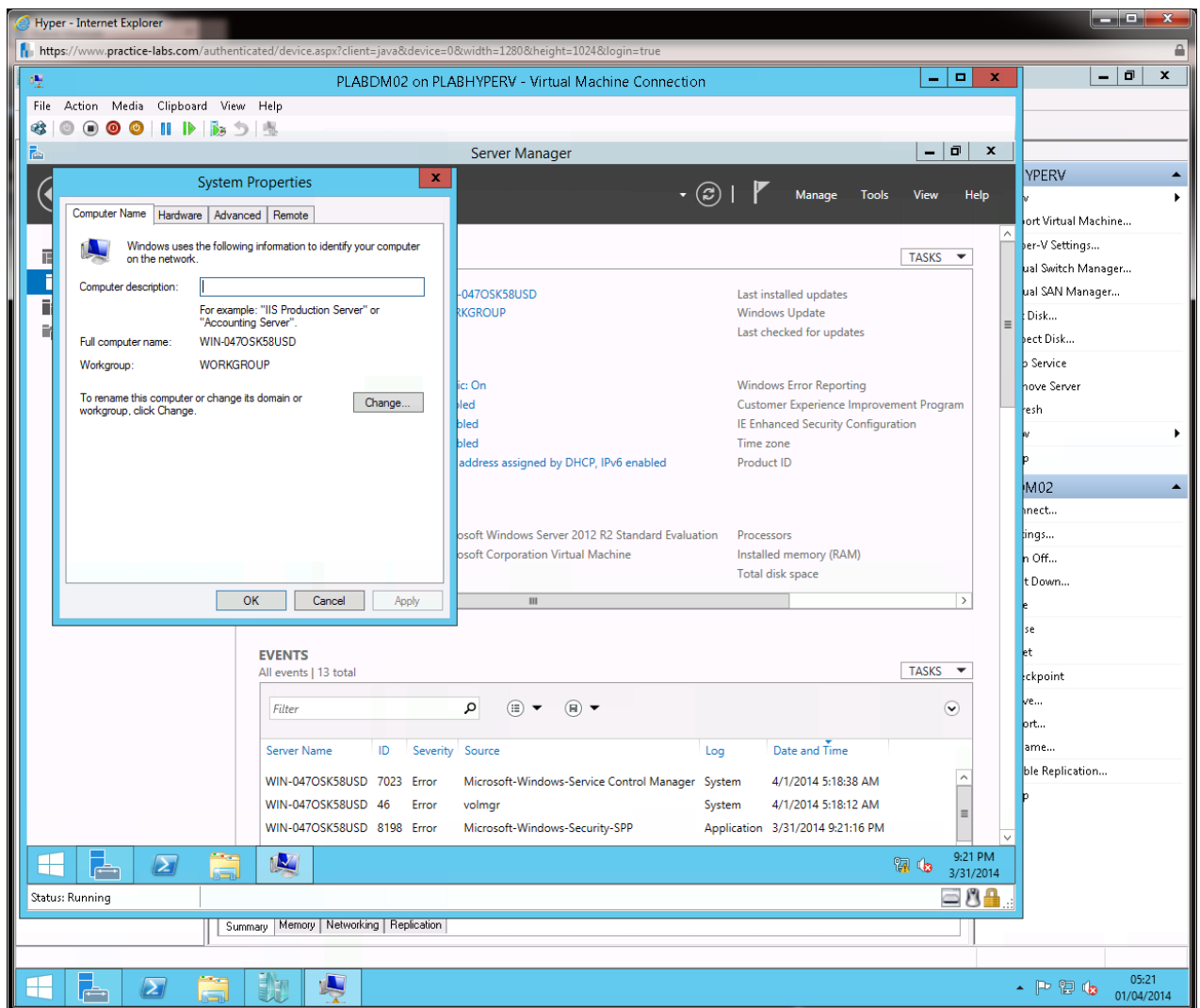Type **Passw0rd** and press **Enter**.

Step 15

From Server Manager, on left navigation pane click **Local Server**.

Go to **Computer name** section and click on the automatically generated computer name
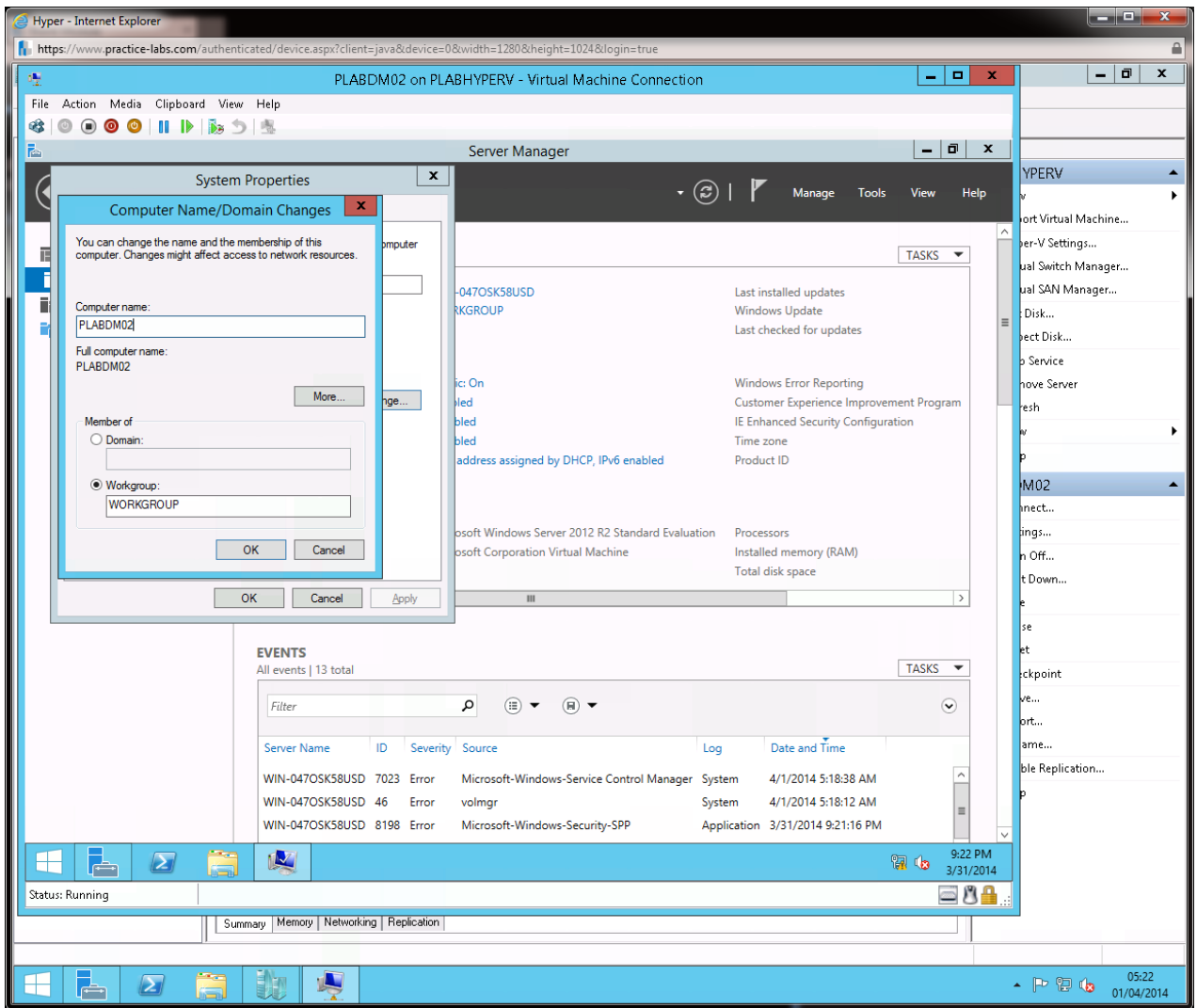
Step 16

In System Properties, click **Change**…

Step 17

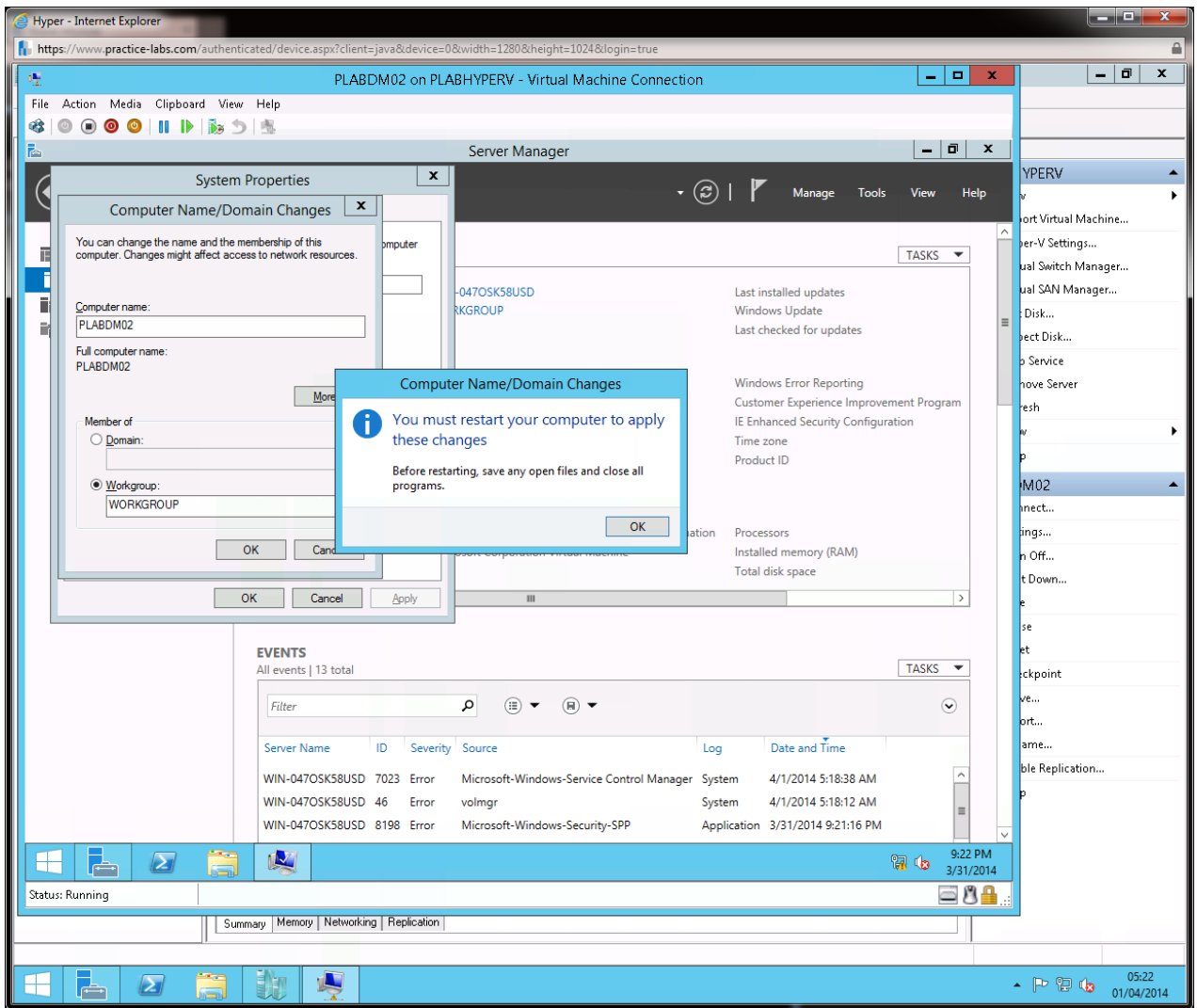Click in Computer name box and type **PLABDM02**
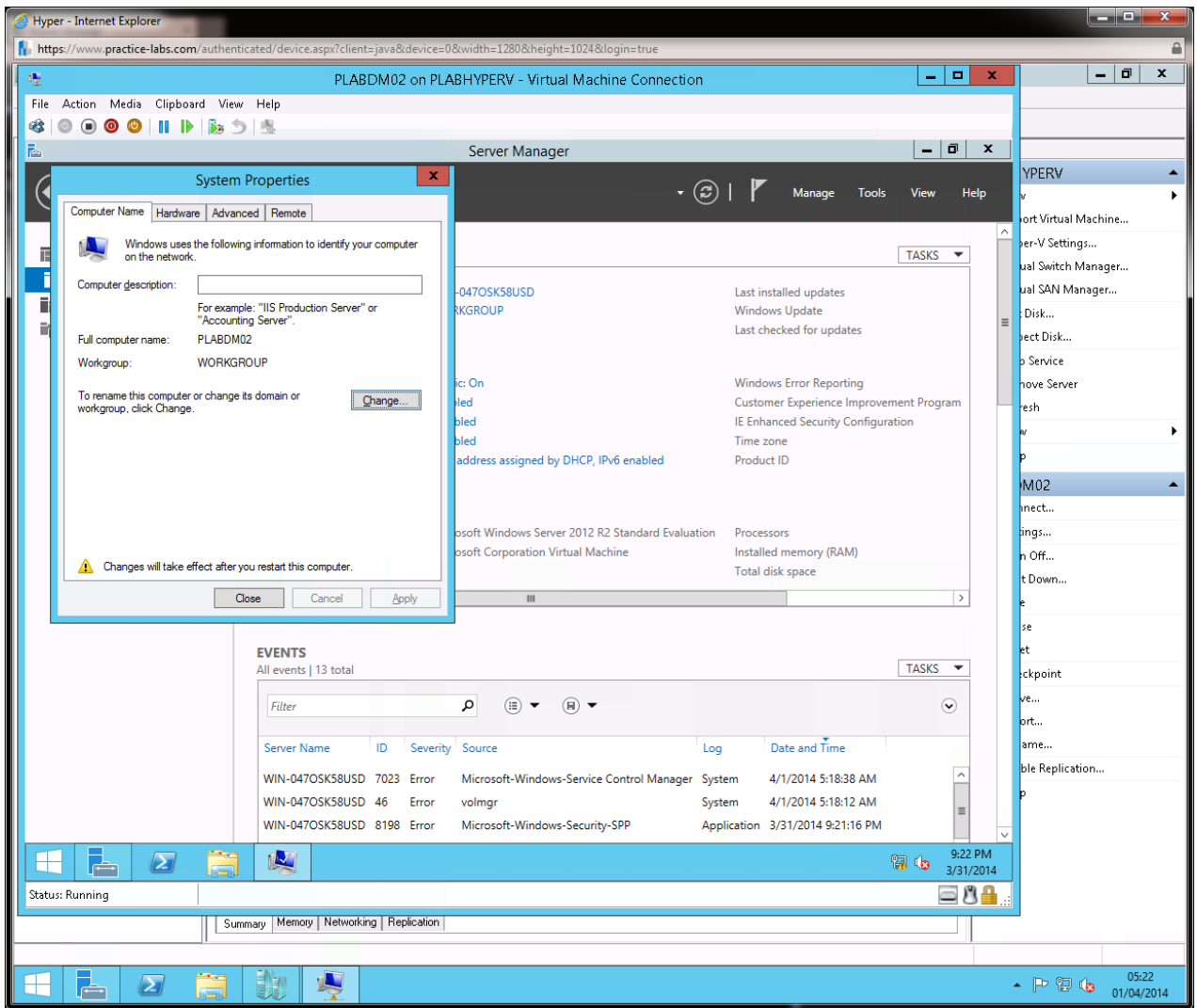
Click **OK** to save changes.

Step 18

Click **OK** acknowledge the name change.

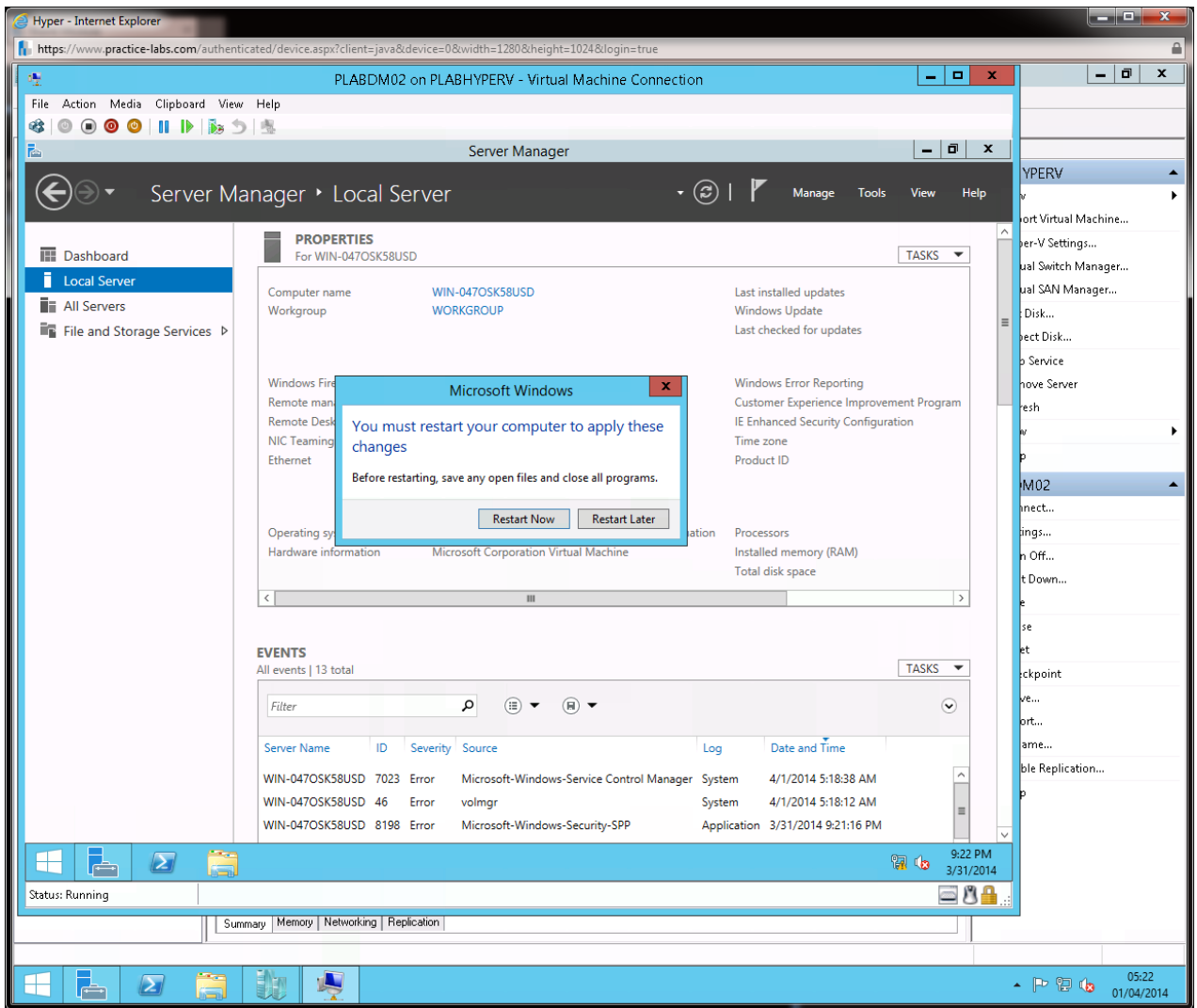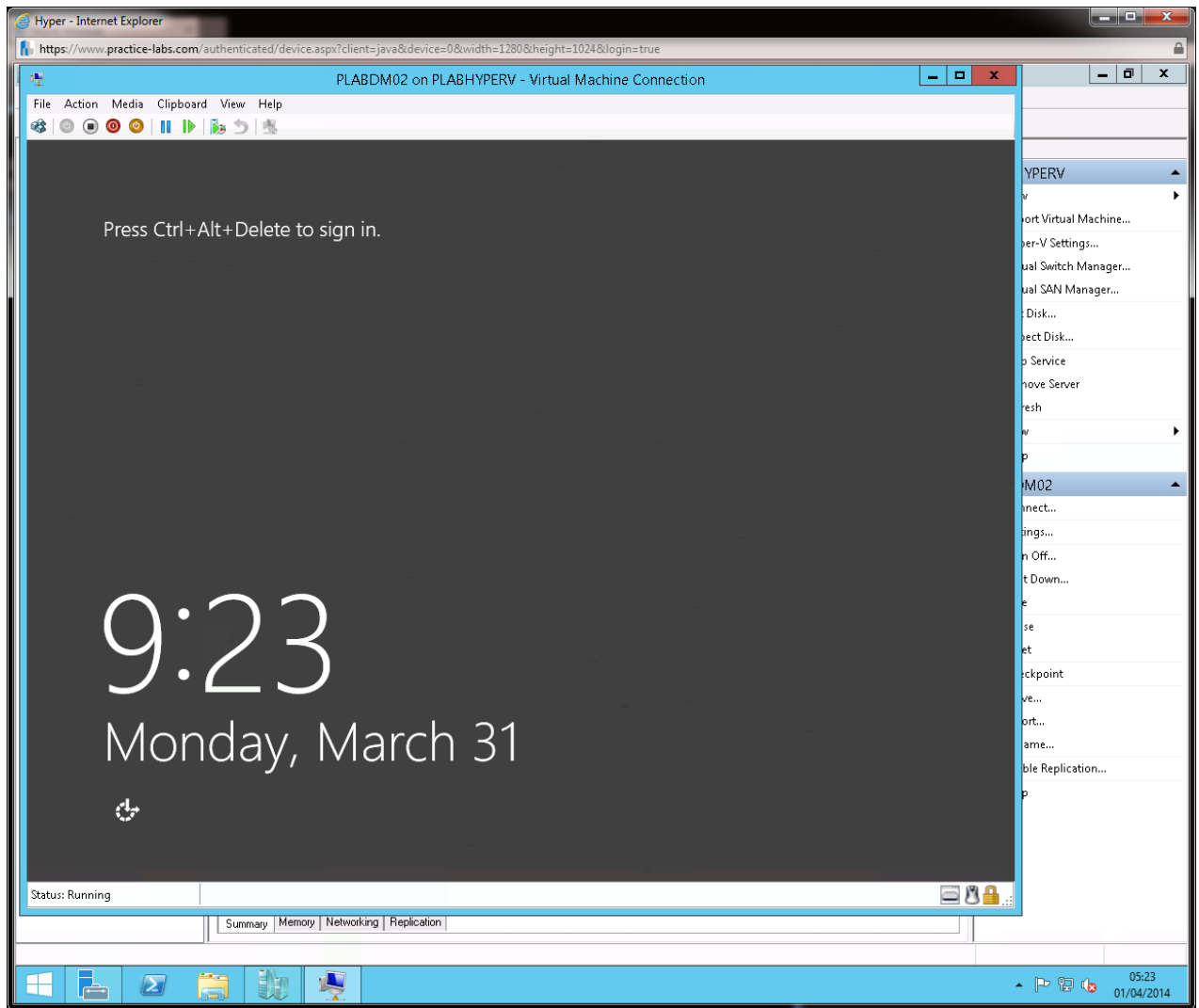**Step 19**

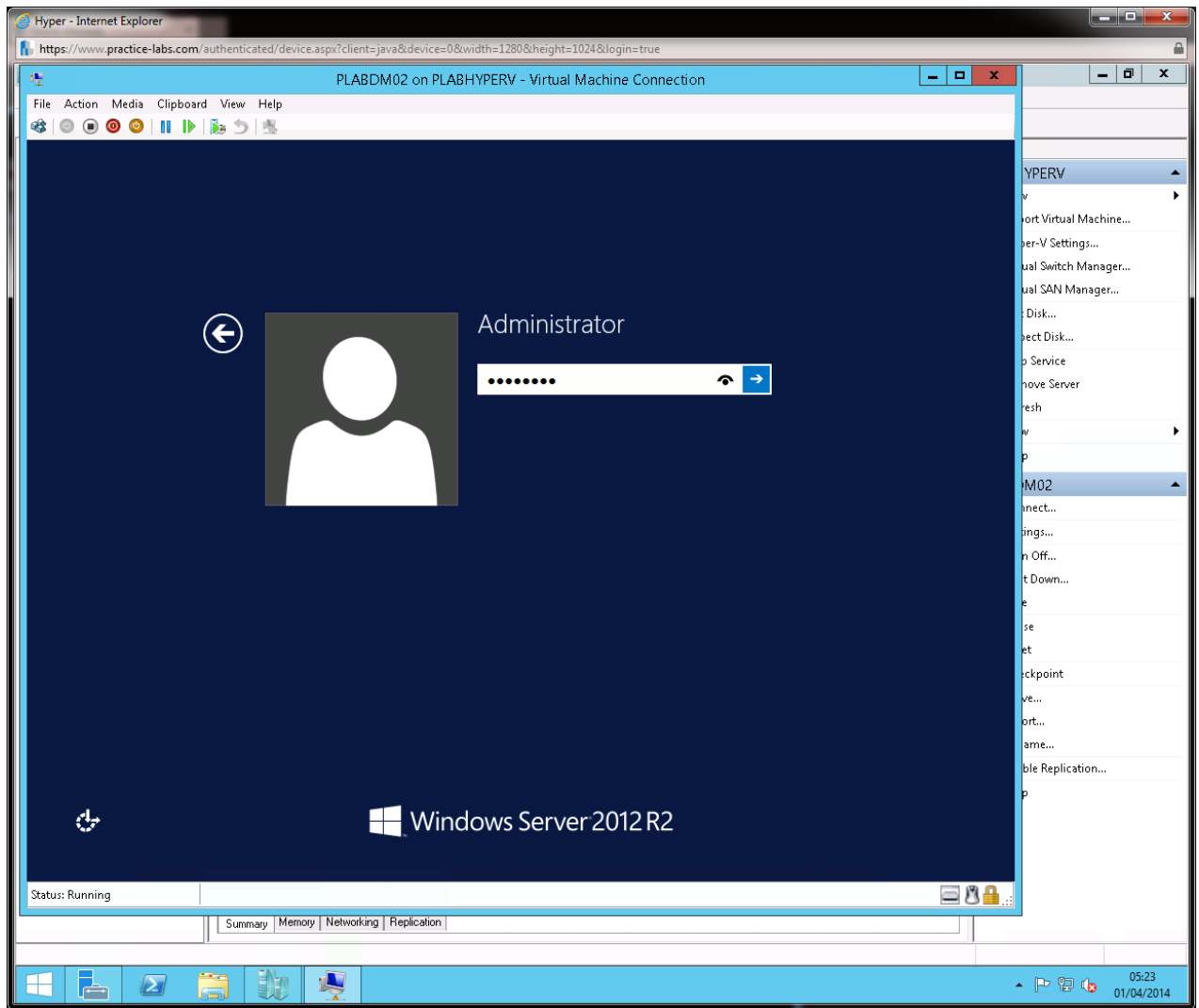Click **Close.**

Step 20

Click **Restart now**.

Step 21

Click **Ctrl Alt Delete**.

Step 22

Sign back in as **Administrator**.

Leave the devices you have powered on in their current state and proceed to the next exercise.

# Exercise 2 – Convert a Windows Server 2012 GUI to Server Core and back

In this exercise, you will convert a Windows Server 2012 installed in a graphical user interface setup into a command-based Windows Server 2012 R2 computer called Server core.

Please refer to your course material or use your favourite search engine to research for more information about this topic.

Task 1: Convert Windows GUI to Server core

Step 1

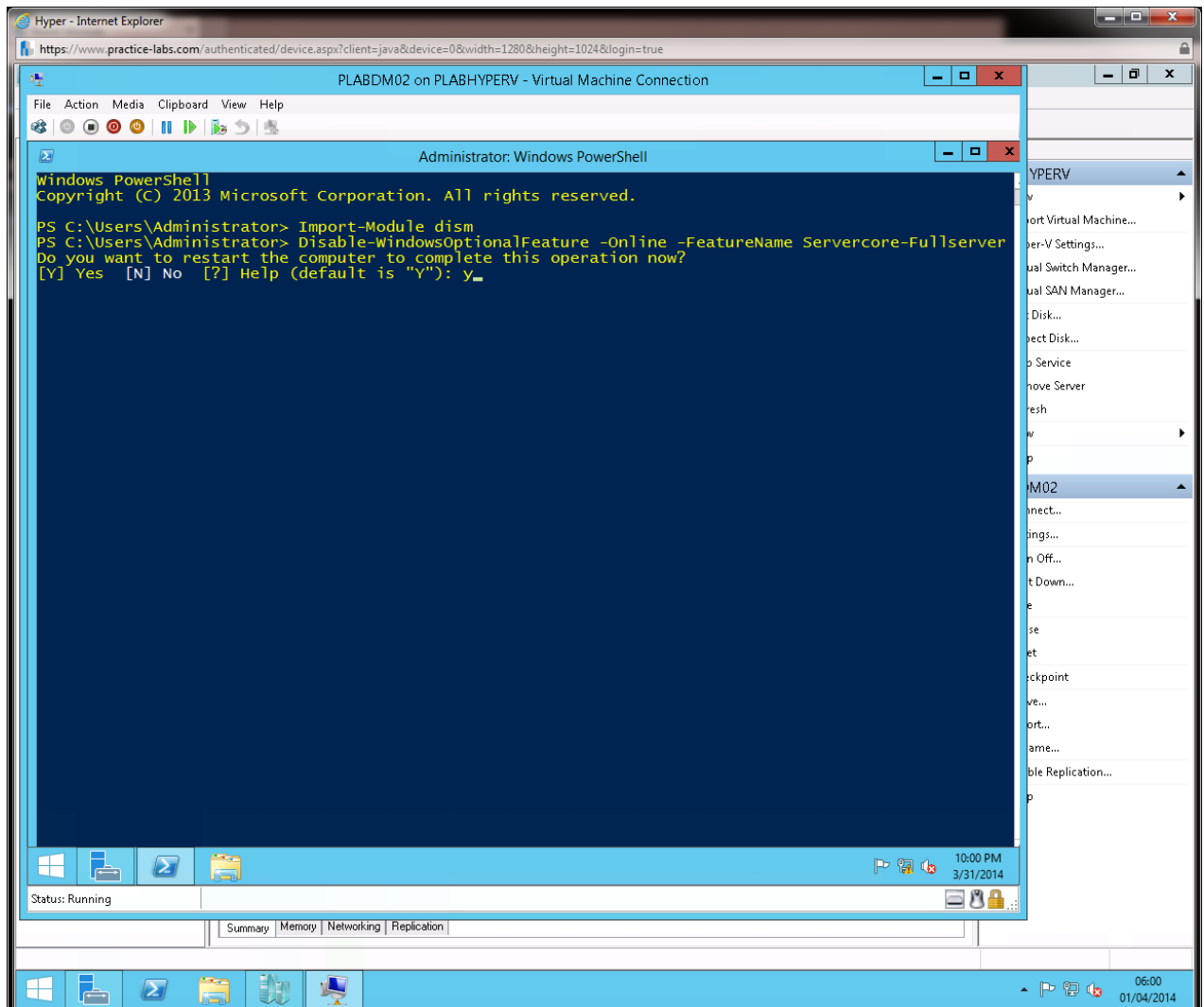On **PLABDM02**, click PowerShell icon on task bar.
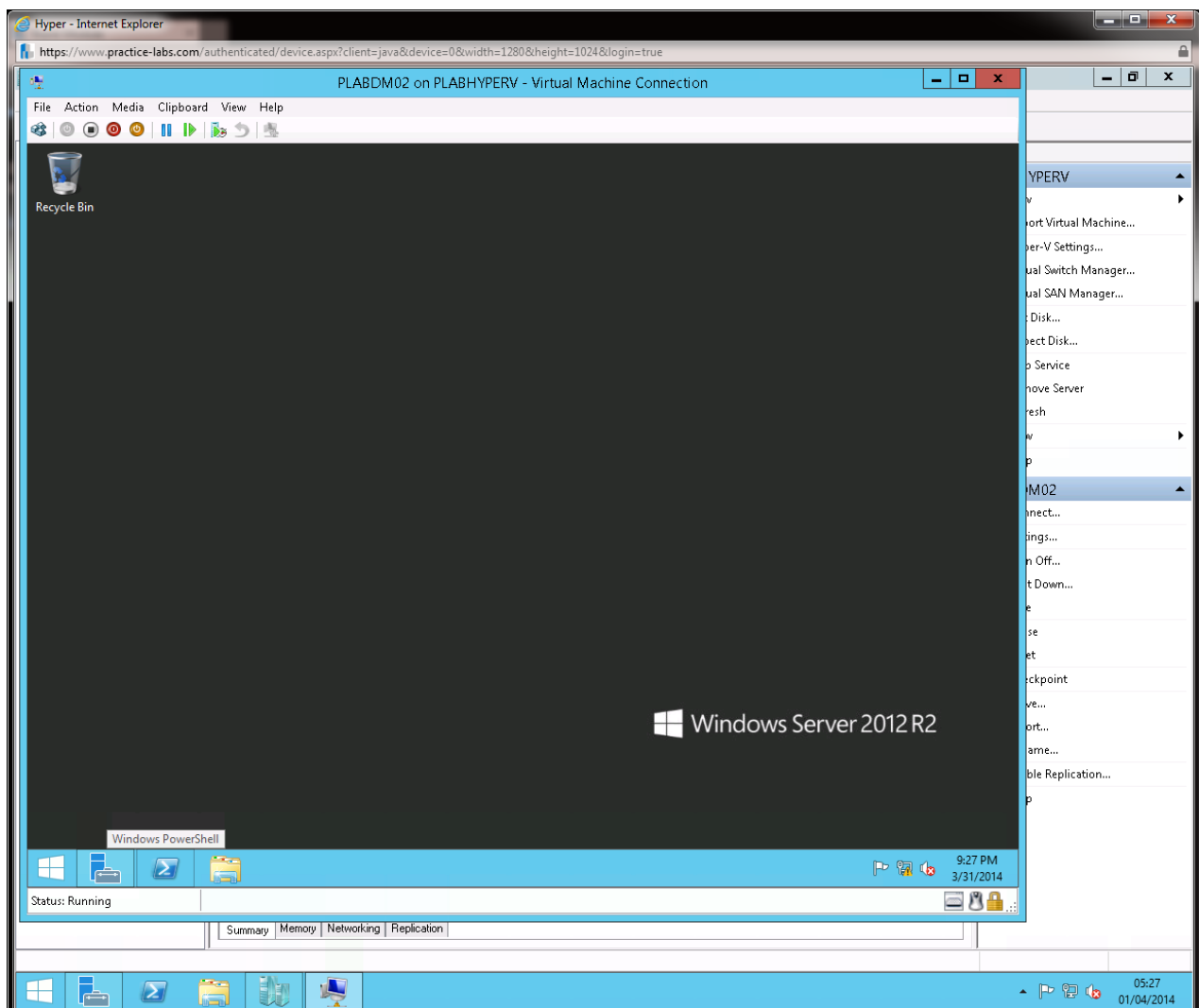
Step 2

Type the following command and press **Enter**.

Note: This command must be run with elevated privileges (administrator)

```
Import-Module DISM

Disable-WindowsOptionalFeature -online -Featurename Servercore-Fullserver

Y
```
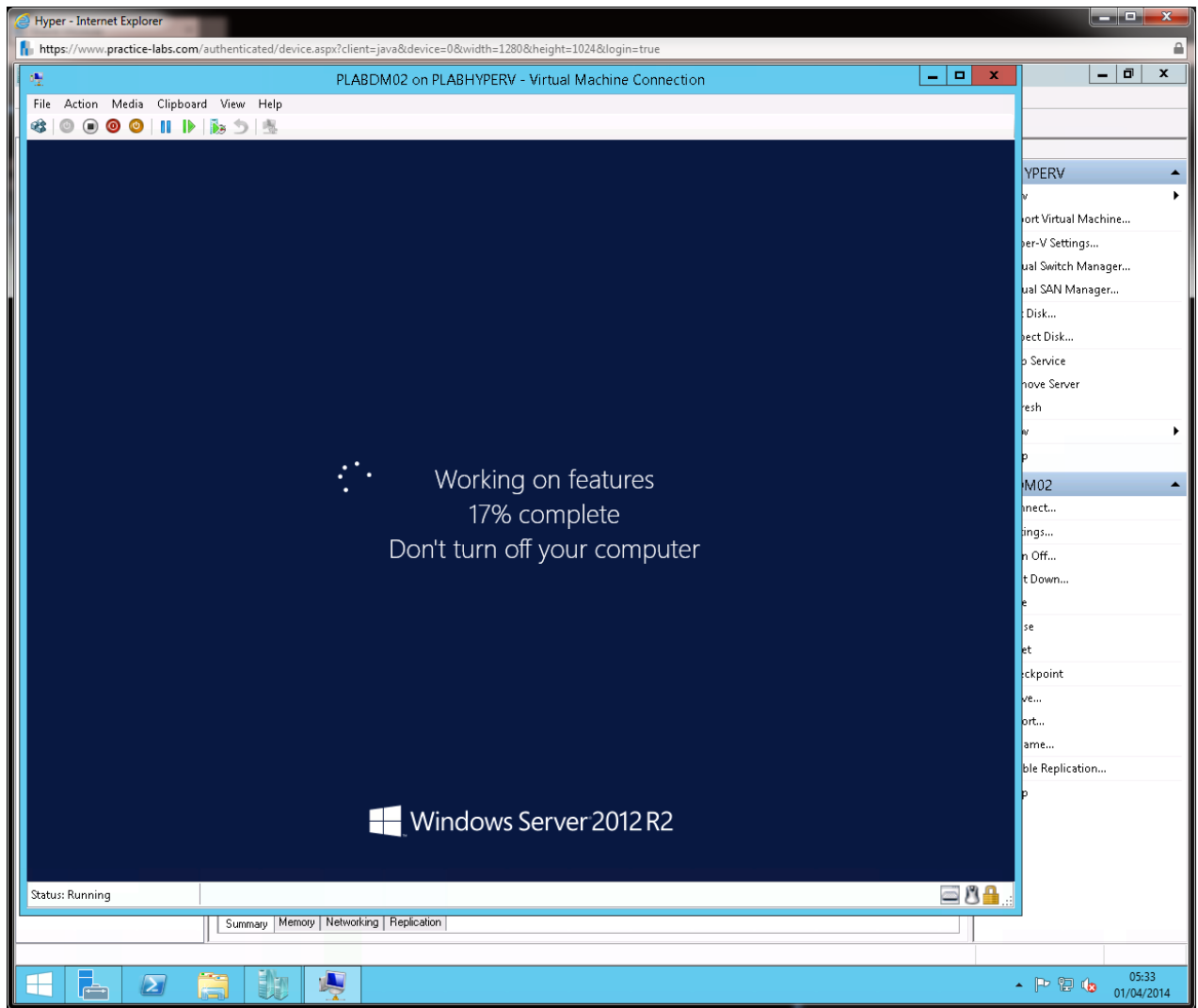

Step 3

Windows will convert this existing installation into a Server core.
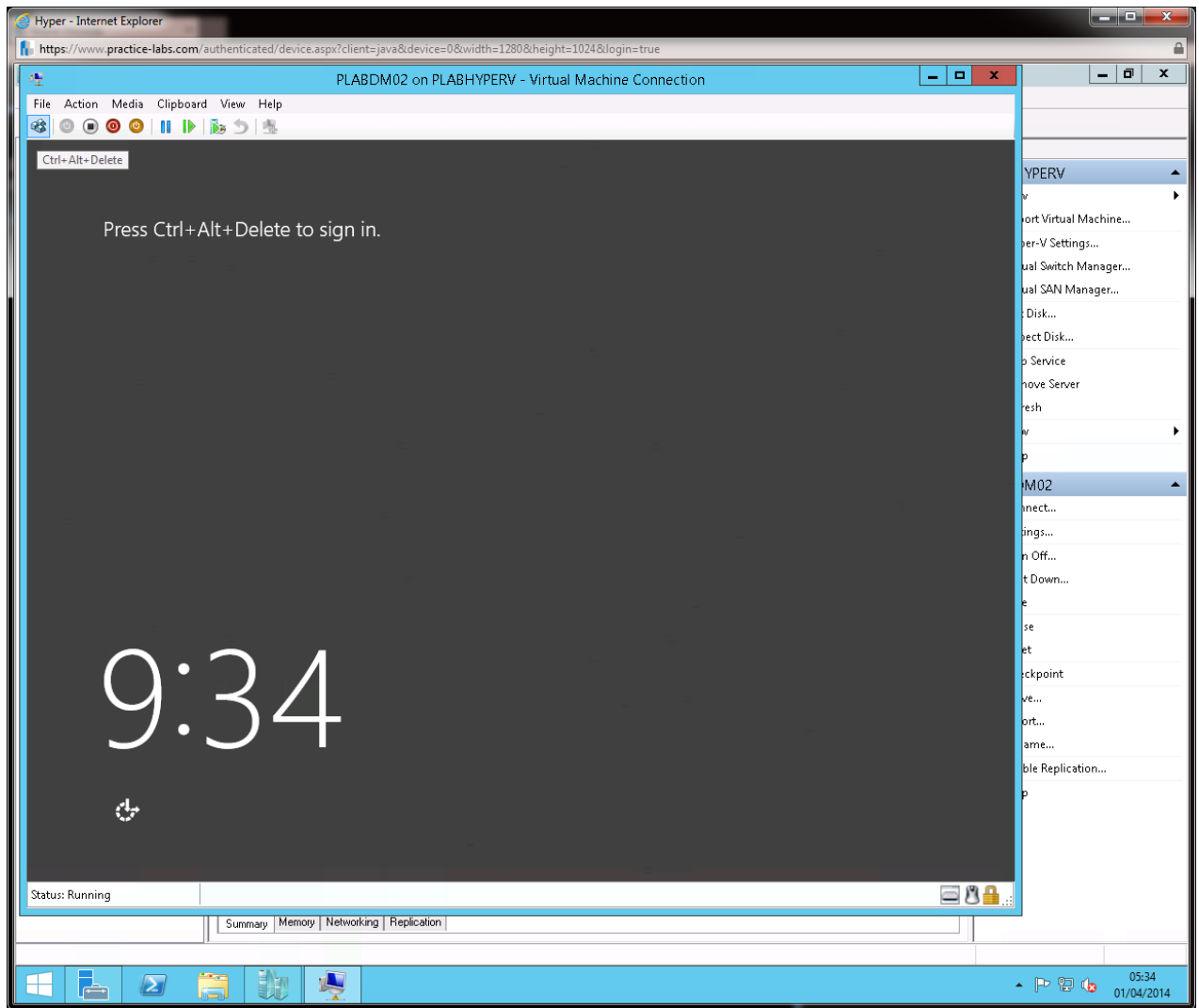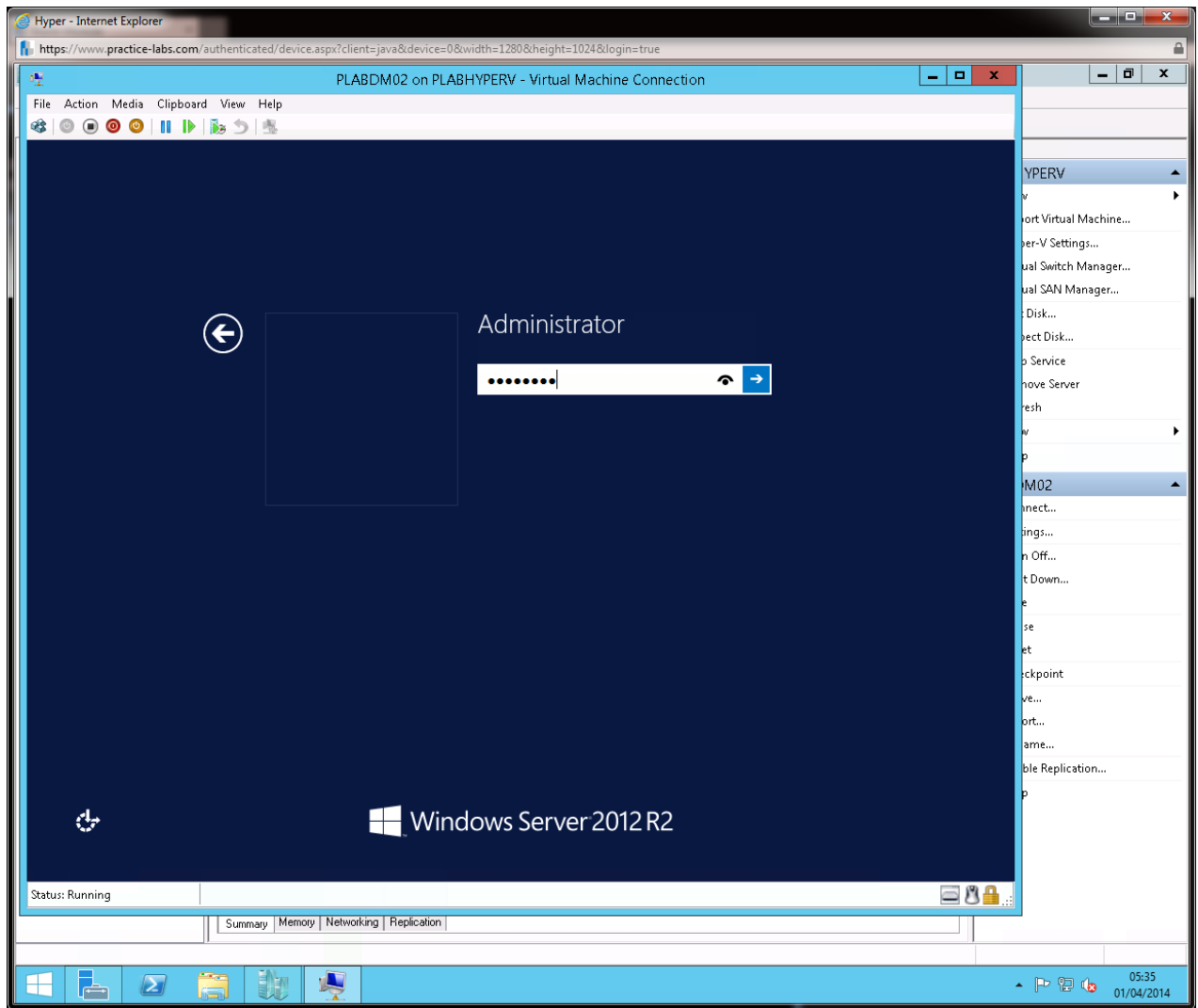
Step 4

Ignore the "Press any key to boot from CD or DVD" message…
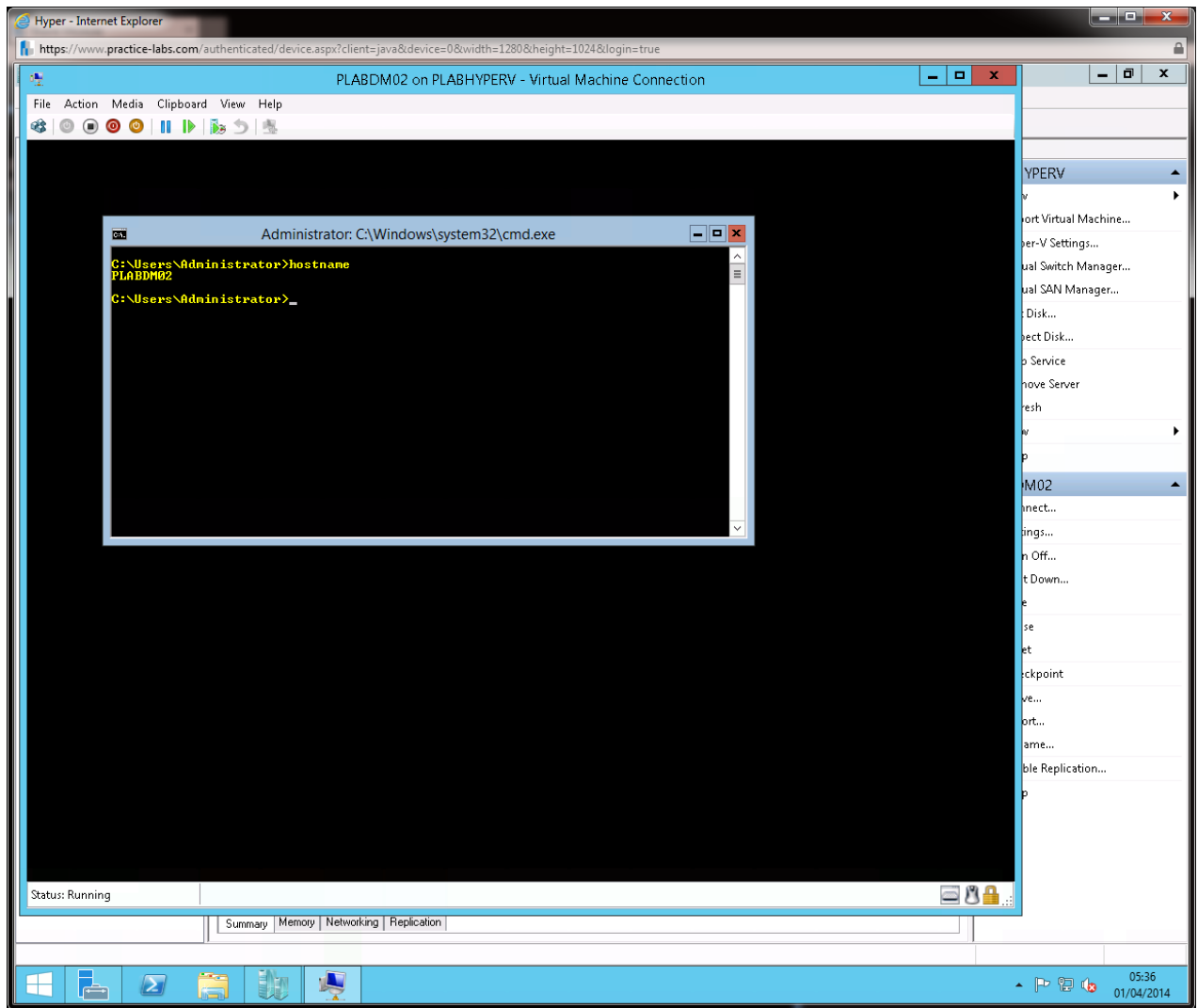
Click **Ctrl Alt Delete**

Step 5

Type **Passw0rd** and then press **Enter**.

Step 6

Windows is now in a Server core mode.

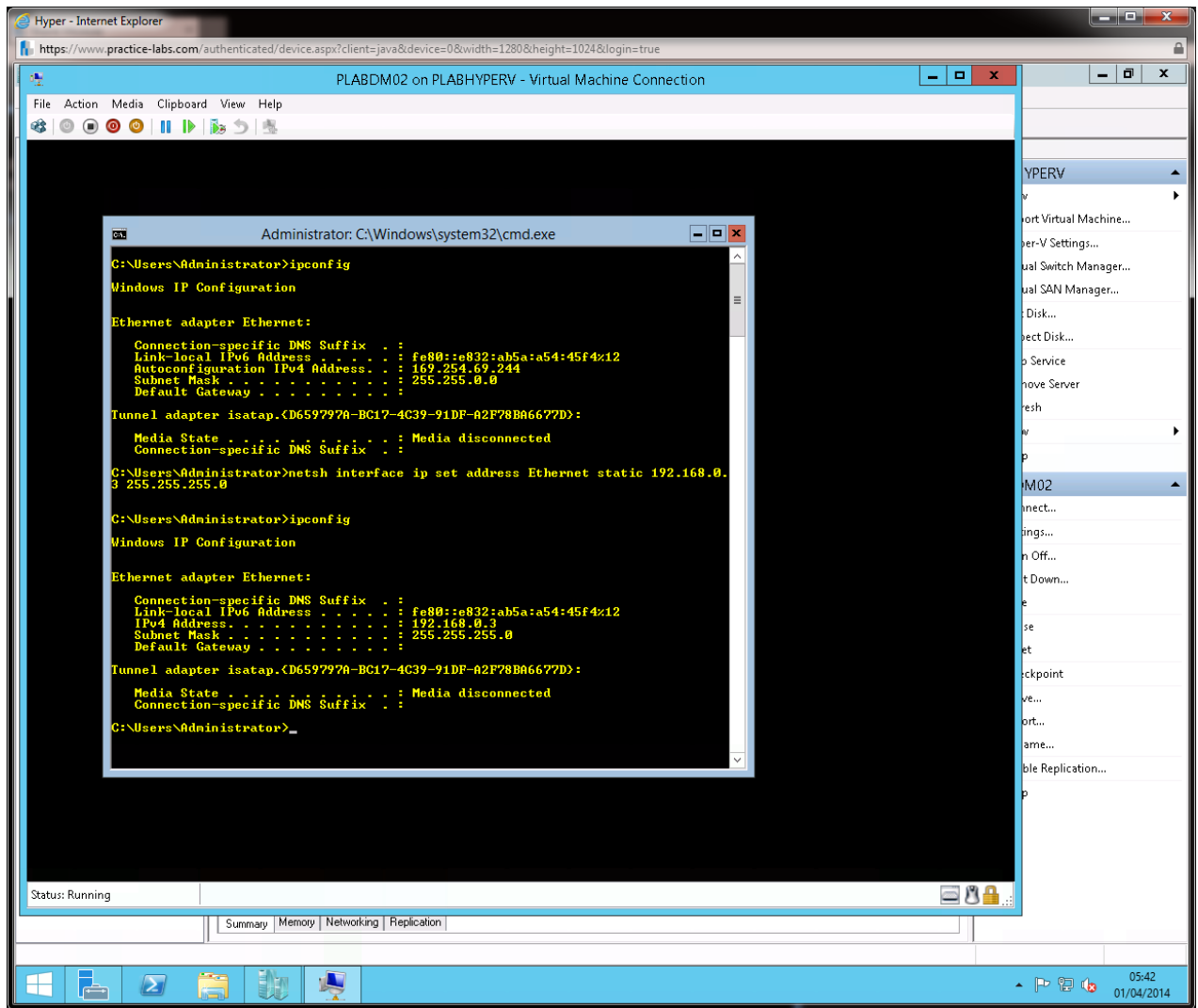Type **hostname** and press **Enter**.

Step 7

To set a static IP address on the Ethernet interface, type the following commands and press Enter.

```
Ipconfig

Netsh interface ip set address Ethernet static 192.168.0.3 255.255.255.0

Ipconfig
```
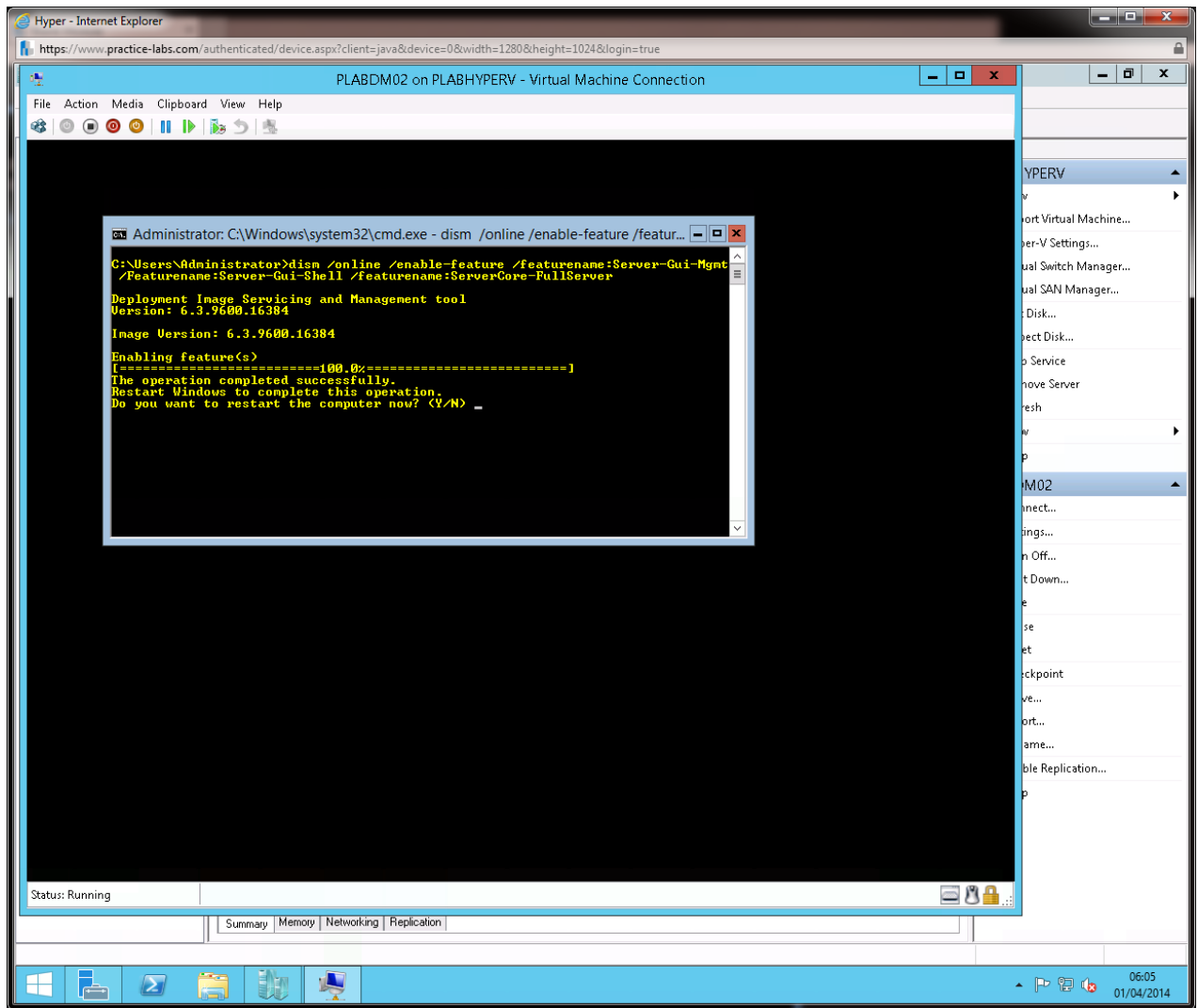
Task 2: Convert Server Core back to Server GUI

Step 1
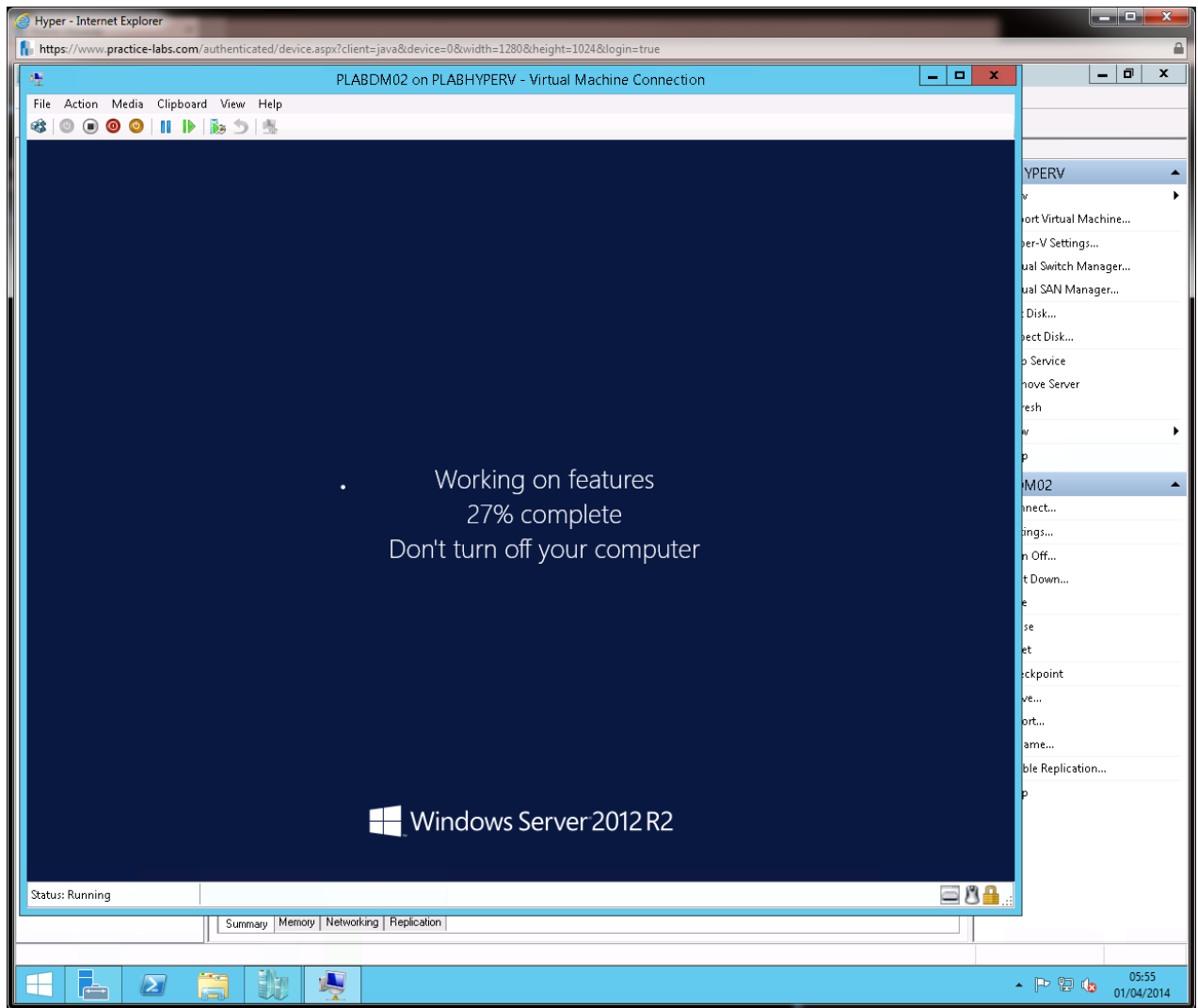Type the following commands and press **Enter**.

```
Dism /online /enable-feature /featurename:Server-Gui-Mgmt /featurename:Server-Gui-Shell
/featurename:ServerCore-FullServer

Y
```

Step 2

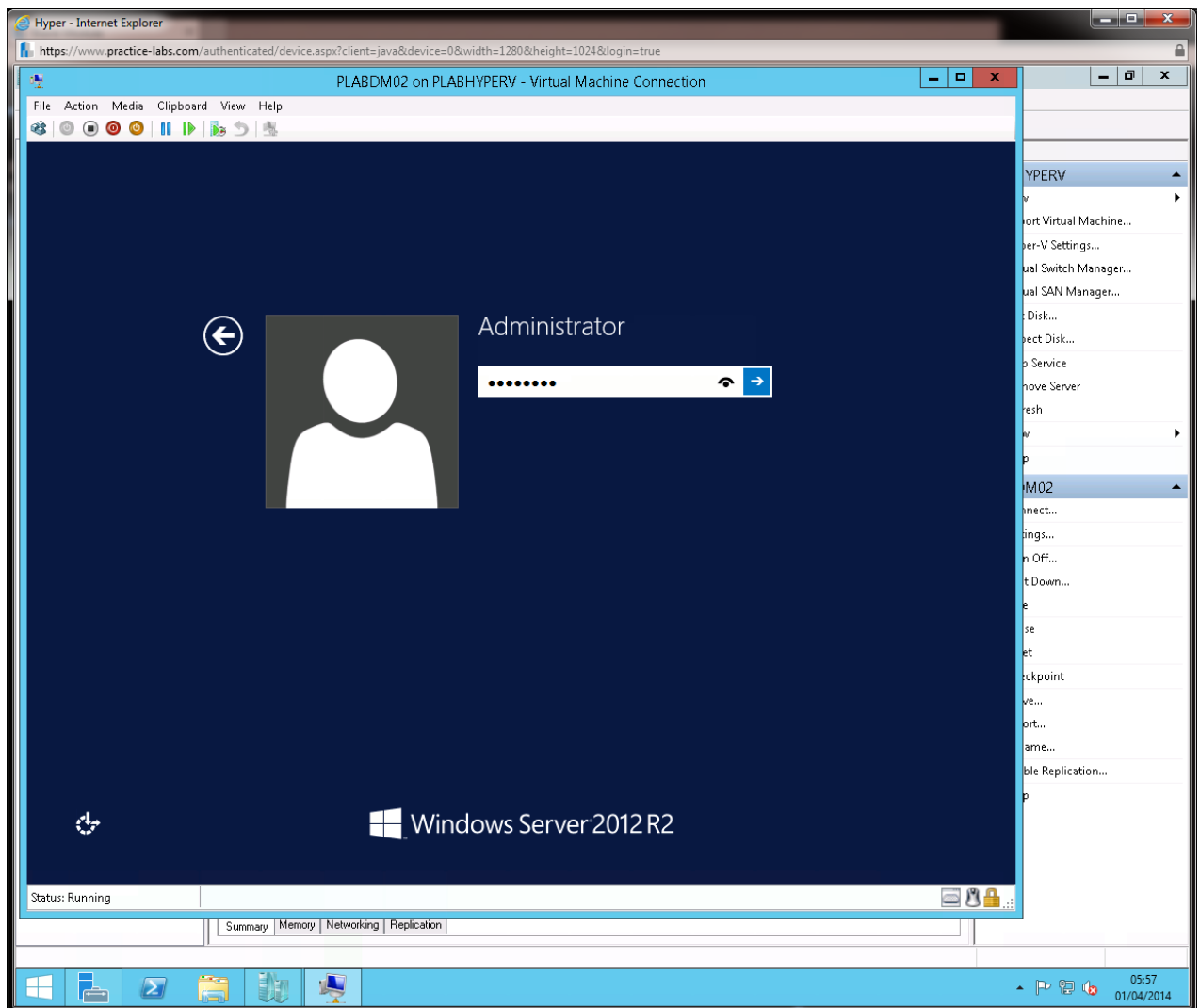Windows will work on re-enabling the GUI.

Step 3

Press **Ctrl Alt Delete**.

Sign back in **PLABDM02** using the same administrator account.
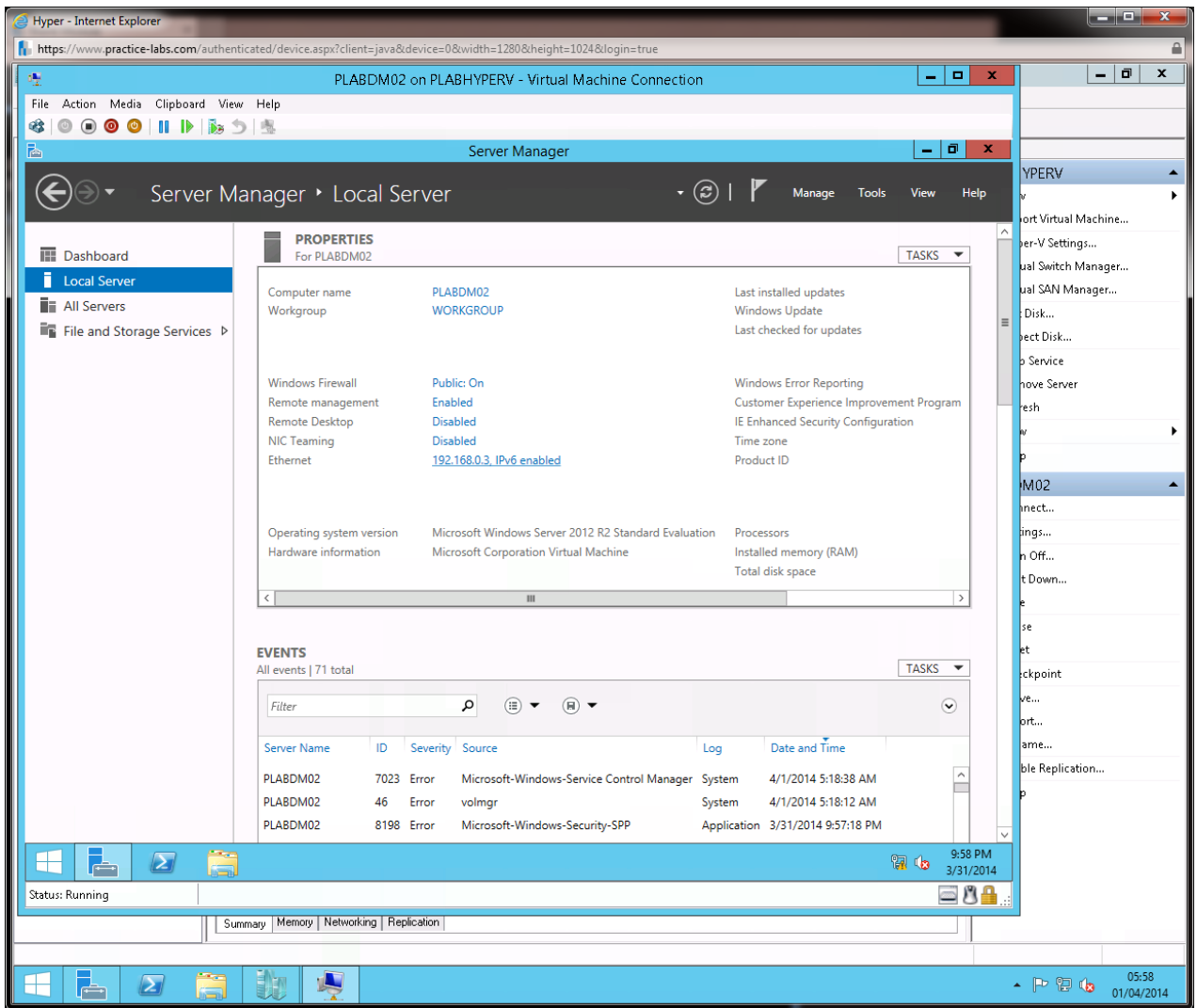
Step 4

From Server Manager, go to Local Server.

Verify the IP address that was set earlier when PLABDM02 was in Server Core.

Leave the devices you have powered on in their current state and proceed to the next exercise.

Exercise 3- Using Features On-Demand

In this task, you will add a Windows feature using Add-WindowsFeature and Install-WindowsFeature.

The Add-WindowsFeature cmdlet provide a faster interface as opposed to using the GUI in adding a Windows Feature like Active Directory Domain Services. While Install-WindowsFeature lets you configure Active Directory Domain Services by indicating the Windows Domain name, DNS settings, path of AD database amongst other things.

Please refer to your course material or use your favourite search engine to research for more information about this topic.

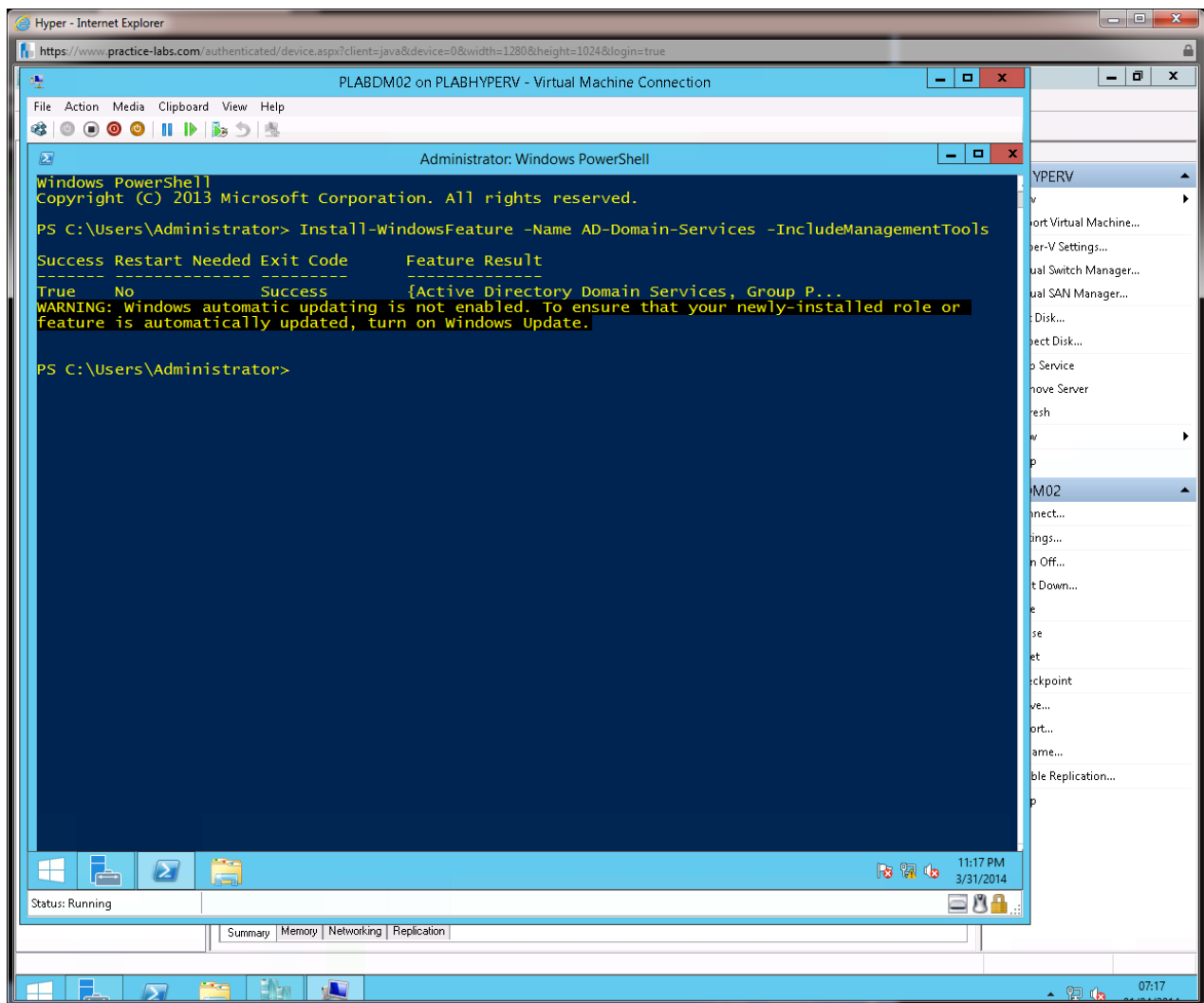## Task 1: Add and Install Active Directory Domain Services

Step 1
In this step, you will initially install Active Directory Domain Services binary files.

On PLABDM02 device, click PowerShell icon on task bar.
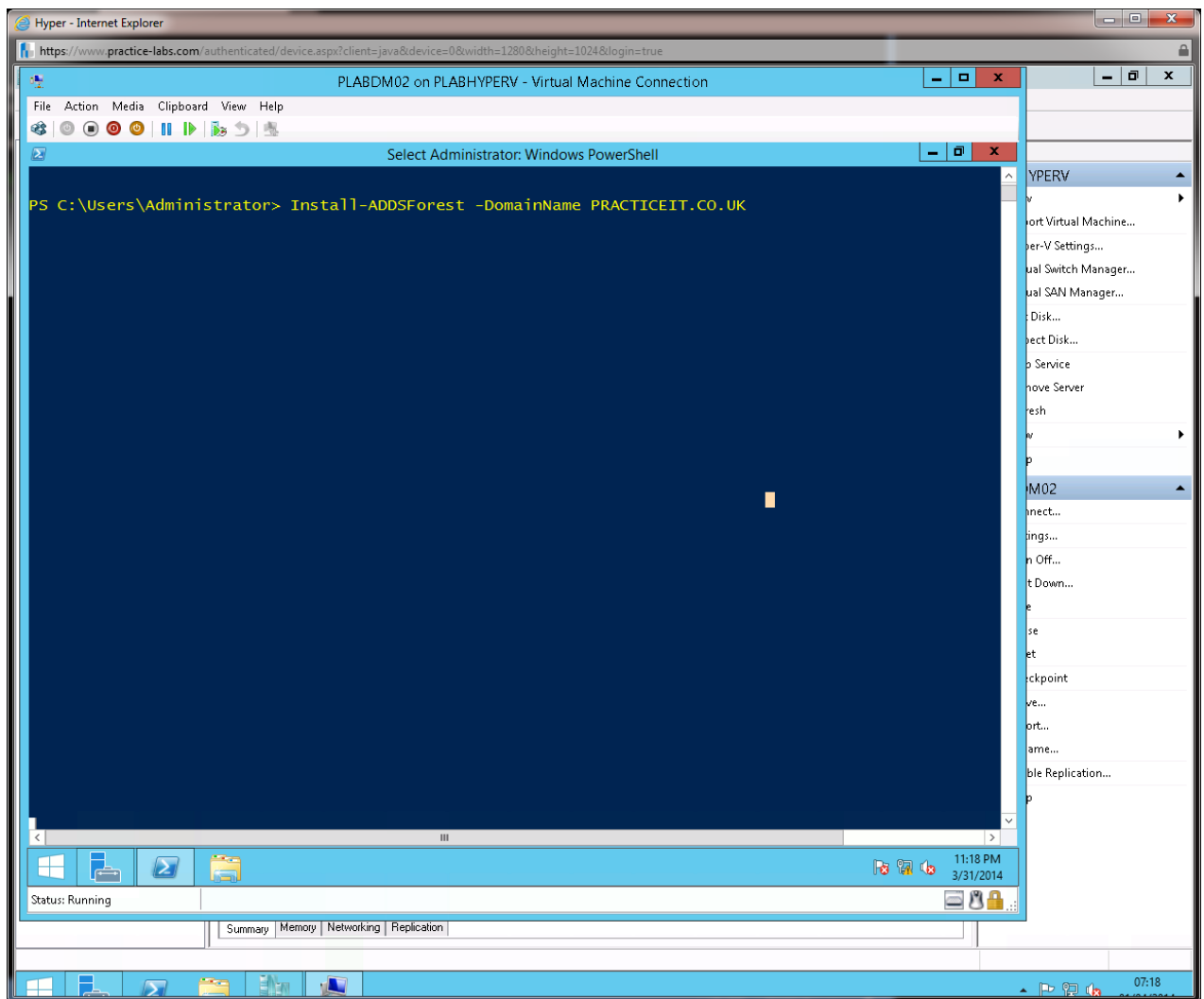
Type the following and press **Enter**.

```
Install-WindowsFeature –Name AD-Domain-Services -IncludeManagementTools
```

Step 2

To install the domain controller role on PLABDM02, type the following commands:
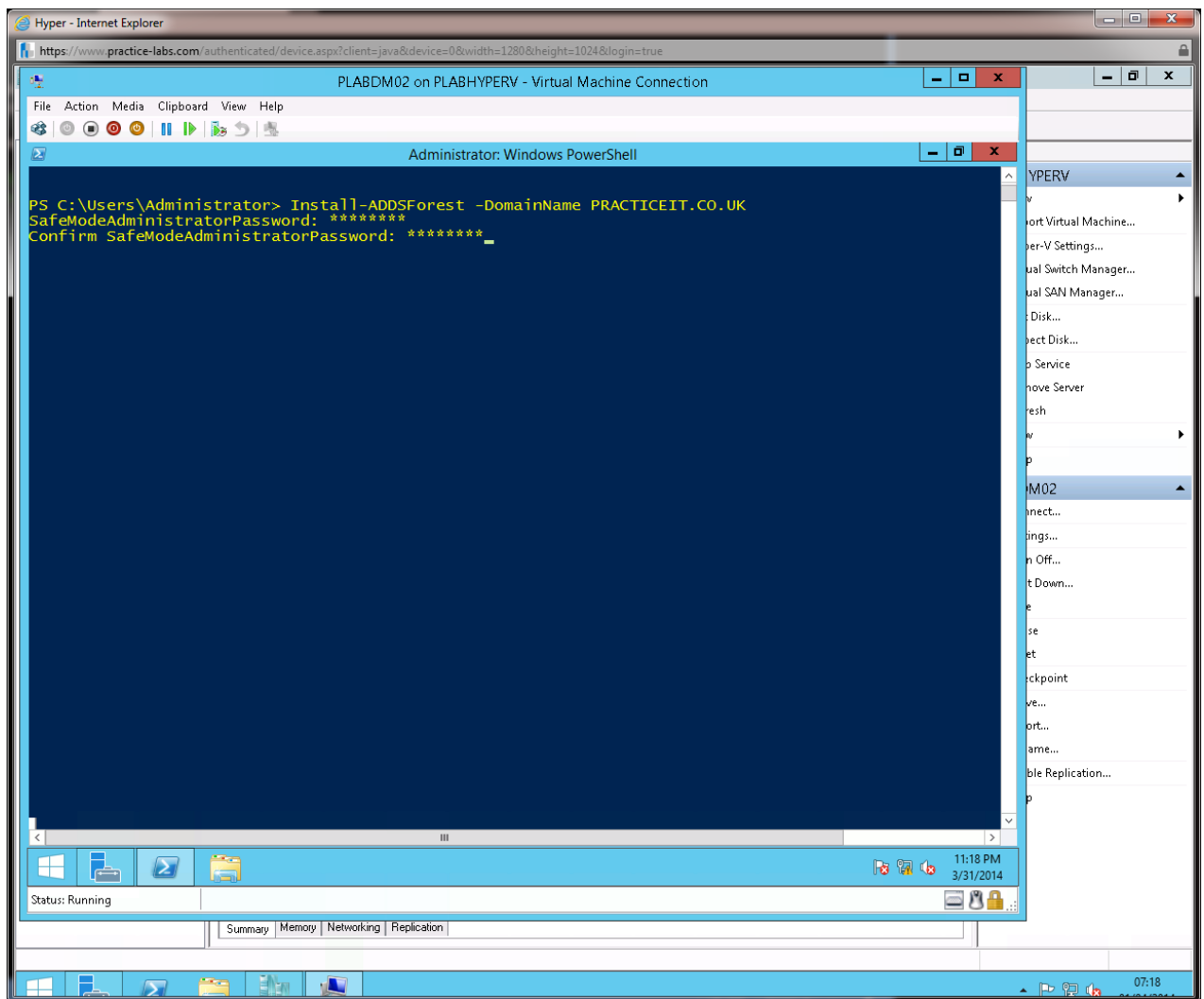
```
Install-ADDSForest –DomainName PRACTICEIT.CO.UK
```
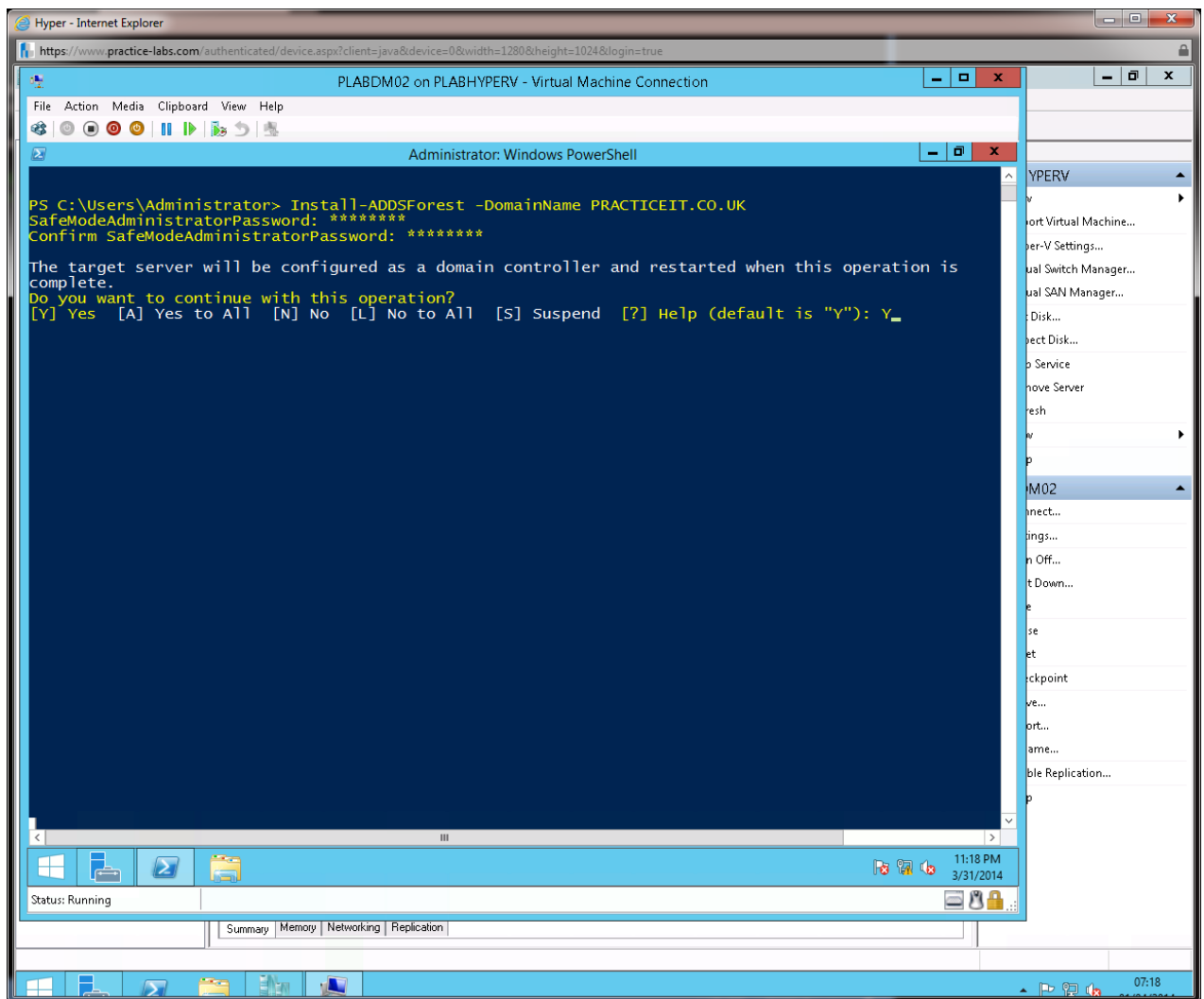
Step 3

When asked about the Safe mode password, type the following and reconfirm it.
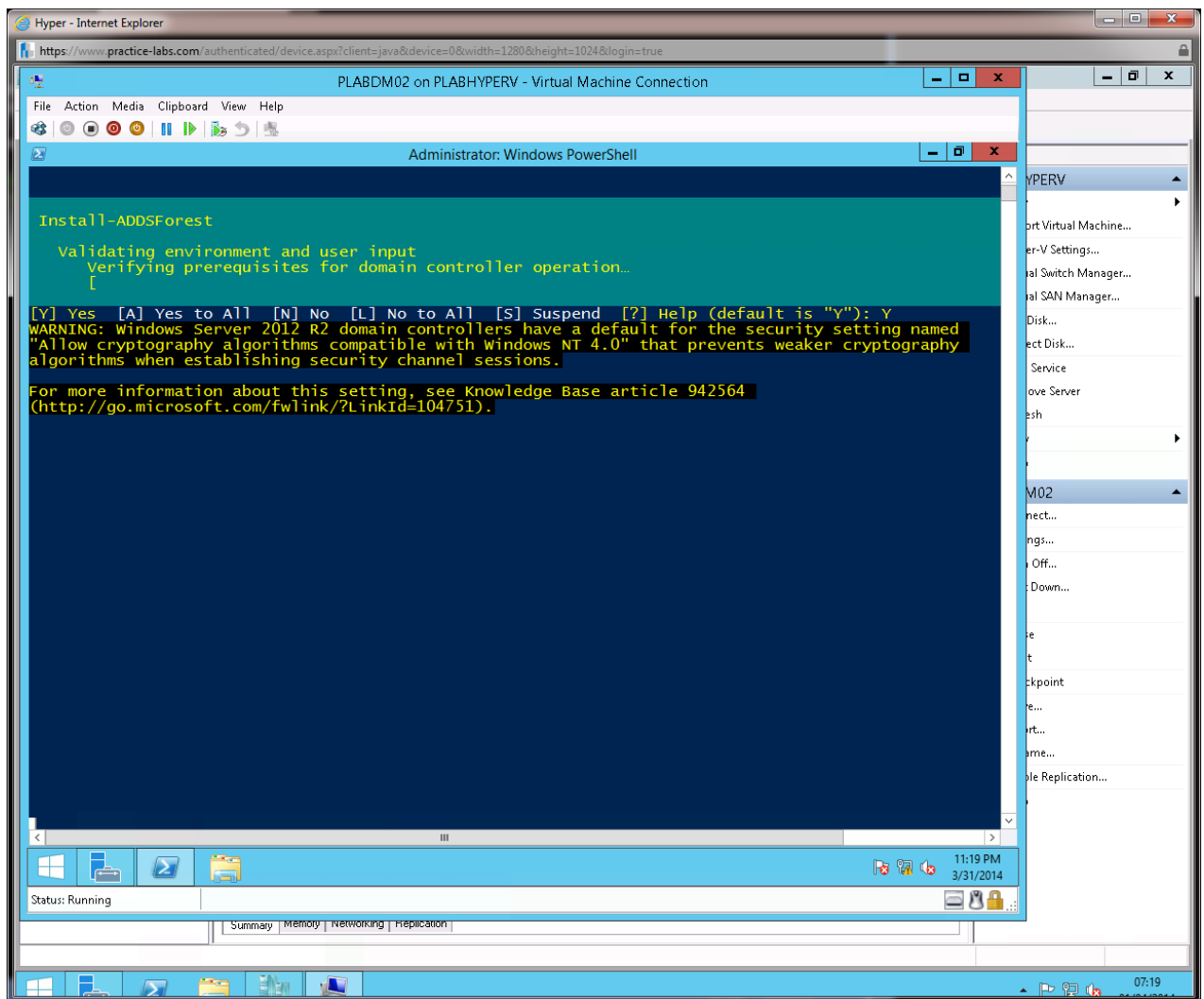
```
Passw0rd
```

Step 4

Press **Y** to confirm the installation of the domain controller role in PLABDM02.
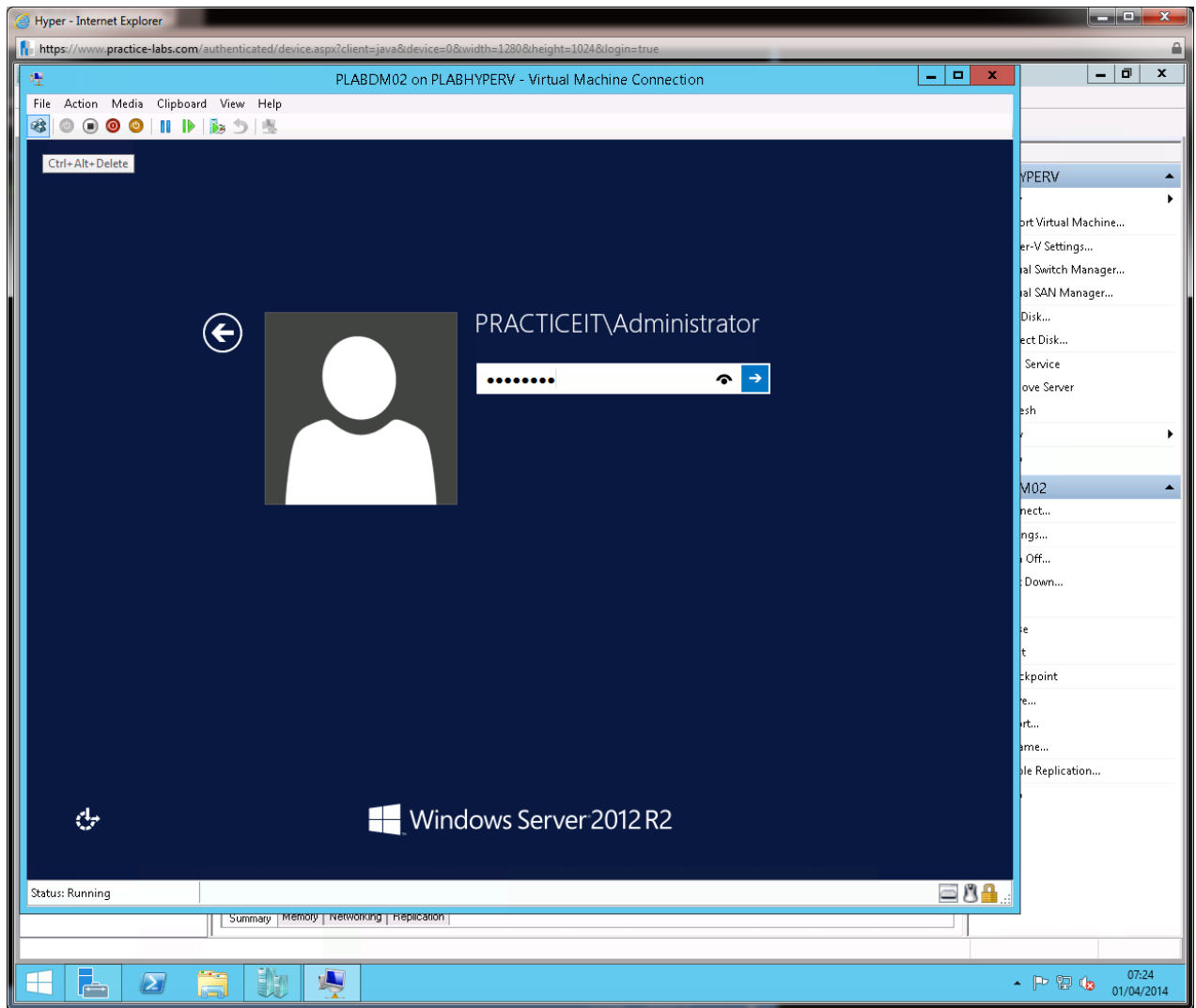
Step 5

Installation of Active Directory and the domain controller role in PLABDM02 will take a few minutes.
PLABDM02 will restart by itself.
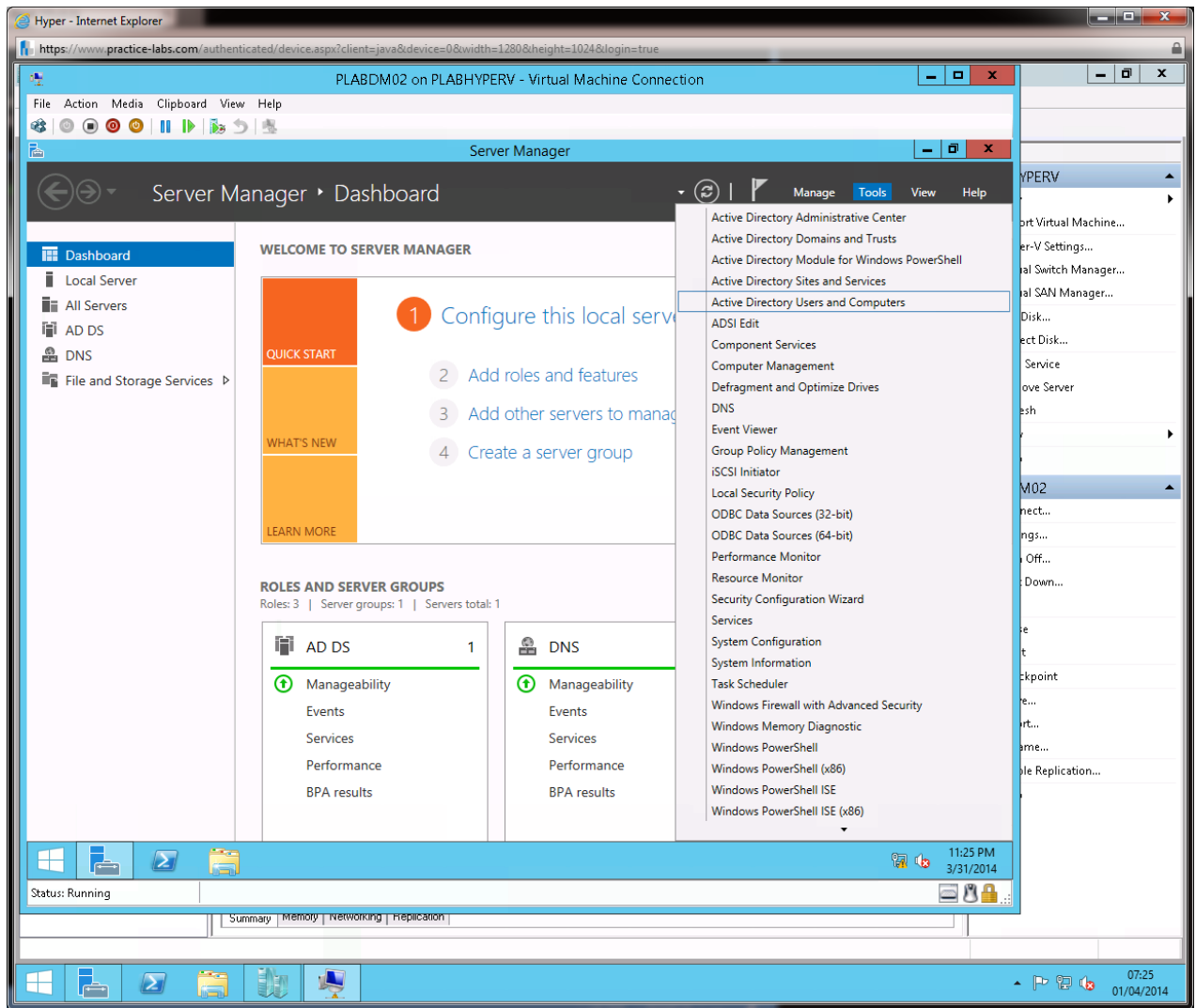
Step 6

Click Ctrl Alt Delete.

Sign in to PLABDM02 as **practiceit\administrator** password is **Passw0rd**
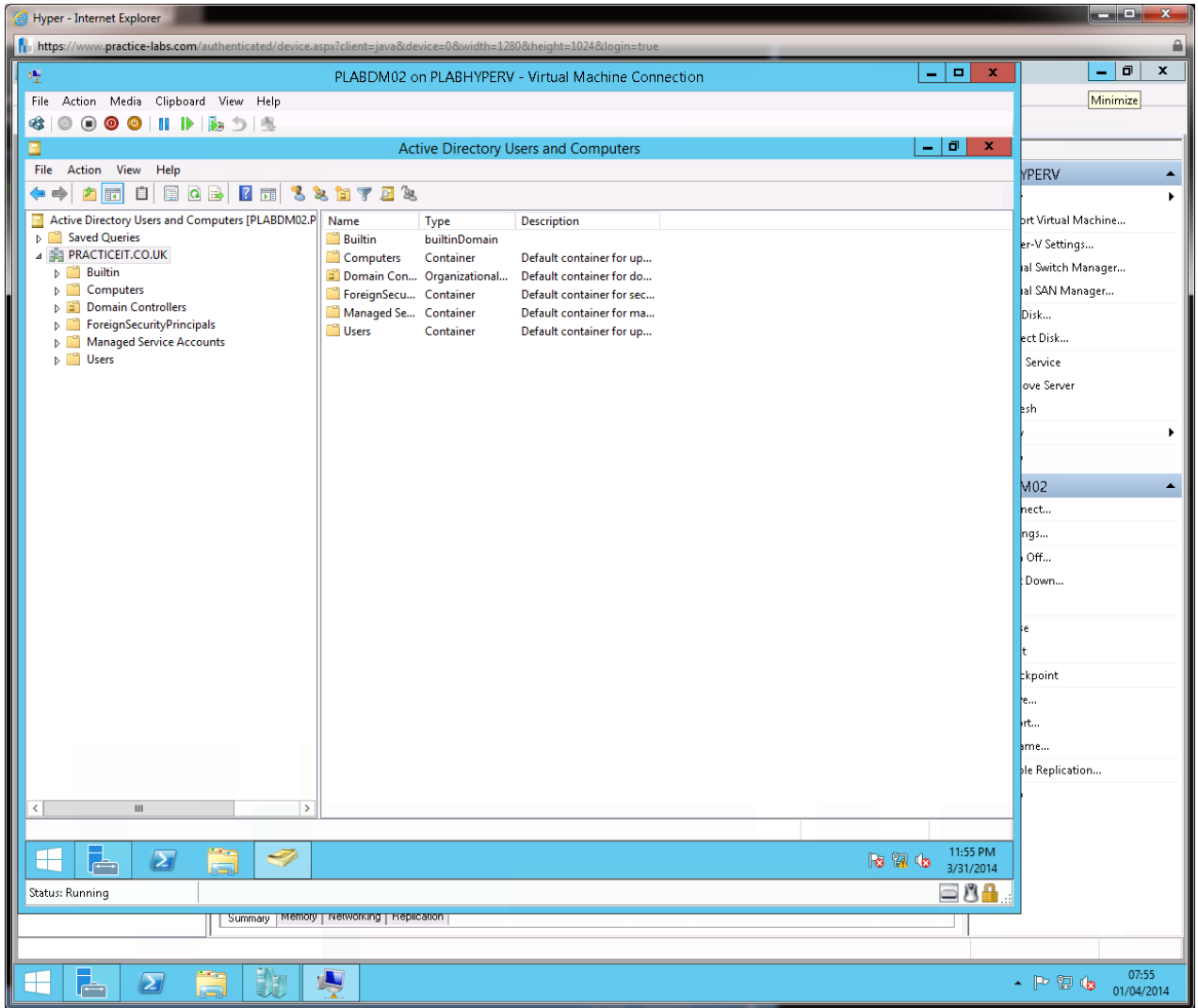
Step 7

In Server Manager, click **Tools** and select **Active Directory Users and Computers**.

Step 8

Active Directory now opens with the newly-installed domain.

Leave the devices you have powered on in their current state and proceed to the next exercise.

Exercise 4 – Delegate Server Administration

In this exercise, you will learn how to delegate tasks in server administration.

Please refer to your course material or use your favourite search engine to research for more information about this topic.

Task 1: Delegate administration using Delegation Wizard
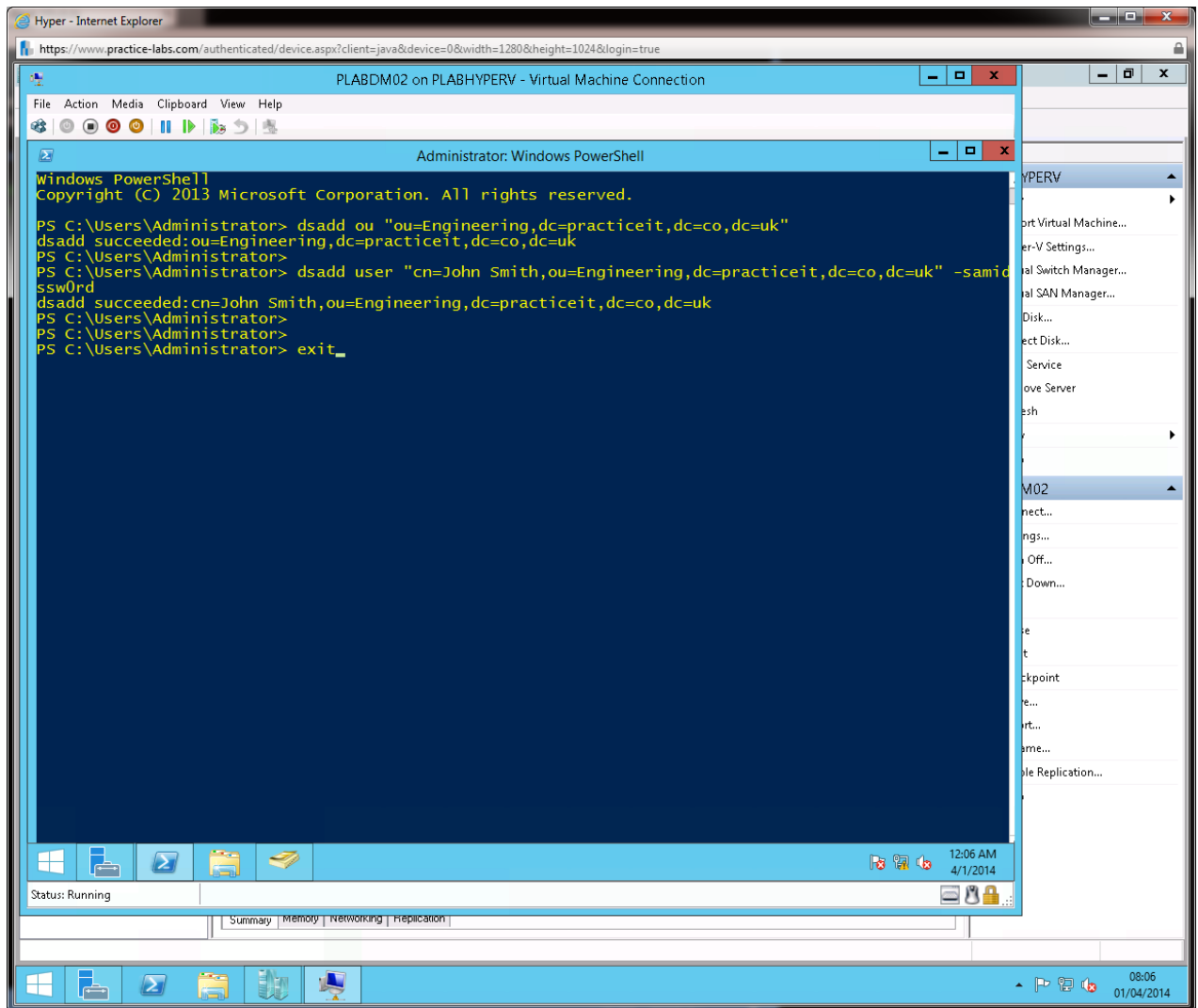
Step 1
On PLABDM02, click PowerShell on task bar.

Type the following and press **Enter**.

```
Dsadd "ou=Engineering,dc=practiceit,dc=co,dc=uk"

Dsadd user "cn=John Smith,ou=Engineering,dc=practiceit,dc=co,dc=uk" –samid john.smith
pwd Passw0rd

exit
```
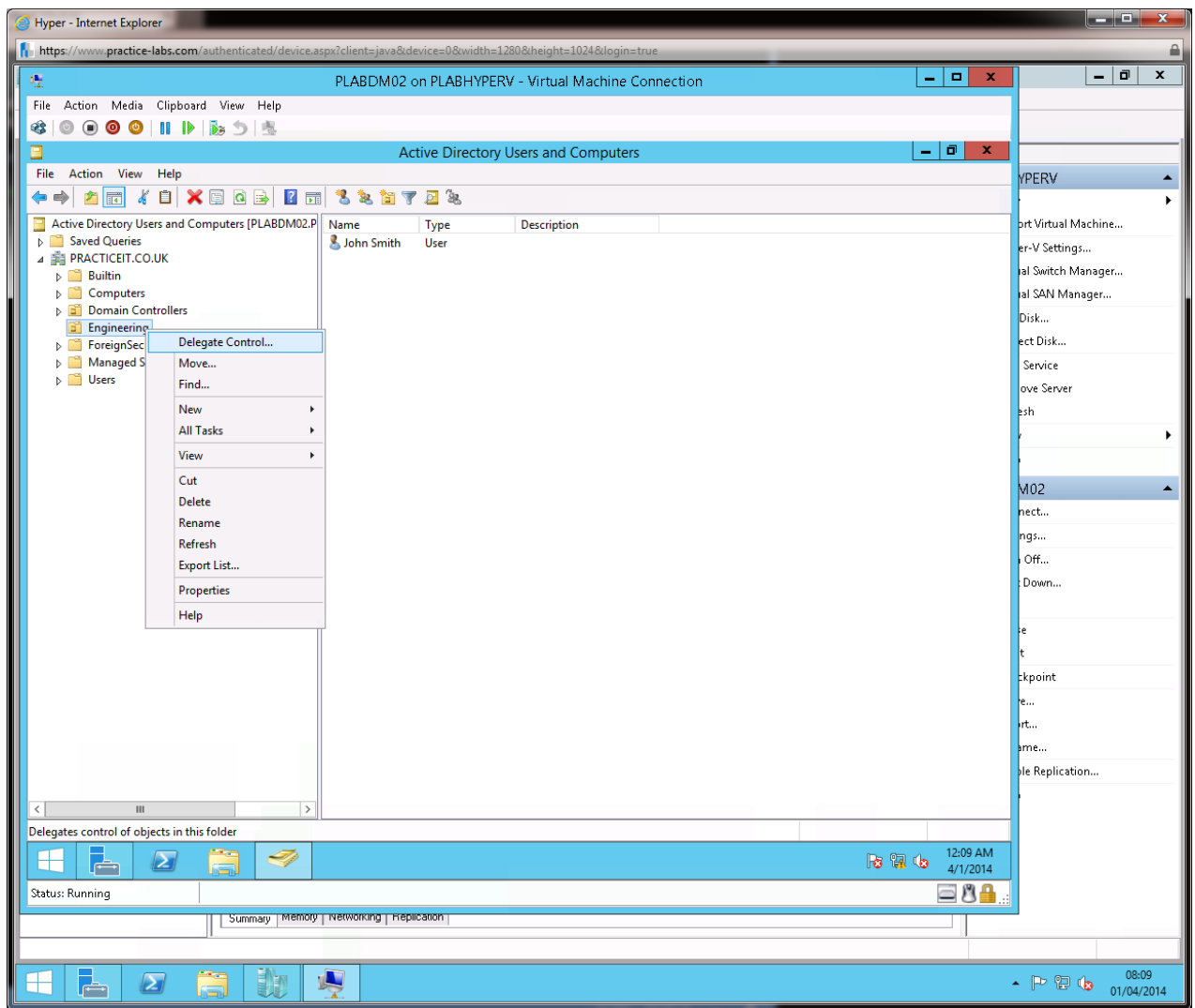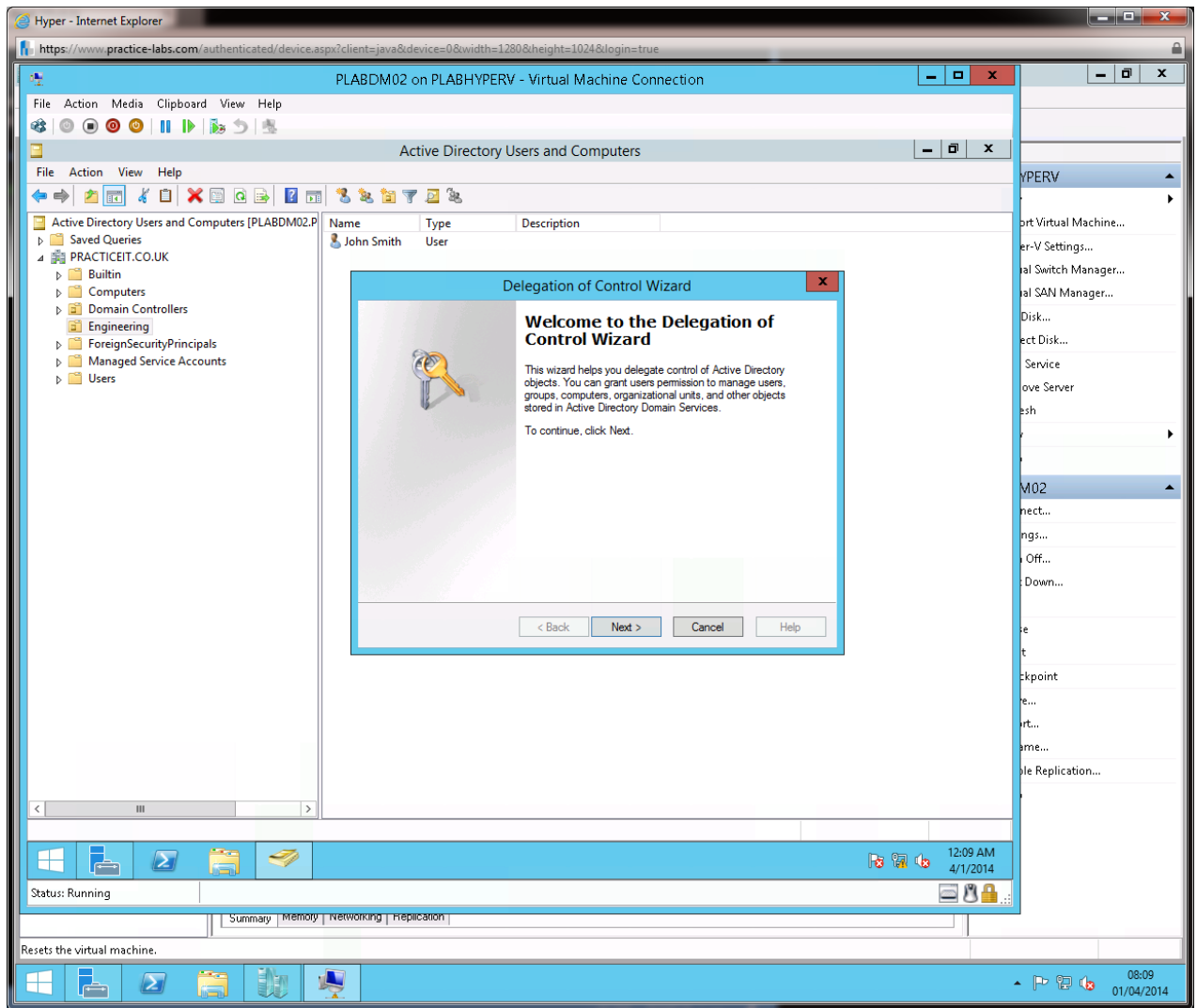
Step 2

Go back to Active Directory Users and Computers. Press **F5** to refresh display.

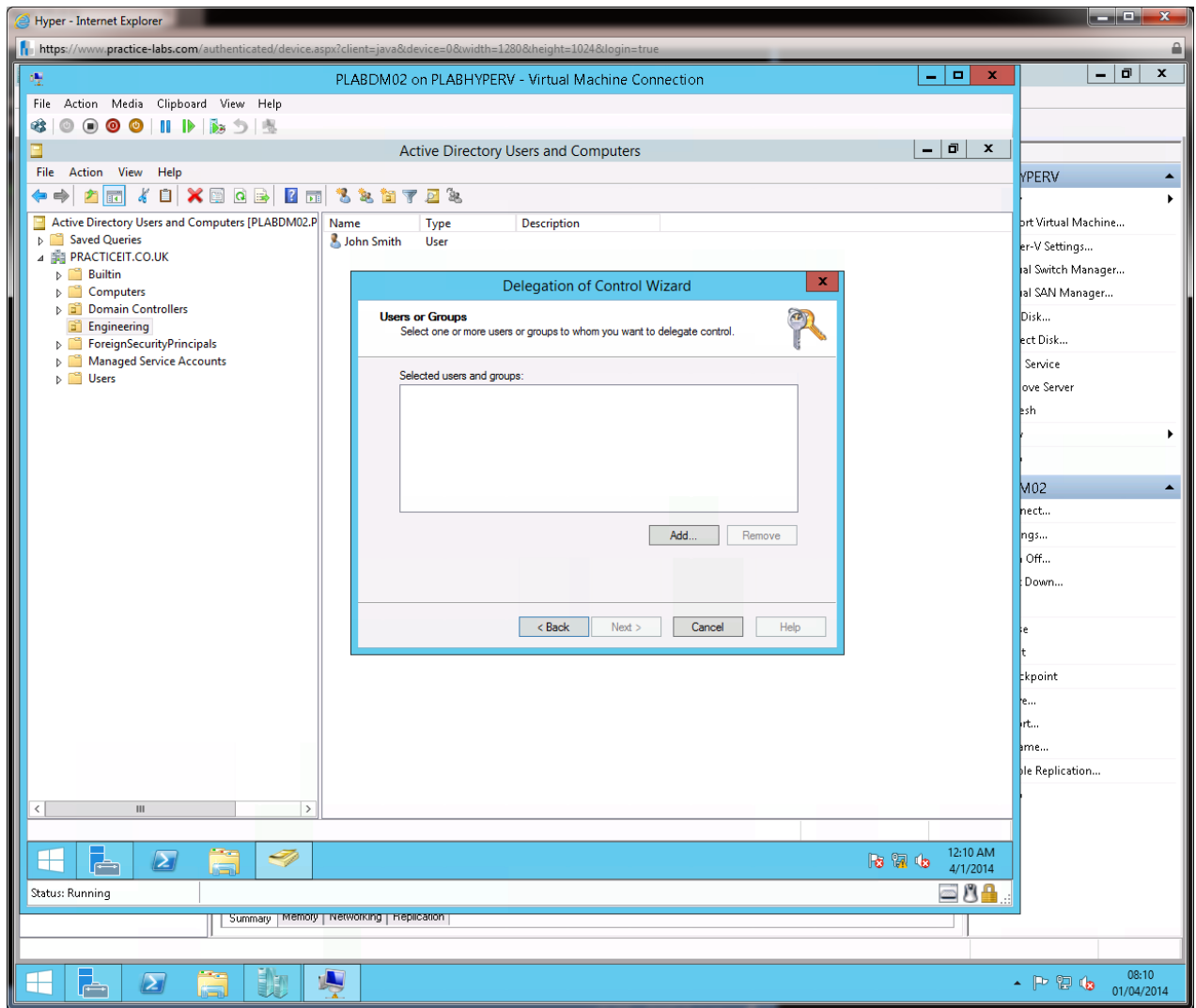Right-click on **Engineering** and choose **Delegate Control**…

Step 3

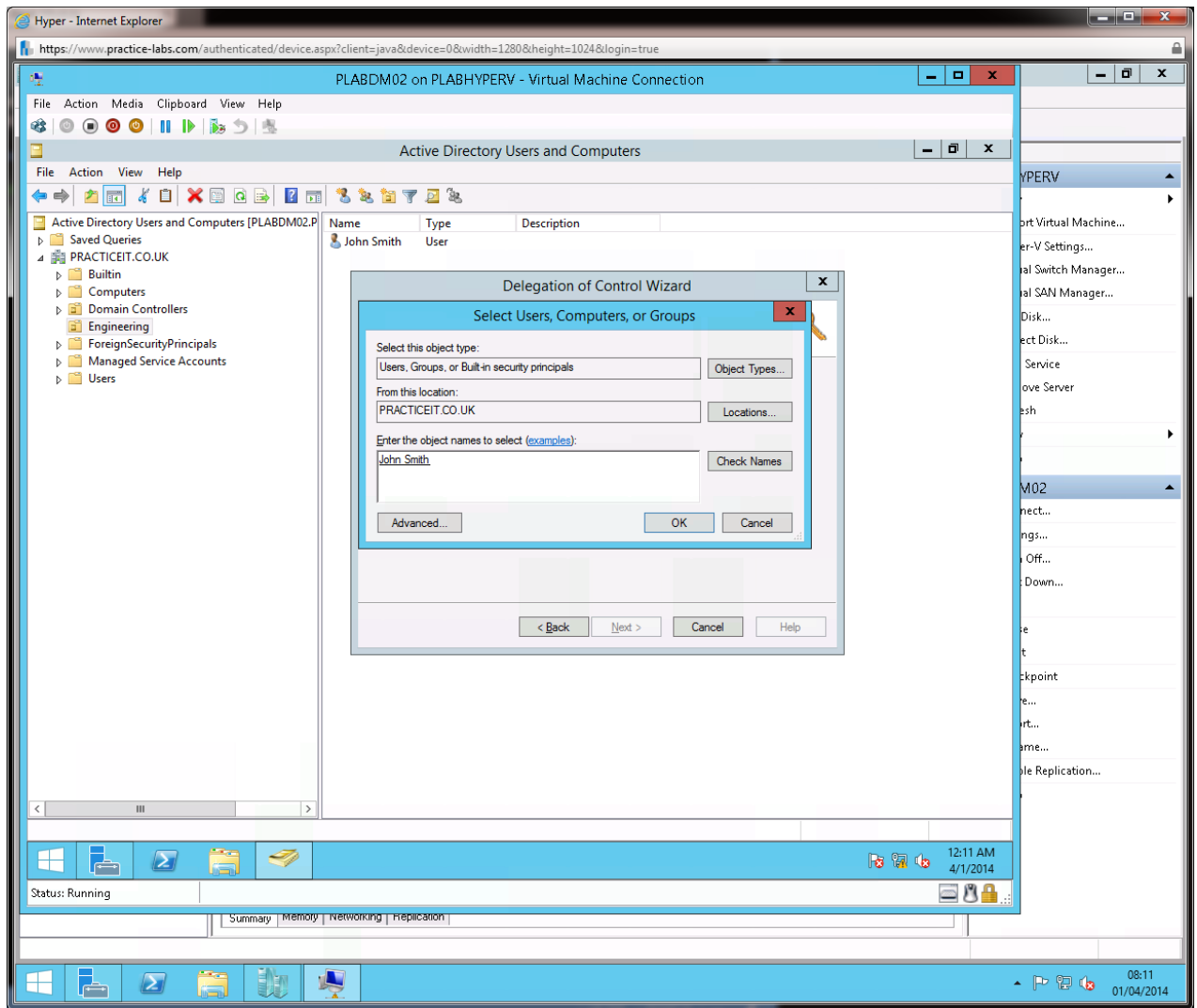From Welcome to the Delegation of Control Control Wizard, click **Next**.

Step 4

In Users or Groups page, click **Add**…

Step 5

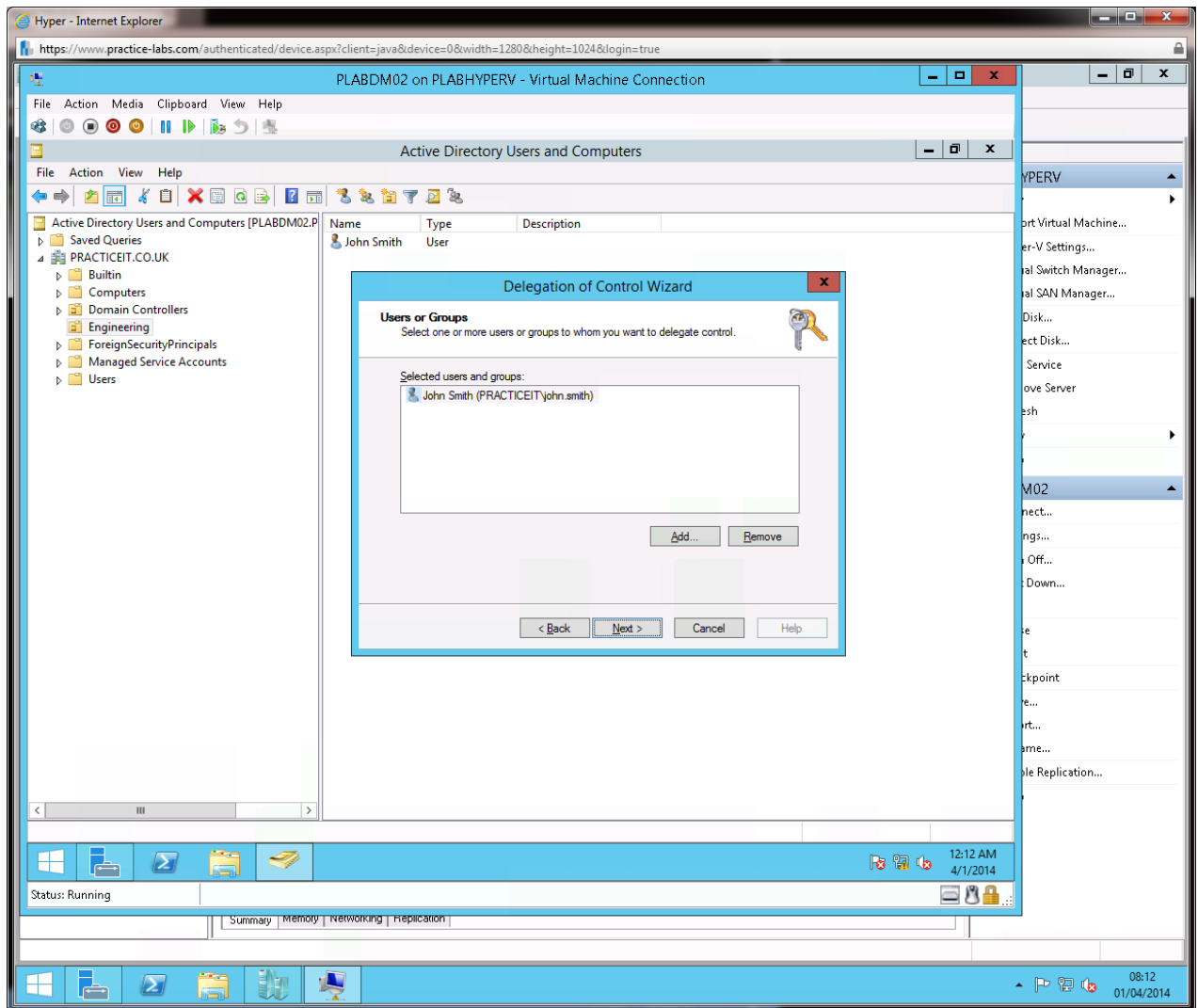On Select Users, Computers or Groups, type **john smith** and click **Check Names**.

Click **OK**.

Step 6

Back in Users or Groups, click **Next**.

Step 7

On Tasks to Delegate, select the following check boxes

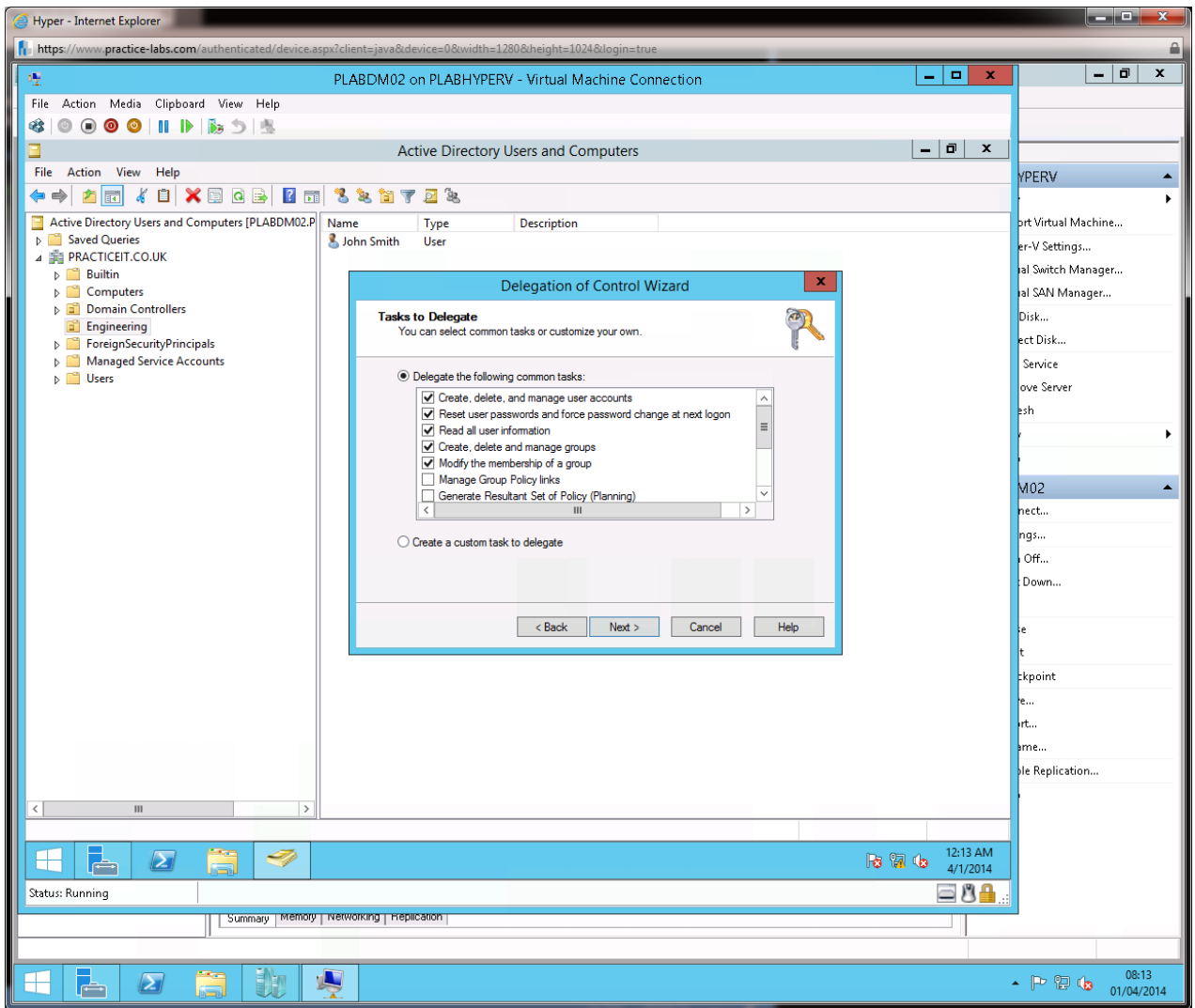**Create, delete and manage user accounts**

Reset user passwords and force password change at next logon

Read all user information
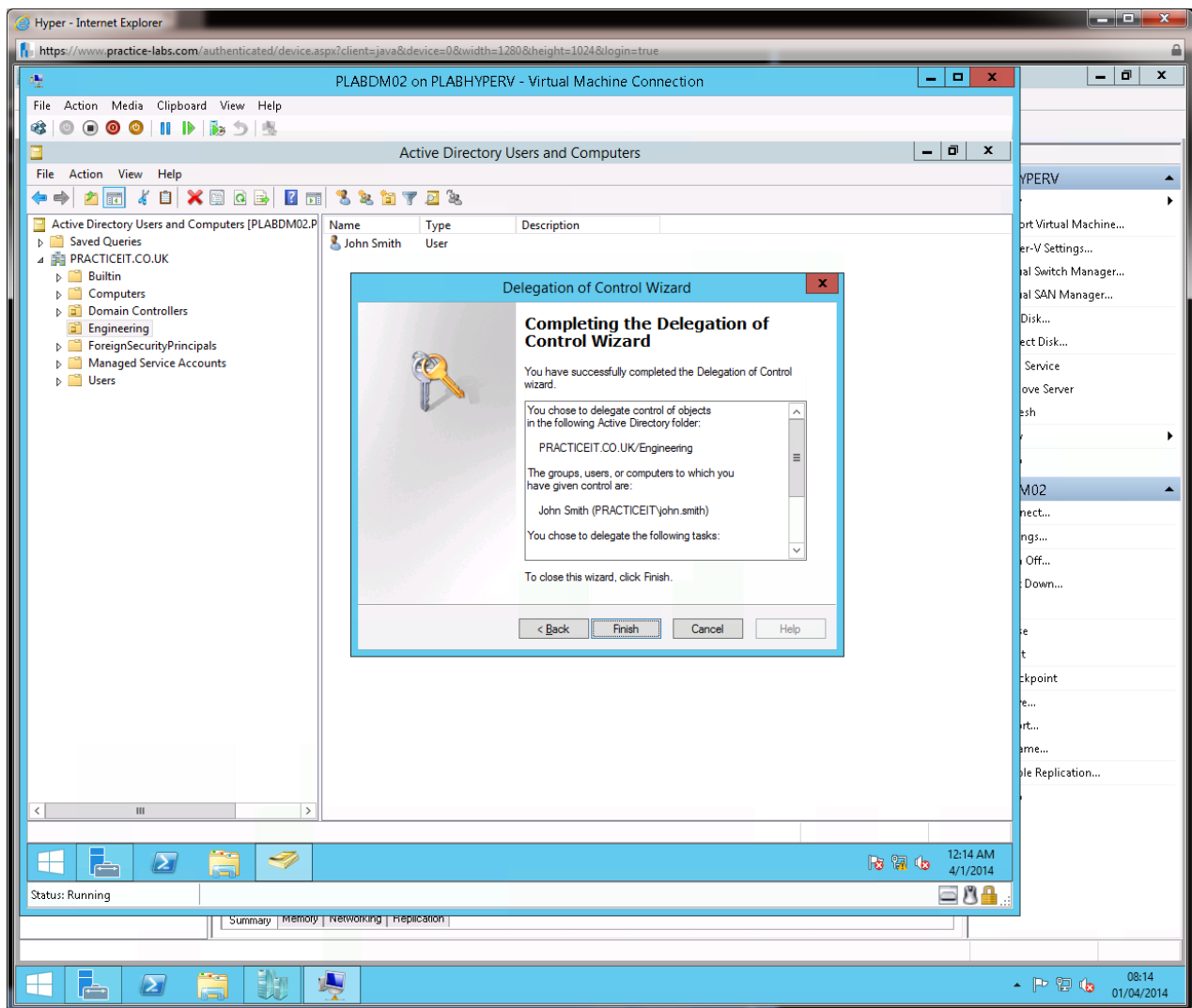
Create, delete and manage groups

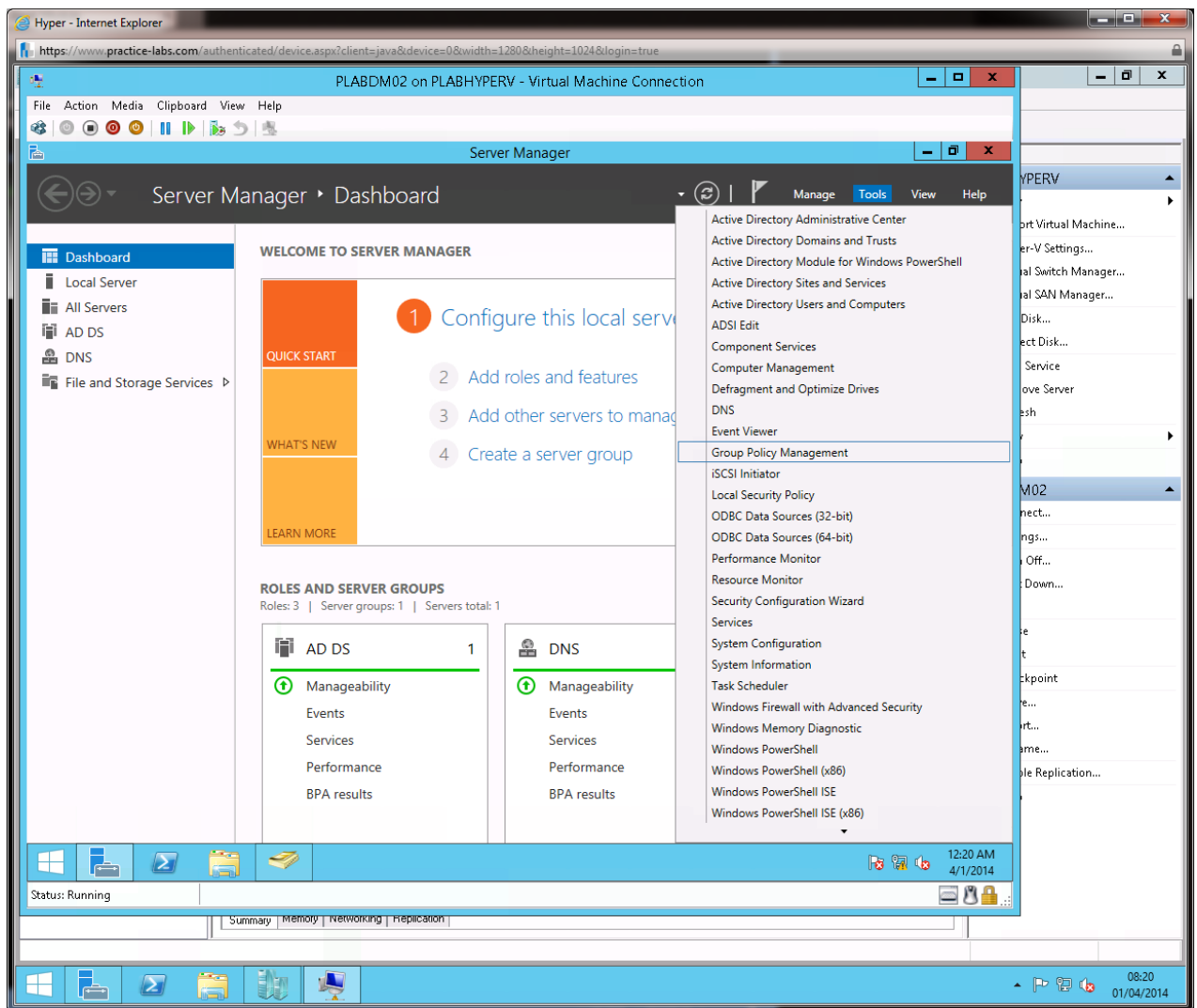**Modify the membership of a group**

Click **Next**.

Step 8

Click **Finish** to close Completing the Delegation of Control Wizard.

Task 2: Grant John Smith the right to log on to the domain controller
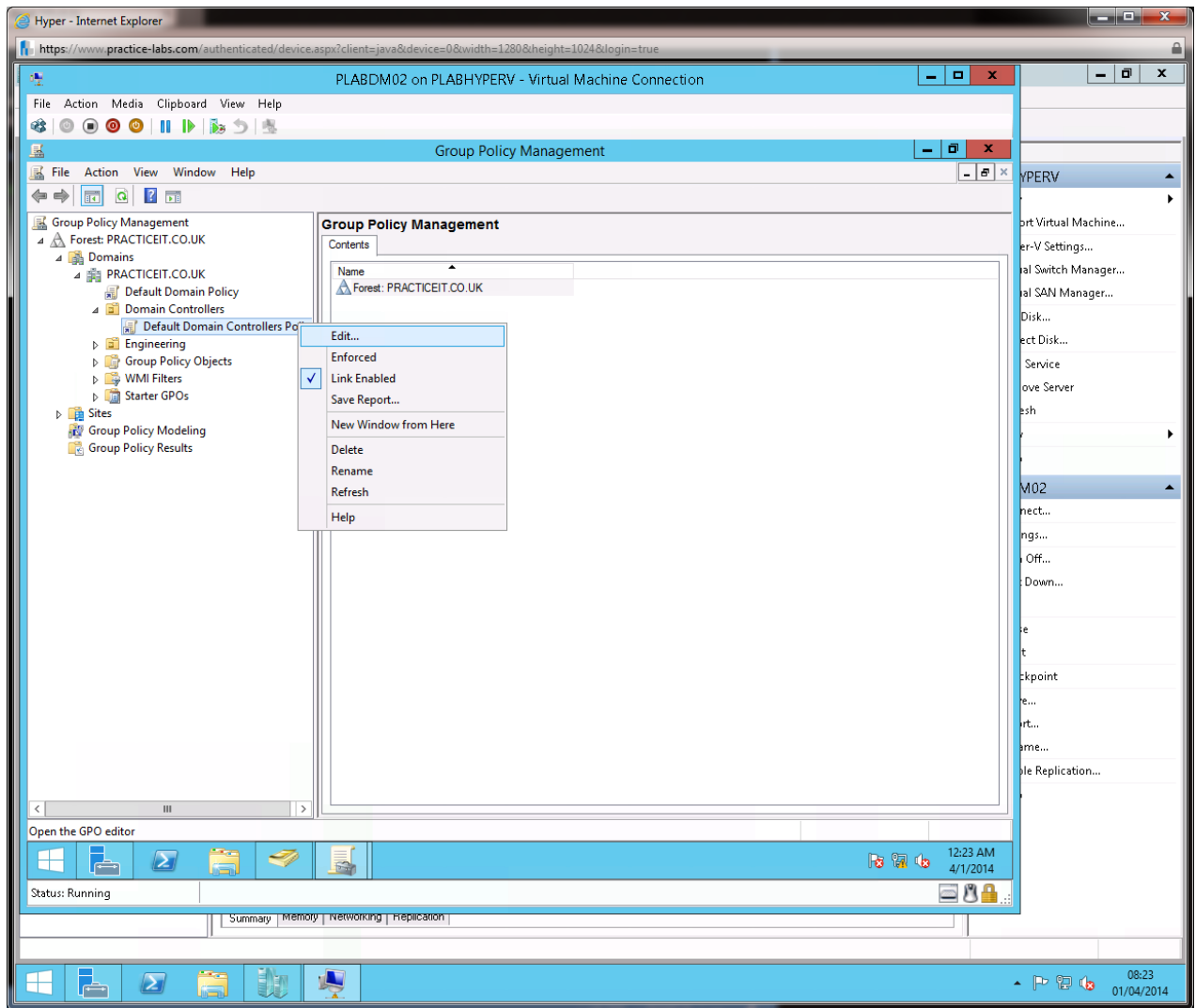
Step 1

Click Server Manager on taskbar. Go to **Tools** then select **Group Policy Management.**

Step 2

On Group Policy Management, expand **Forest: PRACTICEIT.CO.UK,** expand **Domains** > **PRACTICEIT.CO.UK** > **Domain Controllers**.
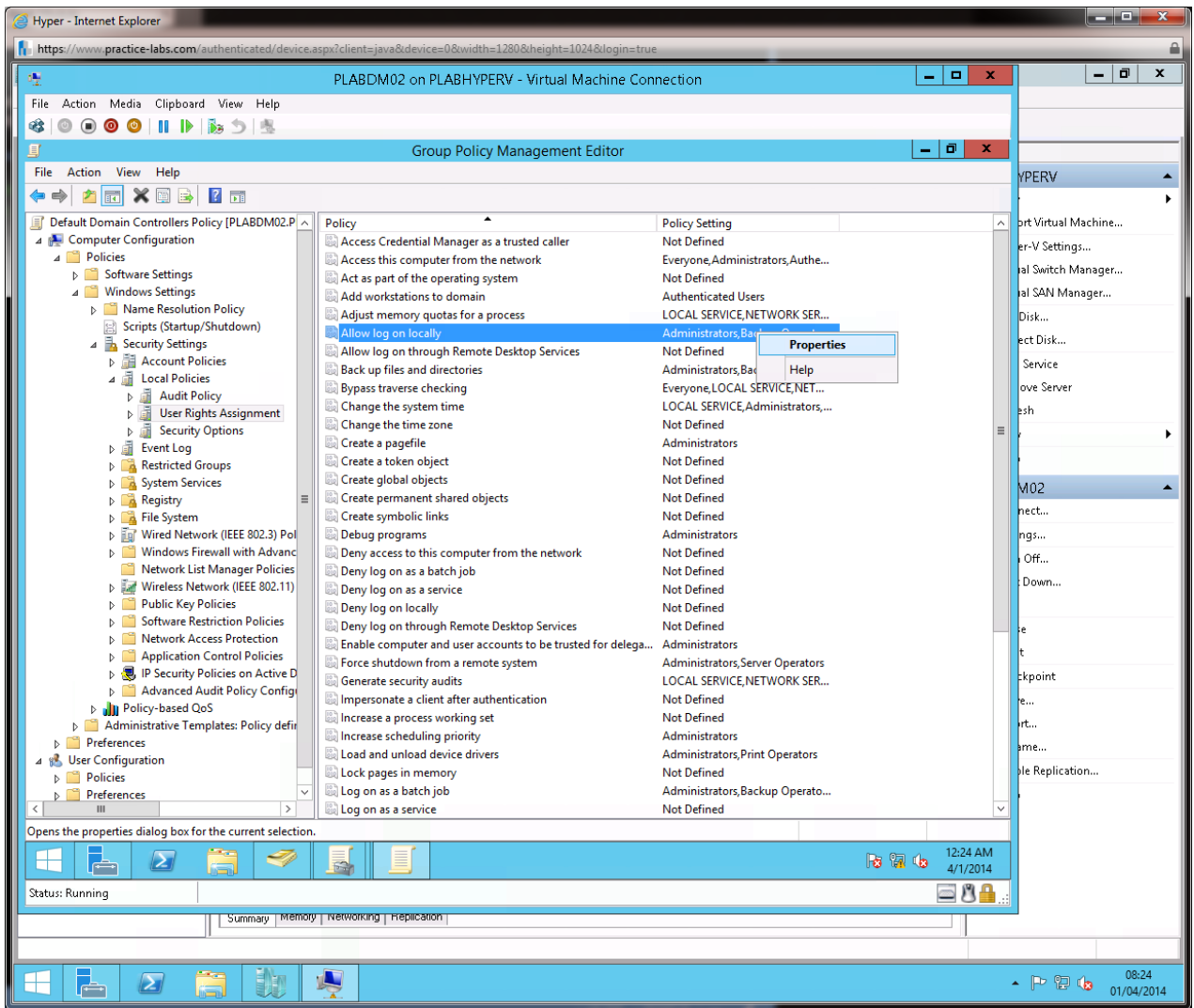
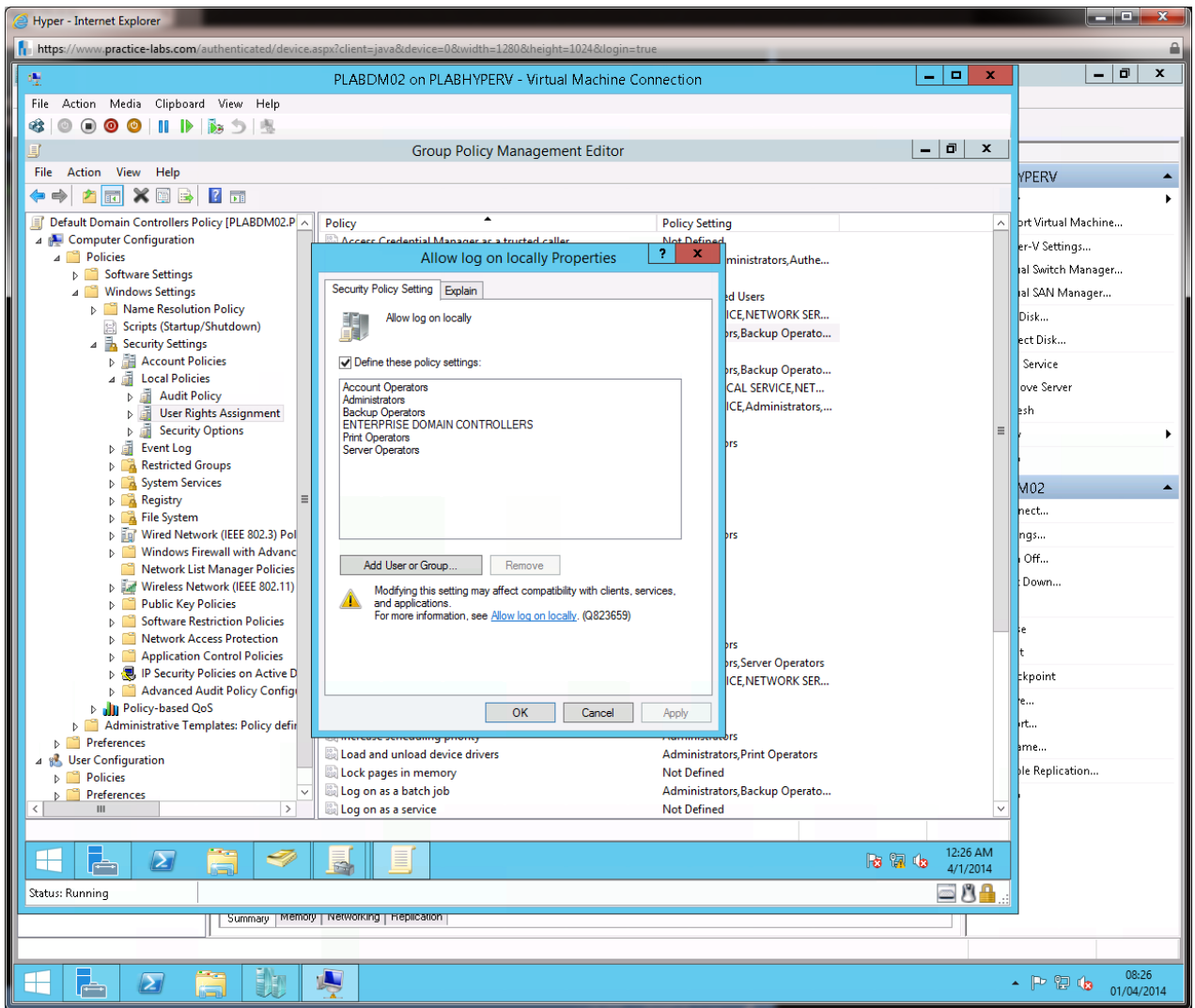Right-click on **Default Domain Controllers Policy,** choose **Edit**.

Step 3

Expand **Computer Configuration > Policies > Windows Settings > Security Settings > Local Policies**.

Click **User Rights Assignment** and then right-click **Allow log on locally** and choose **Properties**.

Step 4

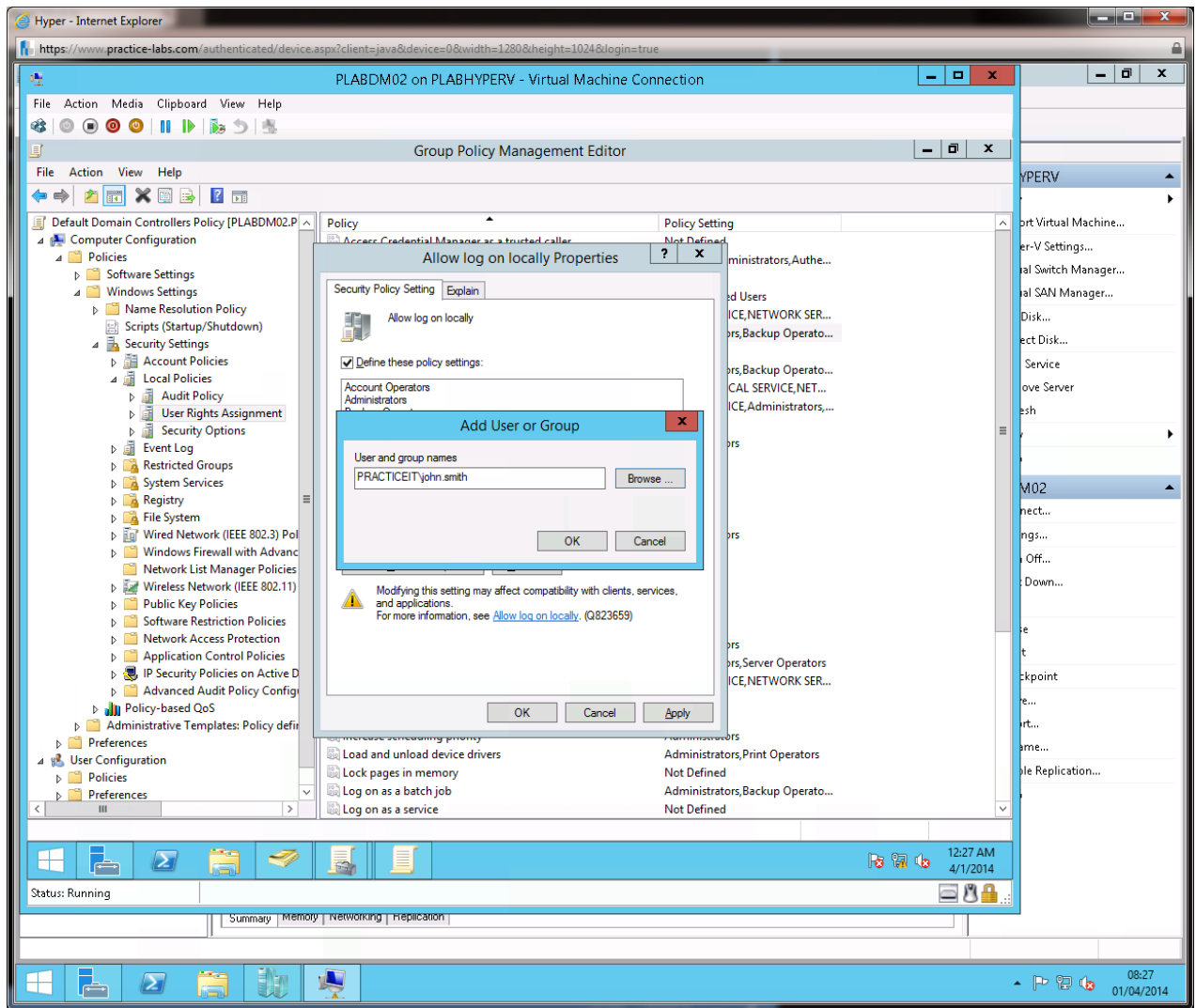On Allow log on locally Properties, click **Add User or Group**…

Step 5

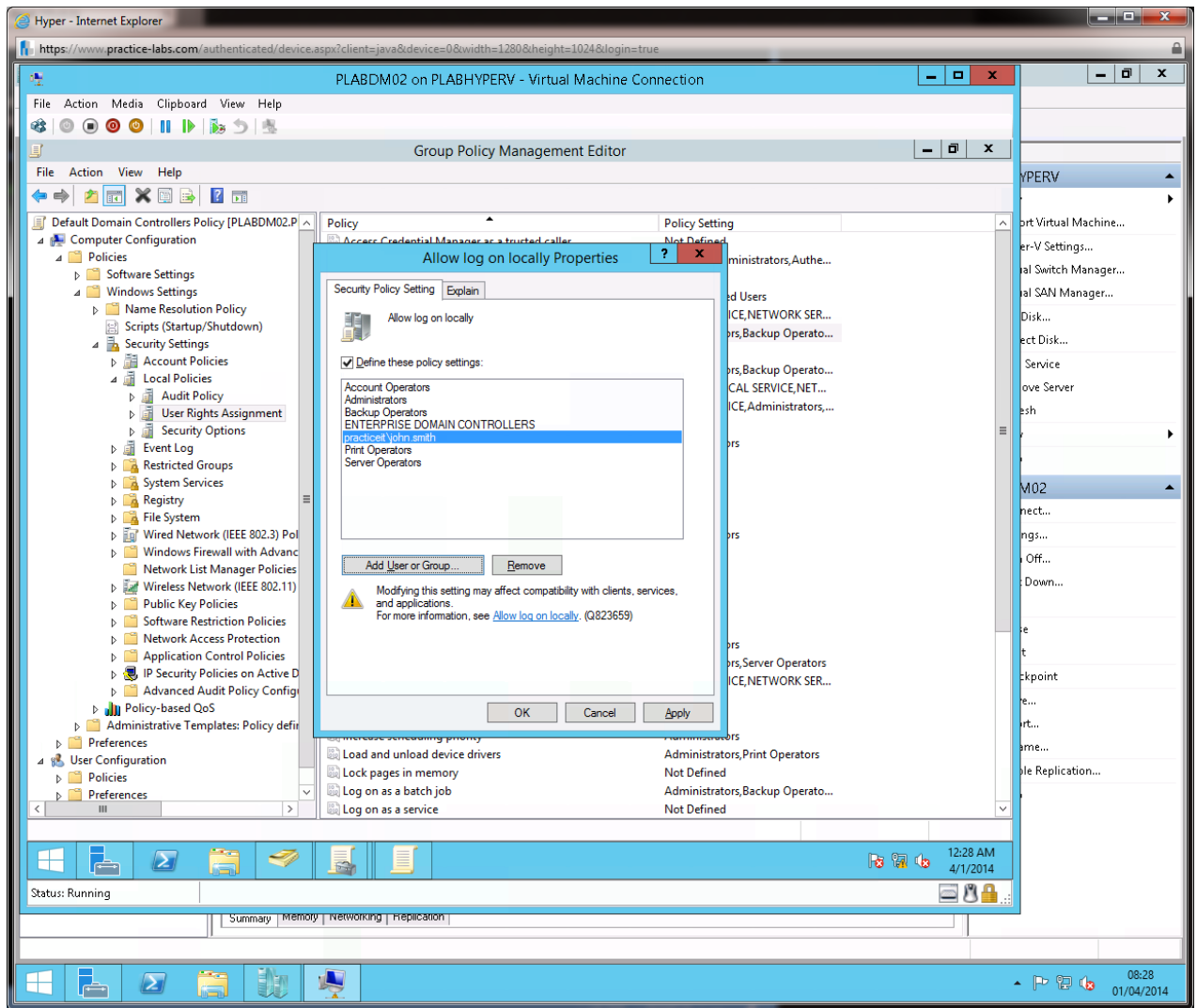In Add User or Group, type

```
PRACTICEIT\john.smith
```

Click **OK**.
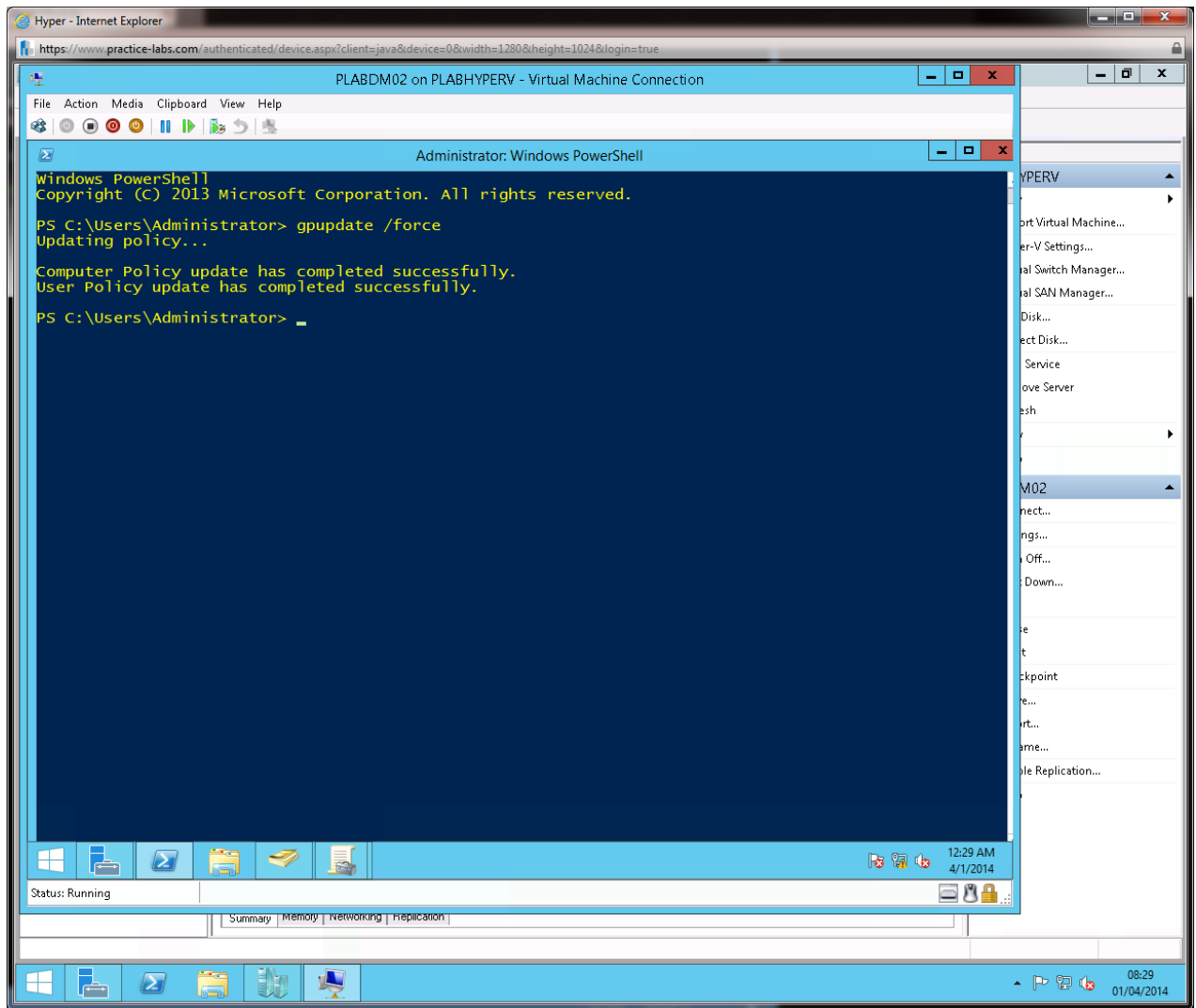
Step 6

Click **OK** to save changes in policy.
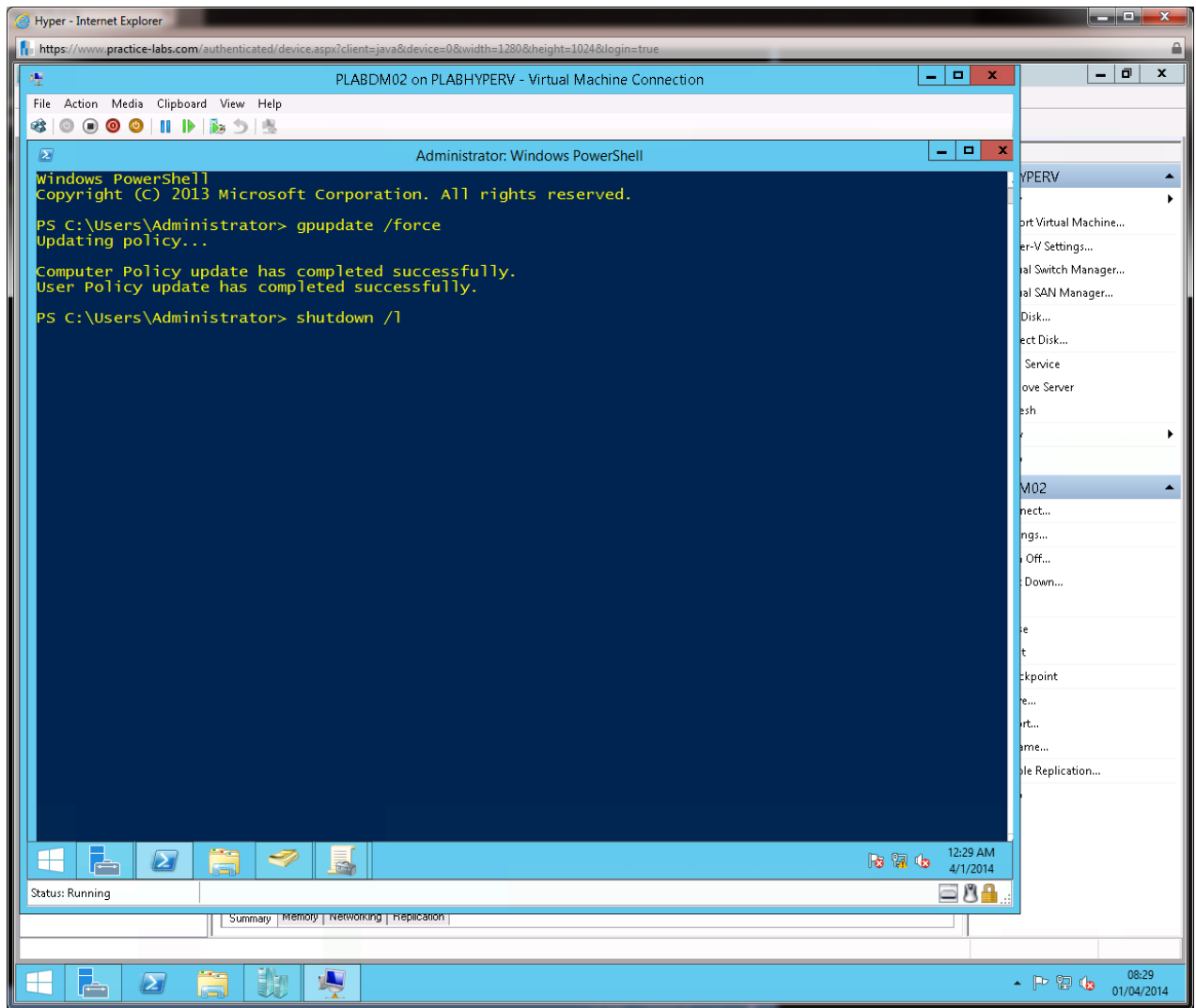
Step 7

Click PowerShell in task bar and type

```
Gpupdate /force
```

Step 8
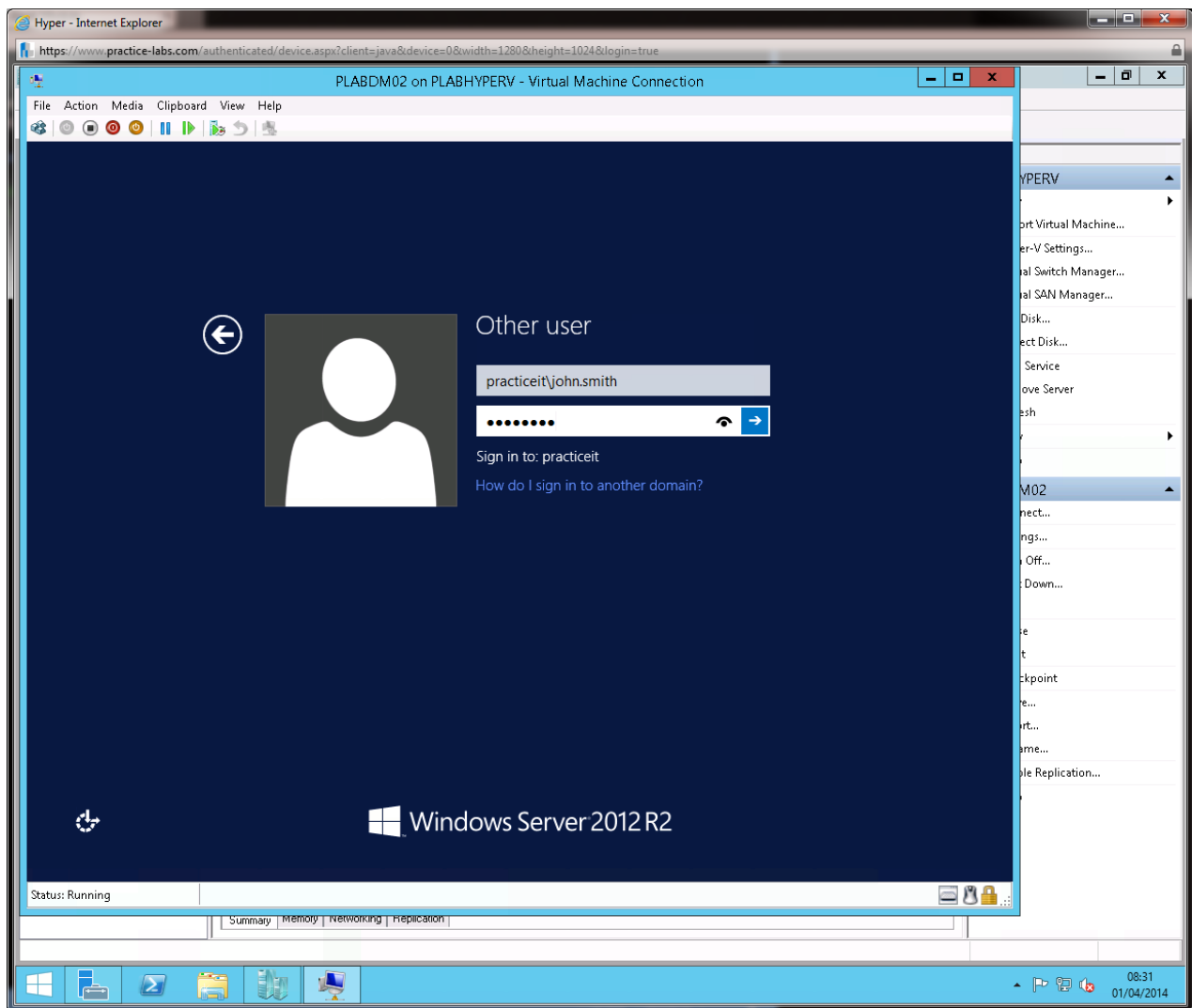
Sign out Adminsitrator by typing

```
Shutdown /l
```

Task 3: Test Delegation of admin rights

Step 1
Click Ctrl Alt Delete

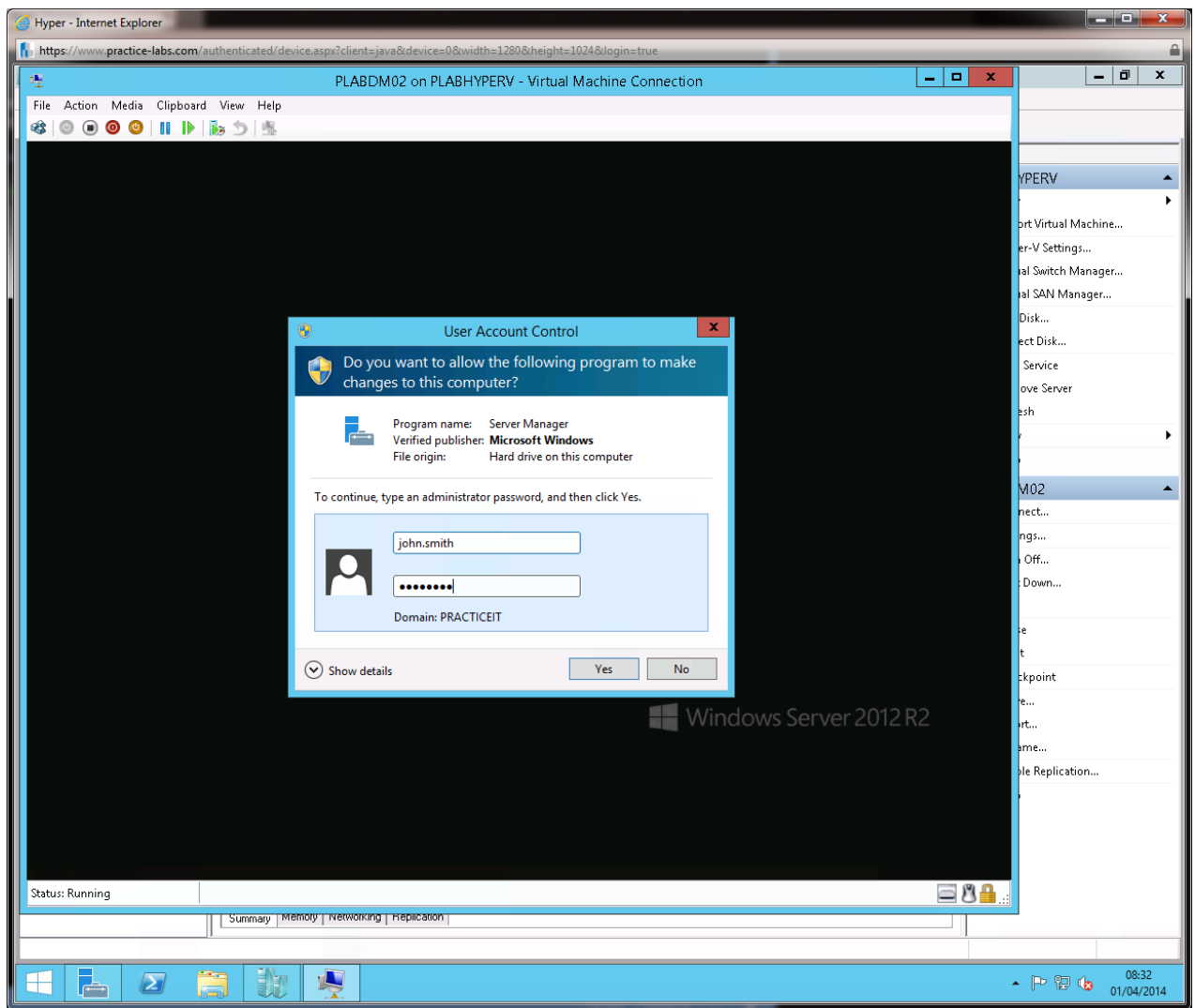Sign on as **practiceit\john.smith** password is **Passw0rd**

Step 2

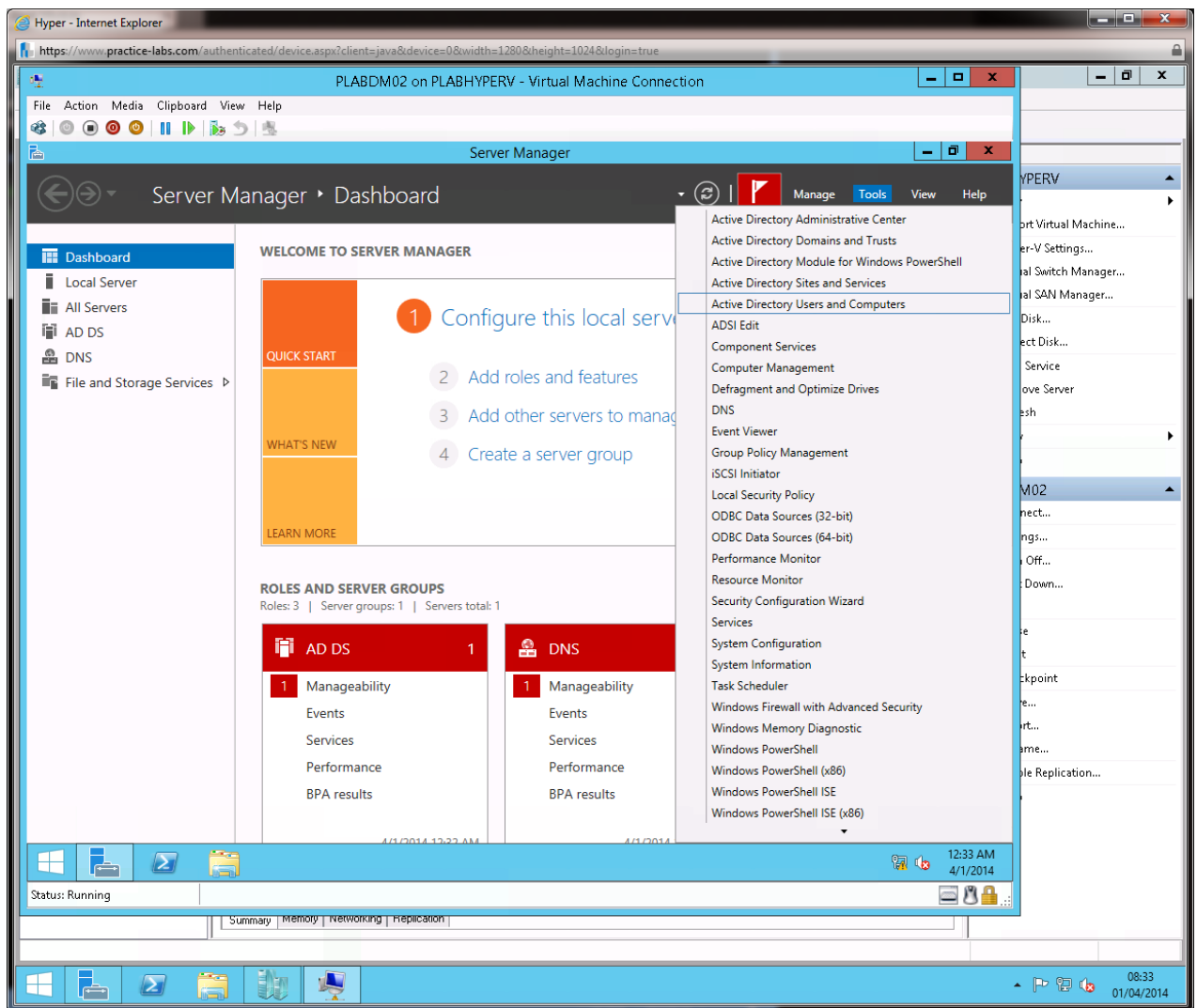Click Server Manager on taskbar. When asked for credentials type
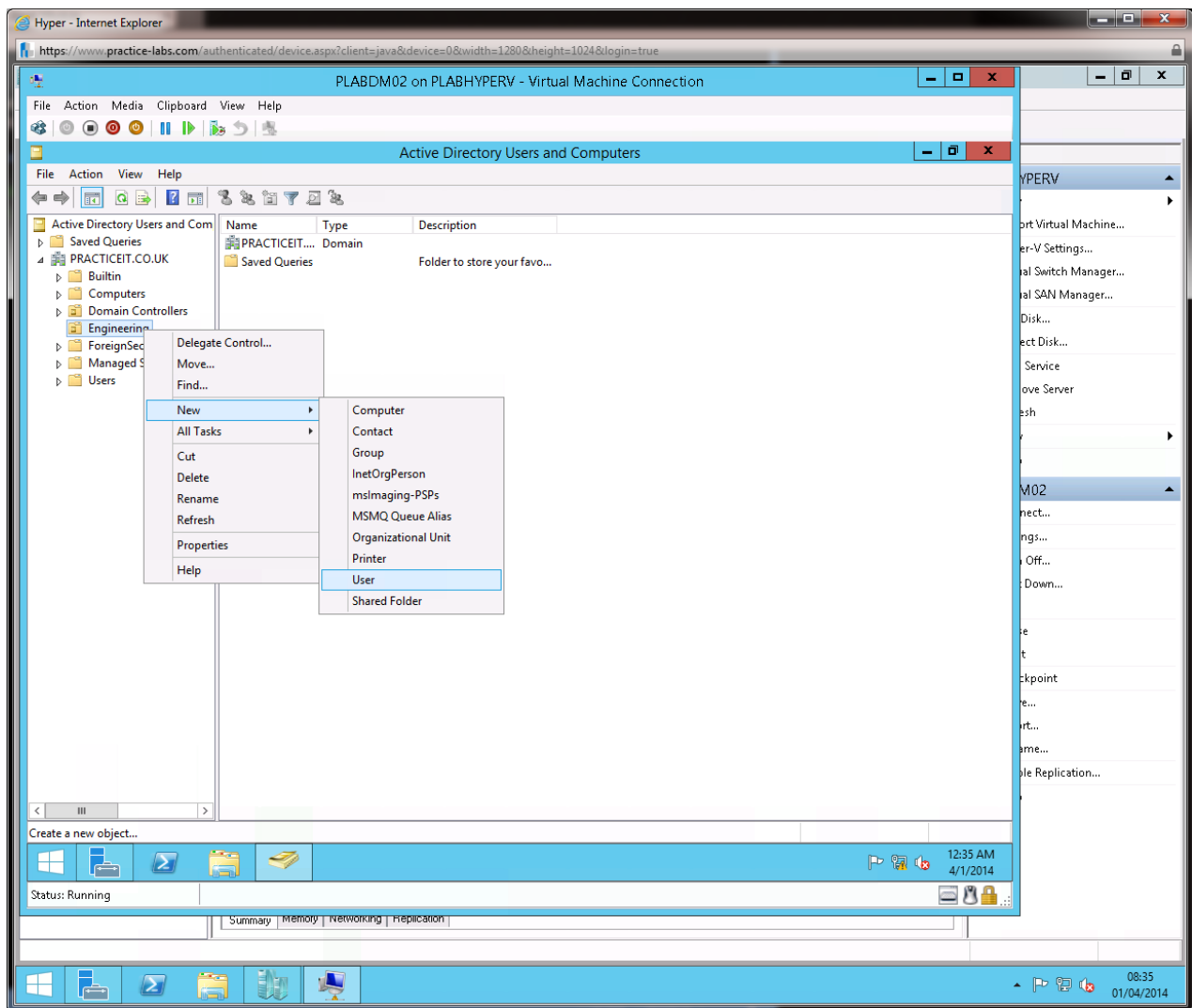
```
John.smith

Passw0rd
```

Click **Yes**.

Step 3

Go to **Tools** > **Active Directory Users and Computers**.

Step 4

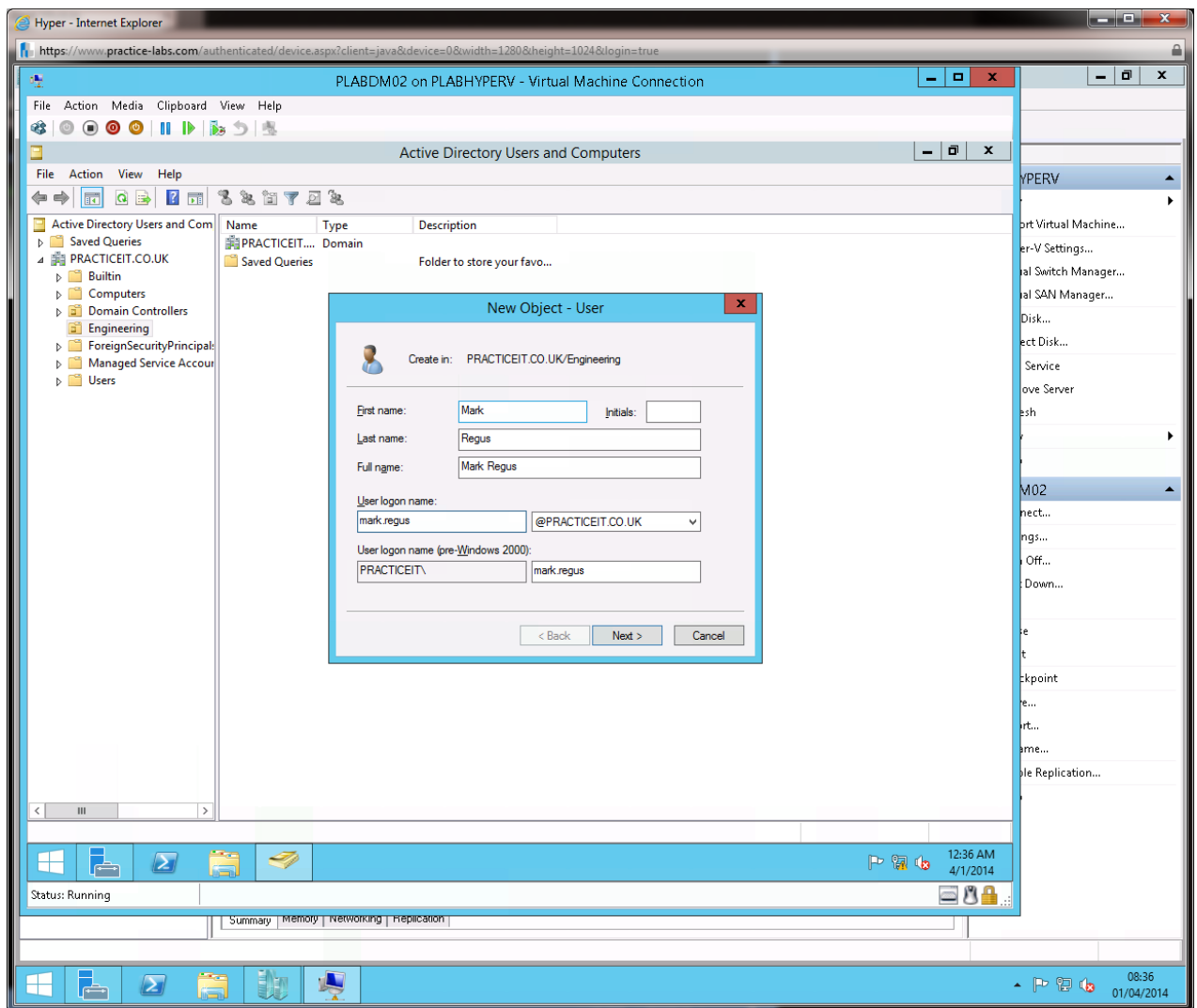Right-click on **Engineering** and choose **New > User**.

Step 5

On New Object – User, use the following settings:

First name: **Mark**

Last name: **Regus**

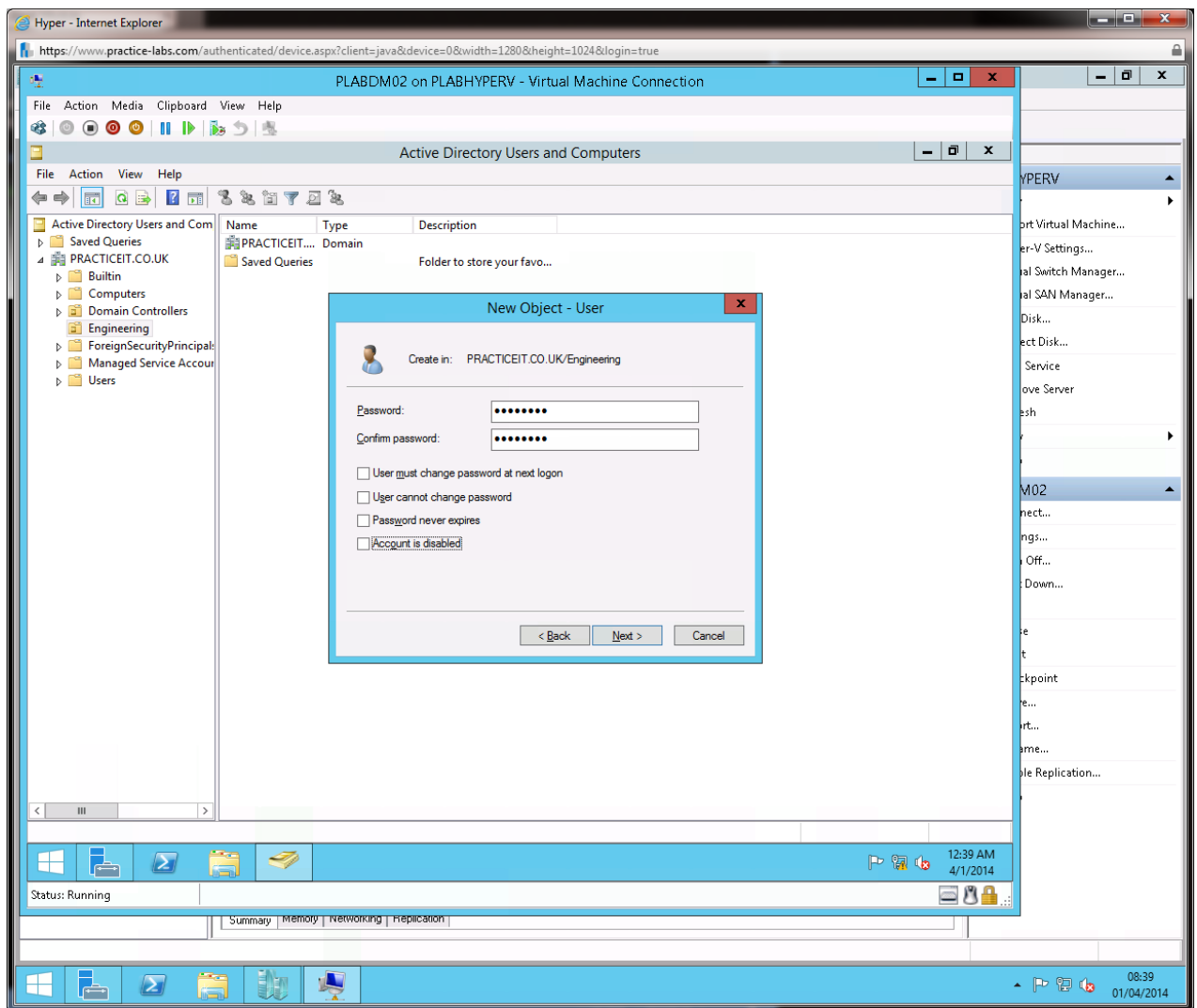User logon name: **mark.regus**

Click **Next**.

Step 6

Type **Passw0rd** in each text.
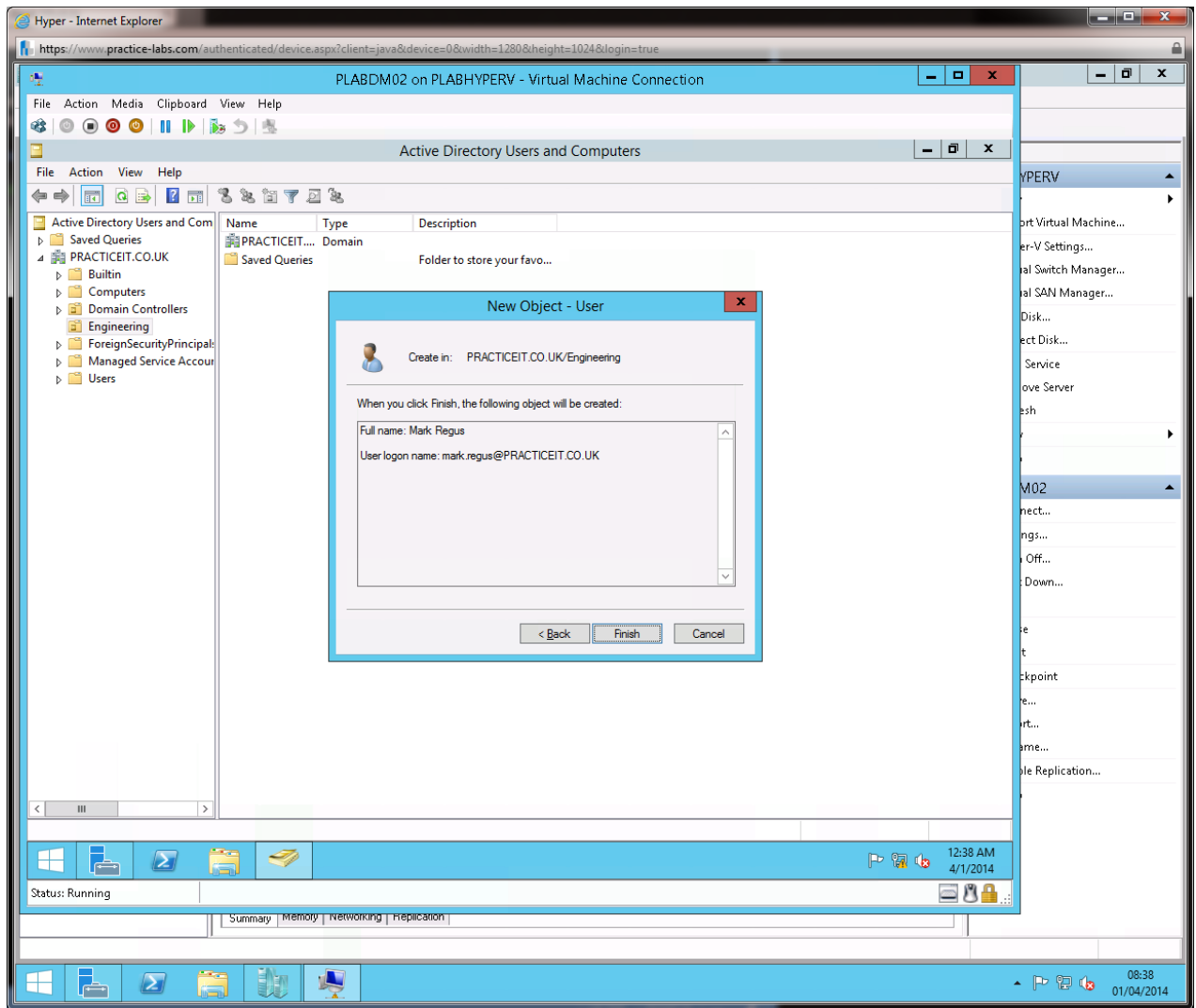
Clear **User must change password at next logon**
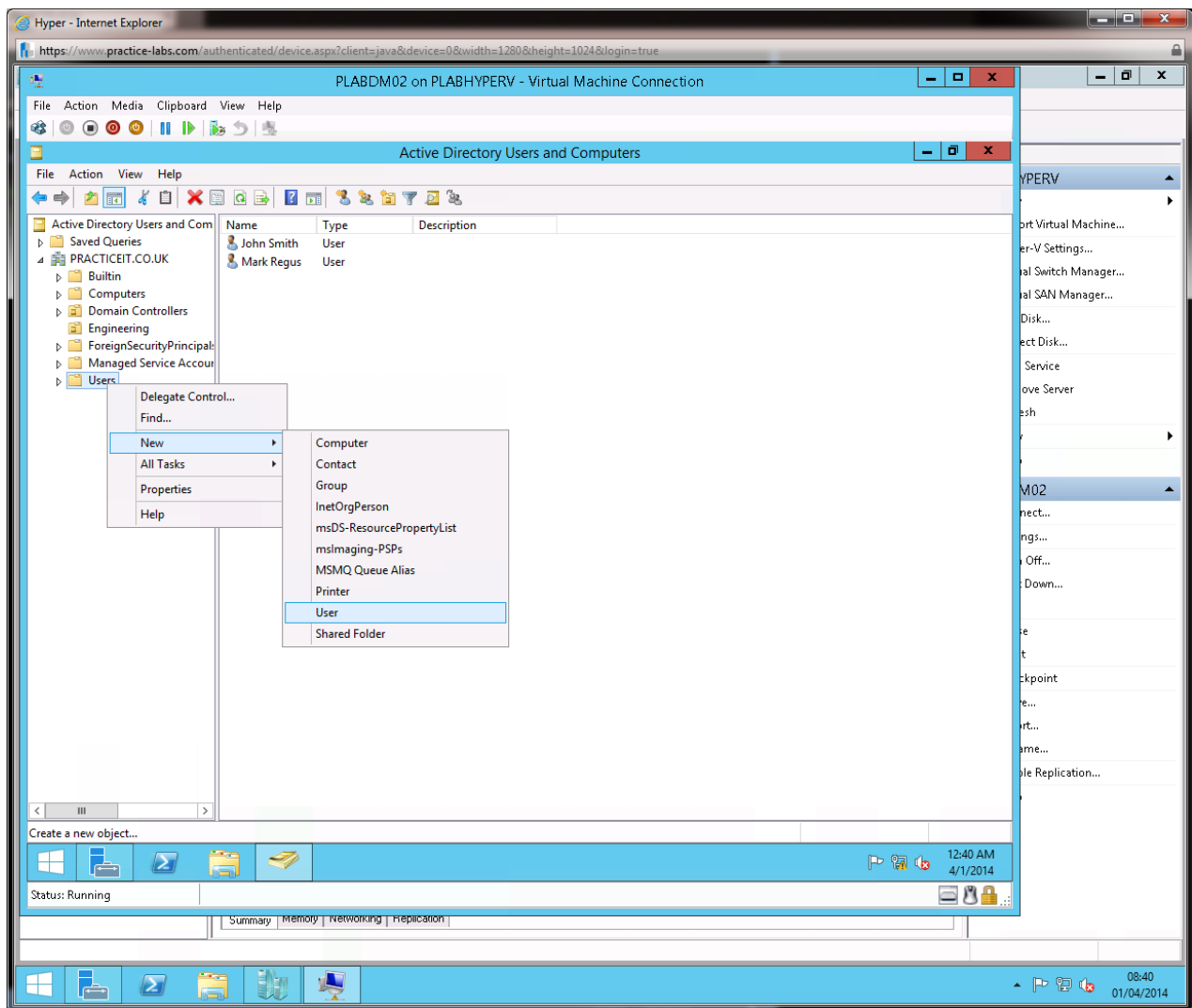
Click **Next**.

Step 7

Click **Finish** to close New Object – User.

Step 8

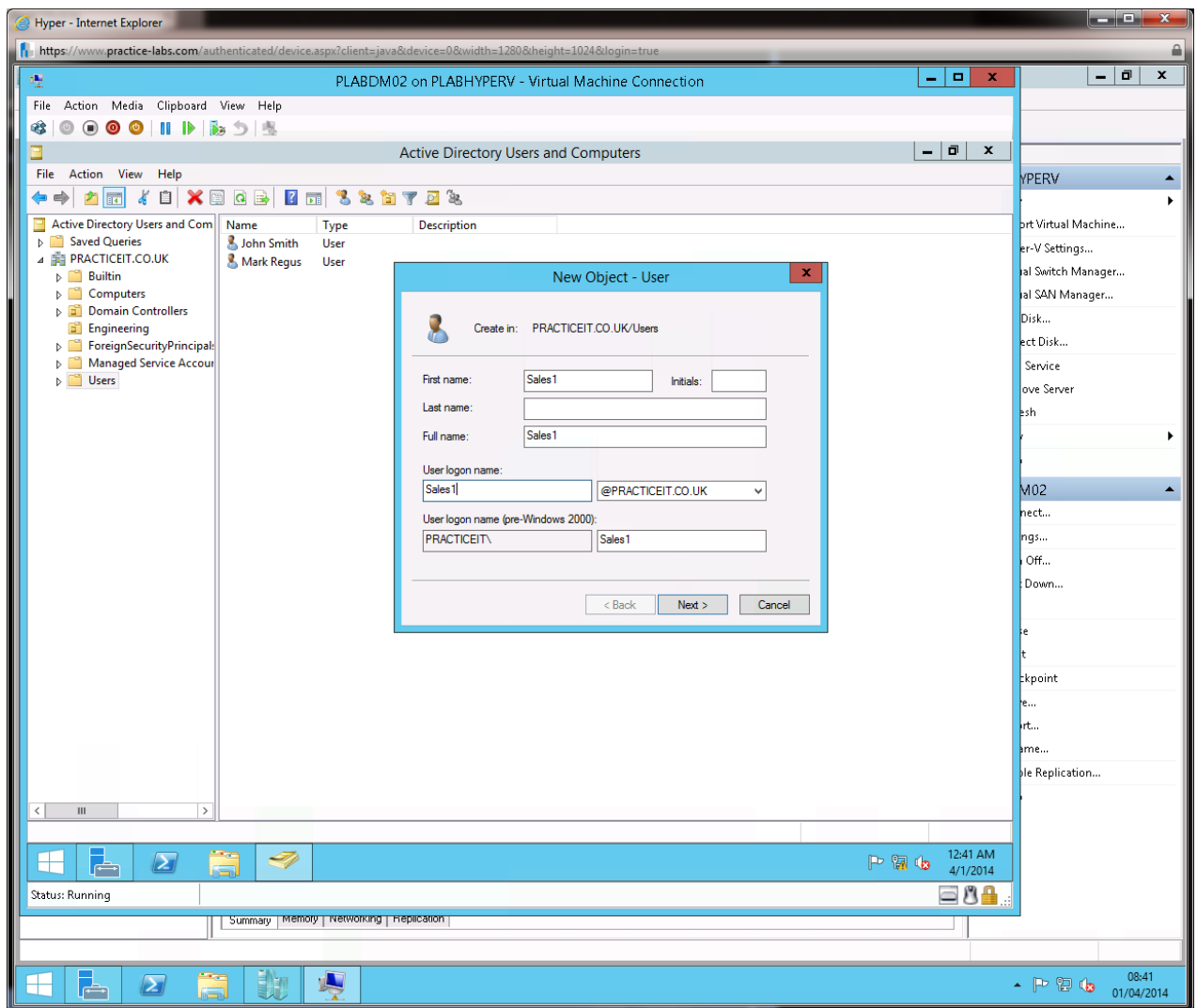Right-click on **Users** and choose **New User**.

Step 9

From New Object – User, use the following values:

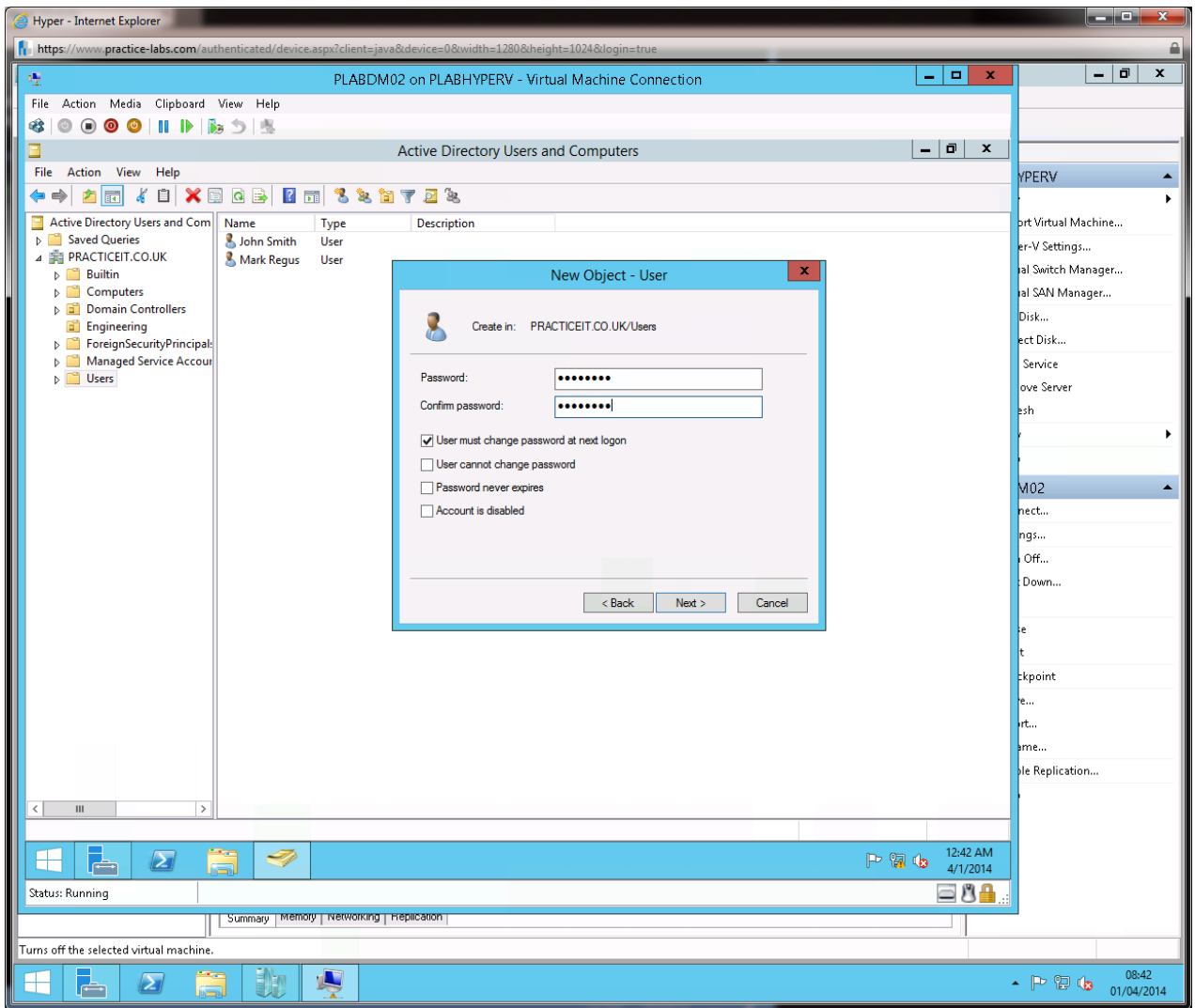First name: **Sales1**

User logon name: **Sales1**

Click **Next**.
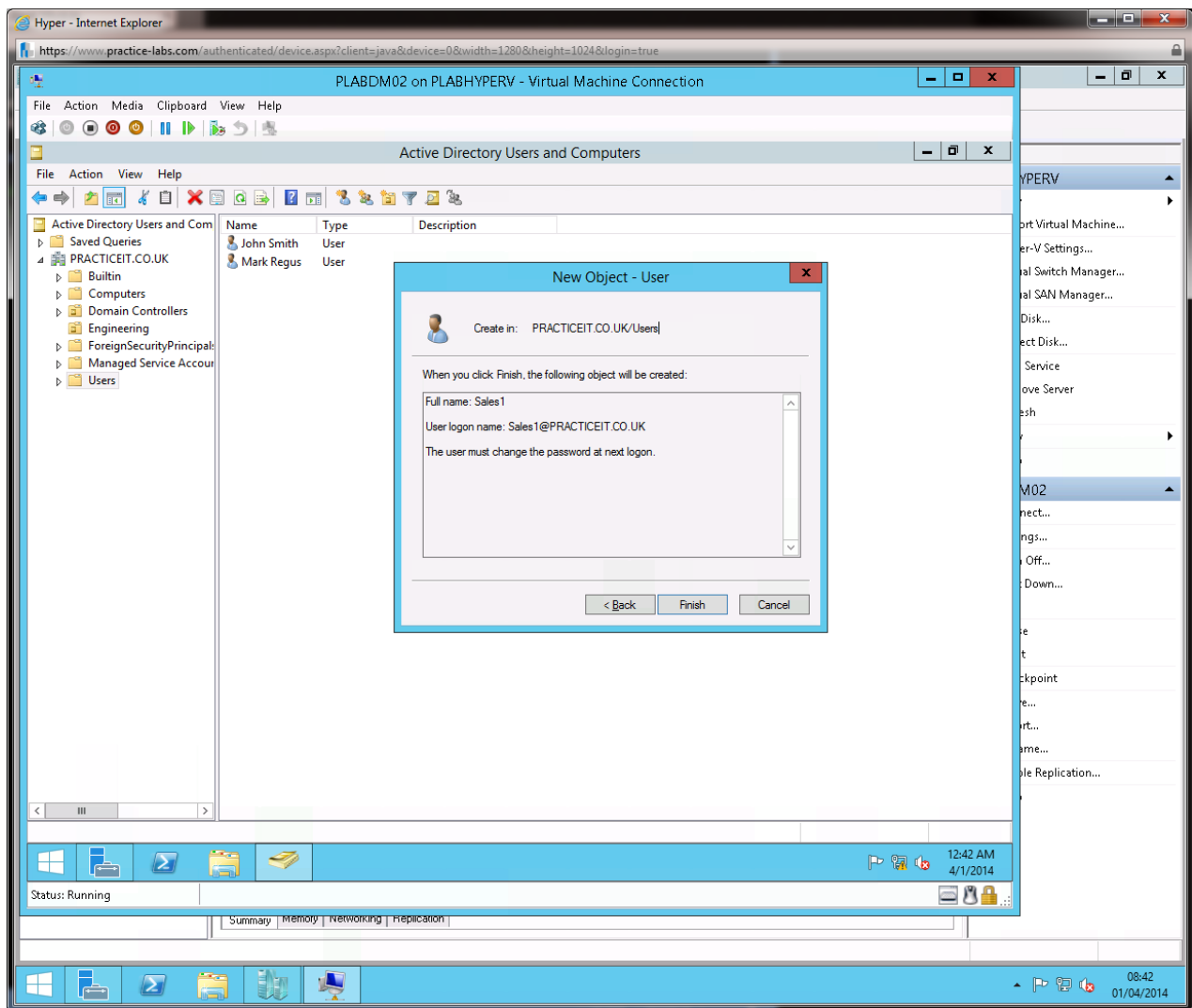
Step 10

Type **Passw0rd** in each text box

Click **Next**.

Step 11

Click **Finish**.

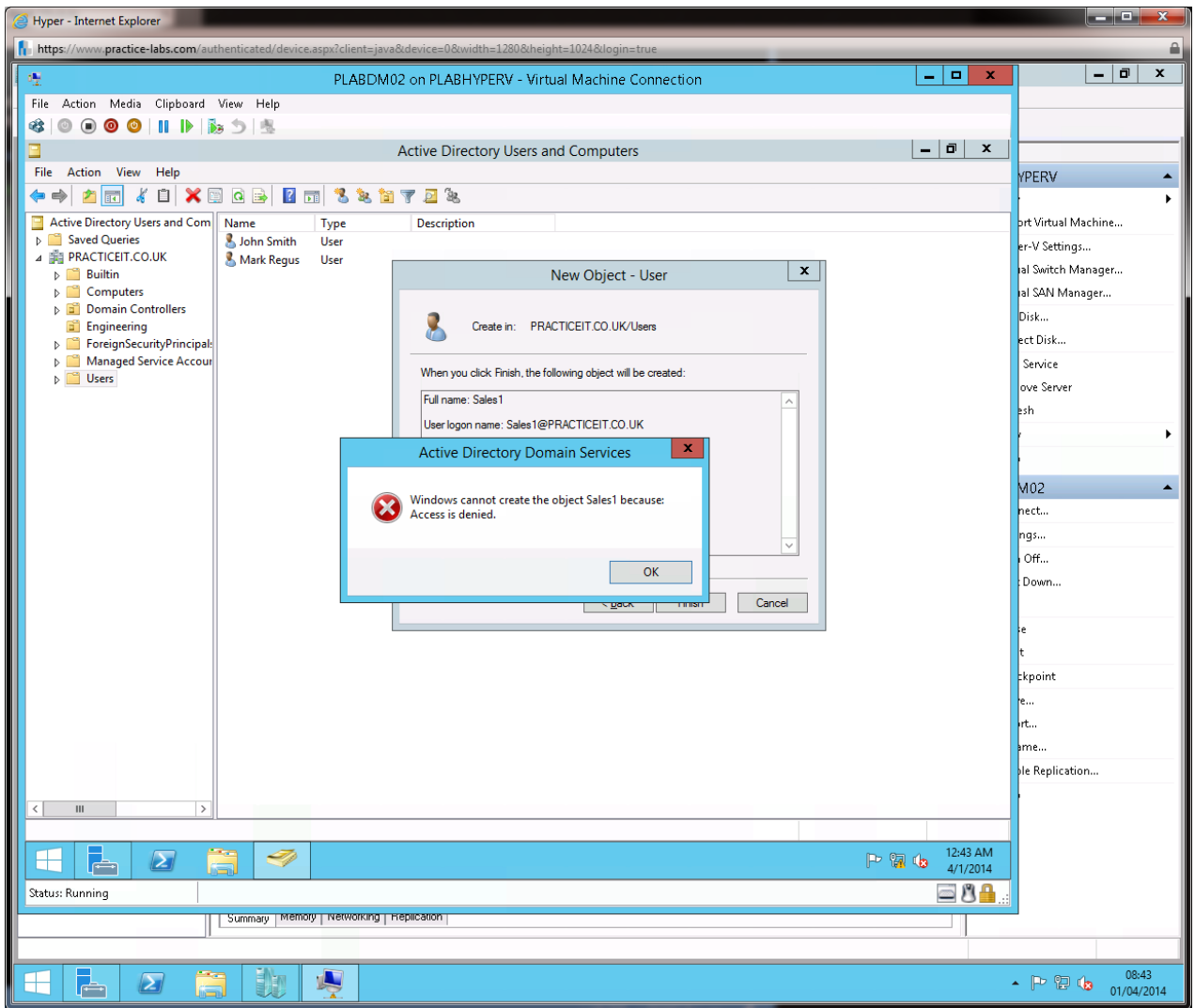**Step 12**

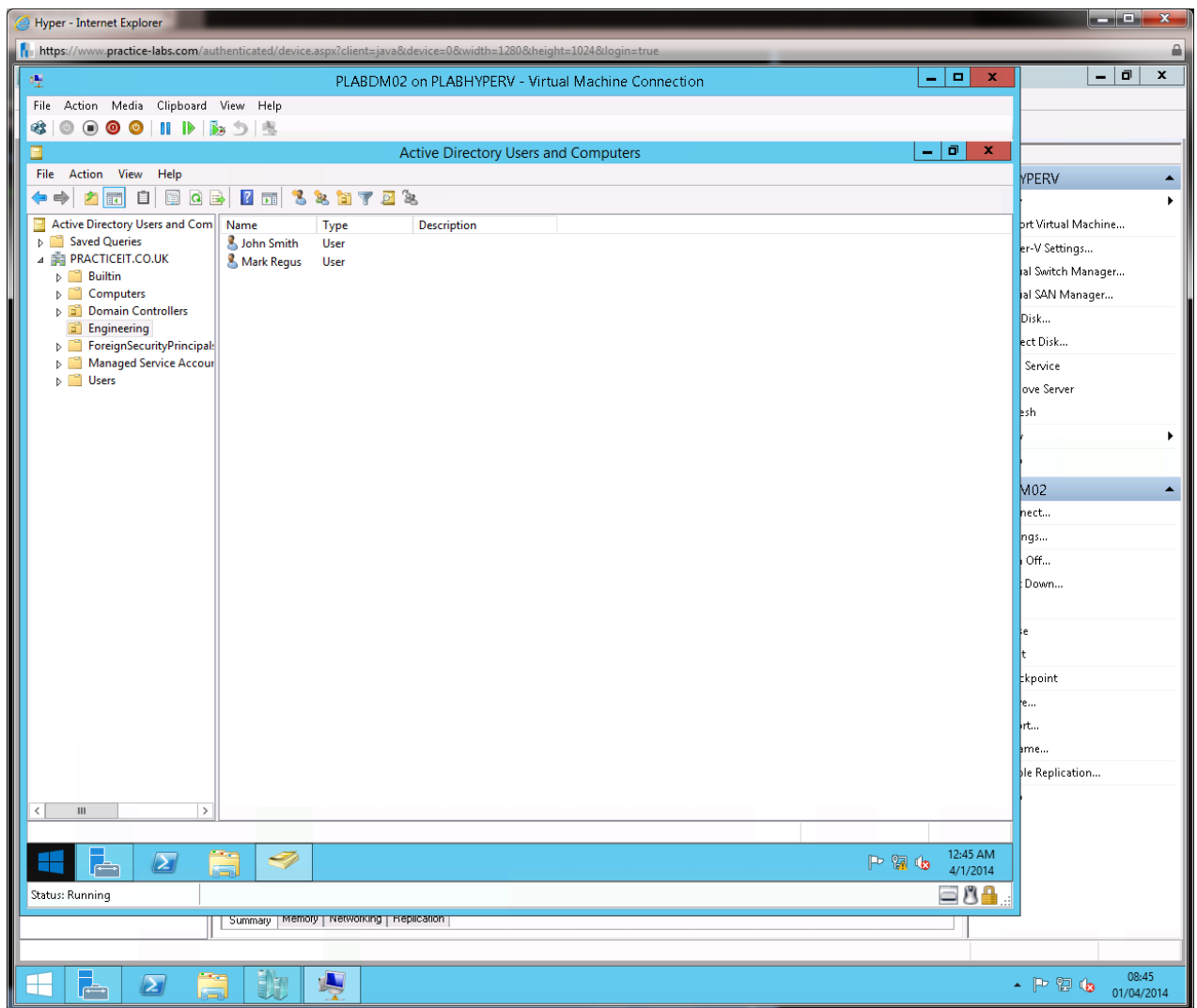Notice the error message as John Smith is creating a user outside of his delegated organizational unit.

Click **OK**.

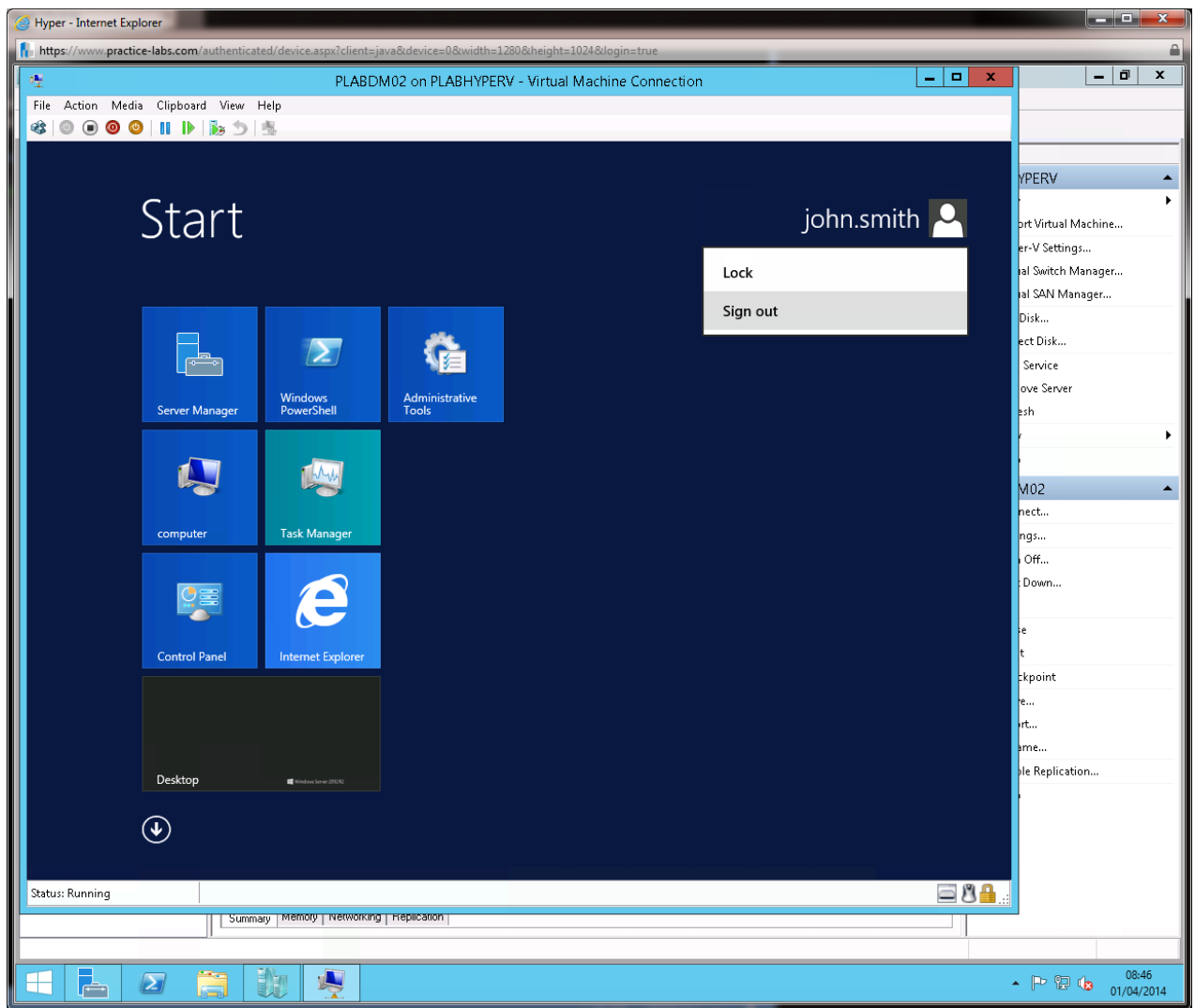Click **Cancel** to abort creating this user.

Step 13

Click **Start** charm to invoke Start screen.

Step 14

Click john.smith and choose **Sign out**.

Leave the devices you have powered on in their current state and proceed to the next exercise.

Exercise 5 – Configure NIC Teaming

In this exercise, you will learn how to configure NIC teaming. NIC teaming is common solution used by system adminstrators to enhance availability and performance by combining multiple network interfaces into one interface from the perspective of the system.

Please refer to your course material or use your favourite search engine to research for more information about this topic.

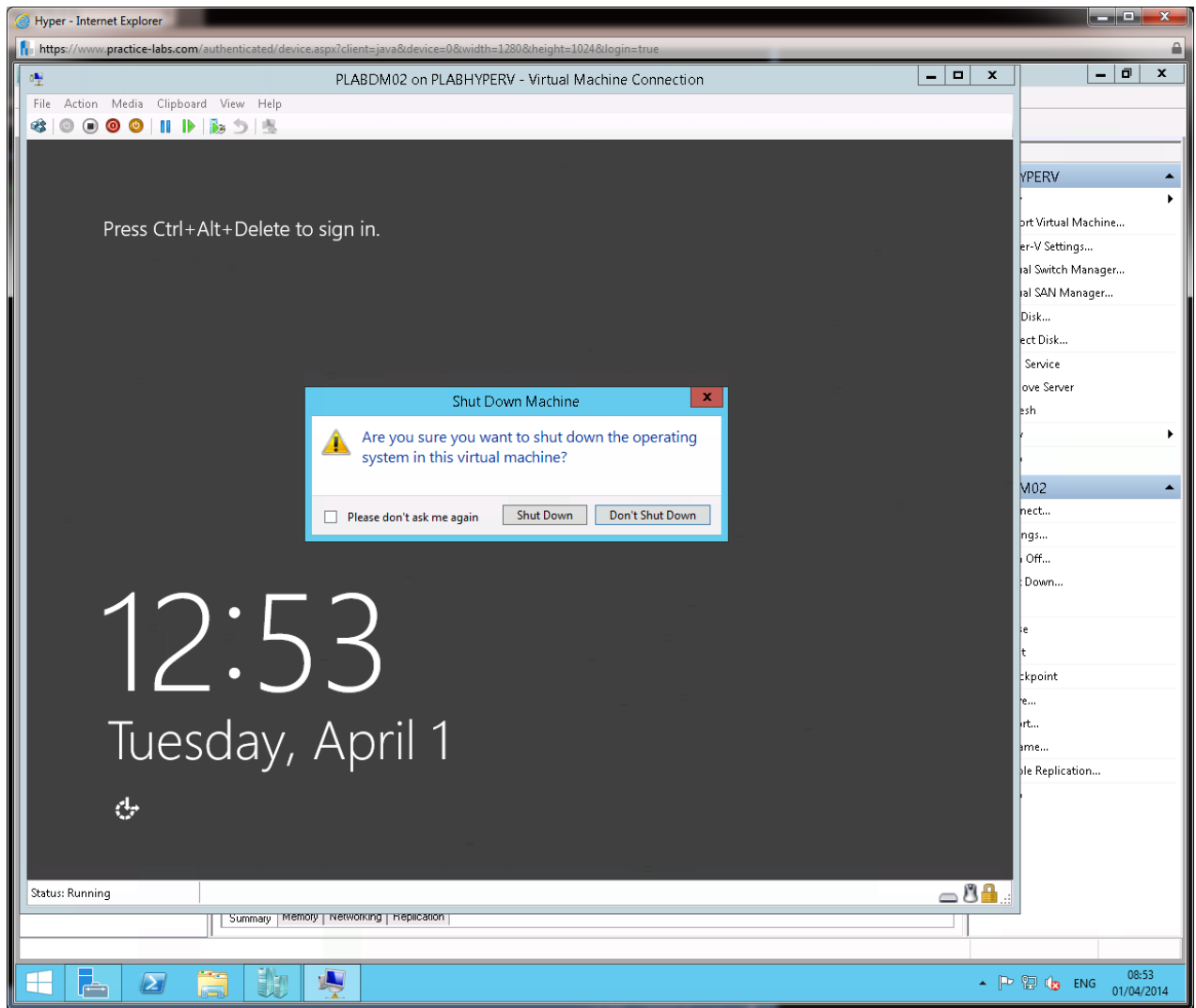## Task 1: Configure PLABDM02 to have more than one interface

Step 1
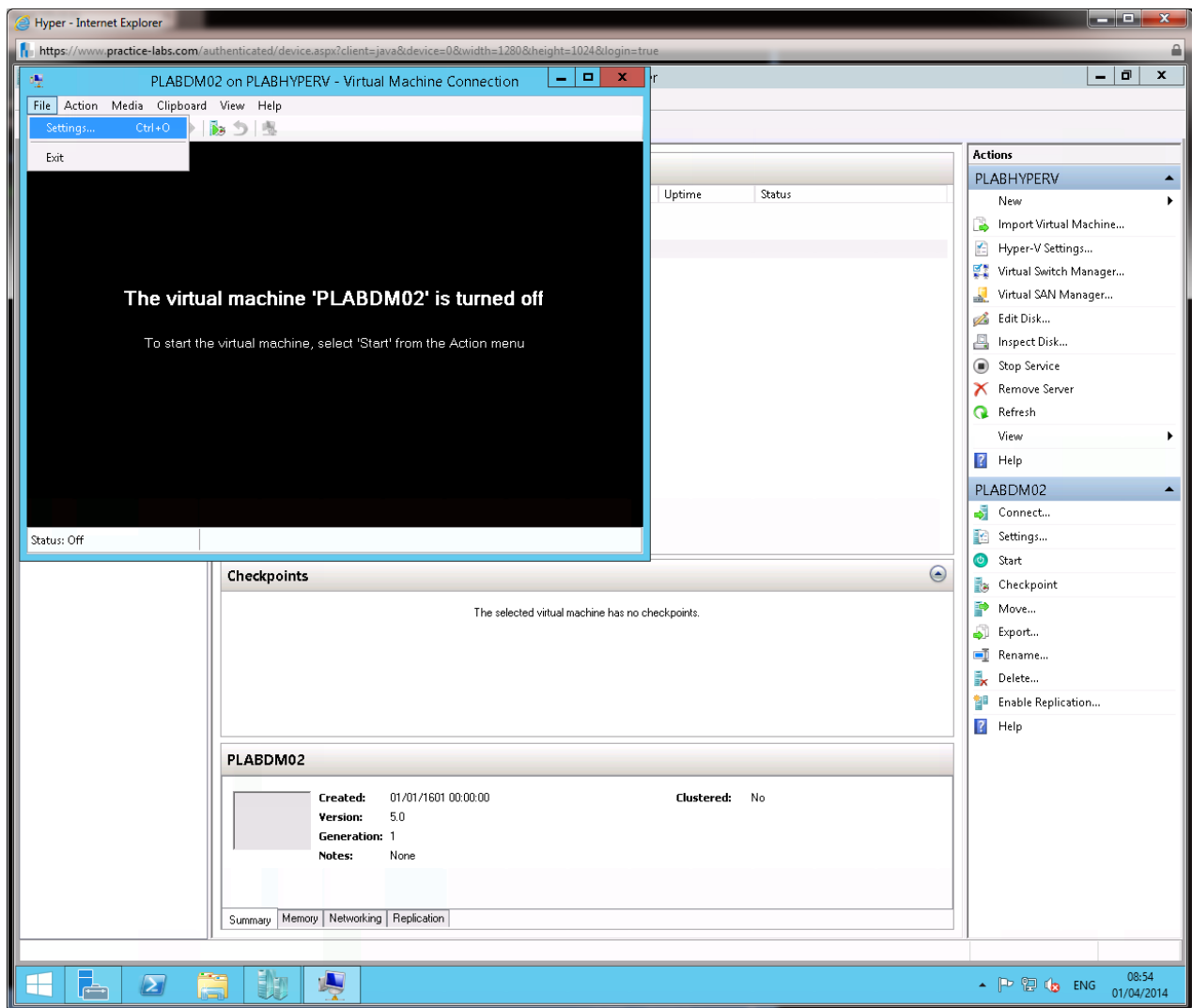On PLABDM02 window, click on **Action** and choose **Shut down**…
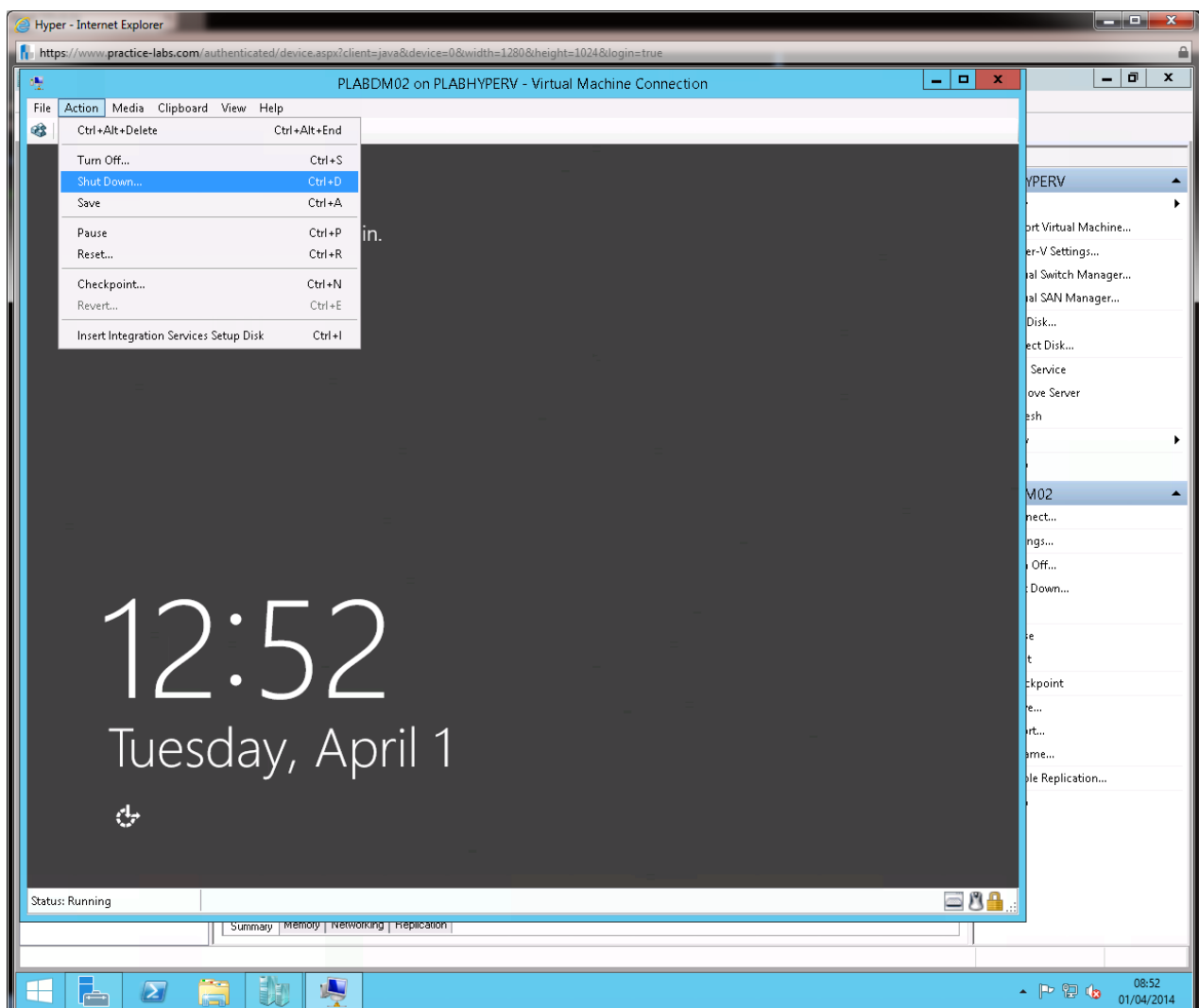
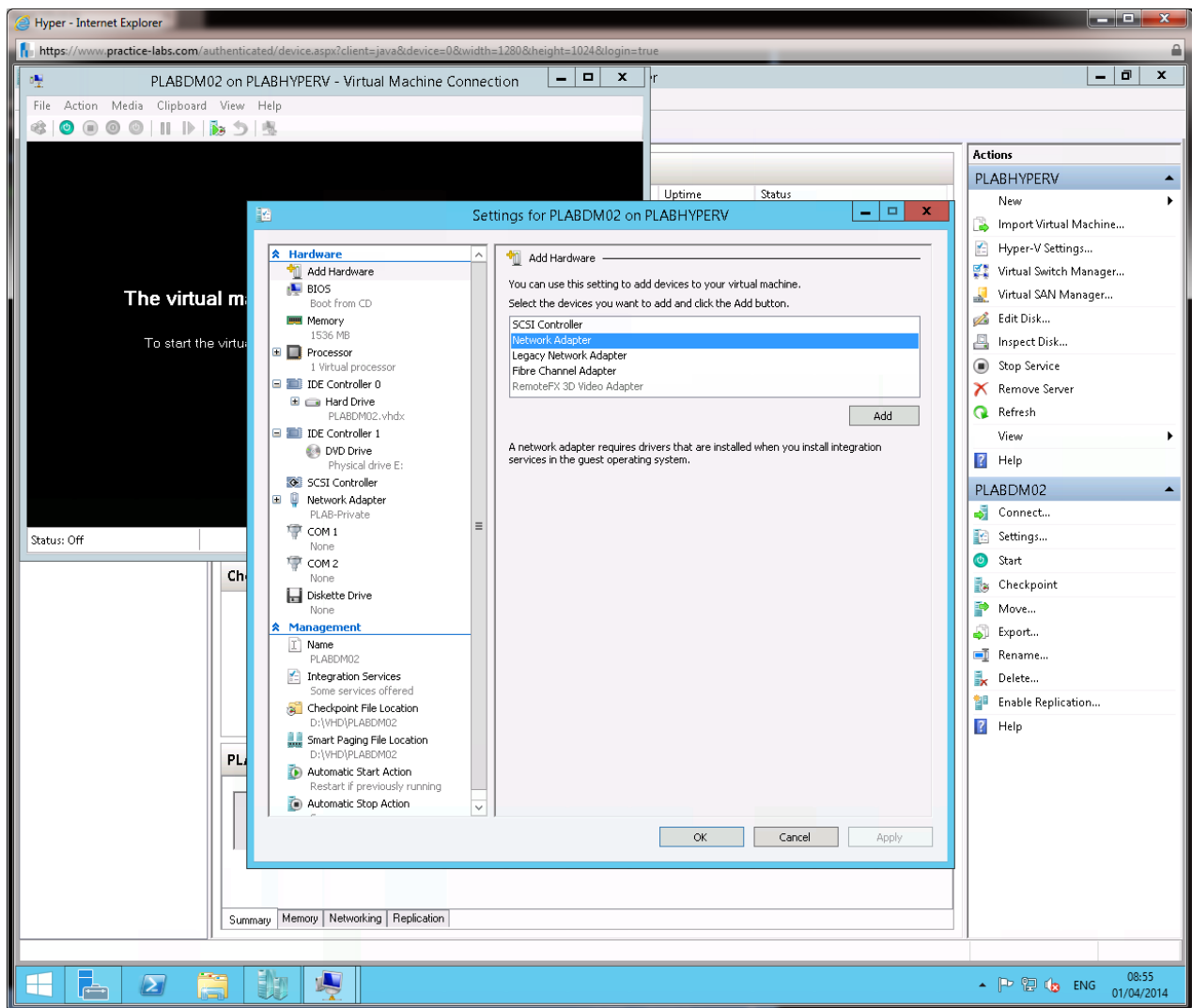### Step 2
Click **Shut Down** to proceed.

Step 3

Click **File** and choose **Settings**.

Step 4

In Settings for PLABDM02, click **Add Hardware**.

From the details pane, click **Network Adapter** and click **Add**.
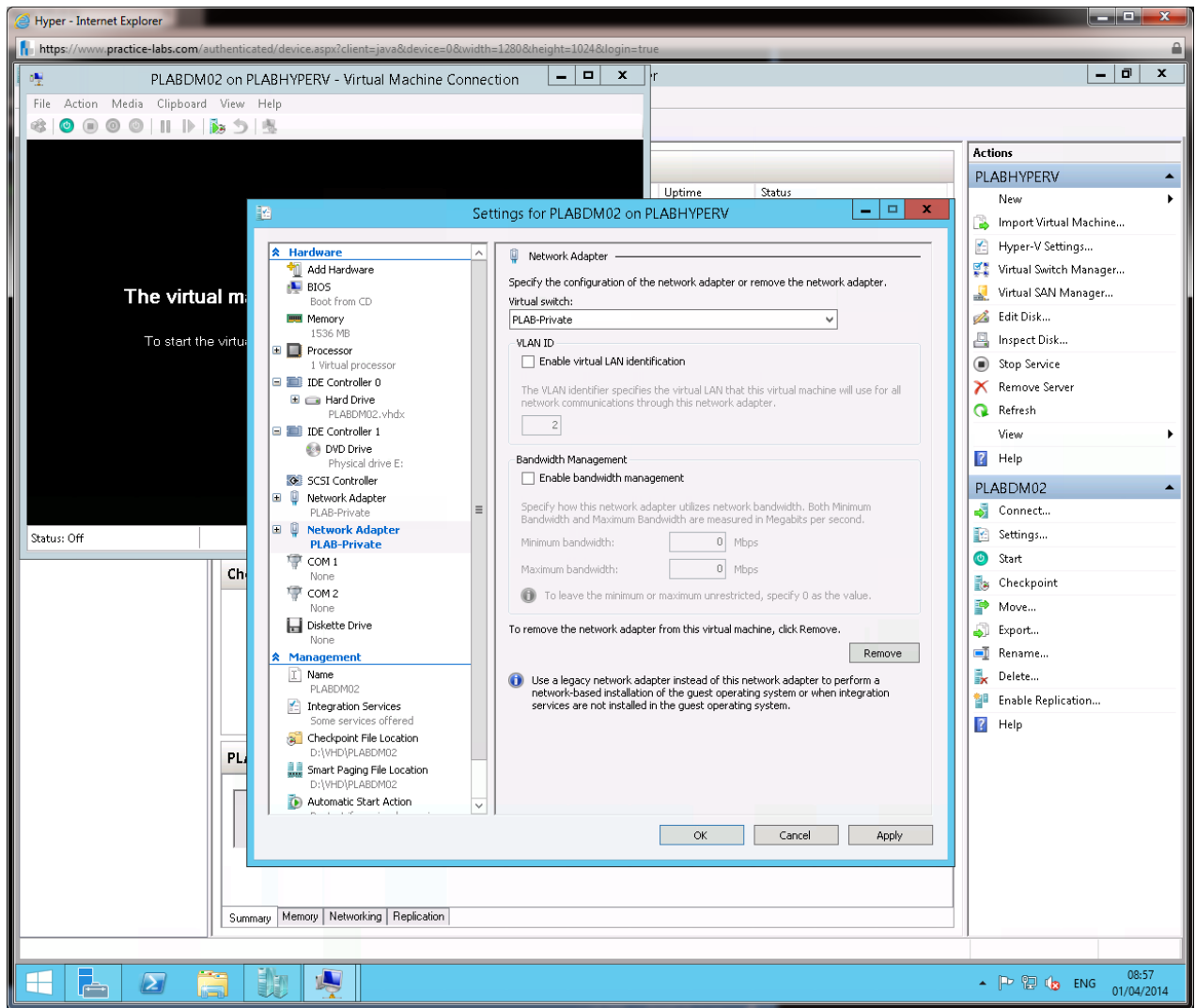
Step 5

Selection will automatically shift to newly-added Network Adapter.

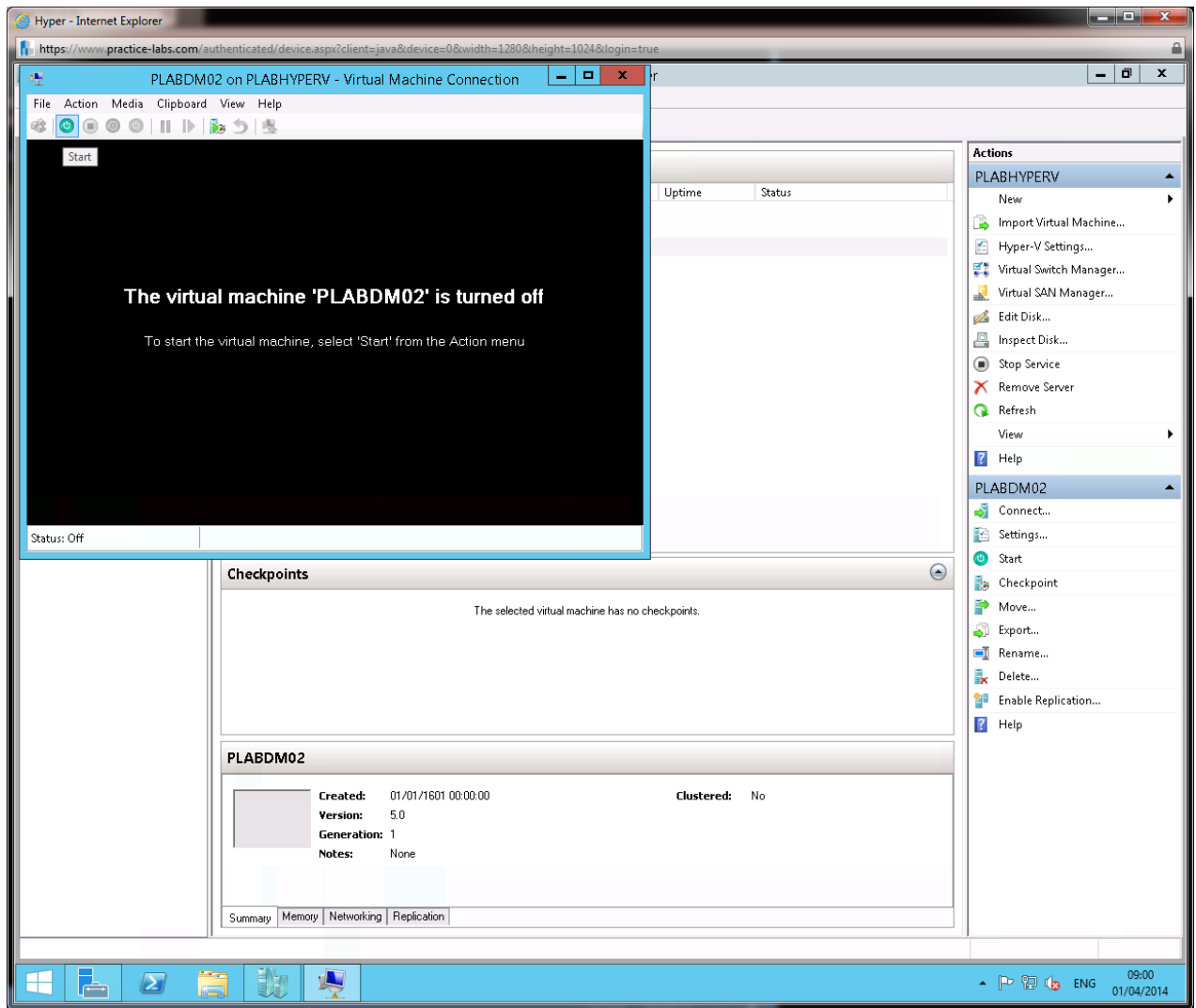Go to right details pane, and change **Virtual Switch** to **PLAB-Private**.

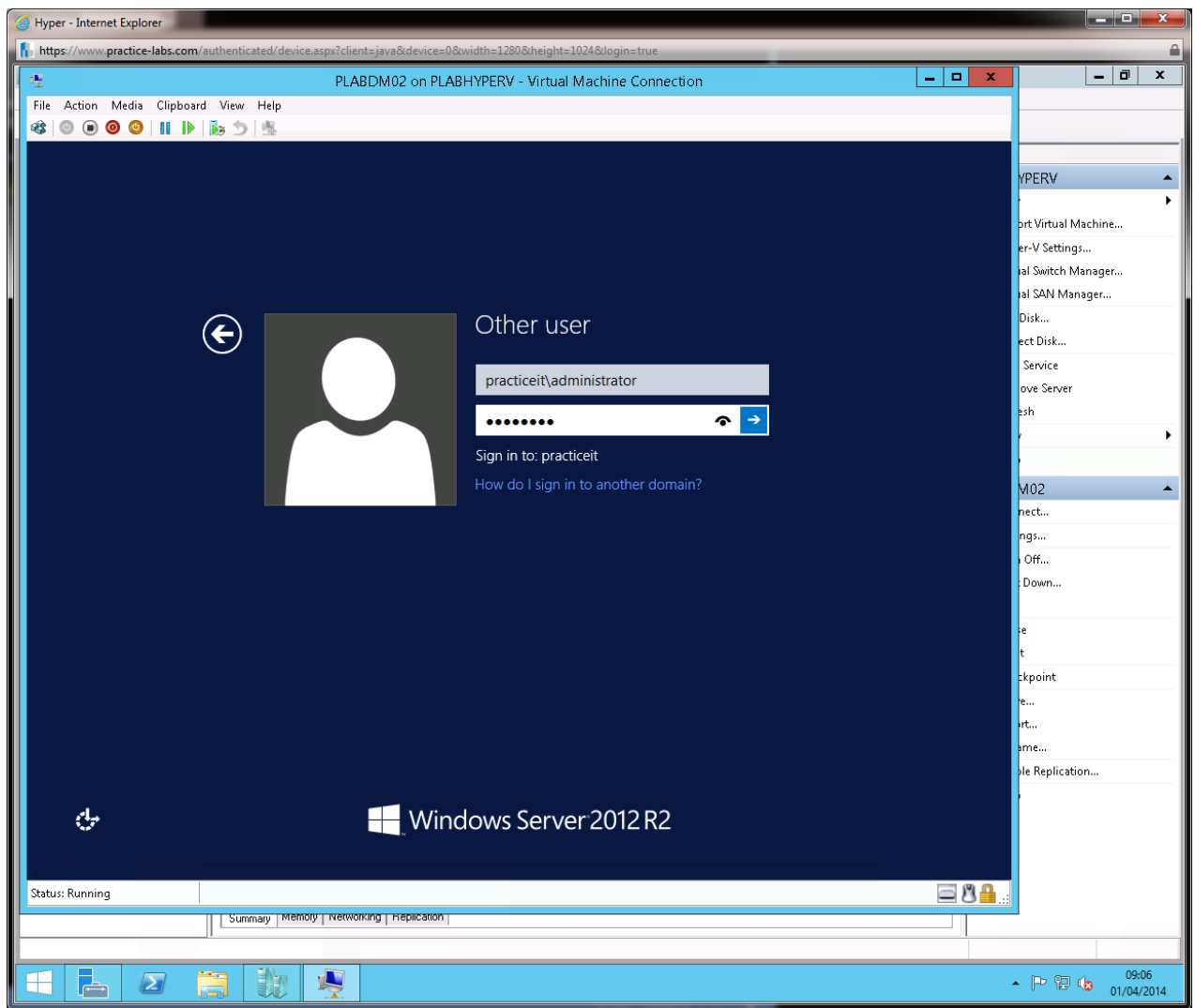Click **OK**.

Task 2: Configure NIC Teaming

Step 1
Click **Start** (green) to boot up PLABMD02.

Step 2

Click **Ctrl Alt Delete**.

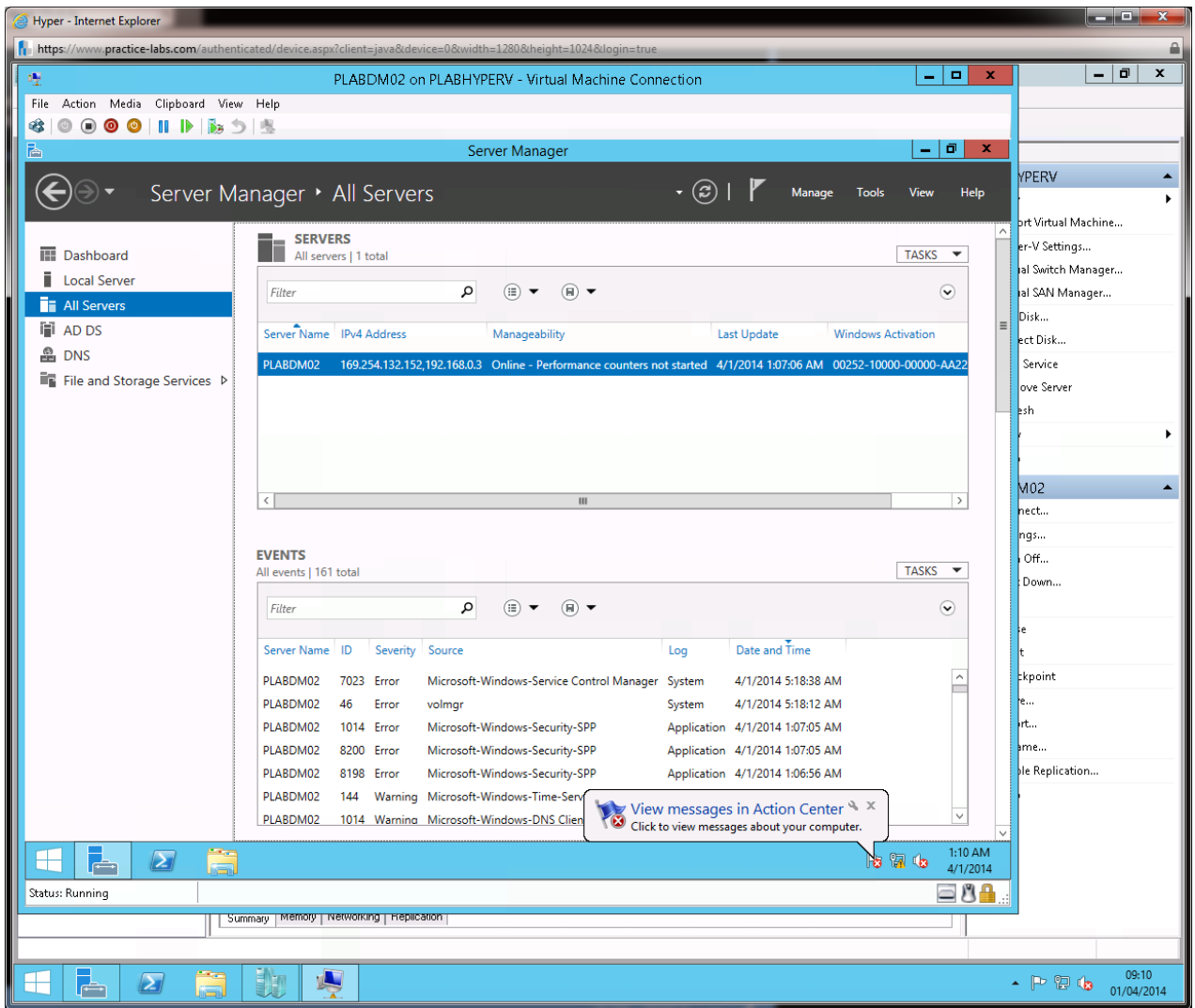Sign in as **practiceit\administrator** password is **Passw0rd**
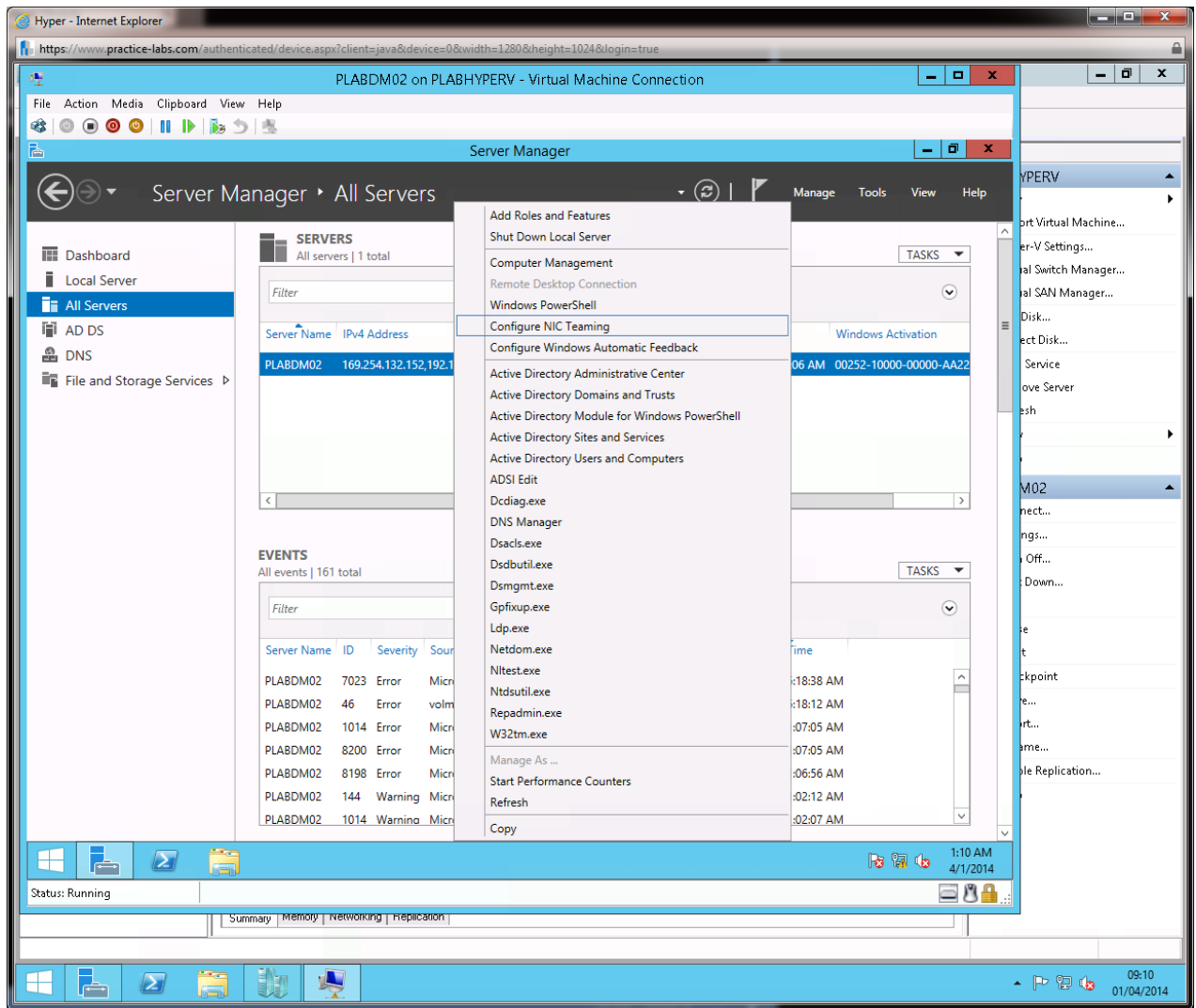
Step 3

From Server Manager, go to navigation bar and click **All Servers**.

Step 4

On SERVERS pane, right-click on **PLABDM02** and choose choose **Configure NIC Teaming**.

Step 5

On ADAPTERS AND INTERFACES, click **Ethernet** press and hold **SHIFT**; then click **Ethernet 2.**

Click **TASKS** and choose **Add to New Team**.
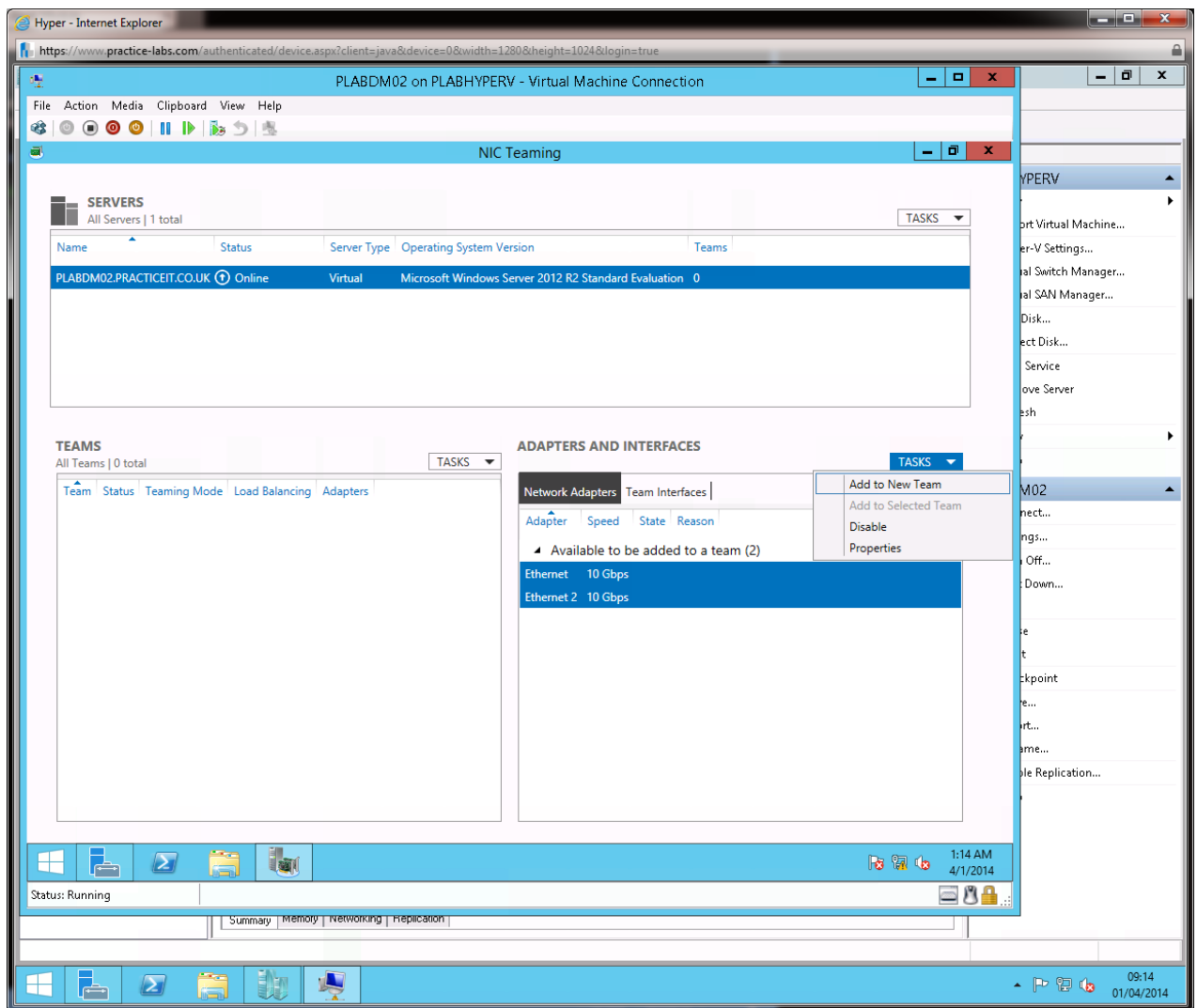
Step 6

On New team dialogue box, use the following settings:

Team name: **PLABMyTeam**

Standby adapter: **Ethernet 2**

Note: There are settings here that are not applicable in this virtual machine.

Click **OK**.
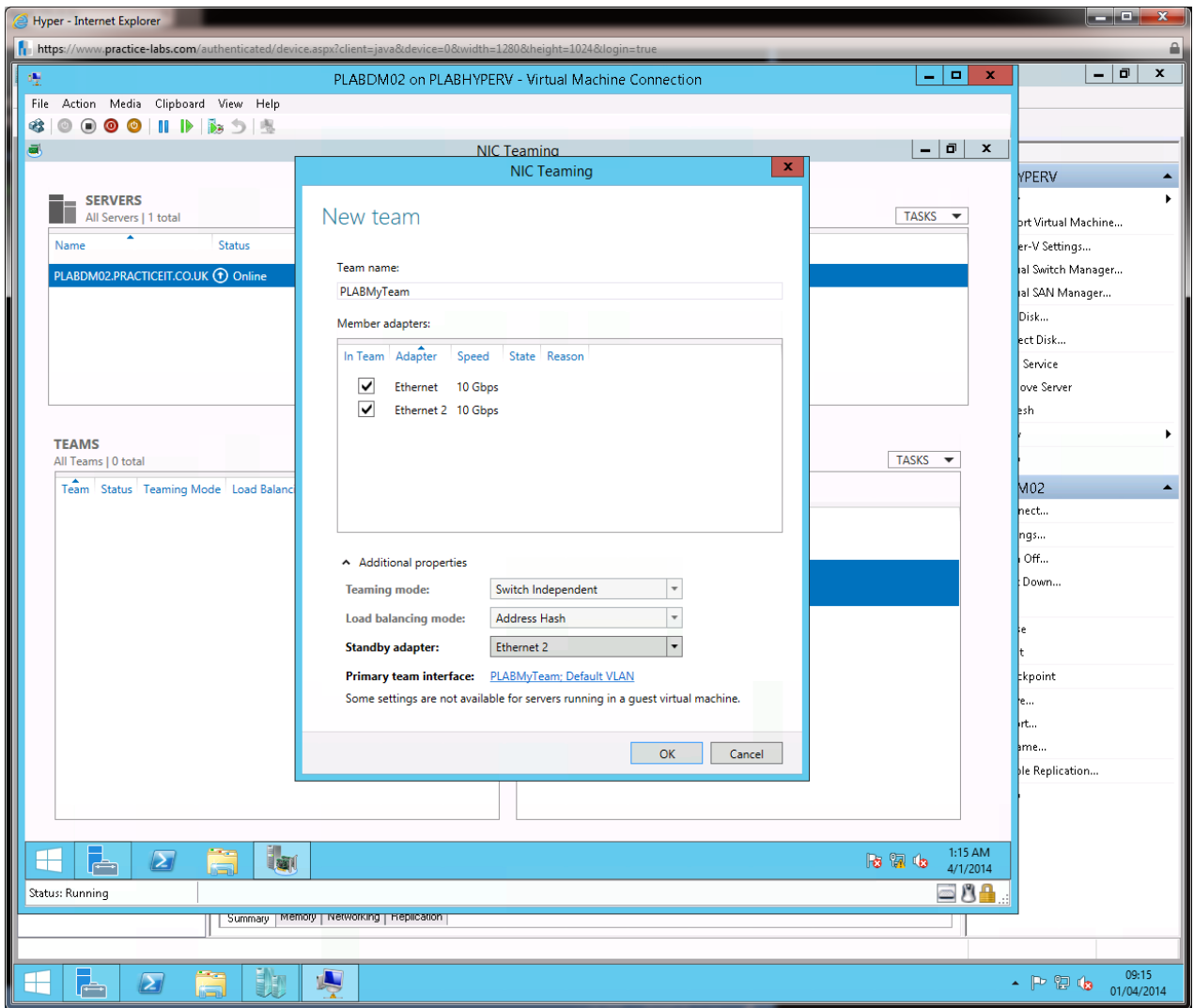
Step 7

You may get an error about the virtual switch lacks external connectivity.

Note: Although you make changes on the connectivity of the virtual machines; it is advised not to change PLABHYPERV settings as this may affect your connectivity to this lab.

Step 8

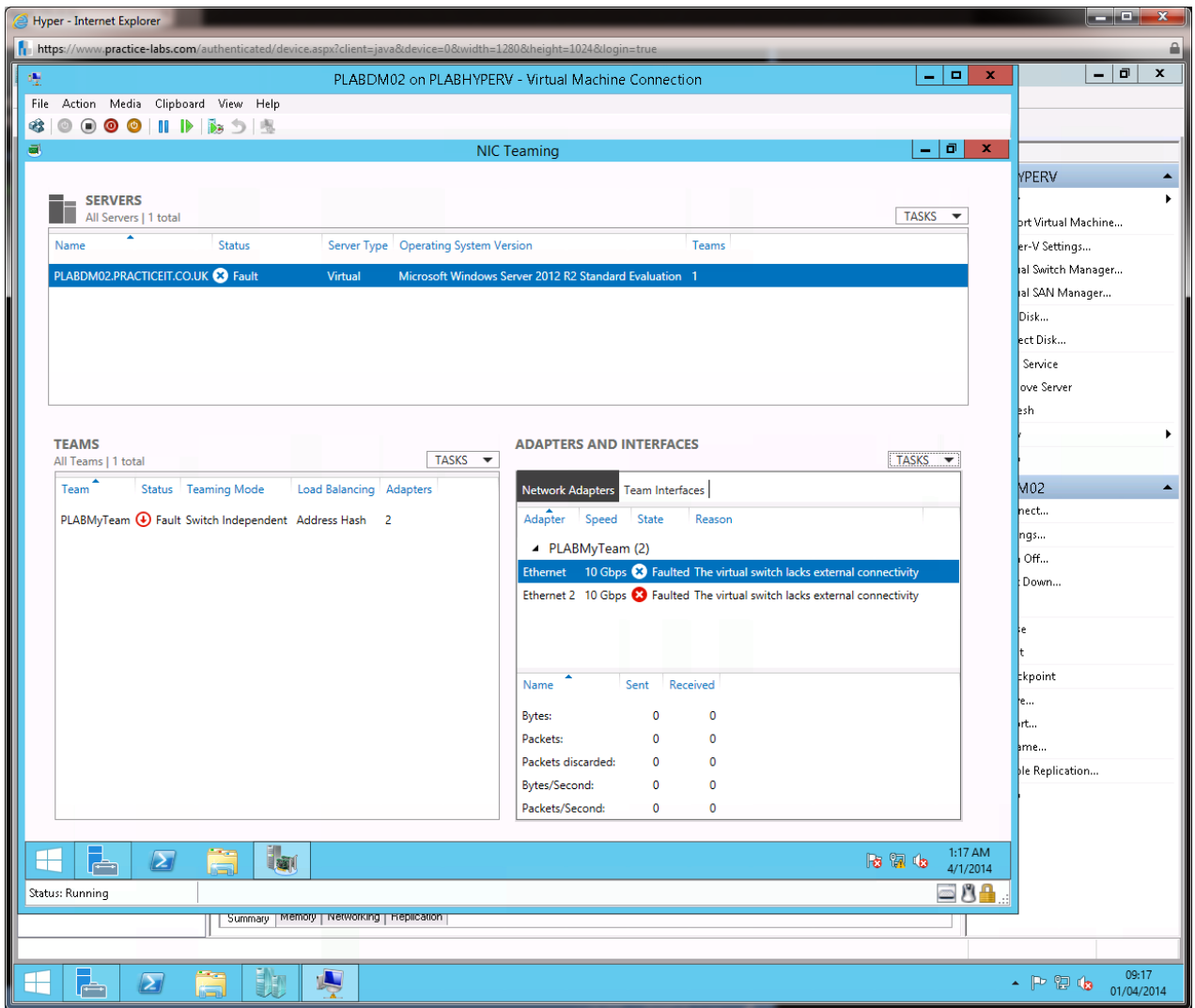On PLABDM02 menu, click **Action** and choose **Shut Down**…
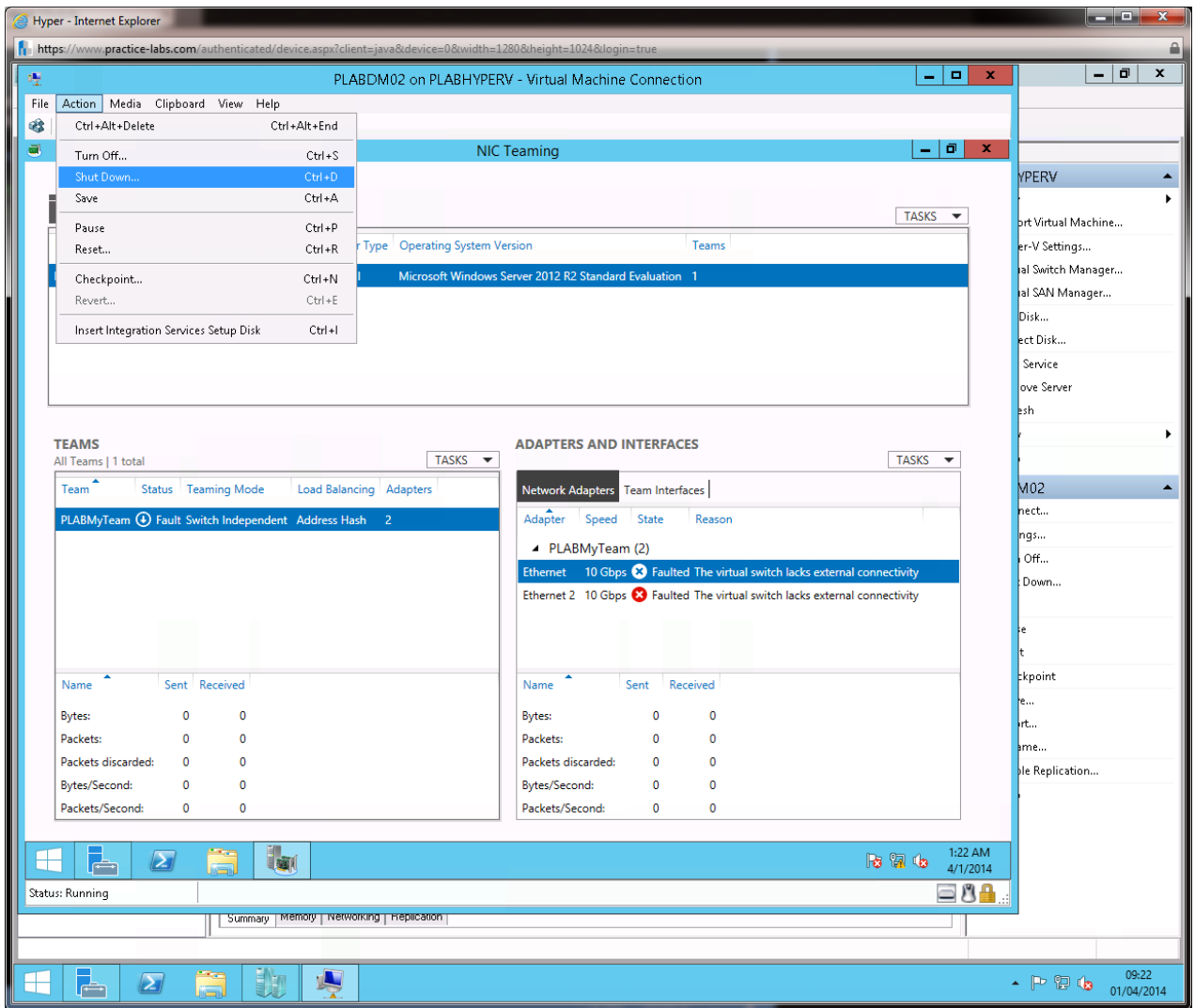
Step 9

Click Shut Down.

Step 10

Close PLABDM02 window.

Shut down PLABHYPERV to revert thIS device to its default state using Practice Labs web application.

Summary

In this module you learnt the following skills:
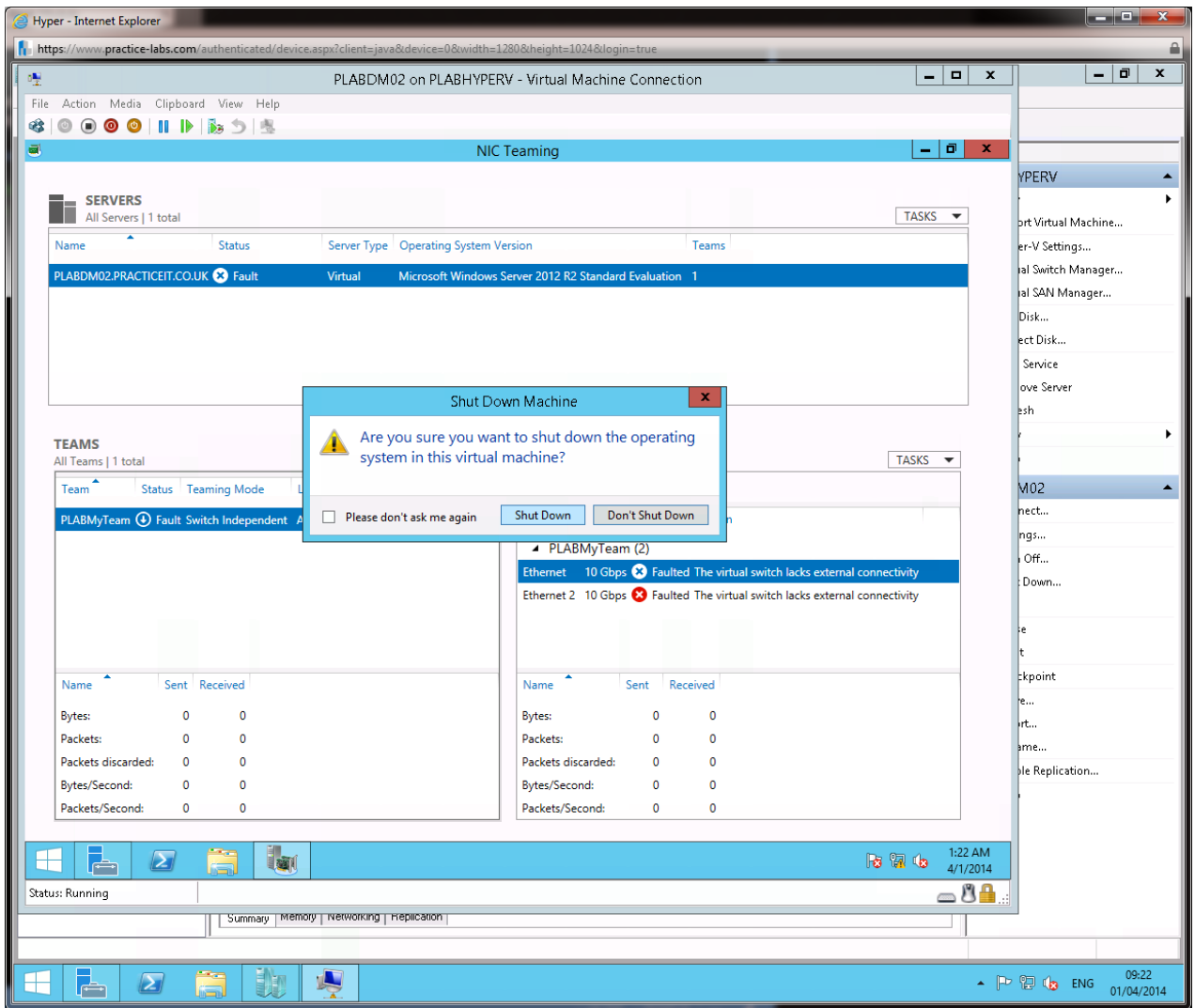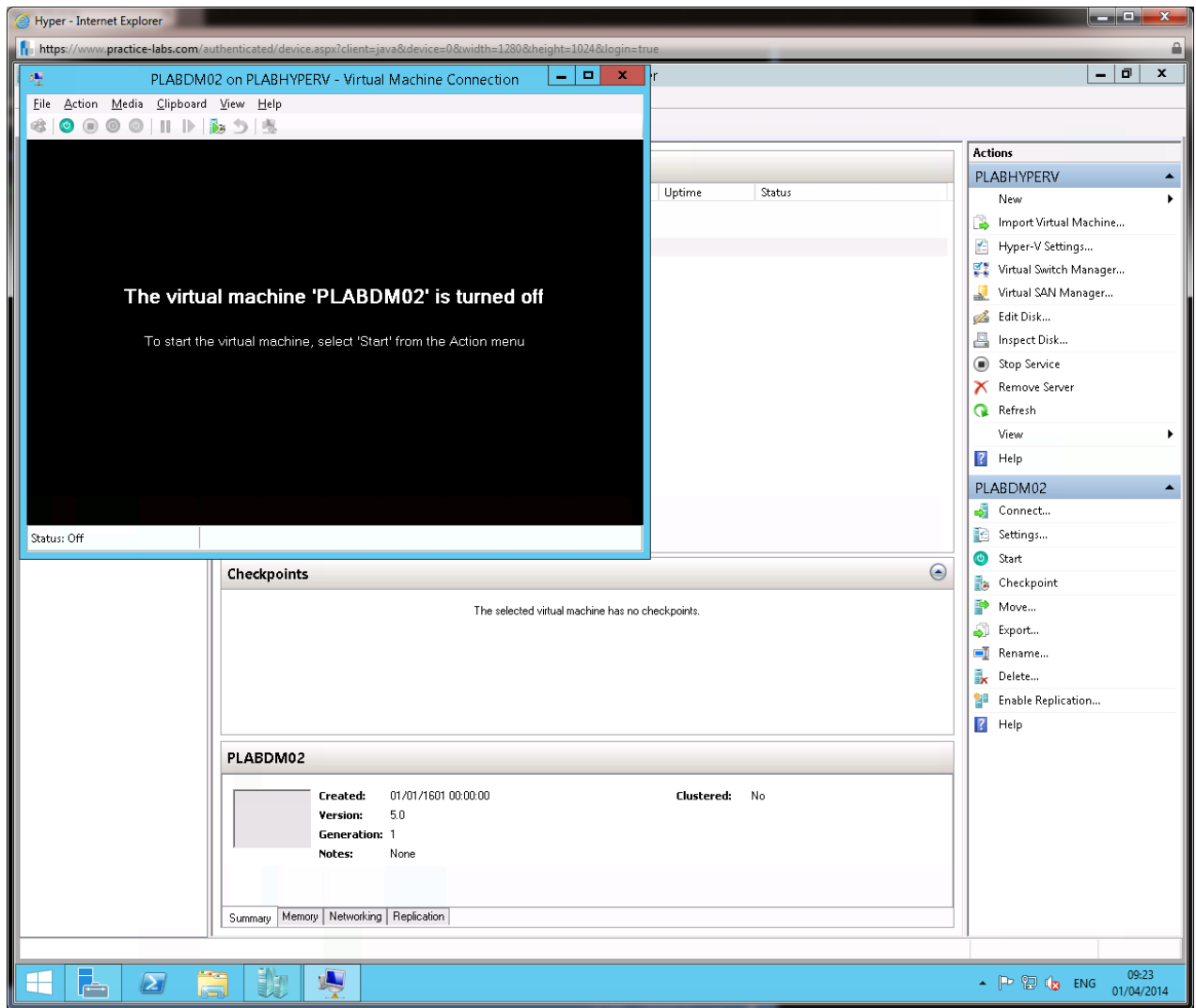
How to perform a new installation of Windows Server 2012 R2 on a bare metal system.

Windows Server 2008 introduced the concept of Server Core, which is a stripped down version of Windows running only a command prompt as the administrator interface. The server core calls for minimal system requirement and has lesser attack surface because only a few network services are running.

You can use dism.exe to convert a full GUI Windows to Server Core and vice versa.

PowerShell cmdlets like Add-WindowsFeature and Install-WindowsFeature are great time savers for installing and configuring services on a Windows computer.

For Windows domains that hosts a larger user database, administrators can delegate common administrative tasks like creating users and resetting passwords to trusted help desk personnel.

NIC teaming is feature to enhance performance and reliability of a network, by combining multiple network interfaces into one logical network.