

Promoting Windows Server 2012 into Domain Controller on VirtualBox

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1.0 Introduction

My manual will focus on Windows Server 2012, this is an operating system that supports enterprise level management, communication, data storage and much more. This server will be “promoted” into Domain Controller (DC), a computer that will centrally manage the network and provide many services as user account logons, sharing resources, authentication, and other important services this will allow for Active Directory to be installed. In addition, this will run on a virtual machine, basically a program that is an emulation to that of a real physical computer, but will act as a separate computer than the host computer.

1.1 Purpose

The purpose of this manual that shows how to promote Windows Server 2012 to obtain Active Directory, and show step by step easily for our readers to help them and understand what is being done. In addition, this can be used to assist someone with no knowledge and this can expose them to learn new terms or new skills.

1.2 Intended Audience

This is intended for anyone that has no knowledge on Windows Server 2012 or Domain Controller but, is expected to know how to work with a computer. Furthermore, this is for anyone who wants to learn more about Windows Server 2012 and how to manage it.

1.3 Scope

Setting up a virtual machine to run Windows Server 2012 with the correct configurations to be able to promote Windows Server 2012 as if they would in a real physical environment.

1.4 Organization Description

The introduction will basically give you an idea of what the manual is about, followed by other sections from here and out. Following each step will give you information for you to be ready to understand the directions section.

1.5 Motivation

My motivation for this manual is to teach what I learned in class about the promoting Windows Server 2012, in a much easier step by step format. Furthermore, to give a lot of valuable information to make the reader grasp as much about this topic.

1.6 Disclaimers

Make sure to read before taking action this might damage your virtual machine. (Though virtual machine is intended for practical use)

2.0 List of the Materials Needed

2.1 Illustration of Materials Needed to Follow Guide



2.2 Brief Description of the Materials or Tools

- Virtual Machine (VirtualBox 6.0.14)
 - ISO Image Windows Server 2012 or r2 (64-bit)
- (Links to get these will be provided in the References List)

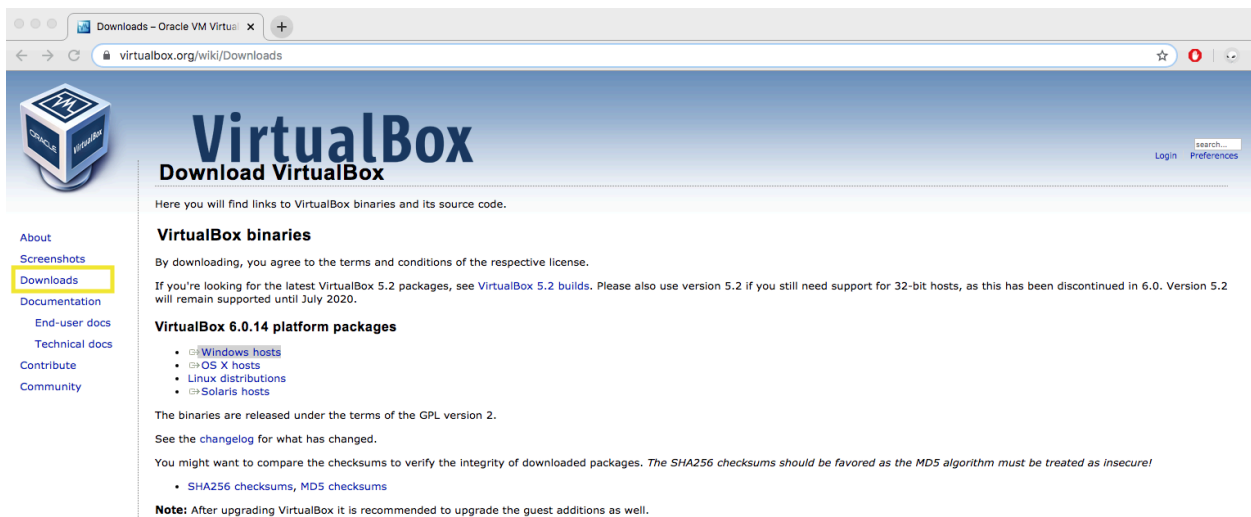
2.3 Table with Description of Materials or Tools

Virtual Machine (VirtualBox 6.0.14)	Acts as a computer this will run an operating system to simulate it like in a physical computer would.
ISO Image Windows Server 2012 or r2	This ISO image basically archive files that contain data on disc, cd or dvd that have Windows Server 2012.

3.0 Directions

3.1 Downloading Virtual Box & ISO image

3.1.1 Go to Website for VirtualBox 6.0.14



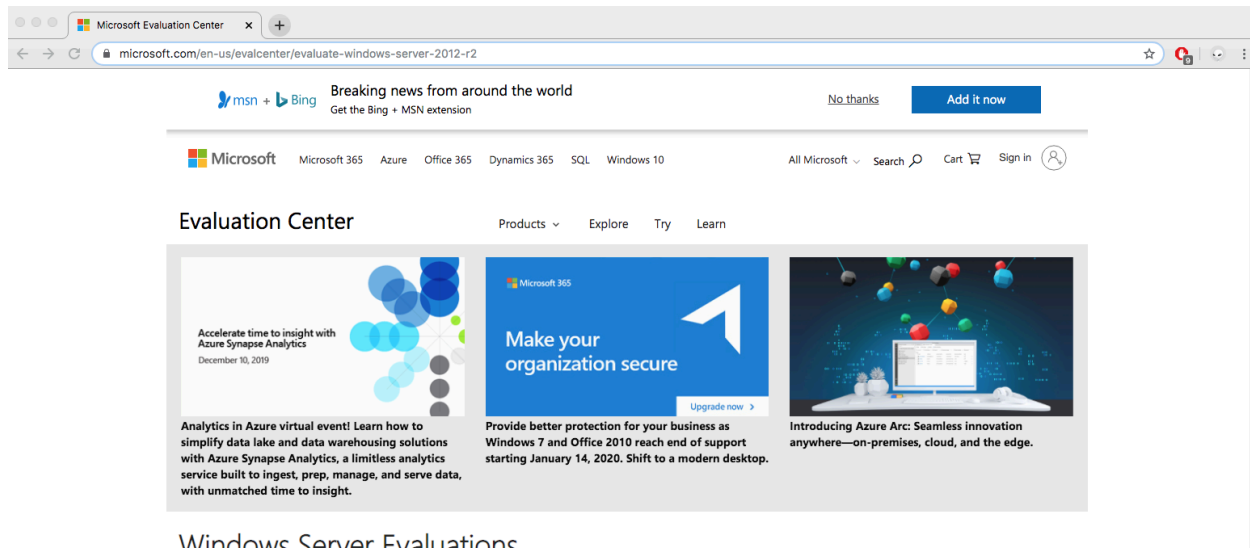
We start by going to VirtualBox website to download the virtual machine, on the left side click the Downloads Tab. ***(Links will be provided in the References List)***

3.1.2 Download VirtualBox 6.0.14



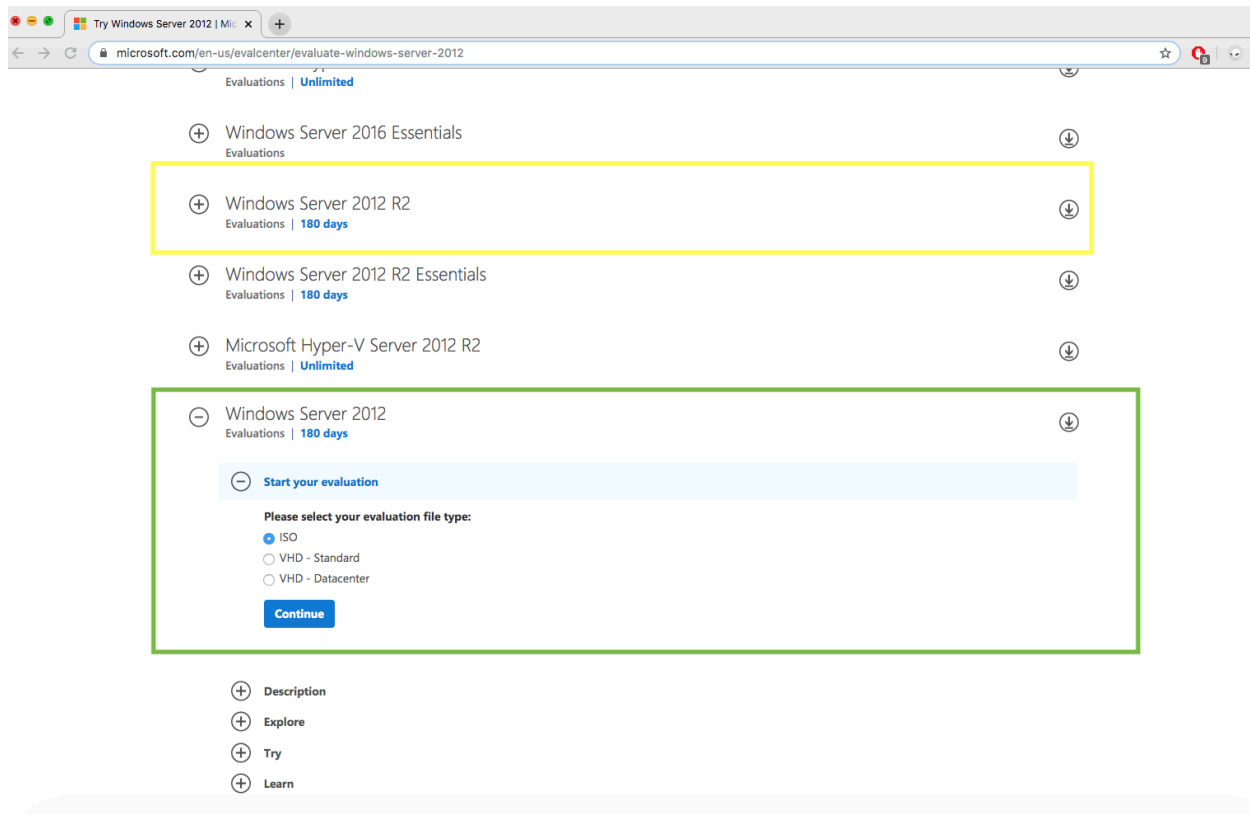
You have to select one of the following Windows hosts (in yellow) if you are using a Windows, HP, Dell computer or OS X hosts (in green) if you are using a Mac computer, and it will download VirtualBox 6.0.14 for you to open and install onto your computer.

3.1.3 Go to Microsoft to Download ISO Image



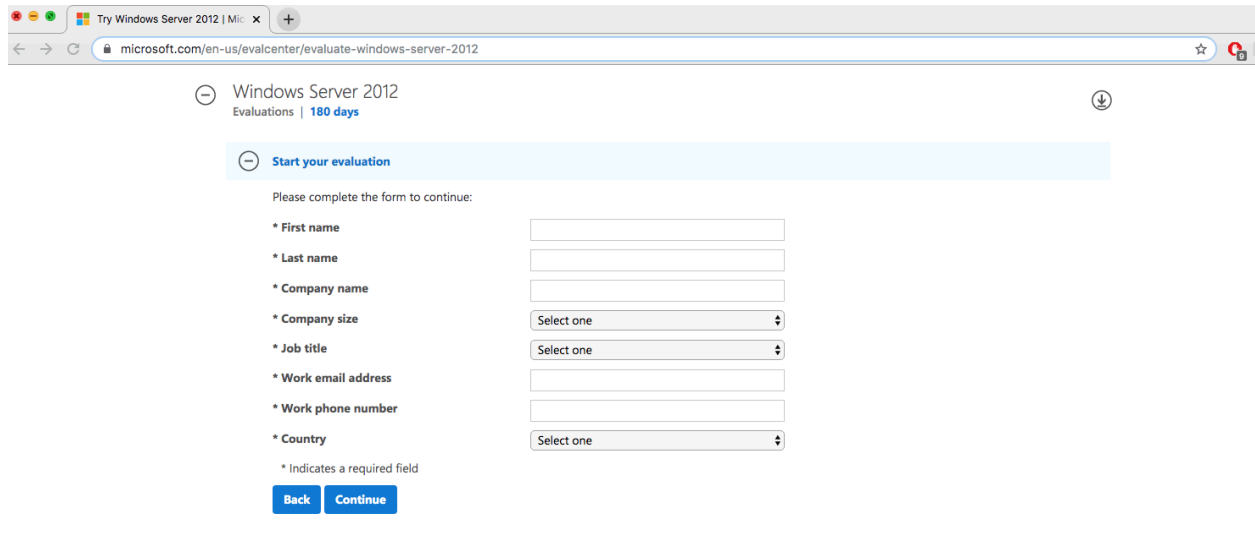
You will have to go to the Microsoft website to download the ISO image of Windows Server 2012. **(Links will be provided in the References List)**

3.1.4 Download ISO Image Windows Server 2012 or r2



You will select either Windows Server 2012 on the bottom in green or Windows Server 2012 R2 on top in yellow, both ISO images are the same. Windows Server 2012 R2 is an updated version of the first one, both will show same interface upon promotion process.

3.1.5 Register for Windows Server 2012



The screenshot shows a web browser window with the address bar displaying `microsoft.com/en-us/evalcenter/evaluate-windows-server-2012`. The page title is "Windows Server 2012" with a sub-header "Evaluations | 180 days". Below this is a section titled "Start your evaluation" with a sub-header "Please complete the form to continue:". The form contains the following fields:

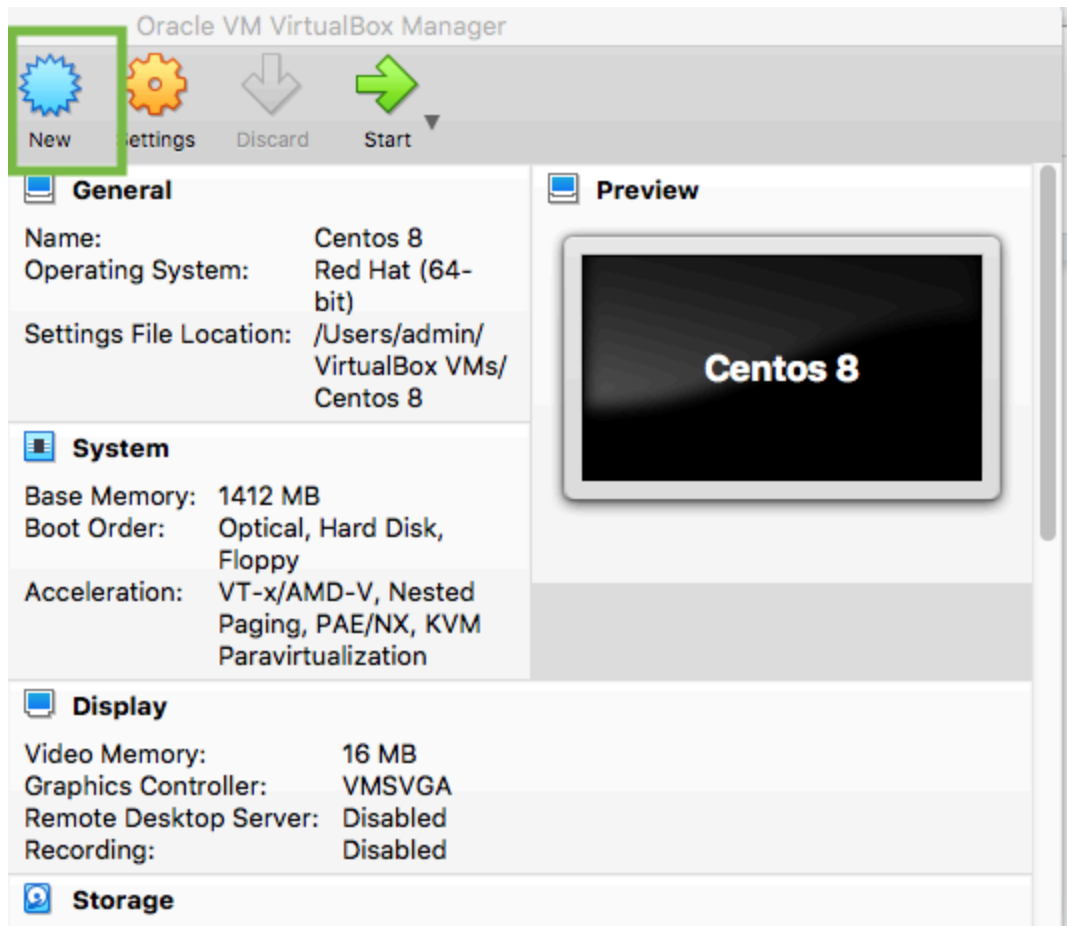
- * First name (text input)
- * Last name (text input)
- * Company name (text input)
- * Company size (dropdown menu, currently showing "Select one")
- * Job title (dropdown menu, currently showing "Select one")
- * Work email address (text input)
- * Work phone number (text input)
- * Country (dropdown menu, currently showing "Select one")

A note at the bottom of the form states: "* Indicates a required field". At the bottom of the form are two buttons: "Back" and "Continue".

Register to get the ISO image of either Windows Server 2012 or Windows Server R2, you will be guided to the download section to download the ISO image.

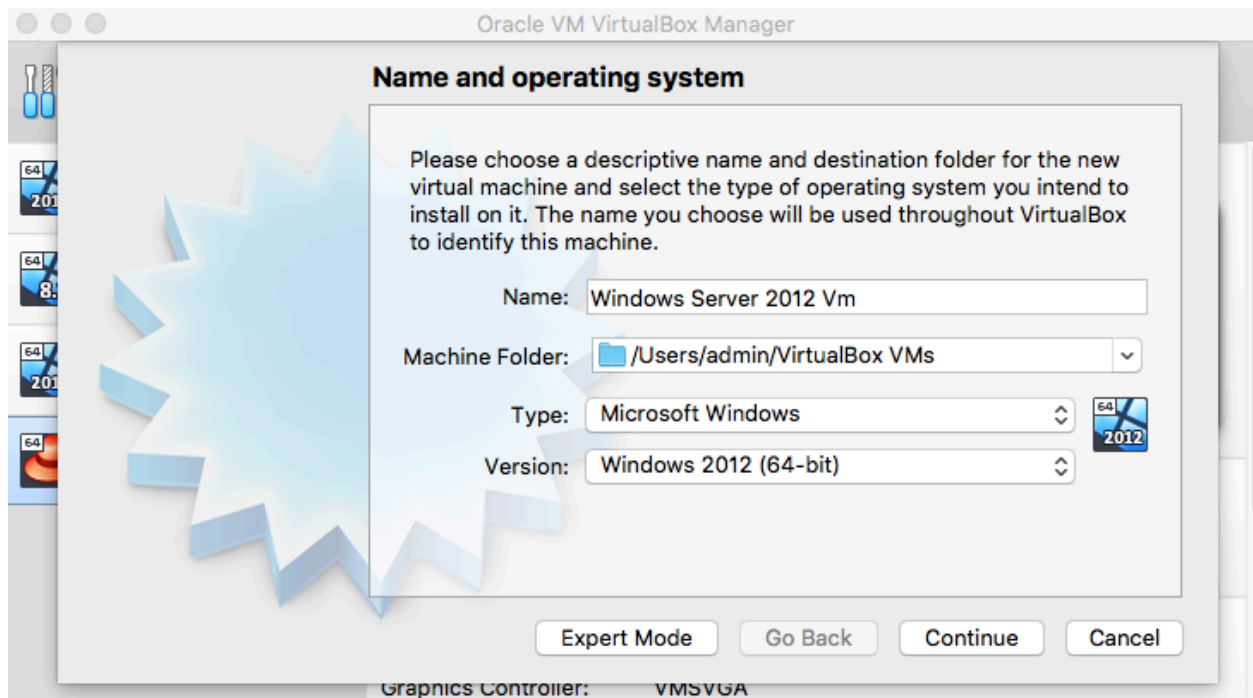
3.2 Configure VirtualBox & adding ISO image

3.2.1 Open VirtualBox and click new



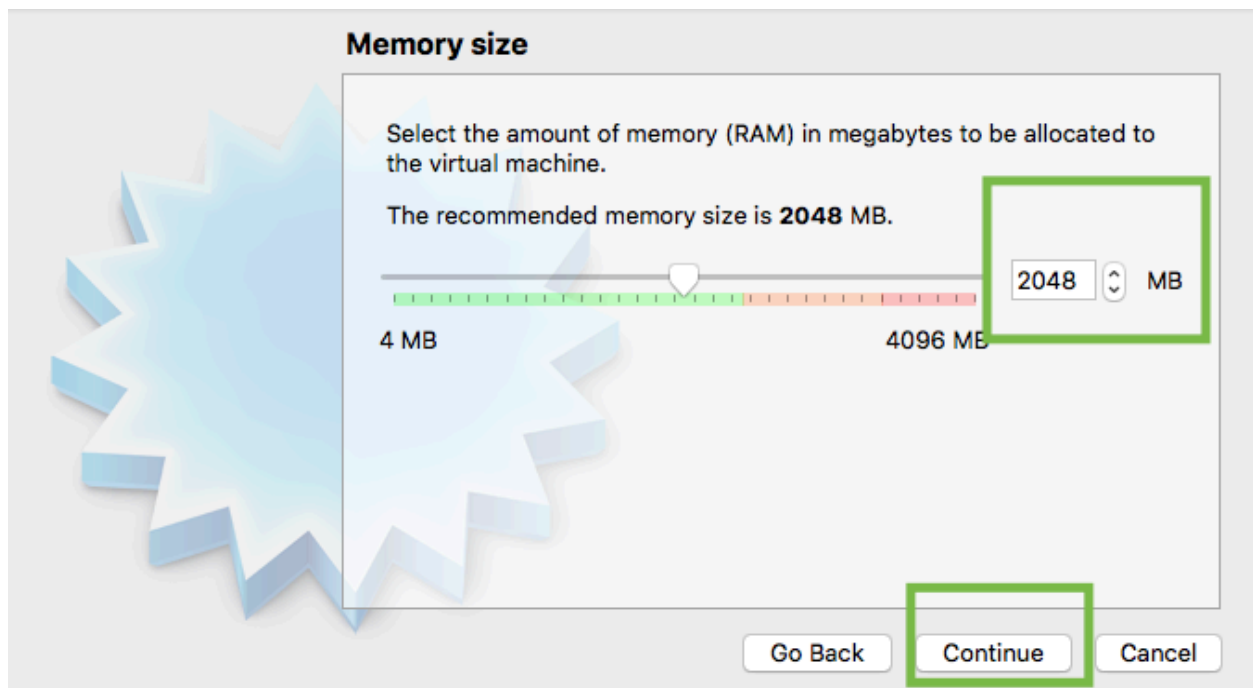
Open up VirtualBox then click New on the top left hand corner to create a new session.

3.2.2 Create a new VM (Virtual Machine)



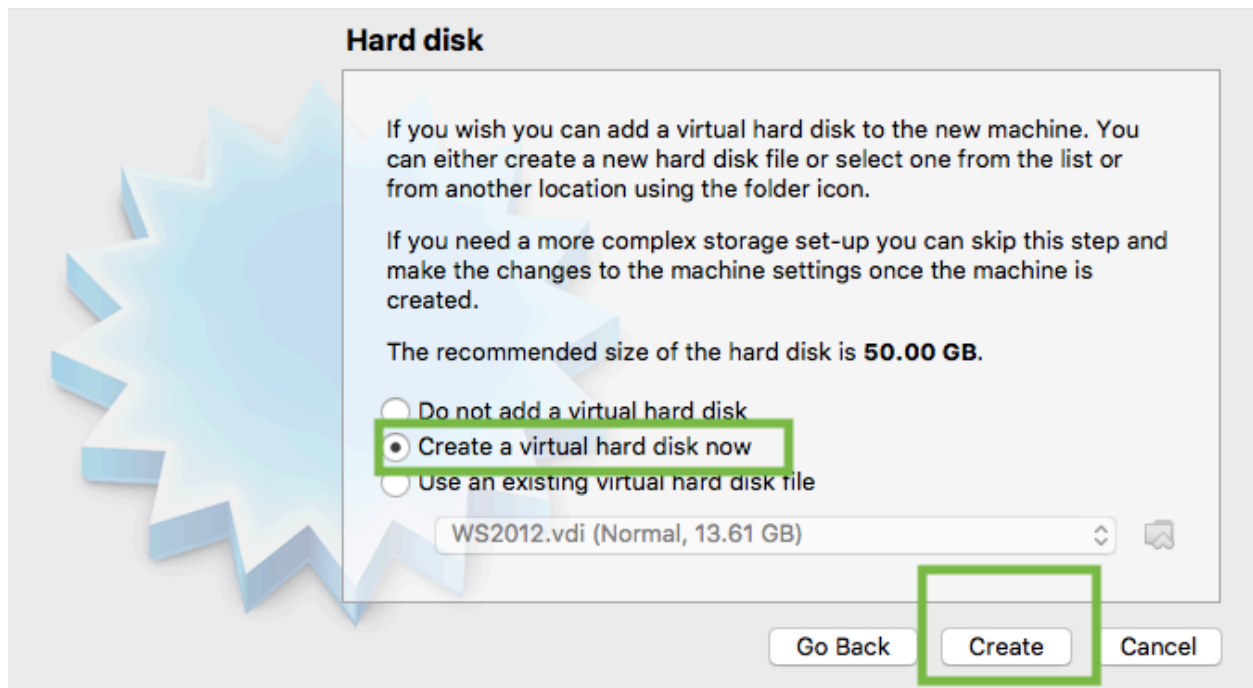
Name it Windows Server 2012 so you can recognize it easily, Type you pick Microsoft Windows and Version Windows 2012 (64-bit).

3.2.3 Configure Memory Size



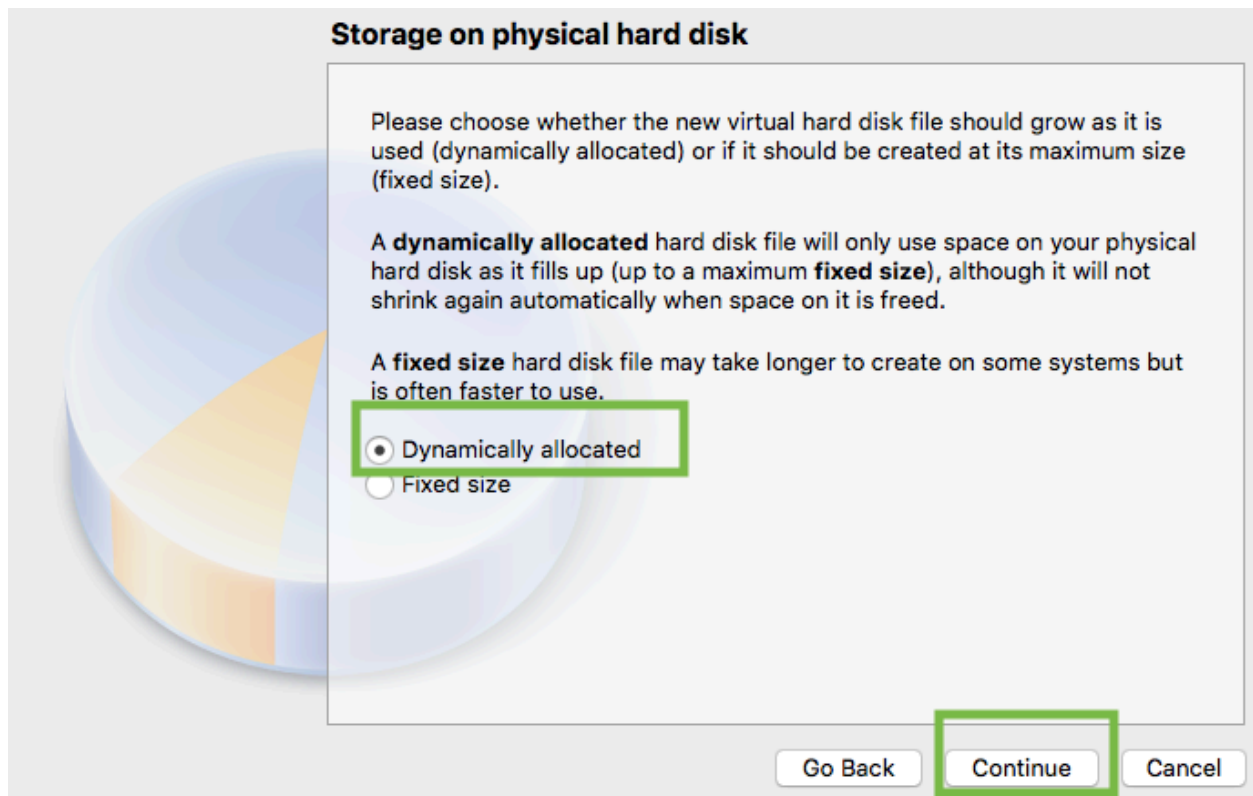
Usually you put what is recommended to avoid disruptions and continue.

3.2.4 Configure Hard Disk



By default "Create a virtual hard disk now" will be selected and click "Create" if not select go select it.

3.2.5 Storage on physical hard disk



Choose "Dynamically allocated" and click Continue.

3.2.6 File location and size

File location and size

Please type the name of the new virtual hard disk file into the box below or click on the folder icon to select a different folder to create the file in.

Windows Server 2012 Vm

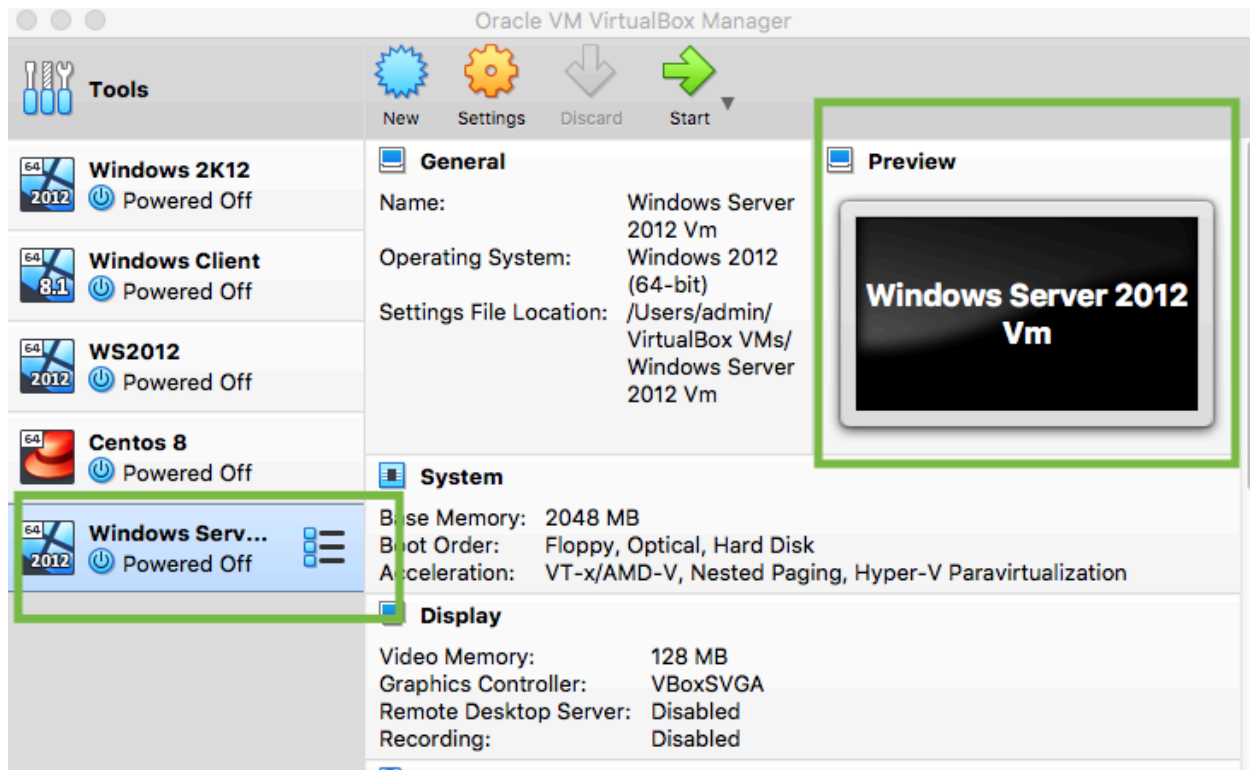
Select the size of the virtual hard disk in megabytes. This size is the limit on the amount of file data that a virtual machine will be able to store on the hard disk.

4.00 MB 2.00 TB 35.00 GB

Go Back Create Cancel

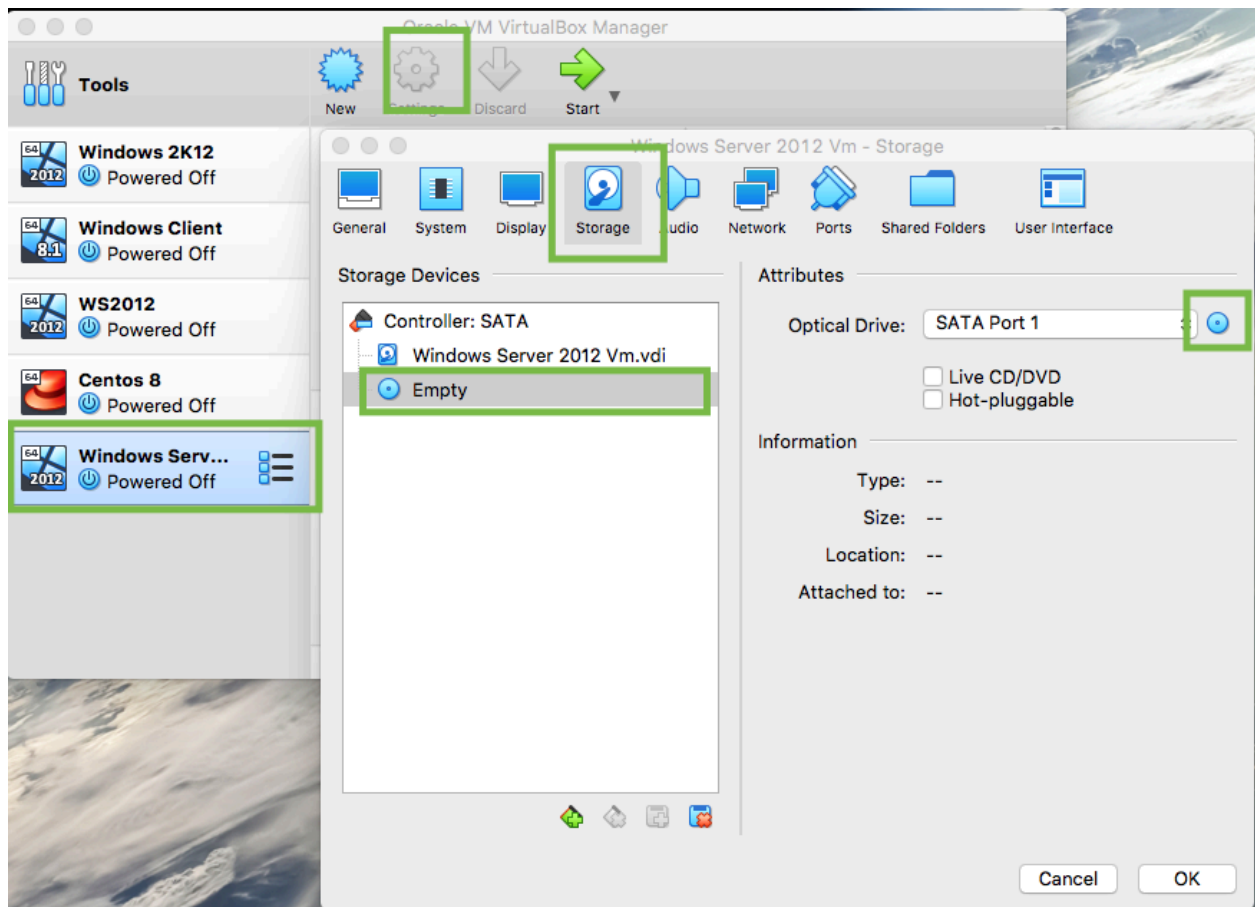
Usually leave what is recommend and click Create.

3.2.7 New VM Created



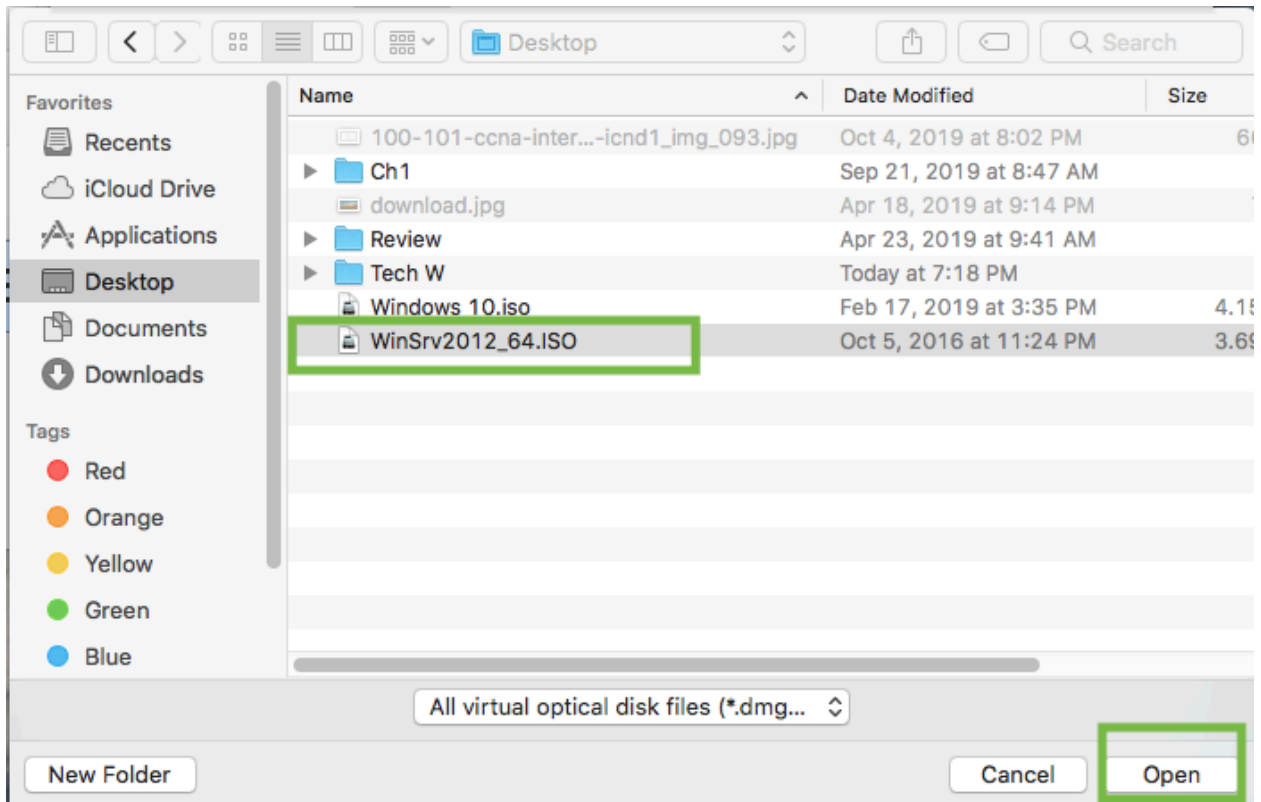
Your new VM is created as shown.

3.2.8 Add ISO image



Click on the newly created VM, then click on Settings on top, click Storage tab, and click on an empty disc image, lastly go to the right disc icon to add ISO Image. By doing this we will put in the ISO image on VM to let us run Windows Server 2012.

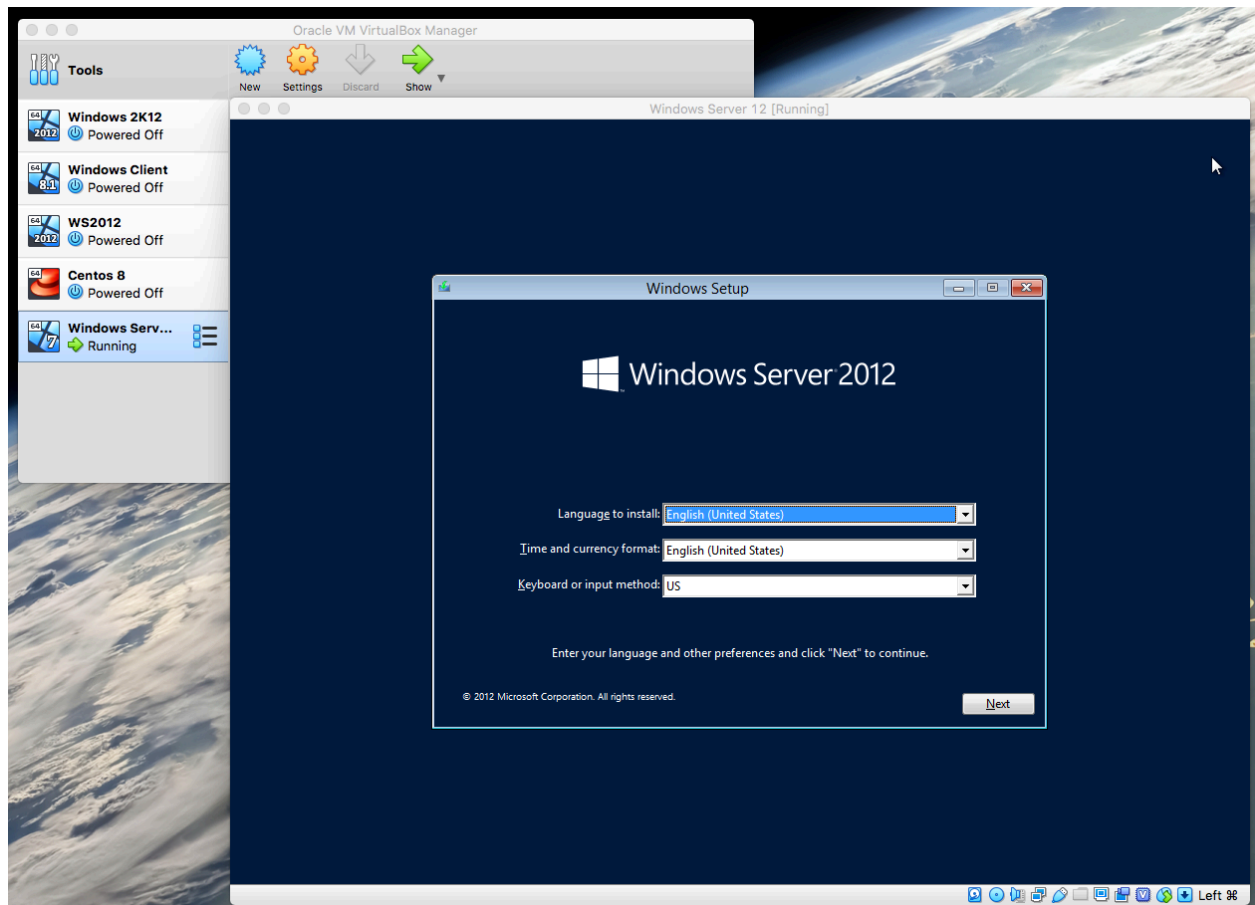
3.2.9 Adding ISO image



Locate the Windows Server 2012 ISO image select it and open.

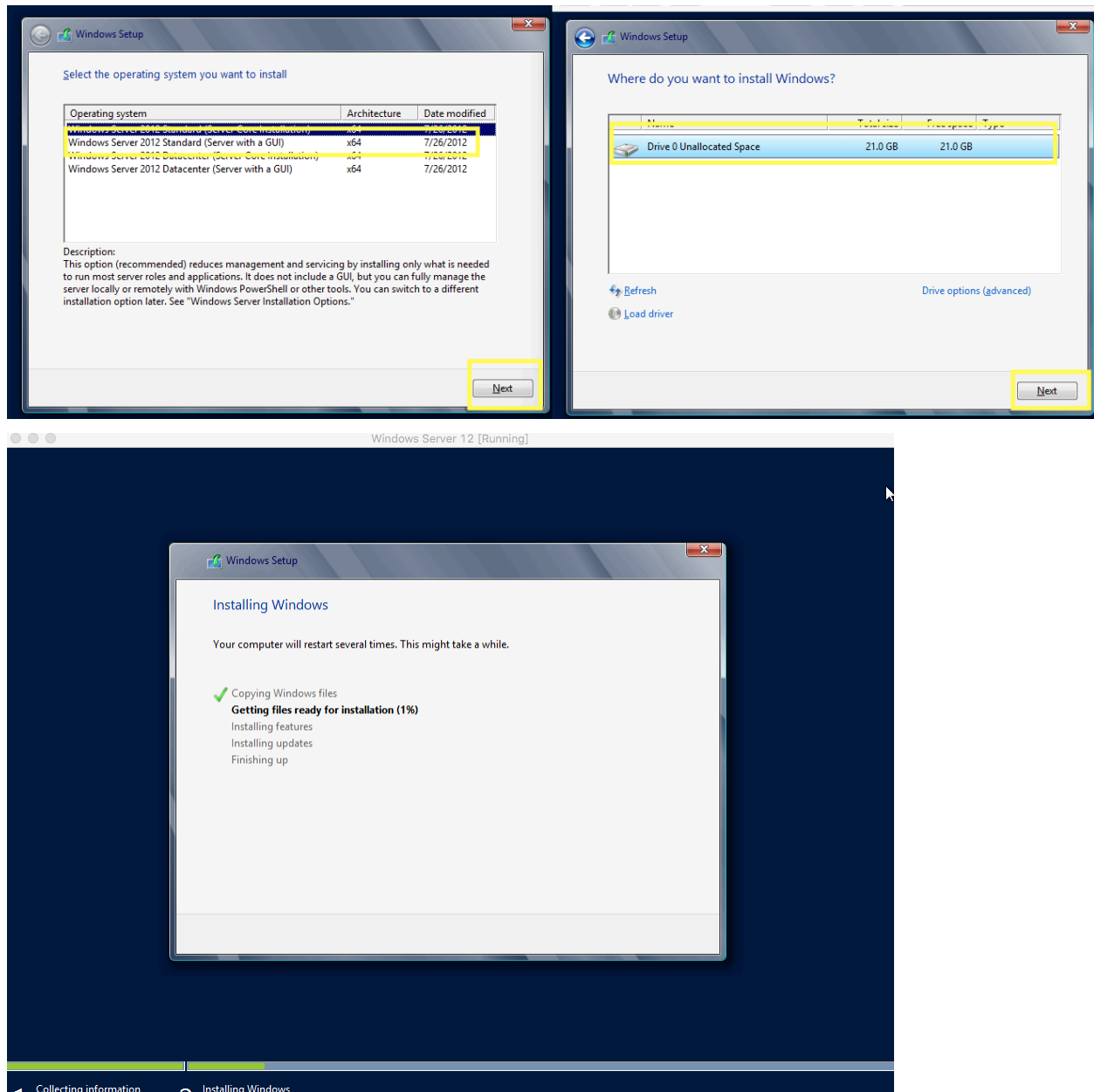
3.3 Installing Windows Server 2012

3.3.1 Start VM



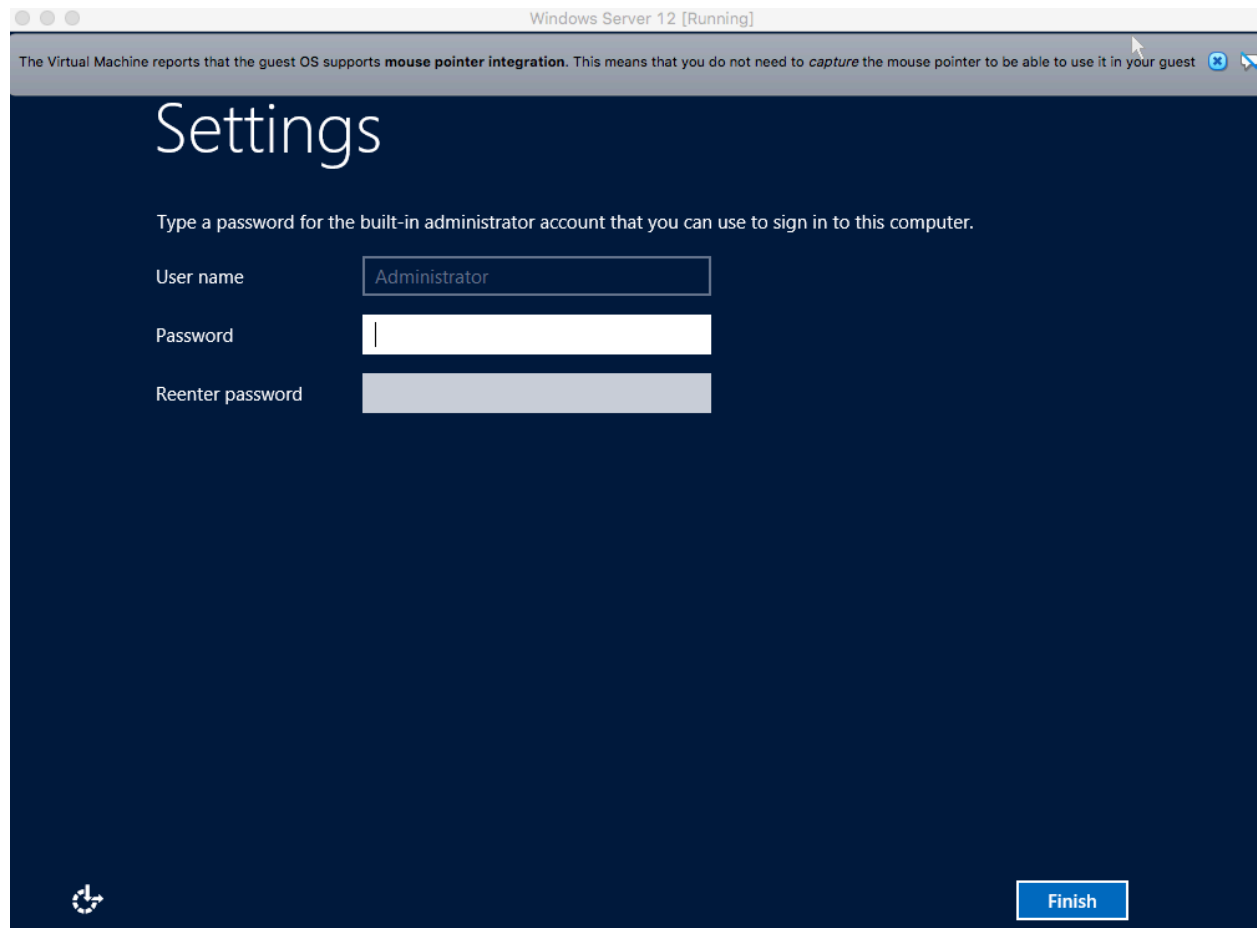
Start the VM to install Windows Server 2012 then click next.

3.3.2 GUI & Space



Select Windows Server 2012 Standard (Server with GUI) click next, then Click Drive 0 Unallocated Space and click next then wait for it to officially install.

3.3.3 Input password



The screenshot shows a Windows Server 12 [Running] window. At the top, a message states: "The Virtual Machine reports that the guest OS supports mouse pointer integration. This means that you do not need to capture the mouse pointer to be able to use it in your guest." Below this, the "Settings" window is displayed with a dark blue background. The text "Type a password for the built-in administrator account that you can use to sign in to this computer." is shown. There are three input fields: "User name" with the text "Administrator", "Password" (empty), and "Reenter password" (empty). A "Finish" button is located at the bottom right. A small icon is visible at the bottom left.

Windows Server 12 [Running]

The Virtual Machine reports that the guest OS supports **mouse pointer integration**. This means that you do not need to *capture* the mouse pointer to be able to use it in your guest


Settings

Type a password for the built-in administrator account that you can use to sign in to this computer.

User name

Password

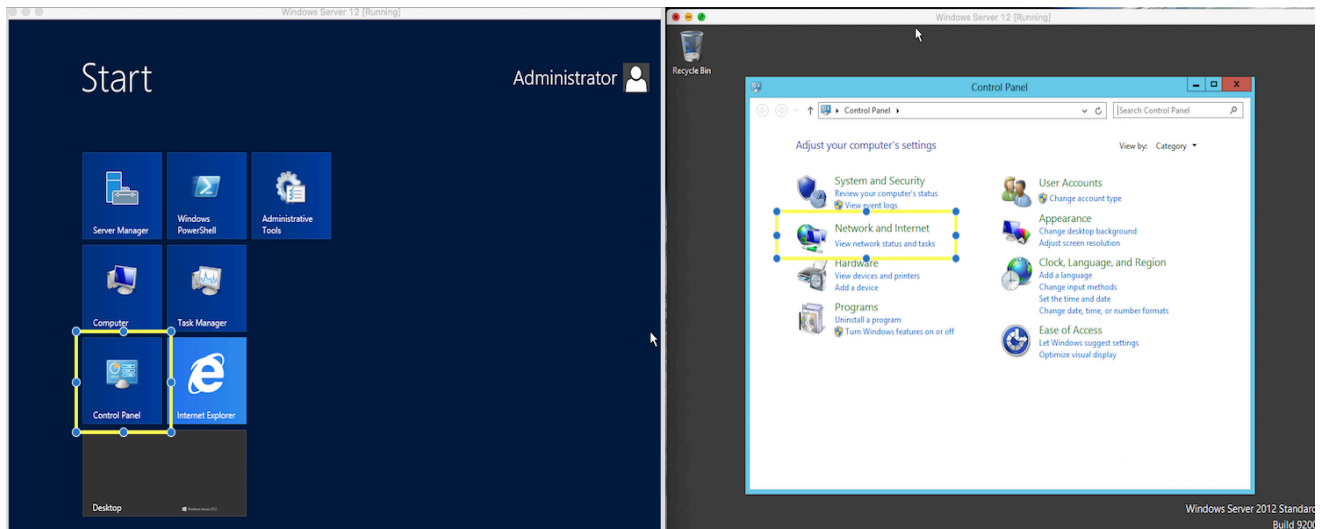
Reenter password

 Finish

Type in a safe password, click Finish and remember that password.

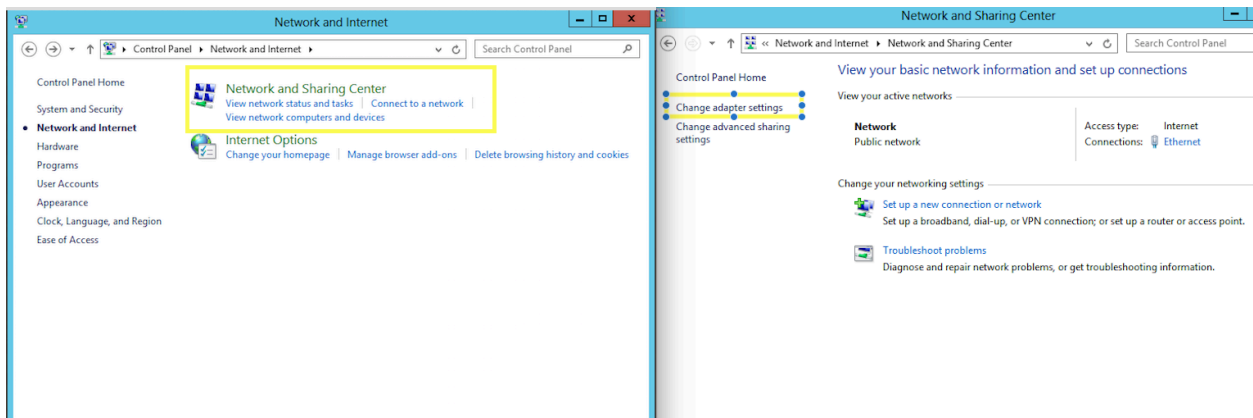
3.4 Configure Windows Server 2012

3.4.1 Go Control Panel



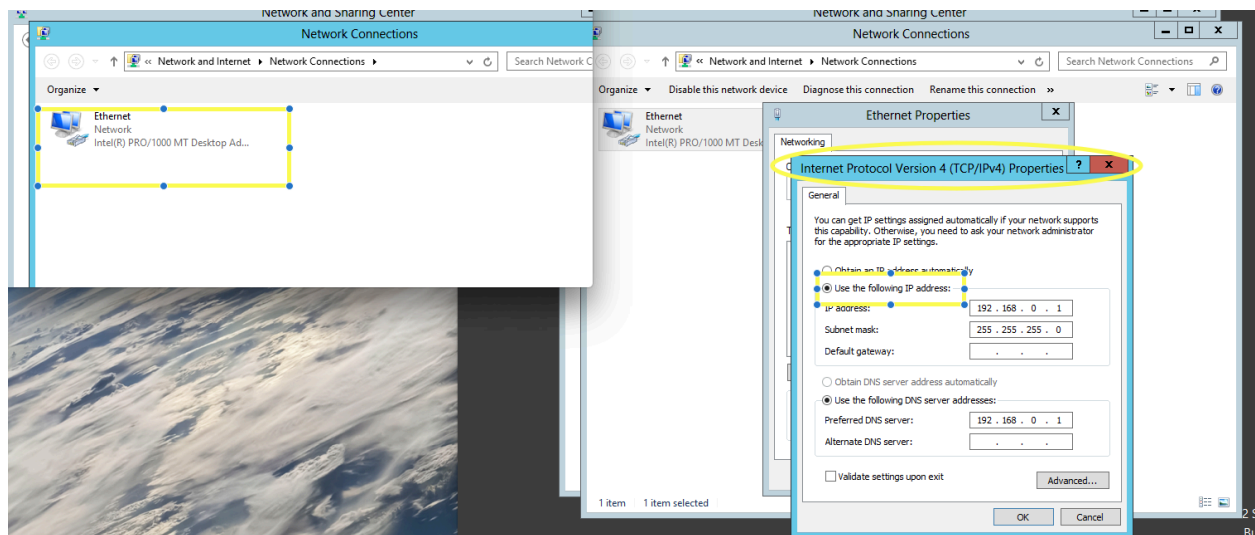
On the bottom left hand corner you will see Start click it, then click on Control Panel there you would see Network and Internet and click it.

3.4.2 Change Settings



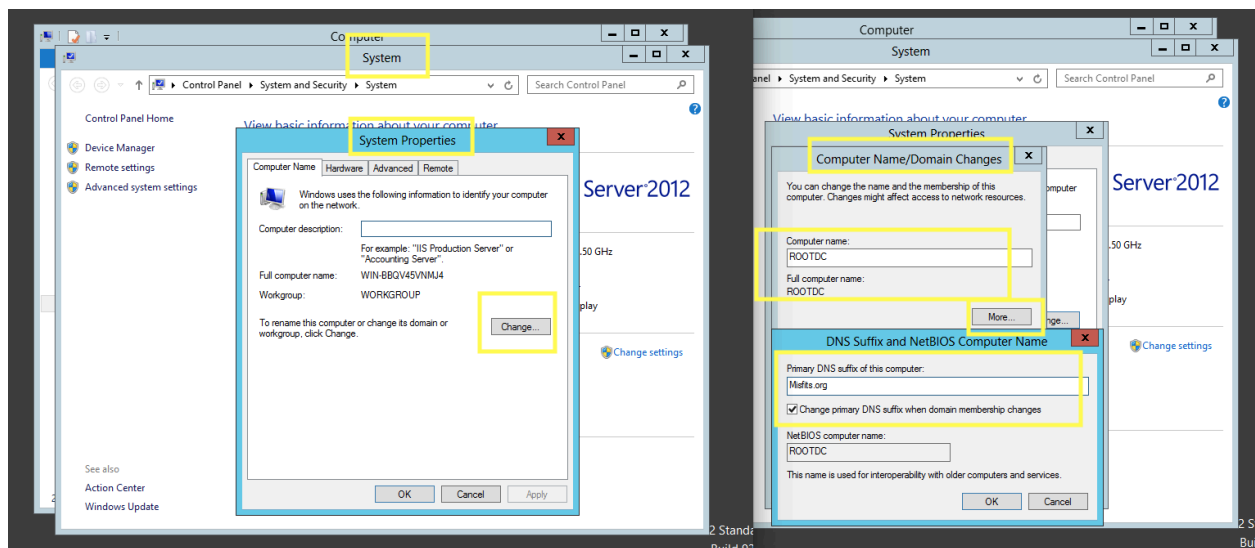
Next, click on Network and Sharing Center, after that on the left side you will see Change adapter settings click it.

3.4.3 Input IP Address



On Ethernet you would right click to select Properties, then scroll down to click on Internet Protocol Version 4 (TCP/IPv4). You want to set up a static IP to this computer which will become DC to be able to reliably be discovered across the network. Click on subnet mask it will automatically input subnet mask and input same IP address on the section Preferred DNS server.

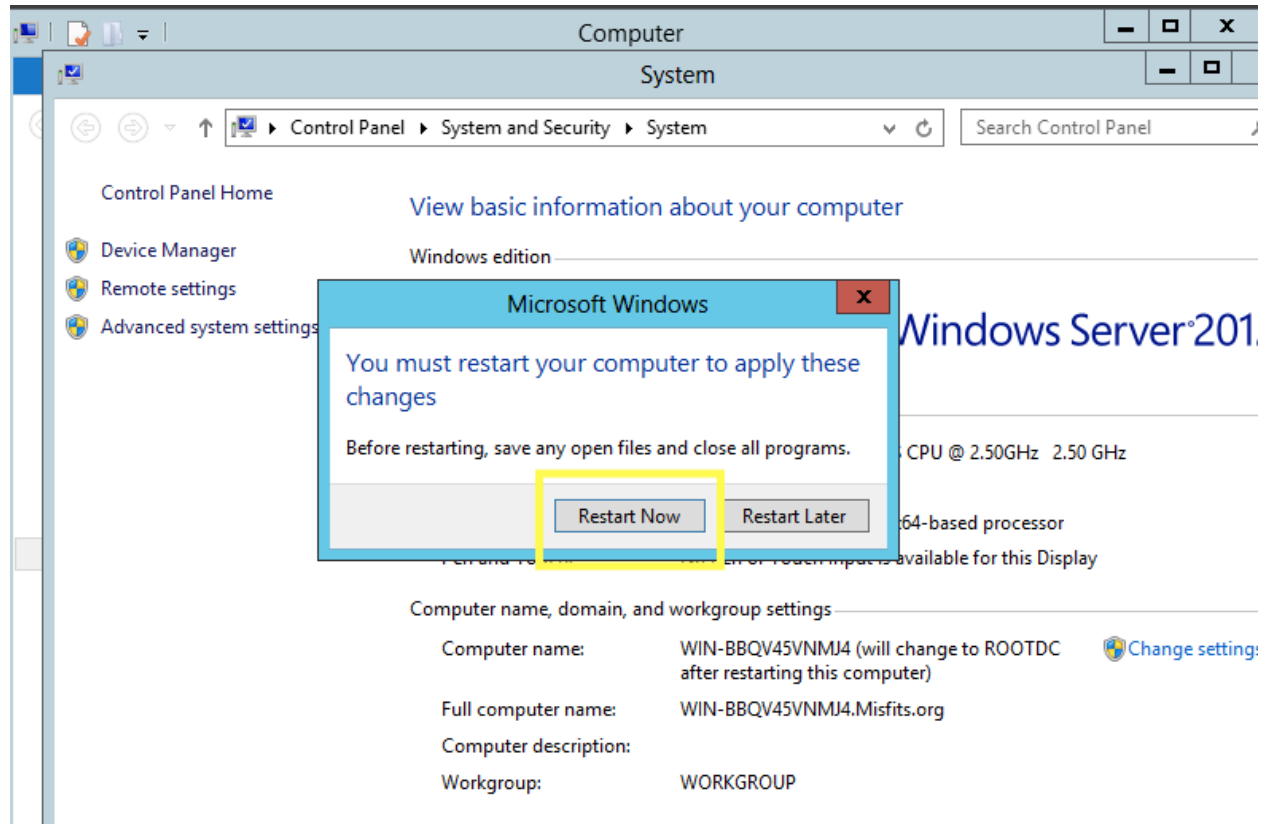
3.4.4 Rename Computer Name



Open up System on the search icon, right click to open System Properties then click Change in order to put a Computer name this will allow you to choose a specific name for what you want to name the DC. Then you will click on More this will allow you to put a NetBIOS Computer Name meaning the a domain name like .com, .org or .net to easily recognize you DC based on

Computer name and you domain name. For example, Computer Name is ROOTDC and the NetBIOS is Misfits.org so together will be ROOTDC.Misfits.org.

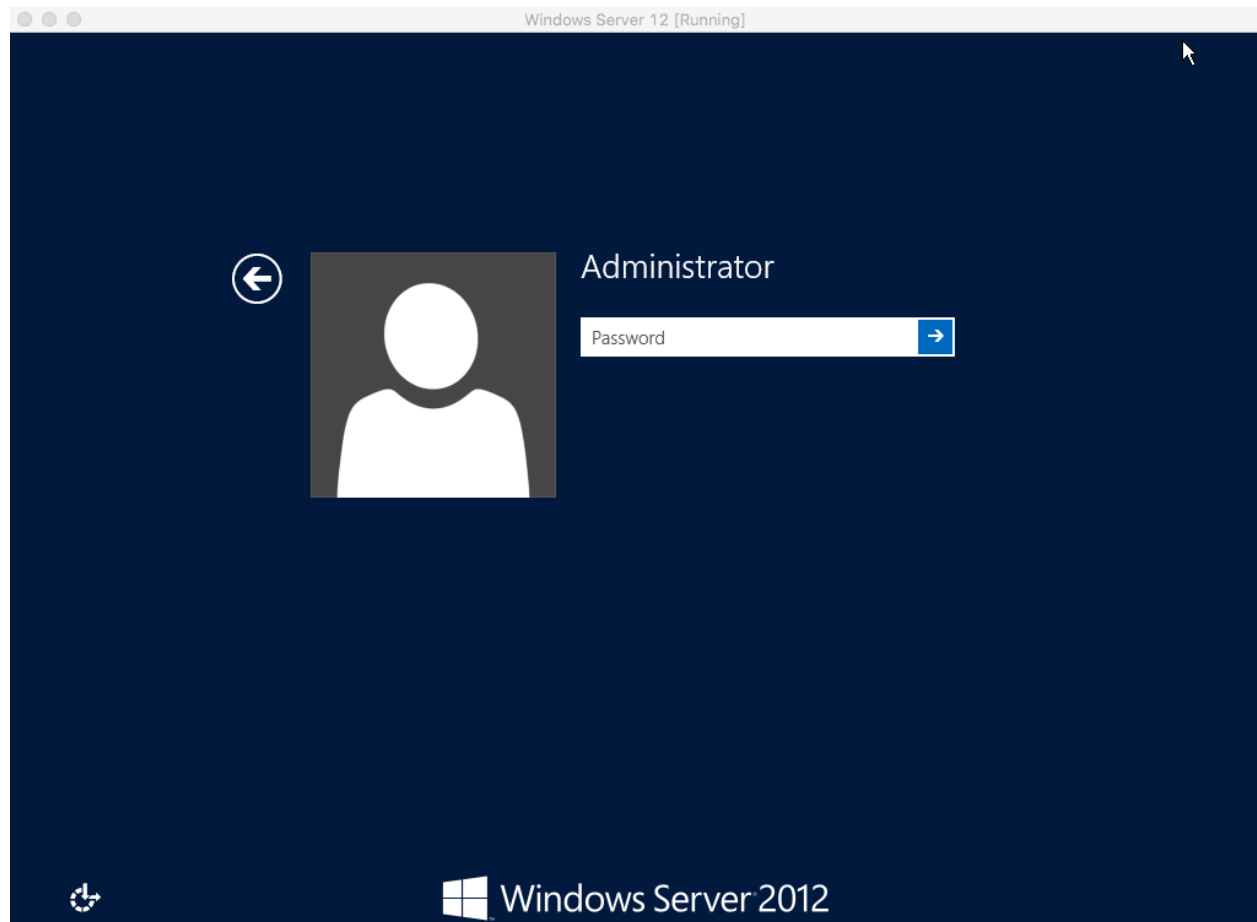
3.4.5 Restart your VM



Once you click ok, a pop up window will show up click Restart to apply the changes you did.

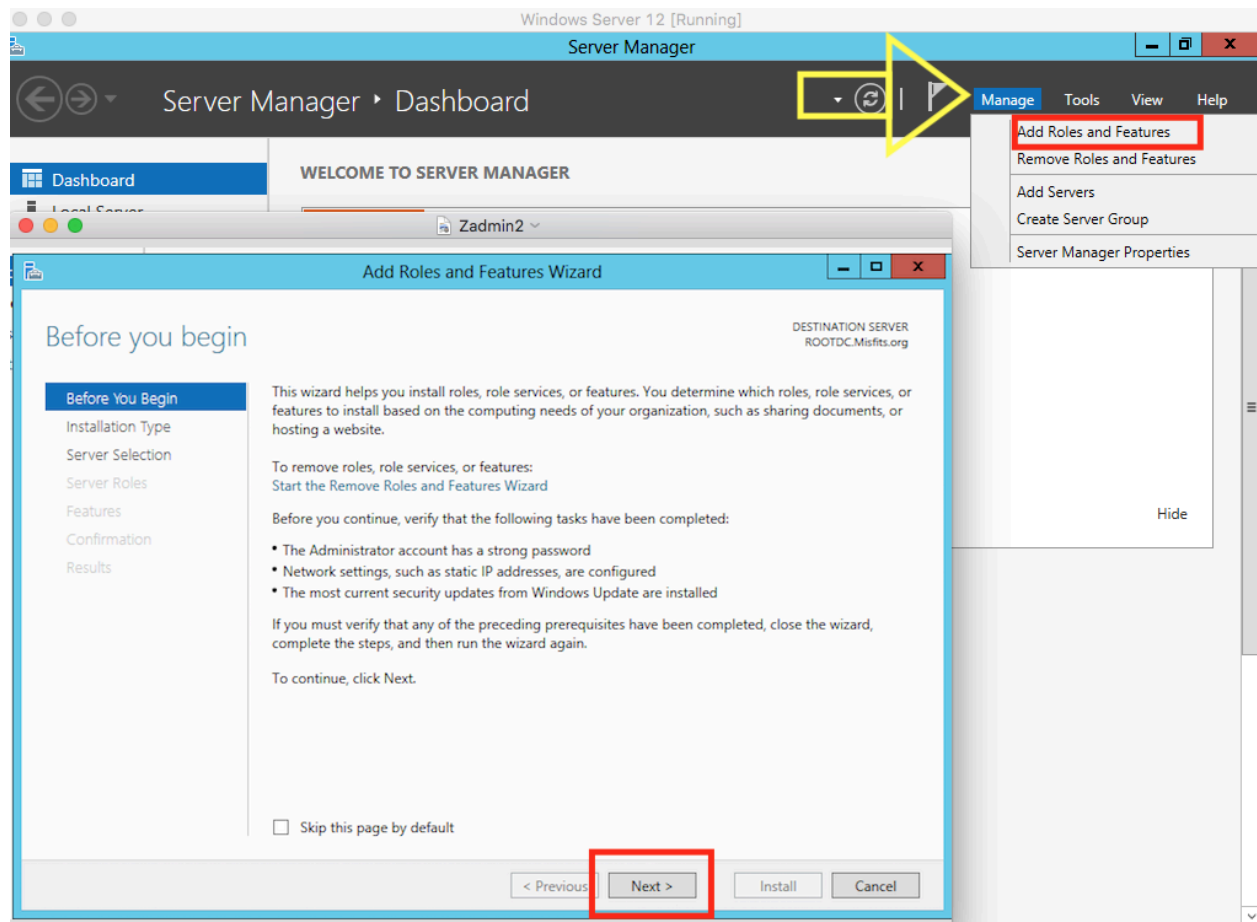
3.5 Promoting Windows Server 2012

3.5.1 Log in



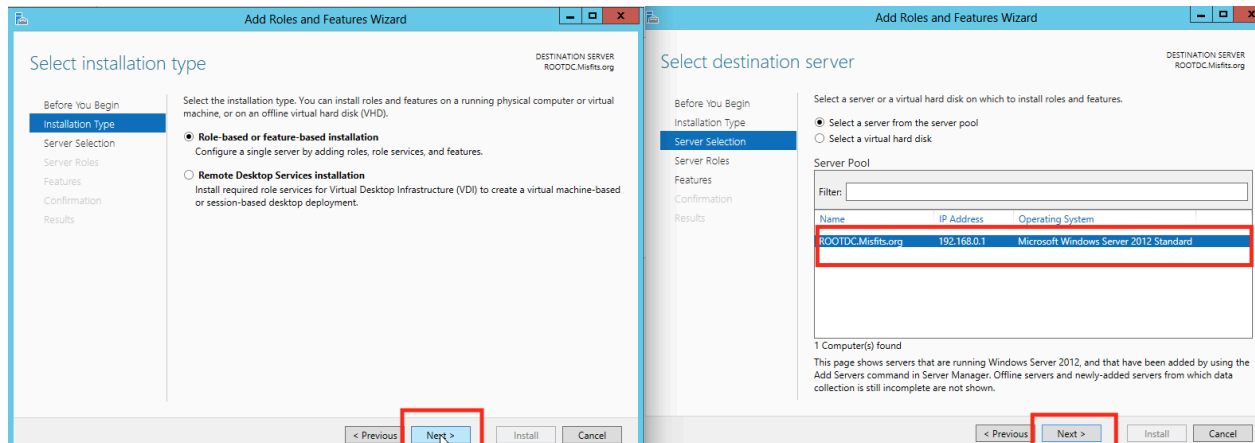
After restarting you will log in.

3.5.2 Server Manager



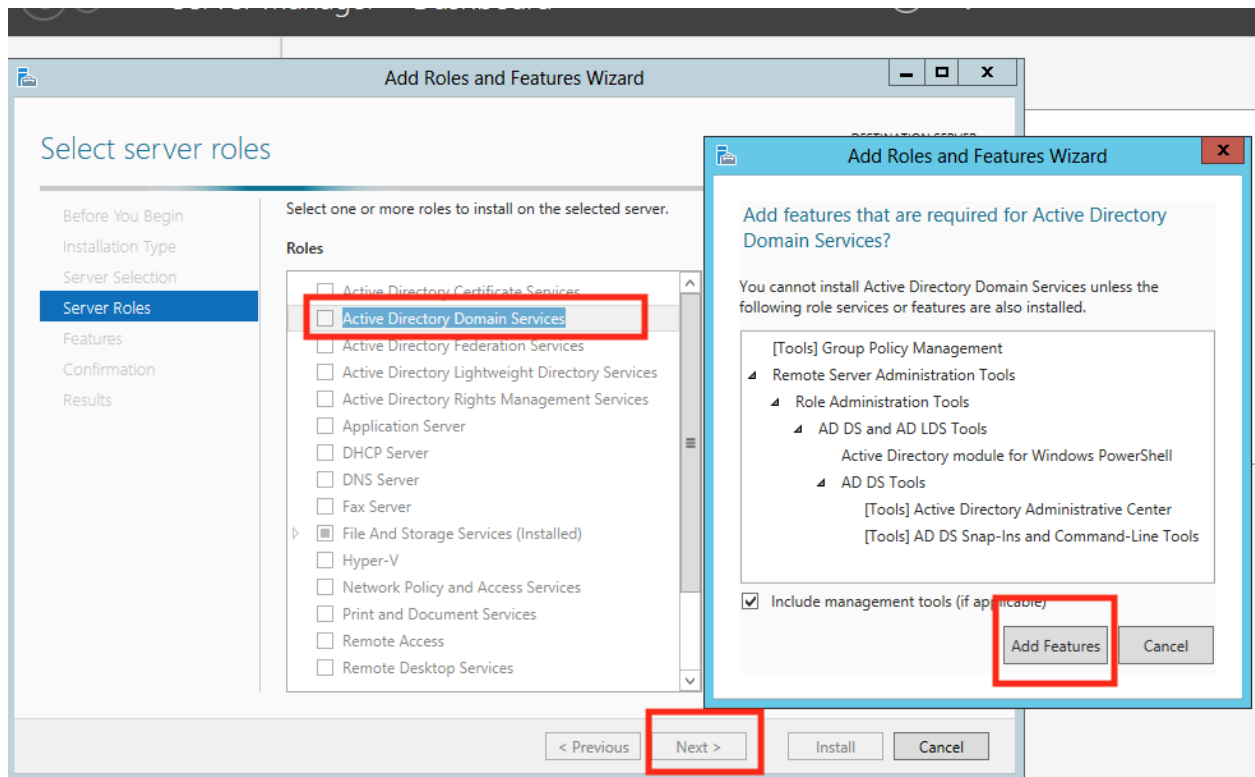
Upon logging in Server Manager will open automatically, you will click on Manage next to the yellow arrow, click on Add Roles and Feature this will us to begin the few steps to promote the machine. Once that is clicked you will have a wizard pop out as shown, and click next.

3.5.3 Install type & Destination



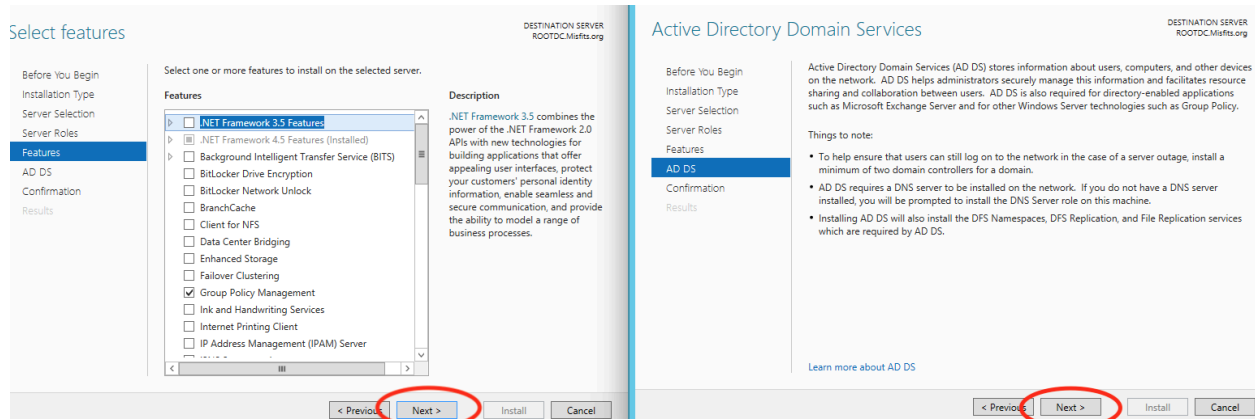
When you click next you will see “Select installation type”, click next again, you will see “Select destination server”. Under Server Pool you will see the name of the computer name followed by NetBIOS name highlighted, click next.

3.5.4 Adding Roles



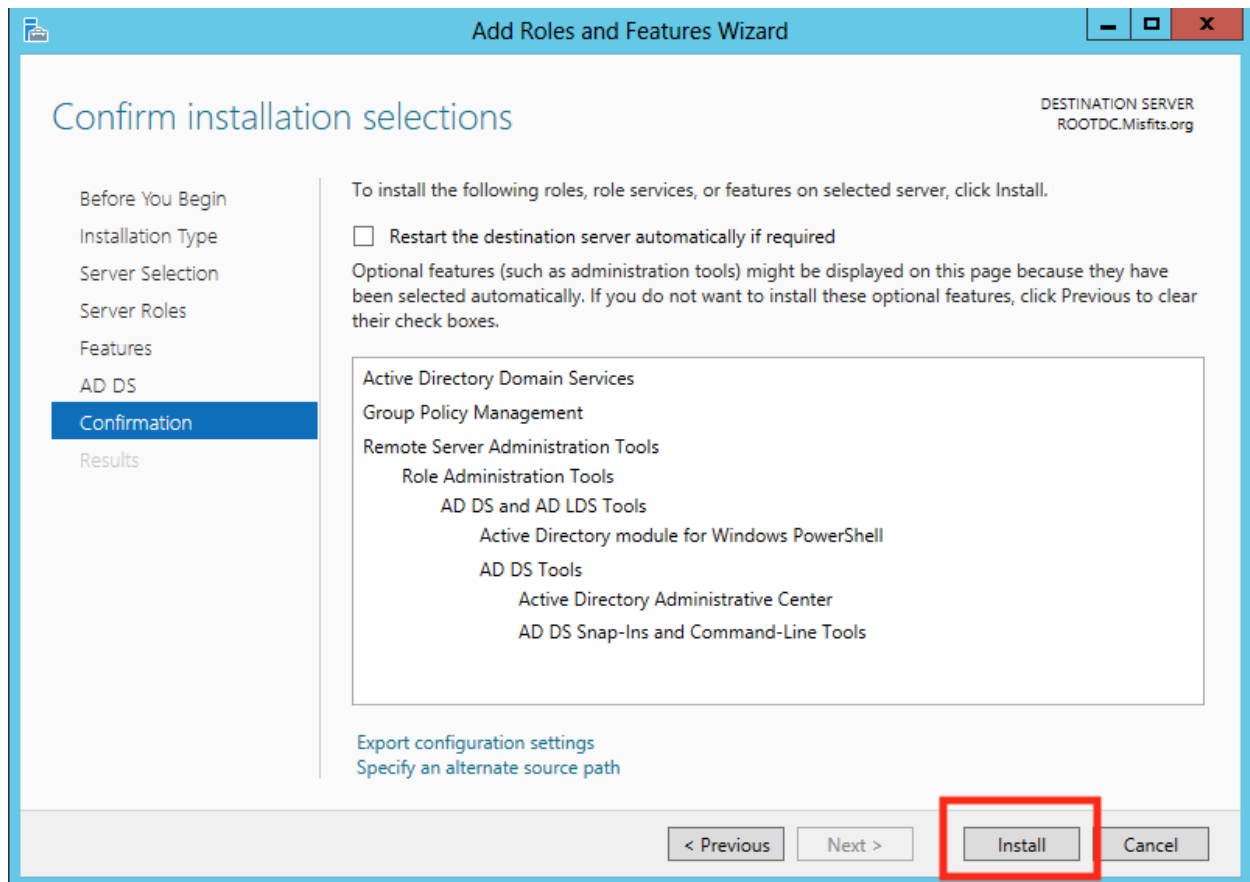
You will see a list of Roles, you will pick as shown in red, “Active Directory Domain Services” a pop up window will show features for additional features to add. Click Add Feature this will allow useful features to be enabled such Windows PowerShell, once that is done click next.

3.5.5 Features & Active Domain Domain Services



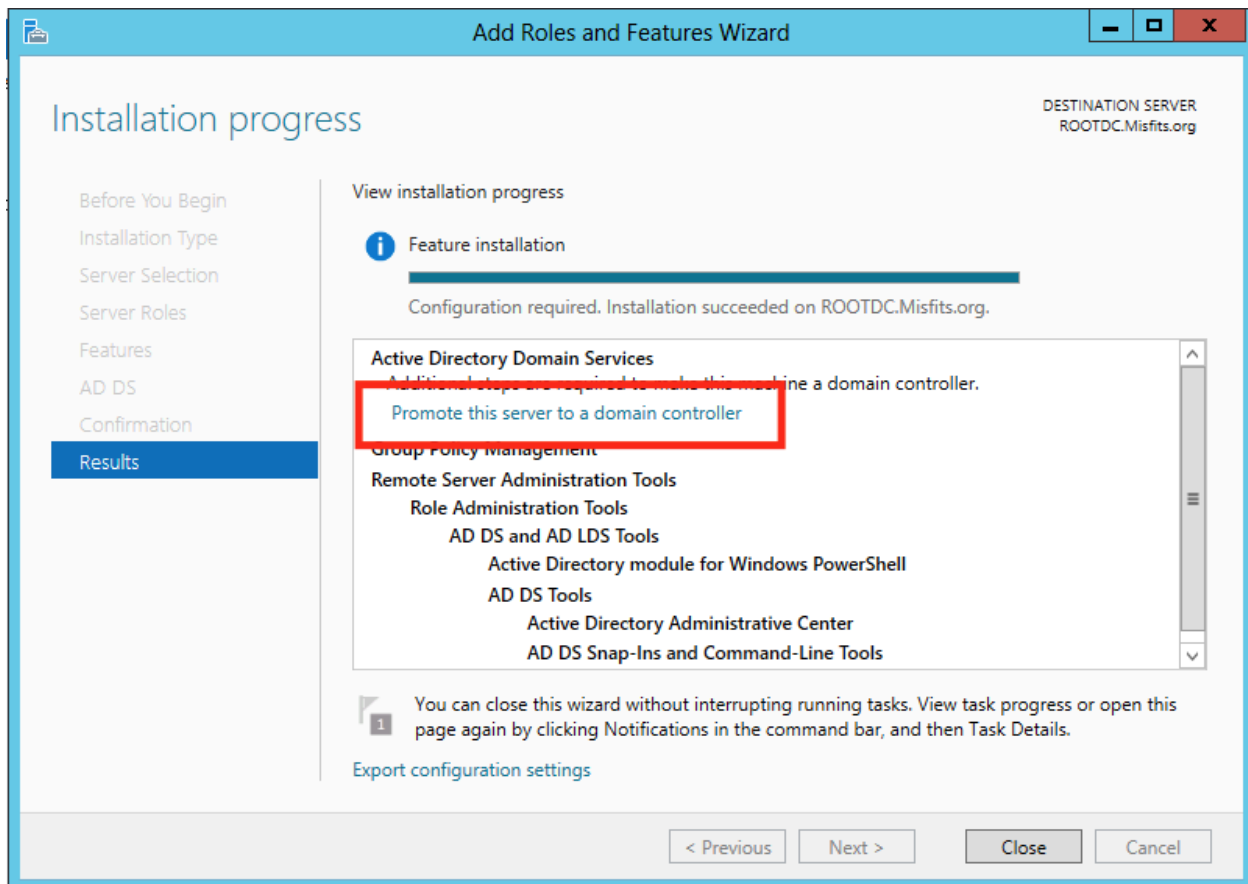
You see “Select feature” window no additional features will be added click next, then you see “Active Directory Domain Services” window click next.

3.5.6 Install



You will see “Confirm installation selections” window click install on the bottom right corner.

3.5.7 Promote Server



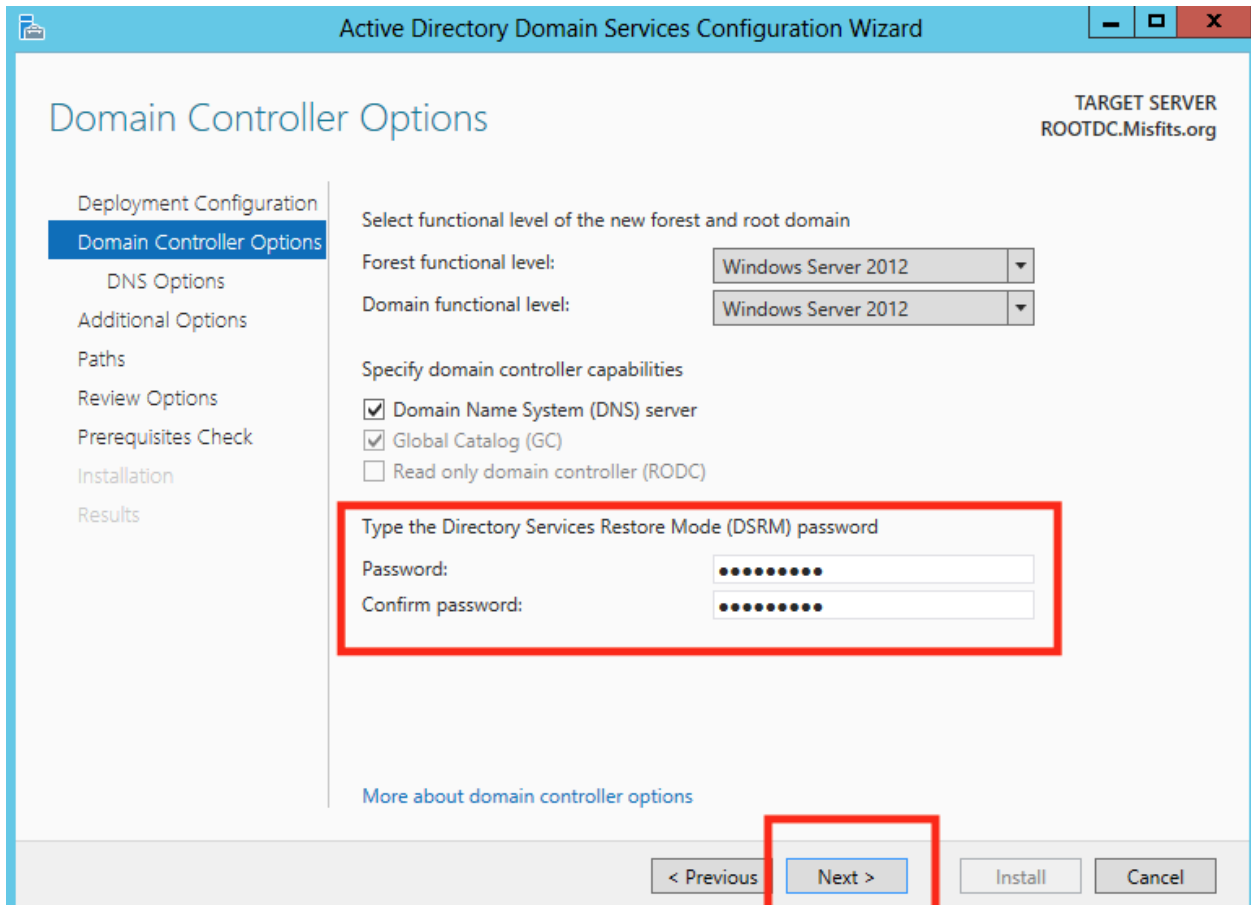
Once finish going through the “Add Roles and Feature Wizard” you are ready to click Promote this server to domain controller highlighted in red.

3.5.8 ADDS Wizard

The screenshot shows the 'Active Directory Domain Services Configuration Wizard' window. The title bar includes standard Windows window controls. The main area is titled 'Deployment Configuration'. On the left, a navigation pane lists steps: 'Deployment Configuration' (selected), 'Domain Controller Options', 'DNS Options', 'Additional Options', 'Paths', 'Review Options', 'Prerequisites Check', 'Installation', and 'Results'. The main content area has the heading 'Select the deployment operation' and three radio button options: 'Add a domain controller to an existing domain', 'Add a new domain to an existing forest', and 'Add a new forest' (which is selected and highlighted with a red box). Below this, the heading 'Specify the domain information for this operation' is followed by a text box labeled 'Root domain name:' containing the text 'Mitfits.org' (this entire section is highlighted with a red box). In the top right corner, the text 'TARGET SERVER' is above 'ROOTDC.Misfits.org', with a red curved arrow pointing from the text to the text box. At the bottom, there are four buttons: '< Previous', 'Next >' (highlighted with a red box), 'Install', and 'Cancel'. A link 'More about deployment configurations' is located above the 'Next >' button.

You will add a new forest since this VM new and we have no existing forest or domain. You will type in your root domain name which is the same as NetBIOS on the upper right hand corner when finished click next.

3.5.9 Password



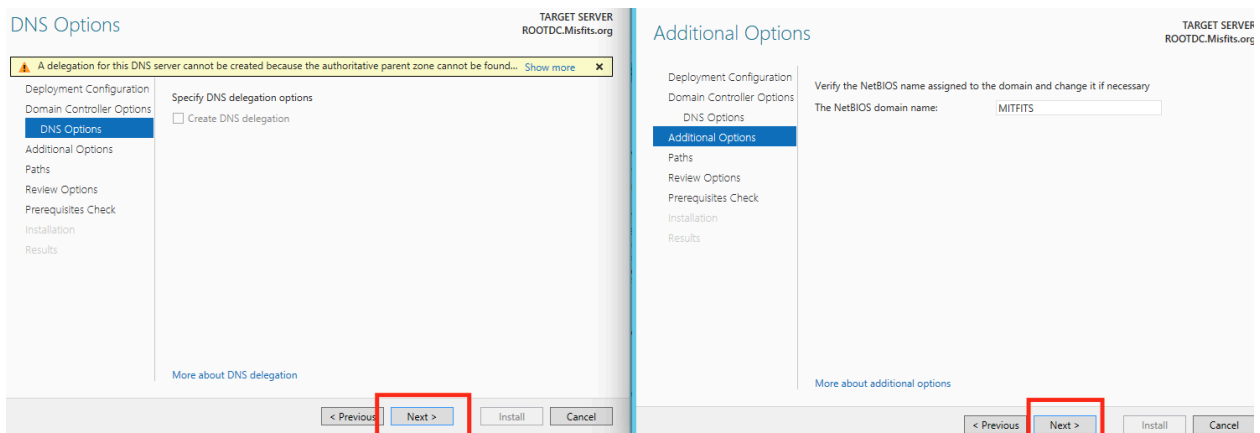
The screenshot shows the 'Domain Controller Options' window of the Active Directory Domain Services Configuration Wizard. The window title is 'Active Directory Domain Services Configuration Wizard'. The target server is 'ROOTDC.Misfits.org'. The left sidebar lists the steps: Deployment Configuration, Domain Controller Options (selected), DNS Options, Additional Options, Paths, Review Options, Prerequisites Check, Installation, and Results. The main area is titled 'Domain Controller Options' and contains the following sections:

- Select functional level of the new forest and root domain:**
 - Forest functional level: Windows Server 2012
 - Domain functional level: Windows Server 2012
- Specify domain controller capabilities:**
 - ☒ Domain Name System (DNS) server
 - ☒ Global Catalog (GC)
 - ☐ Read only domain controller (RODC)
- Type the Directory Services Restore Mode (DSRM) password:**
 - Password: [Redacted]
 - Confirm password: [Redacted]

At the bottom, there are navigation buttons: '< Previous', 'Next >', 'Install', and 'Cancel'. The 'Next >' button is highlighted with a red box.

Input a password and click next.

3.5.10 Additional options



The screenshot shows two side-by-side windows from the Active Directory Domain Services Configuration Wizard.

Left Window: DNS Options

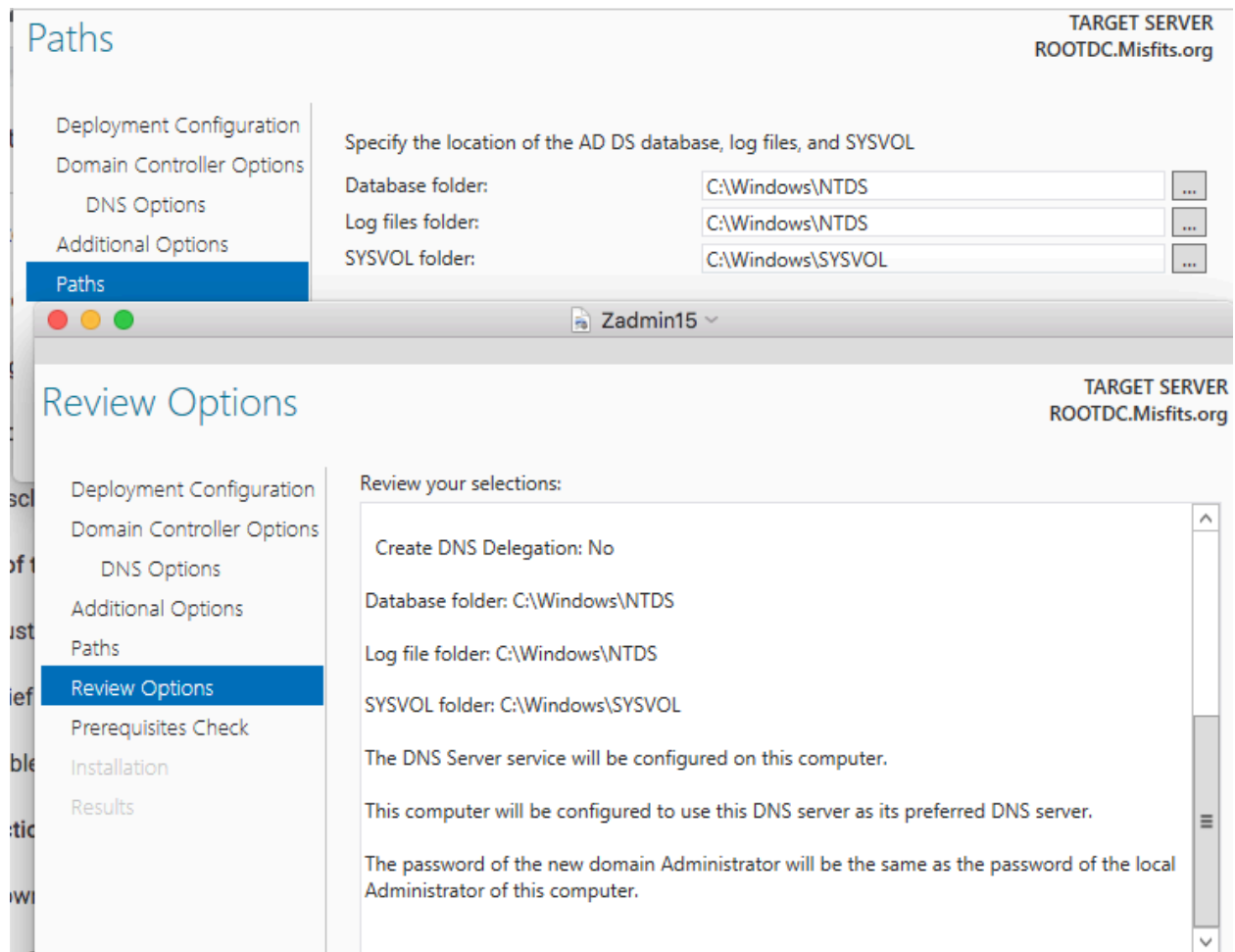
- Target server: ROOTDC.Misfits.org
- Left sidebar: Deployment Configuration, Domain Controller Options, DNS Options (selected), Additional Options, Paths, Review Options, Prerequisites Check, Installation, Results.
- Main area: 'Specify DNS delegation options' with a checkbox 'Create DNS delegation' (unchecked).
- Bottom navigation: '< Previous', 'Next >', 'Install', 'Cancel'. The 'Next >' button is highlighted with a red box.

Right Window: Additional Options

- Target server: ROOTDC.Misfits.org
- Left sidebar: Deployment Configuration, Domain Controller Options, DNS Options, Additional Options (selected), Paths, Review Options, Prerequisites Check, Installation, Results.
- Main area: 'Verify the NetBIOS name assigned to the domain and change it if necessary'. The NetBIOS domain name is 'MITFITS'.
- Bottom navigation: '< Previous', 'Next >', 'Install', 'Cancel'. The 'Next >' button is highlighted with a red box.

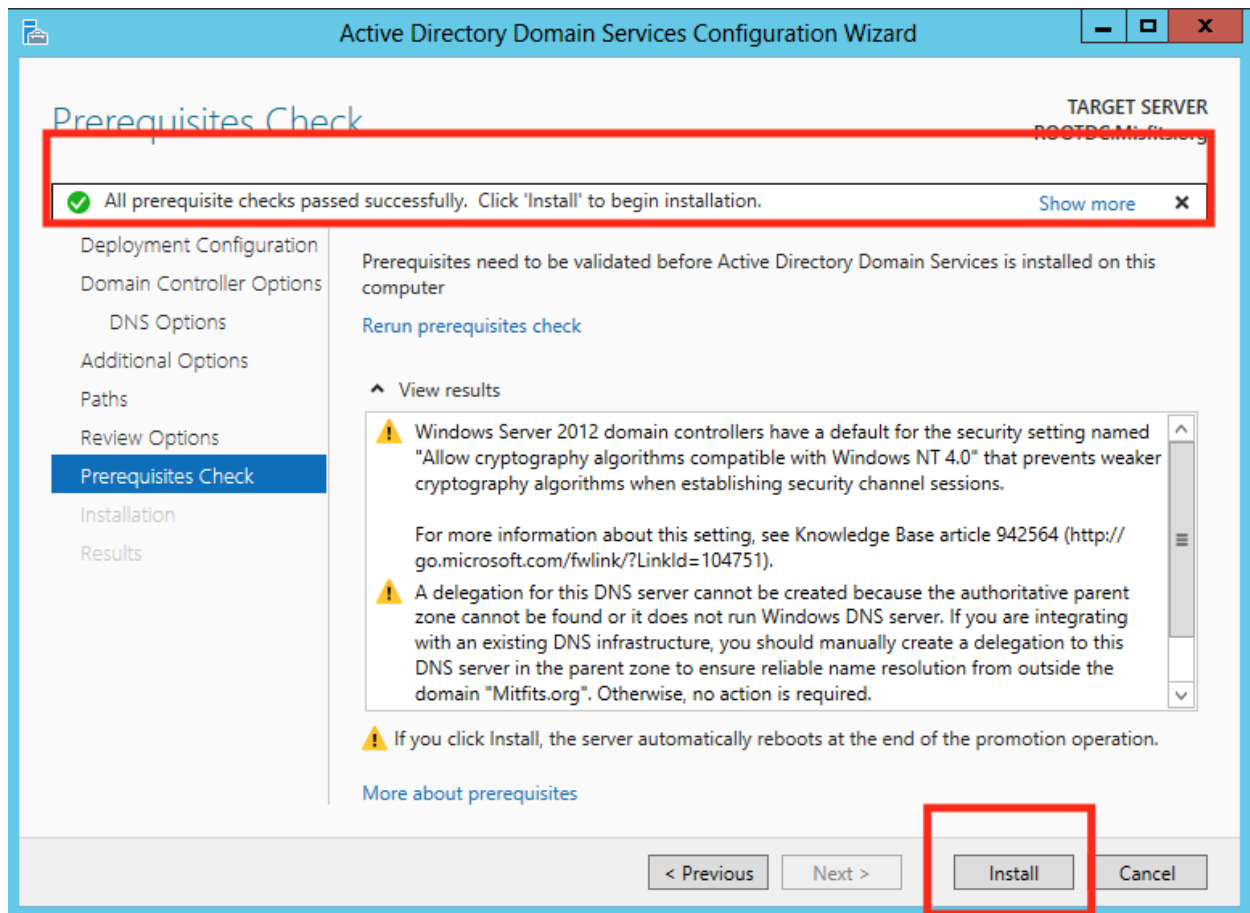
“DNS Options” window appear click next, and click next for “Additional Options” window.

3.5.11 Review



These both windows will show you folders on what you configured, for both windows click next.

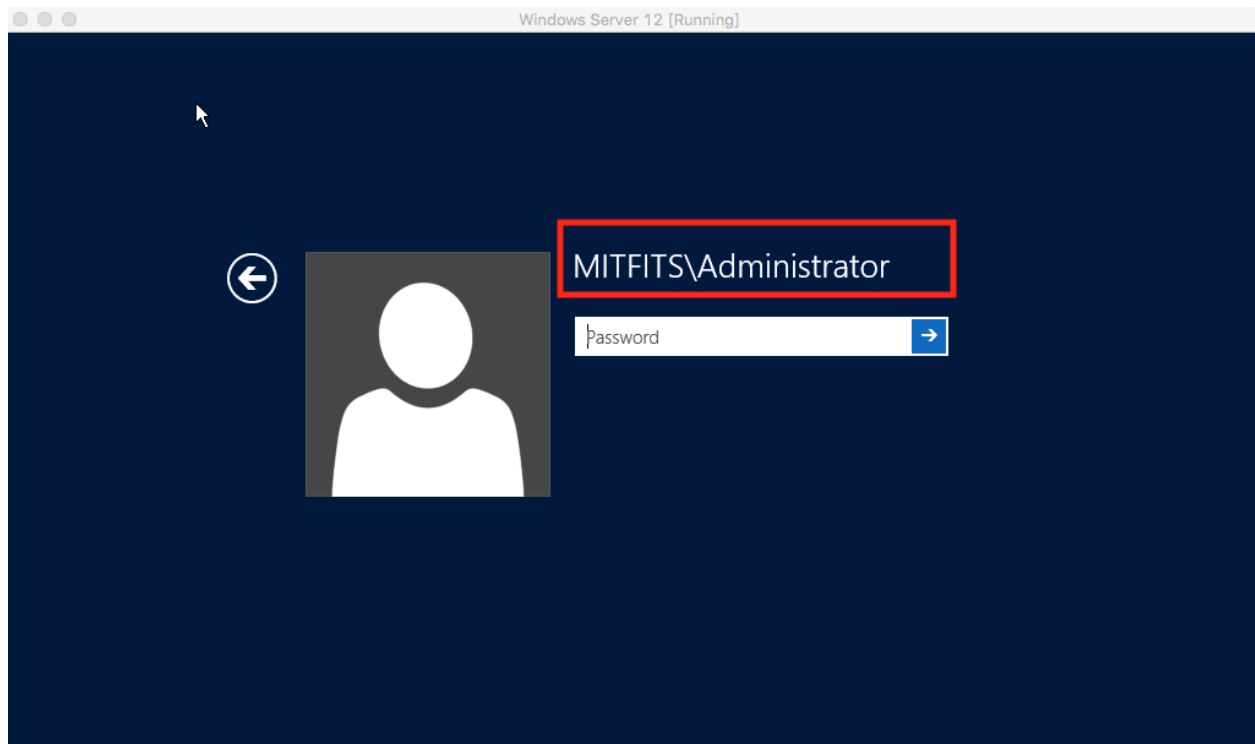
3.5.12 Promote



You are ready to successfully install when you see the checkbox in green and click install on the bottom this will restart automatically.

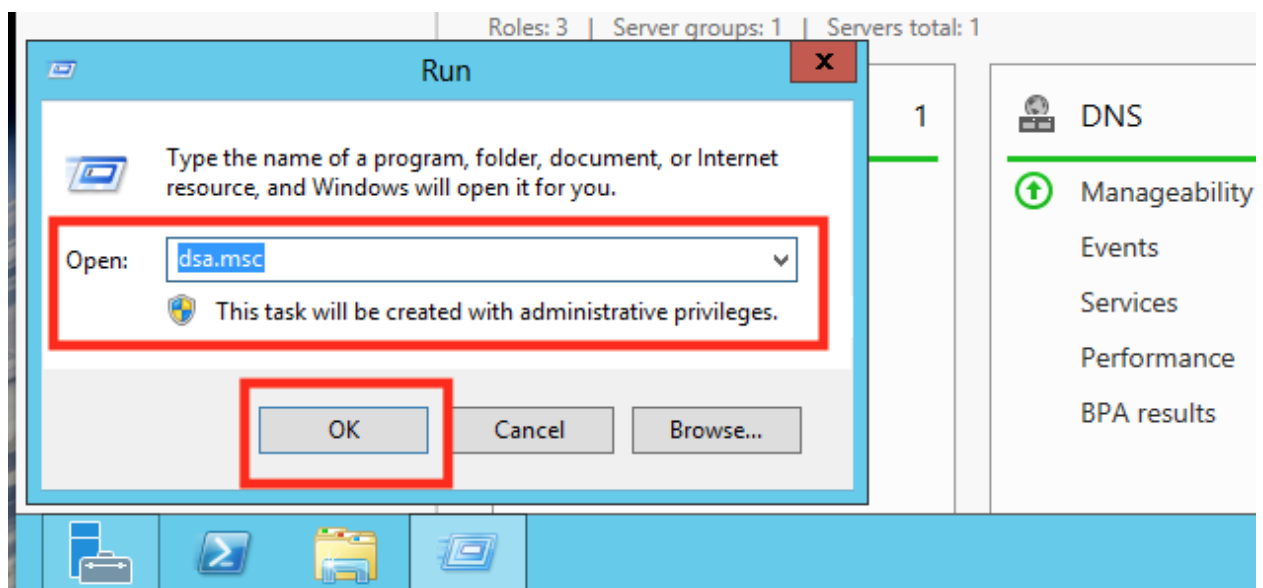
3.6 Open Active Directory

3.6.1 Log in



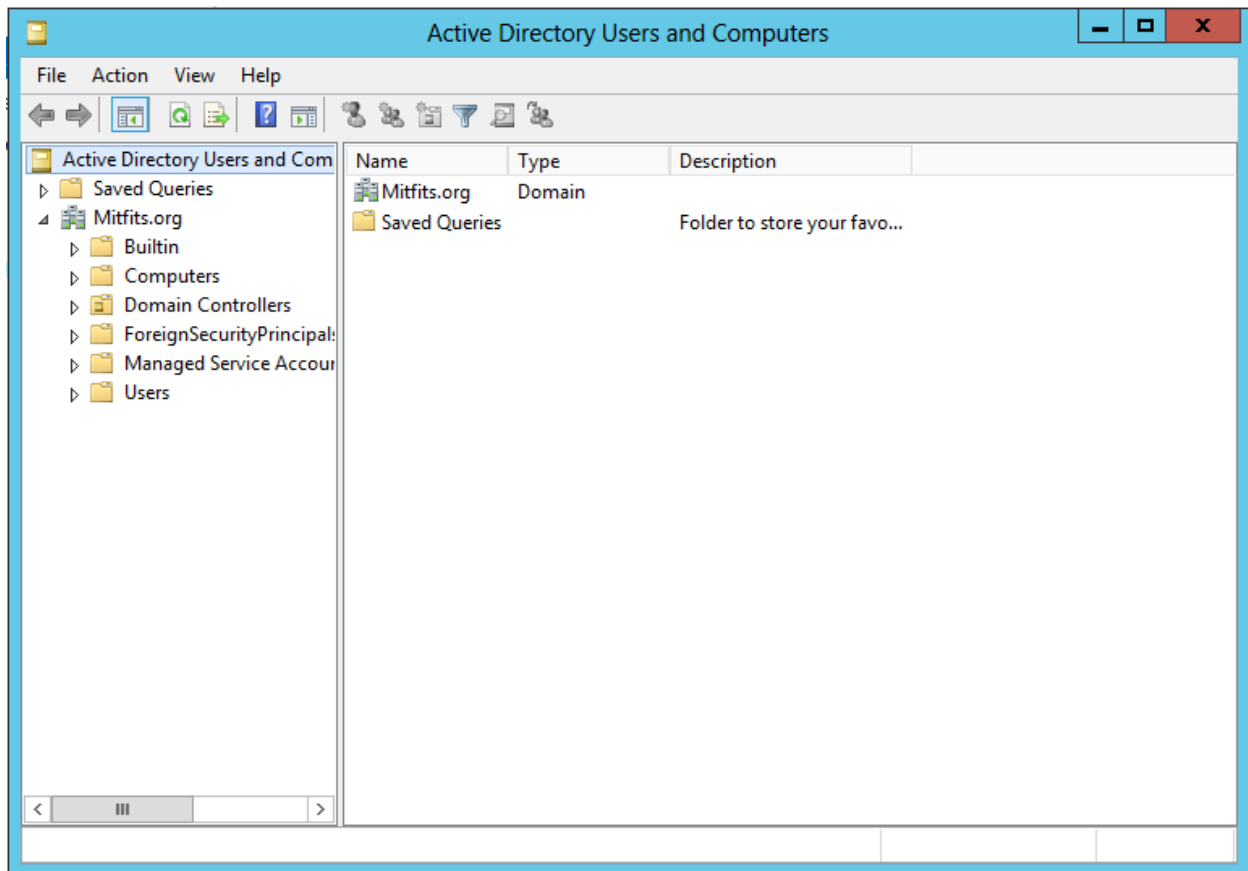
You will notice that you domain name added to your username.

3.6.2 Run dialogue



You will search for run dialogue box click it and type dsa.msc and click ok.

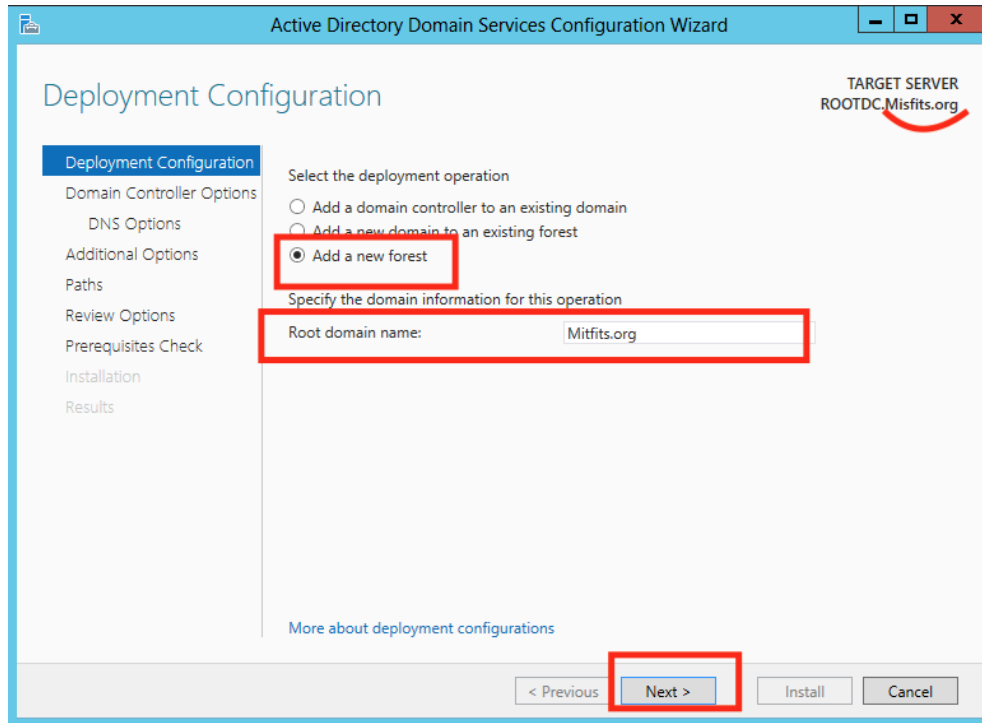
3.6.3 Active Directory



This will be the end result of your promotion you will be able to manage the network by providing authenticated user accounts, groups, and OUs by using Active Directory Users and Computers.

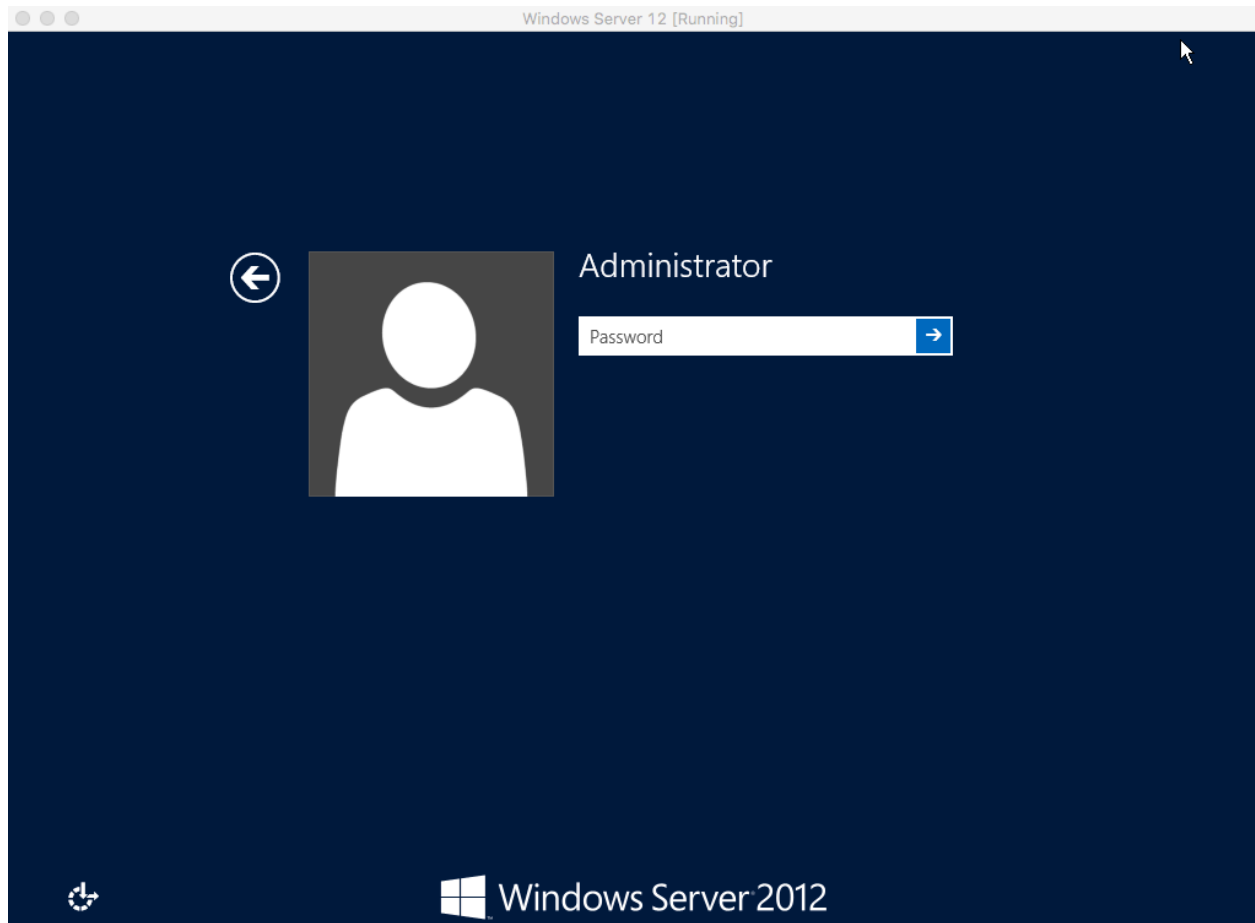
4.0 Troubleshooting

4.0.1 Wrong Option



A common problem is making sure you pick the correct option that can lead to problems.

4.0.3 Wrong Passwords



Another is making sure what you remember your password for your account.

5.0 Glossary

Domain Controller	A computer that manages a network by providing services and resources.
Promotion	Server to Domain Controller
Active Directory	A collection of Users, Groups, and OUs
ISO image	A cd or dvd burning of a computer file
Virtual Machine	A program that simulates what a physical computer does.
Windows Server 2012	An Operating System that supports enterprise level jobs.
Password	A secret phrase used as a form of authentication to get into something.

6.0 References List

Jahanshahi, Ideen. (2014). Promoting a windows 2012R2 server to domain controller. Retrieved from

<https://interworks.com/blog/ijahanshahi/2014/01/06/promoting-windows-2012r2-server-domain-controller/>

Microsoft. (2017). Active directory domain services overview. *Microsoft Docs*. Retrieved from <https://docs.microsoft.com/en-us/windows-server/identity/ad-ds/get-started/virtual-dc/active-directory-domain-services-overview>

VSphere Documentation Center. Retrieved from

https://pubs.vmware.com/vsphere-50/topic/com.vmware.vsphere.vm_admin.doc_50/GUID-CEF6D89-8C19-4143-8C26-4B6D6734D2CB.html

Links provided for download

VirtualBox Retrieved by <https://www.virtualbox.org/wiki/Downloads>

Windows Server 2012 r2 Retrieved by

<https://www.microsoft.com/en-us/evalcenter/evaluate-windows-server-2012-r2>