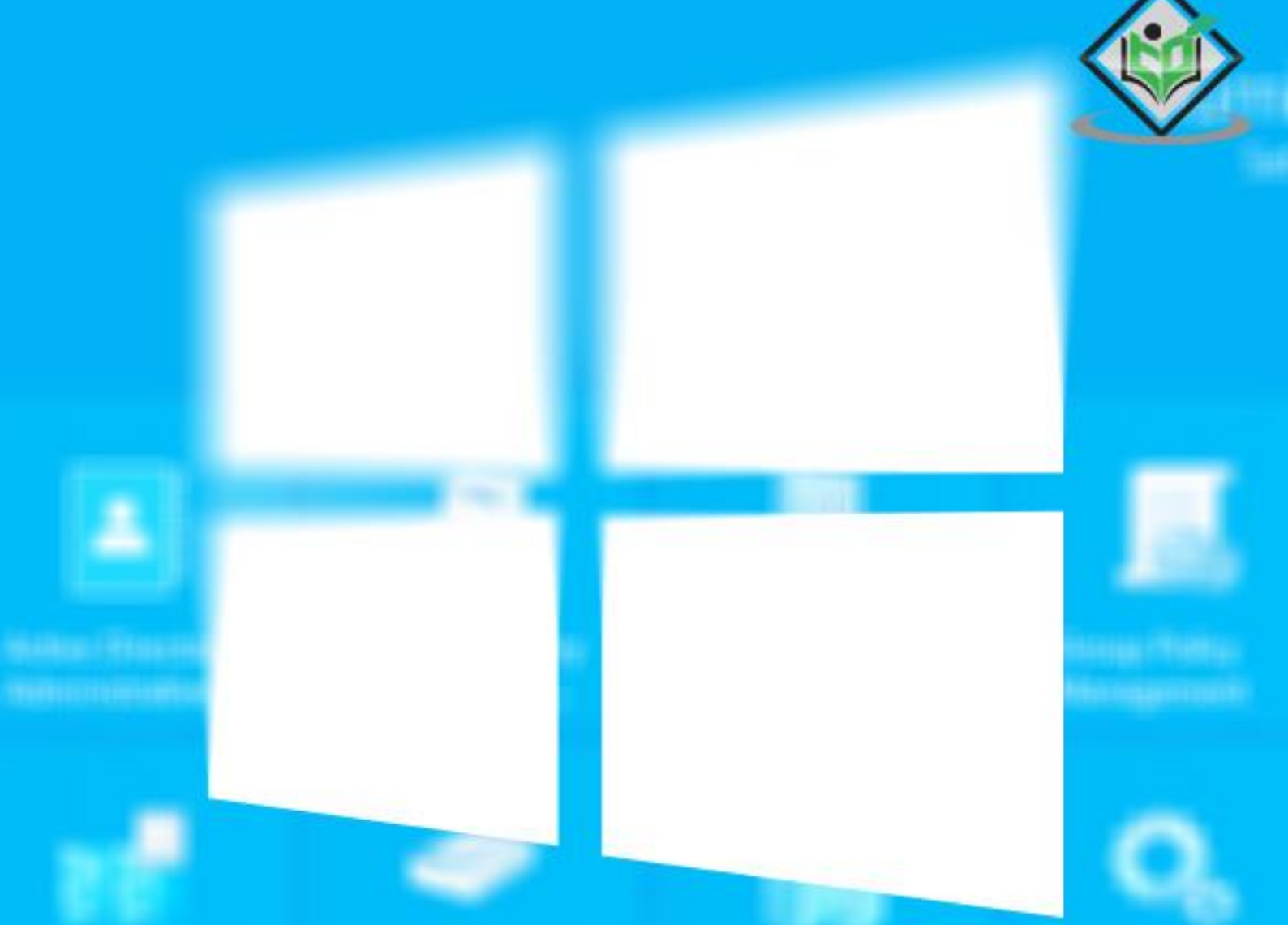

Windows Server 2012

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About the Tutorial

Windows Server 2012 codenamed Windows Server 8 is the most recent version of the operating system from Microsoft regarding server management, but not the last one which is Windows Server 2016. Officially it was released on August 1, 2012 and is just a commercial version as of now.

Windows Server 2012 has four editions: Foundation, Essentials, Standard and Datacenter. Each one of them has their own limitations except the Datacenter version, which is also the most expensive one.

This is an introductory tutorial that explains all the fundamentals of Windows Server 2012.

Audience

This tutorial has been designed for all those readers who want to learn the features of Windows Server 2012. It is especially going to be useful for all those professionals who are required to install and use this operating system to perform various duties in their respective organizations.

Prerequisites

We assume the readers of this tutorial have a practical experience of handling a Windows-based Servers. In addition, it is going to help if the readers have a basic knowledge of how to install and use an operating system.

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1. Windows Server 2012 – Overview

Windows Server 2012 codenamed Windows Server 8 is the most recent version of the operating system from Microsoft regarding server management. But it is not the last one, as the last one is Windows Server 2016. Officially it was released on August 1st, 2012 and is being sold as a commercial version only.

Improvements in Windows Server 2012

The major Improvements on this version are as follows:

- It is ready to be integrated with cloud systems and it still can maintain the classic features of local datacenters as a result **Hyper-V Virtualization** has new features **Hyper-v replicas**, it allows you to create virtual machines replications between clusters and storage systems.

- The **Storage migration** virtual disks can be moved to different physical storages, Virtual machine snapshots, virtual machines can be deleted from the Hyper-v and also from the virtual disks and it can be used directly without the need to shut down the virtual machine.

- The **Core server installation** easily switches to GUI installation without the need of reinstallation.

- The file server and storage service improvement is that it eliminates identical copies in the same volumes as such and saves space.

- The **Storage pools and storage spaces** allows you to group the hard disks to one or more storage pools then it allows to create virtual disks. It can add other disks to the storage pools and make available to the users without impacting them.

- **The iSCSI Target Server** can offer block storage to other servers and applications on the network using the iSCSI standard.

- **Active Directory cloning** can deploy additional domain controllers by cloning an existing virtual domain controller.

The Windows Server 2012 has four editions: **Foundation, Essentials, Standard and Datacenter**. Each one of them has their own limitation accept the Datacenter version which is also the most expensive one.

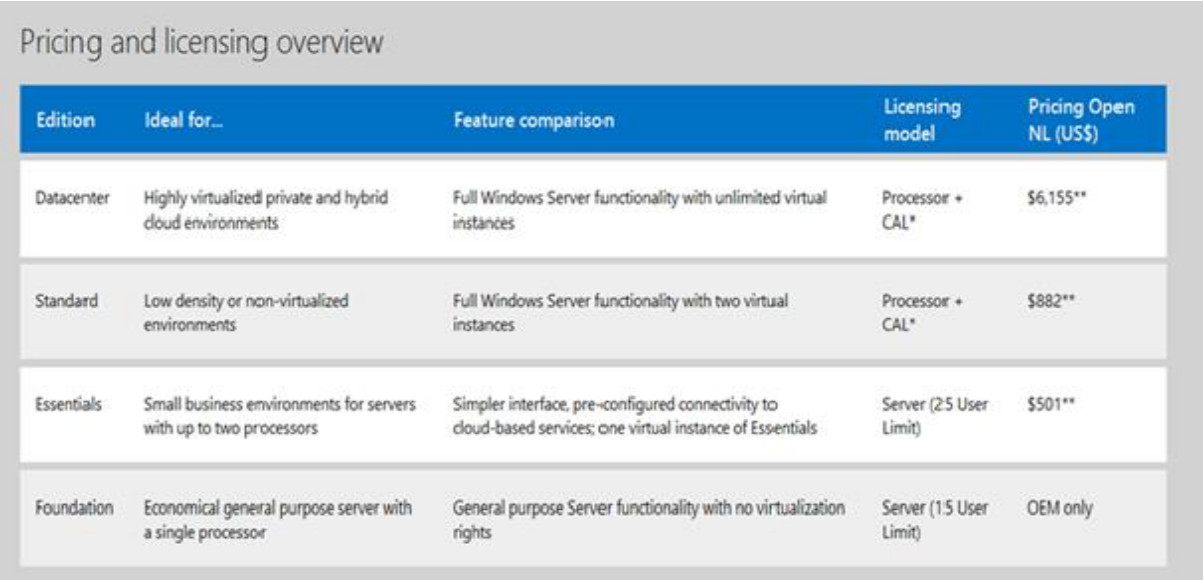
The following table will show what is the right one for your business needs:

Specifications	**Foundation**	**Essentials**	**Standard**	**Datacenter**
Distribution	OEM only	Retail, volume licensing, OEM		Volume licensing and OEM
Licensing model	Per server		Per CPUpair + CAL	
Processor chip limit	1	2	64	
Memory limit	32 GB	64 GB	4 TB	
User limit	15	25	Unlimited	
File sharing limits	1 standalone DFS root	1 standalone DFS root	Unlimited	
Network Policy and Access Services limits	50 RRAS connections and 10 IAS connections	250 RRAS connections, 50 IAS connections, and 2 IAS Server Groups	Unlimited	
Remote Desktop Services limits	50 Remote Desktop Services connections	Gateway only	Unlimited	
Virtualization rights	N/A	Either in 1 VM or 1 physical server, but not both at once	2 VMs	Unlimited

Active Directory Certificate Services	Certificate Authorities only	Certificate Authorities only	Yes
Hyper-V	No	No	Yes
Server Core mode	No	No	Yes
Windows Server Update Services	No	No	Yes

For finding out the cost of licensing you can click on the following link:

https://www.microsoft.com/en-us/server-cloud/products/windows-server-2012-r2/purchasing.aspx



Pricing and licensing overview

Edition	Ideal for...	Feature comparison	Licensing model	Pricing Open NL (US$)
Datacenter	Highly virtualized private and hybrid cloud environments	Full Windows Server functionality with unlimited virtual instances	Processor + CAL*	$6,155**
Standard	Low density or non-virtualized environments	Full Windows Server functionality with two virtual instances	Processor + CAL*	$882**
Essentials	Small business environments for servers with up to two processors	Simpler interface, pre-configured connectivity to cloud-based services; one virtual instance of Essentials	Server (25 User Limit)	$501**
Foundation	Economical general purpose server with a single processor	General purpose Server functionality with no virtualization rights	Server (15 User Limit)	OEM only

2. Windows Server 2012 – Installation

In this chapter, we will discuss regarding the requirements and prerequisites of the Windows Server 2012.

System Requirements

Although most of the servers nowadays probably have the necessary requirements for Windows Server 2012. It will certainly be useful to know them in case you want to upgrade from an older system.

The main requirements are:

- CPU socket minimum 1.4 GHz (64-bit processor) or faster for single core and Microsoft recommends is 3.1 GHz (64-bit processor) or faster multi-core.
- RAM memory minimum is 2GB, but Microsoft recommends 8GB.
- 160 GB hard disk with a 60 GB system partition space in your hard disk.

One important thing to note here is that the installation process itself will verify your computer hardware and let you know if it qualifies for a Windows Server 2012 installation. If not, then you will need to upgrade your hardware.

Installation

The following steps are to be adhered for the installation of Windows Server 2012.

Step 1: We can download the evaluation ISO of Windows Server 2012 R2 from the following link:

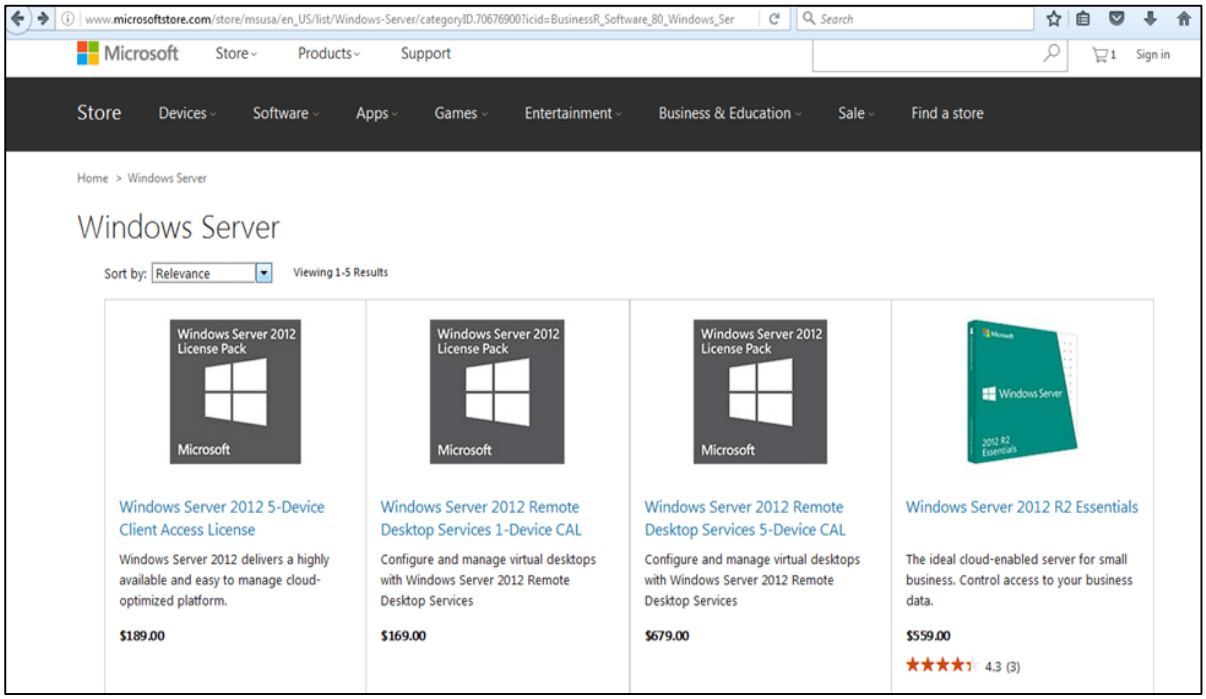
https://www.microsoft.com/en-us/evalcenter/evaluate-windows-server-2012-r2

But you will need to sign in first with a Microsoft account like Hotmail for example in order to complete the download and the good thing is that the evaluation period will last for 180 days, so you will have enough time to know if it will be the right product for you or not.

At the end, if you decide to buy the license of your Windows server 2012 R2. You can purchase it online via a Microsoft online store found in –

http://www.microsoftstore.com/store/msusa/en_US/list/Windows-Server/categoryID.70676900?icid=BusinessR_Software_80_Windows_Server_112315

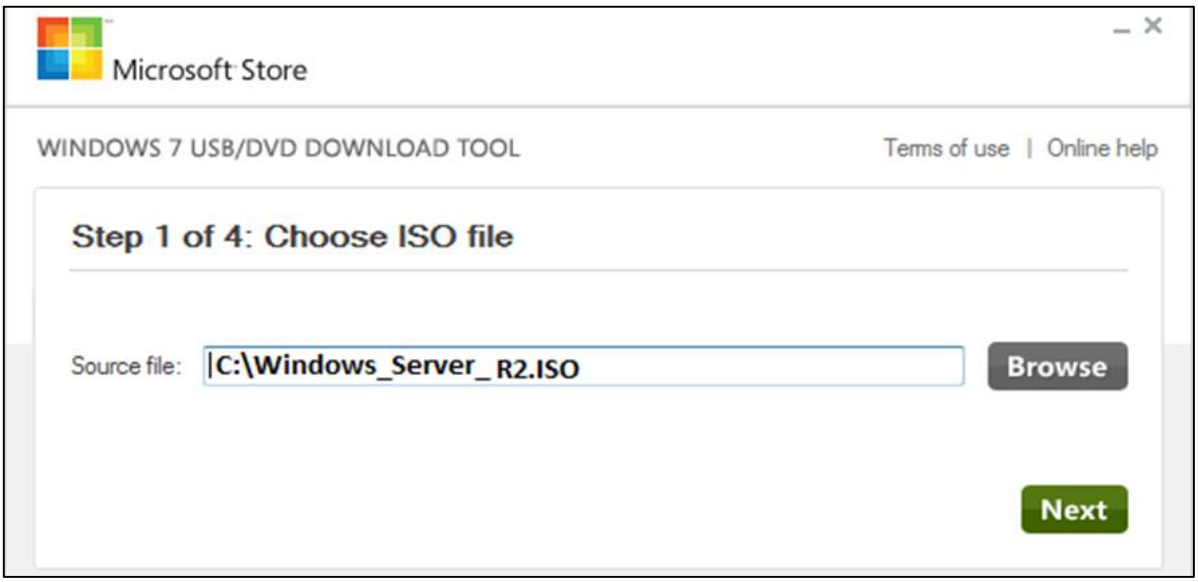
For the Enterprise solution, I would recommend to purchase it via a Microsoft partner that is found in your country.



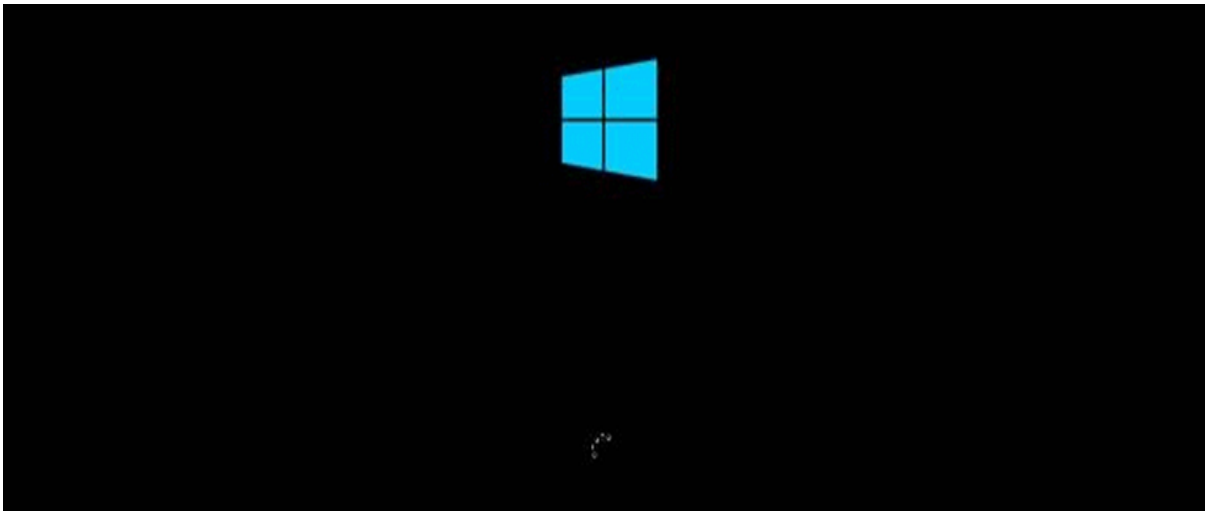
Step 2: After downloading the ISO of Microsoft, create a boot USB driver which can be created with the Microsoft tool called Windows USB/DVD Download Tool and can be downloaded from the following link:

https://www.microsoft.com/en-us/download/windows-usb-dvd-download-tool

After downloading the EXE file, open it and select the ISO file location and then click next like in the following screenshot, and wait up to the end when the Boot USB is created.



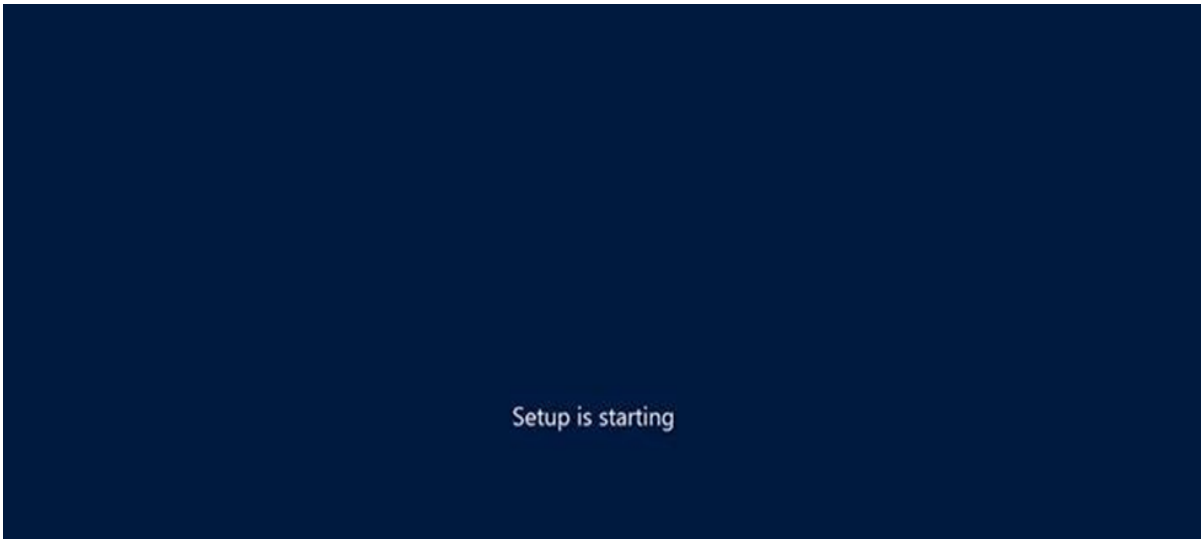
Step 3: After completing the above given steps, plug-in the USB to the server and wait for a while till it loads the files. This will continue for about a couple of minutes as shown in the following screenshot.



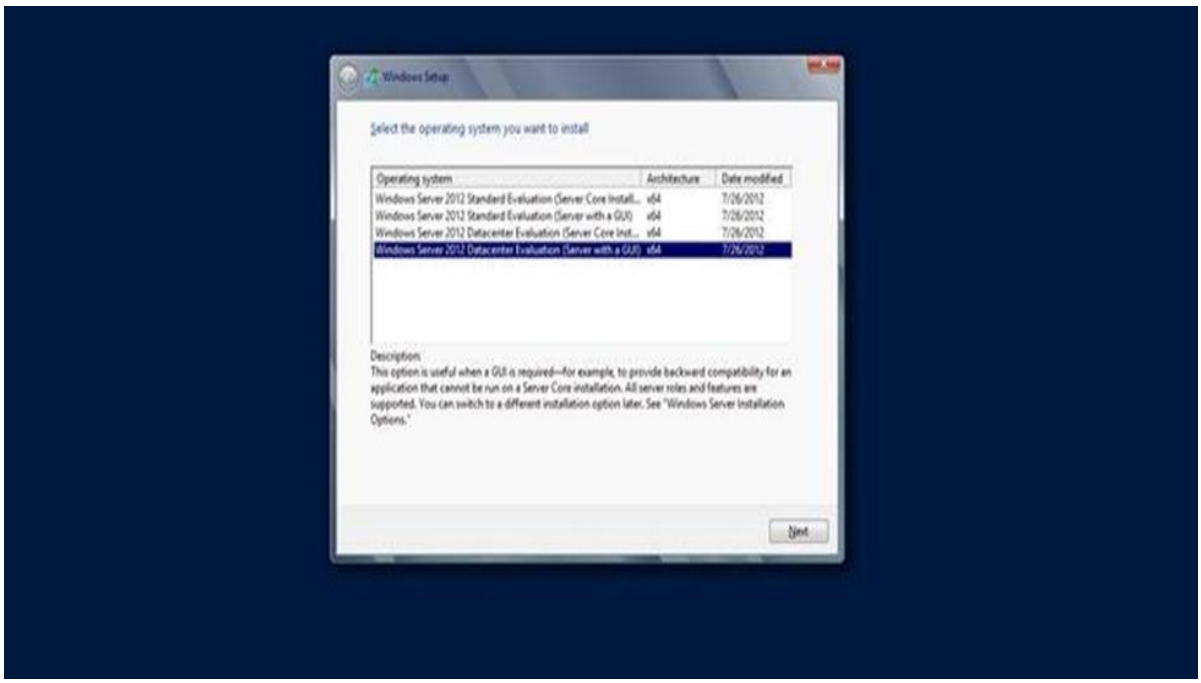
Step 4: After the files are loaded, you will see the screen of language settings of installation, keyboard, time and currency format. Generally, all the default ones are also good enough to start with. Click Next.

Step 5: Click "Install now".

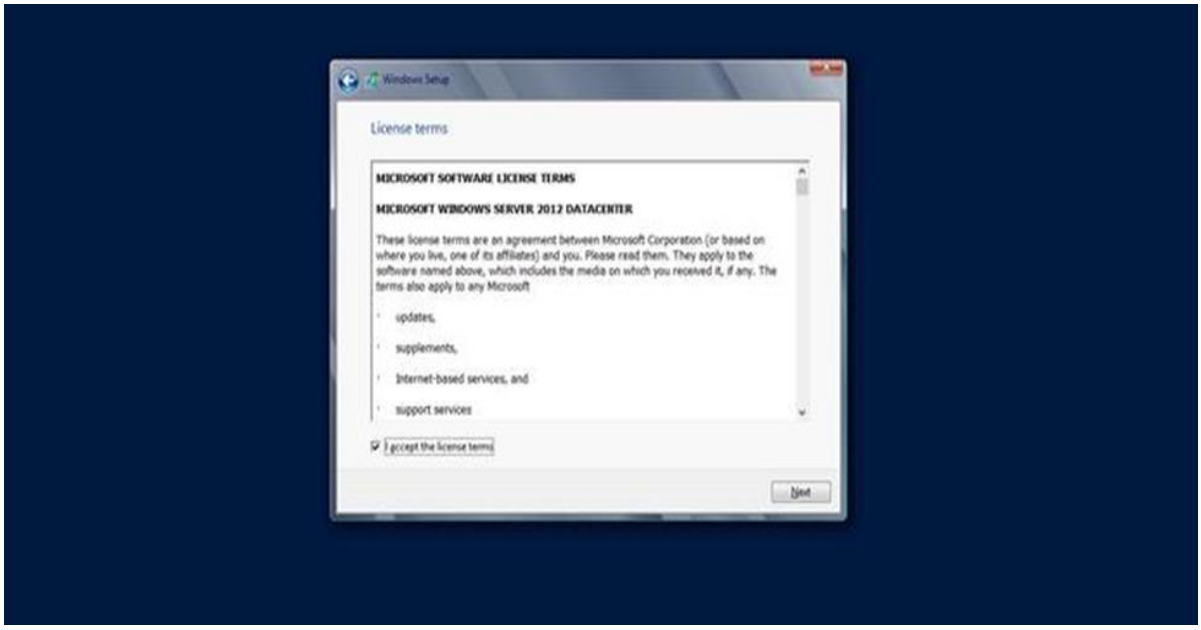
Step 6: Once you have clicked on Install Now, the setup will start and it will load all the files and the screen will look as shown in the following screenshot.



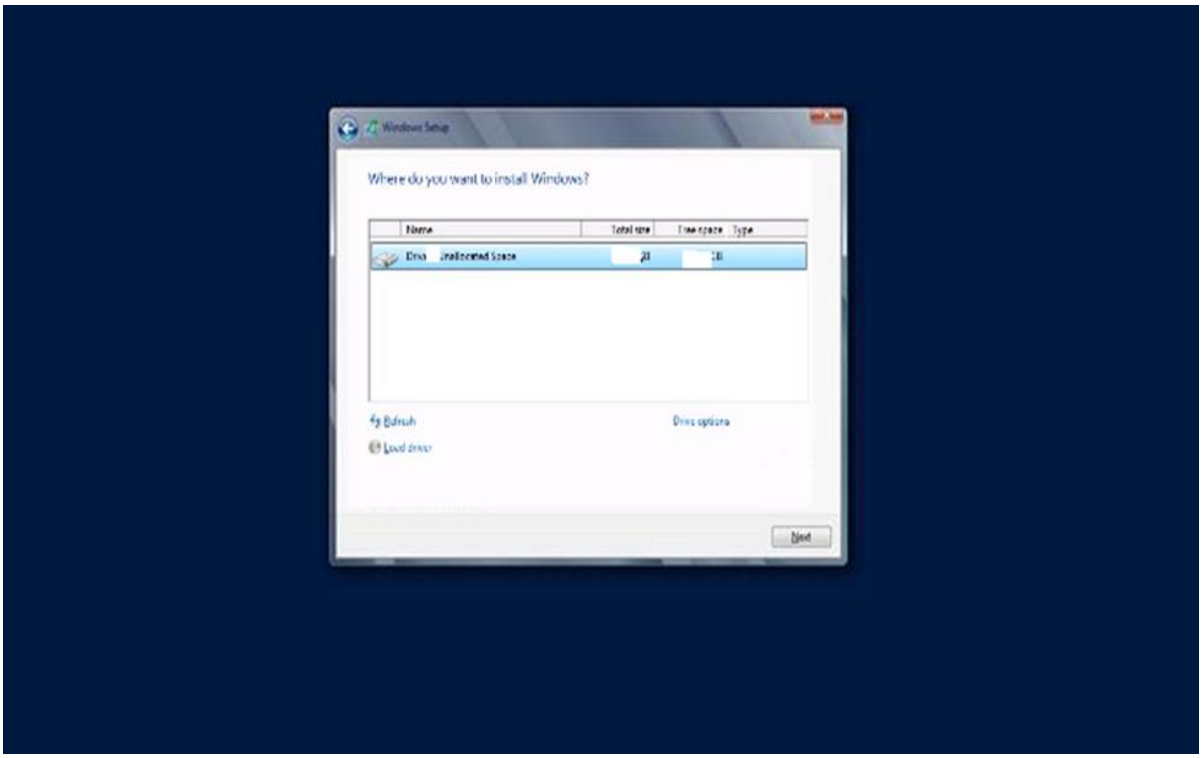
Step 7: Wait until the files are loaded and then you will see the following screen. Let's select Windows Server 2012 DataCenter Evaluation (Server with GUI) and click Next.



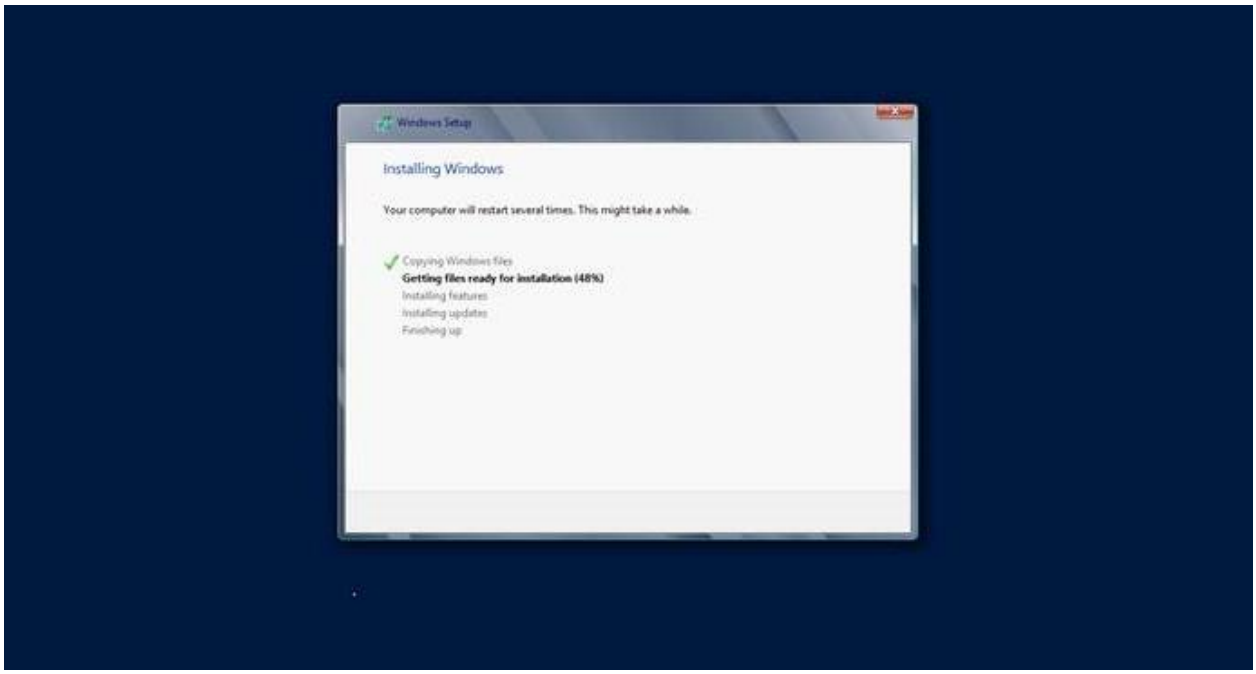
Step 8: Click "I accept the license terms" and then click on the Next button as shown in the following screenshot.



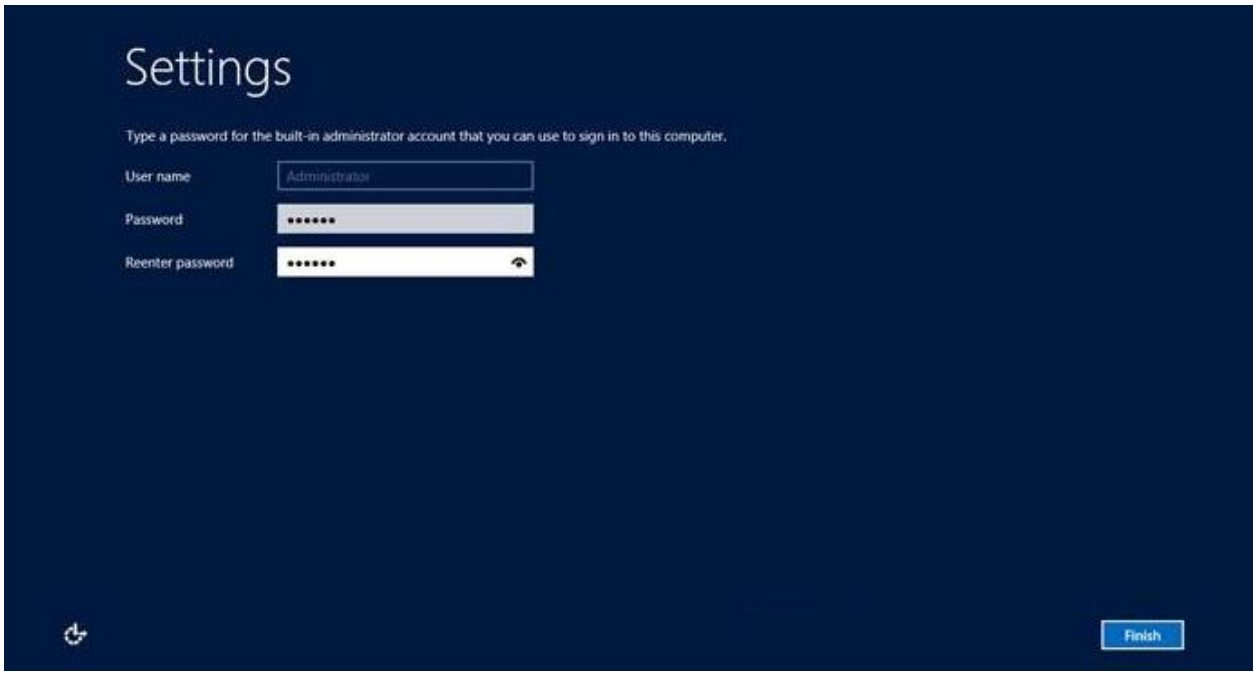
Step 9: The following screen will appear. In "Driver Options" you can create a new partition, delete or format the Hard disk. After you have done this process then you can select the partition where the Windows server 2012 R2 will be installed in our case we have one partition. Once all this is done, then click on Next.



Step 10: Let's wait until this process finishes during this time and then the server will reboot.



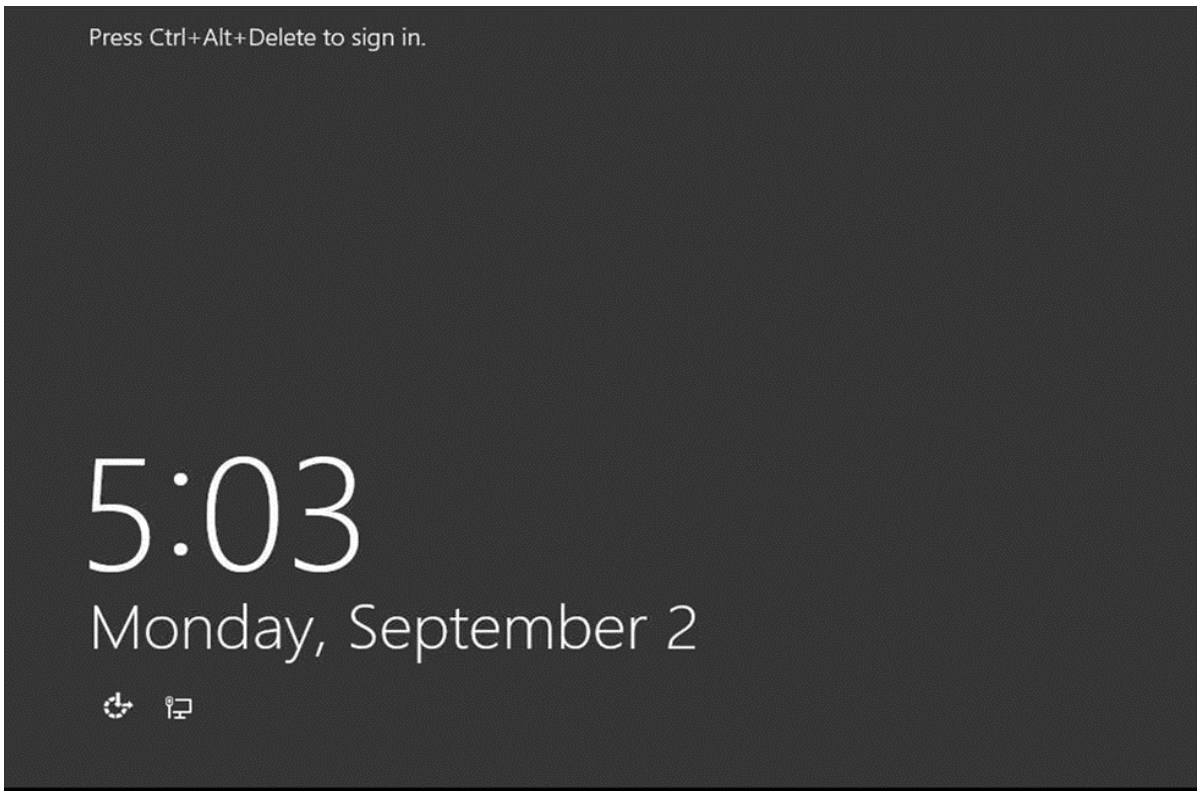
Step 11: Once the reboot is done the following screen will appear. Set the password for the server and then click on "Finish".



Step 12: It will take some minutes until the setup finishes completely.

Step 13: Once all this is done, you have completed the installation process and the following screen will appear.

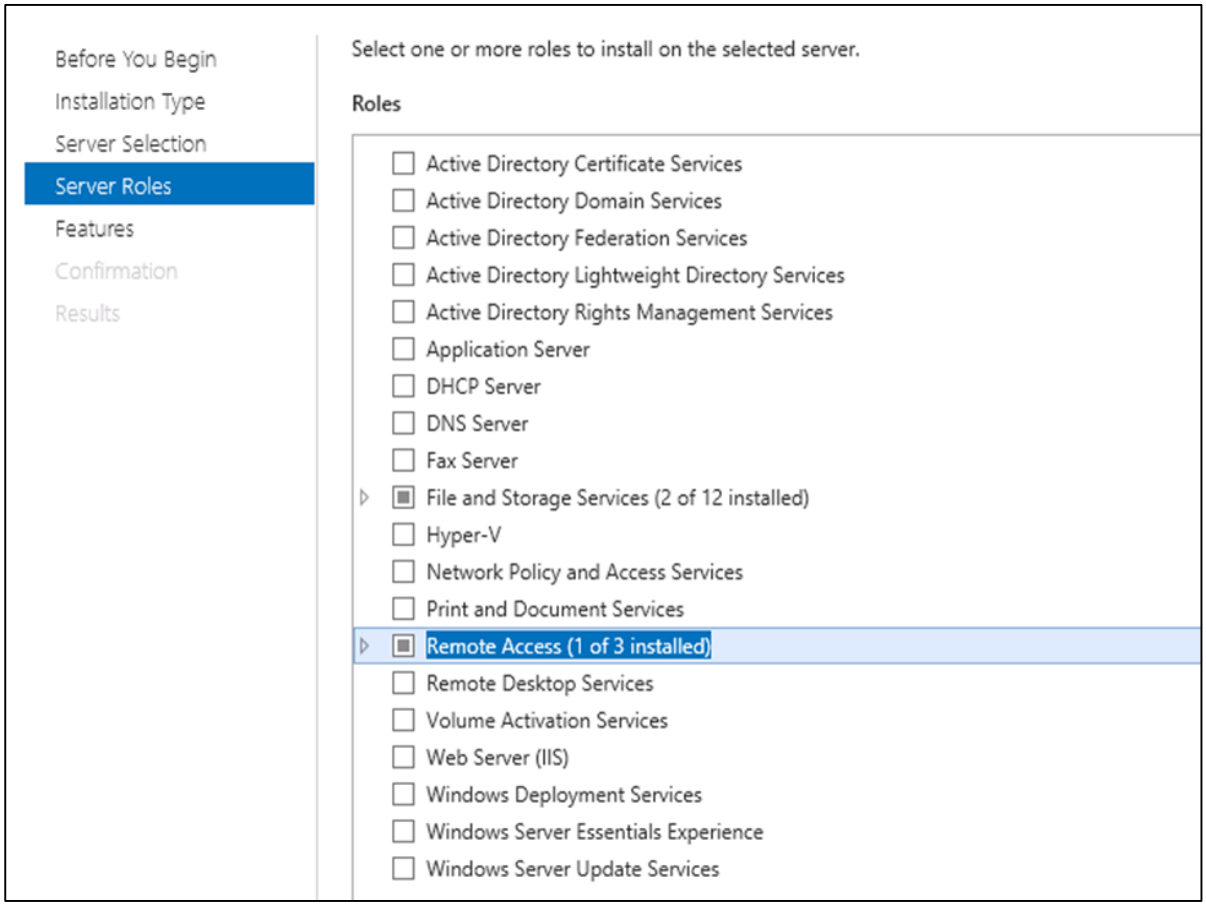
Congratulations!!!



3. Windows Server 2012 – Server Roles

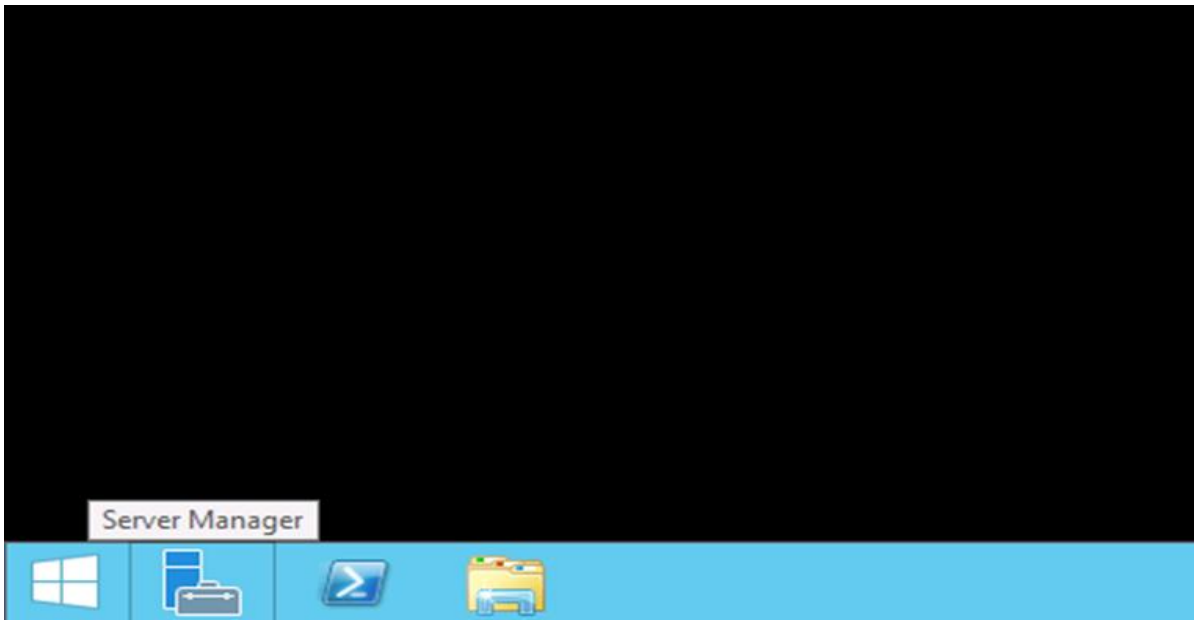
Like the previous version, Windows Server 2012 has the following roles which can be used and in the subsequent chapter, we will see how to install and configure the most important ones.

The following picture shows all the roles. **A small reminder! –** Roles and Features are the tools that you need to install or activate in order to complete your IT Administration duties, without their installation you cannot do anything.

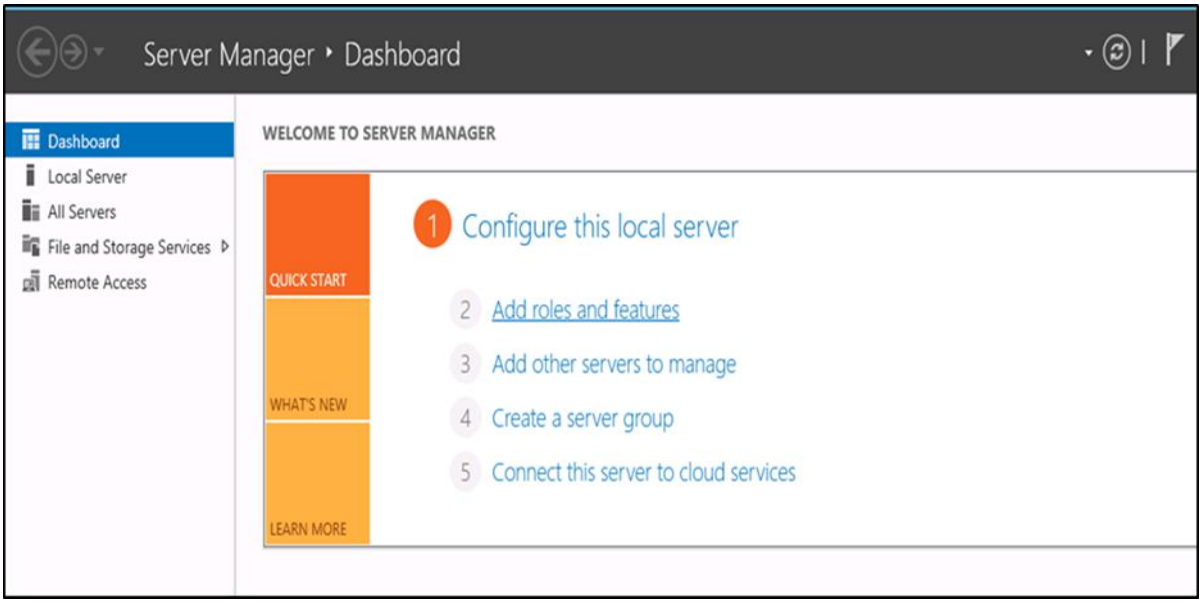


To add a role in the server we should adhere to the following steps:

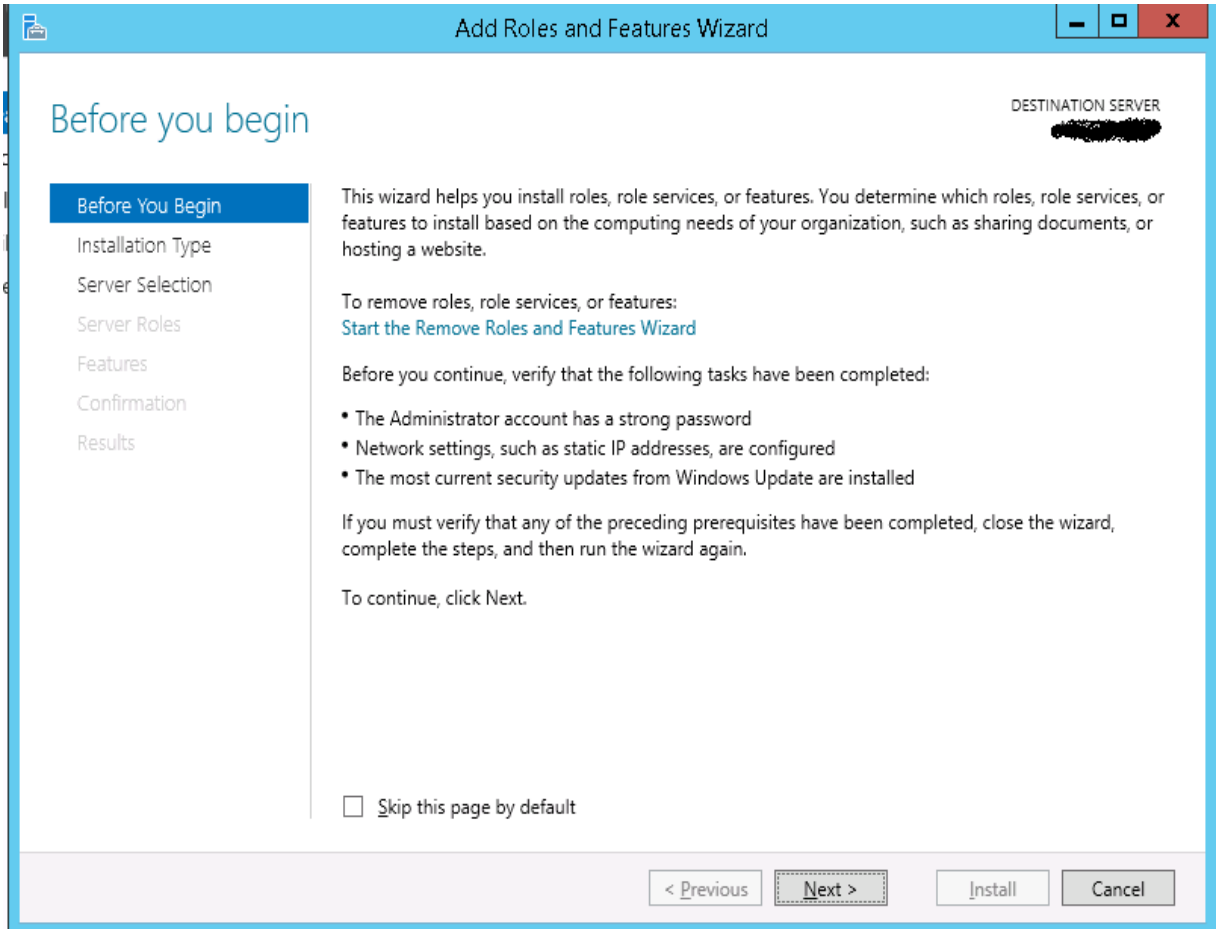
Step 1: Click with the mouse on Server Manager which is found in the task bar as shown in the following screenshot.



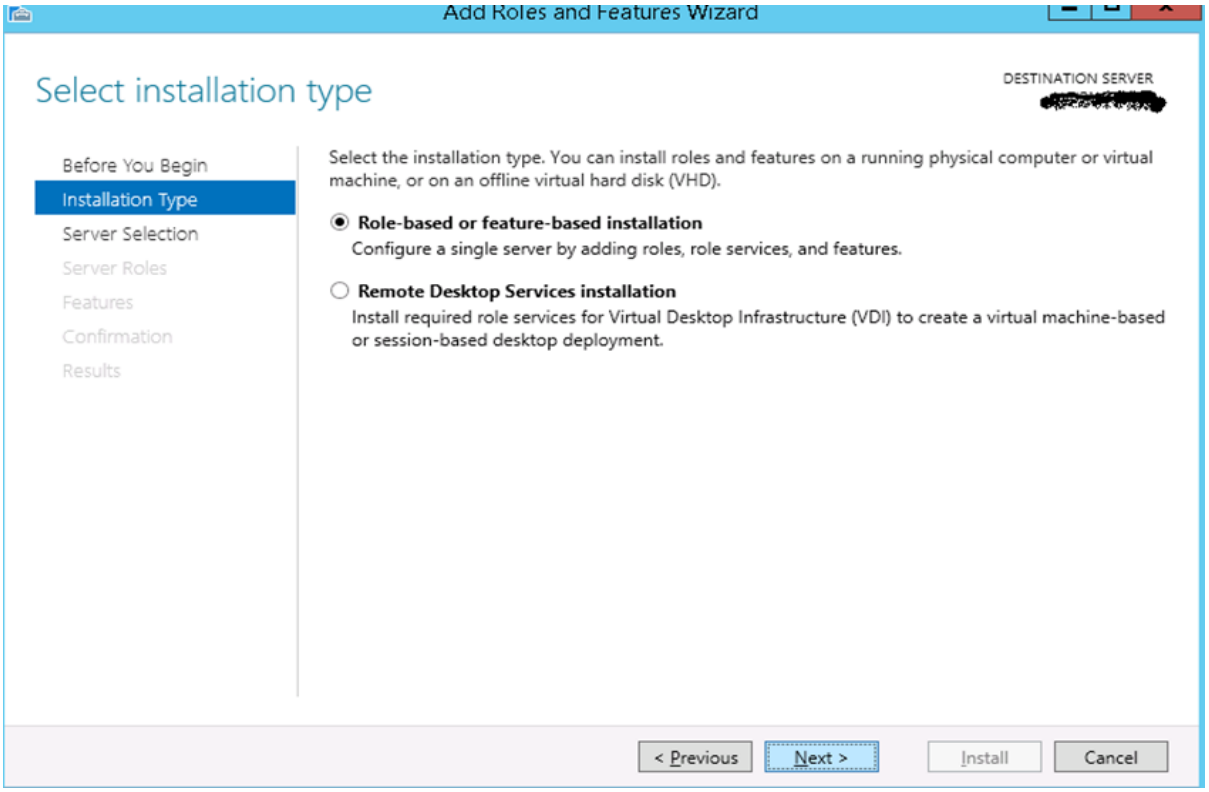
Step 2: After opening the "Server Manager", click on the second option "Add roles and features".



Step 3: The following screen will appear, then you can Click on the Next button.

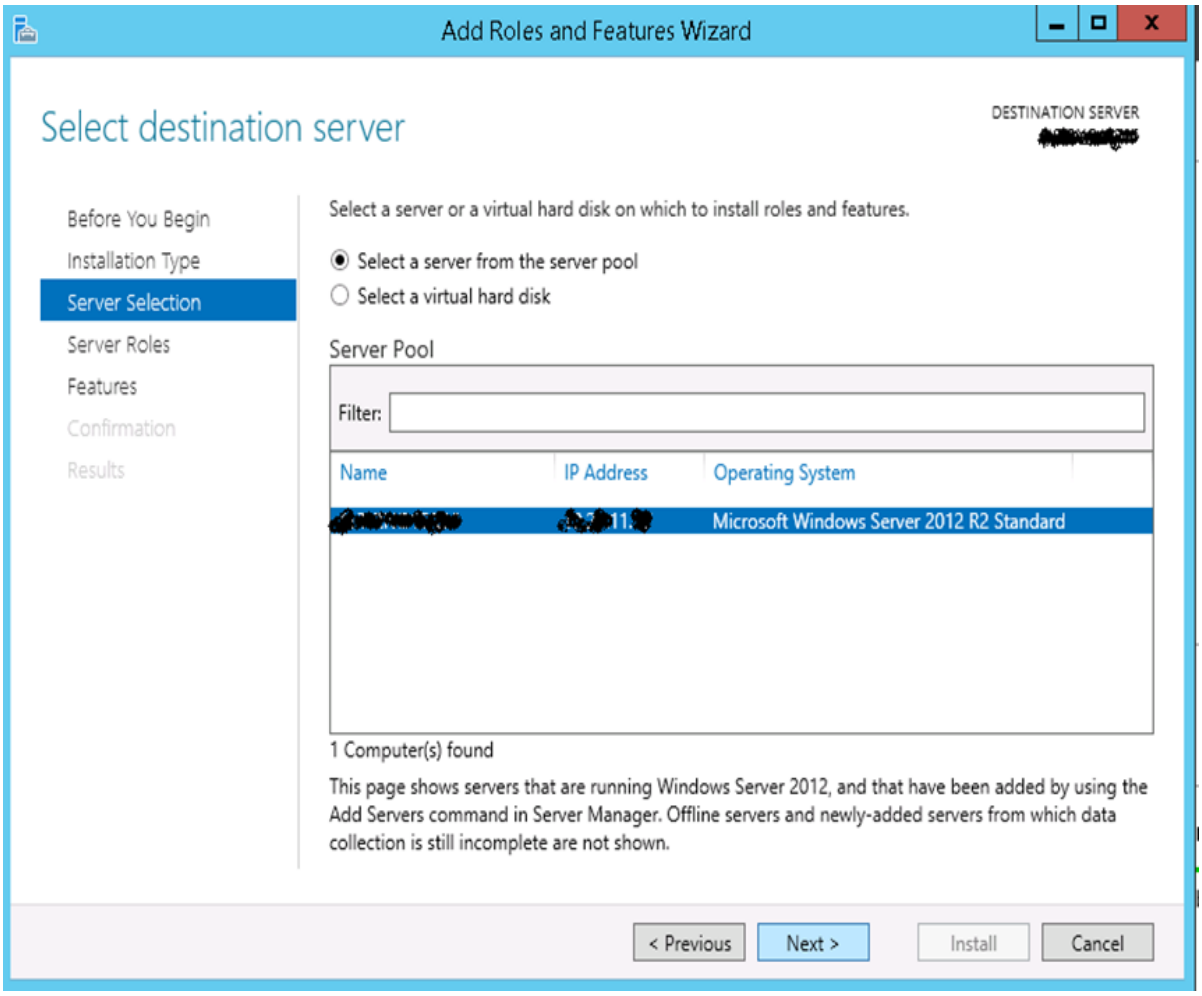


Step 4: Select the Role-based or feature-based installation and then click on the Next button.

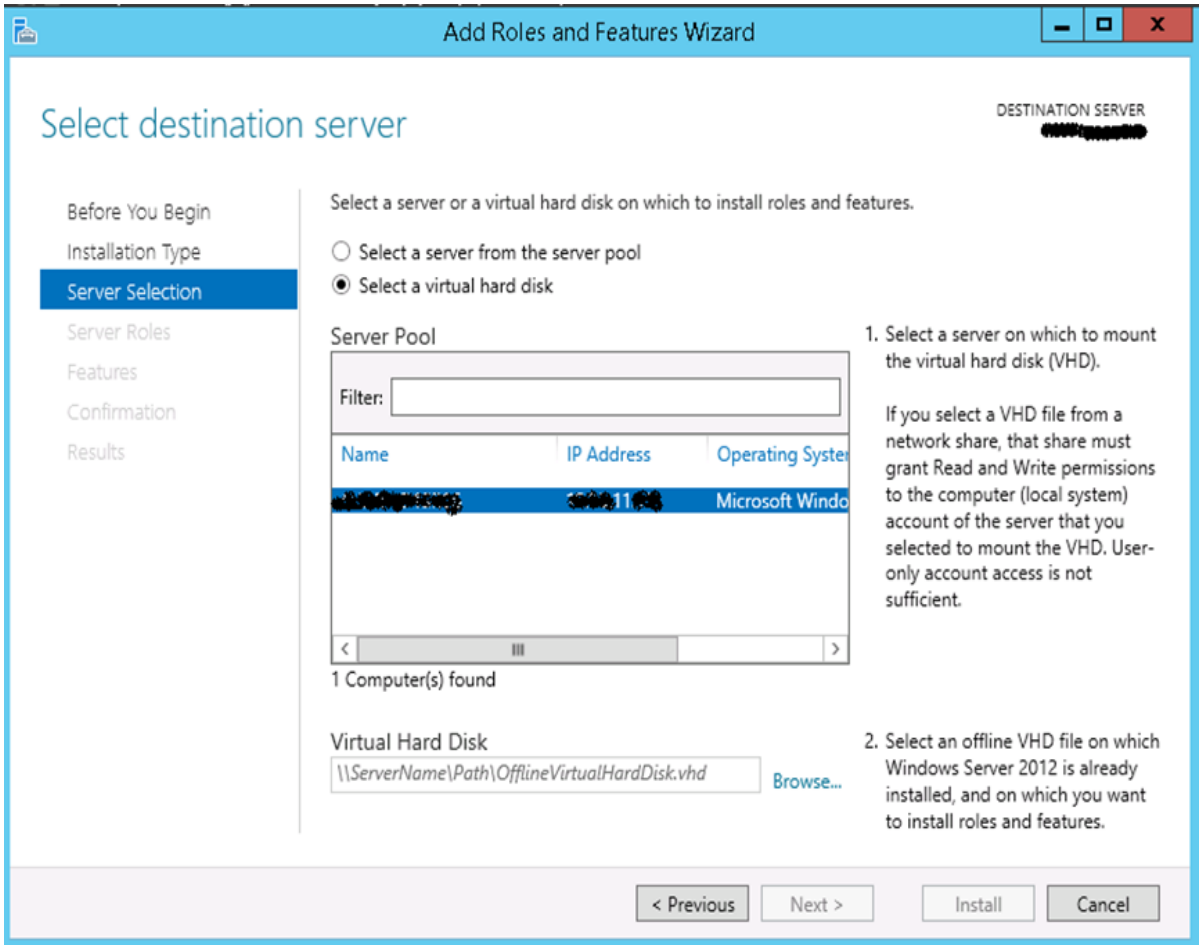


In the next screen that appears, you will have the following two options:

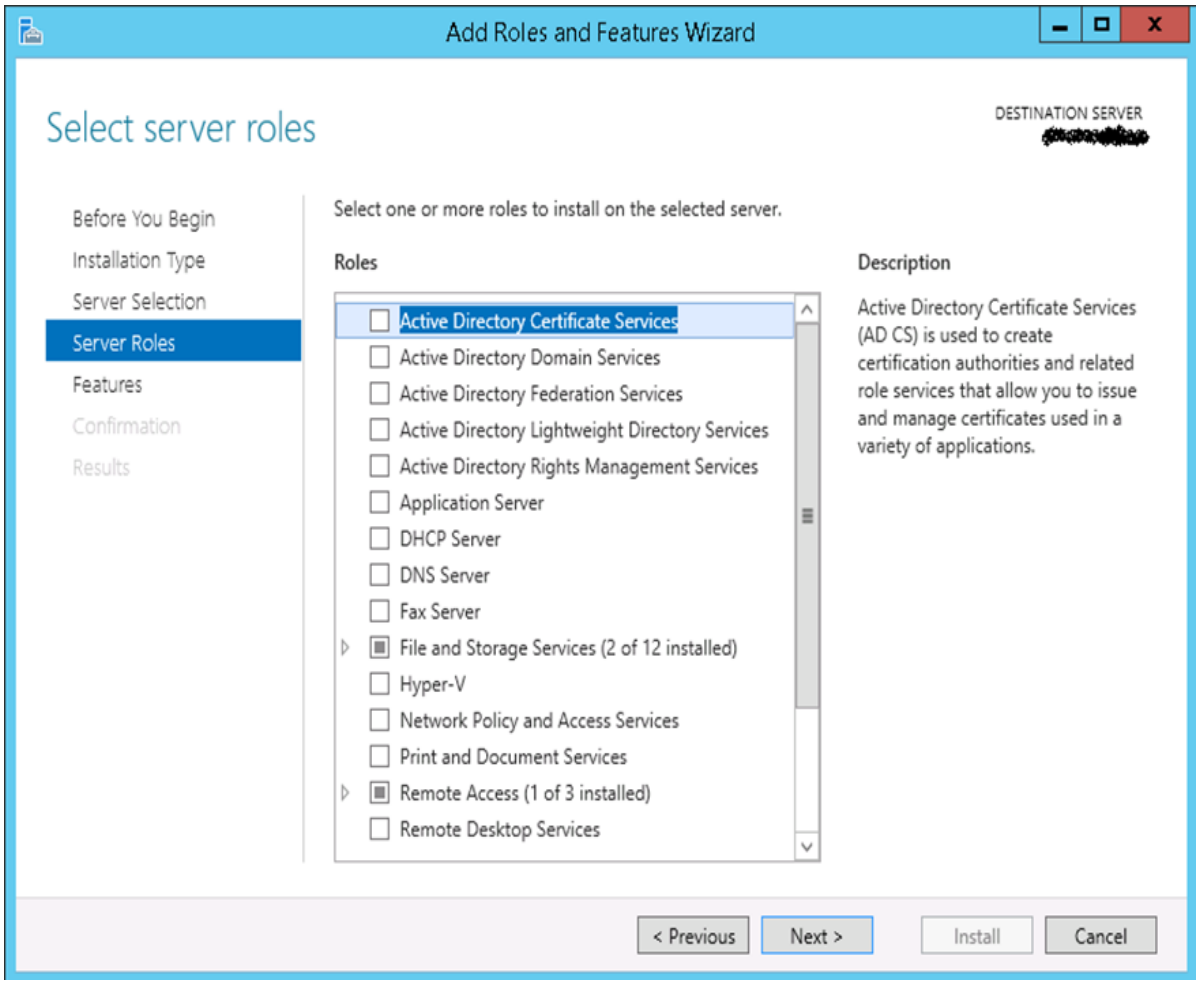
Option 1: Select a server from the server pool. This option is – if you want to install the services in the physical server like being done in the following screenshot.



Option 2: Select a virtual Hard disk if you want to install the services in a virtual disk that can be somewhere in the network storage. Take a look at the following screenshot for better understanding.



Step 5: The last step will be to check the service that you want to install, but in the upcoming chapters we will continue this setup for each and every important services.



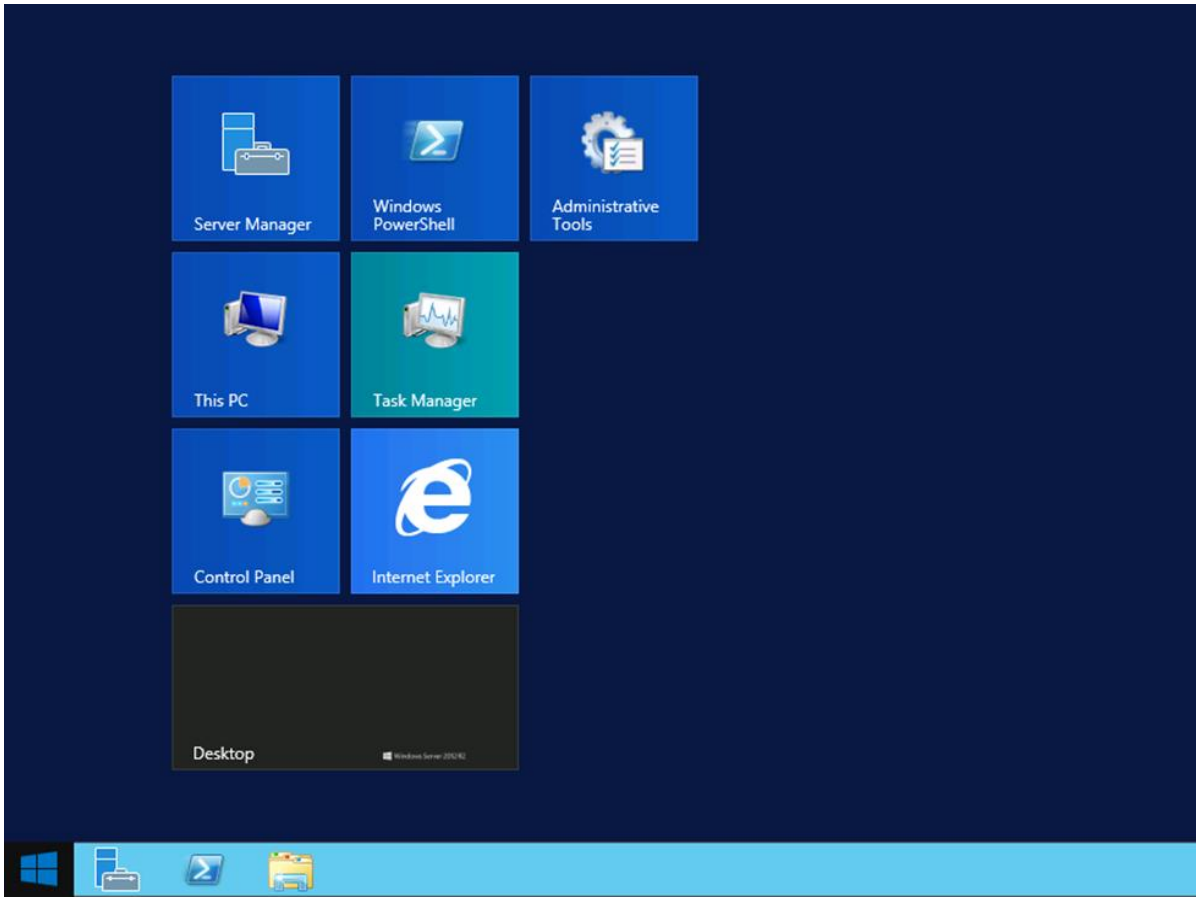
4. Windows Server 2012 – PowerShell

Windows PowerShell is a **command-line shell** and **scripting language** designed especially for system administration. It's analogue in Linux is called as Bash Scripting. Built on the .NET Framework, Windows PowerShell helps IT professionals to control and automate the administration of the Windows operating system and applications that run on Windows Server environment.

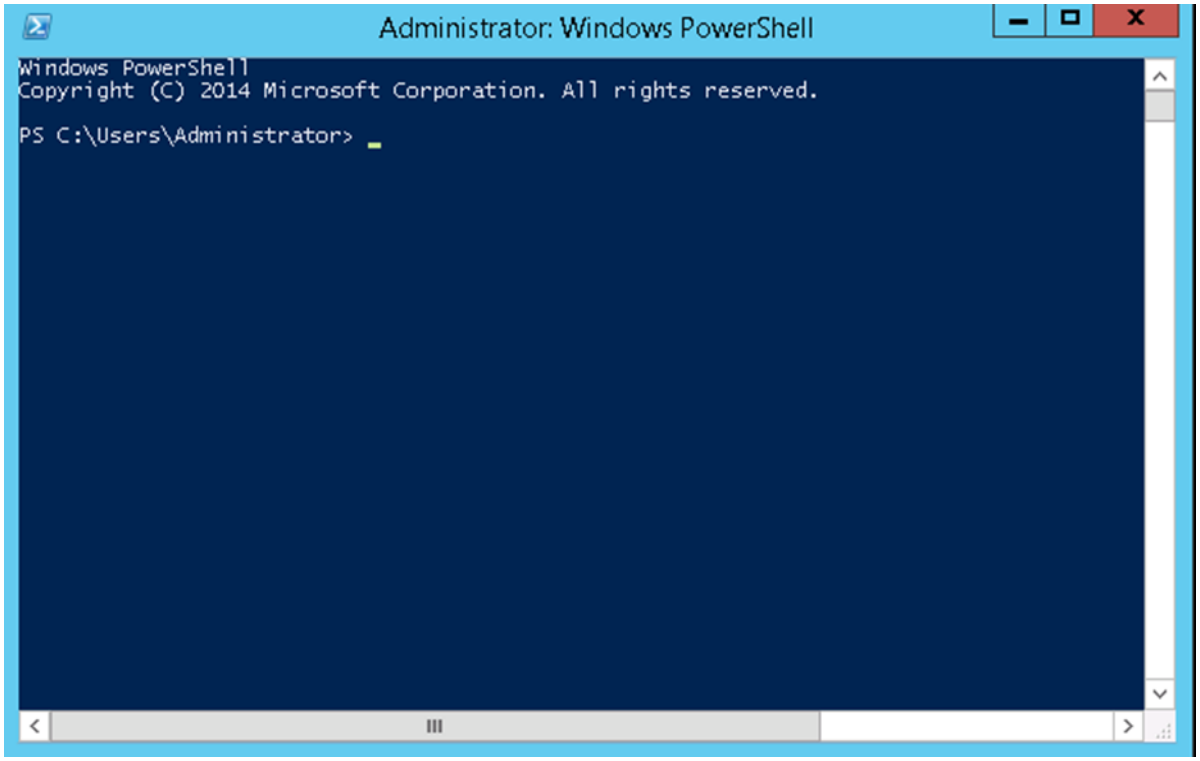
Windows PowerShell commands, called **cmdlets**, let you manage the computers from the command line. Windows PowerShell providers let you access data stores, such as the Registry and Certificate Store, as easily as you access the file system.

In addition, Windows PowerShell has a rich expression parser and a fully developed scripting language. So in simple words you can complete all the tasks that you do with GUI and much more.

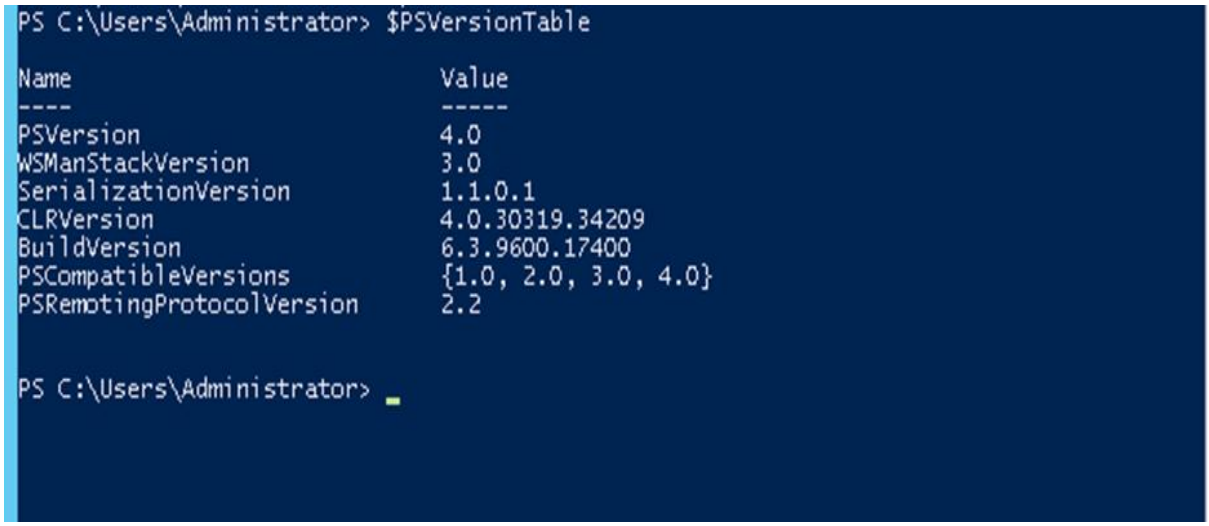
PowerShell Icon can be found in the task bar and in the start menu. Just by clicking on the icon, it will open.



To open it, just click on the icon and then the following screen will open and it means that PowerShell is ready for you to work on.

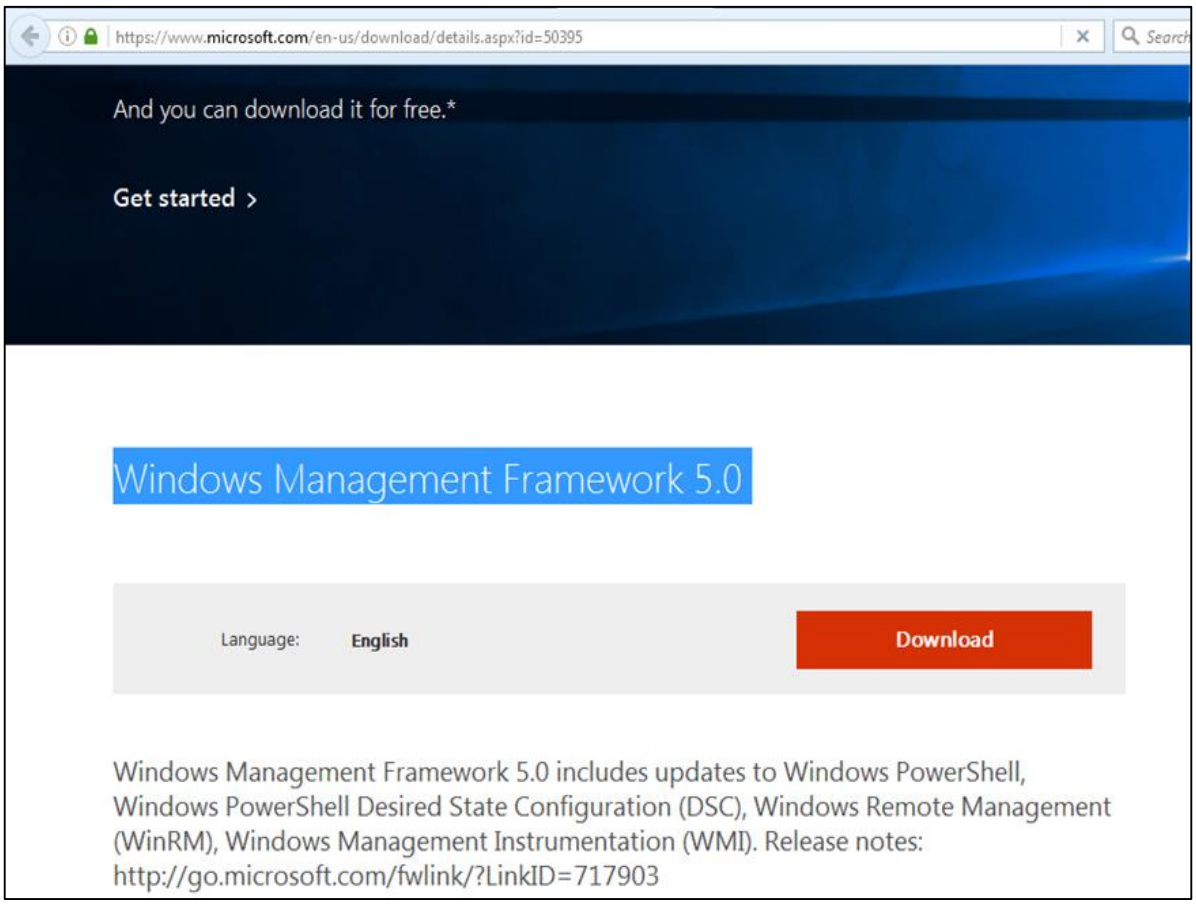


The latest version of PowerShell is 5.0 and to check what is installed in our server we type the following command – **:$PSVersionTable** as shown in the following screenshot and from the screen we also know that we have PSVersion 4.0



To update with the latest version where it has more Cmdlets we have to download **Windows Management Framework 5.0** from the following link –

https://www.microsoft.com/en-us/download/details.aspx?id=50395 and install it.



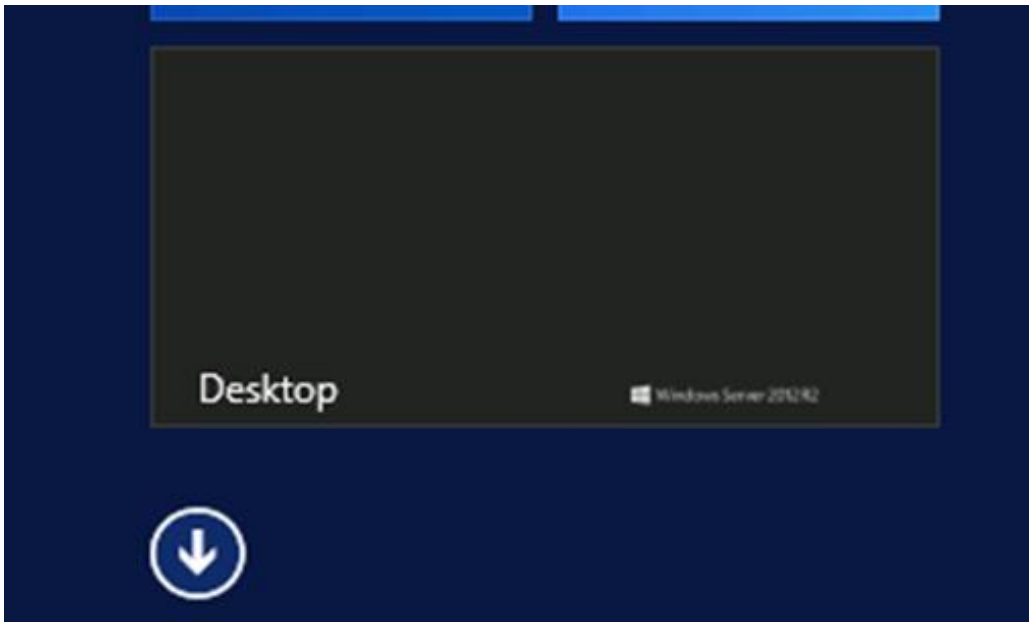
PowerShell ISE

The Windows PowerShell **Integrated Scripting Environment** (ISE) is a host application for Windows PowerShell. In Windows PowerShell ISE, you can run commands and write, test, and debug scripts in a single Windows-based graphic user interface with multiline editing, tab completion, syntax coloring, selective execution, context-sensitive help, and support for right-to-left languages.

You can use menu items and keyboard shortcuts to perform many of the same tasks that you would perform in the Windows PowerShell console. For example, when you debug a script in the Windows PowerShell ISE, to set a line breakpoint in a script, right-click the line of code, and then click **Toggle Breakpoint**.

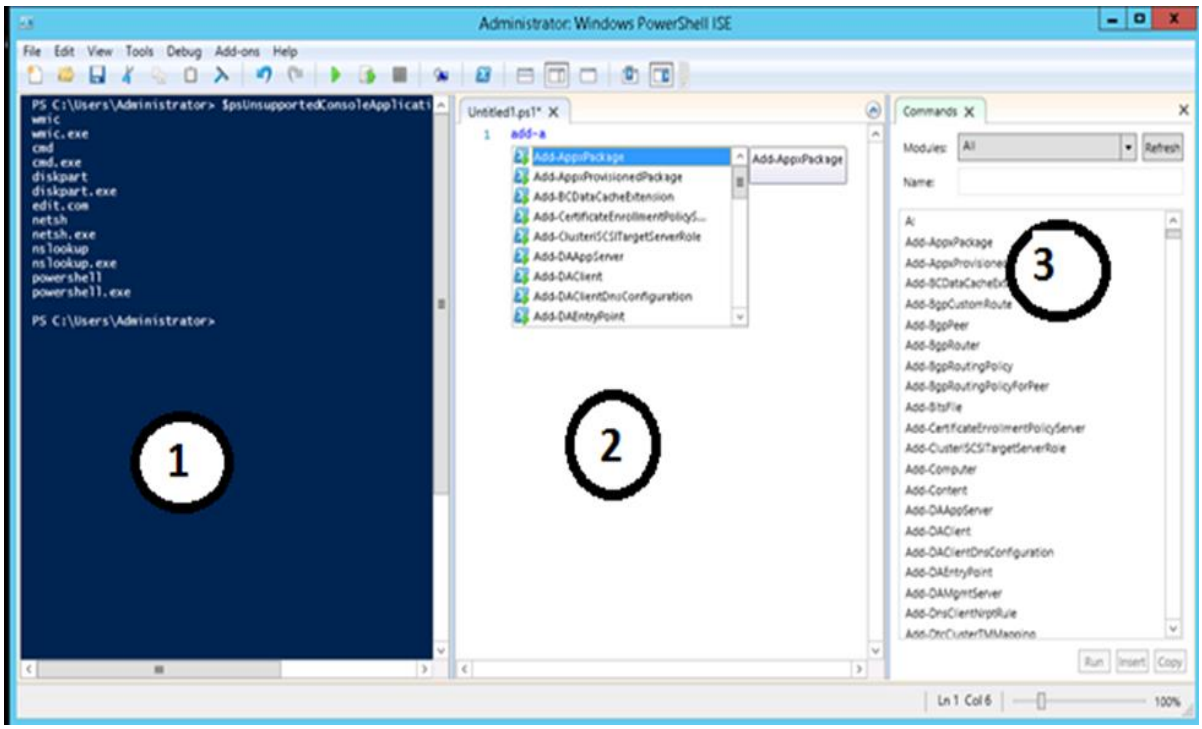
To open it you just go to Start – Search and then Type – PowerShell as shown in the following screenshot.

Then click on Windows PowerShell ISE. Or click on the downward Arrow as shown in the following screenshot.



It will list all the applications installed on the server and then click on Windows PowerShell ISE.

The following table will be open –



It has three sections, which include – The **PowerShell Console** with number 1, then **Scripting File** number 2 and the third is the **Command Module** where you can find the module.

End of ebook preview

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