

# 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 Windowsbased 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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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 1<sup>st</sup>, 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 s	erver	Per CPUp	air + CAL
Processor chip limit	1	2	6	64
Memory limit	32 GB	64 GB	4	ТВ
User limit	15	25	Unlir	nited
File sharing limits	1 standalone DFS root	1 standalone DFS root	Unlir	nited
Network Policy and Access Services limits	50 RRAS connections and 10 IAS connections	250 RRAS connections, 50 IAS connections, and 2 IAS Server Groups	Unlir	nited
Remote Desktop Services limits	50 Remote Desktop Services connections	Gateway only	Unlir	nited



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	Ye	es
Hyper-V	No	No	Ye	es
Server Core mode	No	No	Ye	25
Windows Server Update Services	No	No	Ye	es

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-2012r2/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



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.

Microsoft Store- Products	- Support		)이 문1
Store Devices Software	Apps Games Entertainment	Business & Education - Sale	Find a store
Home > Windows Server			
Windows Server			
Sort by: Relevance Viewing 1-5	Results		
Windows Server 2012 License Pack	Windows Server 2012 License Pack	Windows Server 2012 License Pack	1 <b>1</b>
			Strington Server
Microsoft	Microsoft	Microsoft	Sec 17 Barrents
Mindows Secure 2013 5 Davies	Windows Server 2012 Remote	Windows Server 2012 Remote	Windows Server 2012 R2 Essential
Client Access License	Desktop Services 1-Device CAL	Desktop Services 5-Device CAL	
Client Access License Windows Server 2012 delivers a highly available and easy to manage cloud- optimized platform.	Desktop Services 1-Device CAL Configure and manage virtual desktops with Windows Server 2012 Remote Desktop Services	Desktop Services 5-Device CAL Configure and manage virtual desktops with Windows Server 2012 Remote Desktop Services	The ideal cloud-enabled server for small butiness. Control access to your business data.

**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.

Microsoft Store	_ ×
WINDOWS 7 USB/DVD DOWNLOAD TOOL	Terms of use   Online help
Step 1 of 4: Choose ISO file	
Source file:  C:\Windows_Server_R2.ISO	Browse
	Next



**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.

(a)	Windows Setup	
	- Windows Serv	ver 2012
	Largery to relat Stated States	
	[net and Genericy Instead States]	2
	Endowed as input method US	1
	Enter your language and other performance and	click "Next" to continue,
0.00146	mouth Constrainty, All lights learning,	Best







10



**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.

Select the operating system you wait to install			
Openting system Windows Sarve 2013 Sandard Evaluation Gener Core Install. Windows Sarve 2013 Standard Evaluation Generar with a GOD Windows Sarve 2010 December Instalation Genera Core Inst. National Sarve 2010 December Instalation Generative Social December 2010 December 2010 Sarve Sarve Social Social Sarve Sarve Social December 2010 Sarve Sarve Social Social Sarve Sarve Social December 2010 Sarve Sarve Social Social Social Sarve Sarve Social December 2010 Sarve Sarve Social Social Sarve Sarve Sarve Social Sarve Sarve Social Sarve Social Social Sarve Social	Architecture del del del del	Determetified 3 106/2012 106/2012 106/2012 106/2012	
Decryption The option is useful when a QOS is required—for example, to pr application that cannot it in our on a Server Core installation, ABI apported. You can switch to a different installation option take Options. <sup>1</sup>	olde backward o arver roles and A See "Wetdows I	ampatibility for an olivers an lanar Installation	



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

	License terms	
9 ) groupt the former terms	HICKNOSOFT SOFTWARE LECENSE TERMS     MICROSOFT WIRDOWS SERVIRE 2012 DATACENTER     These loanse terms are a payment between Microsoft Corporation (or based on where you han, over of its atilizated) and you. Please read them, They apply to the software seried above, which includes the media on which you reserved it, if are, The terms are a payly to any Microsoft     supplements,     apport services	

**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.

7 Mindoor Solut	
Where do you stant to install W	Tables (astern be
The Jalanes loss	a a
fy Editade Of Lower price	Divergetures
	[jpd



**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".

Type a password for	the built-in administrator acc	ount that you can use to sign in to	o this computer.	
User name	Administrator			
Password				
Reenter password		*		



Finalizing your settings

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!!!





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.

Before You Begin Installation Type	Select one or more roles to install on the selected server.	
Server Selection		
Server Roles	Active Directory Certificate Services	
Features	Active Directory Domain Services	
Tardimettan.	Active Directory Federation Services	
	Active Directory Lightweight Directory Services	
	Active Directory Rights Management Services	
	Application Server	
	DHCP Server	
	DNS Server	
	Fax Server	
	File and Storage Services (2 of 12 installed)	
	Hyper-V	
	Network Policy and Access Services	
	Print and Document Services	
	Remote Access (1 of 3 installed)	
	Remote Desktop Services	
	Volume Activation Services	
	Web Server (IIS)	
	Windows Deployment Services	
	Windows Server Essentials Experience	
	Windows Server Update Services	



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".

ြော Server Manager • Dashboard		•@  <b>r</b>	
Dashboard	WELCOME TO SER	VER MANAGER	
Local server     All Servers     File and Storage Services		Configure this local server	
pl) Remote Access	DUCK START	2 Add roles and features	
	WHAT'S NEW	Add other servers to manage     A Create a server group	
	LEARN MORE	5 Connect this server to cloud services	



<b>A</b>	Add Roles and Features Wizard
Before you begin	DESTINATION SERVER
Before You Begin Installation Type	This wizard helps you install roles, role services, or features. You determine which roles, role services, or features to install based on the computing needs of your organization, such as sharing documents, or hosting a website.
Server Selection Server Roles	To remove roles, role services, or features: Start the Remove Roles and Features Wizard
Features Confirmation Results	Before you continue, verify that the following tasks have been completed: • The Administrator account has a strong password • Network settings, such as static IP addresses, are configured • The most current security updates from Windows Update are installed
	If you must verify that any of the preceding prerequisites have been completed, close the wizard, complete the steps, and then run the wizard again. To continue, click Next.
	Skip this page by default
	< <u>P</u> revious <u>Next &gt;</u> <u>I</u> nstall Cancel

#### **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.

<b>a</b>	Add Roles and Features Wizard	
Select installation	on type	DESTINATION SERVER
Before You Begin Installation Type Server Selection Server Roles Features Confirmation Results	<ul> <li>Select the installation type. You can install roles and features on a running machine, or on an offline virtual hard disk (VHD).</li> <li>Role-based or feature-based installation Configure a single server by adding roles, role services, and features.</li> <li>Remote Desktop Services installation Install required role services for Virtual Desktop Infrastructure (VDI) to do or session-based desktop deployment.</li> </ul>	physical computer or virtual
	< <u>P</u> revious <u>N</u> ext >	Install Cancel



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.

	Add Ki	oles and Features		1-1
elect destination	on server		DESTINATIO	
Before You Begin	Select a server or a virt	ual hard disk on whic	n to install roles and features.	
Installation Type	<ul> <li>Select a server from</li> </ul>	n the server pool		
Server Selection	O Select a virtual hard	d disk		
Server Roles	Server Pool			
Features				
Confirmation	Filter:			
Results	Name	IP Address	Operating System	
	Sold marked by	A2119	Microsoft Windows Server 2012 R2 Standard	
	1 Computer(s) found			
	This page shows serve Add Servers command collection is still incom	rs that are running Wi I in Server Manager. O plete are not shown.	ndows Server 2012, and that have been added by ffline servers and newly-added servers from which	using the
		< Pr	evious Next > Install	Cancel



**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.

elect destinati	on server			
Before You Begin Installation Type Server Selection	Select a server or a v O Select a server fro O Select a virtual ha	irtual hard disk on whic om the server pool ard disk	h to install roles and f	eatures.
Server Roles Features Confirmation	Server Pool			<ol> <li>Select a server on which to mour the virtual hard disk (VHD).</li> <li>If you select a VHD file from a</li> </ol>
	Name	IP Address	Operating Syster Microsoft Windo	network share, that share must grant Read and Write permission to the computer (local system) account of the server that you selected to mount the VHD. User only account access is not sufficient.
	< 1 Computer(s) found	ш	>	
	Virtual Hard Disk	OfflineVirtualHardDisk.v	hd Browse	<ol> <li>Select an offline VHD file on whice Windows Server 2012 is already installed, and on which you want to install roles and features.</li> </ol>



**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.

à	Add Roles and Features Wizard	_ <b>_</b> X
Select server ro Before You Begin Installation Type Server Selection Server Roles Features Confirmation Results	Add Roles and Features Wizard         Select one or more roles to install on the selected server.         Roles         Active Directory Certificate Services         Active Directory Domain Services         Active Directory Federation Services         Active Directory Lightweight Directory Services         Active Directory Rights Management Services         Active Directory Rights Management Services         DHCP Server         DNS Server         Fax Server         Image: File and Storage Services (2 of 12 installed)         Hyper-V	Description           Active Directory Certificate Services (AD CS) is used to create certification authorities and related role services that allow you to issue and manage certificates used in a variety of applications.
	<ul> <li>Network Policy and Access Services</li> <li>Print and Document Services</li> <li>Remote Access (1 of 3 installed)</li> <li>Remote Desktop Services</li> </ul>	v
	< Previous	Next > Install Cancel



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

PS C:\Users\Administrator> \$PSVersionTable Value Name 4.0 PSVersion WSManStackVersion 3.0 SerializationVersion CLRVersion 1.1.0.1 4.0.30319.34209 BuildVersion 6.3.9600.17400 {1.0, 2.0, 3.0, 4.0} 2.2 PSCompatibleVersions PSRemotingProtocolVersion PS C:\Users\Administrator> 🛓



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.

() A https://www.microsoft.com/en-us/download/details.aspx?id=50395	×	Q. Search
And you can download it for free.*		
Get started >		
Windows Management Framework 5.0		
Language: English Download		
Windows Management Framework 5.0 includes updates to Windows PowerShell, Windows PowerShell Desired State Configuration (DSC), Windows Remote Manage (WinRM), Windows Management Instrumentation (WMI). Release notes: http://go.microsoft.com/fwlink/?LinkID=717903	jemen	t

# **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.

While creating the script you can run directly and see the result like the following example:





# **PowerShell Basic Commands**

There are a lot of PowerShell commands and it is very difficult to put in all these commands in this tutorial, we will focus on some of the most important as well as basic commands of PowerShell.

The first step is to go to the Get-Help command which gives you an explanation about how to give a command and its parameter.





#### To get the list of Updates:

- Get-HotFix and to install a hot fix as follows
- Get-HotFix -id kb2741530

ource	Description	HotFixID	InstalledBy	InstalledOn
	Update	KB2959936	\Admi	11/22/2014 12:00:00 AM
	Security Update	KB2894856	\Admi	3/25/2015 12:00:00 AM
	Update	KB2896496	\Admi	11/22/2014 12:00:00 AM
	Update	KB2919355	\Admi	11/22/2014 12:00:00 AM
	Security Update	KB2920189	\Admi	11/22/2014 12:00:00 AM
	Security Update	KB2931358	\Admi	11/22/2014 12:00:00 AM
	Security Update	KB2933826	\Admi	11/22/2014 12:00:00 AM
	Update	KB2934520	\SYST	TEM 2/2/2016 12:00:00 AM
	Update	KB2938066	\Admi	3/25/2015 12:00:00 AM
	Update	KB2938772	\Admi	11/22/2014 12:00:00 AM
	Hotfix	KB2949621	\Admi	11/22/2014 12:00:00 AM
	Update	KB2954879	\Admi	11/22/2014 12:00:00 AM
	Update	KB2962806	\SYST	'EM 2/2/2016 12:00:00 AM
	Update	KB2965500	\Admi	11/22/2014 12:00:00 AM
	Update	KB2966407	\Admi	11/22/2014 12:00:00 AM
	Update	KB2967917	\Admi	11/22/2014 12:00:00 AM
	Update	KB2971203	\Admi	11/22/2014 12:00:00 AM
	Security Update	KB2971850	\Admi	11/22/2014 12:00:00 AM
	Security Update	KB2973351	\Admi	11/22/2014 12:00:00 AM
	Update	KB2973448	\Admi	11/22/2014 12:00:00 AM



Remote Management Service is one of the most important part pertaining to administration of Windows Server 2012. Administration of servers is performed through Windows Management Instrumentation. WMI instructions can be sent over network WinRM "Remote Management".

By default this utility is enabled, you can check it by going to Server Manager -> then click on Local Server as shown in the following screenshot.

Server Manager • Local Server				
Dashboard	PROPERTIES Ford States			
Local Server	Computer name	and the second data		
All Servers	Workgroup	WORKGROUP		
File and Storage Services ▷				
Remote Access				
	Windows Firewall	Public: On		
	Remote management	Enabled		
	Remote Desktop	Enabled		
	NIC Teaming	Disabled		
	Ethernet	diamonal , IPv6 enabled		

If in case it is disabled, you can enable it by Opening PowerShell and then typing Enable-PSRemoting as shown in the screenshot given below.



There is another way to enable it – Click on "Server Manager" –> Local Server, then ENABLE Remote management.





# Adding a Server for Remote Management

To add other servers for remote management, follow the steps given below:

**Step 1:** Server Manager -> Dashboard -> Add other servers to manage.

Local Server	Refresh tailed		More
All Servers     File and Storage Services      A     Remote Access		Onfigure this local server	
	QUICKSTART	2 Add roles and features	
	WHAT'S NEW	Add other servers to manage     Greate a server group	
		5 Connect this server to cloud services	
	LEARN MORE		ж

**Step 2:** If the servers are joined to the domain, you add the select option "Active Directory", in my case they are not joined, so I selected the second option "DNS"  $\rightarrow$  In the search Box, I added the IP of the server that has to be managed  $\rightarrow$  click on a small arrow  $\rightarrow$  OK.



à		Ade	d Servers			
Active Directory	DNS	Import		Selected		
Search:	e in the second s		Q	Computer		
Name		IP Address		OTHER	(1) D	
700,000			100.002			
				]		
				1 Computer(s) :	selected	
Help						OK

**Step 3:** Go to Server Manager -> All Servers, you will see the server that you have added. As my server is in the Work Group, I have to right click and click on – "Manage As" as shown in the following screenshot.

Local Server	Filter		P (1) • (1) •				
Aurservers     File and Storage Services      P	Server Name	IPv4 Address	Manageability Online - Performance counters not :	Last Update started 6/8/2016 4:11:39 PM	Windows Activation		
	67-128aa		WinRM Negotiate authentication an	Add Roles and Features Restart Server	Idd Roles and Features Restart Server		
				Computer Management Remote Desktop Connection Windows PowerShell Configure NIC Teaming Configure Windows Automatic Feedback			
	EVENTS			Manage As _			
	Filter		2	Remove Server Refresh			
				Сору	Сору		



**Step 4:** Enter the credentials of the remote server as follows and then -> OK.

Enter User	Account and Password	
Enter the nam selected serve	e and password of an account with user rights on the rs.	
For example, u	user, user@example.contoso.com, or domain\user nam	e.
Entering a bla	nk user name and password deletes cached credentials.	8
Р		
Remo	ember my credentials	
		_
	OK Can	cel

To remove a managed server, Right Click on server -> Remove Server.

Filter		Q	· · ·		
Server Name	IPv4 Address	Manag	geability - Performance counters not started	Last Update 6/8/2016 4:15:47	Windows Act PM 00252-60120
		Wir	Add Roles and Features Restart Server		PM -
EVENTS		-	Computer Management Remote Desktop Connection Windows PowerShell Configure NIC Teaming Configure Windows Automatic F	- eedback	
All events   0 total			Manage As		
Letter.			Remove Server		
Filter		2	Refresh		
Server Name	ID Severit	v s	Сору		te and Time



The Windows Firewall with Advanced Security is a firewall that runs on the Windows Server 2012 and is turned on by default. The Firewall settings within Windows Server 2012 are managed from within the **Windows Firewall Microsoft Management Console**. To set Firewall settings perform the following steps:

**Step 1:** Click on the Server Manager from the task bar -> Click the Tools menu and select Windows Firewall with Advanced Security.

<u>b.</u>	Ser	ver Manager	- 0 X
Server Ma     Server Ma     Local Server     All Server     All Server     All Server     Ano Dos	Inager • Dashboard WELCOME TO SERVER MANAGER	Manage Took View Help     Active Directory Administrative Center     Active Directory Domains and Trusts     Active Directory Module for Windows PowerShell     Active Directory Sites and Services     Active Directory Users and Computers     ADSI Edit     Component Services	
aa DNS ■ File and Storage Services ▷	Added STAN)     2 Add     3 Add     4 Cre     LEARN MORE  ROLES AND SERVER GROUPS Rules: 2   Server groups 1   Server total	d roles and features d other servers to manag rate a server group	Computer Management Defragment and Optimize Drives DNS Event Viewer Group Policy Management (SCSI Initiator Local Security Policy ODBC Data Sources (S2-bit) ODBC Data Sources (S2-bit) ODBC Data Sources (S4-bit) Performance Monitor Resource Monitor Security Configuration Wizard
	AD DS 1	DNS Manageability	services System Configuration System Information Task Scheduler
	Events Services Performance BPA results	Events Services Performance BPA results	Window: Firewall with Advanced Security Windows PowerShell Windows PowerShell (x86) Windows PowerShell (x86) Windows PowerShell (x86)

**Step 2:** To see the current configuration settings by selecting **Windows Firewall Properties** from the MMC. This **allows access to modify the settings** for each of the three firewall profiles, which are – **Domain, Private and Public** and IPsec settings.



	Se	erver Manager		- 0
€ Server N	Aanager • Dashboard	-	· ③   🖡 Manage	Tools View Help
III Dathboard	WELCOME TO SERVER MANAGER	Active Directory Administrative Center Active Directory Domains and Trusts Active Directory Module for Windows PowerShell		
2	Windows Firew	vall with Advanced Security		×
File Action View Help				
Windows Firewall with Advance Inbound Rules Outbound Rules Connection Security Rules Monitoring	Wildows Jacobie With Advanced Security on Windows Rewall with Advanced Security of Overview Domain Profile Windows Rewall is on. Shibourd connections that do not match a ne Dutbourd connections that do not match a ne Dutbourd connections that do not match a ne Windows Rewall is an. Shibourd connections that do not match a ne Unbourd connections that do not match a ne Dutbourd connections that do not match a ne Windows Rewall is an. Dutbourd connections that do not match a ne Dutbourd connections that do not match a ne Conting Started Authentic ate communications between Data	Windows Firewall with Advance Doman Potle Doman Potle Private Putlie Puble Communication State Pressal state: Proceedings Protected network corrections Protected network Protected	ed Security on Local Co.	ws Firewall wit. • ort Policy ore Default Policy nose / Repair r • esh verties

**Step 3:** Applying custom rules, which will include the following two steps:

- Select either **Inbound Rules** or **Outbound Rules** under **Windows Firewall with Advanced Security** on the left side of the management console. (As you Know outbound traffic is the traffic generated from server towards the internet and inbound traffic is vice versa). The rules that are currently enabled are denoted by green checkbox icon, while disabled rules display a grey checkbox icon.
- Right-clicking a rule will allow you toggle enable/disable.



a Antica Marci Itala			and the state of the					
le Action View Help								
				8				
Windows Firewall with Advance	Inbound F	Rules						Actions
🔛 Inbound Rules	Name			Group	Profile	Enabled	Action	Inbound Rules
Cutbound Rules	SExample Inbound Block			12372.072	All	Yes	Block	Man Pula
Connection Security Rules	Active Directory Domain Controller - Ec			Active Directory Domain Ser	All	Yes	Allow	New nule
Monitoring	Active	Directory Domain Co	ontroller - Ec	Active Directory Domain Ser	All	Yes	Allow _	Filter by Profile
	Active	Directory Domain Co	ontroller - LD	Active Directory Domain Ser	All	Yes	Allow	V Filter by State
	Active	Directory Domain Co	ontroller - LD	Active Directory Domain Ser	All	Yes	Allow	Filter by Group
	Active	Directory Domain Co	antroller - LD	Active Directory Domain Ser	All	Yes	Allow	10.00
	Active	Directory Domain Co	antroller - Net	Active Directory Domain Ser	All	Yes	Allow	View
	Active	Directory Domain Co	ontroller - SA	Active Directory Domain Ser	All	Yes	Allow	C Refresh
	Active Directory Domain Controller - SA., Active Directory Domain Controller - Sec., Active Directory Domain Controller - Sec., Active Directory Domain Controller - WS., Active Directory Domain Controller (RPC) Active Directory Domain Controller (RPC). Active Directory Domain Controller (RPC). Active Directory Web Services (TCP-In)			Active Directory Domain Ser	All	Yes	Allow	Biport List
				Active Directory Domain Ser	All	Yes	Allow	E the
				Active Directory Domain Ser	All	Yes	Allow	I nep
				Active Directory Domain Ser	All	Yes	Allow	BranchCache Content
				Active Directory Domain Ser	All	Yes	Allow	O Fnable Rule
				Active Directory Domain Ser	All	Yes	Allow	U chance have
				Active Directory Web Services	All	Yes	Allow	🦨 Cut
	Branch	Carlos Contant Date		BranchCache - Content Retr.	AL	No	Allow	Copy
	Bran	Enable,Rule	er (HTT	BranchCache - Hosted Cach	All	No	Allow	X Delete
	Bran	Cut W	(D-In)	BranchCache - Peer Discove	All	No	Allow	ED Duration
	CO1	Com	(In)	COM+ Network Access	All	No	Allow	ropercies
	CO1	сору	DCOM-In)	COM+ Remote Administrati	All	No	Allow	Help
	Cor	Delete	nreacha	Core Networking	All	Yes	Allow	
	Cor	Properties	nreacha	Core Networking	All	Yes	Allow	
	Cor	Hele	t Config	Core Networking	All	Yes	Allow	
	Core T	etworking - pynamia	most Config	Core Networking	All	Yes	Allow	
	Core Networking - Internet Group Mana Core Networking - IPHTTPS (TCP-In) Core Networking - IP+6 (IPv6-In) Core Networking - IPv6 (IPv6-In) Core Networking - Multicast Listener Do			Core Networking	All	Yes	Allow	
				Core Networking	All	Yes	Allow	
				Core Networking	All	Yes	Allow	
				Core Networking	All	Yes	Allow	_
	R.Com M	letundian Adultion	+ Linenan Ou	Can Maturdian		Nee	Allen	
10	<	14					>	


### How to Create a New Firewall Rule?

To create a new Firewall Rule, you have to adhere to the following steps:

**Step 1:** From the right side of either the Inbound Rules or Outbound Rules – click "New Rule".

ř.	Windows Fire	wall with Advanced Secu	rity				- 0	×
File Action View Help								
Windows Firewall with Advance	Inbound Rules						Actions	_
Windows Firewall with Advance Cutbound Rules Cutbound Rules Connection Security Rules Monitoring	Name     Active Directory Domain Controller - Ec.,     Active Directory Domain Controller - Ec.,     Active Directory Domain Controller - LD.,     Active Directory Domain Controller - Net.,     Active Directory Domain Controller - Net.,     Active Directory Domain Controller - Net.,     Active Directory Domain Controller - SA.,     Active Directory Domain Controller - Se.,     Active Directory Web Services (TCP-In)     BranchCache Hosted Cache Server (HTTP-In)     BranchCache Per Dircovery (WSD-In)     COM+ Remote Administration (DrCOM-In)     COM+ Remote Administration (DrcOM-In)     Core Networking - Dynamic Host Config.,     Core Networking - Dynamic Host Config.,     Core Networking - Dynamic Host Config.,     Core Networking - IPHTTPS (TCP-In)     Core Networking - IPHTTPS (TCP-In)	Group Active Directory Domain Ser Active Directory Web Services BlanchCache - Canteet Refr BlanchCache - Serber Directory COM+ Remote Administrati Core Networking Core Networking Core Networking Core Networking Core Networking Core Networking Core Networking Core Networking Core Networking Core Networking	Profile All All All All All All All All All A	Enabled Yes Yes Yes Yes Yes Yes Yes Yes No No No No No Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	Action Allow		Actions Inbound Rules Fiber by Profile Fiber by State Fiber by Group View Refresh Fiber List Help	
	Core Networking - Multicast Listener Qu	Core Networking	AB	Ves	Allew			
	Crise Mehanching - Multicast Listener Ren. /	Core Networking	Alt	Ves	Allow	4		



*	New Inbound Rule Wizard	×
Rule Type Select the type of firewall rule to	o create.	
Steps: Program Protocol and Porta Scope Action Profile Name	What type of rule would you like to create?         Program         Rule that controls connections for a program.         Pool         Rule that controls connections for a TCP or UDP pot.         Predefined:         Active Directory Domain Services         Rule that controls connections for a Windows experience.         Custom         Custom rule	

**Step 2:** Custom from the Rule Type radial button  $\rightarrow$  click **Next**.



**Step 3:** Select the Program association for the Custom Firewall Rule as either All programs or the path to a program  $\rightarrow$  click Next.

<b>a</b>	New Inbound Rule Wizard
Program	
Specify the full program path an	nd executable name of the program that this rule matches.
Steps:	
<ul> <li>Rule Type</li> </ul>	Does this rule apply to all programs or a specific program?
Program	All
<ul> <li>Protocol and Ports</li> <li>Scope</li> </ul>	Rule applies to all connections on the computer that match other rule properties.
Action	O This program path:
Profile	Browse
	Example: c:\path\program.exe %ProgramFiles%\browser\browser.exe Services Specify which services this rule applies to. Customize Specify which services this rule applies to.



<b>e</b>	New	Inbound Rule Wizard
Protocol and Ports		
Specify the protocols and ports	to which this rule applies.	
Steps:		
Rule Type	To which ports and pr	otocols does this rule apply?
Program		
Protocol and Ports	Protocol type:	TCP
Scope	Protocol number:	6 <u>*</u>
Action		
Profile	Local port:	Specific Ports V
Name		80
		Example: 80, 443, 5000-5010
	Remote port:	All Ports V
		Example: 80, 443, 5000-5010
	Internet Control Mess (ICMP) settings:	age Protocol Customize
		< Back Next N. Cancel

### **Step 4:** Protocol type field **select the protocol type** $\rightarrow$ click **Next**.



**Step 5:** Select an **IP address association** for both local and remote addresses  $\rightarrow$  click **Next**.

<b>2</b>	New Inbound Rule Wizard	X
Scope		
Specify the local and remote IP as	dresses to which this rule applies.	
Steps:		
Rule Type		
Program	Which local IP addresses does this rule apply to?	
Protocol and Ports	Any IP address	
Scope	O These IP addresses:	
Action		Add
Profile		Edt
<ul> <li>Name</li> </ul>		Remove
	Customize the interface types to which this rule applies:	Customize
	Which remote IP addresses does this rule apply to?	
	Any IP address	
	O These IP addresses:	
		Add
		Edt
		Remove
	< Back	Next Cancel
		, s∓



2	New Inbound Rule Wizard	x
Action Specify the action to be taken w	hen a connection matches the conditions specified in the rule.	
<ul> <li>Neps:</li> <li>Rule Type</li> <li>Program</li> <li>Protocol and Ports</li> <li>Scope</li> <li>Action</li> <li>Profile</li> <li>Name</li> </ul>	What action should be taken when a connection matches the specified conditions?   Image: Contract Co	

**Step 6:** Select an action to take on matching traffic  $\rightarrow$  click Next.



2	New Inbound Rule Wizard	×
Profile		
Specify the profiles for which the	is rule applies.	
Steps:		
Rule Type     Program	When does this rule apply?	
Protocol and Ports     Scope     Action	<ul> <li>Domain Applies when a computer is connected to its corporate domain.</li> <li>Private Applies when a computer is connected to a private network location, such as a home</li> </ul>	
Name	Applies when a computer is connected to a private network location, such as a name or work place. ✓ Public Applies when a computer is connected to a public network location.	
	< Back Net Cance	

**Step 7:** Select the profiles associated with the custom rule  $\rightarrow$  click **Next.** 



<b>2</b> 1	New Inbound Rule Wizard	x
Name Specify the name and description of	of this rule.	
Specify the name and description of Sleps: Program Protocol and Ports Scope Action Profile Name	of this rule.          Name:         Example Inbound Block         Description (optional):         This rule will block incoming connections on port 80.	
	< Back Cancel	

### **Step 8:** Put a name for your Firewall rule and an optional description $\rightarrow$ **Finish.**



**Step 9:** The firewall rule can be found on the corresponding Rule tab, either inbound or outbound depending on the type created. To disable or delete the rule find the rule in the MMC, right-click it and select either **Disable Rule** or **Delete**.

Adam March 184	Withows re	rewait with Muyanted Sec	and X			- Contraction of the second
Action View Help						
	The second se					
Windows Firewall with Advance	Inbound Rules					Actions
🕎 Inbound Rules	Name	Group	Profile	Enabled	Action A	Inbound Rules
Outbound Rules	Cample Inbound Block		.ali	Yes	Block	An New Fule
Connection security nures	🖉 Active Directory Domain Controller - 🌔	Disable Rule n Ser.	All .	Ves	Altow	
S Monitoring	2 Active Directory Domain Controller - 1	Cut in Ser.	All	Yes	Allow _	Y Filter by Profile
	O Active Directory Domain Controller - L	Copy in Ser.	All	Ves	Allaw	V Filter by State
	O Active Directory Domain Controller - L	Delete n Ser	All	Yes	Allow	V Filter by Group
	O Active Directory Domain Controller - L	n Ser.	All	Ves	Allow	View
	Active Directory Domain Controller - N	Properties in Ser.	IIA,	Yes	Allow	1 MEAN
	O Active Directory Domain Controller - S	Help n Ser.	All	Ves	Allow	Refresh
	2 Active Directory Domain Controller - SA	Active Directory Domain Ser.	All	Ves	Allow	Export List
	O Active Directory Domain Controller - Sec	Active Directory Domain Ser.	Alt	Ves	Allow	E Hein
	Active Directory Domain Controller - Sec	Active Directory Domain Ser.	All	Yes	Allow	III TROP
	Active Directory Domain Controller - W3	Active Directory Domain Ser.	Alt	Ves	Allow	Example Inbound Blo
	Active Directory Domain Controller (RPC)	Active Directory Domain Ser.	All	Vec	Allow	Disable Rule
	Active Directory Domain Controller (RPC	Active Directory Domain Ser.	IIA,	Ves	Allow	Kot
	Active Directory Web Services (TCP-In)	Active Directory Web Services	All	Ves	Allow	4 LUT
	BranchCache Content Retrieval (HTTP-In)	BranchCache - Content Retr.	All	No	Allow	Copy
	BranchCache Hosted Cache Server (HTT_	BranchCache - Hosted Cach	All	No	Allow	X Delete
	BranchCache Peer Discovery (WSD-In)	BranchCache - Peer Discove,	All	No	Altow	Donaties
	COM+ Network Access (DCOM-In)	COM+ Network Access	All	No	Allow	E rispono
	OCOM+ Remote Administration (DCOM-In)	COM+ Remote Administrati	All	No	Allow	Help
	Ore Networking - Destination Unreacha	Core Networking	All .	Ves	Altow	
	Ore Networking - Destination Unreacha	Core Networking	All	Ves	Allow	
	Ore Networking - Dynamic Host Config	Core Networking	All	Yes	Allow	
	🔞 Core Networking - Dynamic Host Config	Core Networking	All	Yes	Altow	
	🙆 Core Networking - Internet Group Mana	Core Networking	All	Ves	Allow	
	Ore Networking - IPHITTPS (TCP-In)	Core Networking	All	Yes	Allow	
	😨 Core Networking - IPv6 (IPv6-In)	Core Networking	All	Yes	Allow	
	🔮 Core Networking - Multicast Listener Do	Core Networking	All	Ves	Allow	
	Com Metundian Multicast Listener Co.	Care Maturation	.4.8	Mar	Aller	



# 7. Windows Server 2012 – Remote Desktop Management

In this chapter, we will see how to enable remote desktop application. It is important because this enables us to work remotely on the server. To do this, we have the following two options. For the first option, we have to follow the steps given below.



**Step 1:** Go to Start  $\rightarrow$  right click "This PC"  $\rightarrow$  Properties.



Step 2: On Left side click "Remote Setting".

29		System		-	D X
🌀 🛞 – 🕆 📴 🕨 Control P	anel 🔸 System and Security 🔸 Sy	stem	~ C	Search Control Panel	Q.
Control Panel Home Device Manager <u>Remote settings</u> Advanced system settings	View basic information Windows edition Windows Server 2012 R2 St © 2013 Microsoft Corporat	about your compute andard tion. All rights reserved.	er Win	dows Server 20	0 12 R2
	System				
	Processon	Intel(R) Xeon(R) CPU E3-	1220 v3 @ 3.10GH	z 3.09 GHz	
	Installed memory (RAM):	1.46 GB			
	System type:	64-bit Operating System,	x64-based proces	sor	
	Pen and Touch:	No Pen or Touch Input is	s available for this	Display	
	Computer name, domain, and	workgroup settings			

**Step 3:** Check radio button "Allow Remote connection to this computer" and Check box "Allow connection only from computers running Remote Desktop with Network Level Authentication (recommended)"  $\rightarrow$  click "Select Users".

	System Pro	operties 📃
Computer Name	Hardware Advanced	Remote
Remote Assist	ance	
Allow Rem	ote Assistance connectio	ins to this computer
		Advanced
Remote Deskt	ор	
Choose an op	tion, and then specify wh	o can connect.
⊖ Don't allow	remote connections to t	his computer
<ul> <li>Allow remo</li> </ul>	te connections to this co	mputer
Allow co Desktop	onnections only from corr o with Network Level Au	puters running Remote hentication (recommended)
Help me choo	<u>98</u>	Select Users
	OK	Cancel



Step	4:	Click	Add.
------	----	-------	------

Remote I	Deskto ect to this hect eve	op Users computer, ar n if they are n	nd any mem not listed.	x bers of
w can conne oup can conr	ect to this	computer, an n if they are n	nd any mem tot listed.	bers of
has access				
Demana				
nemove				
accounts or a	add users	to other grou	ups, go to C	ontrol
r Accounts.				
			_	
	L	OK	Car	ncel
1	has access. Remove accounts or a <u>Accounts</u> .	has access. Remove accounts or add users <u>Accounts</u> .	has access. Remove accounts or add users to other grou <u>Accounts</u> . OK	has access. Remove accounts or add users to other groups, go to C <u>Accounts</u> . OK Car

**Step 5:** Type user that you want to allow access. In my case, it is administrator  $\rightarrow$  click OK.

ect Users	
	Object Types
	Locations
):	
	Check Names
ОК	Cancel
	): DK



For the **second option**, we need to follow the steps given below.

**Step 1:** Click on "Server Manage"  $\rightarrow$  Local Server  $\rightarrow$  click on "Enable" or Disable, if it is Disabled.

III Dashboard	For ALTIRNO1SR06		
Local Server     All Servers     File and Storage Services	Computer name Workgroup	WORKGROUP	Last installed updates Windows Update Last checked for updates
	Windows Firewall Remote management Remote Desktop NIC Teaming Ethernet	Public: On Enabled Enabled Disabled Instabled	Windows Error Reporting Customer Experience Improvement Progra IE Enhanced Security Configuration Time zone Product ID
	Operating system version Hardware information	Microsoft Windows Server 2012 R2 Standard Microsoft Corporation Virtual Machine	Processors Installed memory (RAM) Total disk space



## 8. Windows Server 2012 – Resource Monitor

Resource Monitor is a great tool to identify which program/service is using resources like program, applications, network connection and memory usages.

• 🕄 | ard Manage Tools View Help **Component Services** Computer Management ANAGER Connection Manager Administration Kit Defragment and Optimize Drives Event Viewer Configure this local server Group Policy Management ISCSI Initiator Local Security Policy 2 Add roles and features Microsoft Azure Services Network Policy Server 3 Add other servers to manage ODBC Data Sources (32-bit) ODBC Data Sources (64-bit) 4 Create a server group Performance Monitor 5 Connect this server to cloud services Remote Access Management **Resource Monitor** Routing and Remote Access Security Configuration Wizard Services OUPS System Configuration Servers total: 1 System Information

To open Resource Monitor, go to Server Manage  $\rightarrow$  Tools.

Click on "Resource Monitor", the First Section is "Overview". It tells how much CPU is consuming every application and on the right side of the table, it monitors in real time the chart of CPU usage. The Memory tells how much memory every application is consuming and in the right side of the table it is being monitored in real time in the chart of CPU usage.

The Disk tab splits it by the different hard drives. This will show the current Disk I/O and will show the disk usage per process. The network tab will show the processes and their network bytes sent and received. It will also show the current TCP connections and what ports are currently listening, IDs too.



8			Resource Mo	ntor.						- 0
File Monitor Help										
Overview CPU Memory 1	Dák	Network								
CPU		11% CPU Usige		100% Messure	Frequency			1	5	Views 🔽
🗌 trage	PD	Description		Partus *	Tresdi	CPU	Average CPU	4	CPU	102% 7
gefnoruse what we (temova)	960 1448	Resource and Performance Monitor Host Process for Windows Senices		Running Running	15 32	3	686 043			
performance	2580	Resource and Performance Monitor		Running	17	D	0.37	11		
System interrupts	100	Defende Procedure Calls and Interrupt Service Routines		Running		a	0.17			
dwollexe	2100	Desktop Window Manager		Running	8	a	0.14			11 440
explores.ese	2240	Windows Explorer		Running	-40	2	0.14		14.22	
Crossee	13:51		1	Running	9	0	0.06		60 Seconds	04
nchart.exe (LocalServiceNo	304	Host Process for Windows Services	1	Running	20	0	0.05		Dok	MIRING N
Taskings.exe	152	Task Manager	1	Ranning	11	Ċ.	0.06			No repute
nchast.exe (RPCSS)	552	Host Process for Windows Services		lunning	10	0	0.05	Y		
Disk DiBloecDik VO			15 Highert Ad	se Time						
Inage	PID	Fit	Read (B/red)	Write B/sed	Total (B/sed)	UD Priarity	Response Time _			
System	4	CWAndowsWDPS/Configuriansoft/dentity/Server.prospervice.exe	0	59	59	Normal	64	11		
System	4	C/GMIt (NIFS Master File Table)	D	315	375	Normal	63			
System	4	C/Window/WDFS(Config	0	158	158	Normal	48	=	Sec. 1	116-0-0
System	4	C'dExtend@UmimiSI	٥	201	201	Normal	29	2	Newon	
Network		54 Objet Network VO		ON Network Ut	ization.					
Image	PD	Address			Send (Brited)	Receive (B/bed)	Total (B/Sed			
richartexe (termovci)	148				10,271	1,308	11,478			
System	4	100000000			179	15	196		THE R.	A-46, 1994
Microsoft.identityGener Prog6.	1604	Aphinetering			6	186	192		10000	
System	4				0	73	23	Ψ.	Memory	100 Hard Faulty/sec m
Memory		Diffeed Faulty/sec	-	52% Used Physi	oi Menory		6			
inage	PD		Hard Faultshee	Count (A)	Wanking Set (KB)	Sharrable (KB)	Private (KB)	4		
ServerManagenexe	2372		0	90,168	109,876	56,868	53,008			
explorenzie	2240		0	57,580	109,292	64,948	44,344			
Microsoft identity Gener Provid	1604		0	38,060	52,124	35,004	24,130			
suchastere (temovo)	148		0	31,972	39,268	16,912	72,356			0
what exe instruct	344		0	21,430	37,100	19575	17,224		L	50.8.T



In this chapter, we will see how to Install Active Directory in Windows Server 2012 R2. Many of us who have worked with the previous version run **DCPROMO.EXE** to install it, but in the 2012 version, it is recommended by Microsoft not to use it anymore.

To continue with Installation follow the steps given below.

**Step 1:** Go to "Server Manager"  $\rightarrow$  Manage  $\rightarrow$  Add Roles and Feature.





à	Add Roles and Features Wizard
Before you begin Before You Begin Installation Type Server Selection Server Roles Features Confirmation Results	DESTINATION SERVER ALTIRNOISROB This wizard helps you install roles, role services, or features. You determine which roles, role services, or features to install based on the computing needs of your organization, such as sharing documents, or hosting a website. To remove roles, role services, or features: Start the Remove Roles and Features Wizard Before you continue, verify that the following tasks have been completed: • The Administrator account has a strong password • Network settings, such as static IP addresses, are configured • The most current security updates from Windows Update are installed If you must verify that any of the preceding prerequisites have been completed, close the wizard, complete the steps, and then run the wizard again. To continue, click Next.
	Skip this page by default  Previous Next > Install Cancel



**Step 3:** As we are installing AAD on this machine, we will select "Role-based or feature-based Installation"  $\rightarrow$  Next.

	Add Roles and Features Wizard	
Select installation	on type	DISTINATION SERVER ALTIRNOISED
Before You Begin	Select the installation type. You can install roles and features on a runnin machine, or on an offline virtual hard disk (VHD).	g physical computer or virtual
Server Selection	Role-based or feature-based installation Configure a single server by adding roles, role services, and features.	
	Remote Desktop Services installation Install required role services for Virtual Desktop Infrastructure (VDI) to or session-based desktop deployment.	create a virtual machine-base
	< Previous Next >	Install

**Step 4:** Click on "Select a server from the server pool", this is the case when it will be installed locally.

Before You Begin	Select a server or a v	rtual hard disk on which	to install roles and features.	
Installation Type	Select a server fro	om the server pool		
Server Selection	O Select a virtual has	rd disk		
Server Roles	Server Pool			
Features	Eduar 1			
	Hiden			
	Name	IP Address	Operating System	
	All successives	17	Microsoft Windows Server 2012 F	R2 Standard
	1 Computer(s) found			
	This page shows serv	ers that are running Wi d in Server Manager, O	ndows Server 2012, and that have bee ffline servers and newly-added server	en added by using s from which data



**Step 5:** Check mark in the box next to **Active Directory Domain Services.** A box will be explaining additional roles services or features which are also required to install domain services.

Before You Begin Installation Type	Select one or more roles to install on the selected server. Roles	Description
Server Roles Server Roles Features Confirmation Results	Active Directory Certificate Services     Active Directory Federation Services     Active Directory Lightweight Directory Services     Active Directory Rights Management Services     Remote Access (1 of 3 installed)	Active Directory Domain Services (AD DS) stores information about objects on the network and makes this information available to users and network administrators. AD DS uses domain controllers to give network users access to permitted resources anywhere on the networ through a single logon process.



#### Step 6: Click Add Features.

Ac Do You foll	dd features that are required for Active Directory omain Services? a cannot install Active Directory Domain Services unless the owing role services or features are also installed.
4	Remote Server Administration Tools  A Role Administration Tools  AD DS and AD LDS Tools  Active Directory module for Windows PowerShell  AD DS Tools  [Tools] Active Directory Administrative Center [Tools] AD DS Snap-Ins and Command-Line Tools
	Include management tools (if applicable) Add Features Cancel

**Step 7:** Check "Group Policy Management"  $\rightarrow$  Next.

Before You Begin	Select one or more features to install on the selected sen	ver.	
Installation Type Server Selection Server Roles Features AD DS Confirmation Results	Image: Status         Image: Status <td< th=""><th>C</th><th>Description NET Framework 3.5 combines the power of the .NET Framework 2.0 APIs with new technologies for building applications that offer uppealing user interfaces, protect our customers' personal identity information, enable seamless and secure communication, and provi the ability to model a range of business processes.</th></td<>	C	Description NET Framework 3.5 combines the power of the .NET Framework 2.0 APIs with new technologies for building applications that offer uppealing user interfaces, protect our customers' personal identity information, enable seamless and secure communication, and provi the ability to model a range of business processes.



Step 8: Click the "Next" button.



Step 9: Click "Install".

onfirm installa	ition selections	DESTINATION SERVE
Before You Begin Installation Type Server Selection	To install the following roles, role services, or features on selected se Restart the destination server automatically if required Optional features (such as administration tools) might be displayed or been selected automatically. If you do not want to install these option	rver, click Install. on this page because they have nal features, click Previous to clea
Features	their check boxes.	
AD DS Confirmation Results	Remote Server Administration Tools Role Administration Tools AD DS and AD LDS Tools Active Directory module for Windows PowerShell AD DS Tools Active Directory Administrative Center AD DS Snap-Ins and Command-Line Tools	
	Export configuration settings Specify an alternate source path	



Installation Screen will come up now and you have to wait until installation bar completes.



Now that the installation of DC role is finished, you have to configure it for you server.



**Step 10:** Click "Server Manager"  $\rightarrow$  Open the Notifications Pane by selecting the **Notifications icon** from the top of the Server Manager. From the notification regarding configuring AD DS (Active Directory Domain Services), click **Promote this server to a domain controller**.

14	Se	rver Manager	- 8 X
Server Ma	anager • Dashboard	• 🕝   🍢 Manage Tools	View Help
Dashboard     Local Server     All Servers     AD DS     File and Storage Services ▷	WELCOME TO SERVER MANAGE	Post-deployment Configura	E
	LEARN MORE  ROLES AND SERVER GROUPS Roles: 2   Server groups: 1   Servers tota  AD DS 1  Manageability Events Services Performance BPA results	File and Storage Services 1 Manageability Events Performance BPA results	Hide

**Step 11:** Click "Add a new forest" → Insert your root domain name into the **Root domain name** field. In my case, I have put "example.com".

eployment Conf	iguration	TARGET SERVER
Deployment Configuration	Colored also advantages	
Domain Controller Options	Select the deploymen	t operation
DNS Options	<ul> <li>Add a domain cor</li> <li>Add a new domain</li> </ul>	ntroller to an existing domain
Additional Options	<ul> <li>Add a new forest</li> </ul>	to an existing forest
Paths		
Review Options	Specify the domain in	formation for this operation
Denses as delike a Changle	Root domain name:	example.com



**Step 12: Select a Domain and Forest functional level**. Once selected **fill in a DSRM password** in the provided password fields. The DSRM password is used when booting the Domain Controller into recovery mode.

Domain Controlle	r Options TARGET SE	RVER
Select functional level of the new	v forest and root domain	
Forest functional level:	Windows Server 2012 R2	٠
Domain functional level:	Windows Server 2012 R2	*
Specify domain controller capabi Domain Name System (DNS) Global Catalog (GC) Read only domain controller	ilities server (RODC)	
Type the Directory Services Resto	ore Mode (DSRM) password	
Password:	•••••	
Confirm password:	•••••	

**Step 13:** In the next screen which shows up, there is a warning on the DNS Options tab, click OK and then select **Next**.

A delegation for this DNS	server cannot be created because the authoritative parent zone cannot be found Show more
Deployment Configuration Domain Controller Options DNS Options	Specify DNS delegation options
Additional Options Paths	DNS Options
Review Options Prerequisites Check Installation Results	A delegation for this DNS server cannot be created because the authoritative parent zone cannot be found or it does not run Windows DNS server. If you are integrating with an existing DNS infrastructure, you should manually create a delegation to this DNS server in the parent zone to ensure reliable name resolution from outside the domain "example.org". Otherwise, no action is required.
	व्र



Step 14: Enter NETBIOS name and click "Next".

<b>B</b>	Active Directory Domain Servi	ces Configuration Wizard	_ 0 ×
Additional Option Deployment Configuration Domain Controller Options DNS Options Additional Options Paths Review Options Prerequisites Check Installation Results	S Verify the NetBIOS name assigned The NetBIOS domain name: More about additional options	to the domain and change it if necessary EXAMPLE	TARGET SERVER
	[	< Previous Next > Inst	tall Cancel

**Step 15:** Select location of the SYSVOL, Log files and Database folders and then click **Next**.





**Step 16:** Click "Install" and wait until it is finished. The server will restart several times.

à		Active Directory Domain Services Configuration Wizard	x
P	Prerequisites Cheo	CK TARGET SE	RVER
	All prerequisite checks pass	ed successfully. Click 'Install' to begin installation. Show more	×
	Deployment Configuration Domain Controller Options	Prerequisites need to be validated before Active Directory Domain Services is installed on this computer	
	DNS Options Additional Options	Rerun prerequisites check View results	
	Patris Review Options	cryptograpny algorithms when establishing security channel sessions.	^
	Prerequisites Check	For more information about this setting, see Knowledge Base article 942564 (http:// go.microsoft.com/fwlink/?LinkId=104751).	
	Results	A delegation for this DNS server cannot be created because the authoritative parent zone cannot be found or it does not run Windows DNS server. If you are integrating with an existing DNS infrastructure, you should manually create a delegation to this DNS server in the parent zone to ensure reliable name resolution from outside the domain "example.org". Otherwise, no action is required.	Ξ
		Prerequisites Check Completed     All presequisite shacks parted successfully. Click "lastal" to begin installation	
		If you click Install, the server automatically reboots at the end of the promotion operation.	
		< Previous Next > Insta	el

The installation is now complete.



# 10. Windows Server 2012 – DC Accounts

In Windows 2012, creating account OU and group is nearly the same as in the previous versions.

To Create an OU user, please follow the steps given below.

**Step 1:** Go to: Server Manager  $\rightarrow$  Tools  $\rightarrow$  Active Directory Users and Computers.



**Step 2:** To create an OU named Management. Right-click domain in Active Directory Users and Computers, choose **New** and click **Organizational Unit**.





**Step 3:** Type Management to name the OU. Check the **Protect container from accidental deletion option**. This option will protect this object from accidental deletion.

	New Object - Organizational Unit	bac
- N	Create in:	
Name:		
Manage	ment	
	ct container from accidental deletion	
	ct container from accidental deletion	



**Step 4:** To create a user, Right-click on the **Management** OU  $\rightarrow$  click **New**  $\rightarrow$  and then click **User.** 

1		Activ	e Directory U	sers and Compu
File Action View	/ Help	1 Q 🔒 🛛	m 🔧 😣	i 7 🧕 🕱
Active Directory U Active Directory U Saved Queries A  Builtin Computer D  Domain C D  Managed D  Users	Jsers and Com com s ontrollers curityPrincipal: Service Accour	Name	Туре	Description There are no items t
Manag	Delegate Co Move Find	ntrol		
	New	•	Compute	r
	All Tasks	•	Contact	
	View	•	Group	
< 111	Cut Delete Rename Refresh Export List	i.	InetOrgPe msImagin MSMQ Qi Organizat Printer User	erson ng-PSPs ueue Alias ional Unit
Creates a new item	Properties		Shared Fo	lder



🤾 Creat	e in: example.com/Manageme	ent
First name:	Florjan	Initials:
Last name:	Llapi	
Full name:	Florjan Llapi	
User logon name	:	
User logon name	(pre-Windows 2000):	om 🗸
EXAMPLE	f.llapi	
	< Back	Next > Cancel

**Step 5:** Complete the field with the data of the users  $\rightarrow$  then click Next.

**Step 6:** Now type-in the password. Check on the tick box  $\rightarrow$  User must change password at next logon. The user will be forced to change the password when the user logs in  $\rightarrow$  Click Next  $\rightarrow$  and then click **Finish**.

	New Object - User	
Create in:	example .com/Management	
Password:		
Confirm password:	••••••	, , , , , , , , , , , , , , , , , , ,
User must change pa	ssword at next logon password	
Password never expir	es	
Account is disabled		
		1
	< Back Next >	Cancel



# 11. Windows Server 2012 – File System

In Windows Server 2012 a new file system it is presented with is caller Resilient File System (ReFS).

The key attributes of ReFS include:

- Maintaining a high level of data availability and reliability, even when the individual underlying storage devices experience failures.
- Providing a full, end-to-end resilient architecture when used in conjunction with Storage Spaces. When used together, ReFS and Storage Spaces provide enhanced resiliency to storage device failures.

The significant functionality included with ReFS is described below:

- Integrity: ReFS stores data in a way that protects it from many of the common errors that can normally cause data loss. When ReFS is used in conjunction with a mirror space or a parity space, detected corruption — both metadata and user data, when integrity streams are enabled — can be automatically repaired using the alternate copy provided by Storage Spaces. In addition, there are Windows PowerShell cmdlets (Get-FileIntegrity and Set-FileIntegrity) that you can use to manage the integrity and disk scrubbing policies.
- Availability: ReFS prioritizes the availability of data. Historically, file systems were often susceptible to data corruption that would require the system to be taken offline for repair. With ReFS, if corruption occurs, the repair process is both localized to the area of corruption and performed online, requiring no volume downtime. Although rare, if a volume does become corrupted or you choose not to use it with a mirror space or a parity space, ReFS implements salvage, a feature that removes the corrupt data from the namespace on a live volume and ensures that good data is not adversely affected by non-repairable corrupt data. Because ReFS performs all repair operations online, it does not have an offline chkdsk command.
- Scalability: As the amount and size of data that is stored on computers continues to rapidly increase, ReFS is designed to work well with extremely large data sets petabytes and larger without performance impact. ReFS is not only designed to support volume sizes of 2^64 bytes (allowed by Windows stack addresses), but ReFS is also designed to support even larger volume sizes of up to 2^78 bytes using 16 KB cluster sizes. This format also supports 2^64 1-byte file sizes, 2^64 files in a directory and the same number of directories in a volume.
- **Proactive Error Correction:** The integrity capabilities of ReFS are leveraged by a data integrity scanner, which is also known as a *scrubber*. The integrity scanner periodically scans the volume, identifying latent corruptions and proactively triggering a repair of that corrupt data.



When the metadata for a ReFS directory is corrupted, subfolders and their associated files are automatically recovered. ReFS identifies and recovers the files while ReFS remains online. Unrecoverable corruption of the ReFS directory metadata affects only those files that are in the directory in which the corruption has occurred.

ReFS includes a new registry entry, **RefsDisableLastAccessUpdate**, which is the equivalent of the previous **NtfsDisableLastAccessUpdate** registry entry. The new storage command lets in Windows PowerShell are available (Get-FileIntegrity and Set-FileIntegrity) for you to manage the integrity and disk scrubbing policies.



### 12. Windows Server 2012 – Group Managed Service Accounts

The Managed Service Accounts (MSA) was introduced in Windows Server 2008 R2 to automatically manage (change) passwords of service accounts. Using MSA, you can considerably reduce the risk of system accounts running system services being compromised. MSA has one major problem which is the usage of such service account only on one computer. It means that MSA Service Accounts cannot work with cluster or NLB services, which operate simultaneously on multiple servers and use the same account and password. To fix this, Microsoft added the feature of **Group Managed Service Accounts** (**gMSA**) to Windows Server 2012.

To create a gMSA, we should follow the steps given below:

**Step 1:** Create the KDS Root Key. This is used by the KDS service on DC to generate passwords.

Σ	Administrator: Windo
Windows PowerShell Copyright (C) 2013 Microsof	ft Corporation. All rights reserved.
PS C:\Users\Administrator>	add-kdsrootkey -effectiveimmediately
Guid	
c2d3cb22-62d5-f2f7-ee88-6bl	o5daefd85a

To use the key immediately in the test environment, you can run the PowerShell command:

Add-KdsRootKey -EffectiveTime ((get-date).addhours(-10))

To check whether it creates successfully or not, we run the PowerShell command:

Get-KdsRootKey

**Step 2:** To create and configure gMSA  $\rightarrow$  Open the Powershell terminal and type:

New – ADServiceAccount – name gmsa1 – DNSHostNamedc1.example.com – PrincipalsAllowedToRetrieveManagedPassword "gmsa1Group"

In which,

- **gmsa1** is the name of the gMSA account to be created.
- **dc1.example.com** is the DNS server Name.
- **gmsa1Group**is the active directory group which includes all systems that have to be used. This group should be created before in the Groups.



To check it, Go to  $\rightarrow$  Server Manager  $\rightarrow$  Tools  $\rightarrow$  Active Directory Users and Computers  $\rightarrow$  Managed Service Accounts.

		Active Directory Use
File Action View Help		
🗢 🏟 📶 🔝 🖄 📾	🛛 🖬 🕈	<mark>8 %</mark> 🗊 🍸 🧕 %
<ul> <li>Active Directory Users and Com</li> <li>Saved Queries</li> <li>Saved Queries</li> </ul>	Name	Type msDS-GroupManagedServiceAccount
<ul> <li>Builtin</li> <li>Computers</li> <li>Domain Controllers</li> </ul>		
ForeignSecurityPrincipal: Managed Service Accour Groups gmsa1		

**Step 3:** To install gMAs on a server  $\rightarrow$  open PowerShell terminal and type in the following commands:

- Install ADServiceAccount Identity gmsa1
- Test ADServiceAccount gmsa1

The result should come "True" after running the second command, as shown in the screenshot given below.





**Step 4:** Go to service properties, specify that the service will be run with a **gMSA account**. In the **This account** box in the **Log on** tab type the name of the service account. At the end of the name use symbol **\$**, the password need not to be specified. After the changes are saved, the service has to be restarted.

Ap General	Delication Log On	on Identi Recovery	ty Properties (Lo	cal Computer) 🔼
Log on	as: al System Allo <u>w</u> servi	account ce to interac	t with desktop	
● <u>I</u> his <u>P</u> as: <u>C</u> on	account: sword: firm passw	pord:	KAMPLE\gmsa1\$	<u>B</u> rowse
			ОК С	ancel <u>A</u> pply

The account will get the "Log On as a Service" and the password will be retrieved automatically.



The features of Group Policy Management were installed during the DC Role Installation. Many of the management features haven't changed as compared to the previous versions of Windows Server. To create a GPO (Group Policy Overview), we need to follow the steps given below.

**Step 1:** To create a GPO open the **Group Policy Management Console** (**GPMC**), go to **Server Manager**  $\rightarrow$  **Tools**  $\rightarrow$  **Group Policy Management** as shown in the screenshot below.





**Step 2:** Right-click on an OU  $\rightarrow$  select the first option Create a GPO in this domain and Link it here

1				
📓 File Action View Wi	ndow Help			
<ul> <li>Group Policy Management</li> <li>Group Policy Management</li> <li>Forest: firewall.local</li> <li>Domains</li> <li>Domains</li> <li>Default Dom</li> <li>Default Dom</li> <li>Default Dom</li> <li>Domain Cor</li> <li>OU</li> <li>Group</li> <li>Group</li> <li>Sites</li> <li>Group Policy N</li> <li>Group Policy N</li> <li>Group Policy F</li> </ul>	ain Policy trollers Create a GPO in this of Link an Existing GPO. Block Inheritance Group Policy Update. Group Policy Modelin New Organizational U	FW User Linked Gr domain, and       	rs oup Policy Objects Link Order	Group I GPO
	View New Window from H Delete Rename Refresh Properties	ere		•
	riopenies			

**Step 3:** Type the Name for this GPO object  $\rightarrow$  click OK button. We have selected the name as **Test** GPO.

	New GPO
Name:	
Test	
Source Starter GPO:	
(acco)	


1 K File Action View Window Help Ē ? 📅 = G Group Policy Management FW Users ⊿ A Forest: firewall.local Linked Group Policy O ⊿ 🚔 Domains Link Orde ⊿ iii firewall.local 숲 1 Default Domain Policy Domain Controllers  $\ge$ ⊿ S FW Users 1000 🛒 Test Edit... Group Policy O Enforced WMI Filters Starter GPOs Link Enabled √ Sites Save Report... Group Policy Modeling New Window from Here Group Policy Results Delete Rename Refresh

**Step 4:** Right-click the GPO object and click Edit.



As you know **Dynamic Host Configuration Protocol** (DHCP) is commonly implemented network services in today's network environments. DHCP is primarily used to automatically distribute IP configuration settings to network clients, eliminating manually configuring hosts on TCP/IP-based networks.

To Install DHCP role, you will have to follow the steps given below.

**Step 1:** Go to "Server Manager"  $\rightarrow$  Manage  $\rightarrow$  Add Roles and Features.









### x ß Add Roles and Features Wizard -DESTINATION SERVER Select installation type Select the installation type. You can install roles and features on a running physical computer or virtual Before You Begin machine, or on an offline virtual hard disk (VHD). Installation Type Role-based or feature-based installation Server Selection Configure a single server by adding roles, role services, and features. Remote Desktop Services installation Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment. < Previous Next > Install Cancel

**Step 3:** Select the **Role-based or feature-based installation** option → click Next.



**Step 4:** We will install a Local DHCP Role as it will Select a server from the Server Pool  $\rightarrow$  then click Next.

	Add Roles and Features Wizard
Select destination	ON SERVER
Before You Begin Installation Type	Select a server or a virtual hard disk on which to install roles and features.  Select a server from the server pool  Select a virtual hard disk
Server Roles Features	Server Pool
Results	Name IP Address Operating System 192.168.0.40 Microsoft Windows Server 2012 Datacenter Evaluation
	1 Computer(s) found This page shows servers that are running Windows Server 2012, and that have been added by using th Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.
	< <u>Previous</u> <u>Next &gt;</u> Install Cancel



**Step 5:** From the **Roles** lists, check the DHCP Server role  $\rightarrow$  click **Add Features** on the popup windows as shown in the following screenshots.

elect server ro	bles	DESTINATION SERVER
Before You Begin Installation Type	Select one or more roles to install on the selected server. Roles	Description
Server Roles Features DHCP Server Confirmation Results	<ul> <li>Active Directory Certificate Services</li> <li>✓ Active Directory Domain Services (Installed)</li> <li>Active Directory Federation Services</li> <li>Active Directory Lightweight Directory Services</li> <li>Active Directory Rights Management Services</li> <li>Application Server</li> <li>✓ DHCP Server</li> <li>✓ DNS Server (Installed)</li> <li>Fax Server</li> <li>✓ File And Storage Services (Installed)</li> <li>Hyper-V</li> <li>Network Policy and Access Services</li> </ul>	Protocol (DHCP) Server enables you to centrally configure, manage, and provide temporary IP addresses and related information for client computers.
	Remote Access     Remote Desktop Services	





#### Step 6: Click Next.

<b>b</b>	Add Roles and Features Wizard	_ <b>D</b> X
Select features Before You Begin Installation Type Server Selection Server Roles Features DHCP Server Confirmation Results	Add Roles and Features Wizard         Select one or more features to install on the selected server.         Features         Image: Image	Description .NET Framework 3.5 combines the power of the .NET Framework 2.0 APIs with new technologies for building applications that offer appealing user interfaces, protect your customers' personal identity information, enable seamless and secure communication, and provide the ability to model a range of business processes.
	☐ Failover Clustering         ☑ Group Policy Management (Installed)         ☐ Ink and Handwriting Services         ☐ Internet Printing Client         ☐ IP Address Management (IPAM) Server         ☑ ····· ·         ✓ ····· ·         ✓ ····· ·         ✓ ····· ·         ✓ ····· ·         ✓ Previous	> Install Cancel



0	Add Roles and Features Wizard	>
DHCP Server		ESTINATION SERVER
Before You Begin Installation Type Server Selection Server Roles	The Dynamic Host Configuration Protocol allows servers to assign, or lease, IP addres and other devices that are enabled as DHCP clients. Deploying a DHCP server on the computers and other TCP/IP-based network devices with valid IP addresses and the a configuration parameters these devices need, called DHCP options. This allows comp to connect to other network resources, such as DNS servers, WINS servers, and route Things to note:	ises to computers network provides idditional uters and devices rs.
DHCP Server	You should configure at least one static ID address on this computer.	
Confirmation Results	<ul> <li>Before you install DHCP Server, you should plan your subnets, scopes and exclusio in a safe place for later reference.</li> </ul>	ns. Store the plan
	More information about DHCP Server	
	< Previous Next > Install	Cancel





Add Roles and Features Wizard	
tion selections	DESTINATION SERVER
To install the following roles, role services, or features on selected server, Restart the destination server automatically if required Optional features (such as administration tools) might be displayed on th	click Install.
been selected automatically. If you do not want to install these optional fi their check boxes.	eatures, click Previous to clear
DHCP Server Remote Server Administration Tools Role Administration Tools	
DHCP Server Tools	
Export configuration settings Specify an alternate source nath	
	Add Roles and Features Wizard         tion selections         To install the following roles, role services, or features on selected server,         Restart the destination server automatically if required         Optional features (such as administration tools) might be displayed on th been selected automatically. If you do not want to install these optional fitter check boxes.         DHCP Server         Remote Server Administration Tools         Role Administration Tools         DHCP Server Tools

Step 9: Click Close.





## Post-deployment Configuration

In this section, we will see how to do the post-deployment configuration of the DHCP. Please follow the steps given below.

Step 1: Click on the warning icon and then click on "Complete DHCP Configuration".

		Man
A	Post-deployment Configura TASKS 💌 🛛 🗙	
	Configuration required for DHCP Server at server.example.com	
0	Feature installation	
	Configuration required. Installation succeeded on server.example.com Add Roles and Features	
	Task Details	



#### Step 2: Click Next.



**Step 3:** Select a domain user account that has permissions to create objects in the Net Services container in Active directory or a domain admin account  $\rightarrow$  click Next.

<b>L</b>	DHCP Post-Install configuration wizard	- • ×
Authorization Description Authorization Summary	Specify the credentials to be used to authorize this DHCP server in AD DS.          Image: Set the following user's credentials         User Name: EXAMPLE ladministrator         Uge alternate credentials         UserName: Specify         Sgip AD authorization	
	< Previous Next > Commit	Cancel



Step 4: Click Close.

2	DHCP Post-Install configuration wizard
Summary	
Description Authorization	The status of the post install configuration steps are indicated below:
Summary	Creating security groups Done Please restart the DHCP server service on the target computer for the security groups to be effective.
	Authorizing DHCP server Done
	< Previous Next > Clora Cancel
	Circuites Lieux Concer

## Scope Implementation of DHCP

Now we have to configure the service to make it useful for the computers. To do this, we need to follow the steps given below.

**Step 1:** Server Manager screen  $\rightarrow$  Tools  $\rightarrow$  DHCP.

6	Active Directory Administrative Center
	Active Directory Domains and Trusts
	Active Directory Module for Windows PowerShell
	Active Directory Sites and Services
	Active Directory Users and Computers
	ADSI Edit
	Component Services
	Computer Management
	Defragment and Optimize Drives
	DHCP
	DNS



2		DHCP	- • ×
File Action View Hel	p		
🗢 🏓 🖄 🖬 🗙 🖾	0 🔒 🛛 🛅 🖵 🥶		
🦉 DHCP	Name		Actions
A server.example.com	IPv4		sys01dom02.sys 🔺
D IPv6 Unaut	emove Bindings		More Actions
Backu Restor	D E		
All Tas	ks ►		
View	•		
Delete Refres Export	n List		
Proper	ties		
Help			
< III	>		
Add or Remove bindings from	n this server		

**Step 2:** Right-click on the DHCP Server  $\rightarrow$  then click on "Add/Remove Bindings..."



**Step 3:** Ensure the static IP address of the server should appear as shown in the following screenshot.

		Server Bindin	igs Properti	es	?	x
IPv4	IPv6					
Selec	t the connections th v, verify that a static	at the DHCP serve IP address is config	r supports for se gured for this co	ervicing clients. If mputer.	this list is	
Conn	ections and server b	indings:				_
	92.168.0.40 Ethe	met				
1						
L			014			
			OK	Cancel	App	ly





**Step 4:** Right-click on IPv4 → Select "New Scope".



#### Step 5: Click "Next".



**Step 6:** Enter Scope Name and description as shown in the following screenshot and then  $\rightarrow$  Next.

	New Scope Wizard
Scope Name You have to pr a description.	rovide an identifying scope name. You also have the option of providing
Type a name a how the scope	nd description for this scope. This information helps you quickly identify is to be used on your network.
N <u>a</u> me:	Computers Scope
Description:	Computers DHCP Scope
	Constant Next > Constant



**Step 7:** Enter the Start and End IP address, the Subnet mask, leave the Length as default "24" for class C subnet  $\rightarrow$  click Next.

	New Scope Wizard
IP Address Range You define the scope	e address range by identifying a set of consecutive IP addresses.
Configuration settings	for DHCP Server
Enter the range of ad	dresses that the scope distributes.
Start IP address:	192.168.0.100
End IP address:	192.168.0.200
- Configuration settings Length: Subnet mask:	24
	< <u>B</u> ack <u>N</u> ext > Cancel

**Step 8:** Enter your IP range in the exclusion list. If you have devices on the network that require static IP address and also ensure that the excluded range falls with the Start and End range earlier specified, then  $\rightarrow$  click Next.

	New Scope Wizard
Add Exclusions and D Exclusions are addres server. A delay is the t DHCPOFFER messag	elay ses or a range of addresses that are not distributed by the ime duration by which the server will delay the transmission of a e.
Type the IP address ra address, type an addre	ange that you want to exclude. If you want to exclude a single ess in Start IP address only.
Start IP address:	End IP address:
Excluded address rang	je:
192.168.0.100 to 192	2.168.0.110 Remo <u>v</u> e
	Subnet deļay in milli second:
,	
	< <u>B</u> ack <u>N</u> ext > Cancel



**Step 9:** Enter the desired lease duration for the assigned IP's or leave as default  $\rightarrow$  then click Next.

New Scope Wizard
Lease Duration The lease duration specifies how long a client can use an IP address from this scope.
Lease durations should typically be equal to the average time the computer is connected to the same physical network. For mobile networks that consist mainly of portable computers or dial-up clients, shorter lease durations can be useful. Likewise, for a stable network that consists mainly of desktop computers at fixed locations, longer lease durations are more appropriate. Set the duration for scope leases when distributed by this server. Limited to: Days: Hours: Minutes: Days: Location of the score location of the second secon
< Back Next > Cancel

**Step 10:** Select  $\rightarrow$  **Yes, I want to configure these options now** to configure the DHCP options for the new scope  $\rightarrow$  then click on Next.

	New Scope Wizard
Co	nfigure DHCP Options You have to configure the most common DHCP options before clients can use the scope.
	When clients obtain an address, they are given DHCP options such as the IP addresses of routers (default gateways), DNS servers, and WINS settings for that scope.
	The settings you select here are for this scope and override settings configured in the Server Options folder for this server.
	Do you want to configure the DHCP options for this scope now?
I	☞ Yes, I want to configure these options now
1	C No. 1 will configure these options later



**Step 11:** Enter the default gateway which is the IP of your Router  $\rightarrow$  then click Next.

	New Sco	pe Wizard		
Router (Default Gateway You can specify the route	r) ers, or default gatew	ays, to be distribut	ed by this scope.	10
To add an IP address for	a router used by cli	ents, enter the add	ress below.	
· · ·	Add			
192.168.0.1	Bemove			
	Цр			
	Dgwn			
		< <u>B</u> ack	<u>N</u> ext >	Cancel
		- 23 - L		3.62

**Step 12:** Add DNS IP  $\rightarrow$  click Next (we can put Google DNS or if it is a Domain environment you can put the DC IP there) then click  $\rightarrow$  Next.

New S	cope Wizard	
Domain Name and DNS Servers The Domain Name System (DNS) maps a on your network.	and translates domain names	s used by clients
You can specify the parent domain you want t DNS name resolution.	he client computers on your	network to use for
Parent domain: example.com		
To configure scope clients to use DNS server servers.	s on your network, enter the	IP addresses for those
Server name:	I <u>P</u> address:	_
		Add
Resolve	8.8.8.8	Remove
	8.8.4.4	<u>Шр</u>
		Down



New Sco	pe Wizard	
WINS Servers Computers running Windows can use WINS names to IP addresses.	servers to convert NetBIOS computer	del 1
Entering server IP addresses here enables W broadcasts to register and resolve NetBIOS n	indows clients to query WINS before they ames.	use
Server name:	I <u>P</u> address:	
	Add	
Resolve	<u>R</u> emov	'e
	Цр	
	Down	
To change this behavior for Windows DHCP Type, in Scope Options.	clients modify option 046, WINS/NBT No	de
	< <u>B</u> ack <u>N</u> ext >	Cancel

**Step 13:** Specify your WINS Server if any and then click  $\rightarrow$  Next.

**Step 14:** Select **Yes, I want to activate this scope now** option to activate the scope immediately and then click  $\rightarrow$  Next.

New Scop	e Wizard		
Activate Scope Clients can obtain address leases only if a sco	pe is activated.		G
Do you want to activate this scope now?			
Ng, I will activate this scope later			
			14
	< <u>B</u> ack	Next >	Cancel
		Real Property lies and the	



#### Step 15: Click Finish.

New Scope Wizard				
	Completing the New Scope Wizard You have successfully completed the New Scope wizard.			
	To provide high availability for this scope, configure failover for the newly added scope by right clicking on the scope and clicking on configure failover. To close this wizard, click Finish.			
< <u>B</u> ack Finish Cancel				



DNS Role is one of the most important services in a network with Domain Controllers Environment. It helps us to resolve domain names internally and externally to IP and to have access to the requested service for the respective domain.

Let us now see how to install the DNS Role. For this we need to follow the steps given below.



**Step 1:** To Install DNS role, go to "Server Manager"  $\rightarrow$  Manage  $\rightarrow$  Add Roles and Features.







**Step 3:** Select the **Role-based or feature-based installation** option and then click Next.

elect installatio	on type	DESTINATION SERVI
Before You Begin	Select the installation type. You can install roles and features on a running pl machine, or on an offline virtual hard disk (VHD).	hysical computer or virtu
Server Selection	Role-based or feature-based installation     Configure a single server by adding roles, role services, and features.	
	<ul> <li>Remote Desktop Services installation Install required role services for Virtual Desktop Infrastructure (VDI) to cre or session-based desktop deployment.</li> </ul>	ate a virtual machine-ba

**Step 4:** We will install a Local DNS role as it will select a server from the server pool  $\rightarrow$  and then click Next.

elect destinati	ion server
Before You Begin	Select a server or a virtual hard disk on which to install roles and features.
Installation Type	Select a server from the server pool
Server Selection	O Select a virtual hard disk
Server Roles	Server Pool
Features	
	Filter:
	Name IP Address Operating System
	192.168.0.40 Microsoft Windows Server 2012 Datacenter Evaluat
	1 Computer(s) found
	Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.



**Step 5:** From the **Server Roles** lists, check the **DNS Server** role  $\rightarrow$  click Add Features on the popup windows and then click Next.

<u>ک</u>	Add Roles and Features Wizard	_ <b>_</b> X
Select server role	es	DESTINATION SERVER
Before You Begin Installation Type Server Selection Server Roles Features DNS Server Confirmation Results	Select one or more roles to install on the selected server.  Roles  Active Directory Certificate Services  Active Directory Domain Services (Installed)  Active Directory Federation Services  Active Directory Lightweight Directory Services  Active Directory Rights Management Services  Active Directory Rights Management Services  Application Server DHCP Server  Fax Server  Fax Server  Fax Server  Remote Access Remote Access Remote Desktop Services	<ul> <li>Description</li> <li>Domain Name System (DNS) Server provides name resolution for TCP/IP networks. DNS Server is easier to manage when it is installed on the same server as Active Directory Domain Services. If you select the Active Directory Domain Services role, you can install and configure DNS Server and Active Directory Domain Services to work together.</li> </ul>
	Add Roles and Features Wizard  Add features that are required for DNS Server  The following tools are required to manage this feature, b have to be installed on the same server.  Remote Server Administration Tools  Role Administration Tools  Tools] DNS Server Tools	Vext > Install Cancel

Include management tools (if applicable)

Add Features

Cancel



#### Step 6: Click Next.

))	Add Roles and Features Wizard
DNS Server Before You Begin Installation Type Server Selection Server Roles Features DNS Sorver Confirmation	Domain Name System (DNS) provides a standard method for associating names with numeric Internet addresses. This makes it possible for users to refer to network computers by using easy-to-remember names instead of a long series of numbers. In addition, DNS provides a hierarchical namespace, ensuring that each host name will be unique across a local or wide-area network. Windows DNS service can be integrated with Dynamic Host Configuration Protocol (DHCP) services on Windows, eliminating the need to add DNS records as computers are added to the network. Things to note: • DNS server integration with Active Directory Domain Services automatically replicates DNS data does with due Directory Service data malies it earing to ensure DMS
	<ul> <li>Active Directory Service data, making it easier to manage UNS.</li> <li>Active Directory Domain Services requires a DNS server to be installed on the network. If you are installing a domain controller, you can also install the DNS Server role using Active Directory Domain Services Installation Wizard by selecting the Active Directory Domain Services role.</li> </ul>



Confirm installa	ition selections	DESTINATION SERVE
Before You Begin Installation Type Server Selection Server Roles Features DNS Server Confirmation	To install the following roles, role services, or features or Restart the destination server automatically if require Optional features (such as administration tools) might b been selected automatically. If you do not want to install their check boxes. DNS Server Remote Server Administration Tools Bole Administration Tools	n selected server, click Install. red e displayed on this page because they have I these optional features, click Previous to clea
Results	DNS Server Tools Export configuration settings Specify an alternate source path	



<b>b</b>	Add Roles and Features Wizard	- 0 X
Installation prog	gress	DESTINATION SERVER
Before You Begin Installation Type Server Selection	View installation progress	
Server Roles Features DNS Server Confirmation Results	DNS Server Remote Server Administration Tools Role Administration Tools DNS Server Tools	
	You can close this wizard without interrupting running tasks. View page again by clicking Notifications in the command bar, and the Export configuration settings	v task progress or open this n Task Details.

**Step 8**: Wait until installation bar is complete.

Once the installation is finished, click on **Close**.



# 16. Windows Server 2012 – Primary Zones

To manage DNS, we have to create a primary Zone because by default, there are no zones in order to manage the records.

**Step 1:** To manage DNS, go to Server Manager  $\rightarrow$  Tools  $\rightarrow$  DNS  $\rightarrow$  Right click on "Forward Lookup Zone"  $\rightarrow$  New Zone.









New	Zone Wizard		×
ports various typ	es of zones and stor	age.	
ne you want to d	create:		_
if a zone that car	n be updated directly	on this server.	
if a zone that exi ad of primary ser	ists on another serve rvers and provides fa	er. This option helps ault tolerance.	balance
if a zone containi bly glue Host (A) that zone.	ing only Name Server records. A server co	r (NS), Start of Auth ontaining a stub zon	iority e is not
Active Directory	(available only if DN:	5 server is a writeat	ole domain
	< Back	Nexts	Cancel
	New ports various typ one you want to o of a zone that can of a zone that can be a zone that exi- ad of primary se of a zone contain ibly glue Host (A) that zone.	New Zone Wizard ports various types of zones and store one you want to create: of a zone that can be updated directly of a zone that exists on another serve and of primary servers and provides for that zone. Active Directory (available only if DN	New Zone Wizard ports various types of zones and storage. one you want to create: of a zone that can be updated directly on this server. of a zone that exists on another server. This option helps ad of primary servers and provides fault tolerance. of a zone containing only Name Server (NS), Start of Auth ibly glue Host (A) records. A server containing a stub zon that zone. Active Directory (available only if DNS server is a writeat

**Step 3:** Enter the name of the primary Zone for which you want to manage the records.

8	New Zone Wizard
	Zone Name What is the name of the new zone?
	The zone name specifies the portion of the DNS namespace for which this server is authoritative. It might be your organization's domain name (for example, microsoft.com) or a portion of the domain name (for example, newzone.microsoft.com). The zone name is not the name of the DNS server. Zone name:
	example.com
	<back next=""> Cancel</back>



New Zone Wizard	
Zone File You can create a new zone file or use a file copied from another DNS server	
Do you want to create a new zone file or use an existing file that you have o from another DNS server? Oreate a new file with this file name:	opied
erample.com.dm	
O Use this existing file:	
To use this existing file, ensure that it has been copied to the folder %SystemRoot%(system32)dns on this server, and then click Next.	
<back next=""></back>	Cancel

**Step 4**: Select "Create a new file with this filename" option.

**Step 5:** If you want to update the record of this zone manually, you have to select "Do not allow dynamic Updates", as shown in the following screenshot.

New Zone Wizard
Dynamic Update You can specify that this DNS zone accepts secure, nonsecure, or no dynamic updates.
Dynamic updates enable DNS client computers to register and dynamically update their resource records with a DNS server whenever changes occur.
Select the type of dynamic updates you want to allow:
<ul> <li>Allow only secure dynamic updates (recommended for Active Directory) This option is available only for Active Directory-integrated zones.</li> </ul>
<ul> <li>Allow both nonsecure and secure dynamic updates</li> <li>Dynamic updates of resource records are accepted from any client.</li> <li>This option is a significant security vulnerability because updates can be accepted from untrusted sources.</li> </ul>
Do not allow dynamic updates Dynamic updates of resource records are not accepted by this zone. You must update these records manually.
Control Control
< back Next > Cancel



#### **Step 6:** Click the Finish button.

New Zone Wizard
Completing the New Zone Wizard.         You have successfully completed the New Zone Wizard. You specified the following settings:         Name:       example.com         Type:       Standard Primary         Lookup type:       Forward         File name:       example.com.dns         Note:       You should now add records to the zone or ensure that records are updated dynamically. You can then verify
To dose this wizard and create the new zone, click Finish.



As you know, in DNS you can add records according to your need and in Windows server 2012 as well. This doesn't change too much from its earlier version of Windows Server 2008.

To add or manage records, we have to follow the steps given below:

**Step 1:** Server Manager  $\rightarrow$  DNS  $\rightarrow$  Right click on the server that has a DNS record, which in our case is **local**.

<u>ک</u>		Server Manager			- 0	×
€ Server Ma	anager •	DNS	• @ I 🏲	Manage Tools	View I	ielp
Dashboard	All ser	ERS vers   1 total			TASKS 👻	]
Local Server     All Servers	Filter	• (i) • (i) •			۲	
A DNS	Server Name	Ped Address Managerability	Last Update	Windows Activat	ion	=
File and Storage Services >	C EVENTS Filter	Add Roles and Features Shut Down Local Server Computer Management Remoter Desktop Connection Windows PowerShell Configure NIC Teaming Confoure NIC Teaming NIC Teamin	arted 10/18/2013 12:18:09 /	M 00183-80800-807	718-AA240 (Act ) ) TASKS • (*)	
	Server Name	ID Seventy Source     414 Warning Microsoft-Windows-DNS-Server-Serv	Log Date and rice DNS Server 10/17/201	Time 3 11:46:42 PM		4



Step 2: Go to "Forward Lookup Zone".

Å	DNS Manager	- 0	×
File Action View Help			
♦ 2 0 × 0 0 0			
DNS Colobal Logs Conditional Forwarders Trust Points Conditional Forwarders	Name		
< III >			



å		DNS Manager		= 0 X
File Action View Help				
•••			1 Marcine 1	
DNS Server.example.com Global Logs Global Logs Serverse Lookup Zones Reverse Lookup Zones Trust Points Conditional Forwarders	Name (serne as parent folder) (serne as parent folder)	Type Start of Authority (SOA) Name Server (NS)	Data [1]hostmaster, server	
	Update Server Reload New Host (A o	Data File e AAAA)		
	New Wass (CN	AME)		
	New Mail Exch New Domain New Delegatio Other New Res DNSSEC	anger (M0) n cords		
	All Tasks			
	Refresh Export List			
	View	,		
	Arrange Icons Line up Icons Properties	•		
	Help			
¢ # >				
Create a new host resource record.	N <sub>11</sub>			

**Step 3:** Right Click on the empty Field  $\rightarrow$  New Host (A or AAAA) ...



**Step 4:** Name field and the subdomain name or case is WWW.  $\rightarrow$  IP address we put is 192.168.1.200. So, when we will type-in our browser <u>www.example.com</u>, it will redirect us to 192.168.1.200.

	INEW HOST
Same (uses parent	domain name if blank):
www	
uly qualified doma	in name (FQON):
example.com	
2 address:	
192,168,1,200	
Create associate	ed pointer (PTR) record
Create associate	ed pointer (PTR) record

**Step 5:** To add a Mail Server Record, we add an MX record and then Right click  $\rightarrow$  New Mail Exchanger as shown in the screenshot given below

<ul> <li>Rever</li> <li>Trust</li> <li>Conc</li> <li>Glob:</li> </ul>	Update Server Data File Reload		sZones Zones arent folder) arent folder) arent folder)		
	New Host (A or AAAA)			Start of Authority (SOA) Name Server (NS) Host (A) Host (A)	
	New Alias (CNAME)				
	New Mail Exchanger (MDQ)				
	New Domain New Delegation Other New Records DNSSEC	,			
	All Tasks	•			
	View	•			
	Delete Refresh				



**Step 6:** At "Fully qualifies domain name(FQDN) of mail server", you enter the name of mail server  $\rightarrow$  then in the "Mail server priority", you enter a number. The smaller the number, the higher the priority.

Host or child do	imain:	
L By default, DN Exchange reco deployments, t	S uses the parent domain name wh rd. You can specify a host or child r the above field is left blank.	en creating a Mail same, but in most
Fylly qualified d	Somain name (FQDN):	
example.co	om	
Eully qualified o	fomain name (FQDN) of mail server	
Mall.examp	ple.com	Browse
Mall server prio	xity:	
A state where a set of the set		
10		
10		
10		
10		
10		
10		



## 18. Windows Server 2012 – IIS Overview

The IIS or **Internet Information Services** role is one of the most important services in Windows Server 2012. It has improved features as compared to its previous versions and it helps us to publish web application or webpages.

Let us now see how to install the IIS Role for which you will have to follow the steps given below.

**Step 1:** To Install IIS role, go to "Server Manager"  $\rightarrow$  then Manage  $\rightarrow$  and then to Add Roles and Features.



Step 2: Click on Next in the window which pops up.

Ъ.	Add Roles and Features Wizard	×
Before you begin		DESTINATION SERVER
Before You Begin Installation Type Server Selection Server Icon Penders Confirmation Results	This wizard helps you install roles, role services, or features. You determine which features to install based on the computing needs of your organization, such as sh hosting a website. To remove roles, role services, or features: Start the Remove Roles and Features Wizard Before you continue, verify that the following tasks have been completed: • The Administrator account has a strong password • Network settings, such as static IP addresses, are configured • The most current security updates from Windows Update are installed If you must verify that any of the preceding prerequisites have been completed, of complete the steps, and then run the wizard again. To continue, click Next.	roles, role services, or aring documents, or lose the wizard,
	Skip this page by default	
	< Previous Next > Ins	tall Cancel



**Step 3:** Select the **Role-based or feature-based installation** option and then click on Next.

1	Add Roles and Features Wizard	- 0 X
Select installation	in type	DESTINATION SERVER
Before You Begin	Select the installation type. You can install roles and features on a running machine, or on an offline virtual hard disk (VHD).	physical computer or virtual
Server Selection	<ul> <li>Role-based or feature-based installation Configure a single server by adding roles, role services, and features.</li> </ul>	
Features Confirmation Besuits	<ul> <li>Remote Desktop Services installation Install required role services for Virtual Desktop Infrastructure (VDI) to co or session-based desktop deployment.</li> </ul>	reate a virtual machine-based
	< <u>P</u> revious	install Cancel

**Step 4:** I will install a Local IIS role as it will Select a server from the server pool  $\rightarrow$  then click on Next.

elect destinati			
Before You Beain	Select a server or a virtual hard disk on which to install roles and features.		
Installation Type	Select a server from the server pool		
Server Selection	<ul> <li>Select a virtual hard disk</li> </ul>		
Server Roles	Server Pool		
Features Confirmation	Filter		
Results	Name IP Address Operating System		
	Microsoft Windows Server 2012 Datacenter Evaluat		
	1 Computer(s) found This page shows servers that are running Windows Server 2012, and that have been added by using		



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**Step 5:** From the Roles lists, check the "Web server" (IIS) Server role  $\rightarrow$  Next.



Before You Begin	Select one or more features to install on the selected ser	ver.	DESTINATION SERVI
Server Selection Server Roles Features Web Server Role (IIS) Role Services Confirmation Name		c	NET Framework 4.5 provides a comprehensive and consistent programming model for quickly ar easily building and running applications that are built for vario platforms including desktop PCs. Servers, smart phones and the pub and private cloud.
	< m	5	


#### Step 7: Click Next.



**Step 8:** You can choose all the default setting or customize them according to you needs.







onfirm installat	ion selections	DESTINATION SERVE
Onintri installat	IOIT SElections	
Before You Begin	To install the following roles, role services, or features on	selected server, click install.
Installation Type	Restart the destination server automatically if require	ed
Server Selection	erver Selection Optional features (such as administration tools) might be displayed on this page beca	
Server Roles	been selected automatically. If you do not want to install their chark bound	these optional features, click Previous to cle
Features	uner check boxes.	
Web Server Role (IIS)	.NET Framework 4.5 Features	
Role Services	ASP.NET 4.5	
Confirmation	Web Server (IIS)	1
Constant and the second second	Web Server	
	Common HTTP Features	
	Default Document	
	Directory Browsing	
	HTTP Errors	
	HTTP Redirection	
	HI. 6 HI & LP.1	
	Export configuration settings Specify an alternate source path	
	A PRODUCTION AND AND AND AND AND AND AND AND AND AN	

**Step 10:** Wait until the Installation Wizard finishes. Once it is done click Close.

notonotion prog	1632	
Before You Begin	View installation progress	
Installation Type	Feature installation	
	Installation succeeded on	
	.NET Framework 4.5 Features	1
Web Server Role (115)	ASP.NET 4.5	
Role Services	Web Server (IIS)	-
	Web Server	
Results	Static Content	
	Default Document	
	Directory Browsing	
	HTTP Errors	
	HTTP Redirection	_
	WebDAV Publishing	
	You can close this wizard without interrupting running tasks. View task progre	ss or open this
	page again by clicking Notifications in the command bar, and then Task Detail	5.



**Step 11:** Check if your IIS is installed correctly. This can be done by opening your internet explorer and then typing <u>http://localhost</u> and you should be able to see the following screenshot.





The IIS (**Internet Information Services**) is facing internet all the time. So, it is important to follow some rules in order to minimize the risk of being hacked or having any other security issues. The first rule is to take all the updates of the system regularly. The second one is to create different application polls to this, which can be done by following the steps shown below.

**Step 1:** You have to go to: Server Manager  $\rightarrow$  Internet Information Services(IIS) Manager  $\rightarrow$  Application Pulls.

Connections	Application Pools This page lets you view and manage the list of application pools on the server. Application pools are associated with worker processes, contain one or more applications, and provide isolation among different applications.					
b- Sites	Filter:	• 7 6	🗸 - 🥁 Show <u>A</u> ll   Group b	y: No Grouping		
	Name	Status	.NET Framework Version	Managed Pipeline Mode	Identity	
	.NET v2.0	Started	v2.0	Integrated	ApplicationPoolIdentit	
	.NET v2.0 Classic	Started	v2.0	Classic	ApplicationPoolIdentit	
	2.NET v4.5	Started	v4.0	Integrated	ApplicationPoolIdentit	
	.NET v4.5 Classic	Started	v4.0	Classic	ApplicationPoolIdentit	
	Classic .NET AppPool	Started	v2.0	Classic	ApplicationPoolIdentit	
			22(22)	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		



**Step 2:** Click "Sites"  $\rightarrow$  Right Click "Default Website"  $\rightarrow$  Manage Website  $\rightarrow$  Advance Settings.

Connections			De	fault Mak		-
😪 - 🔡 🖄 🥵		9	De	lault wet	o site Ho	me
Start Page	(WIN-O0K2J4O0FT	Filter:			• \$ <u>G</u> o •	Show All
Application Poo ⊿ - 🛐 Sites	bls	ASP.N	ET —			
Default	Explore Edit Permissions		at	.NET Compilation	.NET Error Pages	.NET Globalization
	Add Application Add Virtual Directo	ry	ust	.NET Users		Connection
	Edit Bindings				Settings	Strings
	Manage Website	•	2	Restart		
<b>22</b>	<u>R</u> efresh		₽	Start		
×	Remove			Stop		_
	Rename		0	Browse		
	Switch to Content	View		Advanced S	ettings	II)
		Authen	tic	Compression	Default Document	Directory Browsing



**Step 3:** Select the Default Pools.

	Application Pool	DefaultAppPool
-	bindings	nttp: :80:
	ID	1
	Name	Default Web Site
	Physical Path	%SystemDrive%\inetpub\wwwroot
	Physical Path Credentials	
	Physical Path Credentials Logon	ClearText
	Start Automatically	True
4	Behavior	
	Enabled Protocols	http
Þ	Limits	
	unlication Pool	



**Step 4** Disable the OPTIONS method, this can be done by following the path – Server Manager  $\rightarrow$  Internet Information Services (IIS) Manager  $\rightarrow$  Request Filtering.





Request Filter	ring itering rules.	
File Name Extensions	Rules Roles	Segments 9 URL 7 HILP Verts 1 Headers 1 Q Query Strings
		Deny Verb     *       Verb:     CPTIONS       OK     Cancel
The second second		

**Step 5:** In the action pane, select "Deny Verb"  $\rightarrow$  Insert 'OPTIONS' in the Verb  $\rightarrow$  OK.

**Step 6:** Enable Dynamic IP Restrictions blocks by going to – IIS Manager  $\rightarrow$  Double click on "IP Address and Domain Restrictions"  $\rightarrow$  Actions pane.





**Step 7:** Then select "Edit Dynamic Restriction Settings"  $\rightarrow$  Modify and set the dynamic IP restriction settings according to your needs  $\rightarrow$  press OK.

D	ynamic IP Restriction Settings	7 💌 🗙
Deny IP Address based on the Maximum number of cond 5	he number of concurrent requests current requests:	
<ul> <li>Deny IP Address based on the Maximum number of required</li> </ul>	he number of requests over a period of time rests:	
20		
Time Period (in millisecon	ds):	
200		
Enable Logging Only Mode	OK	Cancel

**Step 8:** Enable and Configure Request Filtering Rules, to do this – IIS Manager  $\rightarrow$  Double click on "Request Filtering"  $\rightarrow$  Change to the Rules tab  $\rightarrow$  Actions Pane.





		Add Filtering Rule	? ×
Name	E		
SQL_I	njection_Mitigation		
v sc	an url		
	an query string		
Scar	Hander		
Scar	Header		
**	Theoder		
Арр	olies To		
	File Extension		
•	.asp		0
-	.aspx		
*			
Der	y Strings		
	String		^
۲.	select		
	drop		
	update		
	convert		~
		OK	Cancel
		UK	Cancer

**Step 9:** Then select "Add Filtering Rule"  $\rightarrow$  Set the required rules  $\rightarrow$  Click OK.



**Step 10:** Enable logging, to do this we need to follow this path – IIS Manager  $\rightarrow$  select the specific site you want to configure  $\rightarrow$  Logging.

Logging	(The second s
	By Apply By Cancel
ise this feature to configure how IS logs requests on the Web server.	Deable
ine log file per	View Log Files
ite v	Heb
Log File	a second second
Format:	
W3C V Select Fields	
Directory:	
%SystemDrive%\inetpub\Jogs\LogFiles Browse	
Encoding:	
UTF-8 ~	
Log Event Destination	
Select the destination where IIS will write log events.	
e cogine only	
ETW event only	
Both log file and ETW event	
Log File Rollover	
Select the method that IIS uses to create a new log file.	
Schedule	
Daily	
Daily V	
Daily V Maximum file size (in bytes):	
Daily V Maximum file size (in bytes):	
Daily V Maximum file size (in bytes): Do not create new log files.	
Daily V Maximum file size (in bytes): Do not create new log files	



## 20. Windows Server 2012 - Hyper-V

Virtualization is one of the most important technology feature and Microsoft has invested on this and the responsible role is called as Hyper-V.

Let us now see how to install the Hyper-V Role, for doing this we should follow the steps given below.

**Step 1:** To Install DNS role go to "Server Manager"  $\rightarrow$  Manage  $\rightarrow$  Add Roles and Features.





	Add Roles and Features Wizard
Before you beg Before You Begin Installation Type Server Selection Server Roles Features Confirmation Results	This wizard helps you install roles, role services, or features. You determine which roles, role services, or features to install based on the computing needs of your organization, such as sharing documents, or hosting a website. To remove roles, role services, or features: Start the Remove Roles and Features Wizard Before you continue, verify that the following tasks have been completed: • The Administrator account has a strong password • Network settings, such as static IP addresses, are configured • The most current security updates from Windows Update are installed If you must verify that any of the preceding prerequisites have been completed, close the wizard, complete the steps, and then run the wizard again. To continue, click Next.
	Skip this page by default
	< Previous Next > Install Cancel





**Step 3:** Select the **Role-based or feature-based installation** option  $\rightarrow$  click Next.

**Step 4:** I will install a Local Hyper-V role as it will Select a server from the server pool  $\rightarrow$  Next.

elect destinati	ON Server			
Before You Begin	Select a server or a virtual hard disk on which to install roles and features.			
Server Selection	Select a server from the server pool     Select a virtual hard disk			
Server Roles	Server Pool			
Features Confirmation	Filter:			
	Name IP Address Operating System			
	Microsoft Windows Server 2012 Datacenter Evalua			
	1 Computer(s) found			
	This page shows servers that are running Windows Server 2012, and that have been added by using Add Servers command in Server Manager. Offline servers and newly-added servers from which data			



**Step 5:** From the Roles lists, check the Hyper-V Server role  $\rightarrow$  click Add Features on the popup windows which show up and then  $\rightarrow$  Next.









**Step 7:** Choose your server's physical network adapters that will take part in the virtualization  $\rightarrow$  Next.

	Add Roles	and Features Wizard	
Before You Begin Installation Type Server Selection Server Roles	Virtual machines require virtual switches to communicate with other computers. Aft role, you can create virtual machines and attach them to a virtual switch. One virtual switch will be created for each network adapter you select. We recomm at least one virtual switch now to provide virtual machines with connectivity to a ph can add, remove, and modify your virtual switches later by using the Virtual Switch		DESTINATION SERVER ers. After you install this commend that you create to a physical network. You Switch Manager.
Features	Network adapters:		_
Virtual Switches	Name Ethernet	Intel(R) PRO/1000 MT Network Conn	ection
Migration Default Stores Confirmation Results	We recommend that y network adapter, do n	ou reserve one network adapter for remote access ot select it for use with a virtual switch.	s to this server. To reserve

### **Step 8:** Under **Migration**, leave the default settings $\rightarrow$ **Next.**

Before You Begin Installation Type Server Selection Server Roles Features Hyper-V Virtual Switches Migration Default Stores Confirmation Results	<ul> <li>Hyper-V can be configured to send and receive live migrations Configuring Hyper-V now enables any available network on thi you want to dedicate specific networks for live migration, use H</li> <li>Allow this server to send and receive live migrations of virtue Authentication protocol</li> <li>Select the protocol you want to use to authenticate live migration</li> <li>Use Credential Security Support Provider (CredSSP) This protocol is less secure than Kerberos, but does not no delegation. To perform a live migration, you must be loge O Use Kerberos This protocol is more secure but requires you to set up co environment to perform tasks such as live migration whe</li> <li>If this server will be part of a cluster, do not enable migration server for live migration, including specifying networks, who</li> </ul>	of virtual machines on this server. is server to be used for live migrations. I hyper-V settings after you install the role ual machines rations. equire you to set up constrained ged on to the source server. onstrained delegation in your in managing this server remotely. ion now. Instead, you will configure the nen you create the cluster.
--	---	--



	Add Roles and Features Wizard	
Default Stores		DESTINATION SERVER
Before You Begin Installation Type Server Selection Server Roles	Hyper-V uses default locations to store virtual hard disk files and virtual machine co unless you specify different locations when you create the files. You can change the now, or you can change them later by modifying Hyper-V settings. Default location for virtual hard disk files:	onfiguration files, ese default locations
Features	C/\Users\Public\Documents\Hyper-V/Virtual Hard Disks	Browse
Hyper-V	Default location for virtual machine configuration files:	
Virtual Switches	C:\ProgramData\Microsoft\Windows\Hyper-V	Browse-
Migration		
Default Stores		
Confirmation		
	a Drawing and Next a	. Constant

Step 9: Choose the path where to save the file.

Step 10: Click Install and wait for the installation bar to finish.





# 21. Windows Server 2012 – Advanced Configuration

In this chapter, we will see how to create a virtual machine. Firstly, we should open the Hyper-V manager and then follow the steps given below.

Step	1:	Open	"Server	Manager"	$\rightarrow$	and then	Click on	"Hyper-V".
------	----	------	---------	----------	---------------	----------	----------	------------

		Server Manager	
Server M	anager • Hyper-V		
Dashboard Local Server All Servers DD DS	SERVERS           All servers   1 total           Fifter           Server Name           IPv4 Address           Manageability	(2) ▼ (2) ▼ Last Update	Windows Av
DHCP     DNS     DNS     Ete and Storage Sequinet b	50 Onlice - Por	Add Roles and Features Shut Down Local Server	Not activate
Di Hyper-V Io IIS		Computer Management Remote Desktop Connection Windows PowerShell Configure NIC Teaming Configure Windows Automatic Feedback	
		Hyper-V Manager	
	All events ( 1 total	Manage As Start Performance Counters Refresh	
	ranar	Сору	
	Server Name ID Severity Source	Log	



**Step 2:** Click "New" on the Right side Panel or click on Action button in the options as shown in the screenshot below.

â.	Hyper-V Manager	= 0 X
File Action View Help		
Hyper-V Manager	Virtual Machines	Actions
	Name	New +
	< Snapshots	Hyper-V Settings     Virtual Switch Manager     Virtual SAN Manager
		Edit Disk
	Details	Remove Server     Refresh
		View 🕨

**Step 3:** Double Click on the Virtual Machine option as shown in the following screenshot.

Action	View Help				
Ne	w	•	Virtual M	achine	
lm Hy	port Virtual Machine per-V Settings		Hard Disk Floppy D	c isk	
Virtual Switch Manager Virtual SAN Manager			* State		(
Edi	t Disk pect Disk				
Stop Service Remove Server		h	ots		
	Action Ne Im Hy Vir Edi Ins Sto Rei	Action View Help New Import Virtual Machine Hyper-V Settings Virtual Salv Manager Virtual SAN Manager Edit Disk Inspect Disk Stop Service Remove Server Refresh	Action View Help          New       Import Virtual Machine         Import Virtual Machine       Hyper-V Settings         Virtual Salvitch Manager       Virtual SAN Manager         Edit Disk       Inspect Disk         Stop Service       Remove Server         Refresh       Help	Action View Help New Virtual Machine Import Virtual Machine Hyper-V Settings Virtual SAN Manager Virtual SAN Manager Edit Disk Inspect Disk Stop Service Remove Server Refresh	Action View Help          New       Virtual Machine         Import Virtual Machine       Hard Disk         Hyper-V Settings       Floppy Disk         Virtual Switch Manager       * State         Virtual SAN Manager       * State         Edit Disk       *         Inspect Disk       *         Stop Service       *         Remove Server       *         Refresh       *



**Step 4:** A new table will be open  $\rightarrow$  Type the Name of your new machine and then click Next.

<b>k</b> .	New Virtual Machine Wizard	×
Specify N	ame and Location	
Before You Begin Specify Name and Location	Choose a name and location for this virtual machine. The name is displayed in Hyper-V Manager. We recommend that you use a name that helps yo	u easily
Assign Memory	identify this virtual machine, such as the name of the guest operating system or workload.	
Configure Networking	Name: Windows 7	
Connect Virtual Hard Disk Installation Options	You can create a folder or use an existing folder to store the virtual machine. If you don't select folder, the virtual machine is stored in the default folder configured for this server.	ct a
Summary	Store the virtual machine in a different location	
	Location: C: ProgramData Wicrosoft Windows Hyper-V\ Bro	wse
	If you plan to take snapshots of this virtual machine, select a location that has enough fit space. Snapshots include virtual machine data and may require a large amount of space.	50.

**Step 5:** A new table will be open where you must allocate the memory. Keep in mind that you cannot choose more memory than what you have in your system.

8 <b>4</b>	New Virtual Machine Wizard
Assign Mem	iory
Before You Begin Specify Name and Location	Specify the amount of memory to allocate to this virtual machine. You can specify an amount from 8 MB through 5816 MB. To improve performance, specify more than the minimum amount recommended for the operating system.
Assign Memory Configure Networking Connect Virtual Hard Disk	Startup memory: 2048 MB
Installation Options Summary	When you decide how much memory to assign to a virtual machine, consider how you intend to use the virtual machine and the operating system that it will run.

**Step 6:** In the **Connection** dropdown box, choose you physical network adaptor and click Next.

8.	New Virtual Machine Wizard	×
Configure N	etworking	
Before You Begin Specify Name and Location	Each new virtual machine includes a network adapter. You can configure the network adapter to us virtual switch, or it can remain disconnected.	ie a
Assign Memory	Connection: Intel(R) PRO/1000 MT Network Connection - Virtual Switch.	
Configure Networking		
Connect Virtual Hard Disk		
Installation Options		
Summary		



**Step 7:** Now it is time to Create a Virtual Hard disk. If you already have one, choose the second option

8	New Virtual Machine Wizard				
Connect Vi	rtual Hard Disk				
Before You Begin Specify Name and Location Assign Memory Configure Networking	A virtual machine requires storage so that you can install an operating system. You can specify the storage now or configure it later by modifying the virtual machine's properties. <ul> <li>Create a virtual hard disk</li> <li>Use this option to create a dynamically expanding virtual hard disk with the default format (VHDX).</li> </ul>				
Connect Virtual Hard Disk Installation Options Summary	Name:       Windows 7.vhdx         Location:       C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks\         Size:       40         GB (Maximum: 64 TB)    O Use an existing virtual hard disk Use this option to attach an existing virtual hard disk, either VHD or VHDX format.				
	Location:       C:\Users\Public\Documents\Hyper-V\Wirtual Hard Disks\       Browse         O       Attach a virtual hard disk later         Use this option to skip this step now and attach an existing virtual hard disk later.				
	< Previous Next > Finish Cancel				



	New Virtua	I Machine Wizard	
Installation	Options		
Before You Begin Specify Name and Location Assign Memory	You can install an operating s later. O Install an operating syste	ystem now if you have access to the setup media, or you can em later	n install it
Configure Networking Connect Virtual Hard Disk Installation Options Summary	<ul> <li>Install an operating system</li> <li>Media</li> <li>Physical CD/DVD dr</li> <li>Image file (.iso):</li> </ul>	m from a boot CD/DVD-ROM ive: D: V C:\Users\Administrator\Desktop\Windows7x86.lt Bi	rowse
	O Install an operating syste Media Virtual Roppy disk (.vfr	m from a boot floppy disk	rowse
	1	< Previous Next > Finish	Cancel
Č.	New Virtu	al Machine Wizard	
Completing Before You Begin Specify Name and Location	You have successfully compl following virtual machine. Description:	ne Wizard eted the New Virtual Machine Wizard. You are about to create	e the
Assign Memory Configure Networking Connect Virtual Hard Disk Installation Options Summary	Name: Windo Memory: 2048 Network: Intel( Hard Disk: C:\Us Operating System: Will be	ws 7 MB <) PRO/1000 MT Network Connection - Virtual Switch ers\Public\Documents\Hyper-V\Virtual Hard Disks\Windows 7.v e installed from C: \Users\Administrator\Desktop\Windows7 x8	vhdx (VHDX 16.iso

Step 8: Select the Image of ISO that should be installed and then click Finish.

To create the virtual machine and close the wizard click Finish



1

**Step 9:** Connect to the Virtual machine. To do so, Right Click on the machine name and then  $\rightarrow$  Connect.

Virtual Machines				
Name 🕈	State	CPU Usage	Assigned Memory	Uptime
Windows 7	Off			
		Connect		
		Settings		
		Start		
Snapshots		Snapshot		
		Move	as no snap	shots.
		Export		
		Rename		

**Step 10:** After that, the Installation of your ISO will continue.

12 C	Windows 7 on	J - Virtual Machine Connection	- • ×
File Action Media	a Clipboard View Help		
Q Noti I.			
😽 Insta	Il Windows		
	Win	dows.7	
	Language Start VM English		
	Time and currency format:		
	Time and canency formout English (		10 a
	Keyboard or input method: US	-	
	Coteconic language and other	profession and elicit-block to continue. N	



## 22. Windows Server 2012 – Configure WSUS Role

As you know the WSUS (Windows Server Update Services) is an update service of Microsoft which allows the companies to test updates before installing to live environment.

To install this role, we should follow the steps given below.

**Step 1:** Go to "Server Manager"  $\rightarrow$  Manage  $\rightarrow$  Add Roles and Feature  $\rightarrow$  Next  $\rightarrow$  Select "Role-based or feature-Based-Installation  $\rightarrow$  Select a server from the pool server and then  $\rightarrow$  Next.

1	Add Roles and Features Wizard
Select destinati	
Before You Begin Installation Type Server Selection	<ul> <li>Select a server or a virtual hard disk on which to install roles and features.</li> <li>Select a server from the server pool</li> <li>Select a virtual hard disk</li> </ul>
Server Roles Features Confirmation	Server Pool Filter:
Results	Name         IP Address         Operating System           Image: Microsoft Windows Server 2012 R2 Standard         Microsoft Windows Server 2012 R2 Standard
	1 Computer(s) found This page shows servers that are running Windows Server 2012, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown
	< Previous Next > Install Cancel



**Step 2:** Check "Windows Server Update Service" a pop-up window table will come out  $\rightarrow$  click "Add Features" then  $\rightarrow$  Next and then again  $\rightarrow$  Next.

The destination server	has a pending restart. We recommend that you restart the de	stination s	erver before either installing o
Before You Begin	Select one or more roles to install on the selected serv	er.	
Installation Type	Roles		Description
Server Selection	DHCP Server	~	Active Directory Certificate Service
Server Roles	DNS Server		(AD CS) is used to create certification authorities and relate
Features	Fax Server		role services that allow you to issu
Confirmation	File and Storage Services (2 of 12 installed)		and manage certificates used in a
Results	Hyper-V		variety of applications.
	Network Policy and Access Services		
	Print and Document Services		
	Remote Access (1 of 3 installed)		
	Remote Desktop Services	=	
	Volume Activation Services	-	
	Web Server (IIS)		
	Windows Deployment Services		
	Windows Server Essentials Experience		
	Windows Server Update Services	~	
	< Previous	Next 3	Install
2	Add Roles and Features Wizar	d	×
	Add features that are required for Hyper-V	?	
	The following tools are required to manage this featu have to be installed on the same server.	re, but d	o not
	Remote Server Administration Tools		
	<ul> <li>A Role Administration Tools</li> </ul>		
	▲ Hyper-V Management Tools		
	[Tools] Hyper-V Module for Windows	PowerSh	ell

[Tools] Hyper-V GUI Management Tools

Add Features

Cancel

✓ Include management tools (if applicable)



<u>آم</u>	Add Roles and Featur	res Wizard	- • ×
Select role servio	ces		DESTINATION SERVER
Before You Begin Installation Type Server Selection Server Roles Features WSUS Role Services Content Web Server Role (IIS) Role Services Confirmation Results	Select the role services to install for Wind Role services WID Database WSUS Services Database	Jows Server Update Services	abase used by WSUS
		< Previous Next > Ins	tall Cancel

Step 3: Check box of WID Database and WSUS Services



**Step 4:** Choose the path for the content. If you have another partition other than **C:**, then install it there because C: can risk to become full  $\rightarrow$  Next.

<b>1</b>	Add Roles and Features Wizard	_ <b>D</b> ×	¢
Content location Before You Begin Installation Type Server Selection Server Roles Features WSUS Role Services Content Web Server Role (IIS) Role Services Confirmation Results	Add Roles and Features Wizard         selection         If you have a drive formatted with NTFS and at least 6 GB of free disk space updates for client computers to download quickly.         If you need to save disk space, clear the check box to store updates on Mid downloads will be slower.         If you choose to store updates locally, updates are not downloaded to you approve them. By default, when updates are approved, they are download         If you choose to store updates locally.         If you choose to store u	e, you can use it to store crosoft Update; ur WSUS server until you led for all languages.	
	< Previous Next >	Install	]

Once this is done, you should wait for the installation to finish.



In this chapter, we will see how to configure WSUS and tune it. The following steps should be followed for configuring it.

**Step 1:** When you open it for the first time, you should do it by going to "Server Manager"  $\rightarrow$  Tools  $\rightarrow$  Windows Server Update Services, then a Configuration wizard will be opened and then click  $\rightarrow$  Next.

<b>a</b>	Windows Server Update Services Configuration Wizard
Connect to Up Download up Before You Begin Microsoft Update Improvement Program Choose Upstream Server Specify Proxy Server Choose Languages Choose Products Choose Classifications Configure Sync Schedule Finished What's Next	Windows Server Update Services Configuration Wizard.         tream Server         ate information from Microsoft Update         Image: Server and proxy Server Update Services on the following screens, we need to apply your upstream server and proxy server settings and synchronize information about available updates.         Information to be downloaded includes:         Types of updates available         Products that can be updated         Available languages         Click Start Connecting to save and download upstream server and proxy server information.         This process might take several minutes or longer, depending on your connection speed.         Start Connecting       Stop Connecting
	< Back Next > Finish Cancel



**Step 2:** Click "Start Connecting"  $\rightarrow$  Wait until the green bar is full and then  $\rightarrow$  Next.

ia -	Windows Server Update Services Configuration Wizard:
Connect to U	pstream Server
Download u	pdate information from Microsoft Update
Before You Begin Microsoft Update Improvement Program Choose Upstream Server Specify Proxy Server Choose Languages Choose Products Choose Classifications Configure Sync Schedule Finished What's Next	For configure Windows Server Update Services on the following screens, we need to apply your upstream server and proxy server settings and synchronize information about available updates. Information to be downloaded includes: Types of updates available Products that can be updated Available languages Click Start Connecting to save and download upstream server and proxy server information. This process might take several minutes or longer, depending on your connection speed. Start Connecting Stop Connecting
Connect to U	< Back Next > Finish Cancel Windows Server Update Services Configuration Wizard:
Download u	pdate information from Microsoft Update
Before You Begin Microsoft Update Improvement Program Choose Upstream Server Specify Proxy Server Choose Languages Choose Products Choose Classifications Configure Sync Schedule Finished What's Next	<ul> <li>To configure Windows Server Update Services on the following screens, we need to apply your upstream server and proxy server settings and synchronize information about available updates.</li> <li>Information to be downloaded includes:</li> <li>Types of updates available Products that can be updated Available languages</li> <li>Click Start Connecting to save and download upstream server and proxy server information. This process might take several minutes or longer, depending on your connection speed.</li> <li>Start Connecting Stop Connecting</li> </ul>
	< Back Next > Finish Cancel



**Step 3:** Check the box for which the updates want to be taken, I did for English and then  $\rightarrow$  Next.

ta W	dows Server Update Services Configuration Wizard:
Image: Select the language       Before You Begin       Microsoft Update       Improvement Program       Choose Upstream Server       Specify Proxy Server       Choose Languages       Choose Classifications       Configure Sync Schedule       Finished       What's Next	dows Server Update Services Configuration Wizard:       X         s for which this server will download updates         If you are storing update files locally, you can filter the updates downloaded to your server by language. Choosing individual languages will affect which computers can be updated on this server and any downstream servers.         Download updates in all languages, including new languages         Download updates only in these languages:         Arabic       French         Bulgarian       German         Polish         Chinese (Hong Kong S.A.R.)       Greek         Portuguese         Chinese (Simplified)       Hebrew         Hebrew       Portuguese         Chinese (Traditional)       Hindi
	Chinese (Traditional)       Hindi       Romanian         Croatian       Hungarian       Russian         Czech       Italian       Serbian (Lati         Danish       Japanese       Slovak         Dutch       Japanese (NEC)       Slovenian         ✓ English       Korean       Spanish         Estonian       Latvian       Swedish         Finnish       Lithuanian       Thai         <



**Step 4:** Check the box for all the products which you want to update. It is just for Microsoft products and it is recommended to include all the products related to Microsoft and then  $\rightarrow$  Next.

6	Windows Server Update Services Configuration Wizard:	
Choose Prod Select the N Before You Begin	ucts licrosoft products to be updated You can specify the products for which you want updates.	
Before You Begin Microsoft Update Improvement Program Choose Upstream Server Specify Proxy Server Choose Languages Choose Classifications Configure Sync Schedule Finished What's Next	Products:    Windows 8 Language Interface Packs    Windows 8 Language Packs    Windows 8.1 Drivers    Windows 8.1 Preview Dynamic Update    Windows Consumer Preview Dynamic Update    Windows Defender    Windows Defender    Windows Dictionary Updates    Windows Internet Explorer 7 Dynamic Installer    Windows Internet Explorer 8 Dynamic Installer    Windows RT	*
	< m	>
	All products, including products that are added in the future.	
	< Back Next >	Finish Cancel

**Step 5:** Choose the classification updated to be downloaded, if you have a very good internet speed, then check all the boxes, otherwise just check "Critical Updates".

ն Wind	lows Server Update Services Configuration Wizard:
Choose Classification Select the update cla	ins issifications you want to download
Before You Begin Microsoft Update Improvement Program Choose Upstream Server Specify Proxy Server Choose Languages Choose Products Choose Classifications Configure Sync Schedule Finished What's Next	Vou can specify what classification of updates you want to synchronize.         Classifications         All Classifications         Ornical Updates         Definition Updates         Definition Updates         Security Updates         Security Updates         Orivers         Peature Packs         Security Updates         Opdate Rollups         Updates         Updates         Opdates         Opdates         Opdates         Opdates



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**Step 6:** Now we should schedule the updates which I will recommend to do it automatically during night time  $\rightarrow$  Next.

Set Sync Schedule         Configure when this server synchronizes with Microsoft Update         Before You Begin         Microsoft Update         Improvement Program         Choose Upstream Server         Specify Proxy Server         Choose Classifications         Chingure Sync Schedule         Finished         What's Next    Note that when scheduling a daily synchronization from Microsoft Update, the synchronization start time will have a random offset up to 30 minutes after the specified time.	ka Wir	ndows Server Update Services Configuration Wizard:
What's Next synchronization start time will have a random offset up to 30 minutes after the specified time.	Image: Set Sync Schedule       Set Sync Schedule       Configure when th       Before You Begin       Microsoft Update       Improvement Program       Choose Upstream Server       Specify Proxy Server       Choose Languages       Choose Classifications       Configure Sync Schedule       Finished	Andows Server Update Services Configuration Wizard:
< Back Next > Finish Cancel	Finished What's Next	Synchronizations per day: Note that when scheduling a daily synchronization from Microsoft Update, the synchronization start time will have a random offset up to 30 minutes after the specified time.



ia .	Windows Server Update Services Configuration Wizard:	×
Finished Finished initi	ial configuration of your server	
Before You Begin Microsoft Update Improvement Program Choose Upstream Server Specify Proxy Server Choose Languages Choose Products Choose Classifications Configure Sync Schedule Finished	<ul> <li>You have now finished configuring your WSUS server. You can go on to launch the WSU: Administration Console or start the initial synchronization.</li> <li>Launch the Windows Server Update Services Administration Console Get started administering your organization by starting the Windows Server Update Services Administration Console.</li> <li>Begin initial synchronization The initial synchronization with Microsoft Update or your upstream server can take some time. The length of the initial synchronization depends on the number of</li> </ul>	5
What's Next	products, update classifications, and languages you have selected, as well as the spee of your Internet connection.	d

### **Step 7:** Check Box "Begin initial synchronization" → Finish.



**Step 8:** Now the WSUS console will be open and we must add the computer to WSUS. To do this, go to Options  $\rightarrow$  Computers.





**Step 9:** If you have a Domain Controler environment, choose the second option like in my case, otherwise choose the first option and then  $\rightarrow$  OK.

											(	Co	mp	bu	te	rs									
General	7 Y	ou (	can	sp	peo	cif	y ł	101	wt	to	ass	sigi	n ce	on	npu	ute	irs	to	gro	ups					
O Uso	e ti	ne U : Ne	lpd two	late	e S mj	Ser	vie	rs	s co wil	on II a	so	le	nati	са	lly	be	e pl	ac	ed i	n th	ie U	Ina	ssig	gne	d
<ul> <li>Use</li> </ul>	e G	put rou	ers p P	gr oli	icy	y o	or r	eg	jist	iry	se	ttir	ngs	or	n c	on	np	ute	rs.	1					



**Step 10:** After you have done all this, you should approve updates, which is similar like how it is done in the previous version. To do this – Right click on the updates  $\rightarrow$  Approve as shown in the screenshot given below.

Update Services	Critical Updates (95 updates of 97 sh	iown, 97 total)			Ac	tions
A Distates	Approval: Any Except Declined + Sta	itus: Any	Q Refresh		Cr	itical Updates
A Updates Critical Updates Security Updates WSUS Updates Computers Unassigned Comp ComSystem Lapt Downstream Servers Synchronizations Reports Options	Tate Update for Windows 8 (K82751352) Update for Windows 8 (K82751352) Update for Internet Explorer Flas Update for Windows 8 (K82803748) Update fo	Approve Decline Group By Revision History File Information Status Report Help (Systems (KB2812822) ayer for Windows Serve ayer for Windows Serve ayer for Windows Serve (KB2803748) her update. Before you y any computers. To do the update 0 R to applicable 0 R tot: 0 K	Installe. 0 1 1 1 1 1 1 1 1 1 1 1 1 1	Approval Approval Content of the second of t		Search New Update View. View New Window from Refresh Help Odate Approve Decline Group By Revision History File Information Status Report Help
	Description					



**Step 11:** Then you should click **Approve for install** as shown in the screenshot given below.




# 24. Windows Server 2012 – Sharing of Files

Another important service for Windows Server is **Sharing Files** and for this purpose the Windows Server 2012 has – **File and Storage Services**, which is found in Server Manager on the left pane as shown in the screenshot given below.

Server Ma	nager • All Servers
<ul> <li>Dashboard</li> <li>Local Server</li> <li>All Servers</li> <li>File and Storage Services </li> <li>Remote Access</li> </ul>	SERVERS All servers   1 total Filter Server Name IPv4 Address Manageability 17 Online - Restart pending

Now let us see how to create a **Share** in the system with its respective rights. To do this, we should follow the steps given below.

**Step 1:** Click Server Manager  $\rightarrow$  then click on File and Storage Services in the Server Manager sidebar  $\rightarrow$  click on Shares  $\rightarrow$  click on the Shares drop-down list  $\rightarrow$  click on New Share.

작		Server N	Aanager		-	5 X ·
€	∋ • Server M	Manager + File and Storage Services + Shares		• 🗇   🎢 Manage Tools	Vev	Hep
	Server N Servers Volumes Disks Storage Pools Storage SCSI Work Folders	Manager • File and Storage Services • Shares	Refresh New Share Refresh Way Type schered	COLUME pind or 200     Set Wolknest Denvey >	Vew 74945	. Help 
				To use quarter, File Server Resource Manager, start the Add Roles and Festures Wa	æd.	



**Step 2:** This will open the New Share Wizard  $\rightarrow$  From here, select a type of share  $\rightarrow$  I will create a very basic SMB share, so click on **SMB Share** – **Quick**. We can later configure the user rights of this share.

Ъ.	New Share	Wizard 📃 🗖 🗙
Select the profile Share Location Share Name Other Settings Permissions Confirmation Results	e for this share File share profile: SMB Share - Advanced SMB Share - Applications NFS Share - Quick NFS Share - Advanced	Description: This basic profile represents the fastest way to create an SMB file share, typically used to share files with Windows-based computers. • Suitable for general file sharing • Advanced options can be configured later by using the Properties dialog
		< Previous Next > Create Cancel



C 1					
Select the serv	er and path for thi	s share			
Select Profile	Server:				
Share Location	Server Name	Status	Cluster Role	Owner Node	
Share Name	<b>8000</b> 06	Online	Not Clustered		
Other Settings					
Permissions					
	Share location:				
	O Select by volume:				
	Volume	Free Space	Capacity File Sy	stem	
	C:	88.9 GB	99.7 GB NTFS		
	The location of the file volume.	share will be a new fold	der in the \Shares o	directory on the selecte	d
	Type a custom path:			-	
				Bro	owse

**Step 3:** Click "Type a custom path"  $\rightarrow$  click on Browse button.

**Step 4:** Select the folder that you want to share  $\rightarrow$  Click **Select Folder**.

14		Select Folder		_ <b>_</b> X
New Folder De	elete			
۵ 🙀 <b>کر ا</b> ور		📔 share		
P 🖿 (C:)				
-				
Folder: C:\users\Admi	inistrator\desktop\share			
			Select Folder	Cancel



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## Step 5: Click Next.

Select Profile	Share name:	share
Share Location		
Share Name	Share description:	
Other Settings		
	Local path to share	
	C/\users\Administrator\desktop\share	
	Remote path to sha	Ke:
	11. 006/3	ihare

**Step 6:** You can choose one of the three options as per your need. The explanations are also mentioned alongside the check boxes, once selected  $\rightarrow$  Next.

1	New Share Wizard
Configure share Select Profile Share Location Share Name Other Settings Permissions Confirmation Results	New Share Wizard    Image: Settings     Image: Enable access-based enumeration   Access-based enumeration displays only the files and folders that a user has permissions to access. If a user does not have Read (or equivalent) permissions for a folder, Windows hides the folder from the user's view.    Image: Allow caching of share   Caching makes the contents of the share available to offline users. If the BranchCache for Network Files role service is installed, you can enable BranchCache on the share.   Image: Enable BranchCache on the file share   BranchCache enables computers in a branch office to cache files downloaded from this share, and then allows the files to be securely available to other computers in the branch.   Image: Encrypt data access   When enabled, remote file access to this share will be encrypted. This secures the data against unauthorized access while the data is transferred to and from the share. If this box is checked and grayed out, an administrator has turned on encryption for the entire server.
	< Previous Next > Create Cancel



**Step 7:** Click on **Customize Permissions** to authorize the rights that your users need to have.

Select Profile Share Location Share Name Other Settinos	Permission permission Share perr Folder per	ns to access the files on a share an ns, and, optionally, a central access nissions: Everyone Read Only missions:	e set using a c s policy.	ombination of folder permissions
Permissions	Туре	Principal	Access	Applies To
Confirmation Results	Allow Allow Custon	BUILTIN\Administrator BUILTIN\Administrators NT AUTHORITY\SYSTEM	Full Control Full Control	This folder, subfolders, and files This folder, subfolders, and files

Step 8: Click on Add if you would like to add other users.

Vame:	C:\users\Administ	rator\desktop\s	share		
Owner:	Administrators (	06\.4	dministrators) Chan	ge	
Permissions	Share	Auditing	Effective Access		
or additional	l information, double	-click a permiss	ion entry. To modify a	permission entry, select the	entry and click Edit (if available).
ermission er	itries:				
Type	Principal	A	ccess	Inherited from	Applies to
Allow	SYSTEM	Fi	ull control	C:\users\Administrator\	This folder, subfolders and files
MollA &	Administrators (	SR F	ull control	C:\users\Administrator\	This folder, subfolders and files
Allow	Administrator (	580 F	ull control	C:\users\Administrator\	This folder, subfolders and files
Add	Remove	View			
Disable inh	eritance	50.			
Replace all	child object permissi	on entries with	inheritable permission	entries from this object	
Turburer an					



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	Permission entry for share	
Principal:	Select a principal	
Туре:	Allow	
Applies to:	This folder, subfolders and files v	
Basic permi	issions:	Show advanced permission
	Full control	
	Modify	
	Read & execute	
	✓ List folder contents	
	🖉 Read	
	Write	
	Special permissions	
Only app	bly these permissions to objects and/or containers within this container	Clear all
		OK Canc

Step 9: Click on Select a principal.

**Step 10:** We should give rights that can be done by entering the object name, which is **Backup Operator** in this case and then  $\rightarrow$  OK.

Select User or Group	x
Select this object type:	
User, Group, or Built-in security principal	Object Types
From this location:	
	Locations
Enter the object name to select (examples):	
6\Backup Operators	Check Names
Advanced	0K Cancel



**Step 11:** To this user we will give **Read\Write rights**, for that we will check the respective boxes and then  $\rightarrow$  OK  $\rightarrow$  OK  $\rightarrow$  Next.

	Allaw	
Applies to:	This folder, subfolders and files 🗸 👻	
lasic permi	usionti	Show advanced permissio
	Full control	
	Modify	
	List folder contents	
L	Read	
	Write	
	Epecial permissions	
] Only app	ly these permissions to objects and/or containers within this container	Clear all
] Only app	ly these permissions to objects and/or containers within this container	Clear all
]Only app	ly these permissions to objects and/or containers within this container.	Cfear all
] Only app	ly these permissions to objects and/or containers within this container.	Cfear all
] Only app	ly these permissions to objects and/or containers within this container	Clear all



.....

Select Profile	Confirm that the following	are the correct settings, and then click Create.
Share Location Share Name	SHARE LOCATION Server:	<b>1</b> 06
Other Settings	Cluster role:	Not Clustered
Permissions	Local path:	C:\users\Administrator\desktop\share
Confirmation	SHARE PROPERTIES	
Results	Share name:	share
	Protocol:	SMB
	Access-based enumeration:	Disabled
	Caching:	Enabled
	BranchCache:	Disabled
	Encrypt data:	Disabled



Like its previous versions, the present Windows Server 2012 version has a **File Server Resource Manager Role**. As you know, this is a role that helps system administrators to manage shared folders in the features link in setting up limits or file extension restrictions. To install it, we should follow the steps given below.

**Step 1:** Go to Server Manager  $\rightarrow$  Manage  $\rightarrow$  Add Roles and Features  $\rightarrow$  Next  $\rightarrow$  Check on the **Role-based or feature-based installation** box  $\rightarrow$  Check on the **Select a server from the server pool** box  $\rightarrow$  Next.

Then, at the list of the roles find **File and Storage Services** and expand it. After this, expand the **Files and iSCSI Services**  $\rightarrow$  Check on the **File Server Resource Manager** box and then a pop-up window will open.

5	Add Roles and Features Wizard	- 0 X
Select server ro Before You Begin Installation Type Server Selection Server Roles	Select one or more roles to install on the selected server. Roles Application Server DHCP Server	DESTINATION SERVER Description File Server Resource Manager helps you manage and understand the files and folders on a file server by
Features Confirmation Repuits	<ul> <li>DNS Server</li> <li>Fax Server</li> <li>Fax Server</li> <li>File And Storage Services (Installed)</li> <li>File and iSCSI Services</li> <li>File Server</li> <li>BranchCache for Network Files</li> <li>Data Deduplication</li> <li>DFS Namespaces</li> <li>DFS Replication</li> <li>File Server Resource Manager</li> <li>File Server VSS Agent Service</li> </ul>	scheduling file management tasks and storage reports, classifying files and folders, configuring folder quotas, and defining file screening policies.
	C III SCSI Target Server	
	< Previous Next	> Install Cancel



### **Step 2:** Click on **Add features** and then $\rightarrow$ Next.

à	Add Roles and Features Wizard
A	dd features that are required for File Server Resource anager?
Yo rol	u cannot install File Server Resource Manager unless the following e services or features are also installed.
4	File And Storage Services
	File and iSCSI Services
	File Server
4	Remote Server Administration Tools
	<ul> <li>A Role Administration Tools</li> </ul>
	<ul> <li>File Services Tools</li> </ul>
	[Tools] File Server Resource Manager Tools
>	Include management tools (if applicable)
	Add Features Cancel



elect features		DESTINATION SERVE
Before You Begin Installation Type	Select one or more features to install on the selected server. Features	Description
Server Selection Server Roles	Interferancework 3.5 Features	NET Framework 3.5 combines the power of the .NET Framework 2.0
Features	P III NET Framework 4.5 Features (Installed)     Background Intelligent Transfer Service (BITS)	APIs with new technologies for building applications that offer appealing user interfaces, protect
Results .	BitLocker Drive Encryption  BitLocker Network Unlock  BranchCache	your customers' personal identity information, enable seamless and secure communication, and provid
	Client for NFS  Data Center Bridging	the ability to model a range of business processes.
	Enhanced Storage	
	Group Policy Management	
	Internet Printing Client IP Address Management (IPAM) Server	
	C III 2	



## **Step 4:** Click the Install button.

onfirm installa	tion selections	DESTINATION SERV
.orminin installa	uon selections	-
Before You Begin	To install the following roles, role services, or features on selected serve	er, click Install.
Installation Type	Restart the destination server automatically if required	
Server Selection	Optional features (such as administration tools) might be displayed on	this page because they have
Server Roles	been selected automatically. If you do not want to install these optional their check horses	I features, click Previous to cle
Features		
Confirmation	File And Storage Services	
Results	File and iSCSI Services	
	File Server	
	File Server Resource Manager	
	Remote Server Administration Tools	
	Role Administration Tools	
	File Services Tools	
	File Server Resource Manager Tools	
	Export configuration settings	
	specity an alternate source path	



Now that we installed the **File Server Resource Manager**, let us open it by following the path given below.

6		Server	Manager		- 0 X
Server Ma	anager • Dashb	oard		• @ I	Manage Tools View Help
Dashboard     Local Server	WELCOME TO SERVE	R MANAGER			Computer Management Defragment and Optimize Drives Event Viewer
■ All Servers ■ File and Storage Services ▷		1 Configu	ure this local ser	ver 🕻	File Server Resource Manager
	QUICKSTART	2 Add r	oles and features		COBC Data Sources (32-bit) ODBC Data Sources (64-bit)
	WHAT'S NEW	3 Add o	other servers to mar e a server group	age	Performance Monitor Resource Monitor Security Configuration Wizard
					Services System Configuration
	LEARN MORE				Task Scheduler Windows Firewall with Advanced Security
	ROLES AND SERVER Roles: 1   Server groups	GROUPS 2.1   Servers total: 1			Windows Memory Diagnostic Windows PowerShell
	File and Stor Services	age 1	Local Server		Windows PowerShell ISE Windows PowerShell ISE (x86)
	Manageability     Events		Manageability     Events		Windows Server Backup

**Step 1:** Click on **Server Manager**  $\rightarrow$  Tools  $\rightarrow$  File Server Resource Manager.

To set quota to a folder, we should follow the steps as below.

**Step 2:** On the left panel click on **Quota Management**  $\rightarrow$  expand **Quota Templates**  $\rightarrow$  click on **Create Quota Template...** on the right-hand side panel as shown in the screenshot given below.

a File Server Resource Manager (Local)	Quota Template	/ Lint	Quota Type Description	Actions
a 🖉 Quota Management	100 MB Limit	100 MB	Hard	Quota Templatese
Cuota Templates	🗿 200 MB Limit Reports to User	200 MB	Had	📱 Create Quota Tempiate
) 🔊 File Screening Management	🗿 200 MB Limit with 50 MB Extension	330 MB	Hard	C Refresh
Storage Reports Management	250 MB Extended Limit	250 MB	Hard	View +
Cassification Management File Management Tasks	Monitor 200 GB Volume Usage	200 GB	Soft	Help
	Monitor 500 MB Share	500 MB	Soft :	



**Step 3:** A new table will be opened, where the most important aspect to put is **Space Limit** depending on the need. Here, we will put 2GB and then  $\rightarrow$  OK.

	Create C	uota Templa	ate	
Copy properties from qui	ota template (optiona	l):		
100 MB Limit				<ul> <li>Copy</li> </ul>
Settings				
Template name:				
2 GB				
Description (optional):				
2 GB				
Limit:     Z     Hard quota: Do n     Soft quota: Allow     Notification threshold	GB  v ot allow users to exc users to exceed limit s	eed limit (use for monitori	ng)	
Threshold	E-mail	Event Log	Command	Report
Add	EdtRe	nove		



**Step 4:** You must put the threshold for it and once the folder reaches the capacity, it will send you a notification where you will have an option to put the email.

	Add Threshold
Generate notificati	ions when usage reaches (%): 85
E-mail Message	Event Log Command Report
Send e-mail to Admin Email Format: accoo Send e-mail to E-mail message Type the text to To identify the i can use insert Subject [Quota Thresho Message body User [Source to the most accool	o the following administrators:          iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii
Select variable [Admin Email] Inserts the e-ma	ed MBJ MB currently is in use ([Quota Used Percent]7. of limit).
	Additional E-mail Headers OK Cancel



Step 5: Click Ok.

		uota rempla	ate	
Copy properties from quota	template (optional	):		
100 MB Limit				<ul> <li>Сору</li> </ul>
Settings				
Template name:				
2 GB				
Description (optional):				
2 GB				
<ul> <li>Hard quota: Do not</li> <li>Soft quota: Allow us</li> </ul>	allow users to exc ers to exceed limit	eed limit (use for monitori	ng)	
Notification thresholds				
Notification thresholds	E-mail	Event Log	Command	Report
Notification thresholds Threshold Warning (90%) Warning (95%) Warning (100%)	E-mail	Event Log	Command	Report



**Step 6:** Then to attach this quota to a folder – Right Click on the template  $\rightarrow$  click on **Create Quota from Template...** 

24		File S	erver Reso	ource Manager	
File Action View Help					
<ul> <li>File Server Resource Manager (Local)</li> <li>Quota Management</li> <li>Quotas</li> <li>Quota Templates</li> <li>File Screening Management</li> <li>Storage Reports Management</li> <li>Classification Management</li> <li>File Management Tasks</li> </ul>		Quota Template 100 MB Limit 200 MB Limit Report 200 MB Limit with 50 250 MB Extended Lin Monitor 200 GB Volu	r ts to User 0 MB Exte nit ume Usage	Limit 100 MB 200 MB 200 MB 250 MB 200 GB	Quot Hard Hard Hard Hard Soft
	9	Monitor 500 MB Sha 2 GB	Crea Edit Dele	500 MB 2.00 GB ate Quota from Template Template Properties tte	Soft Hard

**Step 7:** Click on **Browse...** and then select your folder  $\rightarrow$  Create.

te quotas or om a quota	n existing and ne template or defin	Browse ew subfolders ne custom
te quotas or om a quota	n existing and ne template or defin	Browse
te quotas or om a quota	n existing and ne	ew subfolders ne custom
te quotas or om a quota	n existing and ne template or defi	ew subfolders ne custom
om a quota	template or defi	ne custom
om a quota	template or defi	ne custom
quota prope iis quota ten	rties? nplate (recomme	nded):
perties		
2 GB rd) : Email : Email		< III >
	perties perties class cl	is quota template (recomme perties 2 GB d) Email Email



**Step 8:** To put a file restriction to your folders, you can go to the left pane **File Screening Management**  $\rightarrow$  File screening templates  $\rightarrow$  Click on the left panel **Create File Screen Template...** 

\$	File Serv	er Resource Manager	- 0	x
File Action View Help				
<ul> <li>File Server Resource Manager (Local)</li> <li>Quota Management</li> <li>File Screening Management</li> <li>File Screen Templates</li> <li>File Groups</li> <li>Storage Reports Management</li> <li>Classification Management</li> <li>File Management Tasks</li> </ul>	File screen Tem       Screenin         Block Audio an       Active         Block E-mail Files       Active         Block Executabl       Active         Block Image Files       Active         Monitor Execut       Passive	File Groups Block: Audio and Video Files Block: Executable Files Block: Executable Files Warn: Executable Files, System Files	Actions File Screen Templates Create File Screen Templates Refresh View Help Selected File Screen Templates Create File Screen from Templates Edit Template Properties Edit Template Properties Delete Help Help	•
Contains commands for customizing this v	vindow.			

**Step 9:** Click on **Browse...** and find the folder that you want  $\rightarrow$  Create.

	Browse						
File sc	reen properties						
You ci	an either use properties from a file screen template or define custom						
Llow d	le ver proportios.						
now d	Derive properties from this file screen template (recommanded):						
	Plack image Files						
	block image riles						
0	Define custom file screen properties:						
	Custom Properties						
Su	immary of file screen properties:						
E	∃- File screen:						
	Source template: Block Image Files						
	File groups: Image Files						
	Notifications: Email, Event log						



In this chapter, we will see how to install a **Print Server** which plays some very important roles for the system administrator and the management. We should follow the steps given below.

**Step 1:** Go to Server Manager  $\rightarrow$  Manage  $\rightarrow$  Add Roles and Features  $\rightarrow$  Next  $\rightarrow$  Check on the **Role-based or feature-based installation** box and  $\rightarrow$  Check on **Select a server from the server pool** and then  $\rightarrow$  Next.

Once it is done then, at the list of the roles find **Print and Document Services**  $\rightarrow$  A popup window will open.

2	Add Roles and Features Wizard	X
Select server ro Before You Begin Installation Type Server Selection	Select one or more roles to install on the selected server. Roles	DESTINATION SERVER Description Print and Document Services
Server Roles Features Confirmation Results	Active Directory Cellulate Services  Active Directory Federation Services  Active Directory Lightweight Directory Services  Active Directory Rights Management Services  Factore Directore	enables you to centralize print server and network printer management tasks. With this role, you can also receive scanned documents from network scanners and route the documents to a shared network resource, Windows SharePoint Services site, or e-mail addresses.
	Print and Document Services     Remote Access     Remote Desktop Services	





#### **Step 2:** Click on **Add features** and then $\rightarrow$ Next $\rightarrow$ Next $\rightarrow$ Next.

**Step 3:** Check on the **Print Server** box and  $\rightarrow$  Next.





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### Step 4: Click Install.

0	1	DESTINATION SERVI
onfirm installatio	in selections	-
Before You Begin	To install the following roles, role services, or features on selected	ed server, click Install.
Installation Type	Restart the destination server automatically if required	
Server Selection	Optional features (such as administration tools) might be display	yed on this page because they have
Server Roles	been selected automatically. If you do not want to install these their check boxes	optional features, click Previous to cle
Features		
Print and Document Servi	Print and Document Services	
Role Services	Print Server	
Confirmation	Remote Server Administration Tools	
Results	Print and Document Services Tools	
	Export configuration settings	
	Specify an alternate source path	
	Export configuration settings Specify an alternate source path	



**Easy Printing** is a feature which allows the client that connects via RDS to print over the network. It is installed in Windows server 2012 by default. Easy Printing is basically where the printer device is defined on the client system and a printer is connected directly via the network. All configuration is done via Group Policy Objects.

The configuration settings can be found at **Computer Configuration** – Administrative Templates – Remote Desktop Services – Printer Redirection.

For **User Configuration**, it will be have the same path – Administrative Templates – Remote Desktop Services – Printer Redirection.

9	Local Group Po	blicy Editor
File Action View Help	Printer Redirection Select an item to view its description.	Setting E Do not set default client printer to be default printer Do not allow client printer redirection Use Remote Desktop Easy Print printer driver first Specify RD Session Host server fallback printer driver Redirect only the default client printer
Printer Redirection Profiles		

In administration, another important aspect is to set the priority for the printer, so the users have the same printer installer and can print as per their priorities. In this, the users printing with higher priorities overpass the printing will lower priorities.

To do so, you need to add different logical printers and then add then as per the users or departments that have different priorities.

To do this, firstly let us add a printer to the print server by following the steps given below.



**Step 1:** Click on **Server Manager**  $\rightarrow$  Tools  $\rightarrow$  Print Management  $\rightarrow$  then on the left panel click **Print Servers**  $\rightarrow$  then right click on **Printers** and  $\rightarrow$  Add Printer.

御			Print Manag	gement
File Action View Help				
🗢 🏟 🙍 📰 🙆 📑	? 🗊			
<ul> <li>Print Management</li> <li>Custom Filters</li> <li>Rel Printers (2)</li> <li>Rel Printers (5)</li> <li>Printers Not Ready</li> <li>Printers With Jobs</li> <li>Print Servers</li> <li>mcndesktop11 (local</li> <li>Forms</li> </ul>	Printer Name	1 2) Document Writer	Queue Status Ready Ready	Jobs In 0 0
Ports				
👂 💼 Deploy 💦 Add Printer				
Show Exten	ded View			
View	•			
Refresh Export List.	• 3			
Help				

**Step 2:** Next, follow the wizard to add the network printer like you do for a normal workstation and at the end this printer will be shown in the **Printer Management**.

		Print Mana	gement			- 0 X
File Action View Help	-					
Print Management	Printer Name	Queue Statur	Jobs In	Se	Actions	
p T Custom Filters	APROBLED (HP Land)et 400 M4	Andy			Printers	-
a 📗 mendesktop11 (local)	Fax (redirected 2)	Ready	0	m	More Actions	•
p Drivers					NPI036B23 (HP LaserJet 400 M401n)	
<ul> <li>Ports</li> <li>Printers</li> <li>Impl Deployed Printers</li> </ul>					More Actions	



**Step 3:** Now that we have installed the printer, we can set the priority on this printer – Right click on the printer  $\rightarrow$  Advanced  $\rightarrow$  put a number at **Priority from 1-99**  $\rightarrow$  OK.

General	Sharing	Ports	Advance	Color Mar	agement	Security	Device	Settings	About		
@ A <u>l</u> w ● Ava	vays availa sila <u>b</u> le fror	ble n	12:00 AM	1	To	12:00	) AM	(A) (X)			
Priority	25 1		a. V								
Driver						*	Ne <u>w</u> Driv	£ſ			
<ul> <li>§ Spo</li> <li>Ø</li> <li>Ø</li> <li>Prir</li> </ul>	ool print de Start print Start print nt <u>d</u> irectly	ing afte ing imi ing imi to the p	nts so pro er last pag mediately printer	gram finishe e is spooled	s printin	g faster					
⊟ <u>H</u> ol	ld mismat nt spooled	ched do docum	ocuments ients first								
<u>K</u> ee <u>K</u> ee <u>K</u> ee <u>K</u> ee	ep printed Ible advan	docum ced prii	ents nting feat	ures							
Pri	inting Defa	ults	Pr	i <u>n</u> t Processo	)f	Sepa	rat <u>o</u> r Page	a			
						2					



# 28. Windows Server 2012 – Configure Print Drivers

If we want to add other additional drivers, so that our clients find them easier to install a printer on their own. We must follow the steps given below

**Step 1**: Go to, Server Manager  $\rightarrow$  Tools  $\rightarrow$  Print Manager  $\rightarrow$  Action  $\rightarrow$  Add Driver...

體				Print Manage	ement		
File	Acti	on View Help					
<b>4</b> =	- [	Add Driver					
Bo Pr		Manage Drivers	ver Name	Environment	Driver Version	Driver Isolation	Provider
4		Refresh Export List	Canon iR-ADV C5045/C5051 Cl HP LaserJet 8150 PS Class Driver	Windows x64 Windows x64	6.2.9200.16430 6.2.9200.16430	None None	Canon HP
Þ		Help	Microsoft enhanced Point and Microsoft enhanced Point and	Windows x64 Windows NT x86	6.2.9200.16384 6.2.9200.16384	None	Microsoft Microsoft
A III A	Print D in D in D in D in	Printers With Jobs t Servers T-S31 (local) Drivers Forms Ports Ports	Microsoft XPS Document Write	Windows x64	6.2.9200.16384	None	Microsoft
b nat	i vep	loyed Printers					

**Step 2:** Check both boxes  $\rightarrow$  Next.

R.	Add Printer Driver Wizard	x
Pro	cessor Selection Each processor uses its own set of printer drivers.	
12	Select the processor of all computers that will be using this driver:	
	Processor	
	<ul> <li>✓ x04</li> <li>✓ x86</li> </ul>	
	< Back Next > Canc	el



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Printer Installation Select the manufacturer and model of your printer.         Image: Choose your printer from the list. Click Windows Update to see more models. To install the driver from an installation CD, click Have Disk.         Imanufacturer Microsoft       Printers         Imanufacturer Microsoft       Image: Class Driver Microsoft PS Class Driver Microsoft XPS Document Writer v4         Image: This driver is digitally signed.       Mindows Update       Have Disk		Network Printer Installation Wizard					
Choose your printer from the list. Click Windows Update to see more models. To install the driver from an installation CD, click Have Disk. Manufacturer Microsoft NEC NRG OKJ RICOH This driver is digitally signed. Microsoft XPS Document Writer v4 Windows Update Have Disk	Printer Installation Select the manufactu	irer and model o	f your printer.				
Manufacturer Microsoft NEC NRG OKI RICOH This driver is digitally signed. Microsoft XPS Class Driver Microsoft XPS Class Driver Microsoft XPS Class Driver Microsoft XPS Document Writer v4 Windows Update Have Disk	Choose your p To install the d	rinter from the river from an i	list. Click Windows Update to see more models. nstallation CD, click Have Disk.				
Microsoft NEC NRG OKI RICOH This driver is digitally signed. Tall membre driver signing is important	Manufacturer	~	Printers	^			
NEC NRG OKI RICOH This driver is digitally signed. Tall meaning is important	Microsoft		Microsoft OpenXPS Class Driver	_			
OKI     Microsoft XPS Class Driver       RICOH     Microsoft XPS Document Writer v4       This driver is digitally signed.     Windows Update       Have Disk	NEC	-		-			
RICOH	OKI	-	Microsoft VS Class Driver				
This driver is digitally signed. Windows Update Have Disk	RICOH	~	Microsoft XPS Document Writer v4	~			
Tall me why driver signing is important	This driver is digital	ly signed.	Windows Update Have Disk.				
Ten me why onver signing is important	Tell me why driver :	igning is impo	ortant	_			
			< Back Next > Can	cel			

### **Step 3:** Choose the drivers Path to be installed and then $\rightarrow$ Next.



Add Printer Driver Wizard
Completing the Add Printer Driver Wizard
You have successfully completed the Add Printer Driver Wizard.
You are about to add the following drivers:
HP Universal Printing PCL 6, x64 <mark>, Type 3</mark> - User Mode HP Universal Printing PCL 6, x86, <mark>Type 3</mark> - User Mode
To close this wizard, click Finish.
< Back Finish Cancel



Windows has many network services too and you might already be knowing that it can become a router or a VPN Server too. Let us see how to use the Windows server 2012 as a router by installing the **Remote Access** role to it.

**PS:** Server should have 2 network cards – One inside the LAN and the other facing the internet.

To add the Remote Access role, we should follow the steps given below.

**Step 1:** Go to, Server Manager  $\rightarrow$  Manage  $\rightarrow$  Add Roles and Features  $\rightarrow$  Next  $\rightarrow$  Check **Role-based or feature-based installation**  $\rightarrow$  Check **Select a server from the server pool**  $\rightarrow$  Next.

Once all of it is done, then at the list of the roles find **Remote Access** and check it  $\rightarrow$  A pop-up window will open.

elect server rol	les	DESTINATION SERVE
Before You Begin Installation Type	Select one or more roles to install on the selected server. Roles	Description
Server Selection Server Roles Features Confirmation Results	Active Directory Rights Management Services Application Server DHCP Server DNS Server Fax Server Fle And Storage Services (Installed) Hyper-V (Installed) Network Policy and Access Services Print and Document Services Remote Access Remote Access Volume Activation Services Volume Activation Services Windows Deployment Services Windows Server Update Services	Remote Access provides Seamless Connectivity, Always On and Alway Managed experience based on DirectAccess. RAS provides traditional VPN services including site-to-site ((branch-office or cloud connectivity. Routing provides traditional routing capabilities including NAT, and other connectivity options.



Step 2: Click "Add Features"-> Next

he	following tools are required to manage this feature, but do not e to be installed on the same server.
4	Remote Server Administration Tools
	<ul> <li>A Role Administration Tools</li> </ul>
	<ul> <li>Remote Access Management Tools</li> </ul>
	[Tools] Remote Access GUI and Command-Line Tools
	[Tools] Remote Access module for Windows PowerShe
<	III >







PS Select the role services to install for Remote Access	DESTONATION SERVER
Select the role services to install for Remote Access	
Role services	Description
DirectAccess and VPN (RAS)     Routing	Routing provides support for NAT Routers, LAN Routers running RIP, and multicast capable routers (IGMP Provy).
	Image: Section         Image: Section

Step 4: Check on the DirectAccess and VPN(RAS) and Routing check boxes.

**Step 5:** Click **Install** and wait for it to be installed completely.

Confirm installa	tion selections	DESTINATION SERVI
Before You Begin Installation Type Server Selection Server Roles	To install the following roles, role services, or features Restart the destination server automatically if rec Optional features (such as administration tools) might been selected automatically. If you do not want to ins their check boxes.	on selected server, click Install. Juired t be displayed on this page because they have tall these optional features, click Previous to cle
Features Remote Access Role Services Confirmation	Remote Access DirectAccess and VPN (RAS) Routing	
Results	Remote Server Administration Tools Role Administration Tools Remote Access Management Tools Remote Access GUI and Command-Li Remote Access module for Windows I	ne Tools PowerShell
	Export configuration settings Specify an alternate source path	



After the installation is done, let us now see the setup of the router. For this, we need to follow the steps given below.

File       Action       View       Help         Image: Server Status       Image: Server Status       Image: Server Status       Image: Server Status         Image: Server Status       Image: Server Status       Image: Server Status       Image: Server Status         Image: Server Status       Image: Server Status       Image: Server Status       Image: Server Status         Image: Server Status       Image: Server Status       Image: Server Status       Image: Server Status         Image: Server Status       Image: Server Status       Image: Server Status       Image: Server Status         Image: Server Status       Image: Server Status       Image: Server Status       Image: Server Status         Image: Server Status       Image: Server Status       Image: Server Status       Image: Server Status         Image: Server Status       Image: Server Status       Image: Server Status       Image: Server Status         Image: Server Status       Image: Server Status       Image: Server Status       Image: Server Status         Image: Server Status       Image: Server Status       Image: Server Status       Image: Server Status         Image: Server Status       Image: Server Status       Image: Server Status       Image: Server Status         Image: Server Status       Image: Server Status       Image: Server Status       Image: Server	a l	Routing and Remote Access	- 5 X
Routing and Remote Access     Server Status     Server Status     Routing and Remote Access     Routing and Remote Access     Routing and Remote Access     Routing and Remote Access     Routing and Remote Access provides secure remote access to private networks.     Use Routing and remote access to configure the following:	File Action View Help		
Routing and Remote Access       Routing and Remote Access         Server Status       Welcome to Routing and Remote Access         Routing and Remote Access       Routing and Remote Access         Routing and Remote Access       Routing and Remote Access provides secure remote access to private networks.         Use Routing and Remote Access provides secure remote access to private networks.       A secure connection between two private networks.         • A Virtual Private Network (VPR) gateway.       • A Dial-up remote access translation (NAT).         • LAN routing.       • A back frevall.	(* *) 🔟 🗄 🖽		
Server Status  Welcome to Routing and Remote Access Routing and Remote Access Routing and Remote Access Routing and Remote Access provides secure remote access to private networks. Use Routing and remate access to configure the following:  A secure connection between two private networks.  A Virtual Private Network (VPR) gateway.  A Dial-up remote access server.  Network address translation (NAT).  LAN routing.  A basic frewall.	E Routing and Remote Access	Rooting and Remote Access	
	<ul> <li>B server Status</li> <li>B server Status</li> <li>B server Status</li> </ul>	Weicome to Routing and Remote Access         Routing and Remote Access provides secure remote access to private networks.         Use Routing and remote access to configure the following:         • A secure connection between two private networks.         • A Virtual Private Network (VPN) gateway.         • A Dial-up remote access server.         • Network address translation (NAT).         • LAN routing.         • A basic frewall.	~
To add a Routing and Remote Access server, on the Action menu, dick Add Server. For more information about setting up Routing and Remote Access server, deployment scesarios, and troubleshooting, see Help.		To add a Routing and Remote Access server, on the Action menu, click Add Server. For more information about setting up Routing and Remote Access server, deployment scesarios, and troubleshooting, see Help.	

**Step 1:** Go to, Server Manager  $\rightarrow$  Tools  $\rightarrow$  Routing and Remote Access.

**Step 2:** Right click  $\rightarrow$  and then again click on **Configure and Enable Routing and Remote Access** as shown in the following screenshot.

<u>e</u>			Routing and Remote Access
File Action	View Help		
<b>* *</b>	?		
Routing an	nd Remote Access Status	Routing and Remote Access	
Þ 🖥	Configure and E	nable Routing and Remote Access	emote Access
	Disable Routing and Remote Access		s secure remote access to private networks.
	All Tas <u>k</u> s		• private networks.
	<u>D</u> elete Re <u>f</u> resh		teway.
	Properties		
	Help		
		To add a Routing and Remot	e Access server, on the Action menu, click Add Ser







**Step 4:** Now choose your Ethernet card that will be facing your internet site as shown in the following image and then  $\rightarrow$  Next.

THE REPORT OF THE PARTY	1000	
Name	Description	IP Address
Internet	Microsoft Hyper-V Net	192.168.1.20
Create a new of A demand dial option this se over Ether et.	demand-dial interface to the Internet interface is activated when a client uses river connects with a modem or by using The Demand-Dial Interface Wizard will s	the Internet. Select this the Point-to-Point Protocol dart at the end of this wizar



**Step 5:** Choose **I will set up name and address services later** as we have already set up the **DHCP** and **DNS** and then  $\rightarrow$  Next.

	Routing and Remote Access Server Setup Wizard
Name	and Address Translation Services ou can enable basic name and address services.
W	indows didn't detect name and address services (DNS and DHCP) on this network. ow do you want to obtain these services?
C	Enable basic name and address services
	Routing and Remote Access assigns addresses automatically and forwards name
	have DHCP or DNS servers in your network.
-	
	Cancel

#### **Step 6:** Click the Finish button.

	Routing an	Routing and Remote Access				
File Action View Help						
	2 📰					
Routing and Remote Access	General					
Server Status	Interface	Type Loopback	IP Address 127.0.0.1	Incoming bytes	Outgoing bytes	Static Filters Disabled
Network Interfaces     Remote Access Logging	읎LAN 嗯Internet	Dedicated Dedicated	10.0.1.1 192.168.1.20	126,255 191,037,781	61,610 5,236,300	Disabled Disabled
4 頁 [P,4 頁 General 頁 Static Routes 頁 IGMP 頁 NAT 4 頁 [Py6 頁 General 頁 Static Routes	tay internal	Internal	Not available			Disabled



Now let us see how to make the VPN Setup to allow the employees to connect from home. To do this, we must follow the steps given below.

**Step 1:** Go to, Server Manager  $\rightarrow$  Tools  $\rightarrow$  Routing and Remote Access  $\rightarrow$  Right click  $\rightarrow$  and then again click on **Configure and Enable Routing and Remote Access**  $\rightarrow$  Custom Configuration and then  $\rightarrow$  Next.

Yo	uration u can enable any of the following combinations of services, or you can stomize this server.
c	Remote access (dial-up or VPN)
	Allow remote clients to connect to this server through either a dial-up connection or a secure virtual private network (VPN) Internet connection.
C	Network address translation (NAT)
	Allow internal clients to connect to the Internet using one public IP address.
c	Virtual private network (VPN) access and NAT Allow remote clients to connect to this server through the Internet and local clients to connect to the Internet using a single public IP address.
0	Secure connection between two private networks Connect this network to a remote network, such as a branch office
	Qustom configuration Select any combination of the features available in Routing and Remote Access.
-	

**Step 2:** VPN Access and then  $\rightarrow$  Next.

		NUES IT DIE NUU	ing
Select the services that you want to enable o	in this server.		
Demand-dial connections (used for	branch office routir	ng)	
LAN routing			



Step 3: Click the Finish button.

Routing and Remote Access Server Setup Wizard
Completing the Routing and Remote Access Server Setup Wizard You have successfully completed the Routing and Remote Access Server Setup wizard.
 Routing and Remote Access
Start the service         The Routing and Remote Access service is ready to use.         Start service       Cancel         vices
To close this wizard, click Finish.
< <u>B</u> ack Finish Cancel



In this chapter, we will install and configure **Backup** which does not differ too much from the previous versions.

To **Install the backup** feature, we should follow the steps given below.

**Step 1:** Go to Server Manager  $\rightarrow$  Manage  $\rightarrow$  Add Roles and Features  $\rightarrow$  Next  $\rightarrow$  Check the **Role-based or feature-based installation** box  $\rightarrow$  then check on the **Select a server from the server pool** box and then click Next.

Once all this is done, check the **Windows Backup Server** box and then click on Next as shown in the following screenshot.

elect features		DESTINATION SERVE
The destination server ha Before You Begin Installation Type	is a pending restart. We recommend that you restart the destination s Select one or more features to install on the selected server.	erver before either installing o
Installation Type Server Selection Server Roles Features Confirmation Results	Windows PowerShell (Installed)     Windows Process Activation Service     Windows Search Service     Windows Server Beckup     Windows Server Migration Tools     Windows Standards-Based Storage Management     Windows System Resource Manager [Deprecated]     Windows TIFF IFilter     Windows TIFF IFilter     WinRM IIS Extension     WINS Server     Wineless LAN Service     Wireless LAN Service     WoW64 Support (Installed)     XPS Viewer	Windows Server Backup allows you to back up and recover your operating system, applications and data. You can schedule backups, an protect the entire server or specific volumes.
	< III >	



	Add Roles and Features Wizard	
Confirm installa	tion selections	DESTINATION SERVER
The destination server Before You Begin Installation Type Server Selection Server Roles	has a pending restart. We recommend that you restart the destination so To install the following roles, role services, or features on selecter Restart the destination server automatically if required Optional features (such as administration tools) might be display been selected automatically. If you do not want to install these o their check boxes.	erver before either installing o X d server, click Install. yed on this page because they have optional features, click Previous to clea
Confirmation	Windows Server Backup	
	Export configuration settings Specify an alternate source path	
	< Previous Next >	Install Cancel

### Step 2: Click Install and then wait for the process to Finish.



Now let us go and **Configure the Backup** Feature it, for which we should follow the steps given below.

	Company Services	
	Component Services	
	Connection Management	
	Defragment and Ontimize Drives	
	Event Viewer	
	Group Policy Management	
	iSCSI Initiator	
	Local Security Policy	
	Microsoft Azure Services	
	Network Policy Server	
	ODBC Data Sources (32-bit)	
	ODBC Data Sources (64-bit)	
	Performance Monitor	
ces	Remote Access Management	
	Resource Monitor	
	Routing and Remote Access	
	Security Configuration Wizard	
	Services	
	System Configuration	
	System Information	
Local Server	Task Scheduler	
1 Managaphility	Windows Firewall with Advanced Securi	ity
Manageability	Windows Nemory Diagnostic	
Events	E Windows PowerShell (v86)	
1 Services	1 S Windows PowerShell ISE	
Performance	P Windows PowerShell ISE (x86)	
RDA results	P Windows Server Backup	

**Step 1:** Go to **Server Manager**  $\rightarrow$  Tools  $\rightarrow$  Windows Server Backup.



**Step 2:** Click on **Backup Schedule...** in the left side panel or click on **Action** at the top of the screen as shown in the following screenshot.

		wbadmin - [Windows Server Back	oup (Local)/Local Backup]			1.1
e Acton View Help						
Windows Server Backup ()	Local Backin			1	Actions	
ige Local Enclup	You can perform a single	backup or schedule a regular backup using t configued for this computer. Use the Backup Schedule V Ne dick on the message to see details!	tris application. Vized to set up a regular, automated backup to protect your data.		Local Backup Im Backup Schedule Im Backup Dince Im Recover Configure Performance Settings.	]
	Time Mes	rage Desception			Vener Melp	,
	Status Lart Backop	Next Backup	All Backups			
	Status: 👩 Successful Time: 1/13/2016 1.07 PM	Status: Not scheduled Time: -	Totalibackups: 1 copies Latest copy: 1/13/2016 1:87 PM Oldest copy: 1/13/2016 1:87 PM	-		

Step 3: Click Next.

<b>≜</b> ₀	Backup Schedule Wizard	×
Getting Sta	rted	
Getting Started Select Backup Configurat Specify Backup Time Specify Destination Type Confirmation Summary	You can use this wizard to configure backups to run on a regular schedule. To create a backup schedule, you should first decide: • What to back up (Full Server, System State, selected files, folders or volumes) • When and how often to back up your server • Where to store the backups To continue, click Next.	
	< Previous Next > Finish Cancel	


**Step 4:** If you want to backup a file or a folder, you can click on custom file, but in this case I want to do a full backup of the server. So, we should click on the first option **Full server (recommended)** and then click Next.

10	Backup Schedule Wizard	x
Select Bad	skup Configuration	
Getting Started Select Backup Configurat Specify Backup Time	<ul> <li>What type of configuration do you want to schedule?</li> <li>Full server (recommended)         <ul> <li>I want to back up all my server data, applications and system state.</li> <li>Backup size: 11.97 GB</li> </ul> </li> </ul>	
Confirmation Summary	<ul> <li>Custom</li> <li>I want to choose custom volumes, files for backup.</li> </ul>	
	< Previous Next > Finish Cancel	



**Step 5:** We should do backup once in a day, so we will choose the first option and the appropriate time, which generally is recommended at night  $\rightarrow$  Next.

<b>b</b> 0	Backup Schedule Wizard	X
Specify Back	kup Time	
Getting Started Select Backup Configurat Specify Backup Time Specify Destination Type	How often and when do you want to run bac Once a day Select time of day: 9:00 PM O More than once a day	:kups?
Confirmation Summary	Click an available time and then click Add Available time: 12:30 AM 1:00 AM 2:00 AM 2:30 AM 2:30 AM 3:00 AM 3:30 AM 4:30 AM 4:30 AM	Scheduled time:
	< Previous Next >	Finish Cancel

**Step 6:** We should not click on the **Back Up to a shared network folder** option because the backup should be saved somewhere out of the server that is being backed up and then click on Next.





<b>k</b> ₀	Backup Schedule Wizard			
Specify Remote Shared Folder				
Getting Started	Location:			
Select Backup Configurat	\\backups			
Specify Backup Time	Example: \\MyFileServer\SharedFolderName			
Specify Destination Type	This wizard creates a folder based on the name of the server being backed up, for			
Specify Remote Shared F	example Myserver-backupriles.			
Confirmation	Access Control			
Summary	<ul> <li>Do not inherit         This option makes the backup accessible only for the user whose credentials are provided in the next step.         </li> <li>Inherit         This option makes the backup accessible to everybody who has access to the specified remote shared folder.         </li> <li>The backed up data cannot be securely protected for this destination.         <u>More Information</u> </li> </ul>			
	< Previous Next > Finish Cancel			

**Step 7:** At the location, put the shared folder path and then  $\rightarrow$  Next.



**Step 8:** It will pop-up a credentials table asking you for the username and password of the shared folder which you should put here and then click  $\rightarrow$  OK.

Э	Backup Schedule Wizard
Specify Ren	mote Shared Folder
Getting Started Select Backup Configurat	Location: Windows Security
Specify Backup Time Specify Destination Type Specify Remote Shared F Confirmation	Register Backup Schedule Please provide the user name and password to use for scheduling backup. The user account should have write access to the network share and should be an administrator or a backup operator on the local machine.
Summary	A User name Password
	OK Cancel
	< Previous Next > Finish Cancel





lo .	Backup Schedule Wizard	×
Confirmatio	n	
Getting Started Select Backup Configurat Specify Backup Time Specify Destination Type Specify Remote Shared F Confirmation Summary	You are about to create the following backup schedule.   Backup times:   9:00 PM   Files excluded:   Narced option:   With the schedule option:   Backup destinations:   Name   Bare metal recovery   Cocal disk (C:)   System Reserved   System state     Vervious:     Next >     Finish   Cancel	



**Step 10:** Now you will get a window showing the status if the backup was created successfully or not, which can be seen in the following screenshot.

Backup Schedule Wizard				
Summary Summary				
Getting Started Select Backup Configurat Specify Backup Time Specify Destination Type Specify Remote Shared F Confirmation Summary	Status: You have successfully created the backup schedule. Your first scheduled backup will happen at 6/20/2016 9:00 PM.			
	< Previous Next > Close Can	cel		

