المقدمة

بسم الله والصلاة والسلام علي أفضل خلق الله سيدنا محمد وعلى آله وصحبه اجمعين. نقدم لكم هذا الكتاب الذي هو بعنوان الجانب العملي لشهادات MCSA 2008_2012_2016 الجزء الاول ، حيث يحتوي هذا الكتاب على أهم الجوانب العملية والنظرية الخاصة بهذه الشهادة المقدمة من شركة Microsoft.

حيث من المعلوم إن شهادة MCSA من افضل الشهادات في عالم شبكات الحاسب الالي واكثرها اقبالا وانتشارا في الاعوام الأخيرة كما هو الحال لشهادات CCNA, CCNP من شركة سيسكو، Network+ ,server+من شركة Comptia، VCP ،VCA من شركة VMware, وشهادة CEH,CND, من شركة EC-Council وشهادة RHCSA, RHCE من شركة linux.

لقد تم التركيز في هذا الكتاب على أنظمة التشغيل الخاصة بإدارة الشبكة windows server 2008,2012,2016 لأنها الاكثر استخداما في المؤسسات والشركات في هذه الايام ، مع العلم ان شركة مايكروسوفت اصدرت النسخة الاخيرة MCSA 2019 مع وجود بعض الاختلافات البسيطة مع الإصدارات السابقة windows server 2012,2016.

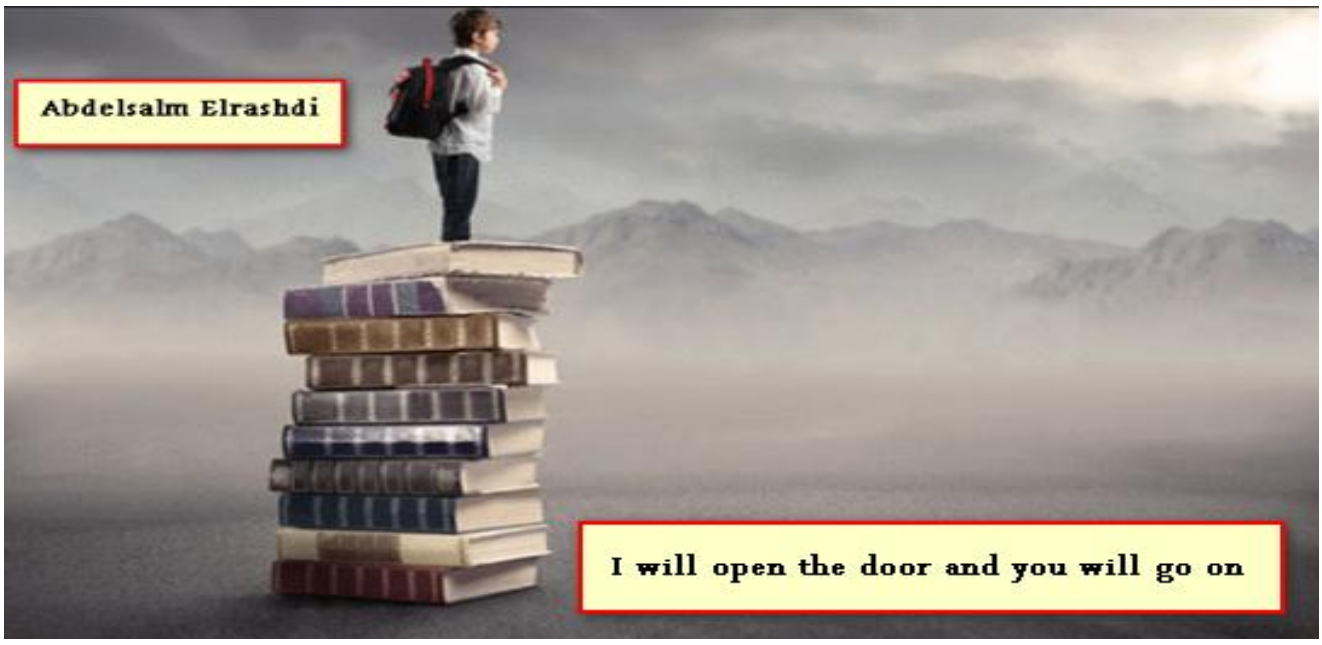
تم التركيز على حوالي 80% من المواضيع الموجودة في هذه الشهادة العملاقة، مع العلم ان معظم هذه LABS تم اعدادها بمجهودي الشخصي وبعض الصور والمعلومات تم اخذها من بعض الكتب وبعض المواقع التي ذكرتها كمراجع في نهاية الكتاب. و للتغلب على صعوبة فهم بعض المواضيع المعقدة، تم عمل بعض Scenarios لكي يتم توصيل المعلومة بطريقة اسهل. ونضرا لعدم إلمام الكثير باللغة الانجليزية فقد قمنا بشرح جميع العناوين باللغة العربية والانجليزية مع التأكيد على وجوب اتقان اللغة الانجليزية في هذا المجال لكي يستطيع القارئ مواكبة جميع التطورات التي تحدث بشكل يومي.

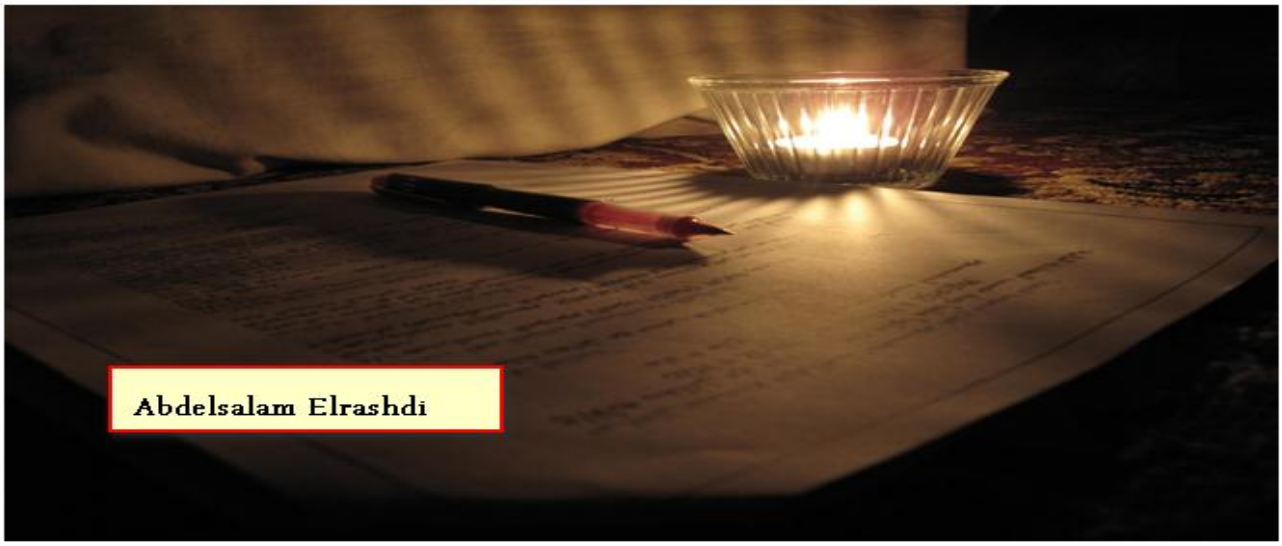
حيث يتعين على القارئ ان يكون له معلومات ولو بسيطة بأساسيات الشبكات (Network+) بالإضافة الى كيفية انشاء انظمة تشغيل افتراضية، لان جميع التجارب العملية سوف نقوم بعملها عن طريق برنامج vmware workstation 12

كم اود ان اشكر زميلي وصديقي المهندس **احمد جعفر** على تصميم الغلاف الخارجي للكتاب.

وفي الختام نسال الله أن ينفع بهذا الكتاب الجميع وان يجعل هذا الكتاب بداية جيدة لكل ما يريد ان يشق طريقه في عالم شبكات الحاسوب وانظمة تشغيل الشبكات الخاصة بميكروسوفت ، وليعذرني القارئ العزيز إن لاحظ وجود أي أخطاء املائية او لغوية فإني في النهاية إنسان أُخطِئ وأُصيب.

ومنْ لم يذق مرَّ التعلمِ ساعة ، تجرَّعَ ذلَّ الجهل طولَ حياته #الشافعي





معلومات عن المؤلف

- عبد السلام صالح الراشدي بنغازي ليبيا .
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- شهادات ,MCSA , MCITP , MCTS , CCNA ,CCNP,CCNA Security

الأعمال السابقة:-

- رئيس وحدة الشبكات في جامعة العرب الطبية .
- رئيس قسم الشبكات بمركز المعلومات والتوثيق في جامعة بنغازي.

العمل الحالي:-

- رئيس قسم الشبكات في المعهد العالي للتقنيات الحاسوب بنغازي.
- عضو مؤسس لشركة التقنية الافتراضية للتقنية المعلومات VT Company.
- متعاون في قسم IT جامعة بنغازي ،الجامعة الدولية ,جامعة البحر المتوسط.

الكتب السابقة

تم نشر مجموعة من الكتب في مواقع مختلفة وأهم هذه الكتب:-

استخدام منهجية PPDIOO الخاصة بشركة Cisco في تصميم شبكات الحاسب الالي

التصنيف : ركن الشبكات
Networking

المؤلف : عبدالسلام الراشدي

الناشر : عبدالسلام الراشدي

كيفية جعل الجهاز الحاسوب يعمل كا router

التصنيف : ركن الشبكات
Networking

المؤلف : م. عبدالسلام الراشدي

الناشر : admin

الشبكات اللاسلكية (CCNA wireless)

التصنيف : ركن الشبكات
Networking

المؤلف : عبدالسلام الراشدي

الناشر : admin

الجانب العملي من منهج Network +

التصنيف : ركن الشبكات
Networking

المؤلف : عبدالسلام الراشدي

الناشر : عبدالسلام الراشدي

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30	Backup windows server and active directory	
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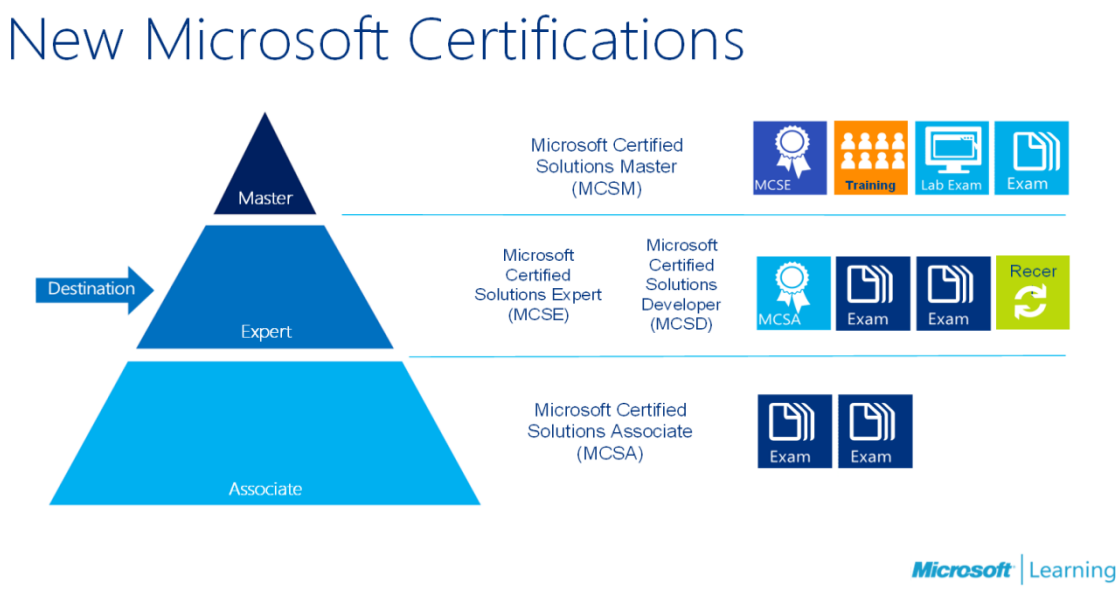
1- Microsoft Certifications

أهم شهادات شركة مايكروسوفت في عالم شبكات الحاسب الآلي



1.1- Microsoft Certified System Administrator 2003

To obtain this certificate you must pass 4 exams

- Exam 70-270 Installing, Configuring, and Administering Microsoft Windows XP Professional.

- Exam 70–290 Managing and Maintaining a Microsoft Windows Server 2003 Environment.
- Exam 70–291 Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure Sponsored.
- Exam 70-227: Installing, Configuring, and Administering Microsoft Internet Security and Acceleration (ISA) Server 2000 Enterprise Edition.

1.2-Microsoft certified Systems Engineer

- Exam 70-293: Planning and Maintaining a Microsoft Windows Server 2003 Network Infrastructure
- Exam 70-294: Planning, Implementing, and Maintaining a Microsoft Windows Server 2003 Active Directory Infrastructure.
- Exam 70–290 Managing and Maintaining a Microsoft Windows Server 2003 Environment.
- Exam 70–291 Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure Sponsored.

Select one of the following 2 exams

- Exam 70-210: Installing, Configuring, and Administering Microsoft Windows 2000 Professional.
- Exam 70–270: Installing, Configuring, and Administering Microsoft Windows XP Professional.

1.3- MCITP Server Administrator 2008

To obtain this certificate you must pass 3 exams

- Exam 70-640 TS: Configuring Windows Server 2008 Active Directory.
- Exam 70-642 TS: Configuring Windows Server 2008 Network Infrastructure.
- Exam 70-646 PRO: Server Administrator, Windows Server 2008.

1.4-MCITP Enterprise Administrator 2008

- Exam 70-640 TS: Configuring Windows Server 2008 Active Directory.
- Exam 70-642 TS: Configuring Windows Server 2008 Network Infrastructure.
- Exam 70-643 windows server 2008 applications infrastructure, configuring .
- Exam 70-680 windows seven configuration.
- Exam 70-647windows server 2008,interprise administration.

1.5-Microsoft Certified Solutions Associate 2008

- Exam 70-640 | Windows Server 2008 Active Directory, Configuring.
- Exam 70-642 | Windows Server 2008 Network Infrastructure, Configuring.
- Exam 70-646 | Windows Server 2008, Server Administrator.

1.6- MCSA: Windows Server 2012

*

- Exam 70-410 | Installing and Configuring Windows Server 2012.
- Exam 70-411 | Administering Windows Server 2012.
- Exam70-412 | Configuring Advanced Windows Server 2012 Services.

1.7- MCSE Microsoft Certified Solutions expert 2012

- Exam 70-410 | Installing and Configuring Windows Server 2012.
- Exam 70-411 | Administering Windows Server 2012.
- Exam 70-412 | Configuring Advanced Windows Server 2012 Services.
- Exam 70-413 Designing and Implementing a Server Infrastructure.
- 70-414 Implementing an Advanced Server Infrastructure.

1.8- MCSA Windows Server 2016 exam

- Exam 70-740 Installation, Storage, and Compute with Windows Server 2016.
- Exam 70-741 Networking with Windows Server 2016.
- Exam 70-742 Identity with Windows Server 2016.

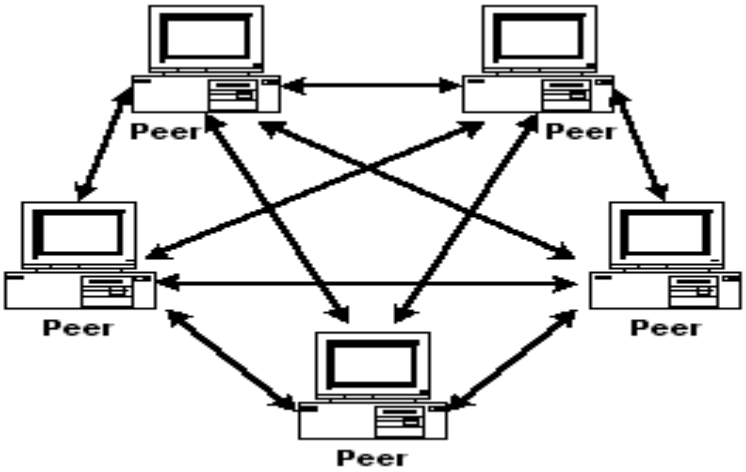
1.9-MCSA Windows Server 2019 exam

2- Configure peer to peer(workgroup) computer network

شبكة الند بالند تسمى ايضا Workgroup

تستخدم عادة في الشبكات الصغيرة عندما لا يتجاوز عدد الاجهزة عن 10 اجهزة، تمتاز بتكلفتها المنخفضة وسهولة تركيبها ولا تحتاج الي نظام تشغيل خاص واجهزتها ذات مواصفات محدودة.

من اهم عيوبها صعوبة تطبيقها في الشبكات الكبيرة وعدم توفر قدر كافي من الحماية بالإضافة الي محدودية في اعطاء الصلاحيات للمستخدمين.



A peer-to-peer network is one in many PCs share files and access to devices such as printers without requiring a separate server computer or server software.

A network of computers configured to allow certain files and folders to be shared with everyone or with selected users. Peer-to-peer networks are quite common in small offices that do not use a dedicated file server. All client versions of Windows, Mac and Linux can function as nodes in a peer-to-peer network and allow their files to be shared.

Advantages of Peer-to-peer networking over Client –Server networking are :-

1- It is easy to install and so is the configuration of computers on this network,
2- All the resources and contents are shared by all the peers, unlike server-client architecture where Server shares all the contents and resources.

3- P2P is more reliable as central dependency is eliminated. Failure of one peer doesn't affect the functioning of other peers. In case of Client –Server network, if server goes down whole network gets affected.
4- There is no need for full-time System Administrator. Every user is the administrator of his machine. User can control their shared resources.
5- The over-all cost of building and maintaining this type of network is comparatively very less.

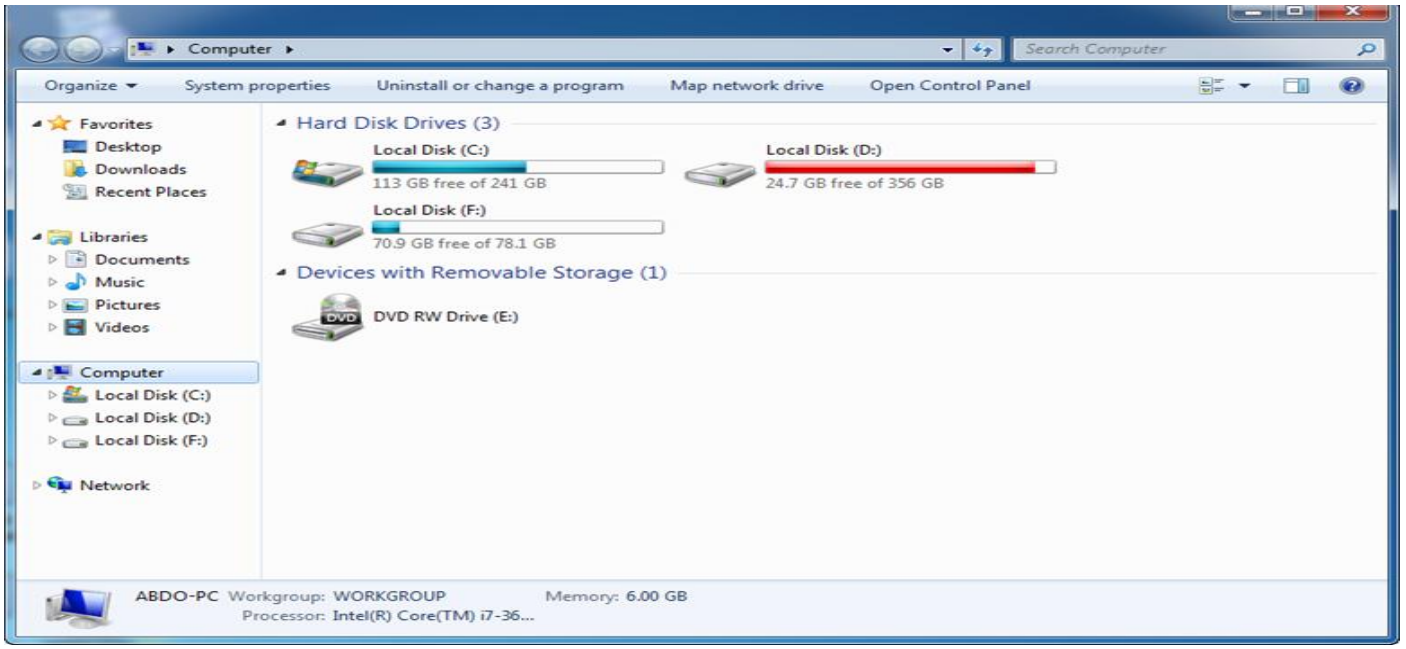
Disadvantages of Peer to peer architecture over Client Server are:-

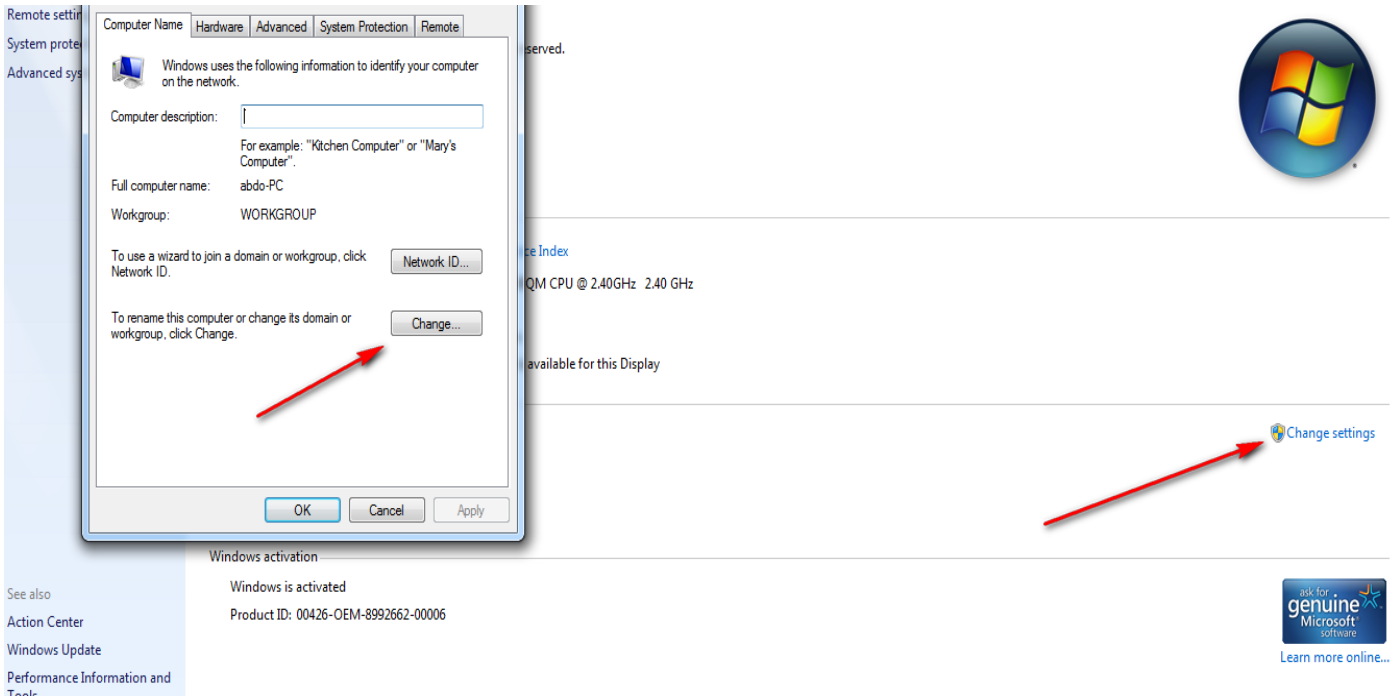
1- In this network, the whole system is decentralized thus it is difficult to administer. That is one person cannot determine the whole accessibility setting of whole network.
2- Security in this system is very less viruses, spywares,trojans, etc malwares can easily transmitted over this P-2-P architecture.
3- Data recovery or backup is very difficult.

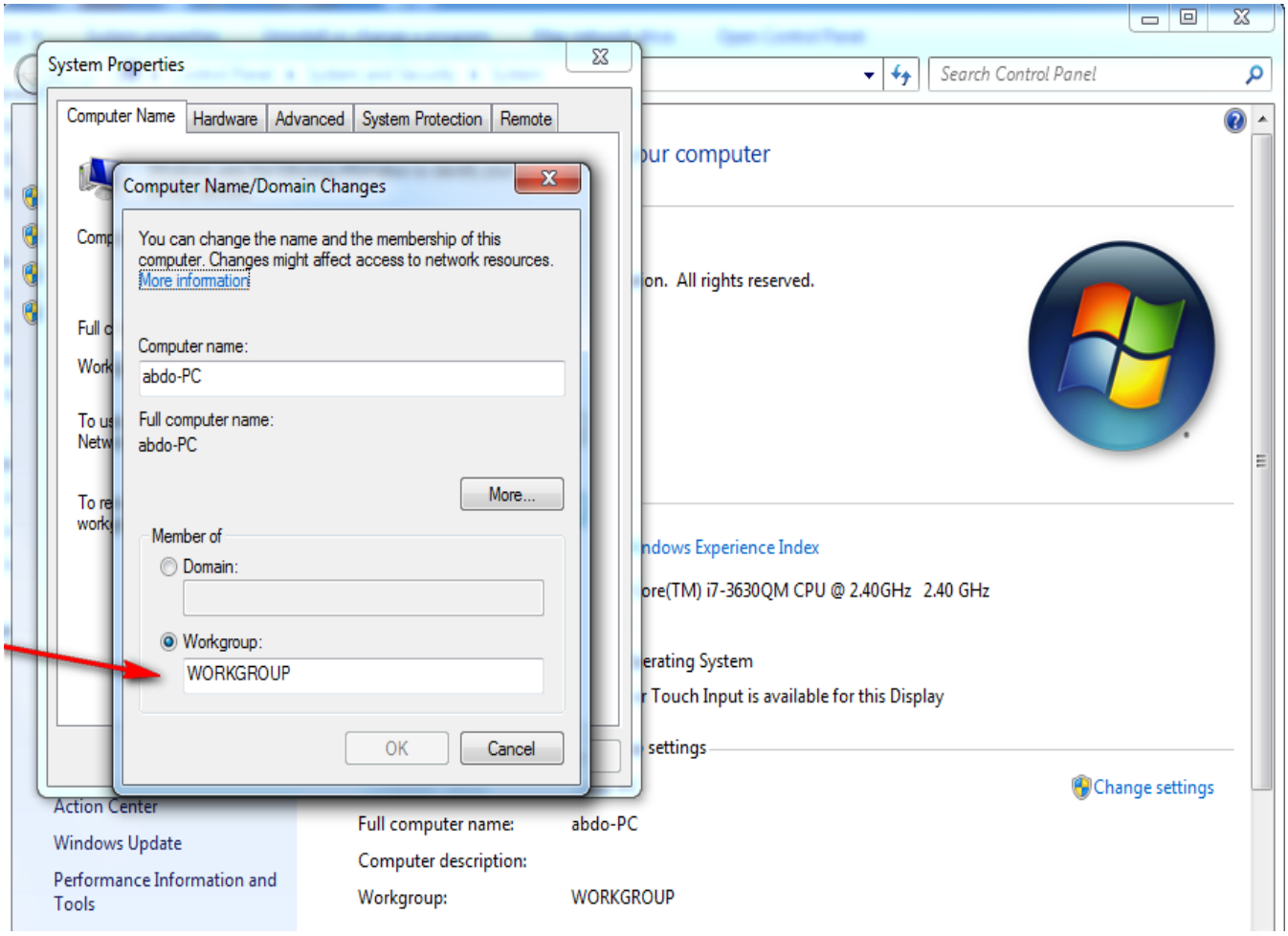
Make workgroup network in small office

Make sure name of workgroup same in all computers

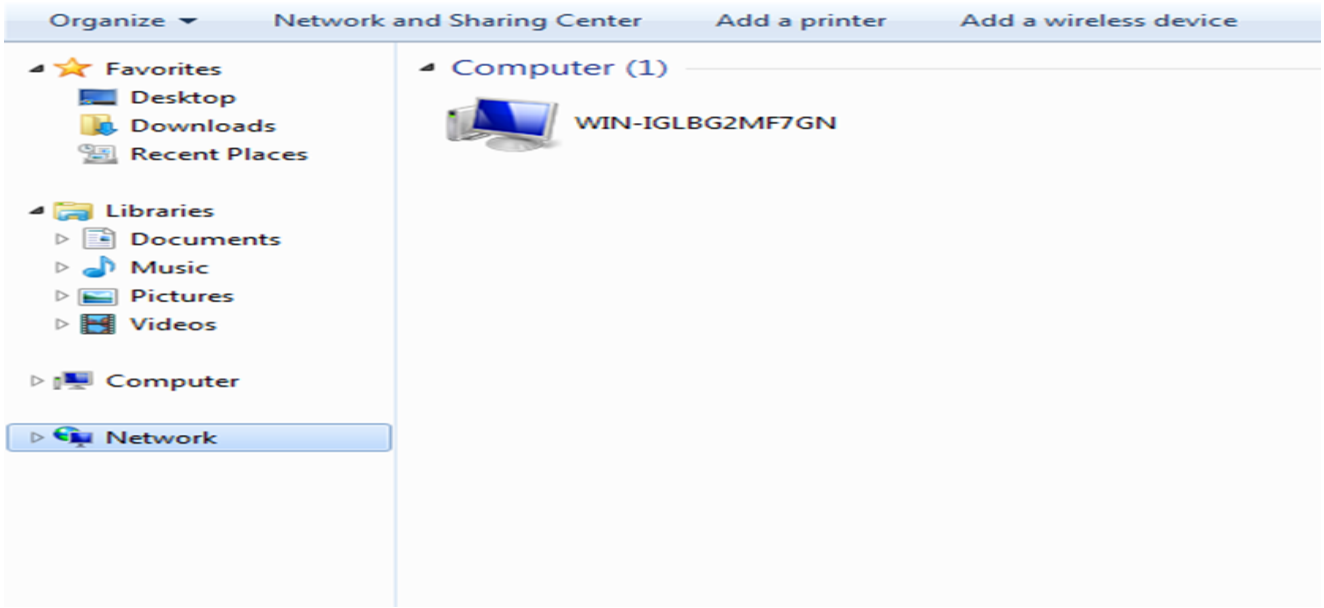
(Computer + properties)

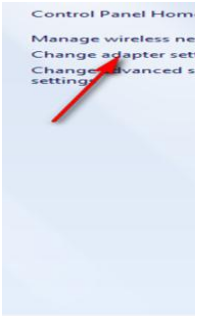


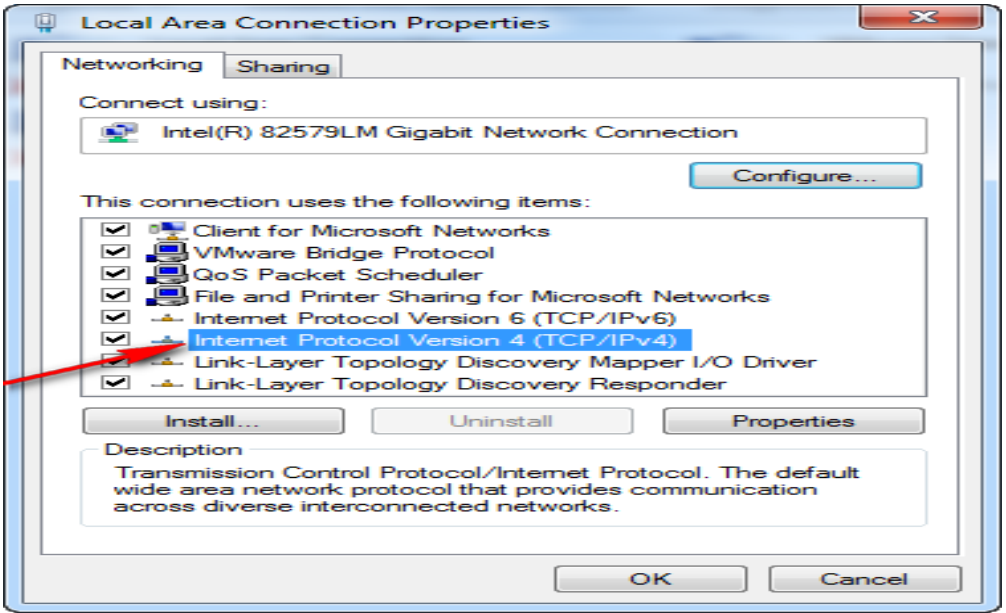

Computer Name
Hardware
Advanced
System Protection
Remote
Windows uses the following information to identify your computer on the network.
Computer description:
For example: "Kitchen Computer" or "Mary's Computer".
Full computer name: abdo-PC
Workgroup: WORKGROUP
To use a wizard to join a domain or workgroup, click Network ID.
Network ID...
To rename this computer or change its domain or workgroup, click Change.
Change...
OK
Cancel
Apply
Change settings
Windows activation
Windows is activated
Product ID: 00426-OEM-8992662-00006
See also
Action Center
Windows Update
Performance Information and
Learn more online...

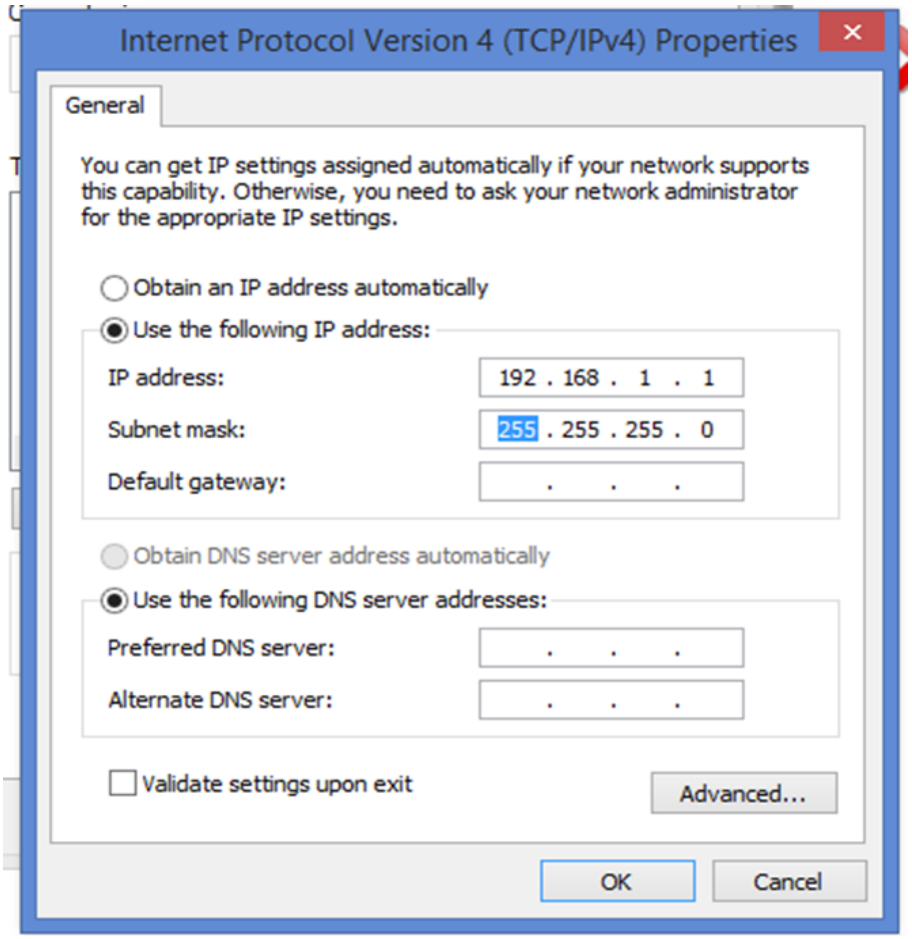

System Properties
Computer Name
Hardware
Advanced
System Protection
Remote
Computer Name/Domain Changes
You can change the name and the membership of this computer. Changes might affect access to network resources.
More information
Computer name:
abdo-PC
Full computer name:
abdo-PC
More...
Member of
Domain:
Workgroup:
WORKGROUP
OK
Cancel
Search Control Panel
Change settings
Full computer name: abdo-PC
Computer description:
Workgroup: WORKGROUP
Action Center
Windows Update
Performance Information and Tools

Configure IP address IPV4 where all computer have same network address

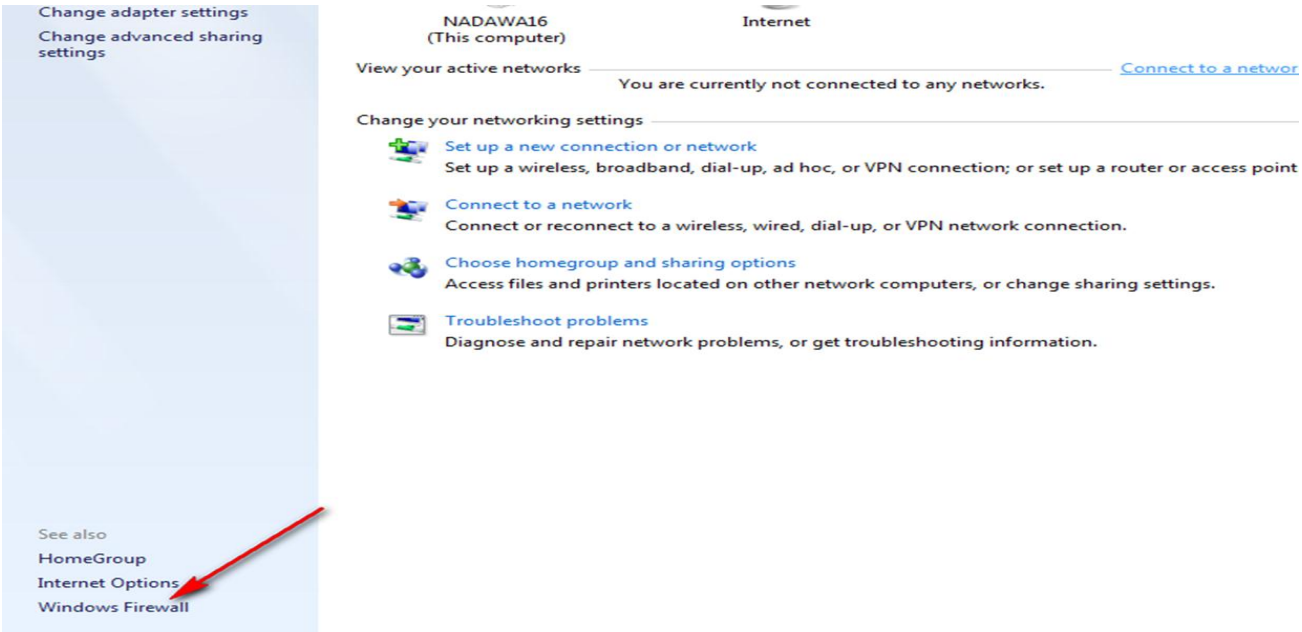


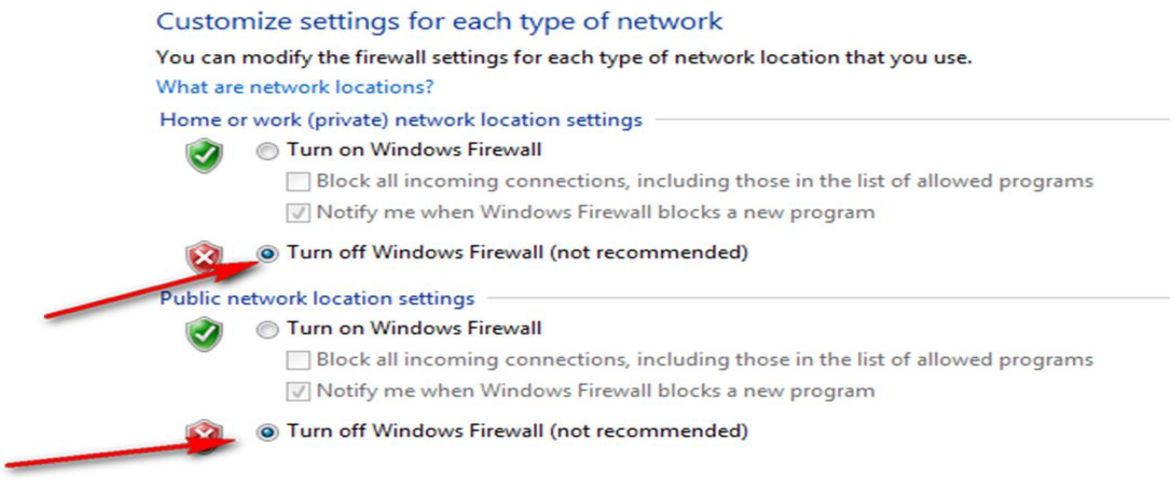






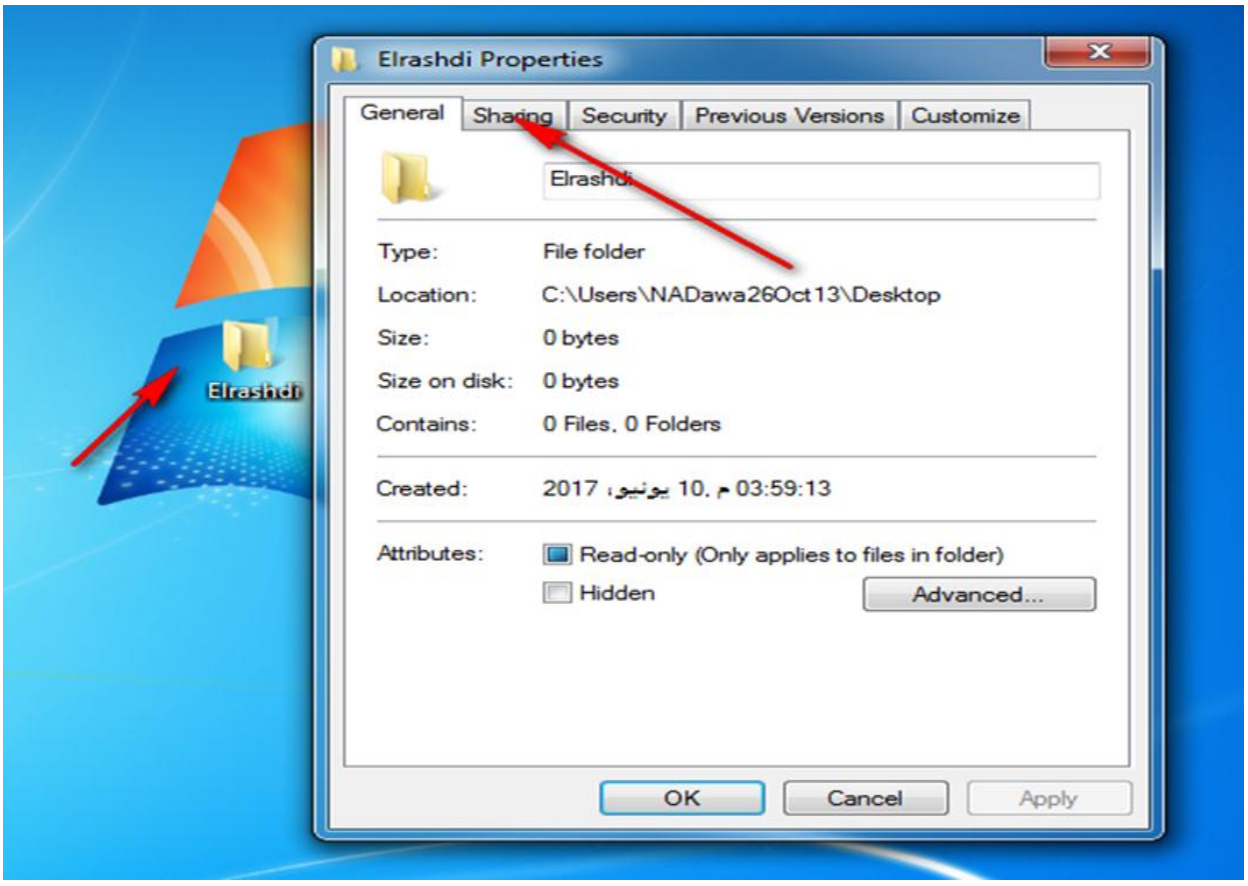
Turn of firewall in all computers

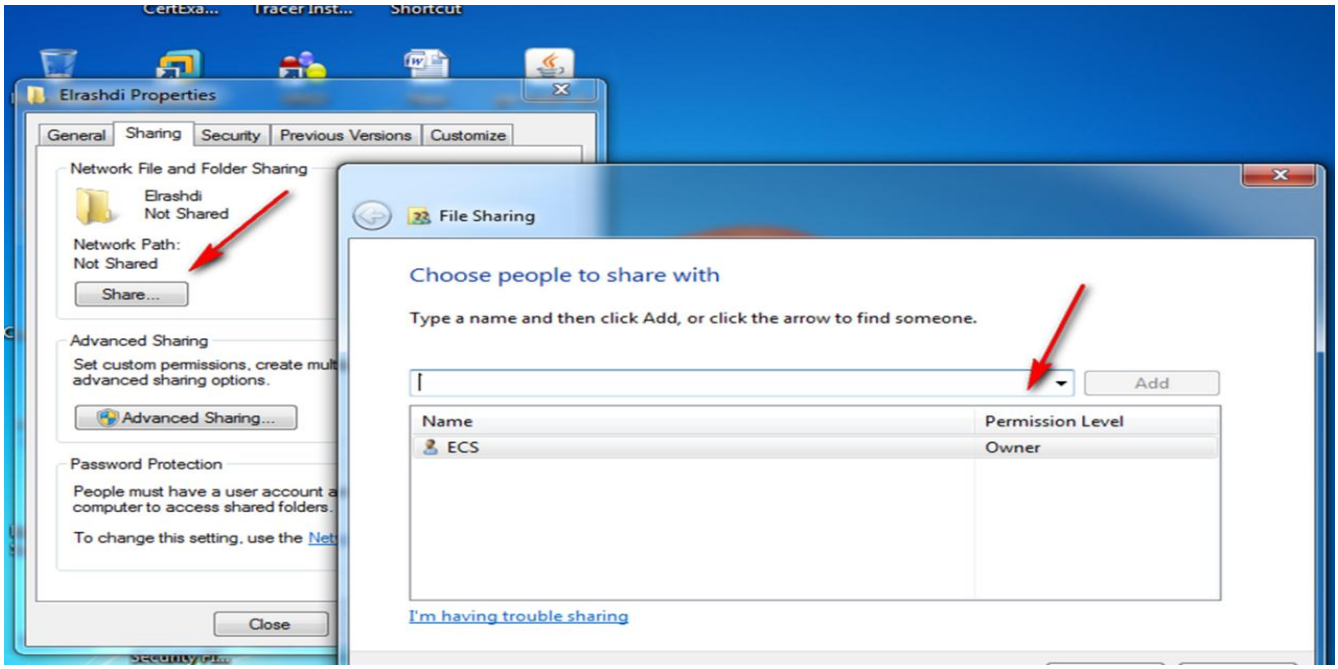




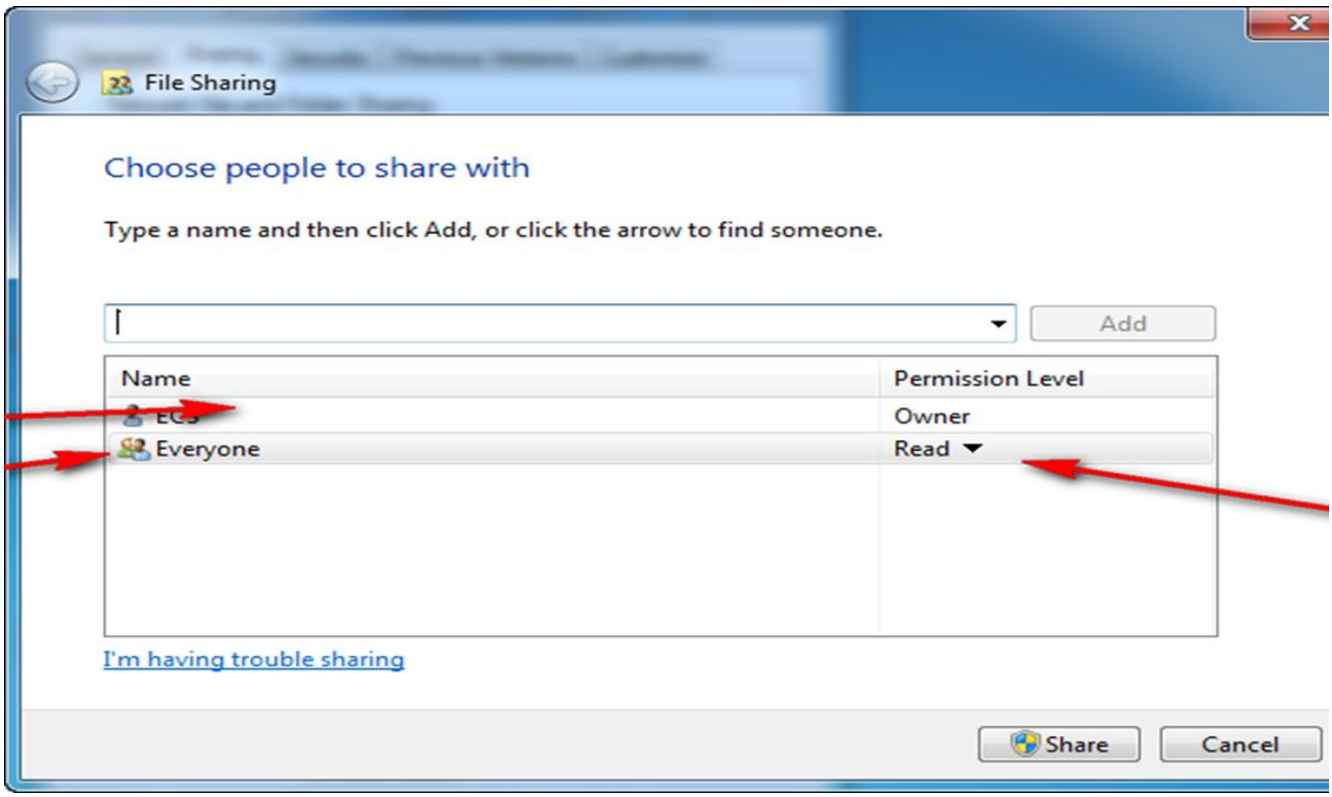
Sharing folders

Right click on folder then properties ,sharing then choice the people that can access to folder



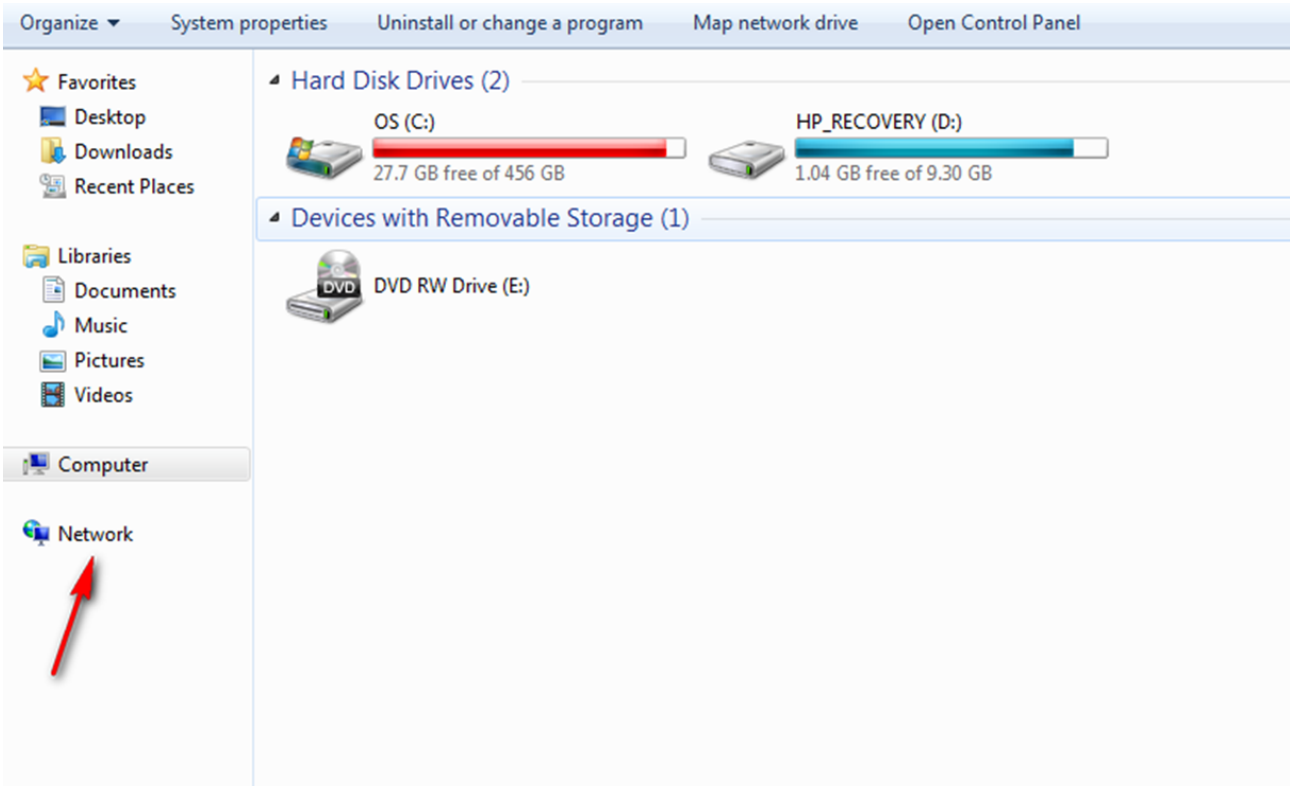


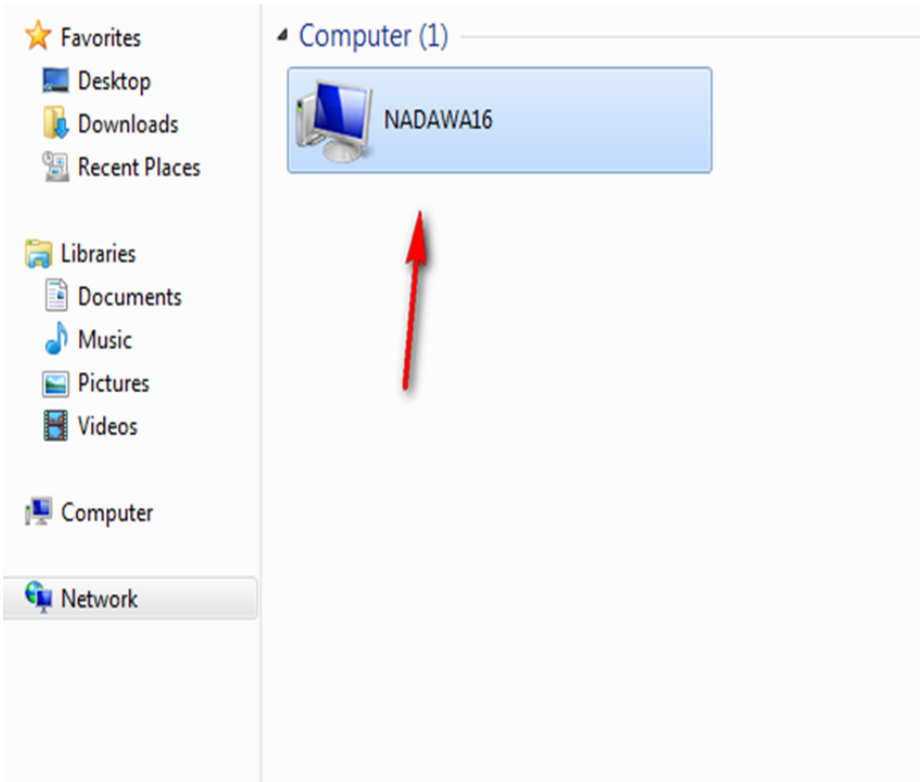
Sharing everyone or specific user

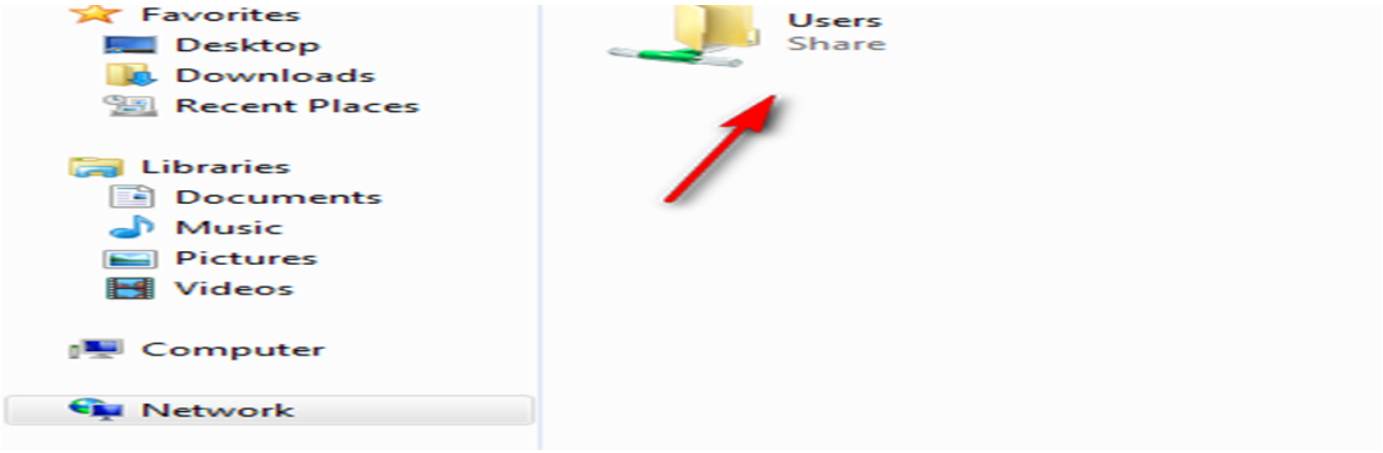


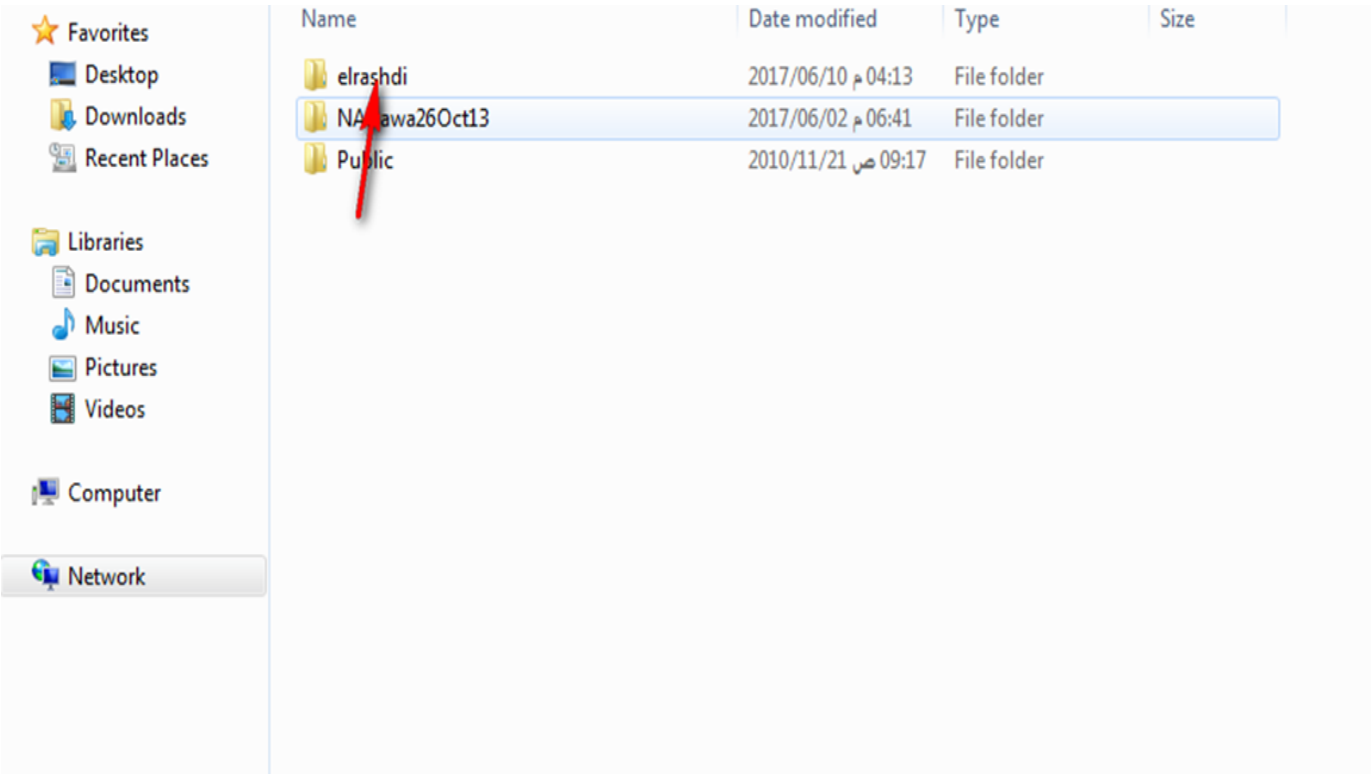
Access to sharing folders

My computer ,network


Organize
System properties
Uninstall or change a program
Map network drive
Open Control Panel
Favorites
Desktop
Downloads
Recent Places
Libraries
Documents
Music
Pictures
Videos
Computer
Network
Hard Disk Drives (2)
OS (C:)
27.7 GB free of 456 GB
HP_RECOVERY (D:)
1.04 GB free of 9.30 GB
Devices with Removable Storage (1)
DVD RW Drive (E:)

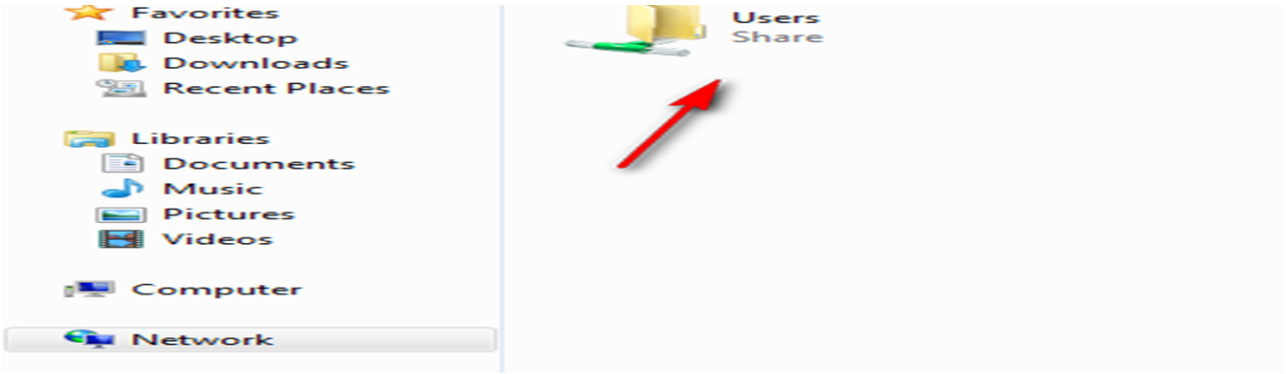

Favorites
Desktop
Downloads
Recent Places
Libraries
Documents
Music
Pictures
Videos
Computer
Network
Computer (1)
NADAWA16

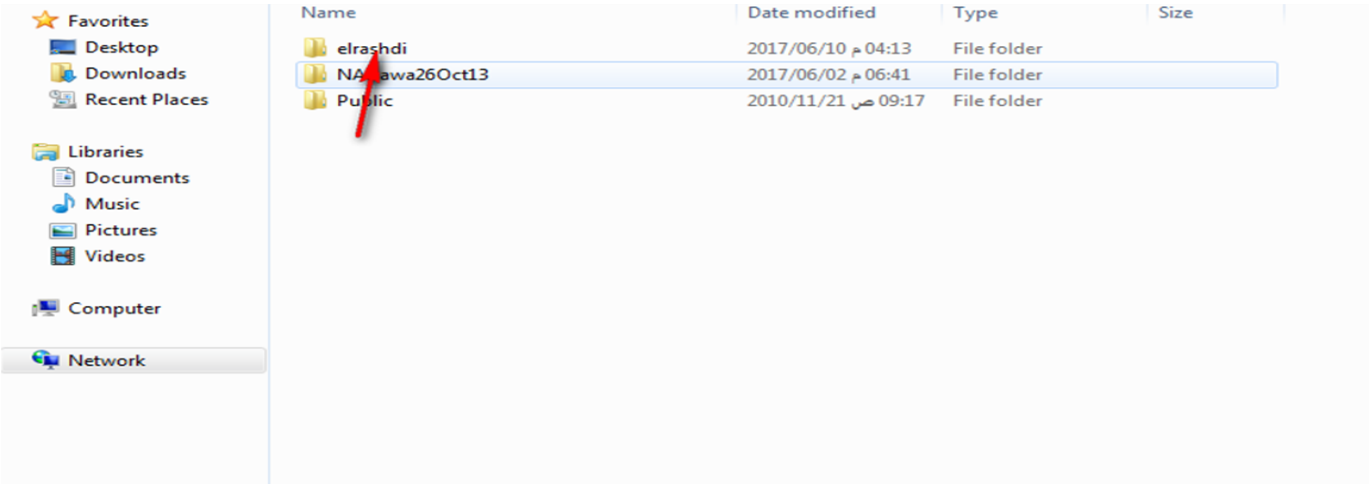




Another way to access to sharing folders

Computer ------network --------- as the following

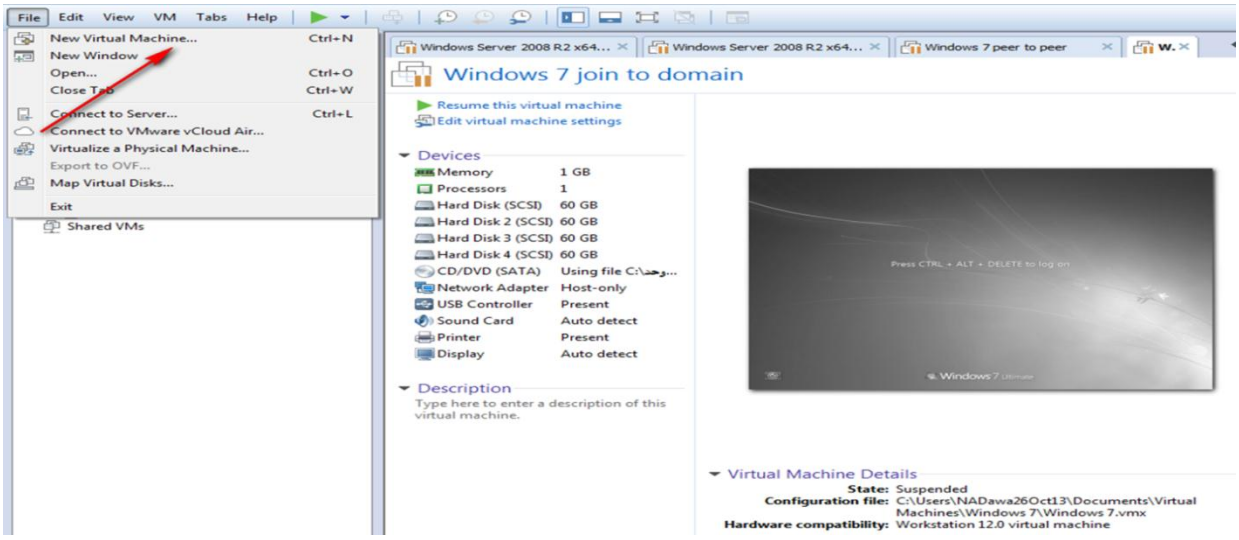


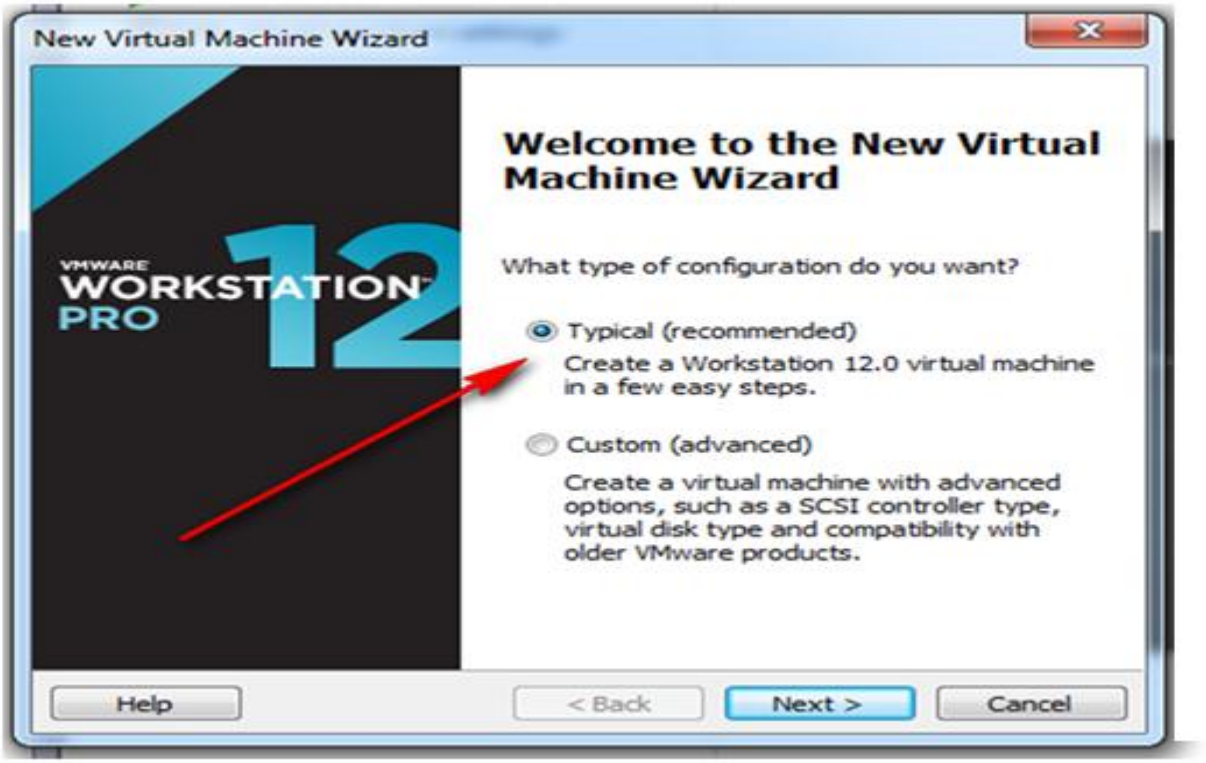


3- Install windows seven on VMware 12

تحميل نظام تشغيل افتراضي (ويندوز7) داخل برنامج المحاكاة Vmware12

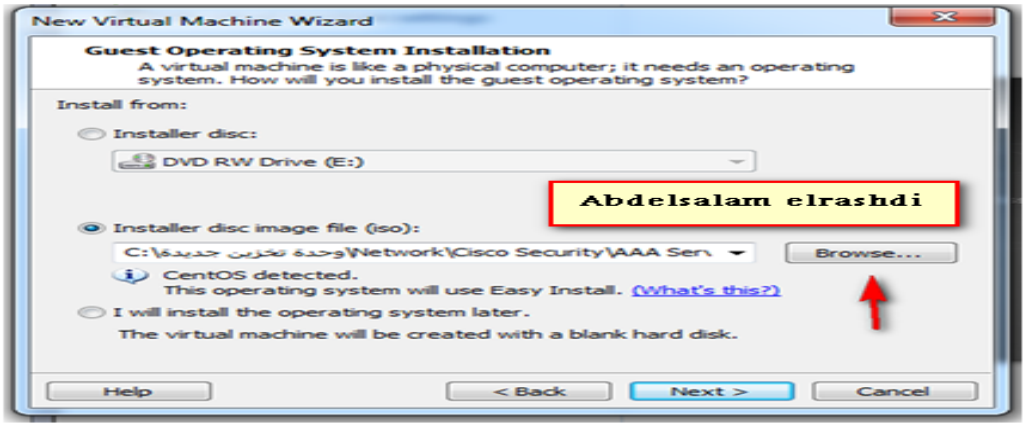
Create virtual machine on Vmware 12





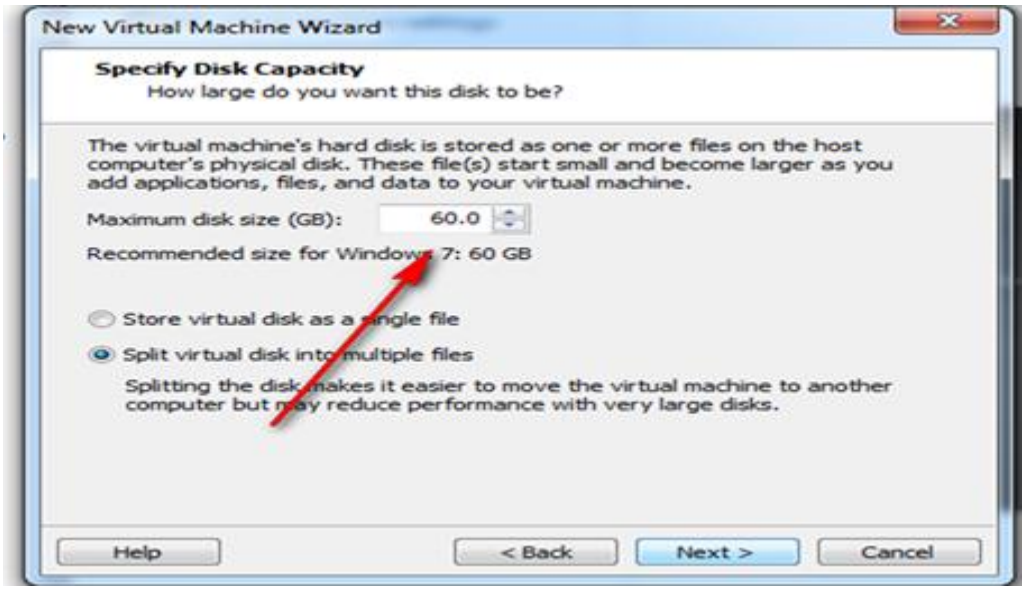
Press browser then Choice image that cantinas inside it window seven if you have DVD contains inside it window seven image choice first option (installer disc)

اختيار مكان نسخة الويندوز في القرص الصلب

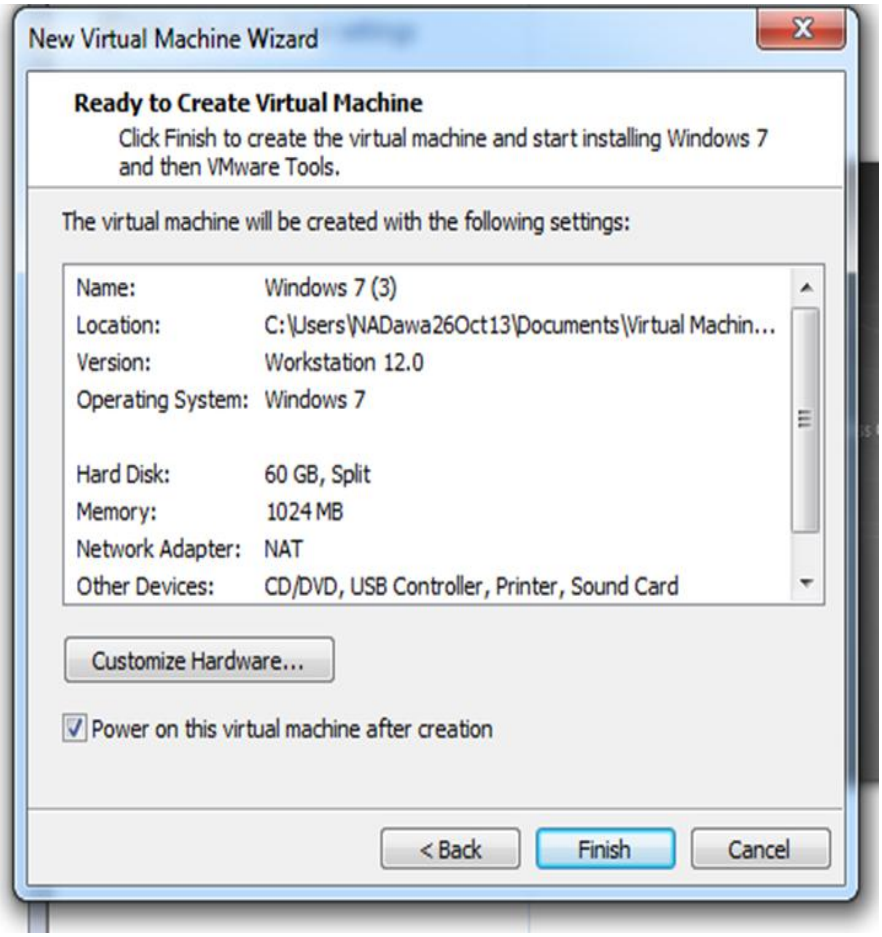


Size of virtual hard disk

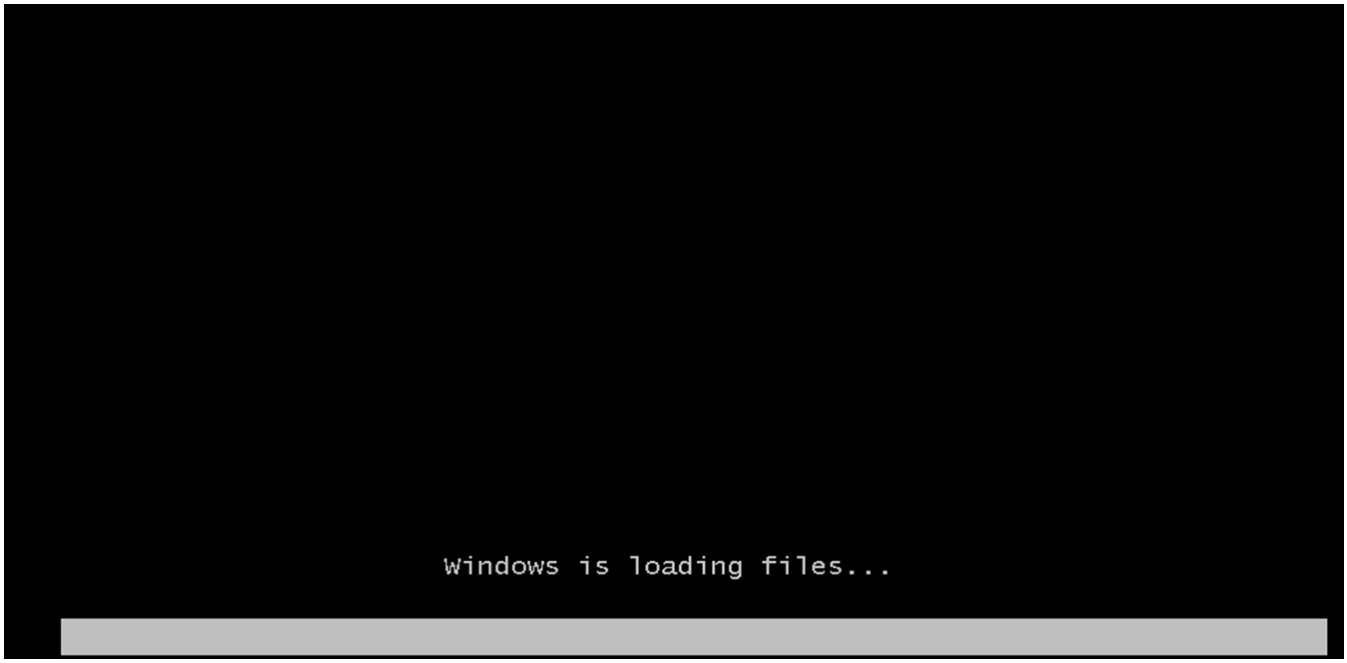
تحديد حجم المساحة التخزينية للقرص الصلب


New Virtual Machine Wizard
Specify Disk Capacity
How large do you want this disk to be?
The virtual machine's hard disk is stored as one or more files on the host computer's physical disk. These file(s) start small and become larger as you add applications, files, and data to your virtual machine.
Maximum disk size (GB): 60.0
Recommended size for Windows 7: 60 GB
Store virtual disk as a single file
Split virtual disk into multiple files
Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.
Help
< Back
Next >
Cancel

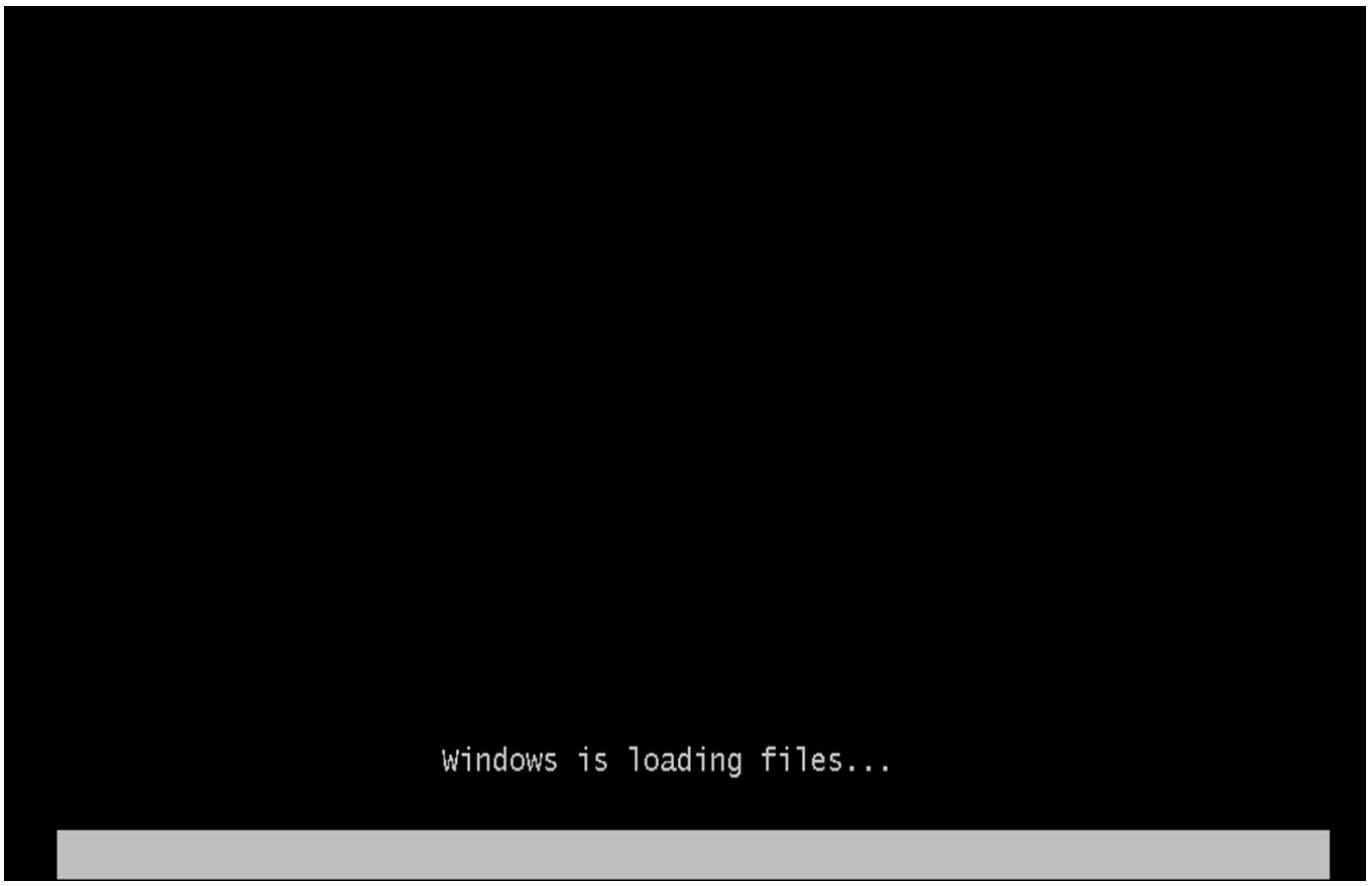
Finish


New Virtual Machine Wizard
Ready to Create Virtual Machine
Click Finish to create the virtual machine and start installing Windows 7 and then VMware Tools.
The virtual machine will be created with the following settings:
Name: Windows 7 (3)
Location: C:\Users\NADawa26Oct13\Documents\Virtual Machin...
Version: Workstation 12.0
Operating System: Windows 7
Hard Disk: 60 GB, Split
Memory: 1024 MB
Network Adapter: NAT
Other Devices: CD/DVD, USB Controller, Printer, Sound Card
Customize Hardware...
Power on this virtual machine after creation
< Back
Finish
Cancel

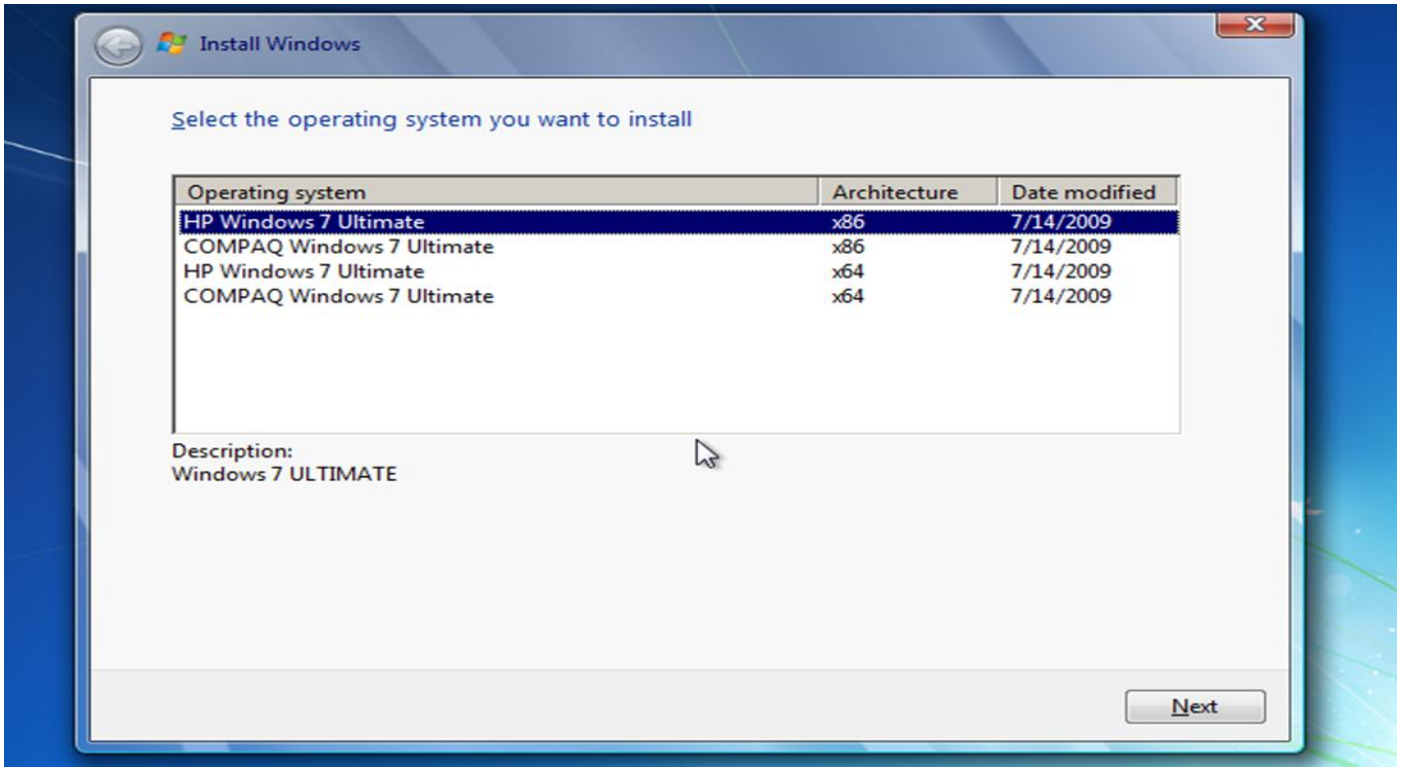
Loading files



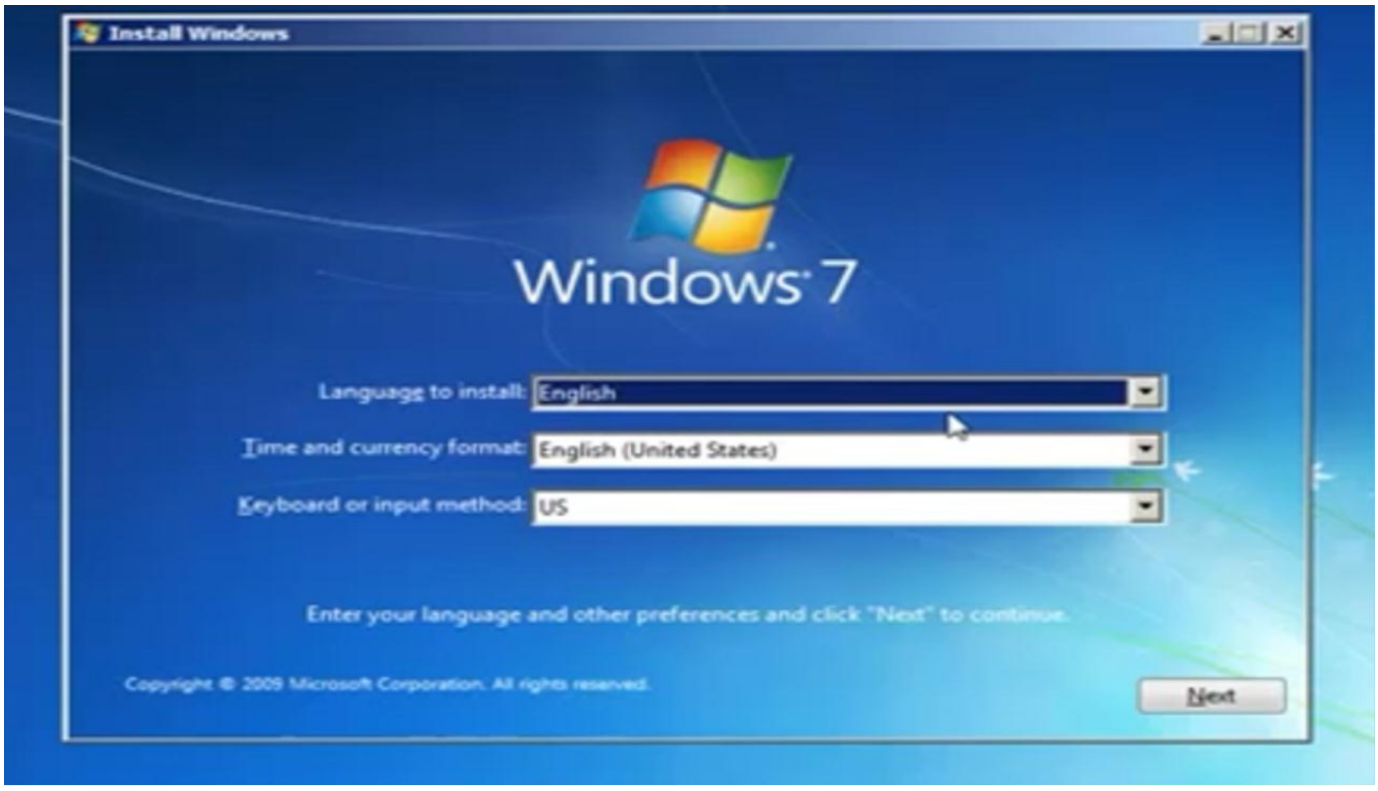
Starting installation



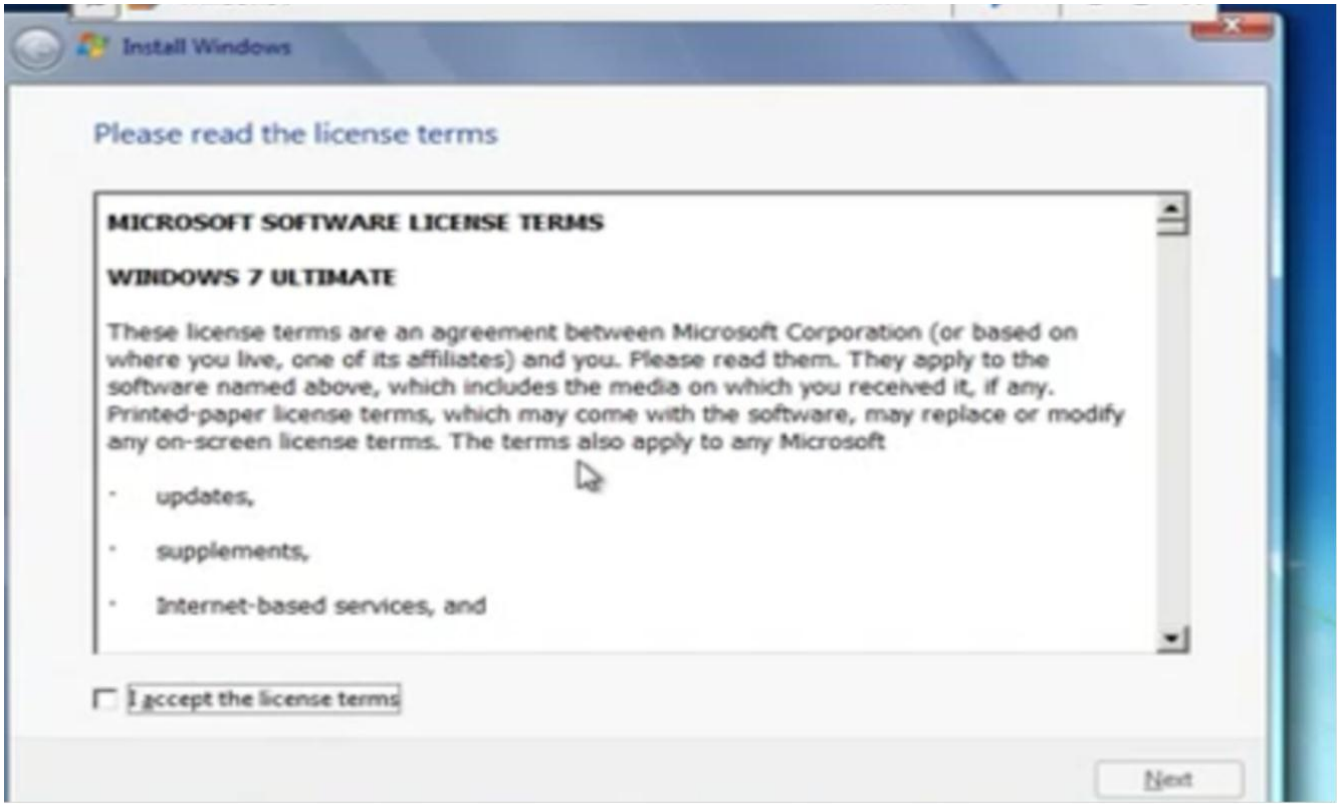
Choice edition of windows seven



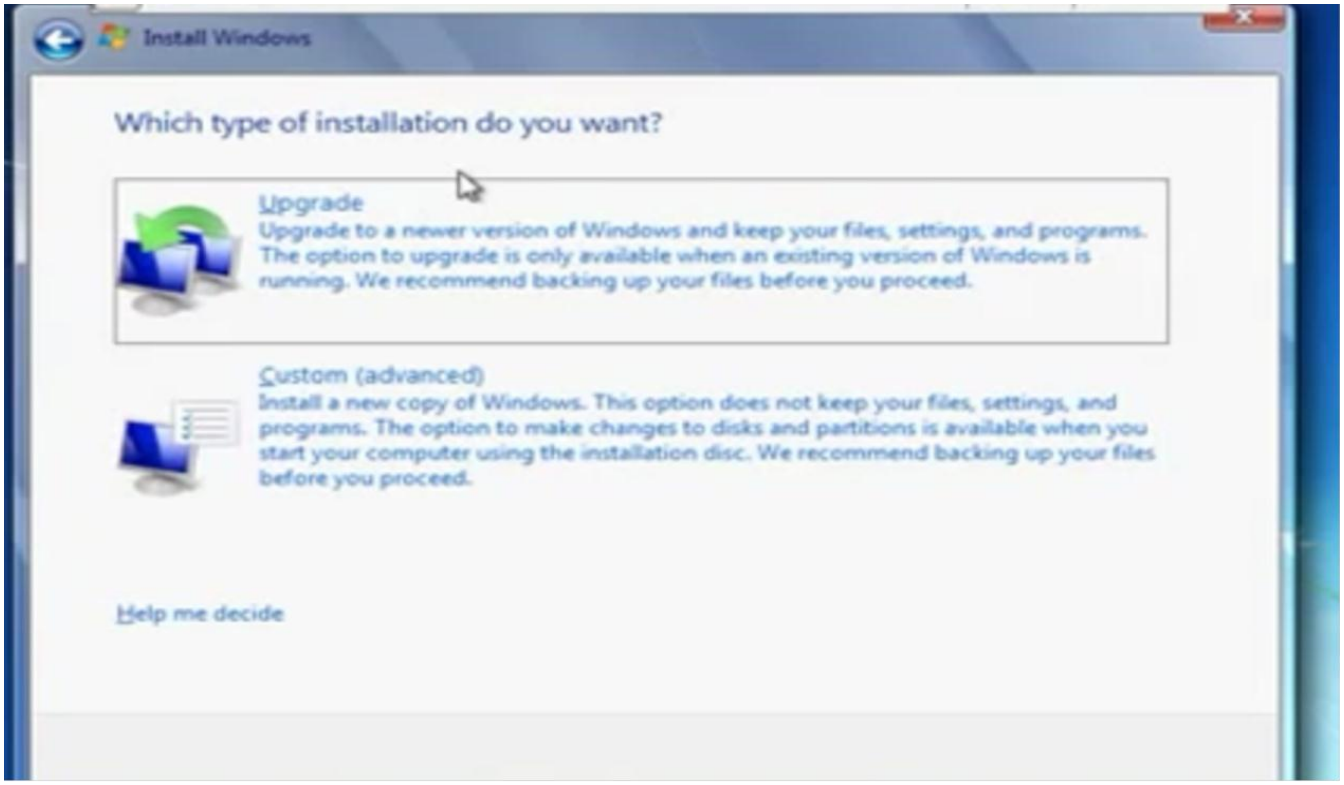
Choice the language



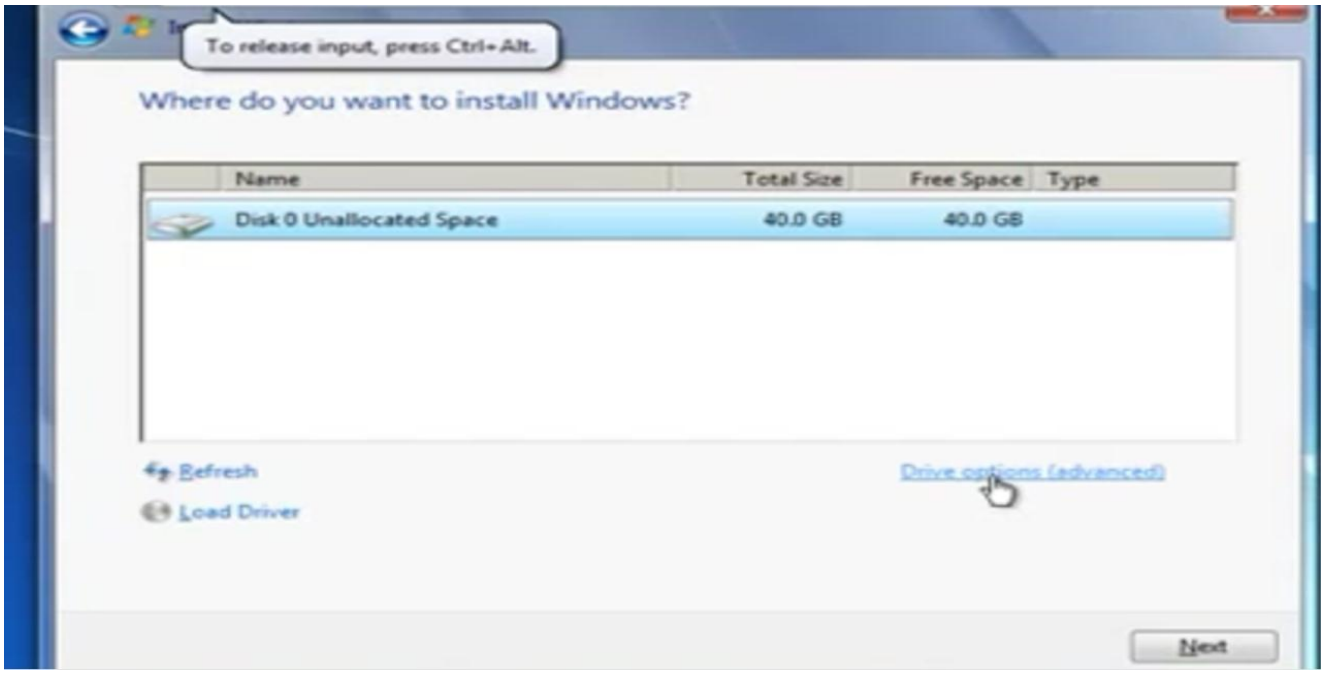
Accept the license



On the installation type page, click on Custom (advanced) to start a new installation

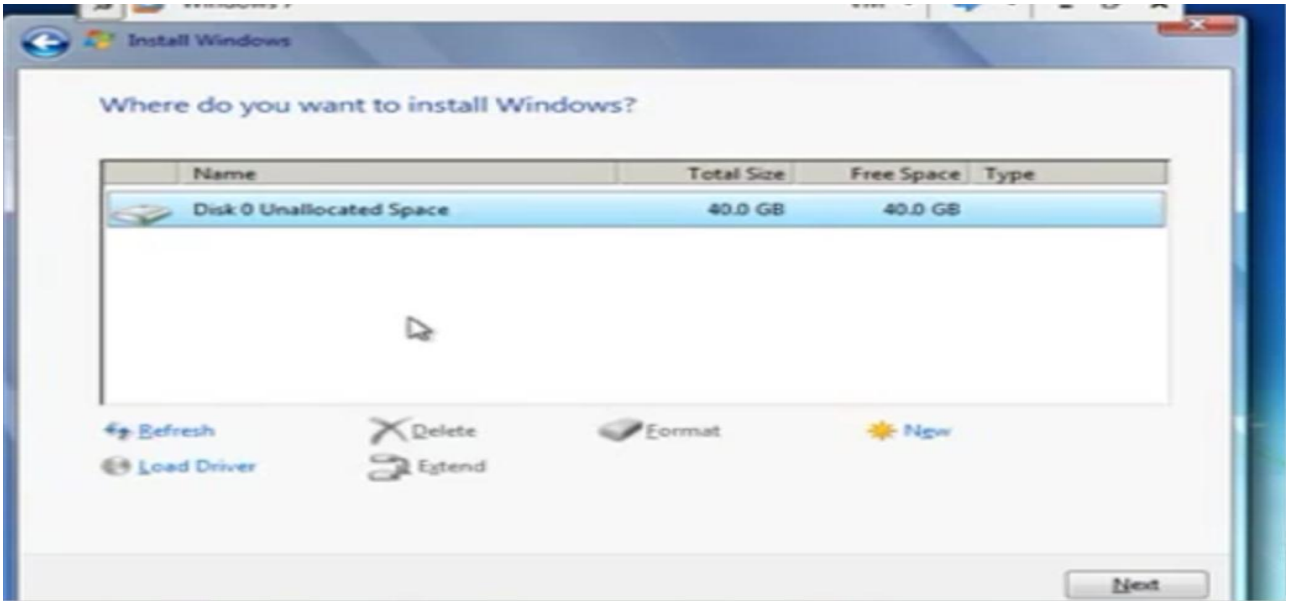


Choose the partition or disk that you want to install Windows 7 on, and then click Next

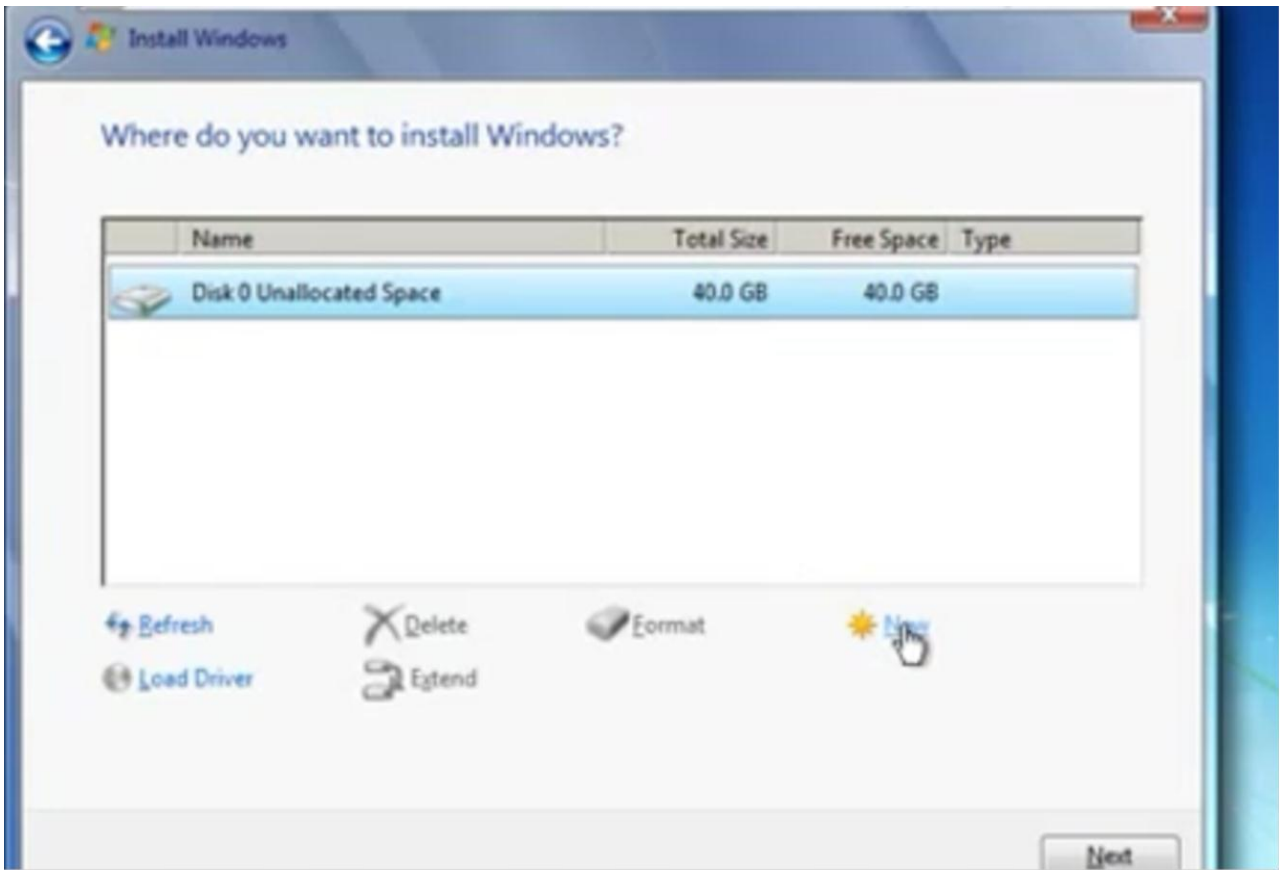


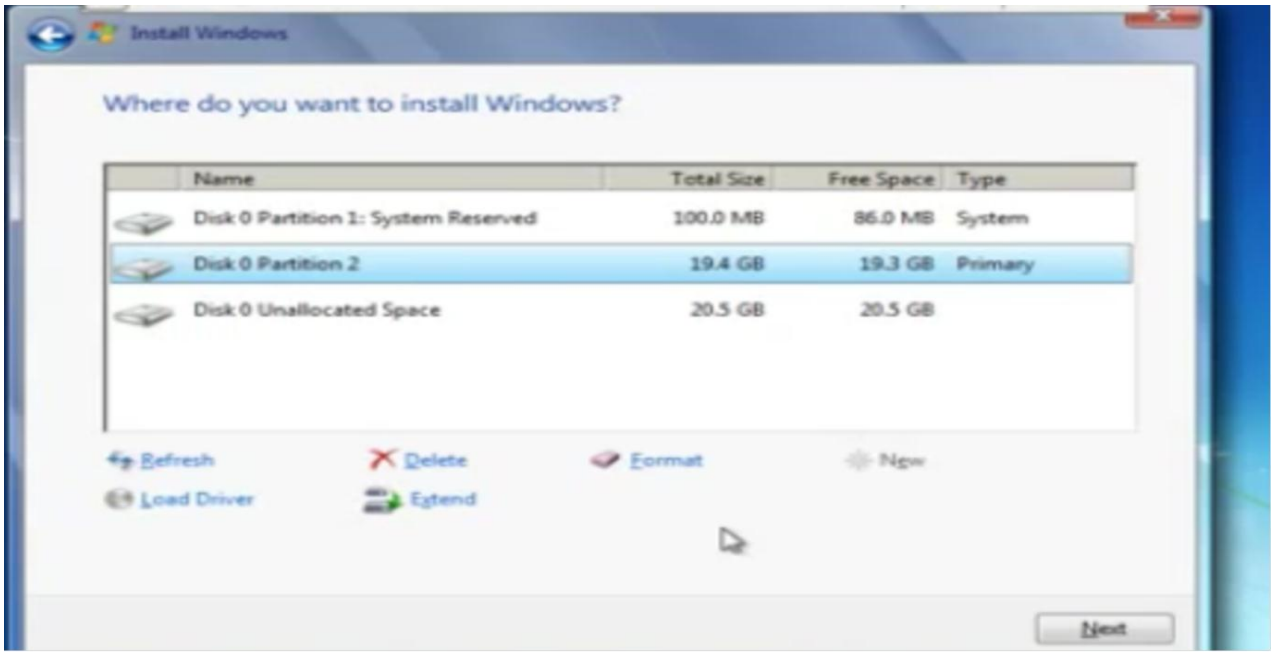
Choose the partition or disk that you want to install Windows 7 on, and then click Next

تقسيم القرص الصلب الي اقراص مختلفة وتحديد حجم كل قرص

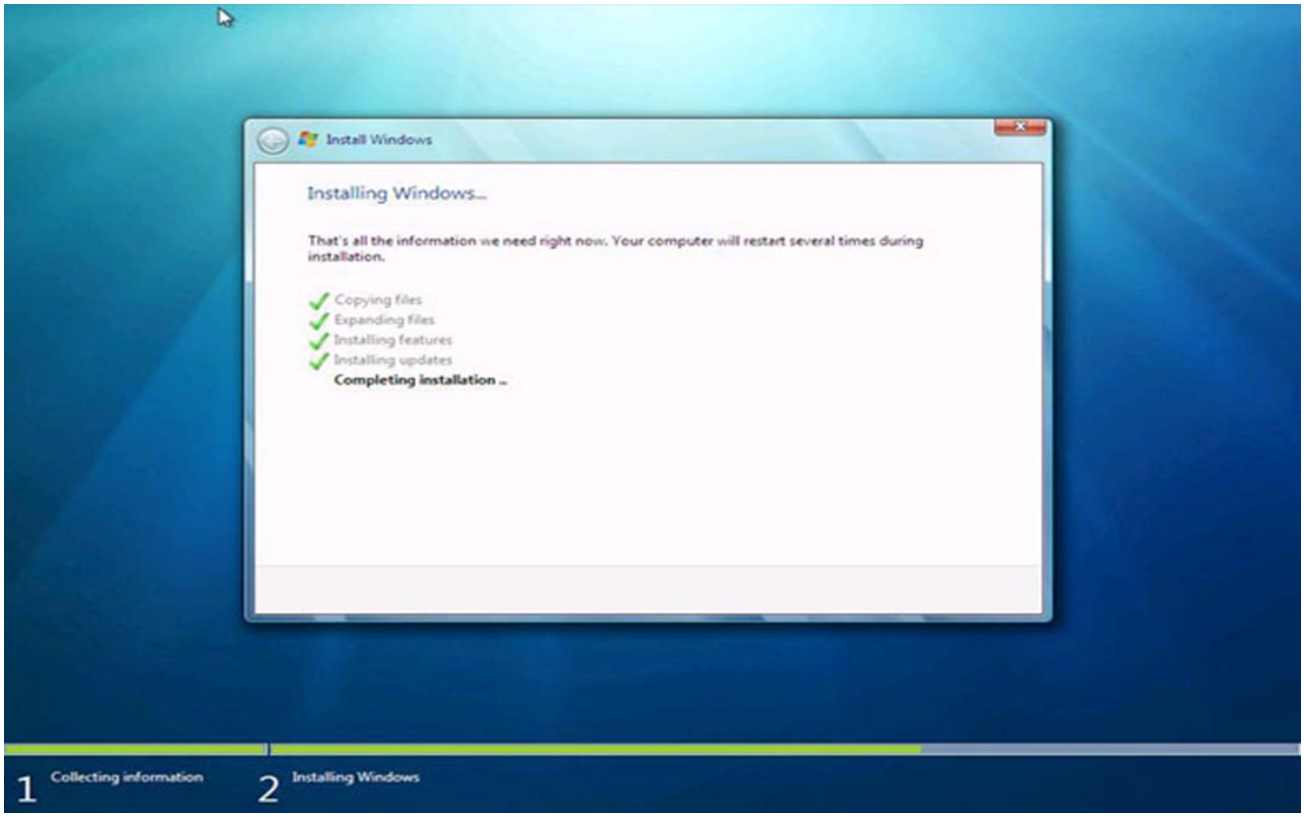


Extend or format desk

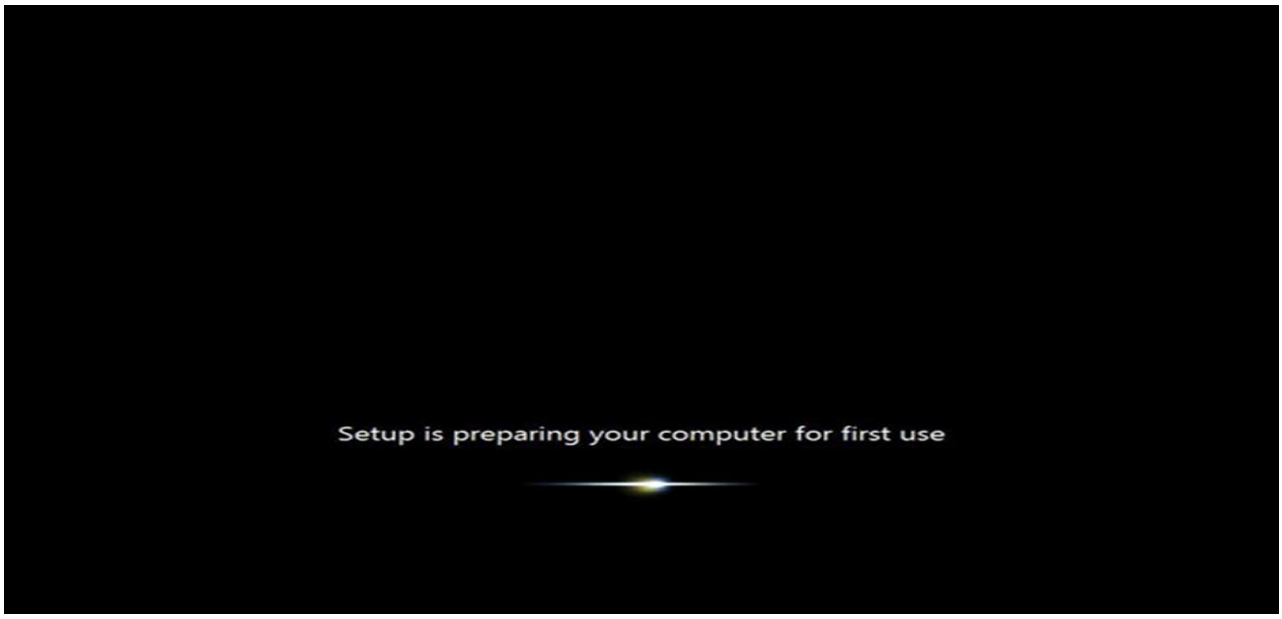




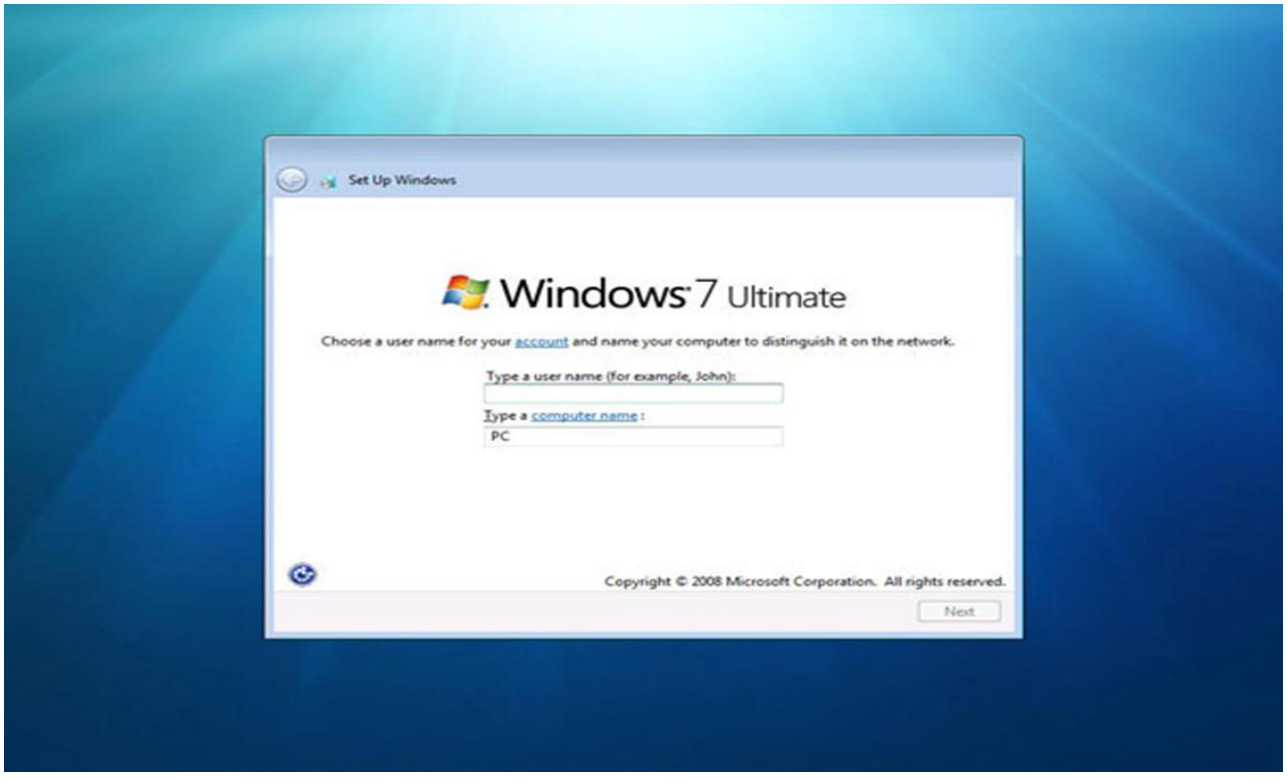
Installation will start



Setup will prepare computer for first use

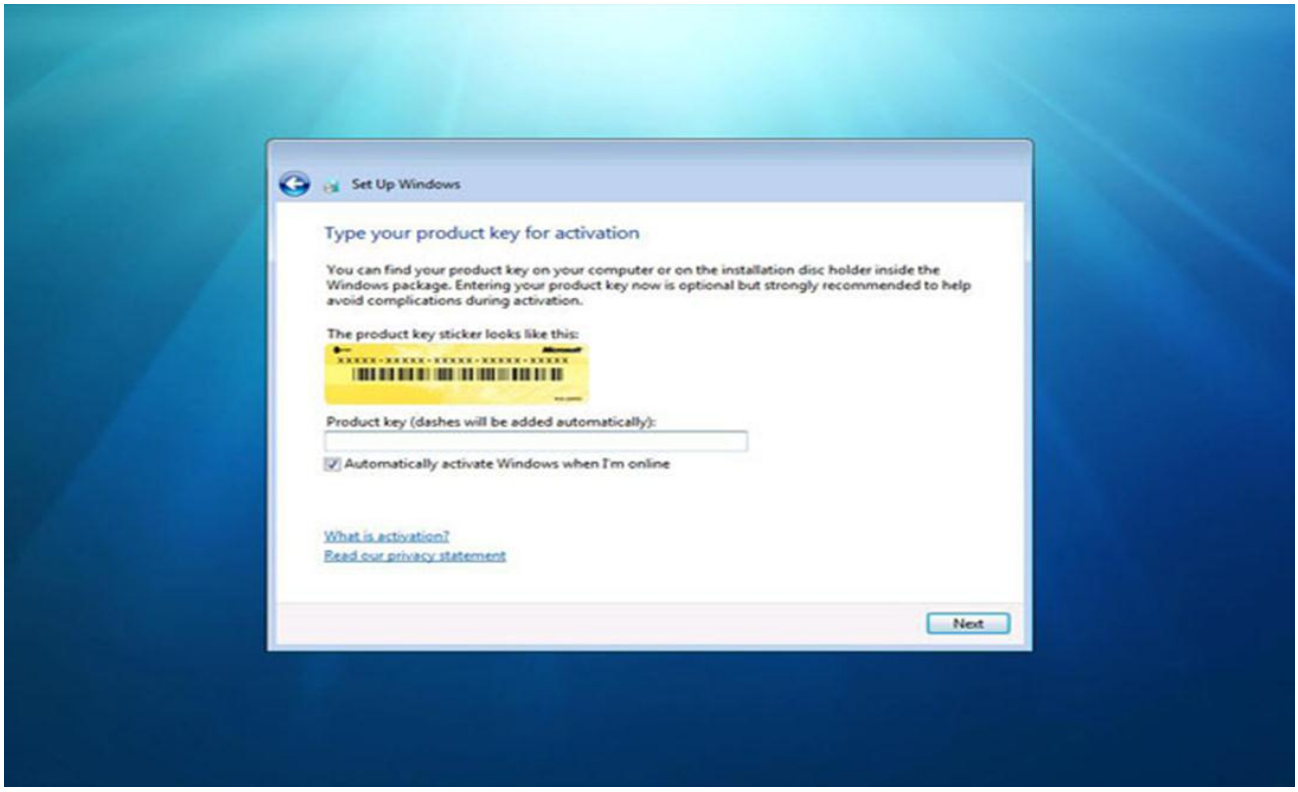


Setup will continue, and this time you will have to choose a username and a computer name



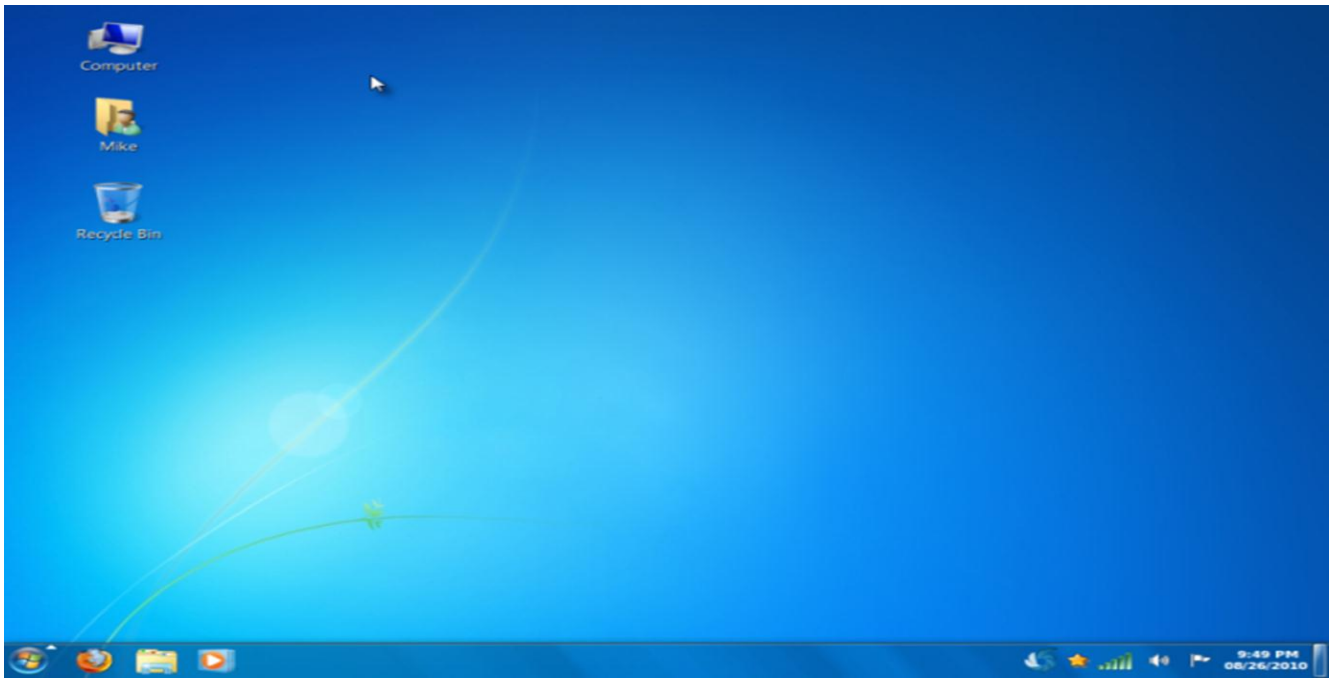
On the Product Key page, you can either enter the product key or simply leave it empty and click on Next

ادخال رقم المنتج الخاصة بنظام التشغيل



Desktop first time

Desktop first time

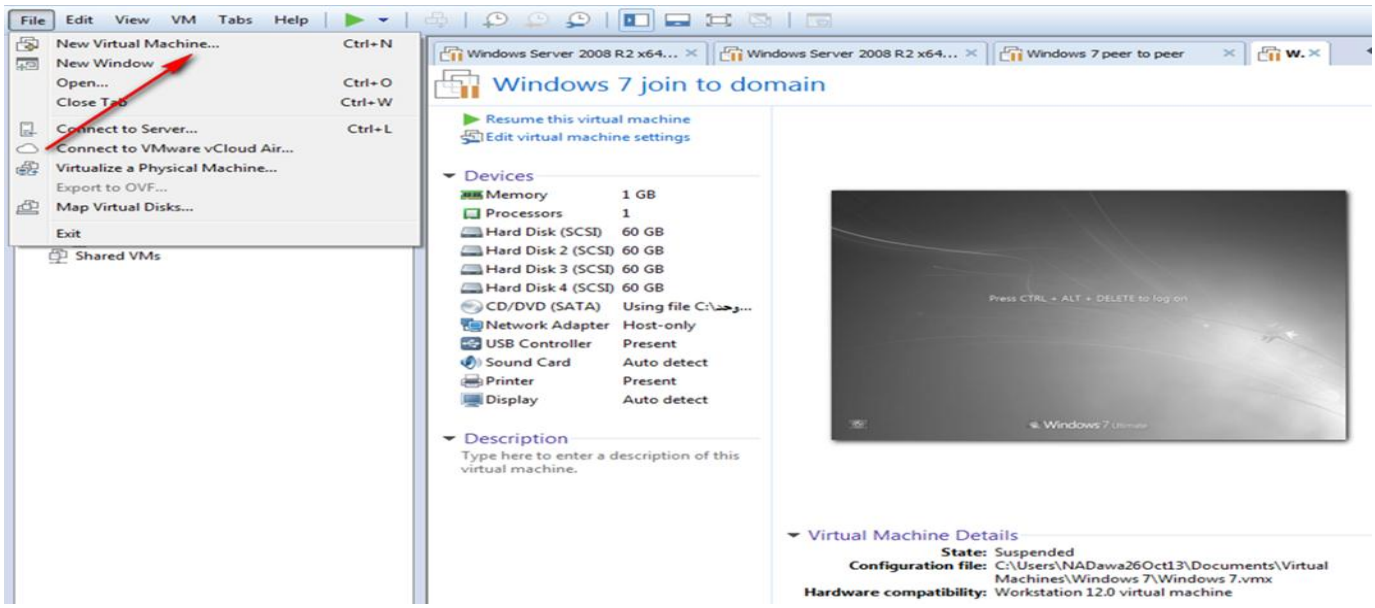


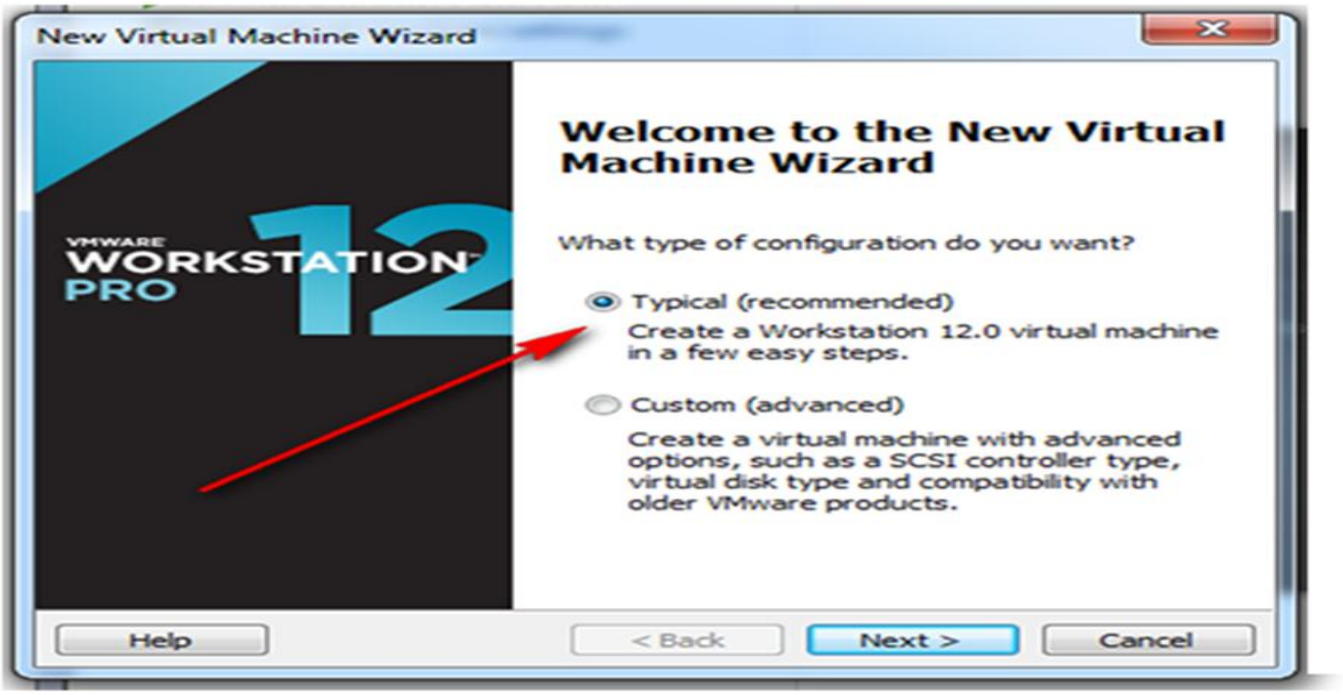
4- Install windows server 2008R2

تحميل نظام تشغيل window server 2008R2

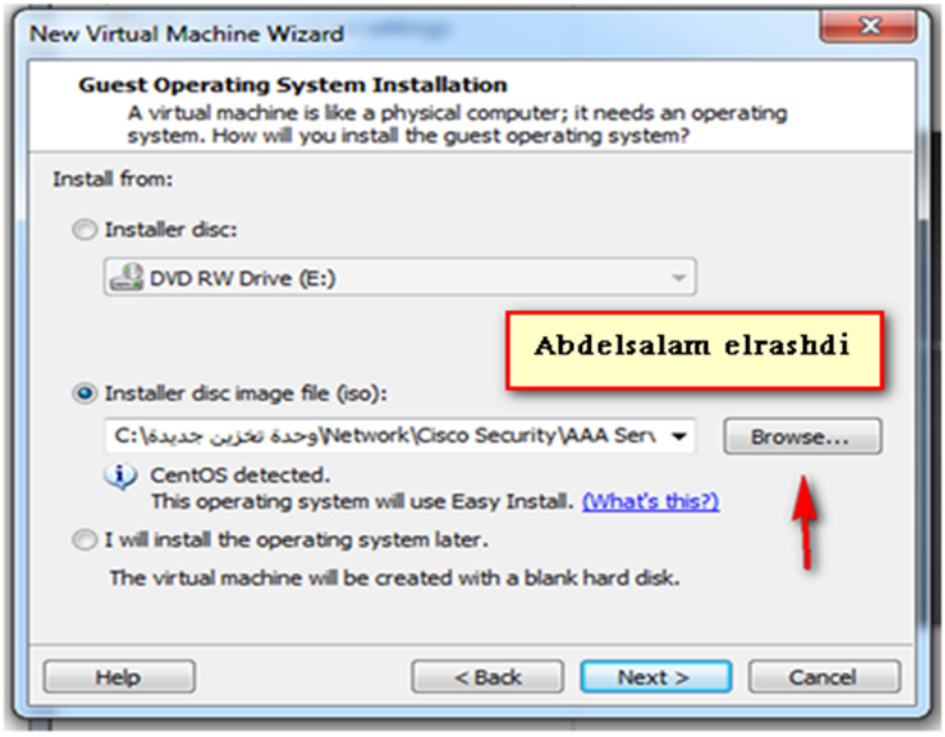
Create virtual machine on Vmware 12

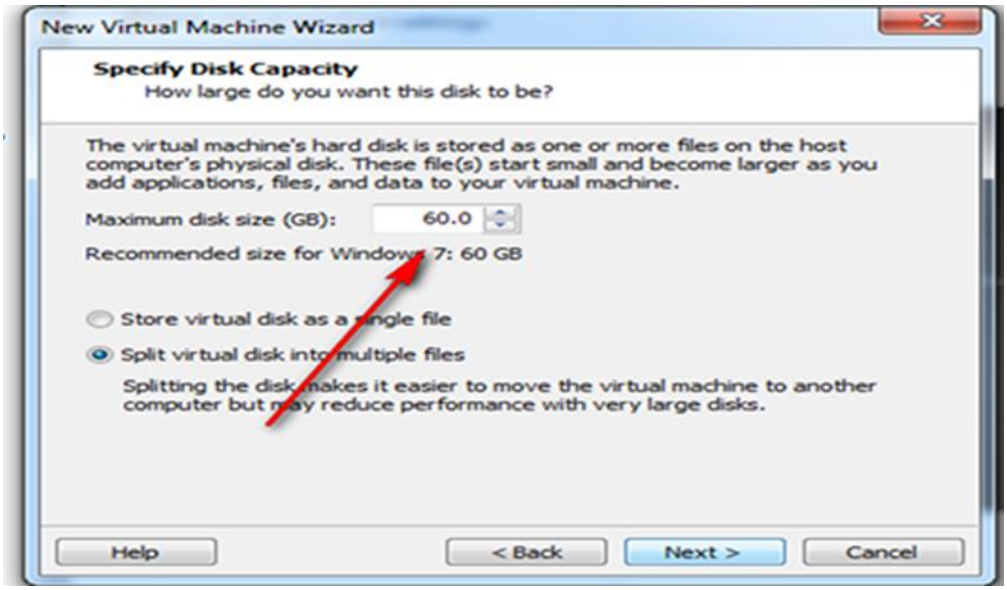
Install window server 2008 r2





Press browser then Choice image that cantinas inside it window server 2008R2 if you have DVD contains inside it window server 2008R2 image choice first option (installer disc)



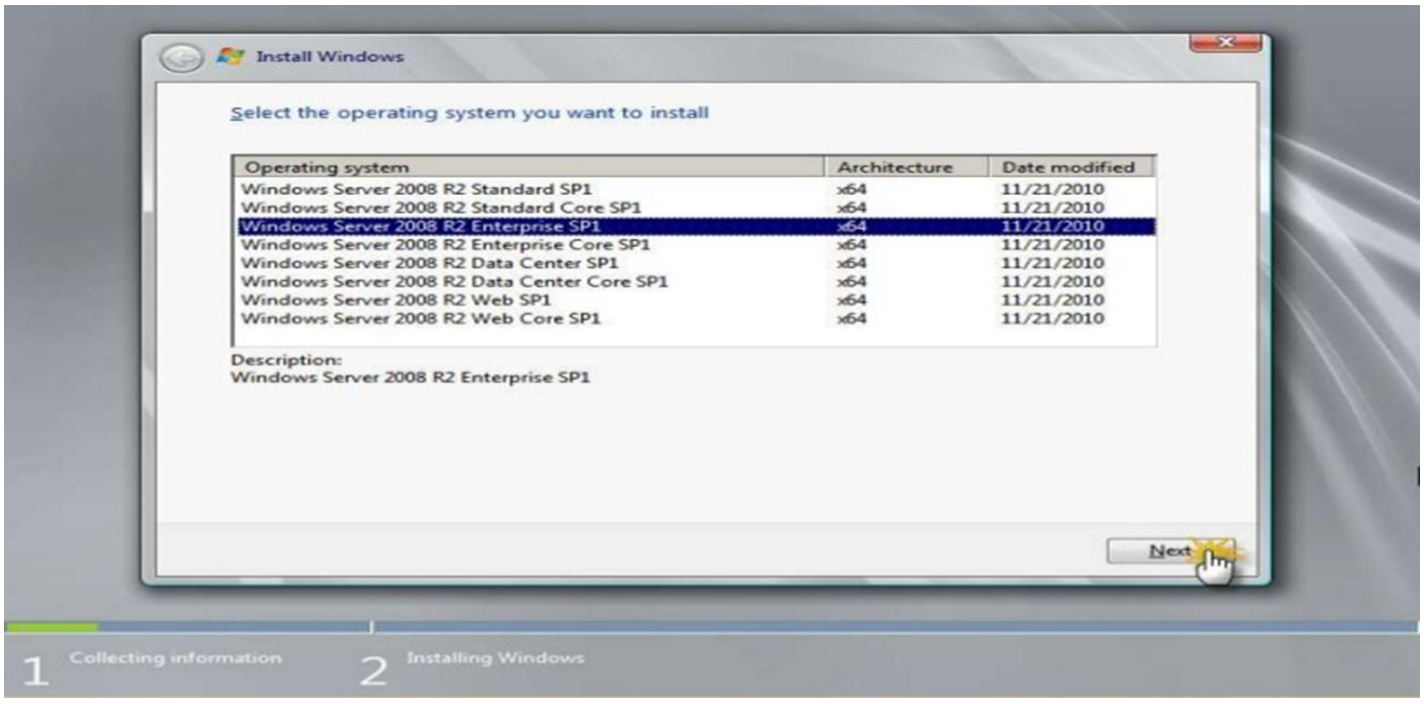


Choice the language

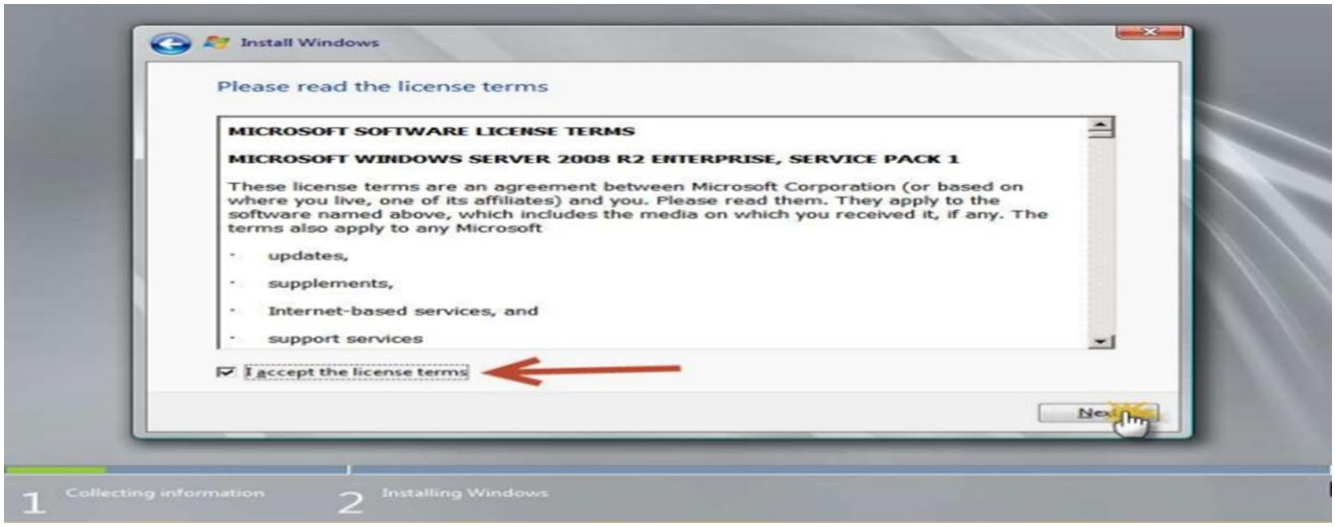
Install windows

Choice enterprise edition

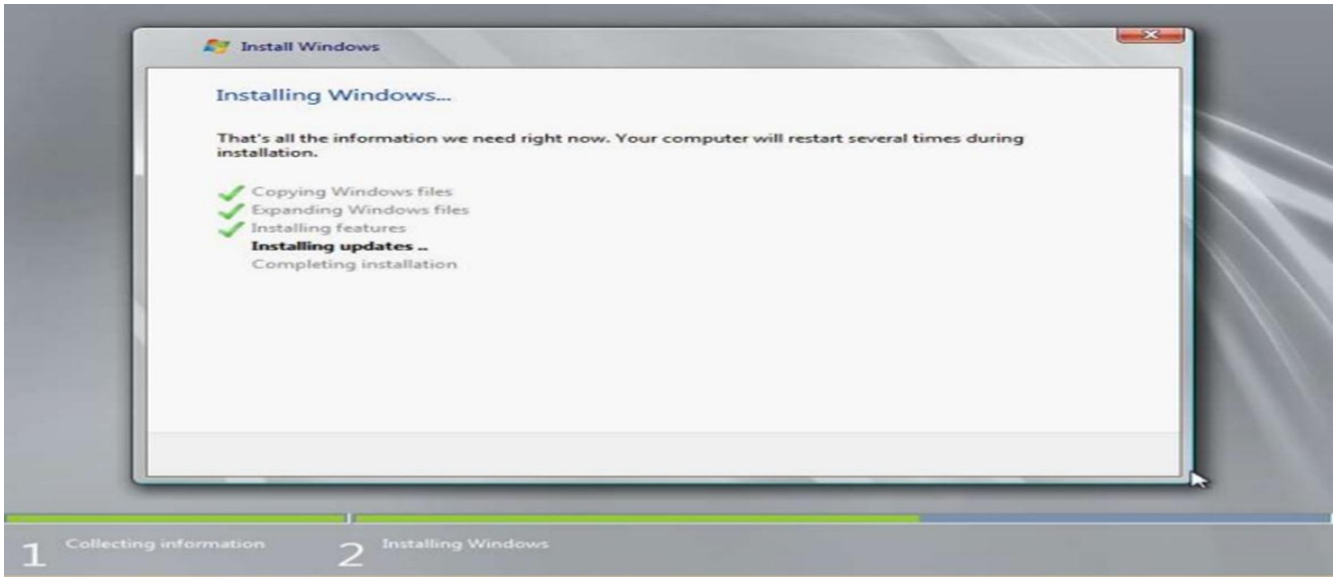
اختيار اصدار نظام التشغيل الخاص بي window server 2008R2



Accept license



Installing windows



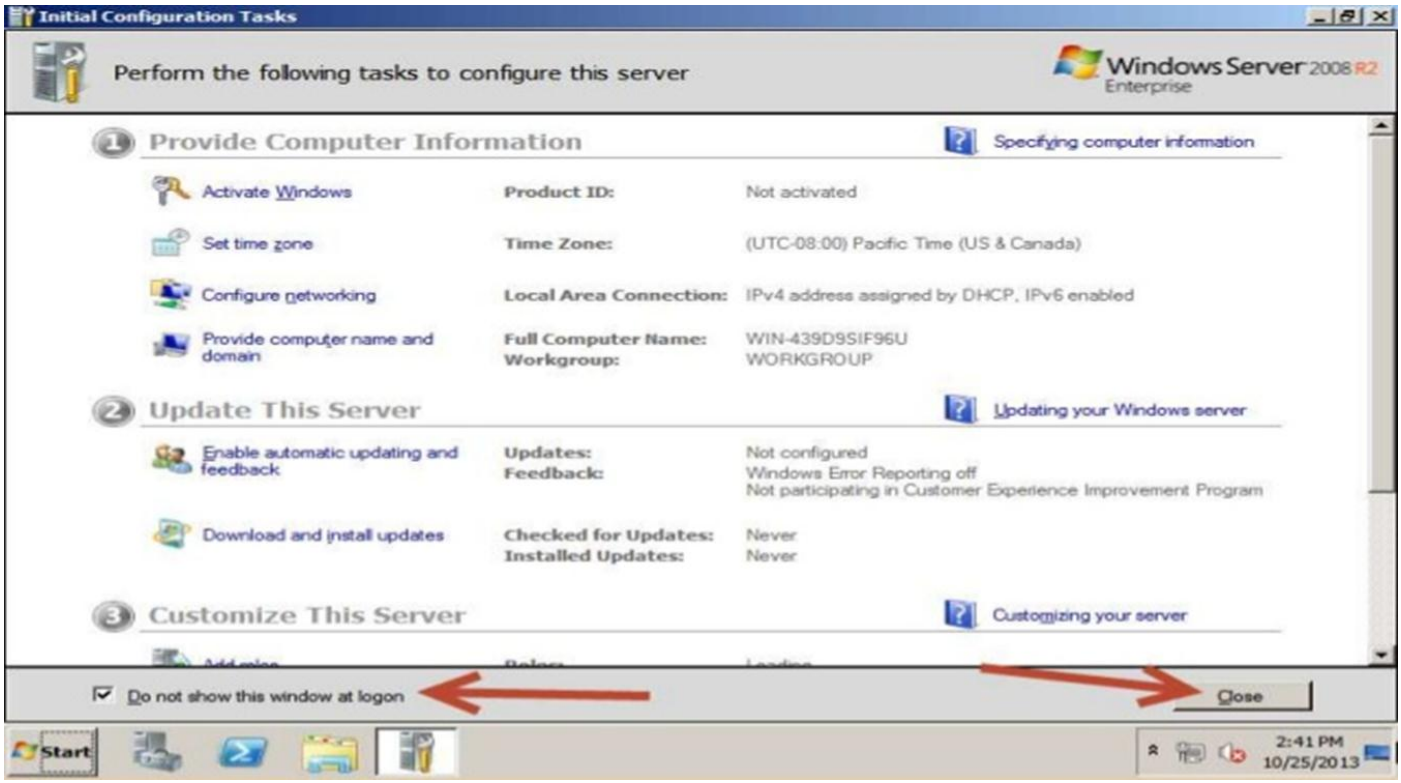
Starting windows

Change the password first time log in

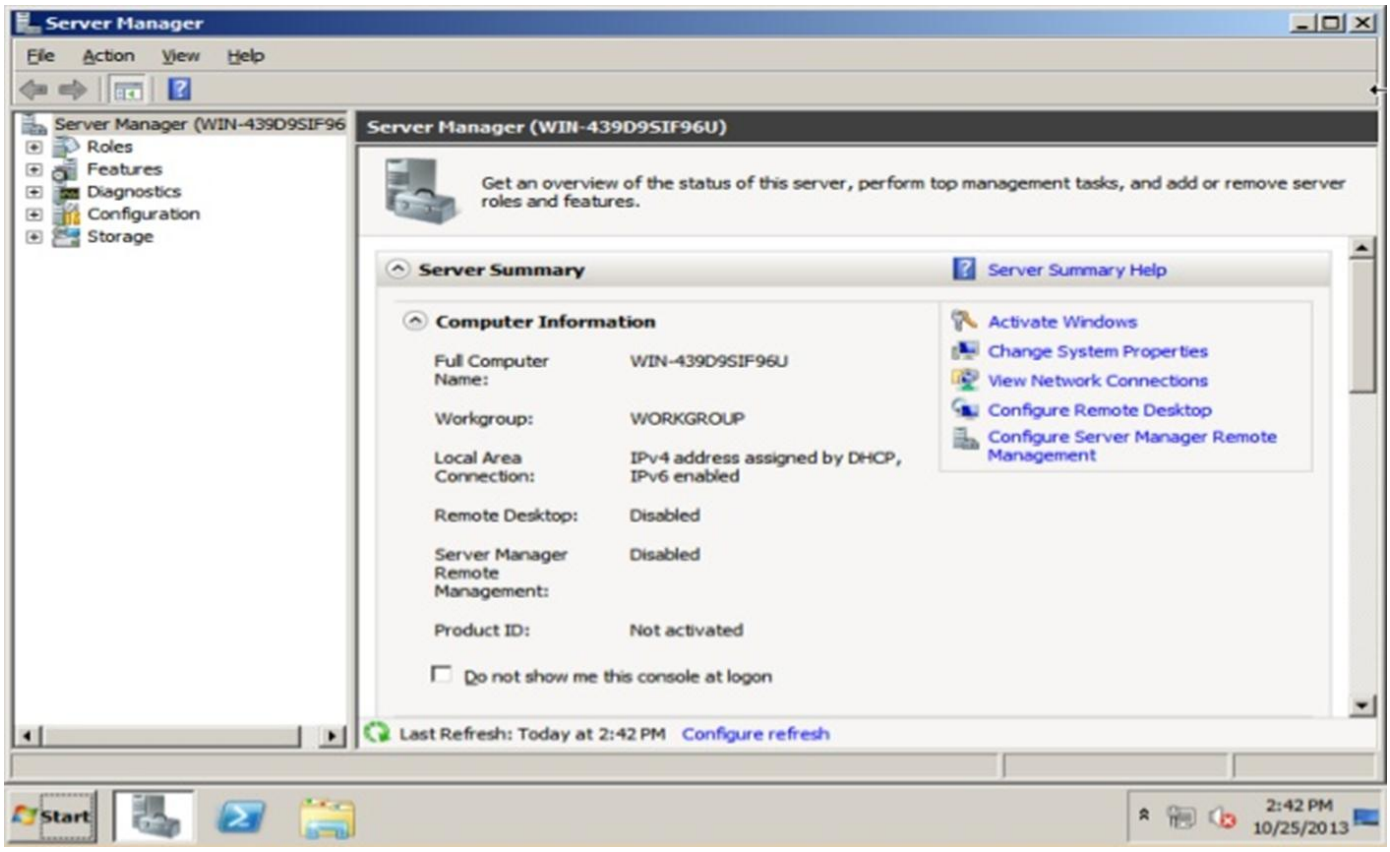
Change the password first time log in

Change the password first time log in

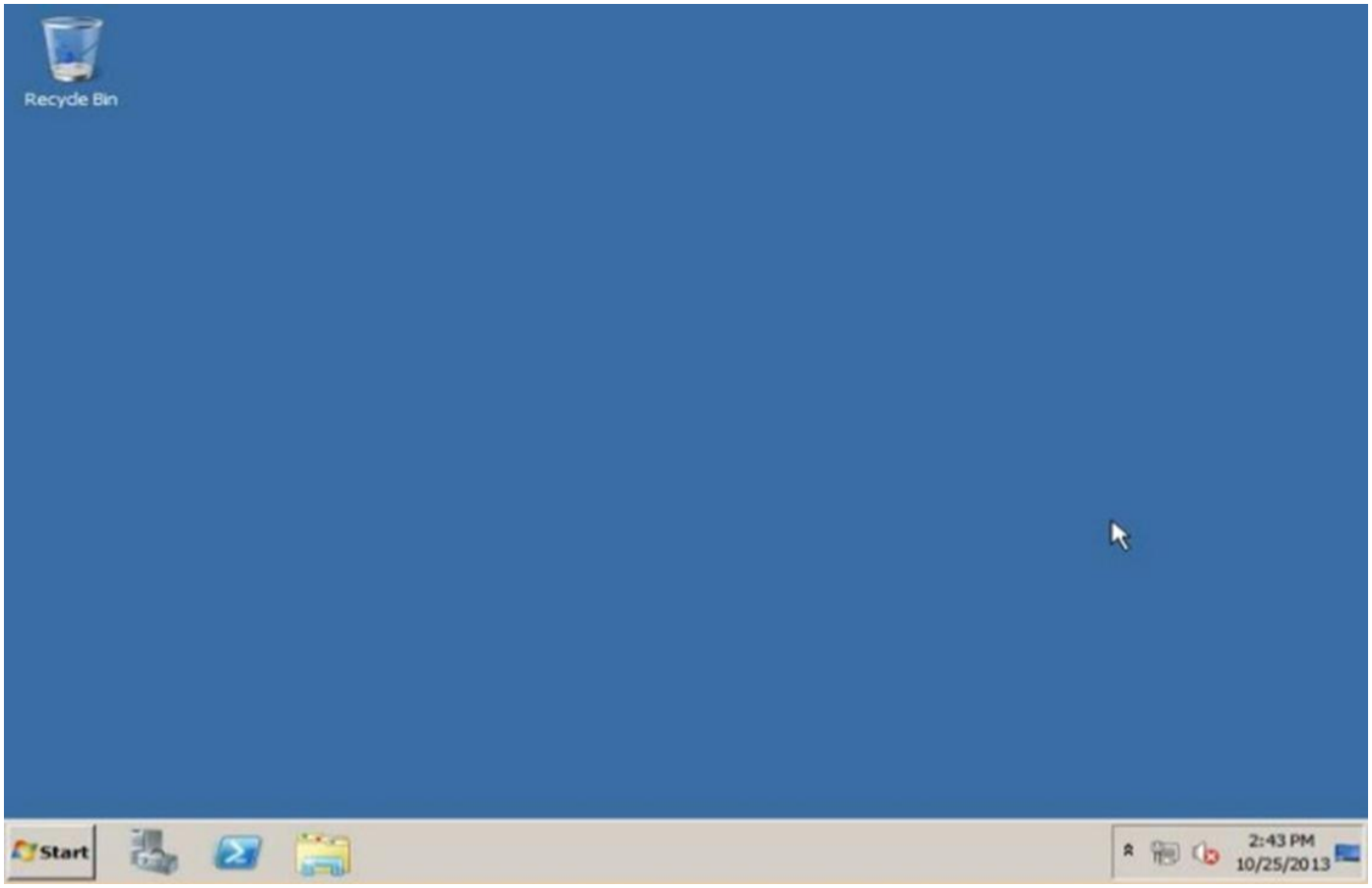
Preparing your desktop as first time log in



Server manager



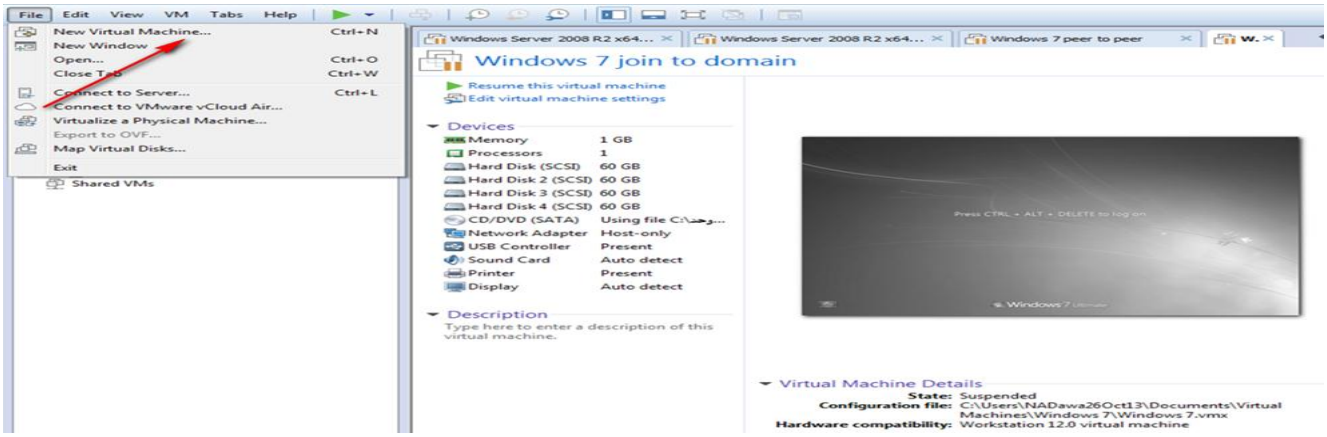
Desktop

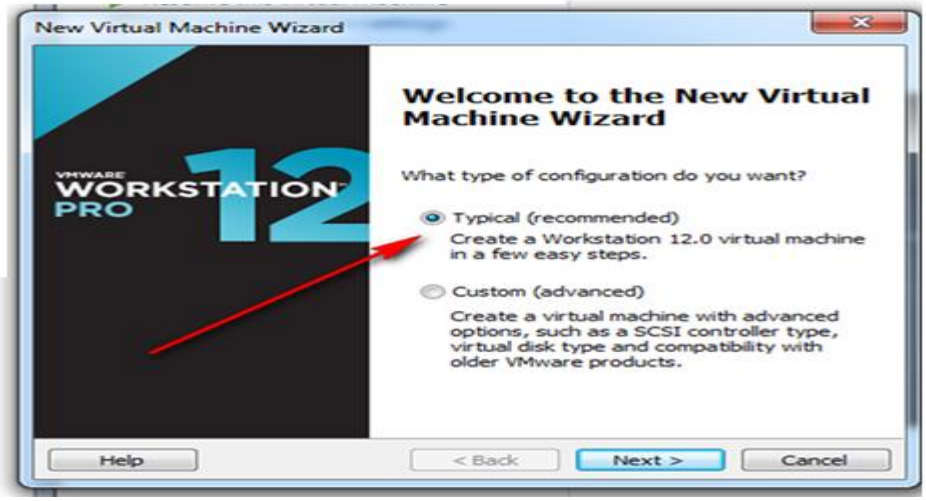


5- Install windows server 2012

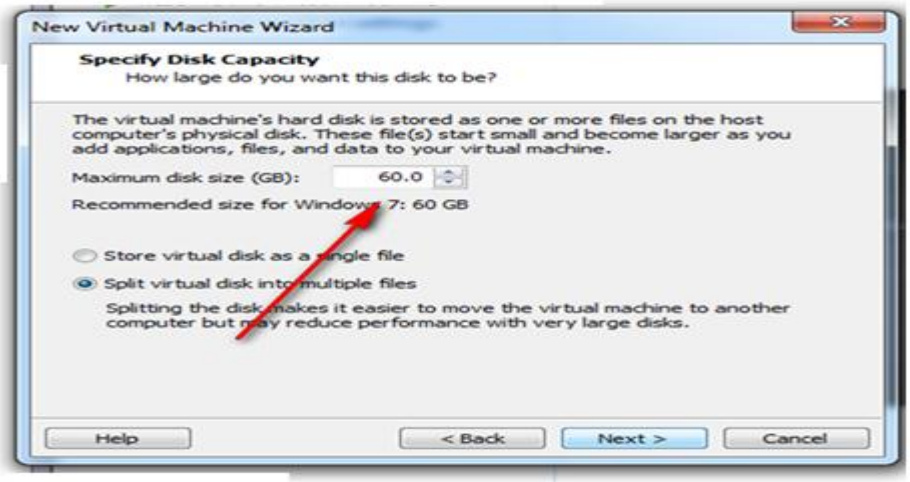
تحميل نظام تشغيل windows server 2012

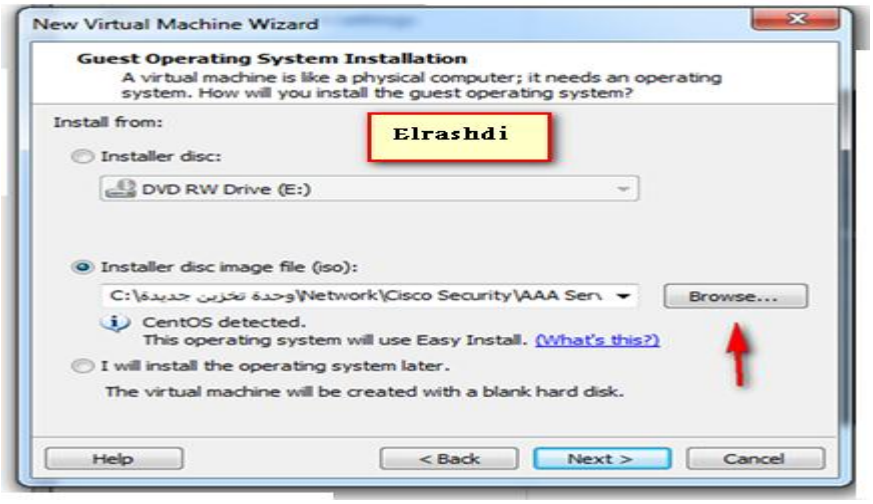
Create virtual machine on Vmware 12



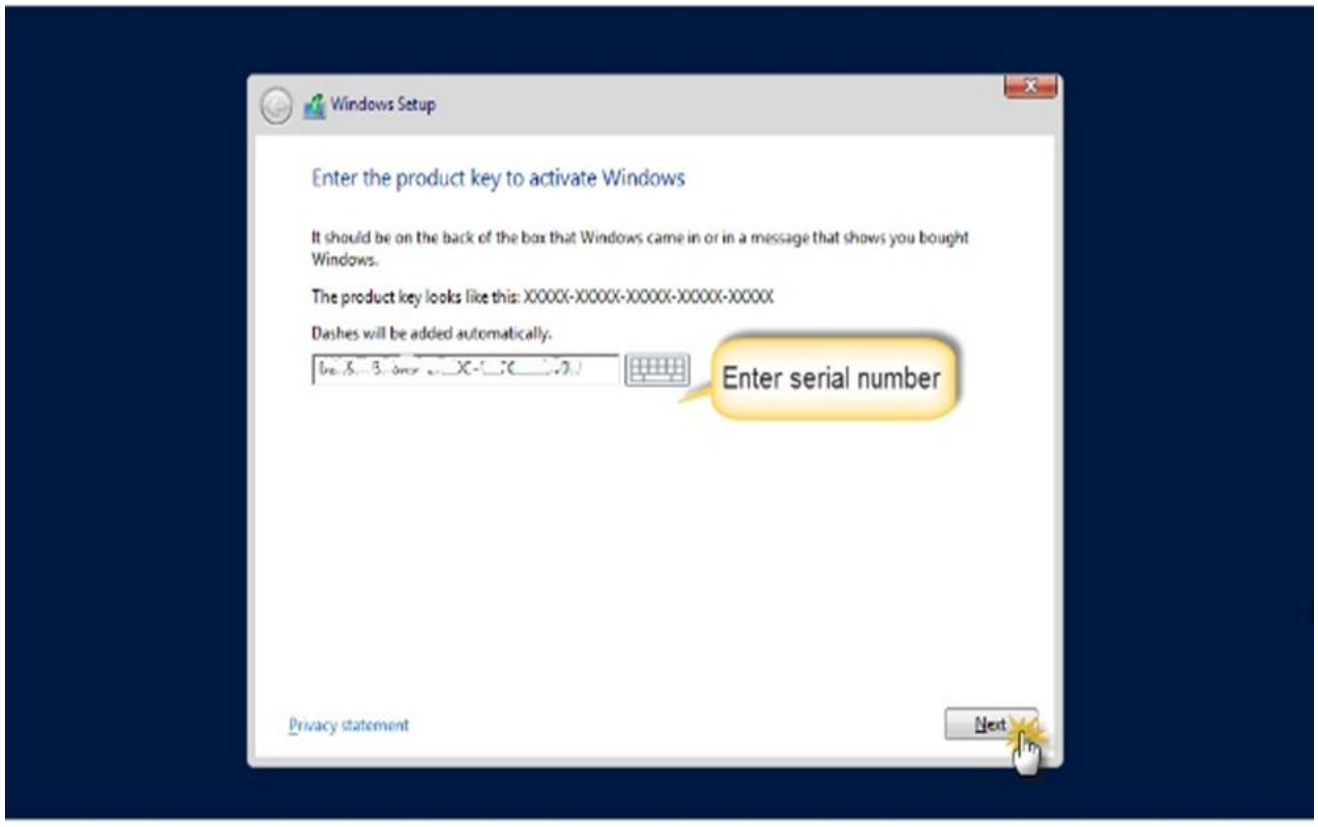


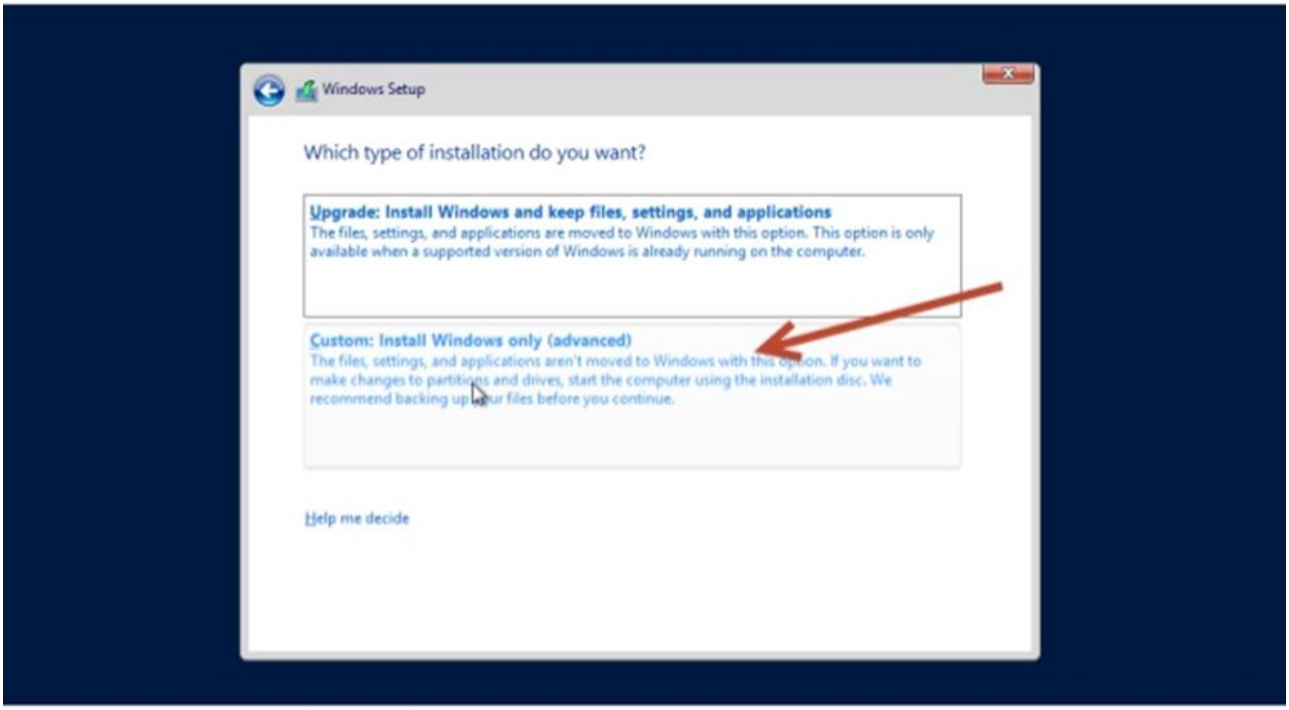
Press browser then Choice image that cantinas inside it window server 2012R2 if you have DVD contains inside it window server 2012R2 image choice first option (installer disc)

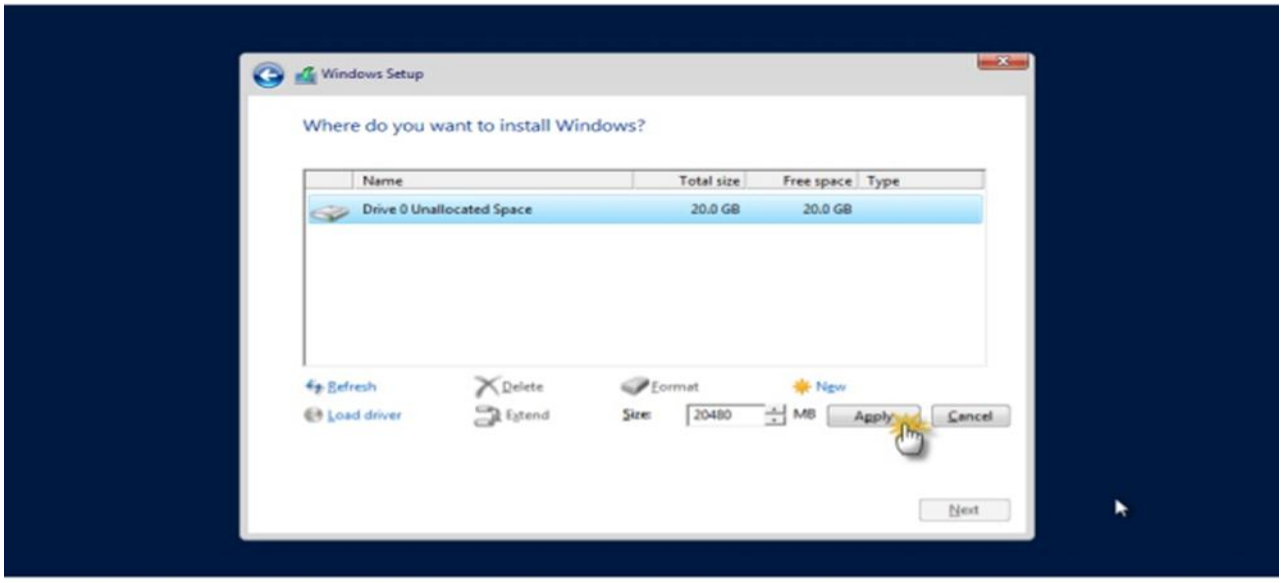


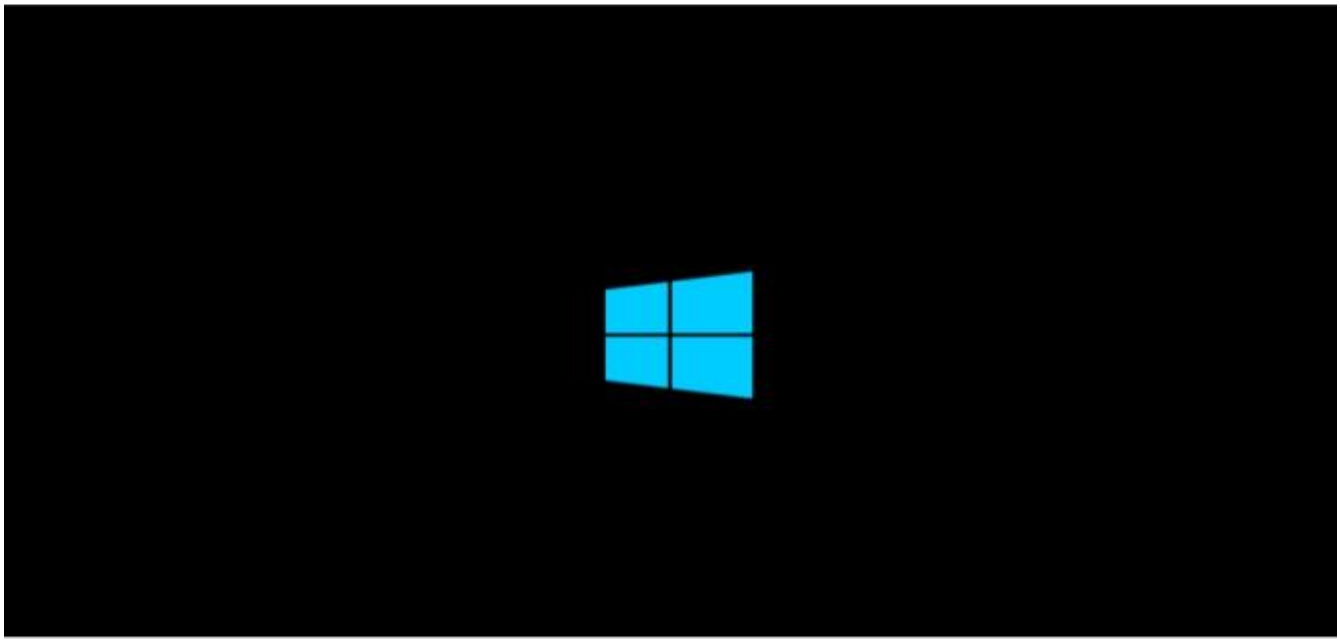


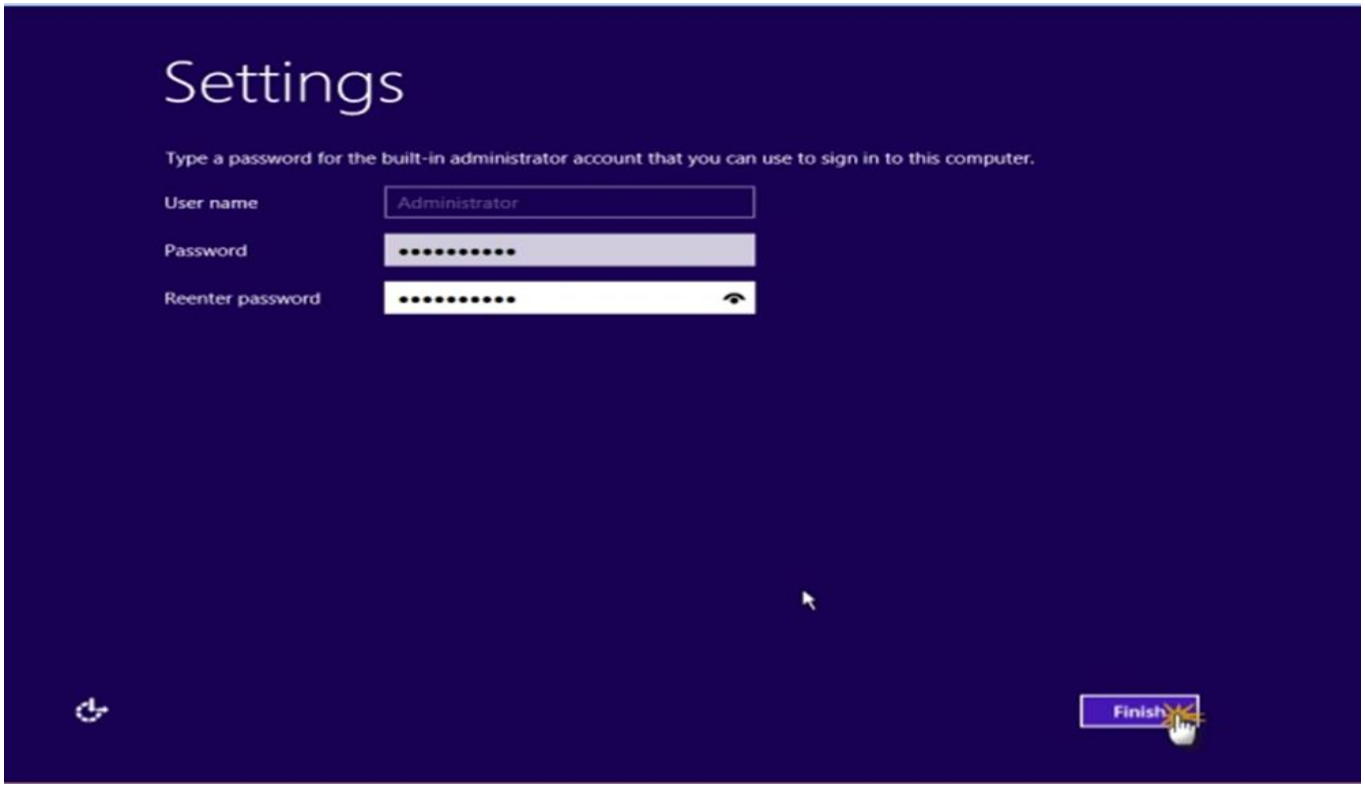
Setup is starting

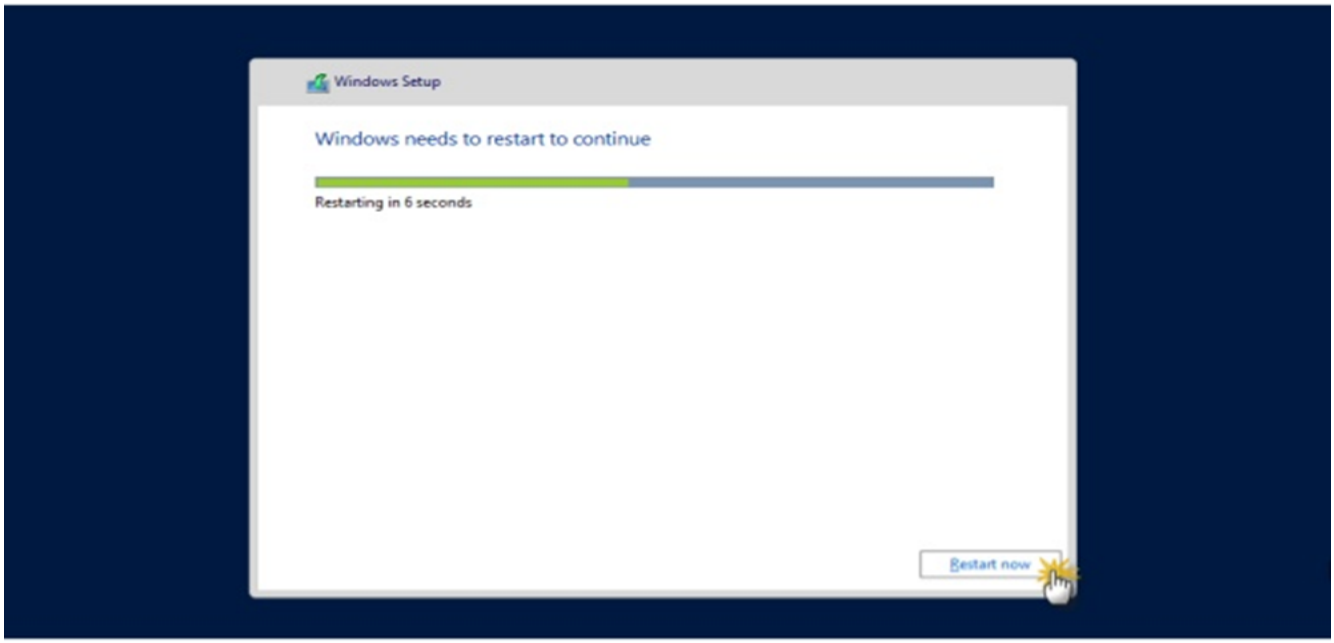

Windows Setup
Enter the product key to activate Windows
It should be on the back of the box that Windows came in or in a message that shows you bought Windows.
The product key looks like this: XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
Dashes will be added automatically.
Enter serial number
Privacy statement
Next

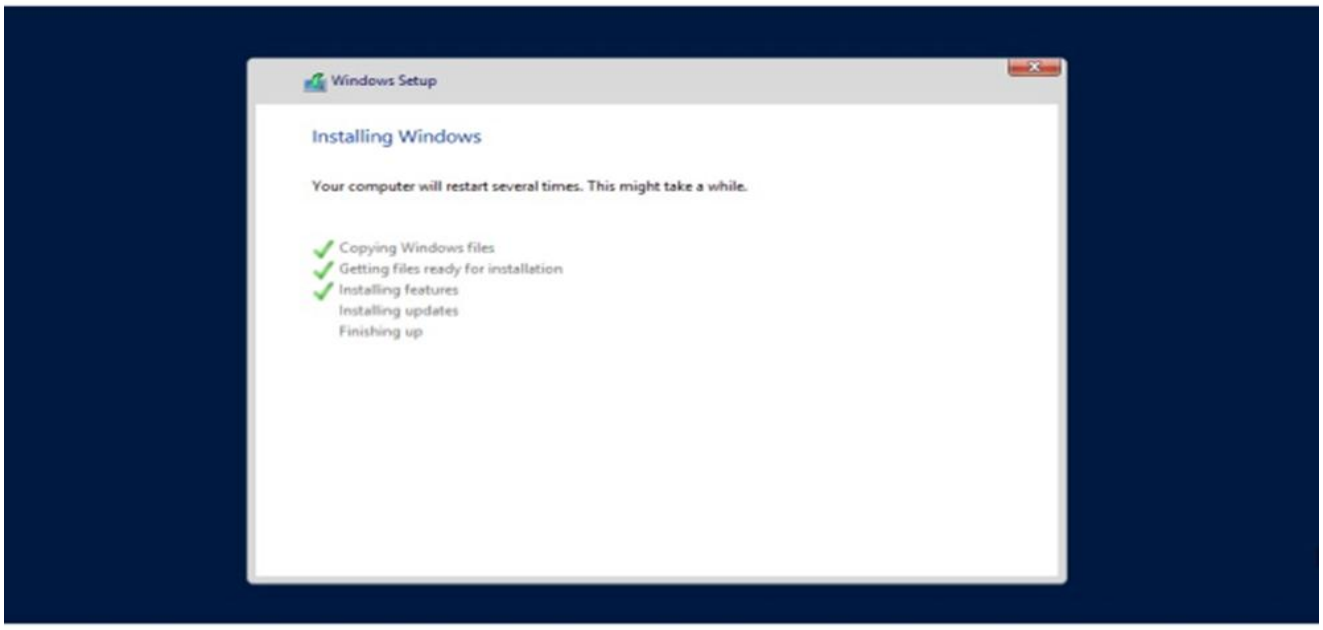

Windows Setup
Which type of installation do you want?
Upgrade: Install Windows and keep files, settings, and applications
The files, settings, and applications are moved to Windows with this option. This option is only available when a supported version of Windows is already running on the computer.
Custom: Install Windows only (advanced)
The files, settings, and applications aren't moved to Windows with this option. If you want to make changes to partitions and drives, start the computer using the installation disc. We recommend backing up your files before you continue.
Help me decide


Windows Setup
Where do you want to install Windows?
Name
Total size
Free space
Type
Drive 0 Unallocated Space
20.0 GB
20.0 GB
Refresh
Delete
Format
New
Load driver
Extend
Size:
20480
MB
Apply
Cancel
Next



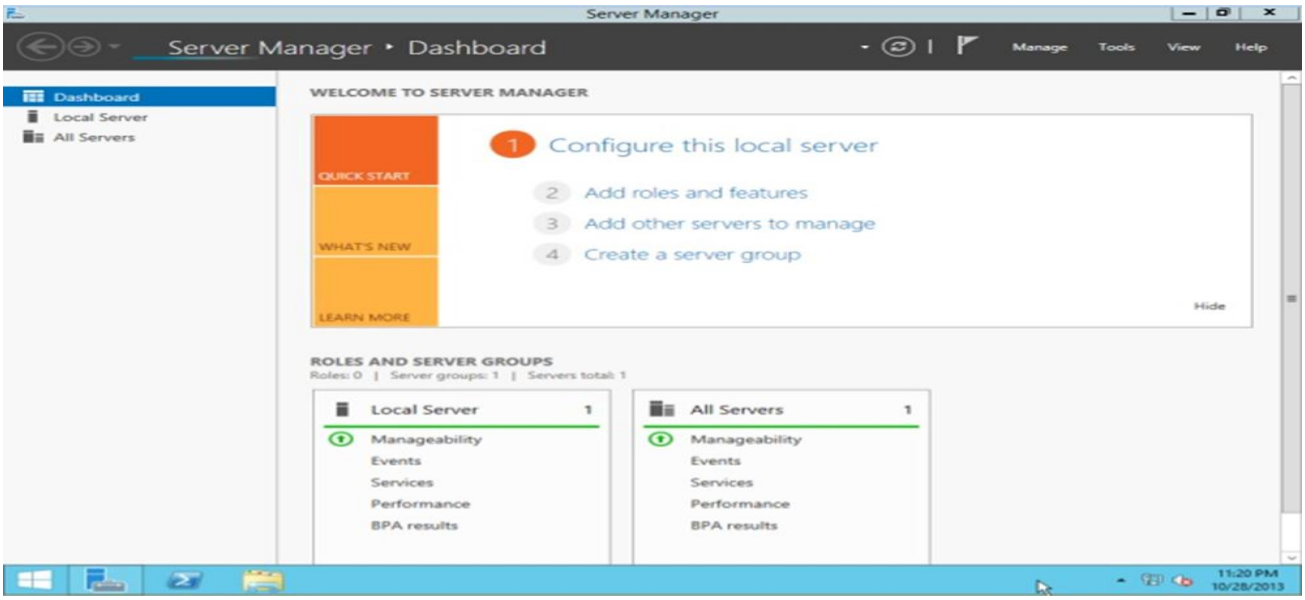

Settings
Type a password for the built-in administrator account that you can use to sign in to this computer.
User name
Administrator
Password
Reenter password
Finish

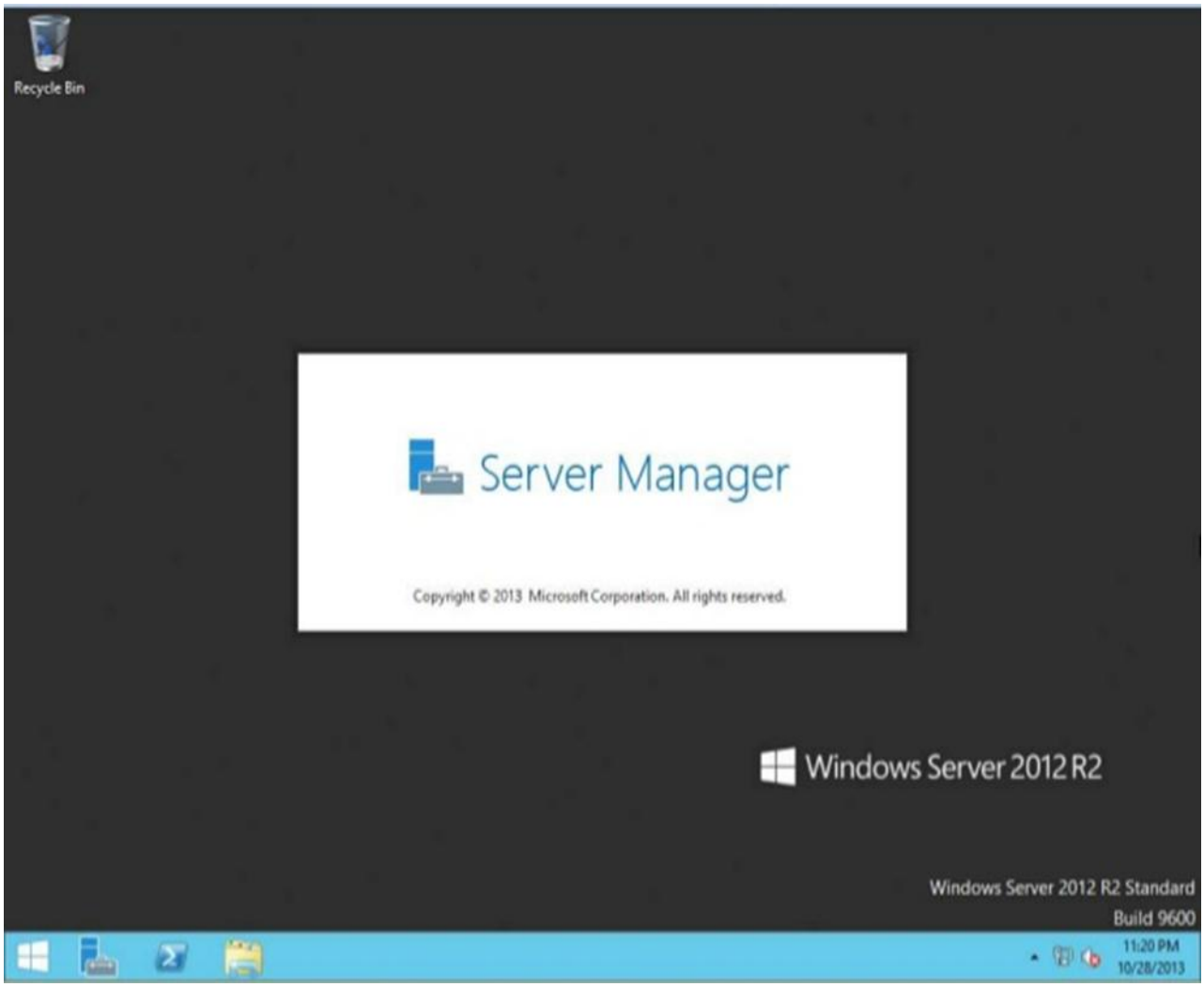

Windows Setup
Windows needs to restart to continue
Restarting in 6 seconds
Restart now


Windows Setup
Installing Windows
Your computer will restart several times. This might take a while.
Copying Windows files
Getting files ready for installation
Installing features
Installing updates
Finishing up

Press Ctrl+Alt+Delete to sign in.
11:19
Monday, October 28

Administrator
Windows Server 2012 R2


Server Manager
Server Manager ▸ Dashboard
Manage
Tools
View
Help
Dashboard
Local Server
All Servers
WELCOME TO SERVER MANAGER
QUICK START
WHAT'S NEW
LEARN MORE
1 Configure this local server
2 Add roles and features
3 Add other servers to manage
4 Create a server group
Hide
ROLES AND SERVER GROUPS
Roles: 0 | Server groups: 1 | Servers total: 1
Local Server 1
Manageability
Events
Services
Performance
BPA results
All Servers 1
Manageability
Events
Services
Performance
BPA results
11:20 PM
10/28/2013

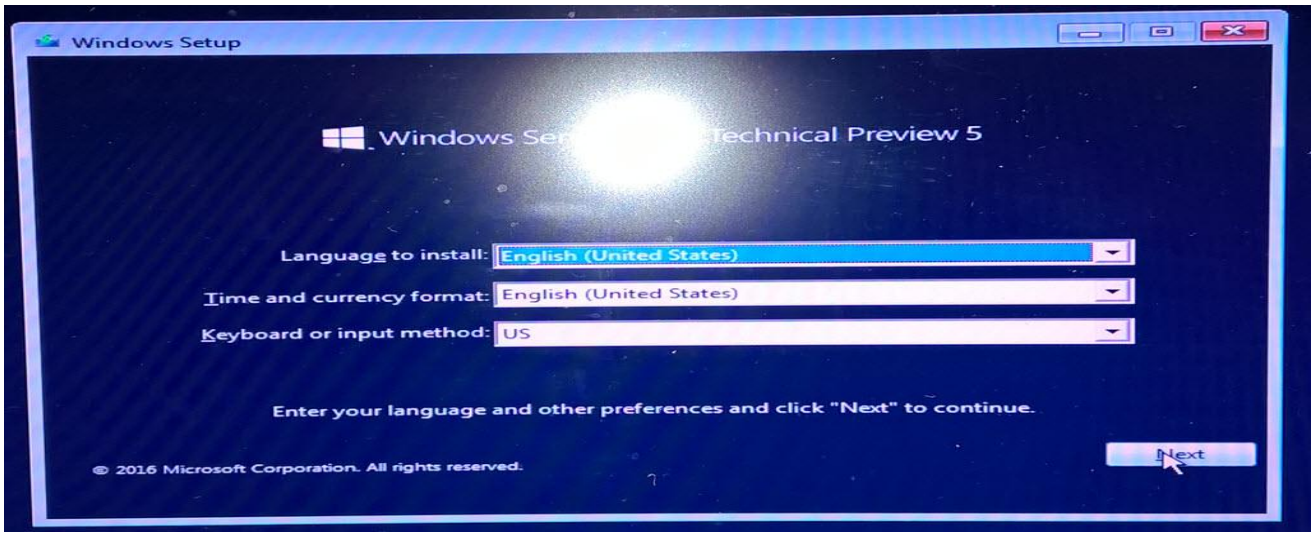

Recycle Bin
Server Manager
Copyright © 2013 Microsoft Corporation. All rights reserved.
Windows Server 2012 R2
Windows Server 2012 R2 Standard
Build 9600
11:20 PM
10/28/2013

6- Install windows server 2016

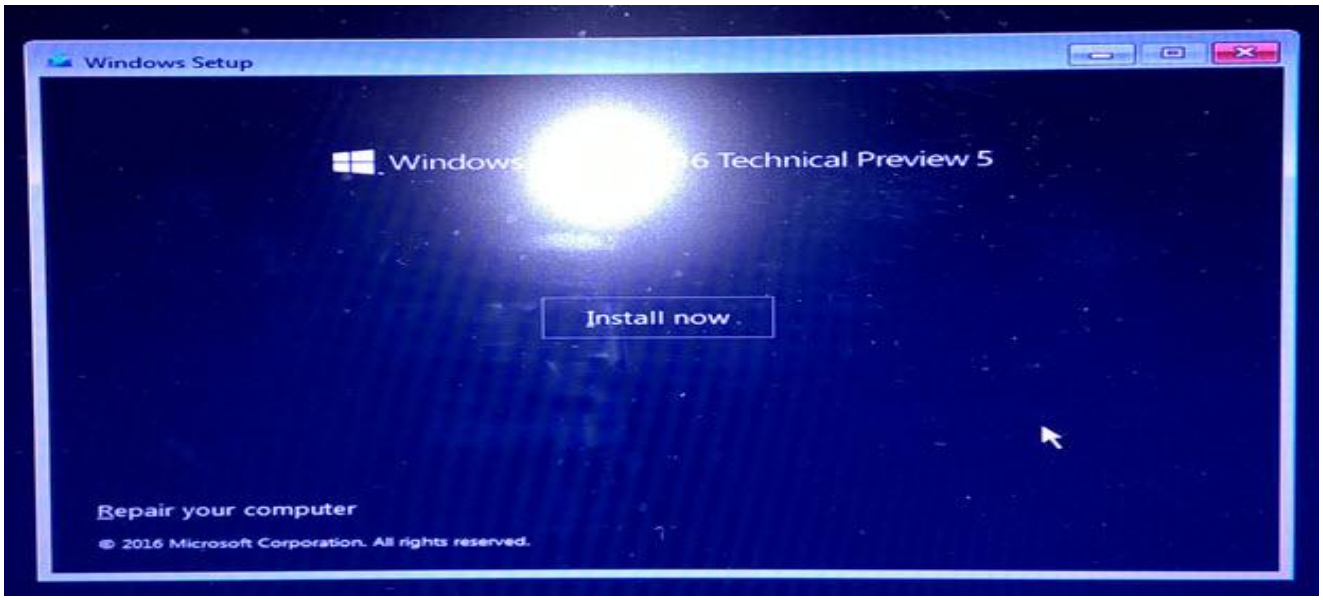
تحميل نظام تشغيل windows server 2016

Insert Windows Server 2016 DVD and boot your computer from the DVD. Boot to the DVD/USB ISO (you may have to go into bios or interrupt boot to boot from external media).

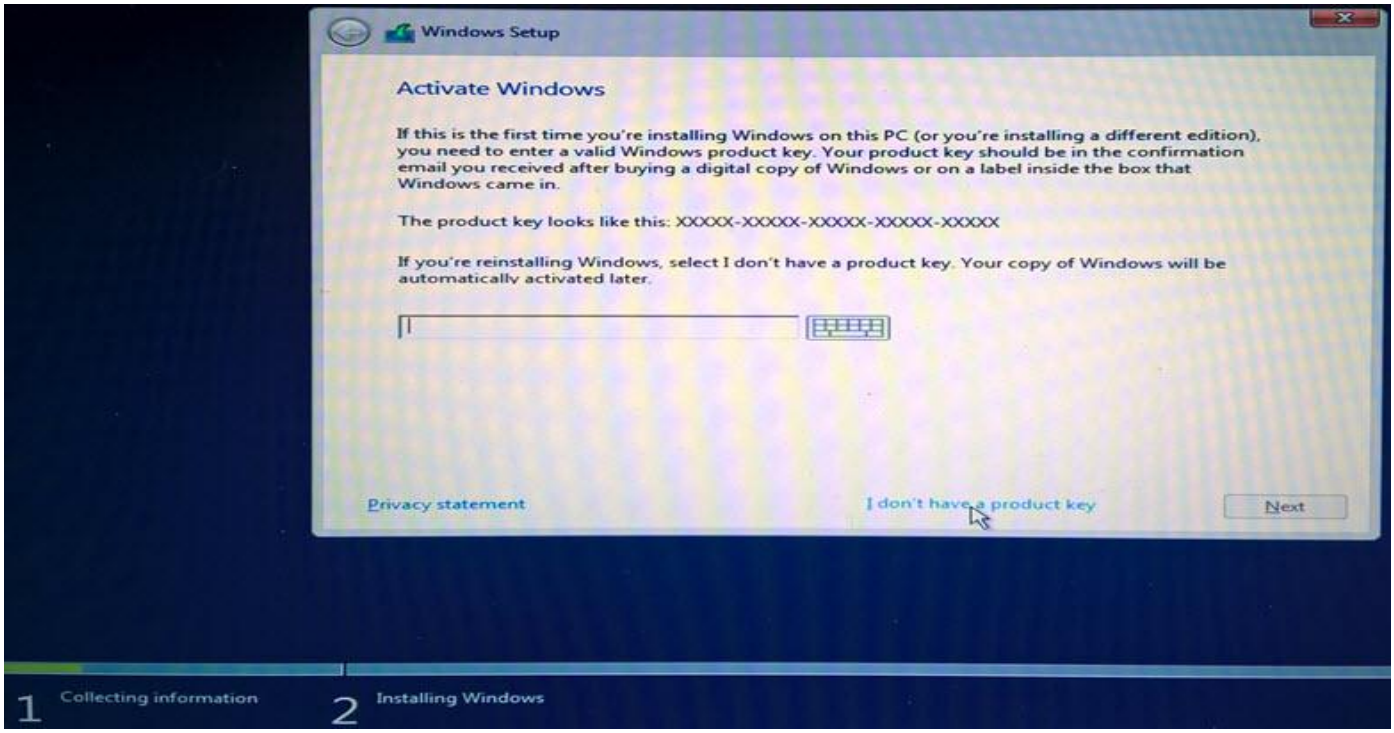
Click the Next Button



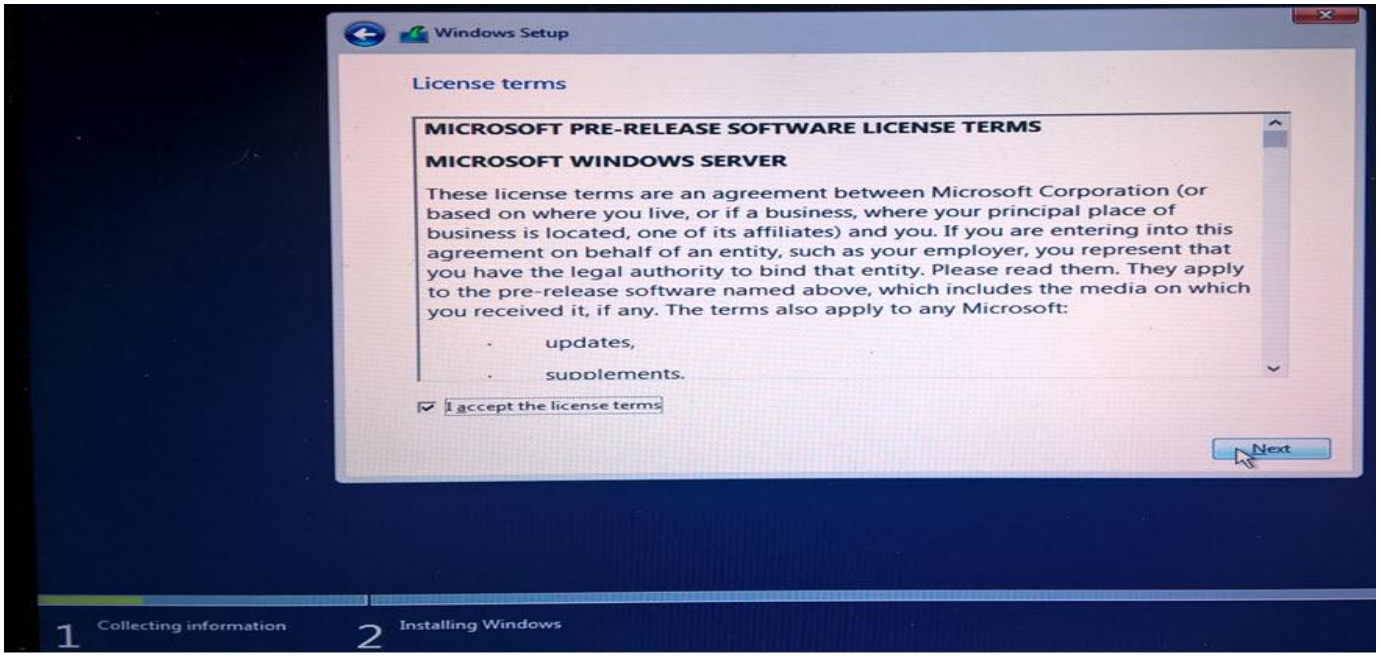
Click the Install now Button

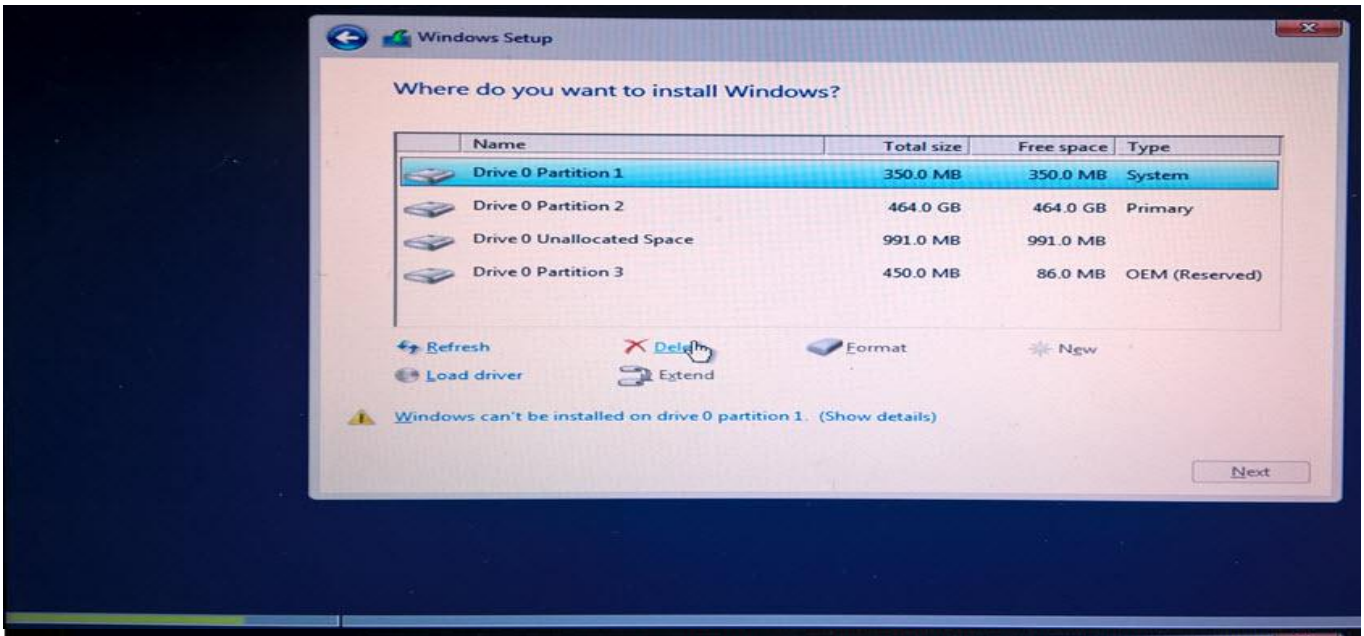


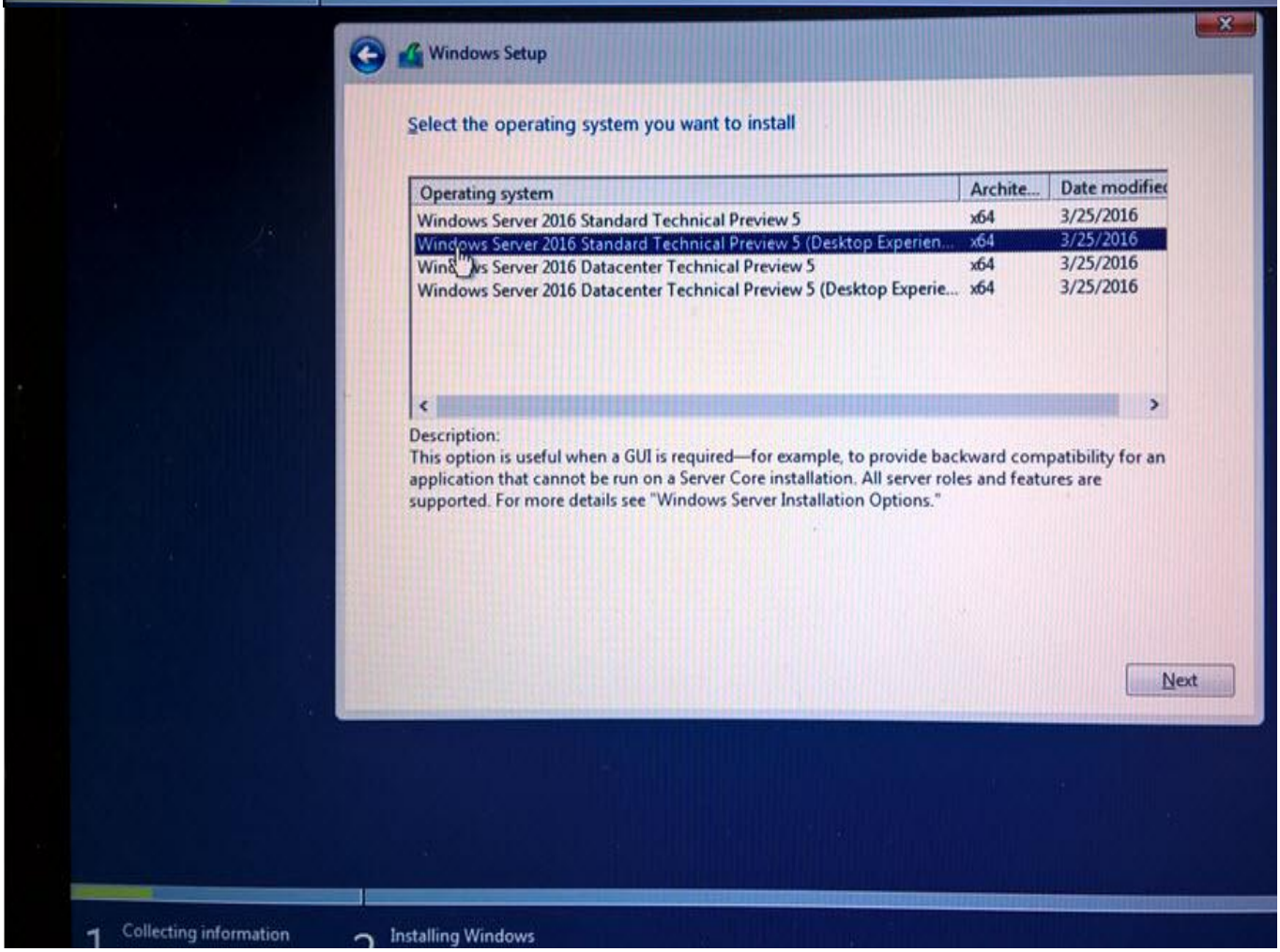
Optionally, enter your product key then Next or click I don't have a product key

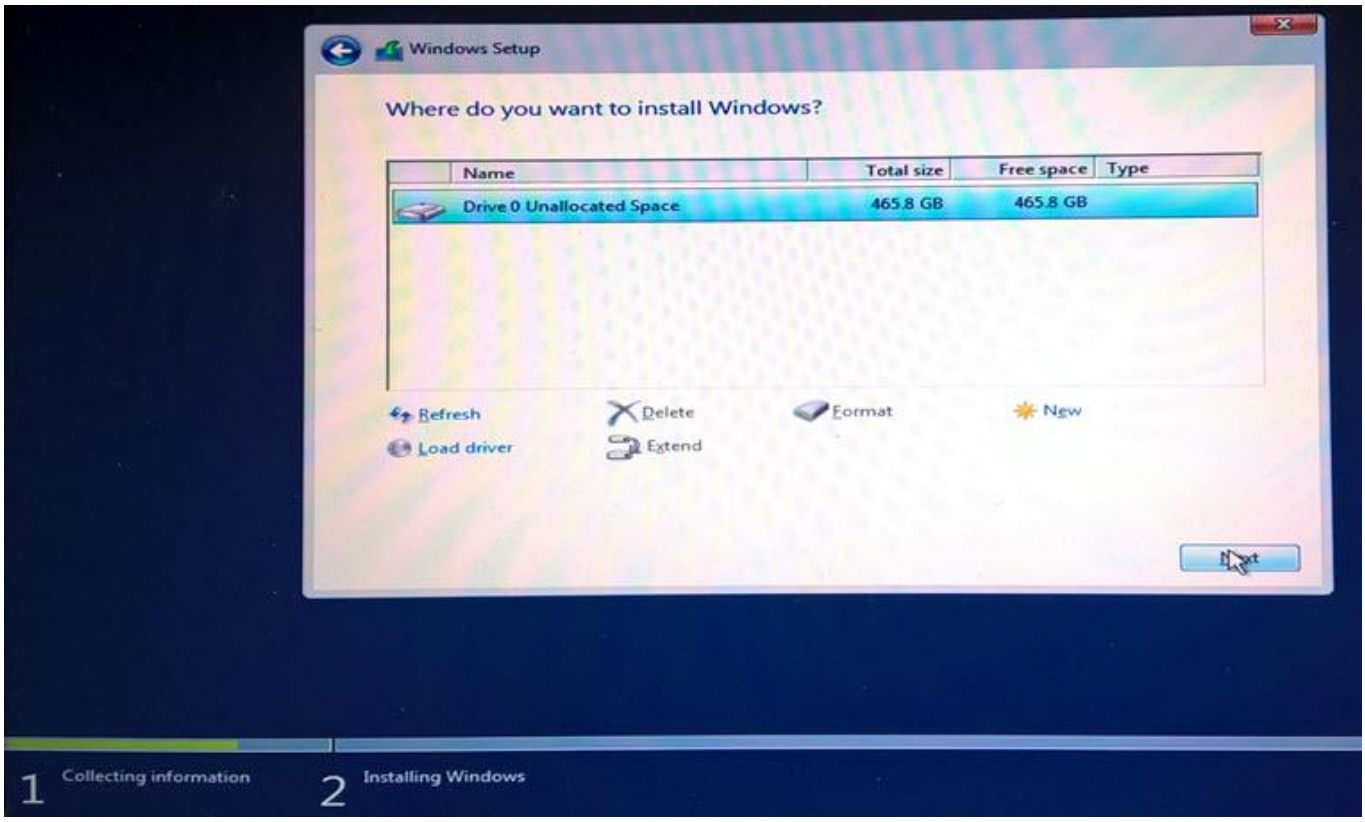


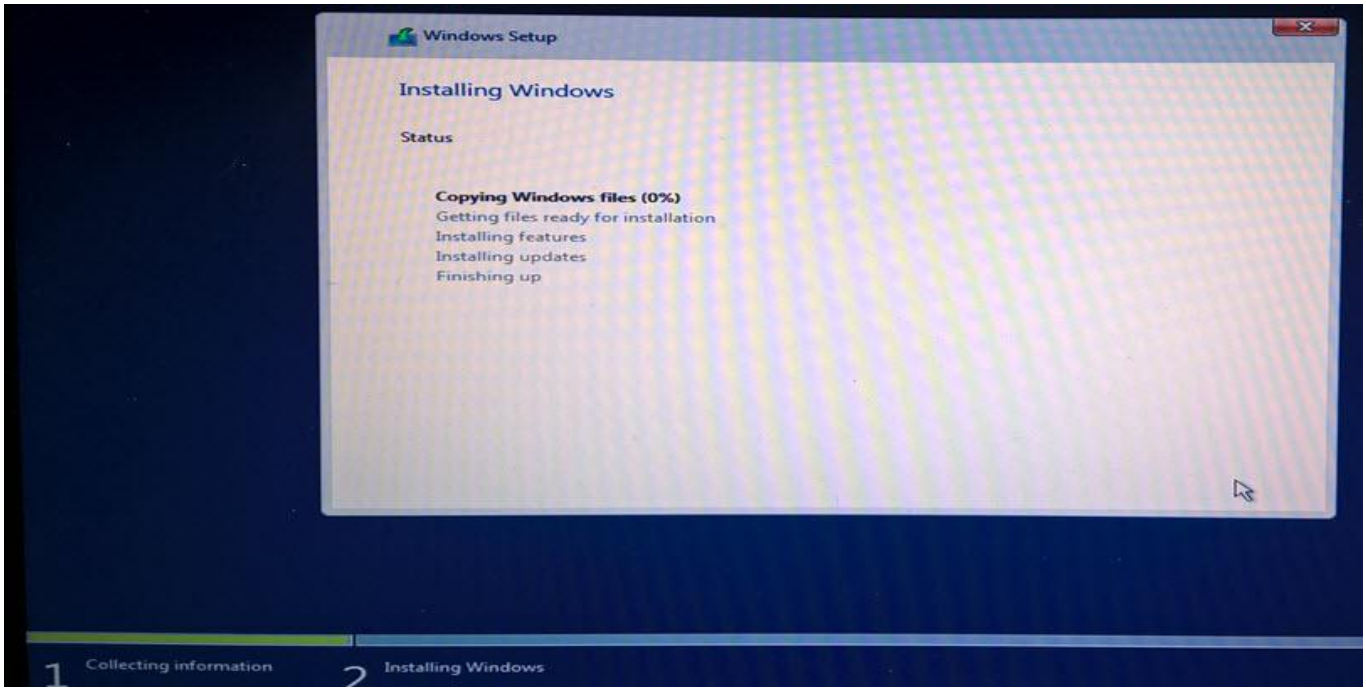
Read the license terms. Click on I accept the license terms then Click the Next button.



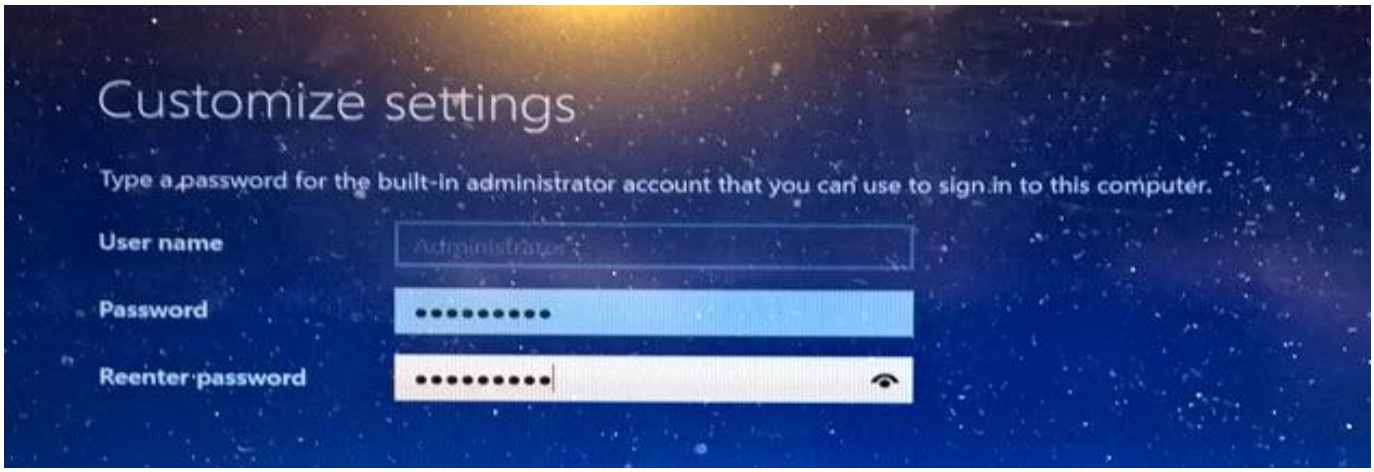

Windows Setup
Where do you want to install Windows?
Name
Total size
Free space
Type
Drive 0 Partition 1
350.0 MB
350.0 MB
System
Drive 0 Partition 2
464.0 GB
464.0 GB
Primary
Drive 0 Unallocated Space
991.0 MB
991.0 MB
Drive 0 Partition 3
450.0 MB
86.0 MB
OEM (Reserved)
Refresh
Delete
Format
New
Load driver
Extend
Windows can't be installed on drive 0 partition 1. (Show details)
Next


Windows Setup
Select the operating system you want to install
Operating system
Archite...
Date modifie
Windows Server 2016 Standard Technical Preview 5
x64
3/25/2016
Windows Server 2016 Standard Technical Preview 5 (Desktop Experien...
x64
3/25/2016
Windows Server 2016 Datacenter Technical Preview 5
x64
3/25/2016
Windows Server 2016 Datacenter Technical Preview 5 (Desktop Experie...
x64
3/25/2016
Description:
This option is useful when a GUI is required—for example, to provide backward compatibility for an application that cannot be run on a Server Core installation. All server roles and features are supported. For more details see "Windows Server Installation Options."
Next
1 Collecting information
2 Installing Windows

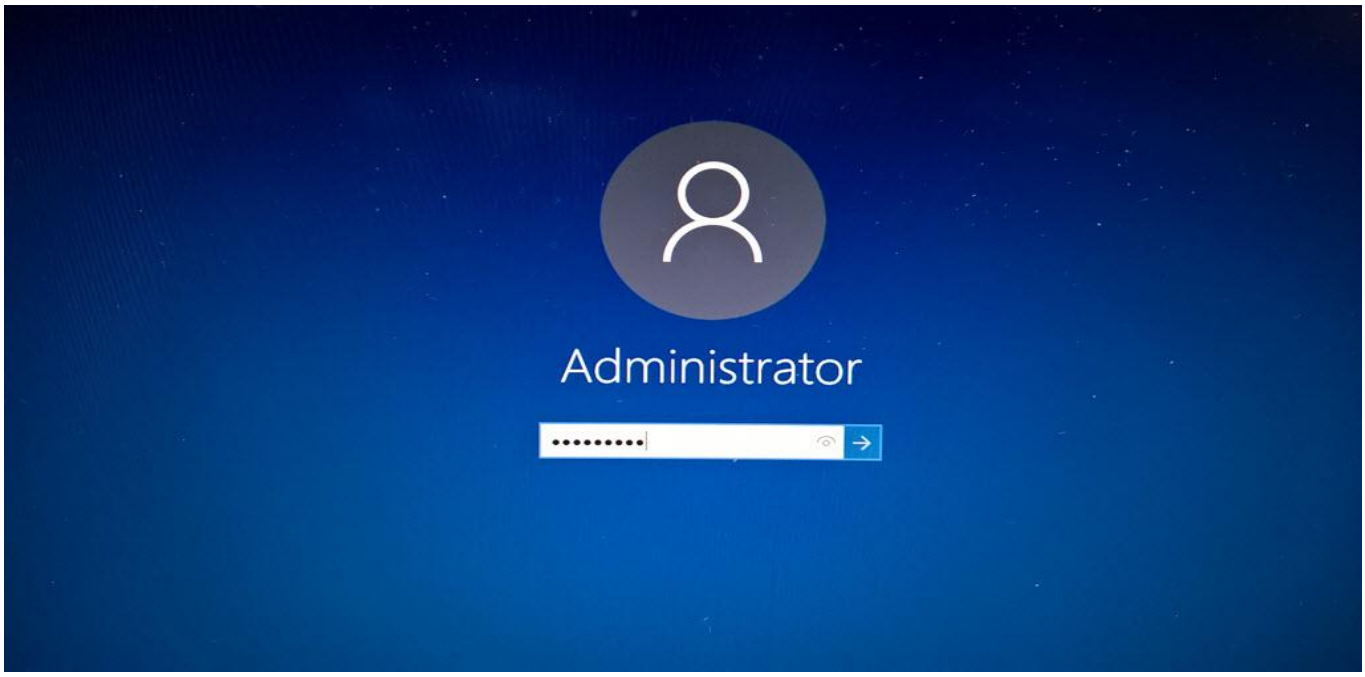




Enter a password for the administrator account into the password adn Reenter password fields then click Finish



Press [CTRL-ALT-DEL] to bring up the login screen



7-Disk management

تعمل إدارة الاقراص داخل نظام تشغيل الشبكات على التحكم في جميع الوظائف الخاصة بالأقراص (حذف،توسيع،تقسيم،أنشاء....الخ)

7.1- Disk management in window server 2008

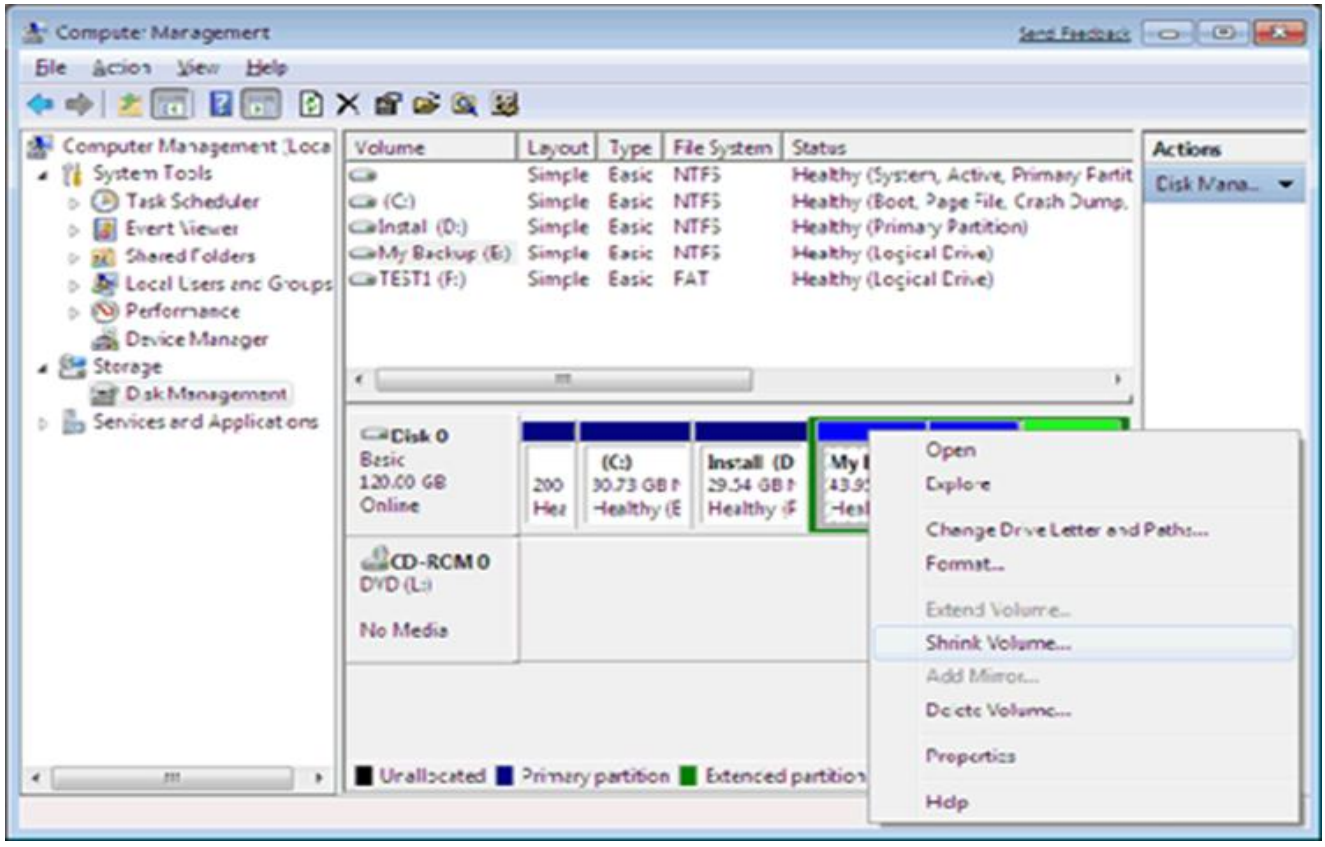
ادارة الاقراص في نظام تشغيل window server 2008

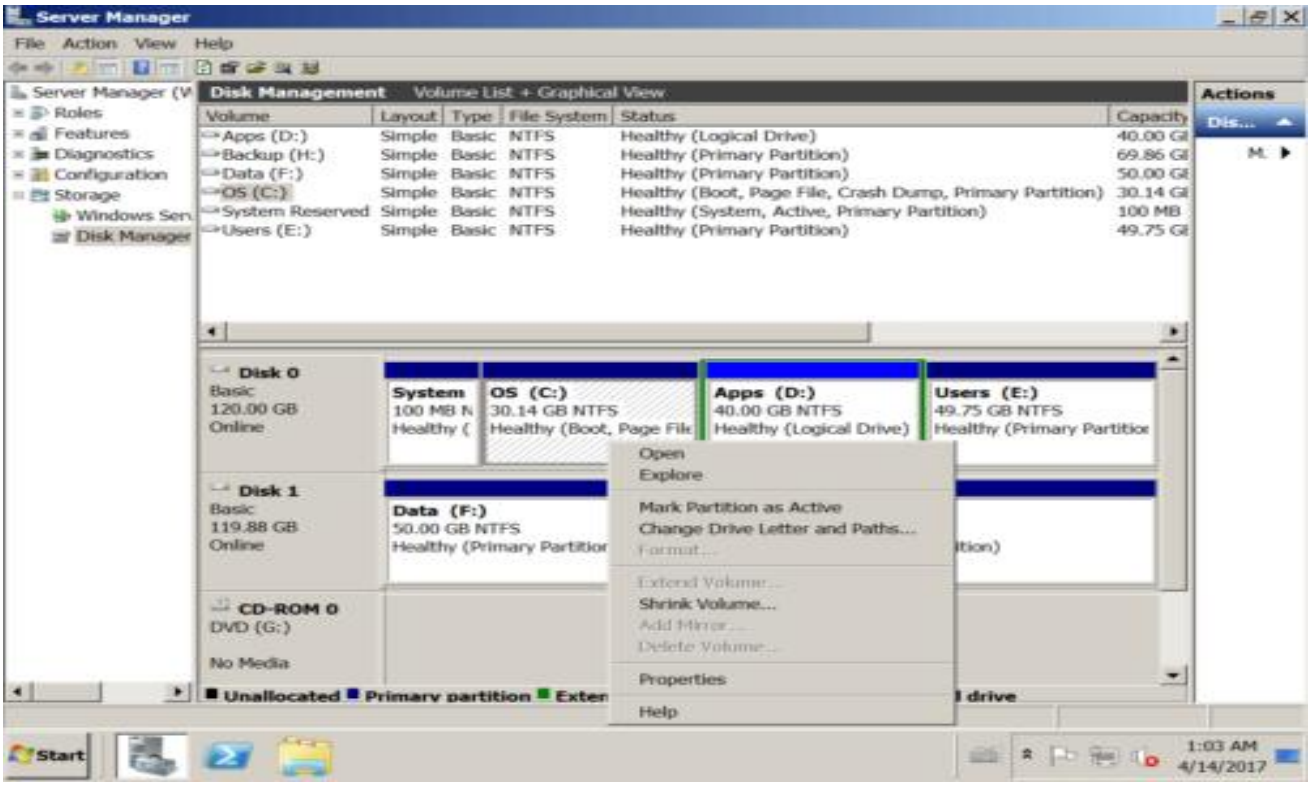
Resize Server 2008 partition with Disk Management

To shrink Windows Server 2008 volume, right click on the volume that you want to resize and select the option

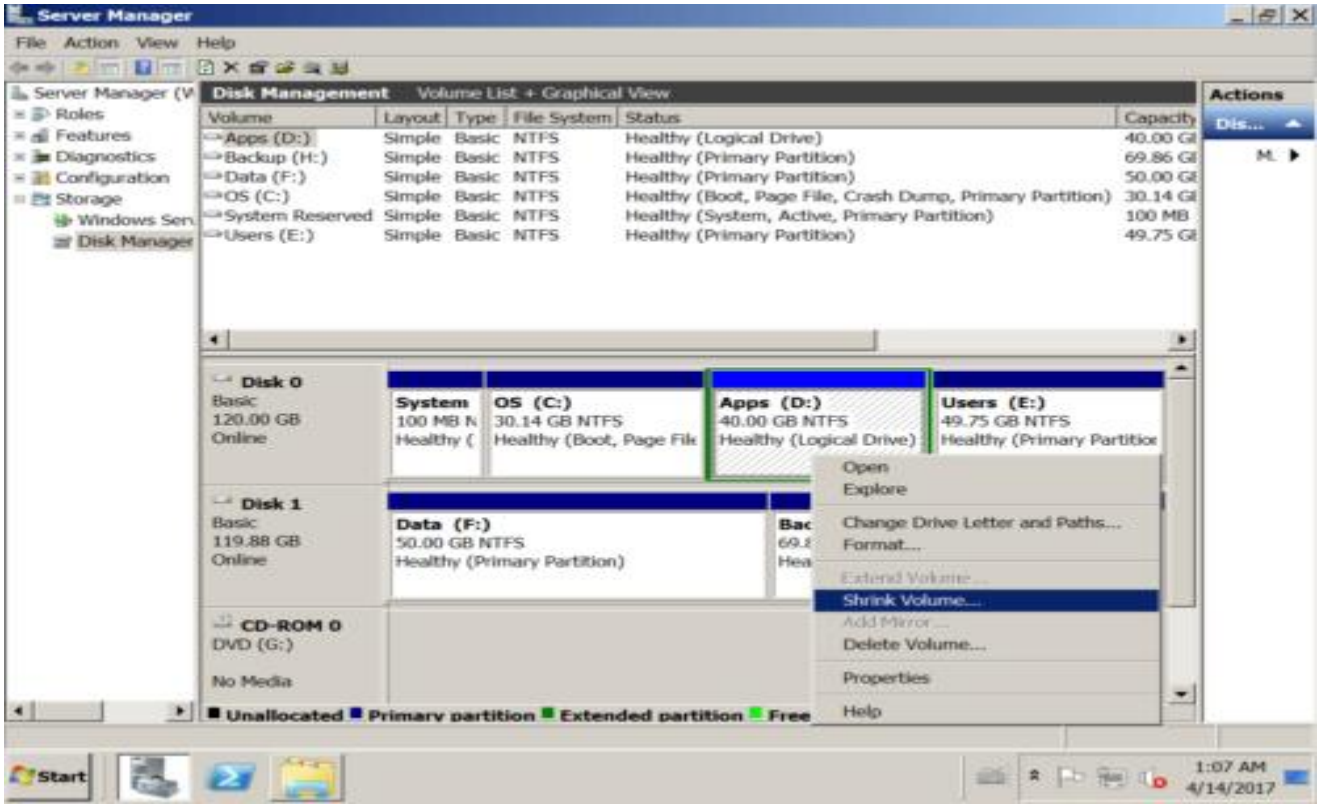
7.1.1- Shrink Volume

تقليص المساحة الفارغة من القرص

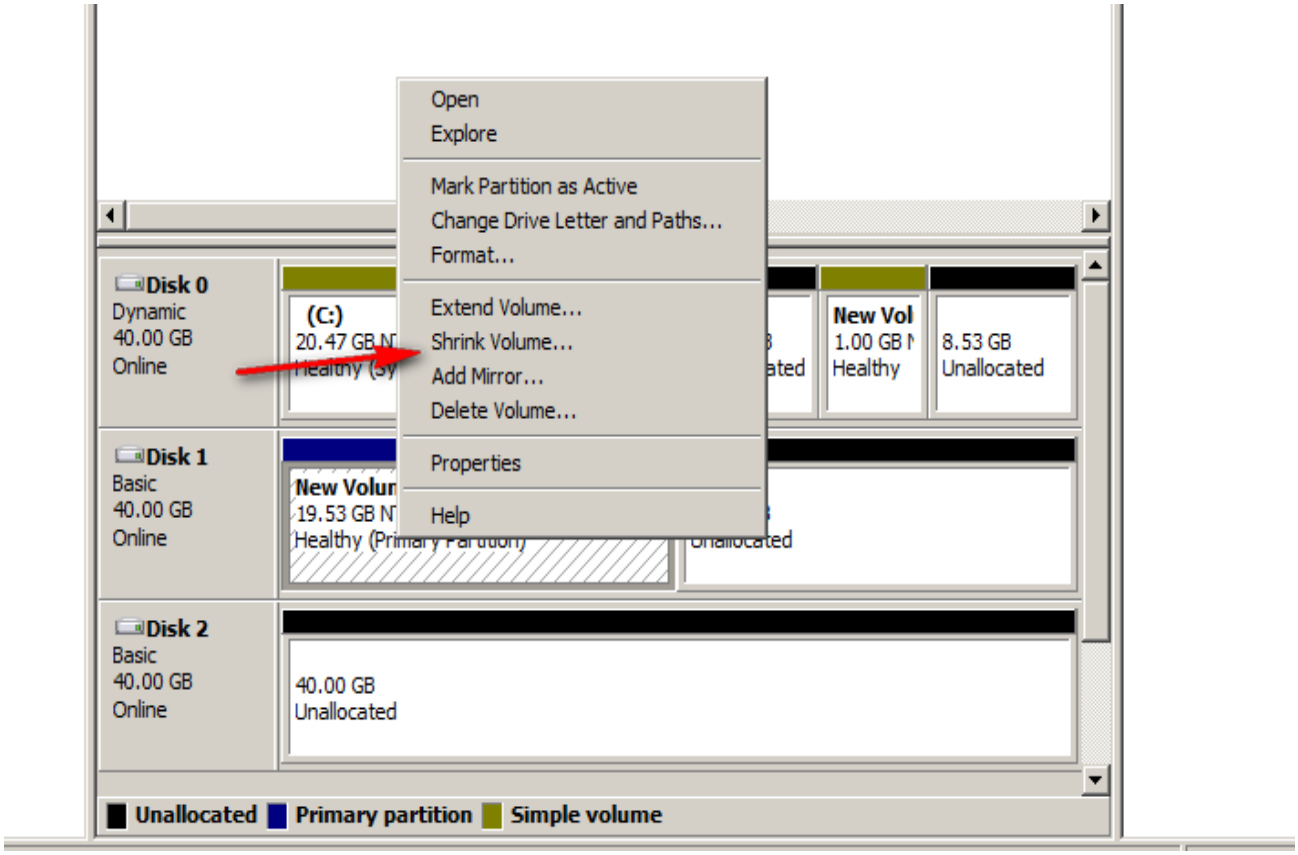


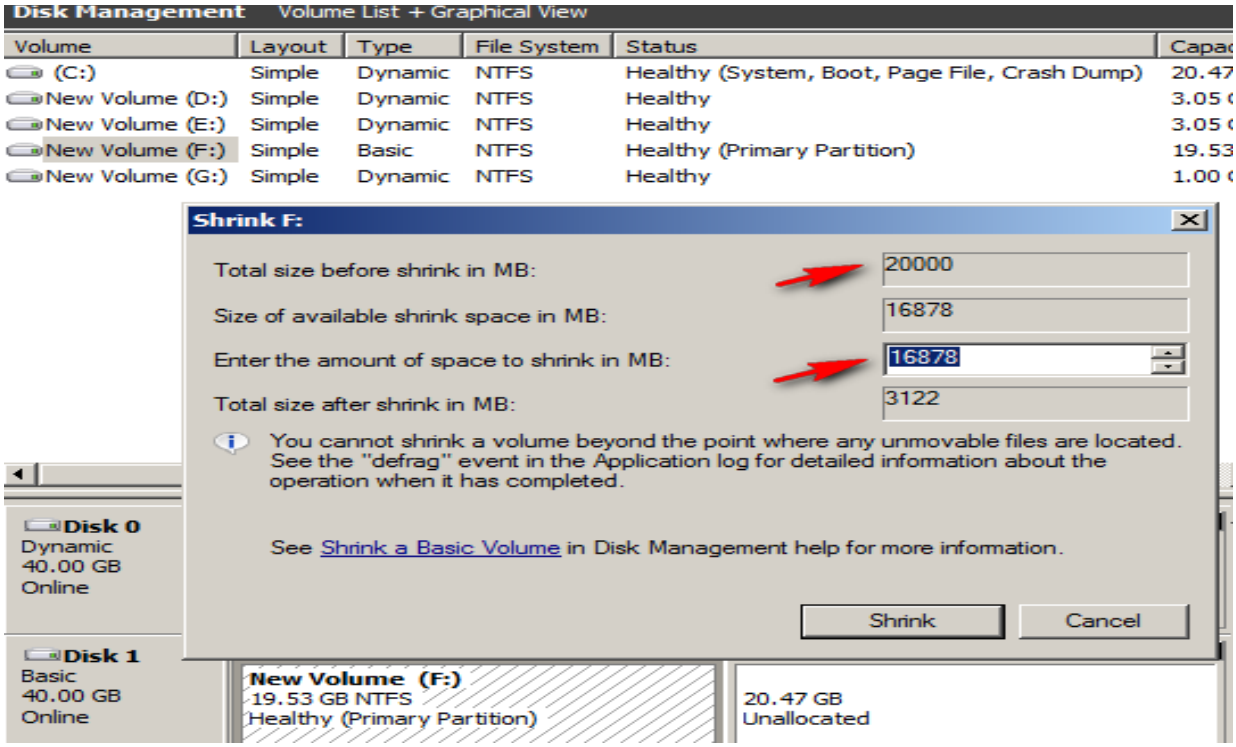


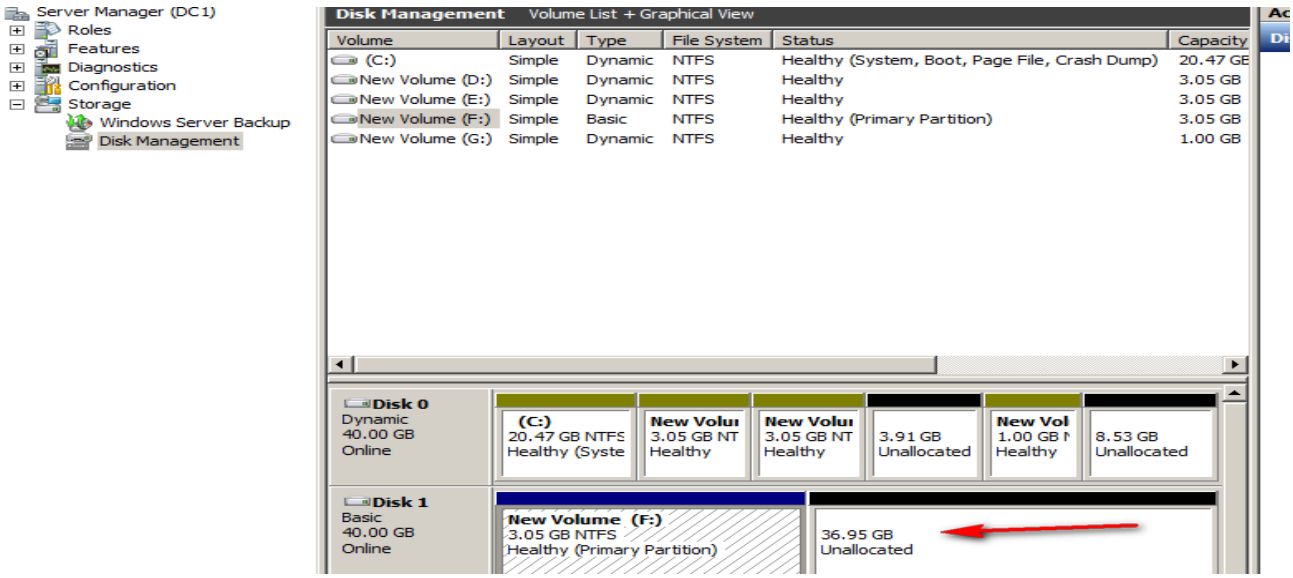
Try to decrease D drive with built-in Shrink Volume function.



10GB free space shrink from D.





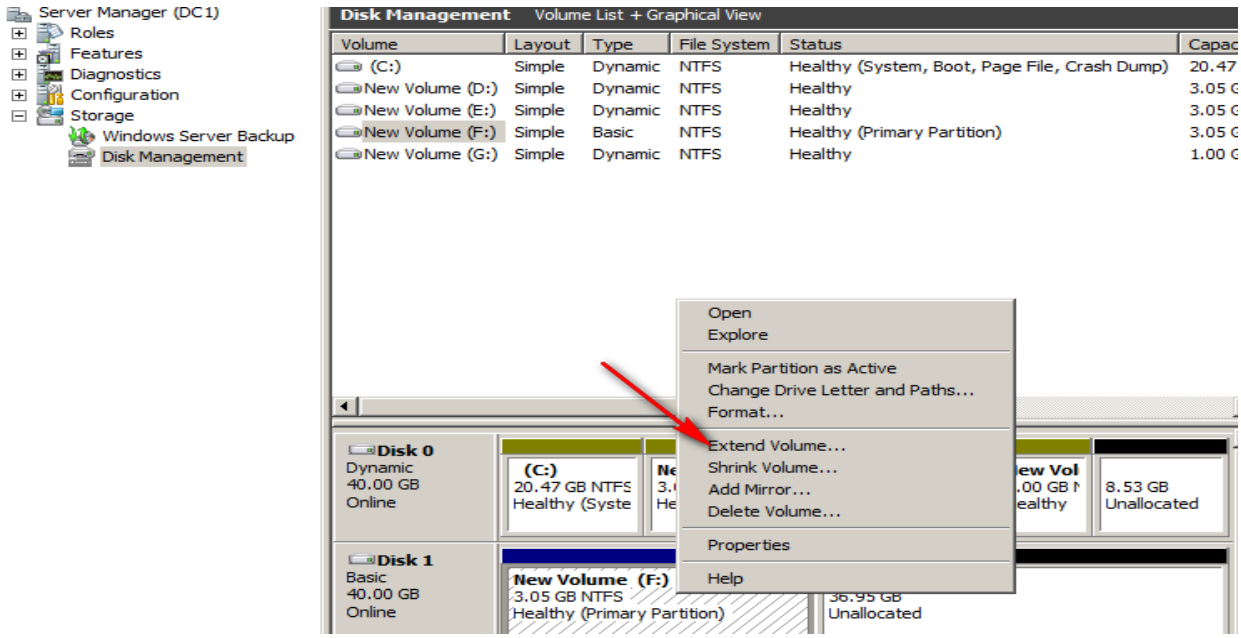


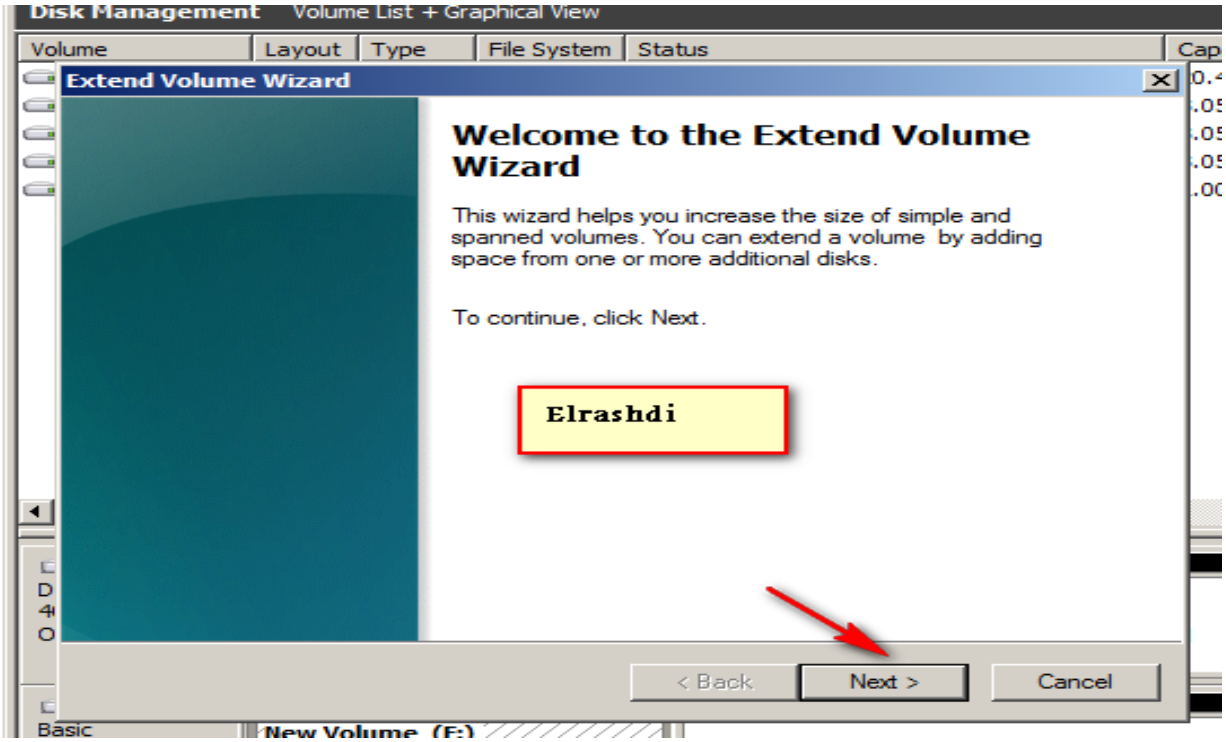
7.1.2- Extended Volume

زيادة حجم القرص الصلب

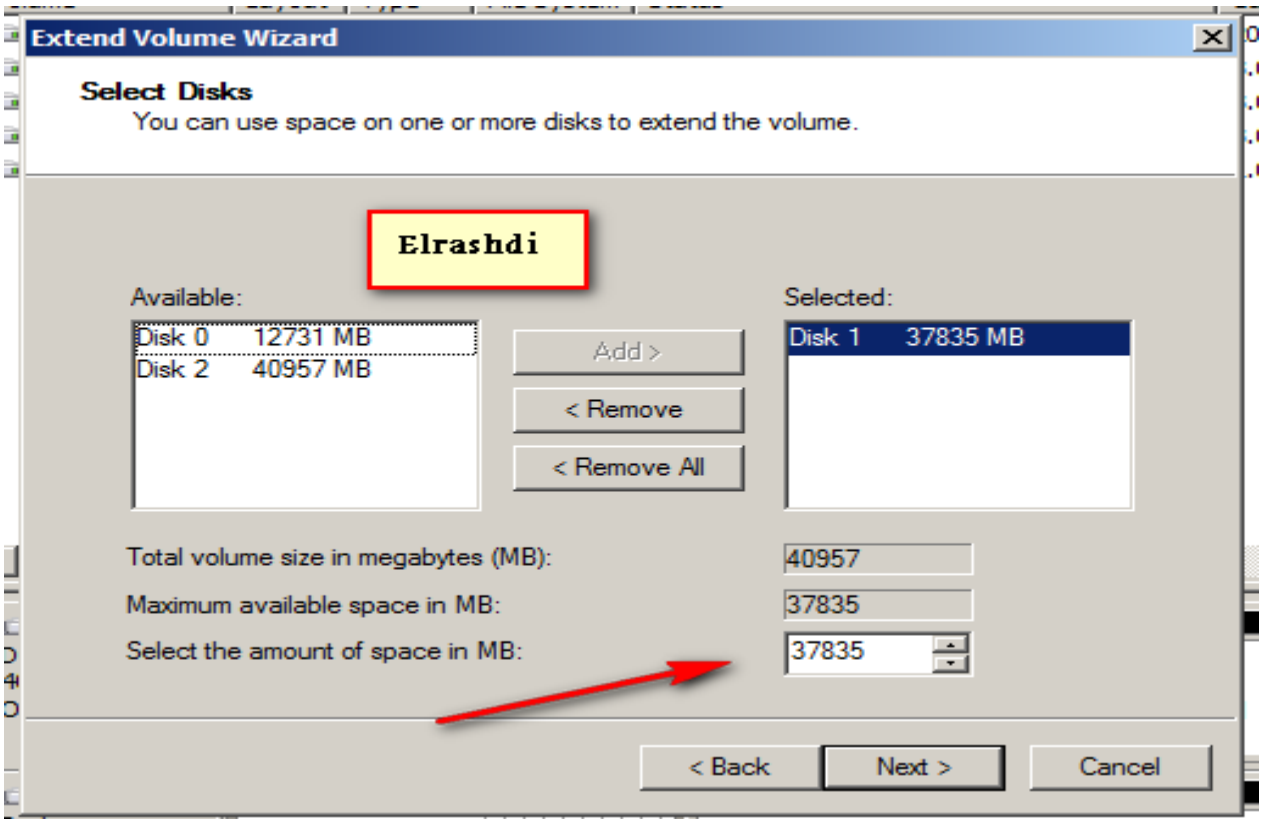
To extend Windows Server 2008 volume, right click on the volume to be extended and select "Extend Volume" and then specify the amount of space by which you want to extend the volume.

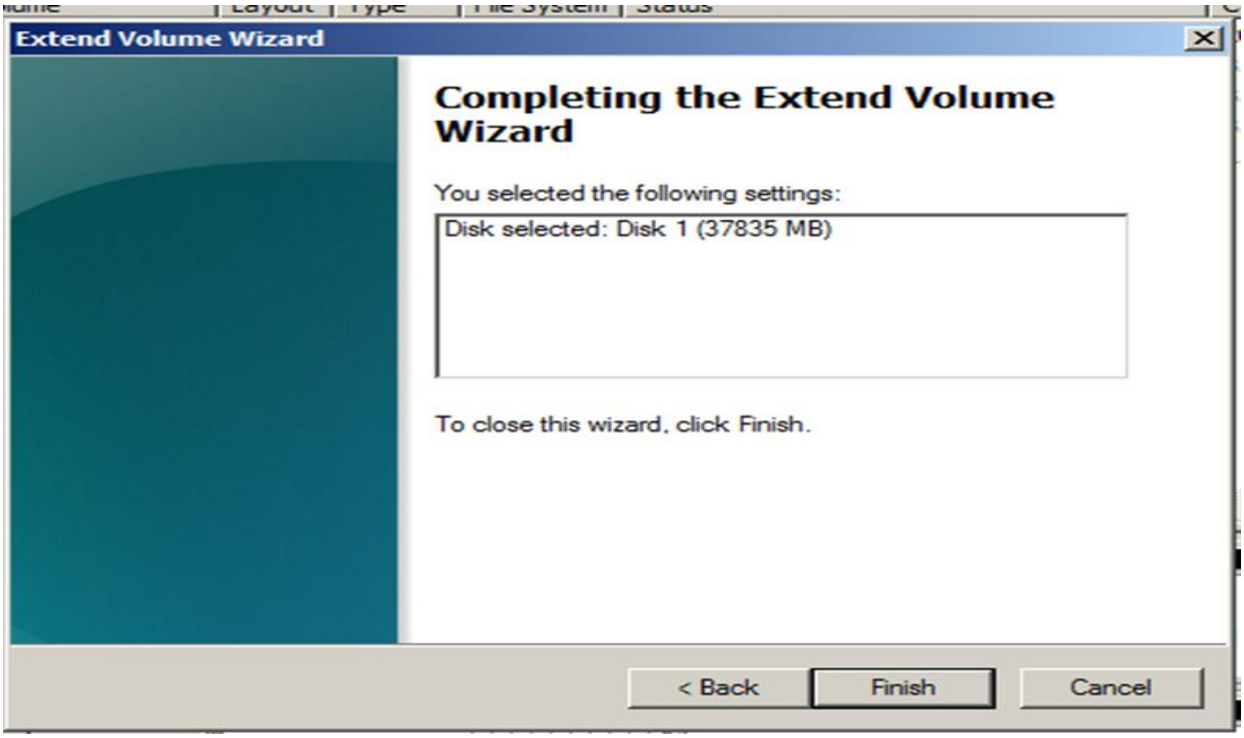
Now extend volume becomes available.





تحديد حجم المساحة المراد زيادتها



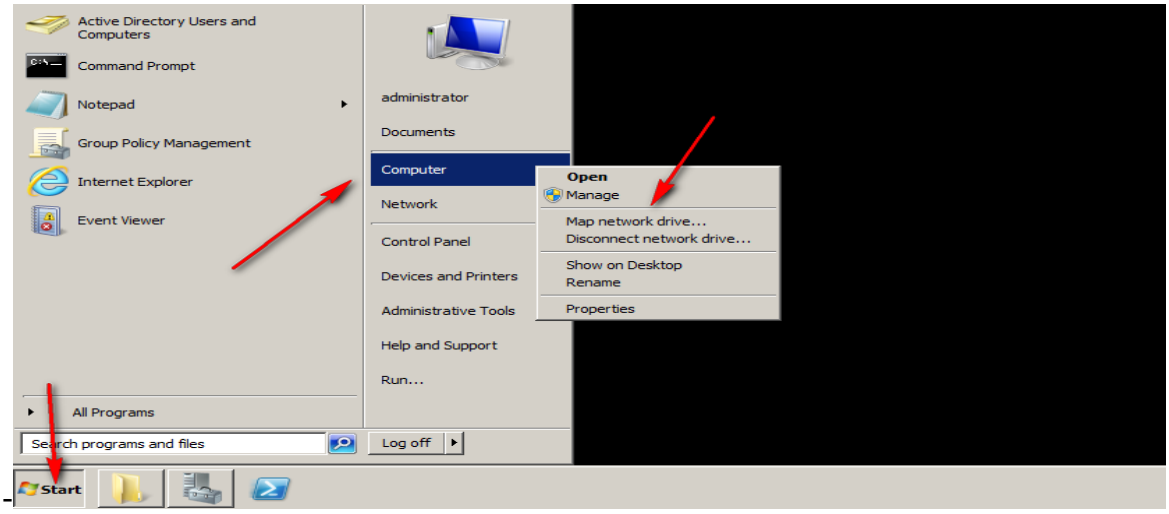


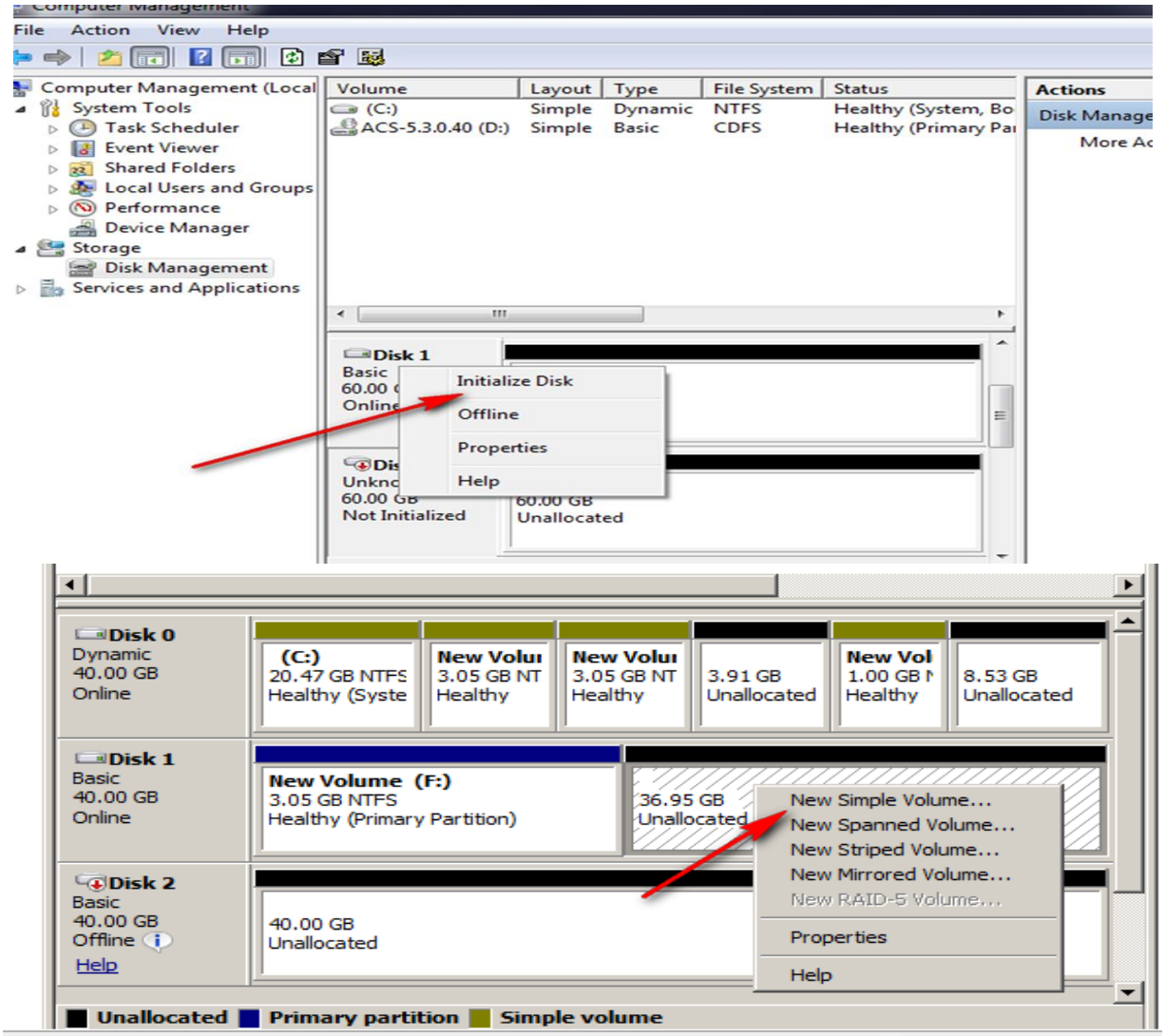
7.1.3- Simple Volume

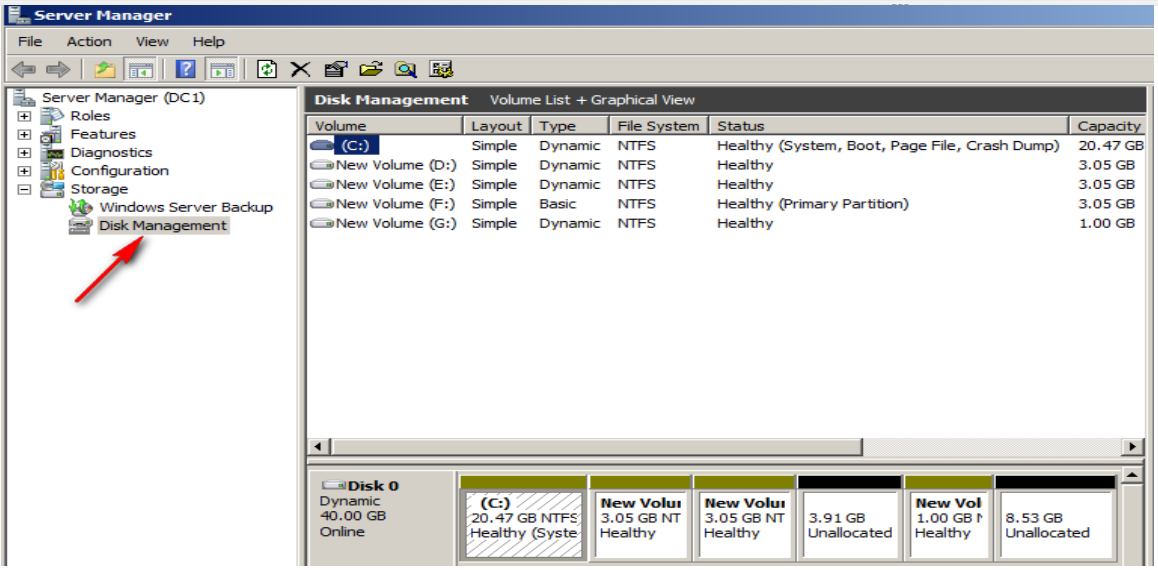
انشاء New simple

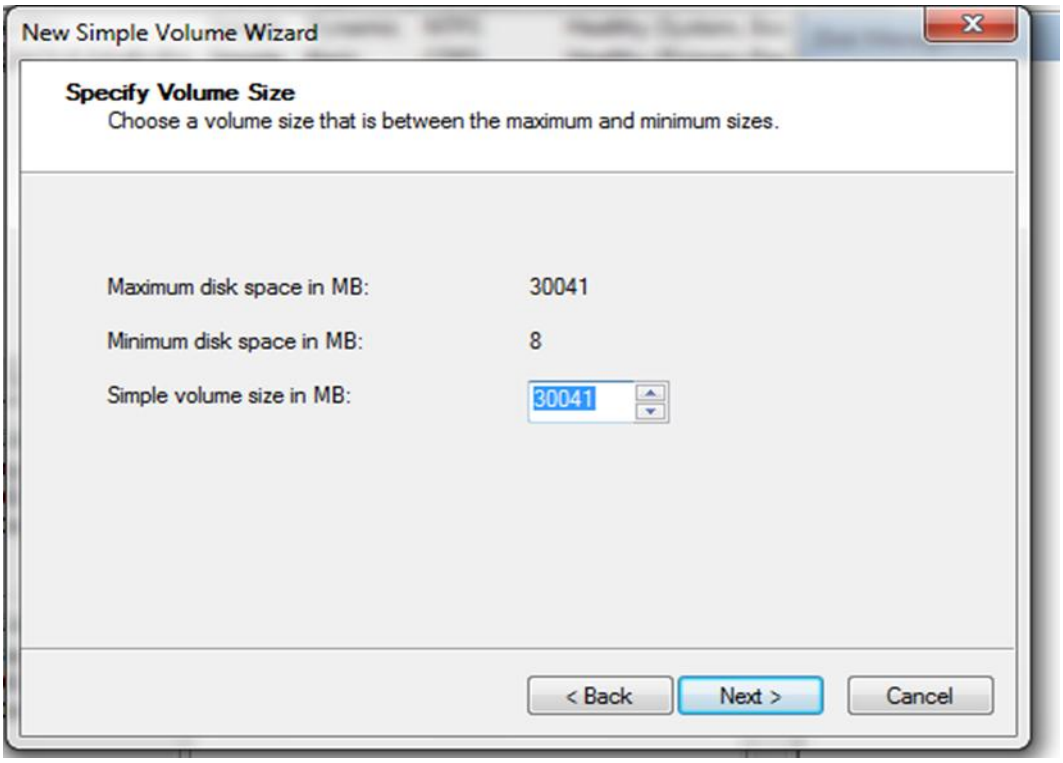
يمكن عن طريقه عمل Volume في نفس القرص بمساحات مختلفة

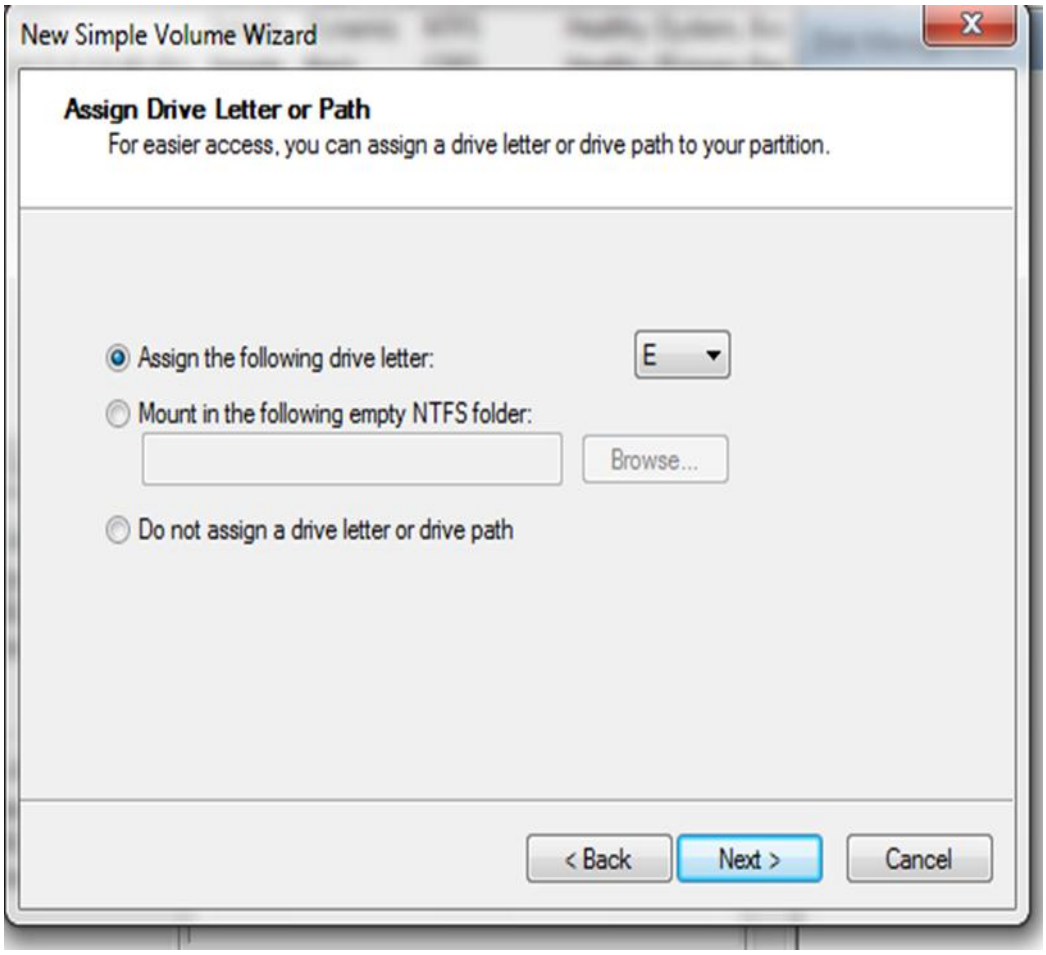
Crete new simple volume in window server 2008

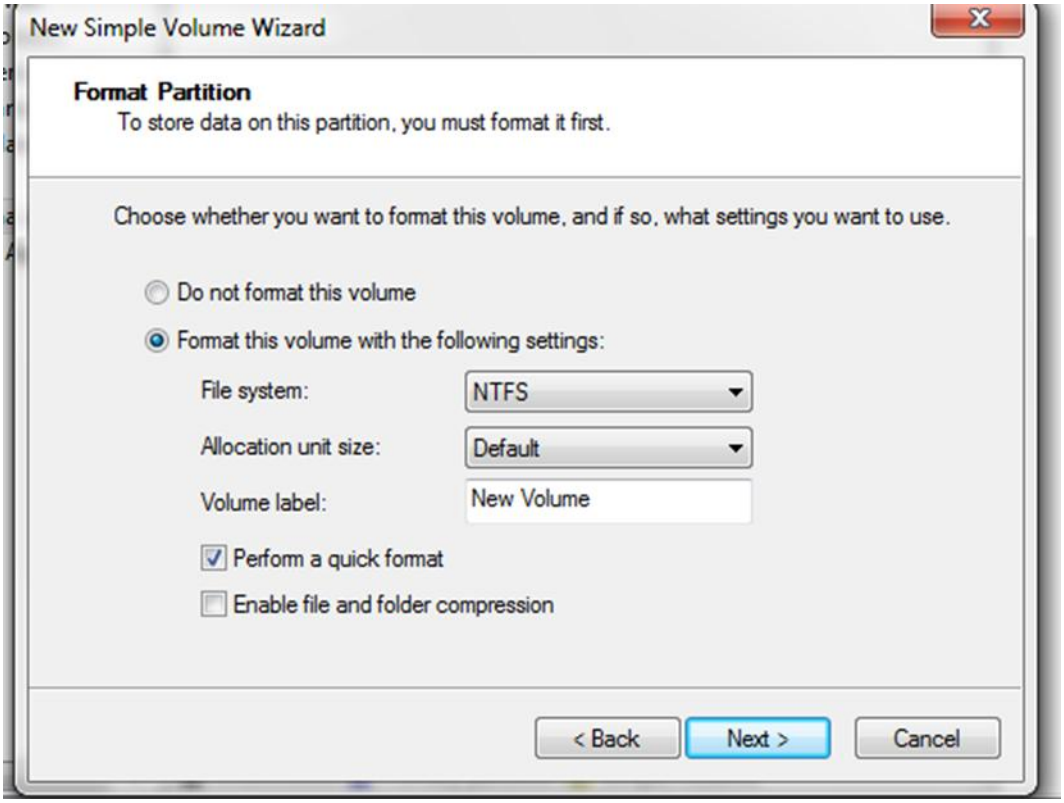


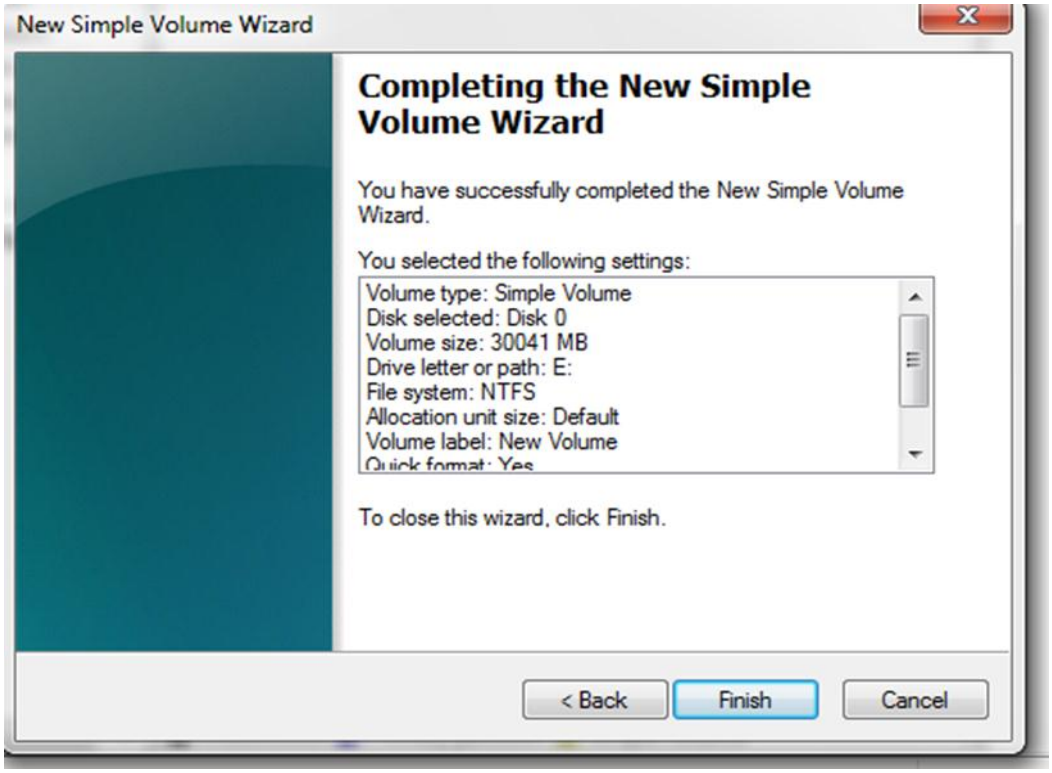

File Action View Help
Computer Management (Local
System Tools
Task Scheduler
Event Viewer
Shared Folders
Local Users and Groups
Performance
Device Manager
Storage
Disk Management
Services and Applications
Volume Layout Type File System Status
(C:) Simple Dynamic NTFS Healthy (System, Bo
ACS-5.3.0.40 (D:) Simple Basic CDFS Healthy (Primary Pa
Actions
Disk Manage
More Ac
Disk 1
Basic
Initialize Disk
Offline
Properties
Help
Not Initialized
60.00 GB
Unallocated
Disk 0
Dynamic
40.00 GB
Online
(C:)
20.47 GB NTFS
Healthy (Syste
New Volu
3.05 GB NT
Healthy
New Volu
3.05 GB NT
Healthy
3.91 GB
Unallocated
New Vol
1.00 GB
Healthy
8.53 GB
Unallocated
Disk 1
Basic
40.00 GB
Online
New Volume (F:)
3.05 GB NTFS
Healthy (Primary Partition)
36.95 GB
Unallocated
New Simple Volume...
New Spanned Volume...
New Striped Volume...
New Mirrored Volume...
New RAID-5 Volume...
Properties
Help
Disk 2
Basic
40.00 GB
Offline
Help
40.00 GB
Unallocated
Unallocated
Primary partition
Simple volume


Server Manager
File Action View Help
Server Manager (DC1)
Roles
Features
Diagnostics
Configuration
Storage
Windows Server Backup
Disk Management
Disk Management Volume List + Graphical View
Volume Layout Type File System Status Capacity
(C:) Simple Dynamic NTFS Healthy (System, Boot, Page File, Crash Dump) 20.47 GB
New Volume (D:) Simple Dynamic NTFS Healthy 3.05 GB
New Volume (E:) Simple Dynamic NTFS Healthy 3.05 GB
New Volume (F:) Simple Basic NTFS Healthy (Primary Partition) 3.05 GB
New Volume (G:) Simple Dynamic NTFS Healthy 1.00 GB
Disk 0
Dynamic
40.00 GB
Online
(C:)
20.47 GB NTFS
Healthy (Syste
New Volu
3.05 GB NT
Healthy
New Volu
3.05 GB NT
Healthy
3.91 GB
Unallocated
New Vol
1.00 GB
Healthy
8.53 GB
Unallocated


New Simple Volume Wizard
Specify Volume Size
Choose a volume size that is between the maximum and minimum sizes.
Maximum disk space in MB:
30041
Minimum disk space in MB:
8
Simple volume size in MB:
30041
< Back
Next >
Cancel


New Simple Volume Wizard
Assign Drive Letter or Path
For easier access, you can assign a drive letter or drive path to your partition.
Assign the following drive letter:
E
Mount in the following empty NTFS folder:
Browse...
Do not assign a drive letter or drive path
< Back
Next >
Cancel

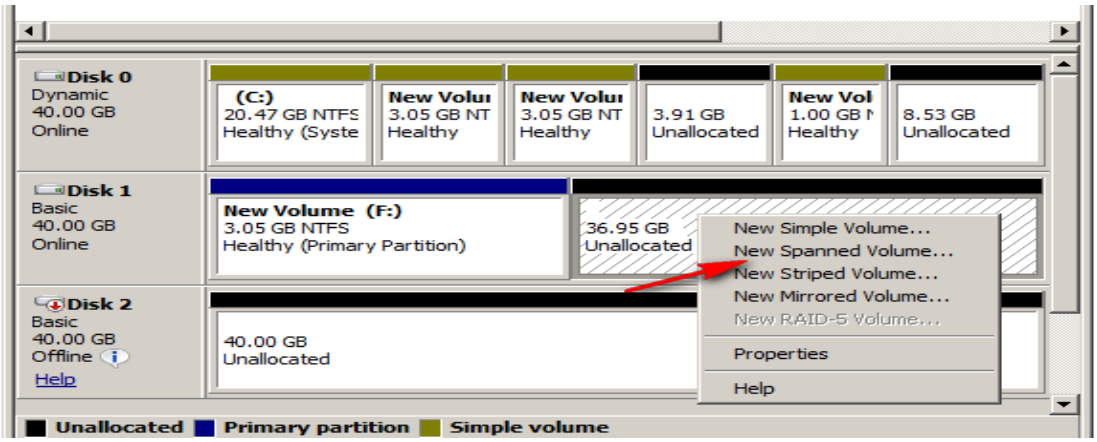

New Simple Volume Wizard
Format Partition
To store data on this partition, you must format it first.
Choose whether you want to format this volume, and if so, what settings you want to use.
Do not format this volume
Format this volume with the following settings:
File system:
NTFS
Allocation unit size:
Default
Volume label:
New Volume
Perform a quick format
Enable file and folder compression
< Back
Next >
Cancel

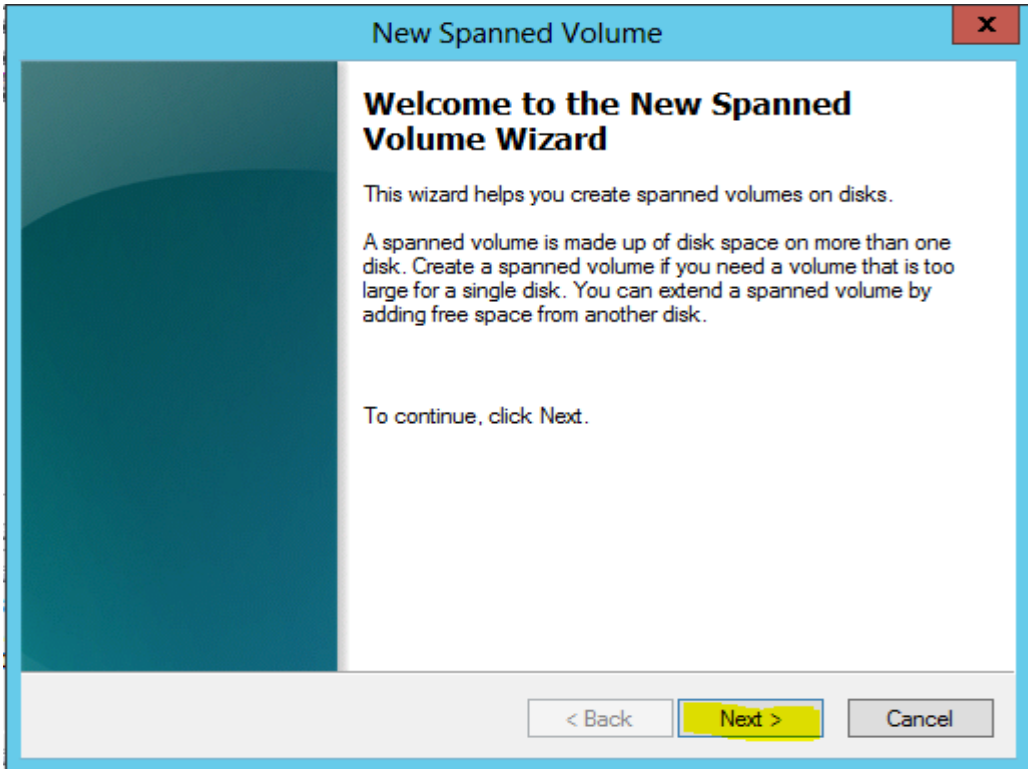

New Simple Volume Wizard
Completing the New Simple Volume Wizard
You have successfully completed the New Simple Volume Wizard.
You selected the following settings:
Volume type: Simple Volume
Disk selected: Disk 0
Volume size: 30041 MB
Drive letter or path: E:
File system: NTFS
Allocation unit size: Default
Volume label: New Volume
Quick format: Yes
To close this wizard, click Finish.
< Back
Finish
Cancel

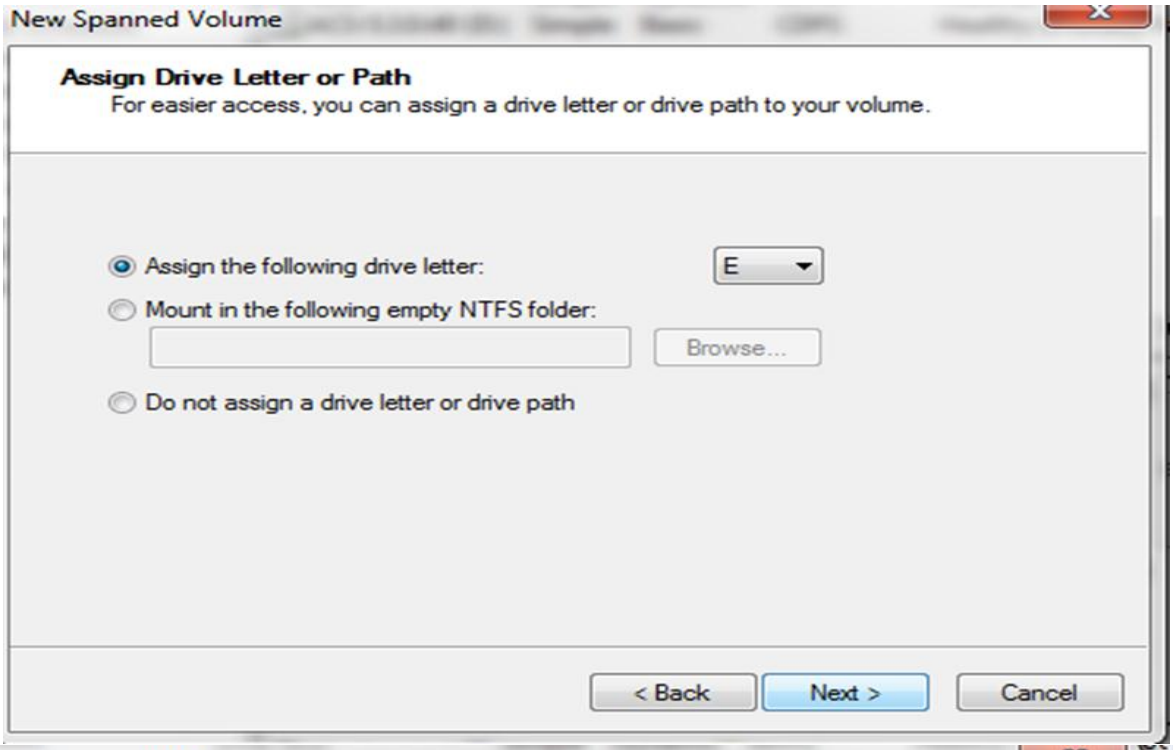
7.1.4- Spanned Volume

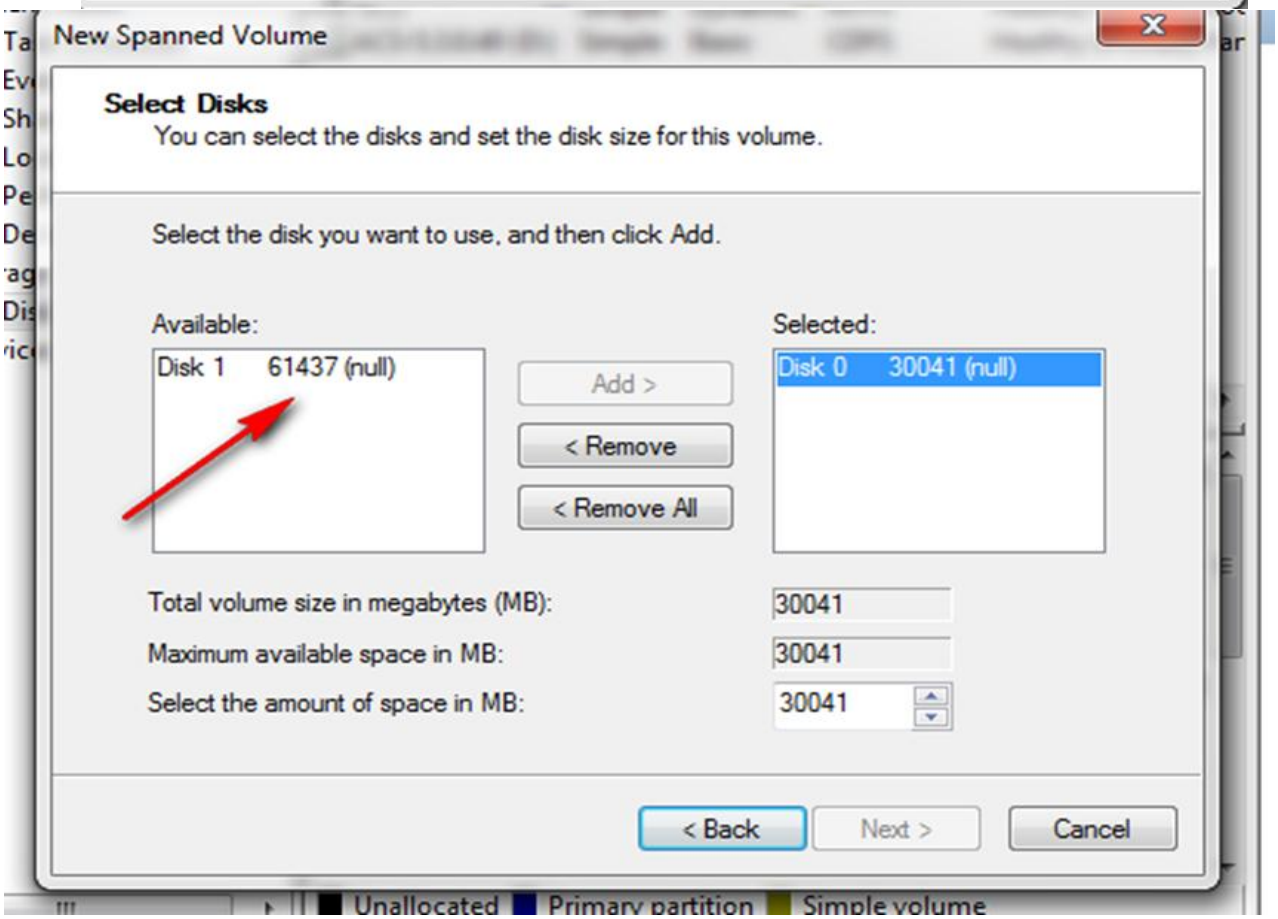
Create new spanned volume in windows server 2008R2

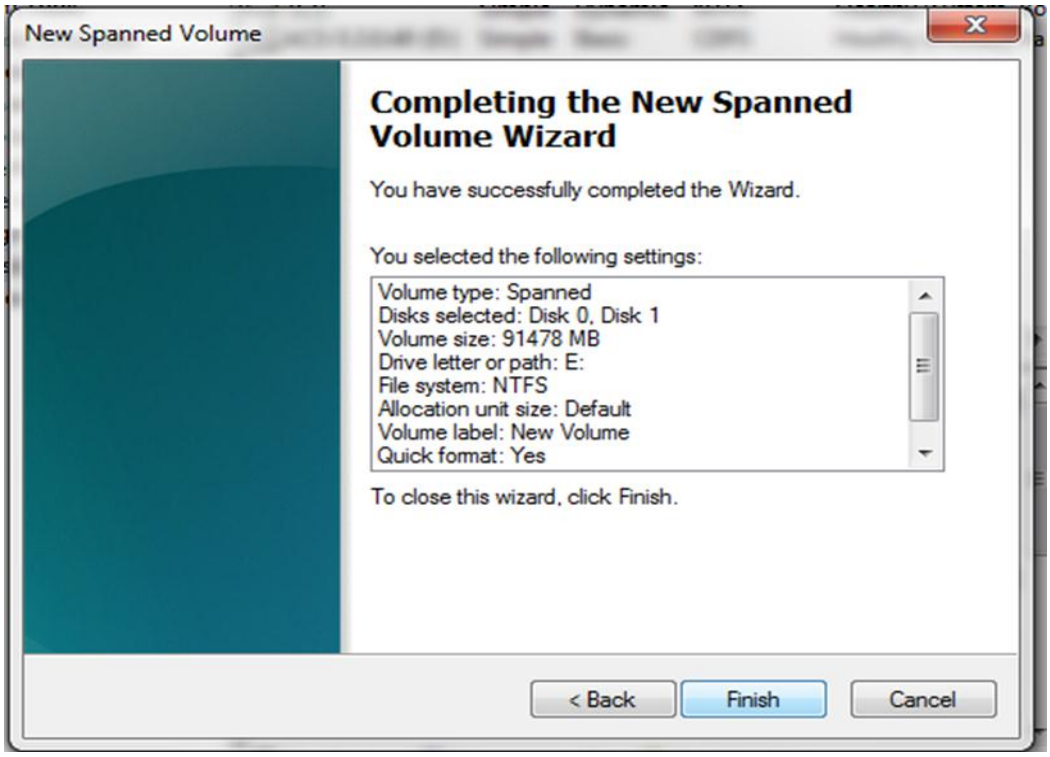
لكي يتم انشاء Spanned Volume يجب ان يكون لدينا اكثر من قرص صلب حيث يتم اخذ مساحة فارغة من كل قرص ليتم تجميعها في قرص واحد ويتم تخزين البيانات علي القرص الفارغ الاول وبعدها يتم تخزين علي القرص الثاني وبنفس الطريقة اذا كان لدينا اكثر من قرصين، حيث تكون سرعة الوصول الي البيانات بسرعة قرص واحد.






New Spanned Volume
Assign Drive Letter or Path
For easier access, you can assign a drive letter or drive path to your volume.
Assign the following drive letter:
E
Mount in the following empty NTFS folder:
Browse...
Do not assign a drive letter or drive path
< Back
Next >
Cancel

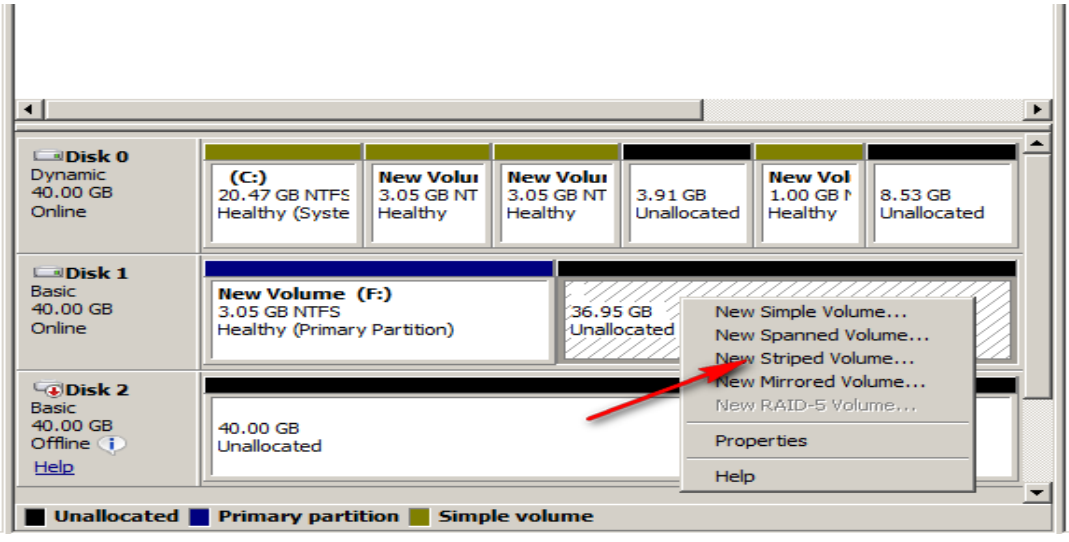

New Spanned Volume
Select Disks
You can select the disks and set the disk size for this volume.
Select the disk you want to use, and then click Add.
Available:
Disk 1 61437 (null)
Add >
< Remove
< Remove All
Selected:
Disk 0 30041 (null)
Total volume size in megabytes (MB):
30041
Maximum available space in MB:
30041
Select the amount of space in MB:
30041
< Back
Next >
Cancel
Unallocated
Primary partition
Simple volume

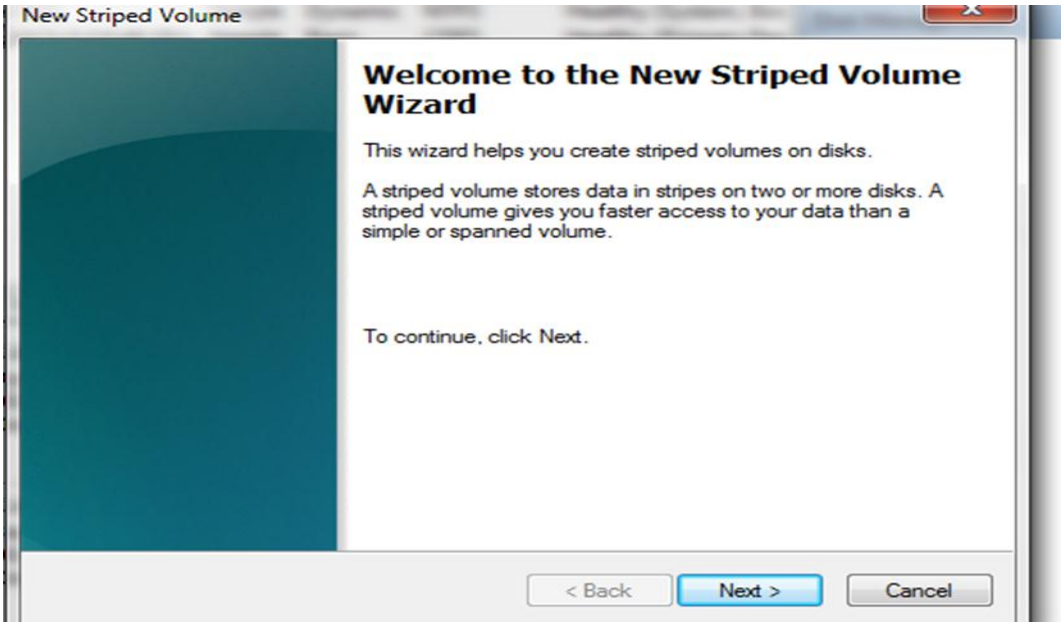


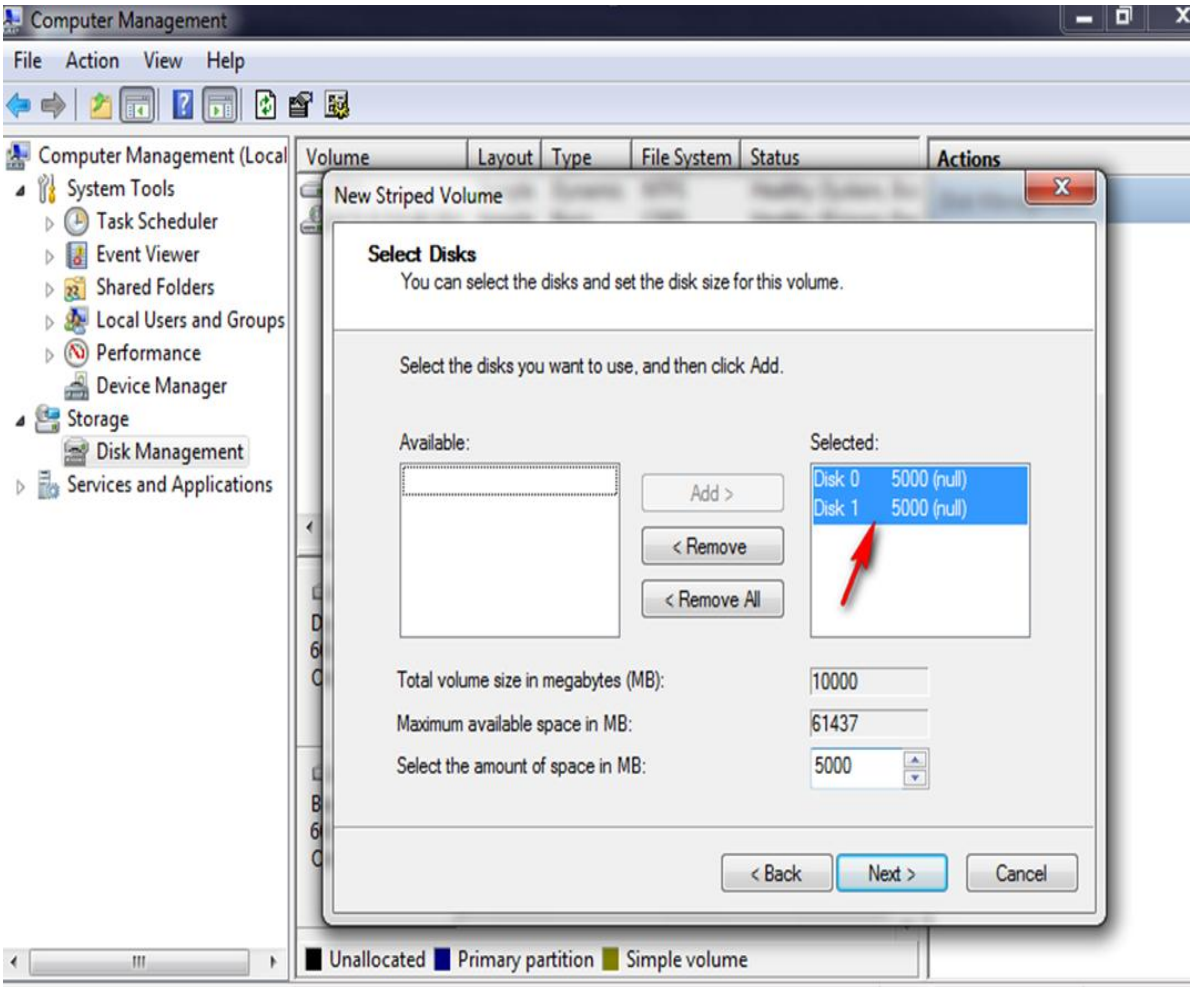
7.1.5- Striped Volume

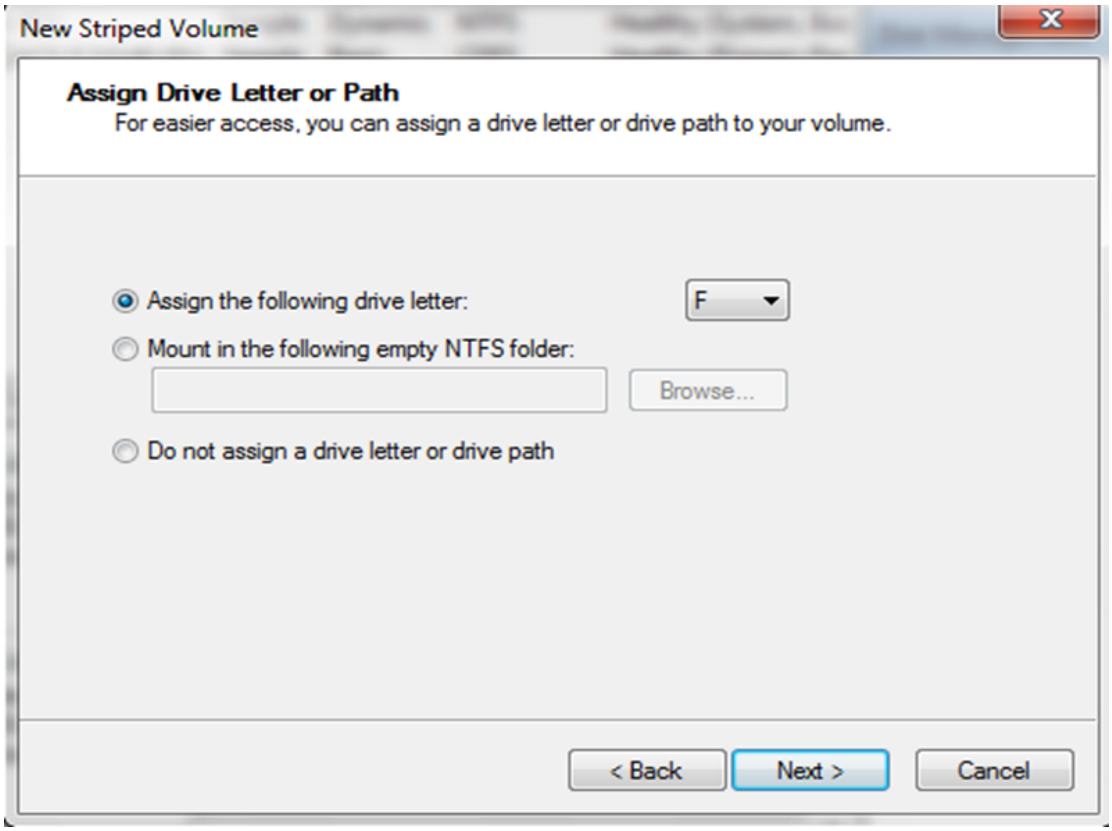
Create new striped volume in windows server 2008R2

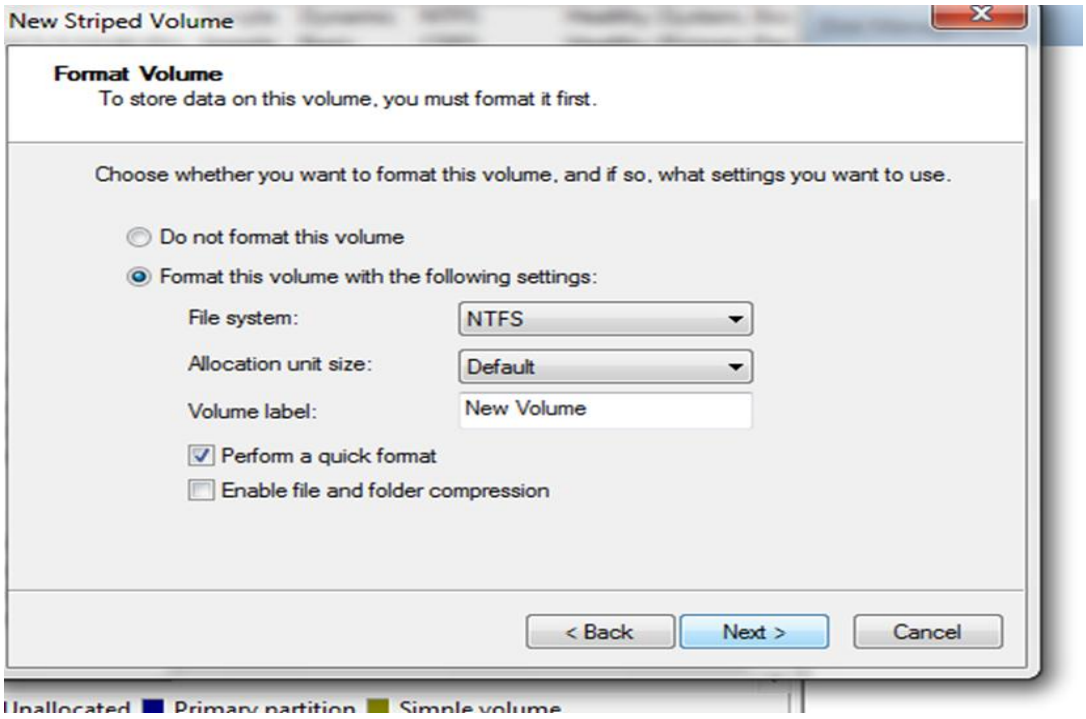
لكي يتم انشاء Striped Volume يجب ان يكون لدينا اكثر من قرص صلب حيث يتم اخذ مساحة فارغة من كل قرص ليتم تجميعها في قرص واحد ويتم تخزين البيانات علي الاقراص بتساوي في نفس الوقت، حيث يمتاز بسرعة الوصول الي المعلومة بسبب قراته للبيانات من الاقراص جميعا في نفس الوقت.




New Striped Volume
Welcome to the New Striped Volume Wizard
This wizard helps you create striped volumes on disks.
A striped volume stores data in stripes on two or more disks. A striped volume gives you faster access to your data than a simple or spanned volume.
To continue, click Next.
< Back
Next >
Cancel


Computer Management
File Action View Help
Computer Management (Local
System Tools
Task Scheduler
Event Viewer
Shared Folders
Local Users and Groups
Performance
Device Manager
Storage
Disk Management
Services and Applications
Volume
Layout
Type
File System
Status
Actions
New Striped Volume
Select Disks
You can select the disks and set the disk size for this volume.
Select the disks you want to use, and then click Add.
Available:
Selected:
Disk 0 5000 (null)
Disk 1 5000 (null)
Add >
< Remove
< Remove All
Total volume size in megabytes (MB): 10000
Maximum available space in MB: 61437
Select the amount of space in MB: 5000
< Back
Next >
Cancel
Unallocated
Primary partition
Simple volume

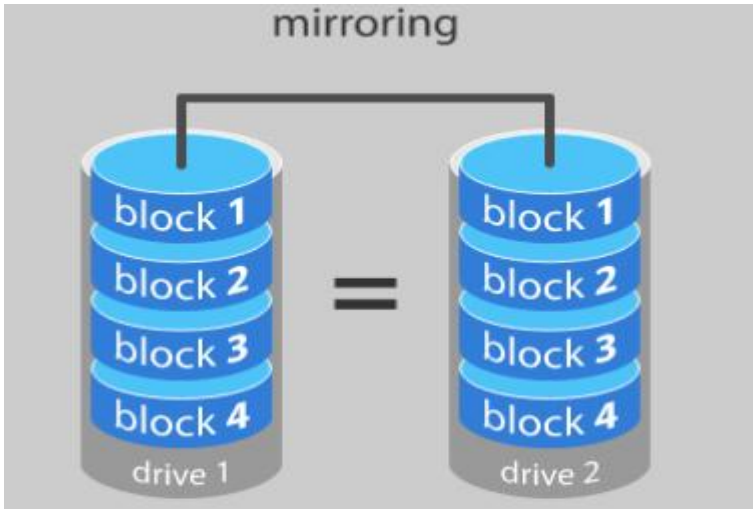

New Striped Volume
Assign Drive Letter or Path
For easier access, you can assign a drive letter or drive path to your volume.
Assign the following drive letter:
F
Mount in the following empty NTFS folder:
Browse...
Do not assign a drive letter or drive path
< Back
Next >
Cancel

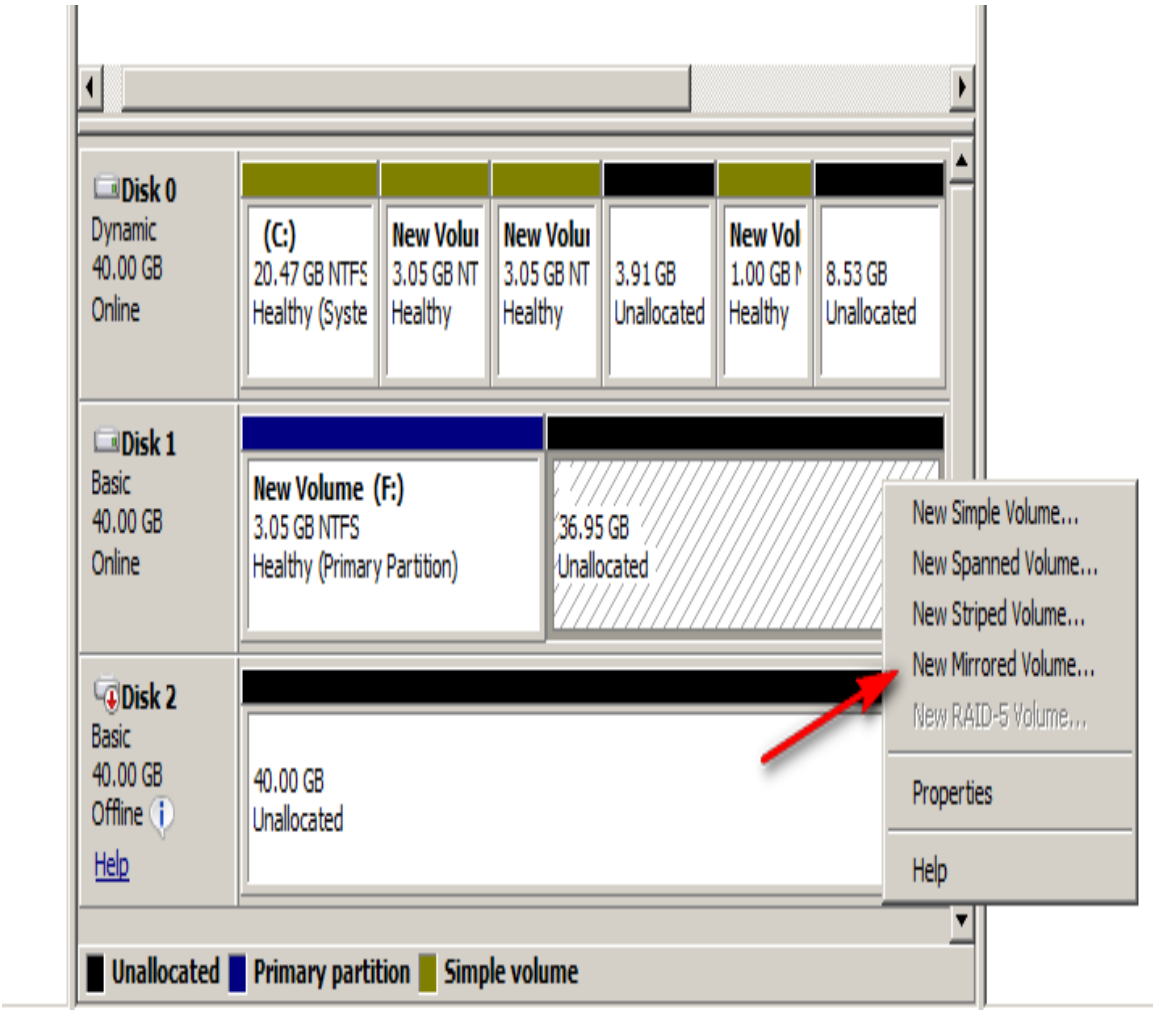

New Striped Volume
Format Volume
To store data on this volume, you must format it first.
Choose whether you want to format this volume, and if so, what settings you want to use.
Do not format this volume
Format this volume with the following settings:
File system:
NTFS
Allocation unit size:
Default
Volume label:
New Volume
Perform a quick format
Enable file and folder compression
< Back
Next >
Cancel

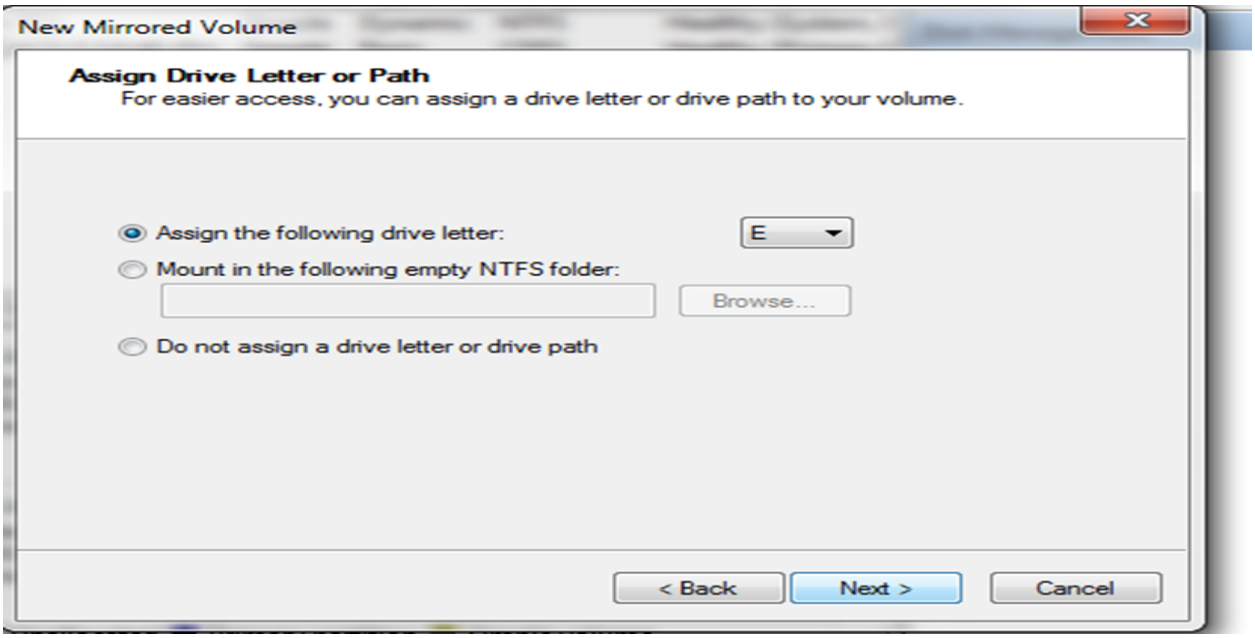
7.1.6- Mirrored Volume

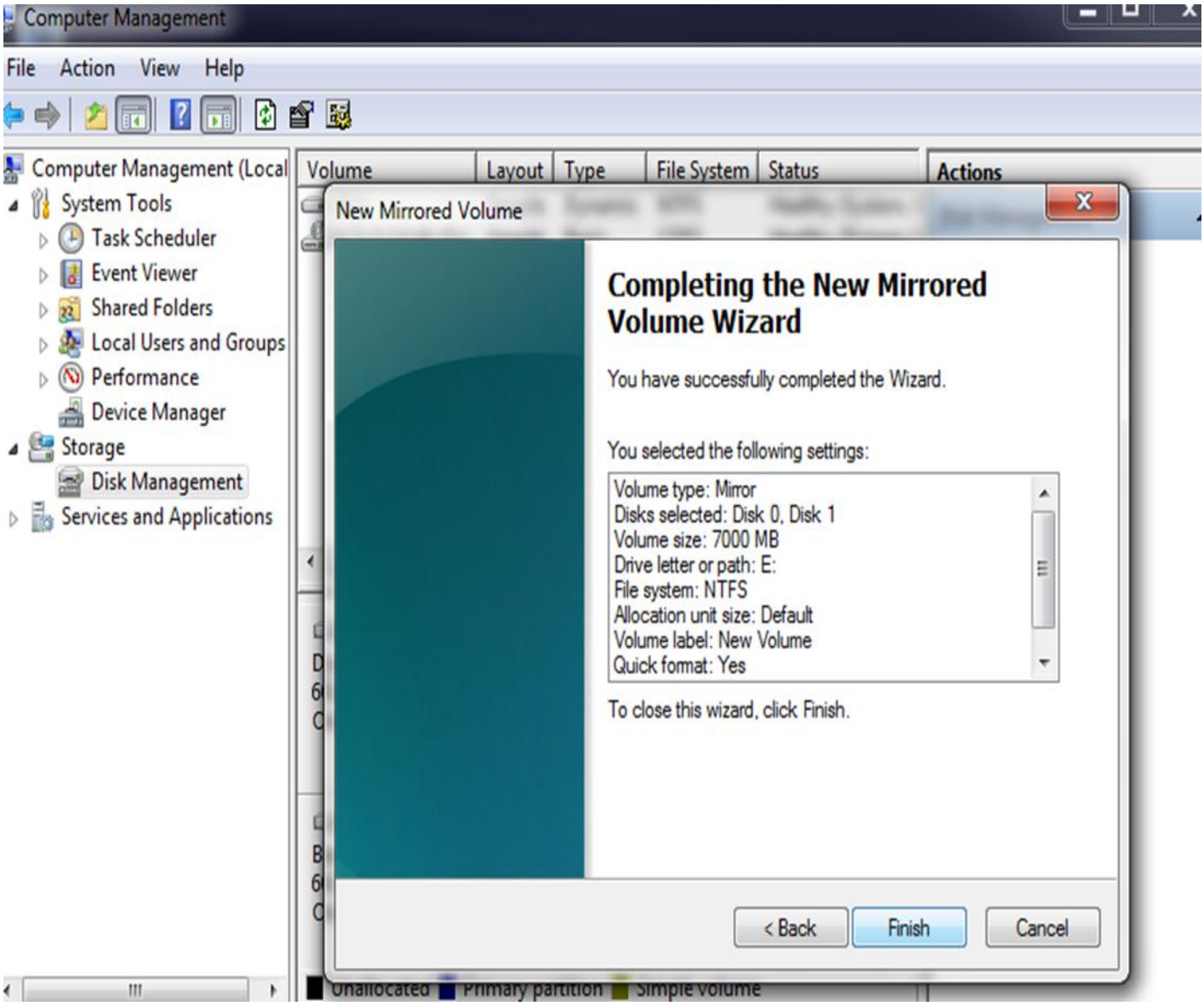
Create new mirrored volume in window server 2008

لكي يتم انشاء Mirrored Volume يجب ان يكون لدينا اكثر من قرص صلب حيث يتم اخذ مساحة فارغة من كل قرص ليتم تجميعها في قرص واحد ويتم تخزين البيانات علي الاقراص بتساوي في نفس الوقت، حيث يمتاز بسرعة الوصول الي المعلومة بسبب قراته للبيانات من الاقراص جميعا في نفس الوقت.




Disk 0
Dynamic
40.00 GB
Online
(C:)
20.47 GB NTFS
Healthy (Syste
New Volu
3.05 GB NT
Healthy
New Volu
3.05 GB NT
Healthy
3.91 GB
Unallocated
New Vol
1.00 GB N
Healthy
8.53 GB
Unallocated
Disk 1
Basic
40.00 GB
Online
New Volume (F:)
3.05 GB NTFS
Healthy (Primary Partition)
36.95 GB
Unallocated
Disk 2
Basic
40.00 GB
Offline
Help
40.00 GB
Unallocated
New Simple Volume...
New Spanned Volume...
New Striped Volume...
New Mirrored Volume...
New RAID-5 Volume...
Properties
Help
Unallocated
Primary partition
Simple volume


New Mirrored Volume
Assign Drive Letter or Path
For easier access, you can assign a drive letter or drive path to your volume.
Assign the following drive letter:
E
Mount in the following empty NTFS folder:
Browse...
Do not assign a drive letter or drive path
< Back
Next >
Cancel

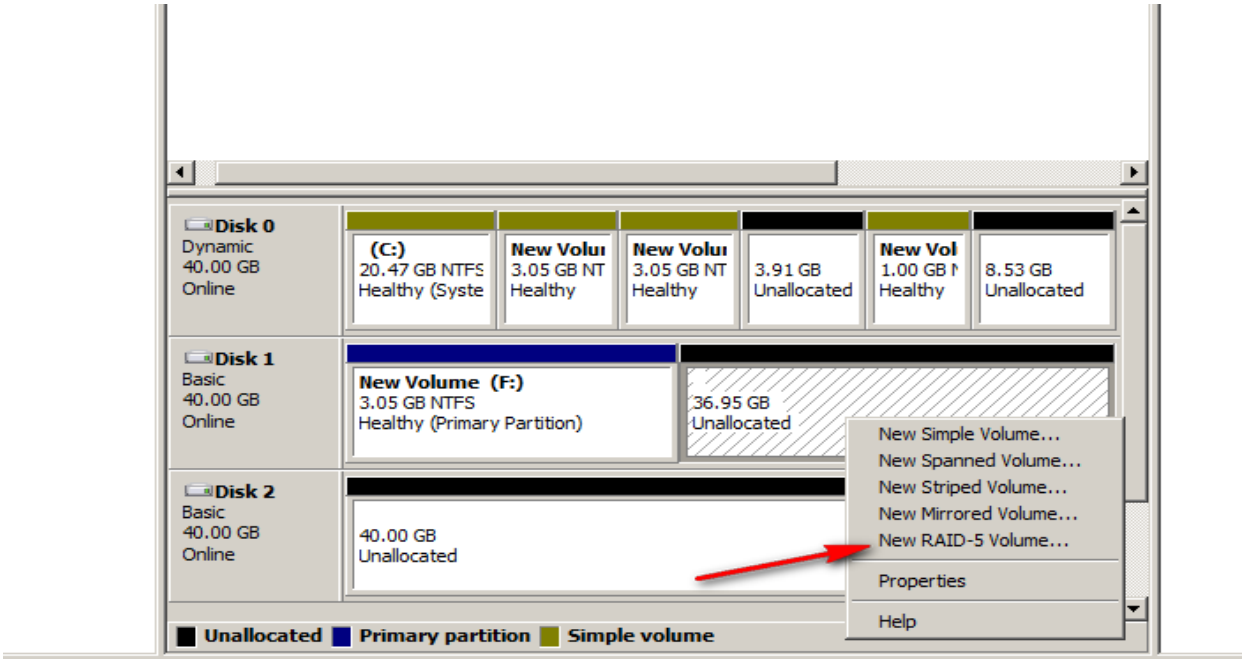


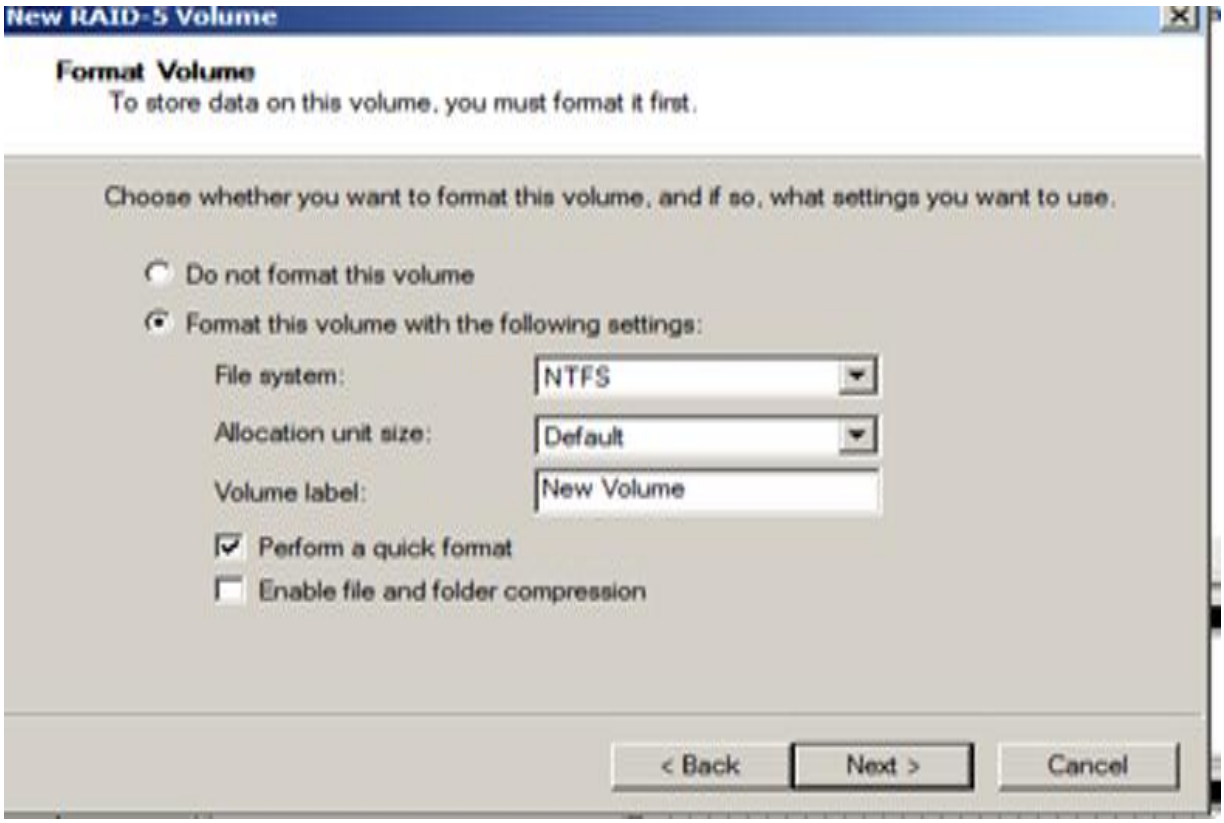
7.1.7- RAID 5 Volume

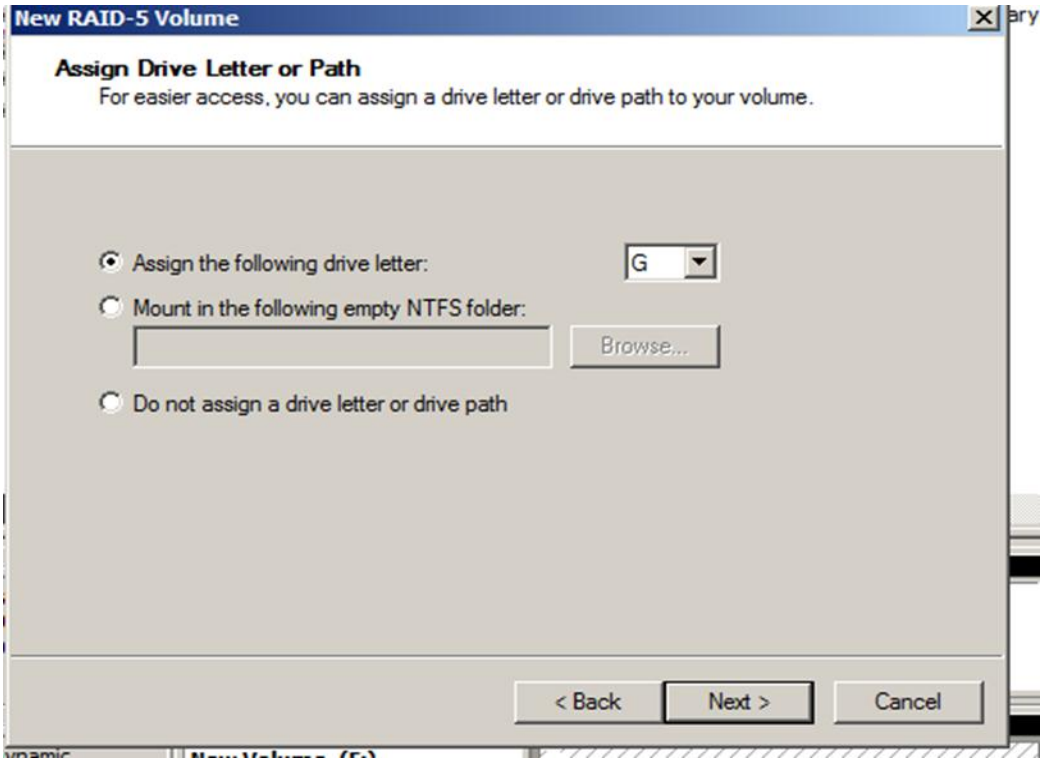
لكي يتم انشاء RAID Volume يجب ان يكون لدينا 3 أقراص صلبة حيث يتم اخذ مساحة فارغة من كل قرص ليتم تجميعها في قرص واحد ويتم تخزين البيانات علي الاقراص بتساوي في نفس الوقت، حيث يمتاز بسرعة الوصول الي المعلومة بسبب قراته للبيانات من الاقراص جميعا في نفس الوقت.

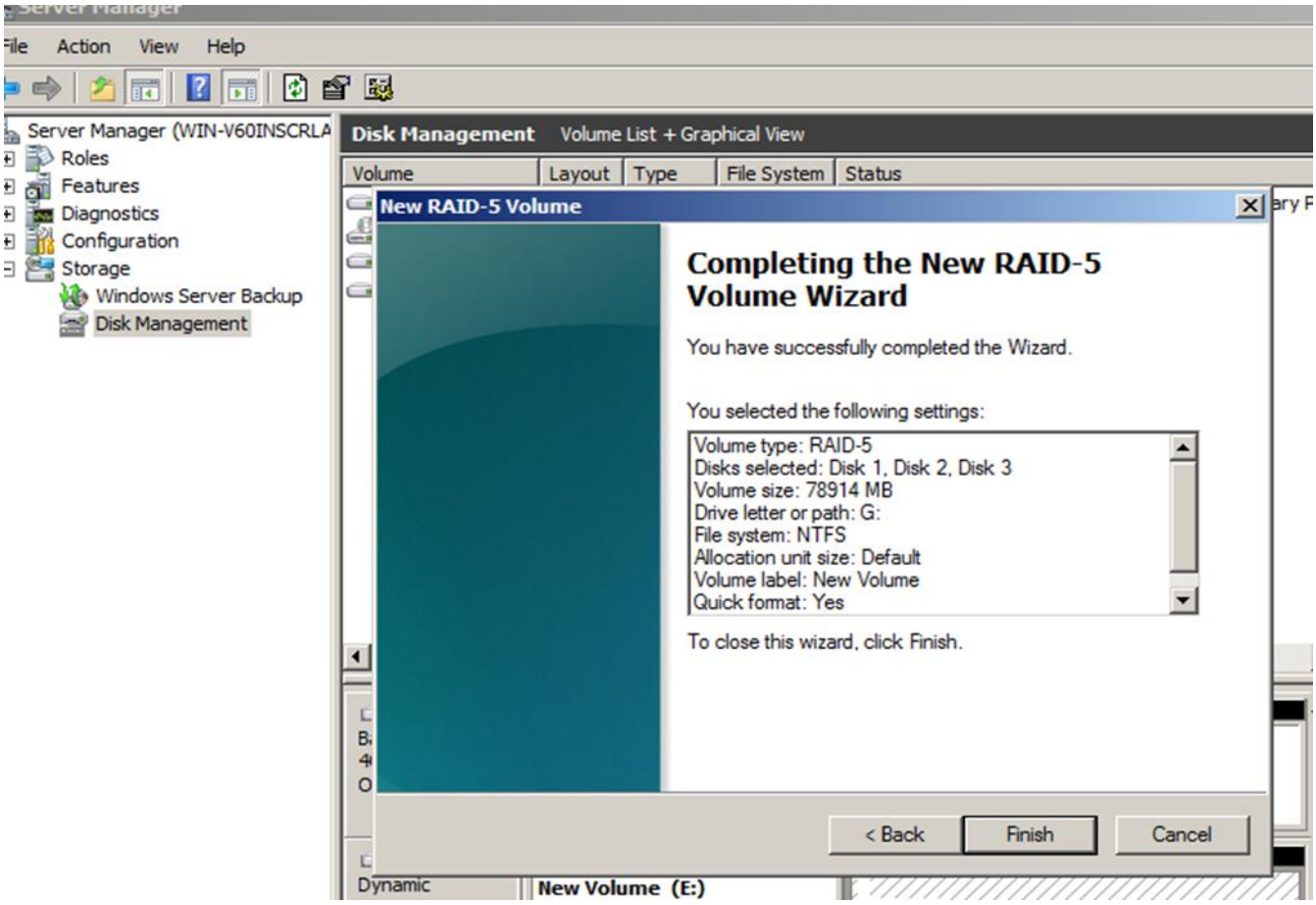
Create new RAID 5 volume in windows server 2008

You must have 3 Disks to do RAID 5 volume






New RAID-5 Volume
Assign Drive Letter or Path
For easier access, you can assign a drive letter or drive path to your volume.
Assign the following drive letter:
G
Mount in the following empty NTFS folder:
Browse...
Do not assign a drive letter or drive path
< Back
Next >
Cancel


File Action View Help
Server Manager (WIN-V60INSCRLA
Roles
Features
Diagnostics
Configuration
Storage
Windows Server Backup
Disk Management
Disk Management
Volume List + Graphical View
Volume
Layout
Type
File System
Status
New RAID-5 Volume
Completing the New RAID-5 Volume Wizard
You have successfully completed the Wizard.
You selected the following settings:
Volume type: RAID-5
Disks selected: Disk 1, Disk 2, Disk 3
Volume size: 78914 MB
Drive letter or path: G:
File system: NTFS
Allocation unit size: Default
Volume label: New Volume
Quick format: Yes
To close this wizard, click Finish.
< Back
Finish
Cancel
Dynamic
New Volume (E:)

7.2- Disk management in window server 2012R2

ادارة الاقراص في نظام تشغيل window server 2012

Windows server 2012 Extend and shrank Volume

How to resize partition on Windows Server 2012 (R2)

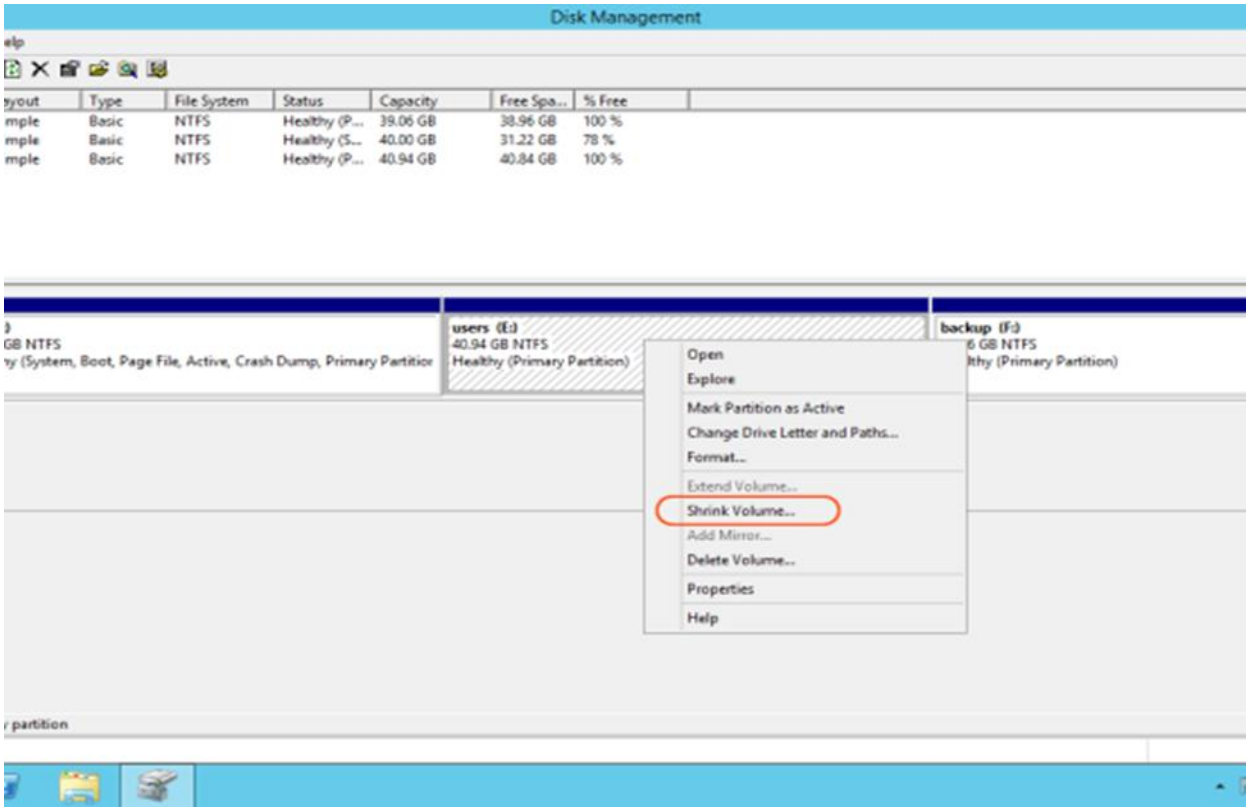
n September 4, 2012 Microsoft released Windows Server 2012, added new features and improved performance. However, no improvement for Disk Management. Windows Server 2012 (R2) Disk Management console can do some basic partitioning jobs and part of advanced operations, such as Extend Volume and Shrink Volume, both features can be used to re-size a created partition. However, due to some limitations, to resize partition in Windows Server 2012, you still need 3rd-party server partition software.

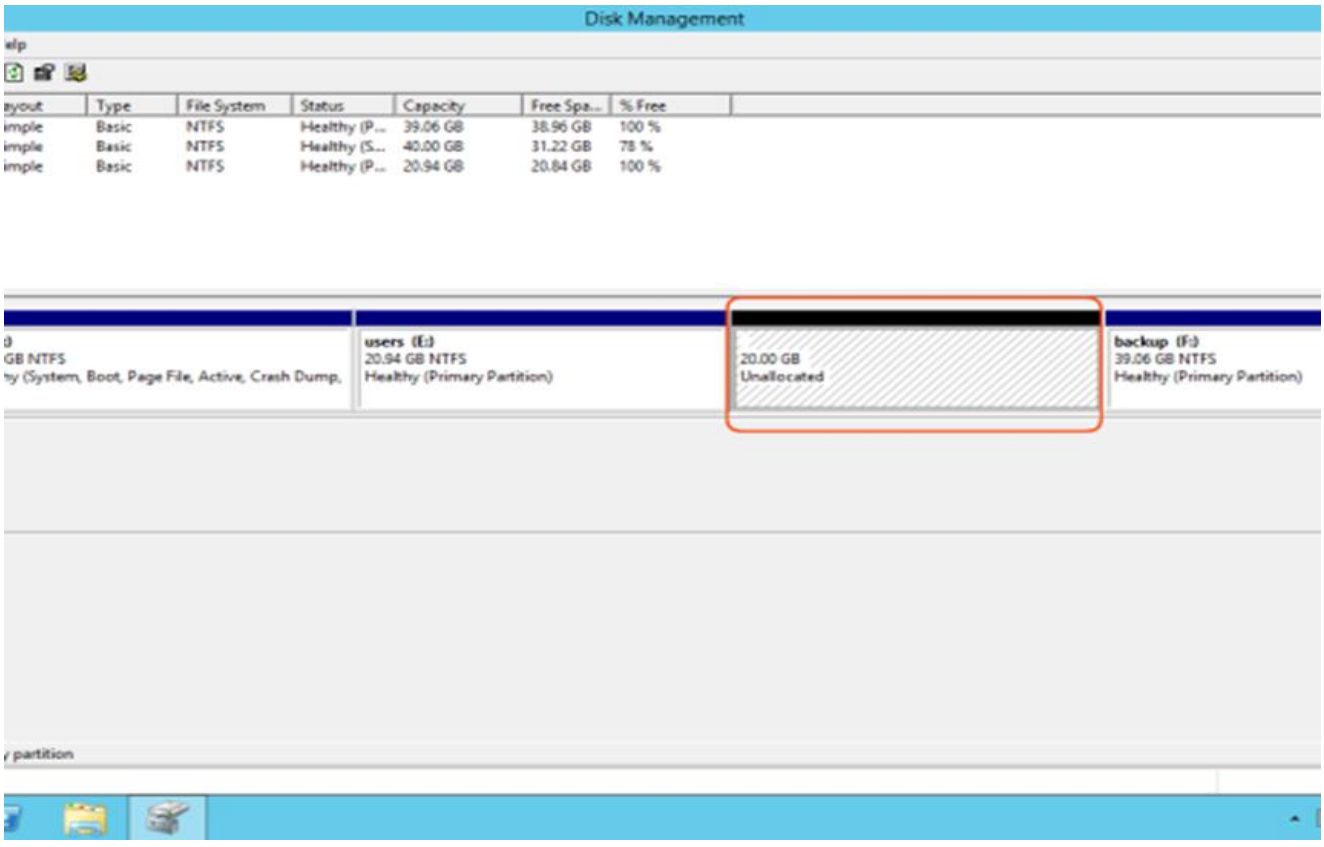
7.2.1- Shrink Volume in window server 2012R2

تقليص المساحة التخزينية للقرص داخل Windows server 2012

Re-size partition by Shrink Volume

Right-click the Windows icon on bottom left corner and select “Disk Management”, and then you’ll see all disks and partitions, capacity and free space of a single partition as well as other information. To change a created partition size, right click it and select “Shrink Volume”


Disk Management
Type
File System
Status
Capacity
Free Spa...
% Free
Basic
NTFS
Healthy (P...
39.06 GB
38.96 GB
100 %
Basic
NTFS
Healthy (S...
40.00 GB
31.22 GB
78 %
Basic
NTFS
Healthy (P...
40.94 GB
40.84 GB
100 %
users (E:)
40.94 GB NTFS
Healthy (Primary Partition)
backup (F:)
Open
Explore
Mark Partition as Active
Change Drive Letter and Paths...
Format...
Extend Volume...
Shrink Volume...
Add Mirror...
Delete Volume...
Properties
Help


Disk Management
Type
File System
Status
Capacity
Free Spa...
% Free
Basic
NTFS
Healthy (P...
39.06 GB
38.96 GB
100 %
Basic
NTFS
Healthy (S...
40.00 GB
31.22 GB
78 %
Basic
NTFS
Healthy (P...
20.94 GB
20.84 GB
100 %
users (E:)
20.94 GB NTFS
Healthy (Primary Partition)
20.00 GB
Unallocated
backup (F:)
39.06 GB NTFS
Healthy (Primary Partition)

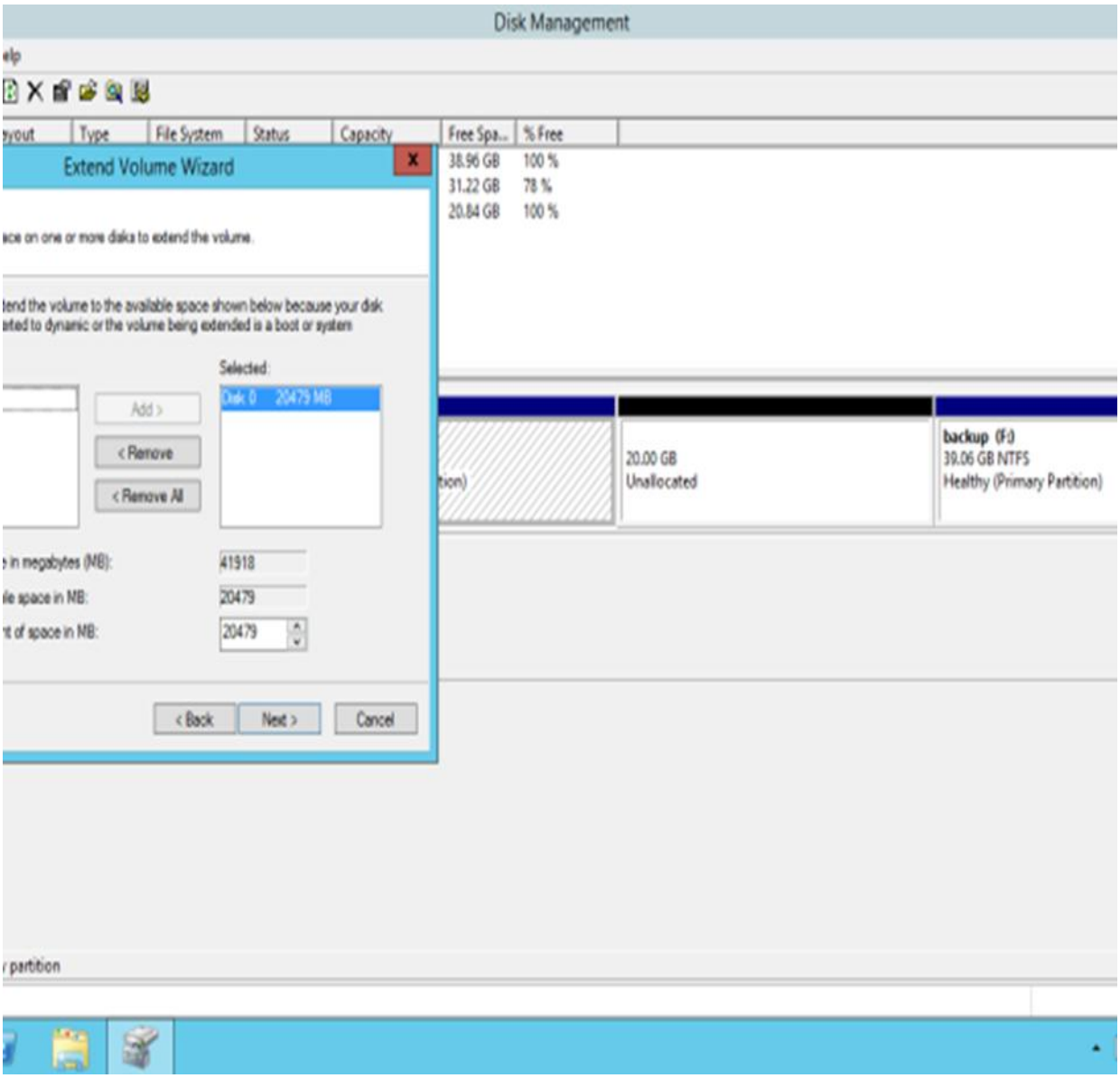
7.2.2- Extend Volume

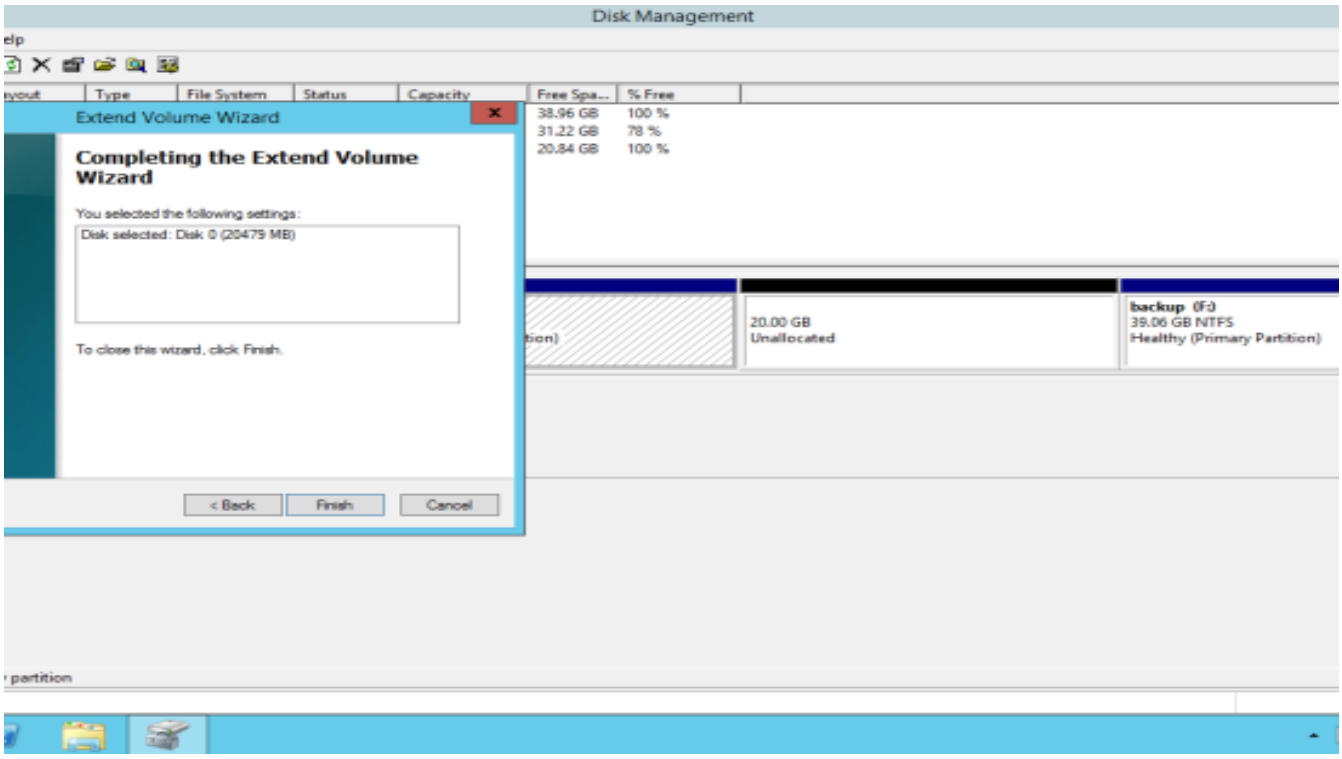
زيادة مساحة القرص الصلب Windows Server 2012

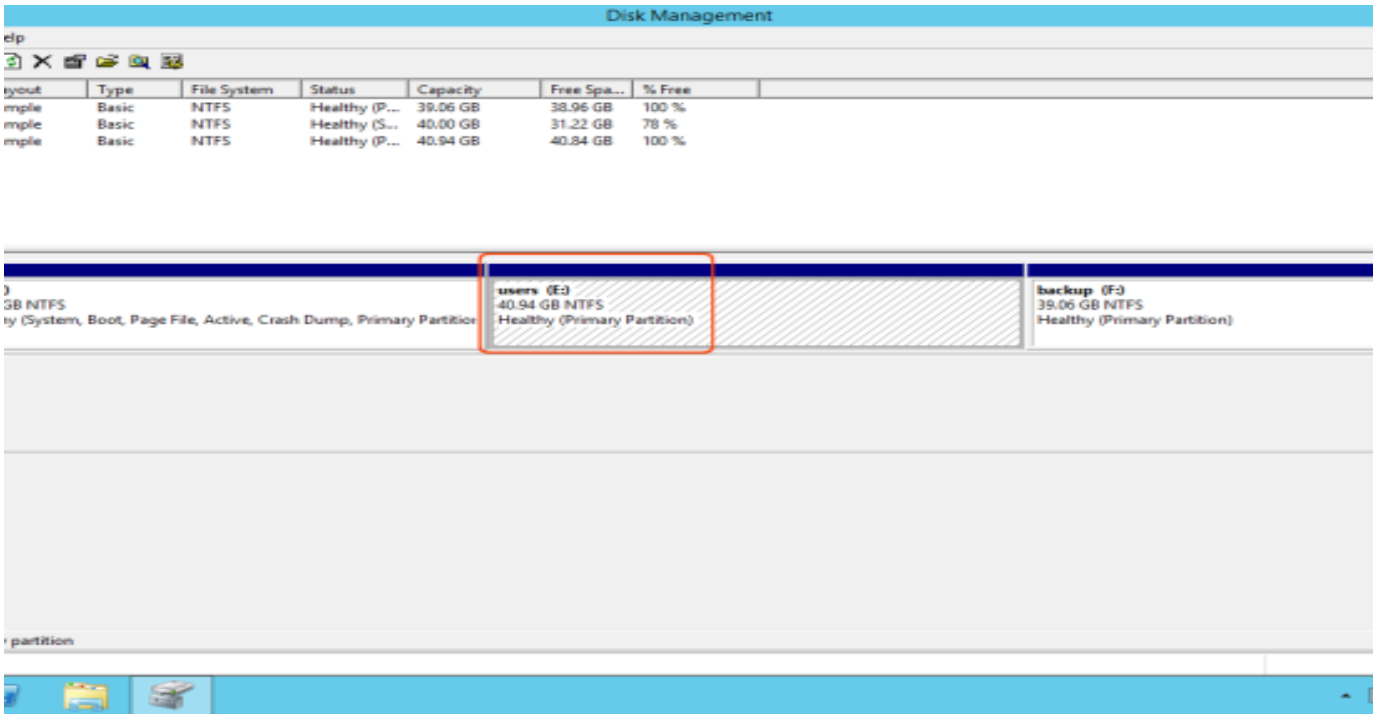
Resize partition with Extend Volume

In Windows Server 2012 Disk Management console, you can extend a disk drive, but not every drive can be extended.

Let's right click a data partition, as you see Extend Volume is greyed out




Disk Management
Extend Volume Wizard
Completing the Extend Volume Wizard
You selected the following settings:
Disk selected: Disk 0 (20479 MB)
To close this wizard, click Finish.
< Back
Finish
Cancel
20.00 GB
Unallocated
backup (F:)
39.06 GB NTFS
Healthy (Primary Partition)

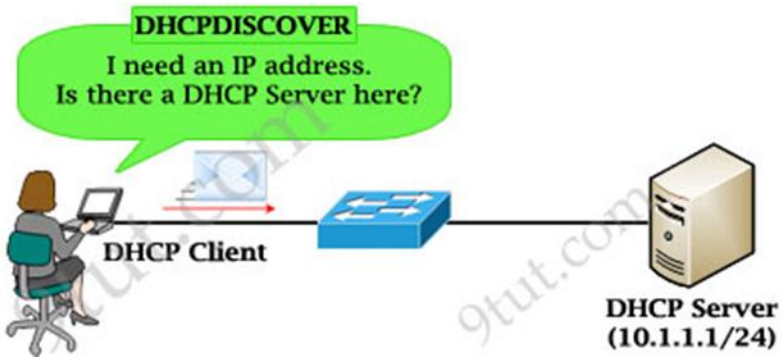

Disk Management
users (E:)
40.94 GB NTFS
Healthy (Primary Partition)
backup (F:)
39.06 GB NTFS
Healthy (Primary Partition)

8- DHCP server

وهو عبارة عن برتوكول يعمل في الطبقة السابعة يقوم بإعطاء IP ,subnet mask,والبوابة الافتراضية و DNS الخ... بشكل تلقائي لجميع الاجهزة داخل الشبكة.

The Dynamic Host Configuration Protocol (DHCP)

a DHCP server dynamically assigns an IP address to hosts (computer, printer, mobile ..ETC) other network configuration parameters to each device on a network so they can communicate with other IP networks.

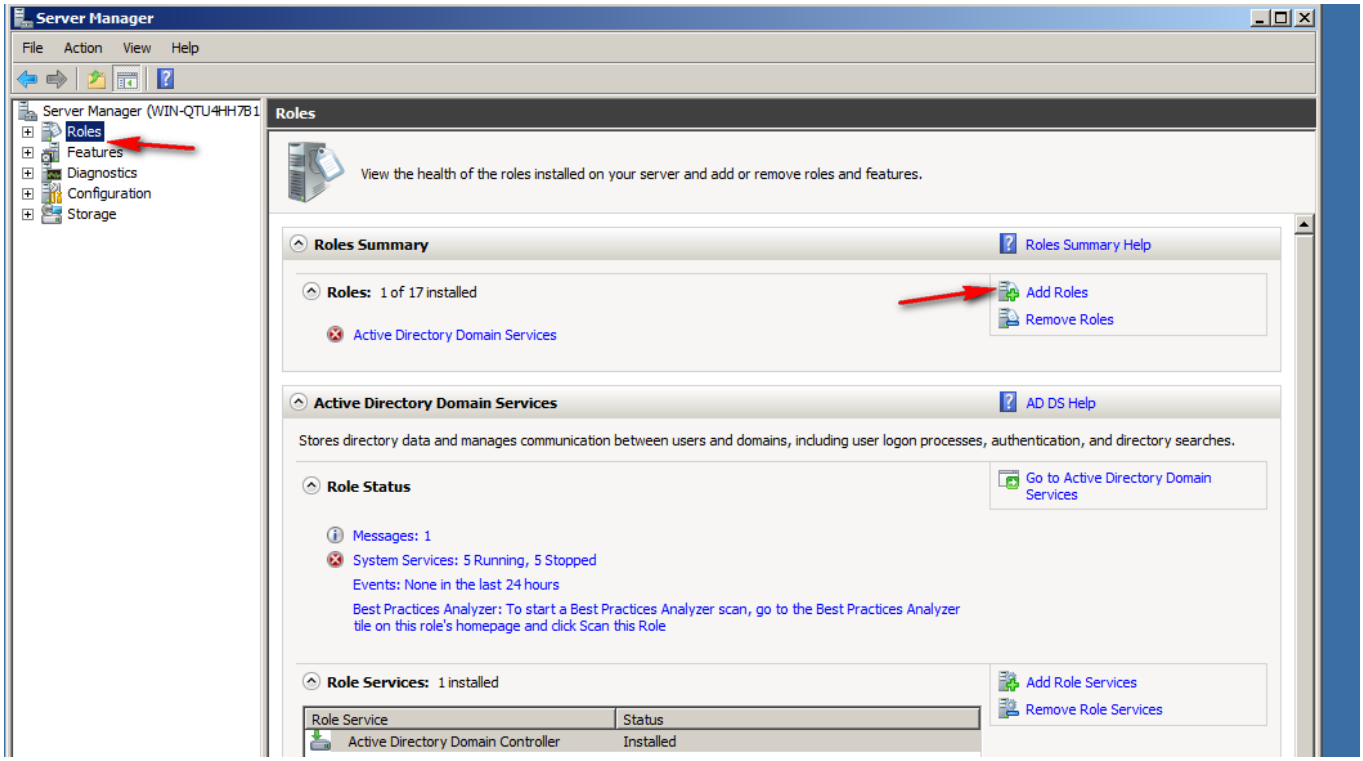


8.1- DHCP server in windows server 2008

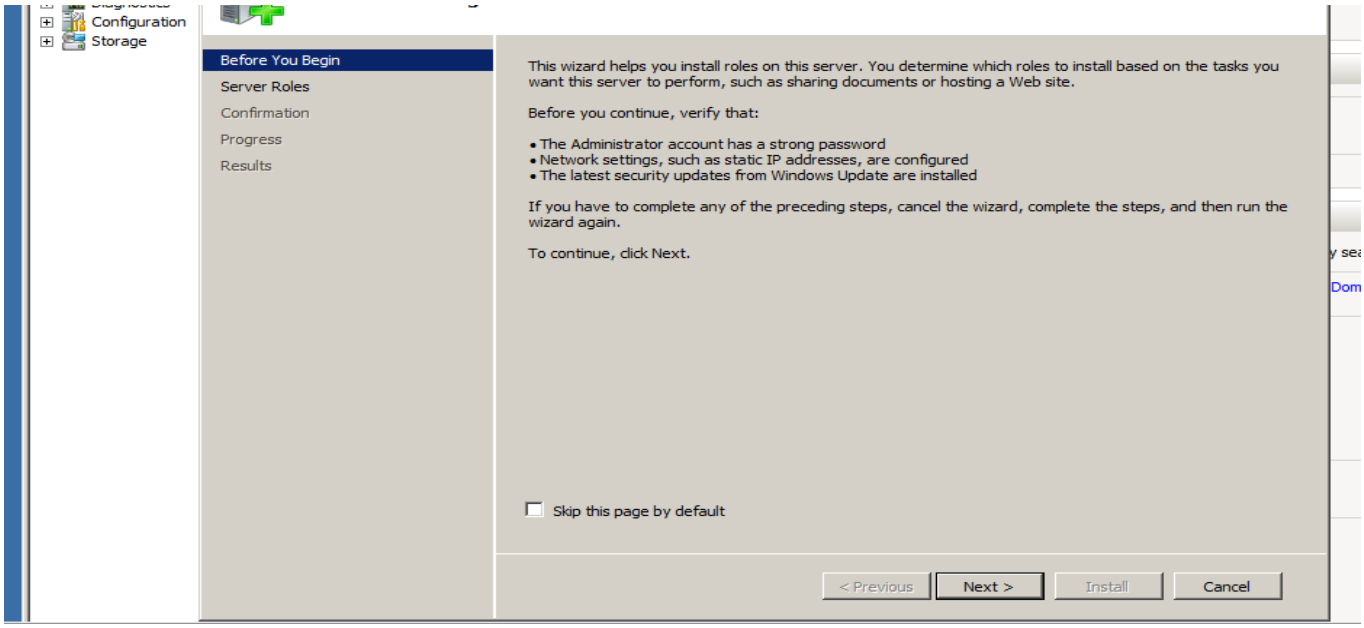
تفعيل DHCP داخل windows server 2008

Install Dynamic host configuration protocols DHCP on windows server 2008 r2

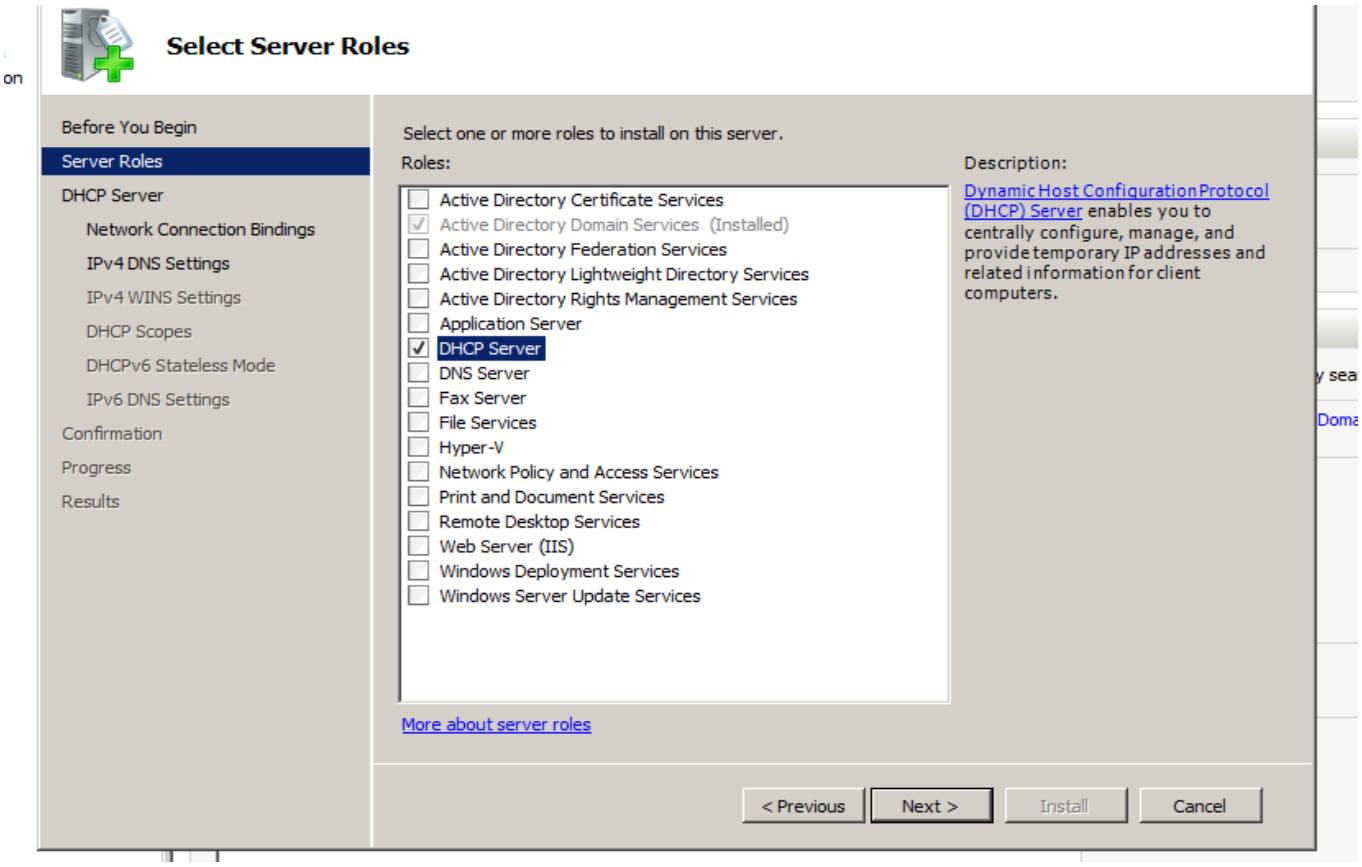
Add DHCP role



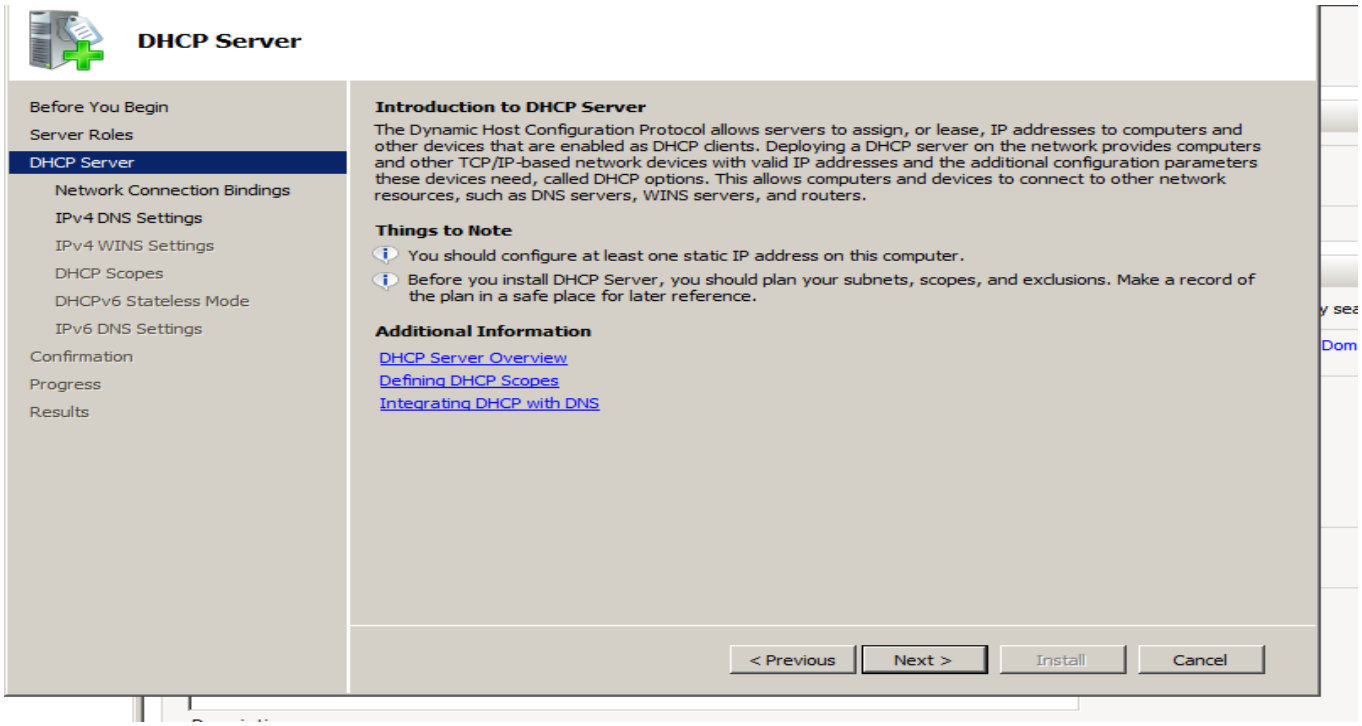
Add DHCP role



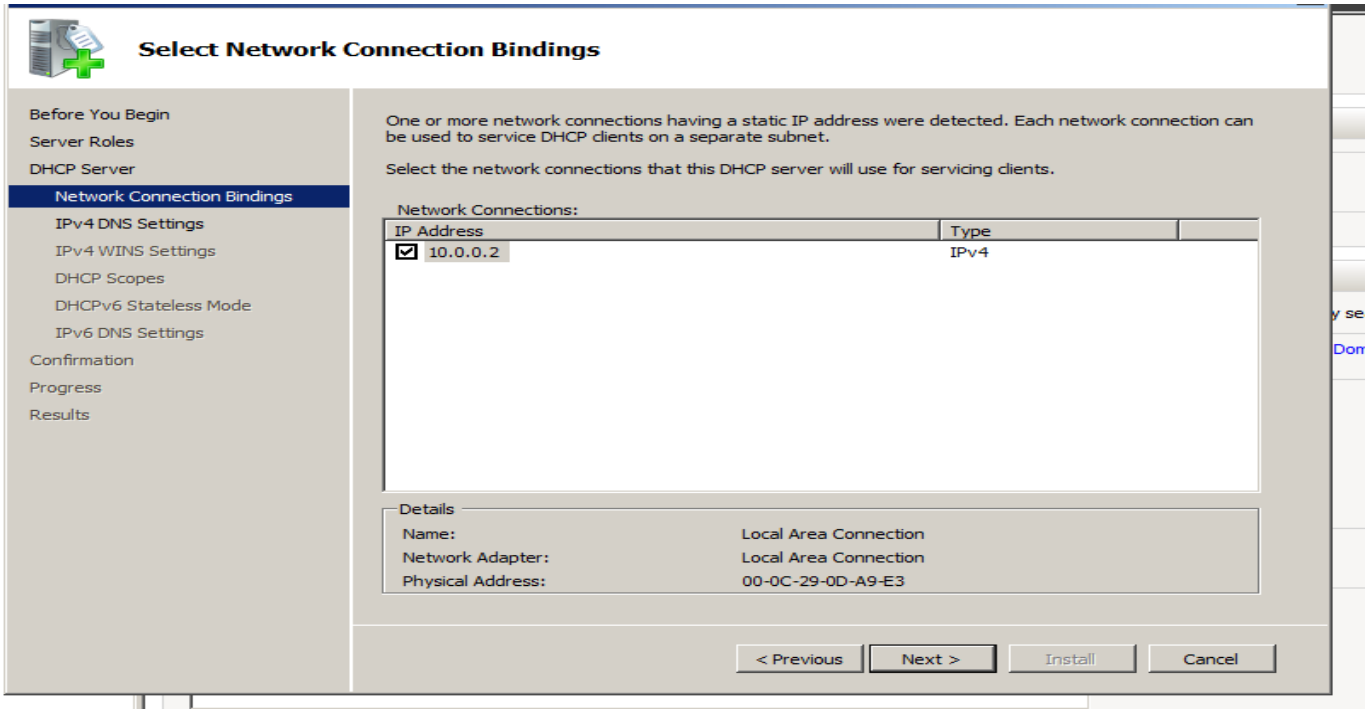
Select DHCP role


Select Server Roles
Before You Begin
Server Roles
DHCP Server
Network Connection Bindings
IPv4 DNS Settings
IPv4 WINS Settings
DHCP Scopes
DHCPv6 Stateless Mode
IPv6 DNS Settings
Confirmation
Progress
Results
Select one or more roles to install on this 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
Application Server
DHCP Server
DNS Server
Fax Server
File Services
Hyper-V
Network Policy and Access Services
Print and Document Services
Remote Desktop Services
Web Server (IIS)
Windows Deployment Services
Windows Server Update Services
Description:
Dynamic Host Configuration Protocol (DHCP) Server enables you to centrally configure, manage, and provide temporary IP addresses and related information for client computers.
More about server roles
< Previous
Next >
Install
Cancel

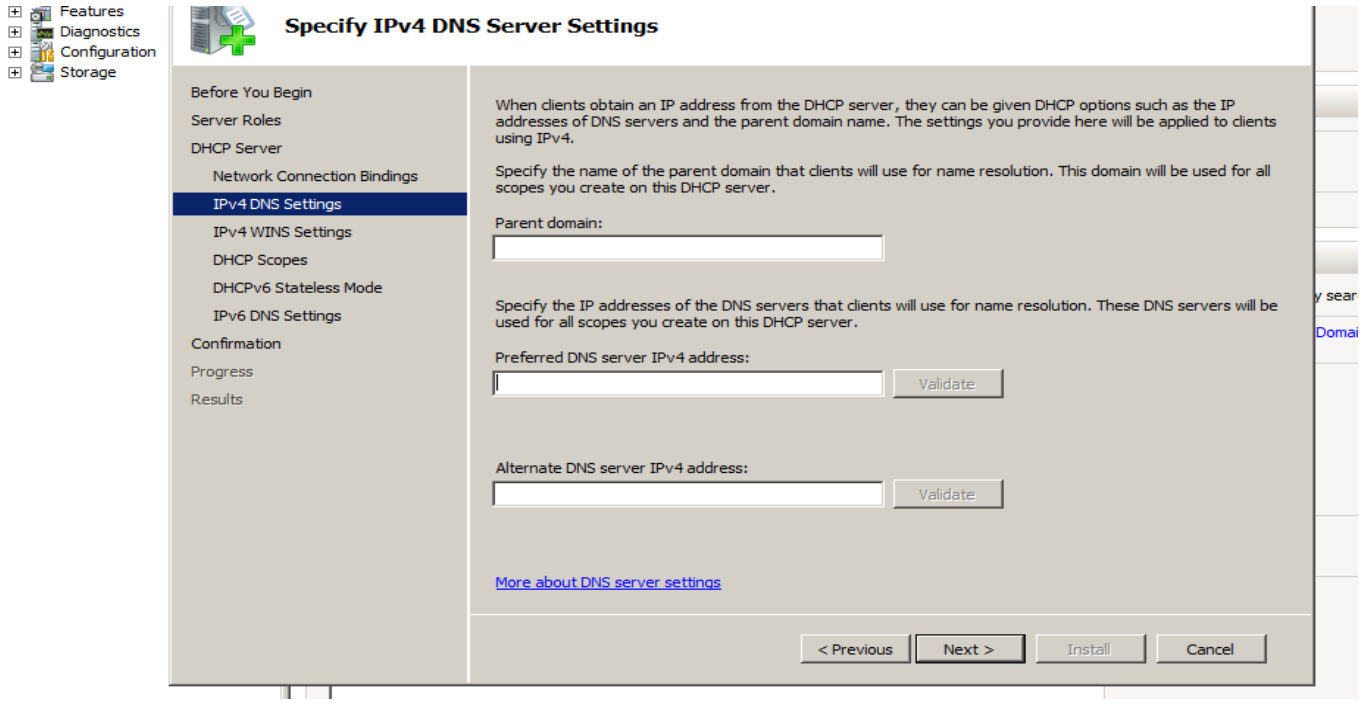
DHCP server


DHCP Server
Before You Begin
Server Roles
DHCP Server
Network Connection Bindings
IPv4 DNS Settings
IPv4 WINS Settings
DHCP Scopes
DHCPv6 Stateless Mode
IPv6 DNS Settings
Confirmation
Progress
Results
Introduction to DHCP Server
The Dynamic Host Configuration Protocol allows servers to assign, or lease, IP addresses to computers and other devices that are enabled as DHCP clients. Deploying a DHCP server on the network provides computers and other TCP/IP-based network devices with valid IP addresses and the additional configuration parameters these devices need, called DHCP options. This allows computers and devices to connect to other network resources, such as DNS servers, WINS servers, and routers.
Things to Note
You should configure at least one static IP address on this computer.
Before you install DHCP Server, you should plan your subnets, scopes, and exclusions. Make a record of the plan in a safe place for later reference.
Additional Information
DHCP Server Overview
Defining DHCP Scopes
Integrating DHCP with DNS
< Previous
Next >
Install
Cancel

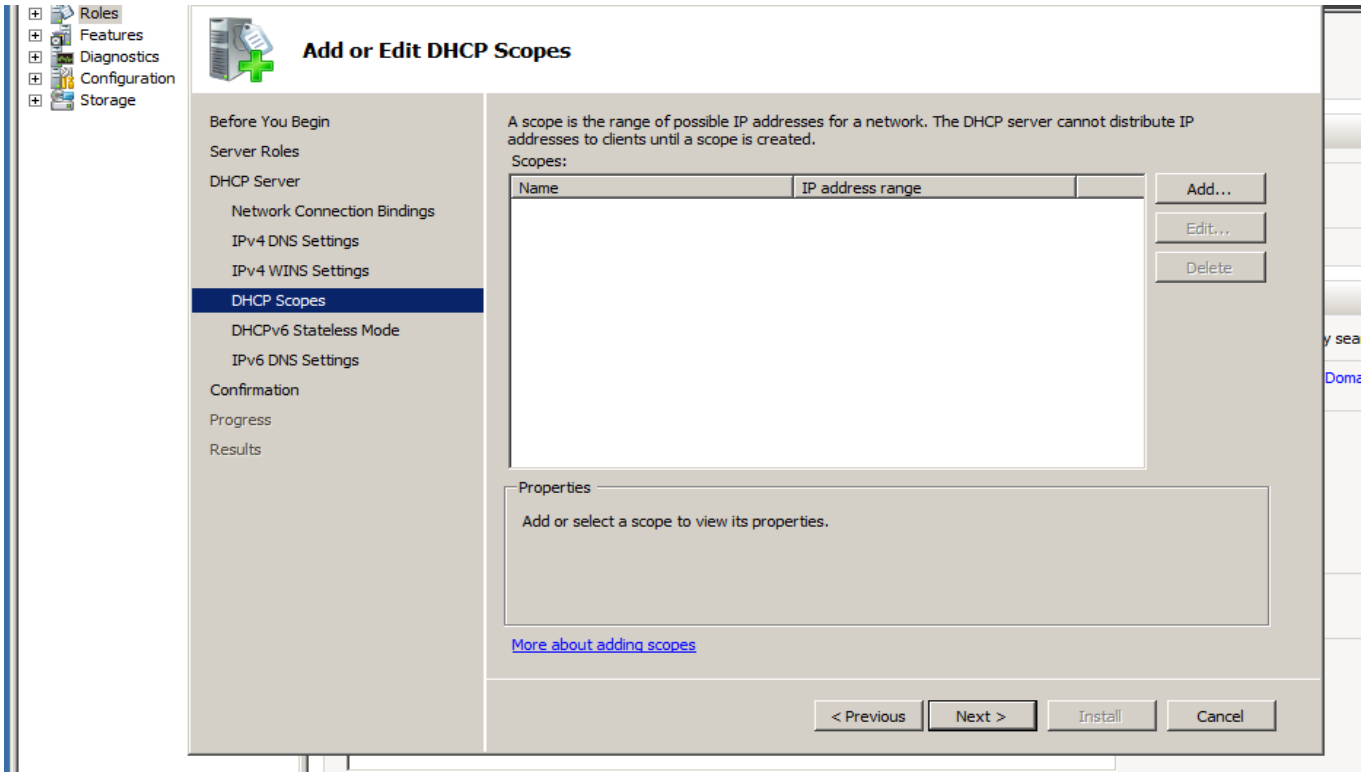
Select network connection bindings



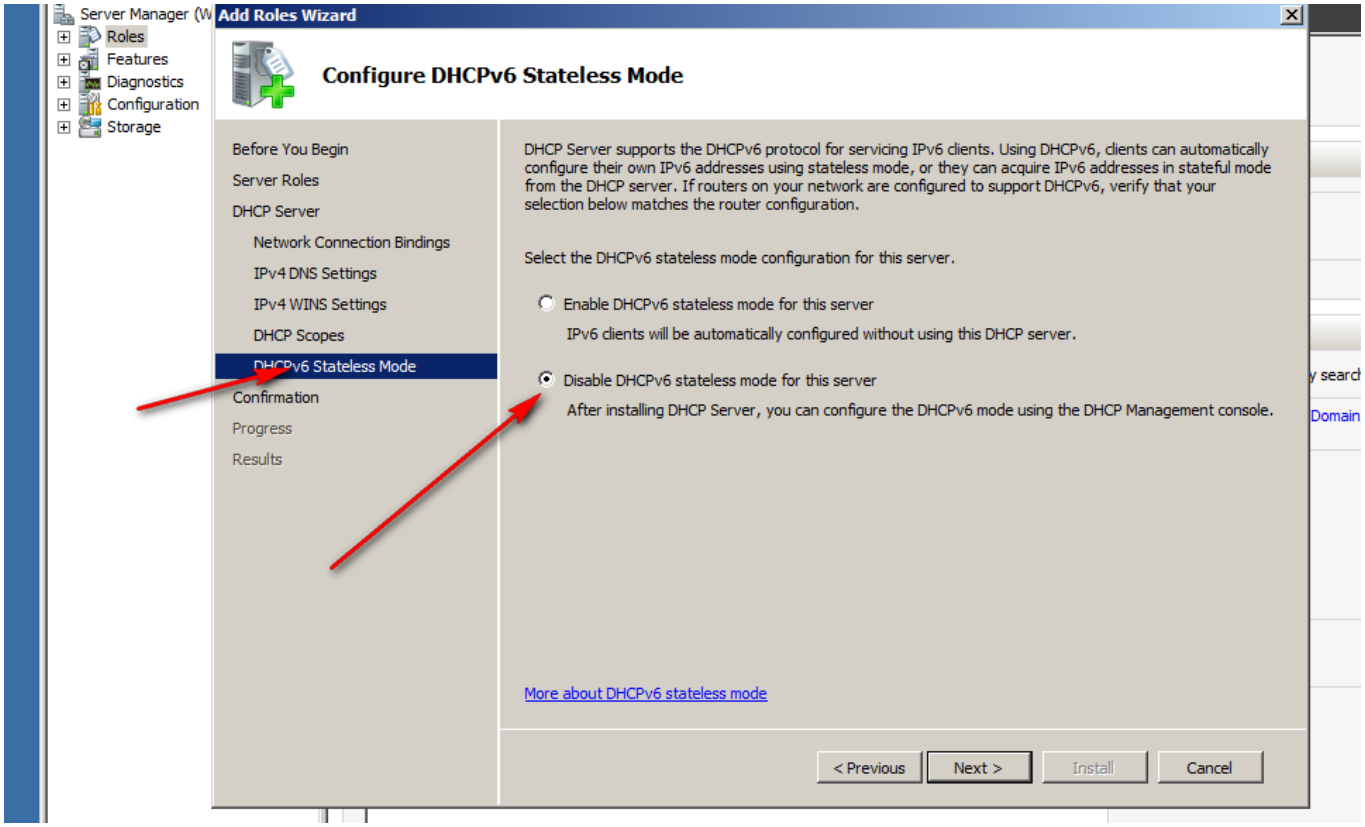
Select the domain



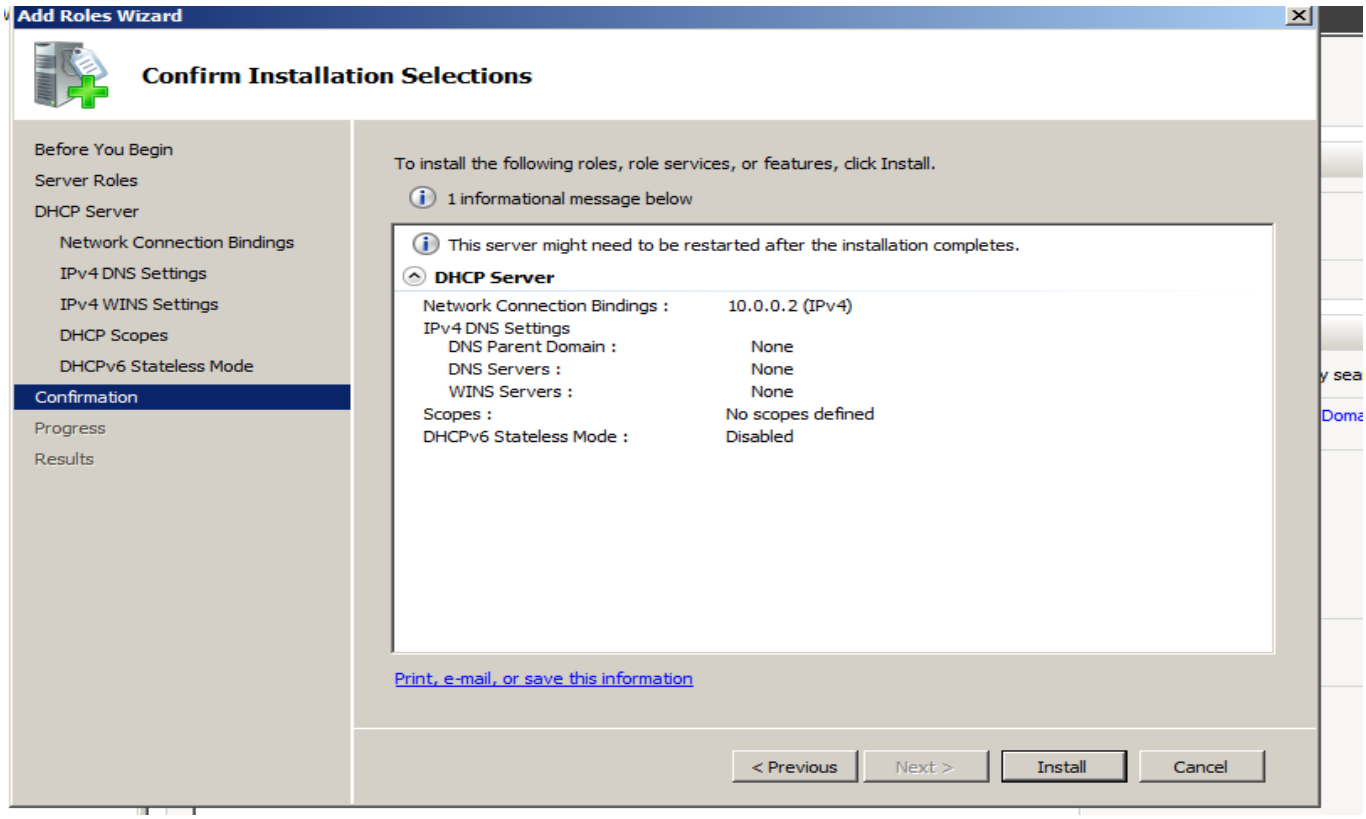
Add or edit scope

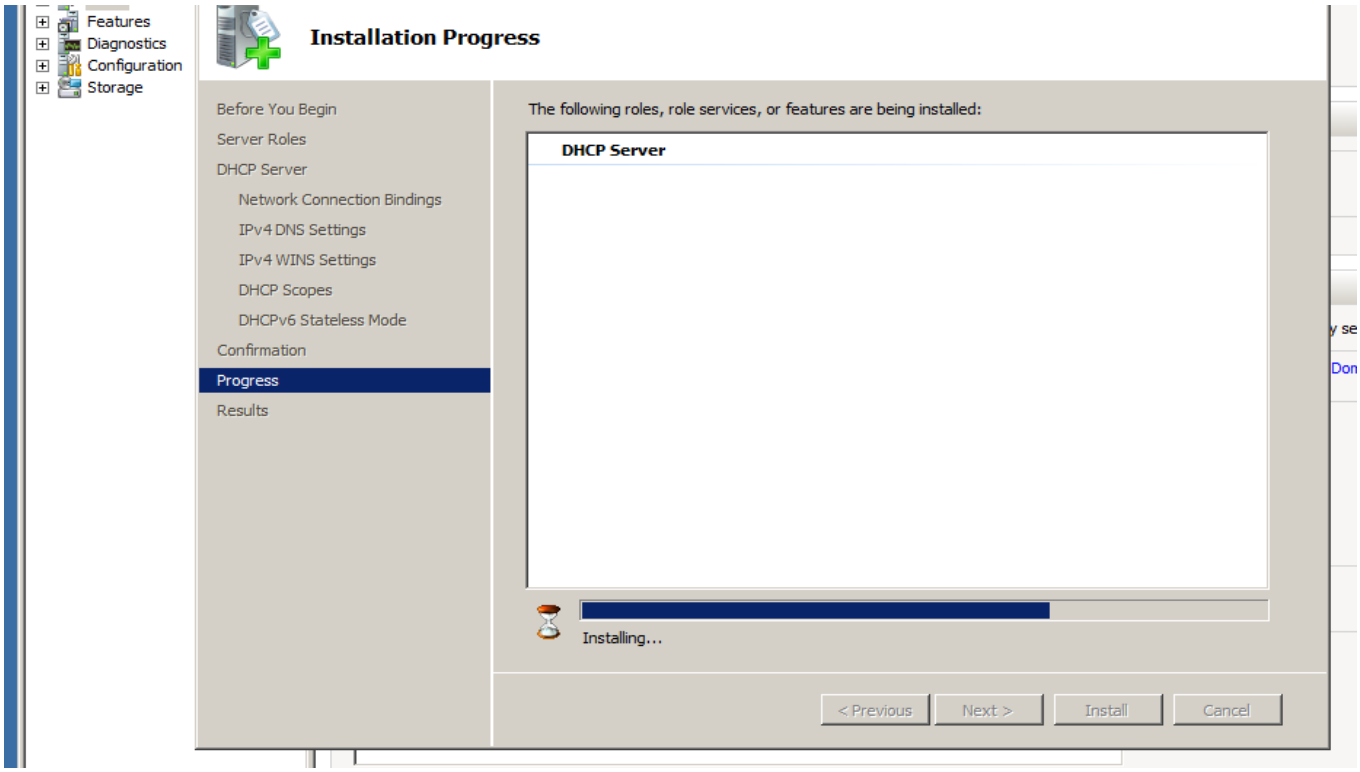


Configure DHCPV6

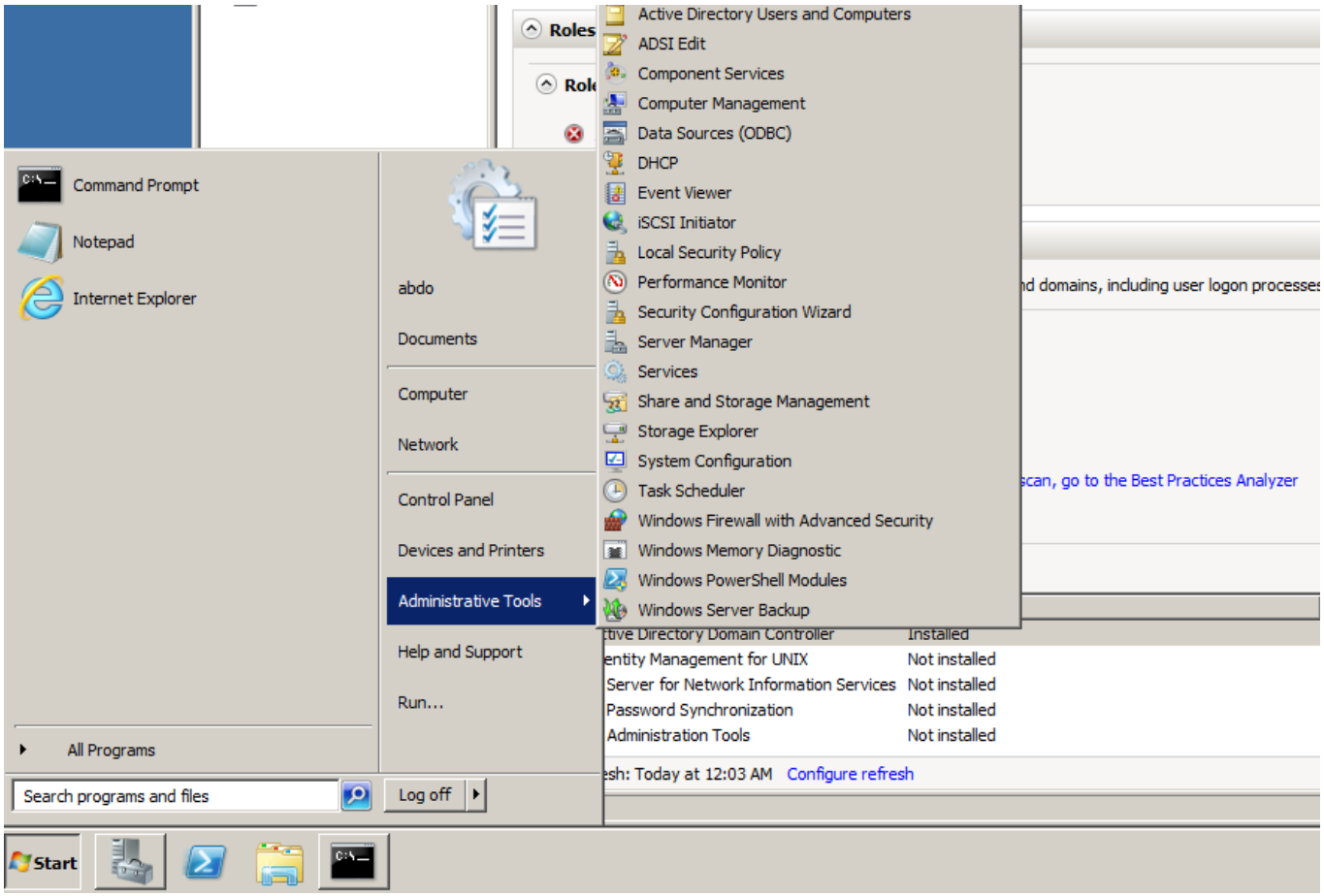


Install

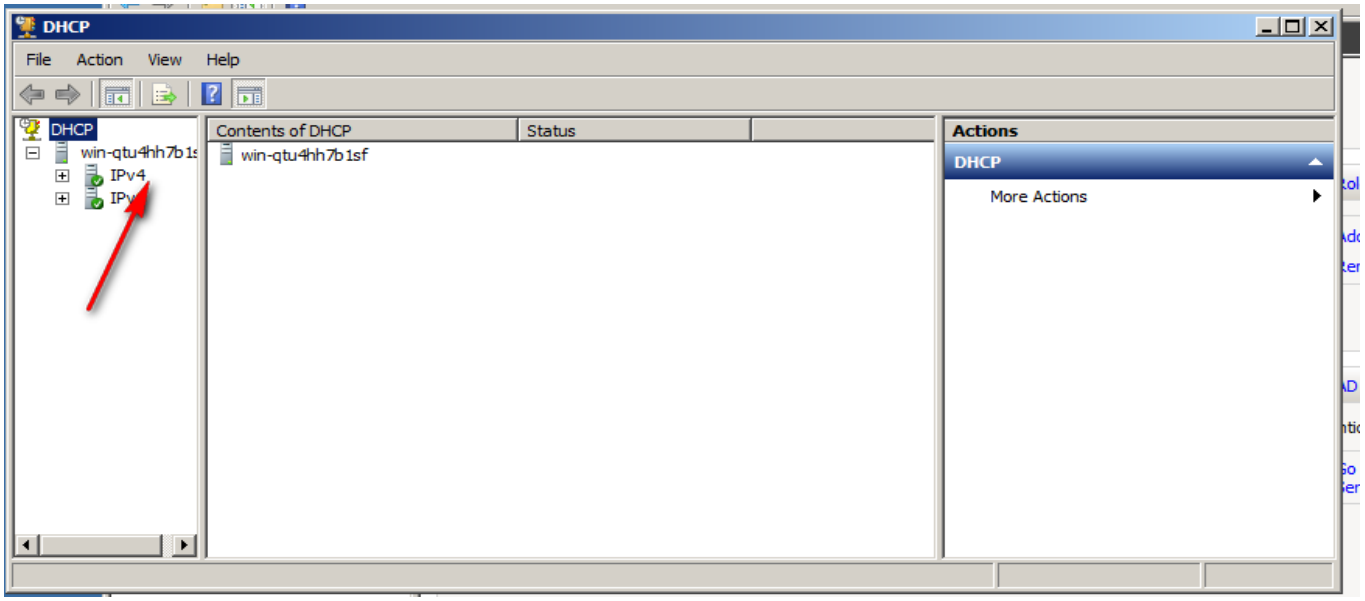




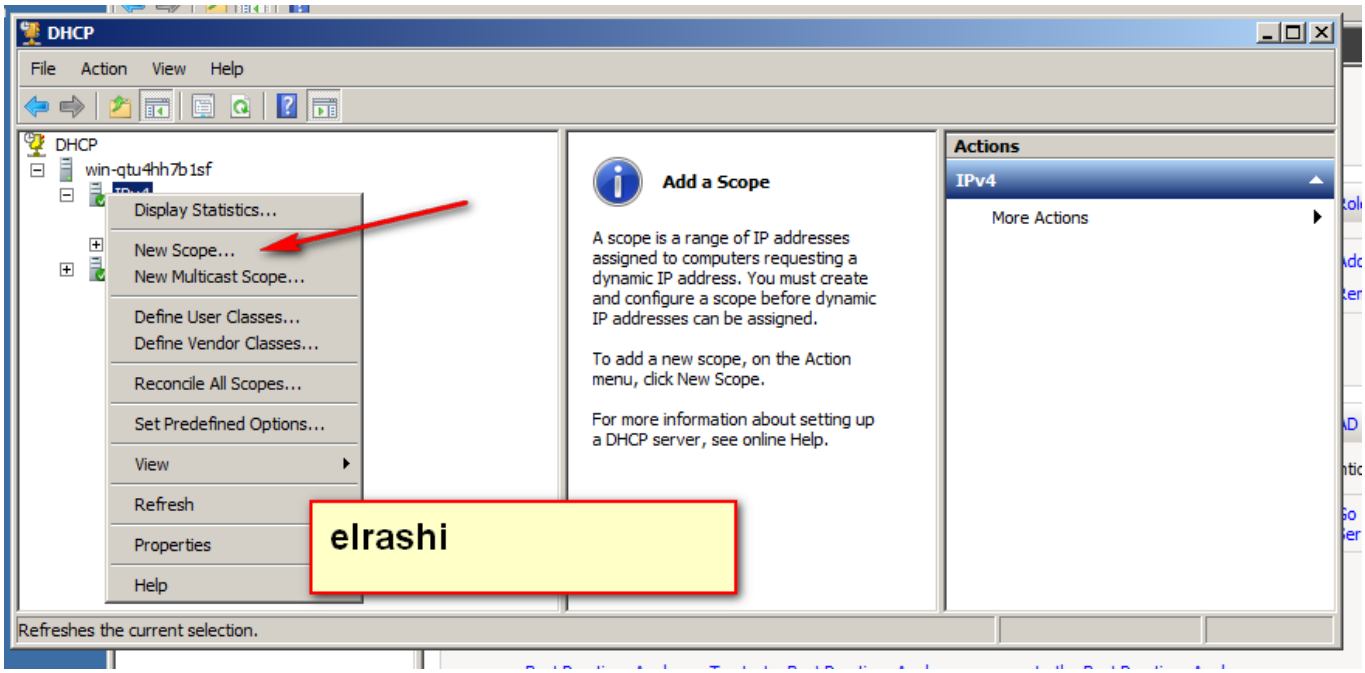
Open DHCP



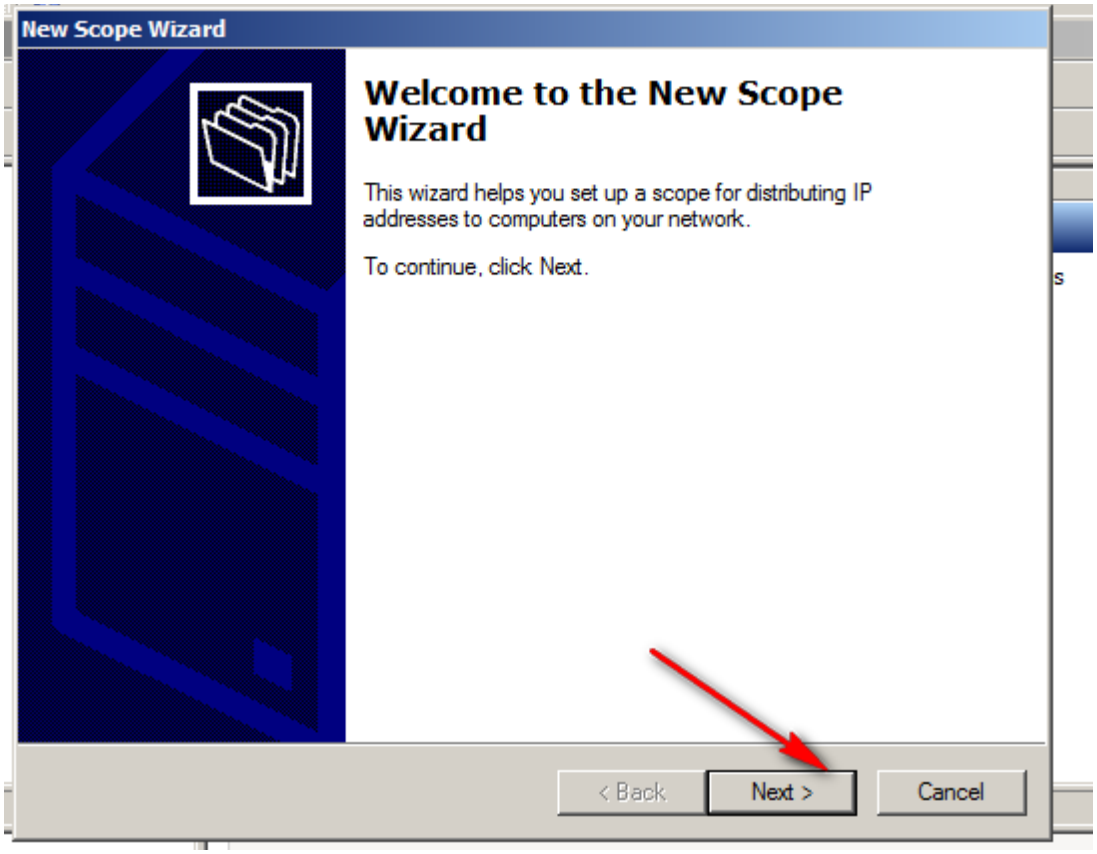
DHCP console



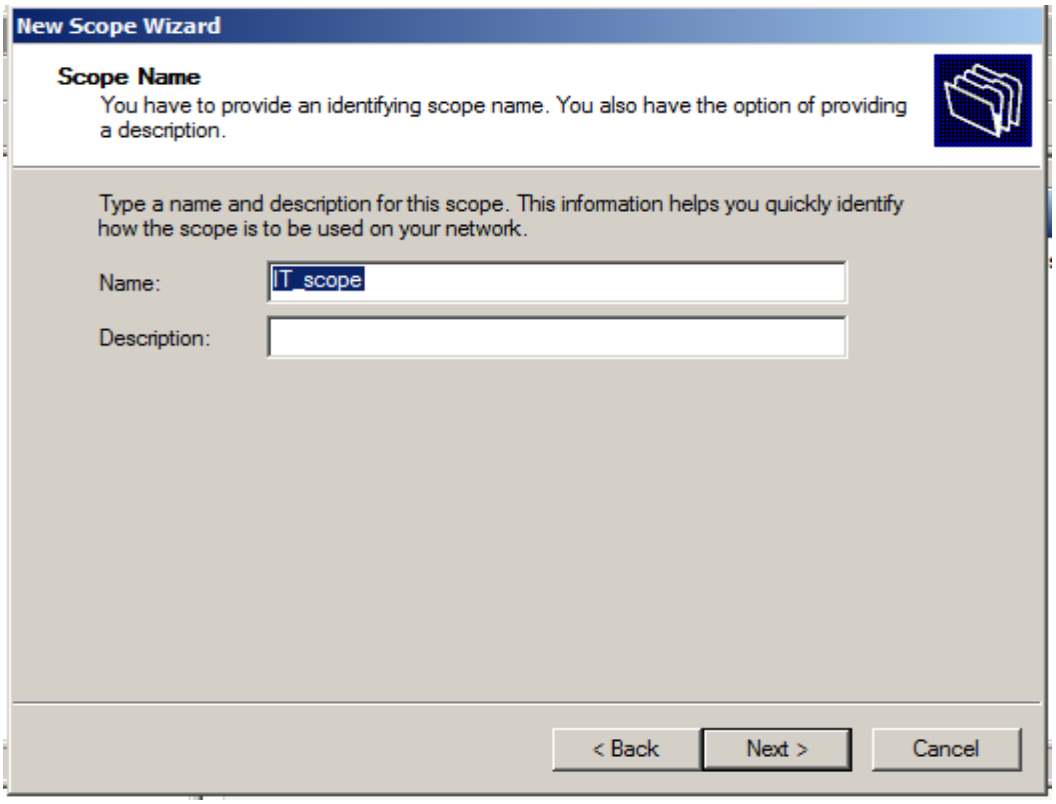
Add scope



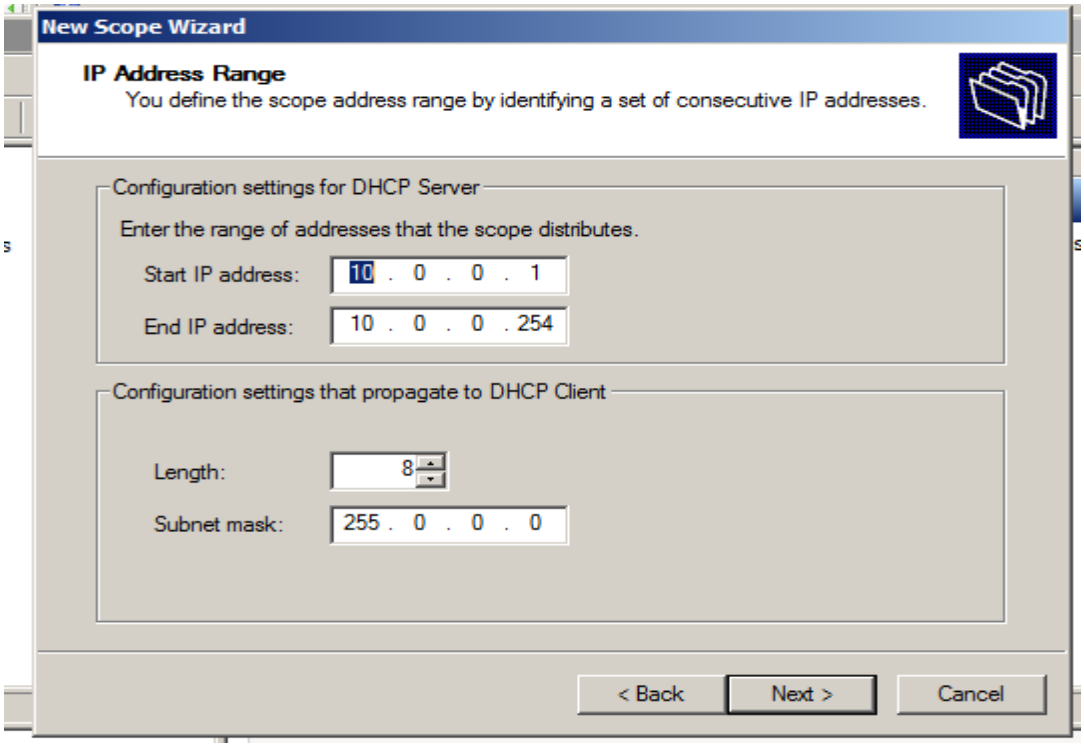
Next



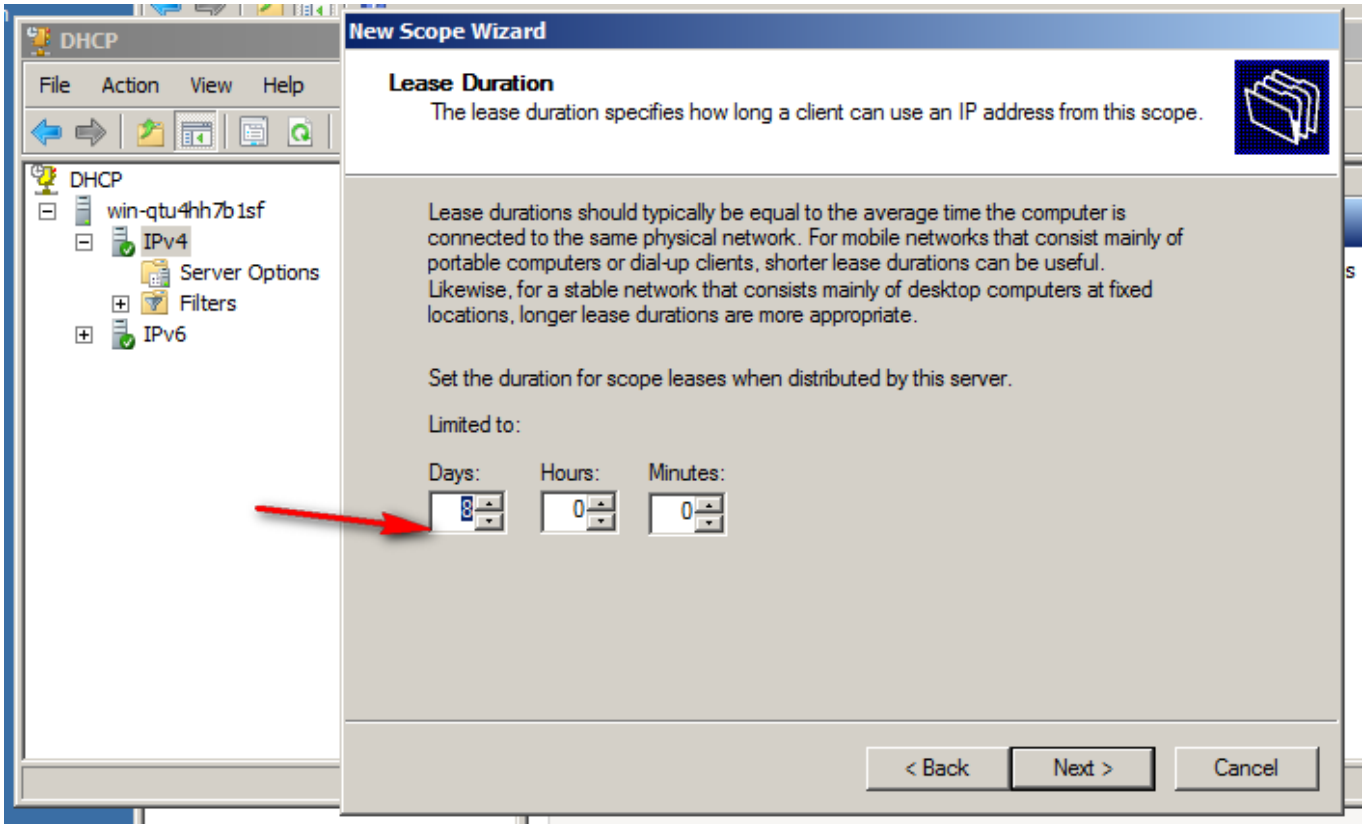
New scope


New Scope Wizard
Scope Name
You have to provide an identifying scope name. You also have the option of providing a description.
Type a name and description for this scope. This information helps you quickly identify how the scope is to be used on your network.
Name:
IT_scope
Description:
< Back
Next >
Cancel

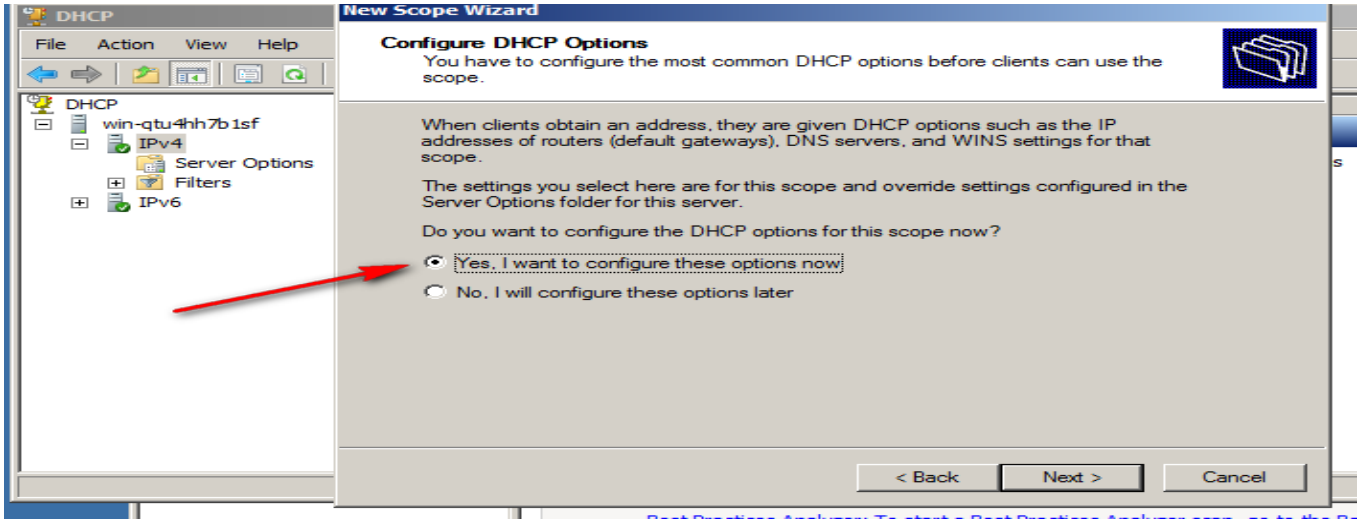
Scope range


New Scope Wizard
IP Address Range
You define the scope address range by identifying a set of consecutive IP addresses.
Configuration settings for DHCP Server
Enter the range of addresses that the scope distributes.
Start IP address:
10 . 0 . 0 . 1
End IP address:
10 . 0 . 0 . 254
Configuration settings that propagate to DHCP Client
Length:
8
Subnet mask:
255 . 0 . 0 . 0
< Back
Next >
Cancel

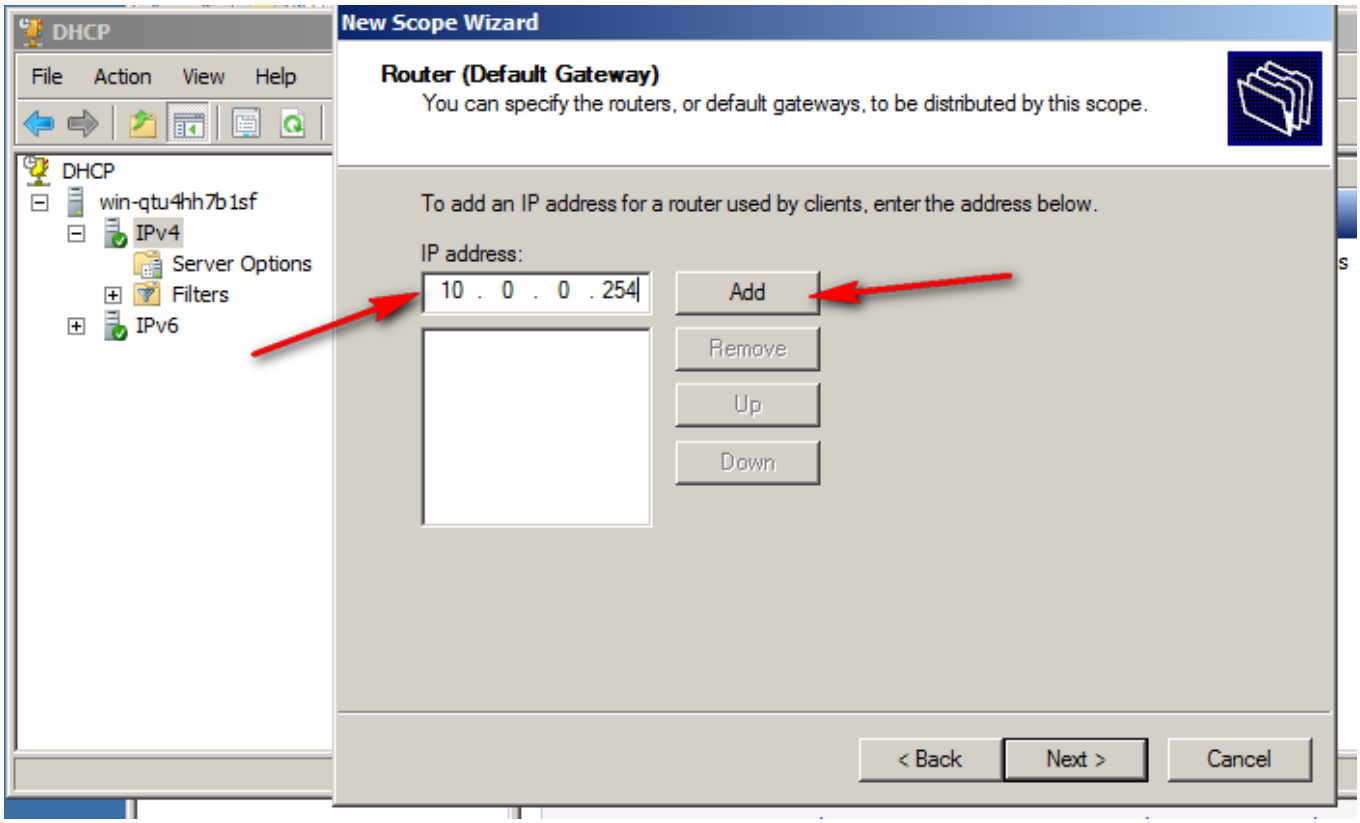
Lease duration



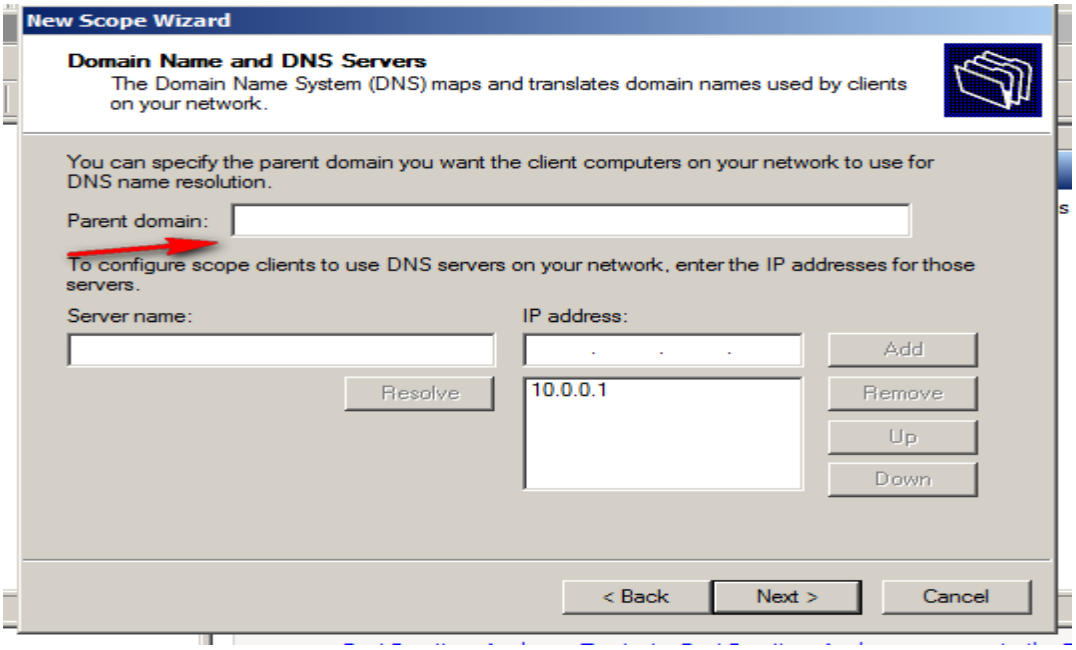
Configure the scope



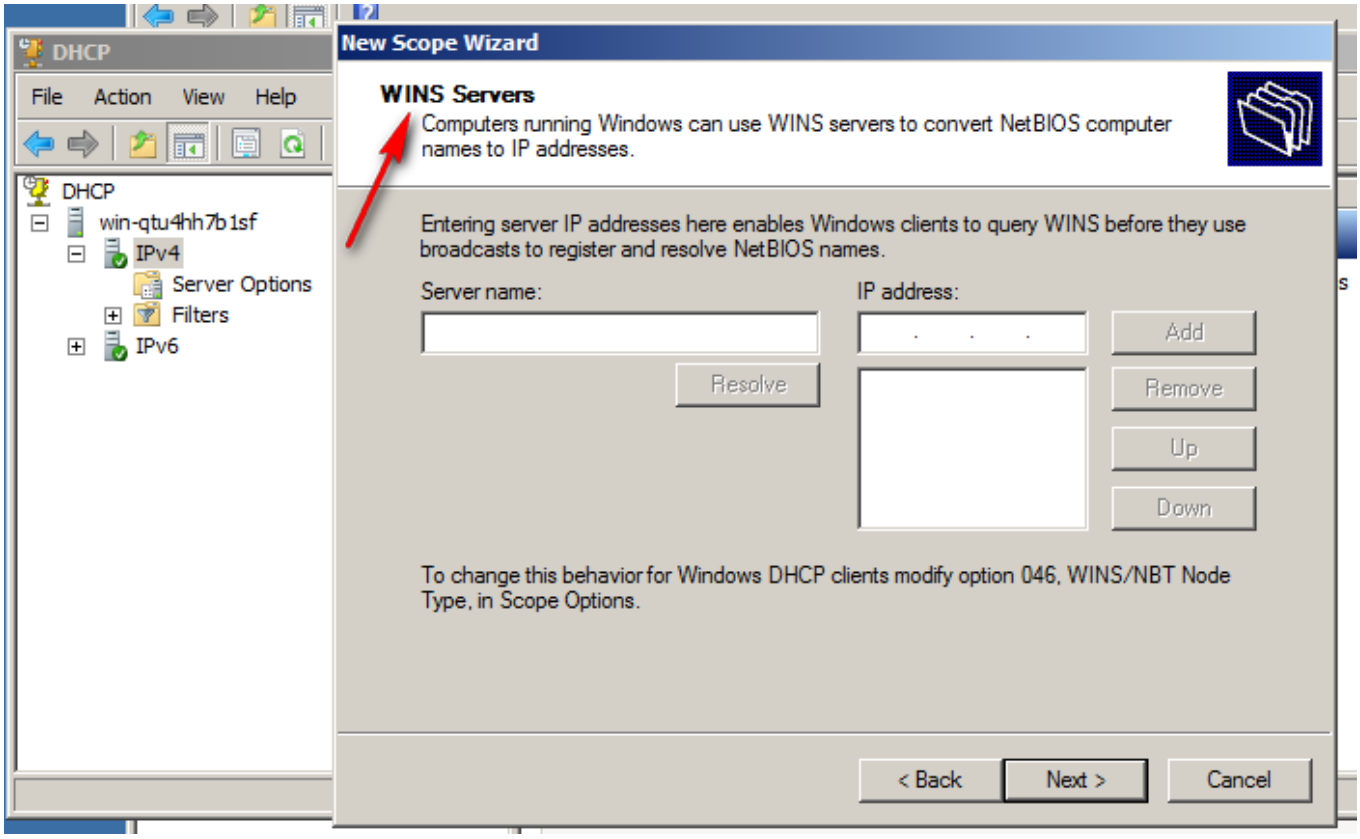
Add default gateway



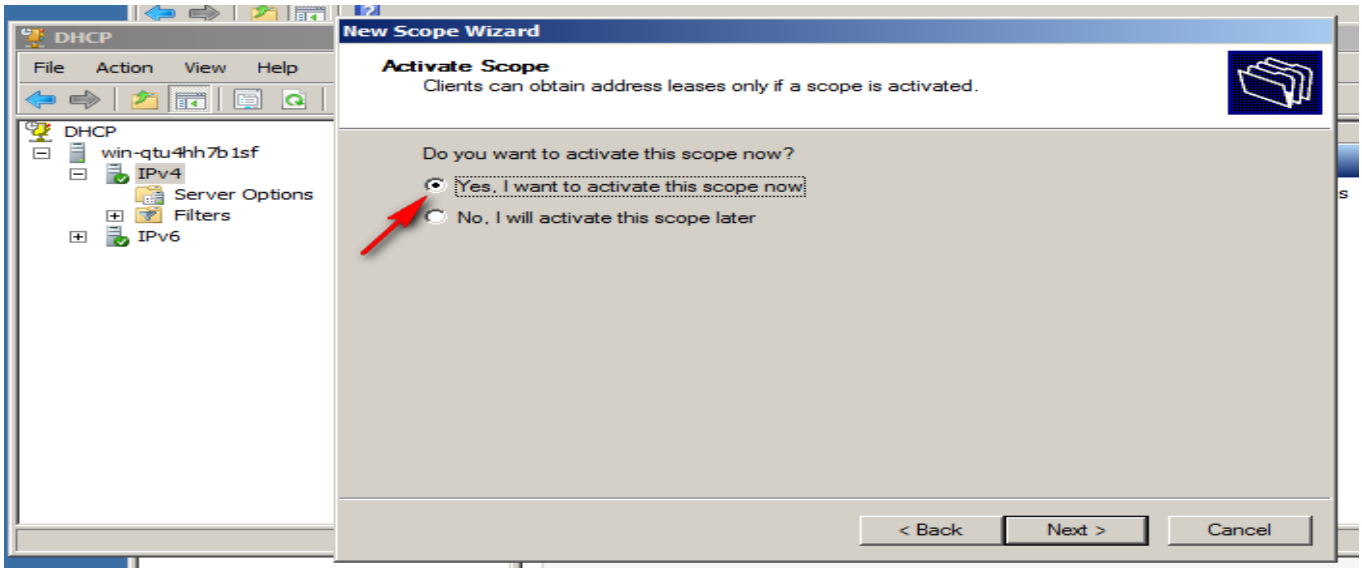
Add domain name



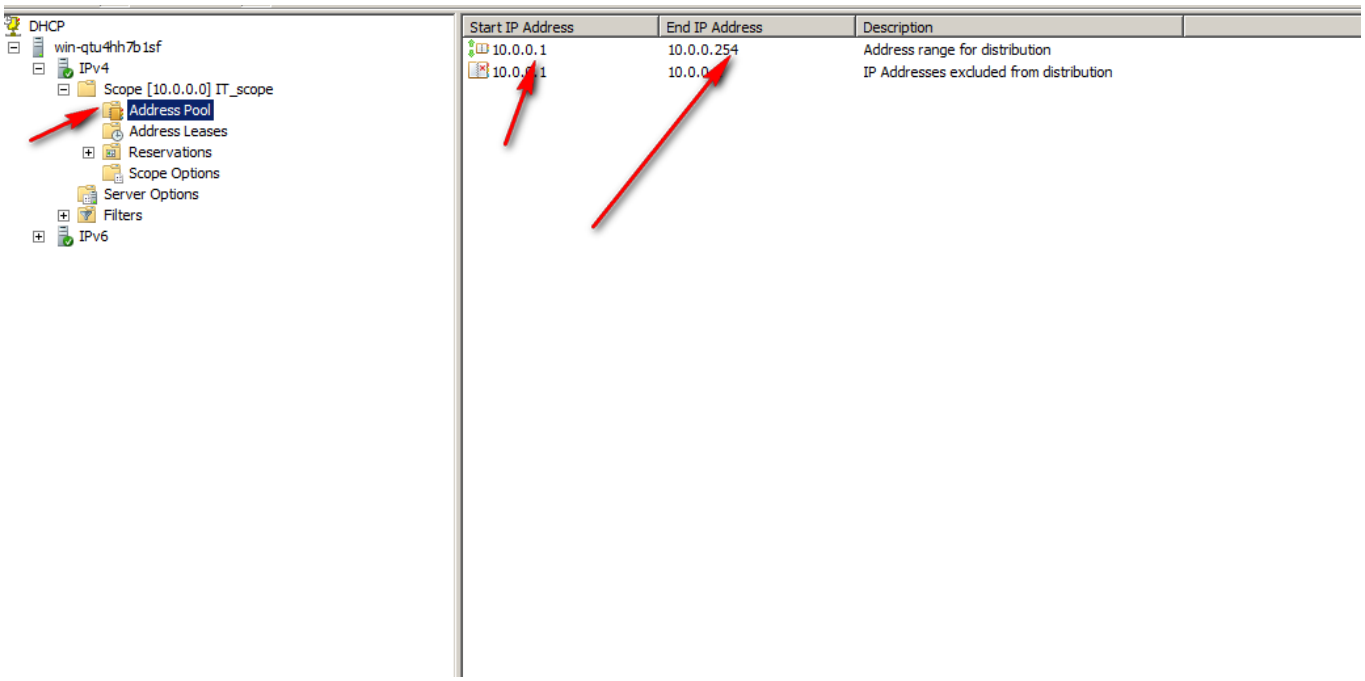
Wins servers



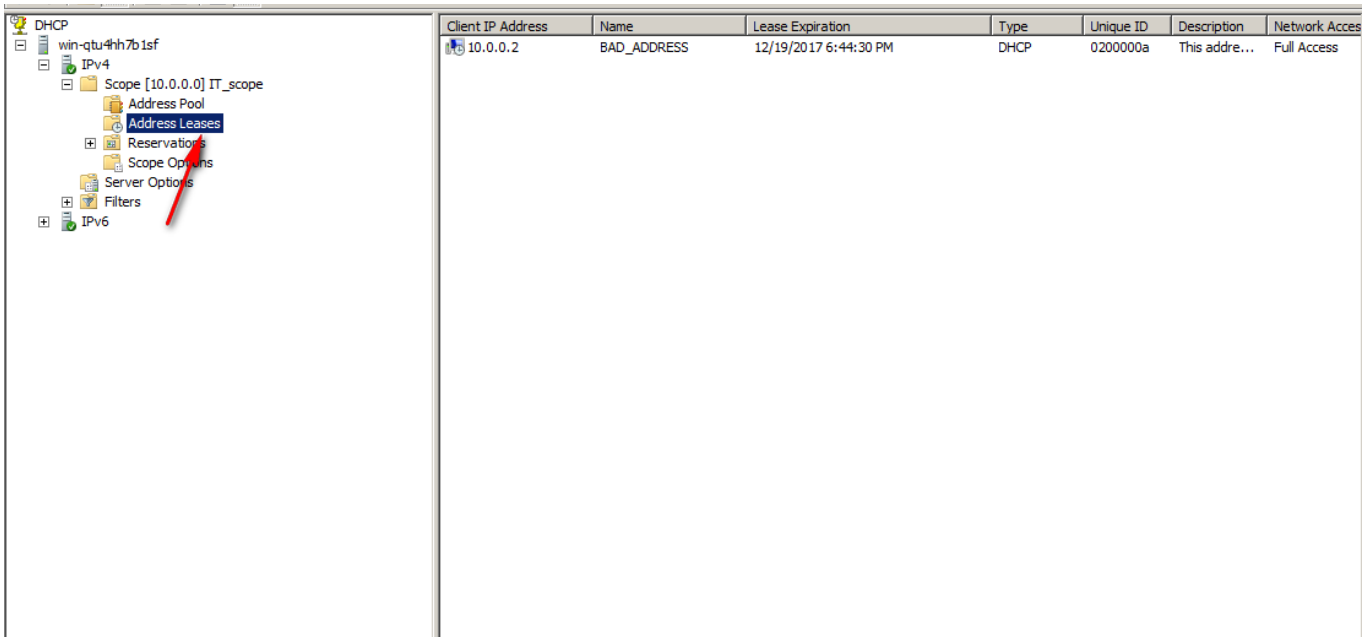
Activate the scope



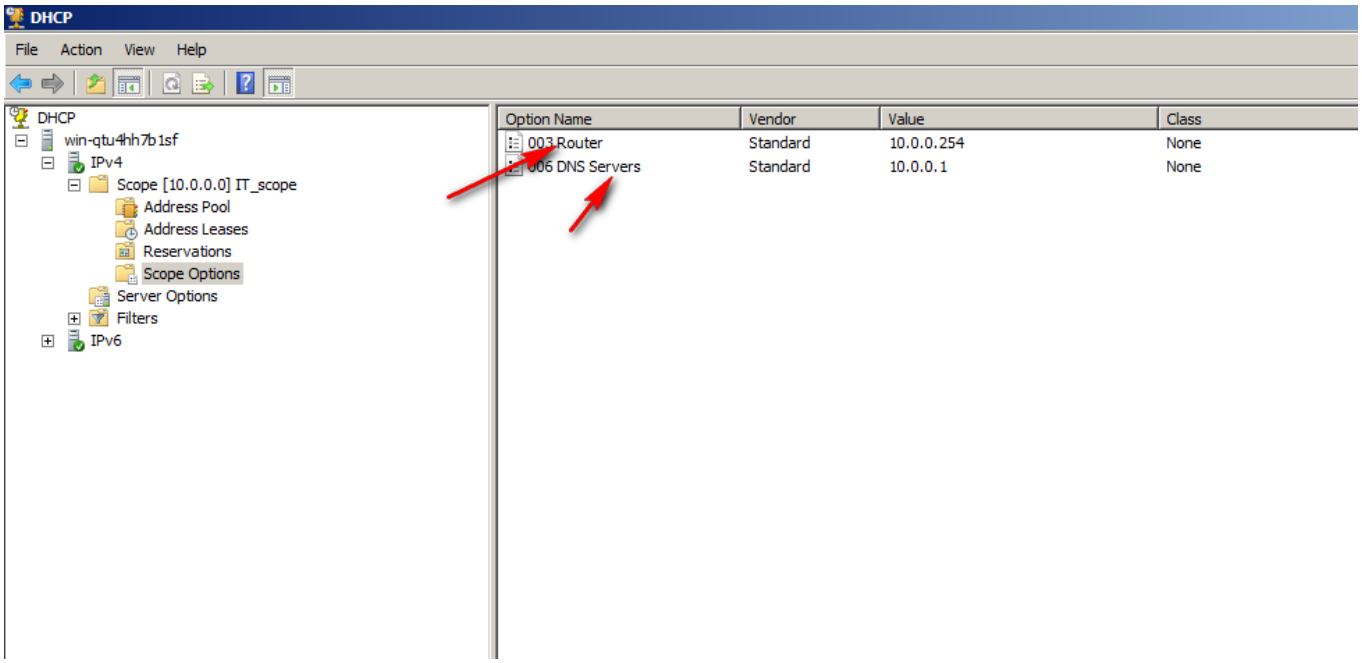
Address pool



Address leases

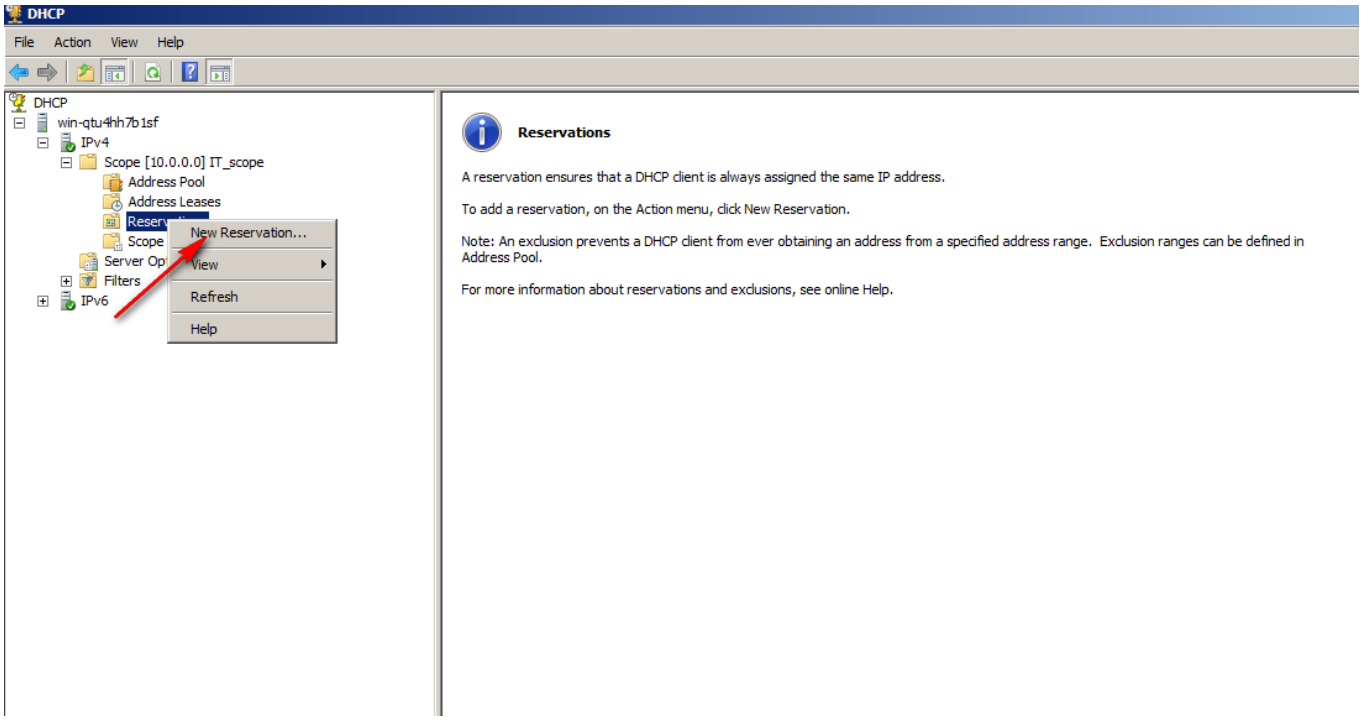


Scope options

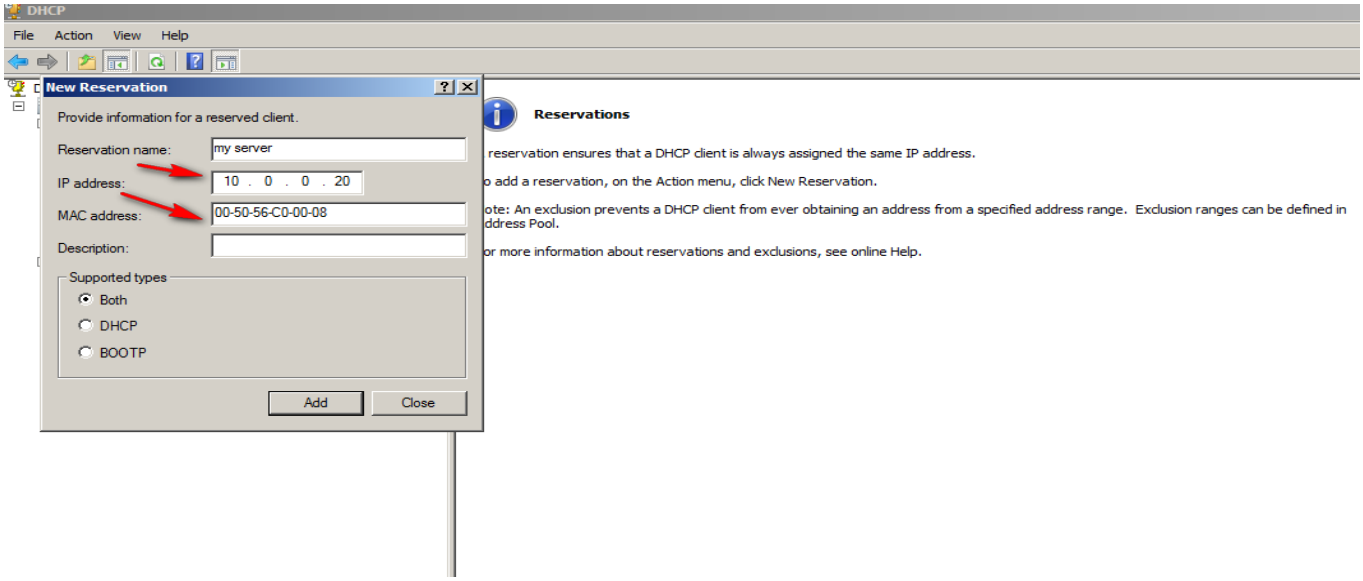


Reservation

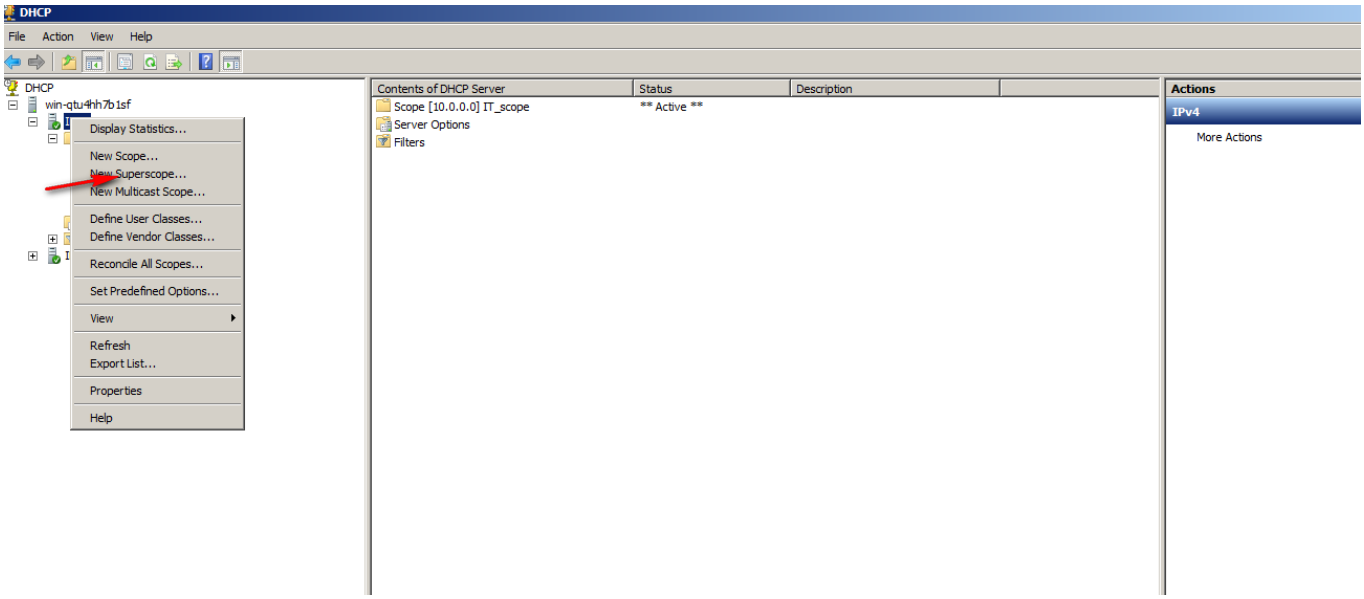
لحجز عنوان lp address معين يعطه لجهاز معين عن طريق DHCP بحيث يكرس هذا العنوان لجهاز معين عن طريق Mac address



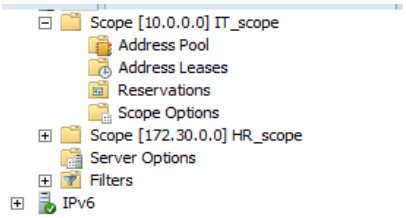
Reservation

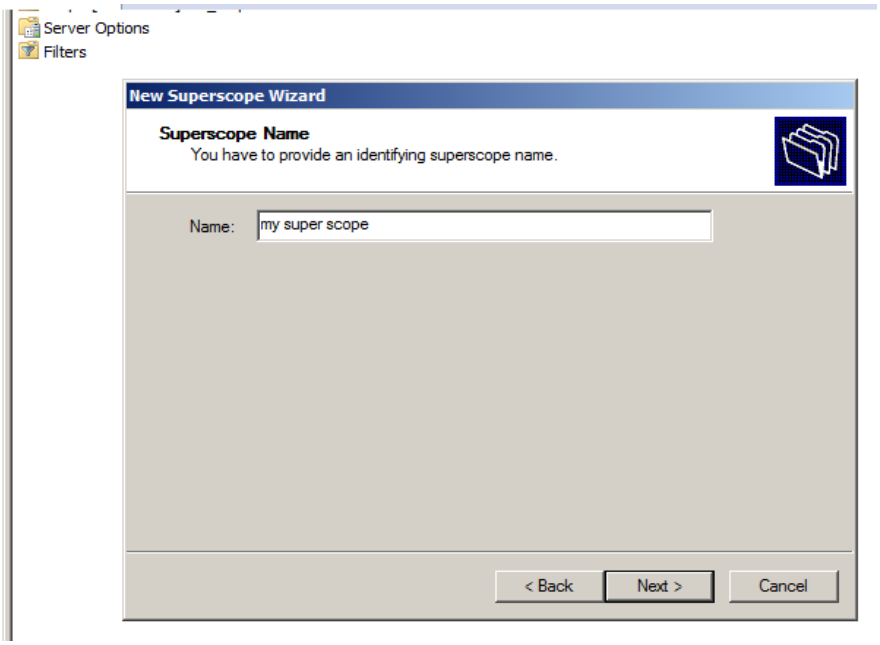


Superscope

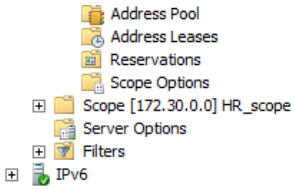


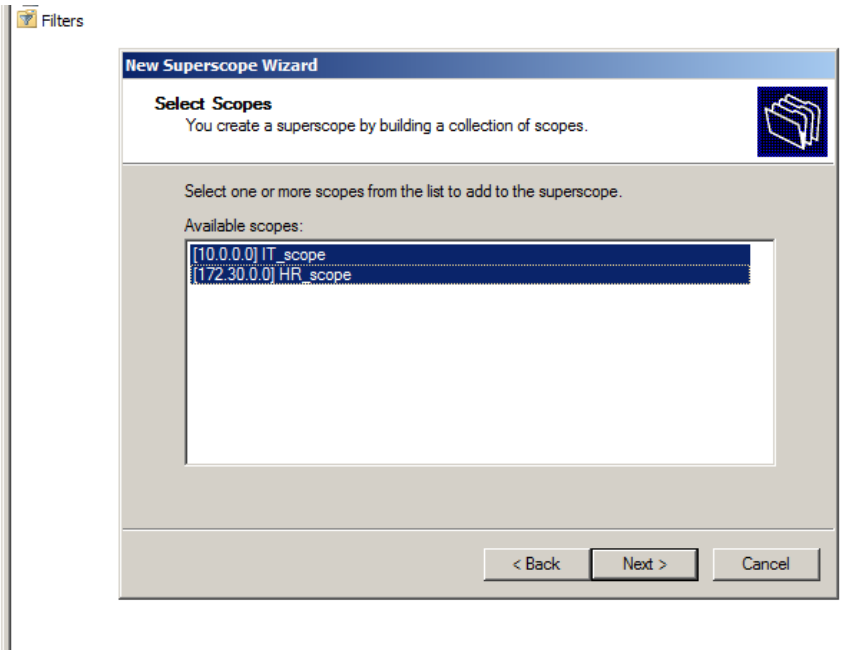
New Superscope Wizard
Welcome to the New Superscope Wizard
This wizard helps you create a superscope, which expands the number of IP network addresses that you can use in a network.
A superscope allows several distinct scopes to be logically grouped under a single name.
To continue, click Next.
< Back
Next >
Cancel


Scope [10.0.0.0] IT_scope
Address Pool
Address Leases
Reservations
Scope Options
Scope [172.30.0.0] HR_scope
Server Options
Filters
IPv6

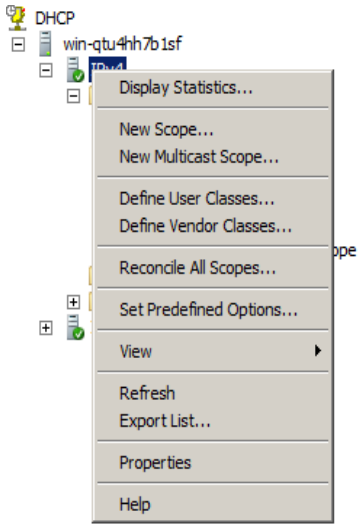

Server Options
Filters
New Superscope Wizard
Superscope Name
You have to provide an identifying superscope name.
Name:
my super scope
< Back
Next >
Cancel

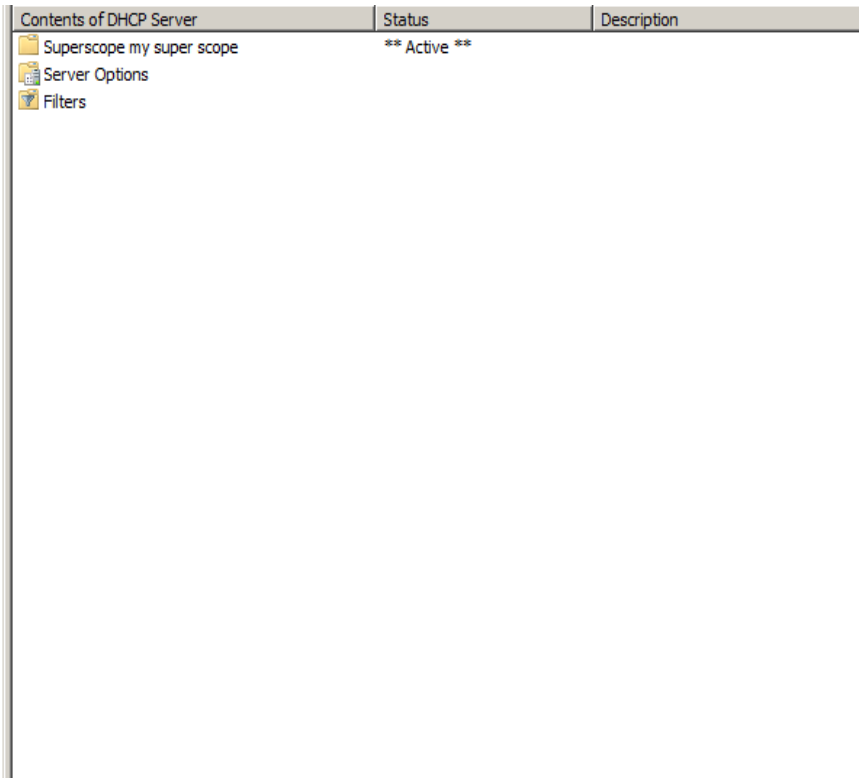
Superscope





Display statistics





8.2- DHCP server in windows server 2012R2

Before you proceed with setting up DHCP server on your Windows Server 2012 R2, you have to fulfill following four requirements for an installation and configuration to be successful.

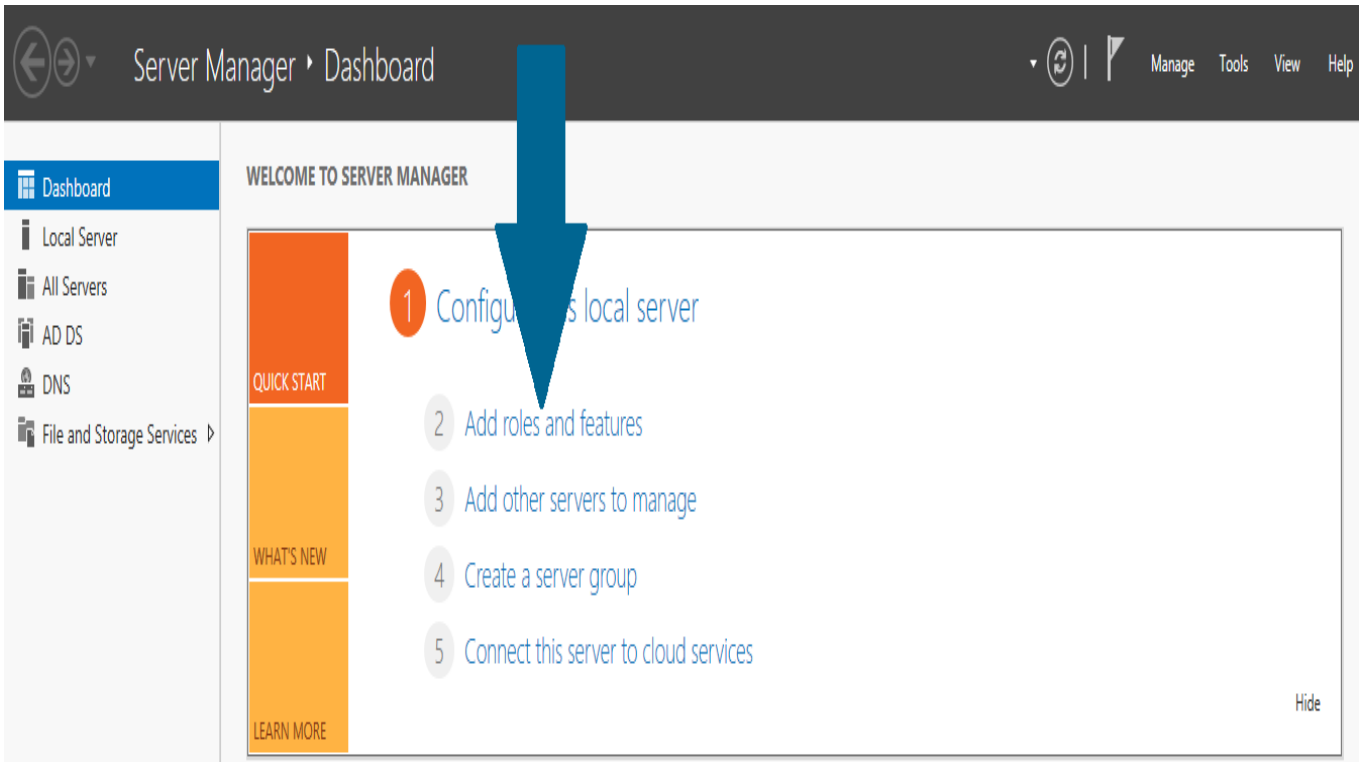
•Administrator account has strong password

•At least one static IP is configured

•Current security updates from Windows Update are installed

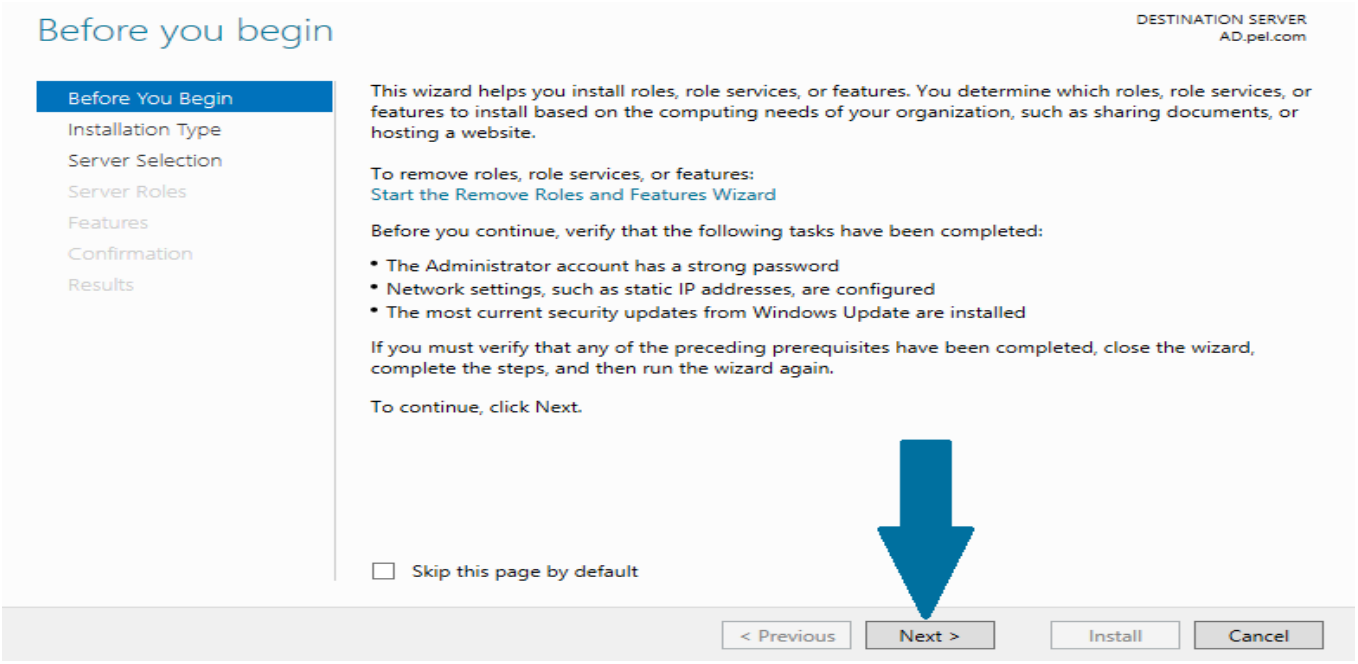
•Firewall is turned off

Open Server Manager from task bar and click Add roles and features

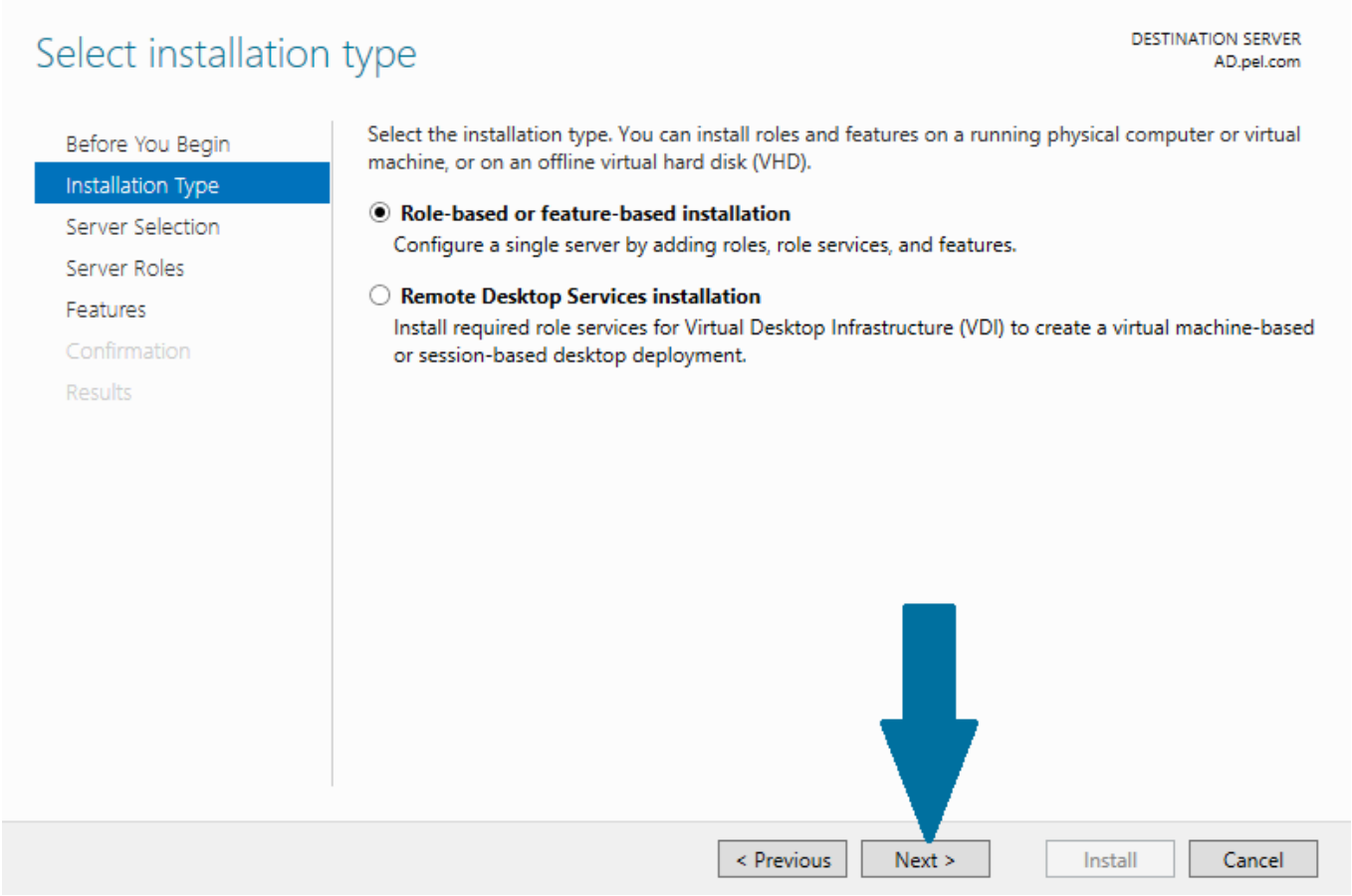


Before you run the installation wizard, make sure that an administrator account has a strong password, static IP is configured, and security updates from Windows updates are installed.

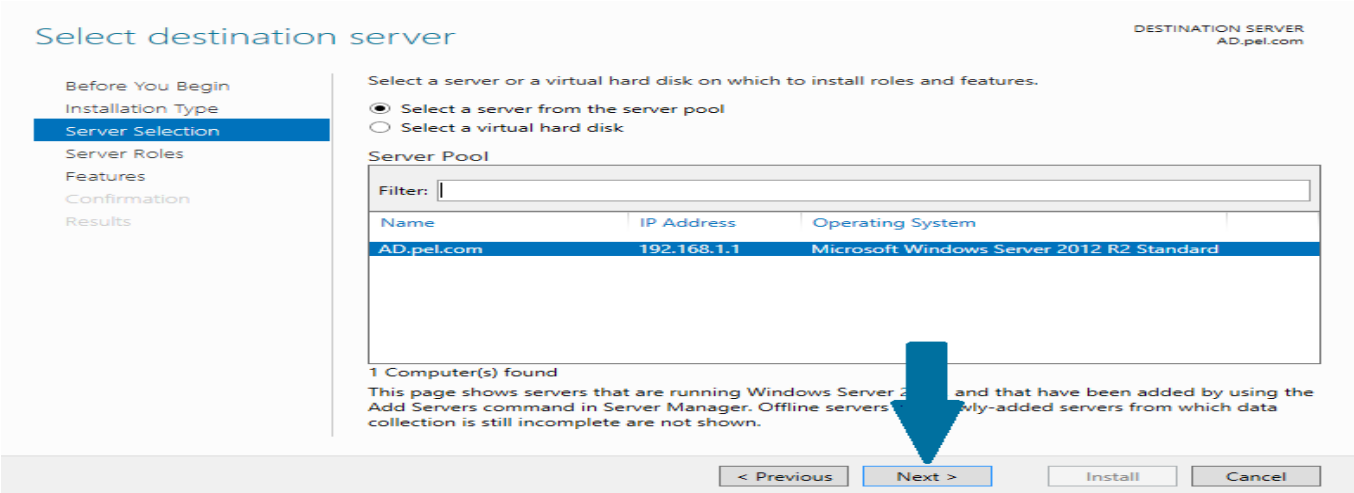
When you are done, click



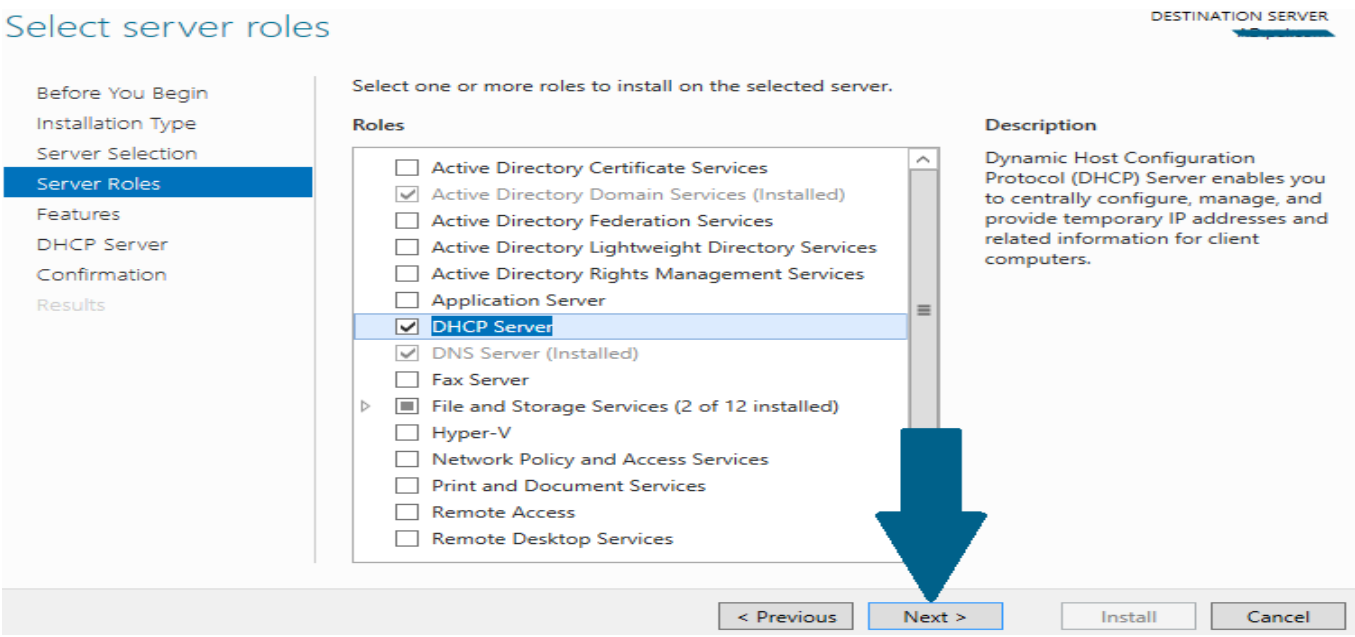
Select Role-based or feature-based installation and click Next



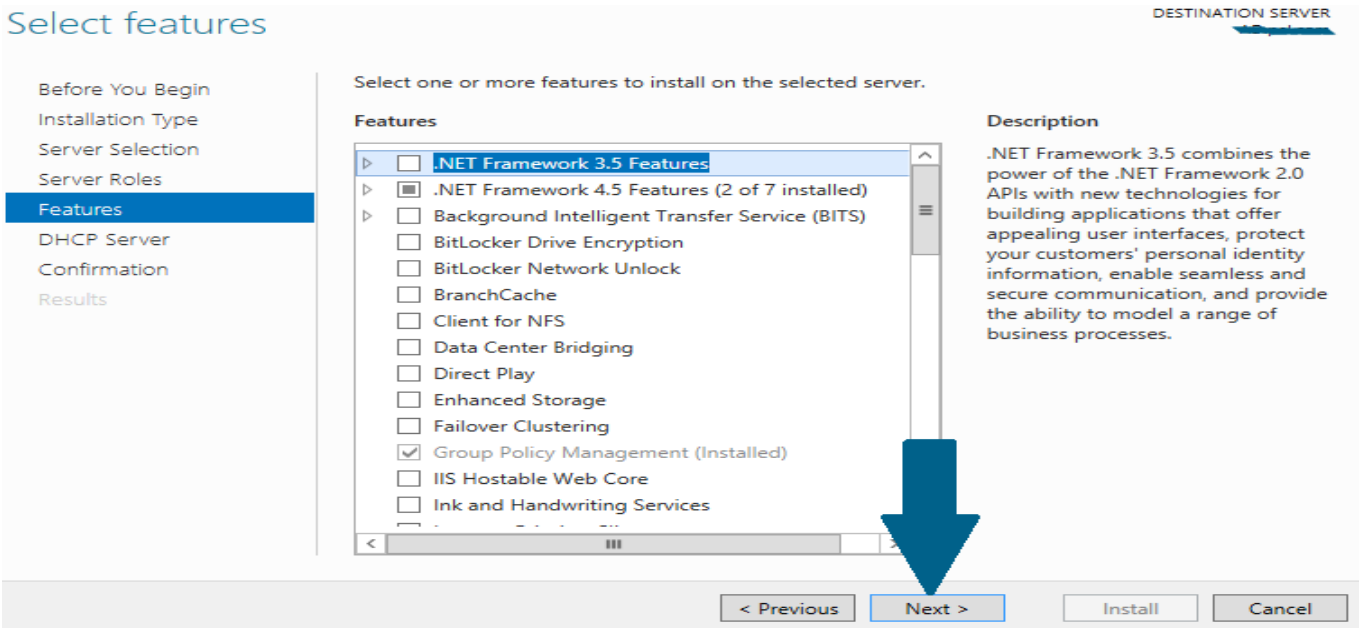
Select a destination server on which you want to install the DHCP server. In our case, there is only one server which is local server and it is selected by default. Click Next



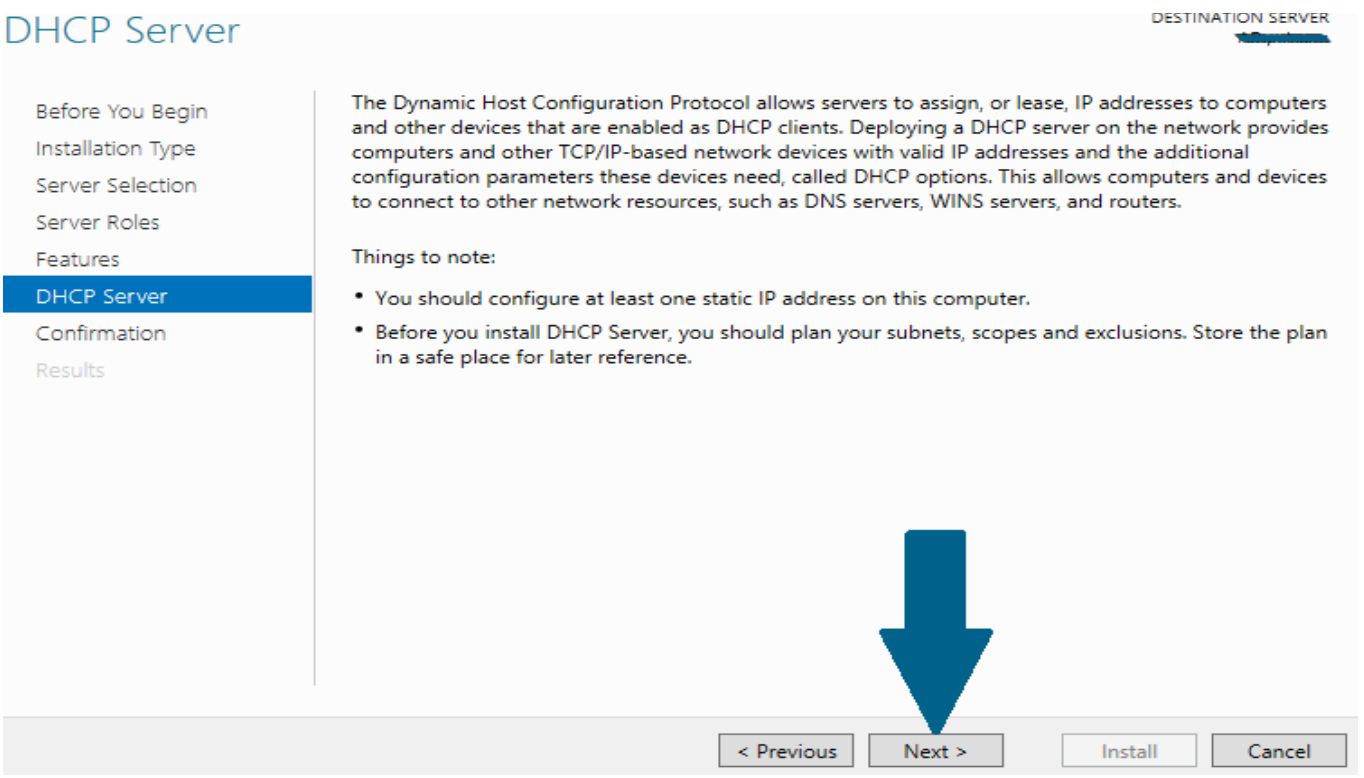
Select DHCP server role by checking the appropriate box. As soon as you check the box, a small window will pop up alerting you that there are some other features which are also required to be installed along with DHCP server. Click Add Features



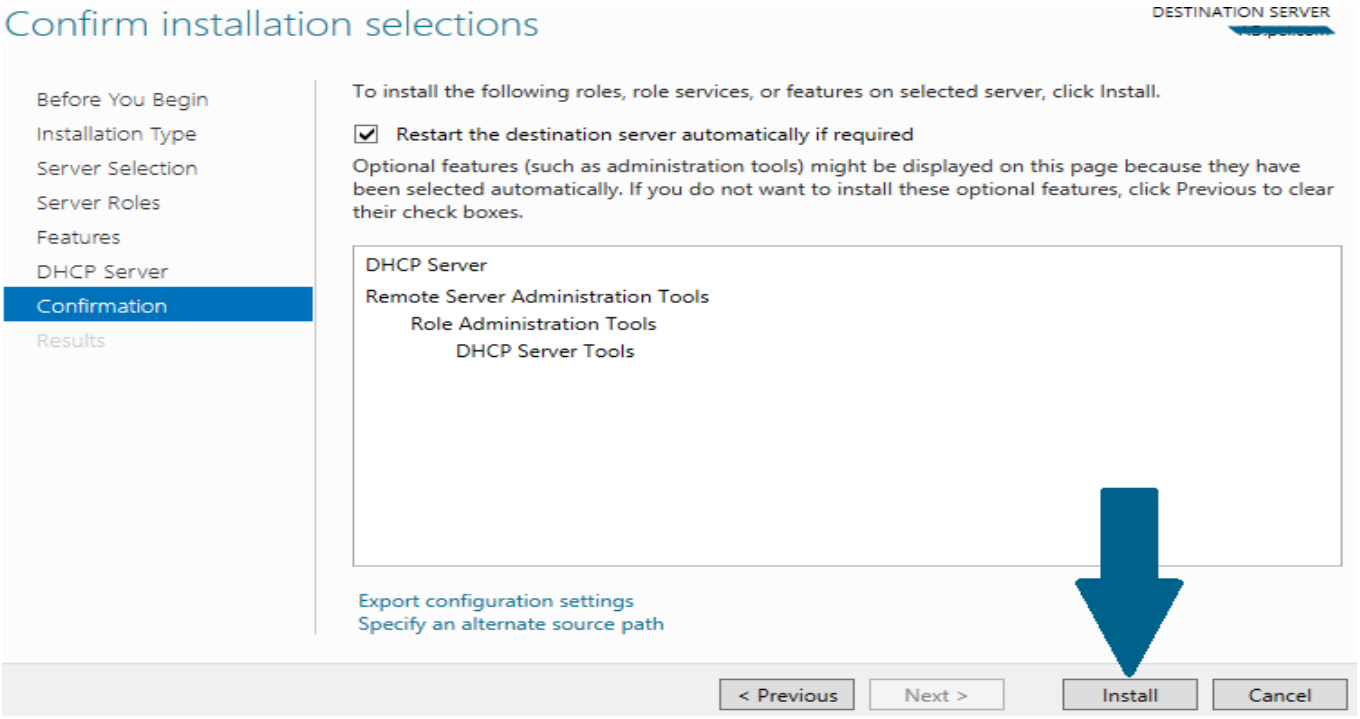
Click Next



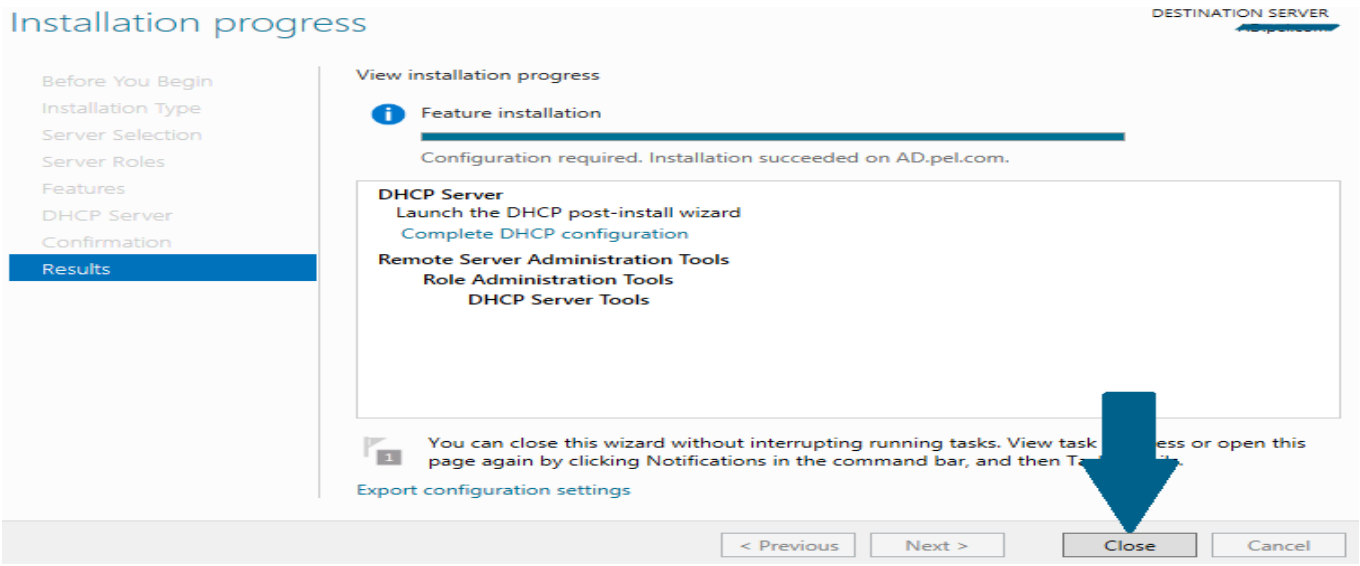
Note the things outlined in the screen and click Next



Confirm your installation selections and click Install

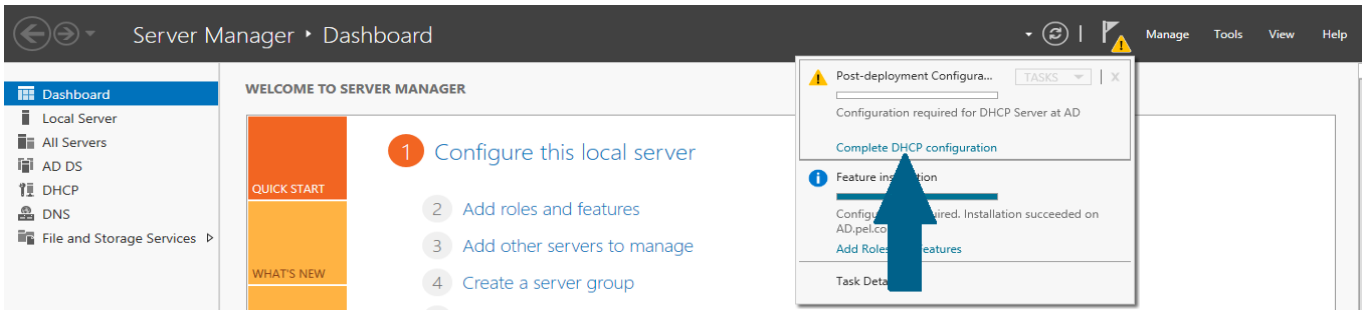


Click Close to finish the installation

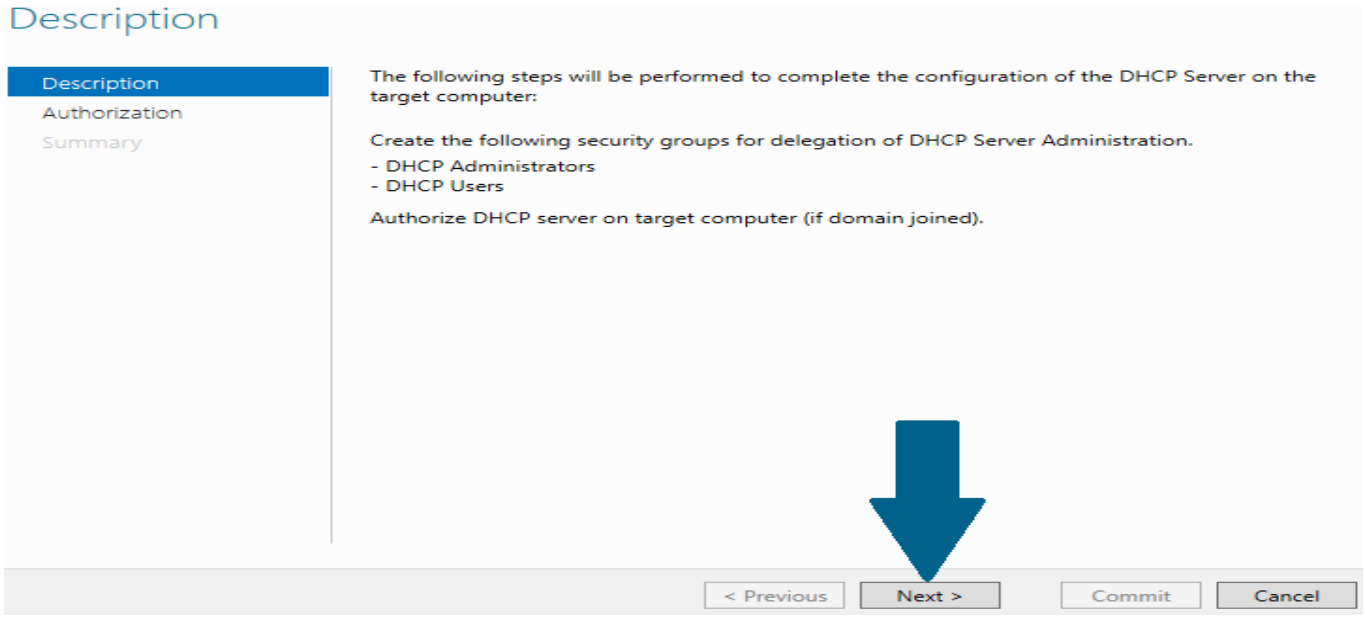


Configuring DHCP Server and Creating Scope: Open Server Manager and click notifications icon.

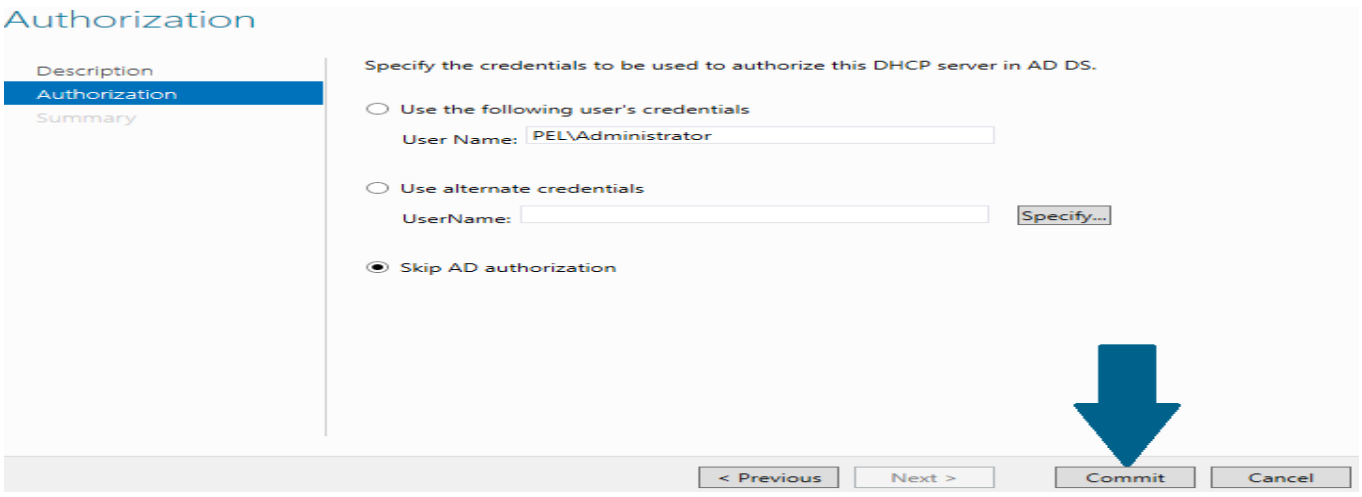
A small window will appear. Click Complete DHCP configuration



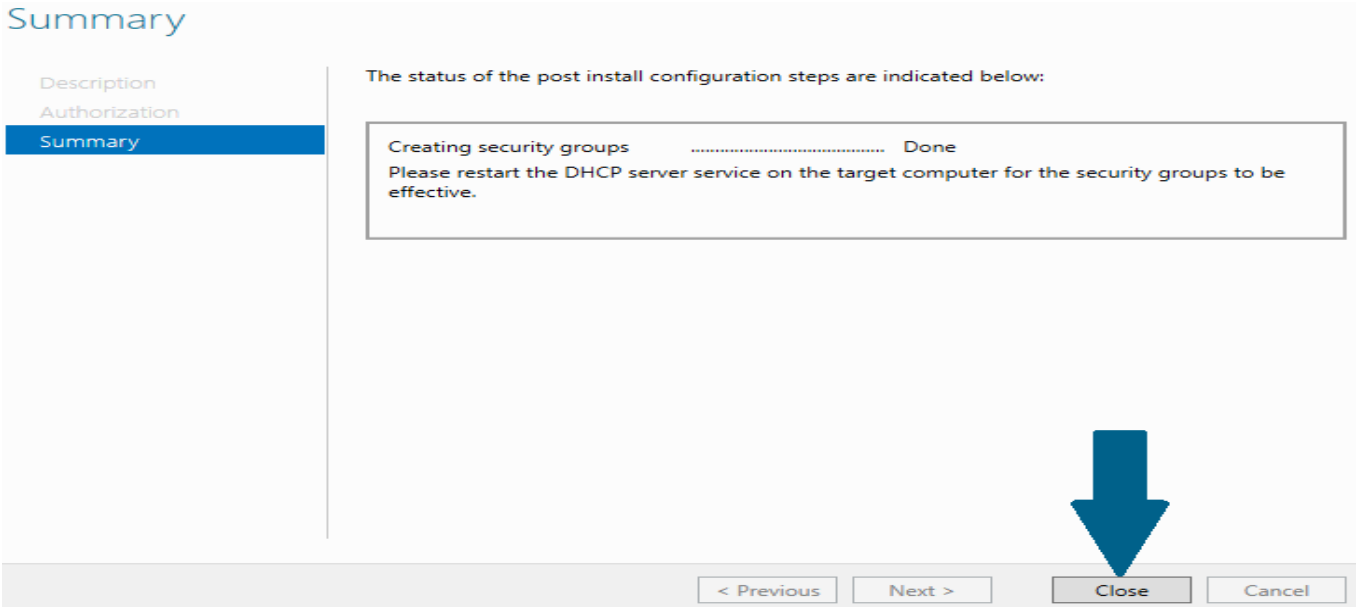
Click Next



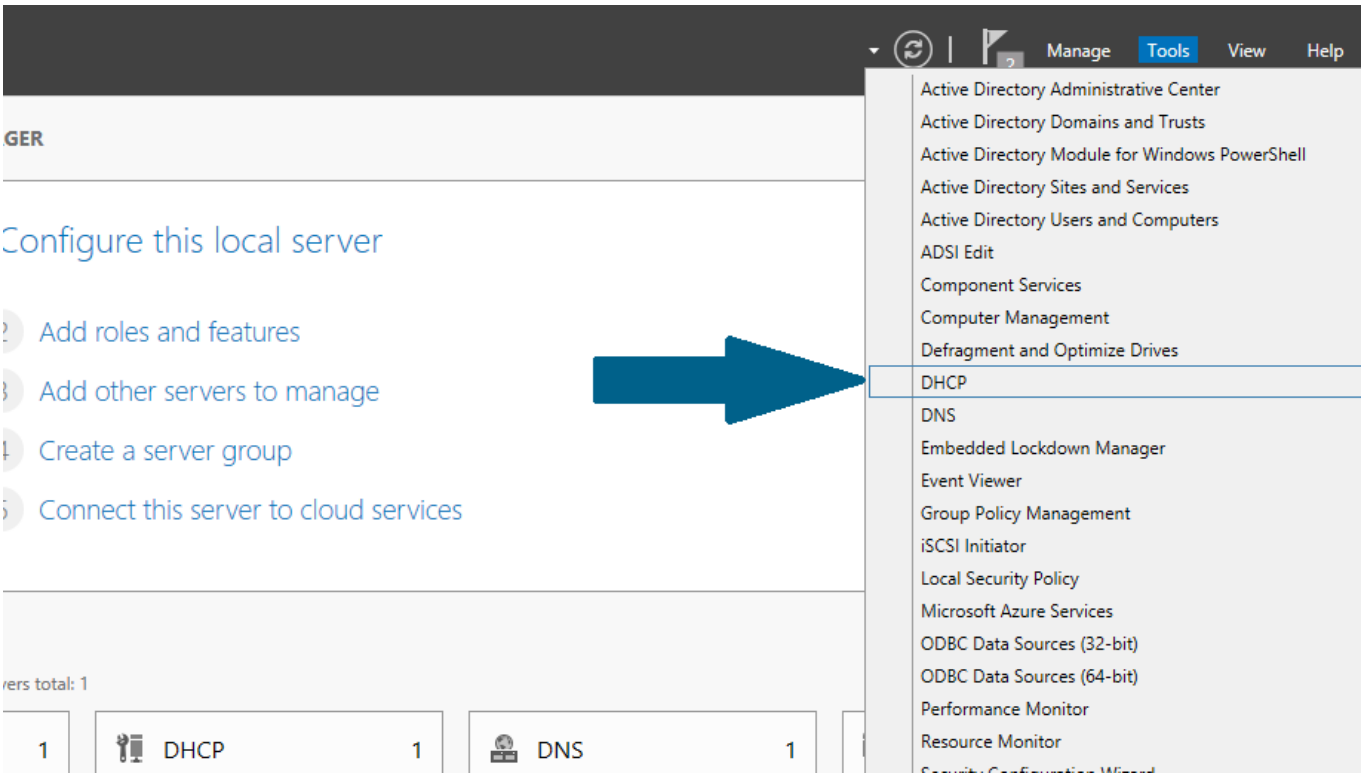
Choose Skip AD authorization since we do not have any AD configured and click Commit



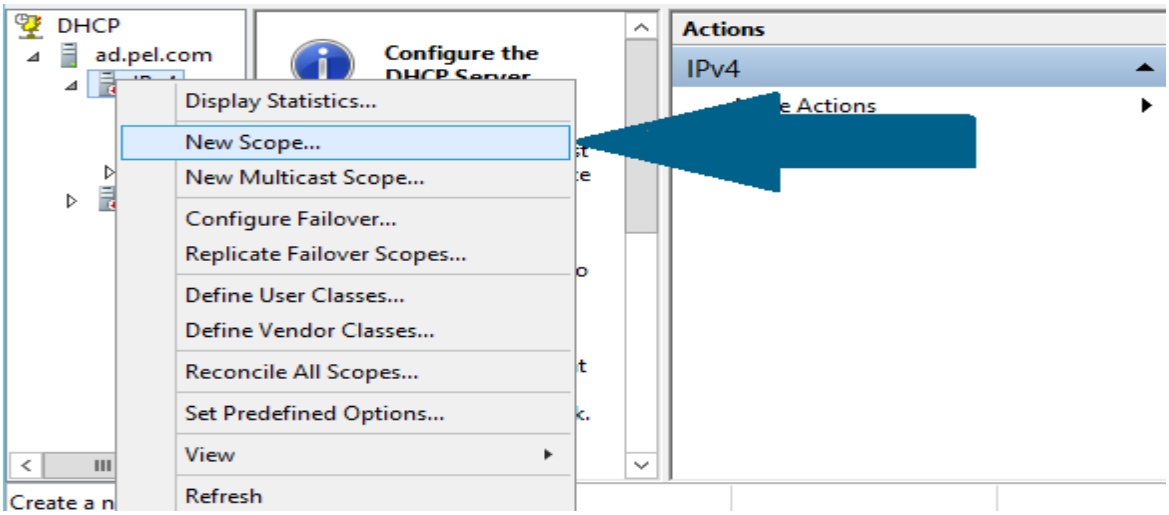
Read the summary and click Close



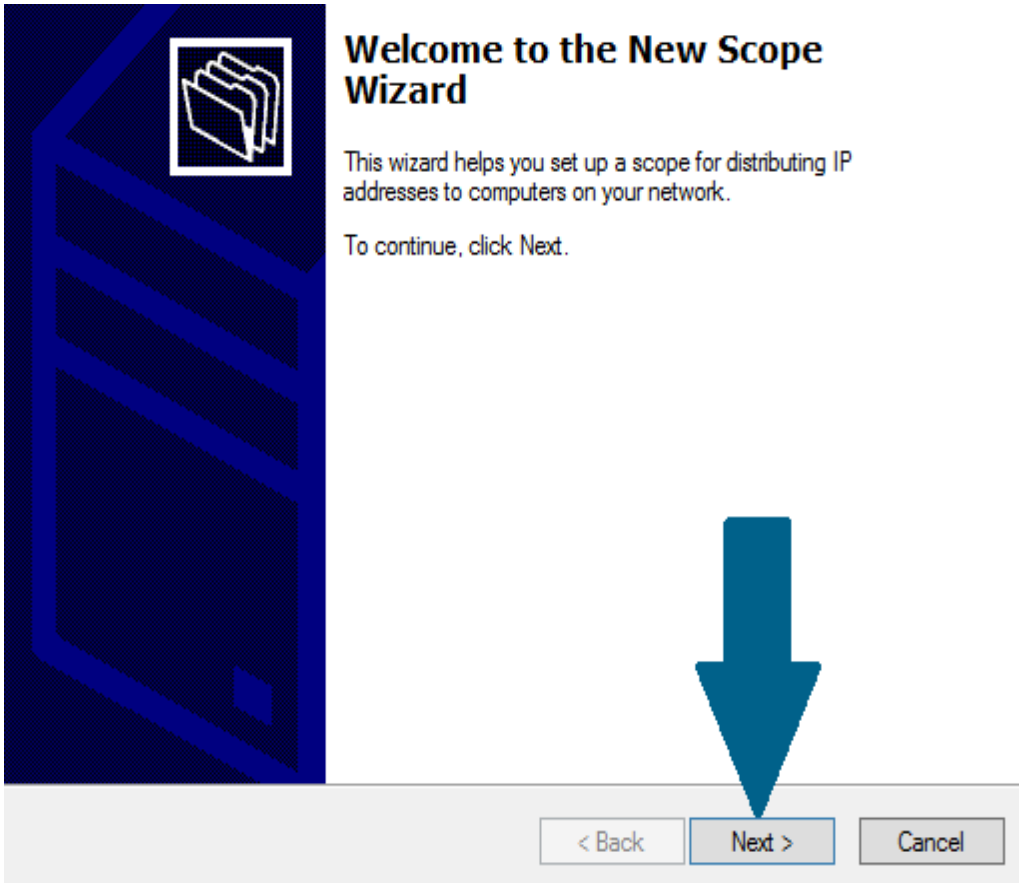
Open Server Manager and click on Tools. When a small window appear, scroll to DHCP and click it



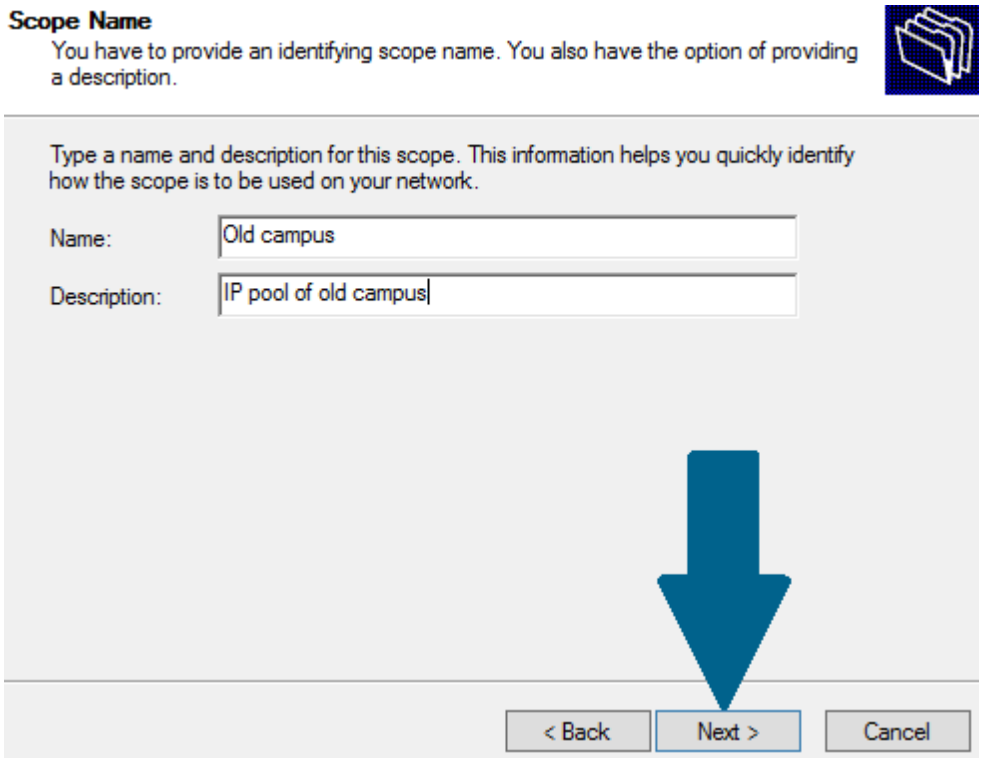
In management console, right click on IPv4 and scroll to New Scope and click it



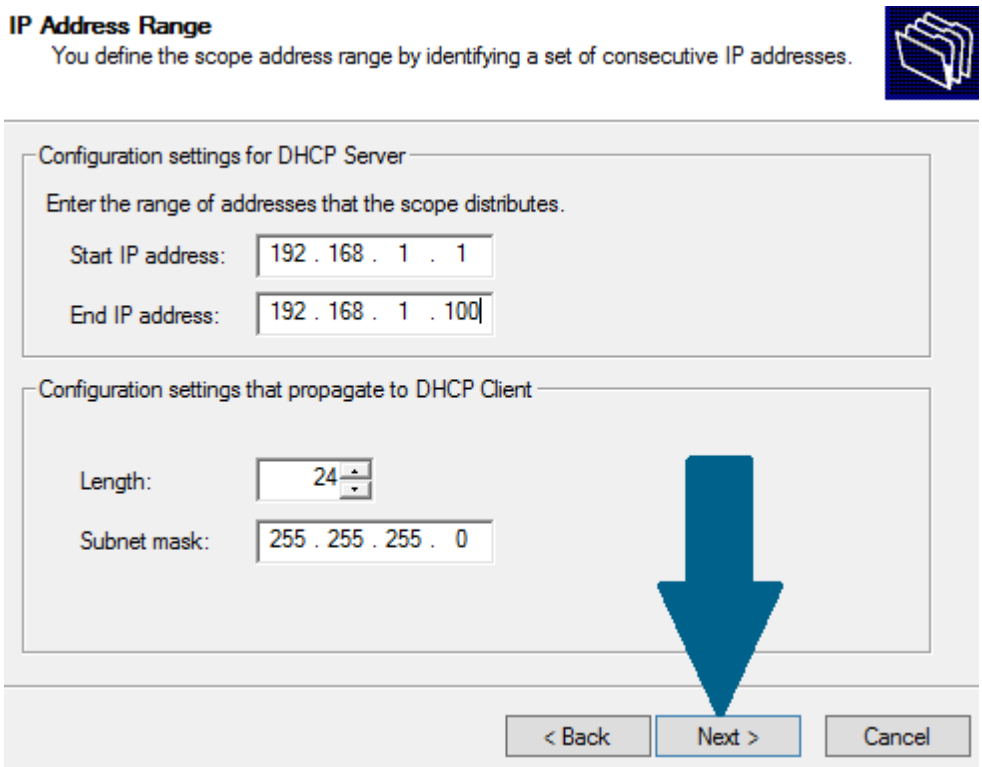
Click Next



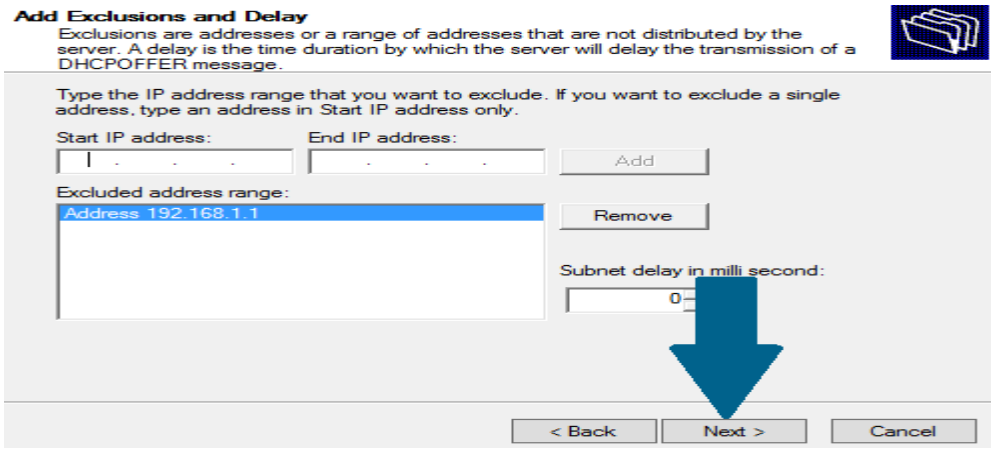
Provide name and meaningful description of this new scope and click Next



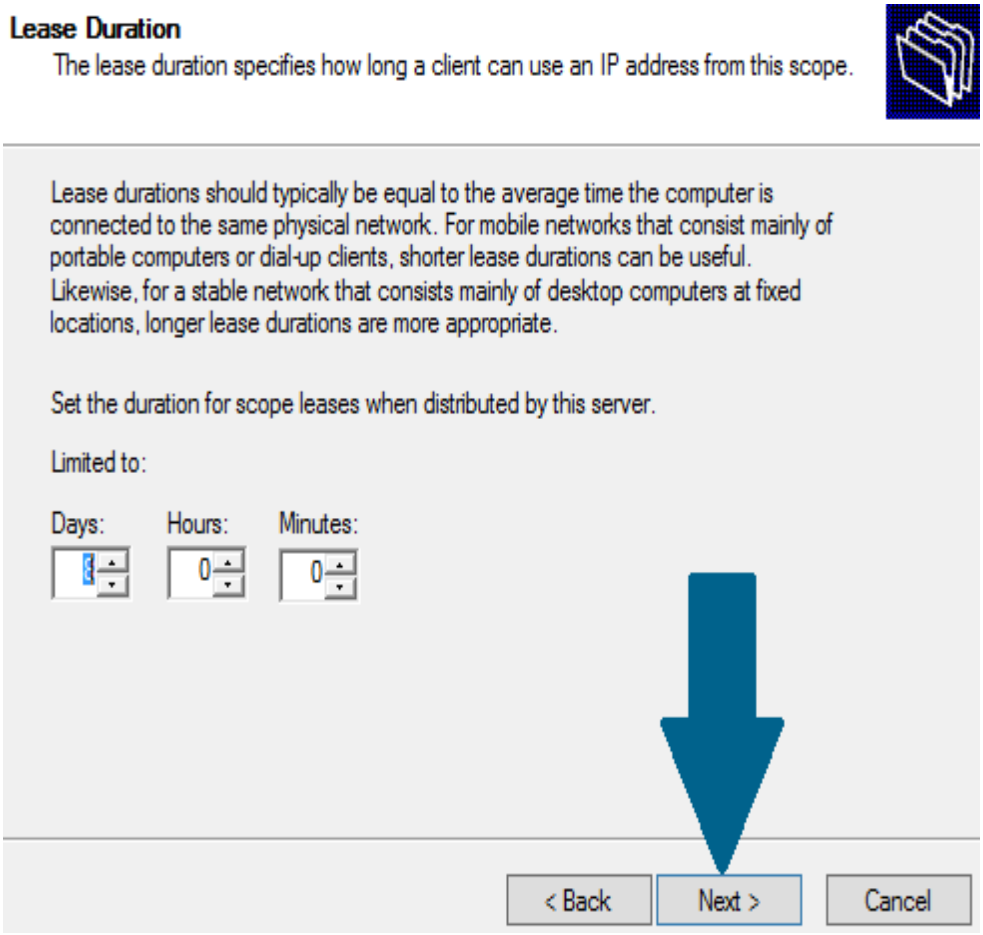
Provide IP address range along with sub net you need to distribute to client machines and click Next



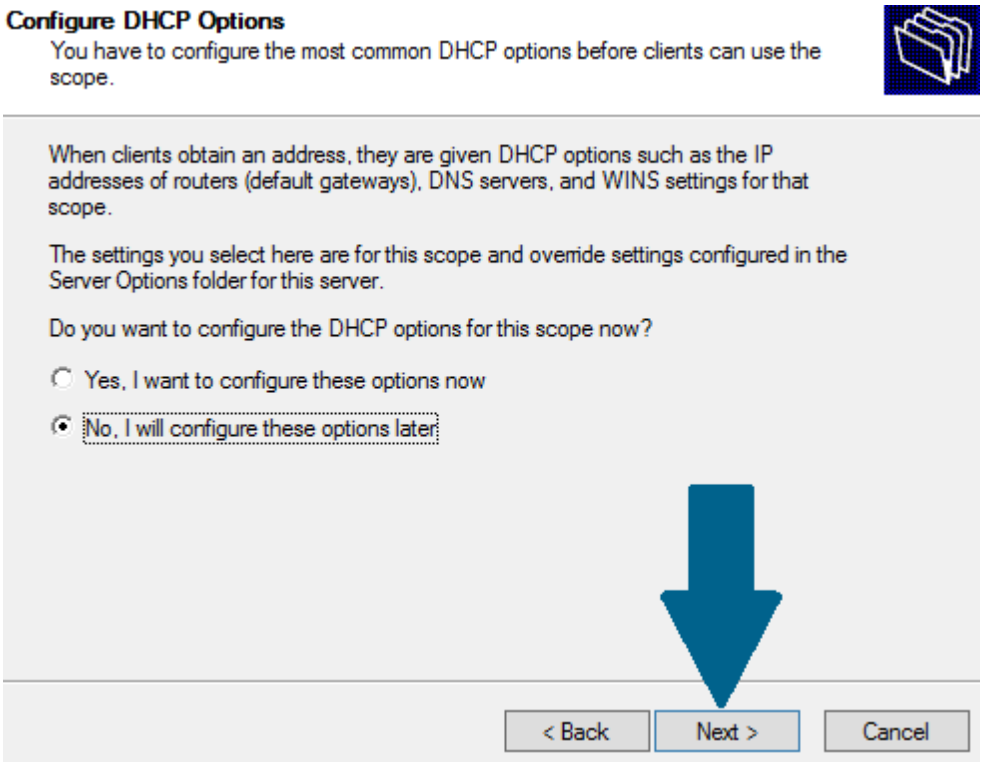
Provide any IP addresses you need to exclude from pool and click Add. I have excluded a first IP address which is statically assigned to my DHCP server. Click Next



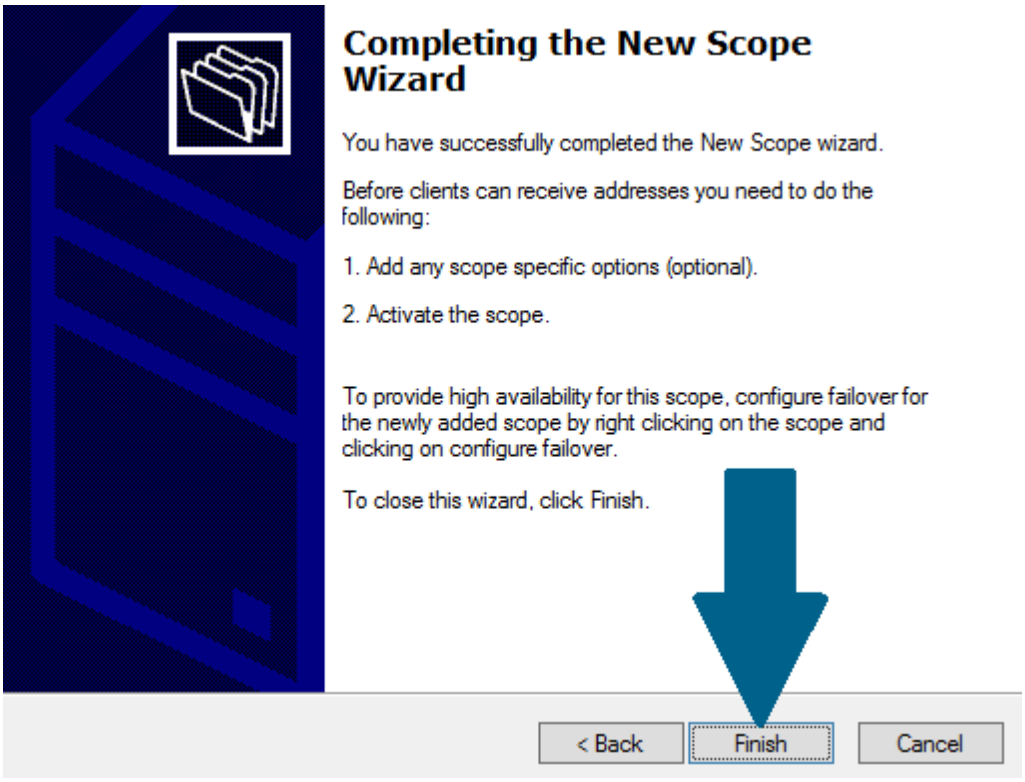
Keep lease duration as 8 days and click Next



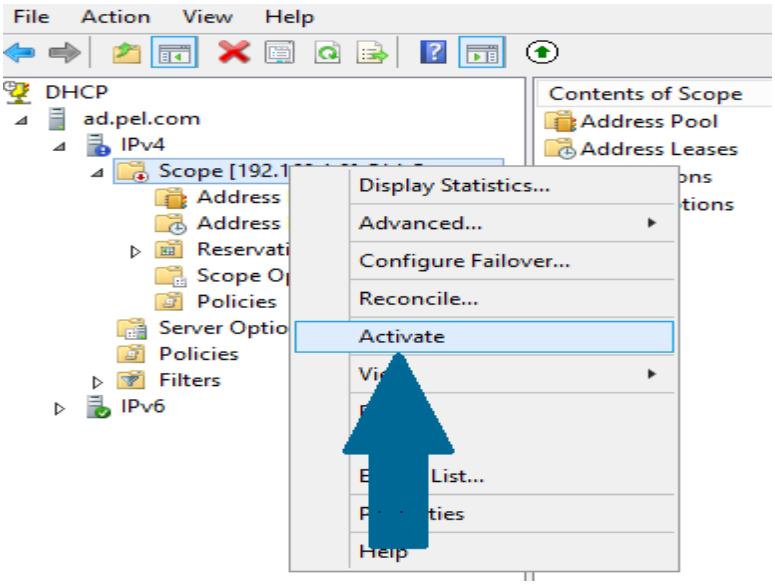
Choose No, I will configure these options later and click Next



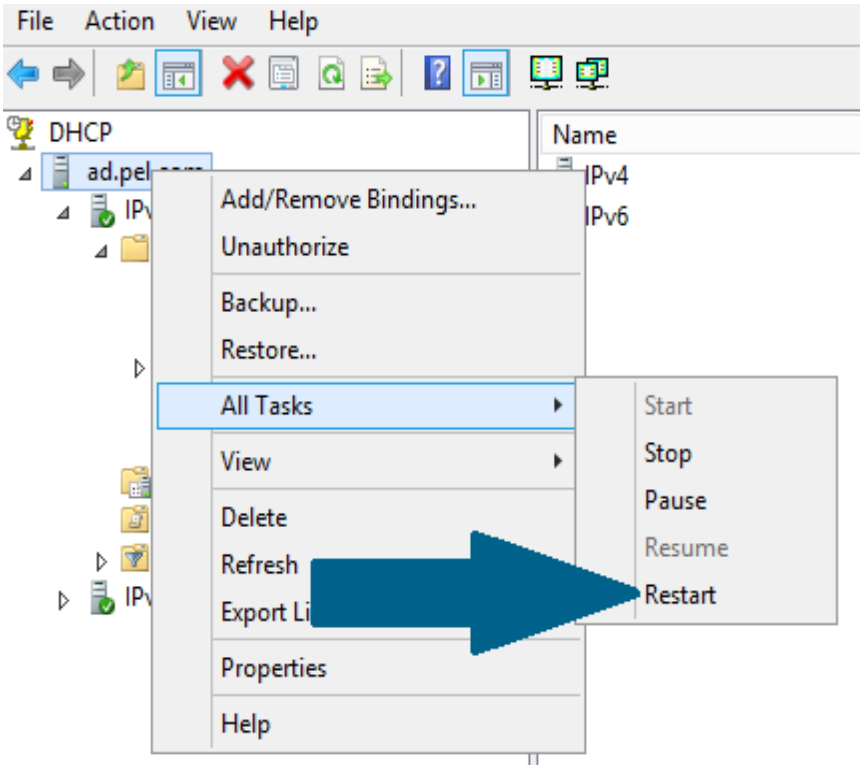
Click Finish to end the new scope wizard



Right-click on new scope you just created in above step and click Activate



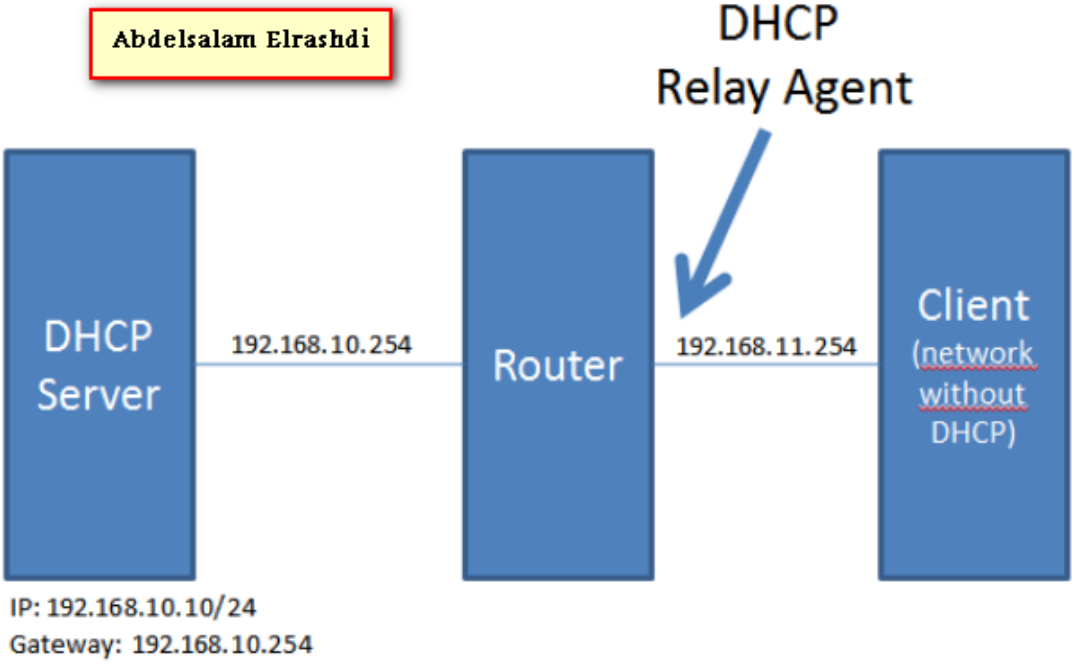
Right-click on your server, scroll to All Tasks and then click Restart to finish with configuration



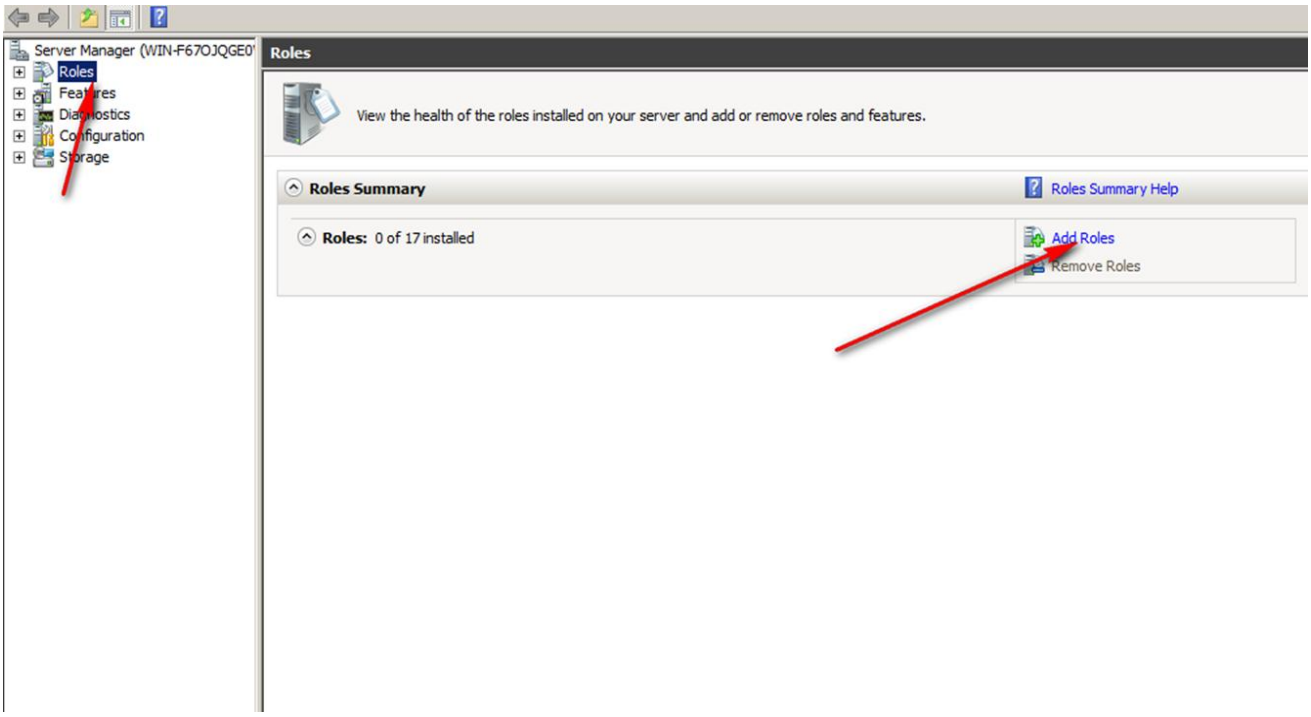
9-DHCP Relay Agent

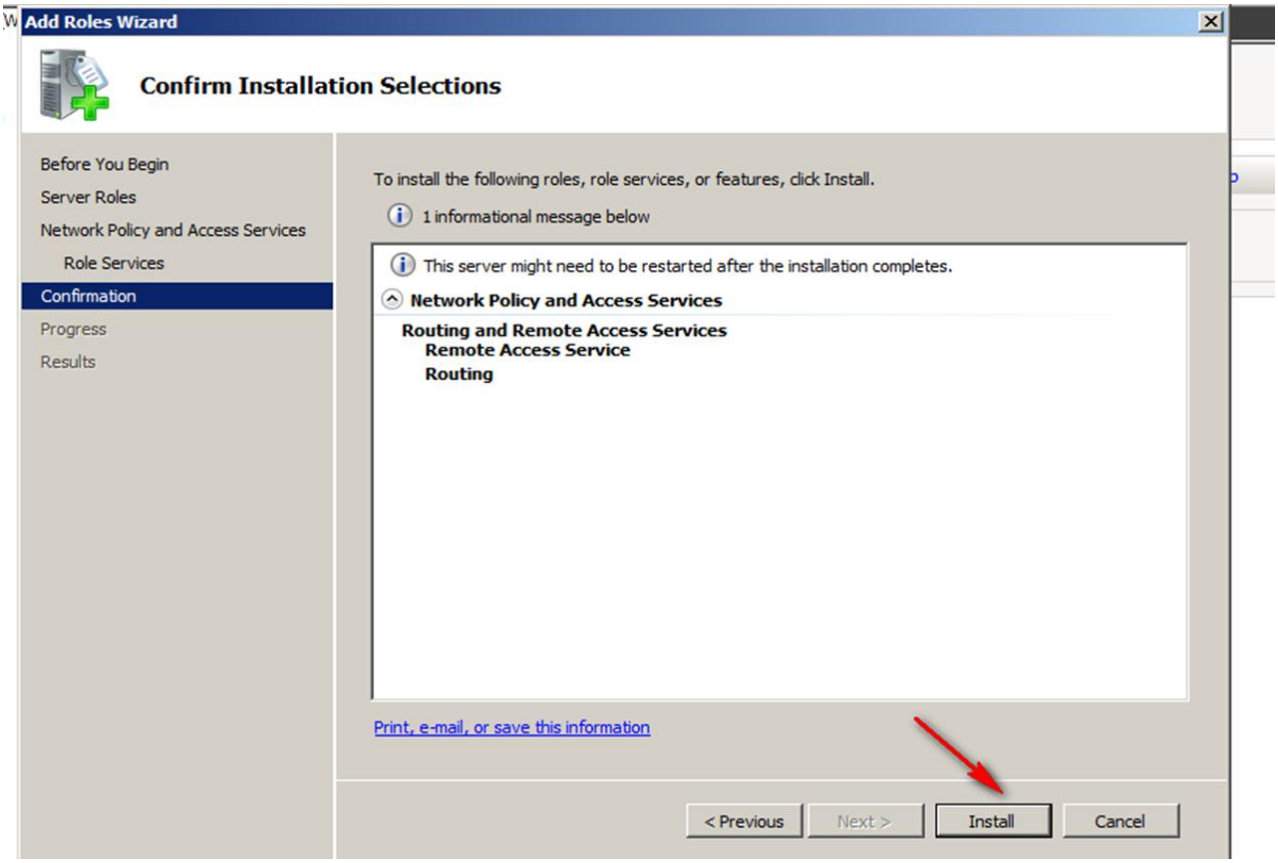
كم هو معلوم بآن Router لايقوم بتمرير broadcast وهذا سوف يجبرنا على وضع سيرفر DHCP في كل شبكة وطبعا هذا شيء غير مرغوب به لما له من مصاريف زائدة بالإضافة إلى الوقت الضائع الذي سوف نقضي في متابعة إداء وعمل كل سيرفر لذا قامت سيسكو أولا بعمل خاصية تدعى IP-Helper والتي تسمح router بتمرير طلبات الـ DHCP التى تكون على شكل broadcast إلى السيرفر مباشرة وطبعا هذه الخاصية متاحة فقط على أجهزة سيسكو وفي حقيقية الأمر سيسكو قامت أساسا بتطوير الخاصية القديمة وهي التى نتحدث عنها اليوم DHCP Relay Agent والتى تقوم بنفس العملية تماما وهي نقل broadcast من شبكة إلى شبكة آخرى وهي متاحة على كل أنواع أجهزة الشبكة .

A DHCP relay agent is any host that forwards DHCP packets between clients and servers. Relay agents are used to forward requests and replies between clients and servers when they are not on the same physical subnet. Relay agent forwarding is distinct from the normal forwarding of an IP router, where IP datagrams are switched between networks somewhat transparently. By contrast, relay agents receive DHCP messages and then generate a new DHCP message to send out on another interface. The relay agent sets the gateway IP address (giaddr field of the DHCP packet) and, if configured, adds the relay agent information option (option82) in the packet and forwards it to the DHCP server. The reply from the server is forwarded back to the client after removing option 82.

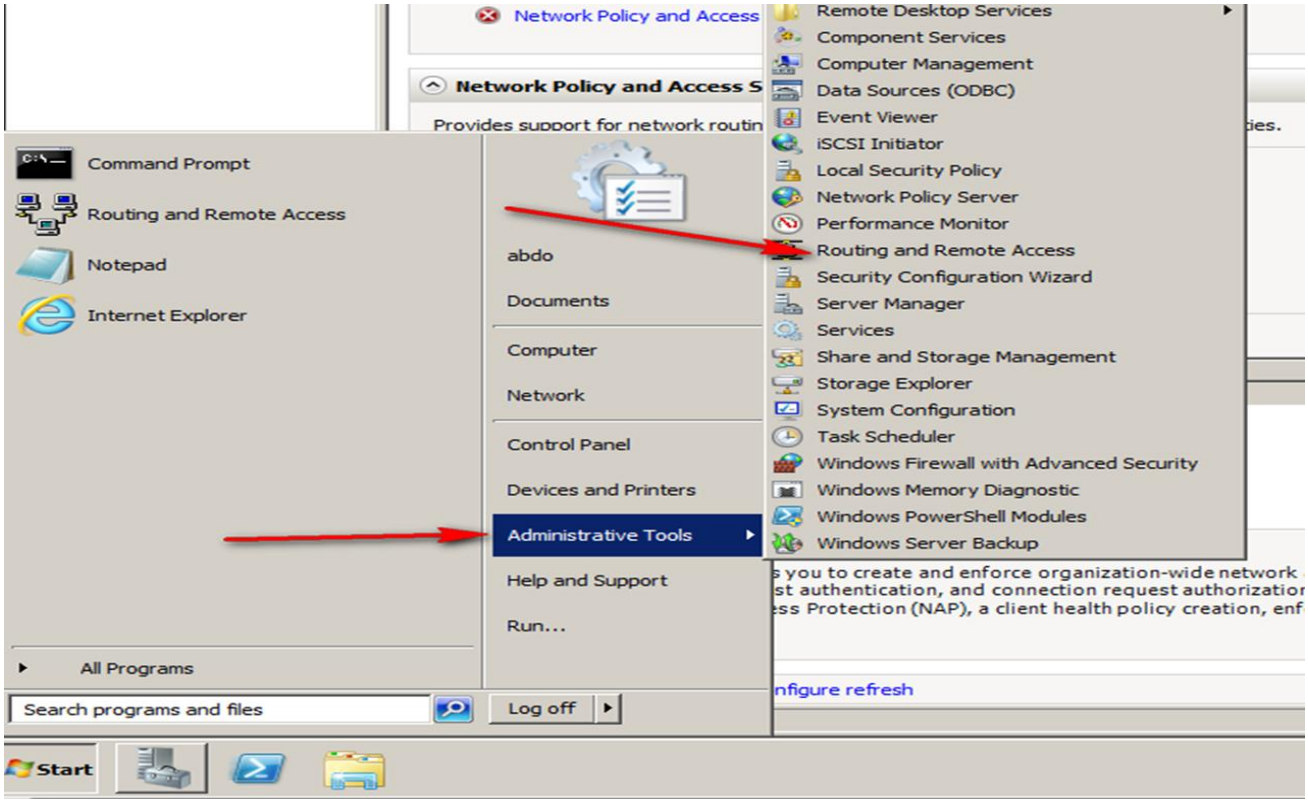


9.1-DHCP Relay Agent in windows server 2008

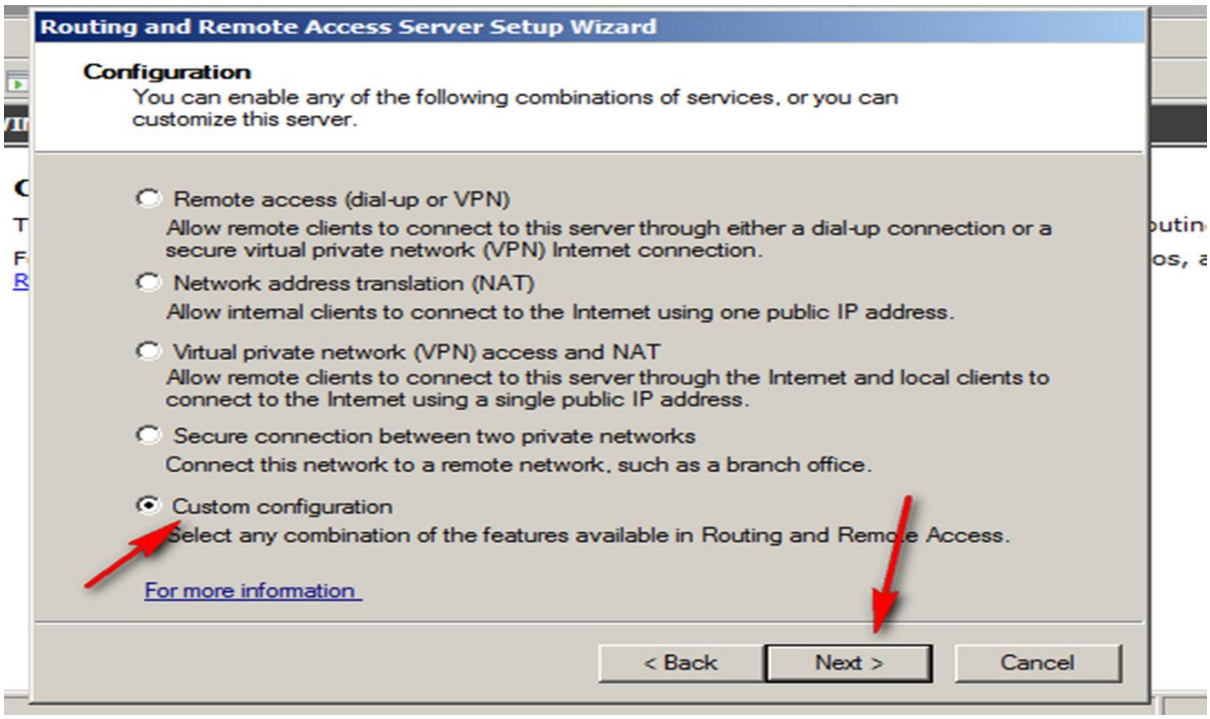

Server Manager (WIN-F67OJQGE0
Roles
Features
Diagnostics
Configuration
Storage
Roles
View the health of the roles installed on your server and add or remove roles and features.
Roles Summary
Roles Summary Help
Roles: 0 of 17 installed
Add Roles
Remove Roles


Add Roles Wizard
Confirm Installation Selections
Before You Begin
Server Roles
Network Policy and Access Services
Role Services
Confirmation
Progress
Results
To install the following roles, role services, or features, click Install.
1 informational message below
This server might need to be restarted after the installation completes.
Network Policy and Access Services
Routing and Remote Access Services
Remote Access Service
Routing
Print, e-mail, or save this information
< Previous
Next >
Install
Cancel

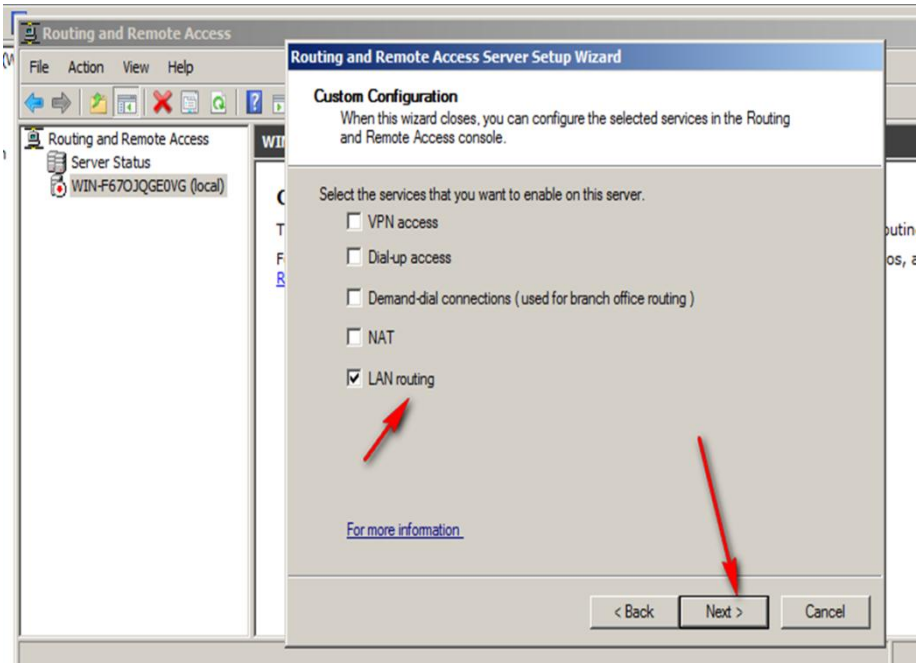
Open routing and remote access



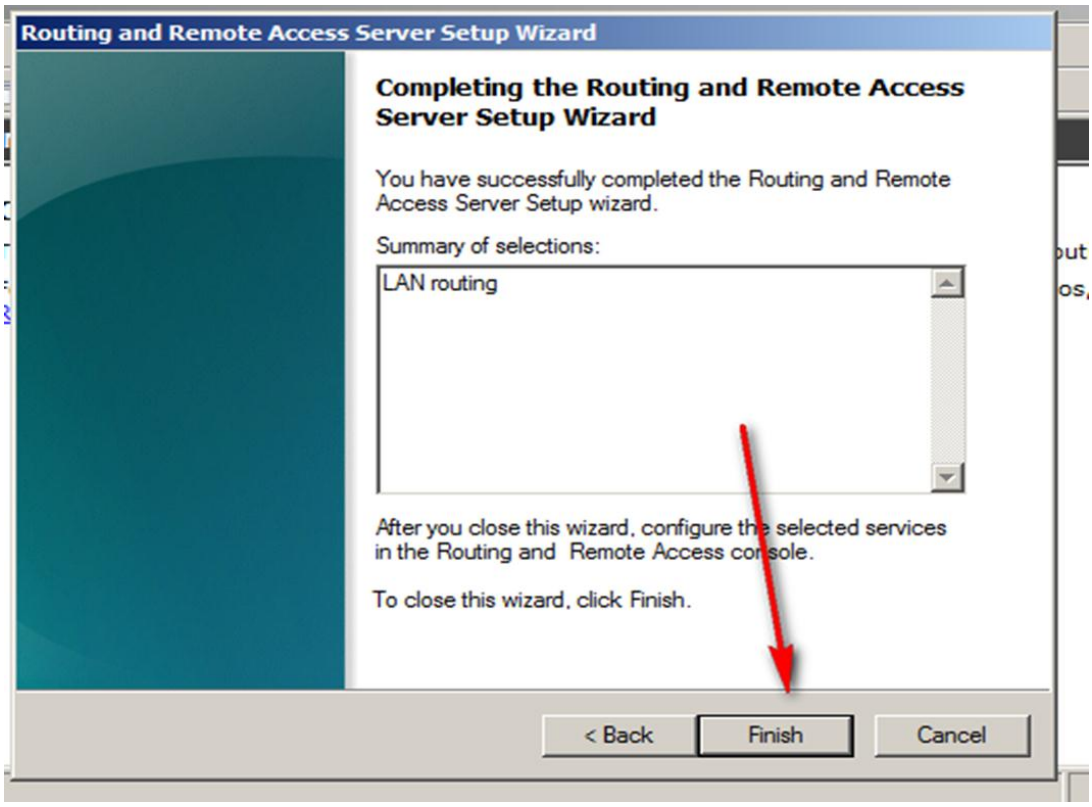
Choice custom configuration



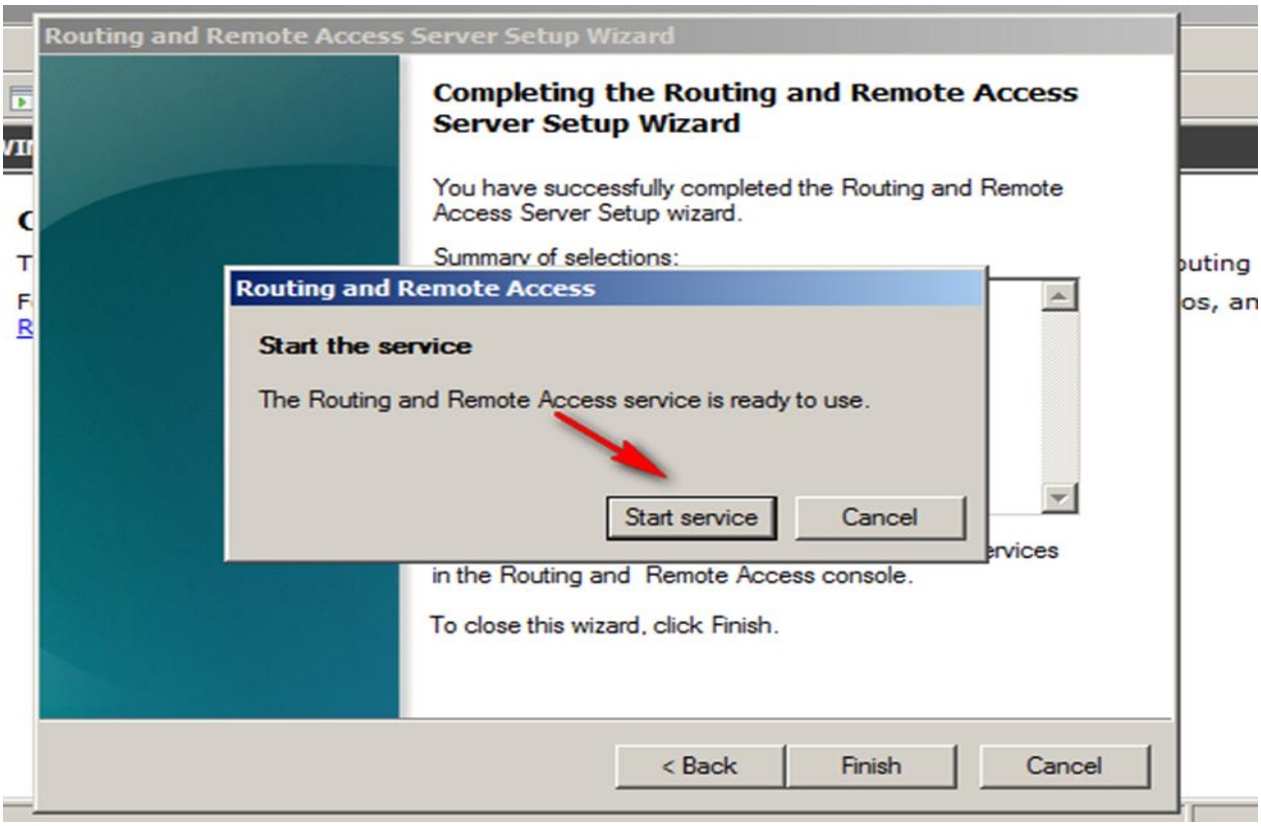
LAN routing



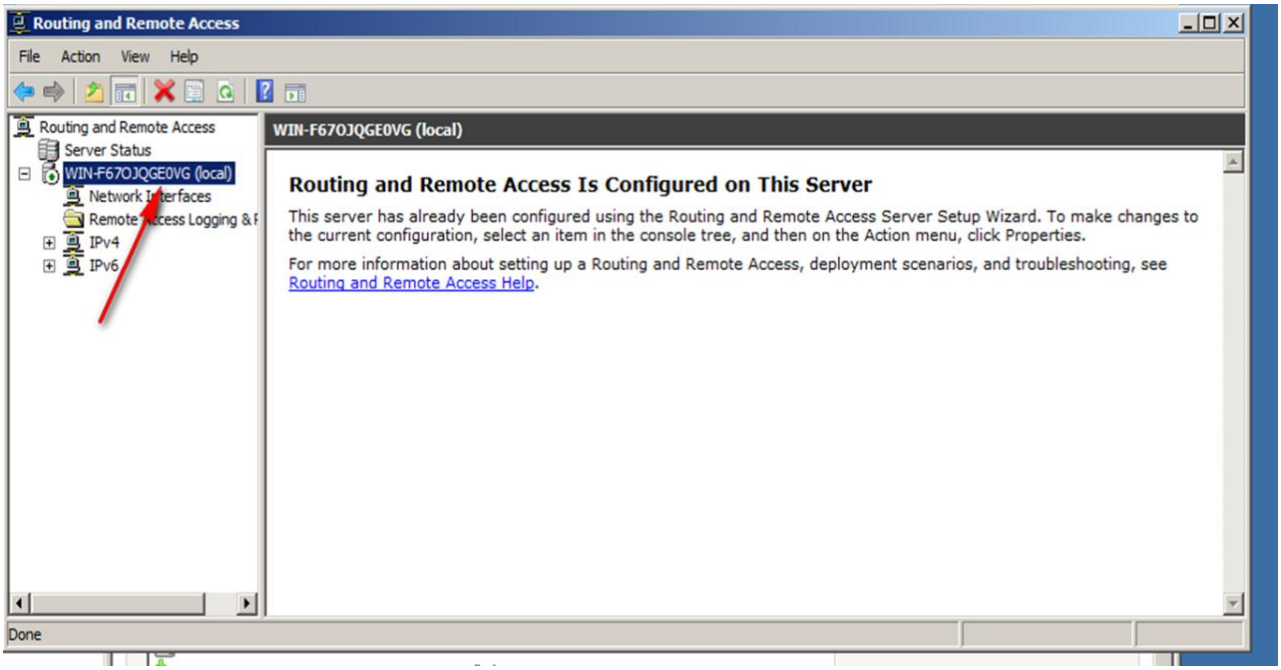
Press finish

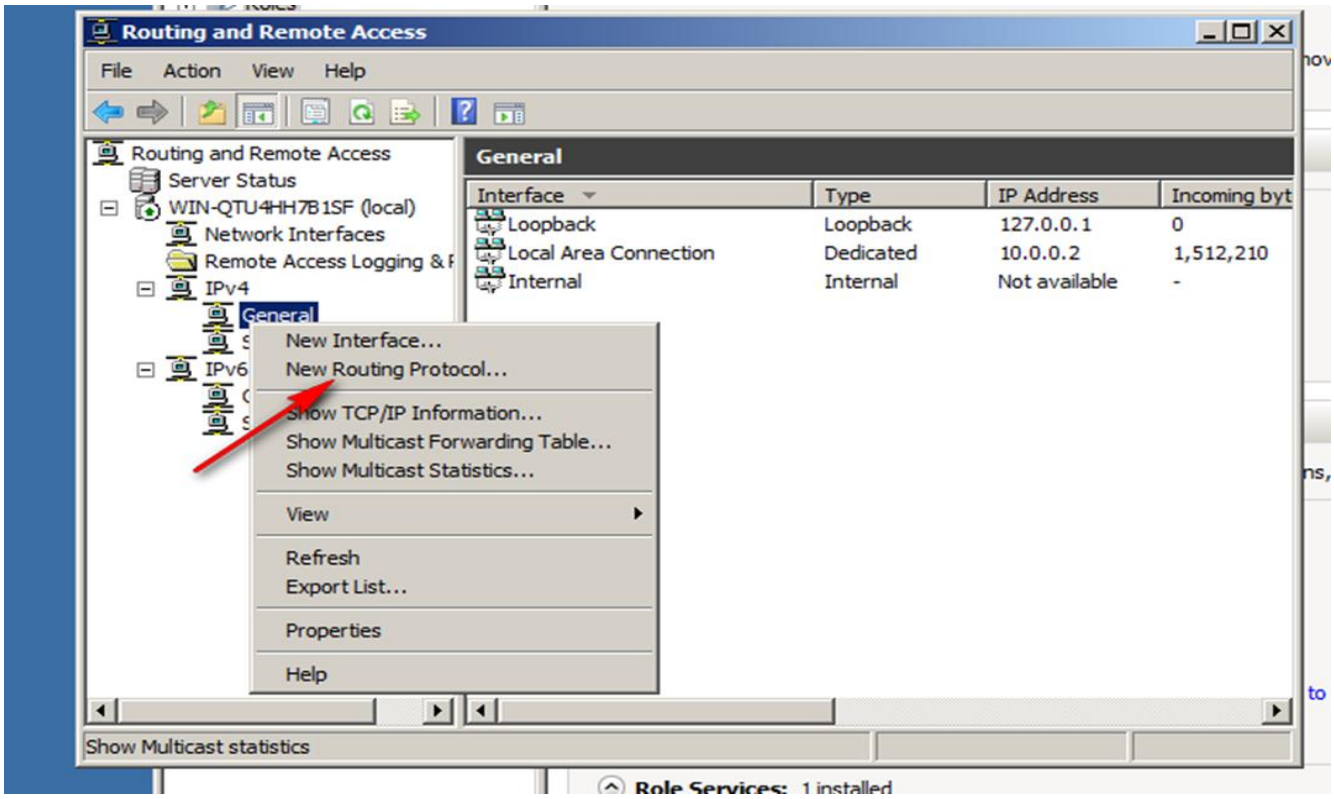


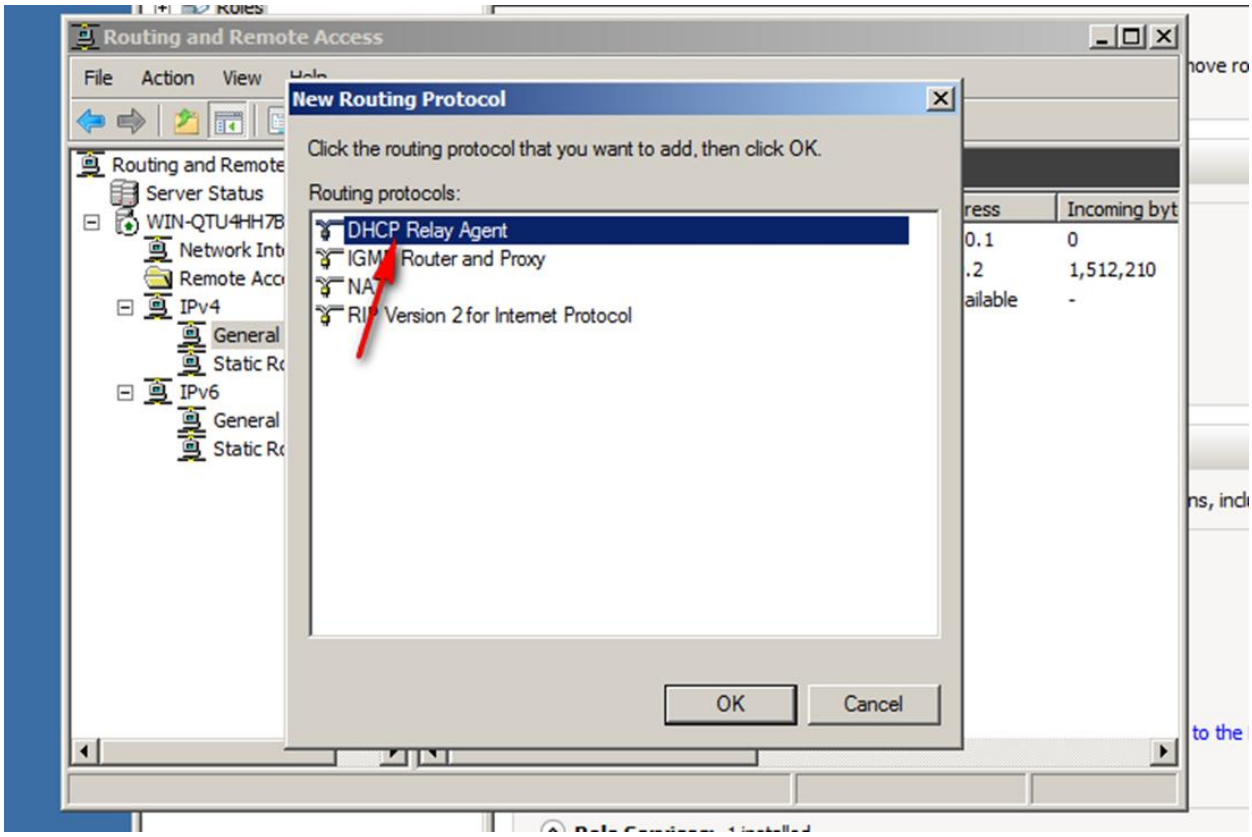
Start the services

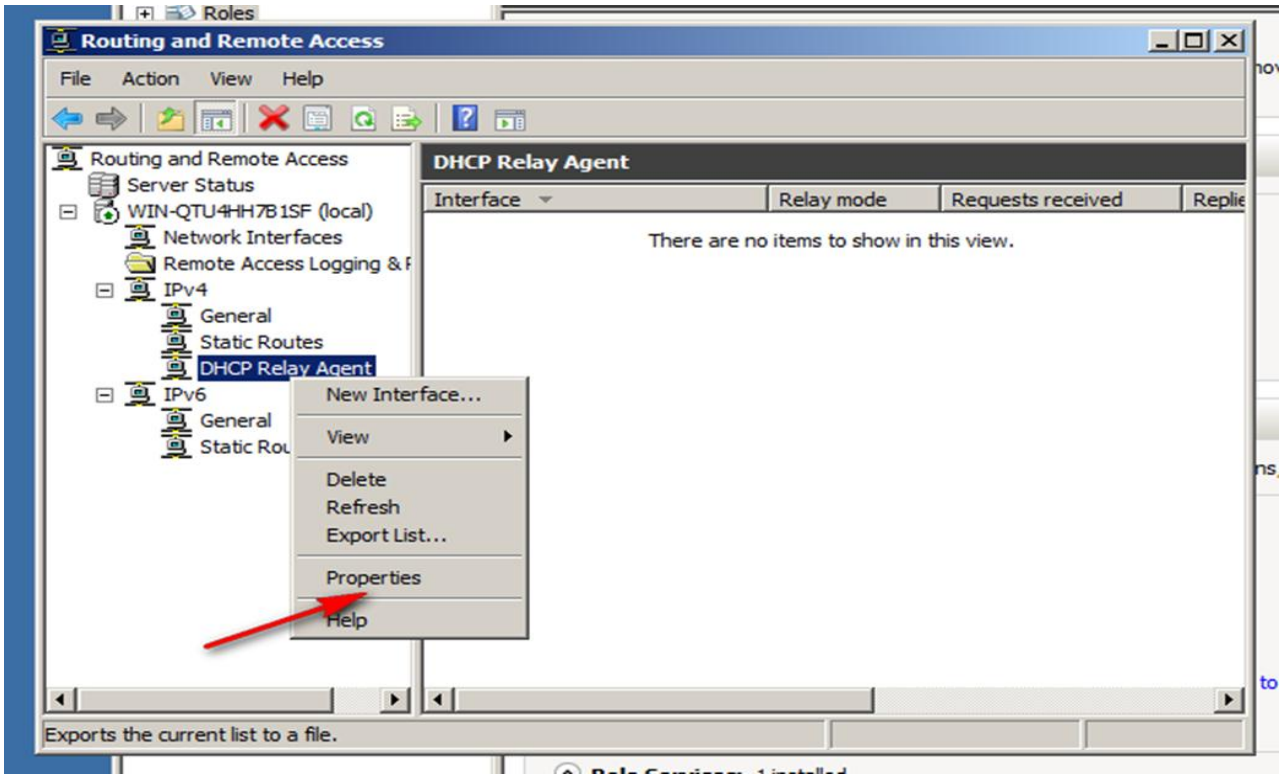


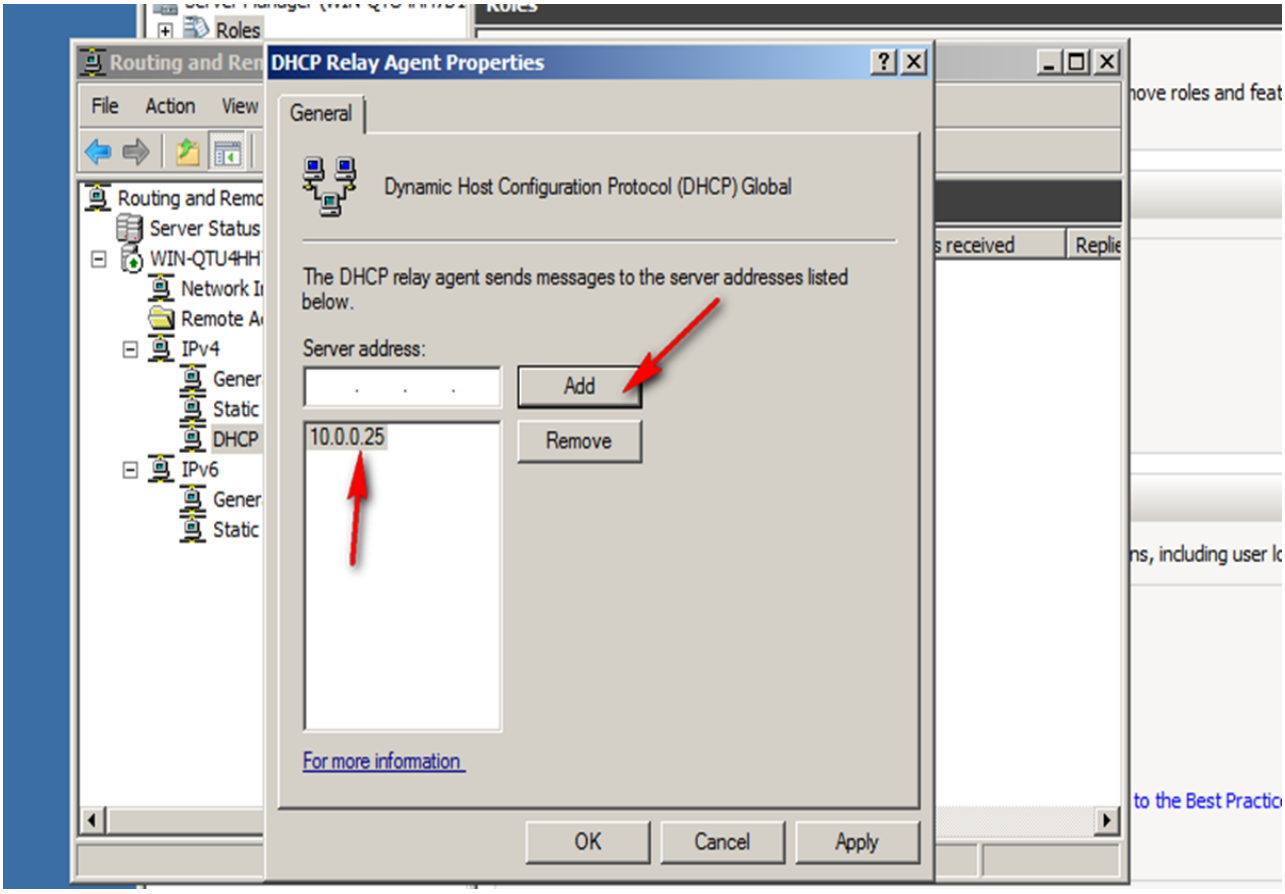
Now server works as router




Routing and Remote Access
File Action View Help
Routing and Remote Access
Server Status
WIN-QTU4HH7B1SF (local)
Network Interfaces
Remote Access Logging & F
IPv4
General
IPv6
General
Interface
Type
IP Address
Incoming byt
Loopback
Loopback
127.0.0.1
0
Local Area Connection
Dedicated
10.0.0.2
1,512,210
Internal
Internal
Not available
-
New Interface...
New Routing Protocol...
Show TCP/IP Information...
Show Multicast Forwarding Table...
Show Multicast Statistics...
View
Refresh
Export List...
Properties
Help
Show Multicast statistics
Role Services: 1 installed

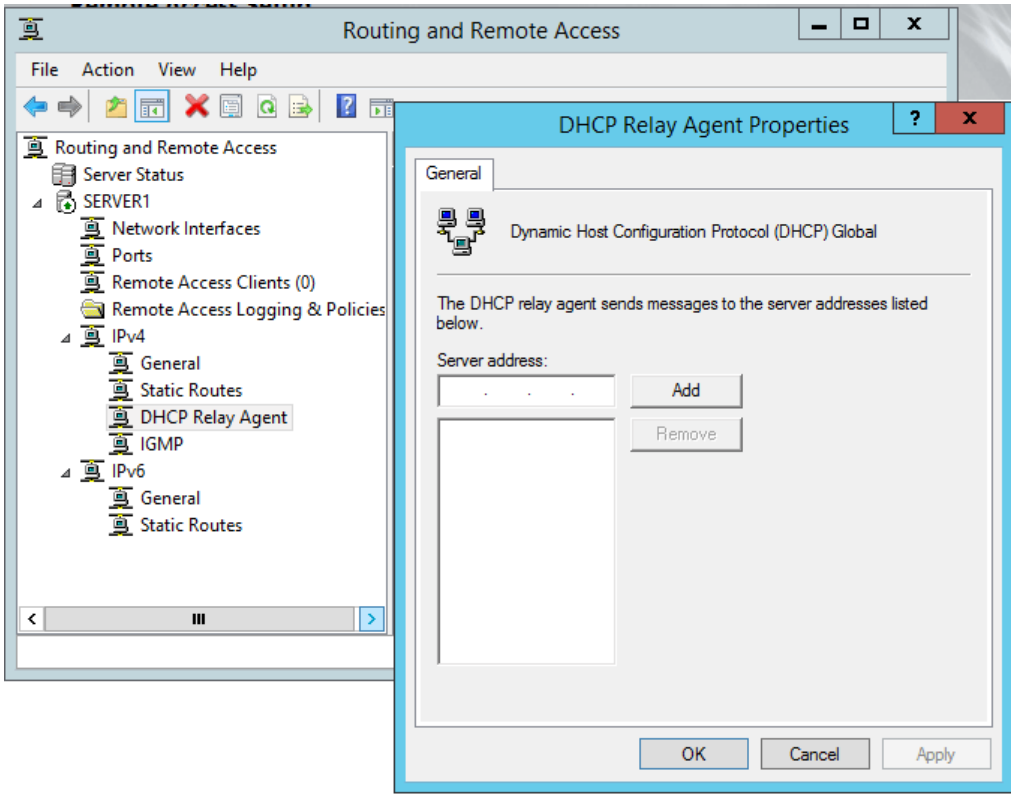

Routing and Remote Access
File Action View
New Routing Protocol
Click the routing protocol that you want to add, then click OK.
Routing protocols:
DHCP Relay Agent
IGMP Router and Proxy
NAT
RIP Version 2 for Internet Protocol
OK
Cancel
Routing and Remote
Server Status
WIN-QTU4HH7B
Network Int
Remote Acc
IPv4
General
Static Ro
IPv6
General
Static Ro
ress
Incoming byt
0.1
0
.2
1,512,210
ailable
-

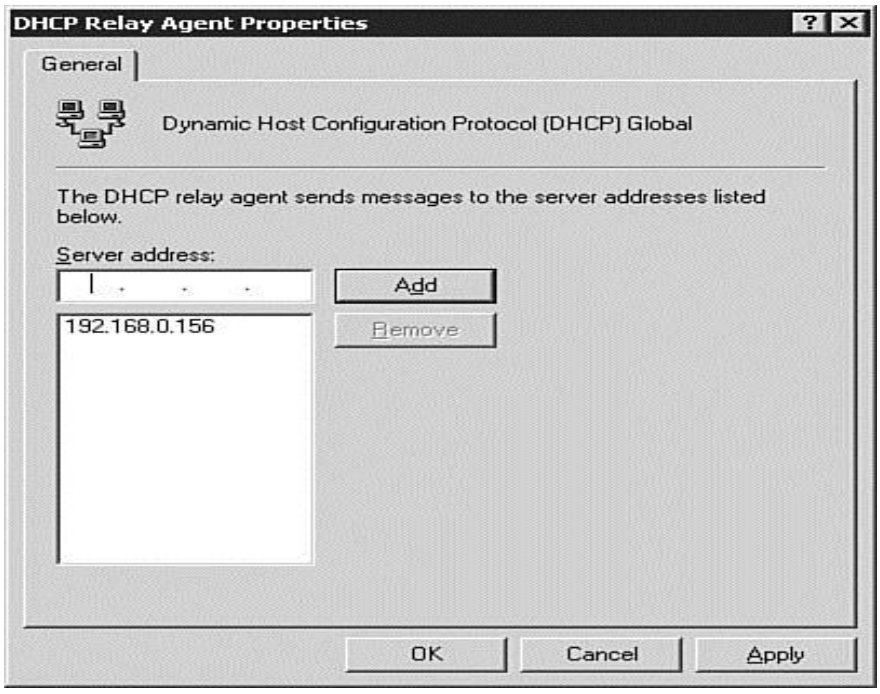

Routing and Remote Access
File Action View Help
Routing and Remote Access
Server Status
WIN-QTU4HH7B1SF (local)
Network Interfaces
Remote Access Logging & F
IPv4
General
Static Routes
DHCP Relay Agent
IPv6
General
Static Rou
DHCP Relay Agent
Interface
Relay mode
Requests received
Replie
There are no items to show in this view.
New Interface...
View
Delete
Refresh
Export List...
Properties
Help
Exports the current list to a file.


Roles
DHCP Relay Agent Properties
General
Dynamic Host Configuration Protocol (DHCP) Global
The DHCP relay agent sends messages to the server addresses listed below.
Server address:
Add
Remove
10.0.0.25
For more information
OK
Cancel
Apply
File Action View
Routing and Remo
Server Status
IPv4
IPv6
s received
Replie
ove roles and feat
ns, including user l
to the Best Practic

9.2- DHCP relay agent windows server 2012

Once done, Routing and Remote Access will open. Right click on DHCP Relay Agent and provide the DHCP Server Address





10-Make server work as router

احيانا لا يوجد لدينا رواتر داخل الشبكة فنحتاج الى جعل الخادم يعمل كراوتر ويقوم بجميع الوظائف الذي يقوم بها علي سبيل المثال ربط شبكات مختلفة.

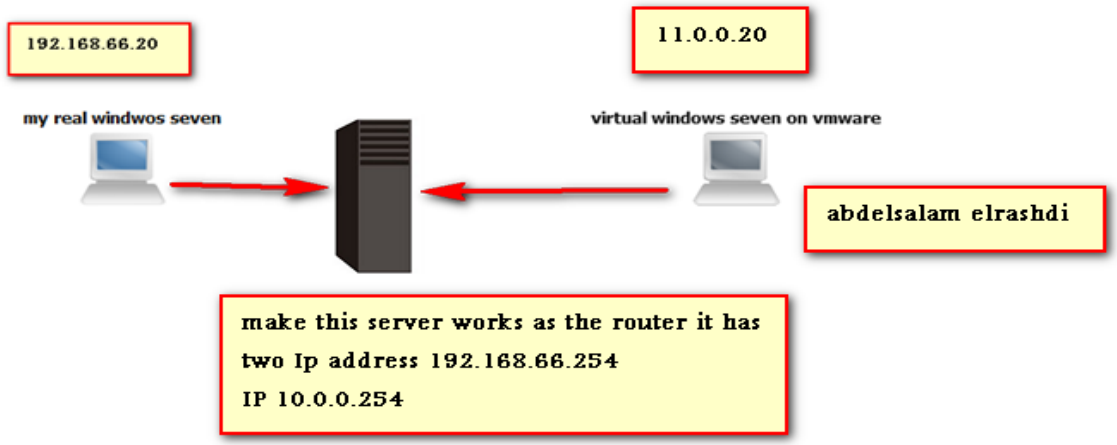
A router is a device that manages the flow of data between network segments, or subnets. A router directs incoming and outgoing packets based on the information it holds about the state of its own network interfaces and a list of possible sources and destinations for network traffic.

Remote access

By configuring Routing and Remote Access to act as a remote access server, you can connect remote or mobile workers to your organization's networks. Remote users can work as if their computers are physically connected to the network.

سوف نقوم بعمل لاب صغير يوضح كيفية جعل الخادم يعمل كراوتر

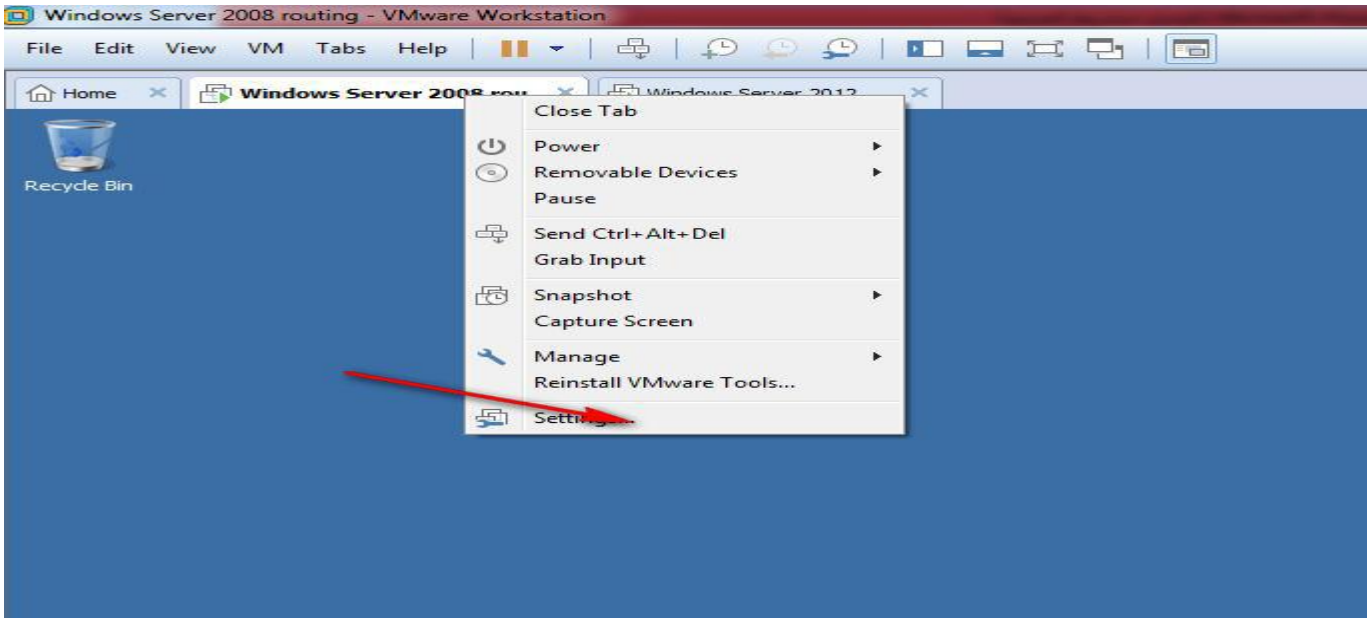
We made small Lab about routing in windows server, as following figure



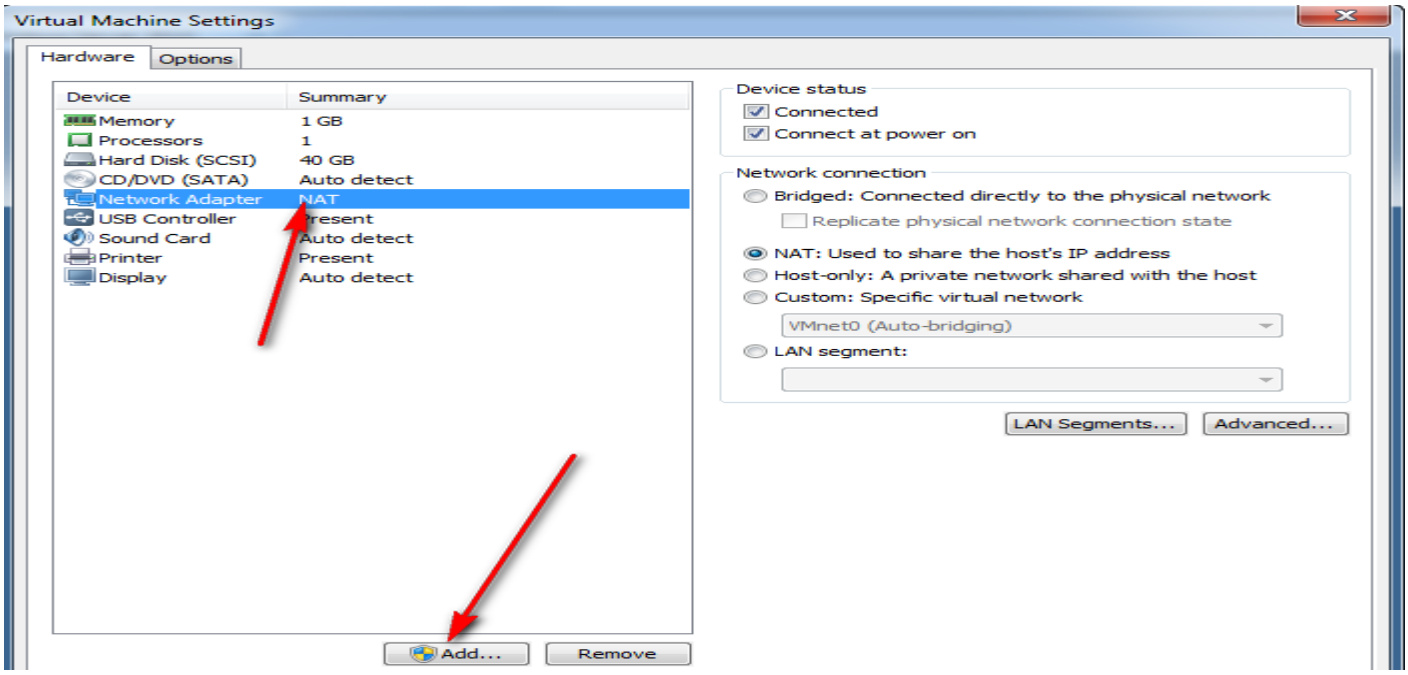
Where we have two differences network so we must have router or server works as router.

When you make server works as router On the windows server you must have at least two network interface

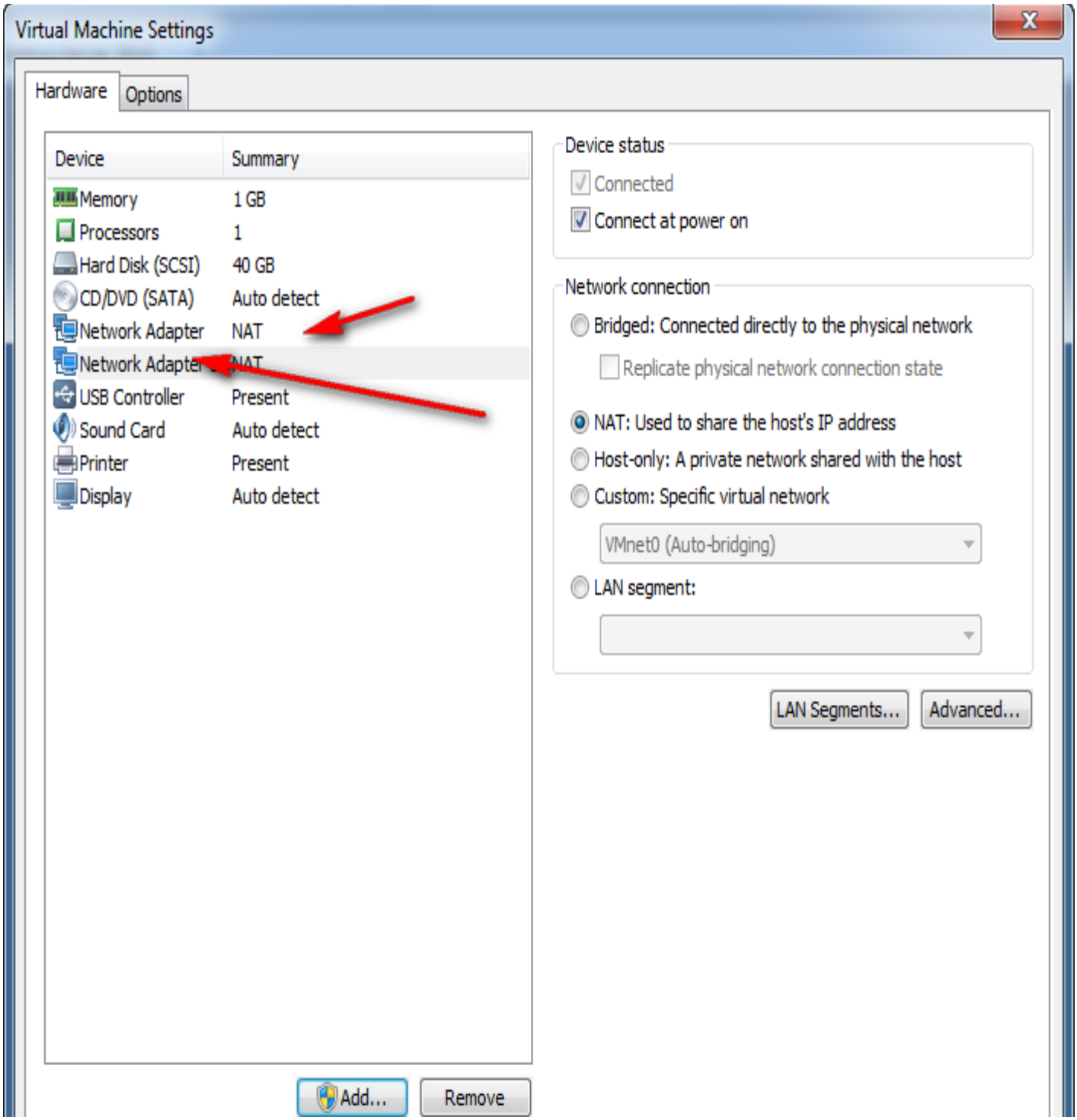
Add another interface card on vmware



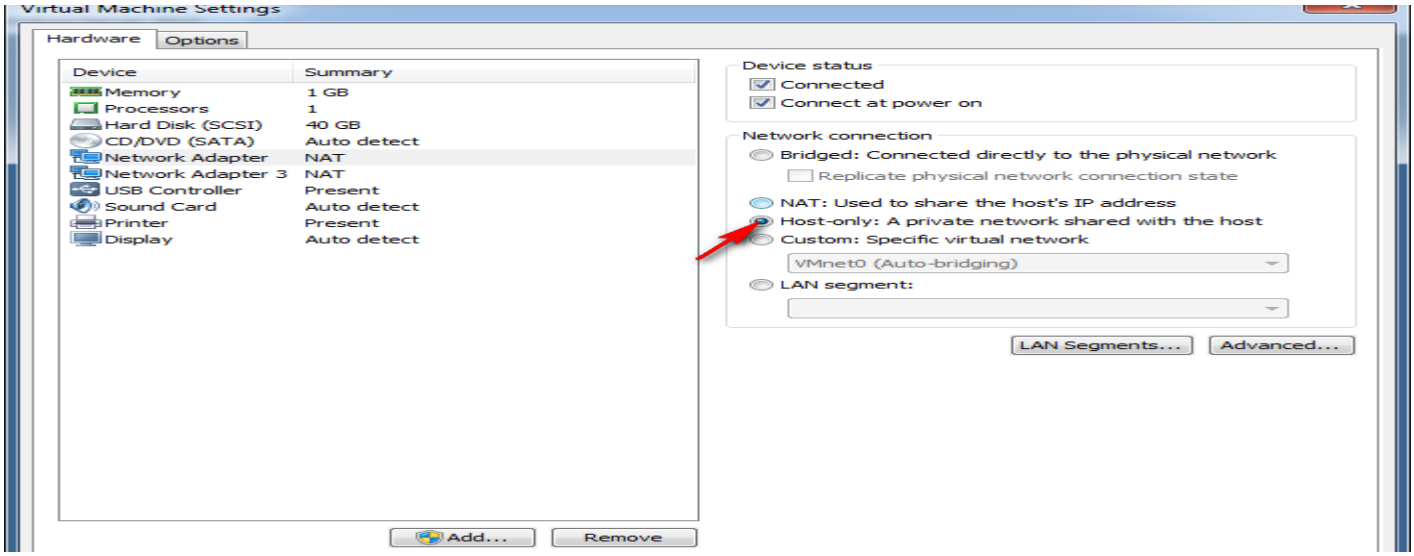
Network adapter then add



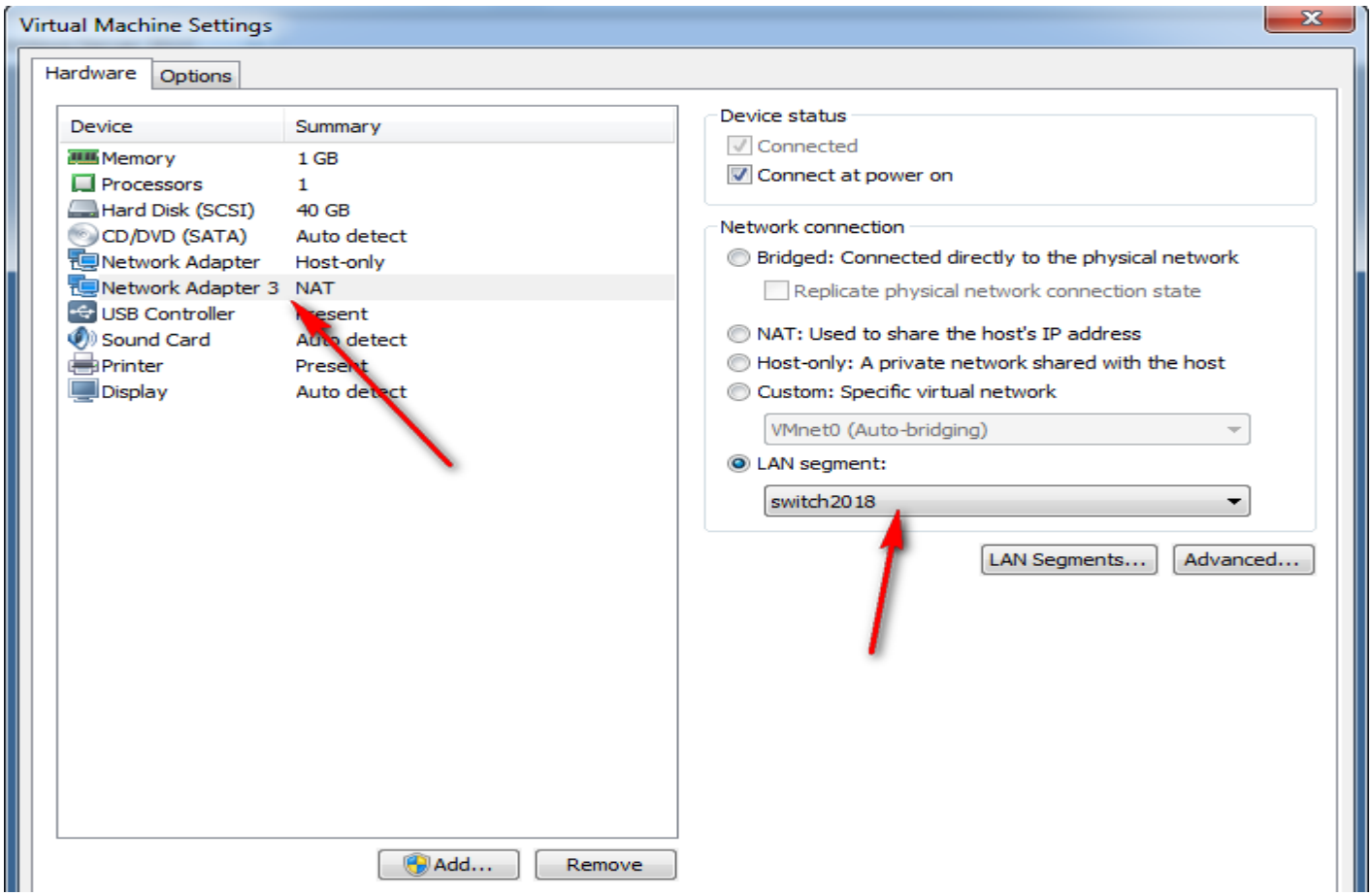
Now I have two NIC



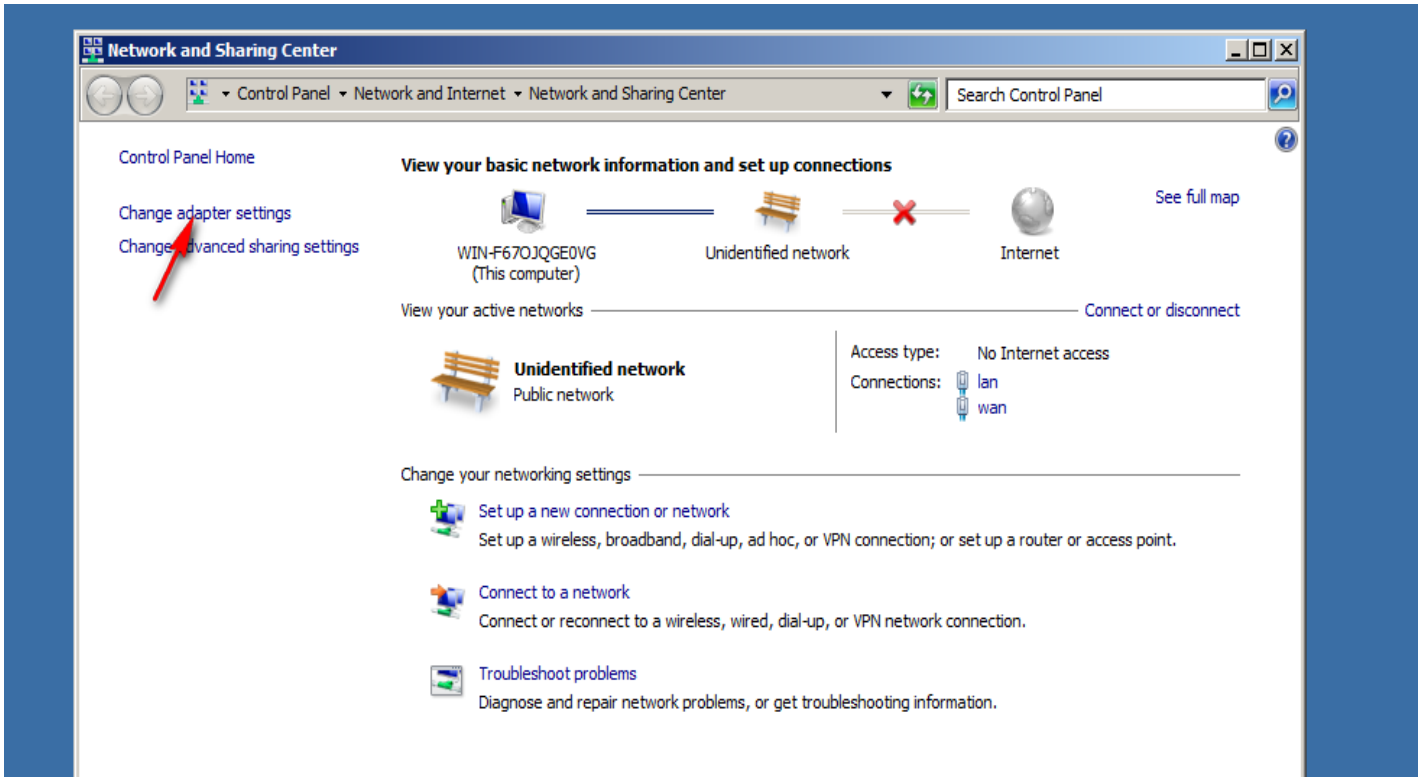
First NIC will connect with real my computer so we will choice host-only

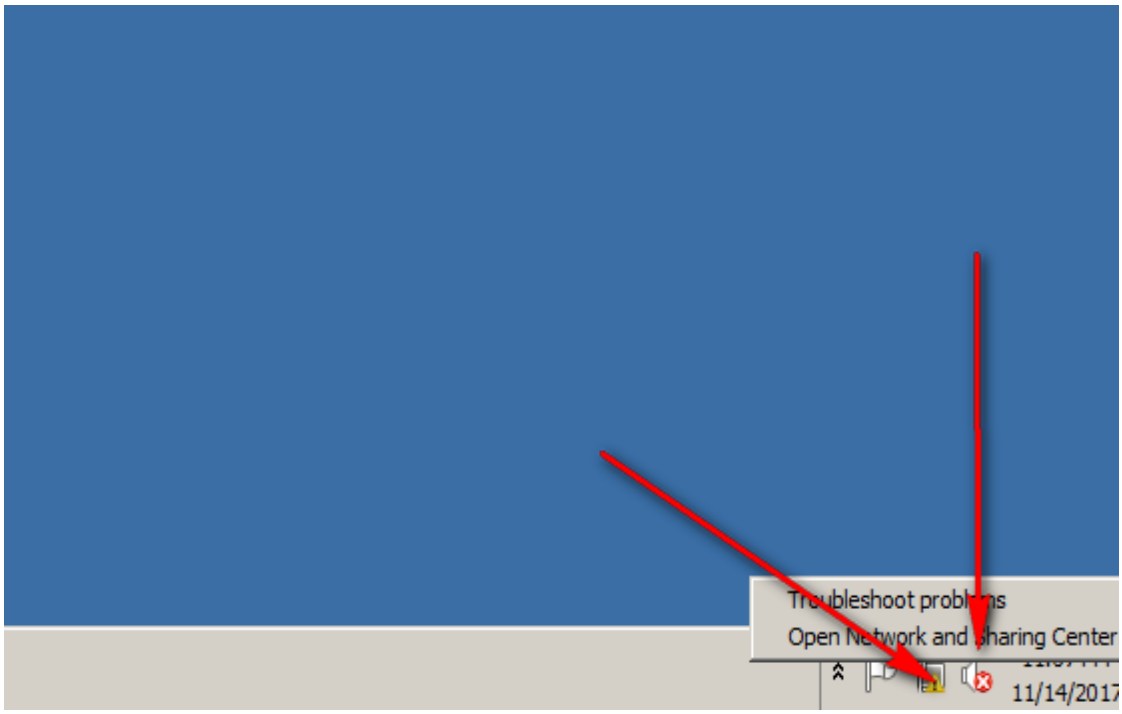


Second NIC will connect with virtual machine windows seven so we will create ne switch named switch2018



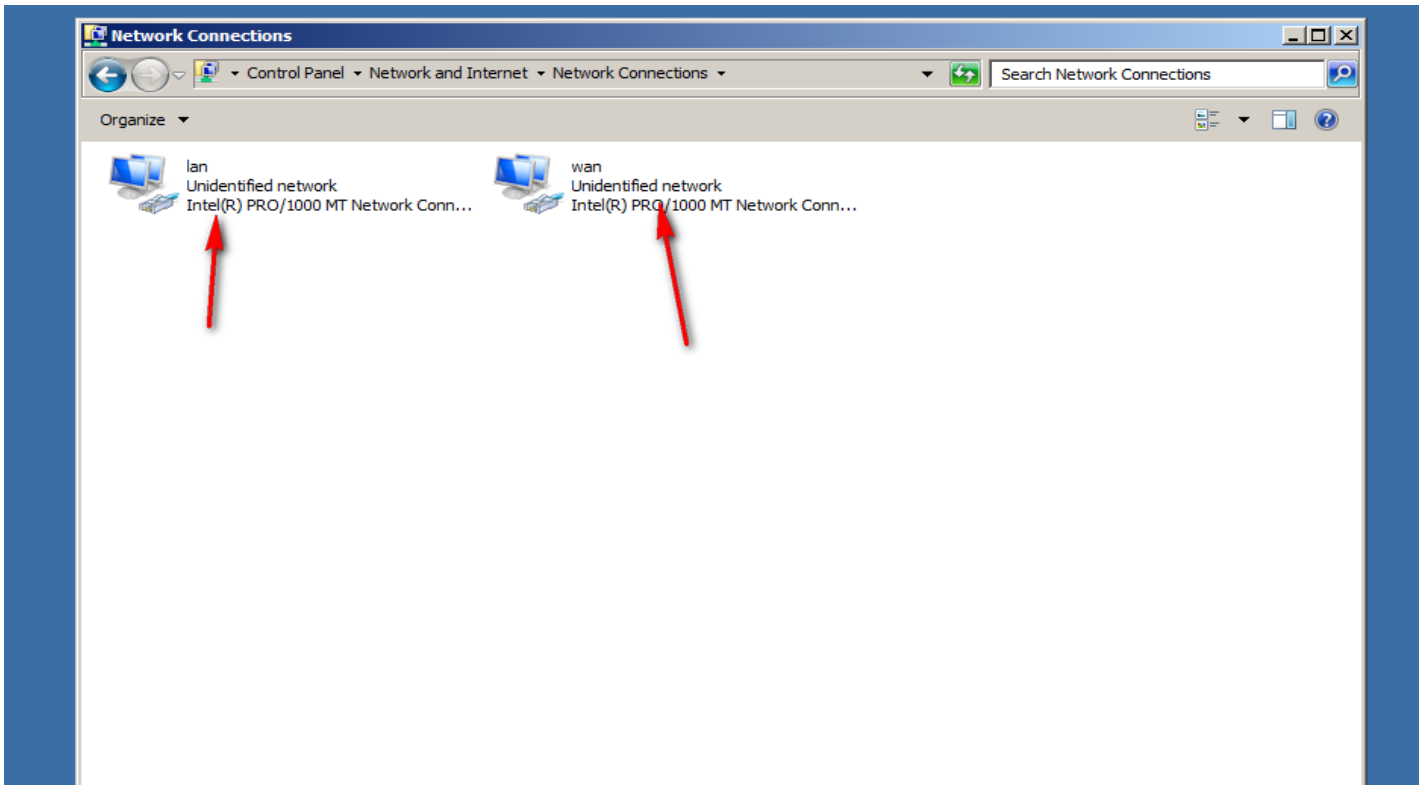
To open the network interfaces



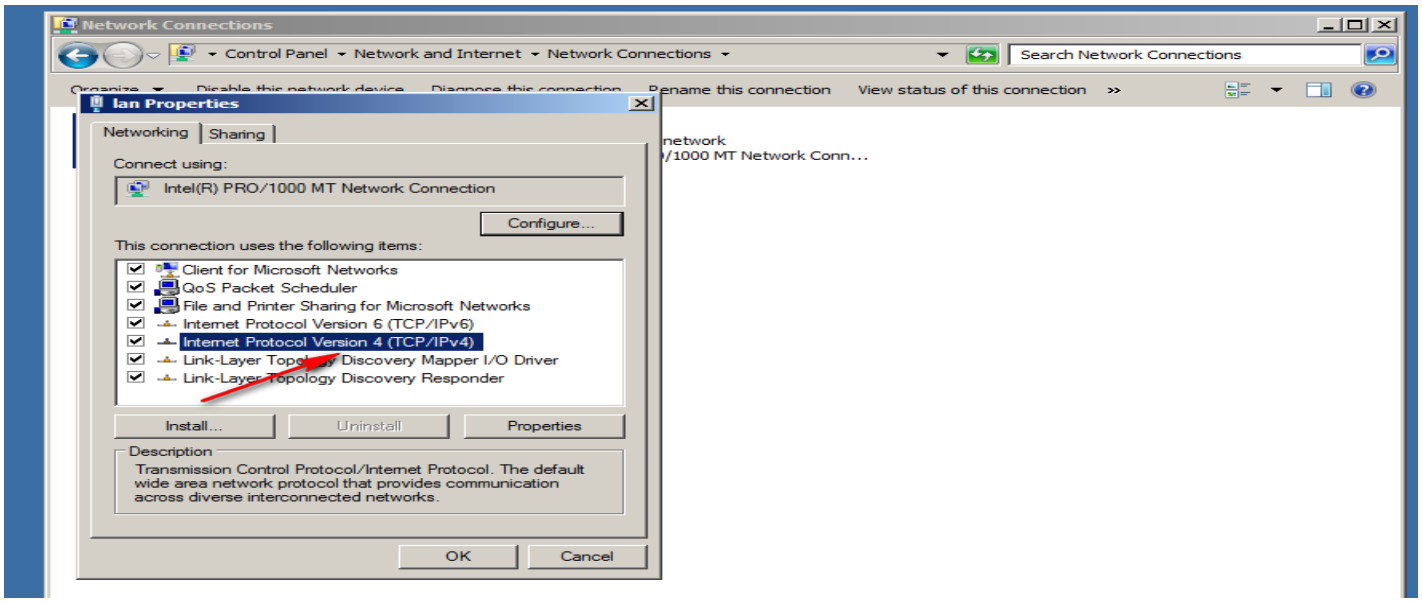


Choice adapter settings

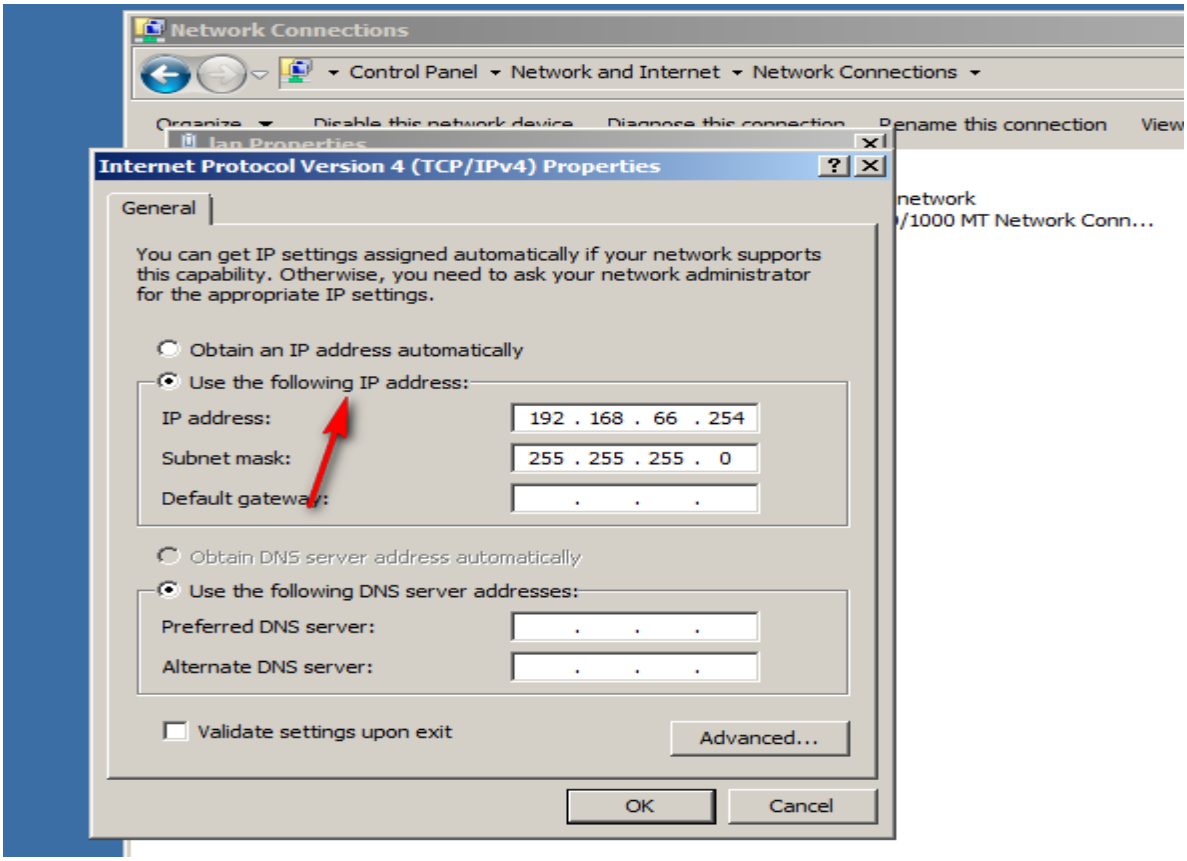
I have two NIC can I rename them for example LAN ,WAN



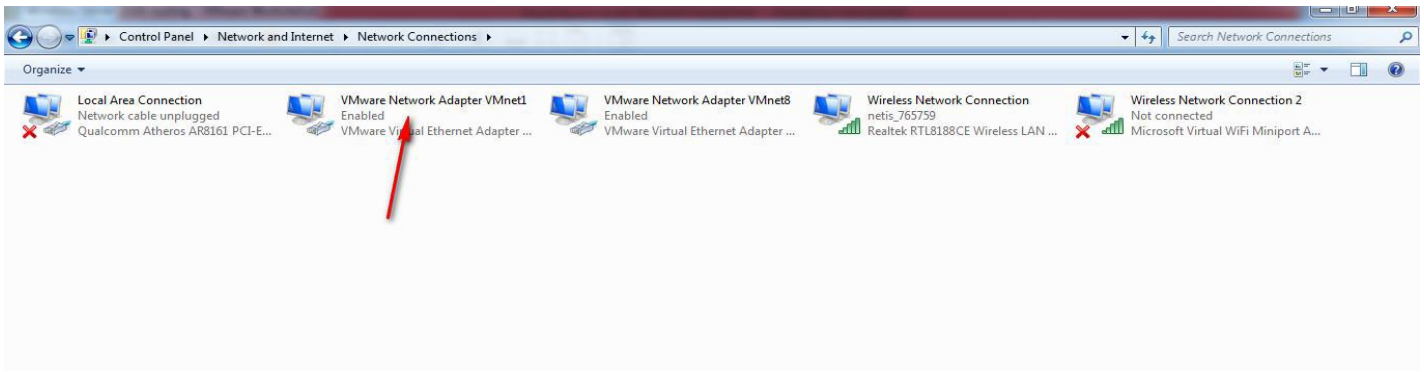
Now IP address to LAN interface that connect with real my computer through host-only connection



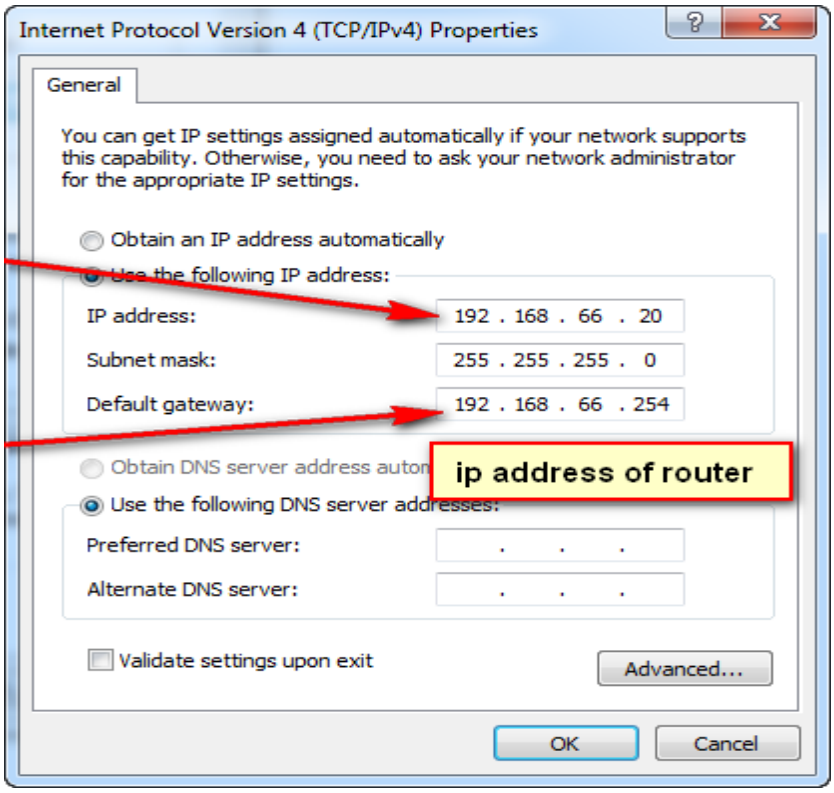
lP address for LAN interface on server (router)



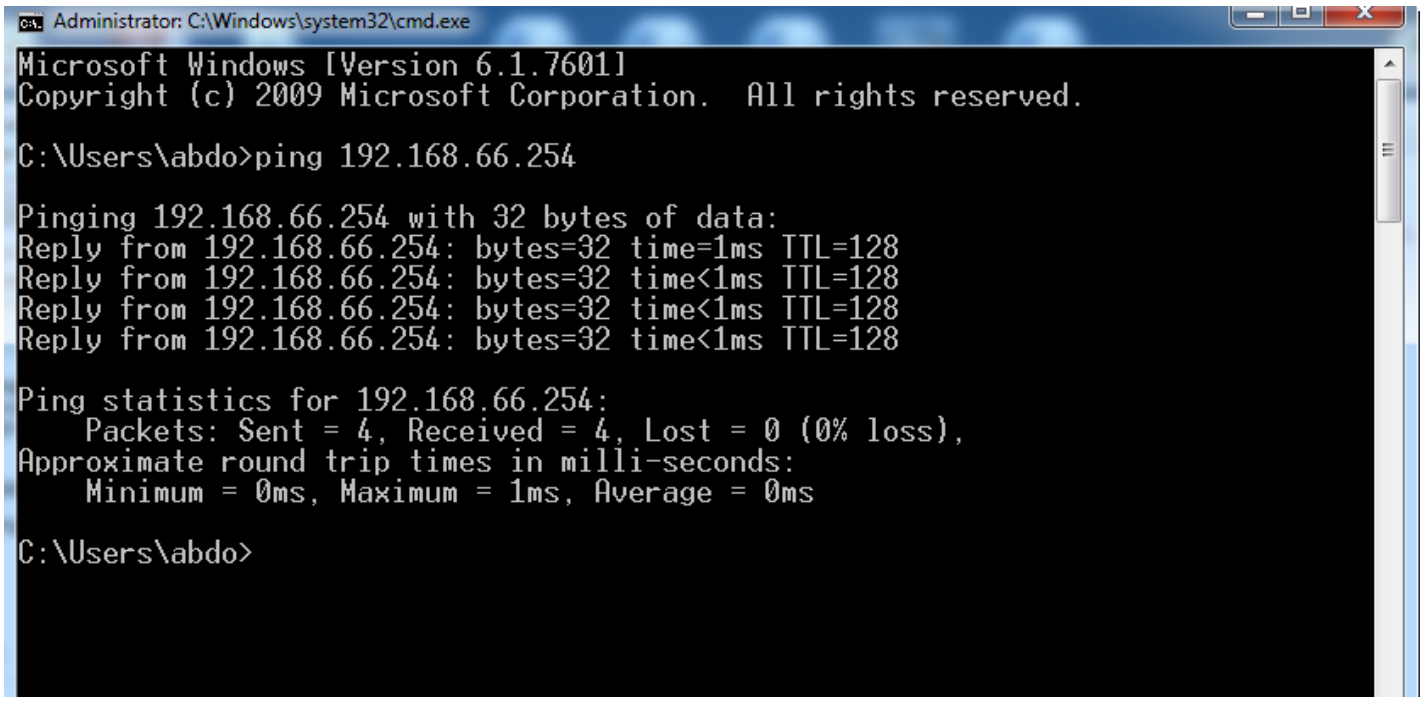
Now on my real computer go to vmnet1 (host-only) ,put lp address same network as LAN interface on router



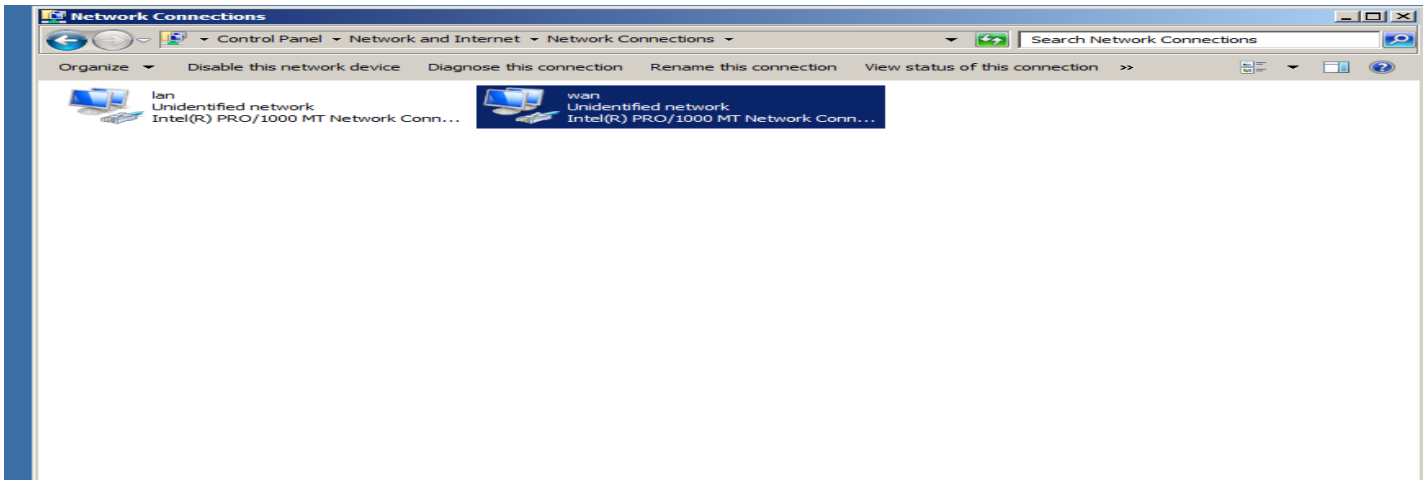
lp address and default getaway on my real computer



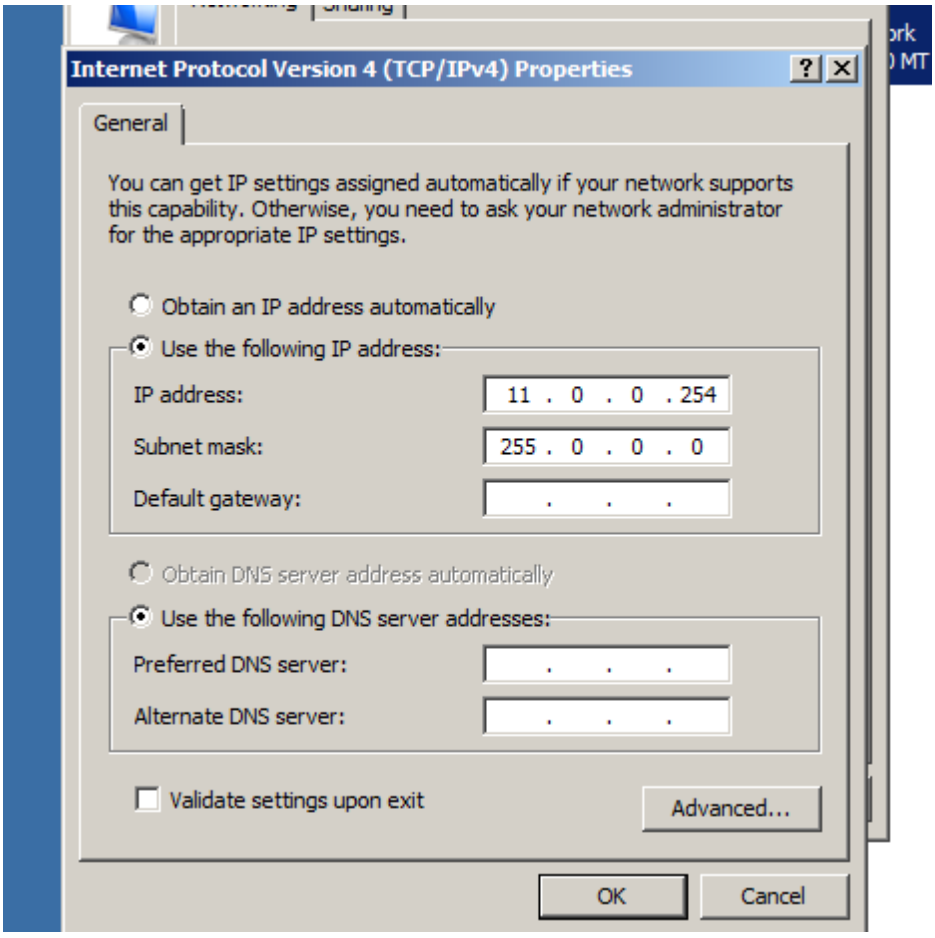
Now ping on IP address of LAN interface on router



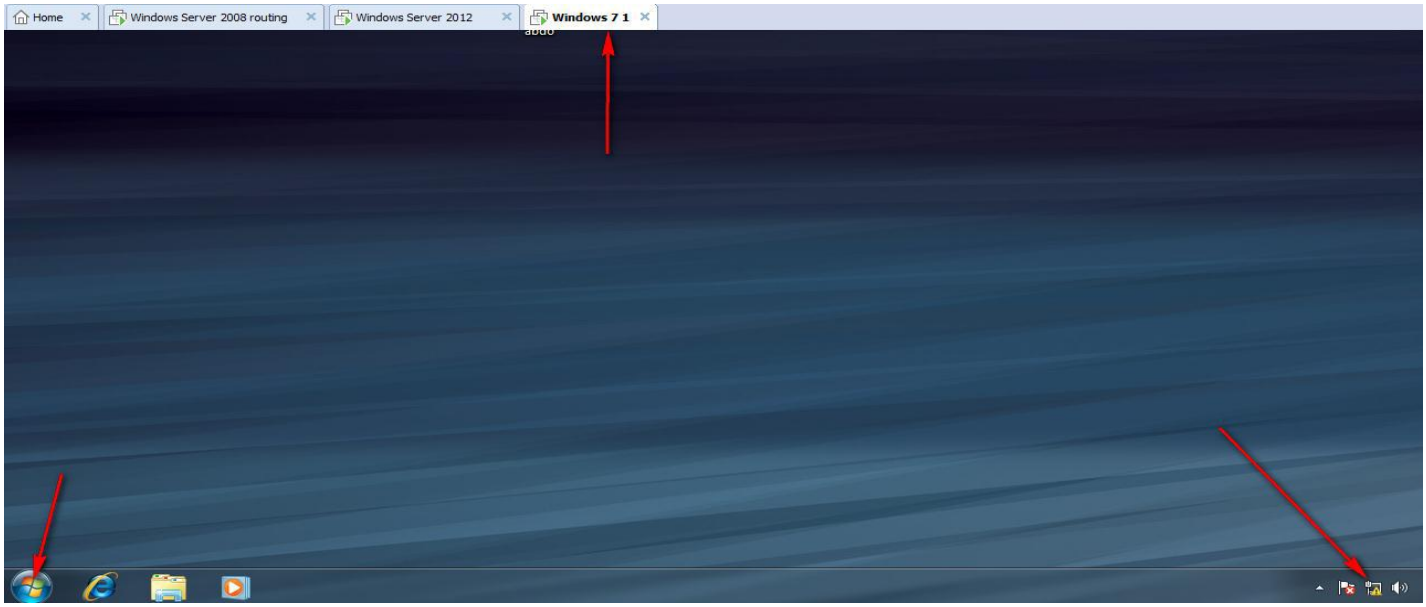
Now IP address to wan interface that connect with virtual machine (seven) through switch2018 connection



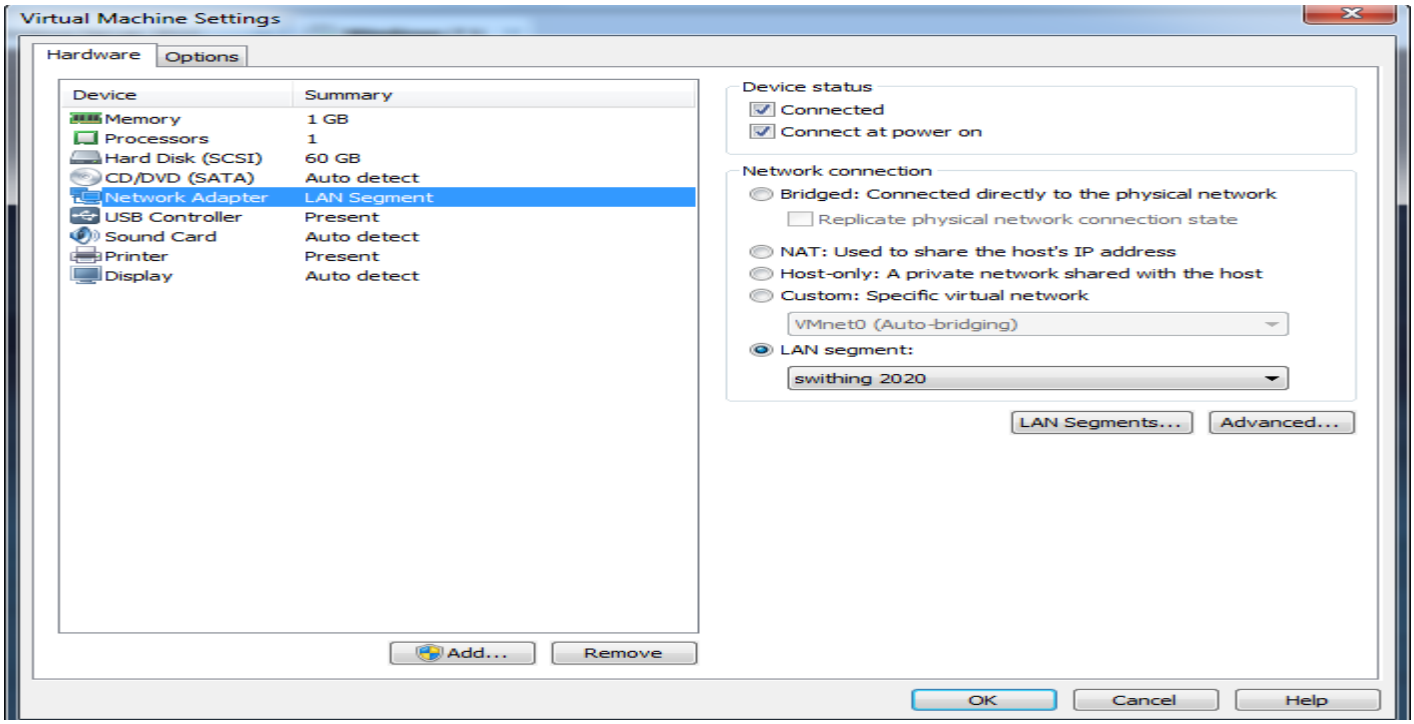
IP address for wan interface on server (router)



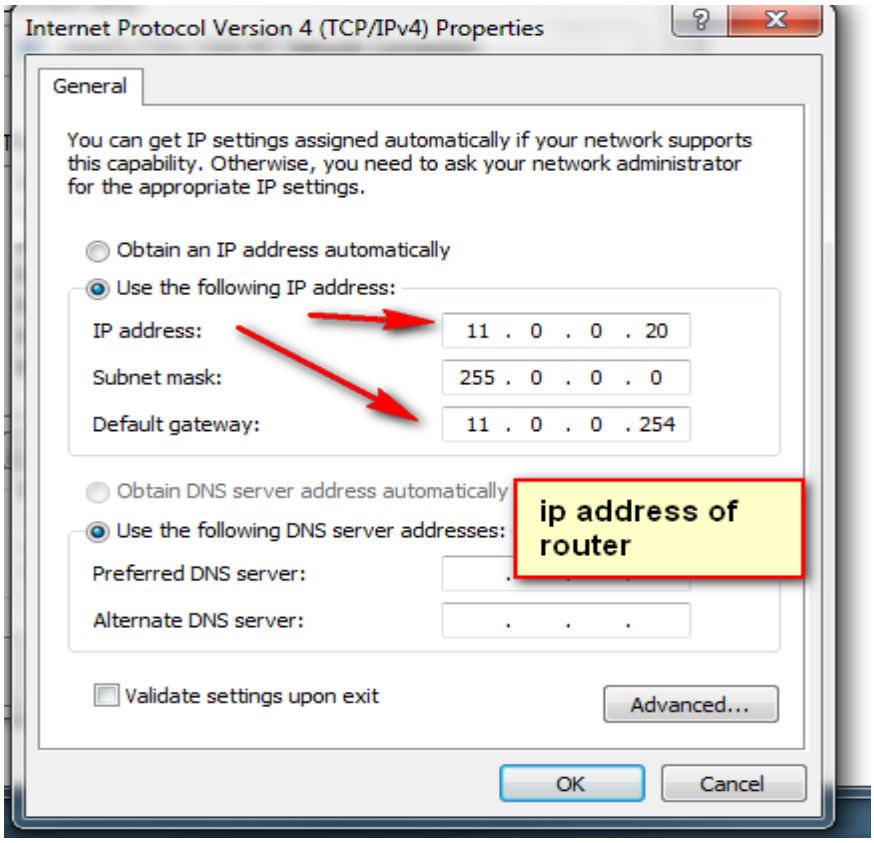
On virtual machine make interface connect with switch2008 connecter



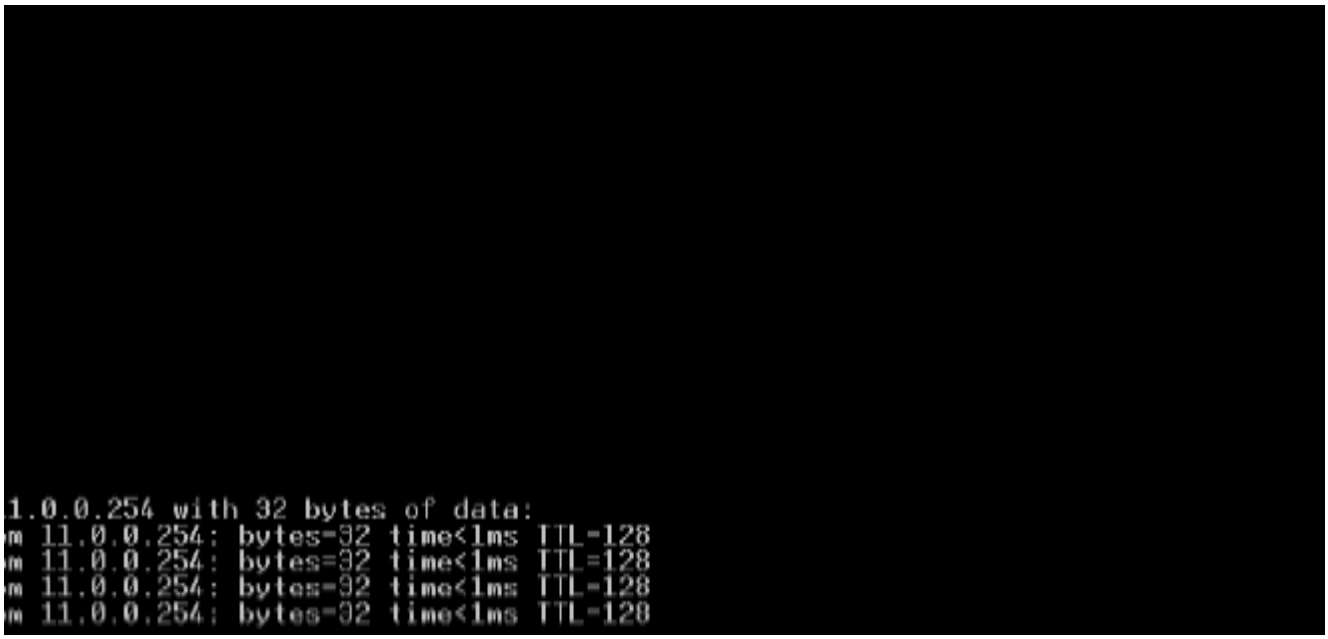
On virtual machine make interface connect with switch2008 connecter



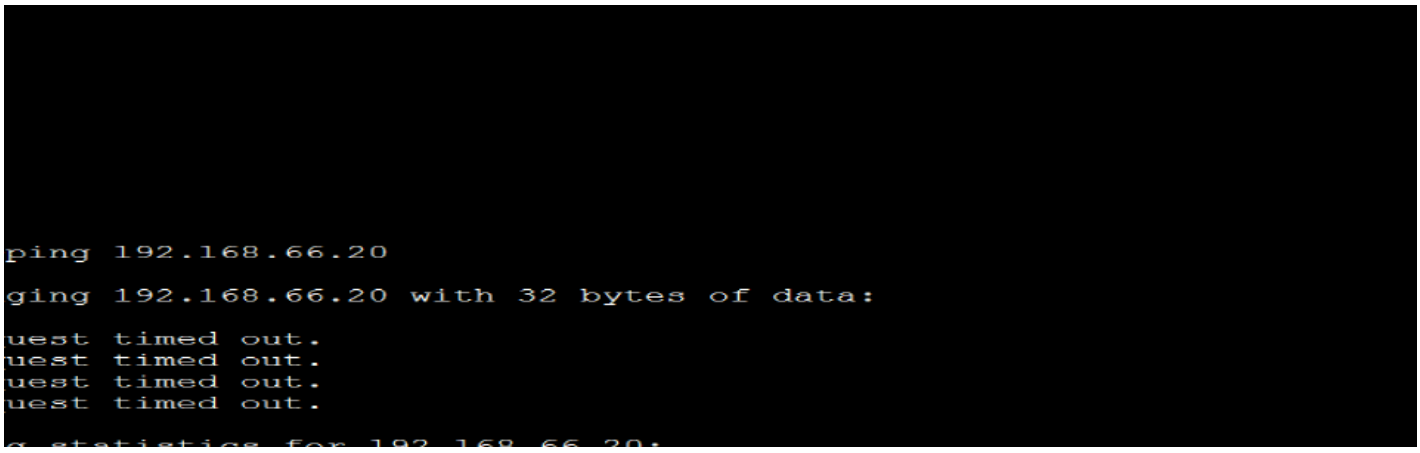
On virtual machine put IP address and default gateway same network with wan interface on router



Now ping on IP address of wan interface on router



But if I want ping between my real computer and virtual machine I can't because we still make server works as router to connect different networks



Now I will make Server as the router on windows server 2008 &2012

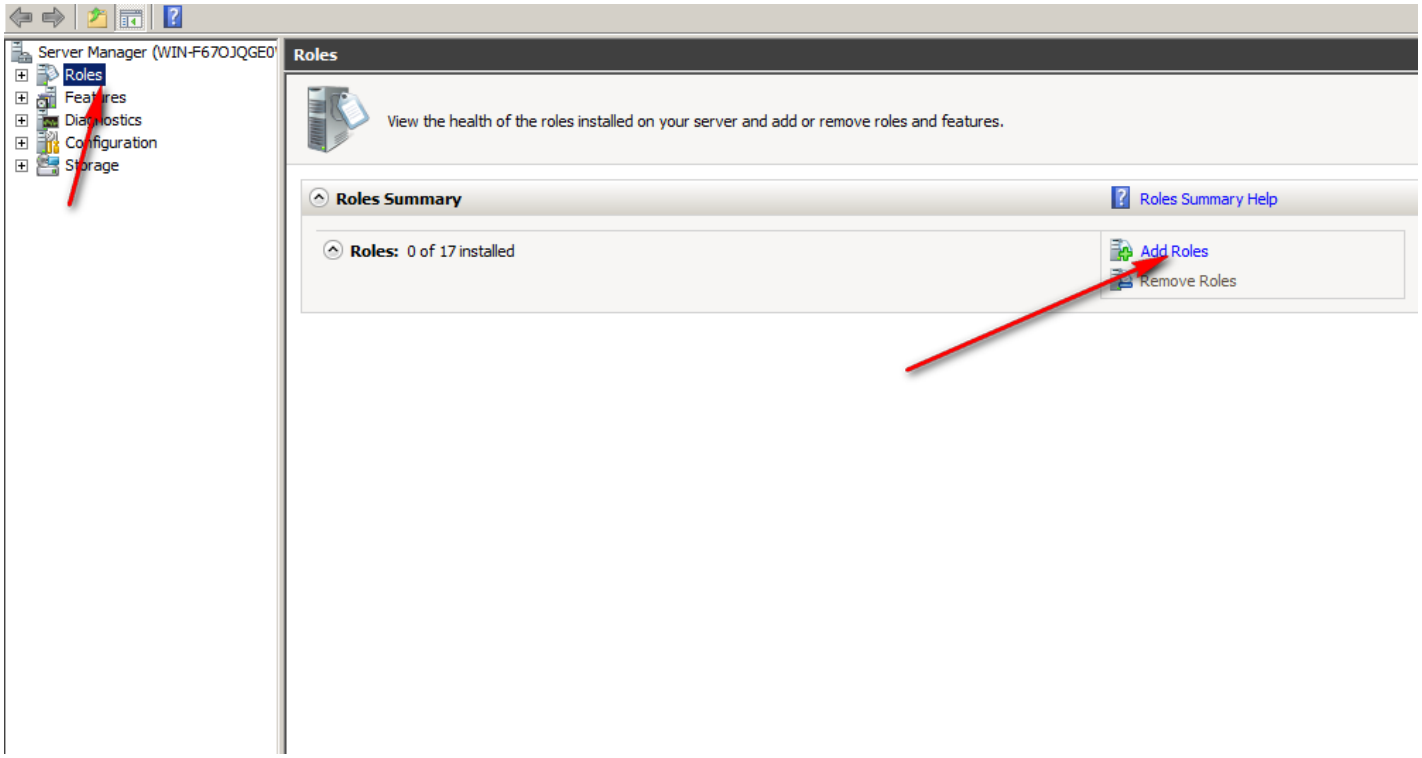
When we want make server works as router we must on windows server 2008 install routing and remote access from server manager as and windows server 2012 install remote access role we will take both on windows server2008 and 2012

10.1- Make windows server 2008 works as the router

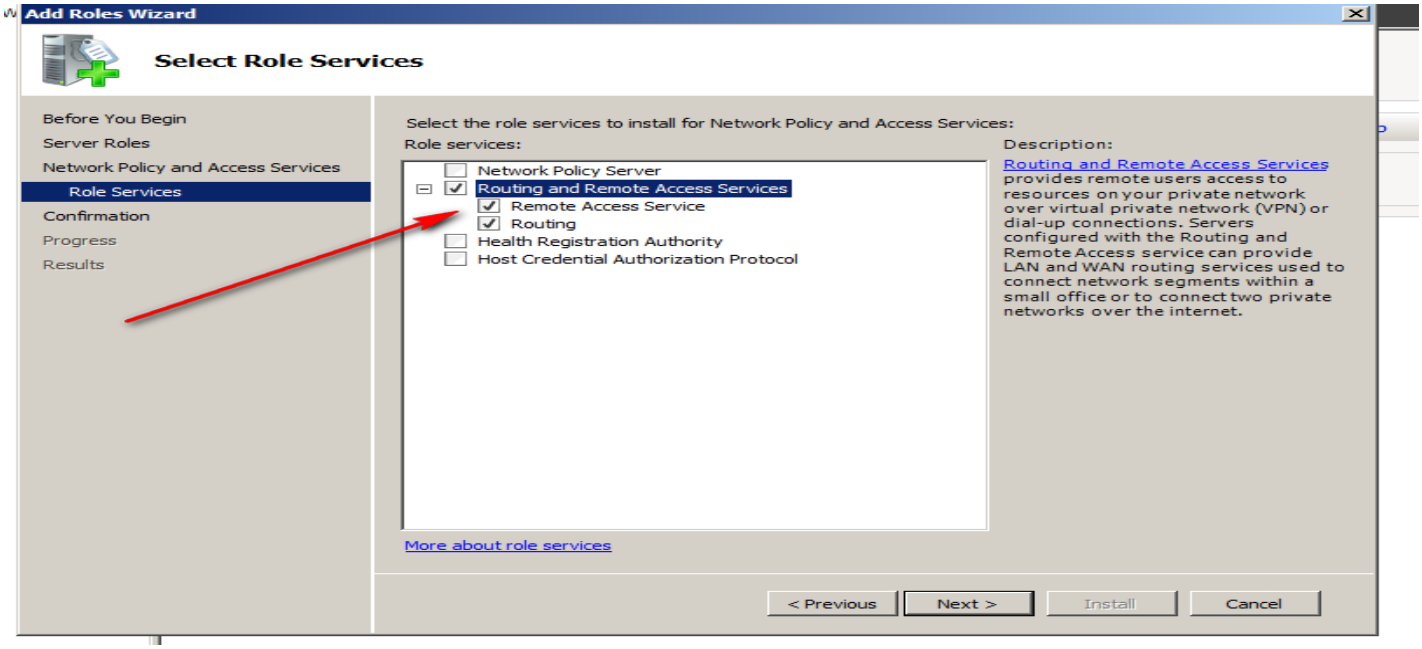
جعل الخادم يعمل كراوتر عن طريق windows server 2008

Windows server 2008 server manager

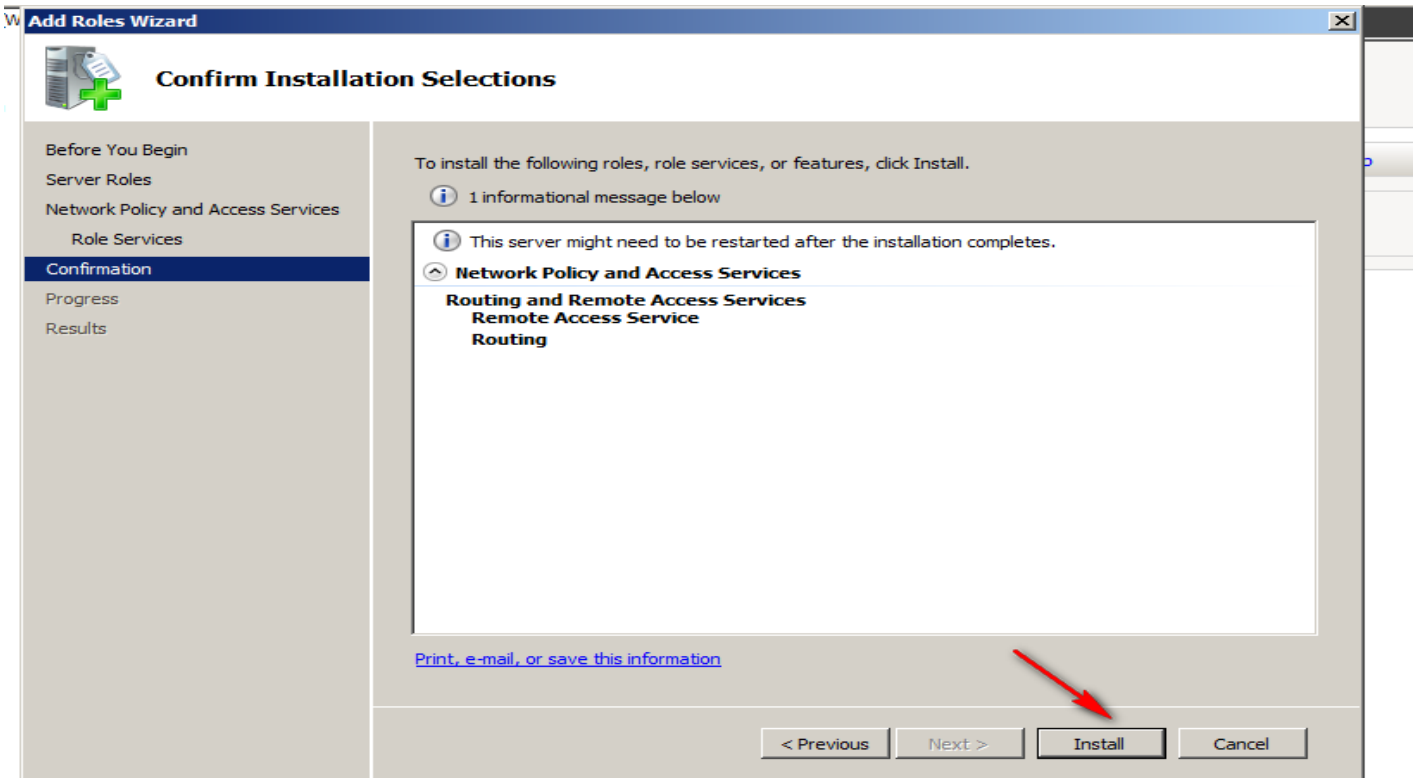
Install routing role on windows server 2008



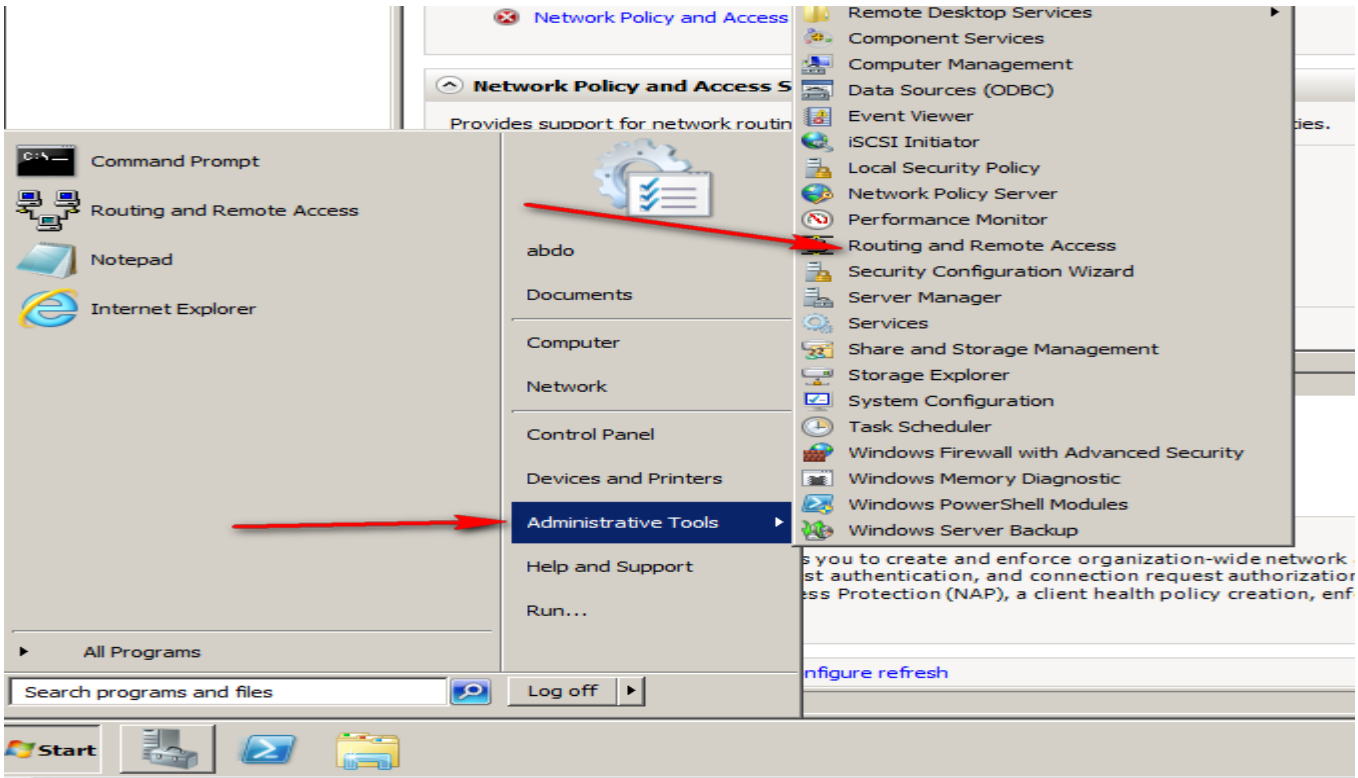
Routing and remote access services



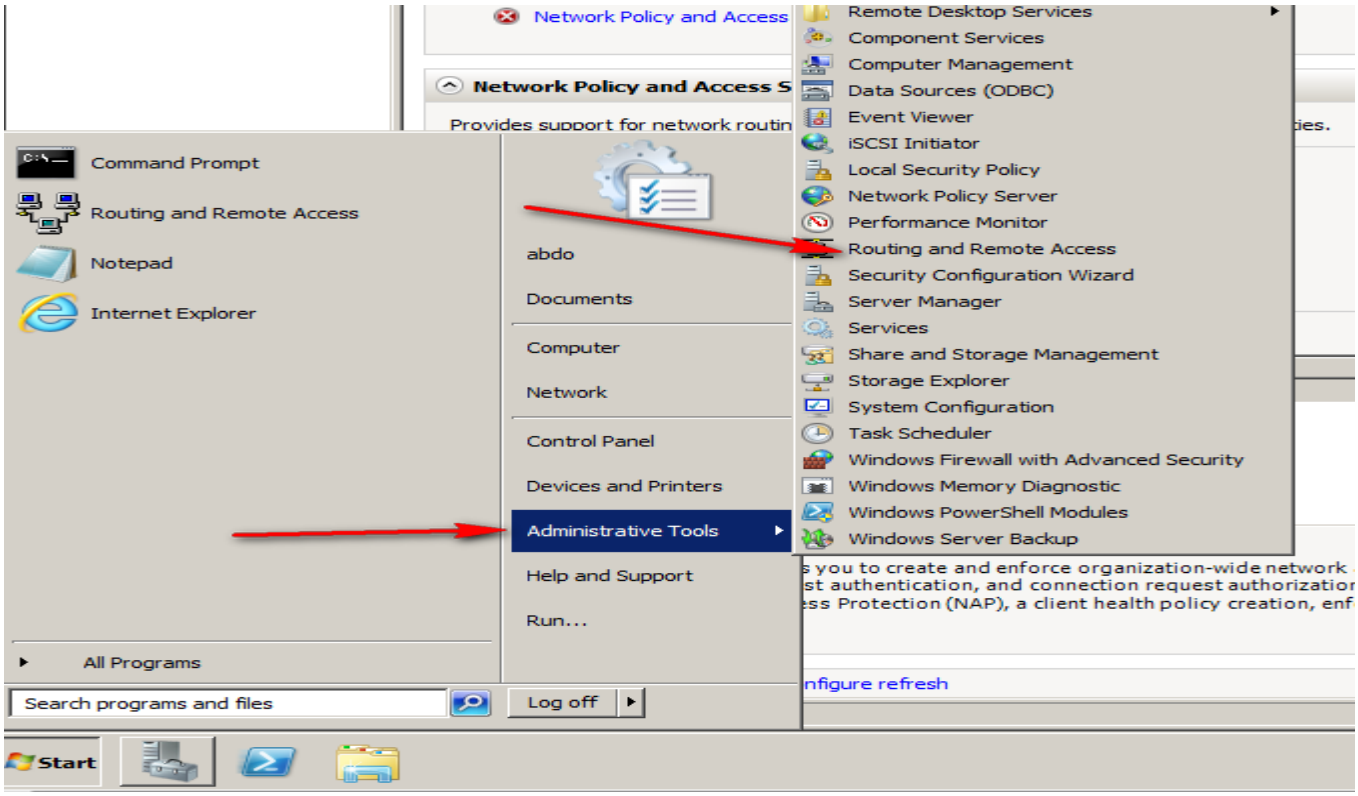
Install role



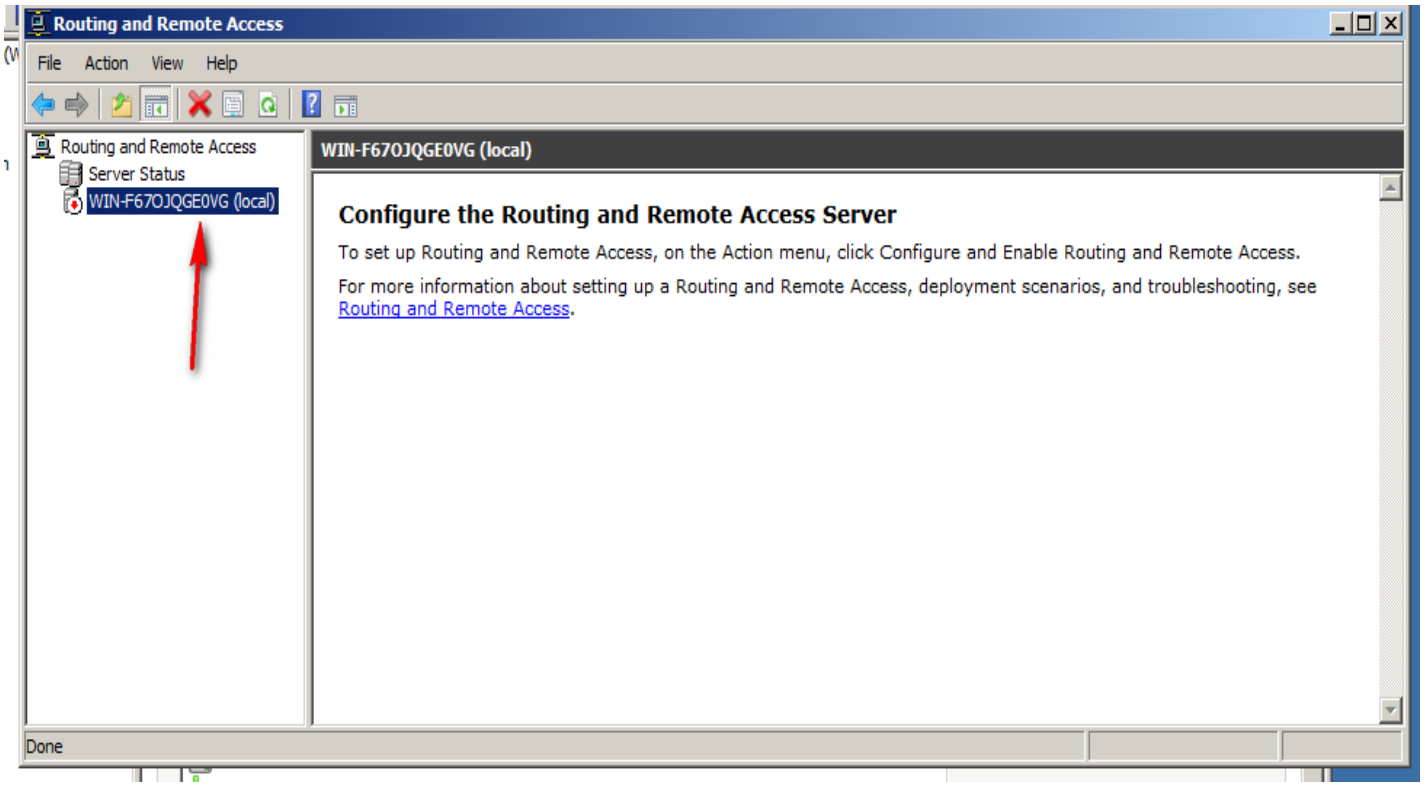
Open routing and remote access



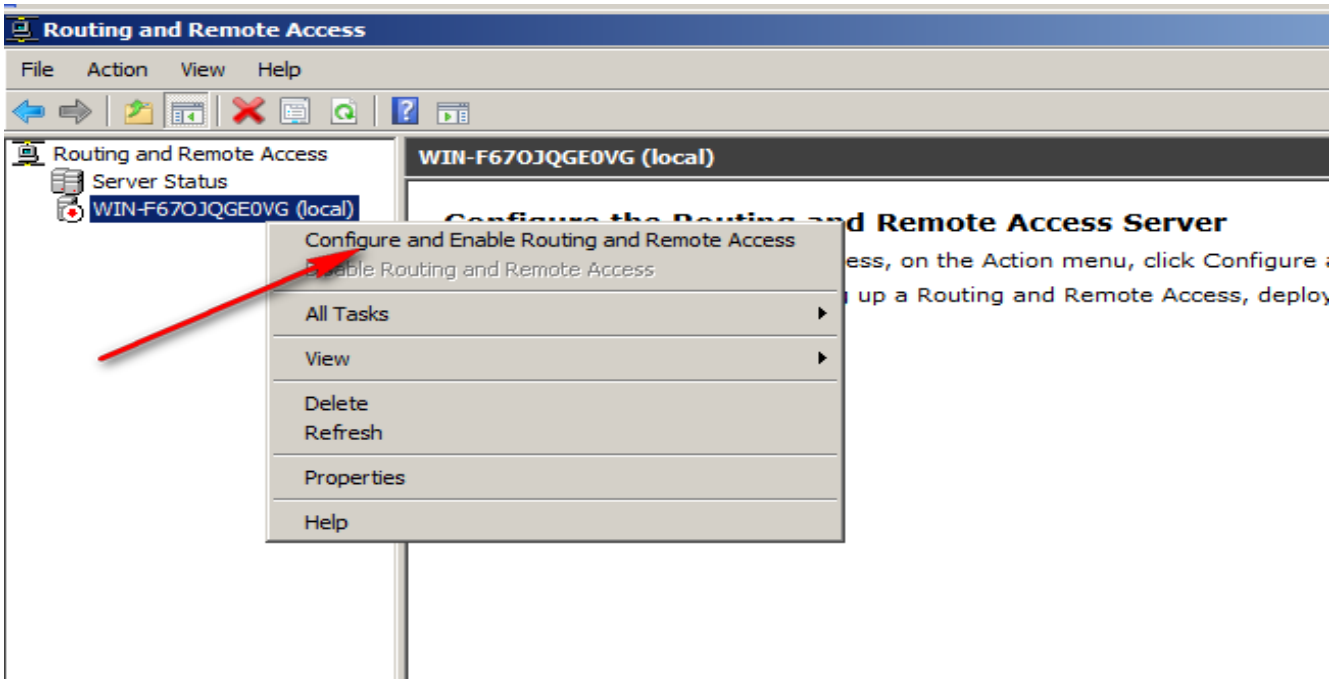
Open routing and remote access



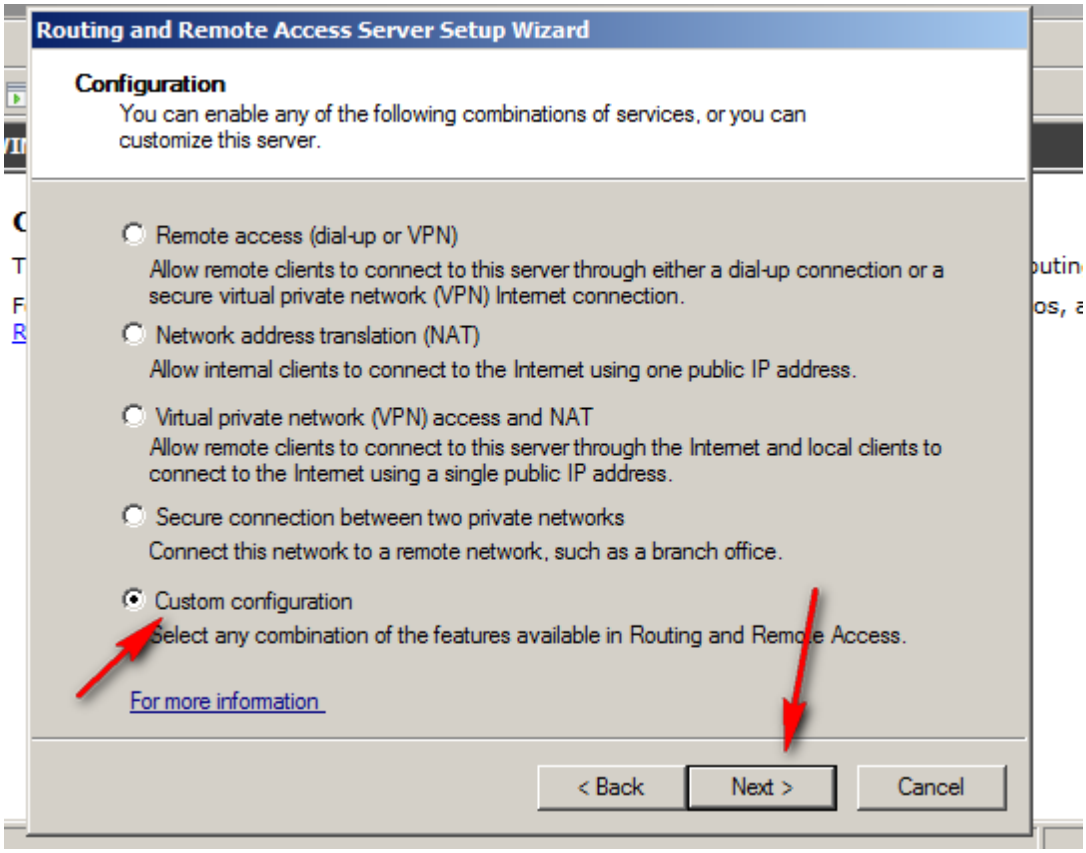
Enable the routing on server



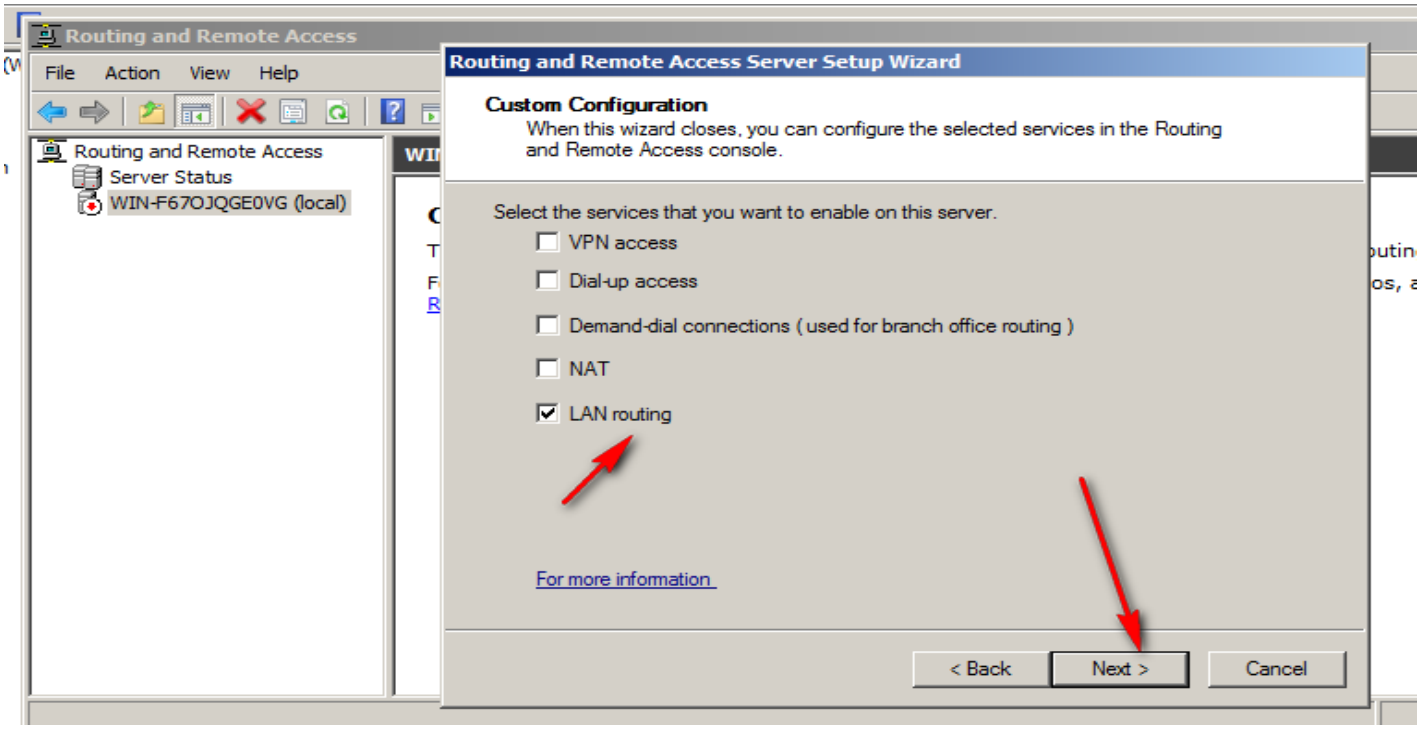
Enable the routing on server



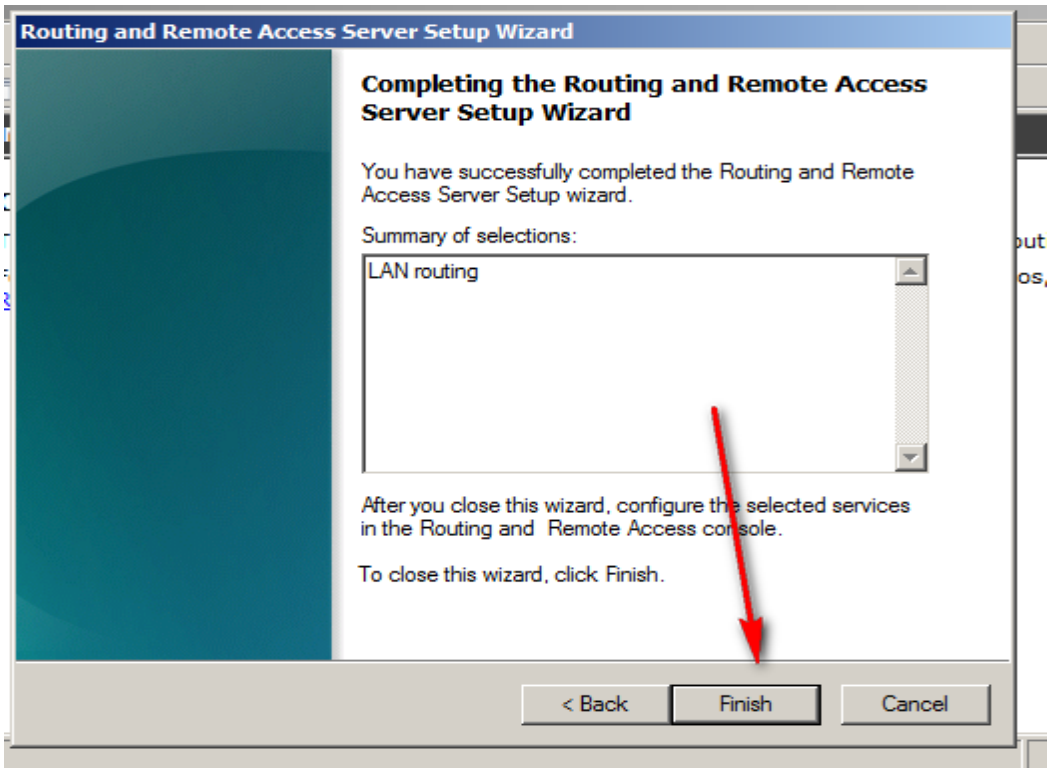
Choice custom configuration



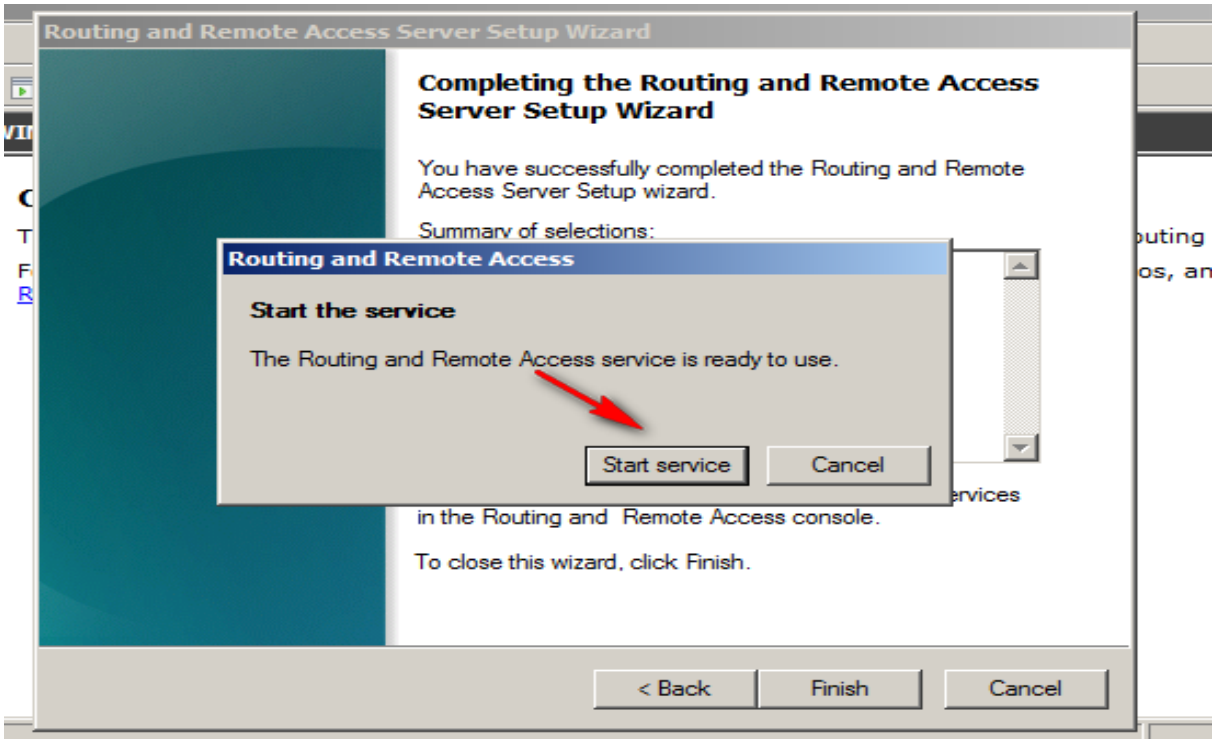
LAN routing



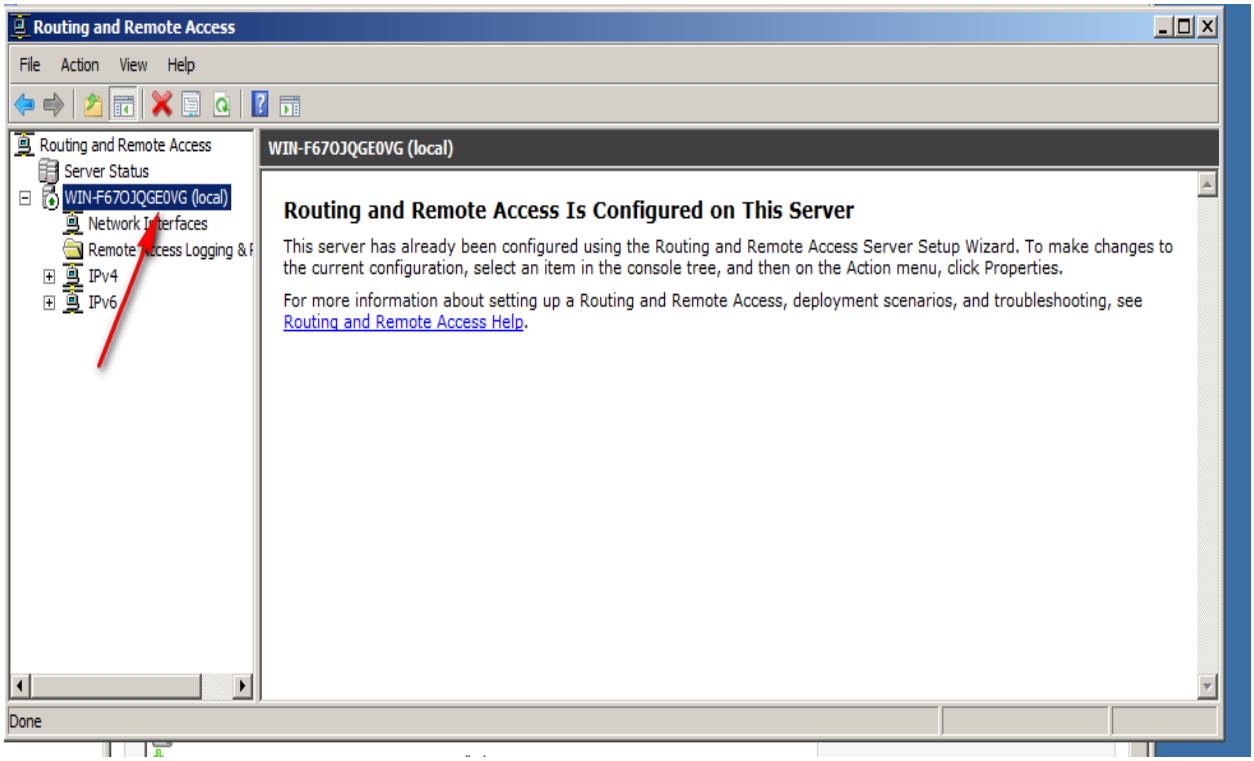
Press finish



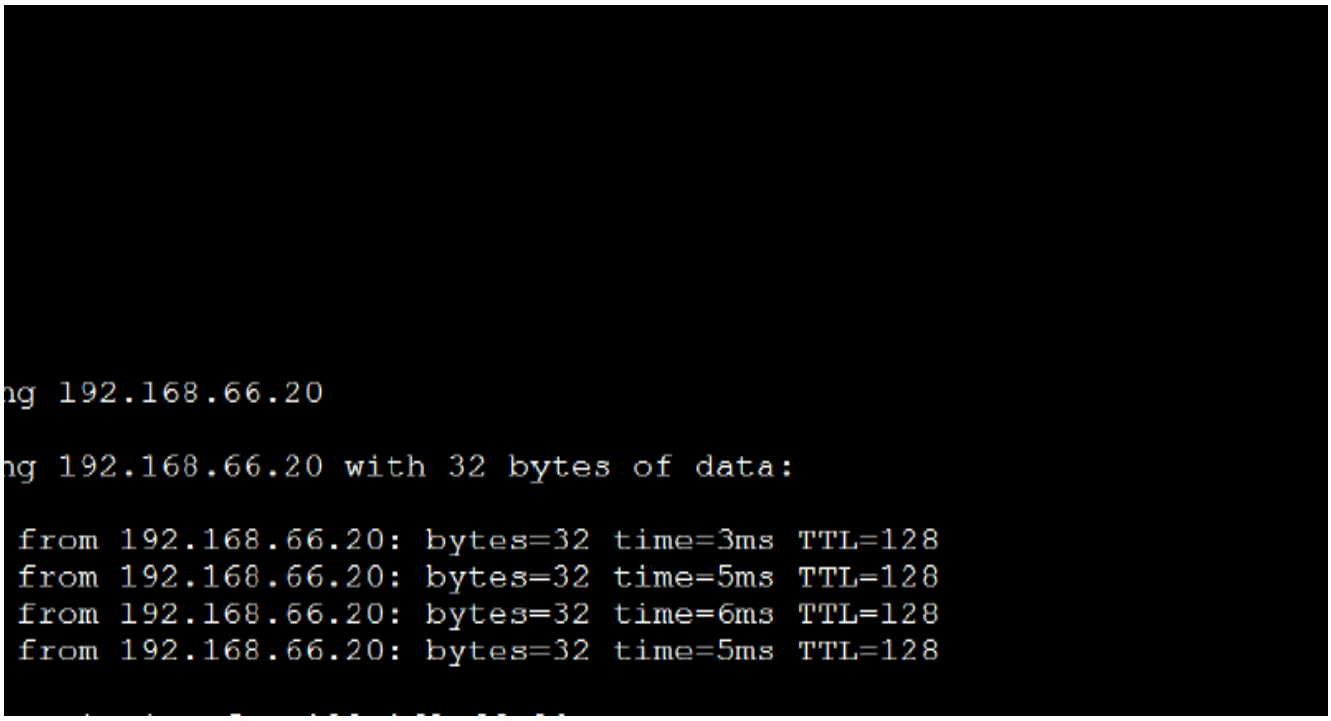
Start the services



Now server works as router



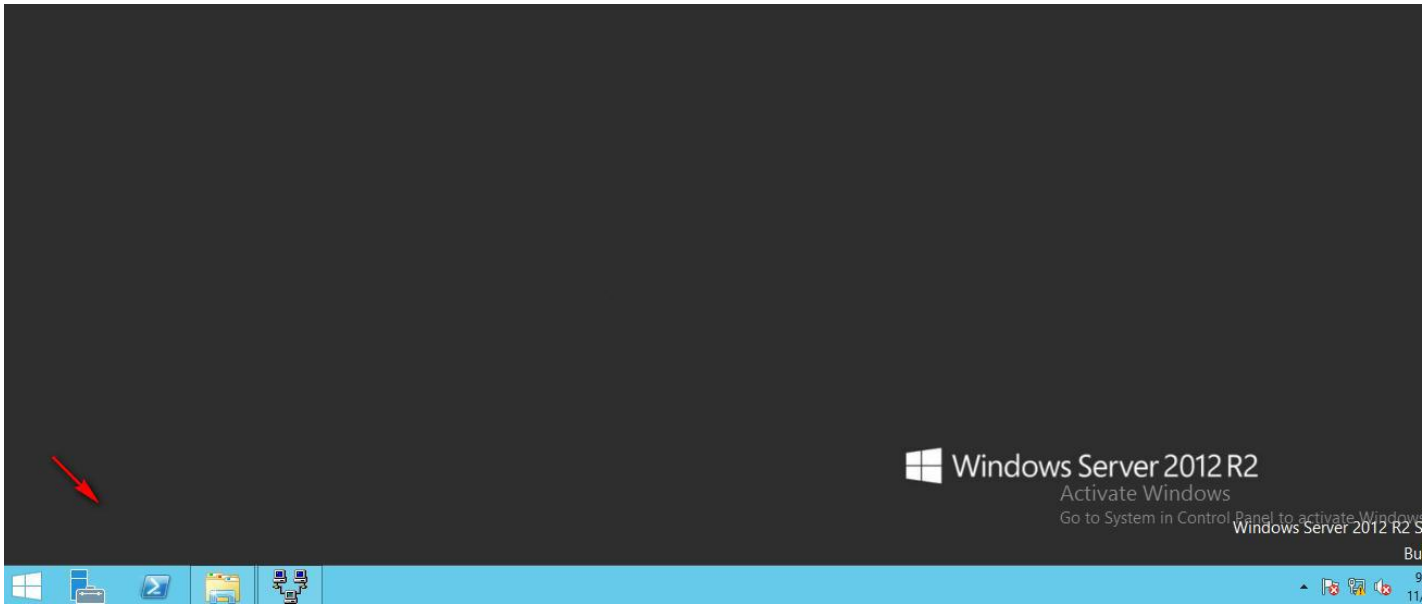
Now Test the ping on real my computer



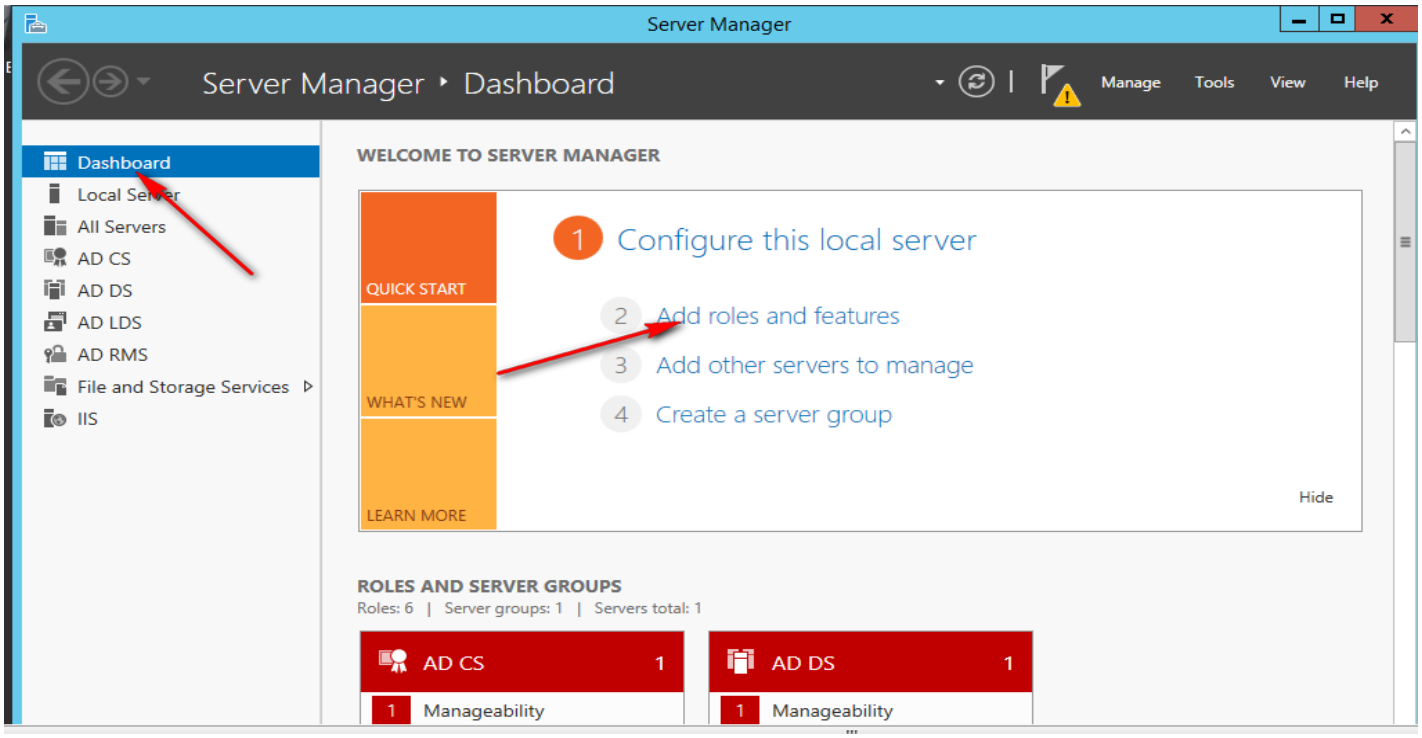
10.2- Make windows server 2012 works as the router

جعل الخادم يعمل كراوتر عن طريق windows server 2012

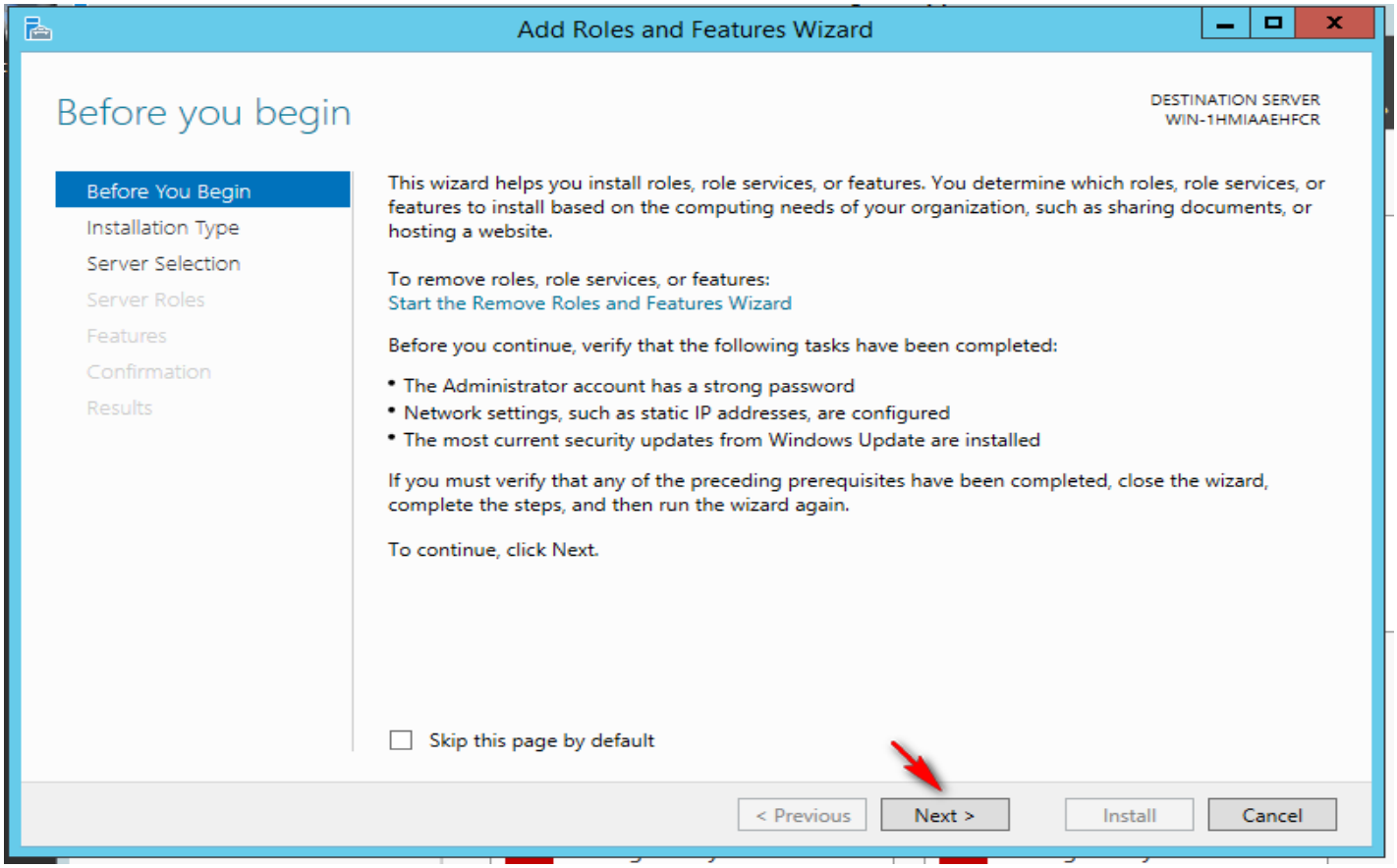
Same in Windows server 2012



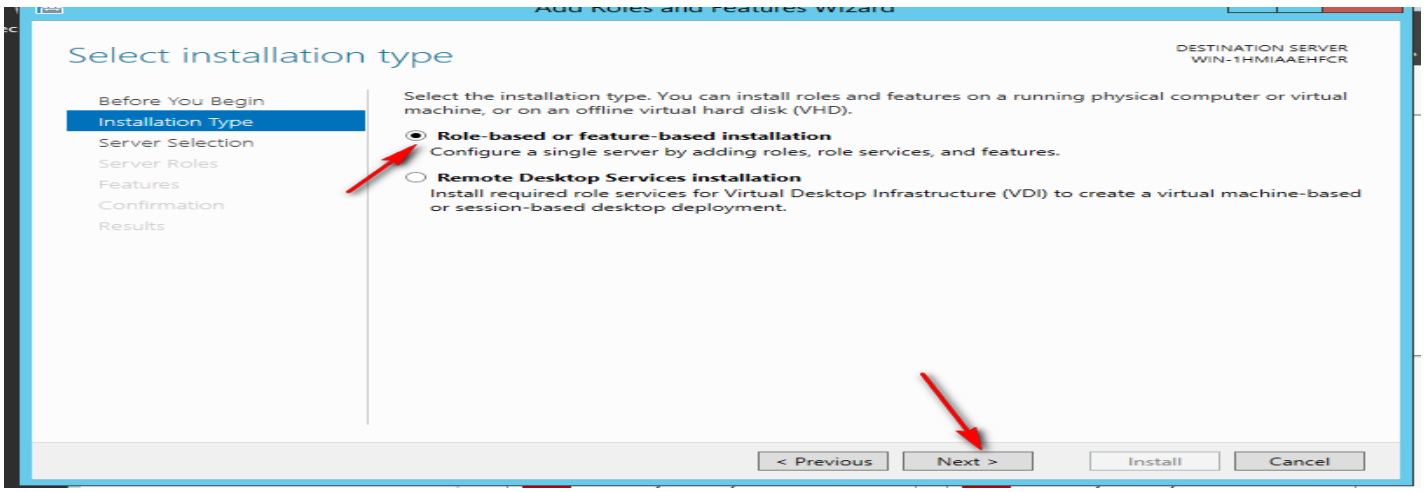
Add role from server manager



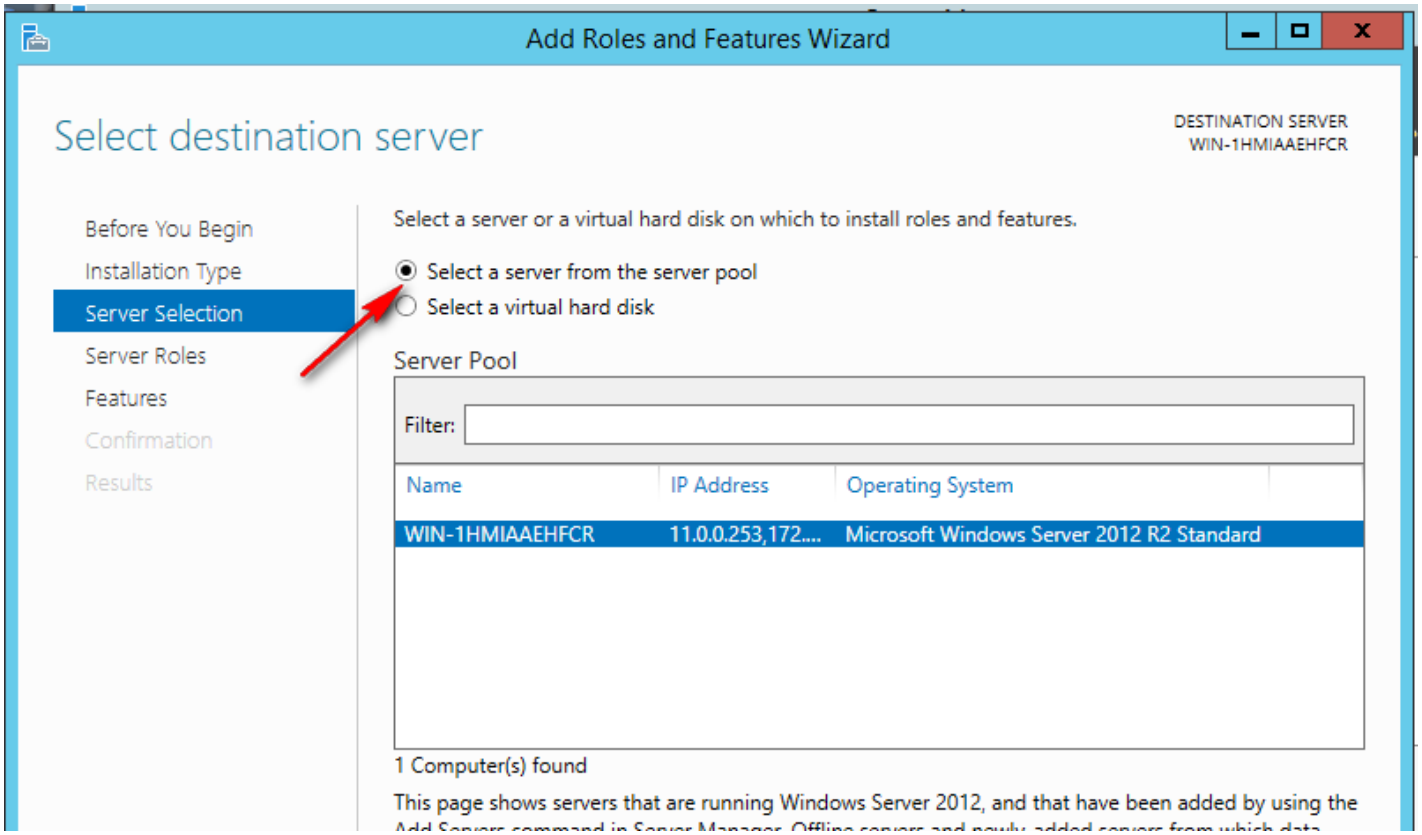
Add role from server manager



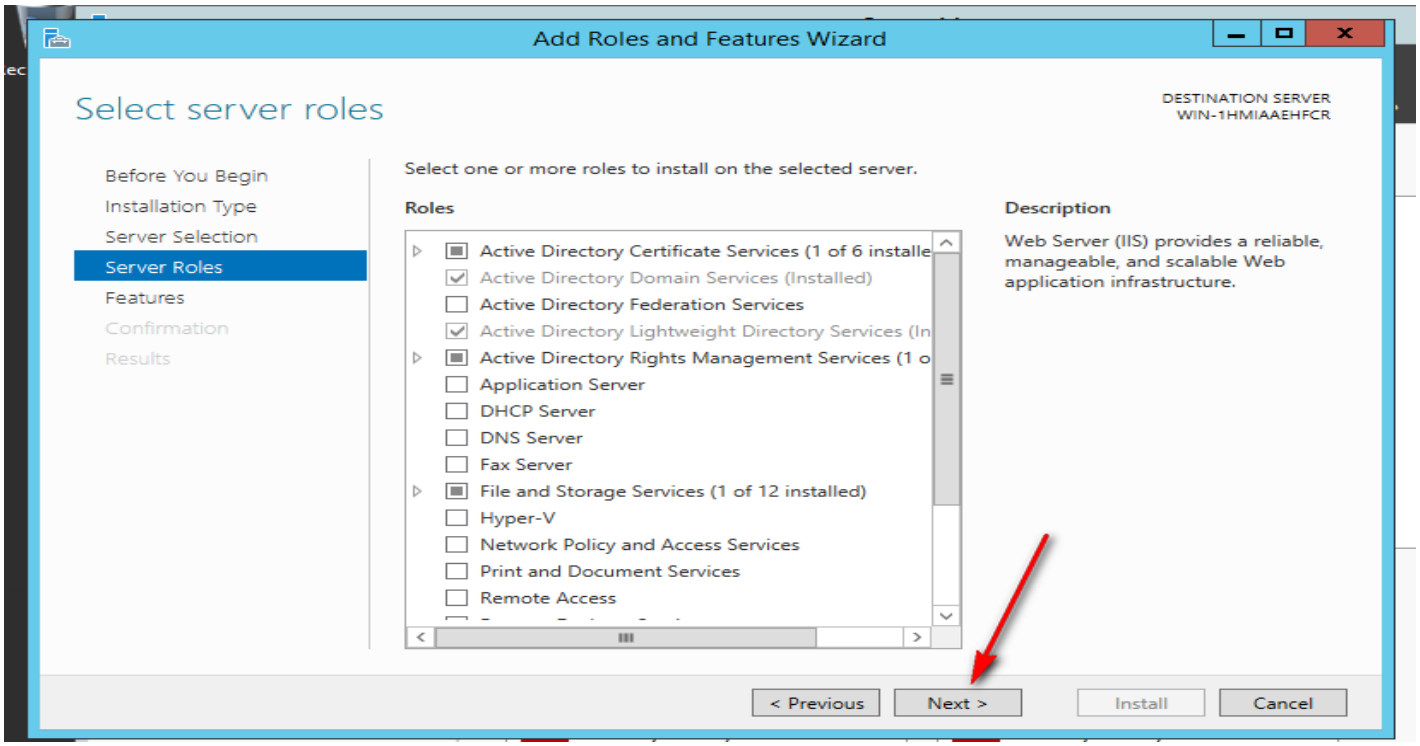
Role-based or feature-based installation



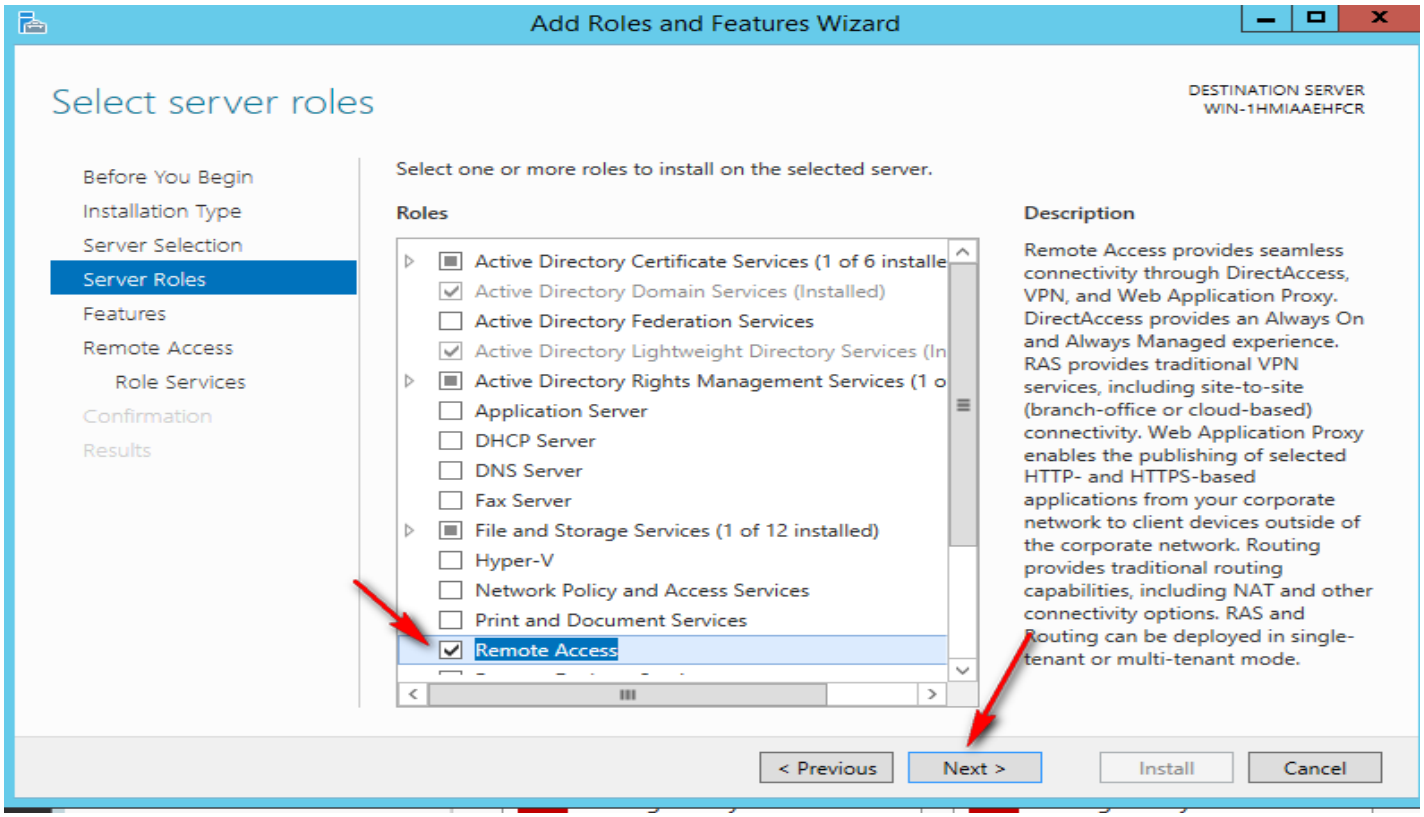
First option



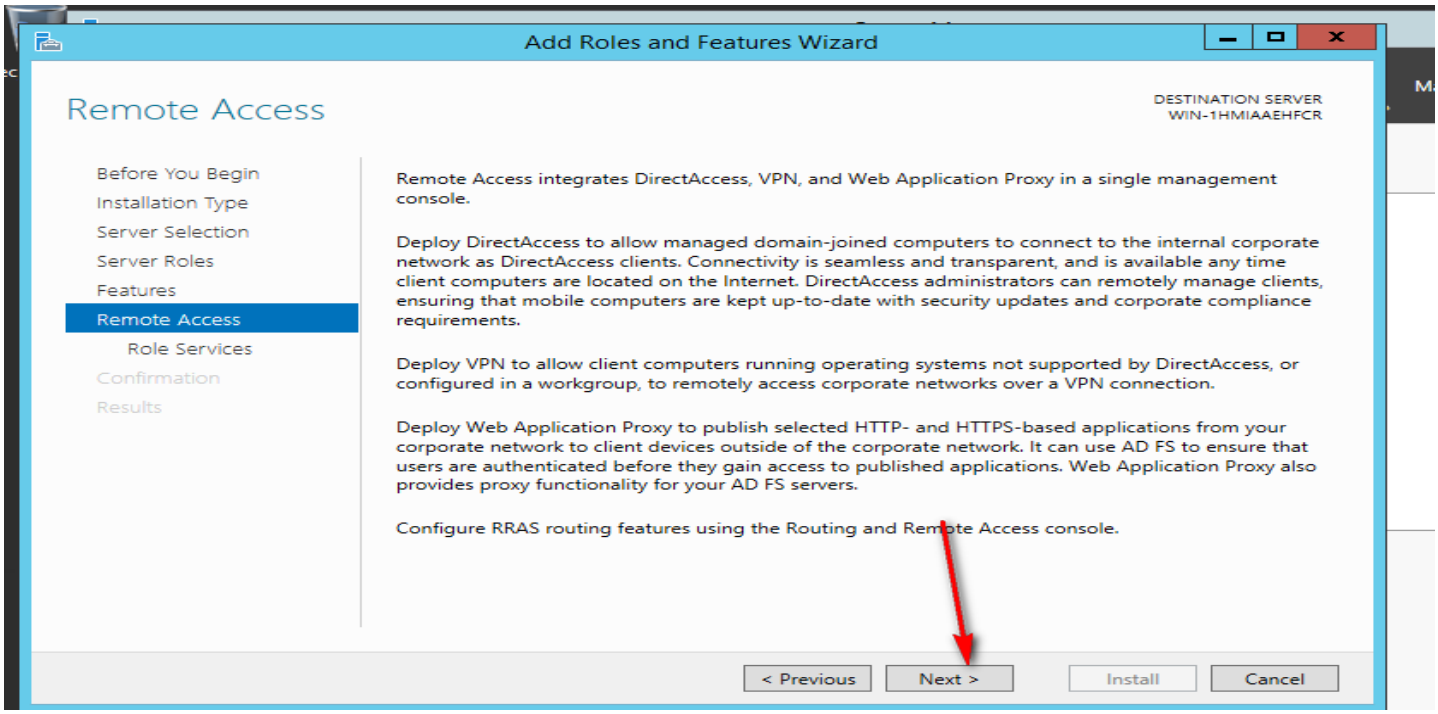
Next



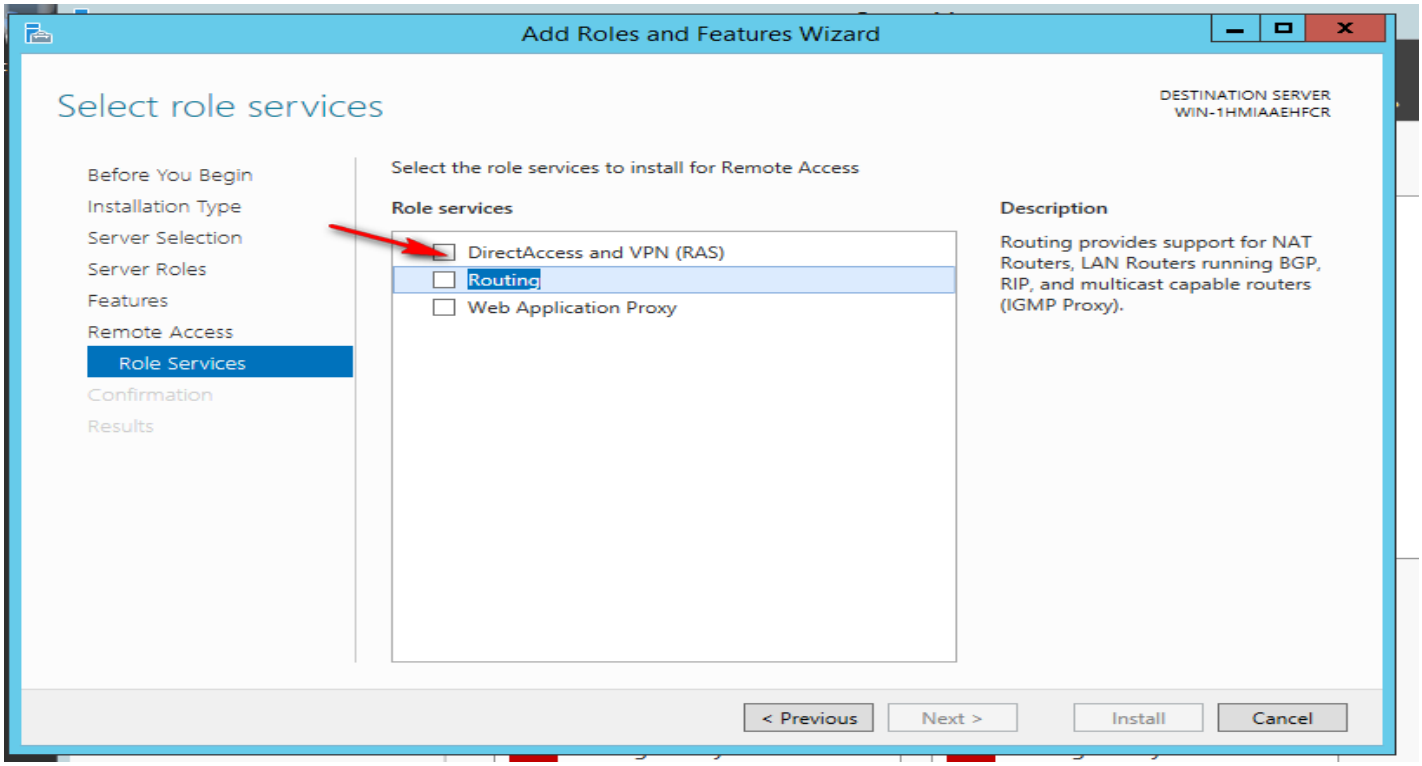
Choice remote access



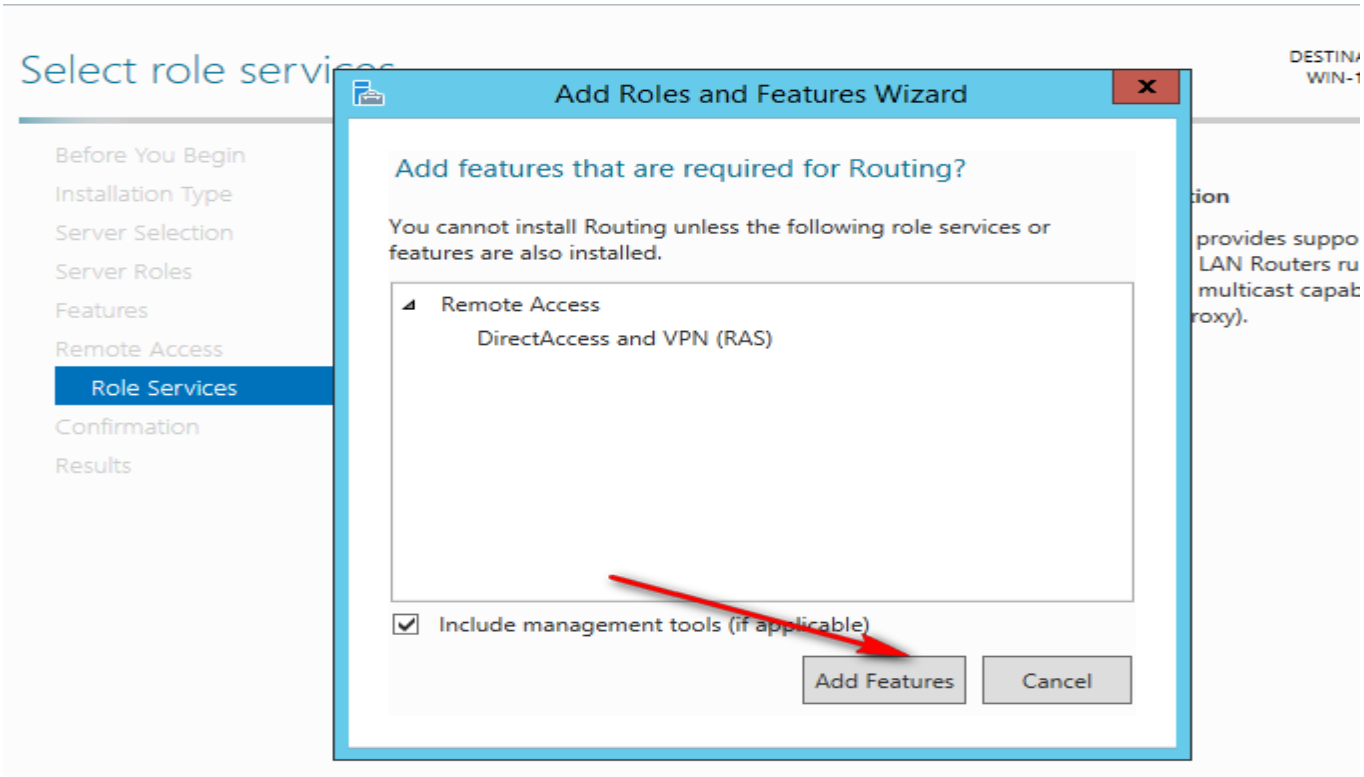
Next



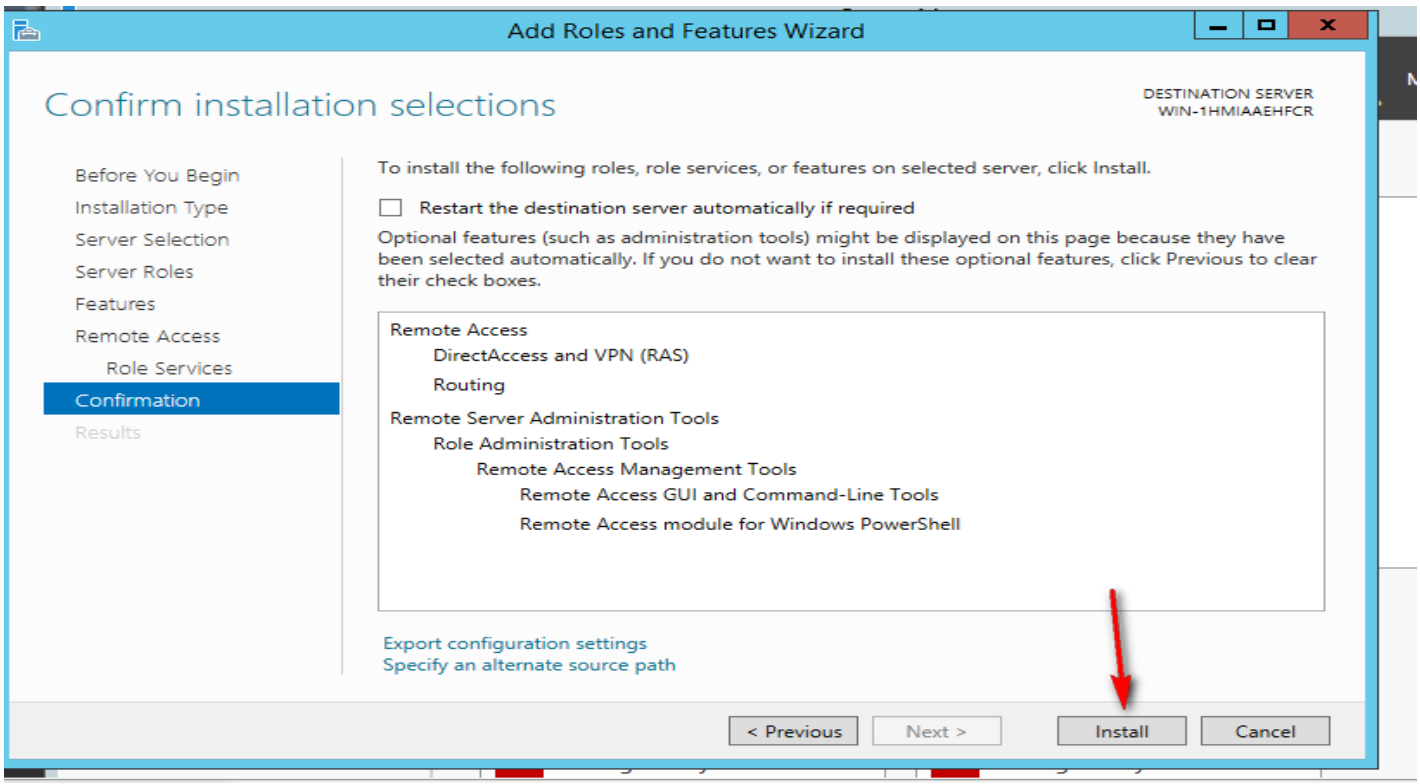
Choice all options

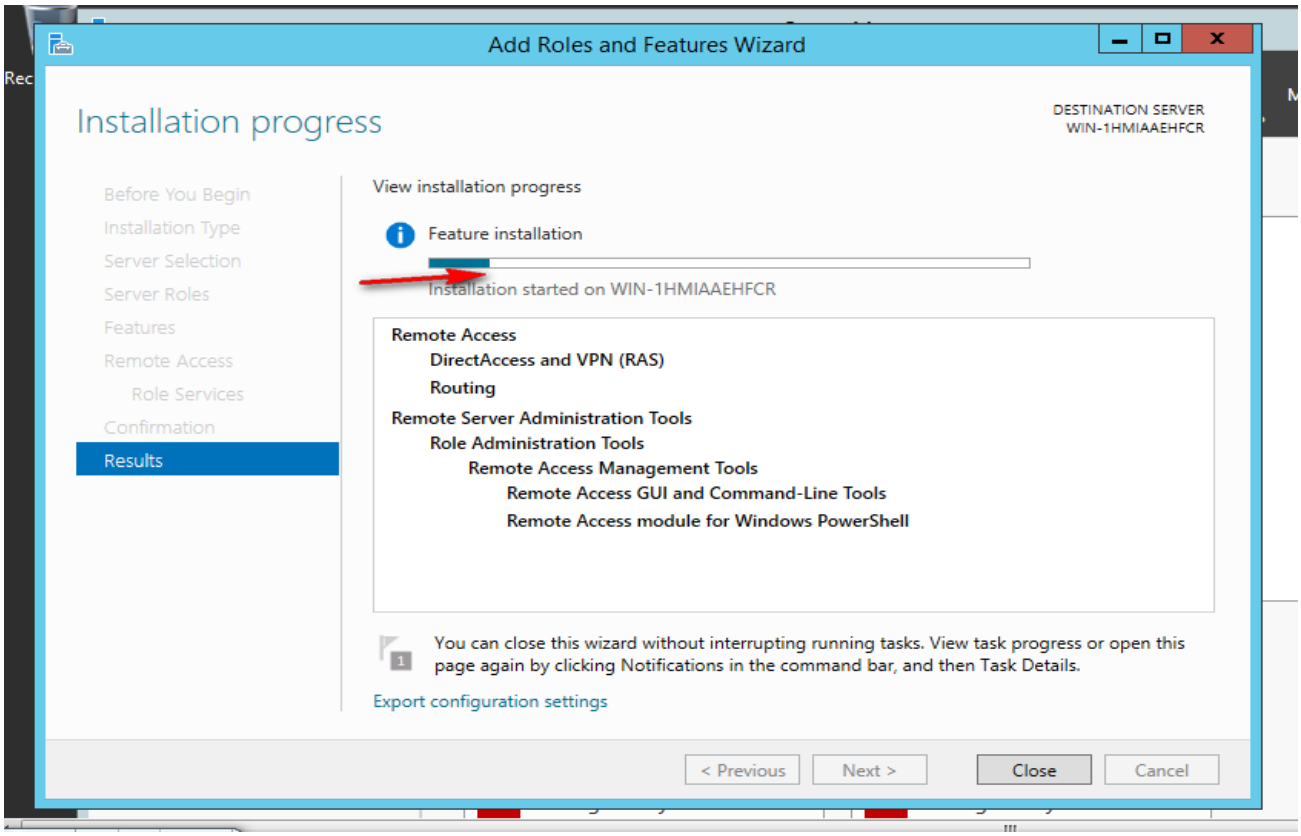


Add features

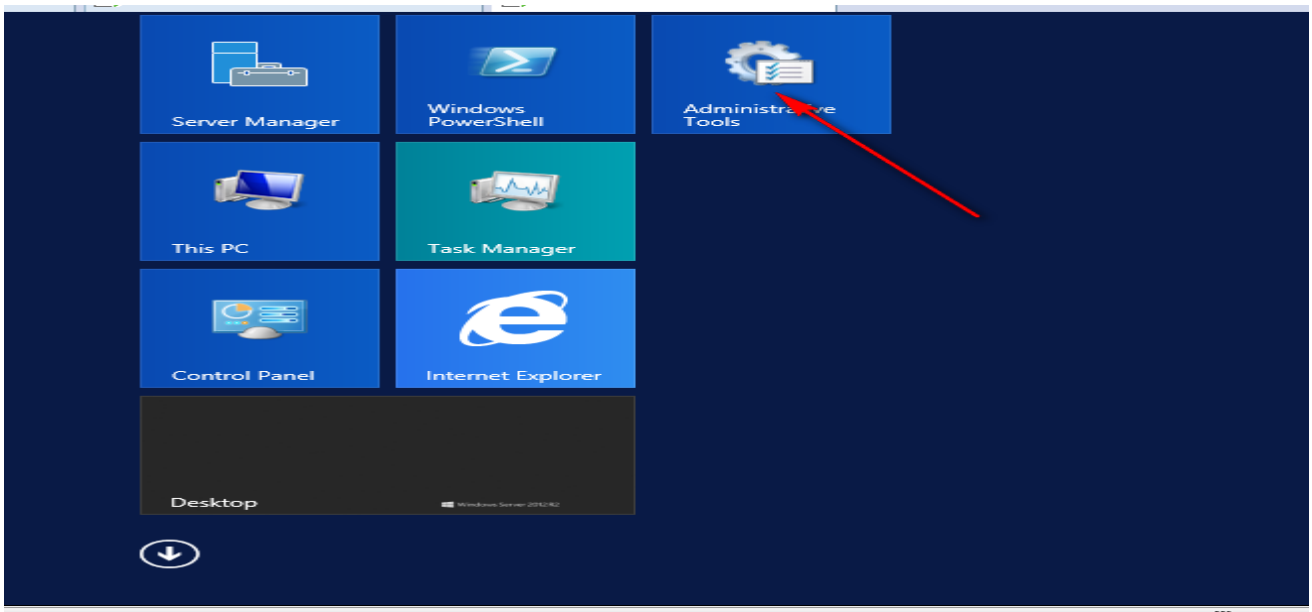

Select role services
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Remote Access
Role Services
Confirmation
Results
Add Roles and Features Wizard
Add features that are required for Routing?
You cannot install Routing unless the following role services or features are also installed.
Remote Access
DirectAccess and VPN (RAS)
Include management tools (if applicable)
Add Features
Cancel

Install

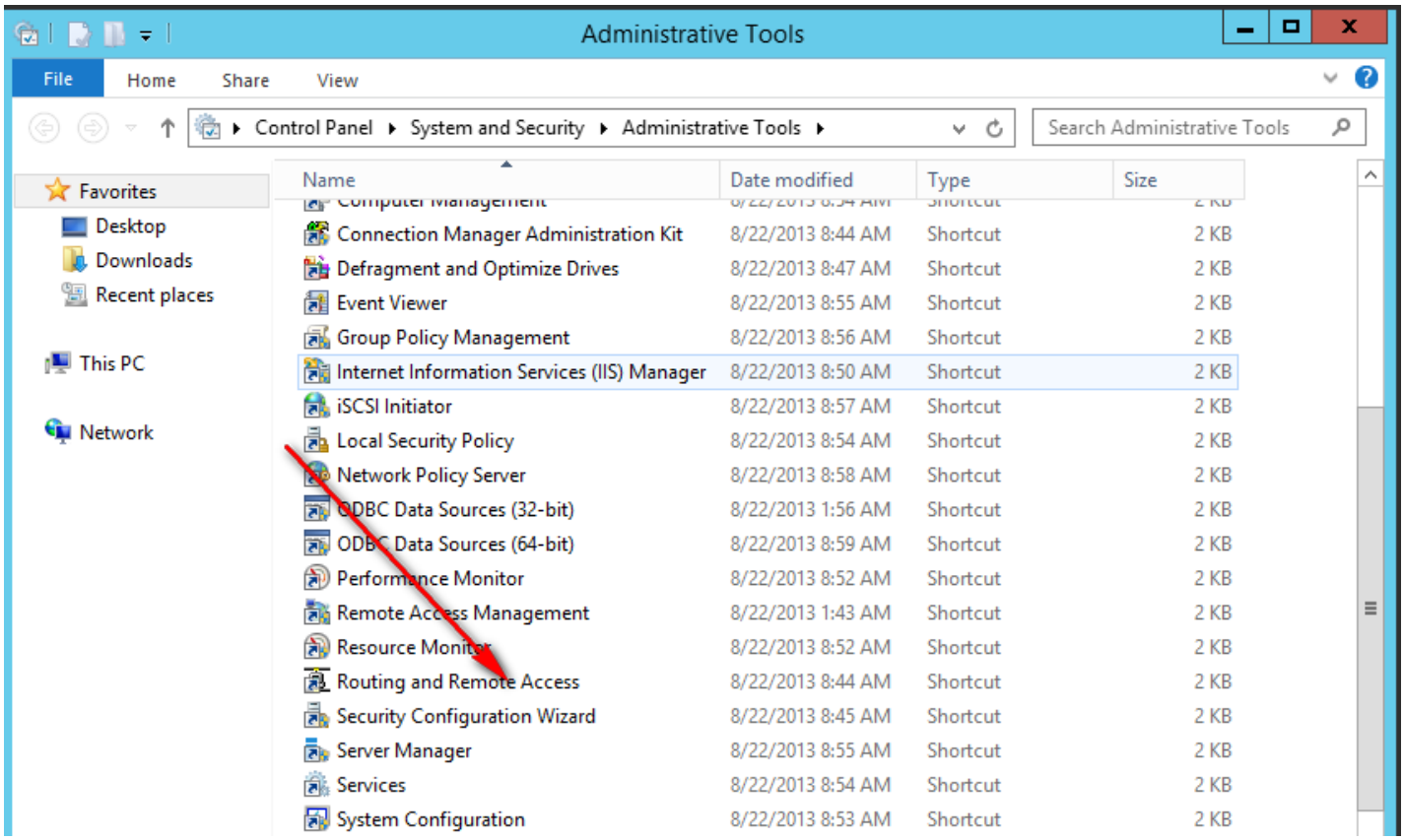

Add Roles and Features Wizard
Confirm installation selections
DESTINATION SERVER
WIN-1HMIAAEHFCR
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Remote Access
Role Services
Confirmation
Results
To install the following roles, role services, or features on selected server, click Install.
Restart the destination server automatically if required
Optional features (such as administration tools) might be displayed on this page because they have been selected automatically. If you do not want to install these optional features, click Previous to clear their check boxes.
Remote Access
DirectAccess and VPN (RAS)
Routing
Remote Server Administration Tools
Role Administration Tools
Remote Access Management Tools
Remote Access GUI and Command-Line Tools
Remote Access module for Windows PowerShell
Export configuration settings
Specify an alternate source path
< Previous
Next >
Install
Cancel

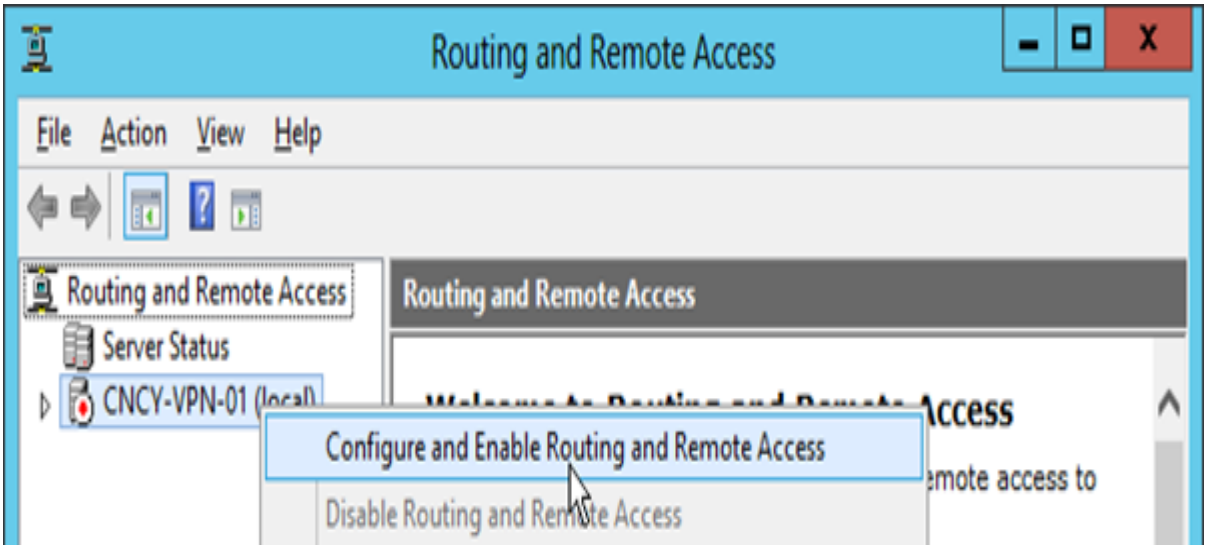


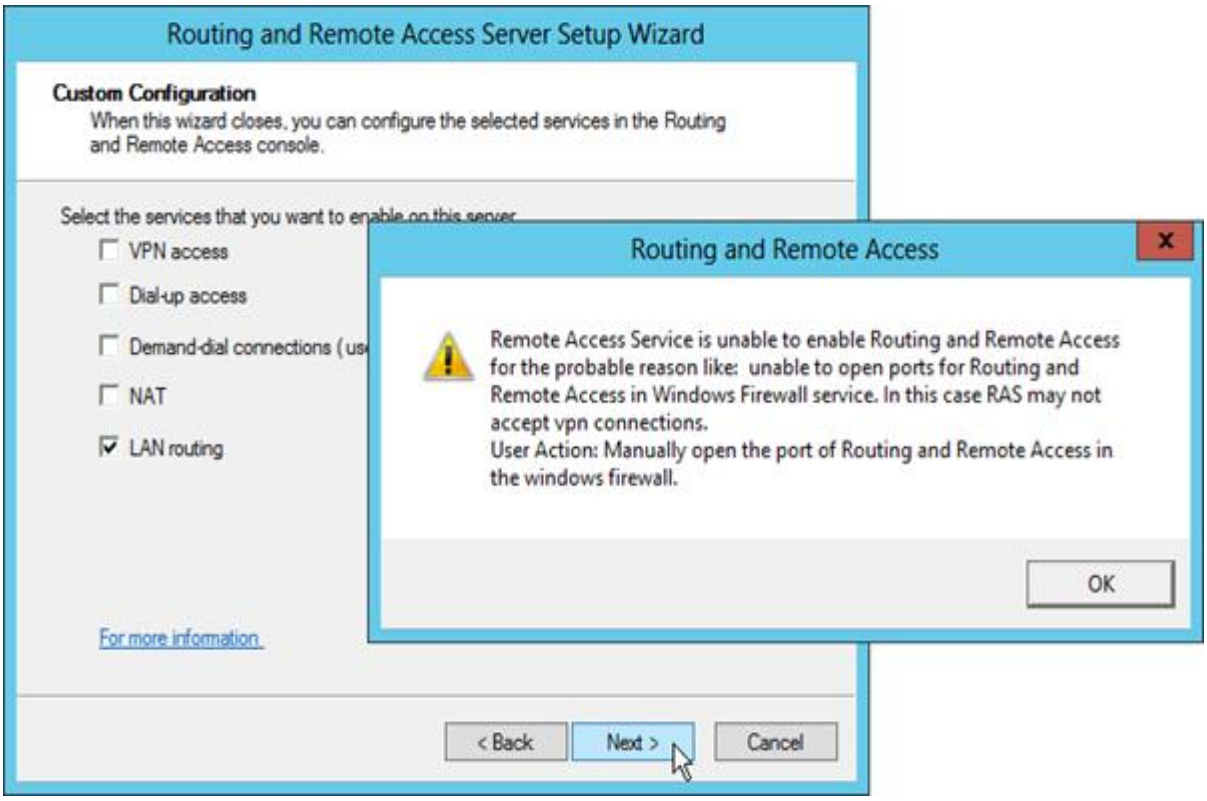
Administrative tools

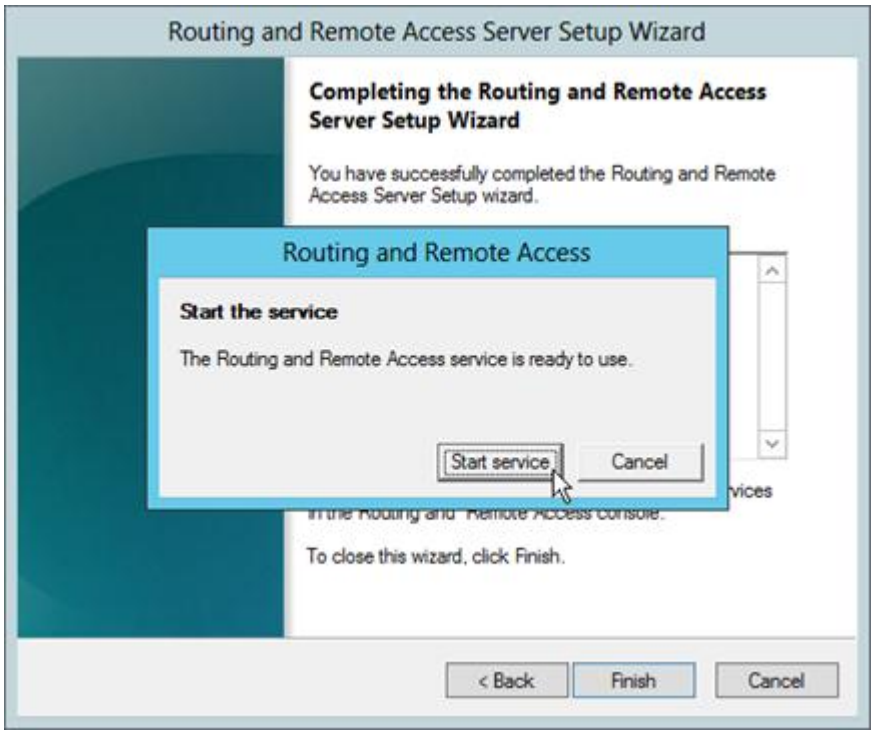


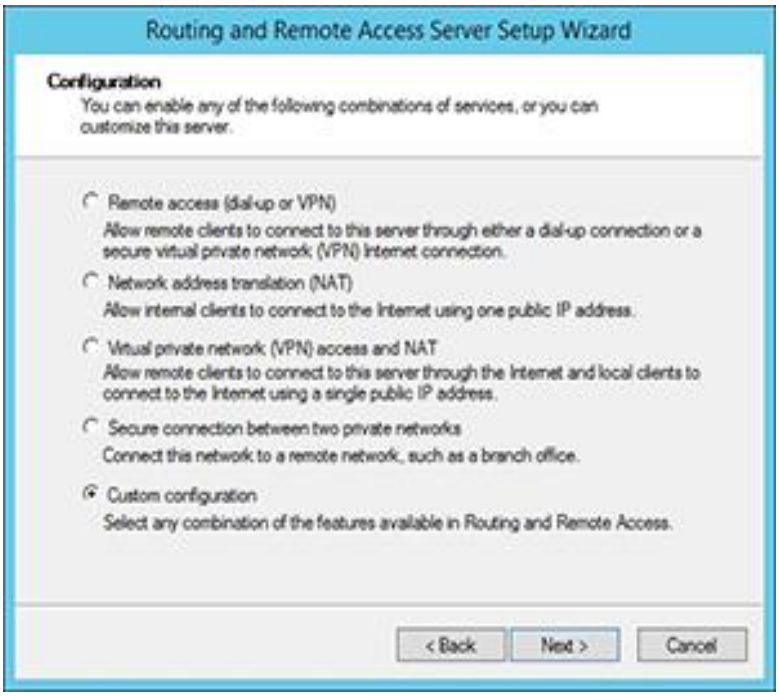
Routing and remote access

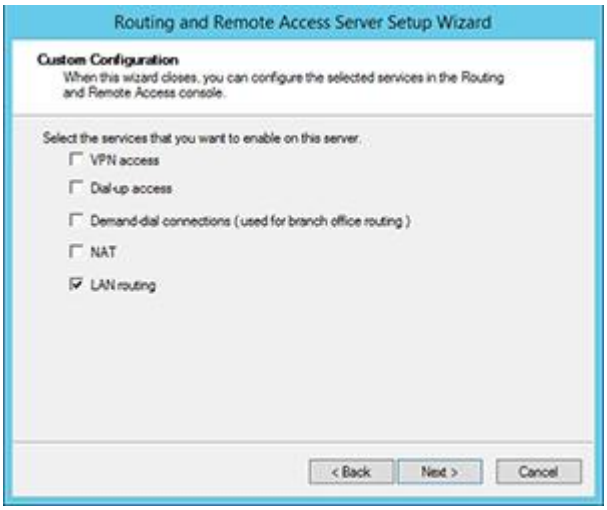

Administrative Tools
File
Home
Share
View
Control Panel ▸ System and Security ▸ Administrative Tools ▸
Search Administrative Tools
Favorites
Desktop
Downloads
Recent places
This PC
Network
Name
Date modified
Type
Size
Connection Manager Administration Kit 8/22/2013 8:44 AM Shortcut 2 KB
Defragment and Optimize Drives 8/22/2013 8:47 AM Shortcut 2 KB
Event Viewer 8/22/2013 8:55 AM Shortcut 2 KB
Group Policy Management 8/22/2013 8:56 AM Shortcut 2 KB
Internet Information Services (IIS) Manager 8/22/2013 8:50 AM Shortcut 2 KB
iSCSI Initiator 8/22/2013 8:57 AM Shortcut 2 KB
Local Security Policy 8/22/2013 8:54 AM Shortcut 2 KB
Network Policy Server 8/22/2013 8:58 AM Shortcut 2 KB
ODBC Data Sources (32-bit) 8/22/2013 1:56 AM Shortcut 2 KB
ODBC Data Sources (64-bit) 8/22/2013 8:59 AM Shortcut 2 KB
Performance Monitor 8/22/2013 8:52 AM Shortcut 2 KB
Remote Access Management 8/22/2013 1:43 AM Shortcut 2 KB
Resource Monitor 8/22/2013 8:52 AM Shortcut 2 KB
Routing and Remote Access 8/22/2013 8:44 AM Shortcut 2 KB
Security Configuration Wizard 8/22/2013 8:45 AM Shortcut 2 KB
Server Manager 8/22/2013 8:55 AM Shortcut 2 KB
Services 8/22/2013 8:54 AM Shortcut 2 KB
System Configuration 8/22/2013 8:53 AM Shortcut 2 KB


Routing and Remote Access
File Action View Help
Routing and Remote Access
Server Status
CNCY-VPN-01 (local)
Routing and Remote Access
Configure and Enable Routing and Remote Access
Disable Routing and Remote Access


Routing and Remote Access Server Setup Wizard
Custom Configuration
When this wizard closes, you can configure the selected services in the Routing and Remote Access console.
Select the services that you want to enable on this server
VPN access
Dial-up access
Demand-dial connections (us
NAT
LAN routing
For more information
< Back
Next >
Cancel
Routing and Remote Access
Remote Access Service is unable to enable Routing and Remote Access for the probable reason like: unable to open ports for Routing and Remote Access in Windows Firewall service. In this case RAS may not accept vpn connections.
User Action: Manually open the port of Routing and Remote Access in the windows firewall.
OK


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
To close this wizard, click Finish.
< Back
Finish
Cancel

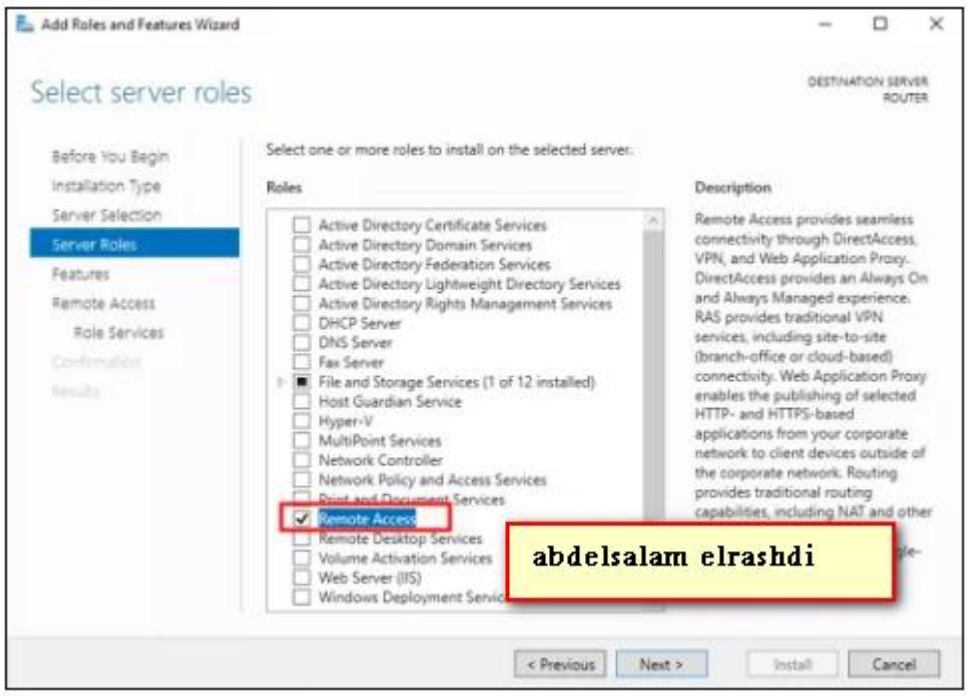




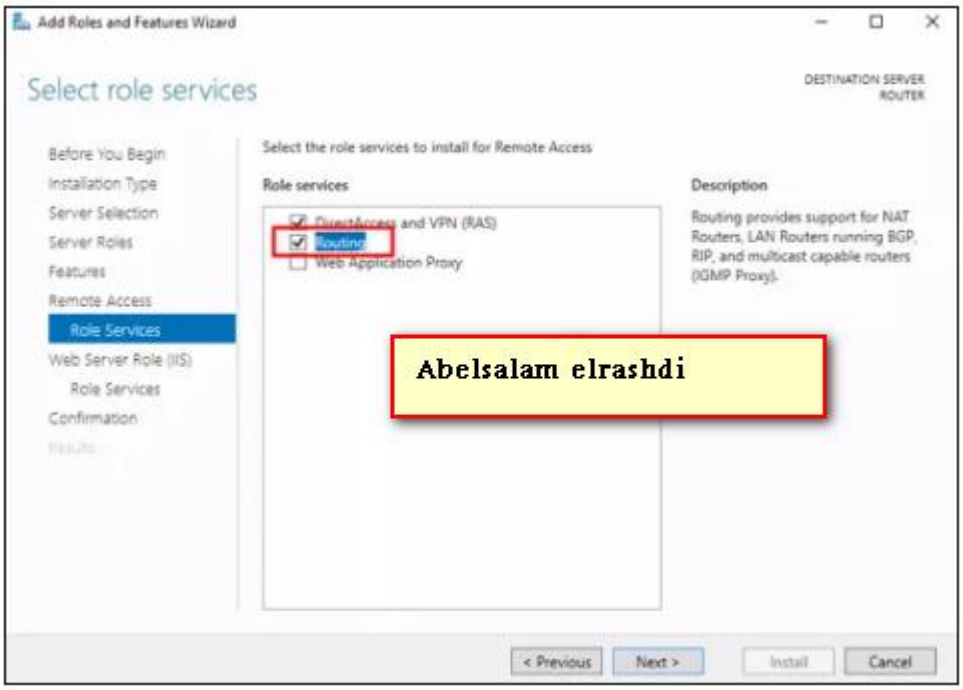
10.3- Make windows server 2016 works as the router

جعل الخادم يعمل كراوتر عن طريق windows server 2016

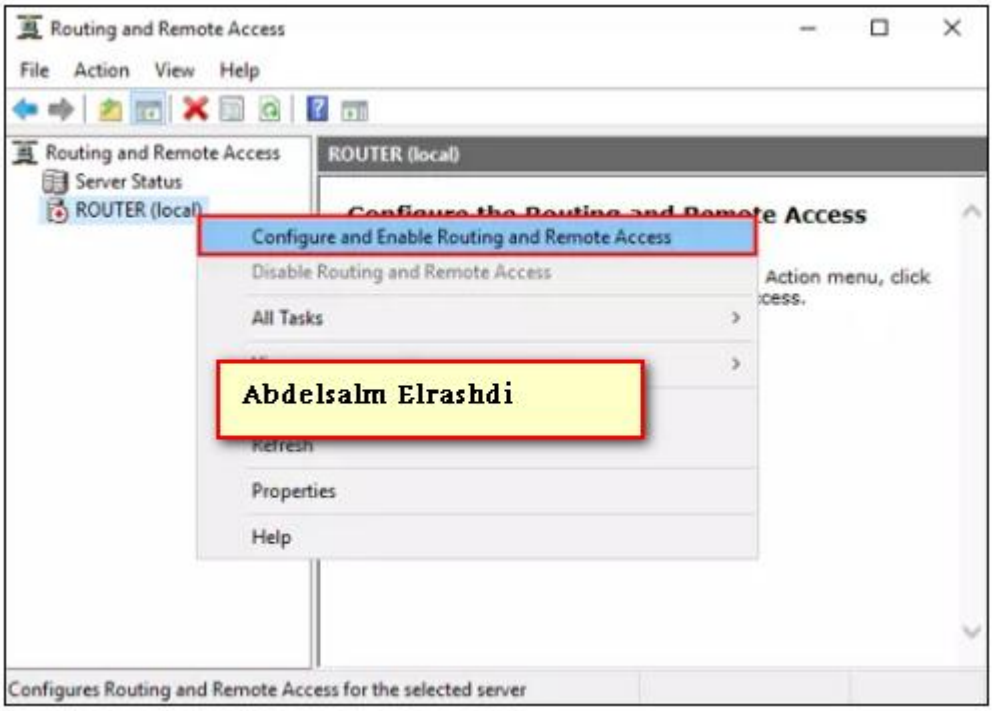
To install the LAN Routing feature in Windows Server 2016, open the Server Manager console. Click the Add roles and features link, accept the default selection until the Select Server roles page displays. On this page, select the Remote Access server role and then click Next.



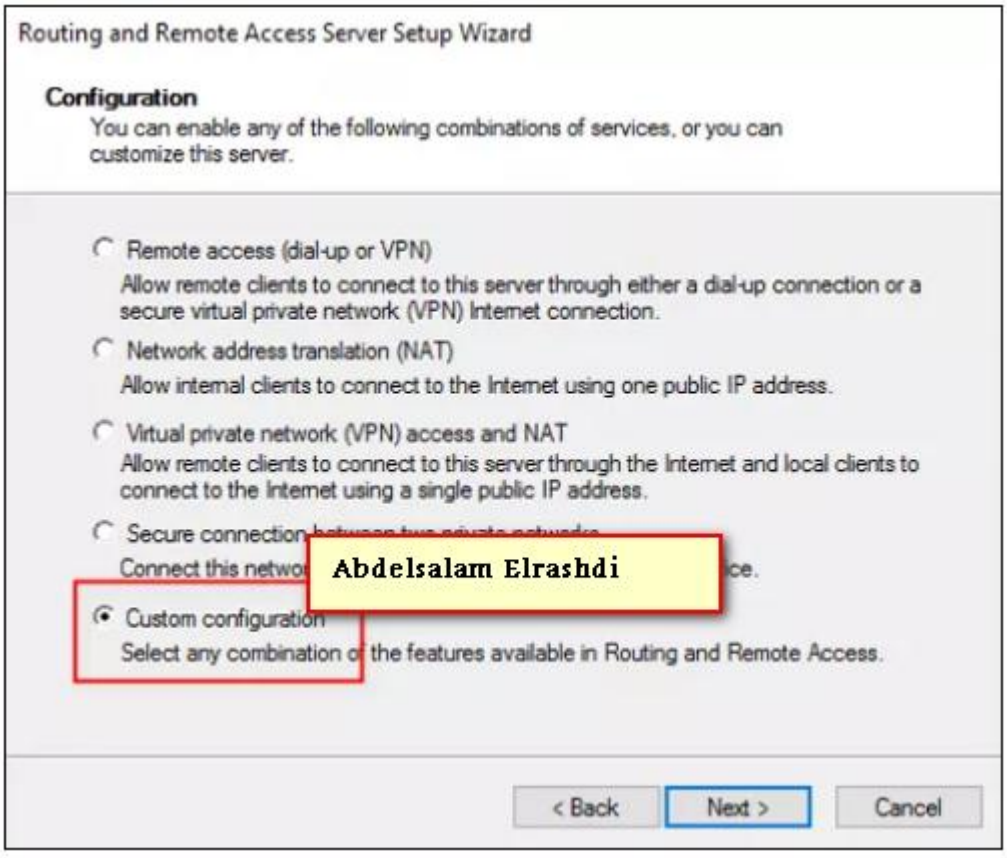
Click Next and accept the default selections until the Select roles services page displays. On this page, select the Routing role service.

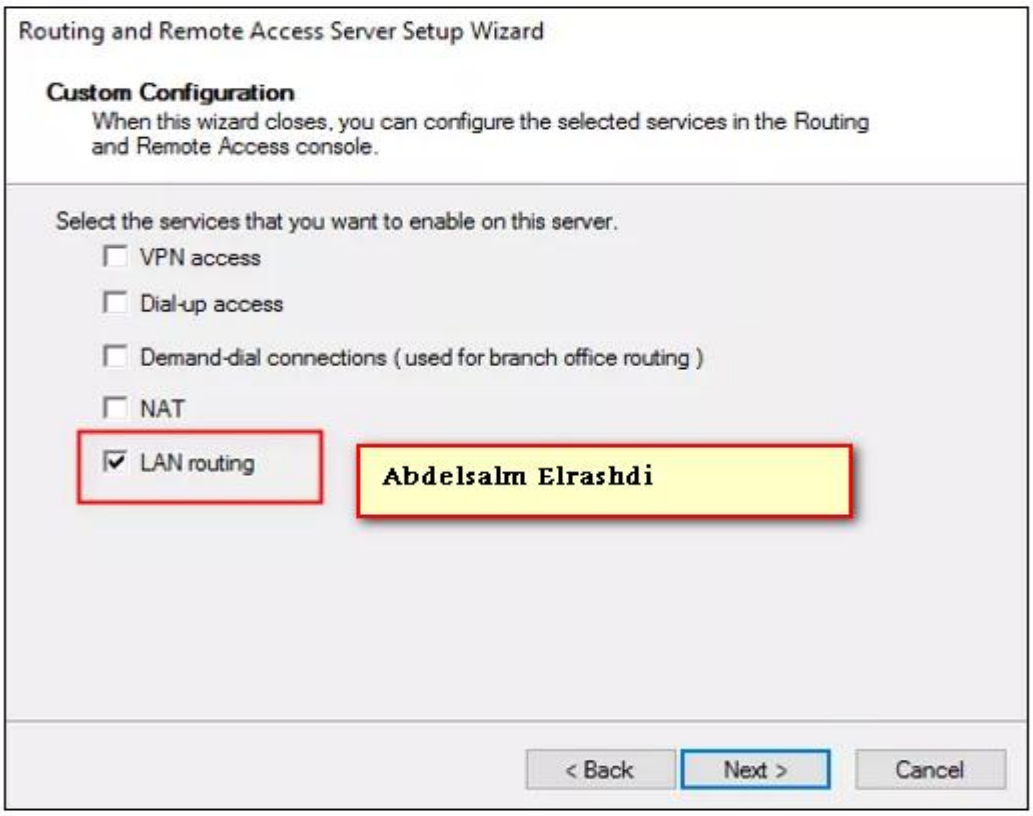


Select and right-click <Server Name> (local) and then select Configure and Enable Routing and Remote Access.



Use the Custom configuration and proceed to the next page





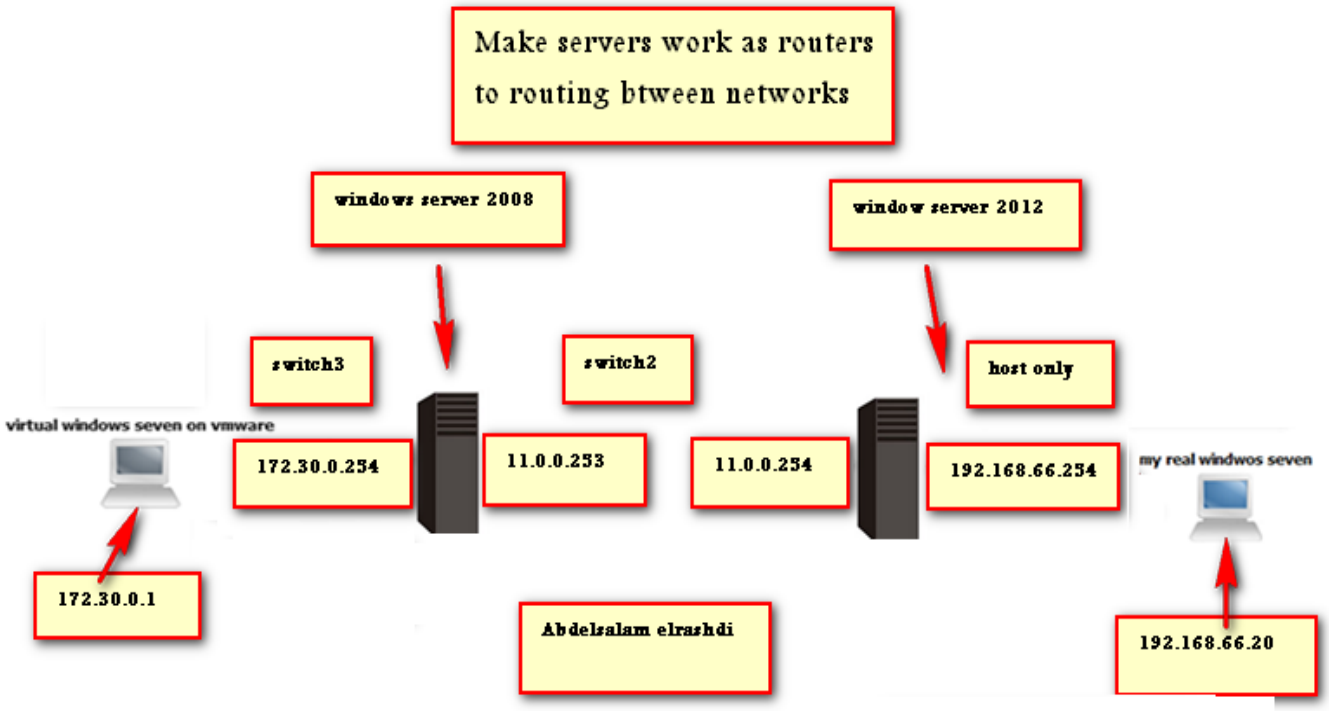
11- Routing between networks

عملية التوجيه وهي عبارة عن توجيه البيانات لمسار معين عندما يكون عندي اكثر من مسار بين الجهاز المرسل والجهاز المستقبل ونستخدم عمليتين (static or dynamic routing)

سوف نقوم بعمل سيناريو لتوضيح هذه العملية بشكل مفصل

Sometimes I have more than router on my network in this case I have to use static or dynamic routing protocols to make connectivity between those networks .

We will make small scenario have two servers work as router (window server 2008,windows server 2012) and two computers to create the static and dynamic routing protocols



11.1- Static routing

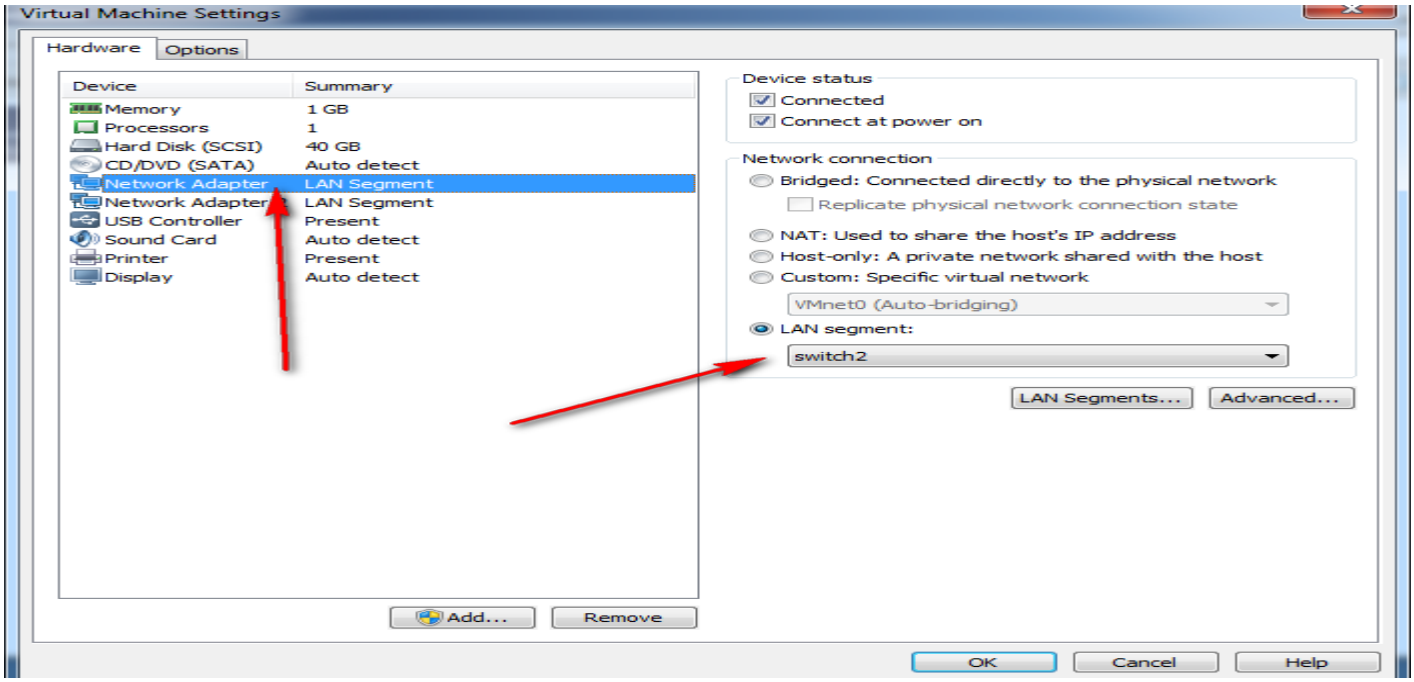
في هذه العملية يقوم مدير الشبكة بإعلام router ان هناك شبكات مختلفة بطريقة يدوية

Static routing is considered the simplest form of routing and requires excessive manual processes. It often is the least efficient way of routing in cases where information paths have to be changed frequently. This is also the case for configurations that require a large number of routing devices, because each one must be manually entered. Static routing is also the least preferred method of dealing with outages or down connections, because any route that is configured manually must be reconfigured manually to fix or repair any lost connectivity.

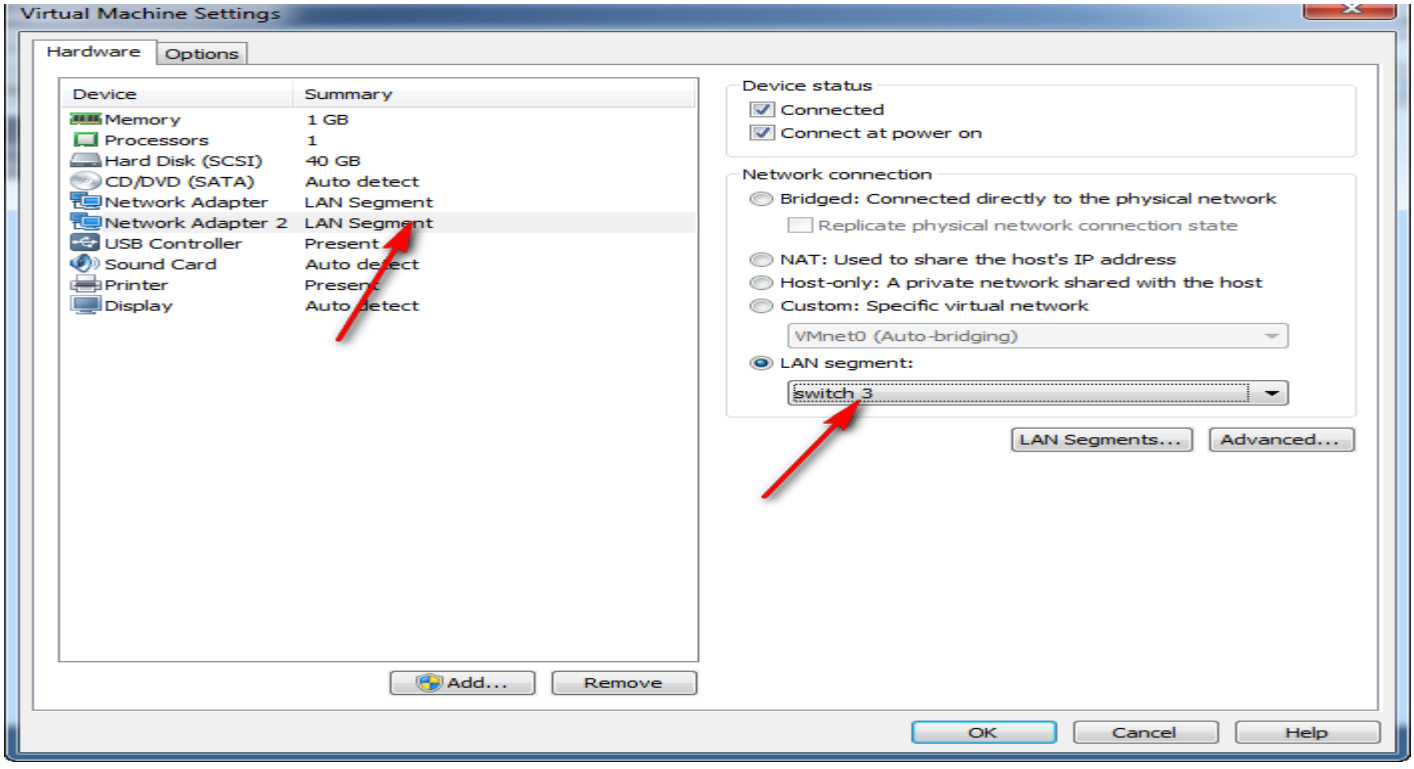
There may be many downsides to static routing, but there are many incidents where a static route is the most logical and efficient method for routing. Static routing is the opposite of dynamic routing, which is a system in which routers will automatically adjust to changes in network topology or traffic. Dynamic routing is used by most modern routers, but some amount of programming is still available for customizing routes if necessary

11.1.1- Static routing in window server 2008

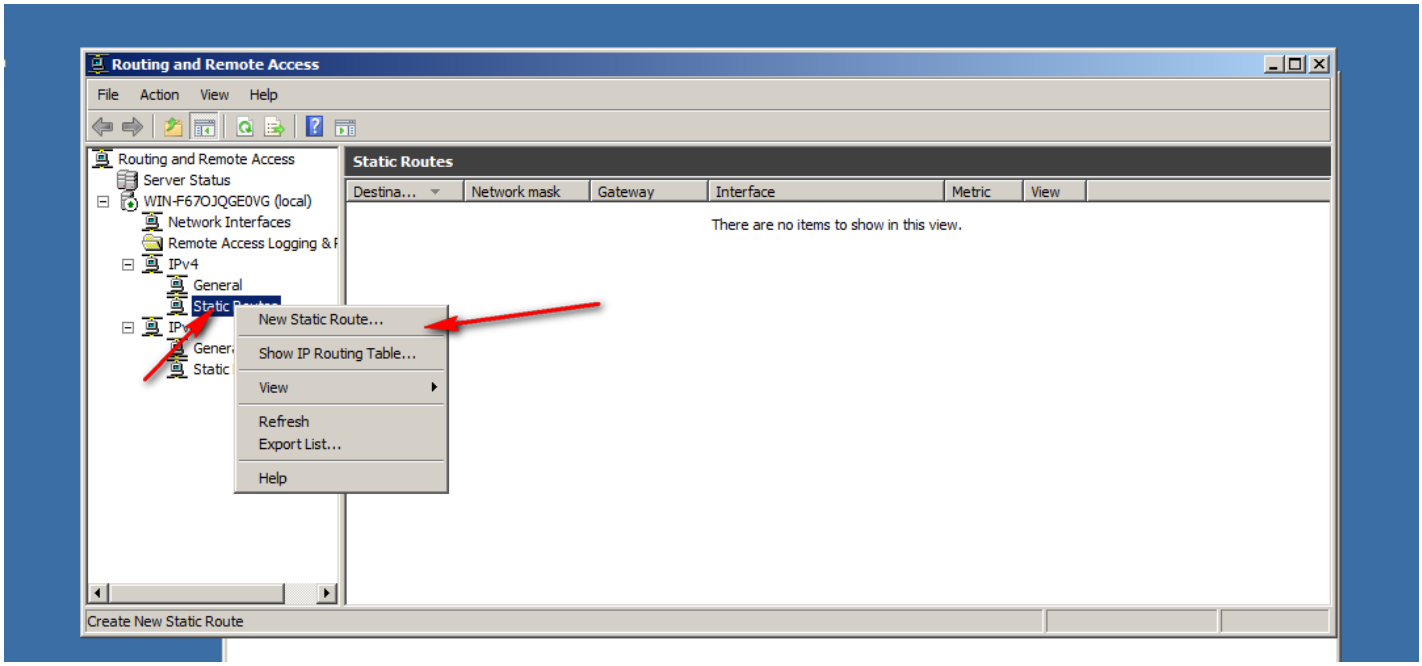
تفعيل Static routing in window server 2008



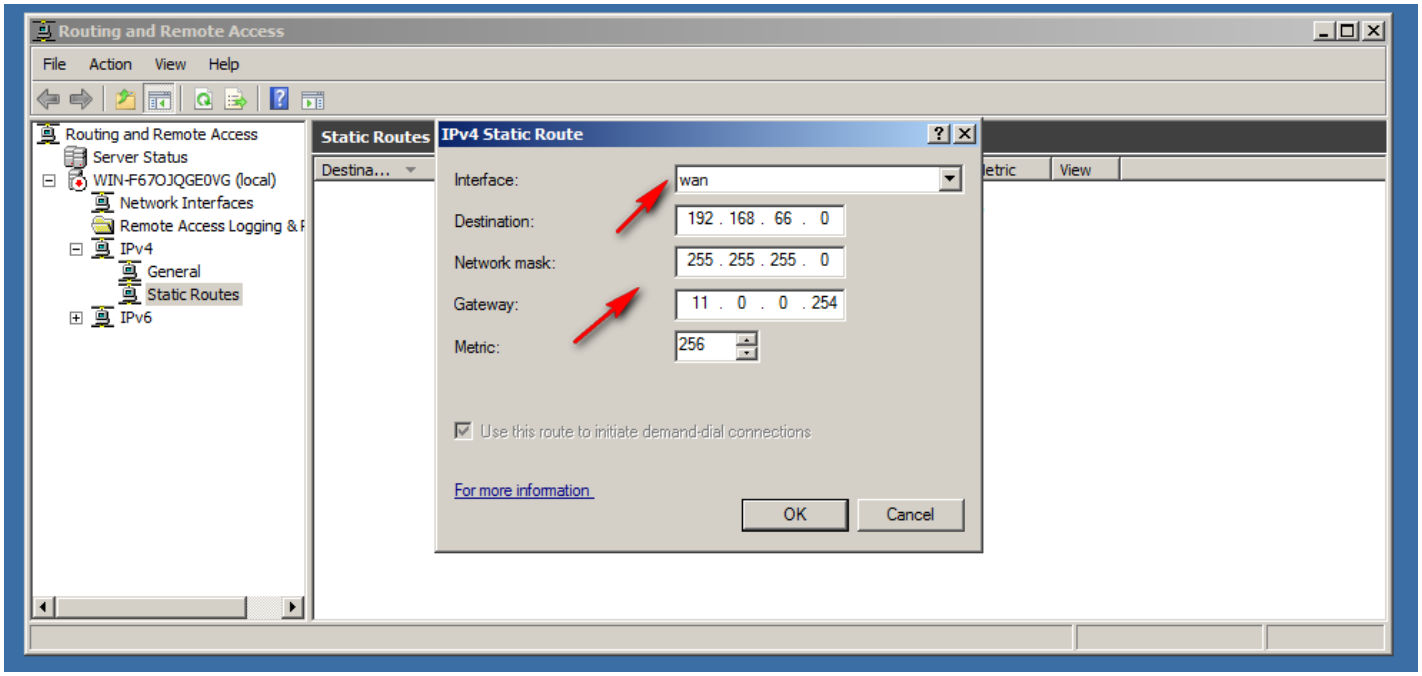
Network adapter switch 2 network adapter2 switch 3



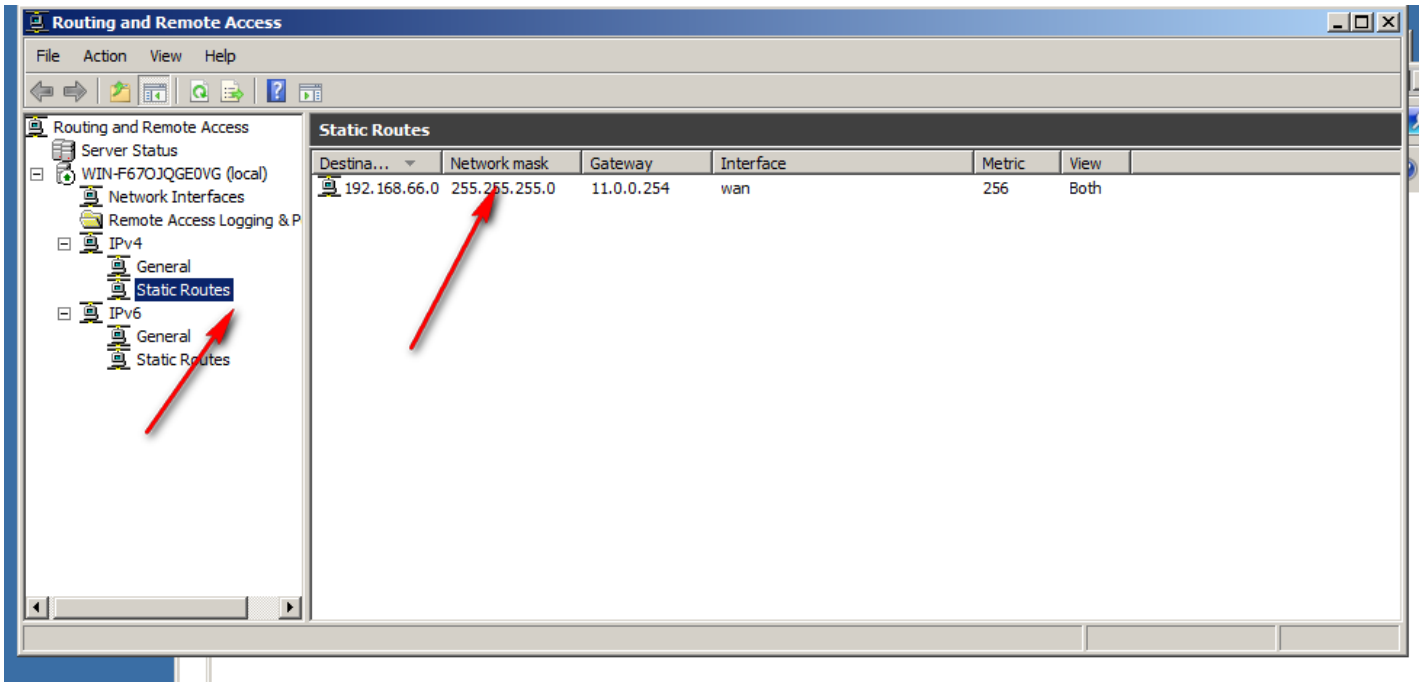
Now on R1



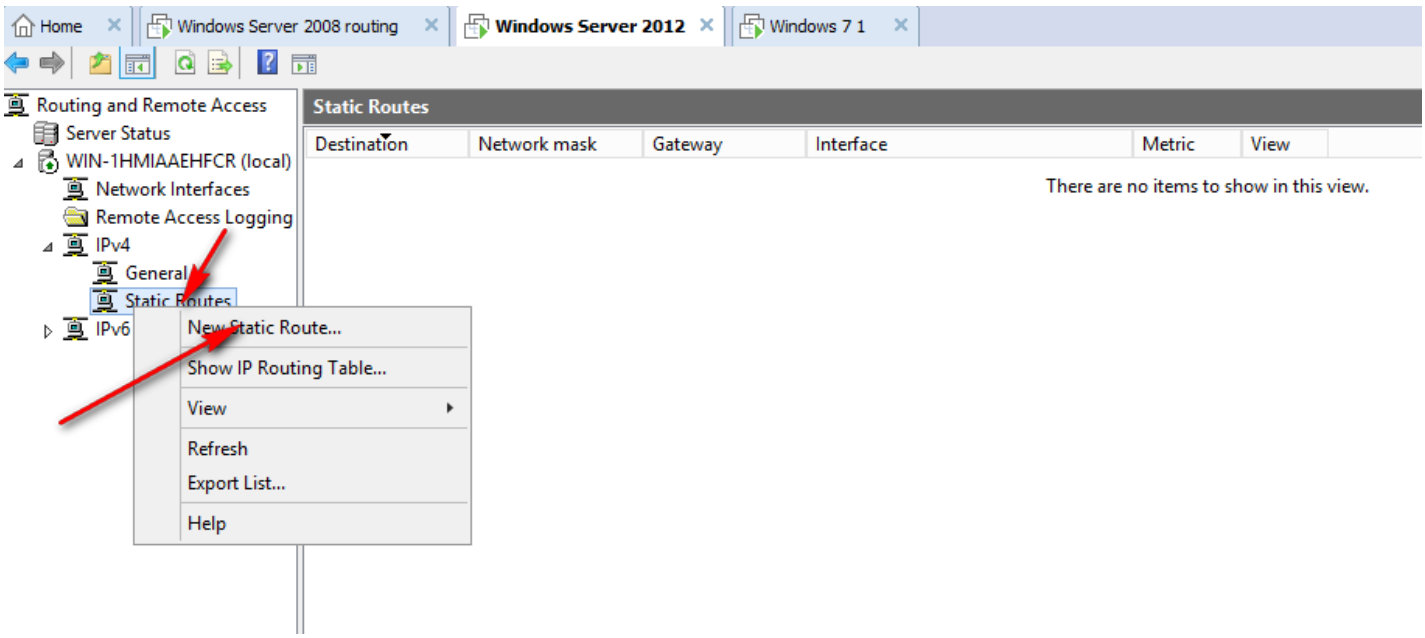
Static route

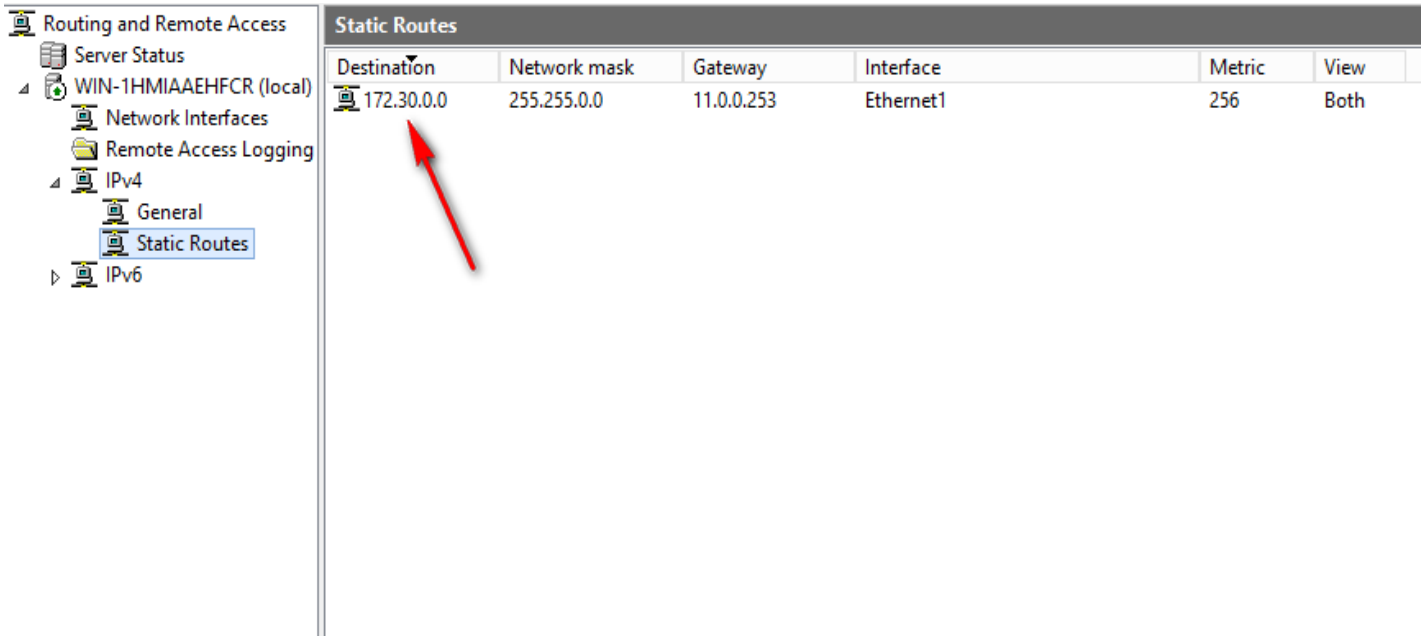


Static route

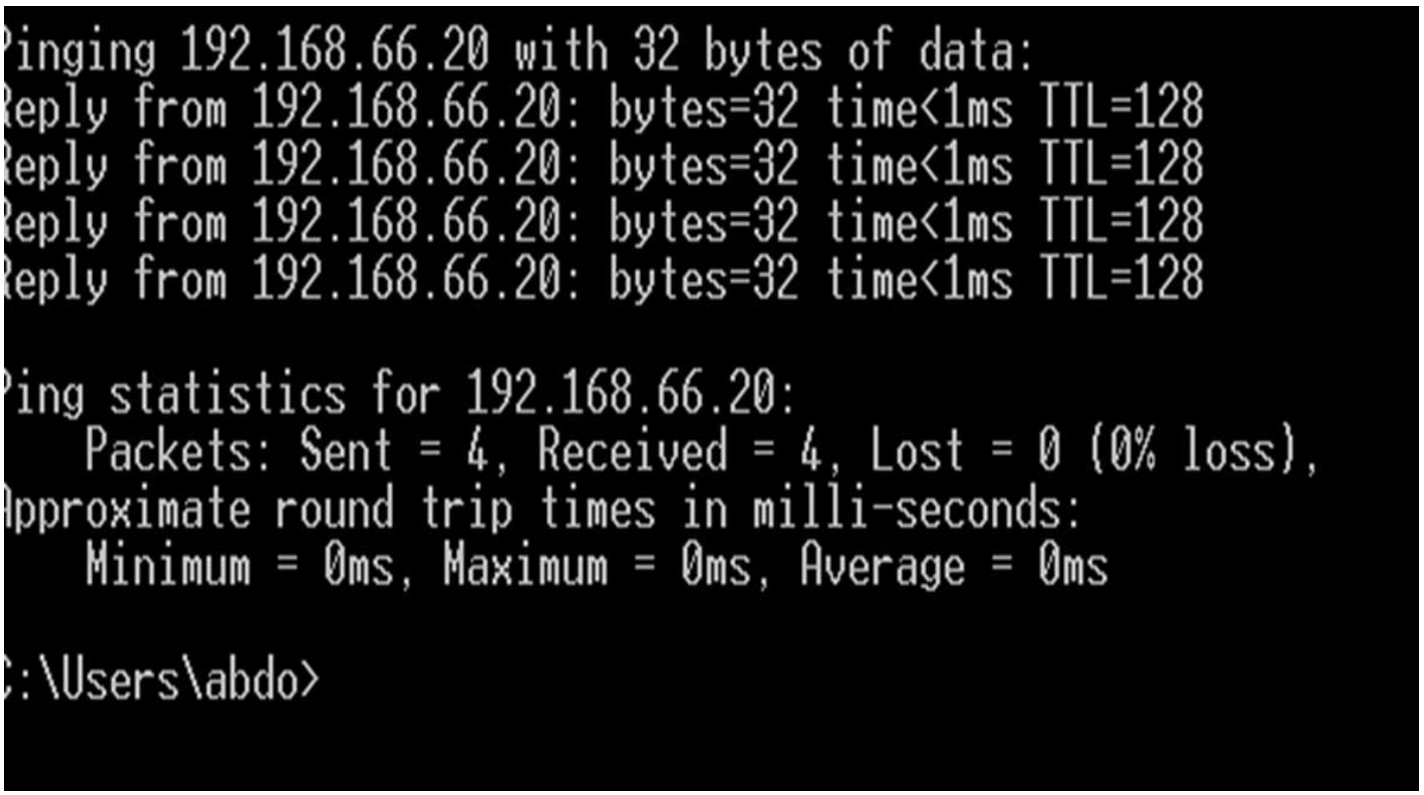


11.1.2- Static routing in window server 2012





Ping between the virtual pc and real my computer



11.2- Dynamic routing protocol

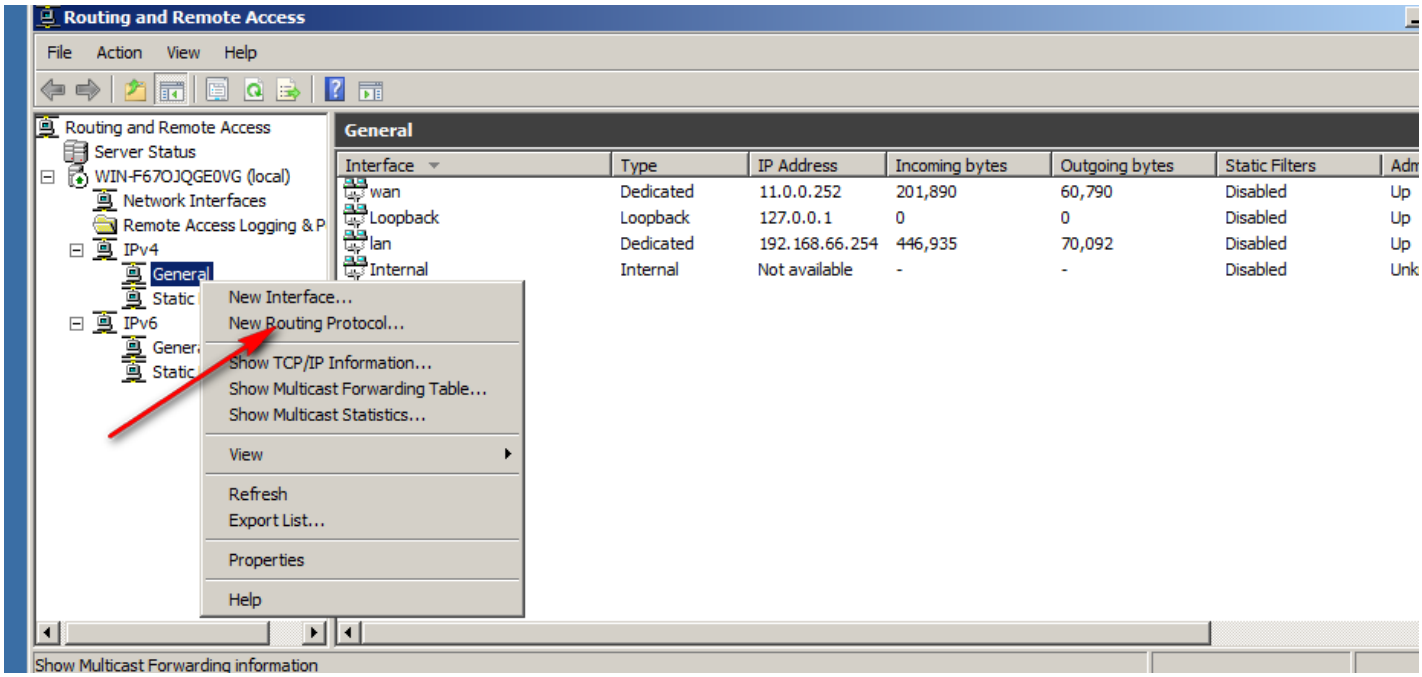
في هذه العملية يقوم مدير الشبكة بتفعيل واحد من routing protocols داخل router وذلك للتعرف علي الشبكات المختلفة.

Dynamic routing use Routing Protocols that dynamically discover network destinations and how to get to them. Dynamic routing allows routing tables in routers to change if a router on the route goes down or if a new network is added.

In Dynamic Routing, Routing Protocols running in Routers continuously exchange network status updates between each other as broadcast or multicast. With the help of routing updates messages sent by the Routing Protocols, routers can continuously update the routing table when ever a network topology change happens.

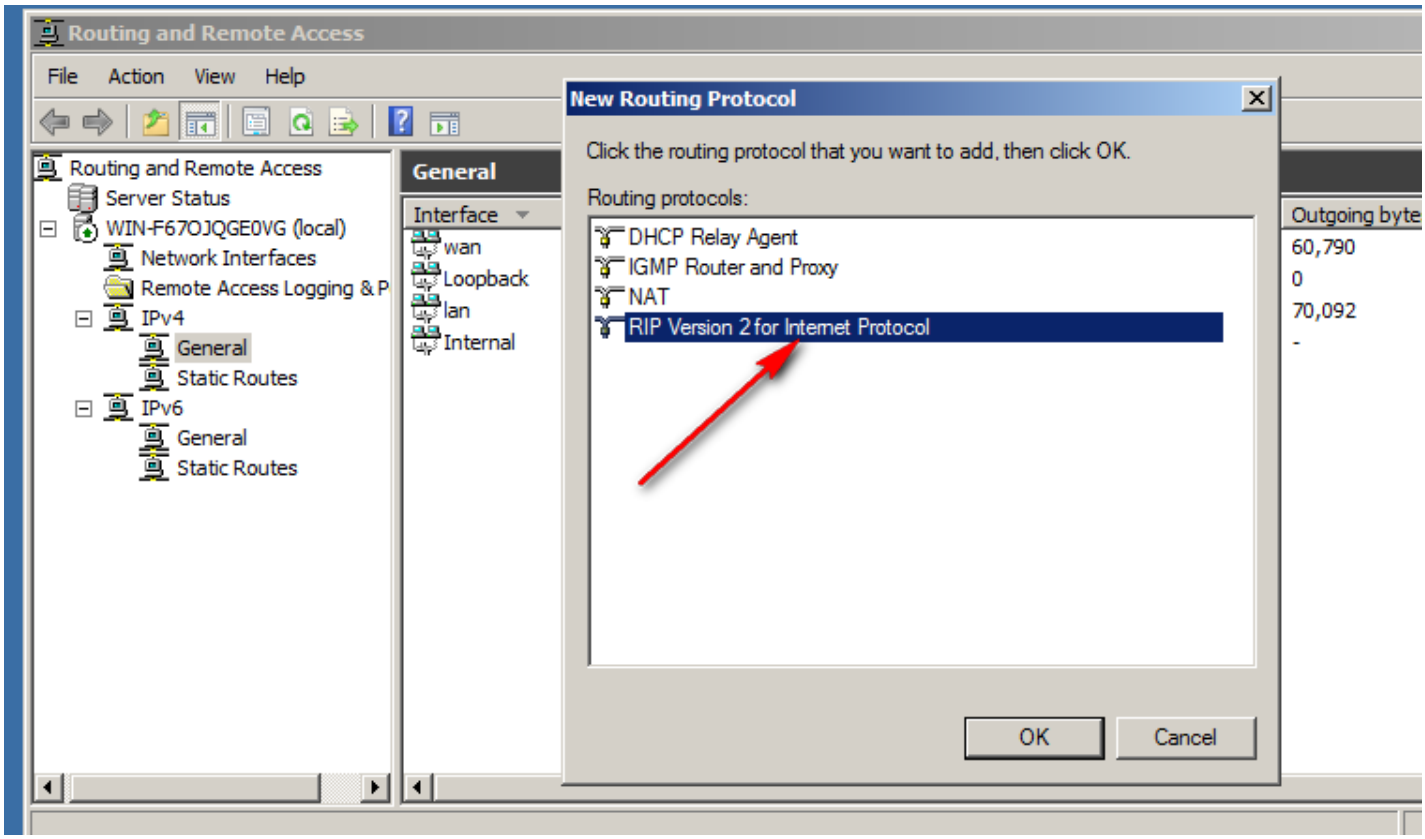
Examples of Routing Protocols are Routing Information Protocol (RIP), Enhanced Interior Gateway Routing Protocol (EIGRP) and Open Shortest Path First (OSPF).

11.2.1- Dynamic routes in windows server 2008



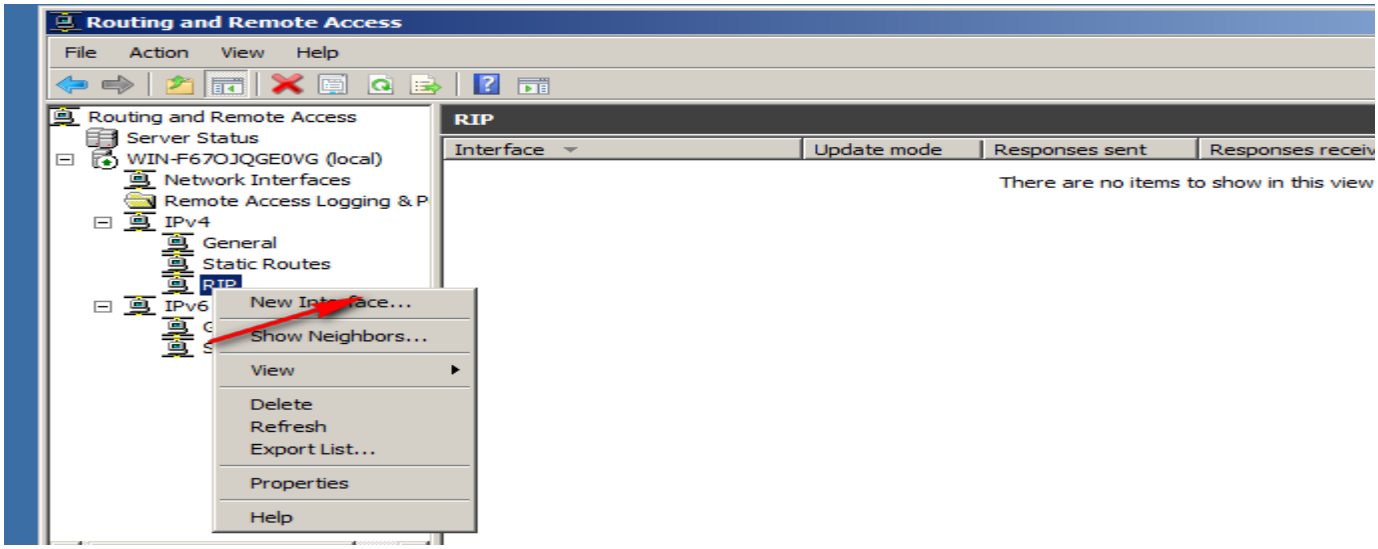
Rip version 2

تفعيل برتوكول Rip version 2

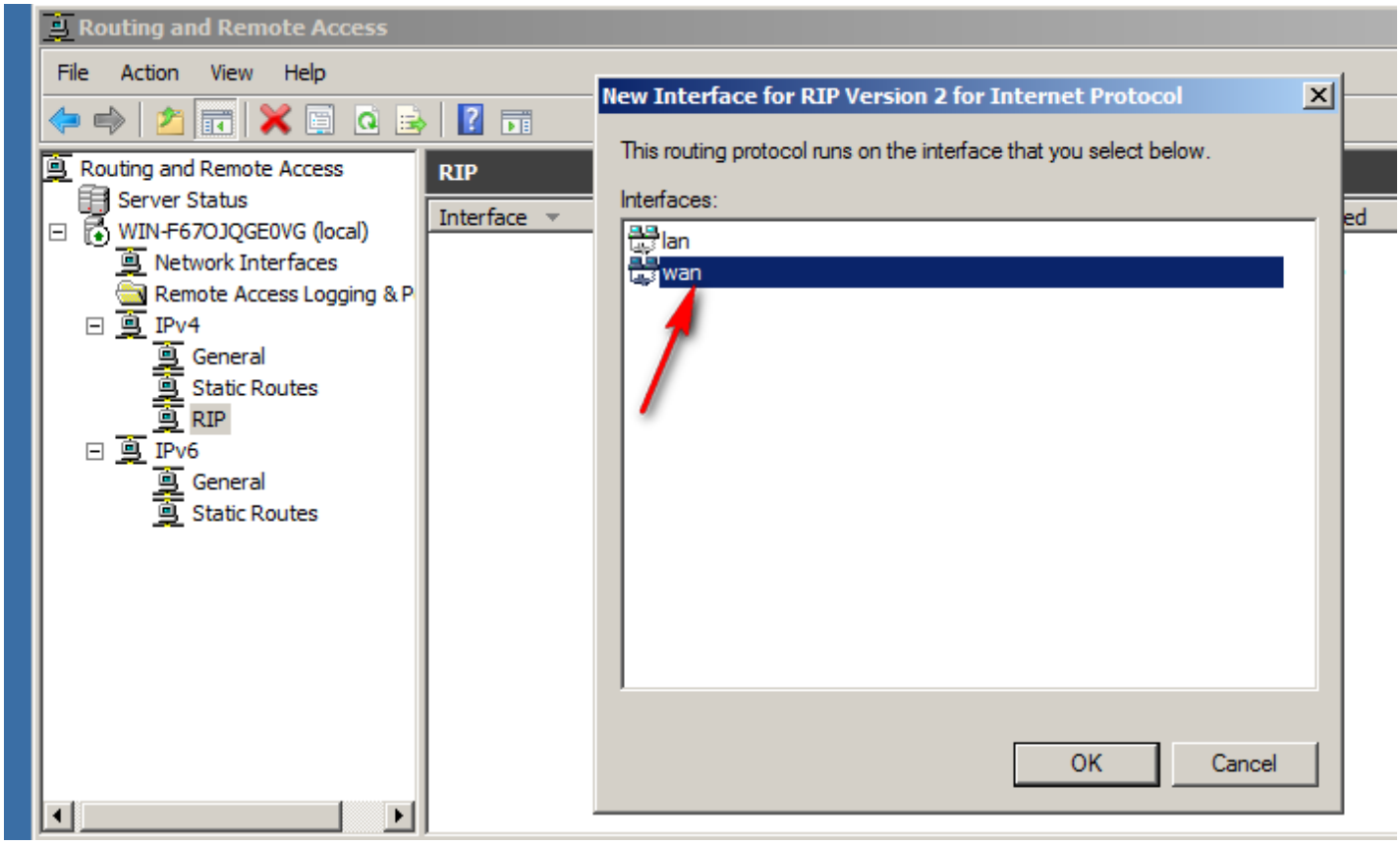


New interface

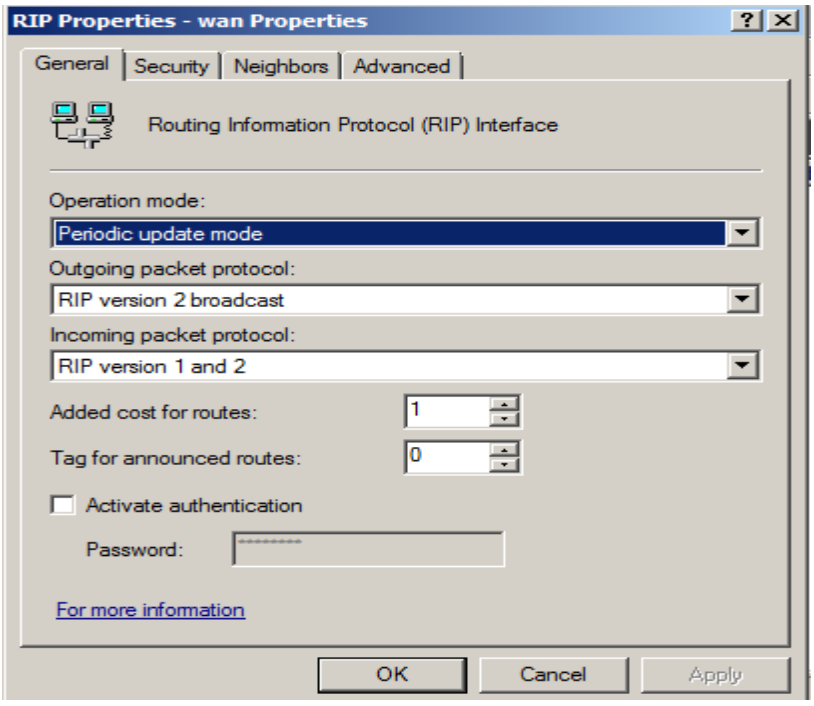
تحديد كرت شبكة



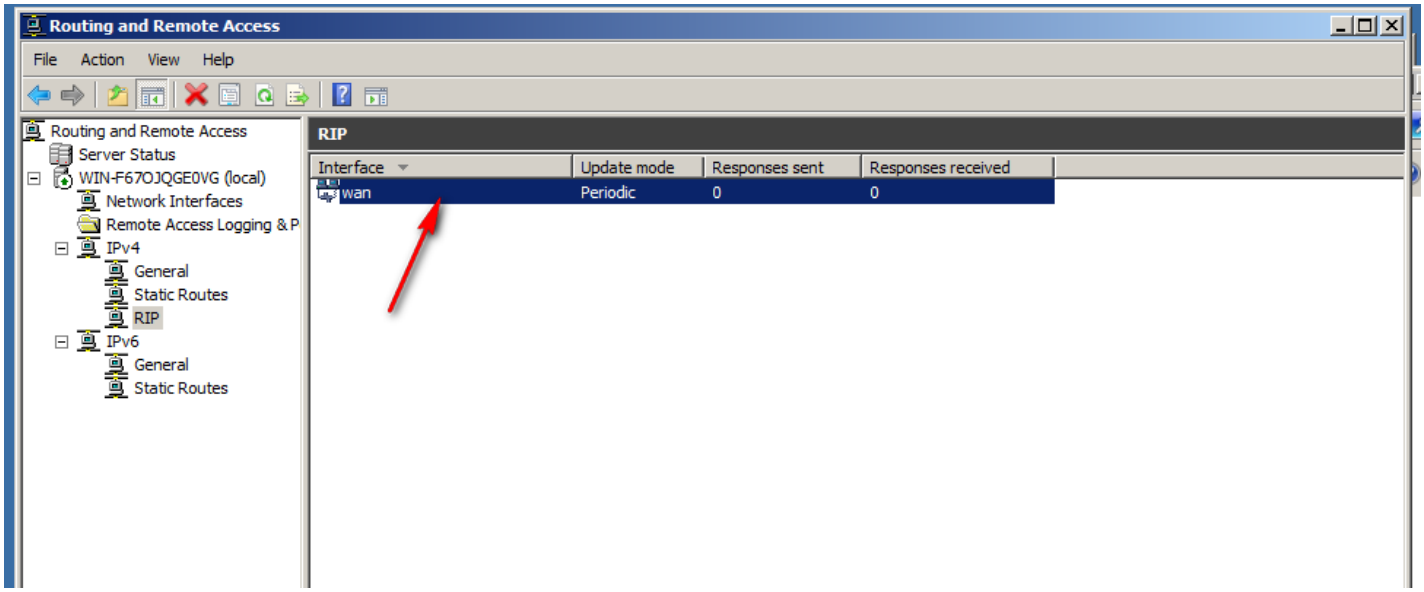
Add Wan interface



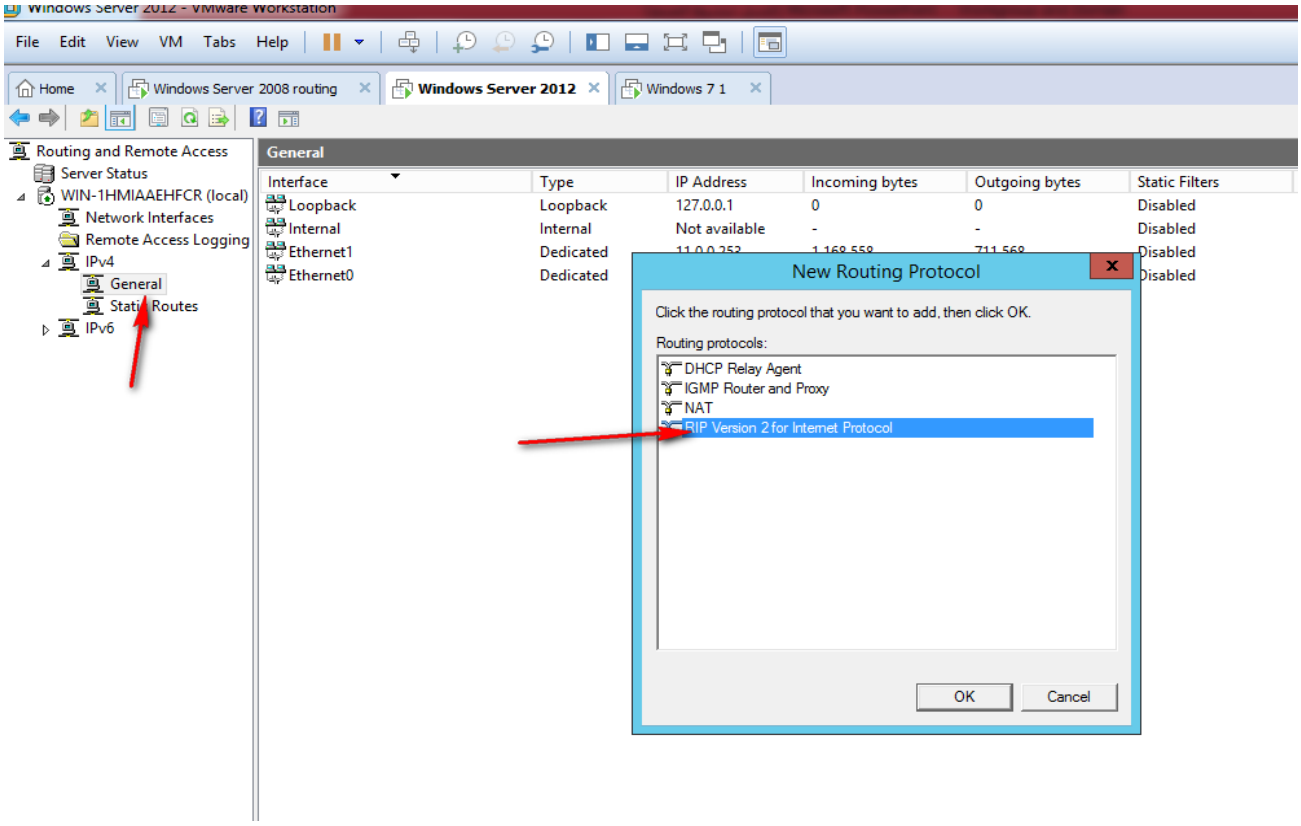
Choice rip

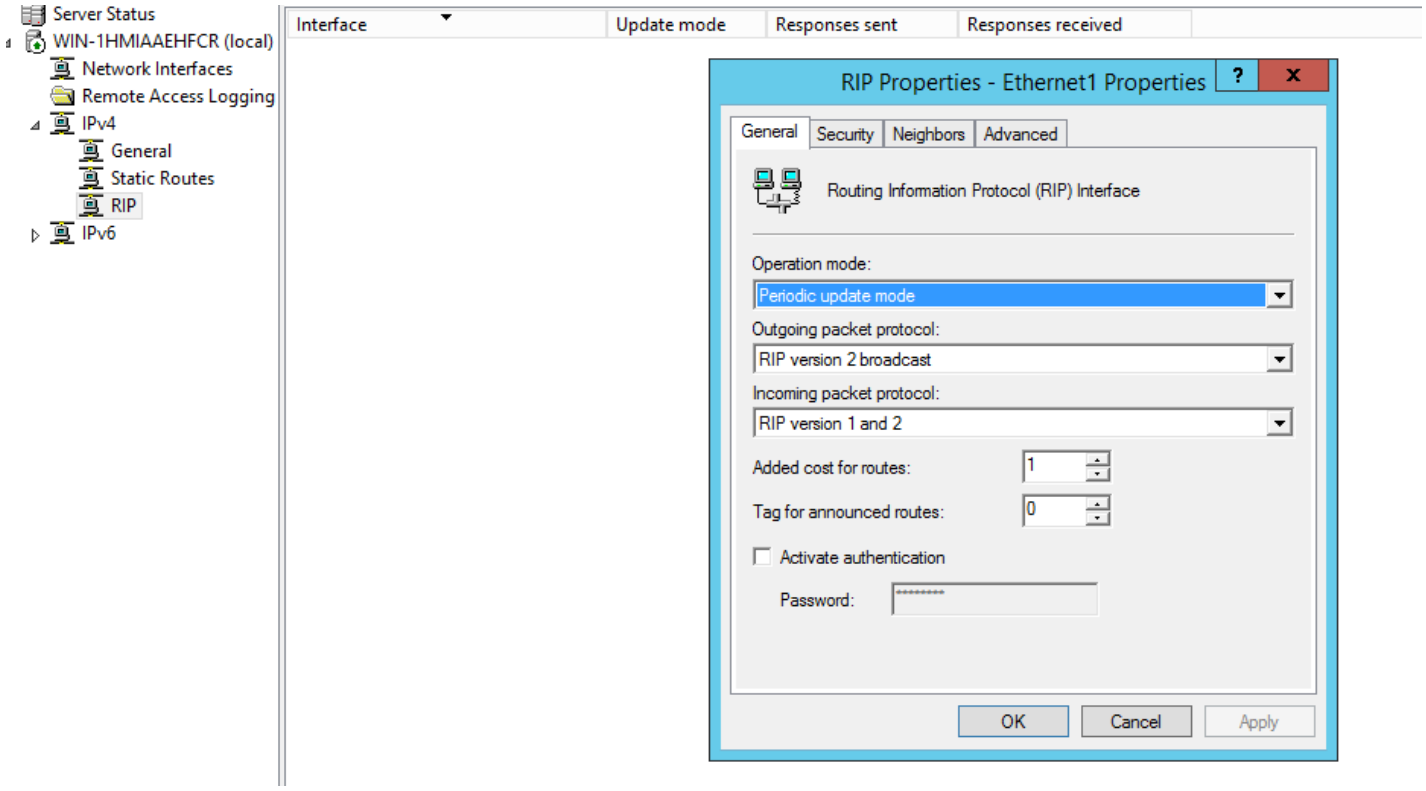


Rip

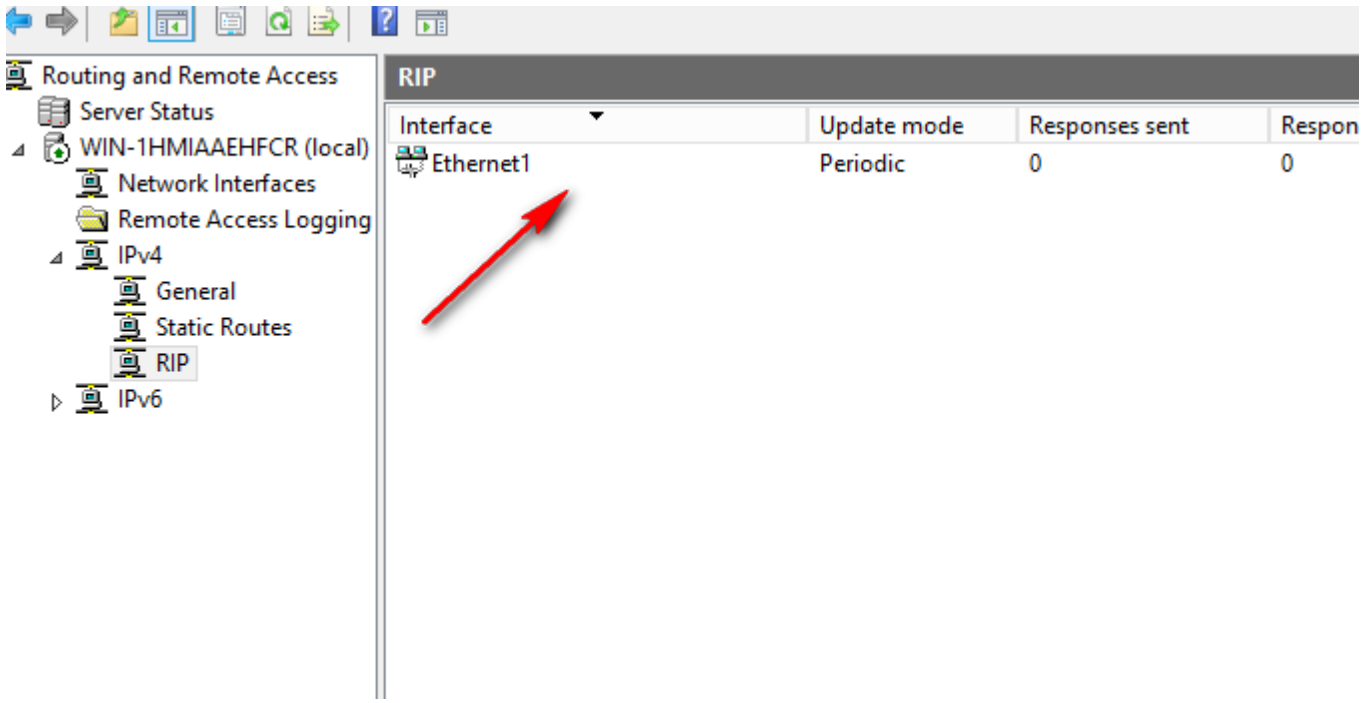


11.2.2- Dynamic routes in windows server 2012

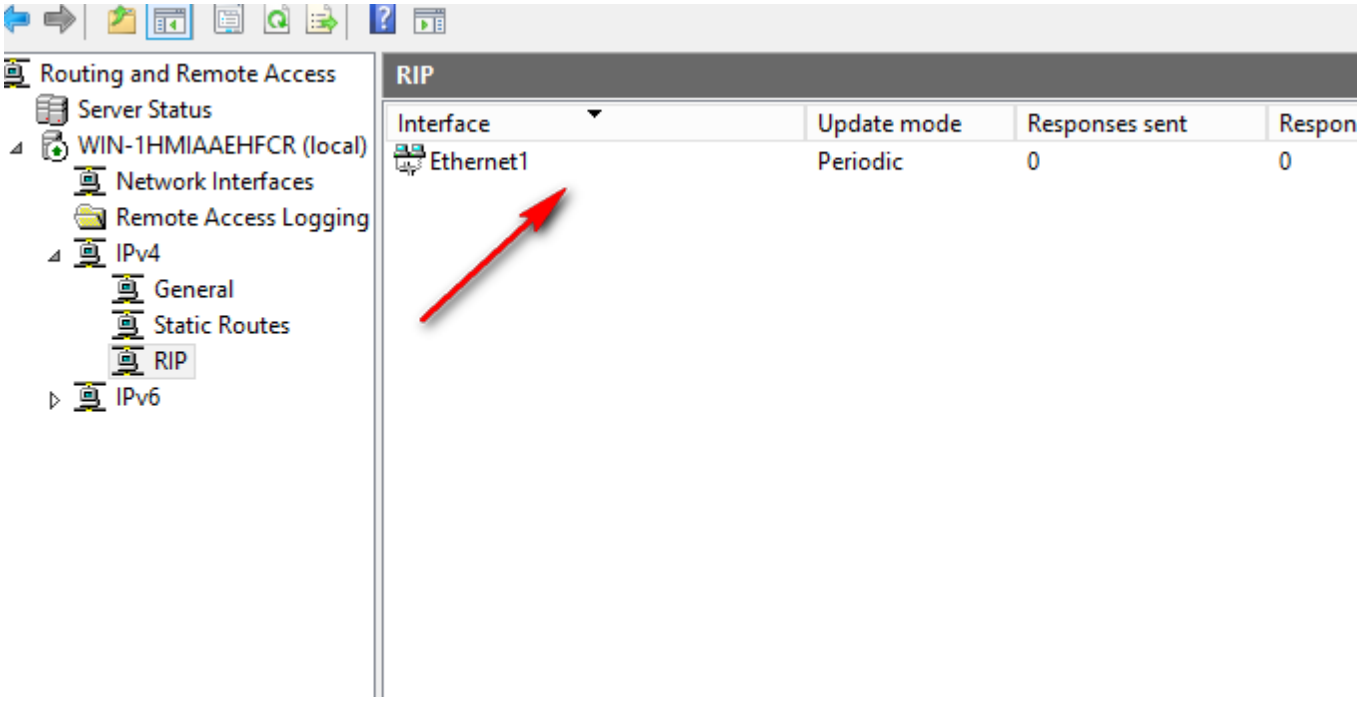




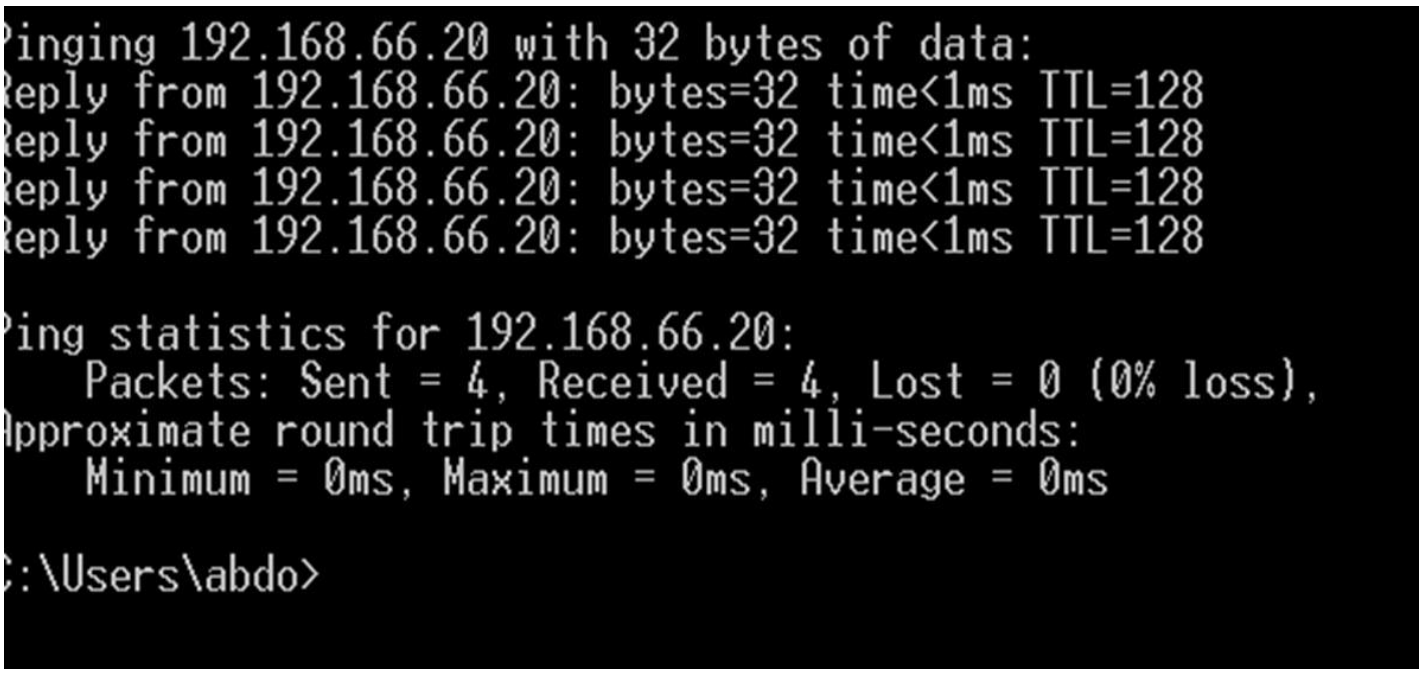
Add rip protocols between routers interface



Add rip protocols between routers interface



Ping between the virtual pc and real my computer



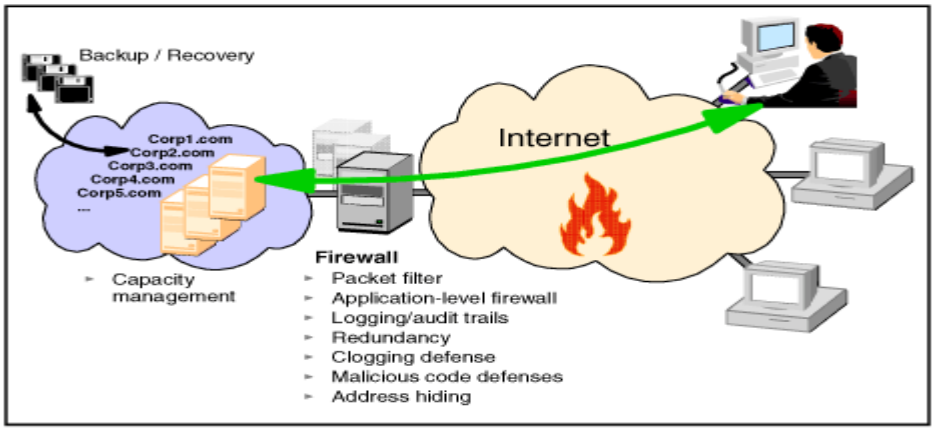
12-Packet filtering and ISS server

وهي عملية التحكم في البيانات الداخله والخارجه من الشبكة ايضا هو تقليل أو إزالة وجود الاتصالات الشبكية غير المرغوب فيها والسماح في الوقت نفسه للاتصالات «الشرعية» أن تنتقل بحرية دخل الشبكة

Routing and Remote Access supports IP packet filtering, which specifies which type of traffic is allowed into and out of the router. The packet filtering feature is based on exceptions. You can set packet filters per interface and configure them to do one of the following:

Pass through all traffic except packets prohibited by filters.

Discard all traffic except packets allowed by filters.

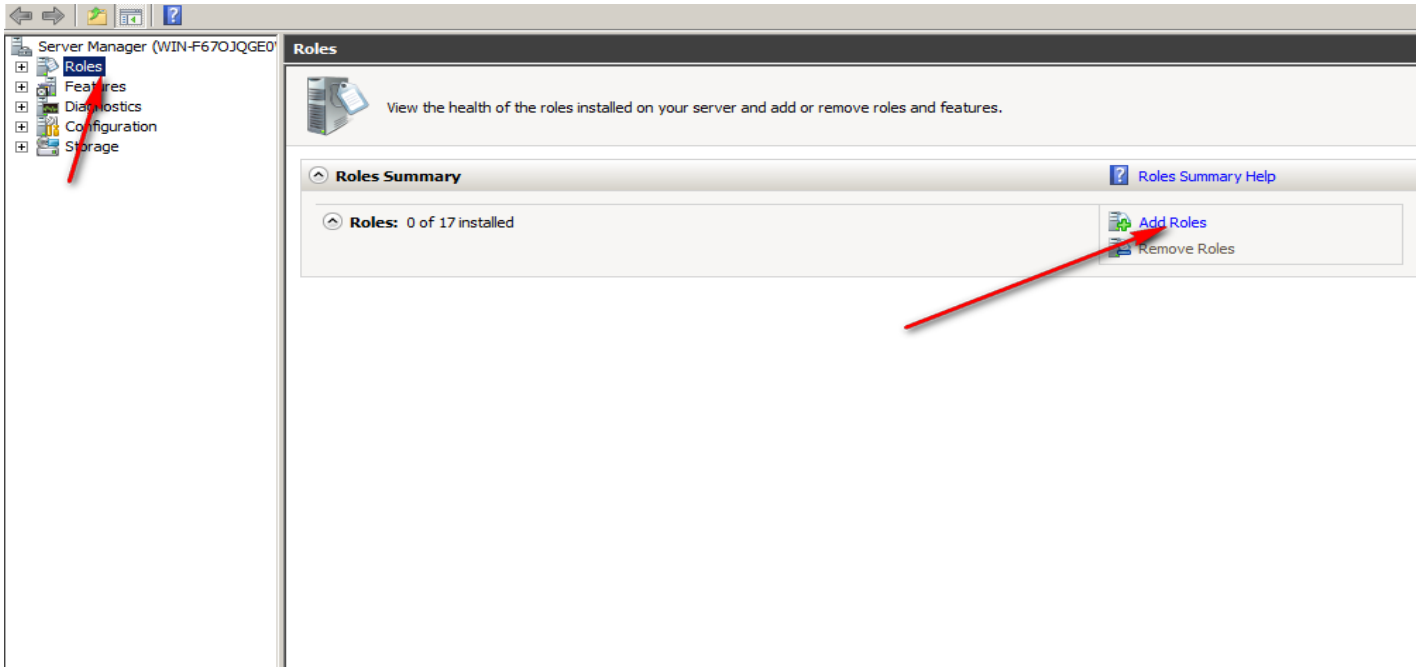


12.1- packet filter and IIS in windows server 2008

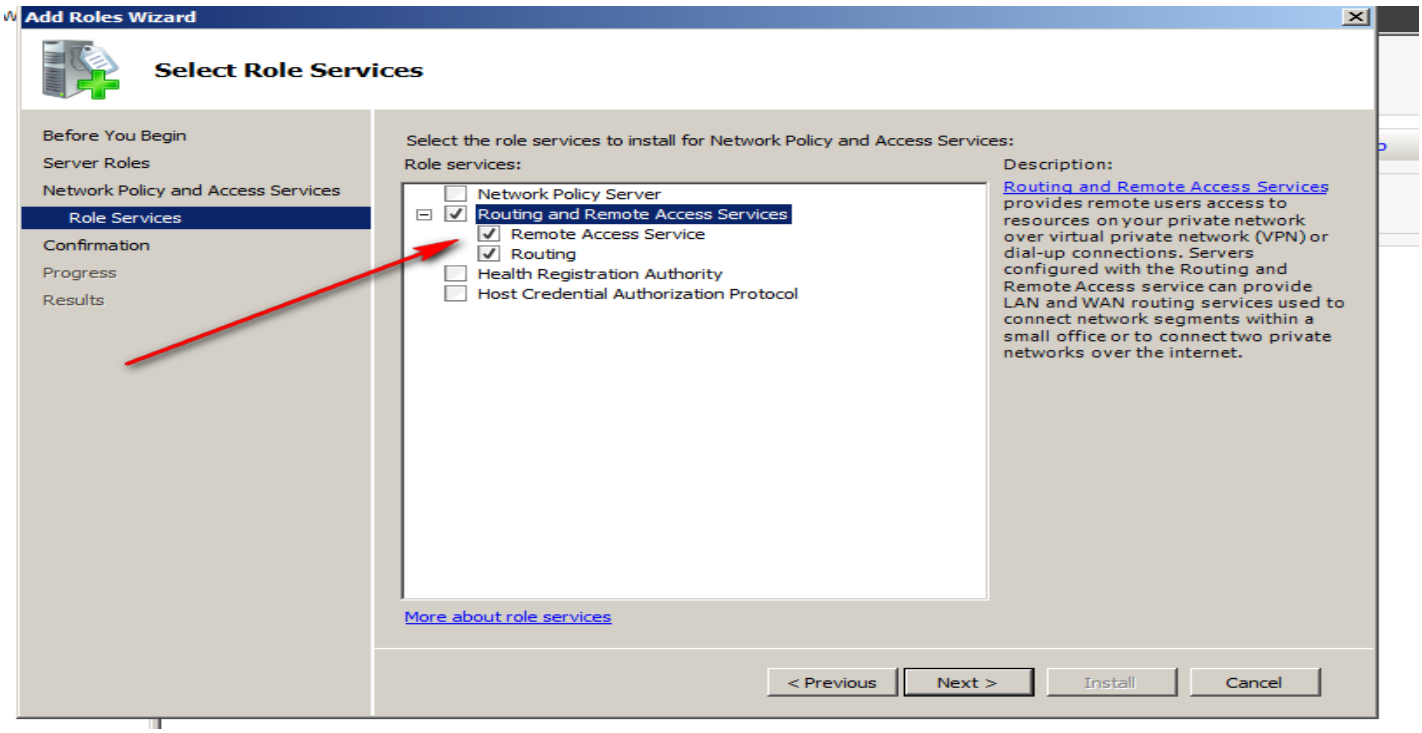
لتفعيل عملية تصفية البيانات الداخلة والخارج من الخادم يجب علينا تحميل routing and remote access

To make packet filter You have to Install routing and remote access on Windows server 2008

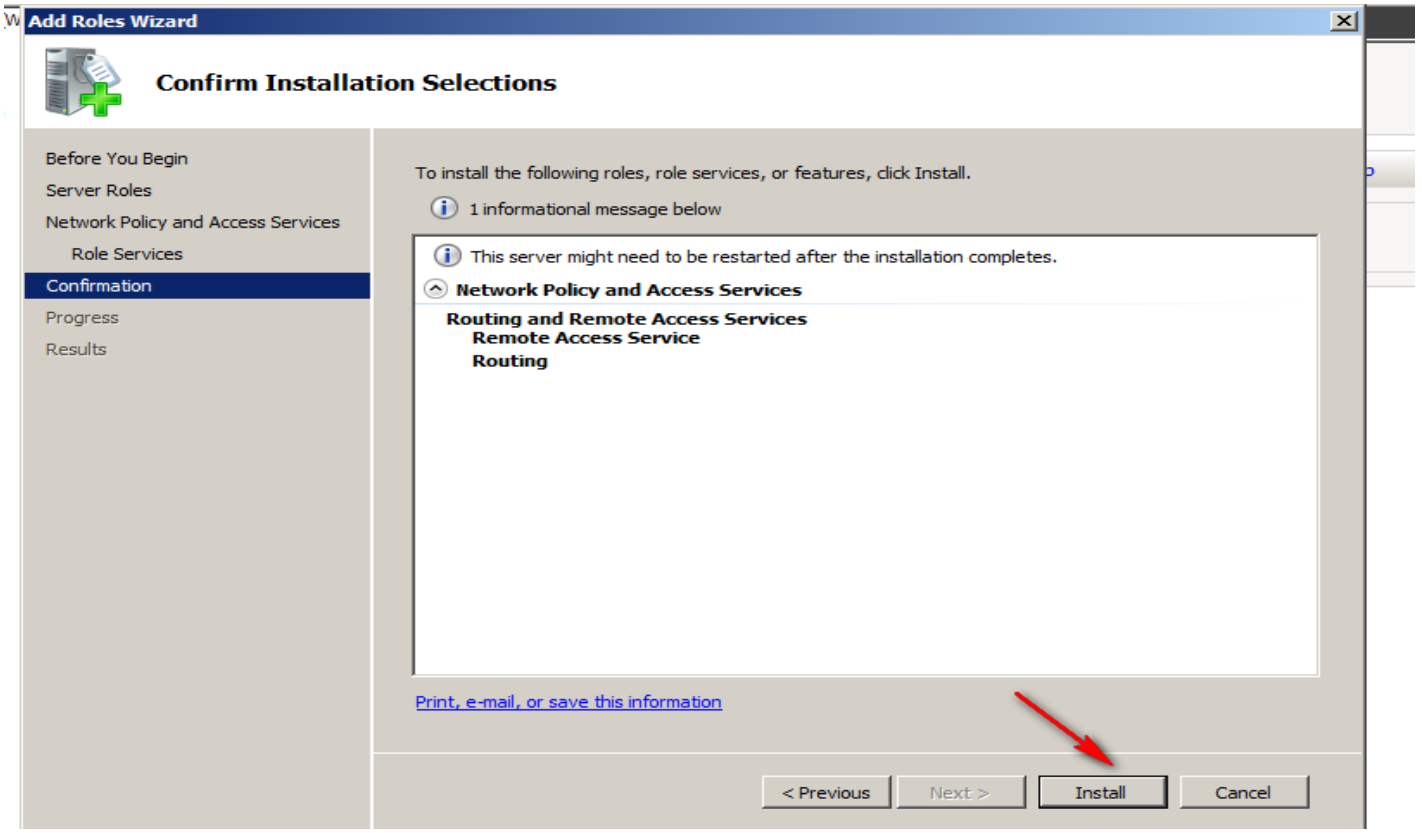
Install routing role on windows server 2008



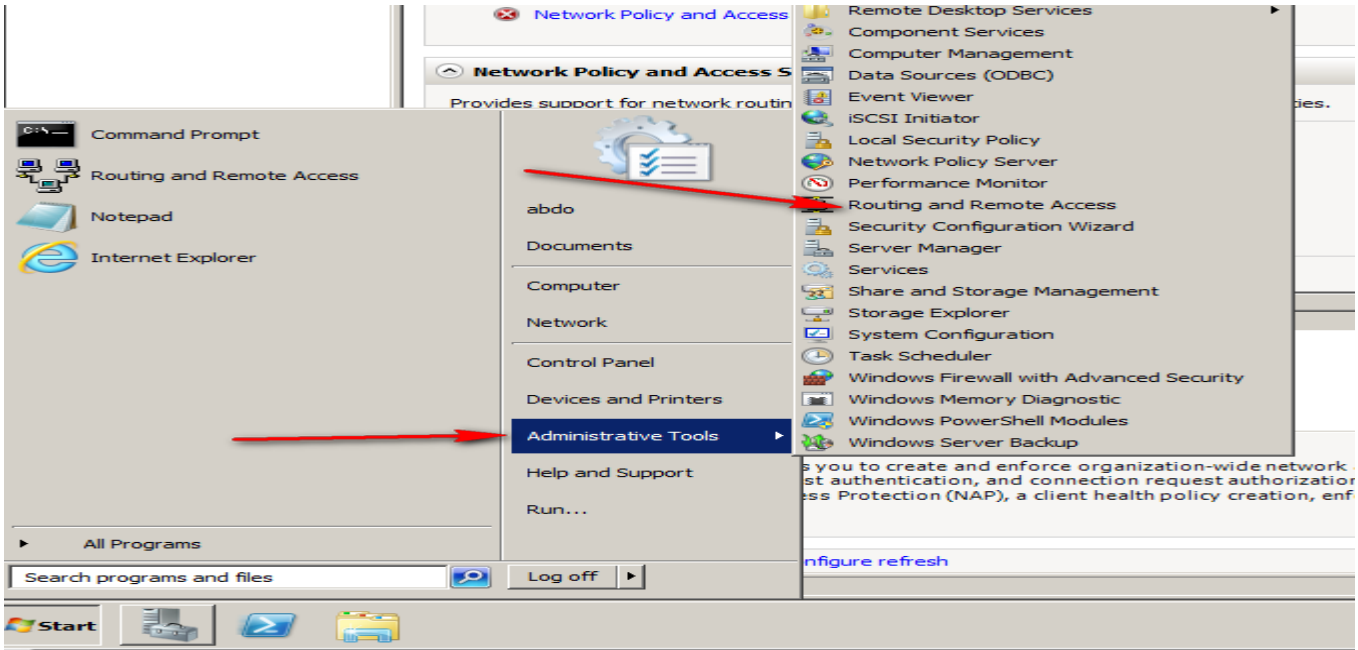
Routing and remote access services



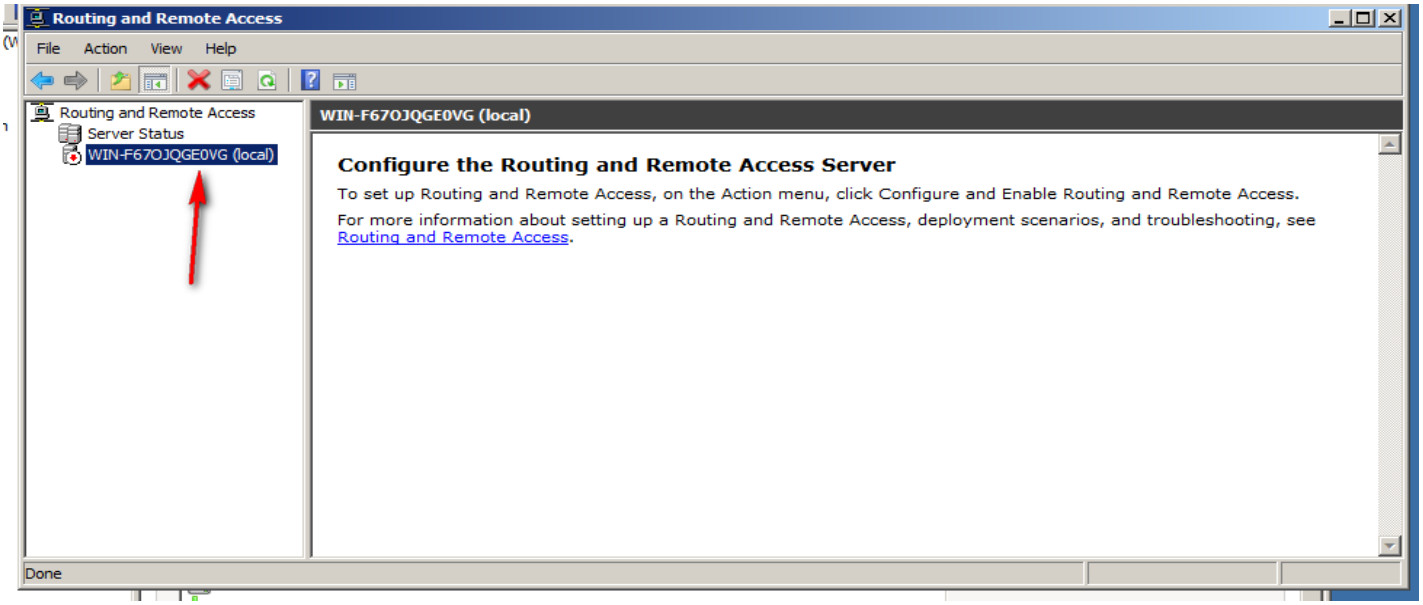
Install role

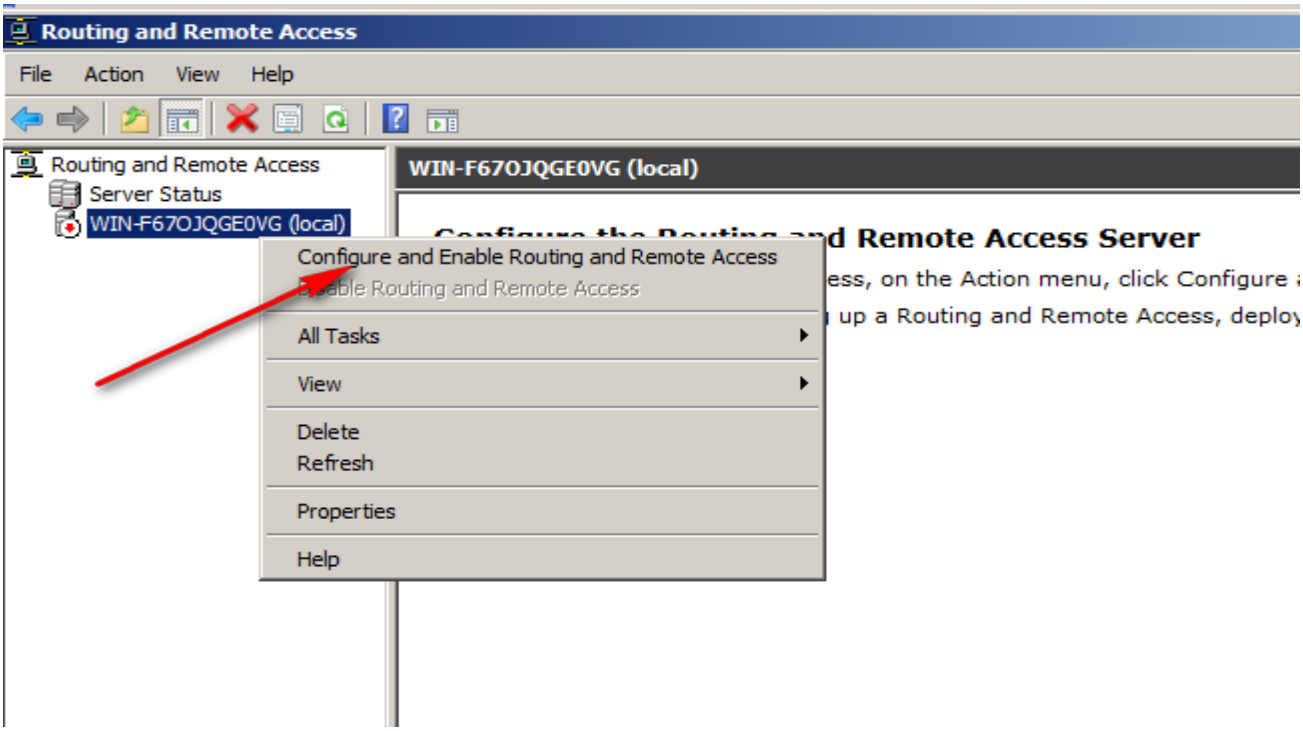


Open routing and remote access

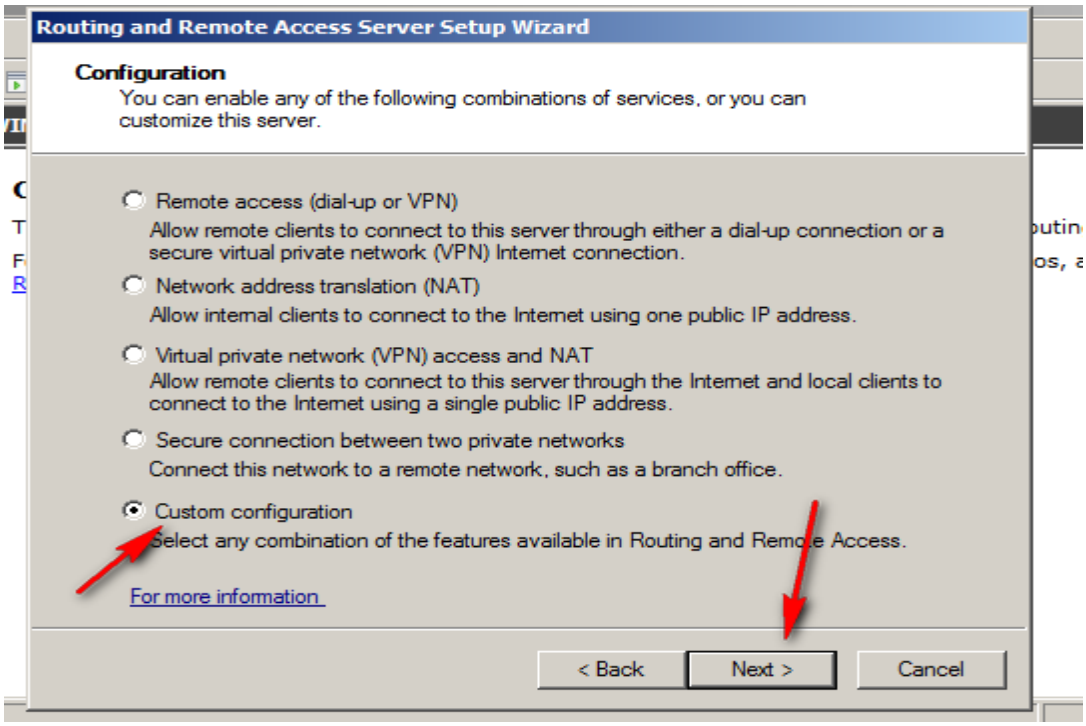


Enable the routing on server

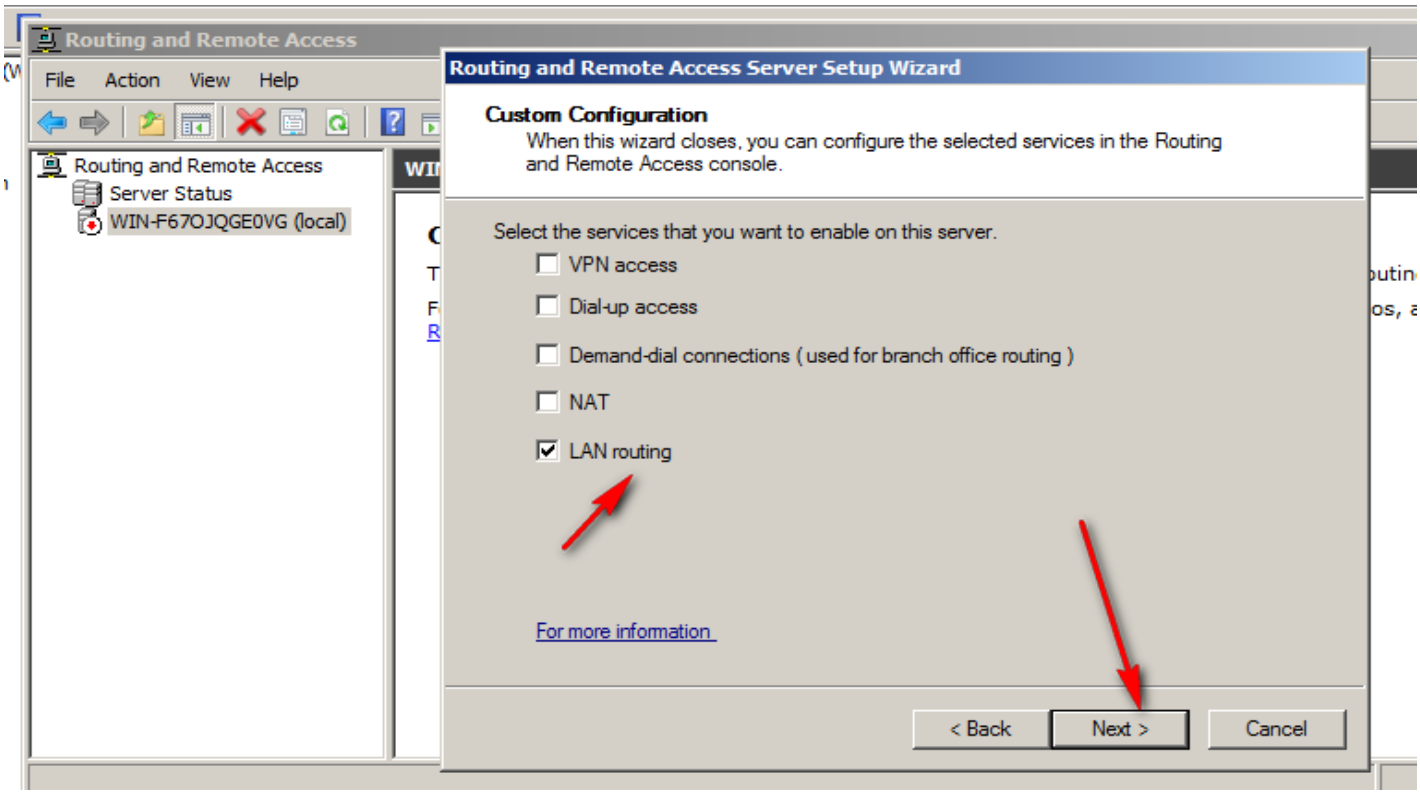




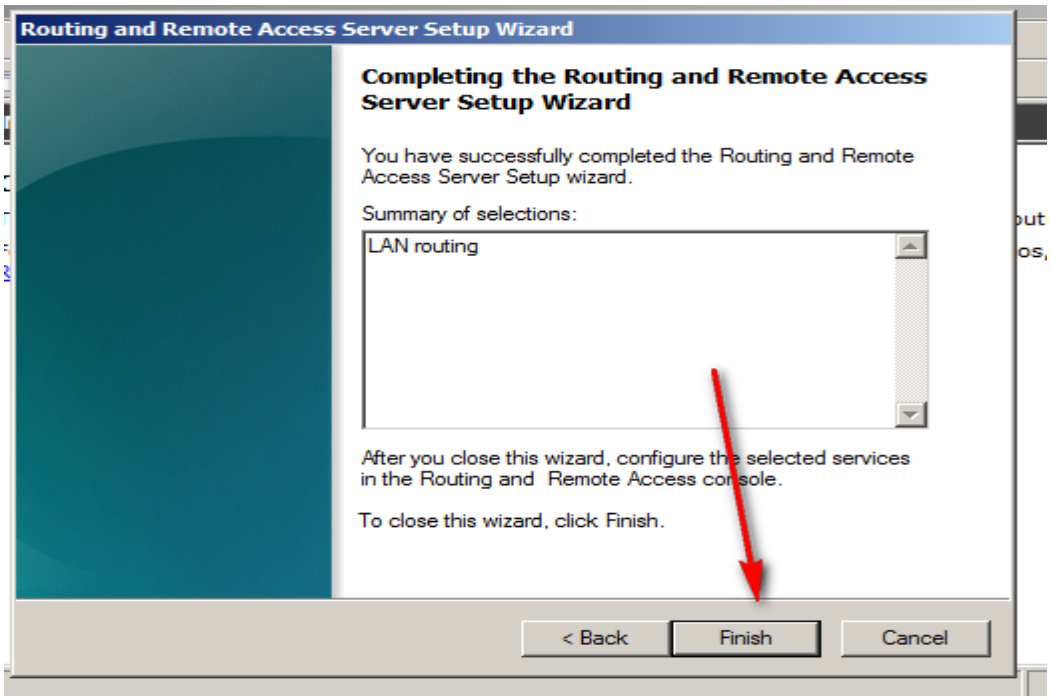
Choice custom configuration



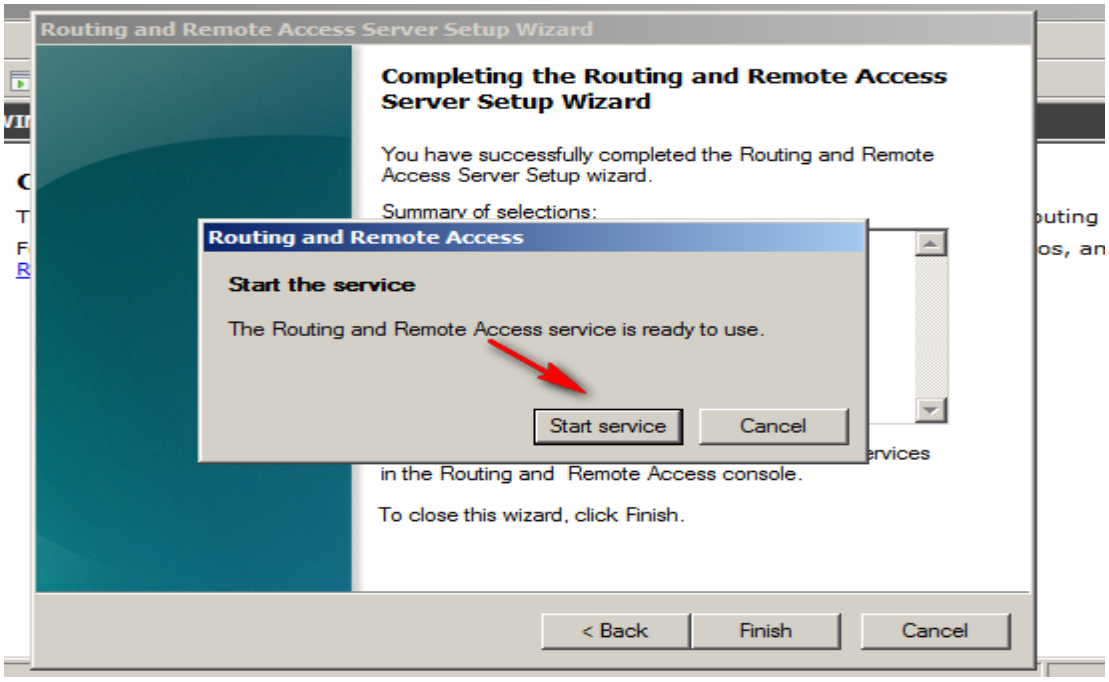
LAN routing



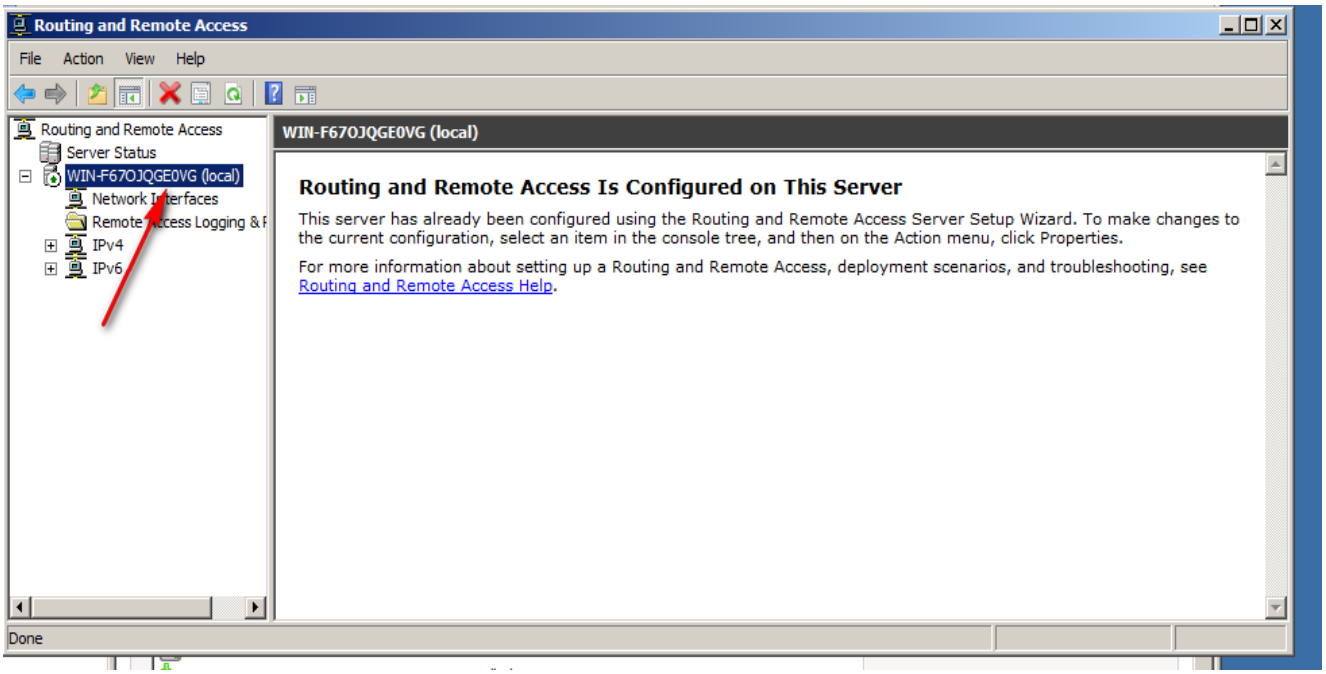
Press finish



Start the services



Now routing and remote access ready

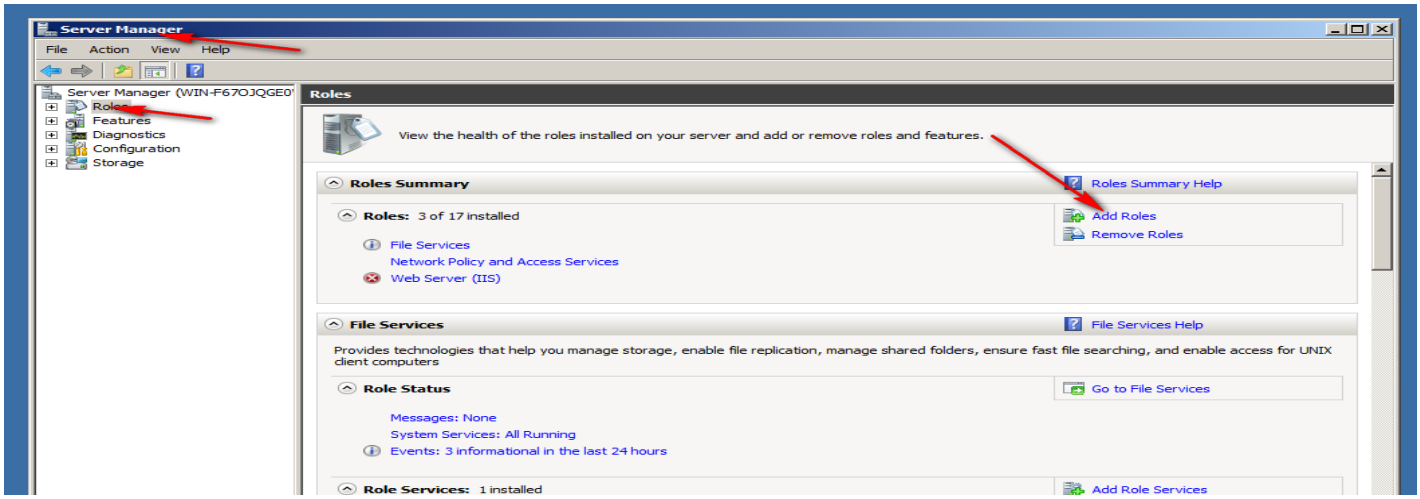


الان سوف نقوم بعمل مثال فعلا على كيفية التحكم في البيانات ،ولتطبيق هذا المثال بشكل فعلي يجب علنا تنزيل IIS

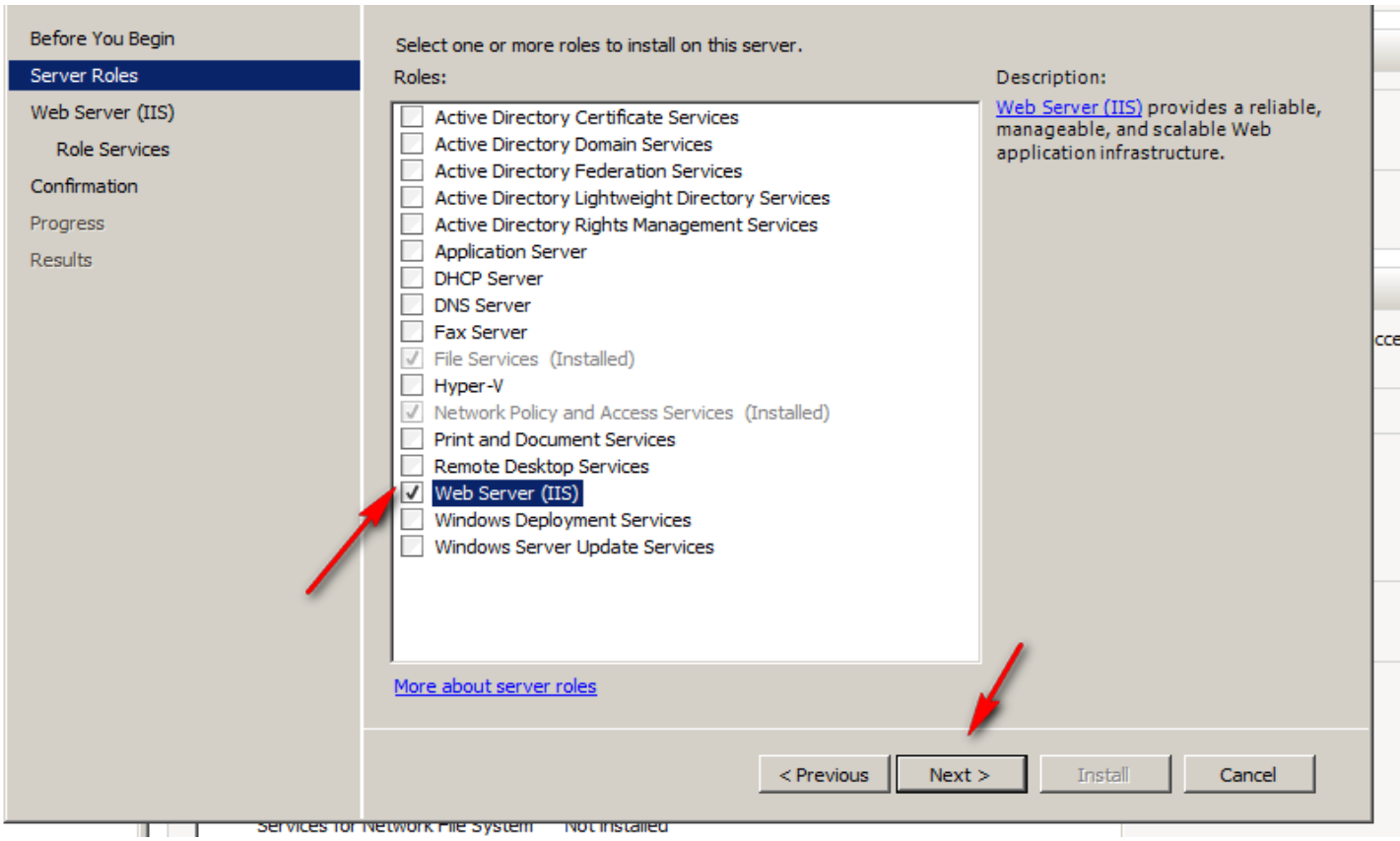
No we will make simple senior to clarify how I can make filter traffic to control the data through the server, so we need install IIS on server to make internal web site for test the packet filter.

Now we will make internal web site to test packet filter so we must install IIS on windows server 2008

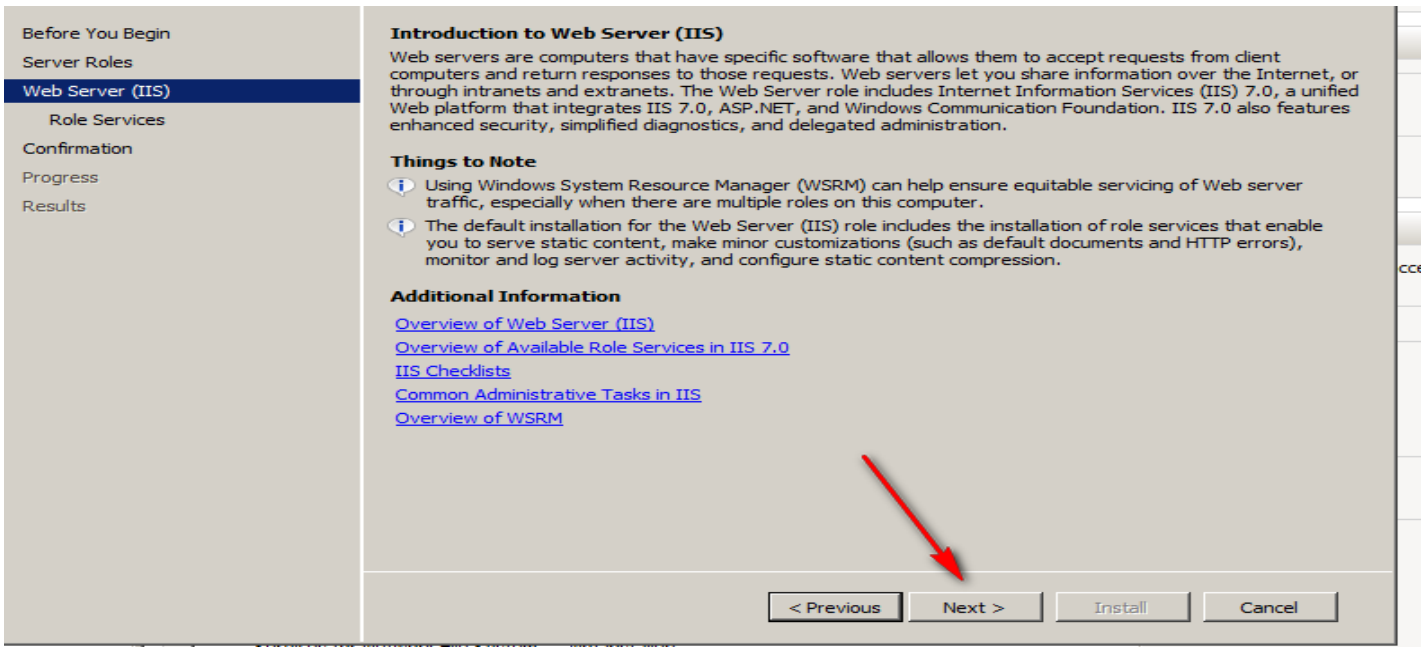
تحميل IIS

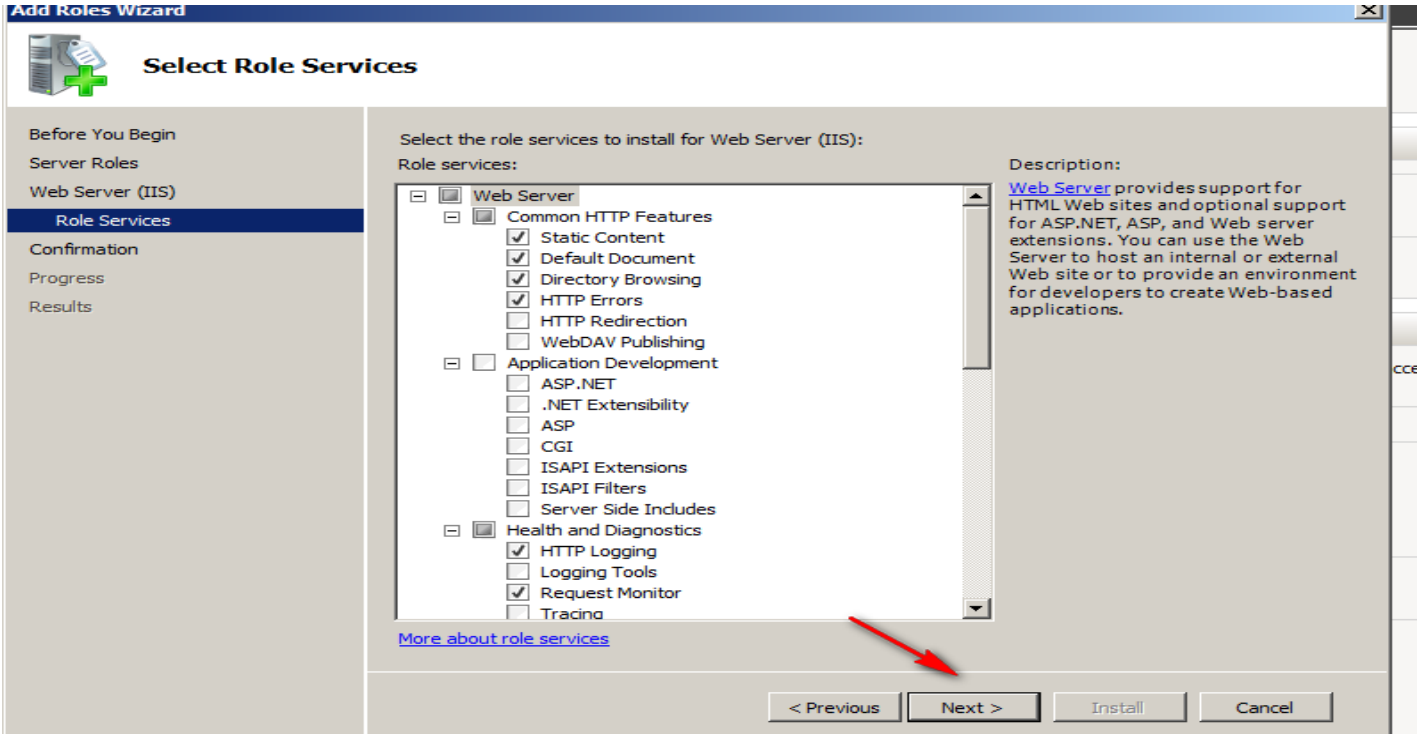


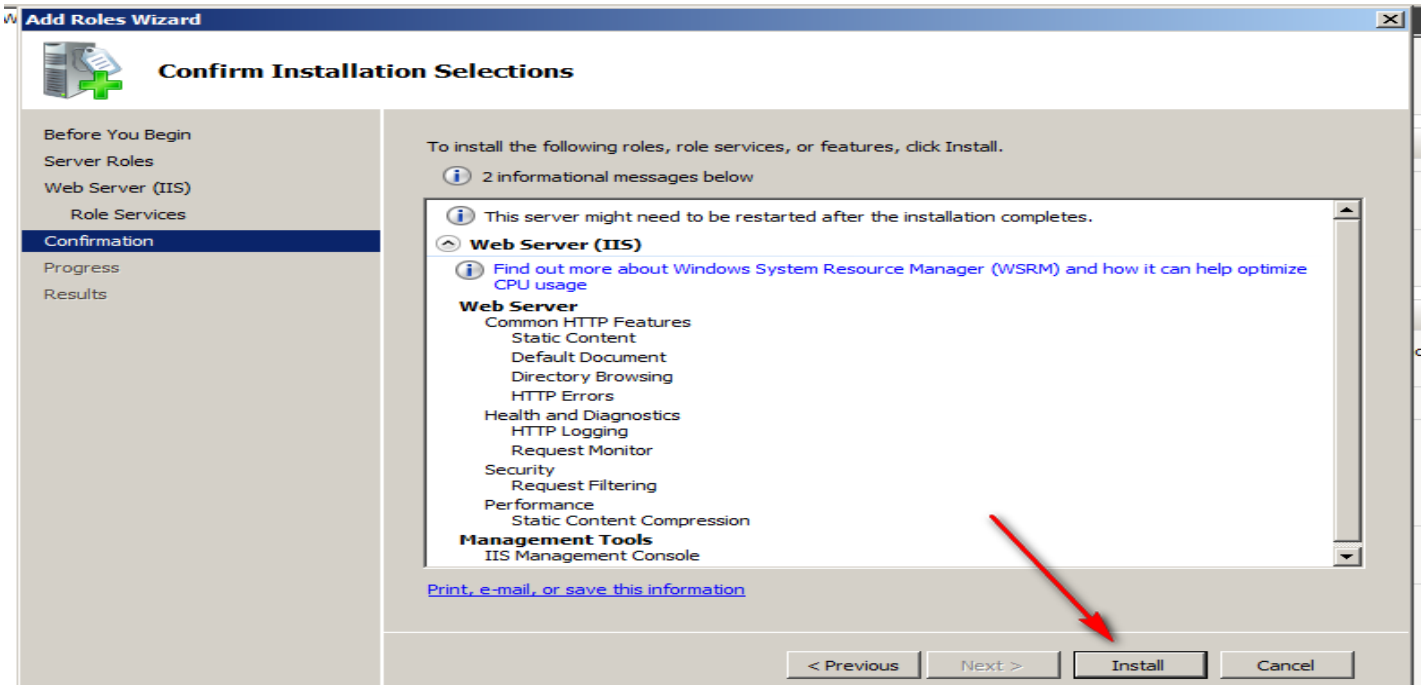
Choice web server (IIS)

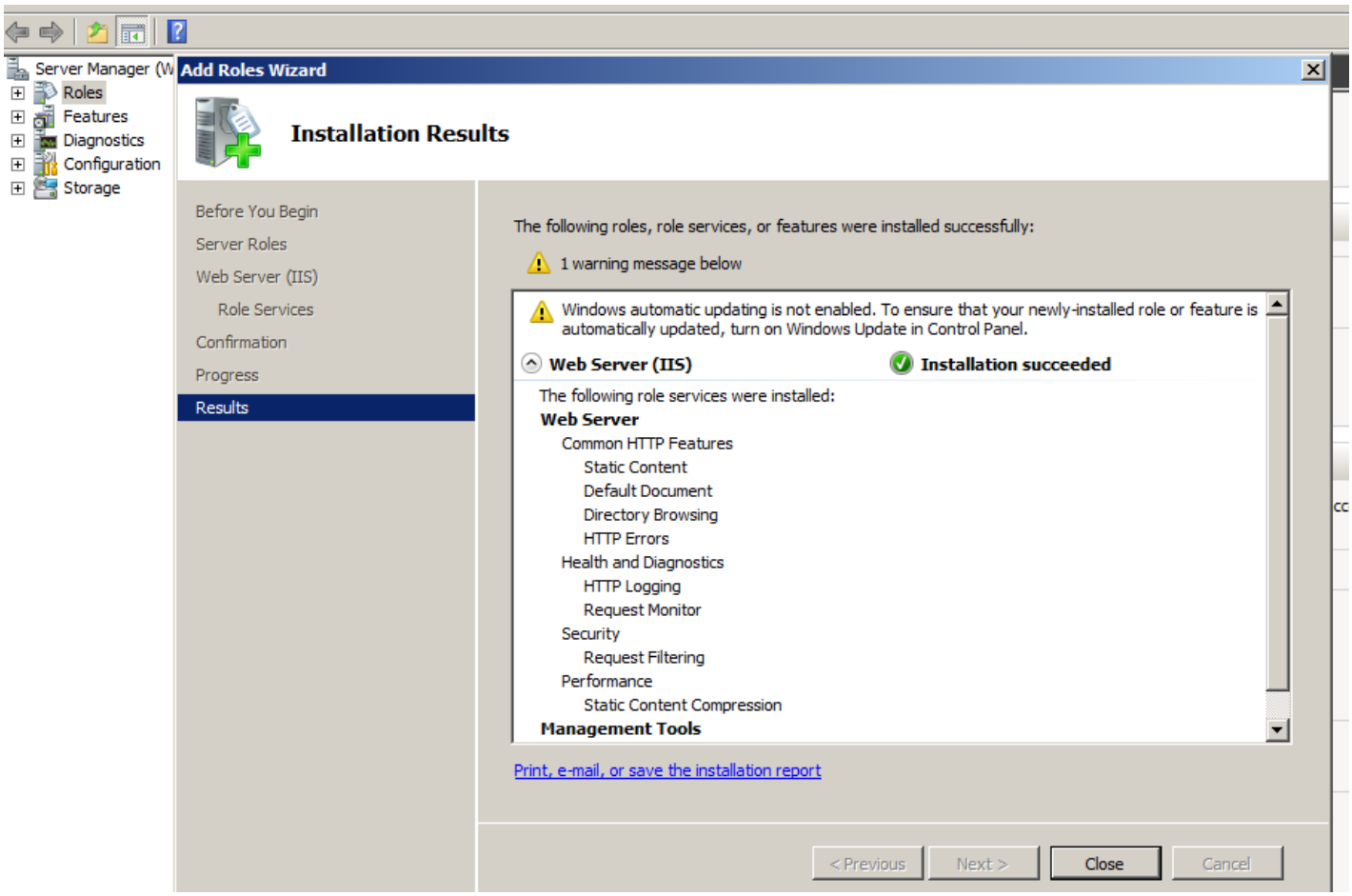

Before You Begin
Server Roles
Web Server (IIS)
Role Services
Confirmation
Progress
Results
Select one or more roles to install on this server.
Roles:
Active Directory Certificate Services
Active Directory Domain Services
Active Directory Federation Services
Active Directory Lightweight Directory Services
Active Directory Rights Management Services
Application Server
DHCP Server
DNS Server
Fax Server
File Services (Installed)
Hyper-V
Network Policy and Access Services (Installed)
Print and Document Services
Remote Desktop Services
Web Server (IIS)
Windows Deployment Services
Windows Server Update Services
Description:
Web Server (IIS) provides a reliable, manageable, and scalable Web application infrastructure.
More about server roles
< Previous
Next >
Install
Cancel

Press Next

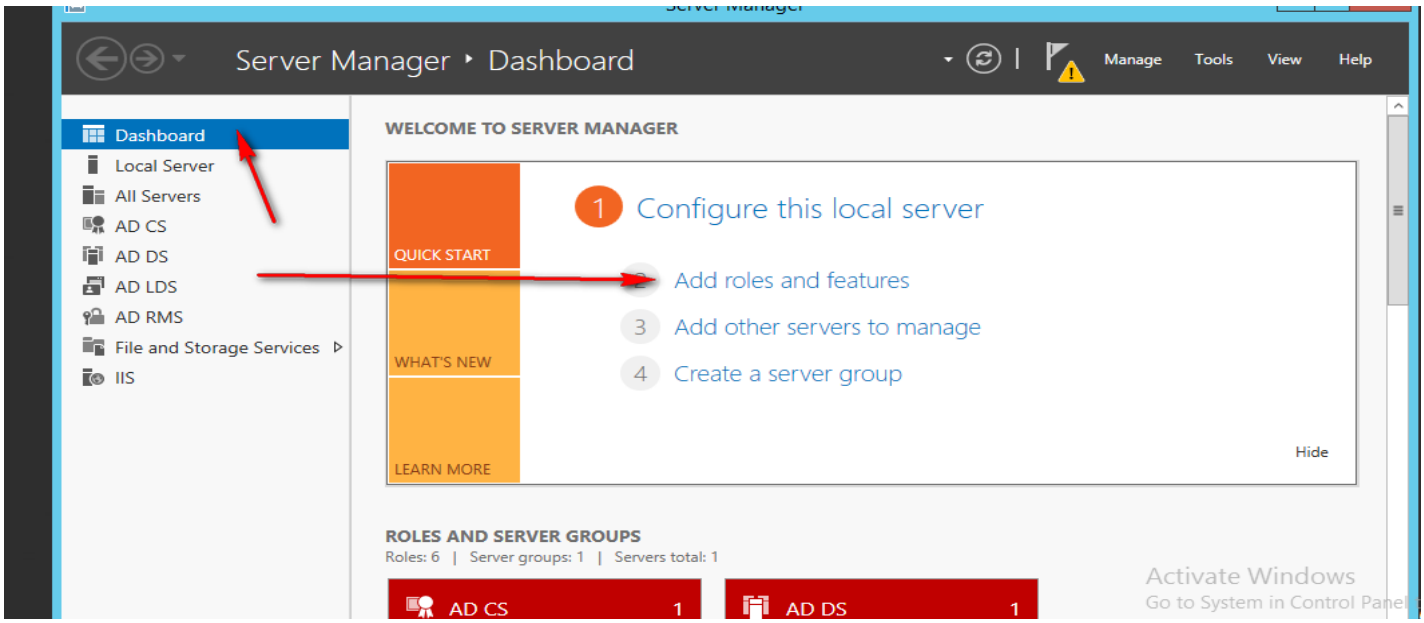

Before You Begin
Server Roles
Web Server (IIS)
Role Services
Confirmation
Progress
Results
Introduction to Web Server (IIS)
Web servers are computers that have specific software that allows them to accept requests from client computers and return responses to those requests. Web servers let you share information over the Internet, or through intranets and extranets. The Web Server role includes Internet Information Services (IIS) 7.0, a unified Web platform that integrates IIS 7.0, ASP.NET, and Windows Communication Foundation. IIS 7.0 also features enhanced security, simplified diagnostics, and delegated administration.
Things to Note
Using Windows System Resource Manager (WSRM) can help ensure equitable servicing of Web server traffic, especially when there are multiple roles on this computer.
The default installation for the Web Server (IIS) role includes the installation of role services that enable you to serve static content, make minor customizations (such as default documents and HTTP errors), monitor and log server activity, and configure static content compression.
Additional Information
Overview of Web Server (IIS)
Overview of Available Role Services in IIS 7.0
IIS Checklists
Common Administrative Tasks in IIS
Overview of WSRM
< Previous
Next >
Install
Cancel


Add Roles Wizard
Select Role Services
Before You Begin
Server Roles
Web Server (IIS)
Role Services
Confirmation
Progress
Results
Select the role services to install for Web Server (IIS):
Role services:
Web Server
Common HTTP Features
Static Content
Default Document
Directory Browsing
HTTP Errors
HTTP Redirection
WebDAV Publishing
Application Development
ASP.NET
.NET Extensibility
ASP
CGI
ISAPI Extensions
ISAPI Filters
Server Side Includes
Health and Diagnostics
HTTP Logging
Logging Tools
Request Monitor
Tracing
More about role services
Description:
Web Server provides support for HTML Web sites and optional support for ASP.NET, ASP, and Web server extensions. You can use the Web Server to host an internal or external Web site or to provide an environment for developers to create Web-based applications.
< Previous
Next >
Install
Cancel


Add Roles Wizard
Confirm Installation Selections
Before You Begin
Server Roles
Web Server (IIS)
Role Services
Confirmation
Progress
Results
To install the following roles, role services, or features, click Install.
2 informational messages below
This server might need to be restarted after the installation completes.
Web Server (IIS)
Find out more about Windows System Resource Manager (WSRM) and how it can help optimize CPU usage
Web Server
Common HTTP Features
Static Content
Default Document
Directory Browsing
HTTP Errors
Health and Diagnostics
HTTP Logging
Request Monitor
Security
Request Filtering
Performance
Static Content Compression
Management Tools
IIS Management Console
Print, e-mail, or save this information
< Previous
Next >
Install
Cancel

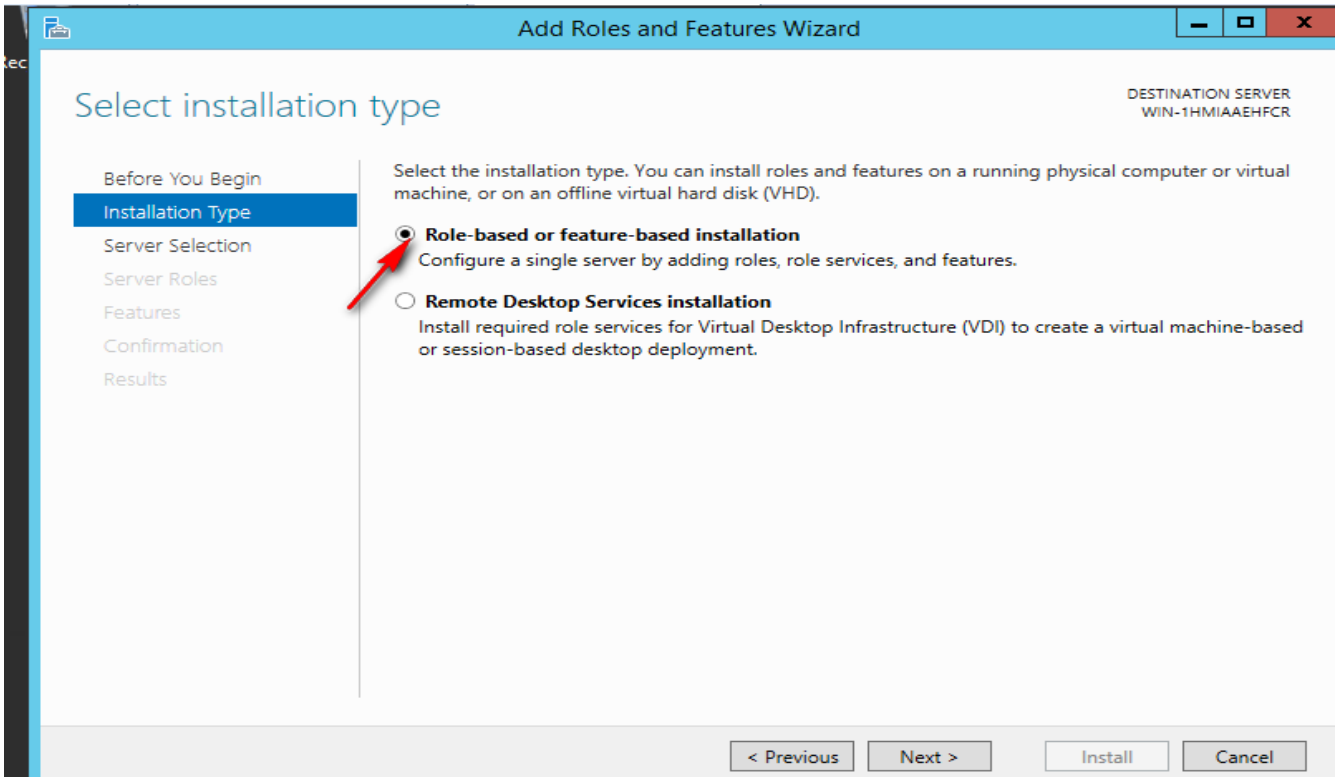


Install IIS on windows server 2012

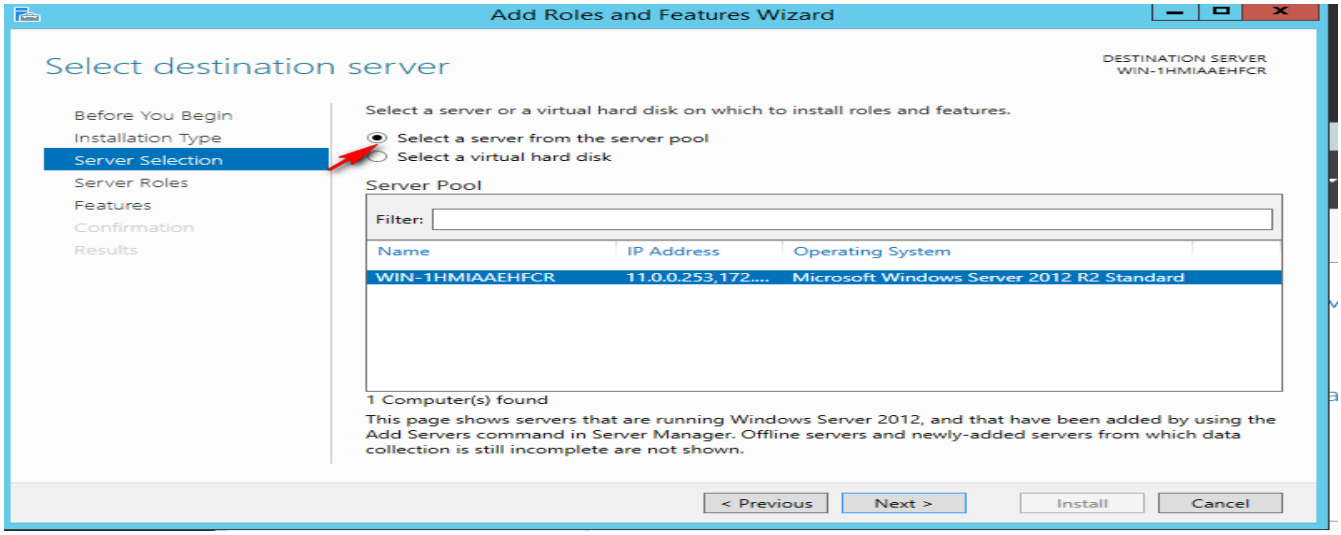


12.2- packet filter and IIS in windows server 2012

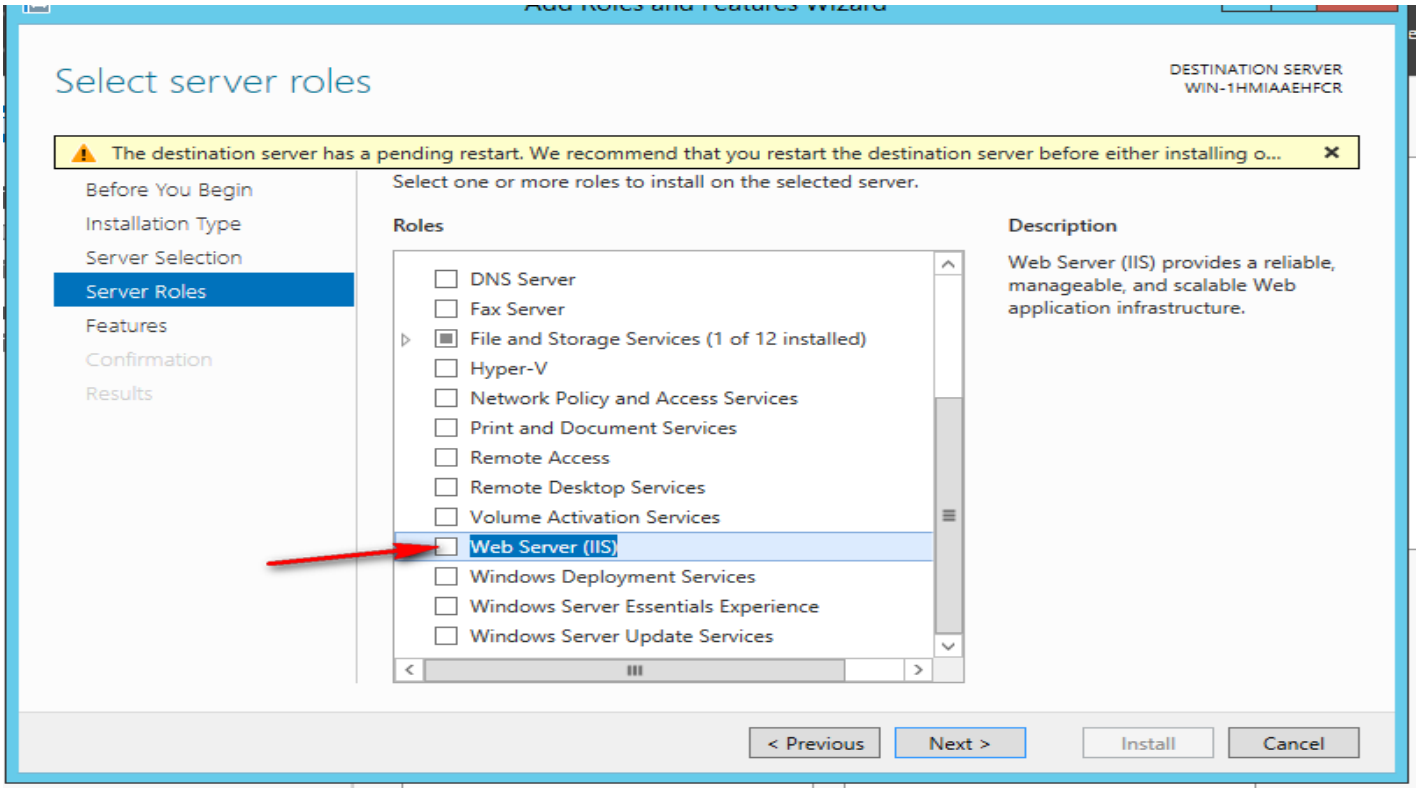
Select role-based



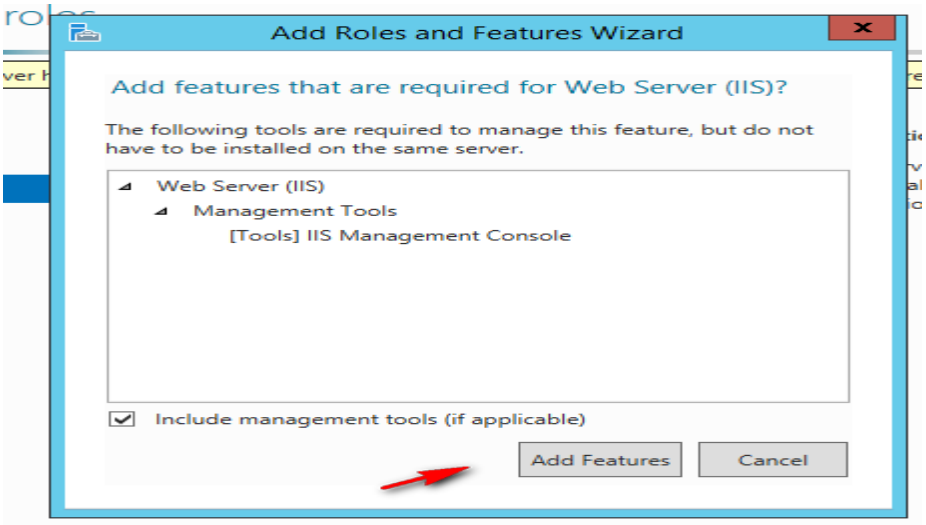
Select a server from server pool



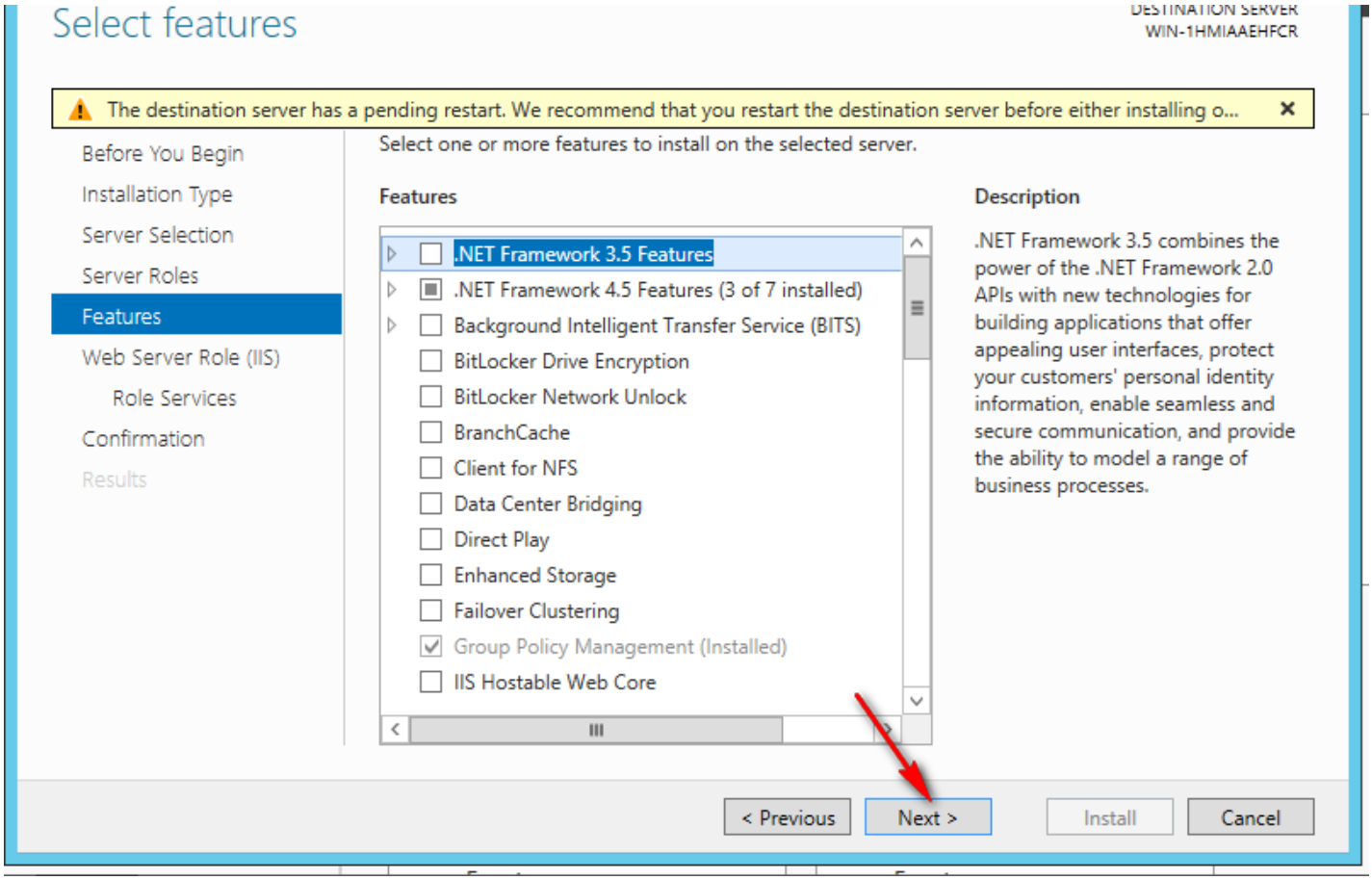
Select web server (IIS)

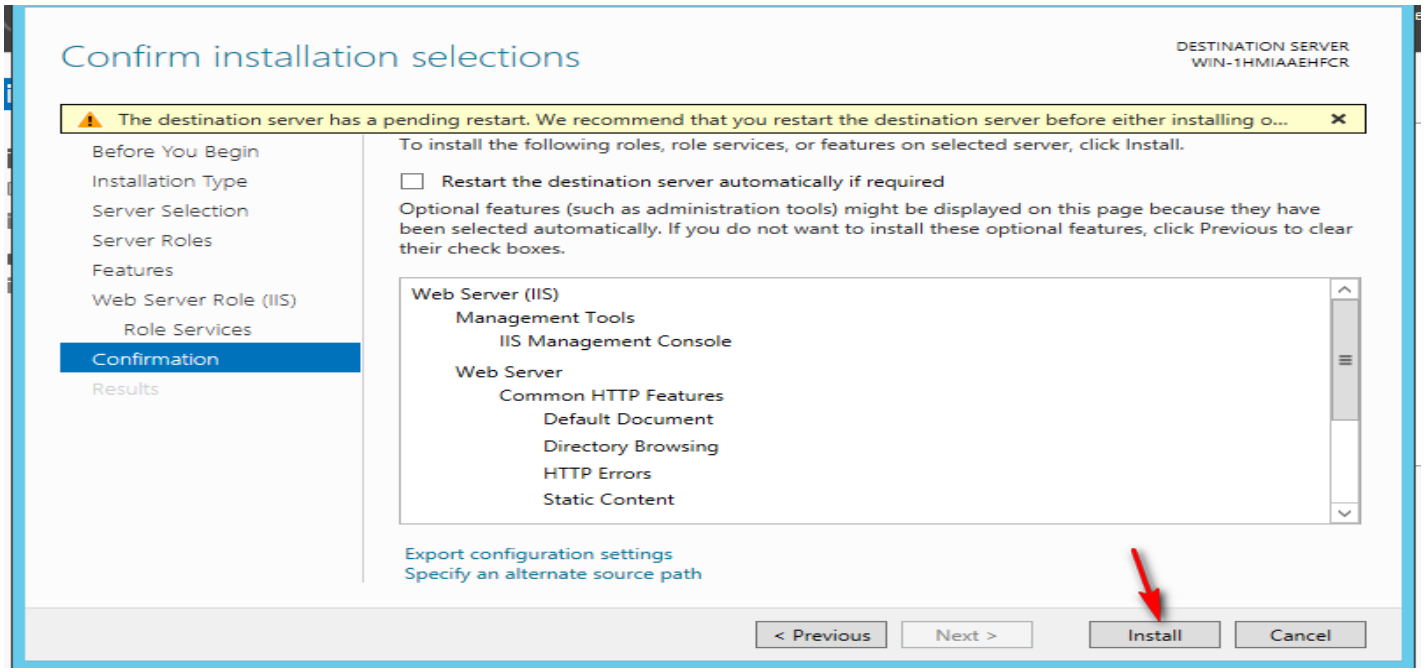


Add features

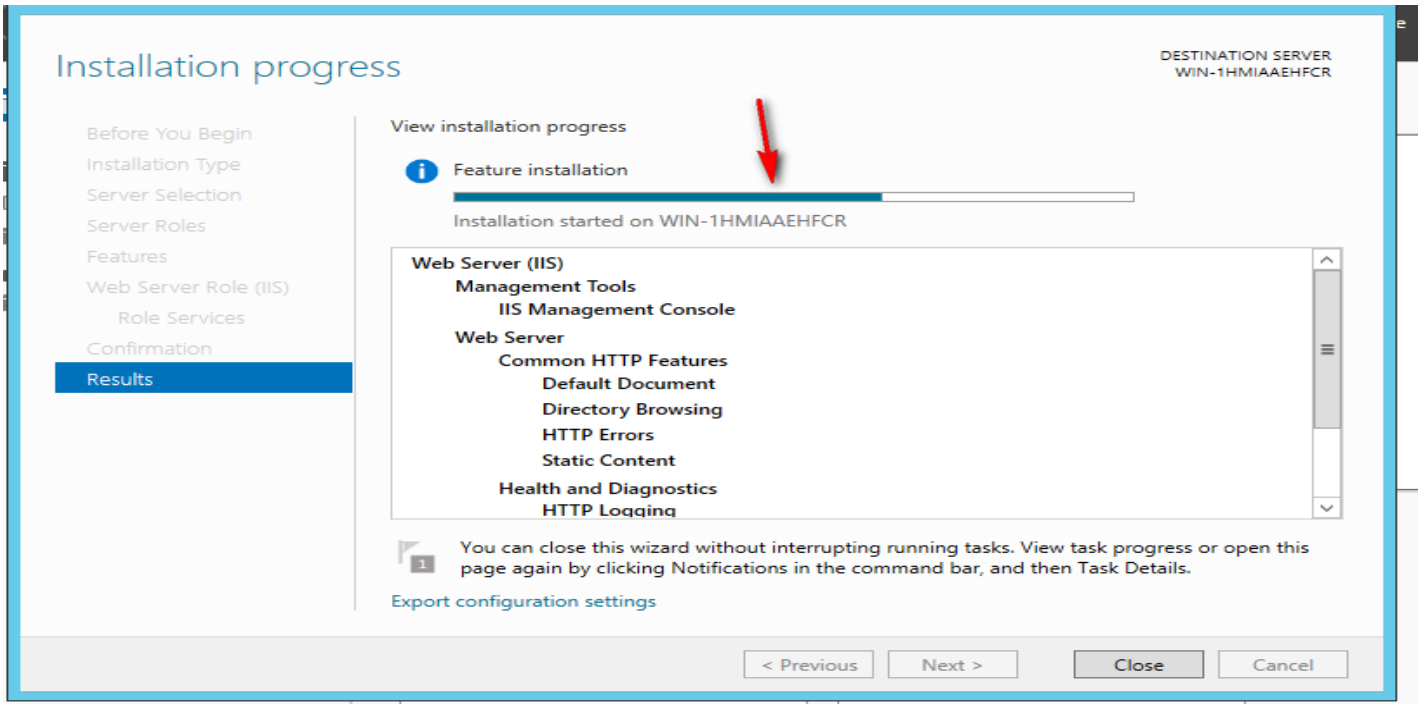


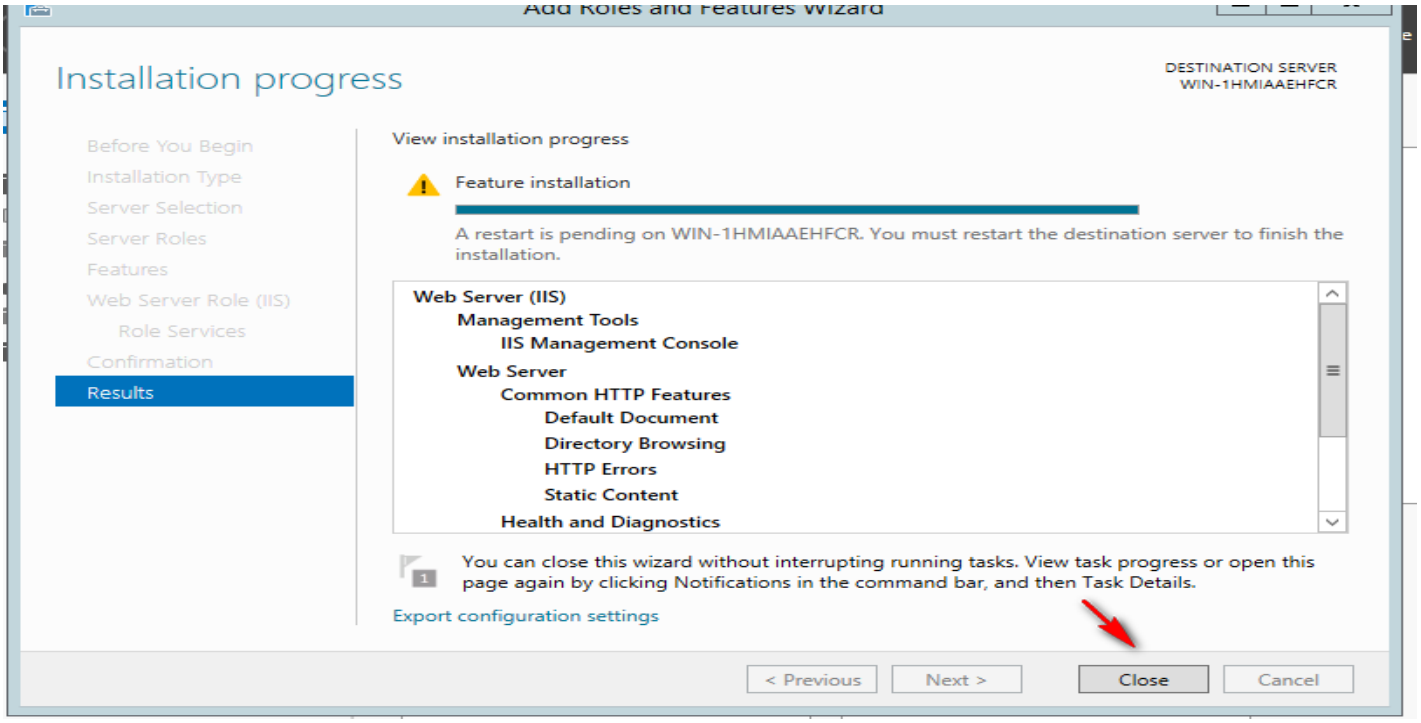
Press Next


Select features
DESTINATION SERVER
WIN-1HMIAAEHFCR
The destination server has a pending restart. We recommend that you restart the destination server before either installing o...
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Web Server Role (IIS)
Role Services
Confirmation
Results
Select one or more features to install on the selected server.
Features
.NET Framework 3.5 Features
.NET Framework 4.5 Features (3 of 7 installed)
Background Intelligent Transfer Service (BITS)
BitLocker Drive Encryption
BitLocker Network Unlock
BranchCache
Client for NFS
Data Center Bridging
Direct Play
Enhanced Storage
Failover Clustering
Group Policy Management (Installed)
IIS Hostable Web Core
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.
< Previous
Next >
Install
Cancel

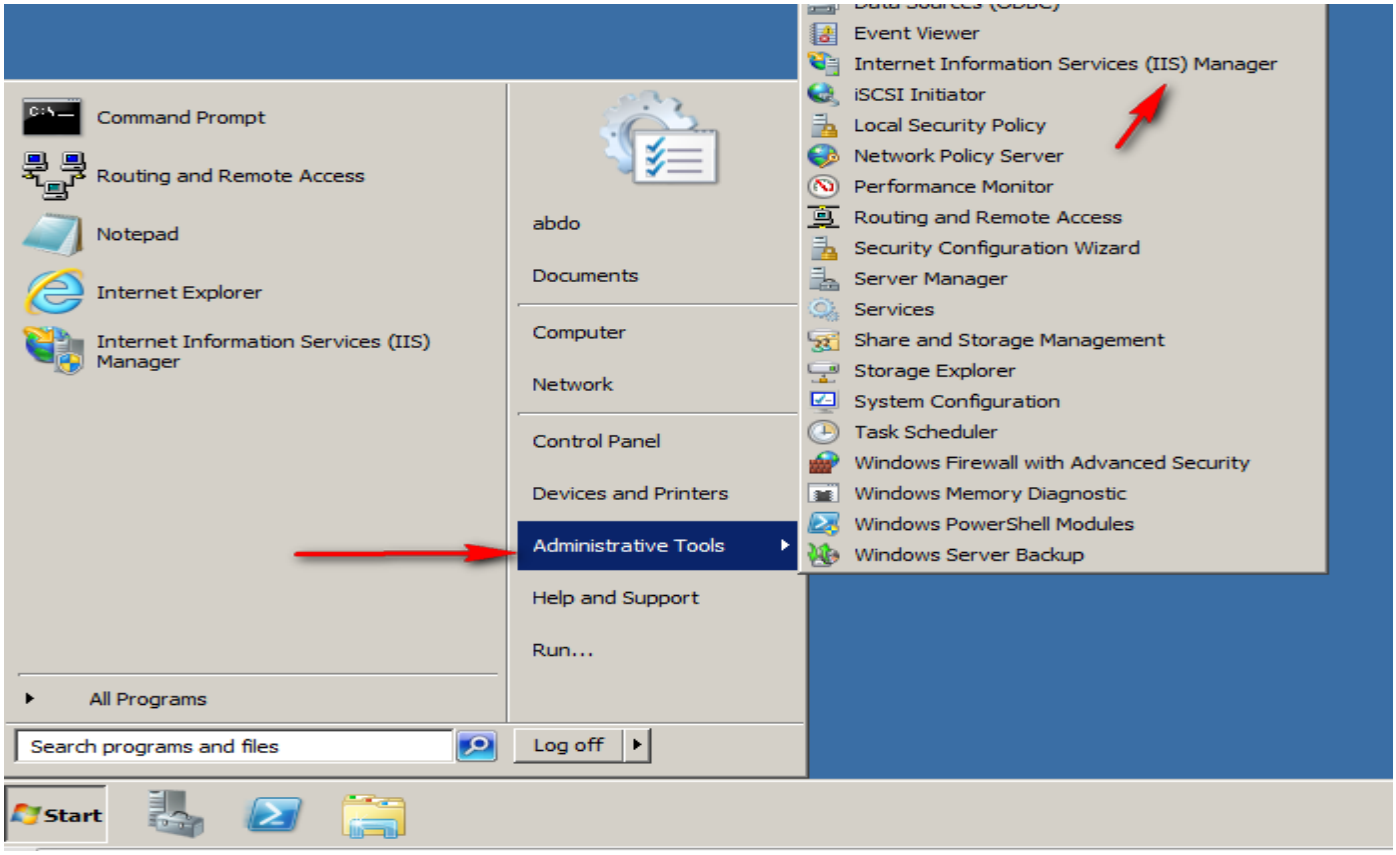

Confirm installation selections
DESTINATION SERVER
WIN-1HMIAAEHFCR
The destination server has a pending restart. We recommend that you restart the destination server before either installing o...
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Web Server Role (IIS)
Role Services
Confirmation
Results
To install the following roles, role services, or features on selected server, click Install.
Restart the destination server automatically if required
Optional features (such as administration tools) might be displayed on this page because they have been selected automatically. If you do not want to install these optional features, click Previous to clear their check boxes.
Web Server (IIS)
Management Tools
IIS Management Console
Web Server
Common HTTP Features
Default Document
Directory Browsing
HTTP Errors
Static Content
Export configuration settings
Specify an alternate source path
< Previous
Next >
Install
Cancel

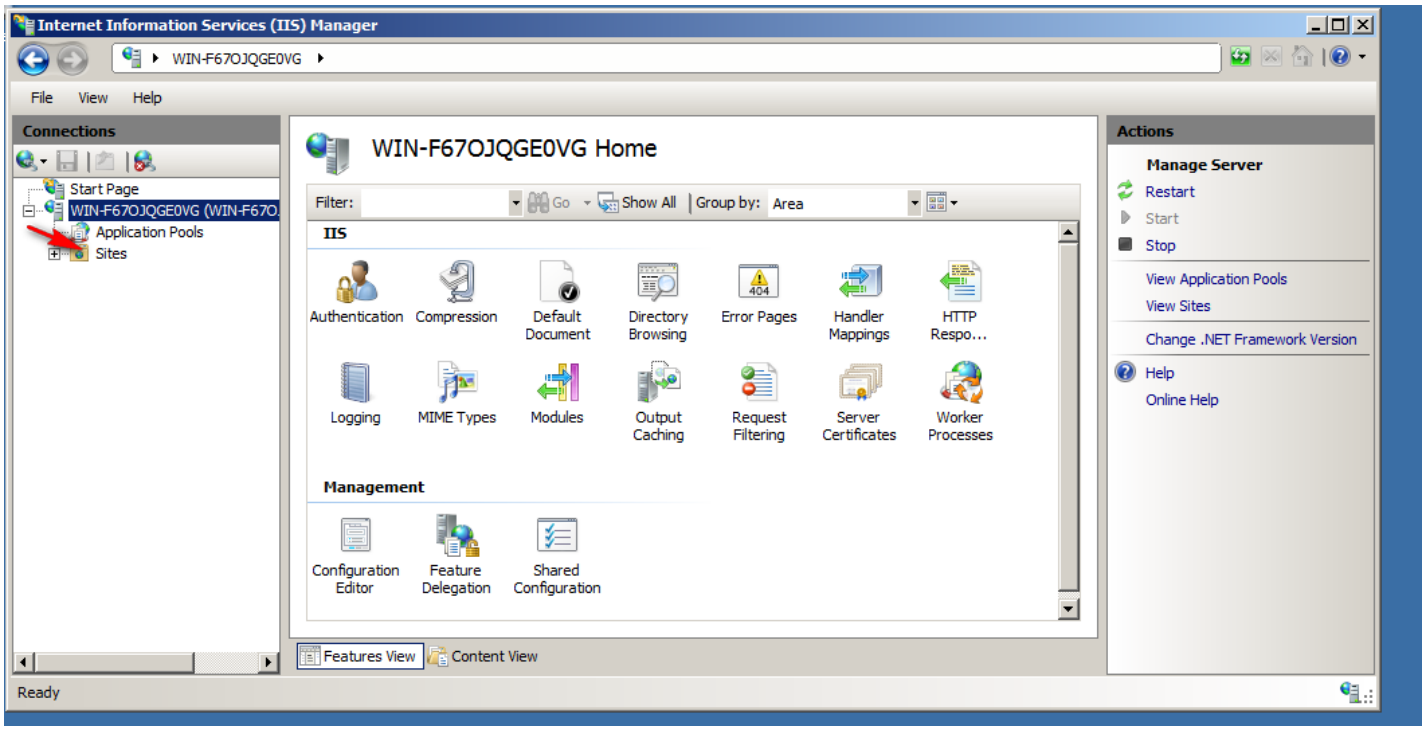
Press close


Installation progress
DESTINATION SERVER
WIN-1HMIAAEHFCR
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Web Server Role (IIS)
Role Services
Confirmation
Results
View installation progress
Feature installation
Installation started on WIN-1HMIAAEHFCR
Web Server (IIS)
Management Tools
IIS Management Console
Web Server
Common HTTP Features
Default Document
Directory Browsing
HTTP Errors
Static Content
Health and Diagnostics
HTTP Logging
You can close this wizard without interrupting running tasks. View task progress or open this page again by clicking Notifications in the command bar, and then Task Details.
Export configuration settings
< Previous
Next >
Close
Cancel


Add Roles and Features Wizard
Installation progress
DESTINATION SERVER
WIN-1HMIAAEHFCR
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Web Server Role (IIS)
Role Services
Confirmation
Results
View installation progress
Feature installation
A restart is pending on WIN-1HMIAAEHFCR. You must restart the destination server to finish the installation.
Web Server (IIS)
Management Tools
IIS Management Console
Web Server
Common HTTP Features
Default Document
Directory Browsing
HTTP Errors
Static Content
Health and Diagnostics
You can close this wizard without interrupting running tasks. View task progress or open this page again by clicking Notifications in the command bar, and then Task Details.
Export configuration settings
< Previous
Next >
Close
Cancel

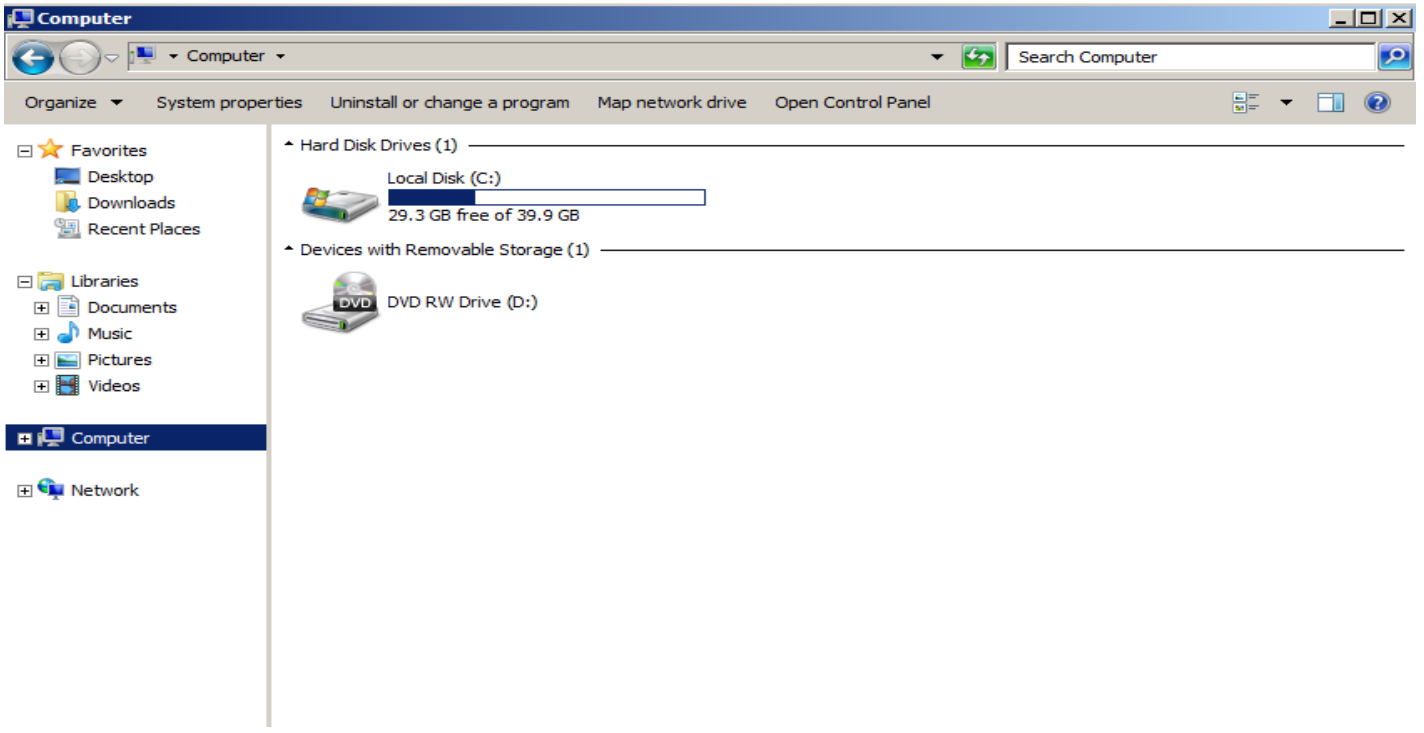
الدخول على الكونسل console الخاص IIS



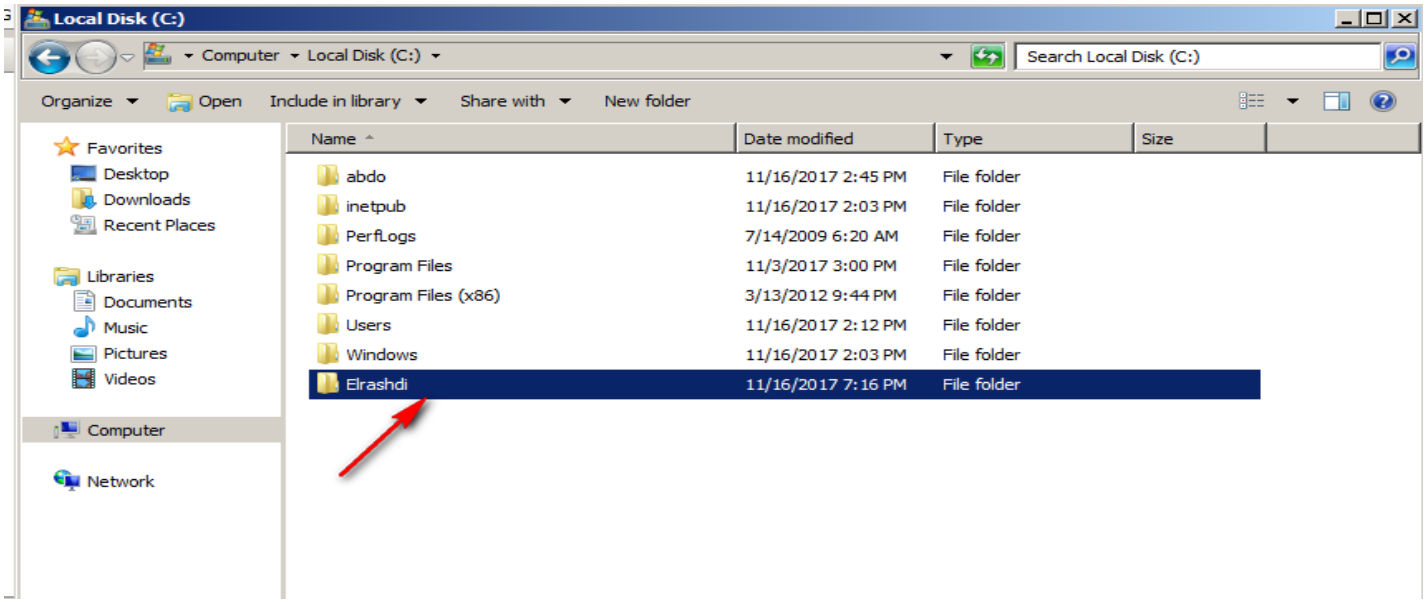


Create internal web site

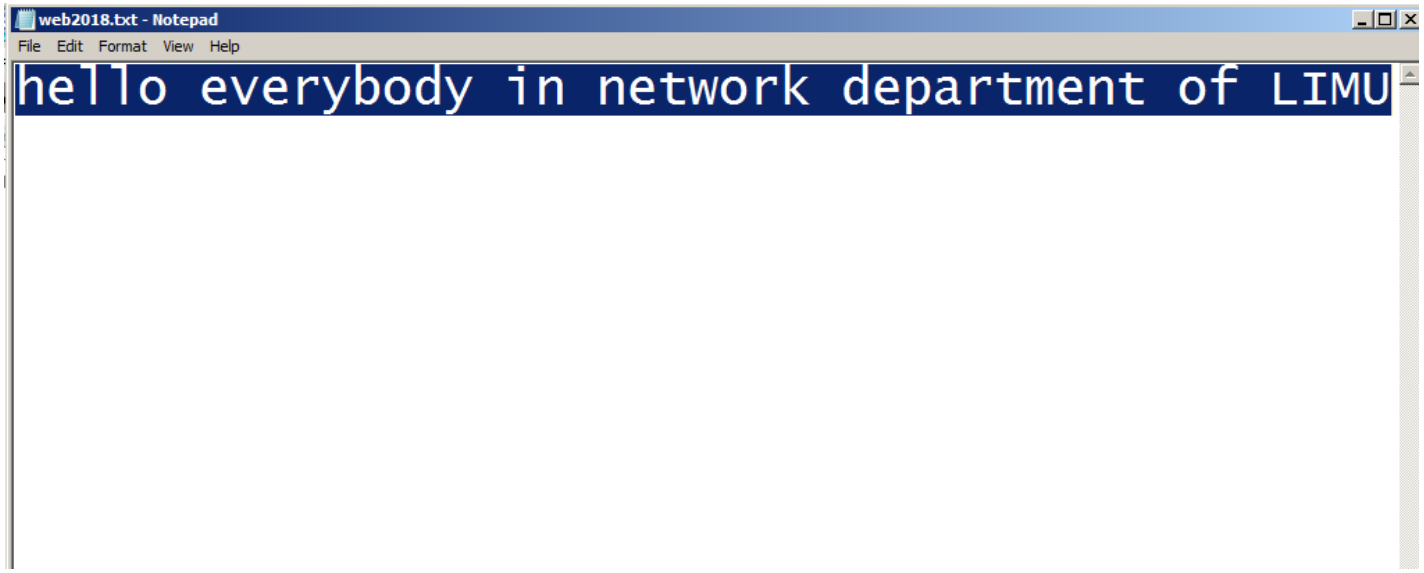
انشاء موقع داخلي مبسط لاختبار عملية Packet filter



Create internal web site

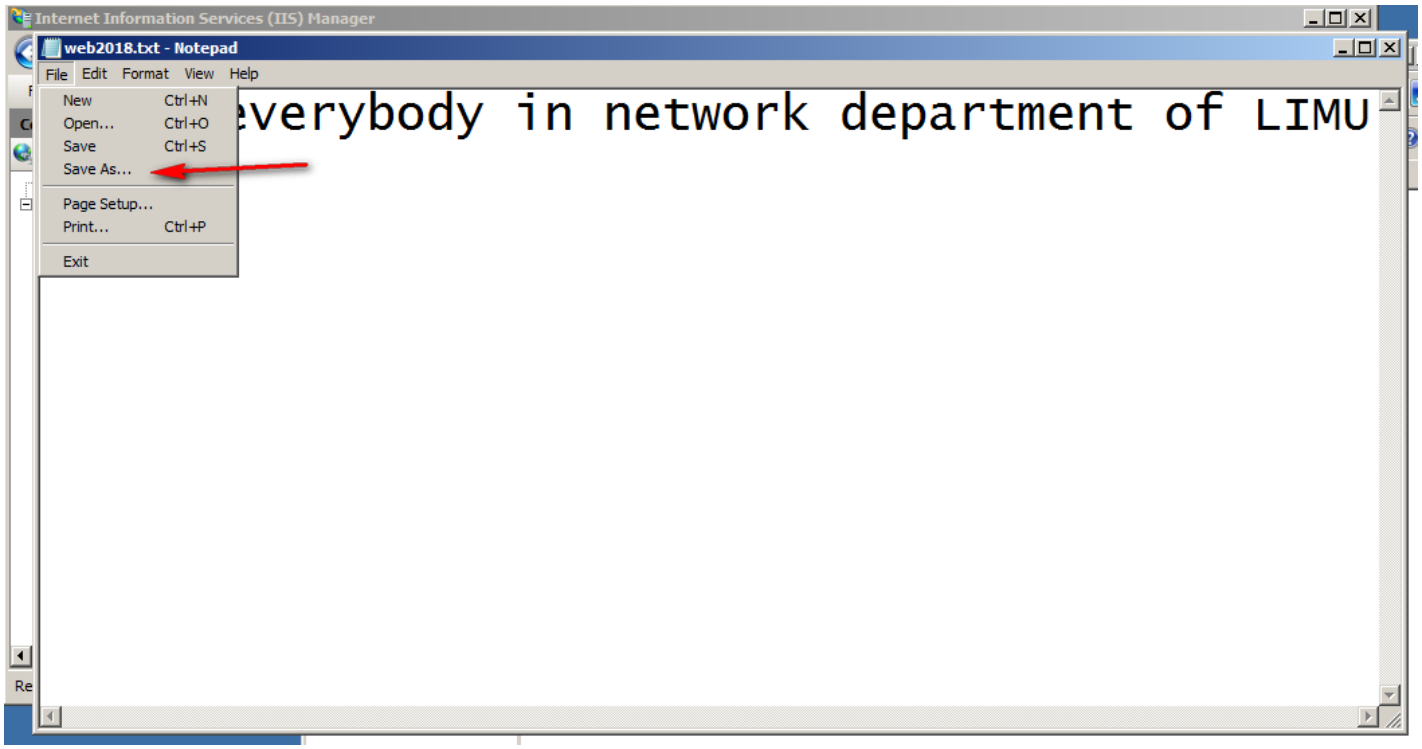


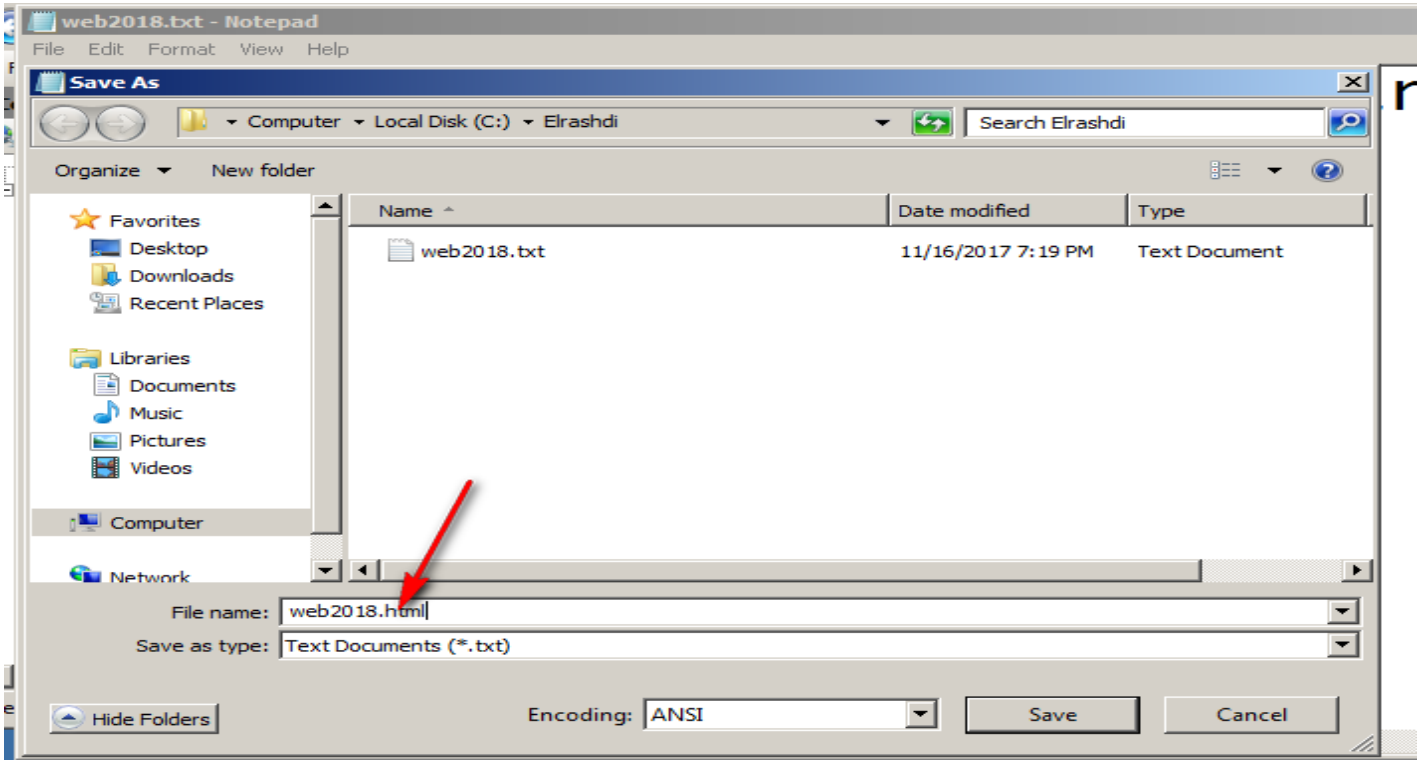
Open txt file then make your internal website for example we will type the following



Save as html file

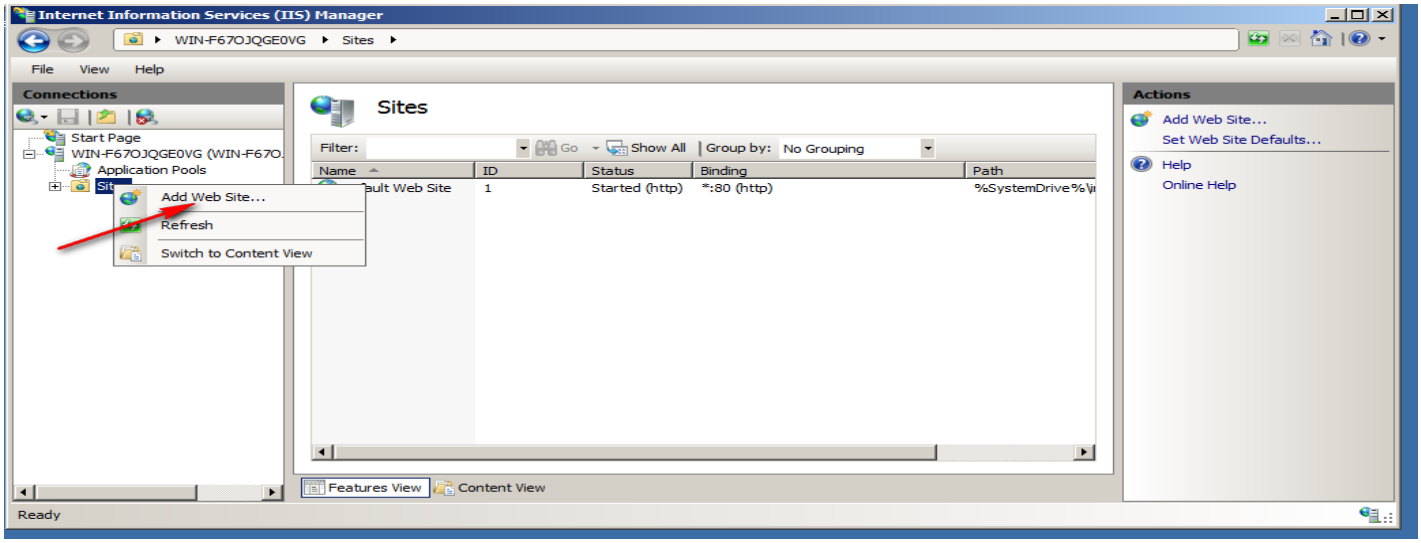
تخزين الملف بامتداد HTML

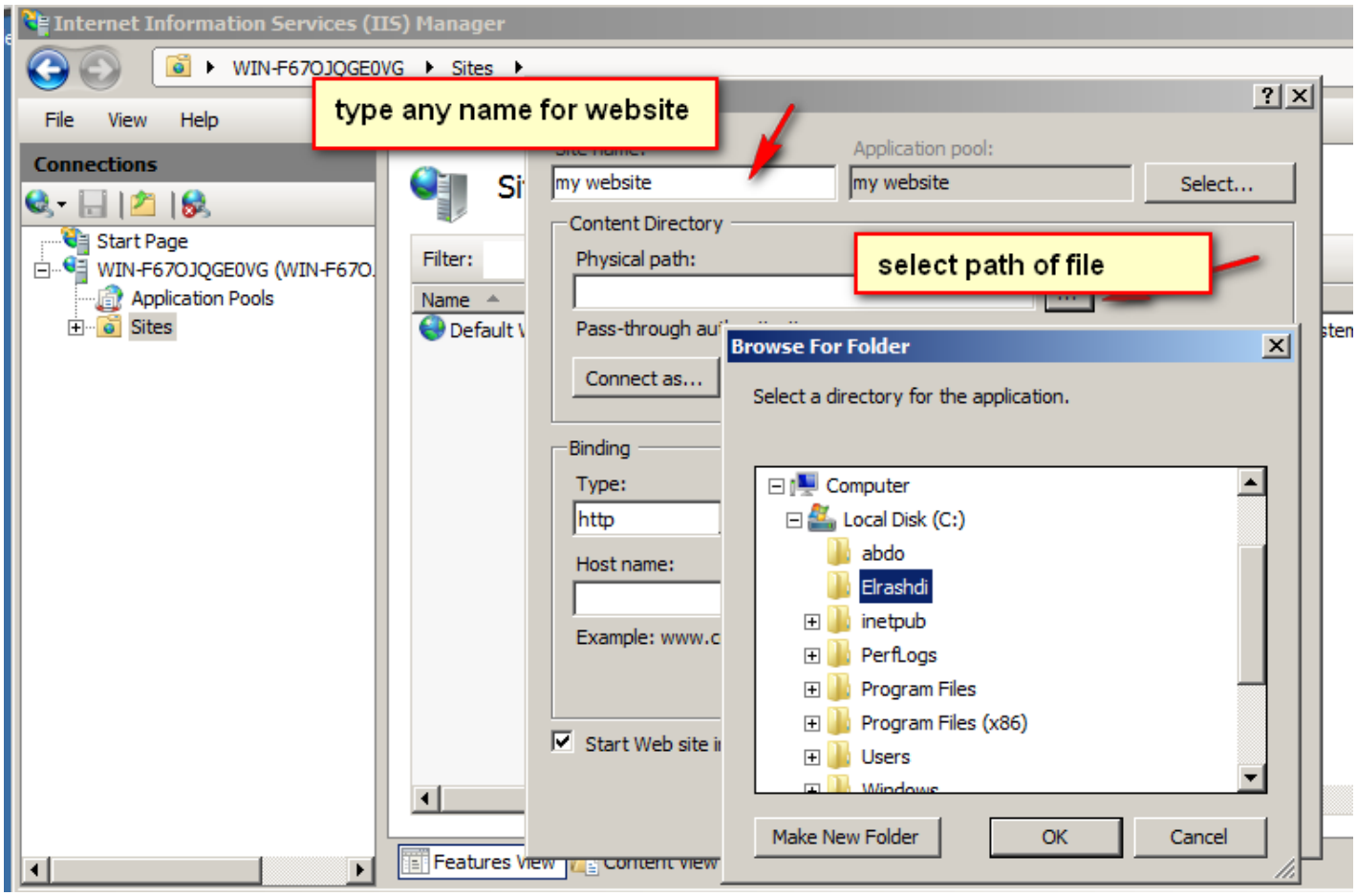

Internet Information Services (IIS) Manager
web2018.txt - Notepad
File Edit Format View Help
New Ctrl+N
Open... Ctrl+O
Save Ctrl+S
Save As...
Page Setup...
Print... Ctrl+P
Exit
everybody in network department of LIMU

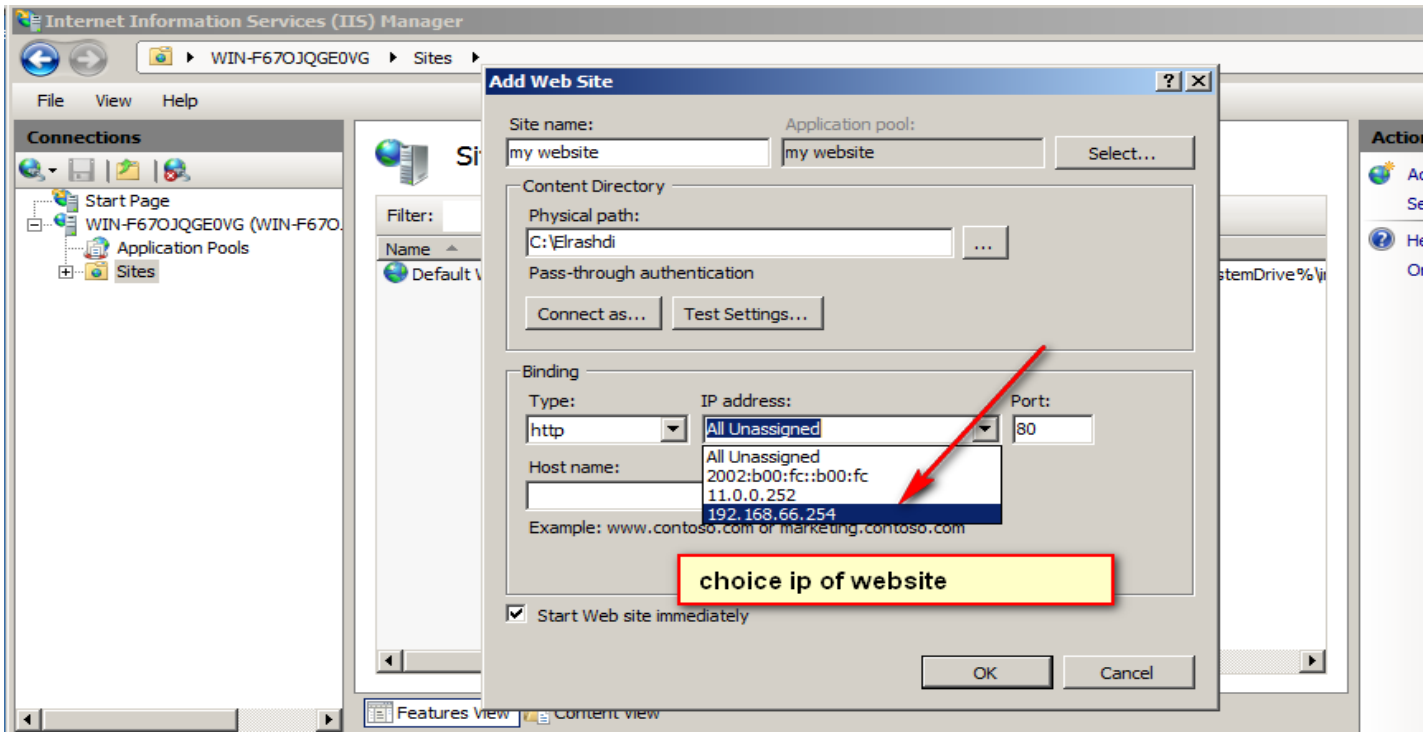

web2018.txt - Notepad
File Edit Format View Help
Save As
Computer Local Disk (C:) Elrashdi
Search Elrashdi
Organize New folder
Favorites
Desktop
Downloads
Recent Places
Libraries
Documents
Music
Pictures
Videos
Computer
Network
Name
Date modified
Type
web2018.txt
11/16/2017 7:19 PM
Text Document
File name: web2018.html
Save as type: Text Documents (*.txt)
Hide Folders
Encoding: ANSI
Save
Cancel

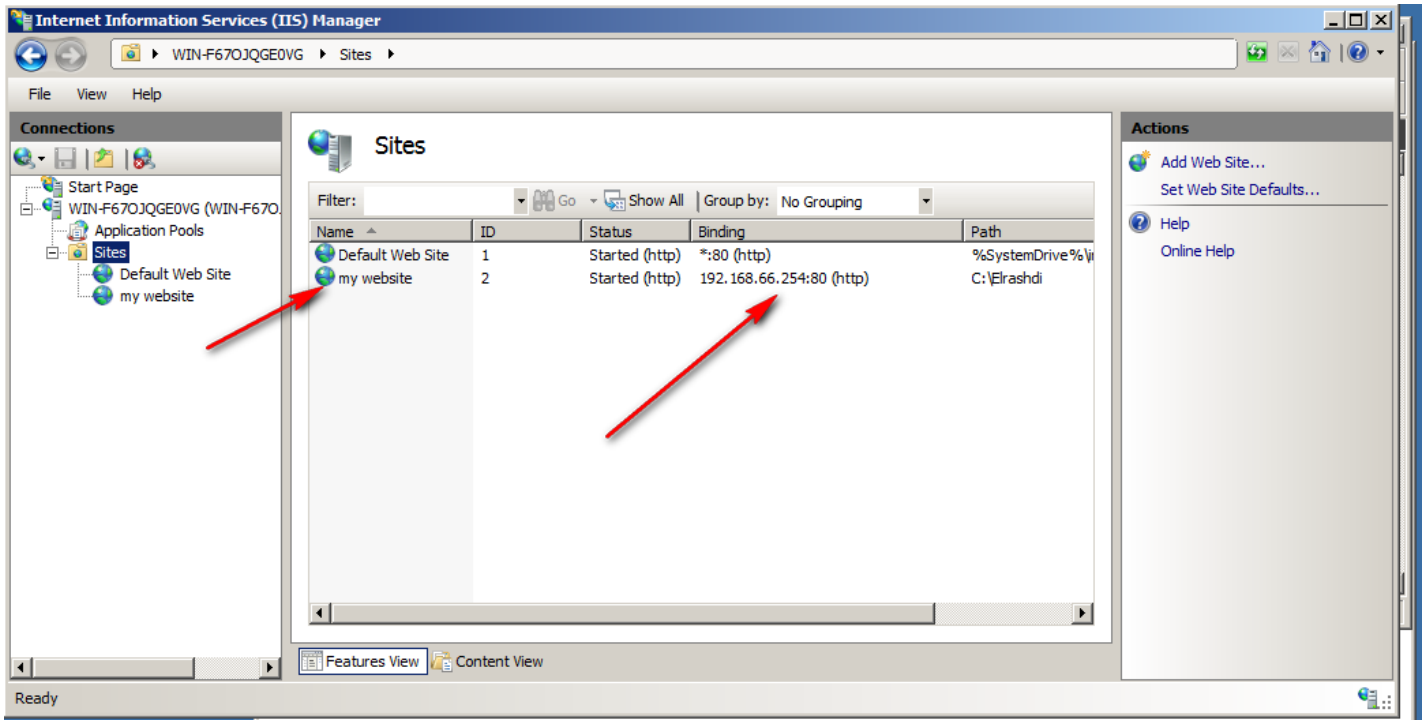
Add web site

الاشارة الي الموقع الداخلي الذي تم انشائه

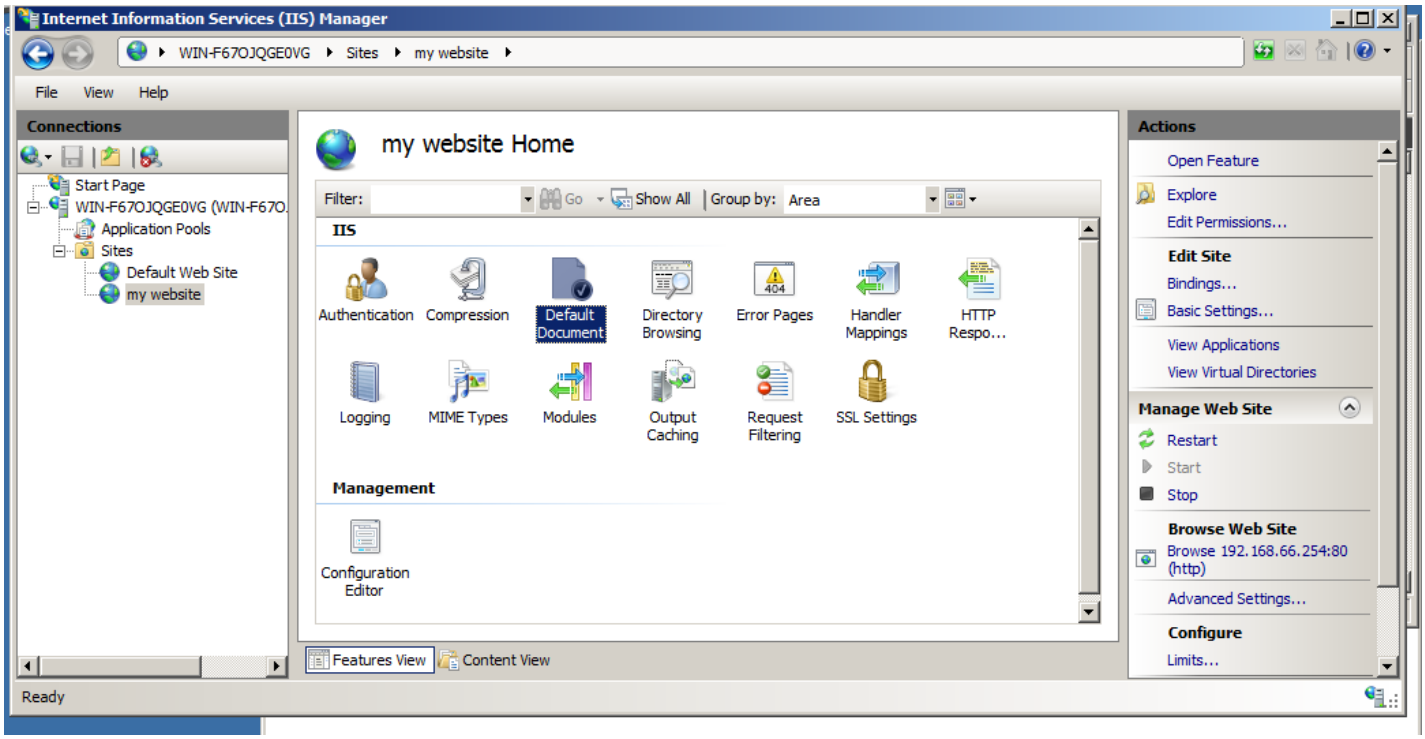




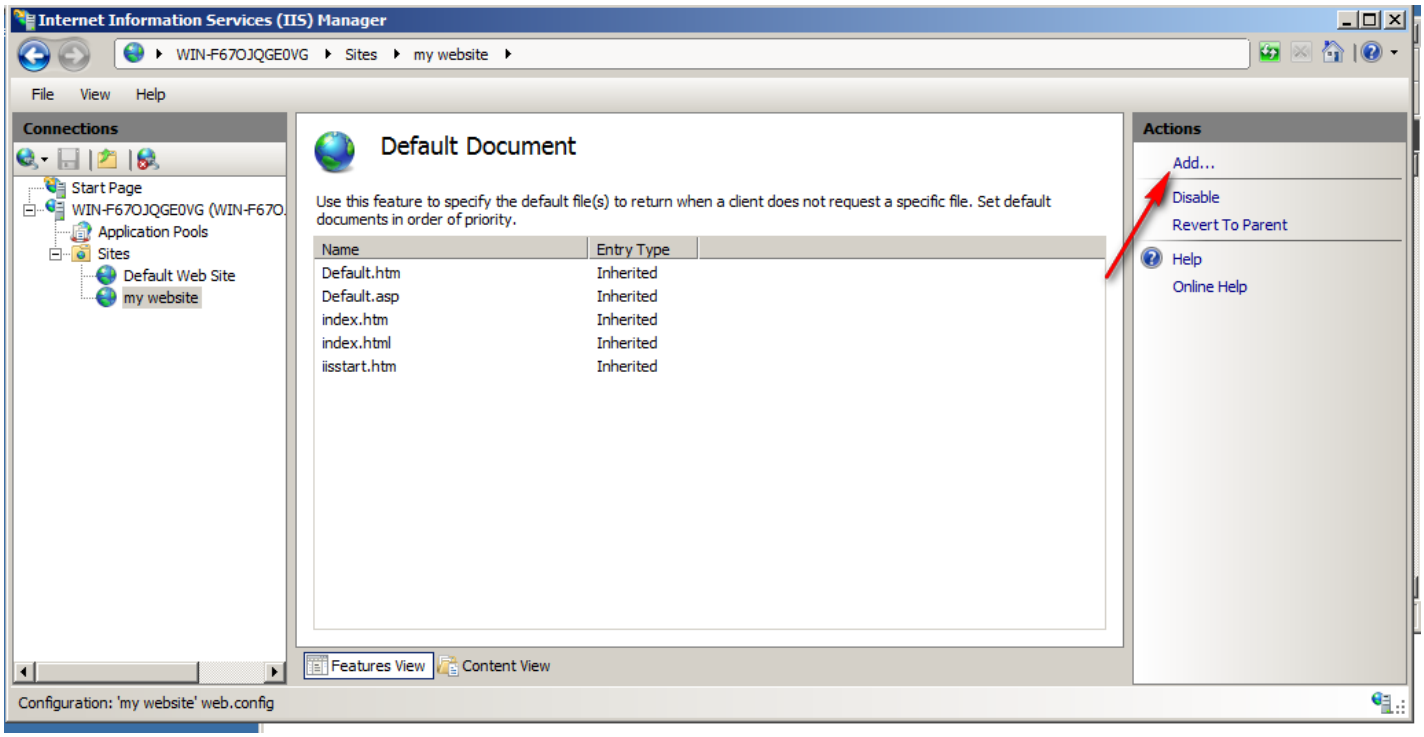




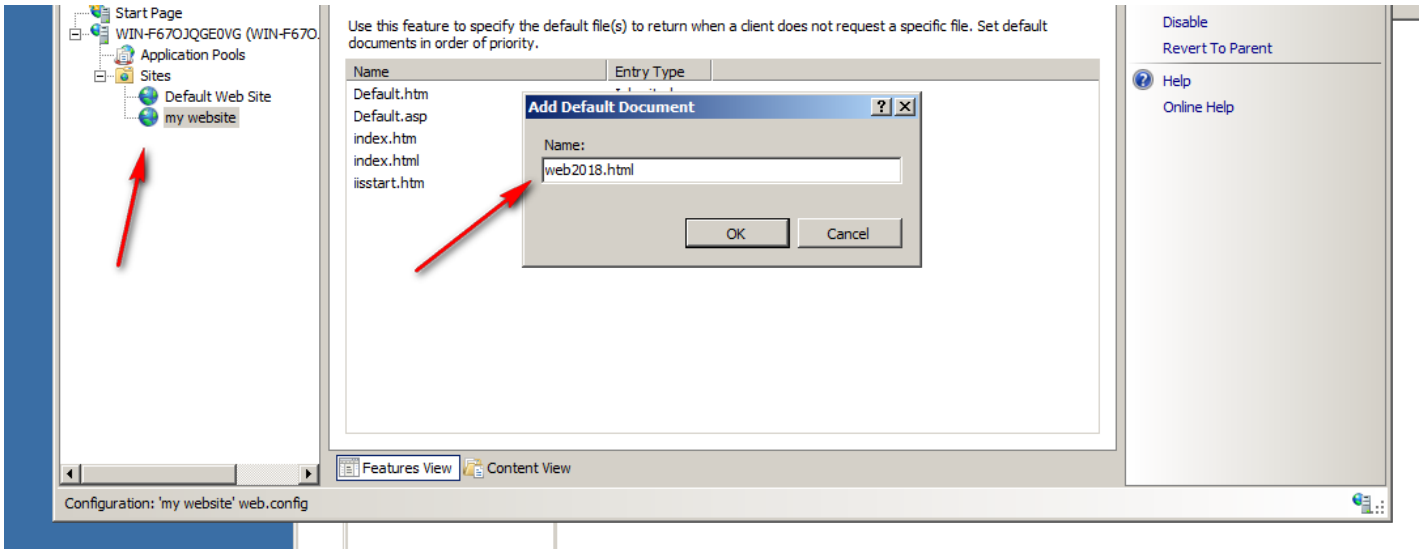
Press on default document



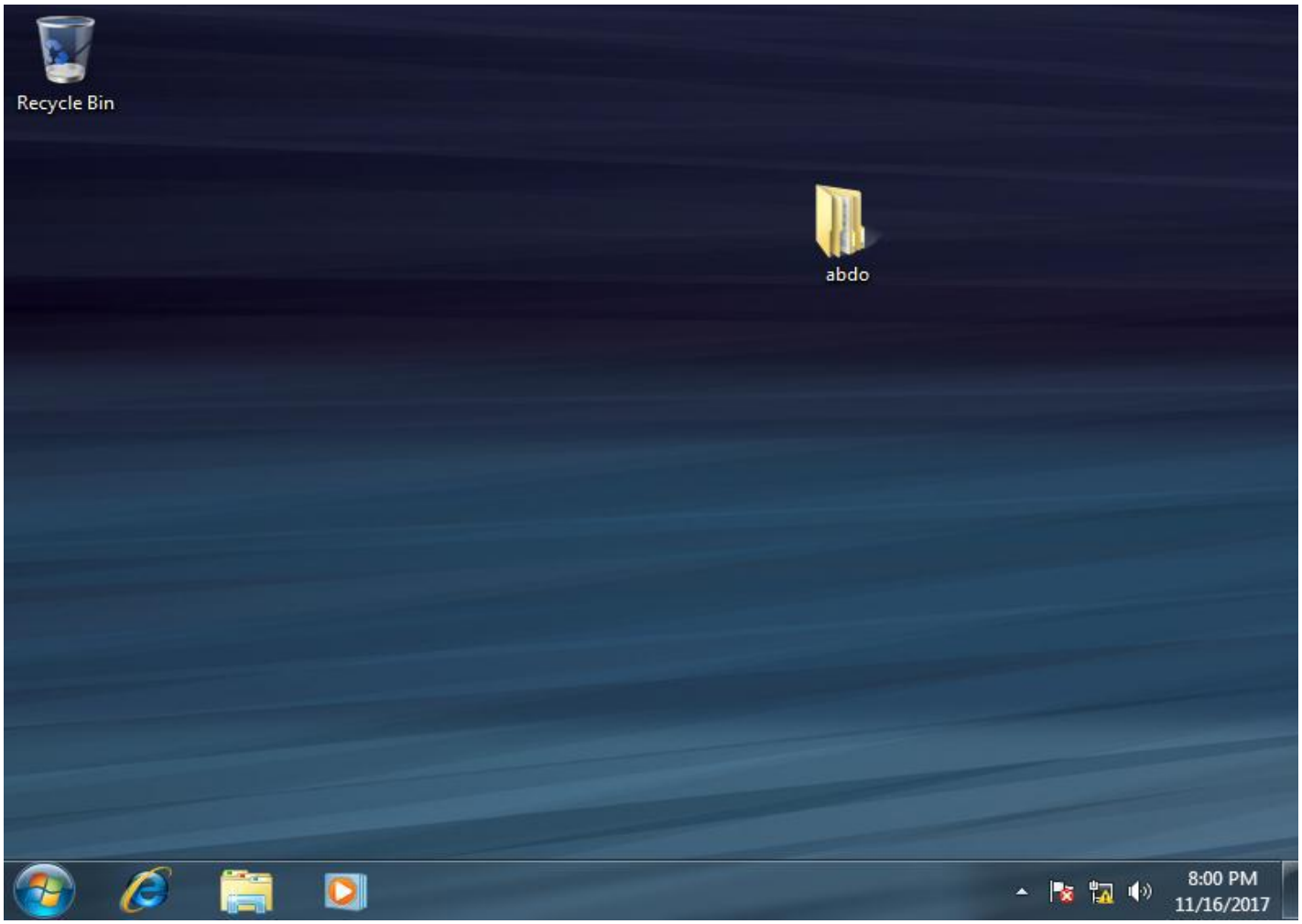
Press Add



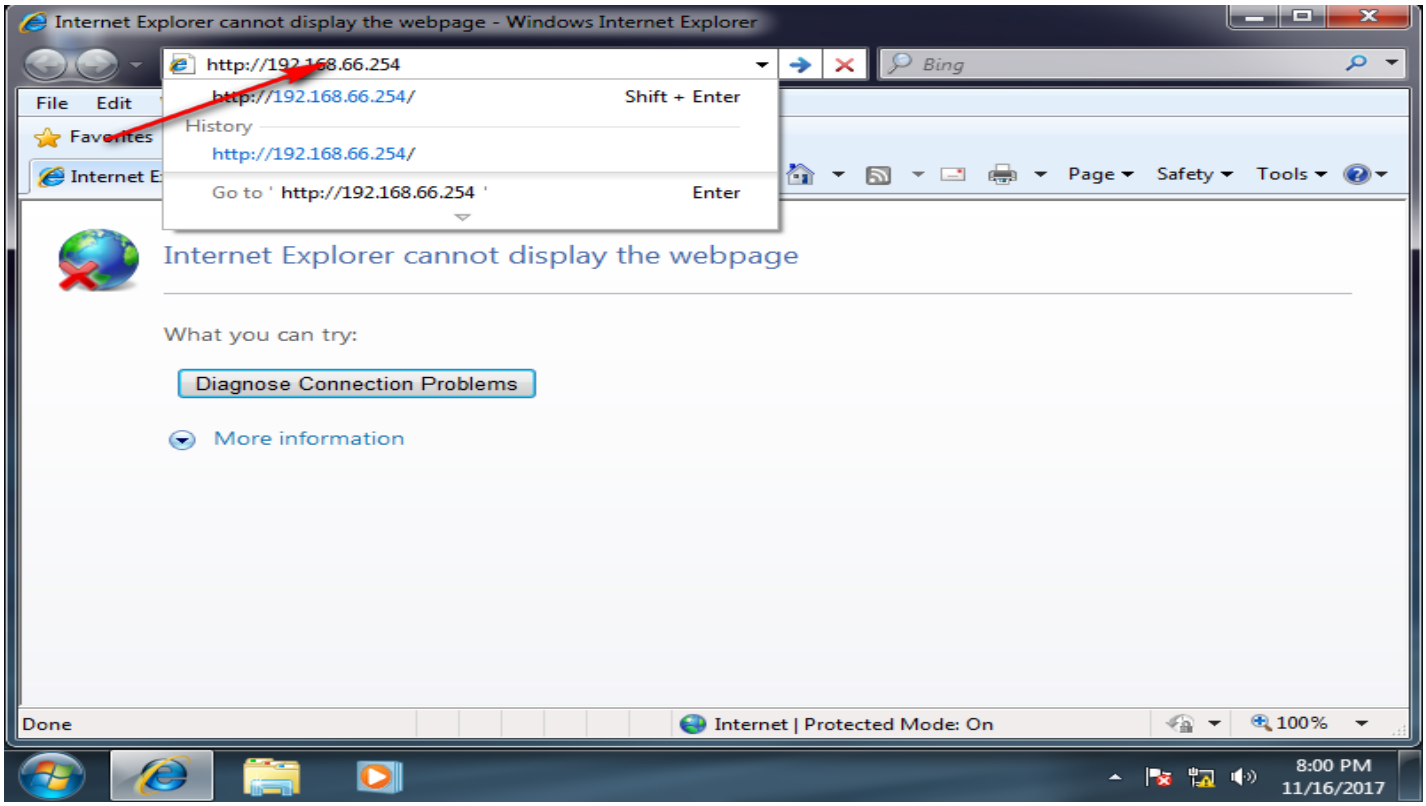
Choice name of HTML file



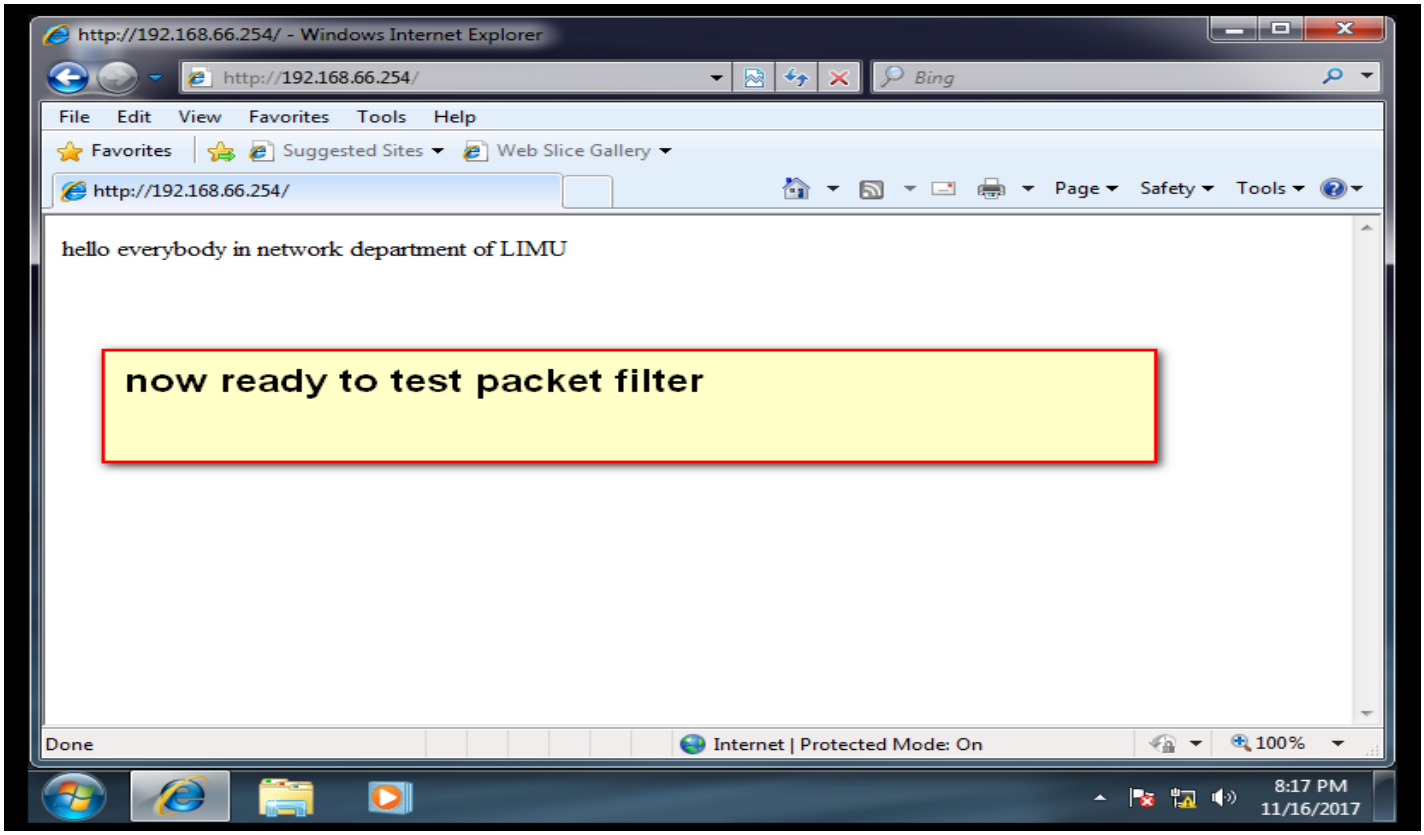
Enter to internal web site from windows seven



Type lp of internal web site

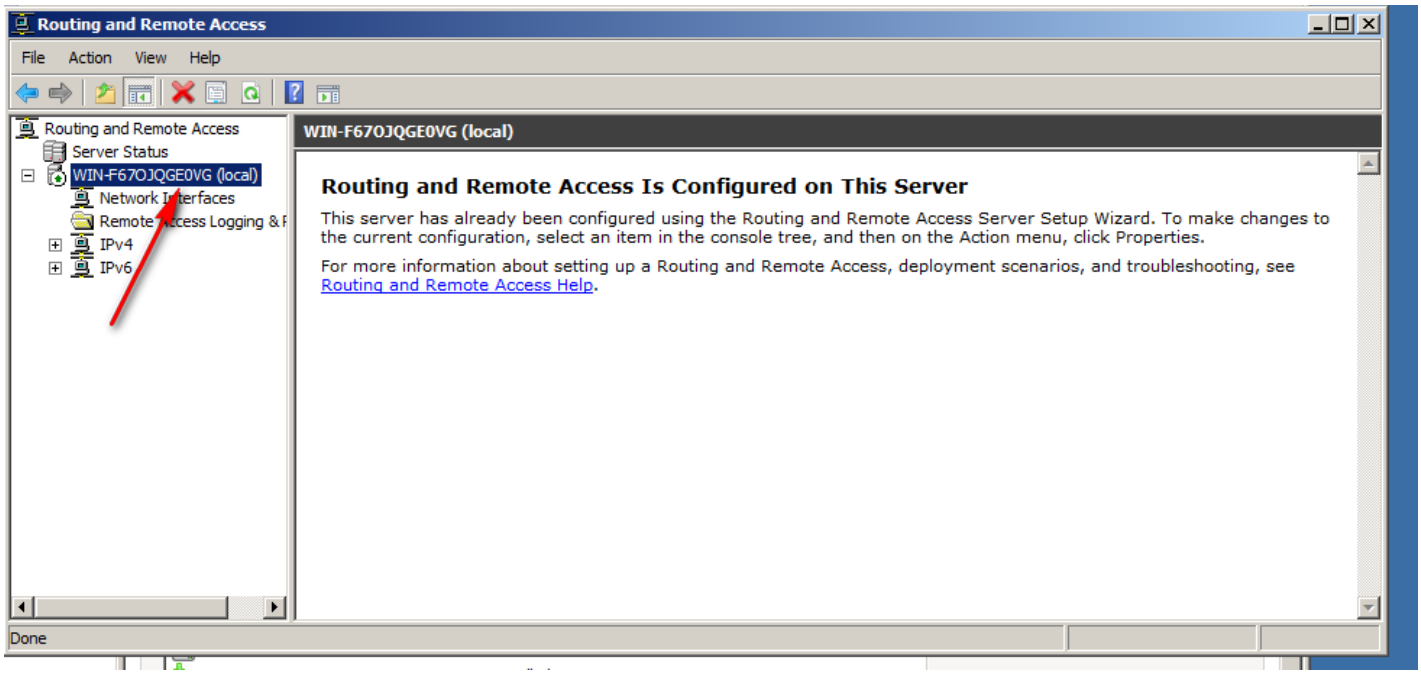


Enter to internal web site



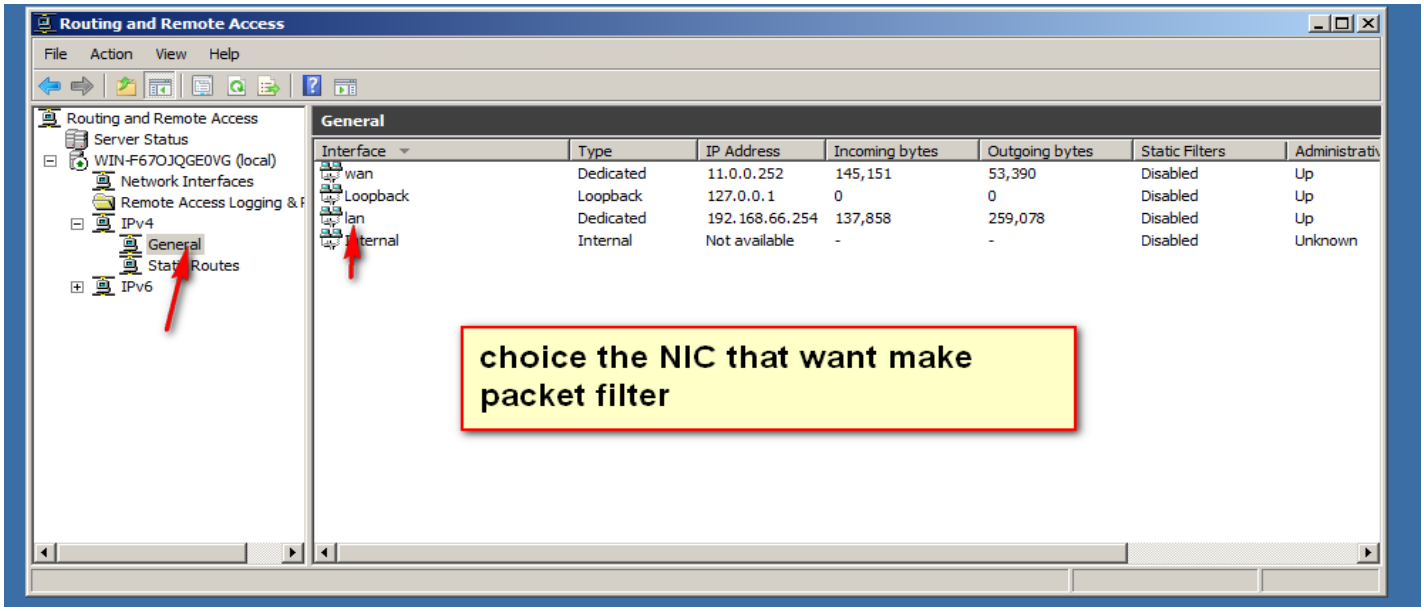
Now start packet filter open routing and remote access

الان بعد اكمال عملية فتح الموقع الداخلي بتم تفعيل عملية packet filter



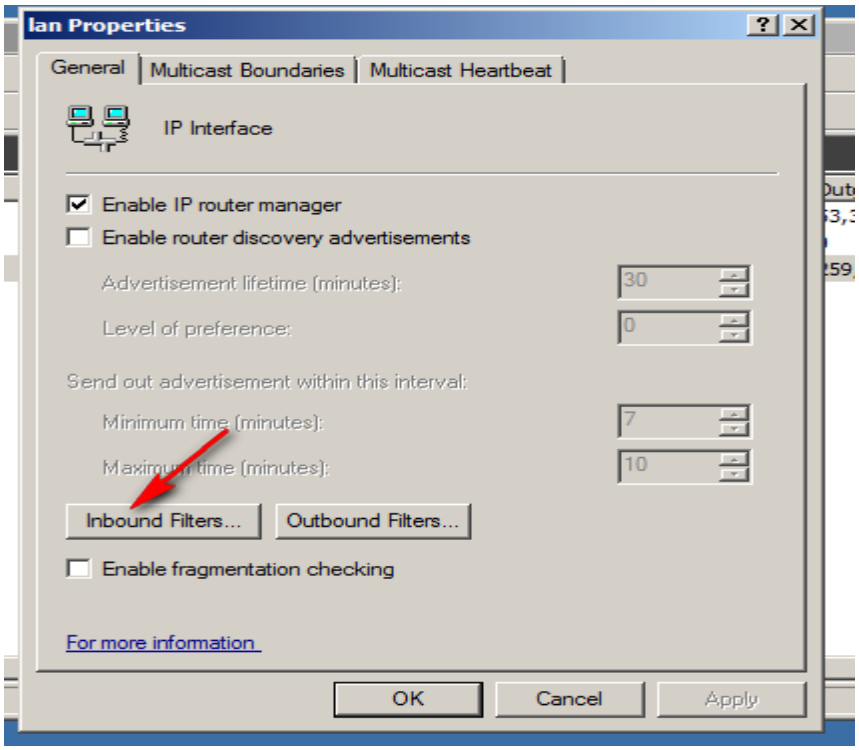
Choice the NIC that want make the filter on it

اختيار كرت الشبكة المراد عمل تحكم عليه

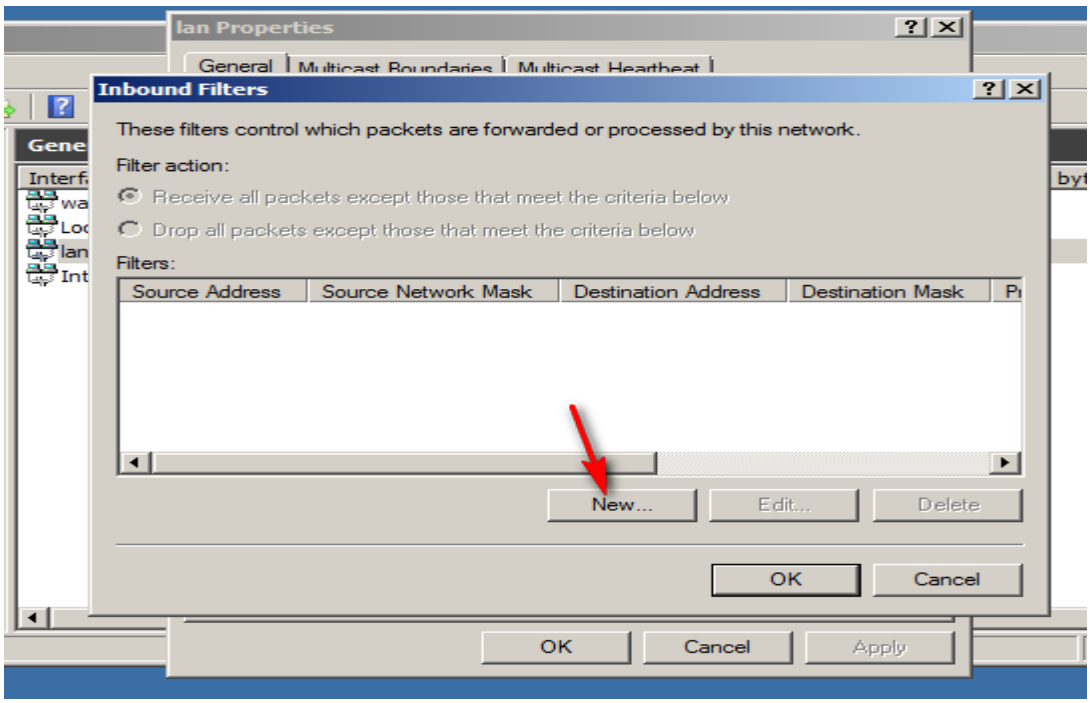


Select inbound filters

تحديد ما اذا كانت البيانات داخله او خارجه من الخادم في هذه التجرب سوف نختبر البيانات الداخله الي الخادم server

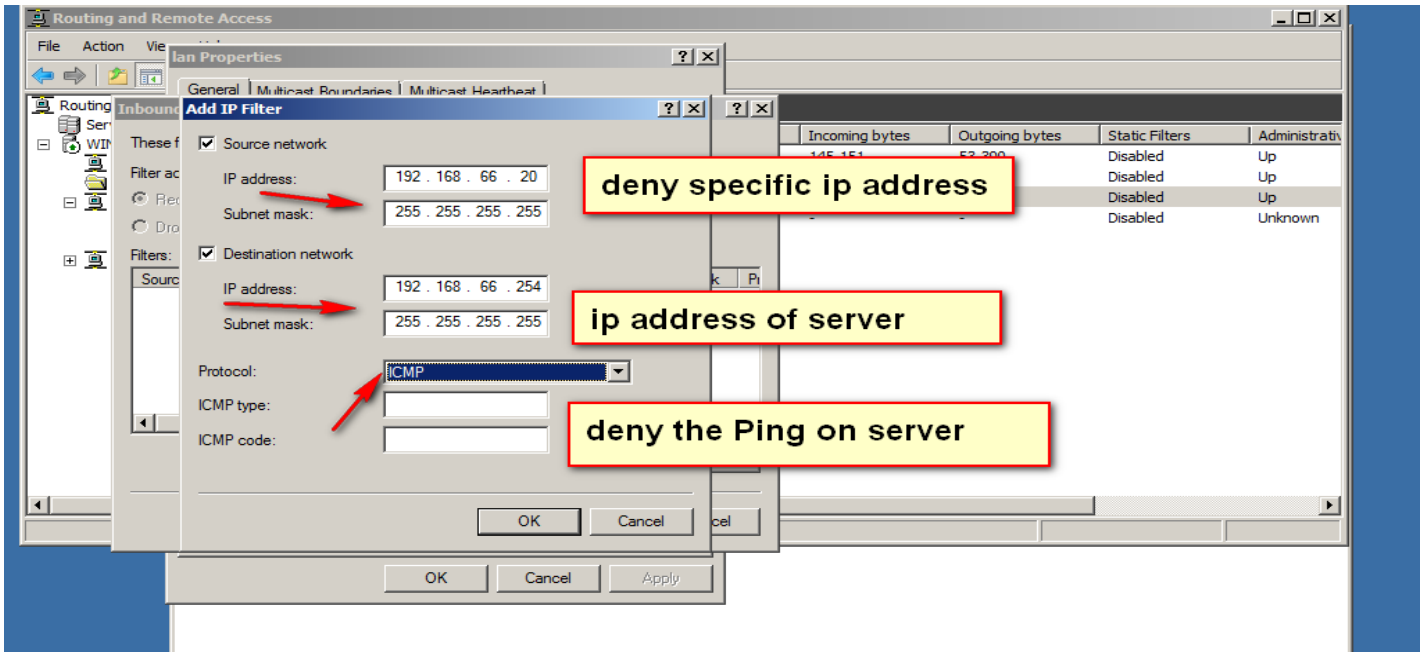


Select new



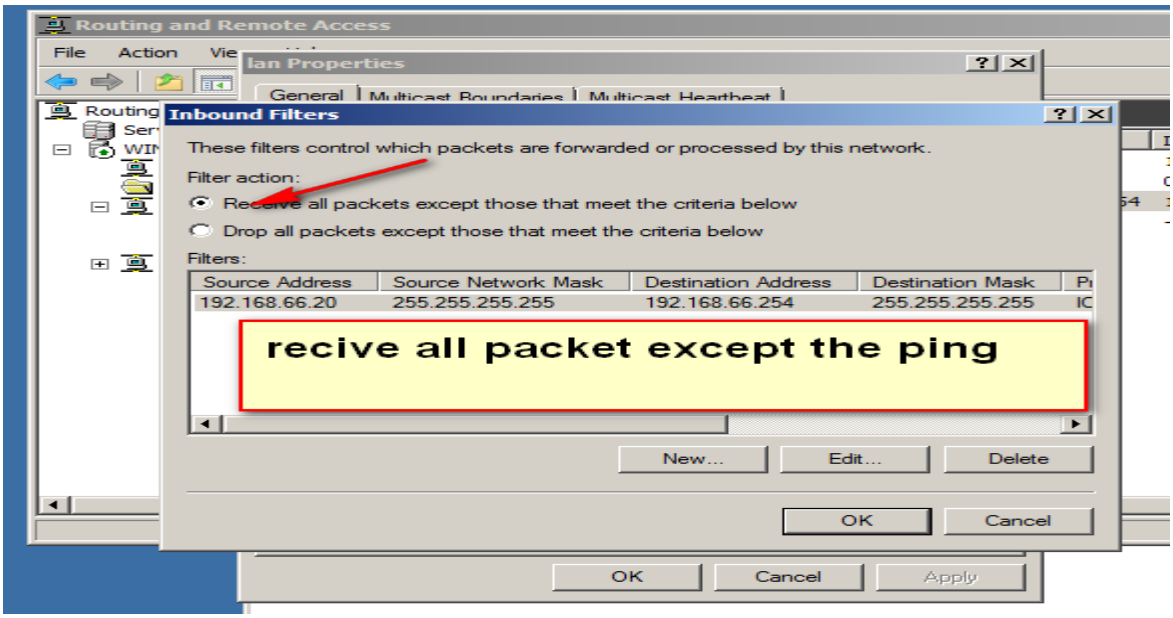
Now deny specific lp addess

تحديد عنوان معين IP address يتم منعه من عمل ping لل server عن طريق برتوكول ICMP

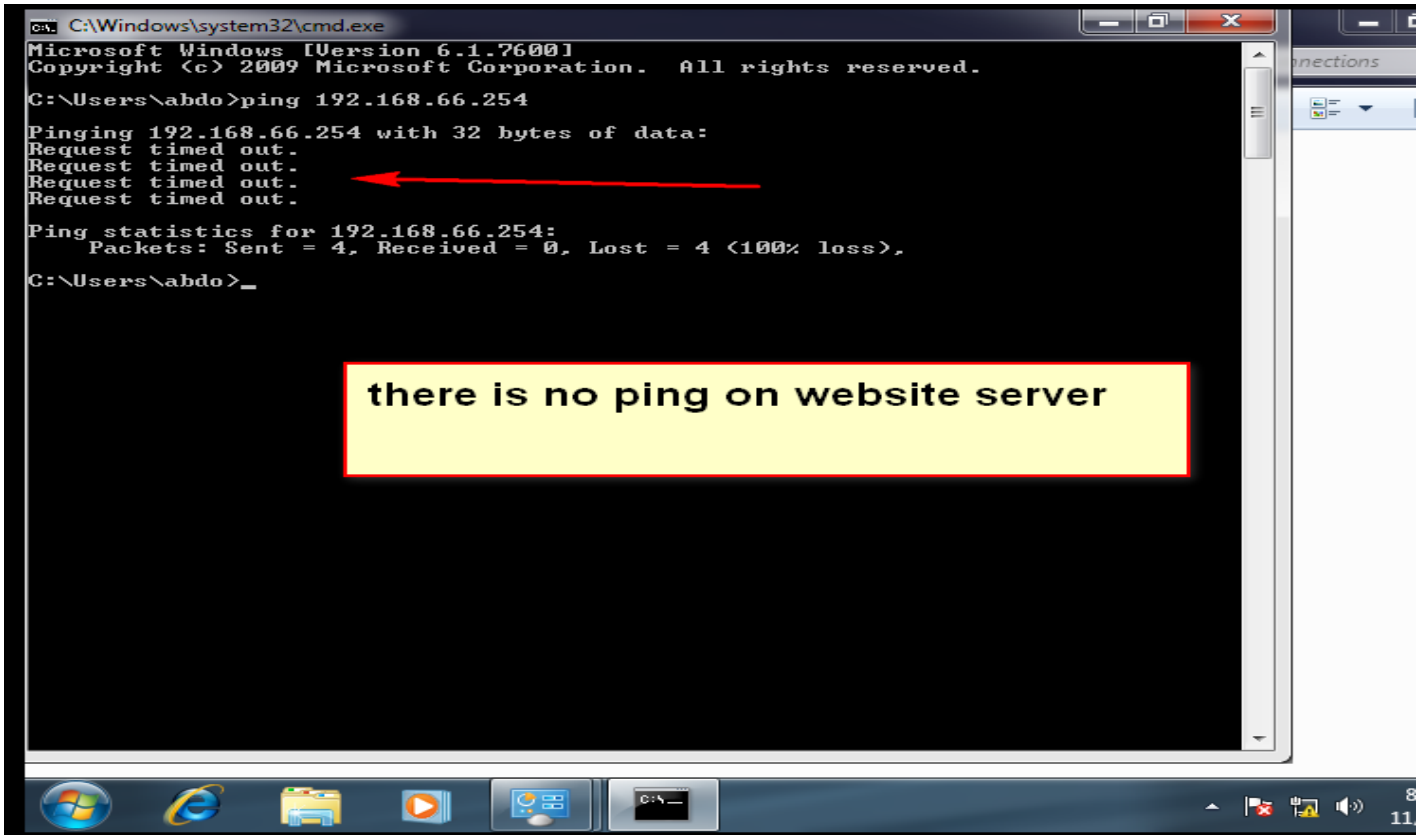


Two options first on received all packet except this rule second drop all packet except this rule

اول اختيار معنها استقبال جميع البيانات ماعدا العنوان الذي تم تحديده أي بمعنى اخر استقبال جميع البيانات ما عدا عمل ping لل server عن طريق برتوكول ICMP



وللتاكد سوف نقوم بعمل ping علي الخادم server



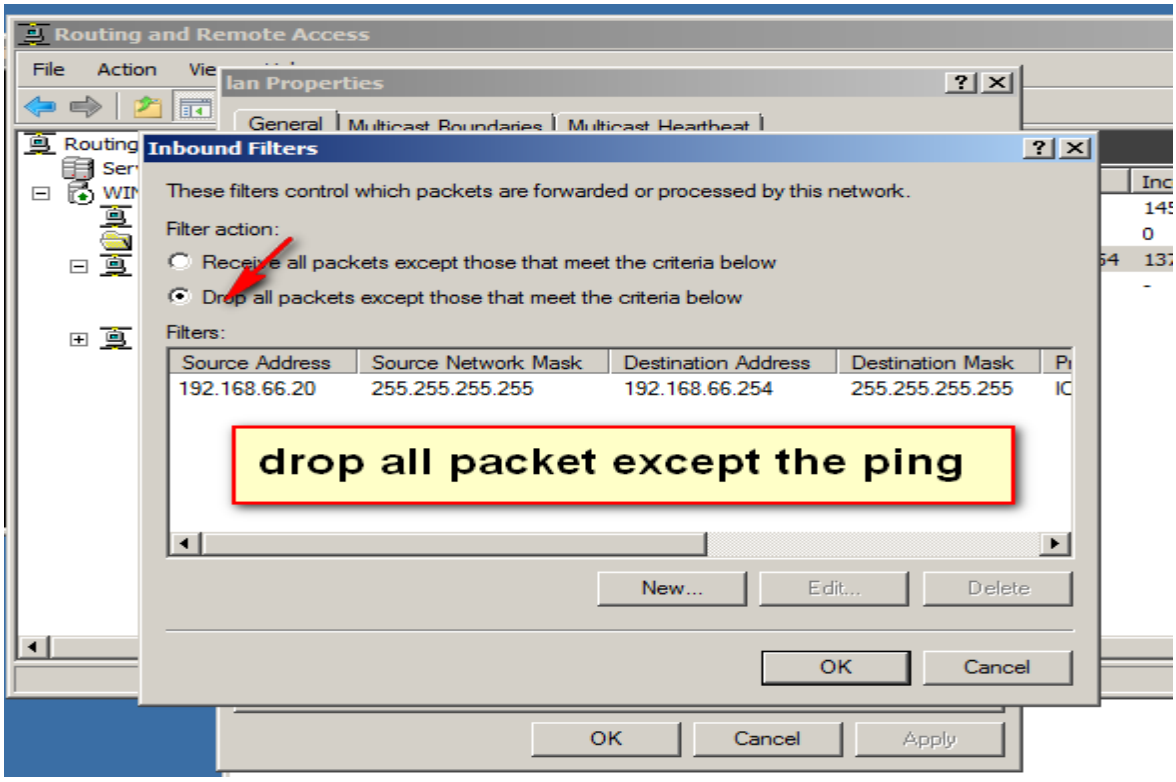
While I can open my website

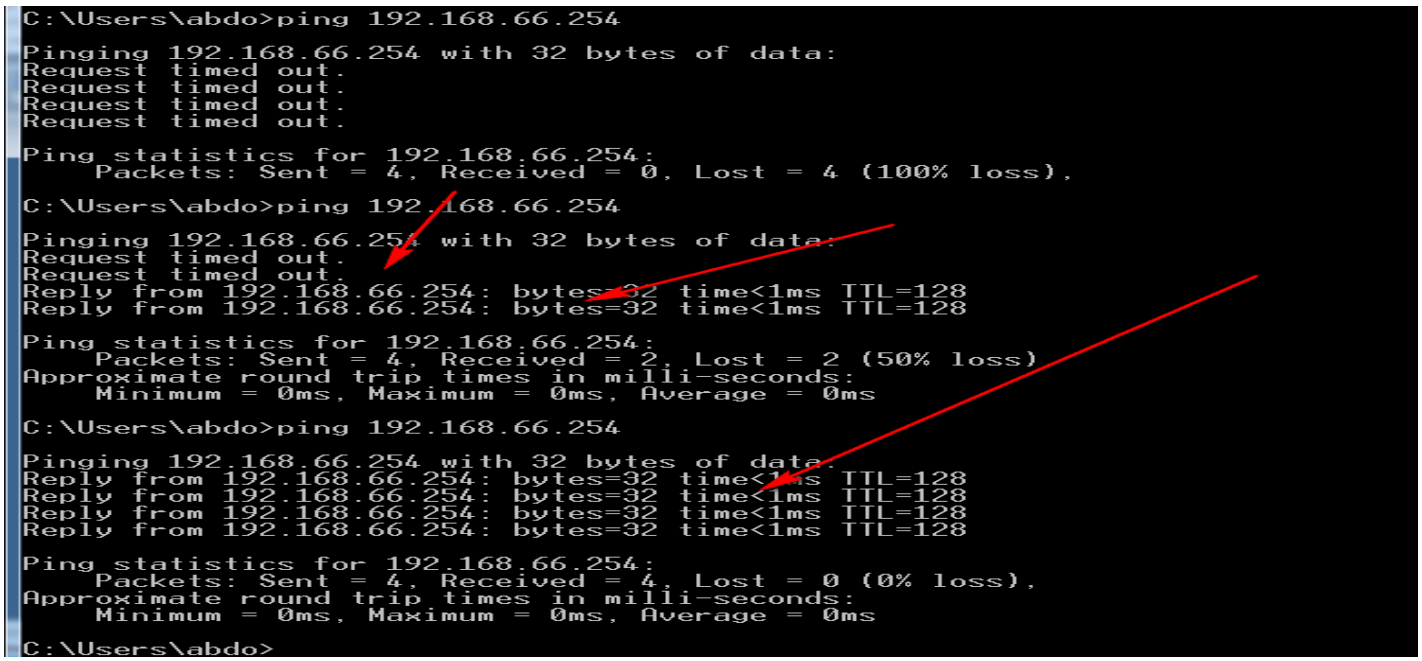
بينما باقي البيانات تمر بدون مشاكل على server على سبيل المثال تصفح الموقع الداخلي كما في الشكل التالي

Now will choice the second option

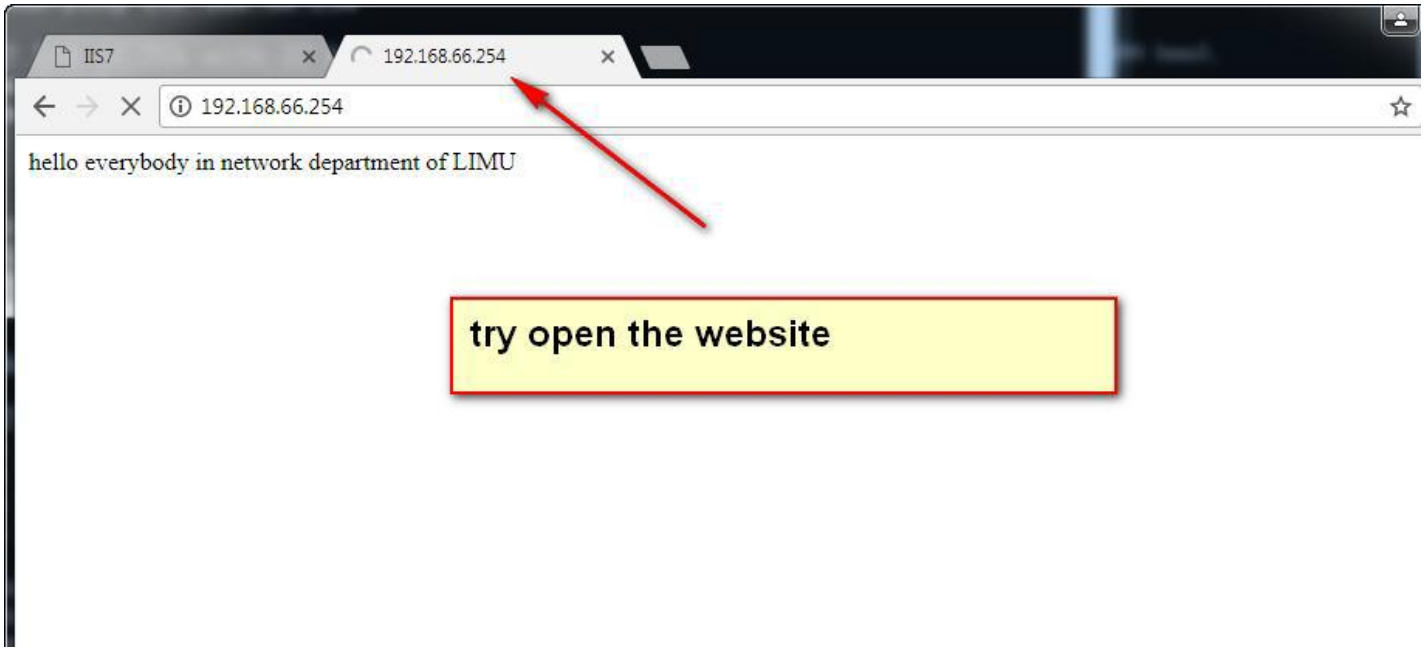
اما الاختيار الثاني بالعكس جميع البيانات تمنع الي عملية Ping عمل على السيرفير server

Now from specific lp address try to enter to web site but can't

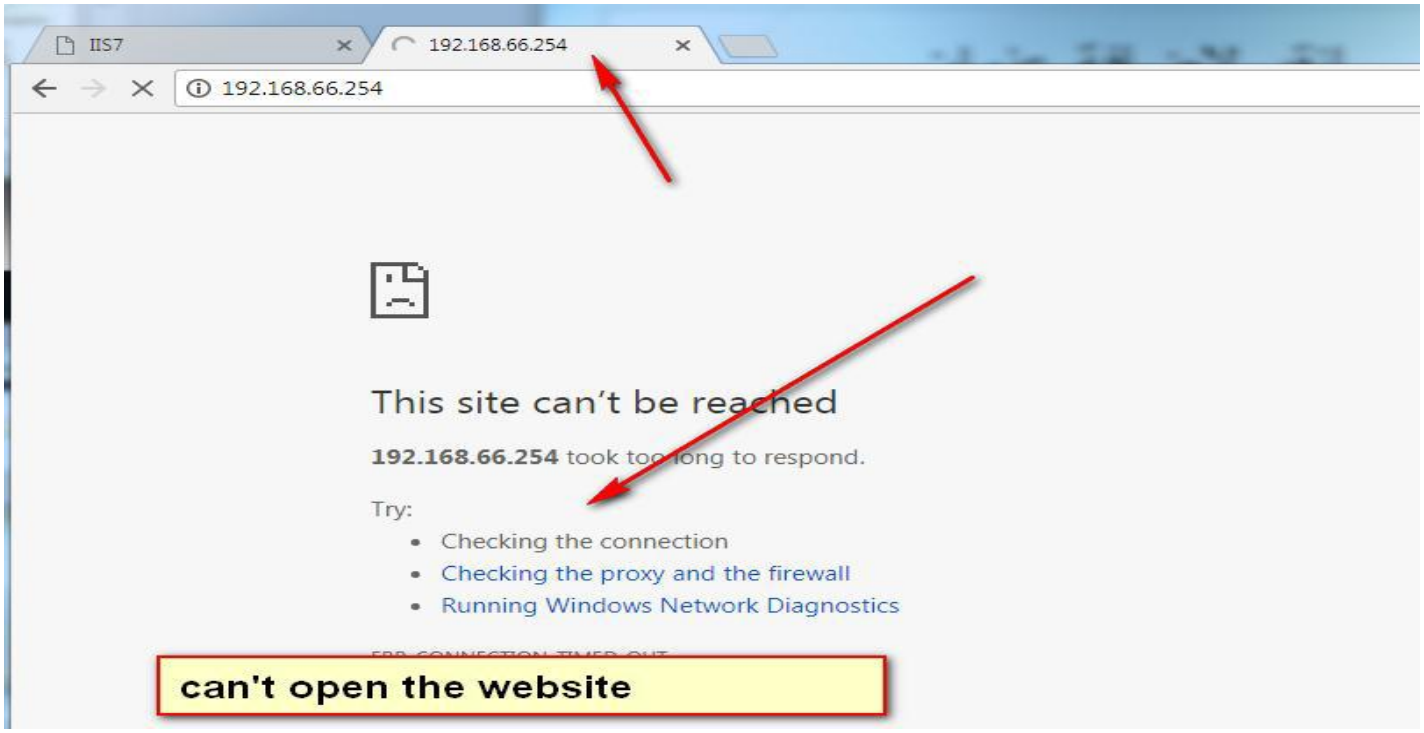




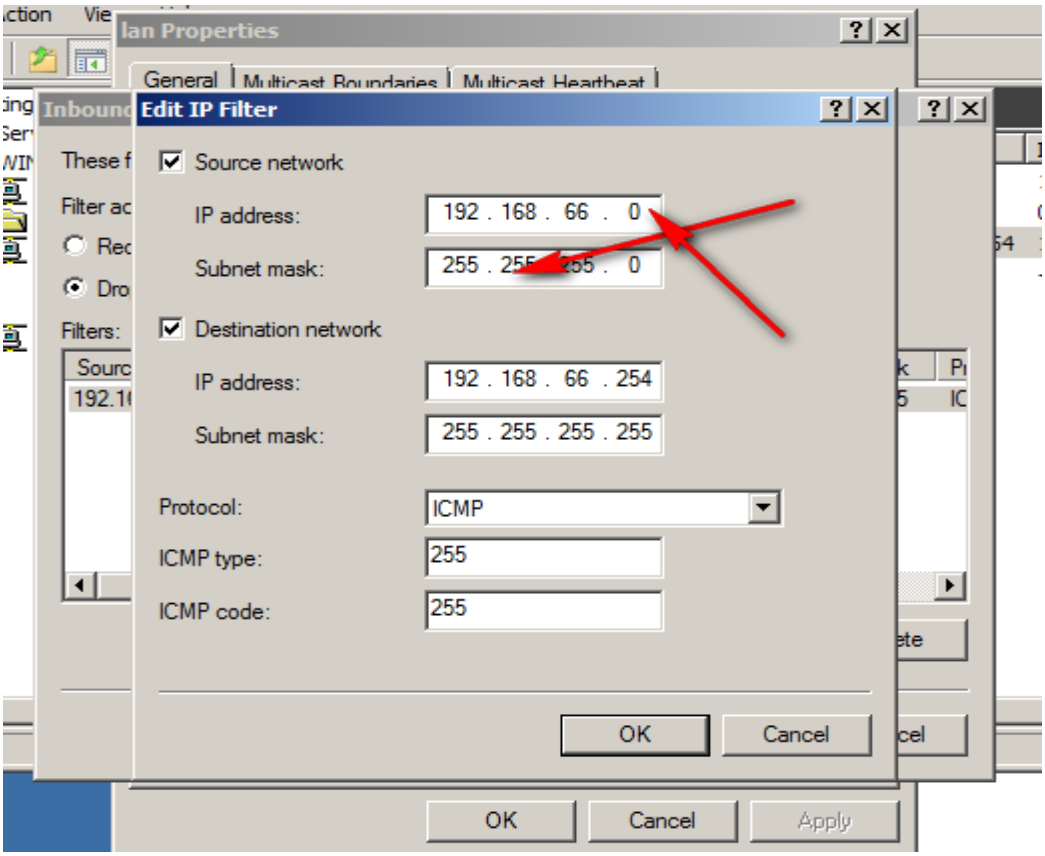
While I can't open my website



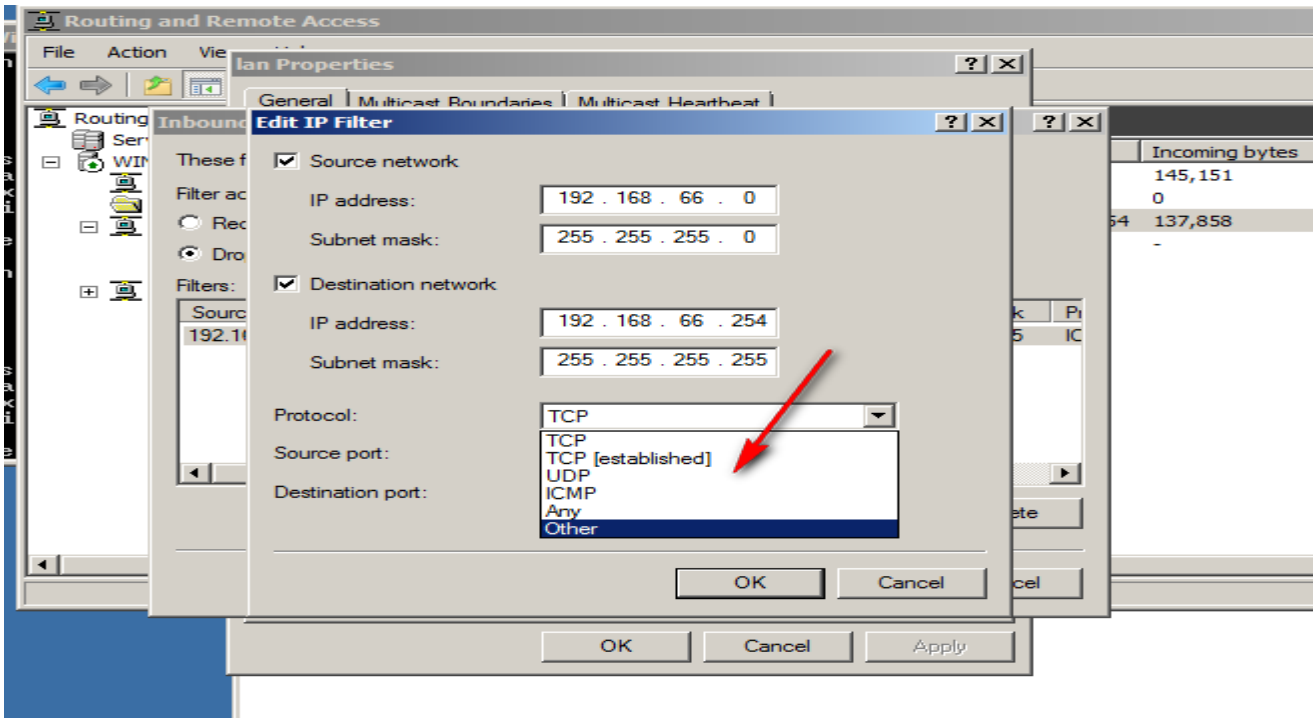
Can't open the web site



Choice all the sub net

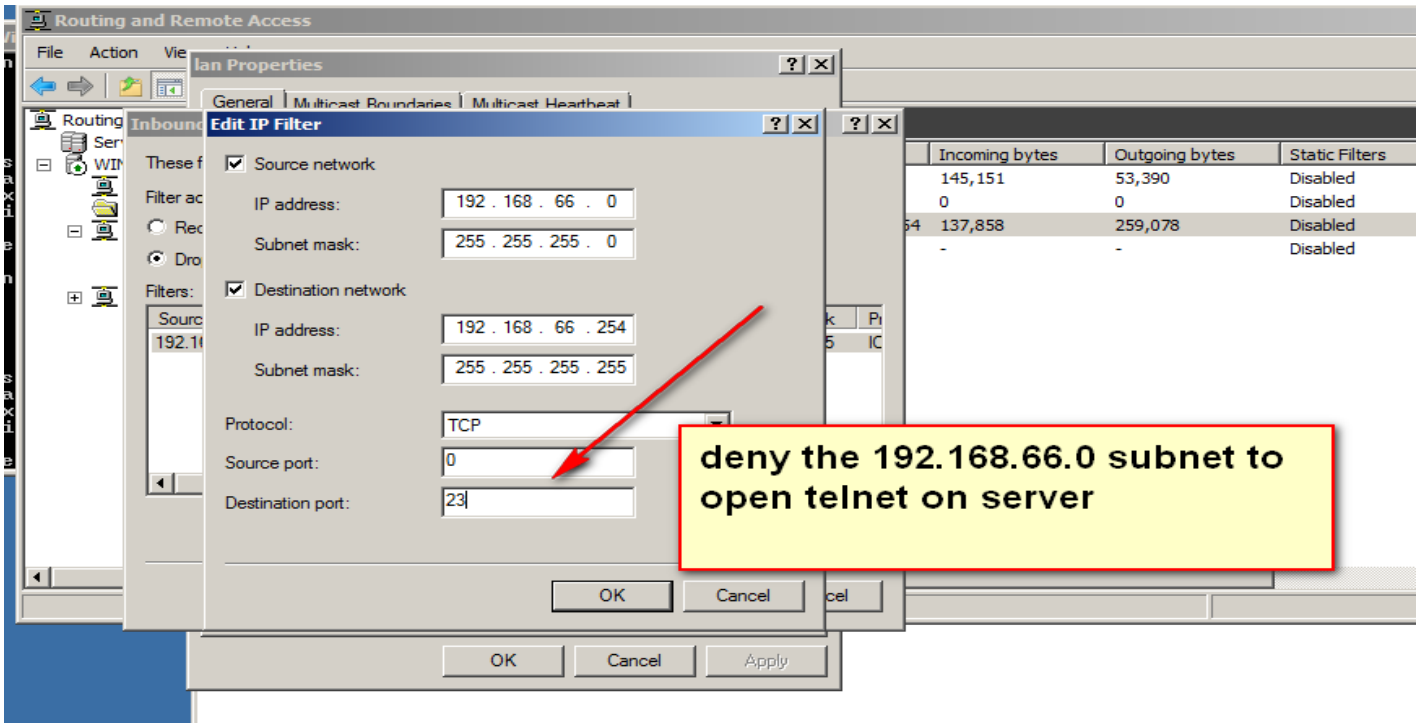


Choice another protocols

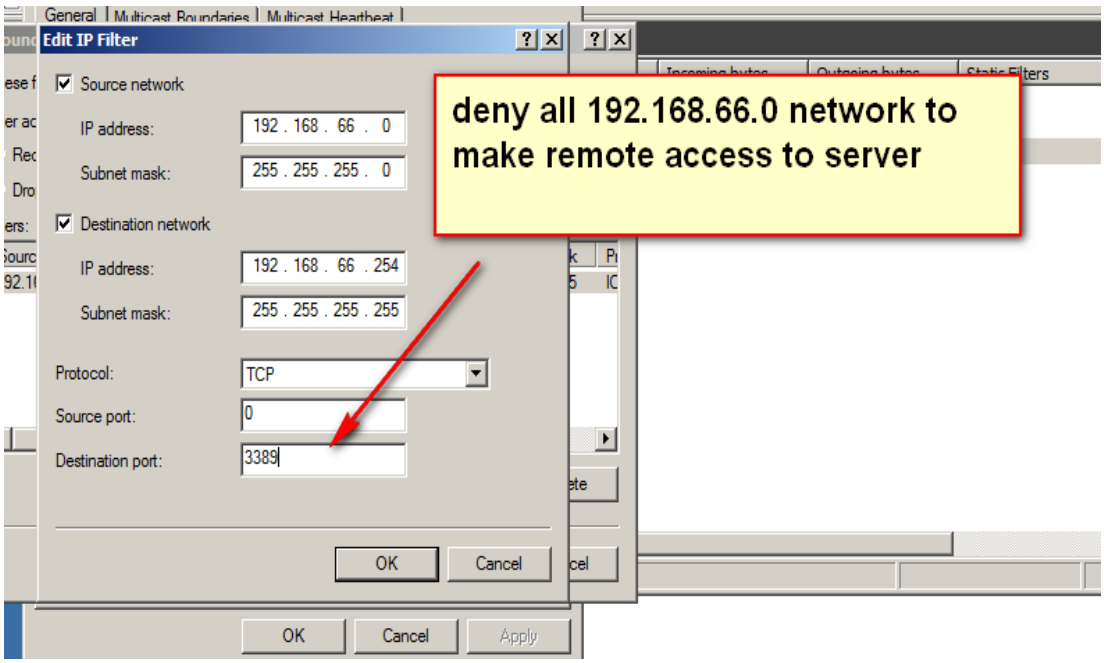


Deny telnet protocol

الان منع عملية الوصول عن بعد للسيرفير Telnet

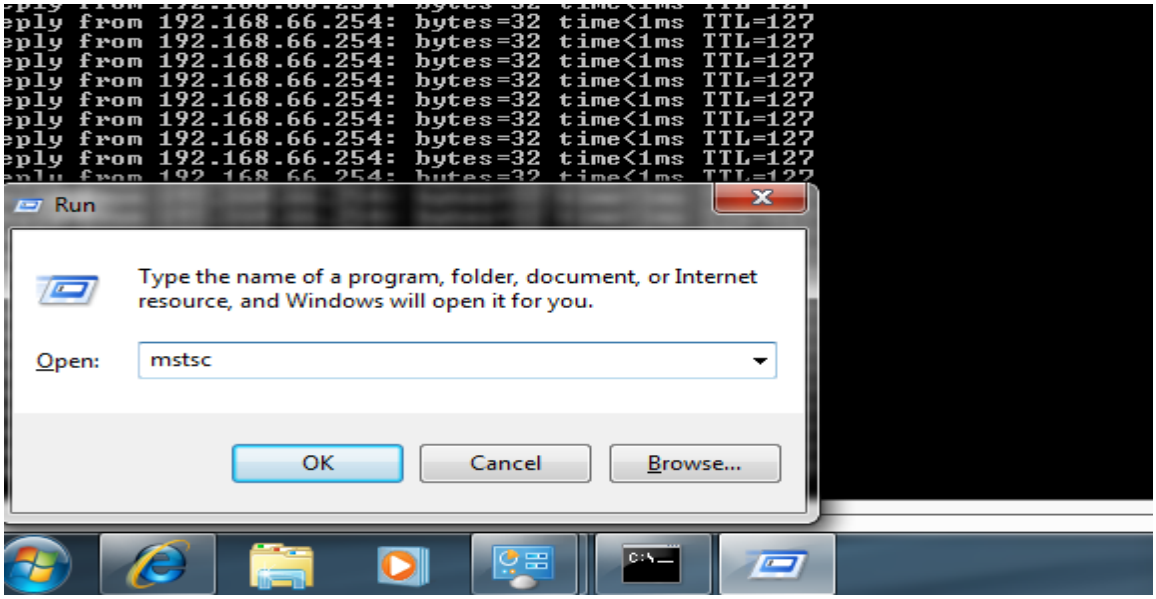


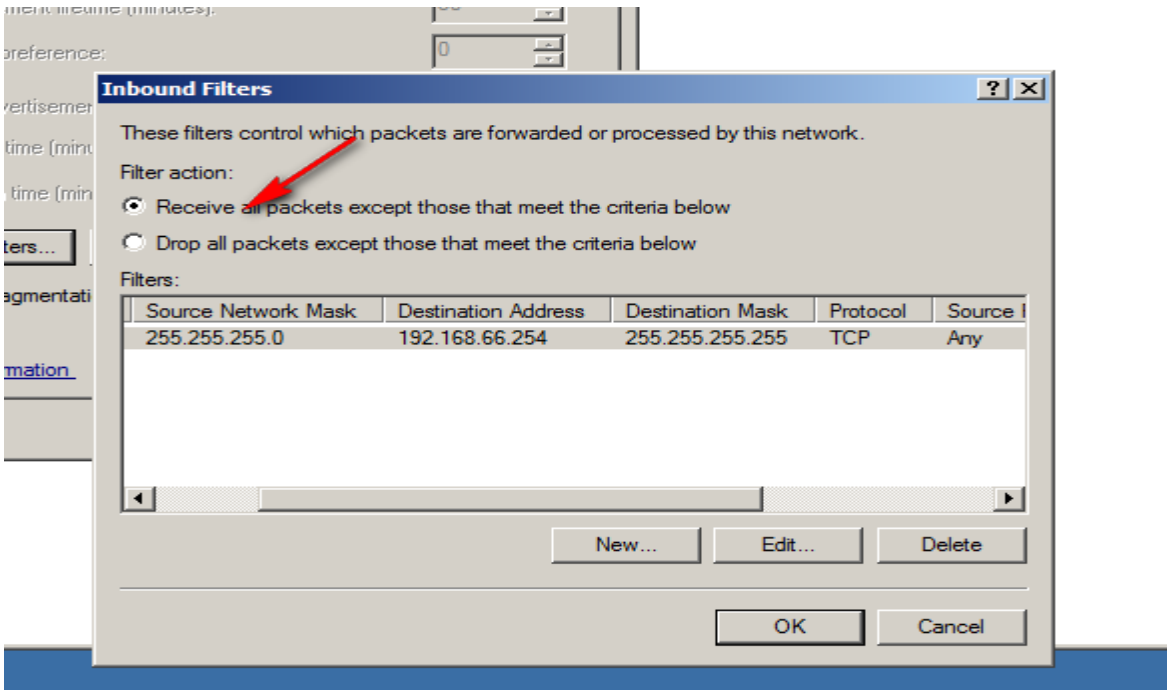
Deny remote access protocol



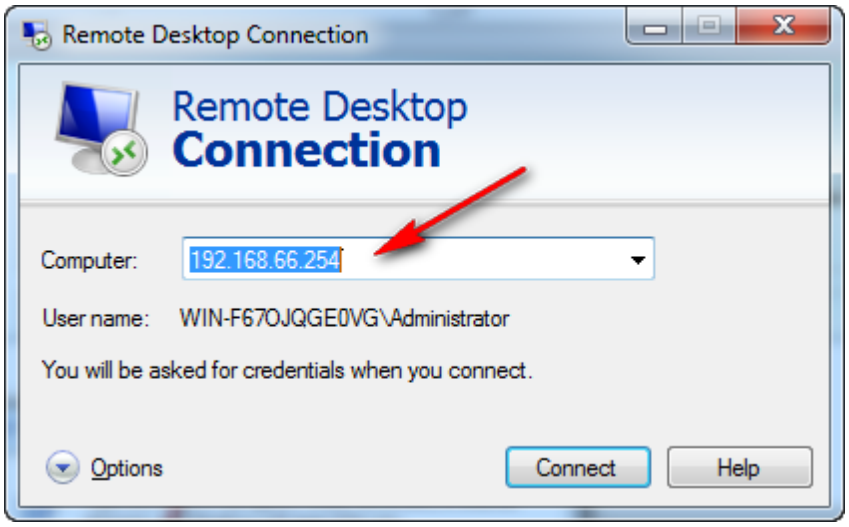
Try make remote access to server

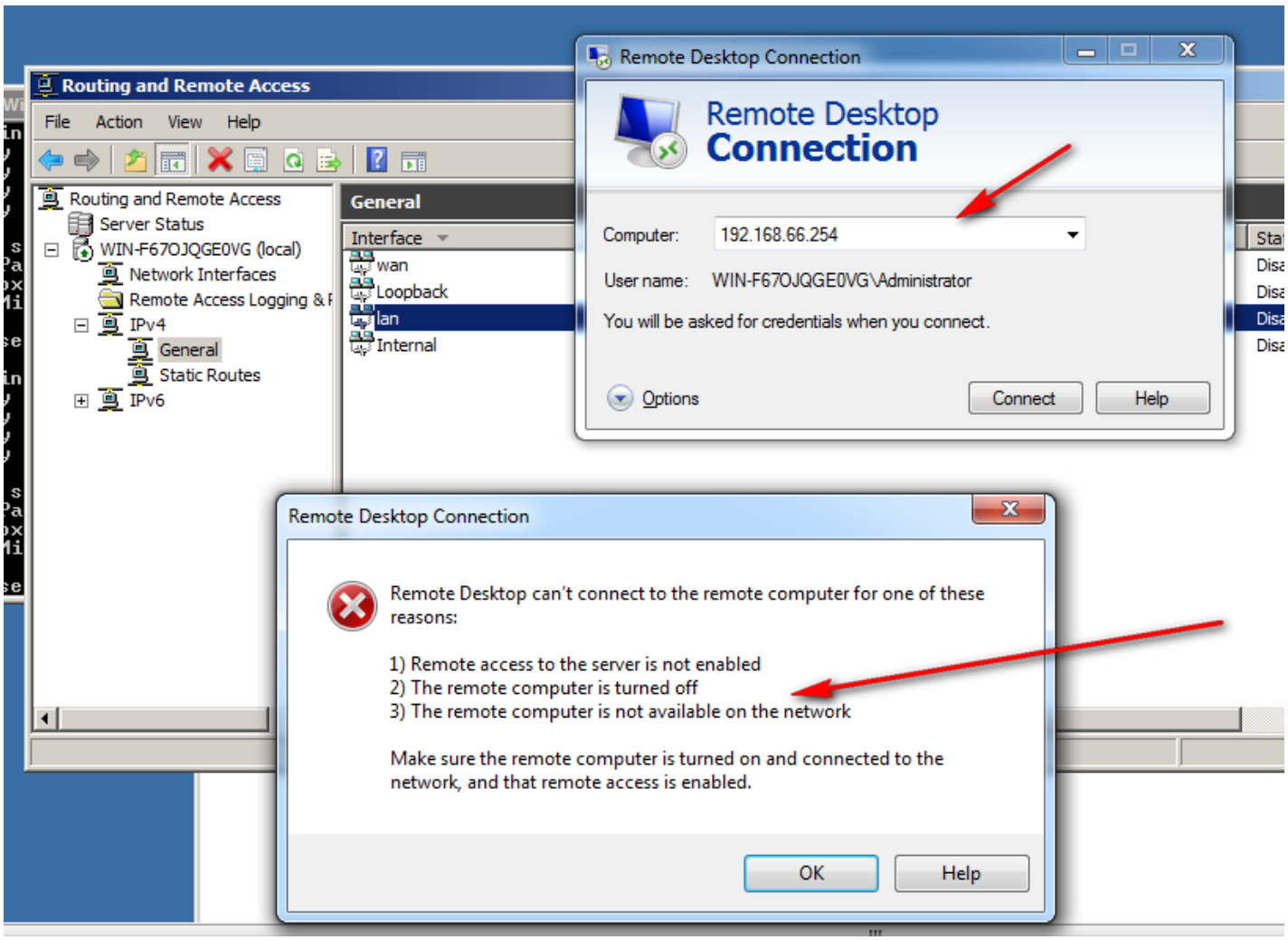
للتأكد من عمل منع عملية Telnet لل server نقوم بالاتي





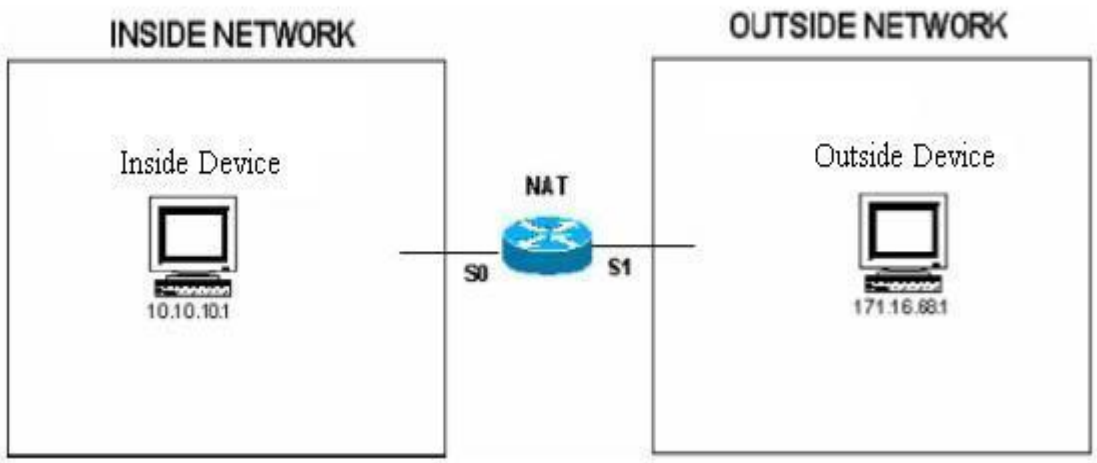
Try make remote access to server

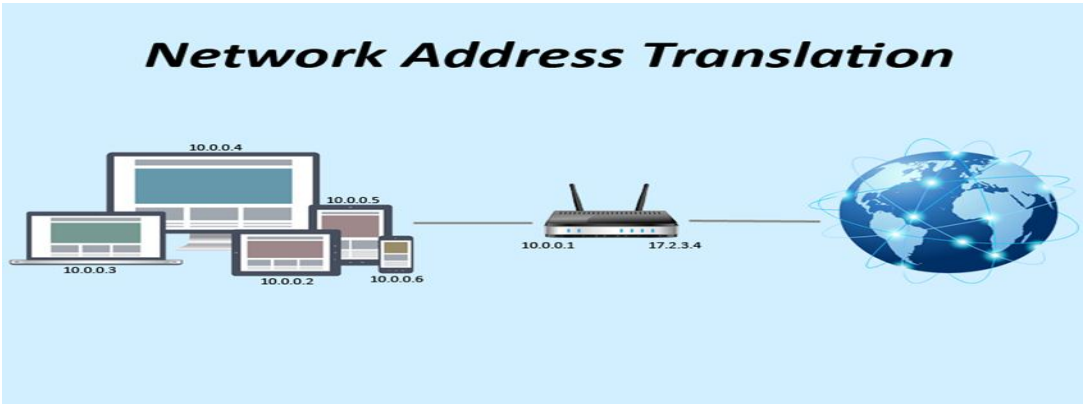

Remote Desktop Connection
Remote Desktop
Connection
Computer:
192.168.66.254
User name:
WIN-F67OJQGE0VG\Administrator
You will be asked for credentials when you connect.
Options
Connect
Help


Routing and Remote Access
File
Action
View
Help
Routing and Remote Access
Server Status
WIN-F67OJQGE0VG (local)
Network Interfaces
Remote Access Logging &
IPv4
General
Static Routes
IPv6
General
Interface
wan
Loopback
lan
Internal
Remote Desktop Connection
Remote Desktop
Connection
Computer:
192.168.66.254
User name:
WIN-F67OJQGE0VG\Administrator
You will be asked for credentials when you connect.
Options
Connect
Help
Remote Desktop Connection
Remote Desktop can't connect to the remote computer for one of these reasons:
1) Remote access to the server is not enabled
2) The remote computer is turned off
3) The remote computer is not available on the network
Make sure the remote computer is turned on and connected to the network, and that remote access is enabled.
OK
Help

13-Network address translation (NAT)

هو اختصار لِ Network Address Translation، وأبسط تعريف له هو التحويل من عنوان IP إلى آخر. ويتم تشغيله على مداخل الشبكة Gateways كأجهزة الراوتر أو جدران النار firewall أو أجهزة البروكسي. من أكثر الاستخدامات الدارجة حالياً لـNAT هو من خلال خطوط الانترنت بهدف تمكين مجموعة من المستخدمين ضمن الشبكة الداخلية والذين لديهم عناوين خاصة Private IP من الدخول إلى الانترنت باستخدام عنوان عام واحد Public IP.





Network Address Translation (NAT) is the process where a network device, usually a firewall, assigns a public address to a computer (or group of computers) inside a private network. The main use of NAT is to limit the number of public IP addresses an organization or company must use, for both economy and security purposes.

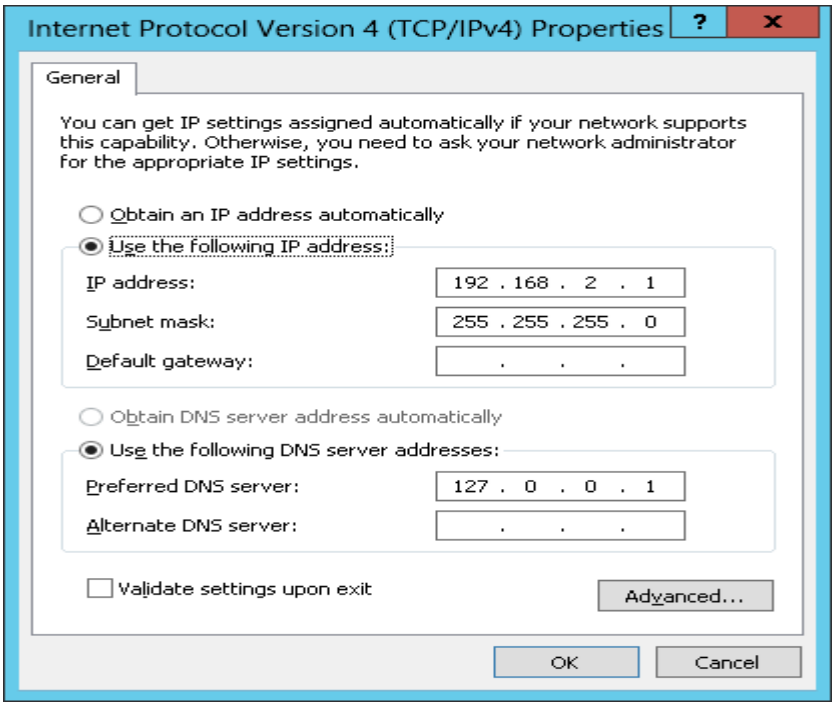
The most common form of network translation involves a large private network using addresses in a private range (10.0.0.0 to 10.255.255.255, 172.16.0.0 to 172.31.255.255, or 192.168.0 0 to

192.168.255.255). The private addressing scheme works well for computers that only have to access resources inside the network, like workstations needing access to file servers and printers. Routers inside the private network can route traffic between private addresses with no trouble.

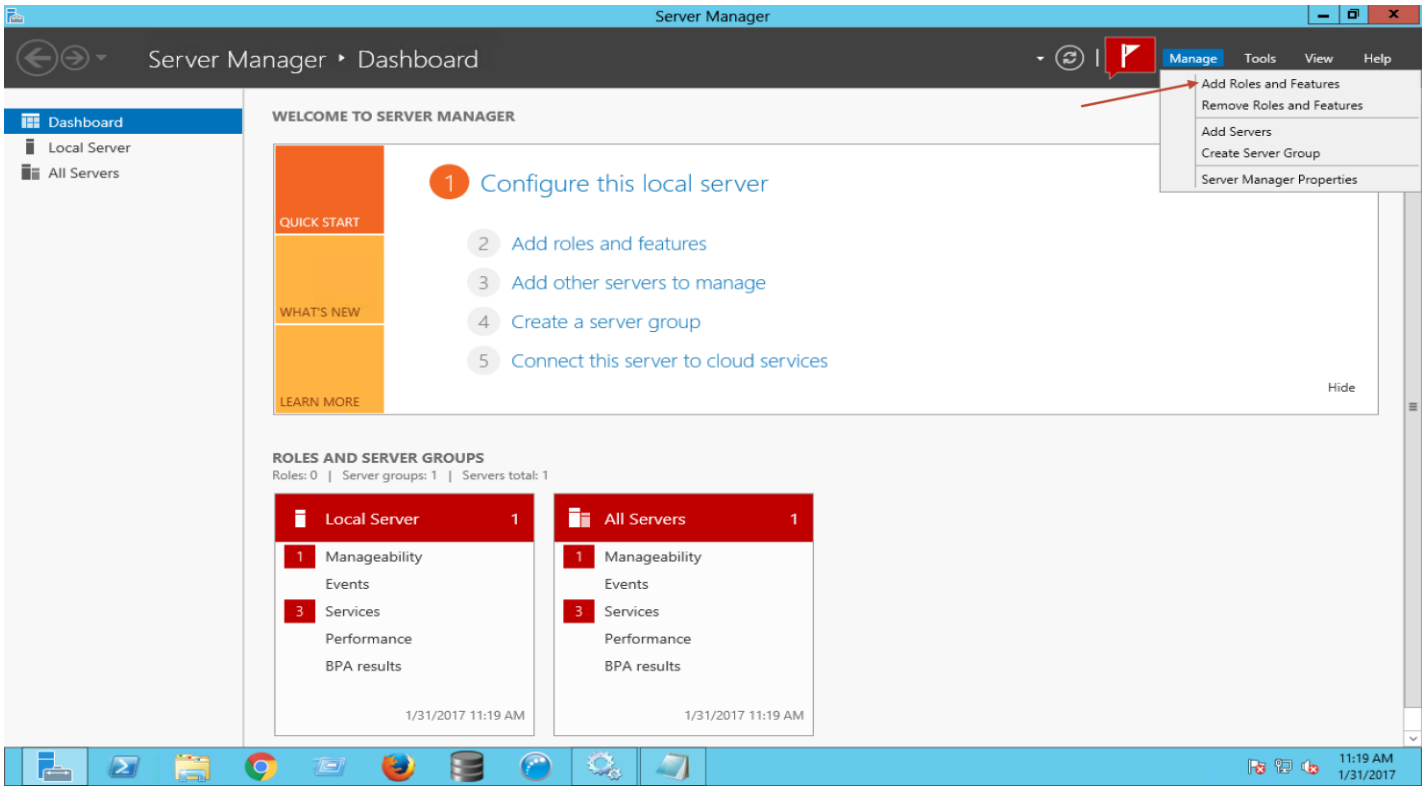
13.1- NAT in windows server 2012

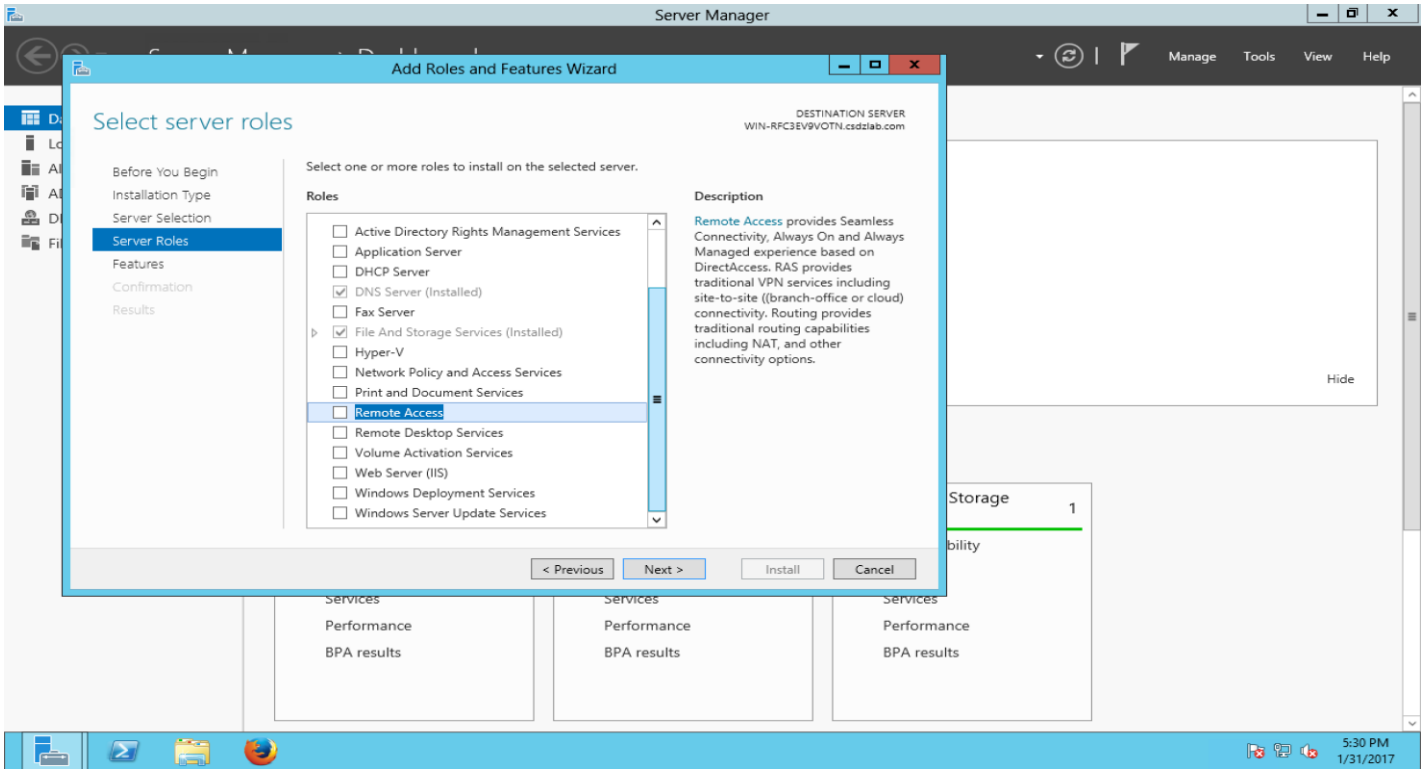
تفعيل NAT in windows server 2012in

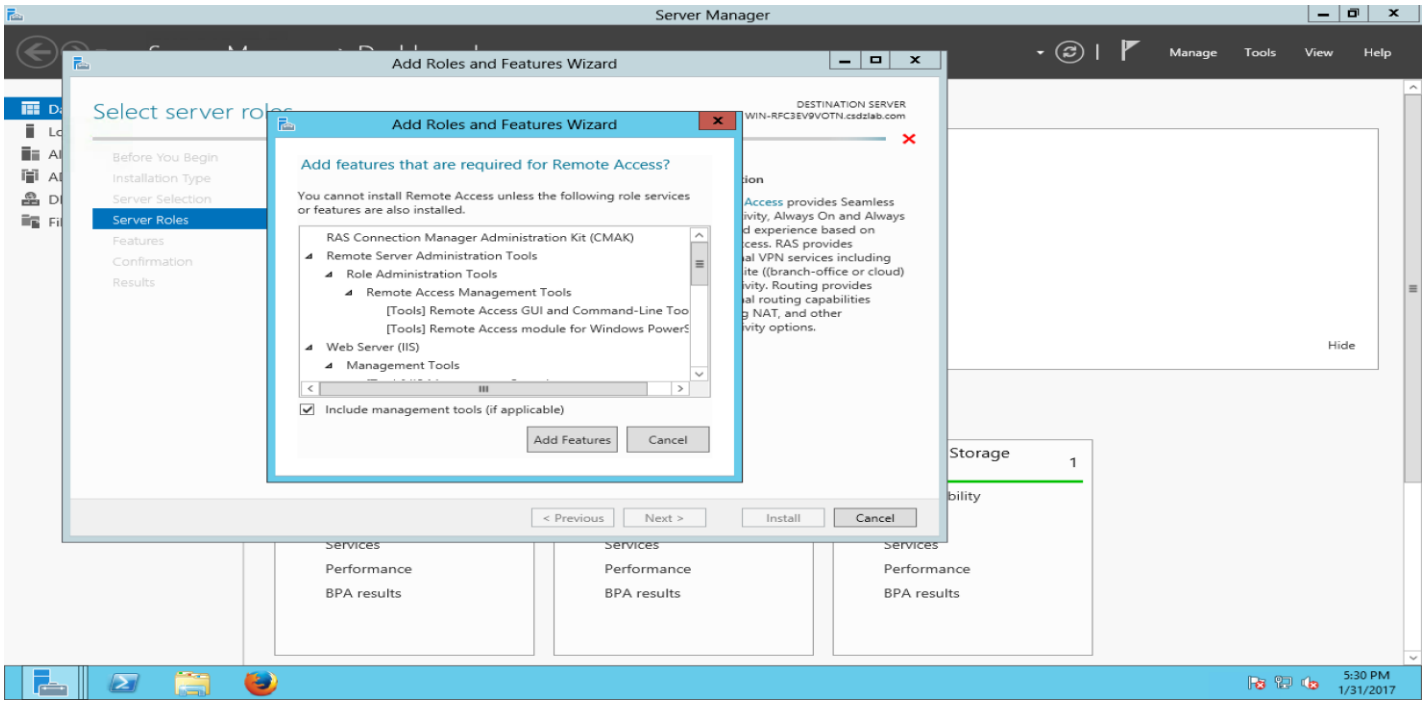
click on the LAN adapter and select properties. Next, highlight TCP/IPV4 and change the configuration to the one shown below. Note: Do not enter a default gateway for the LAN. Only the WAN should have a default gateway. Make sure the LAN interface is connected to a switch.

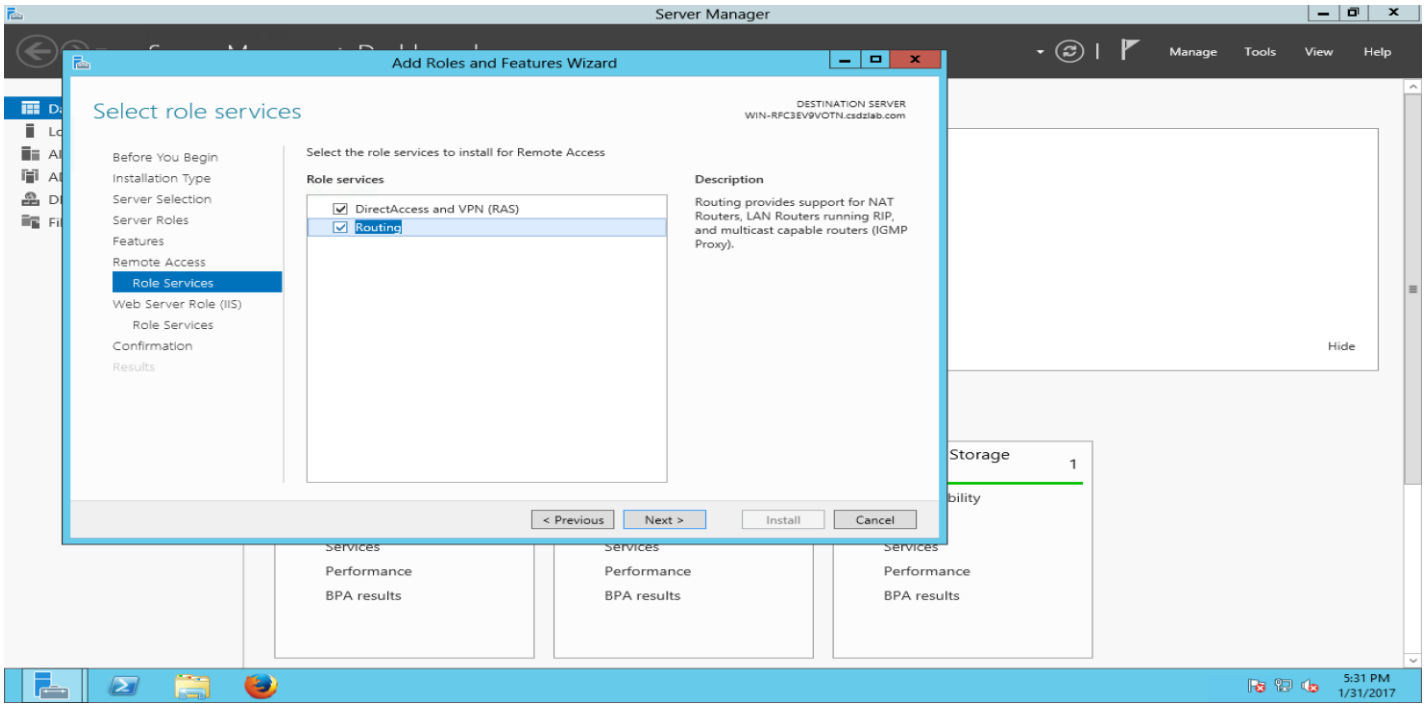


click on server manager and select tools > routing & remote access from the server manager's dashboard.

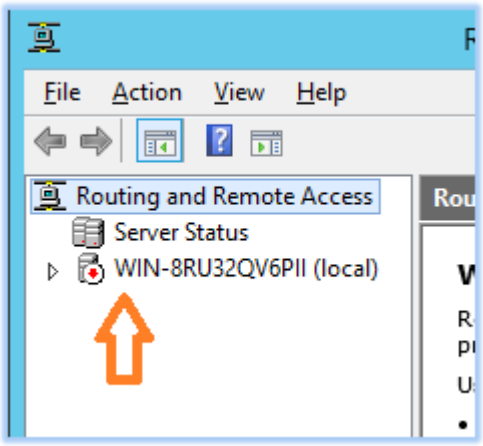

Server Manager
Server Manager ▸ Dashboard
Manage
Tools
View
Help
Add Roles and Features
Remove Roles and Features
Add Servers
Create Server Group
Server Manager Properties
Dashboard
Local Server
All Servers
WELCOME TO SERVER MANAGER
QUICK START
WHAT'S NEW
LEARN MORE
1 Configure this local server
2 Add roles and features
3 Add other servers to manage
4 Create a server group
5 Connect this server to cloud services
Hide
ROLES AND SERVER GROUPS
Roles: 0 | Server groups: 1 | Servers total: 1
Local Server 1
Manageability
Events
Services
Performance
BPA results
1/31/2017 11:19 AM
All Servers 1
Manageability
Events
Services
Performance
BPA results
1/31/2017 11:19 AM
11:19 AM
1/31/2017


Server Manager
Manage
Tools
View
Help
Add Roles and Features Wizard
Select server roles
DESTINATION SERVER
WIN-RFC3EV9VOTN.csdzlab.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
Select one or more roles to install on the selected server.
Roles
Active Directory Rights Management Services
Application Server
DHCP Server
DNS Server (Installed)
Fax Server
File And Storage Services (Installed)
Hyper-V
Network Policy and Access Services
Print and Document Services
Remote Access
Remote Desktop Services
Volume Activation Services
Web Server (IIS)
Windows Deployment Services
Windows Server Update Services
Description
Remote Access provides Seamless Connectivity, Always On and Always 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.
< Previous
Next >
Install
Cancel
Hide
Storage 1
Services
Performance
BPA results
Services
Performance
BPA results
Services
Performance
BPA results
5:30 PM
1/31/2017



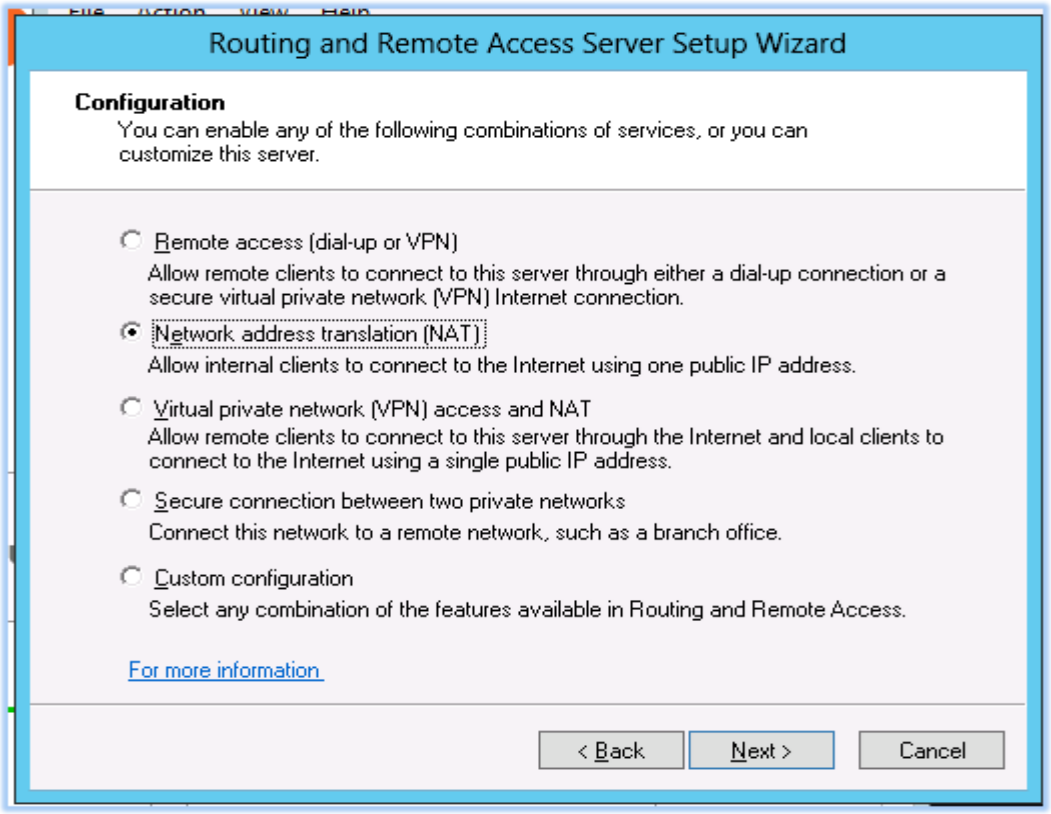


When you finish from install routing and remote access open it

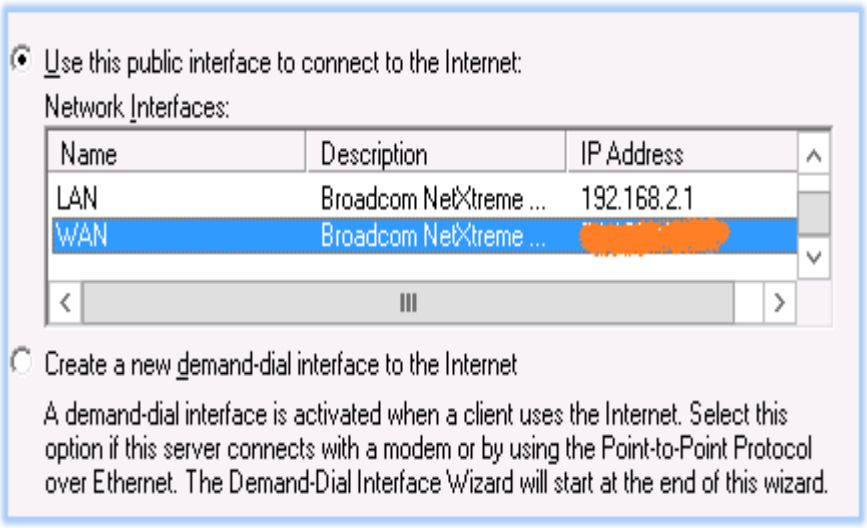


Right click on the server name and select configure and enable routing and remote access.

In the setup wizard, select network address translation (NAT)

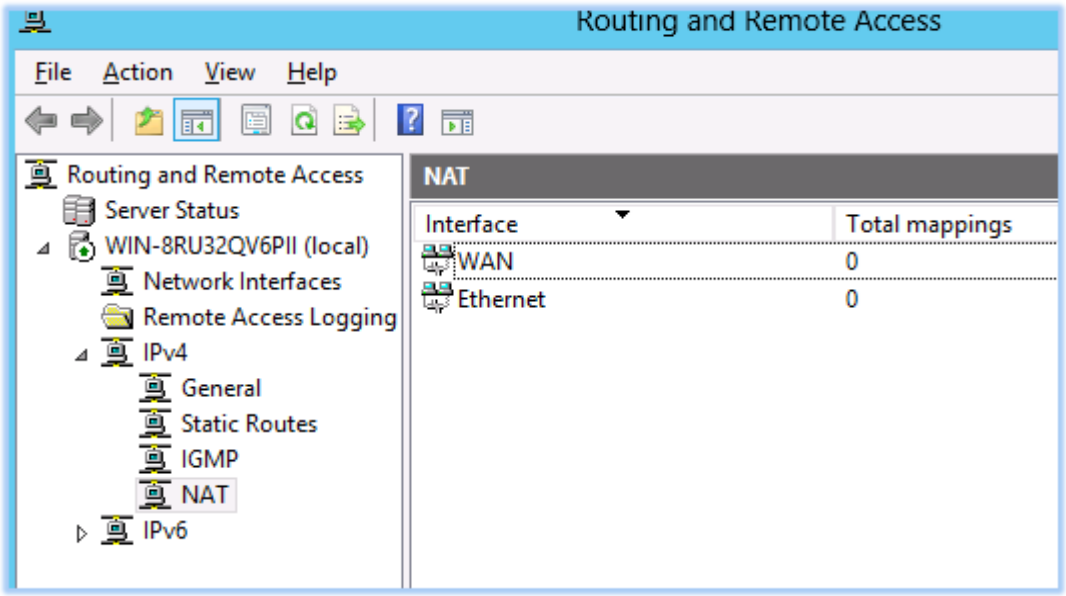


Select the WAN interface as the public interface.

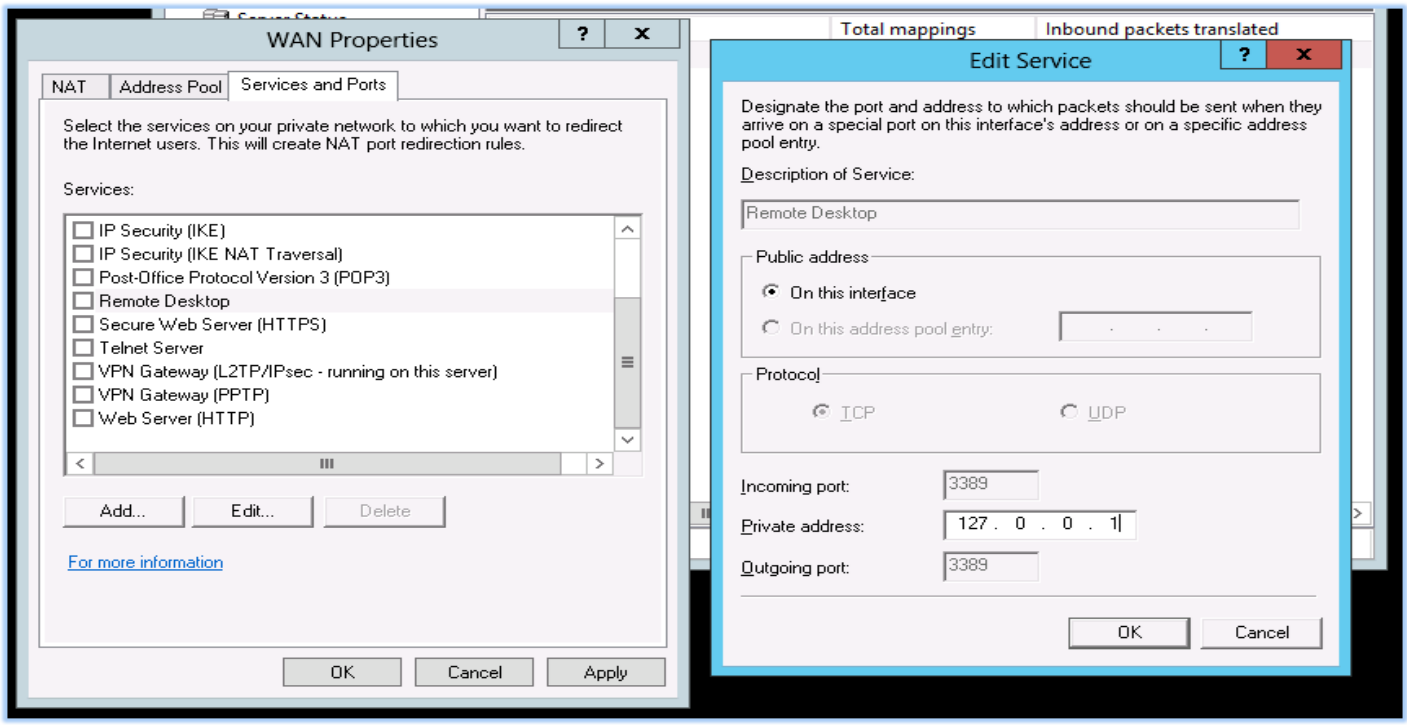


If you get an error that states that you may not be able to connect due to firewall ports being closed, ignore it and continue.

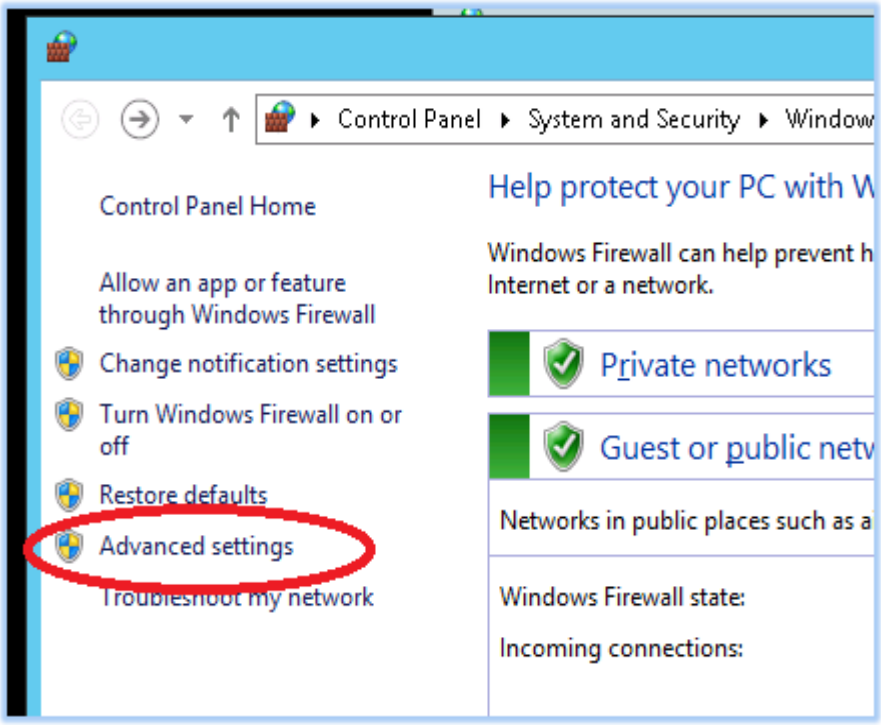
From the routing and remote access console, select IPV4 > NAT.



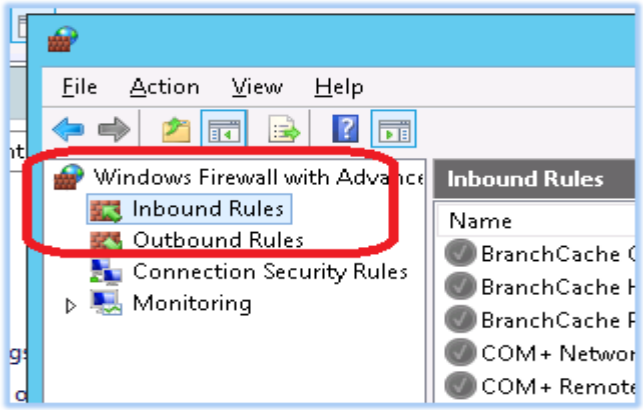
Double click on the WAN interface and select the services and ports tab. This is where you forward ports to your LAN subnet hosts.



The above image shows the opening of Remote Desktop port 3389 and subsequent forwarding to the server's loopback address (127.0.0.1)

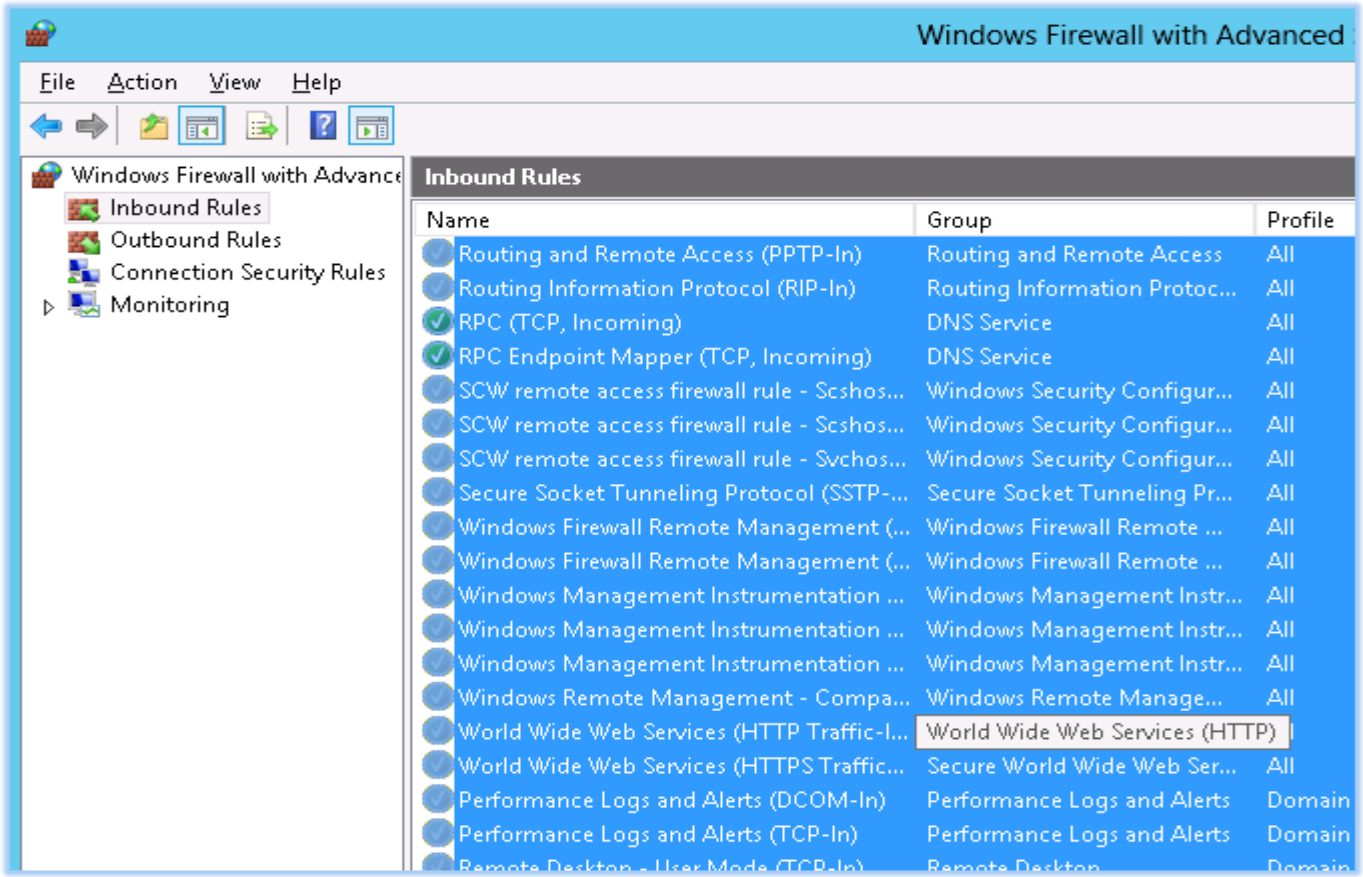


In Windows Firewall with Advanced Security, click on inbound rules.



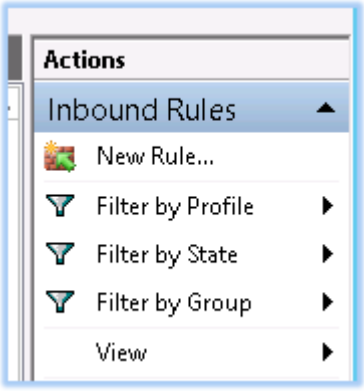
Highlight all of the inbound rules, right click and select delete.

-



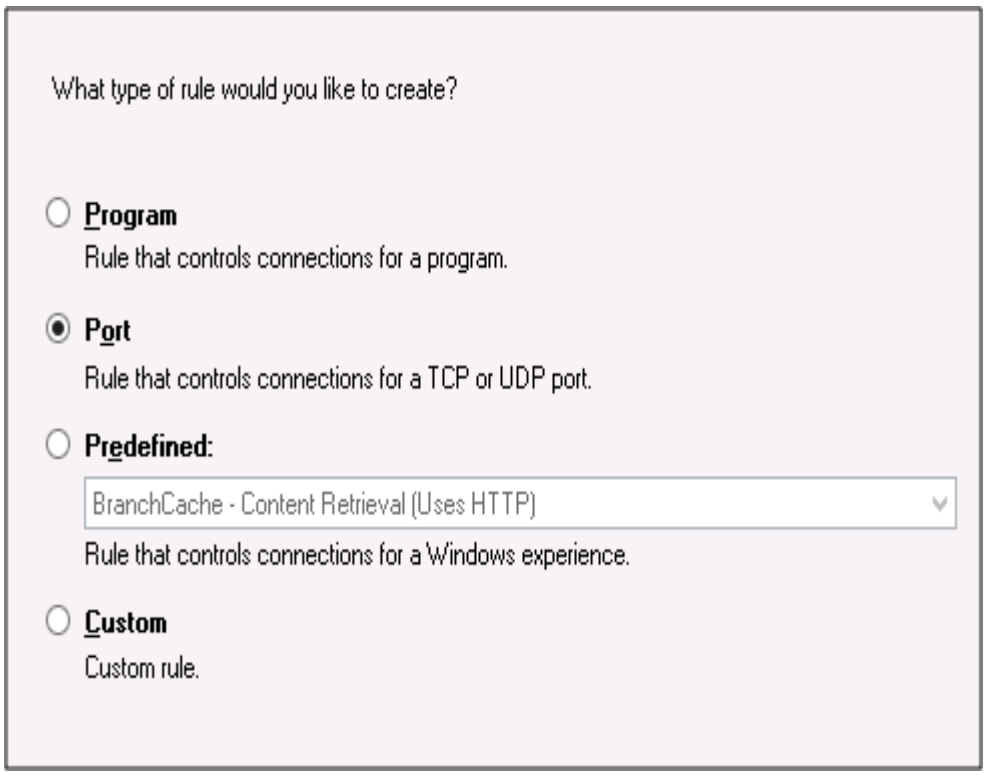
Doing this is the best way to avoid a mental lapse. Delete all the inbound rules and then add one at a time; as you need them.

To add an inbound rule, highlight inbound rule and select new rule from the actions pane.

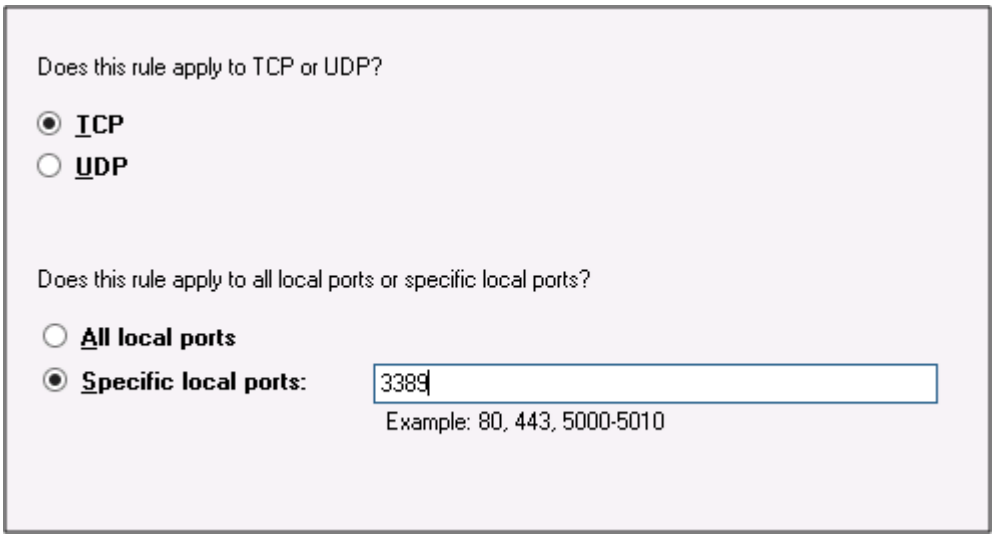


The new inbound rule wizard will appear. Follow these steps to add a rule for Remote Desktop:

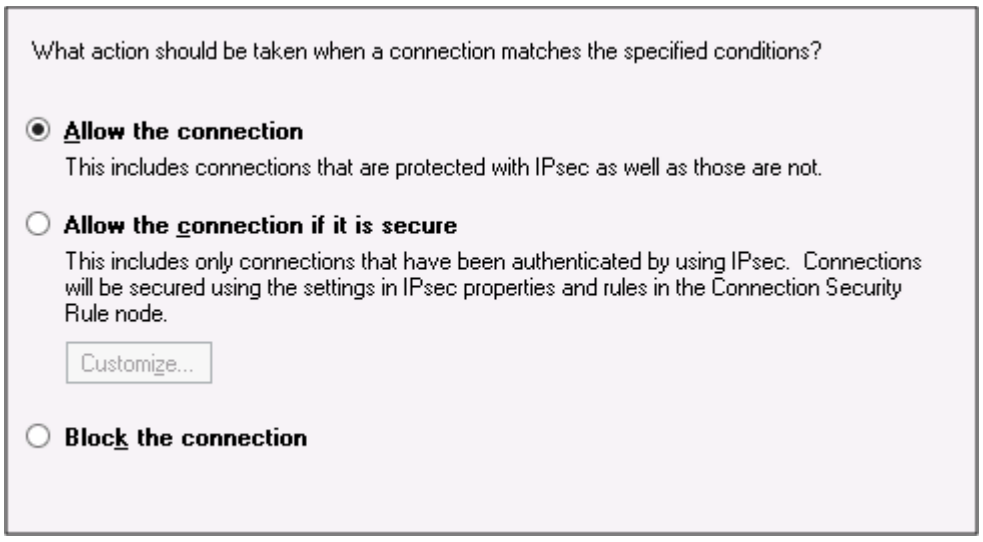
Select a port to allow.



Select the protocol and port number.

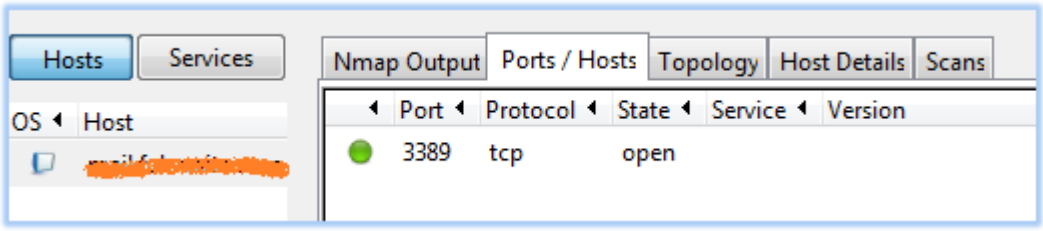


Select allow the connection.



Give the rule a friendly name and click finish.

After finishing, it's a good idea to run NMap to make sure that only the specified ports are open.



The NMap image above confirms that only RDP-3389 is open.

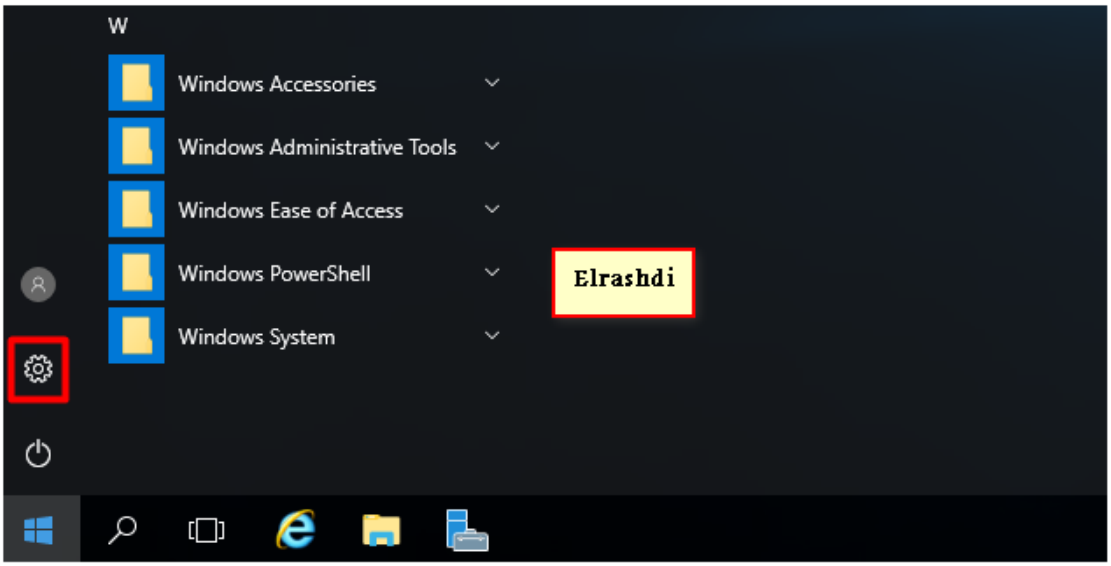
Once finished, connect a client PC to the LAN switch and voila! Your Windows 2012 server is now doing the job of a very capable firewall/router!

13.2- NAT in windows server 2016

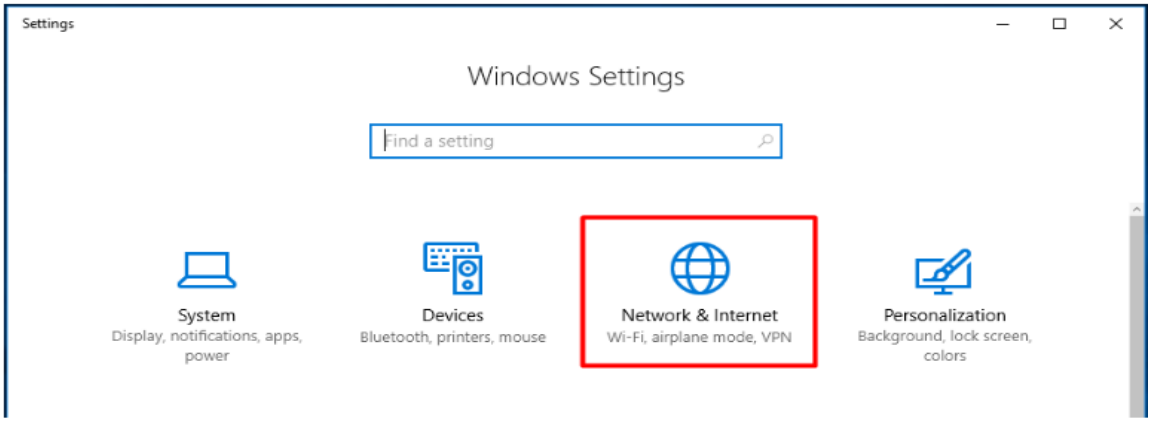
تفعيل NAT in windows server 2016

Configuring the NICs

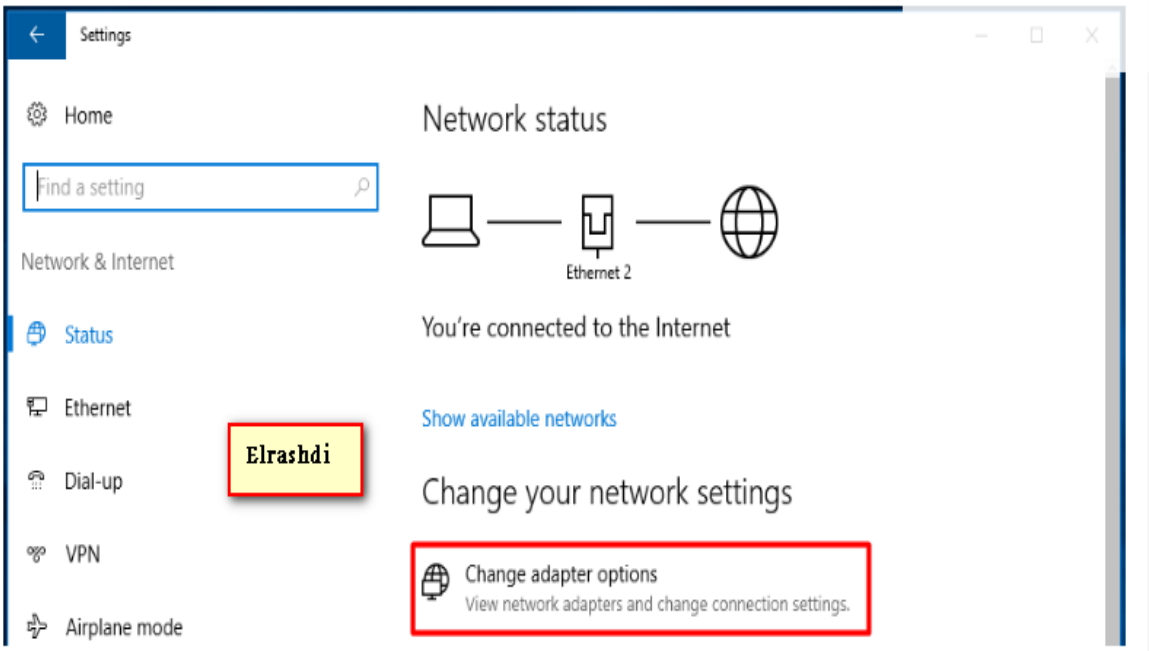
Open “Settings”



Choose “Network & Internet”

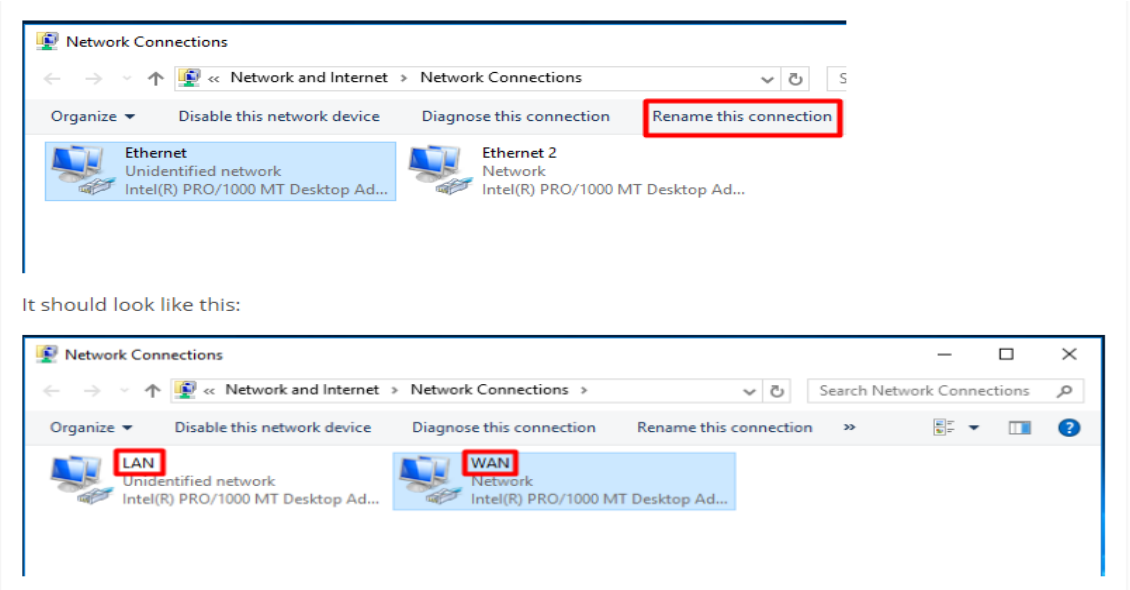


And choose “Change adapter options”

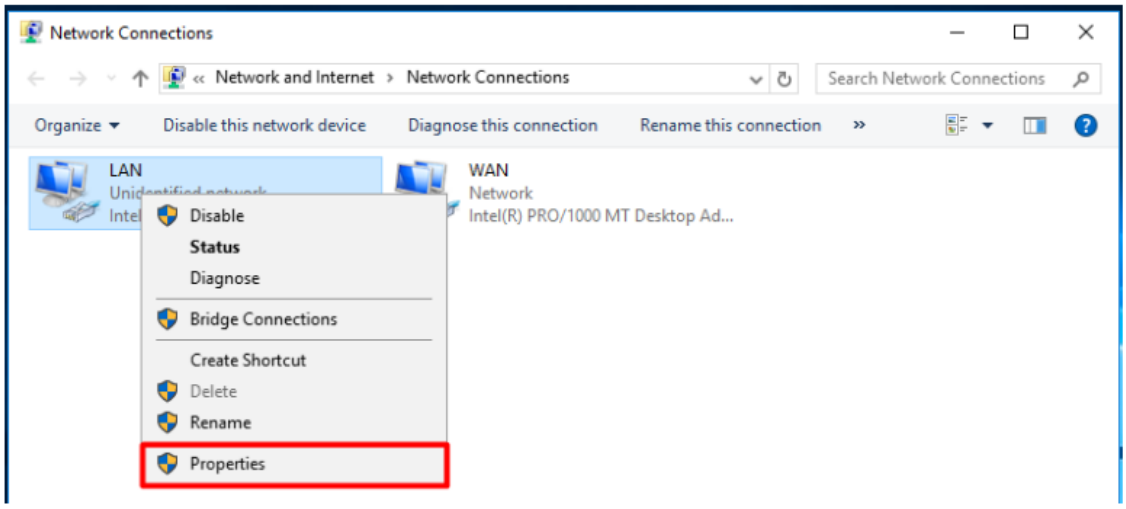


From the “Network Connections” window, it is pretty easy to spot what is the LAN connection (Unidentified network) and the WAN connection (bellow identified as Network). Let’s rename

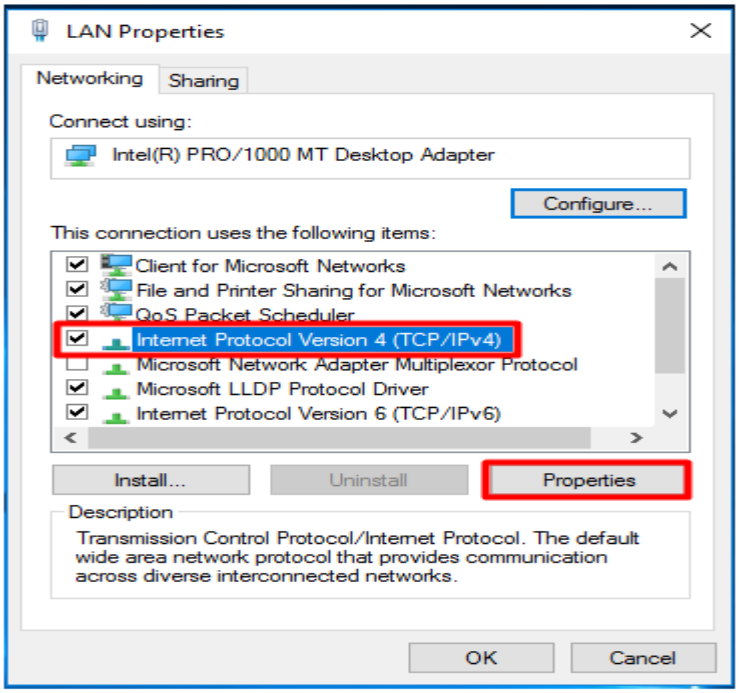
them. Select the connection to rename and press the “Rename this connection” button. Rename them accordingly.



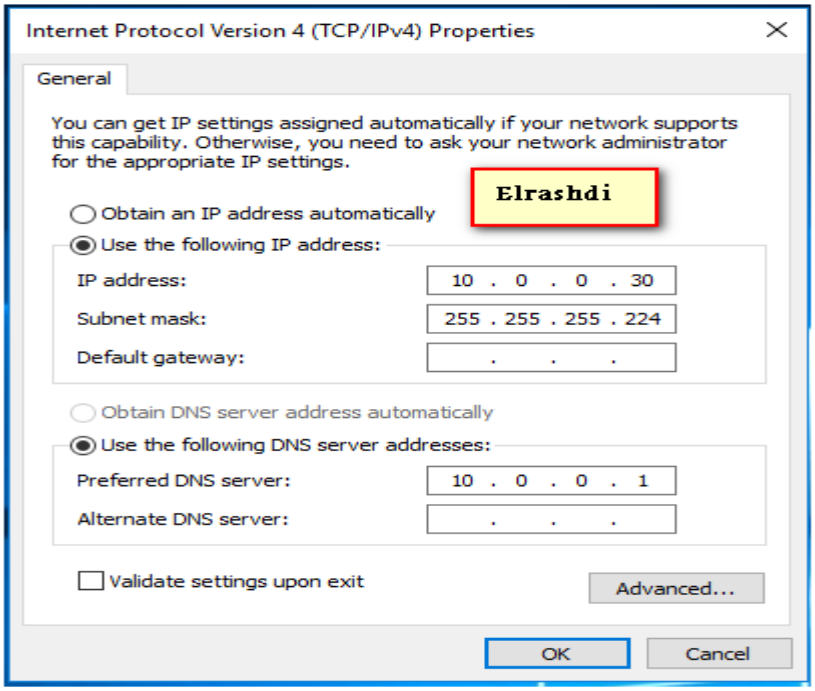
The LAN adapter needs to be configured with a static address, while the WAN adapter should be set to DHCP. The address configured on the LAN adapter is the address the client computers will use as their gateway. Right-click on the LAN adapter and select “Properties”.



Highlight “Internet Protocol Version 4 (TCP/IPv4)” and select “Properties”.



Setup the IP address settings to match your network configuration and press OK. Note that you need to have a DNS server setup on the network. It can the same server where this role is being installed.



`Adding the “Remote Access” server role

Now it’s time to install the “Remote Access” server role. Open Server Manager and select “Add roles and features”.

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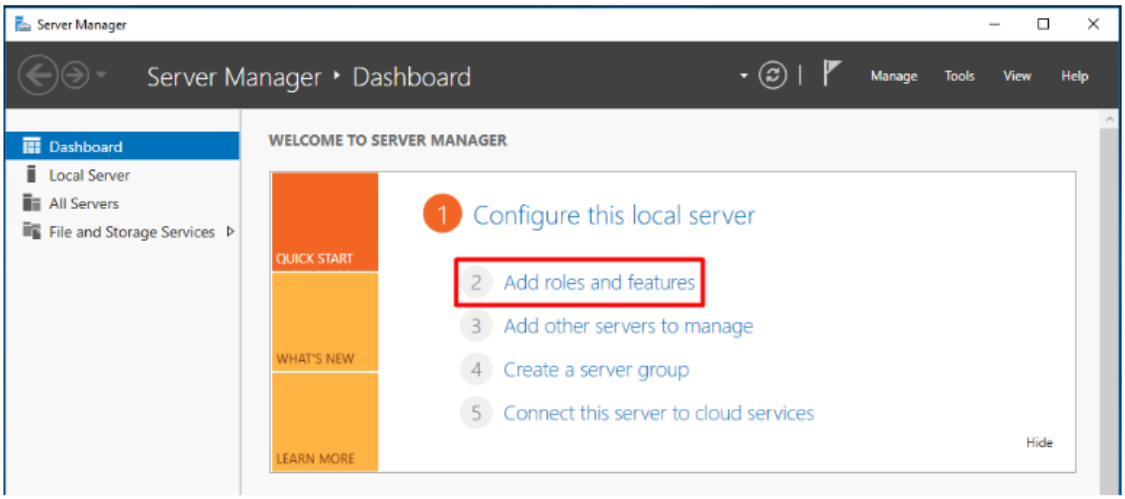
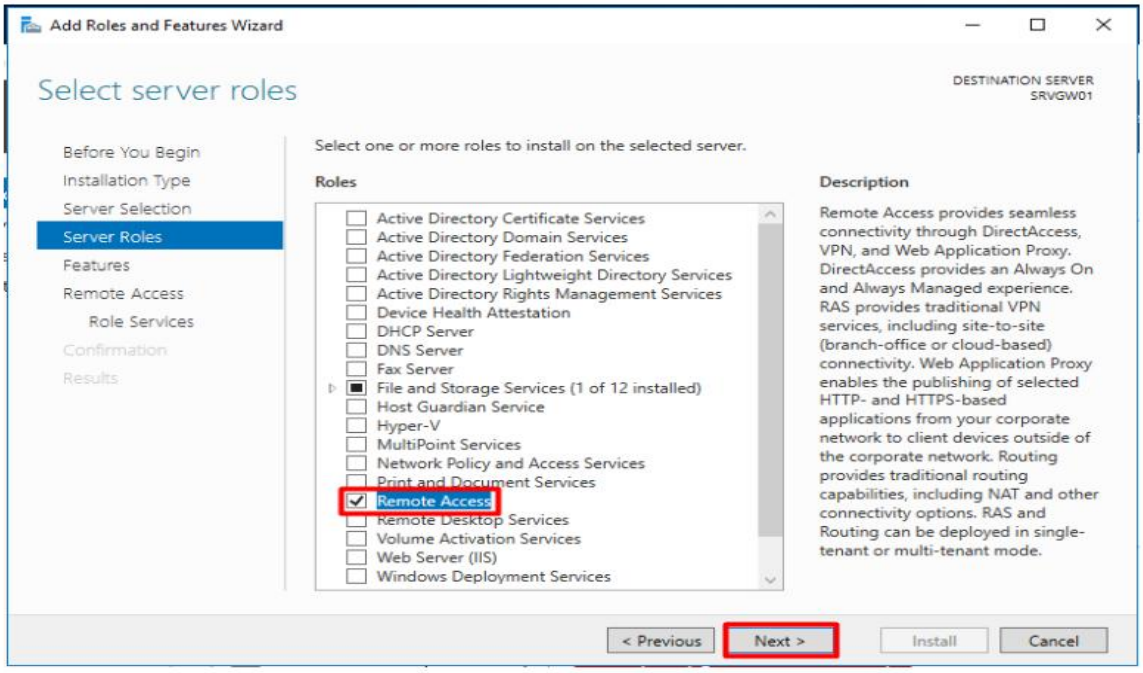
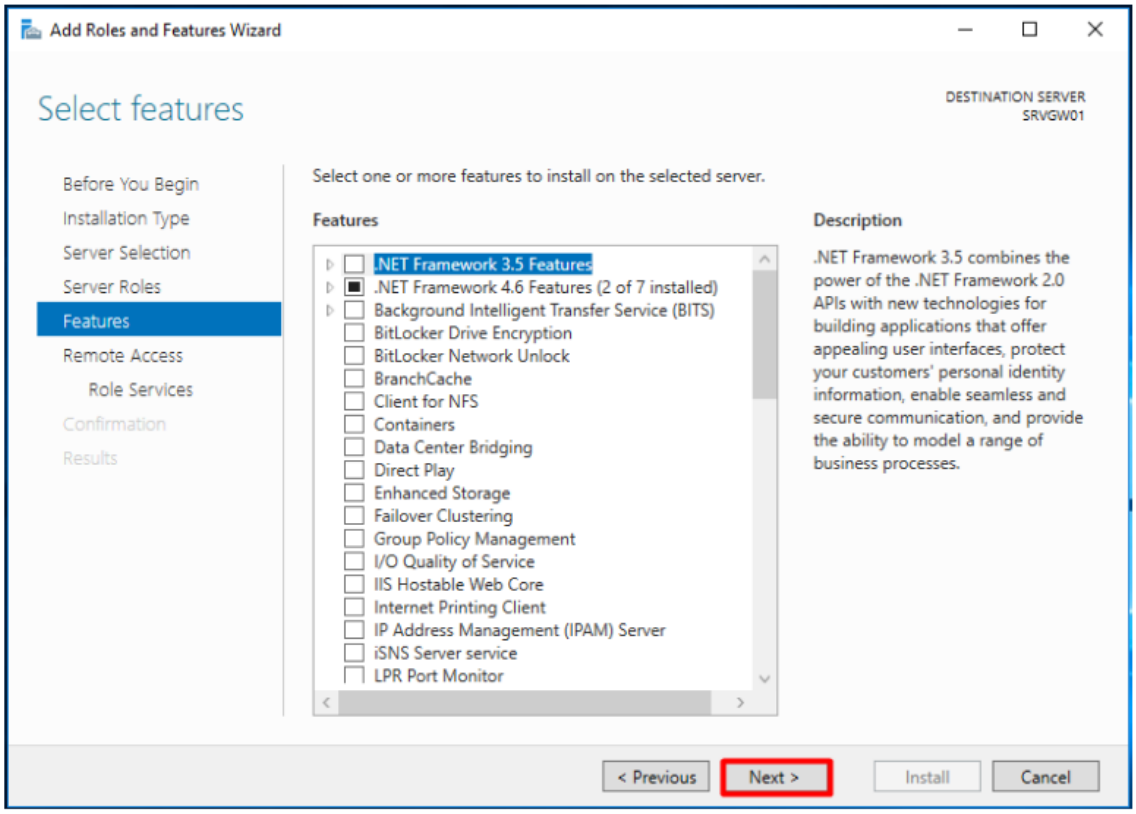


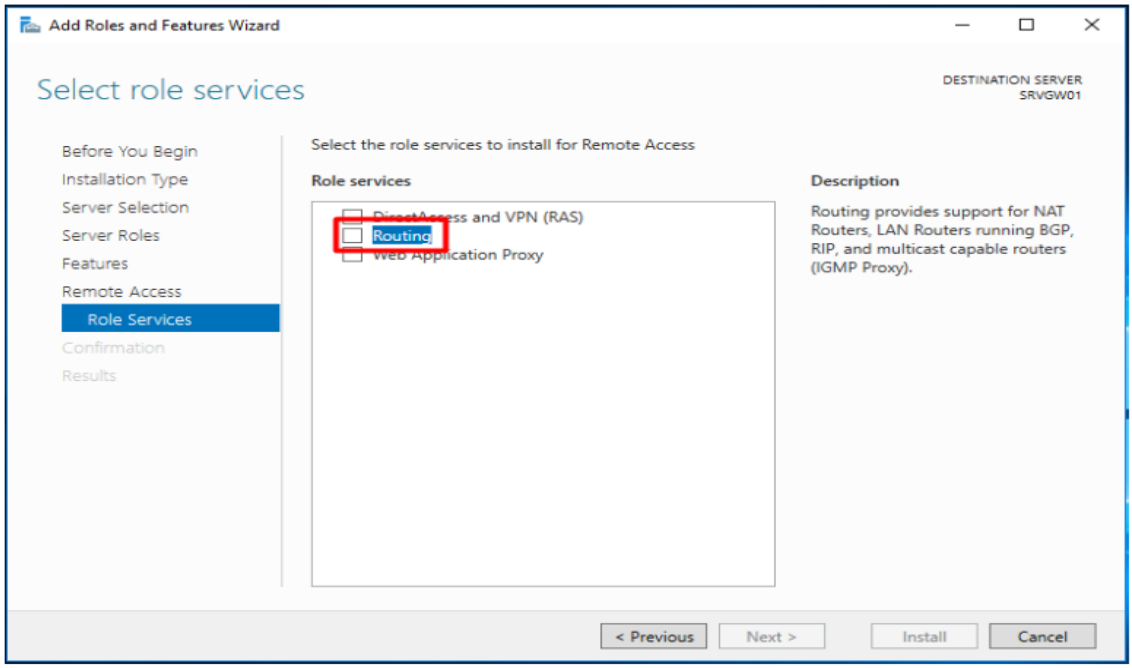
Press “Next” until you reach the screen below. Select the “Remote Access” role and press “Next”.



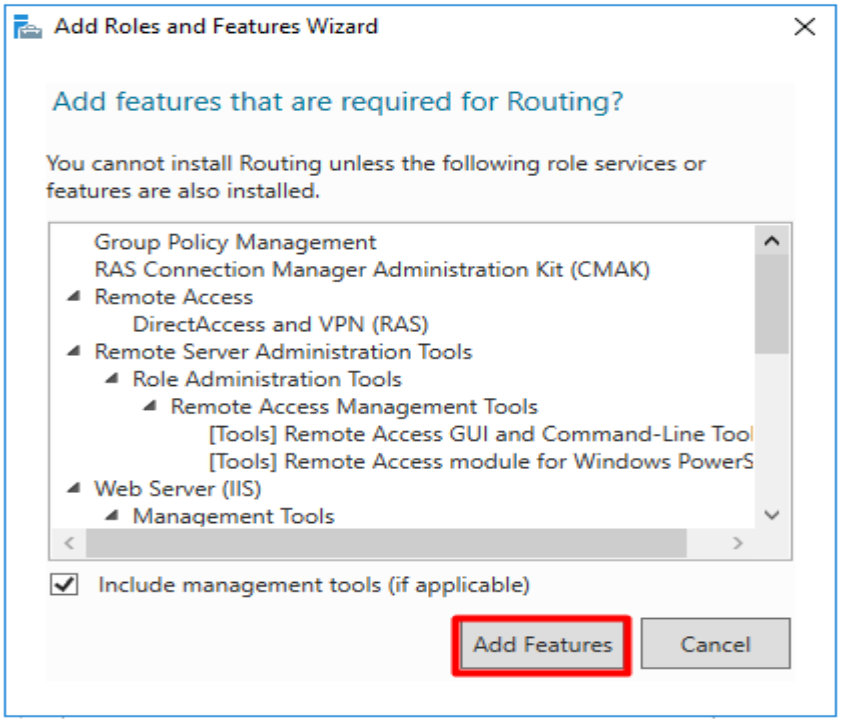
Press “Next” at the following screen.



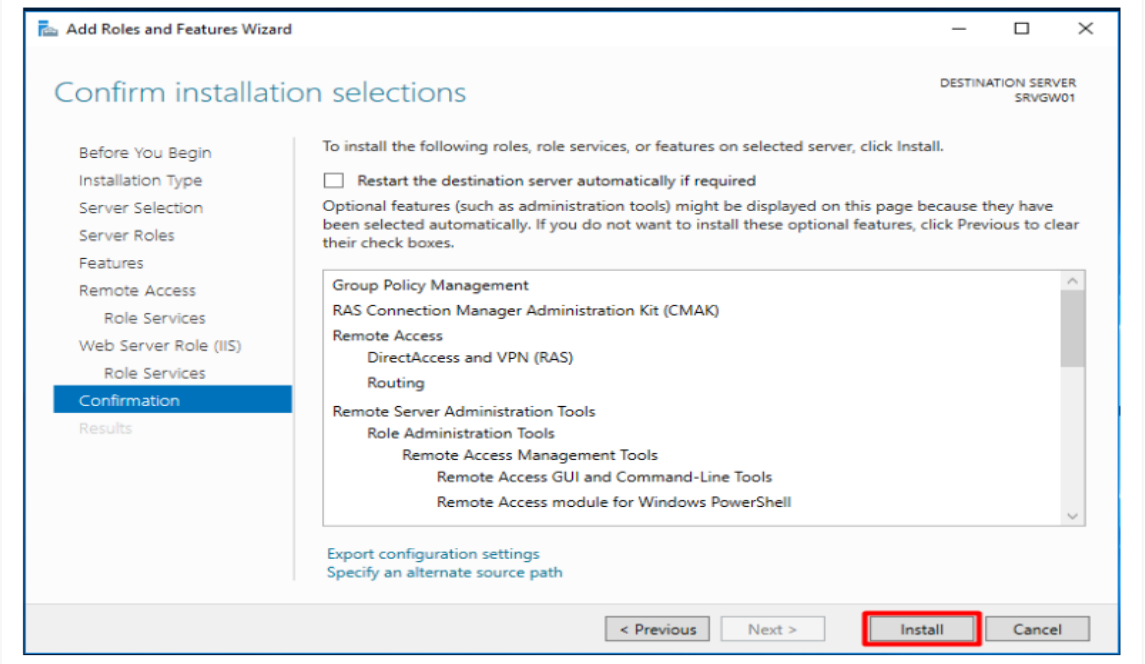
Press “Next” and then select “Routing”, as shown below:



Click on “Add Features”.

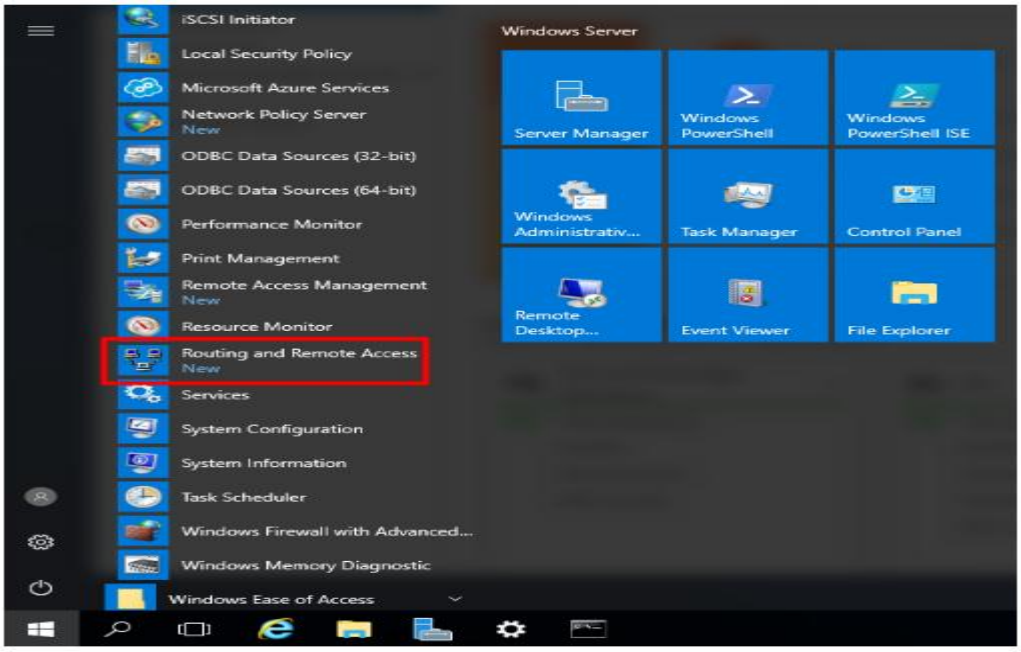


Go till the end of the wizard by pressing “Next”. Press “Install” at the confirmation screen.



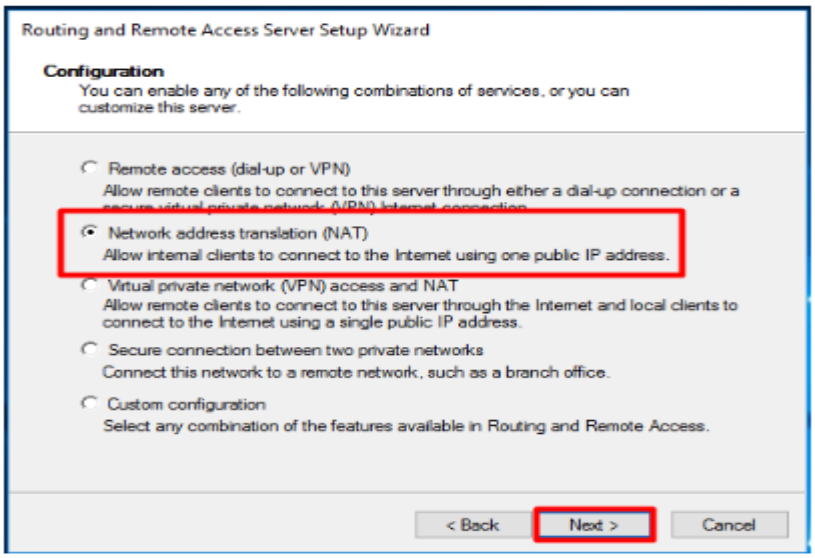
Configuring the “NAT router”

Wait for the installation to finish and open the “Routing and Remote Access” console. Press “Start” and under “Windows Administrative Tools” find “Routing and Remote Access”.

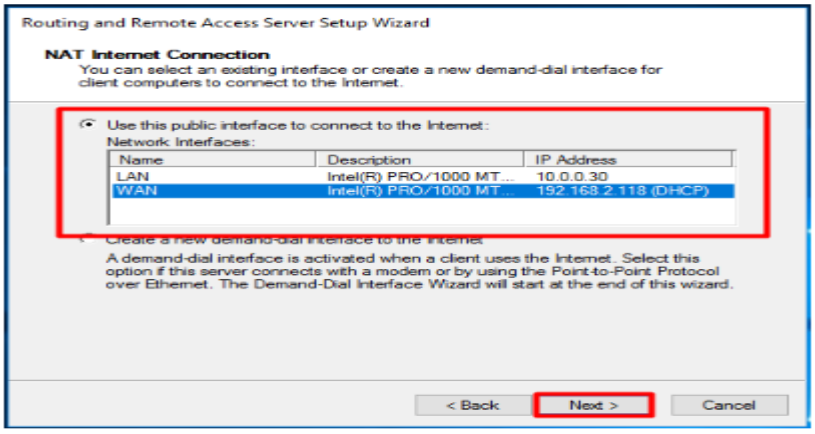


Right-click on the server name and select “Configure and Enable Routing and Remote Access”.

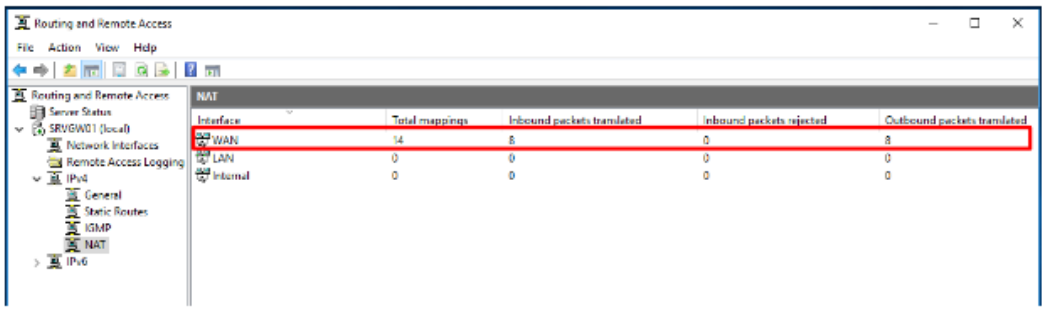
Press “Next” at the wizard welcome screen. Choose “Network address translation (NAT)” and press “Next”.



Select the WAN adapter and press “Next”.



Press “Finish”, wait for the configuration to finish and verify that the NAT router is working properly. Expand the IPv4 node, select “NAT” and you should see that packets have been translated.

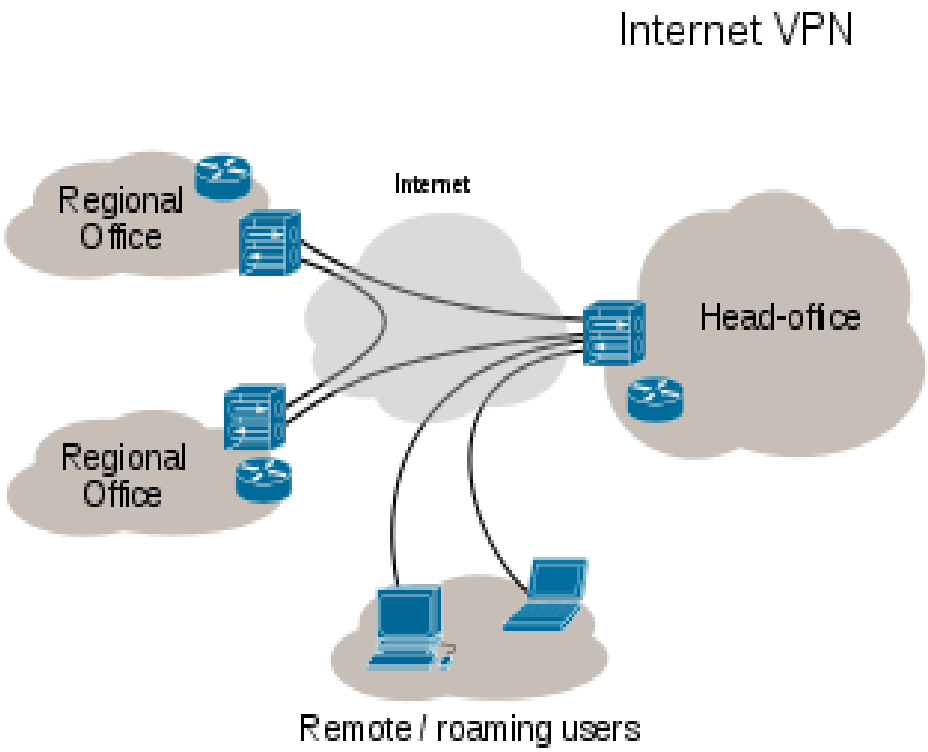


14-Virtual private network (VPN)

هي إحدى الوسائل المهمة VPN وتختصر عادة بـ (Virtual Private Network) الشبكات الافتراضية الخاصة للاتصال بالإنترنت بشكل آمن، حيث تقوم بالمحافظة على بيانات المستخدمين ونشاطاتهم مخفيةً ومشفرة، وهي أفضل الطرق لحماية هويتكم والمعلومات التي تتداولونها على الإنترنت من تجسس مزودي خدمة الإنترنت والحكومات. وتقوم الشبكات الخاصة الافتراضية بتشفير الاتصال بالإنترنت عبر إنشاء VPN. بين جهازكم ومزود خدمة الـ (Tunnel) نفق وهمي تمرّ جميع اتصالاتكم بما فيها تصفح المواقع وبرامج المحادثة والشبكات الاجتماعية عبر هذا النفق الوهمي الآمن، وتشفير هذا النفق .لبياناتكم يعني عدم قدرة أي أحد على اعتراضها

A virtual private network (VPN) is a technology that creates a safe and encrypted connection over a less secure network, such as the internet.

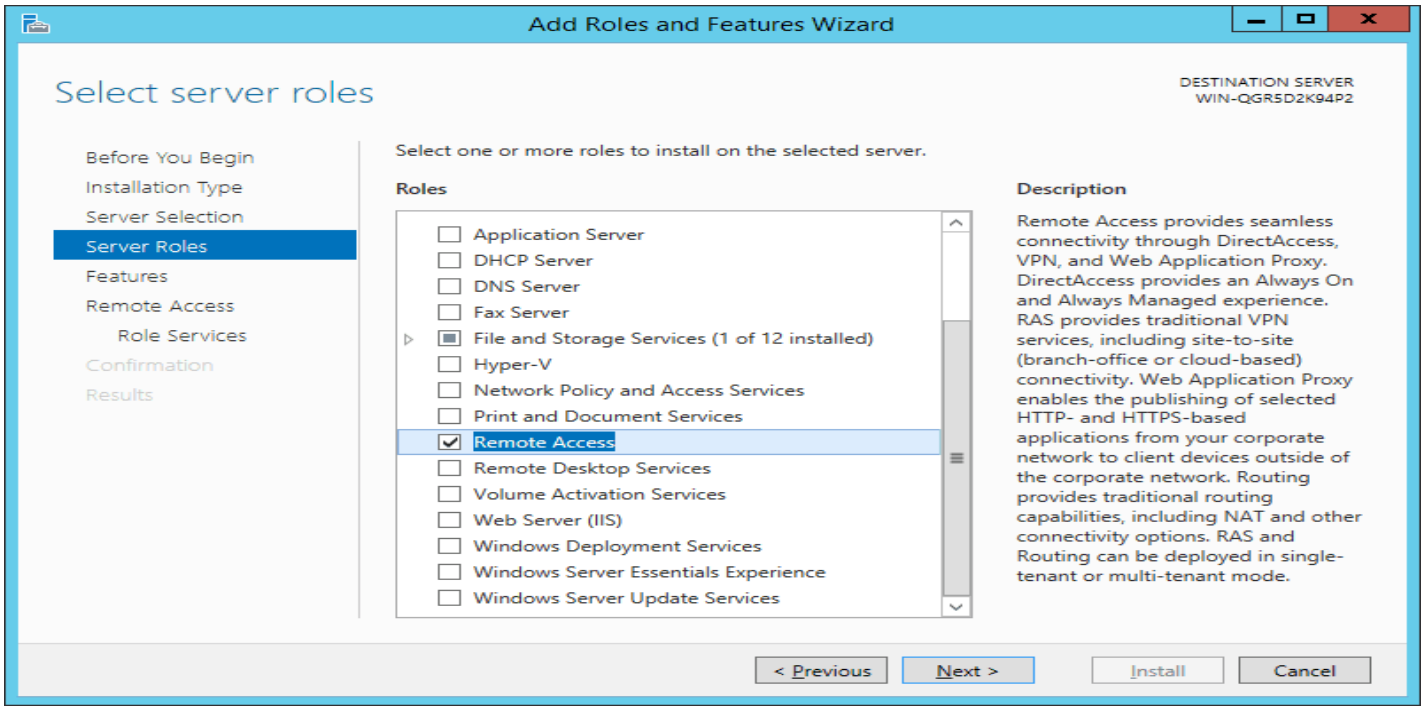
VPN technology was developed as a way to allow remote users and branch offices to securely access corporate applications and other resources. To ensure safety, data travels through secure tunnels, and VPN users must use authentication methods -- including passwords, tokens or other unique identification procedures -- to gain access to the VPN server.



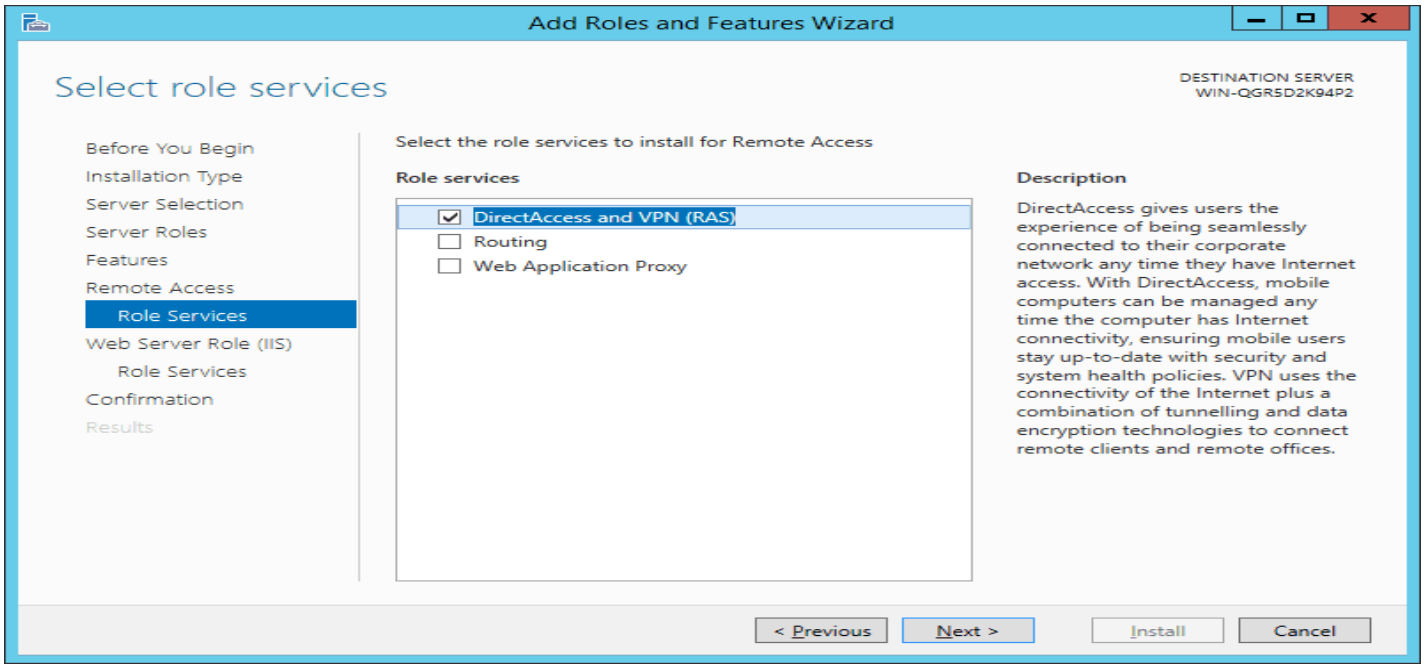
14.1-VPN in windows server 2012

تفعيل VPN داخل windows server 2012

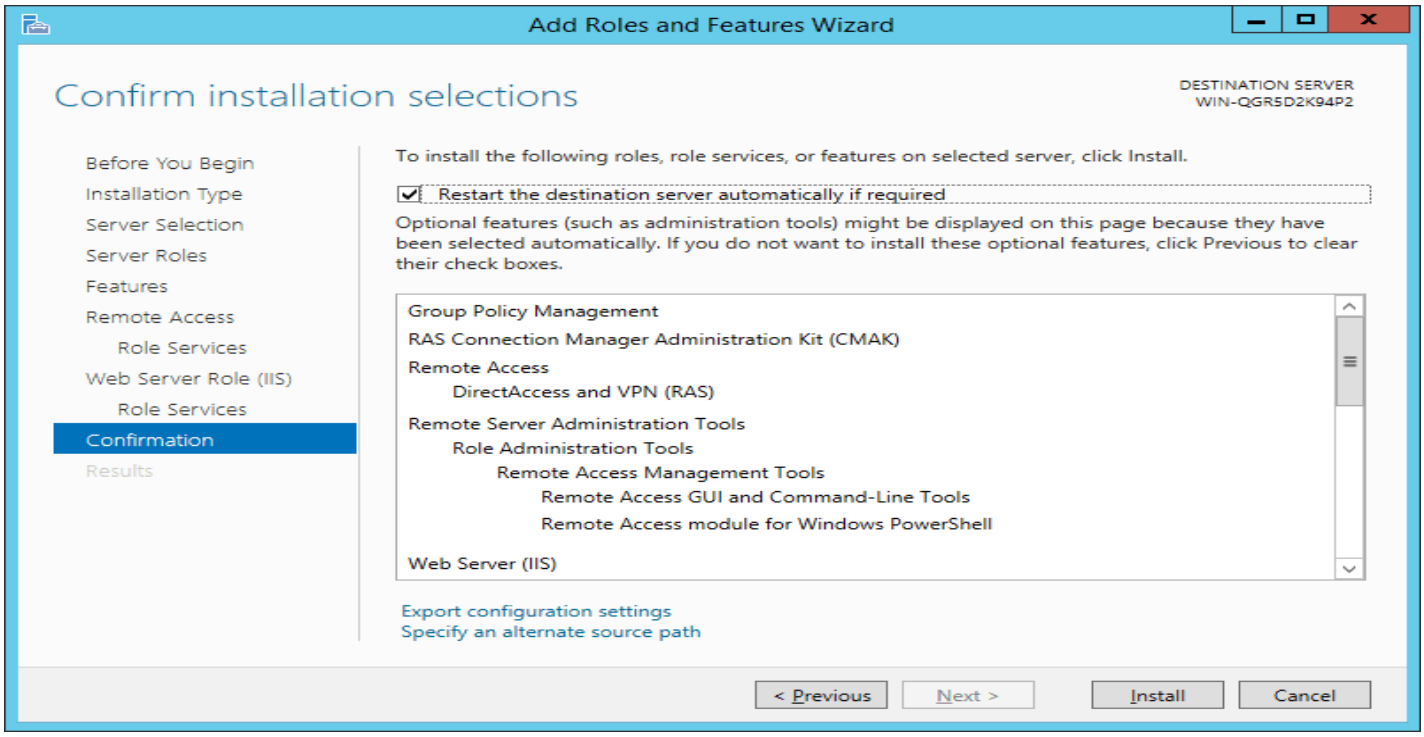
First install the “Remote Access” via Server Manager or Windows PowerShell.



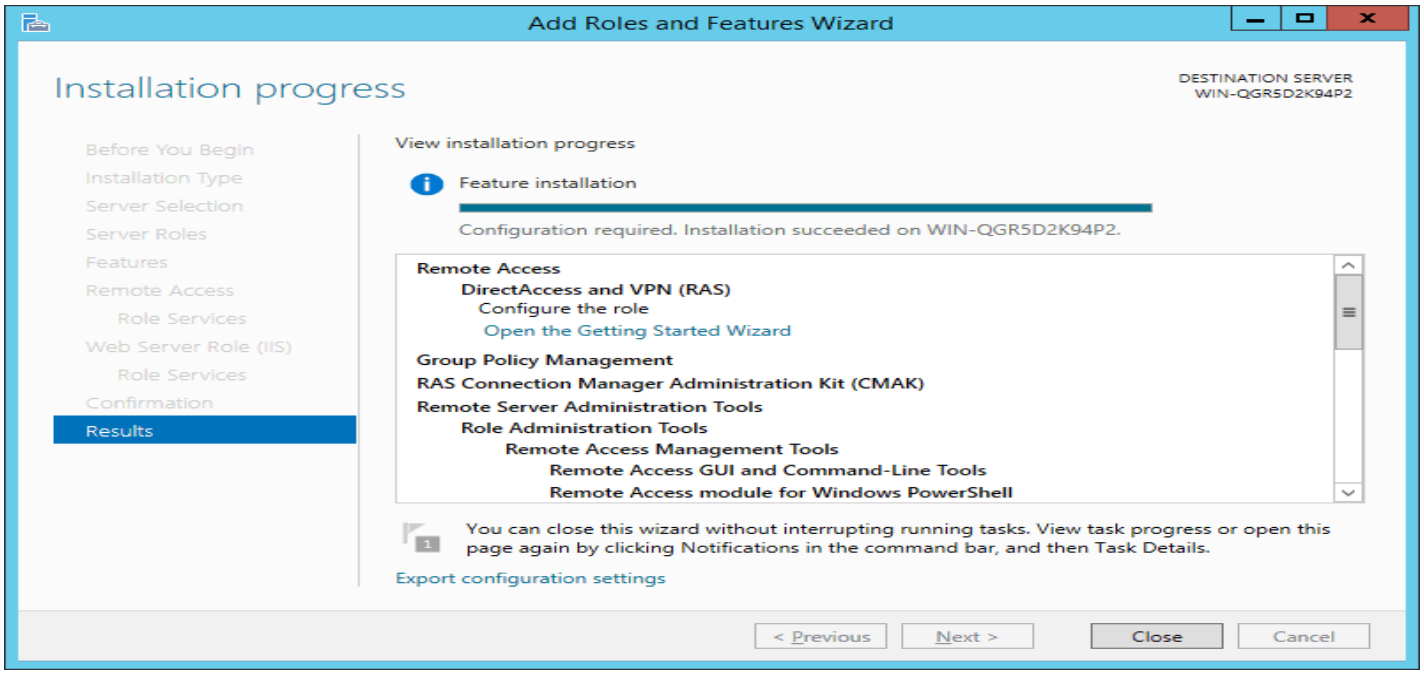
Select the “Direct Access and VPN (RAS)” role services.



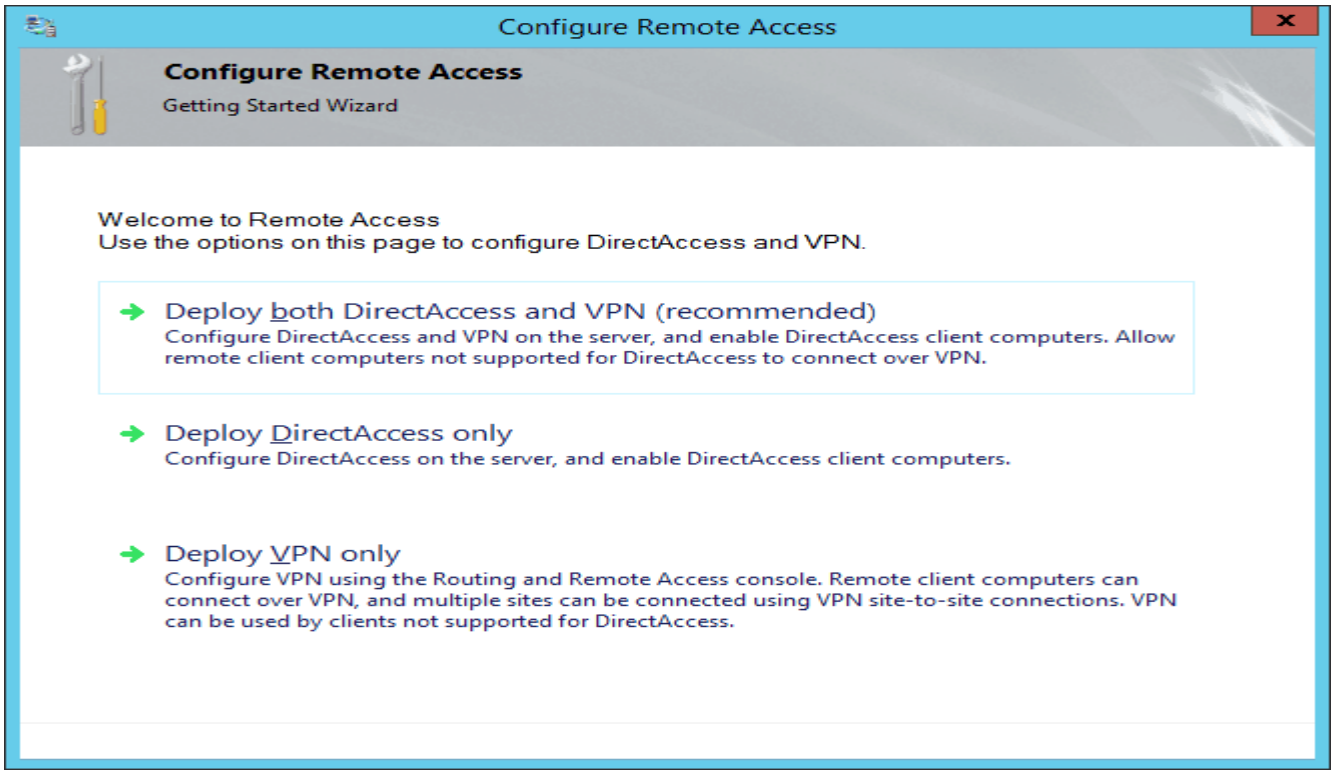
On the next steps just use the default settings. After that you can have a look at the Overview screen and install the role.



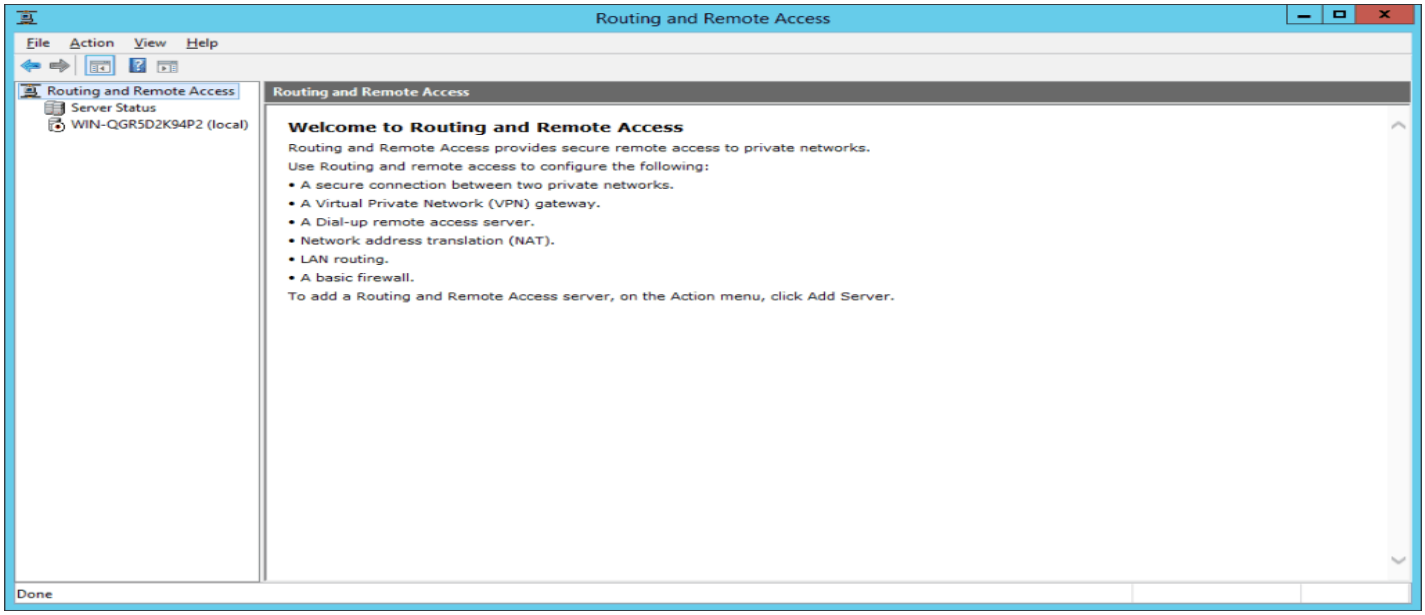
After the features are installed, which can take a while to finish you see the link for the Getting Started Wizard. Click on “Open the Getting Started Wizard“.



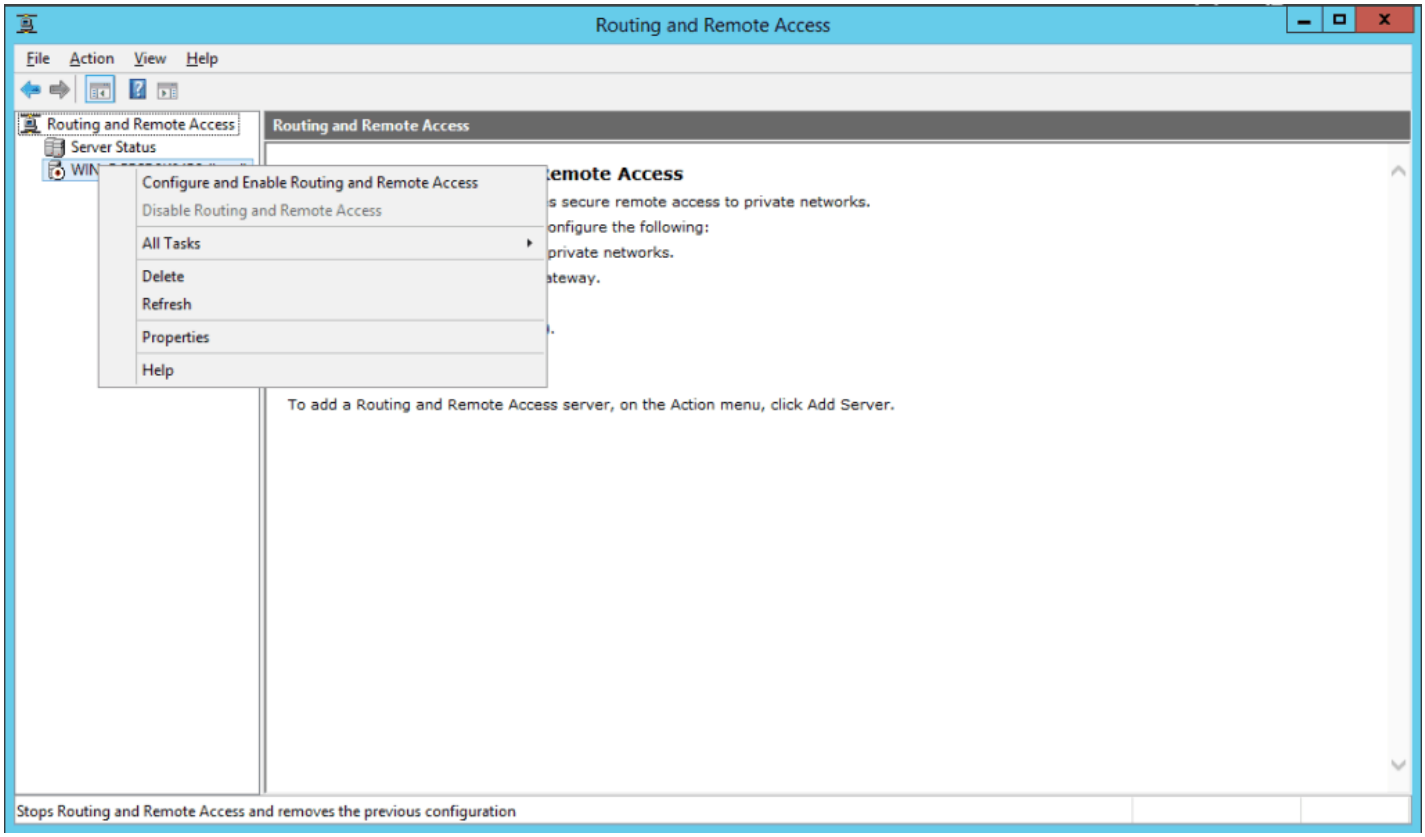
This opens a new wizard which will help you to configure the server. On the first screen select “Deploy VPN only“.



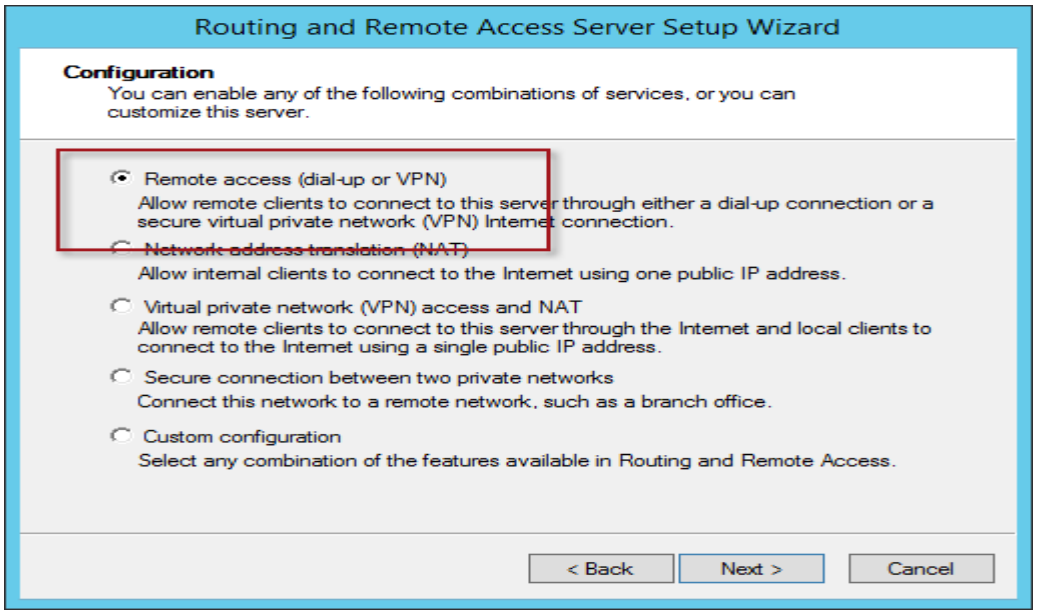
This opens the Routing and Remote Access MMC



Right click on the Server name and click on “Configure and Enable Routing and Remote Access“.

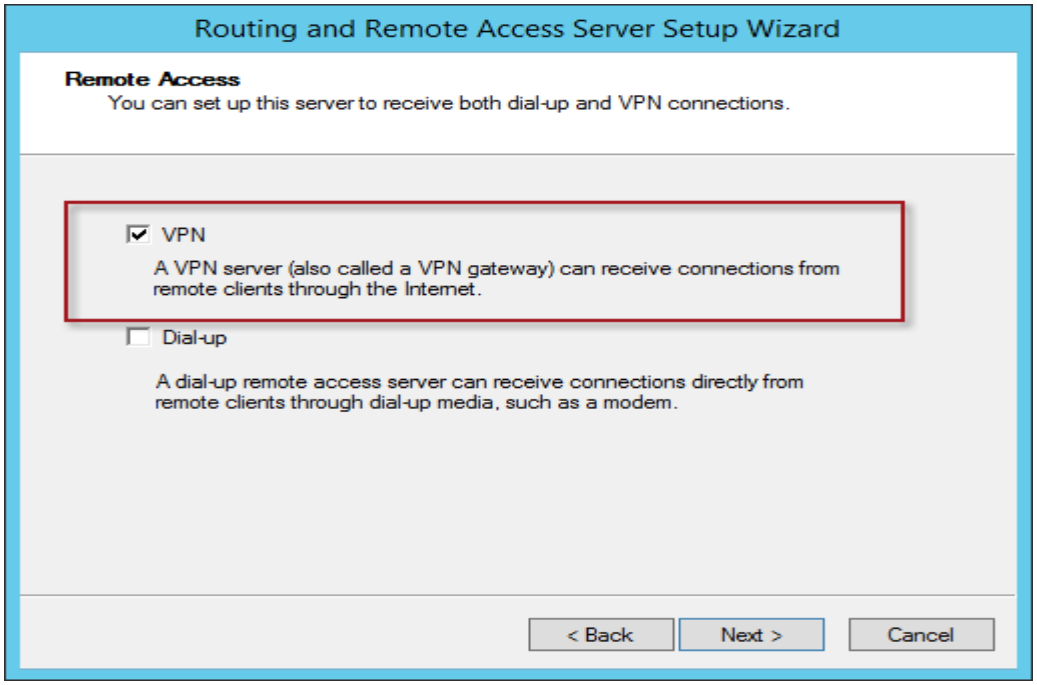


Click Next, choose the Remote access (dial-up or VPN) option, and click Next.



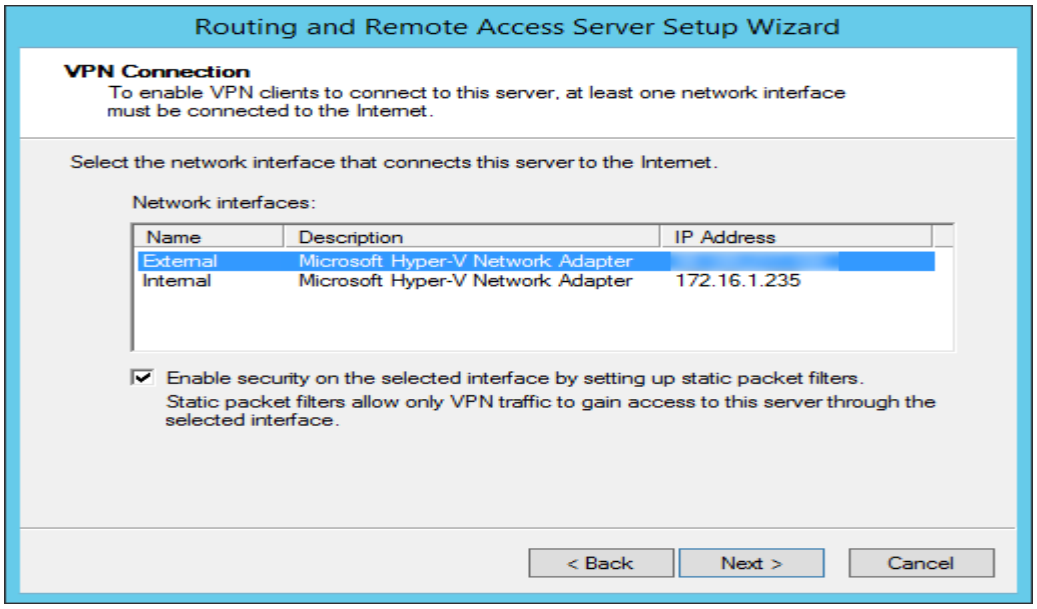
Choose Remote access (dial-up or VPN).

Choose VPN and click Next.



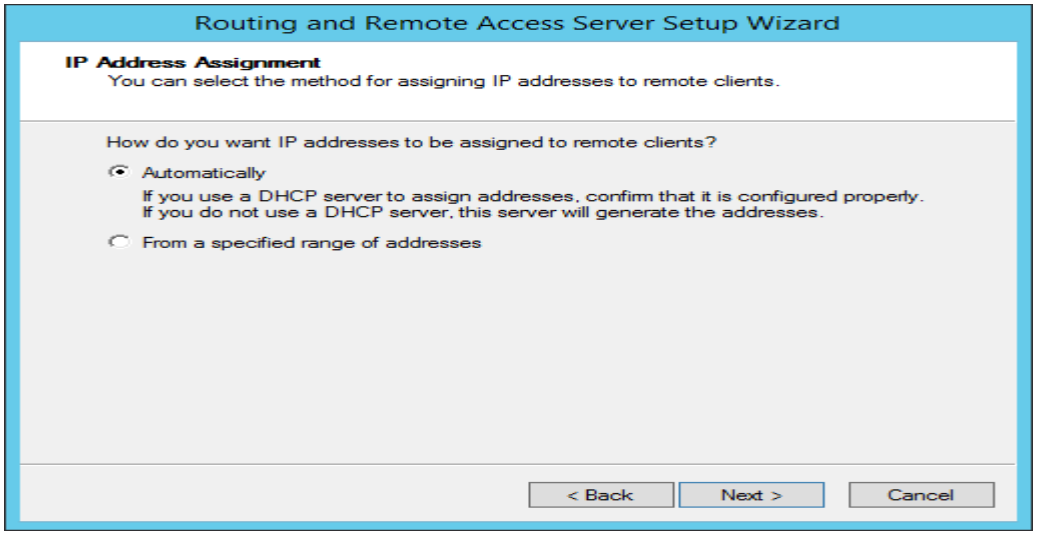
Choose VPN.

Select the network interface that is Internet-facing. In addition, select the option to Enable security on the selected interface by setting up static packet filters and click Next.



Select the Internet-facing network interface.

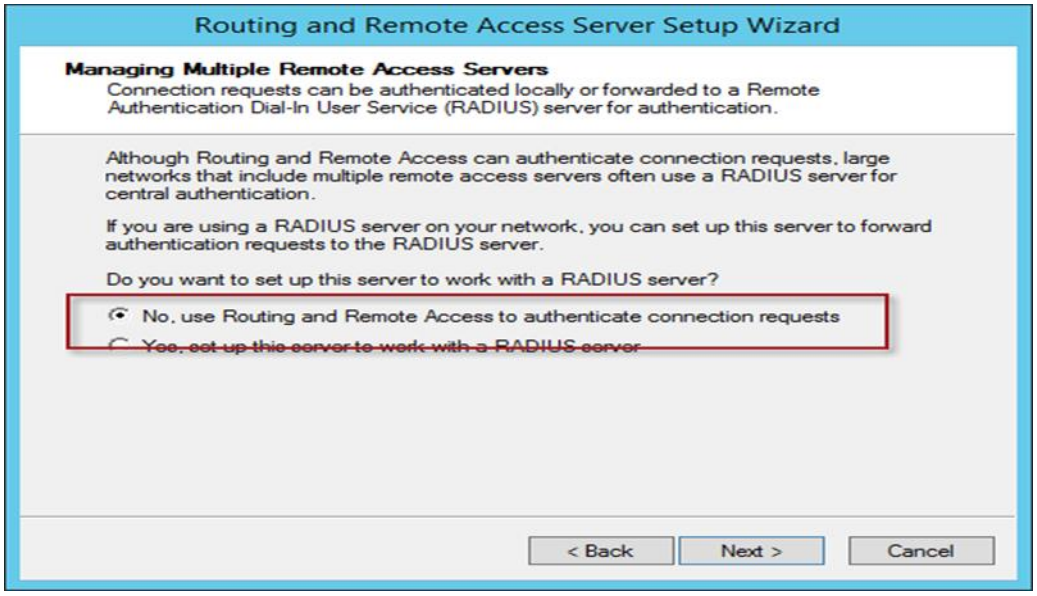
DHCP. Select the option to assign IP addresses automatically and click Next.



Choose automatic IP address assignment for remote clients.

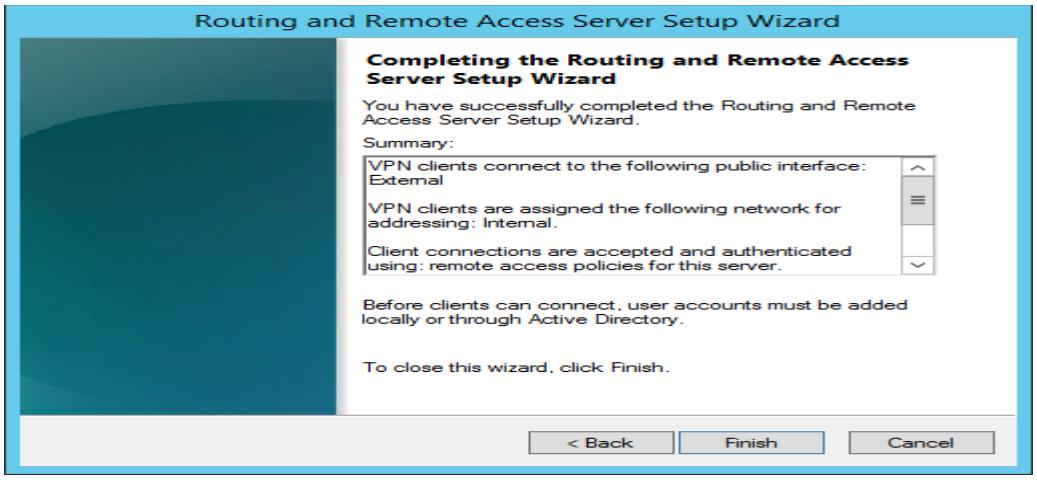
Note:

If the VPN server is to be deployed in a load-balanced cluster, IP addresses must be assigned to clients manually. The VPN server can authenticate users itself, or forward authentication requests to an internal RADIUS server. For the scope of this article, native Windows authentication using RRAS will be configured. Choose No, use Routing and Remote Access to authenticate connection requests and click Next



Use Routing and Remote Access to authenticate connection requests.

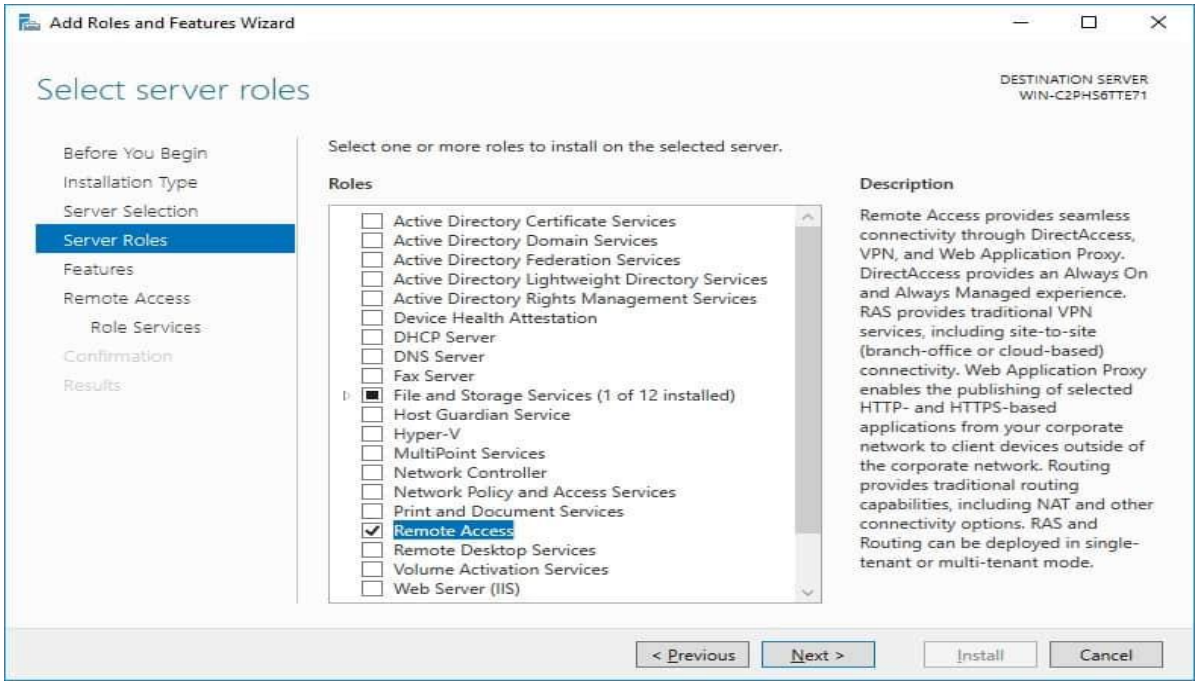
Review the configuration and click Finish.



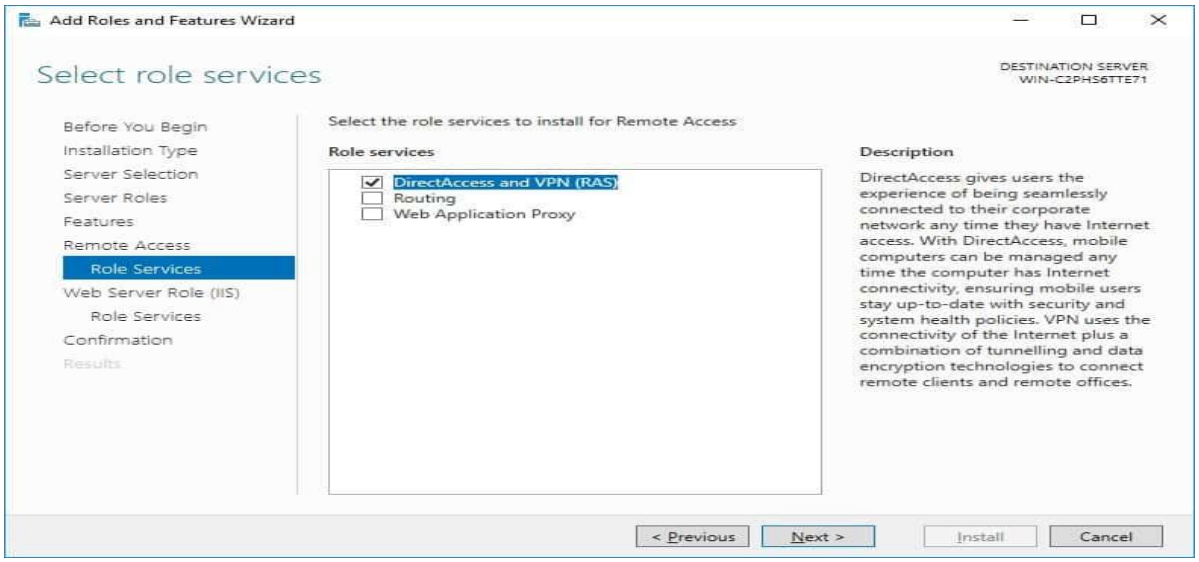
14.2- VPN in windows server 2016

تفعيل VPN داخل windows server 2016

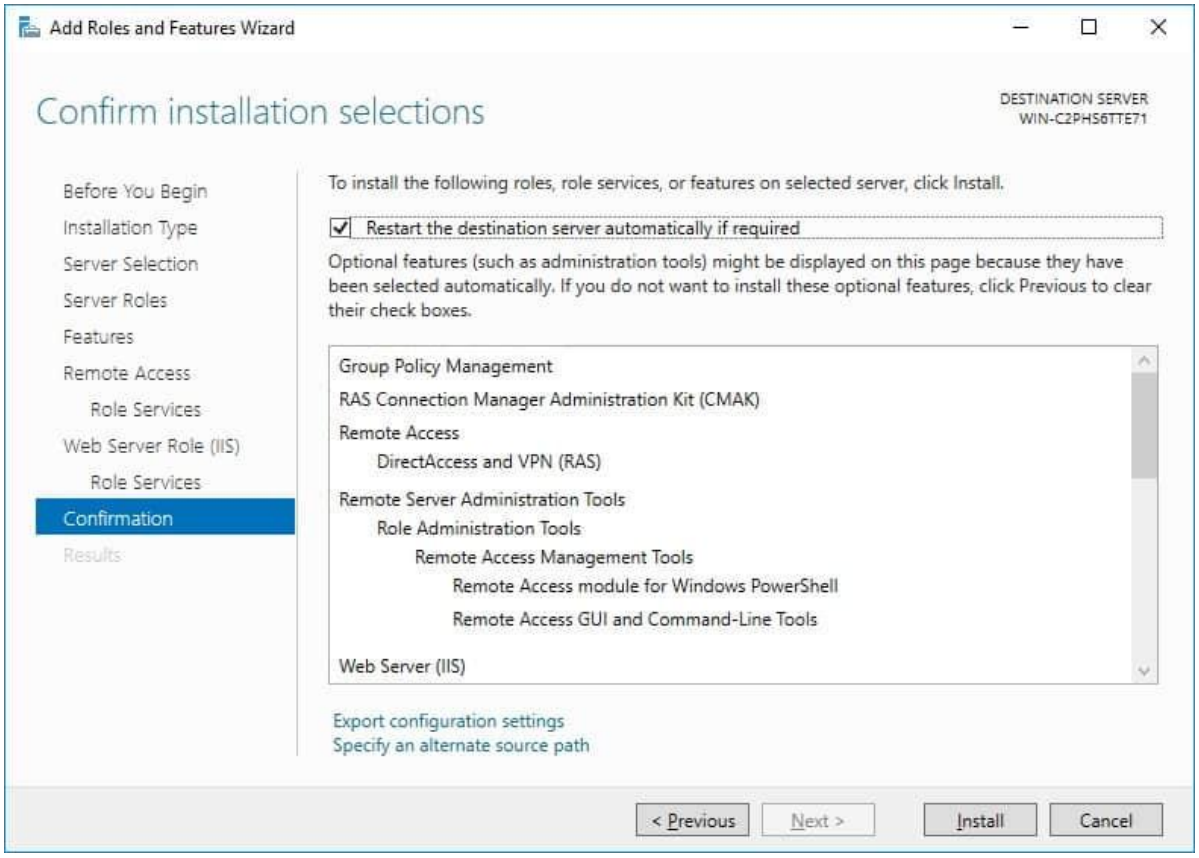
First install the "**Remote Access**" via Server Manager or Windows PowerShell.



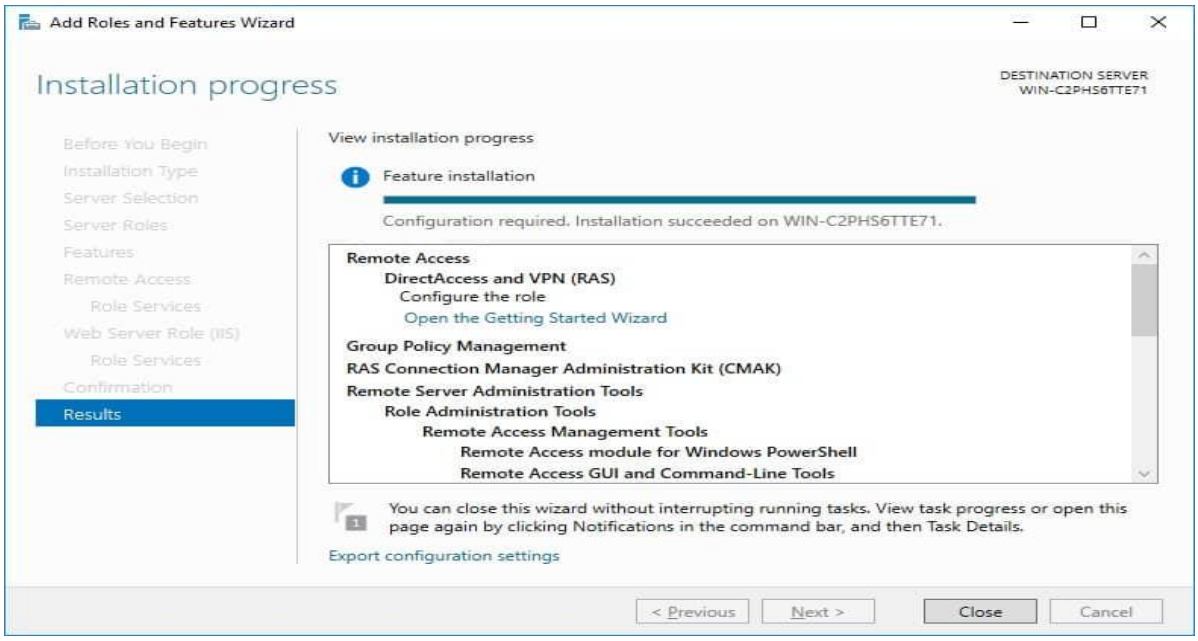
Select the "**DirectAccess and VPN (RAS)**" role services and click next.



On the next steps just use the default settings. After that you can have a look at the overview screen and install the role.

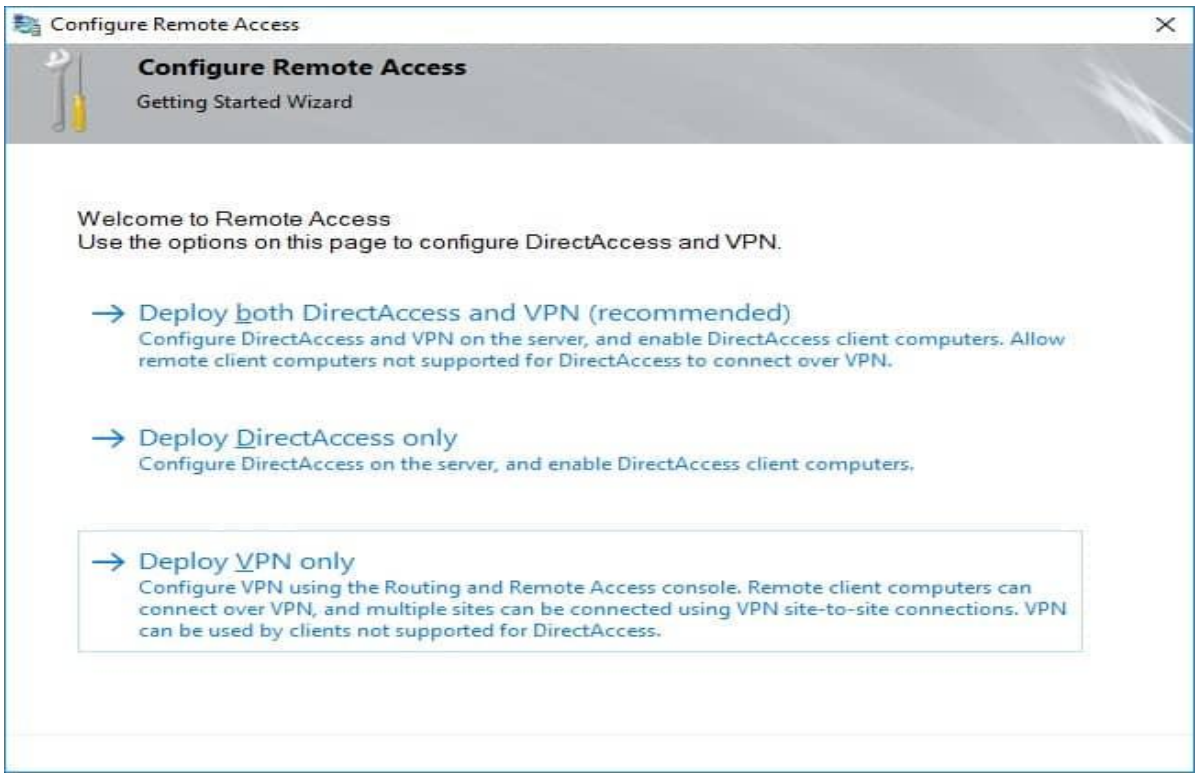


After the features are installed, which can take a while to finish you see the link for the Getting Started Wizard. Click on "**Open the Getting Started Wizard**".



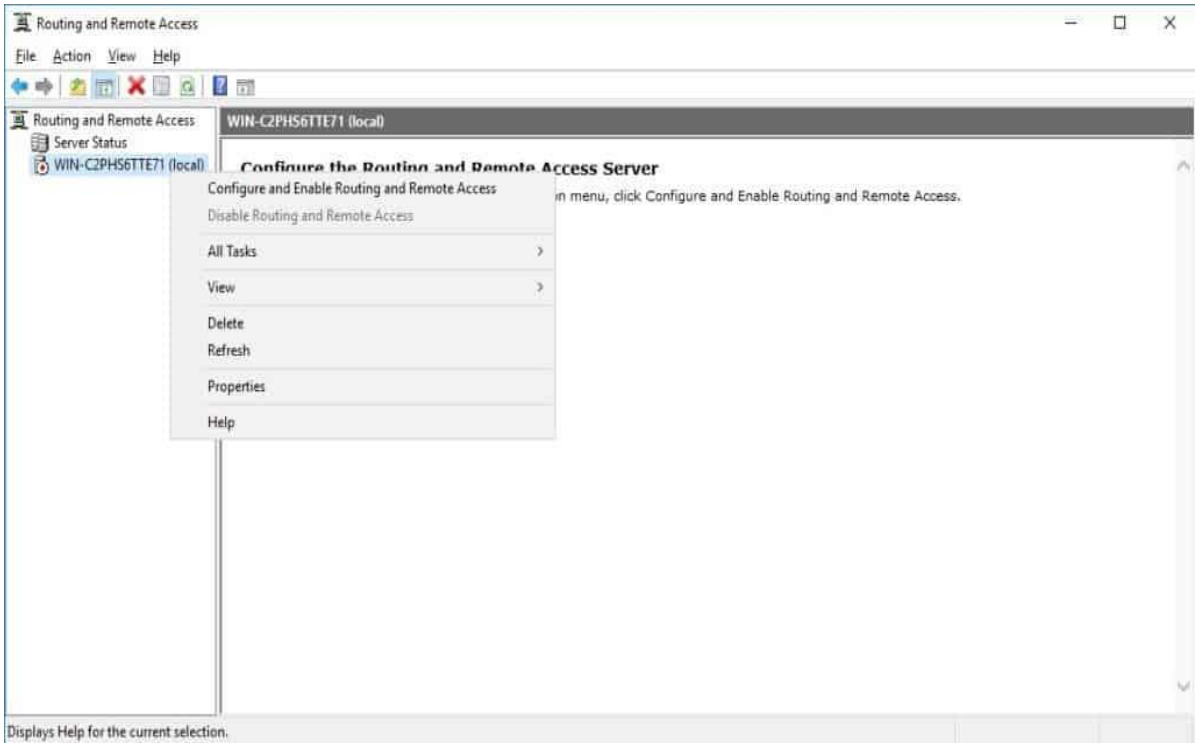
Configure Windows Server VPN

This opens a new wizard which will help you to configure the server. On the first screen select "**Deploy VPN only**".

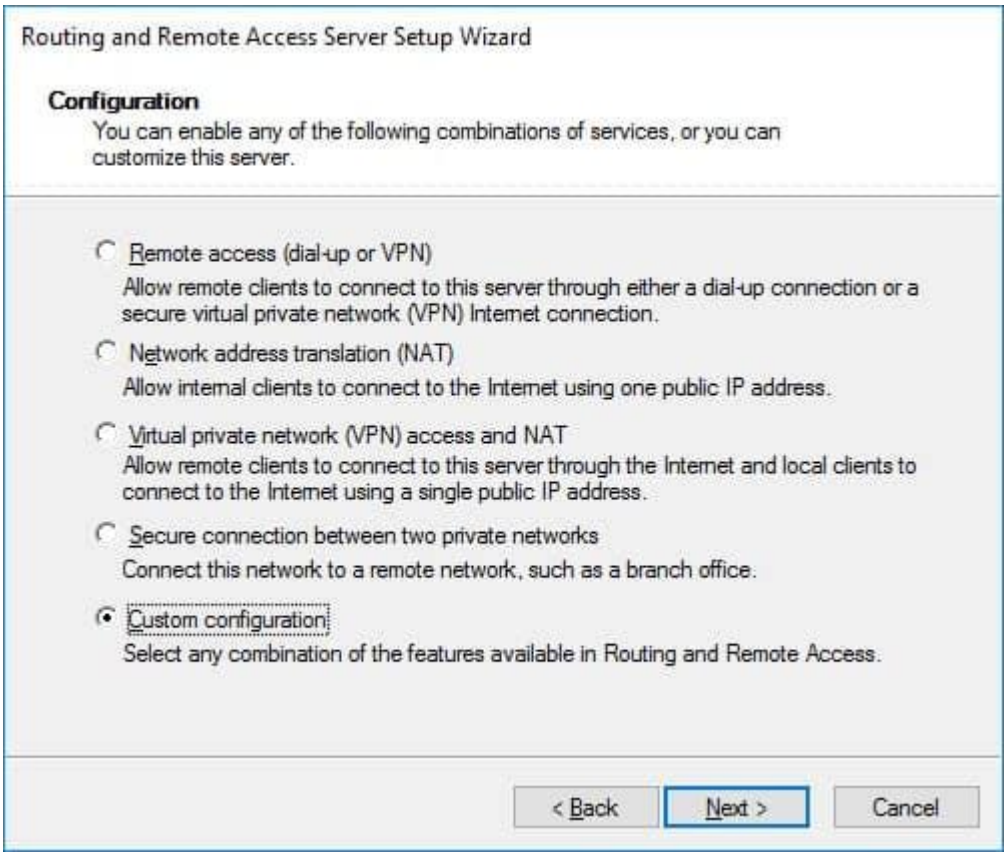


This opens the Routing and Remote Access Management Console

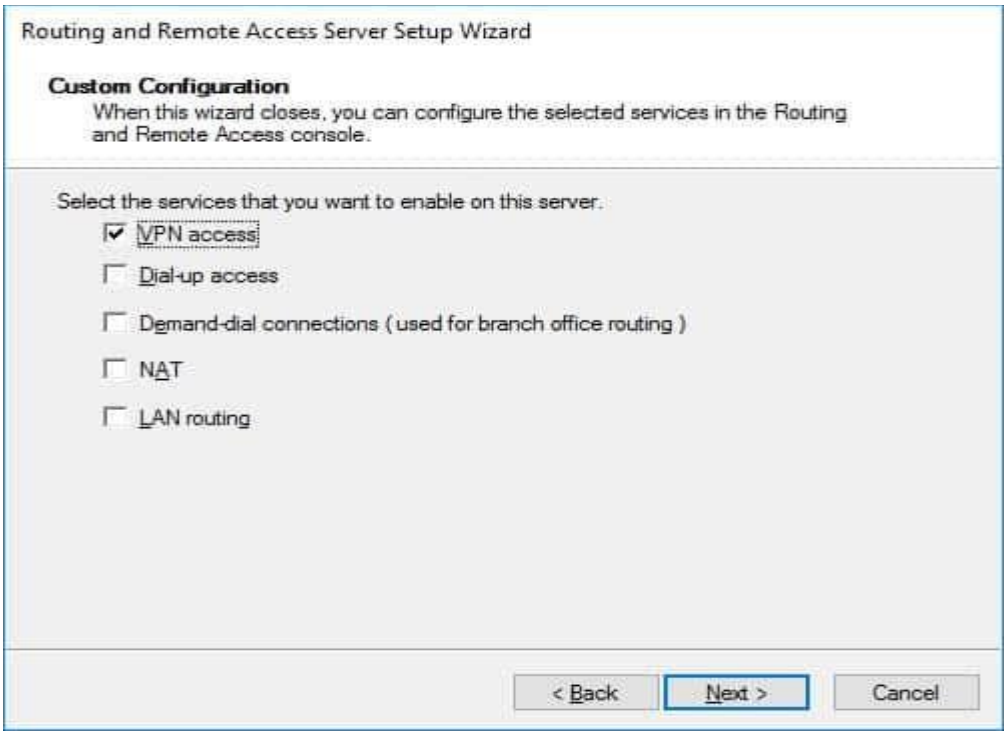
Right click on the Server name and click on "**Configure and Enable Routing and Remote Access**".



On the new wizard select "**Custom configuration**".



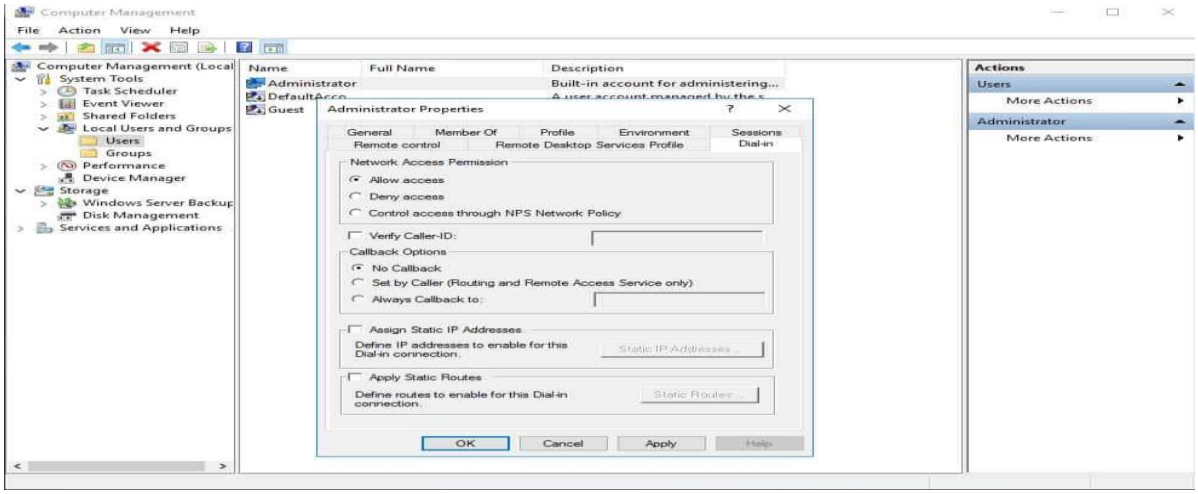
Select "**VPN Access**".

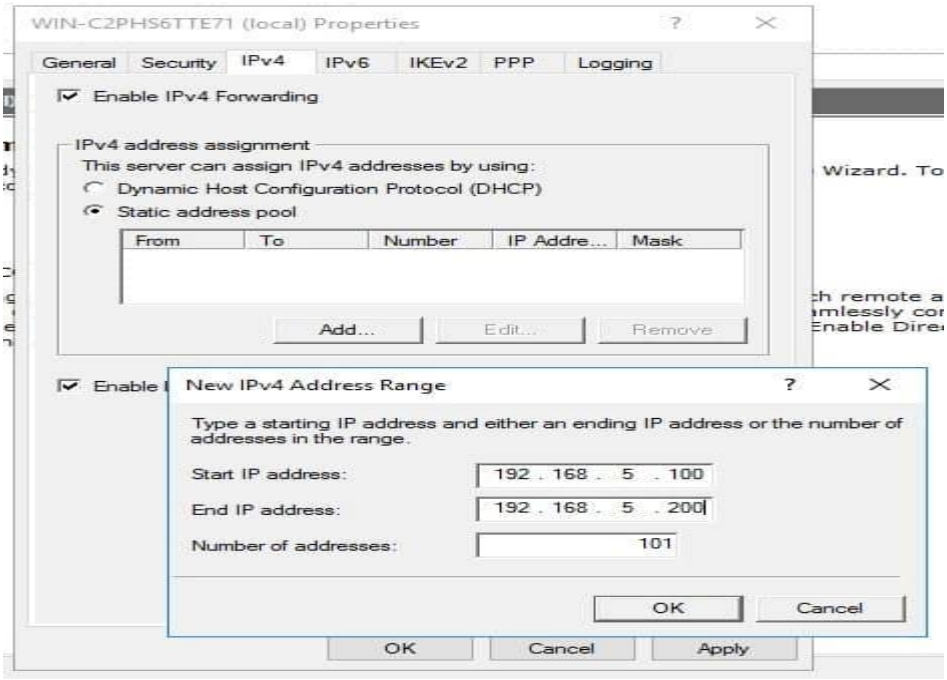


After you have click finish you can now start the Routing and Remote Access service.

If you have an other firewall between the internet and your Windows Server you have to open the following Firewall port sand forward them to your Windows Server:

After the installation Users have to be enabled for Remote Access to connect to your VPN Server. On a standalone server this can be done in the Computer Management MMC, in a domain environment this can be done in the user properties of an Active Directory user.



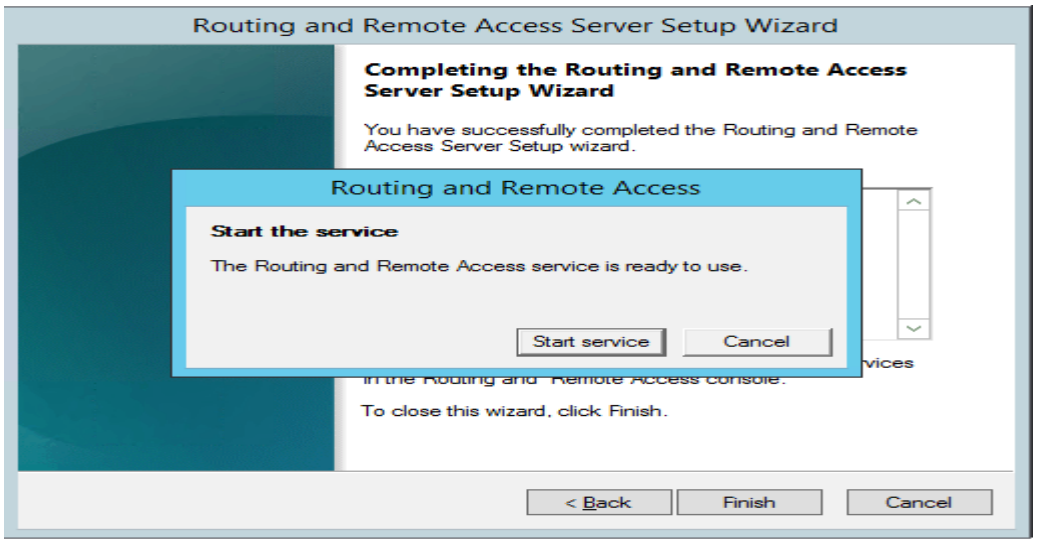


You now have to add a IP address from the same subnet as your static address pool to the network interface of your server, so users can access the server.

I hope this helps you to setup a VPN server in a small environment, lab or hosted server

Select “VPN Access“.

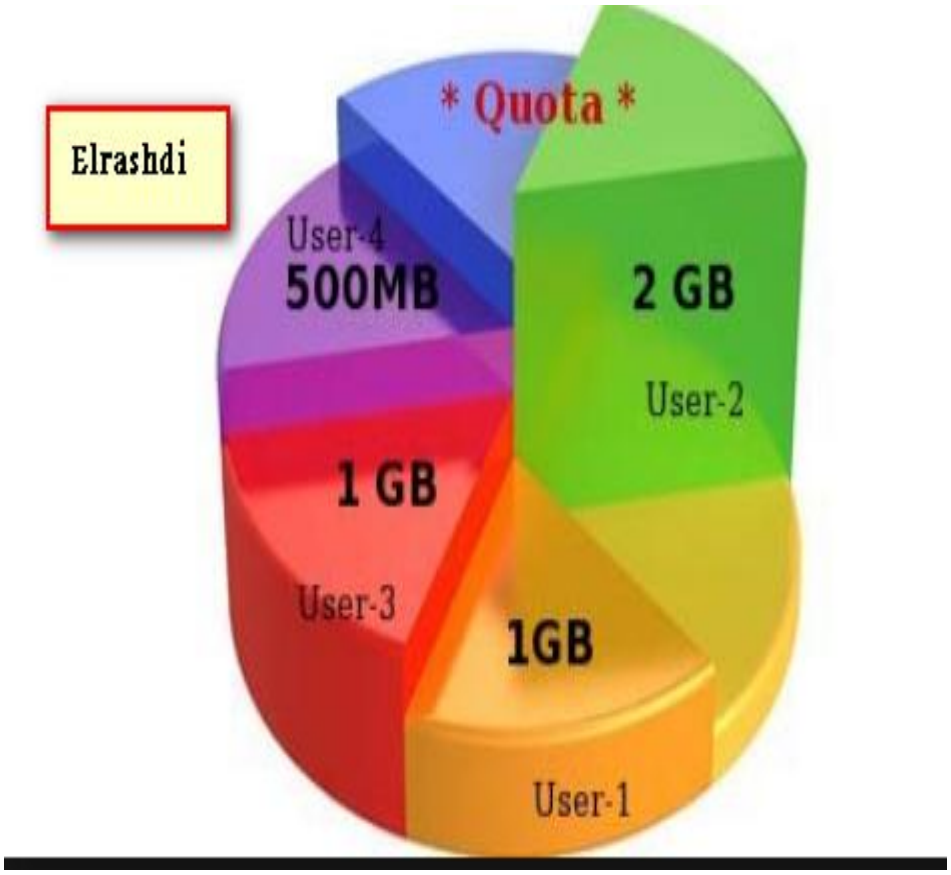
After you have click finish you can now start the Routing and Remote Access service.



15-quota in windows server

وهي عملية تحديد مساحة تخزنيه محدد لكل مستخدم يوميا او اسبوعيا او شهرية وذلك للاستغلال الانسب للقرص الصلب الموجود داخل الخوادم المختلفة.

Quota management is a valuable feature that enables you to restrict the storage capacity of shared resources in Windows Server. If you create quotas, you will limit the space allocated for a volume or a folder—allowing you to practice capacity management conveniently.

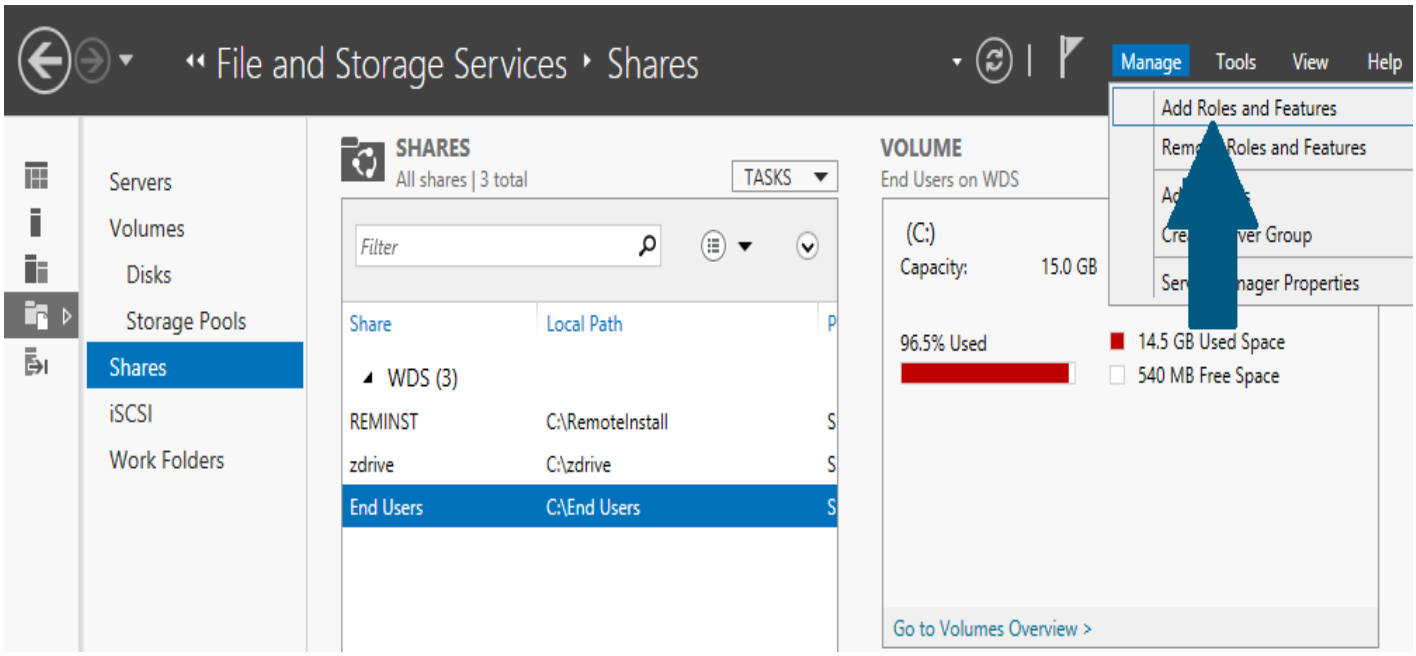


15.1- Quota in Windows Server 2012 R2

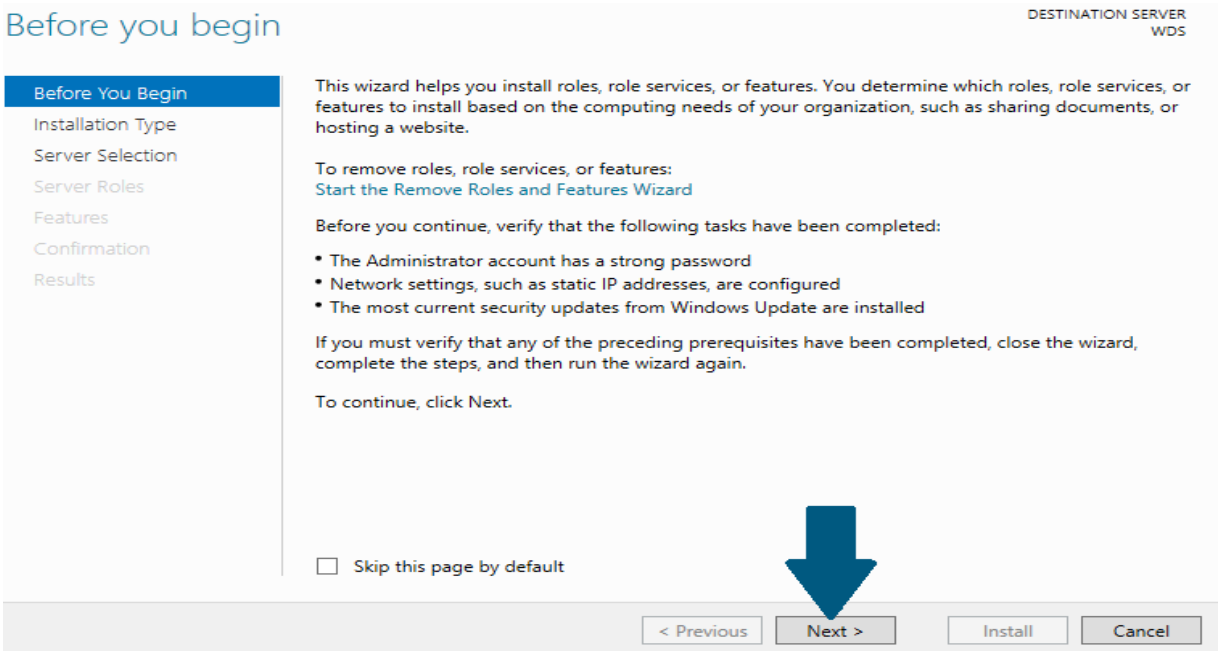
تفعيل تحديد مساحة تخزنيه محددة داخل Windows Server 2012 R2

Configuring File Server Resource Manager

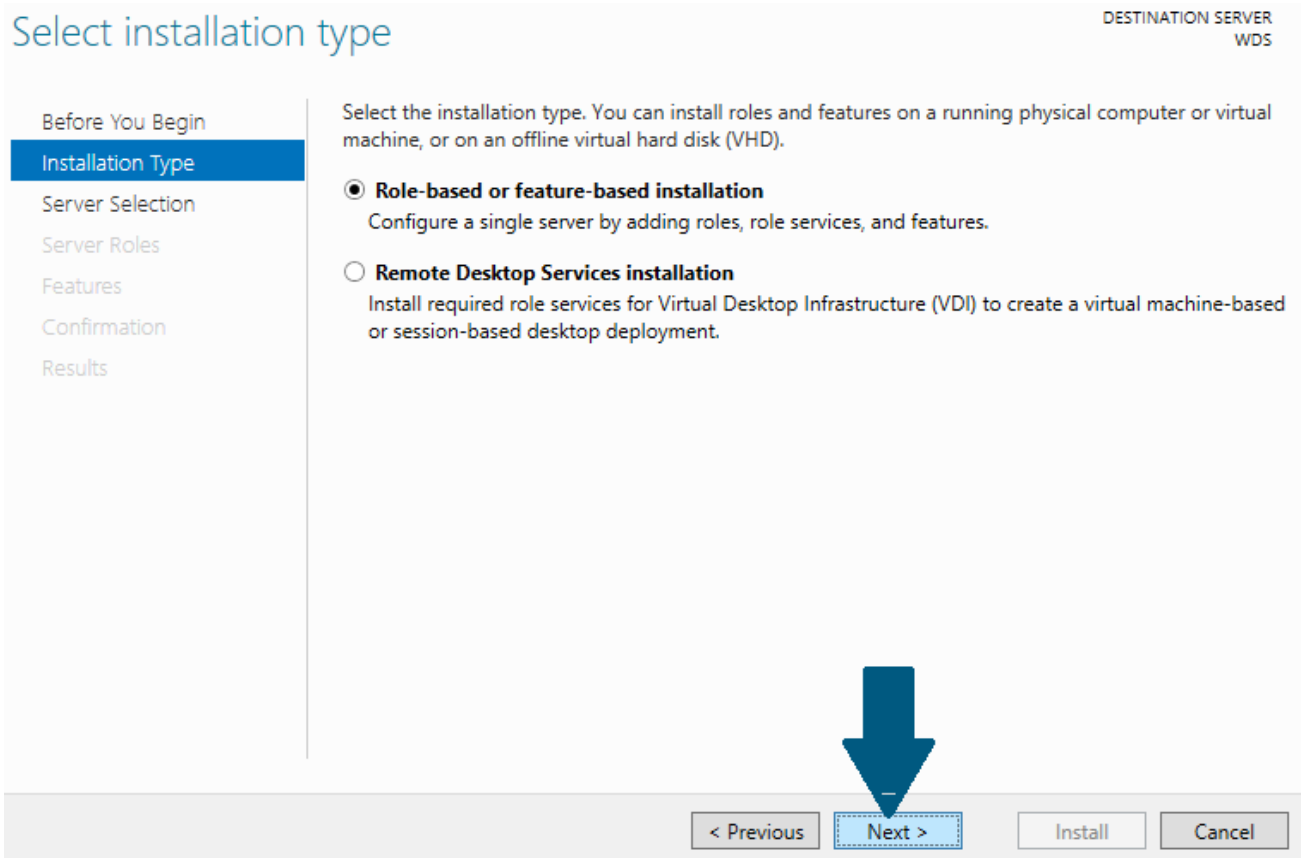
Open server manager dashboard, click **Manage -> Add Role and Features**.



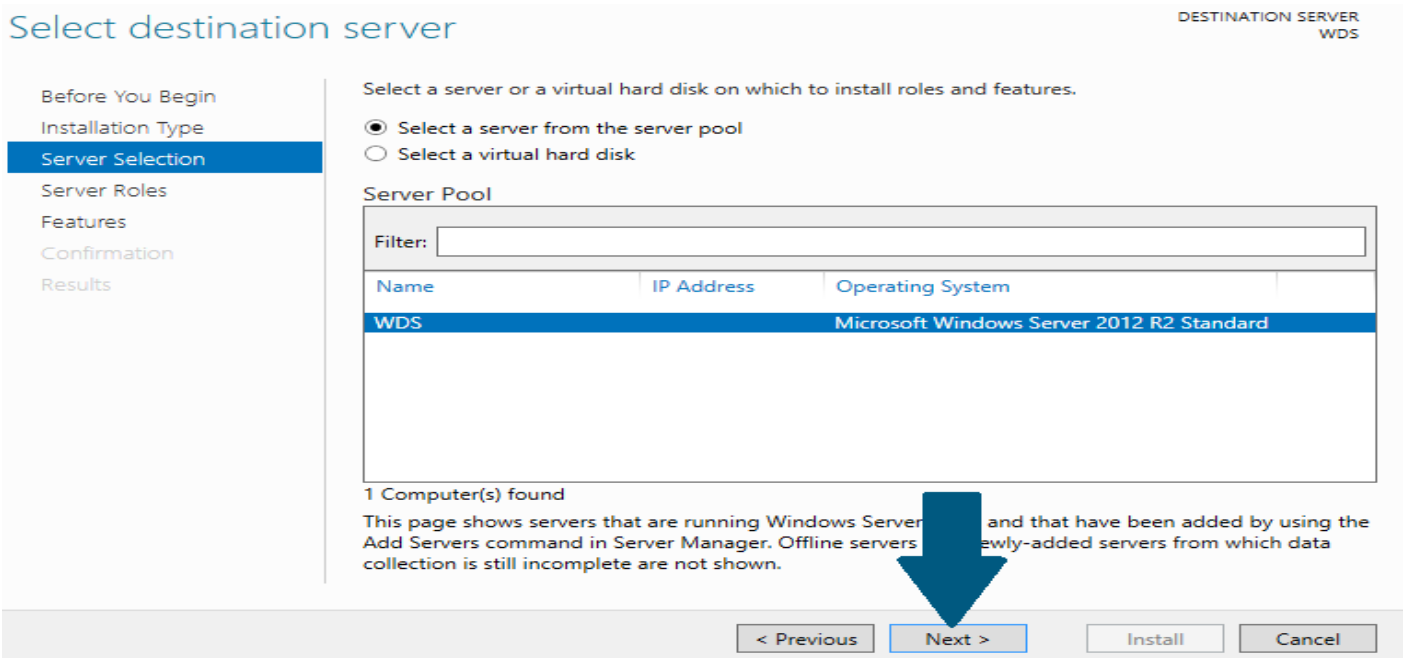
Click Next.



Choose Role-based or feature-based installation and click **Next**.

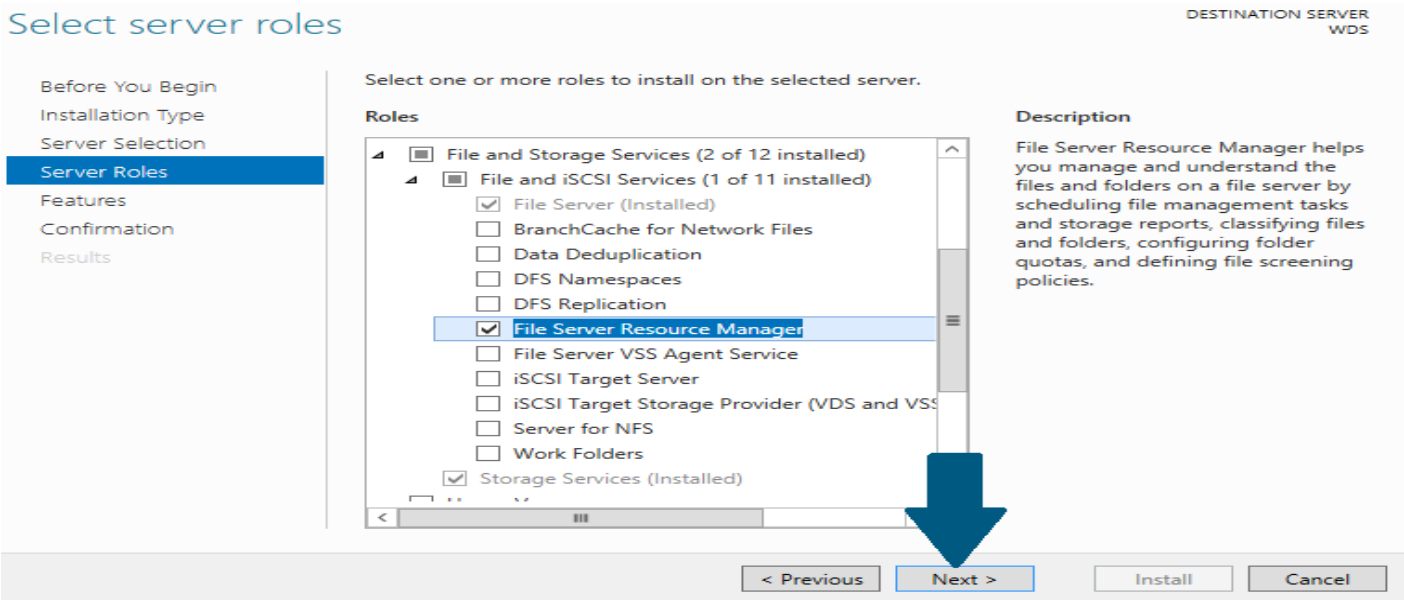

Select installation type
DESTINATION SERVER
WDS
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
Select the installation type. You can install roles and features on a running physical computer or virtual machine, or on an offline virtual hard disk (VHD).
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 create a virtual machine-based or session-based desktop deployment.
< Previous
Next >
Install
Cancel

Click **Next**.

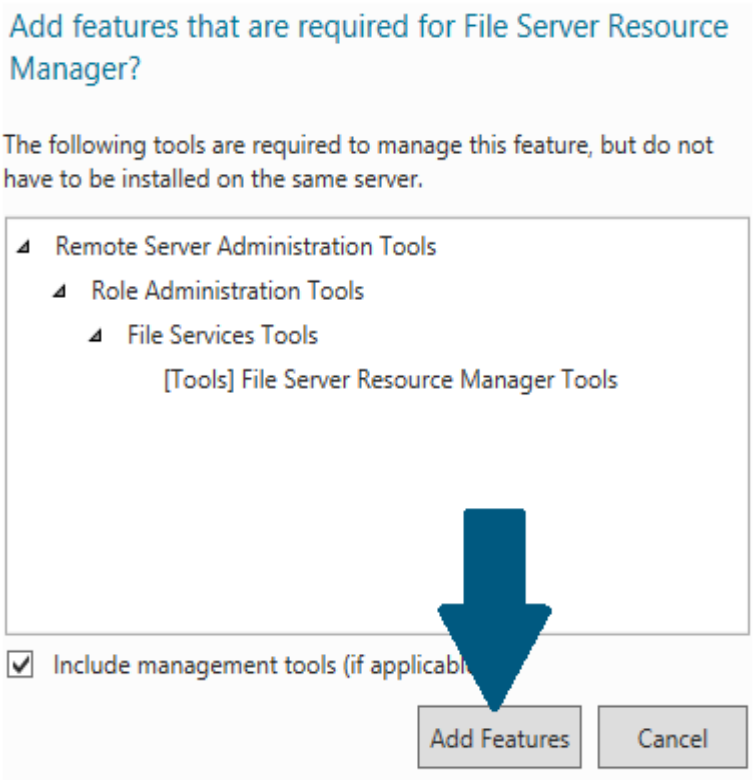

Select destination server
DESTINATION SERVER
WDS
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
Select a server or a virtual hard disk on which to install roles and features.
Select a server from the server pool
Select a virtual hard disk
Server Pool
Filter: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

Expand File and Storage Services -> File and iSCSI Services -> File Server Resource Manager.

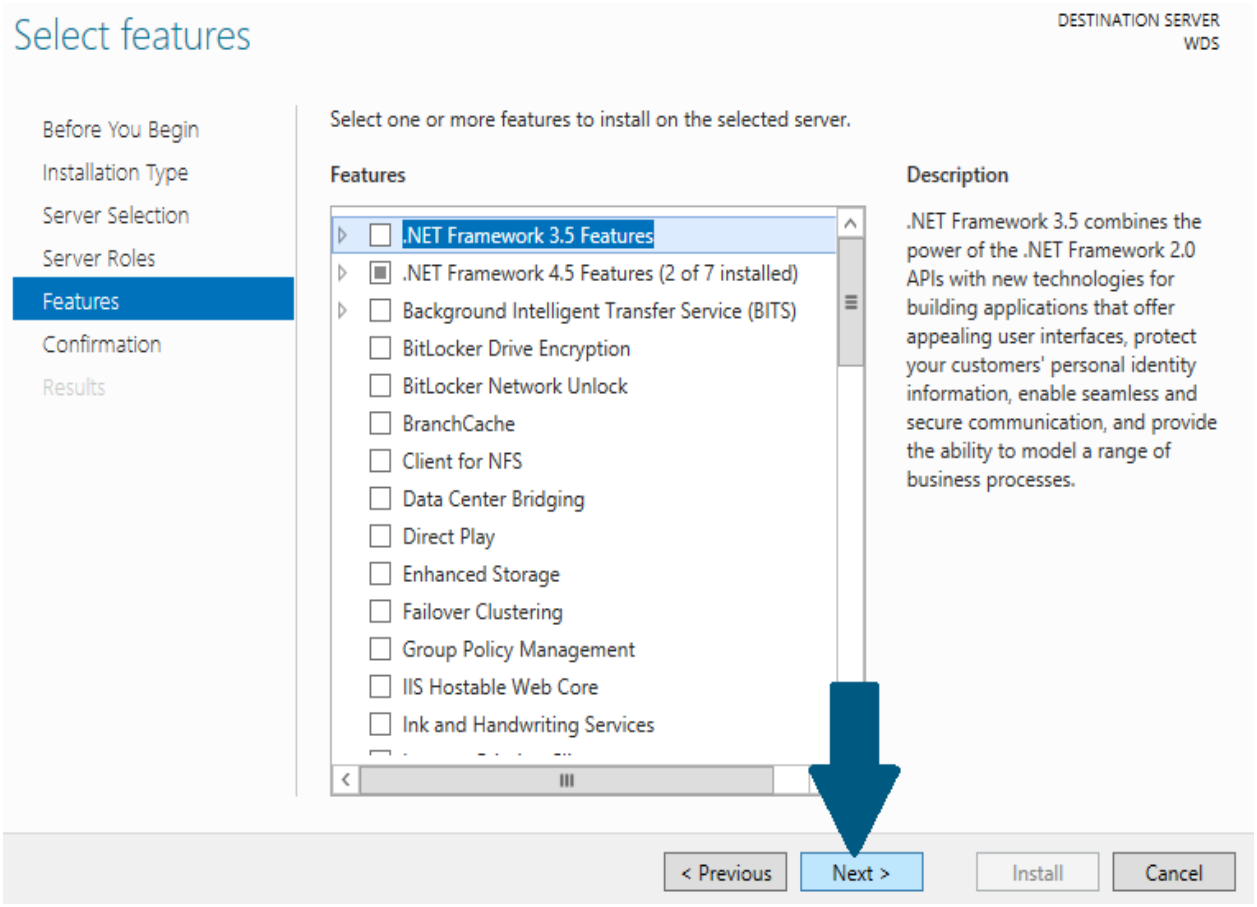
Click **Next**.



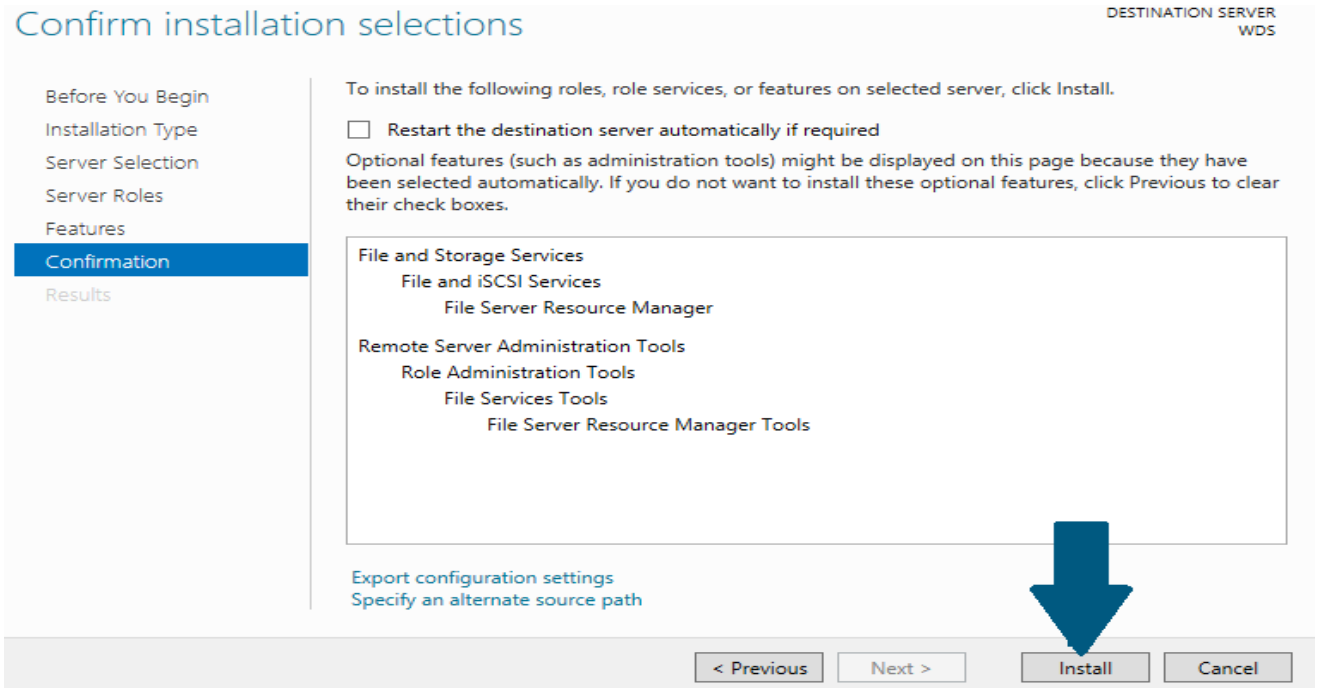
Click **Add Features**.



Choose .NET Framework and then Click **Next**.

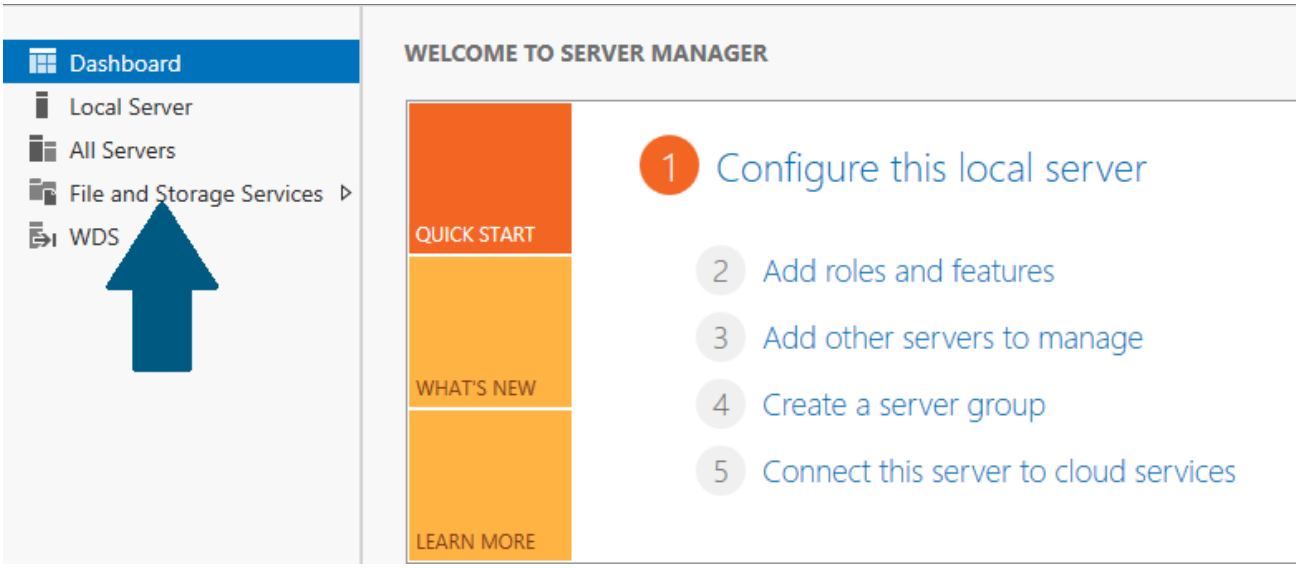


Click **Install**.

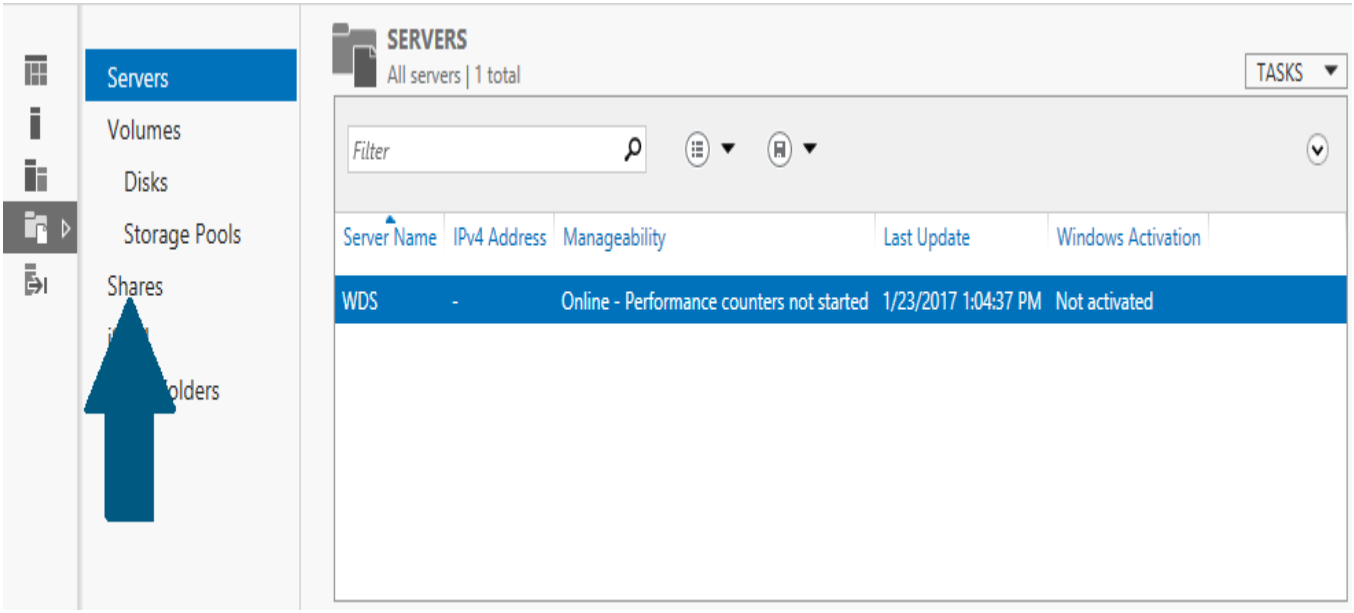


Sharing a Folder using File and Storage Services

Open server manager dashboard, click **File and Storage Services**.

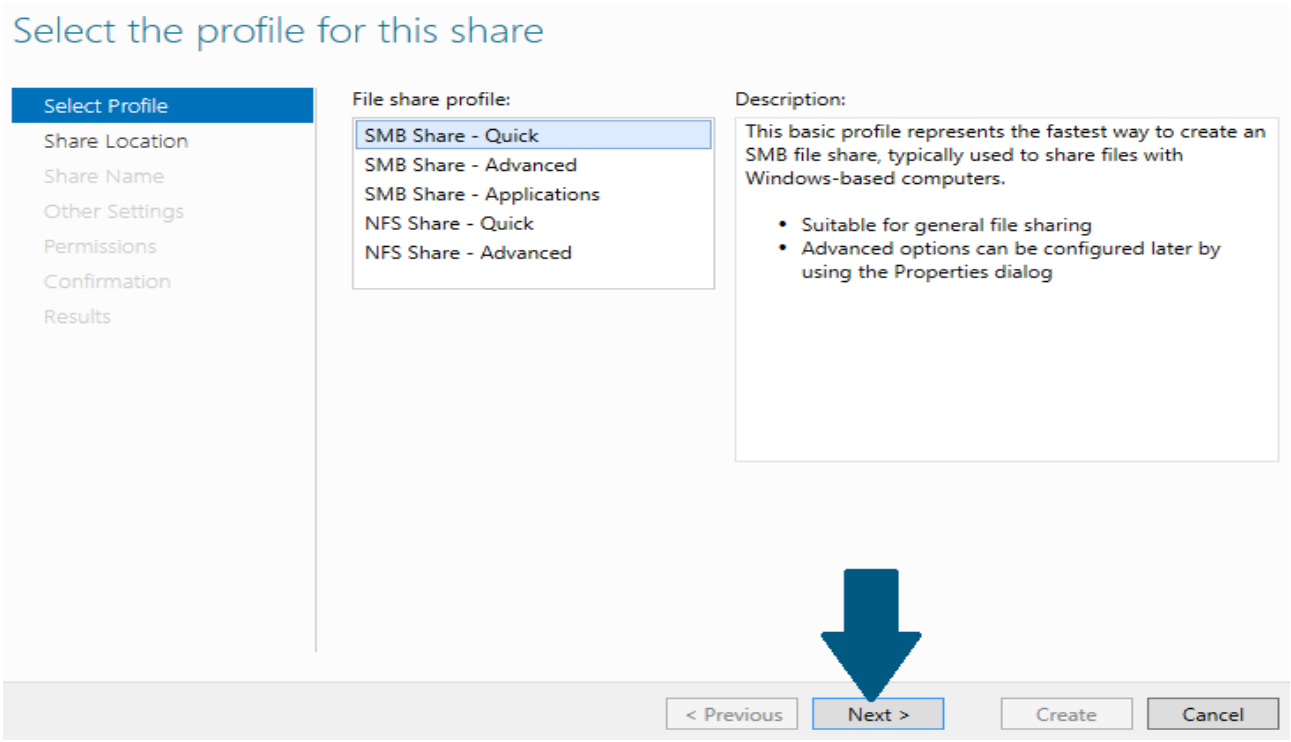


Click **Shares**.



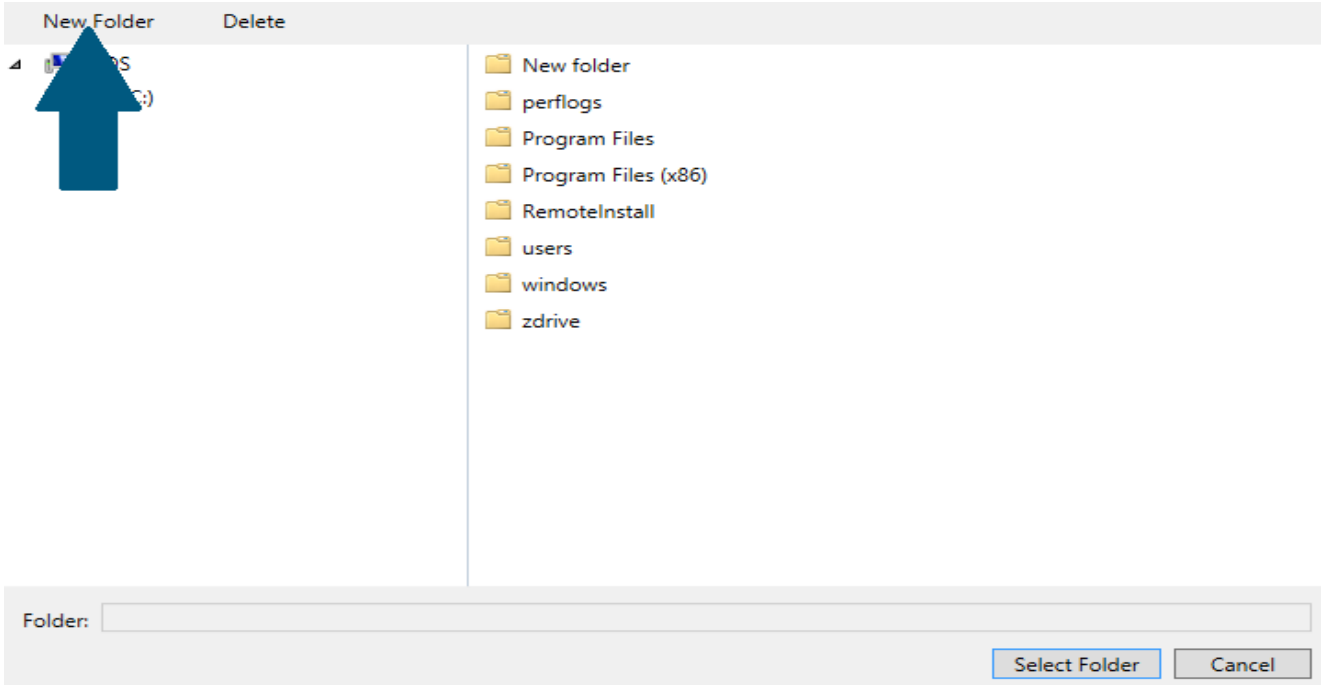
Click **Tasks -> New Share.**

Choose SMB Share - Quick. Click **Next**.

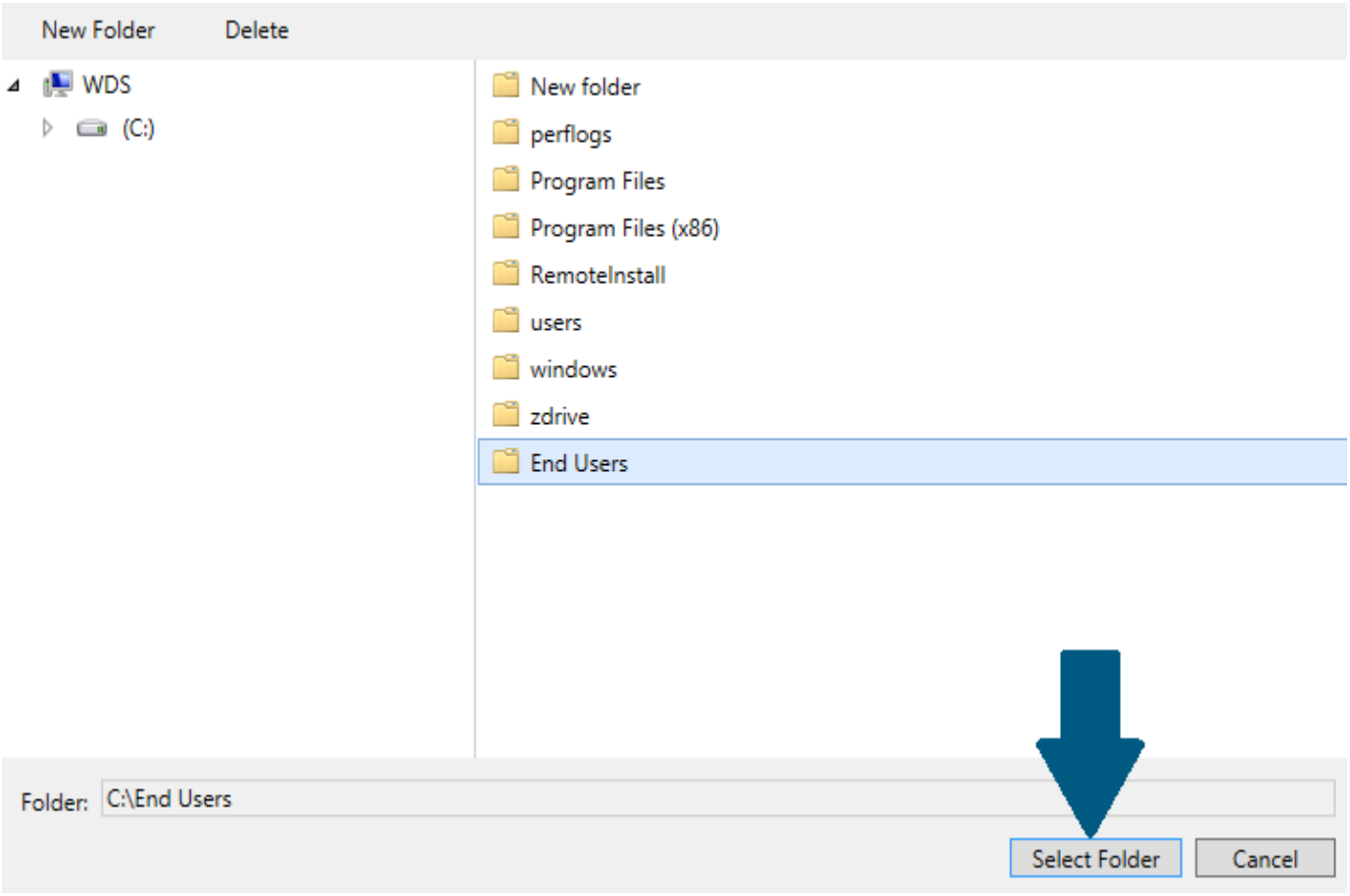


Click **Browse**.

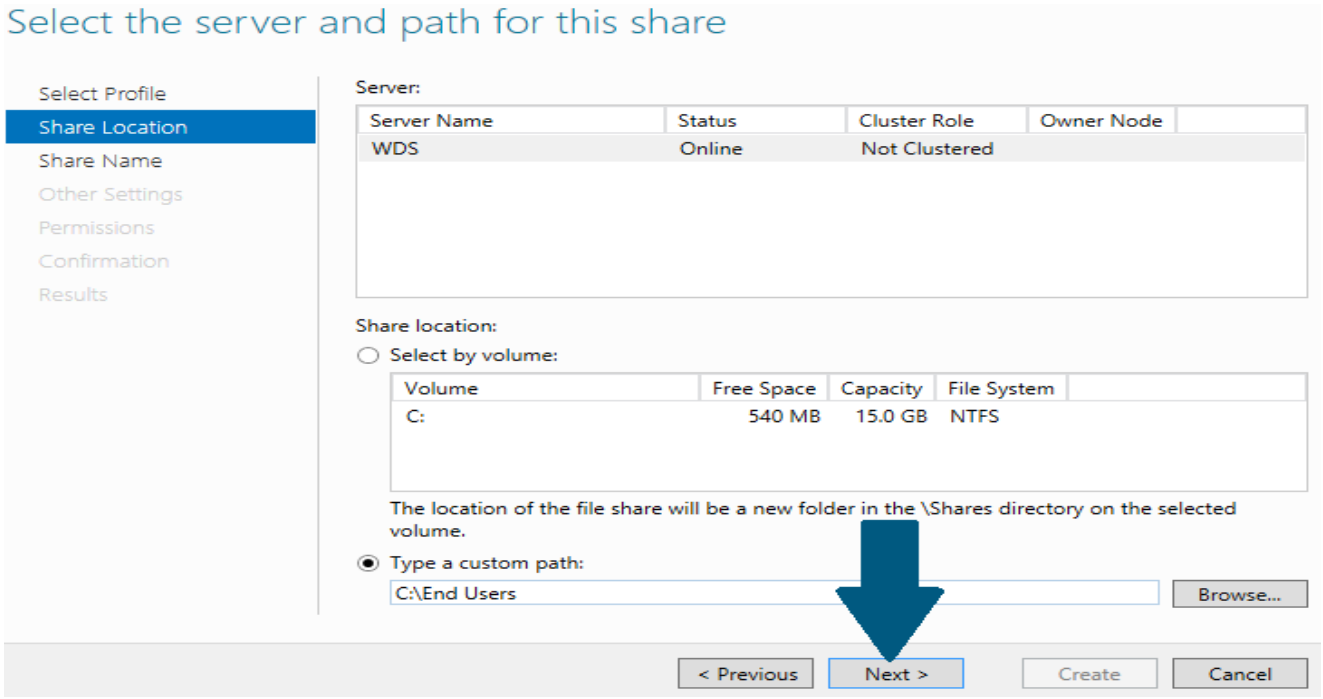
Click **New Folder** and name it.



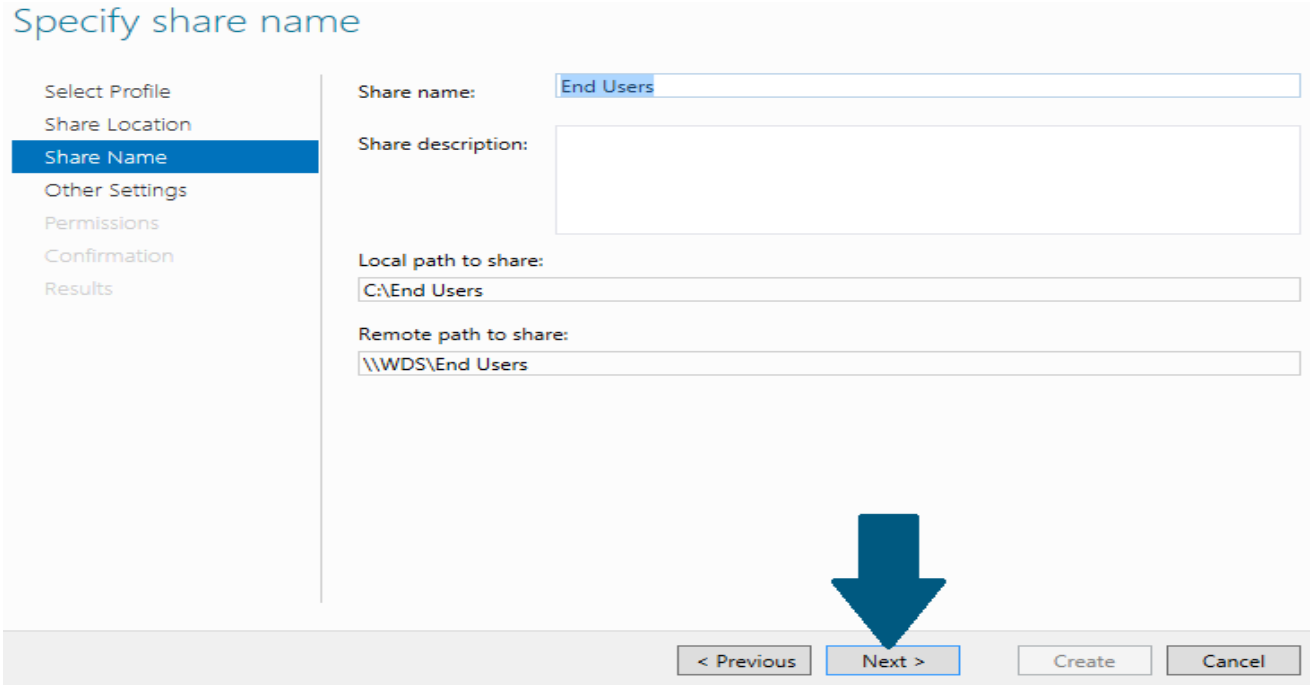
Choose the folder created in step 6 and click **Select Folder**.


New Folder
Delete
WDS
(C:)
New folder
perflogs
Program Files
Program Files (x86)
RemoteInstall
users
windows
zdrive
End Users
Folder:
C:\End Users
Select Folder
Cancel

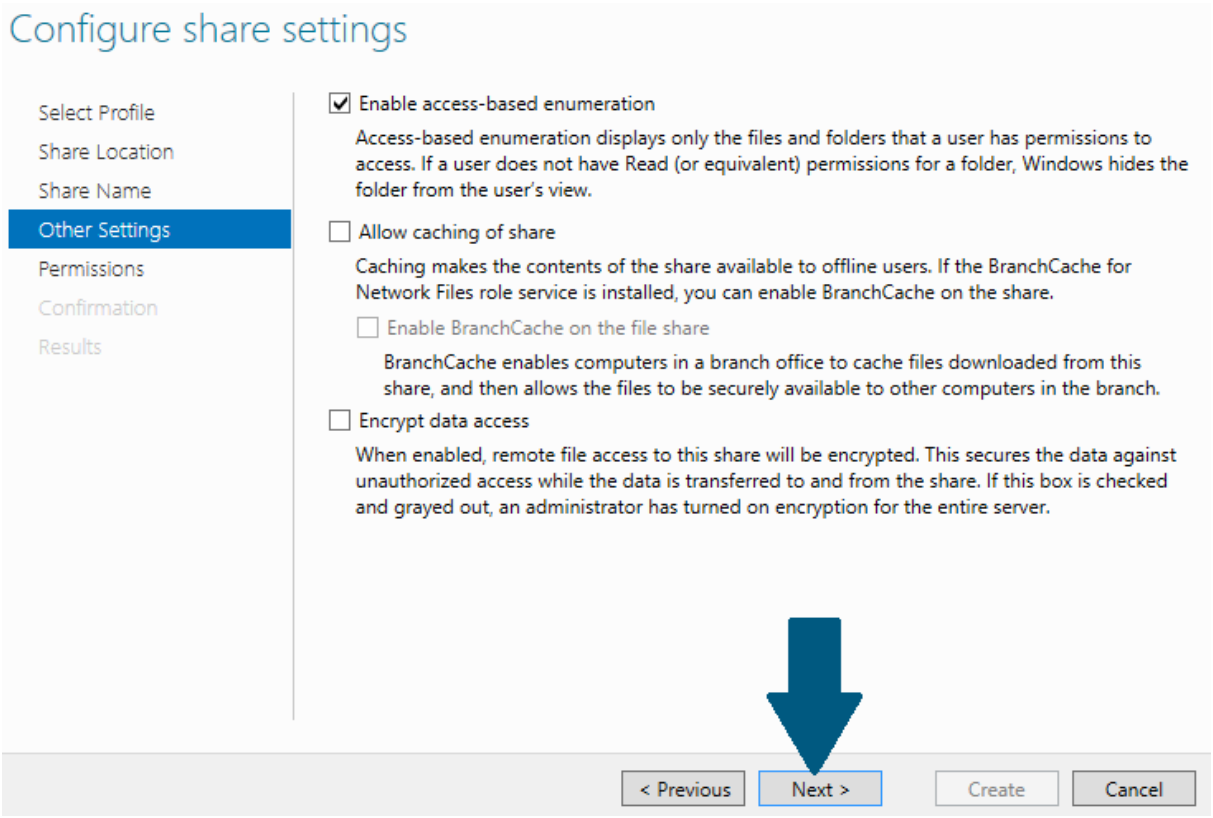
Click **Next**.


Select the server and path for this share
Select Profile
Share Location
Share Name
Other Settings
Permissions
Confirmation
Results
Server:
Server Name
Status
Cluster Role
Owner Node
WDS
Online
Not Clustered
Share location:
Select by volume:
Volume
Free Space
Capacity
File System
C:
540 MB
15.0 GB
NTFS
The location of the file share will be a new folder in the \Shares directory on the selected volume.
Type a custom path:
C:\End Users
Browse...
< Previous
Next >
Create
Cancel

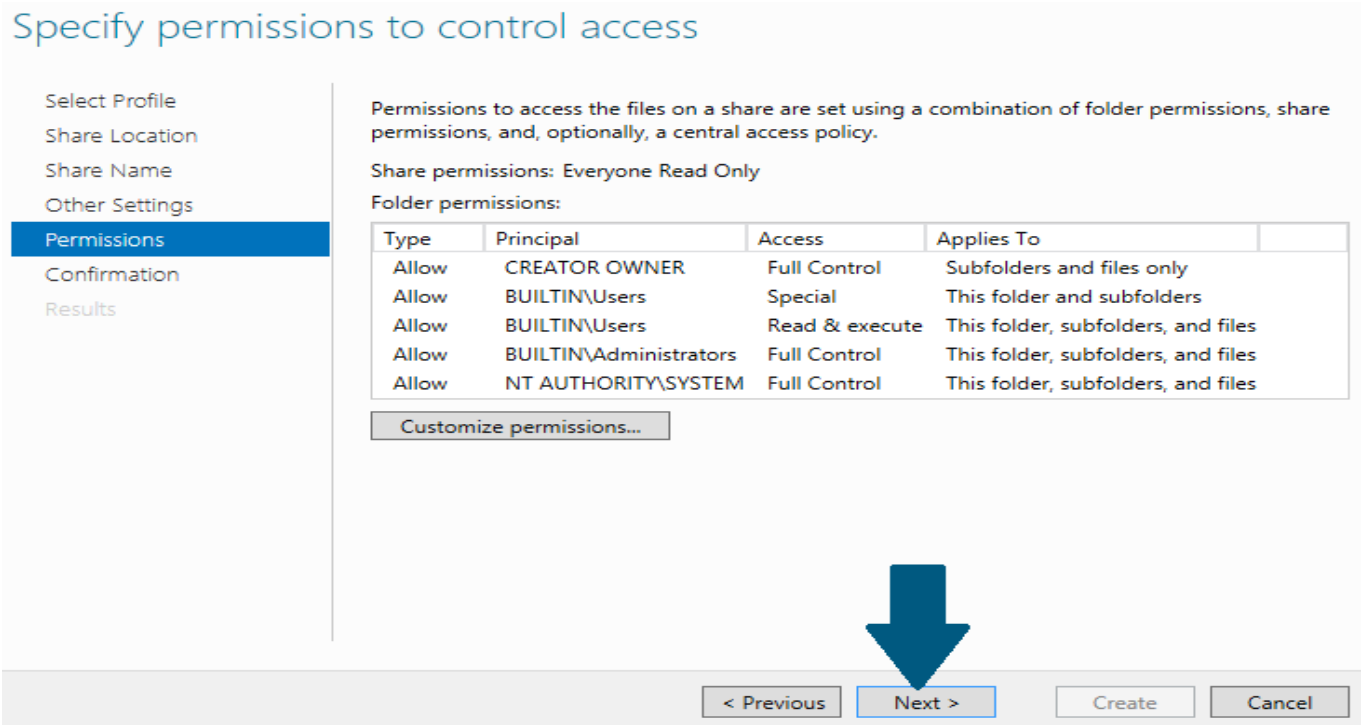
Click **Next**.



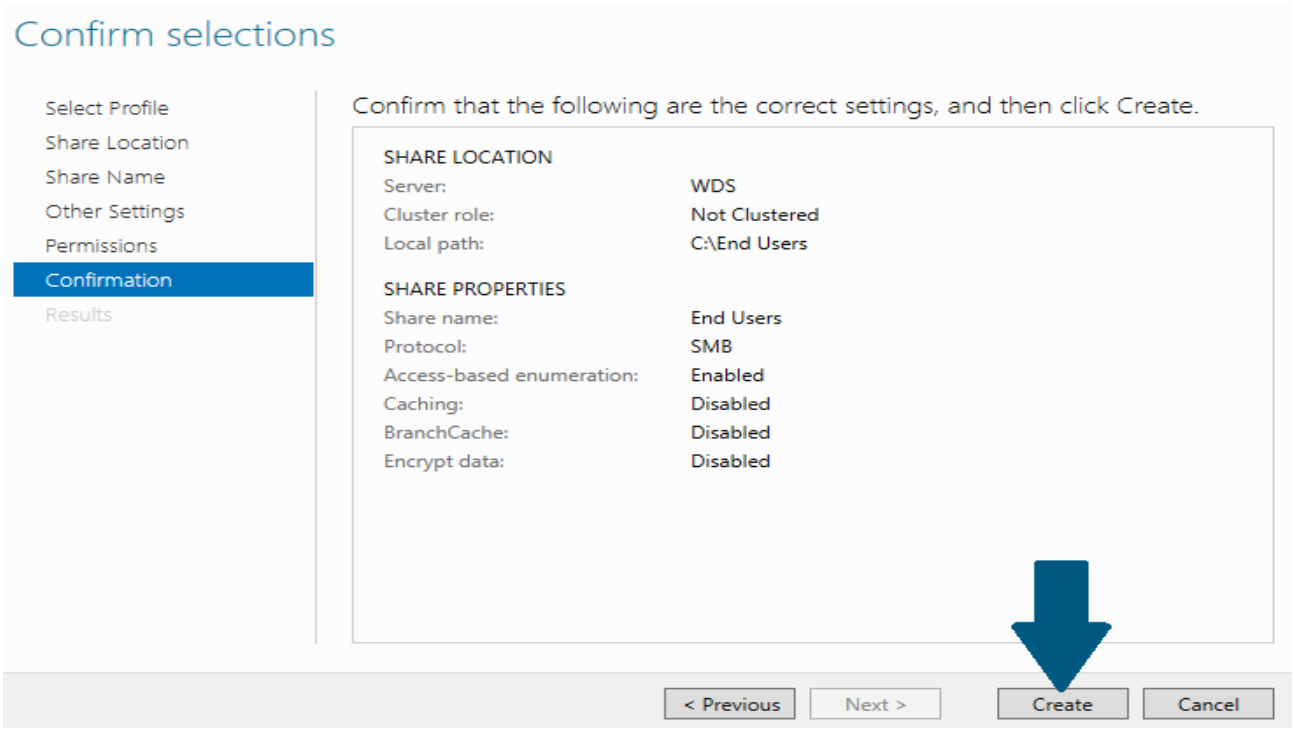
Check Enable access-based enumeration and click **Next**.



Click **Next**.

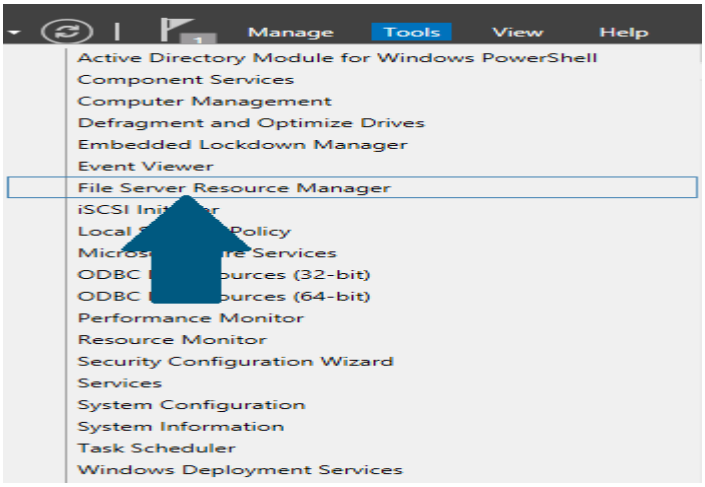


Click **Create**.

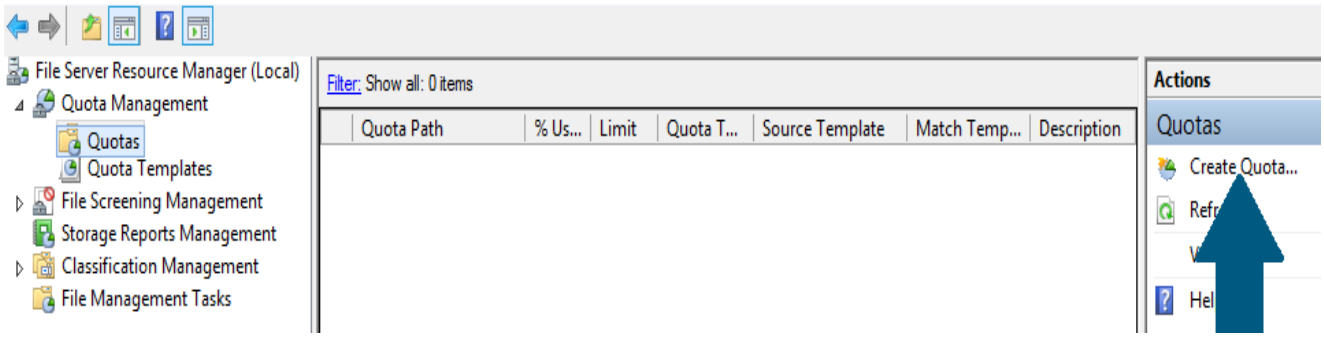


Enabling Quota on Shared Folder

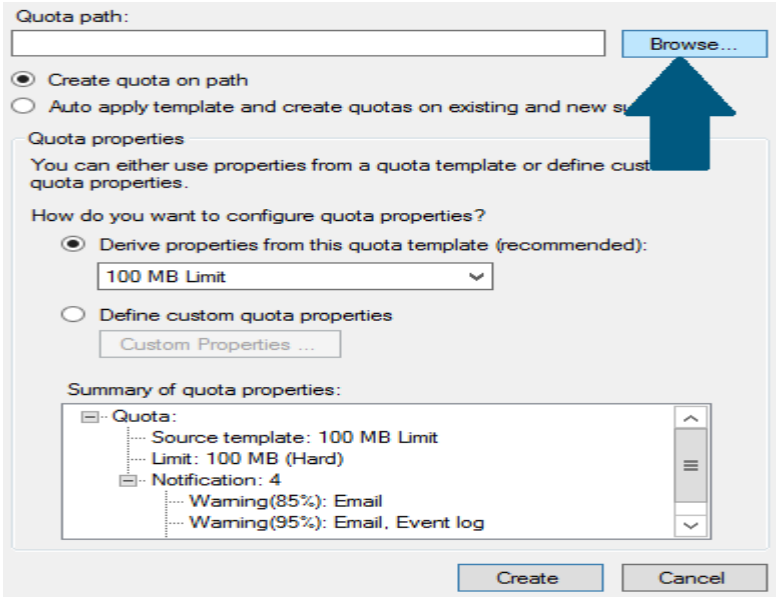
: Open server manager dashboard, click **Tools -> File Server Resource Manager**.



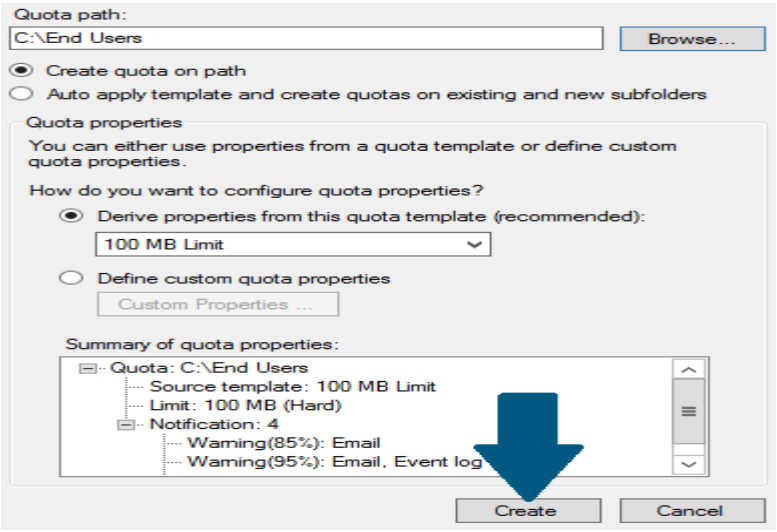
Expand File Server Resource Manager -> Quota Management. Click **Create Quota...**



Click **Browse** and provide the path of the shared folder.



Choose Drive properties from this quota template (recommended): and choose the template from the drop down. Click **Create**.

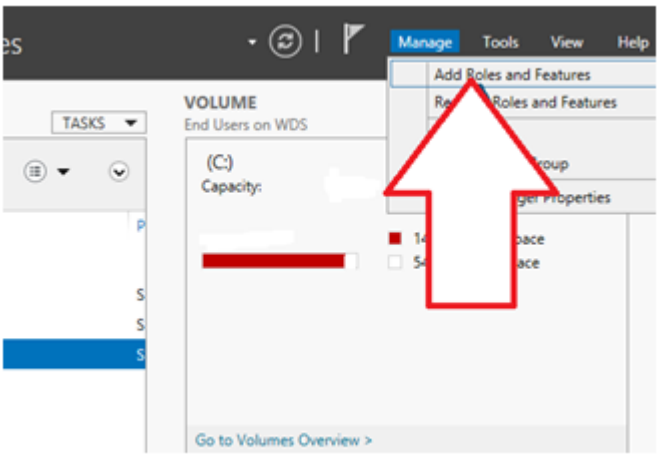


Conclusion Quota management is a useful feature which allows you to set a storage limit on a shared folder. When you finished this article, you might want to further explore a file screening provided by the File Server Resource Manager.

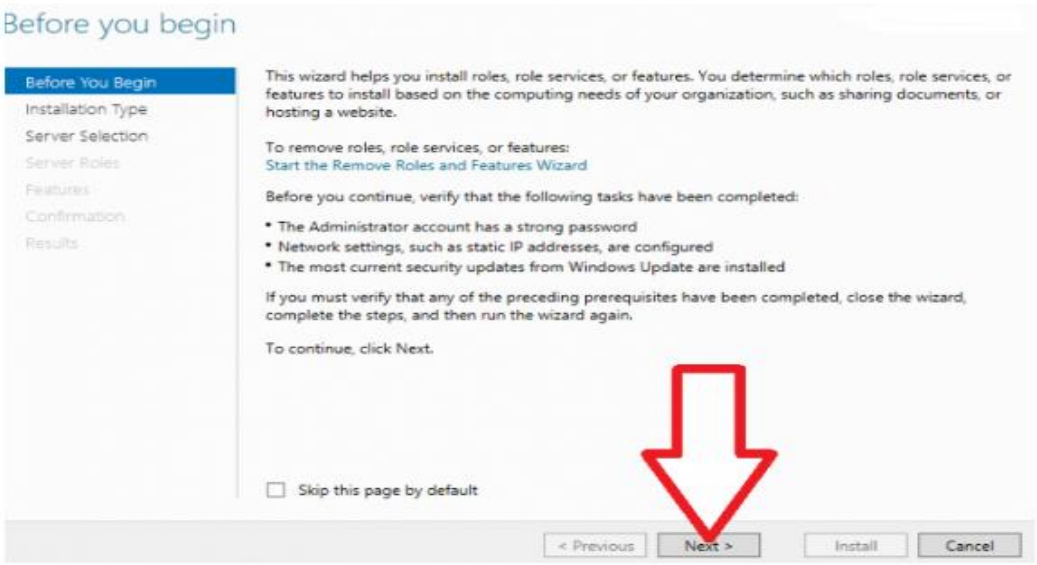
15.2- quota in windows server 2016

تفعيل تحديد مساحة تخزنيه محددة داخل Windows Server 2016

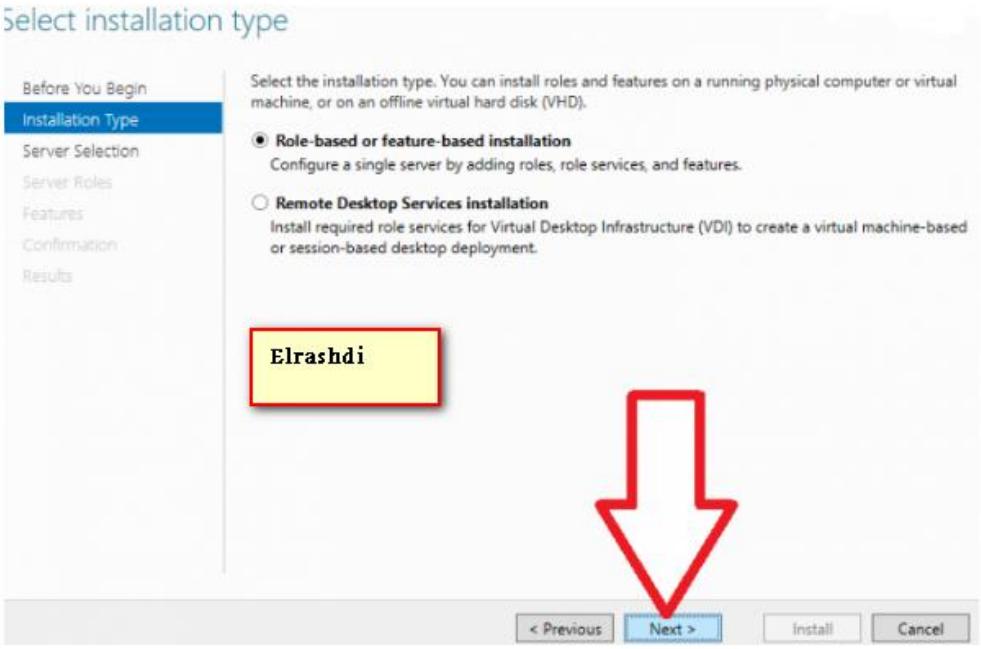
Start by logging into the Windows Server 2016. Then, on the Server Manager's dashboard, click on "Manage" and select "Add Roles and Features".



On the “Before you begin” screen click “Next”.

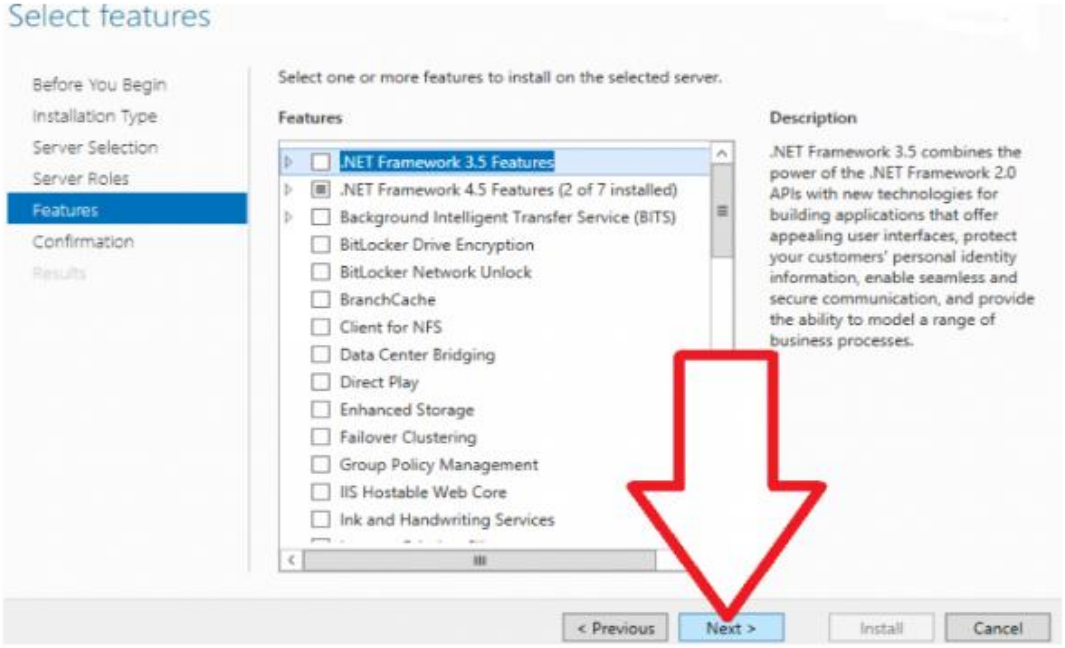


Select “Role-based or feature-based installation” and click “Next”

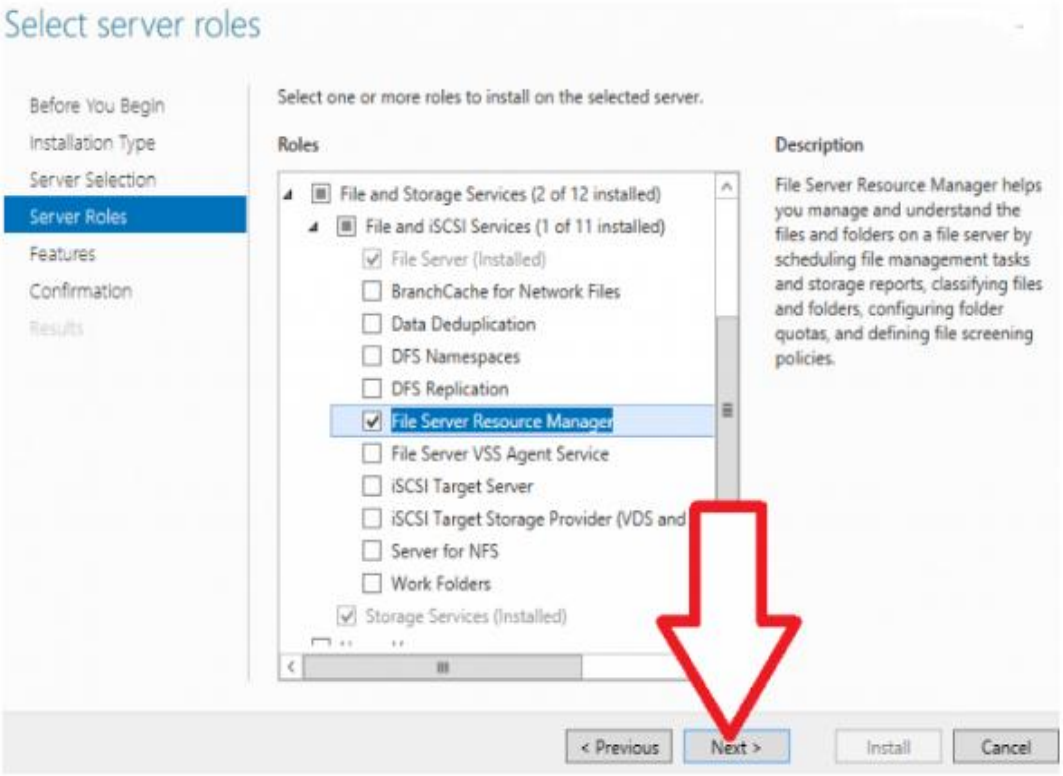


Select your destination server and click “Next”.

5. On the “Select Server roles” dashboard, expand “File and Storage Services” and “File and iSCSI Services”.

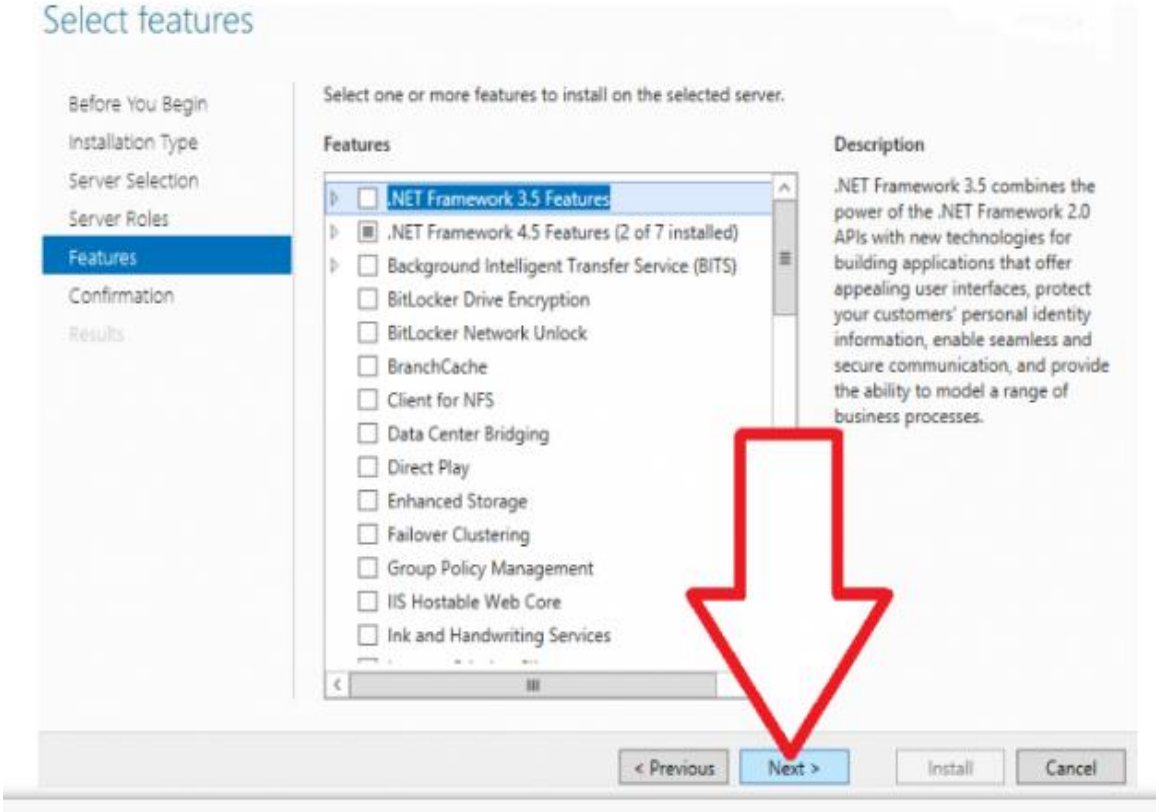


select “File Server Resource Manager”.

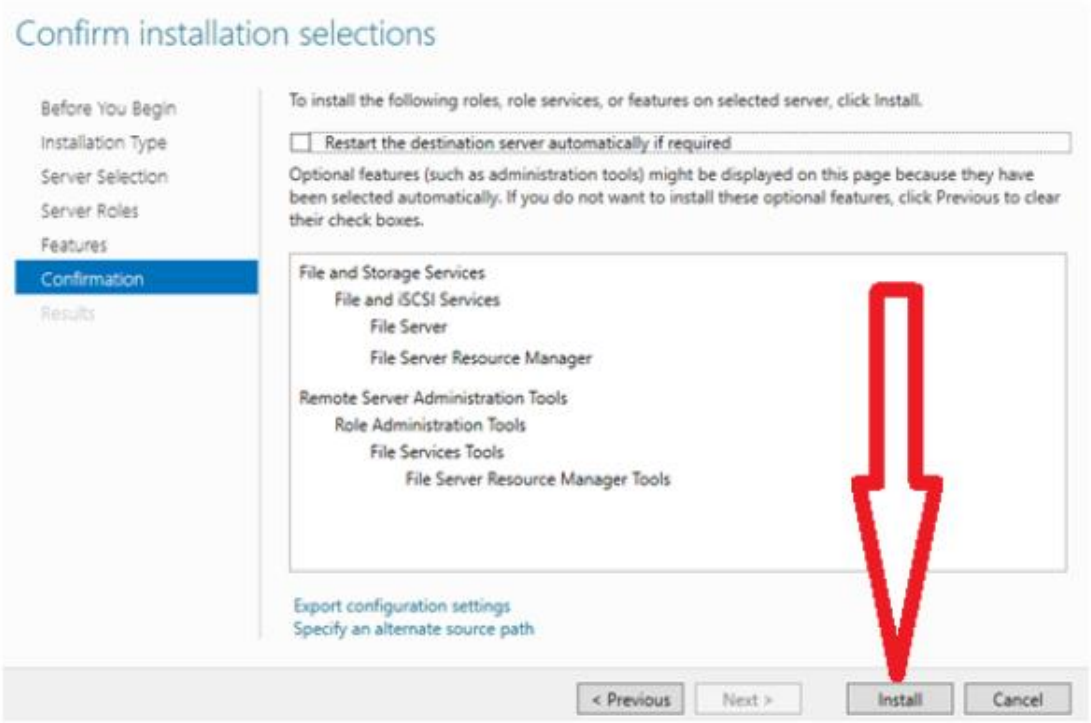


On the window that pops up, Click the “Add Features” button to incorporate the required features. Click “Next”.

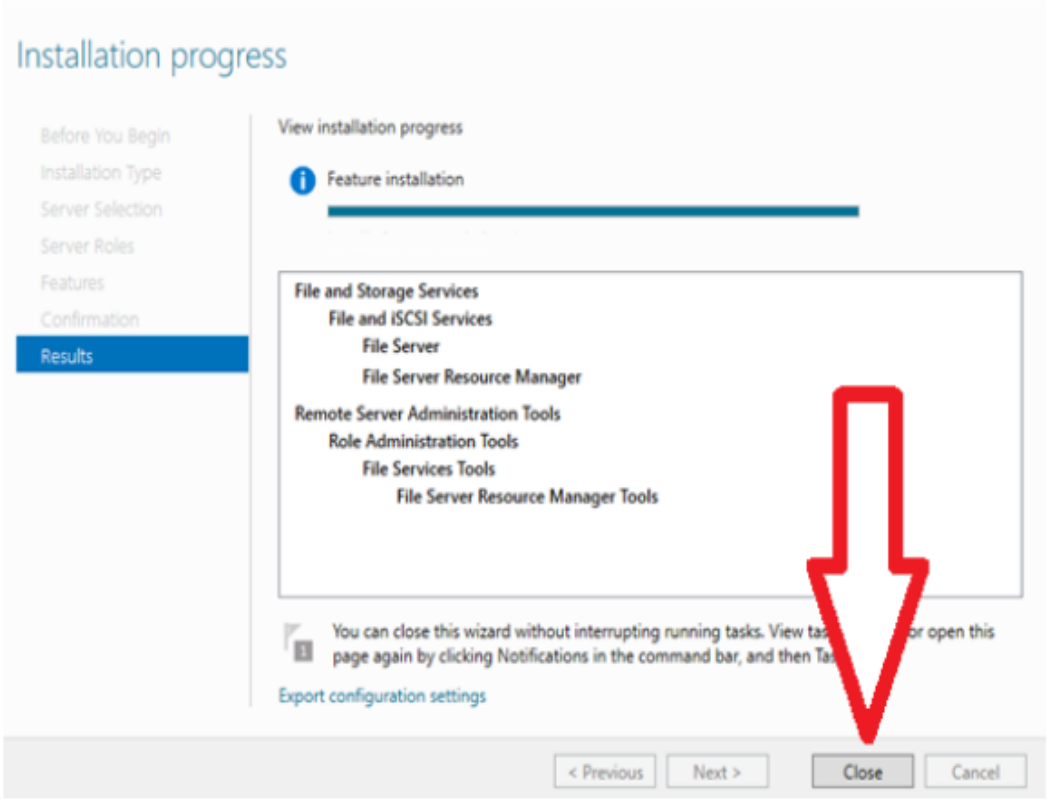
If you do not need to add any extra features, just leave the default settings and click “Next”.



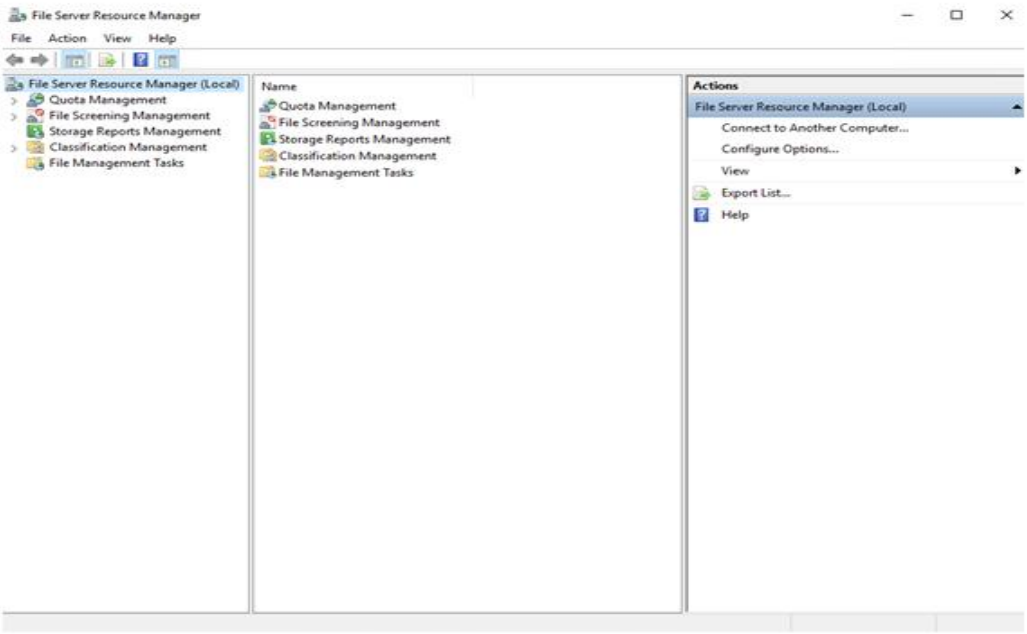
Confirm the installation selections and Click “Install” to start the process.



After the installation process is complete, click the “Close” button.

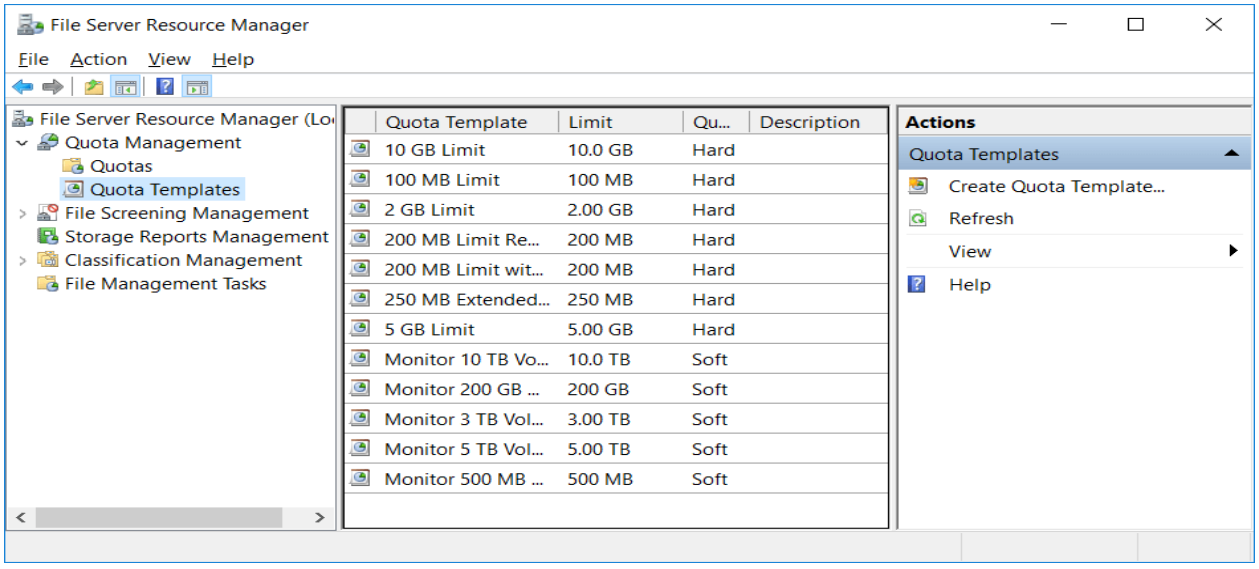


You can now access the File Server Resource Manager from the administrative interface and use it to create quotas.

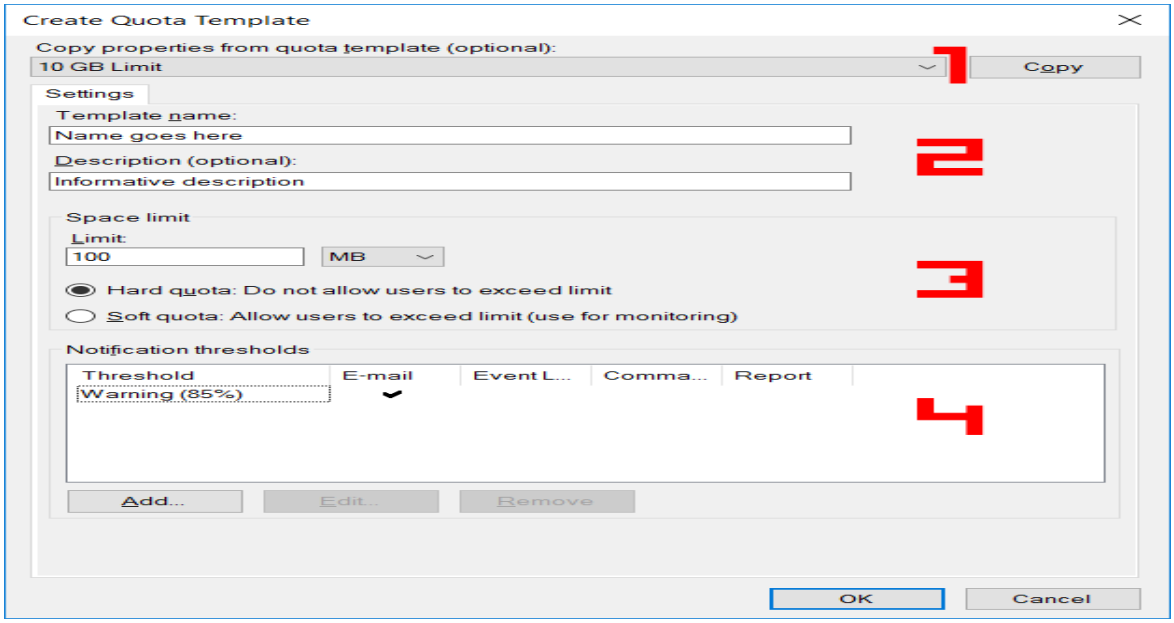


Quota Templates

To configure a quota, we must first create a quota template. This template will be applied to some specific directory later when we create the quota itself. We can view default quota templates available under Quota Management > Quota Templates. Each template will have it's own soft and hard limits defined as well as unique actions that should take place if a limit is reached.



We can either edit these existing templates by double clicking them, or select Create Quota Template to create a new one. We'll create a new template here to walk you through all of the available settings. The image below shows you the Create Quota Template window, we'll cover what each part does below.



16-WSUS in windows server

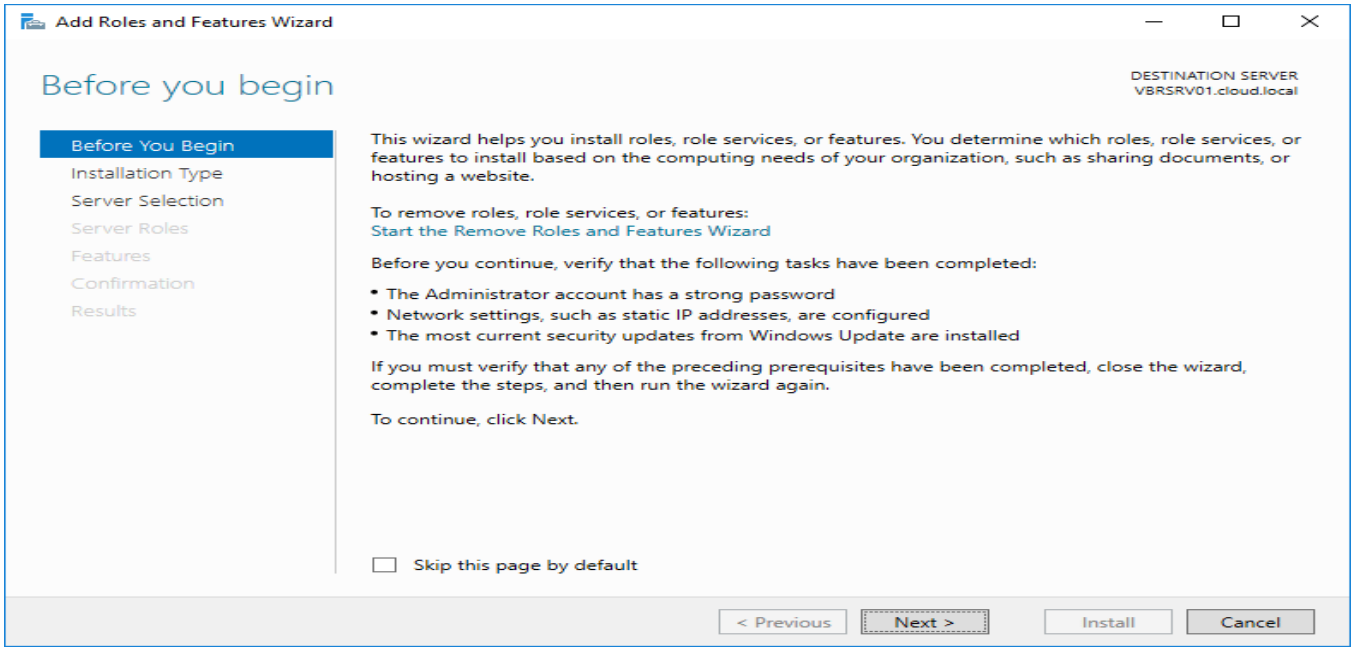
هو إحدى برنامج مايكروسوفت التي تمكن المسؤولين من إدارة توزيع التحديثات والإصلاحات العاجلة التى تصدر للمنتجات Microsoftالموجودة على أجهزة الكمبيوترفي دومين الشركات. يتم بتحميل هذه التحديثات من موقع مايكروسوفت ومن ثم توزيعها على أجهزة الكمبيوتر على الشبكة بهدف توفير إستخدام الإنترنت حيث يتم تحميل التحديثات مرة واحدة فقط عن طريق السيرفر وأيضا ضمان عدم تنزيل أى تحديثات لم يختبرها ويوافق عليها مسؤول إدارة الشبكة بالشركة.

Windows Server Update Services (WSUS) enables information technology administrators to deploy the latest Microsoft product updates. You can use WSUS to fully manage the distribution of updates that are released through Microsoft Update to computers on your network. This topic provides an overview of this server role and more information about how to deploy and maintain WSUS.

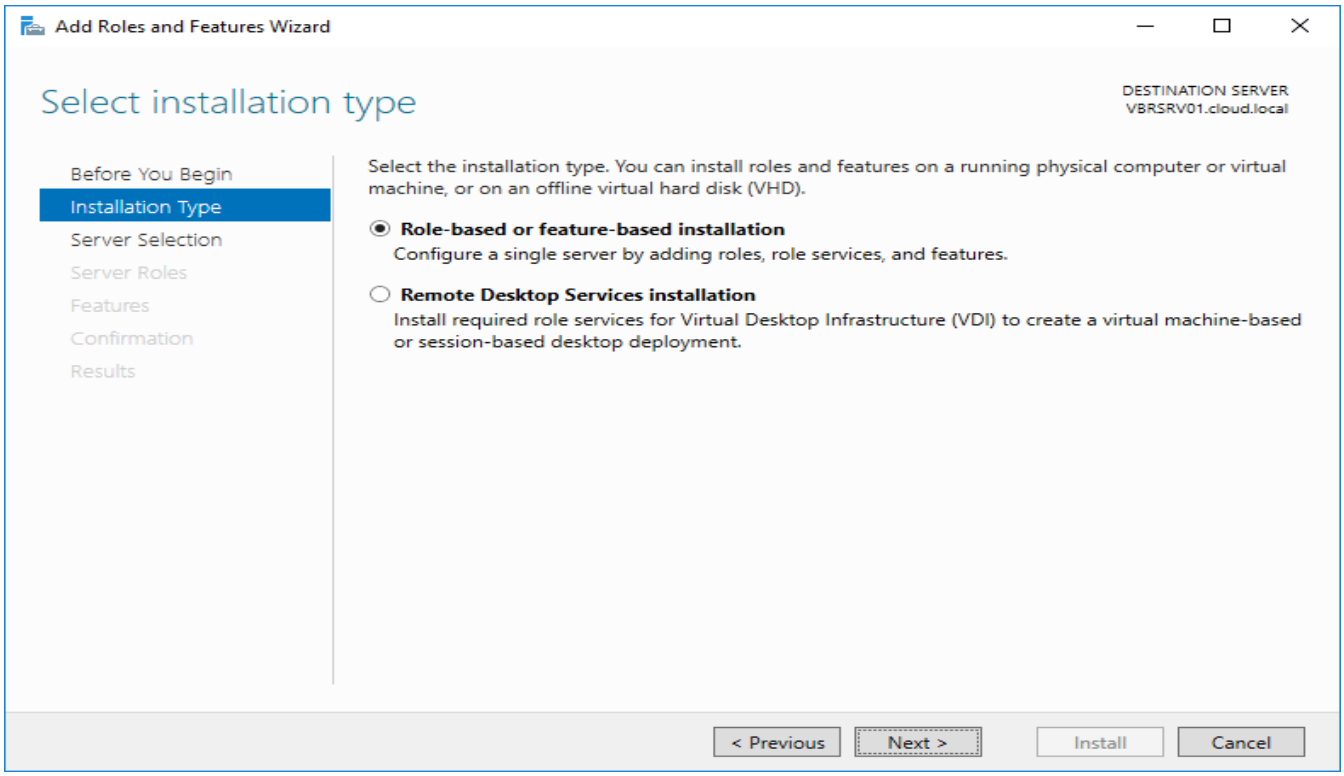
16.1- WSUS in windows server 2016

Windows Server Update Services or WSUS is a Microsoft product that allows us to centrally manage patches for Microsoft operating systems and other Microsoft products. With Windows Server 2016, the process is basically the same as previous server operating systems to install and configure the product and generally get up and running with WSUS managing our patches in a particular environment. Let's look at how to install and configure Windows Server 2016 WSUS.

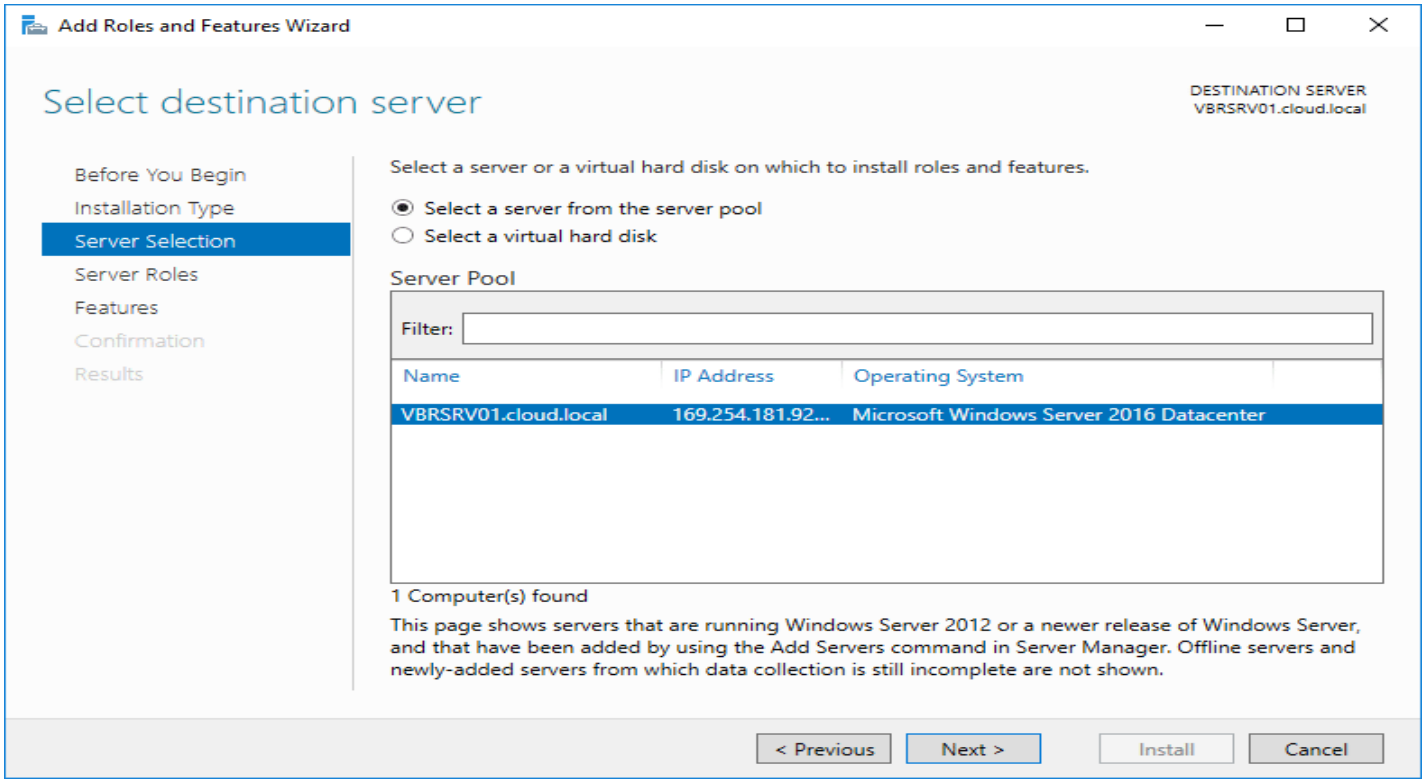
Installing the Windows Server Update Services role is very straightforward and is basically what we would expect with installing any role or feature. This is done through Server Manager. The process is fairly next, next, finish in nature.



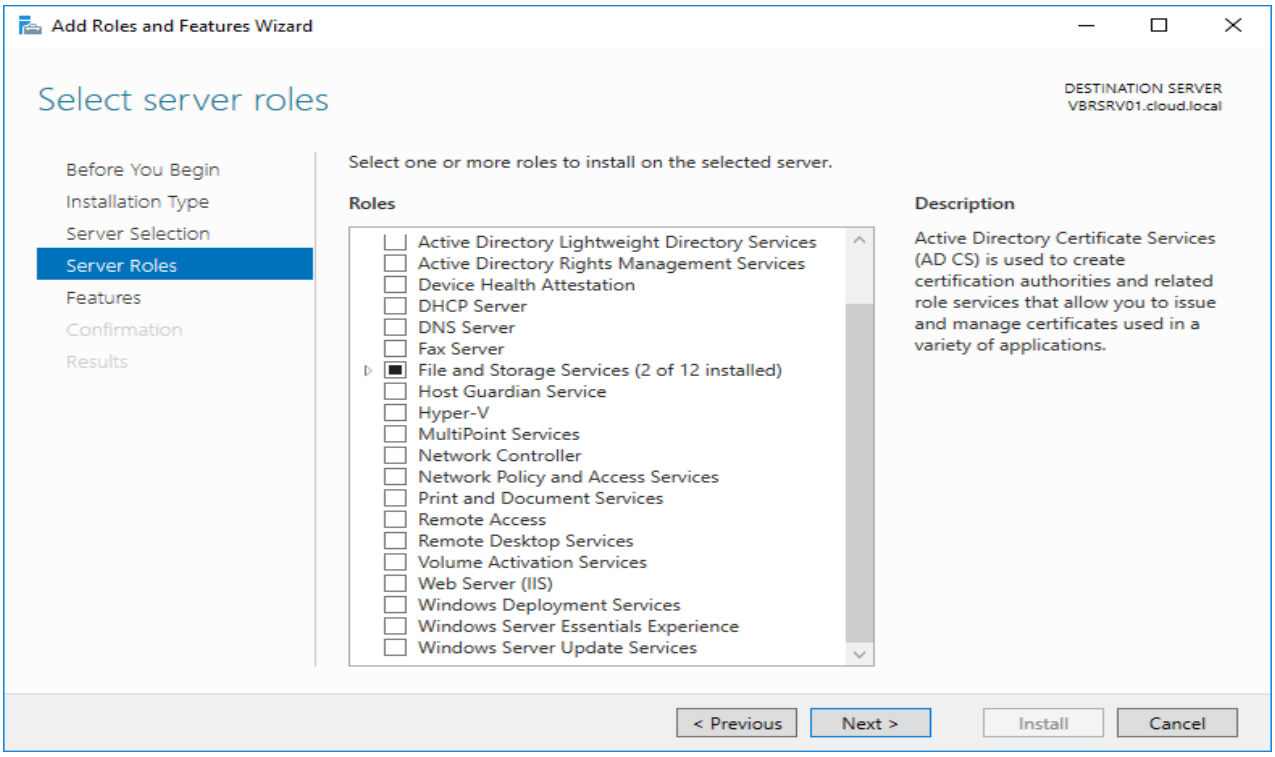
Here we select a role based installation.



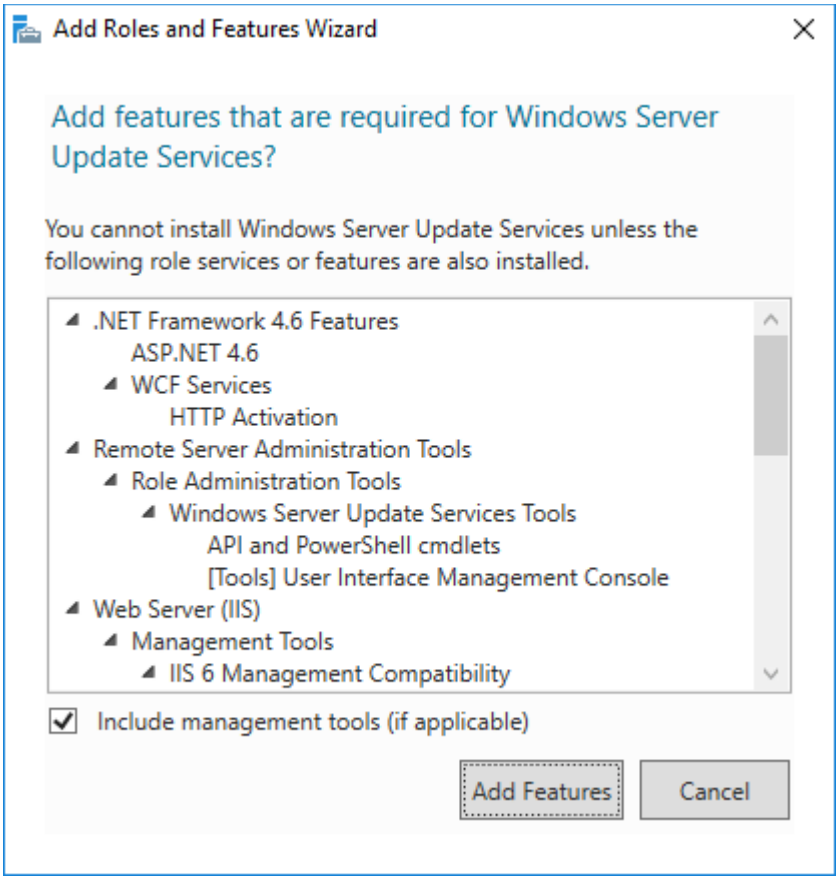
Select our server.



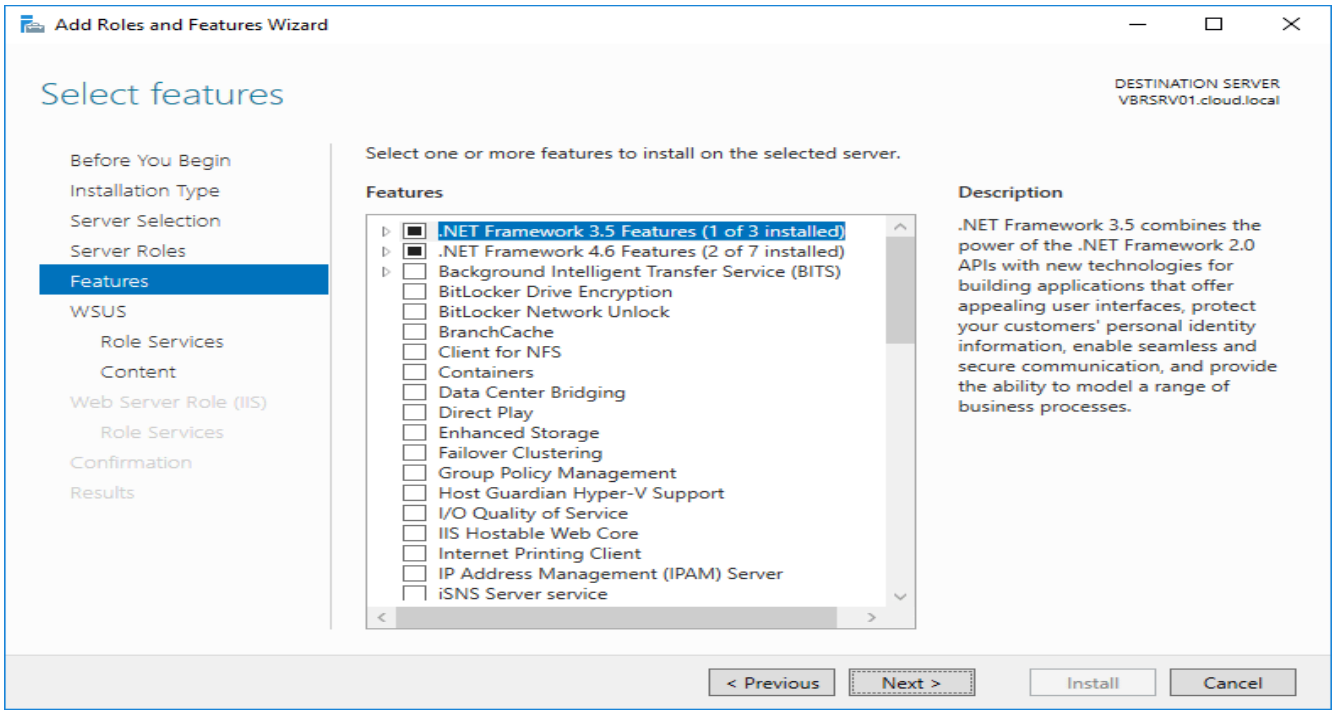
Choose Windows Server Update Services all the way at the bottom of the Server Roles.

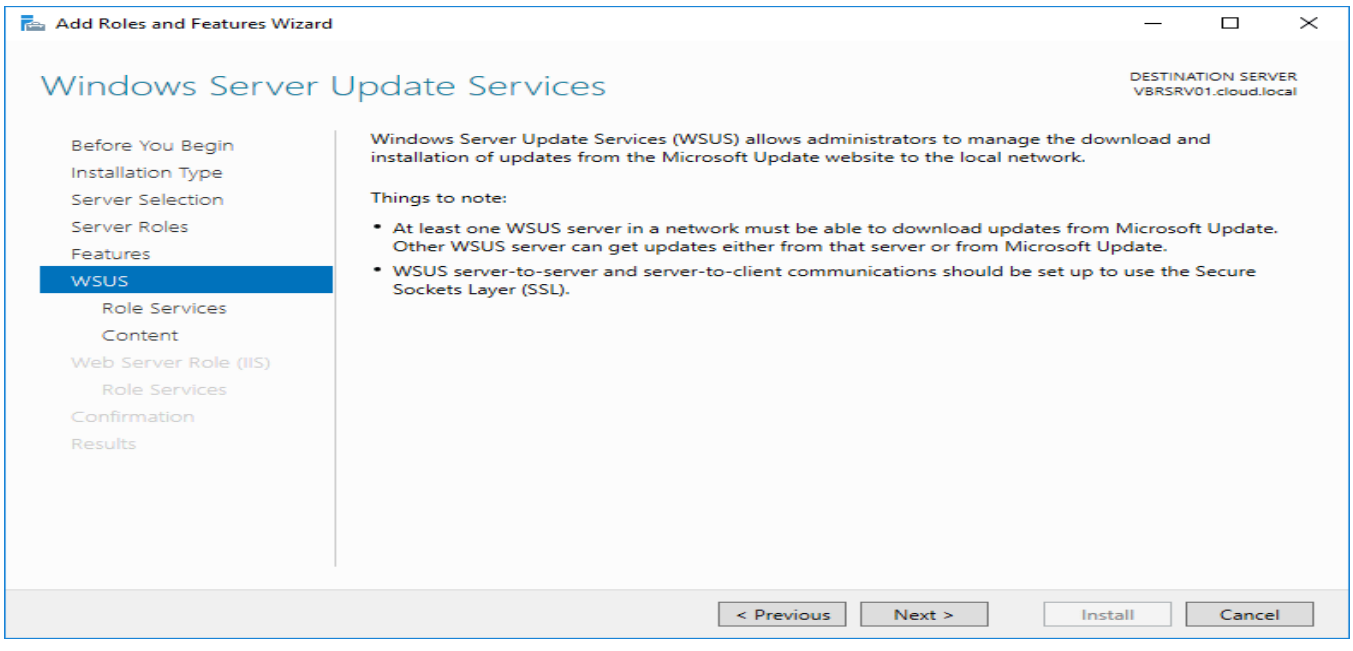


We will get prompted for additional features that need to be installed.

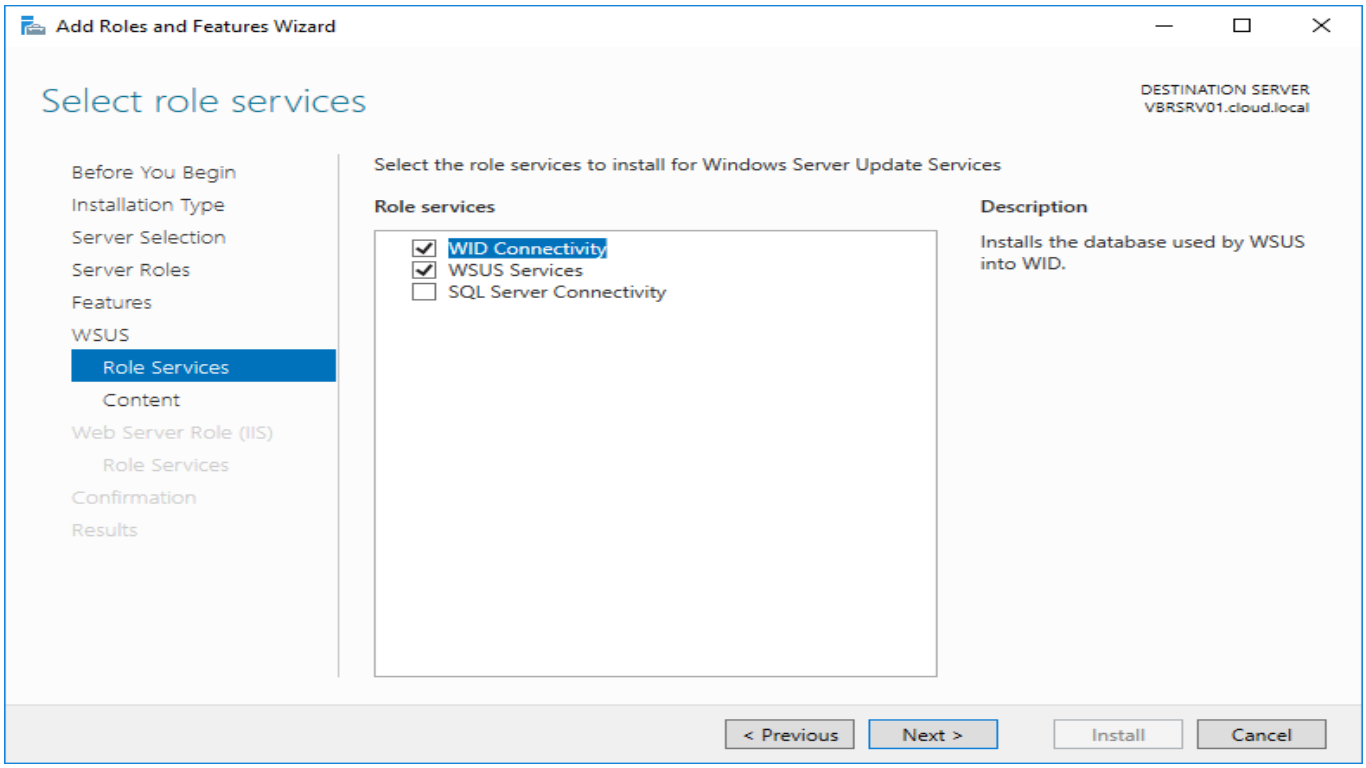


Next, Next finish process underway...

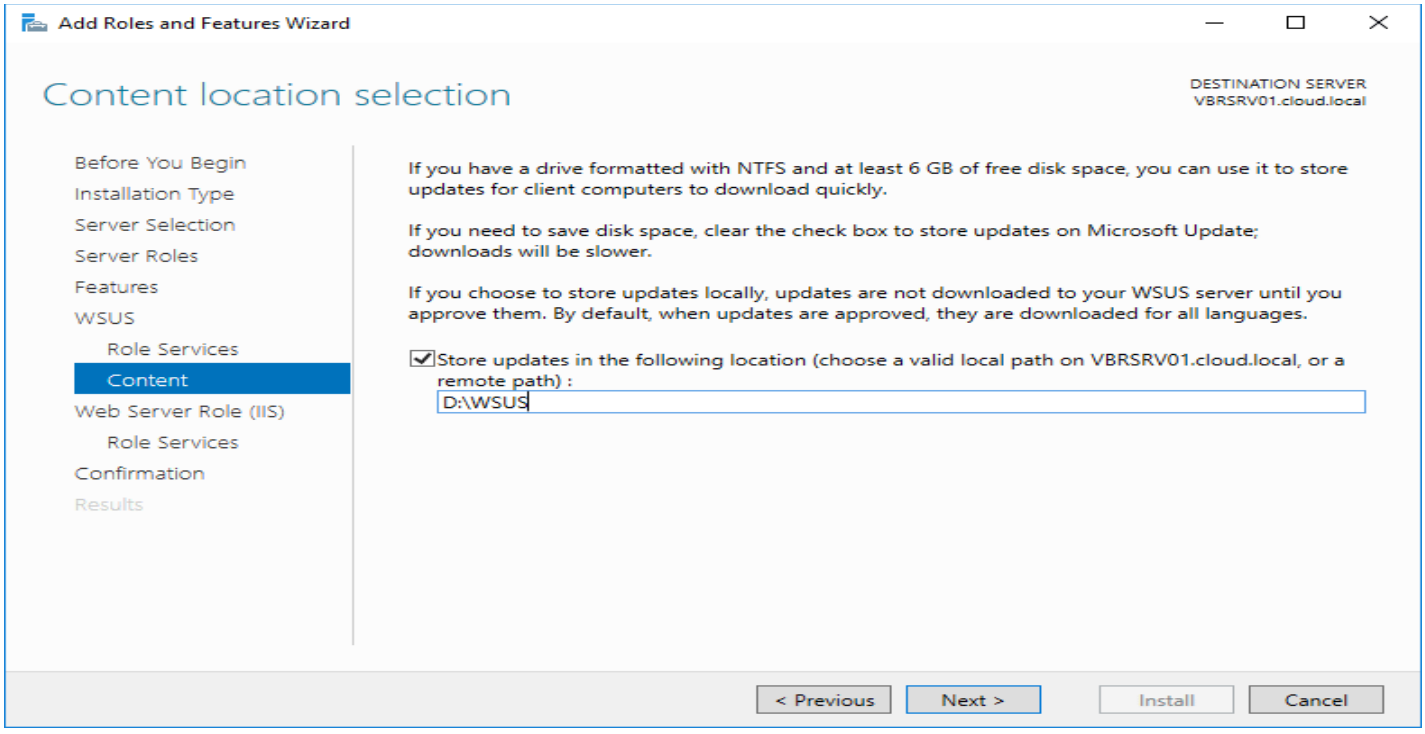




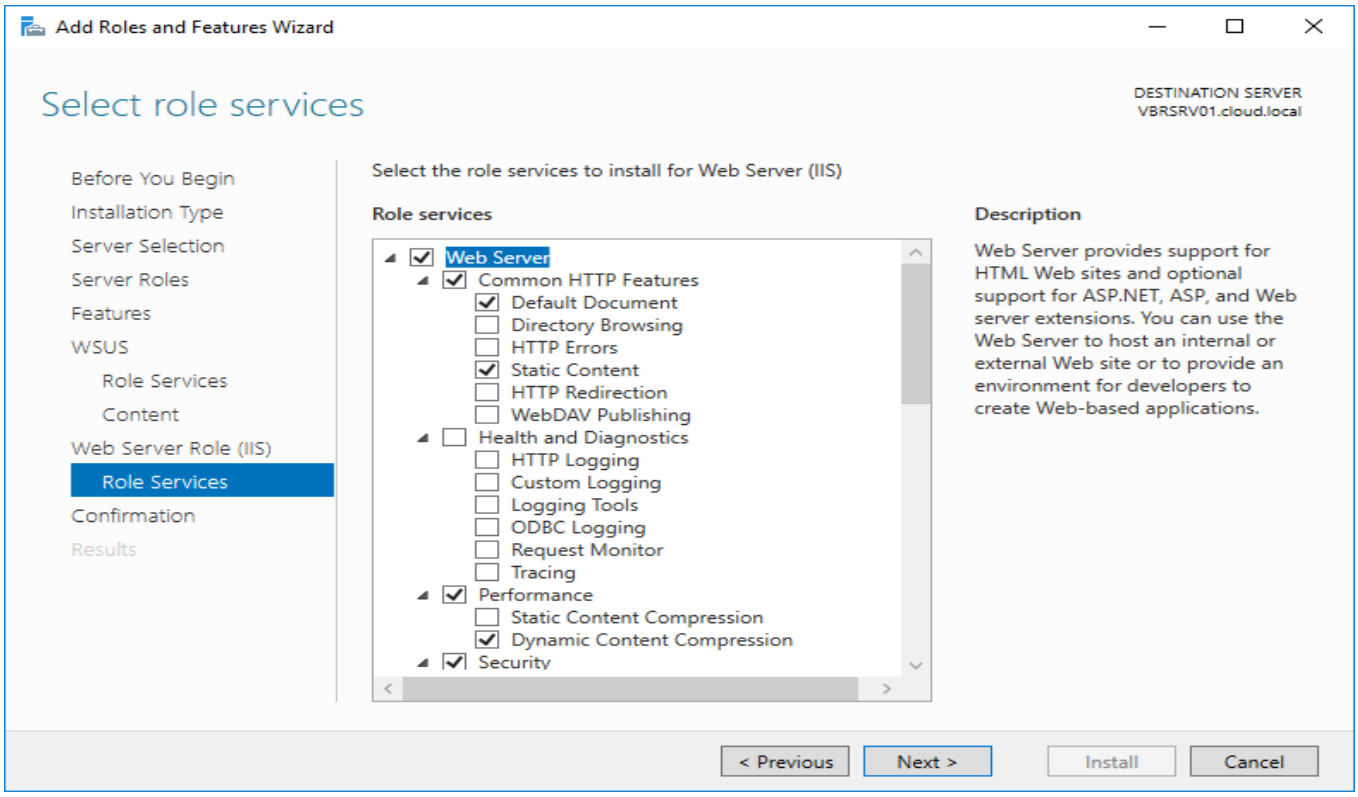
Finally, we get to the Role Services and should see WID Connectivity and WSUS Services.

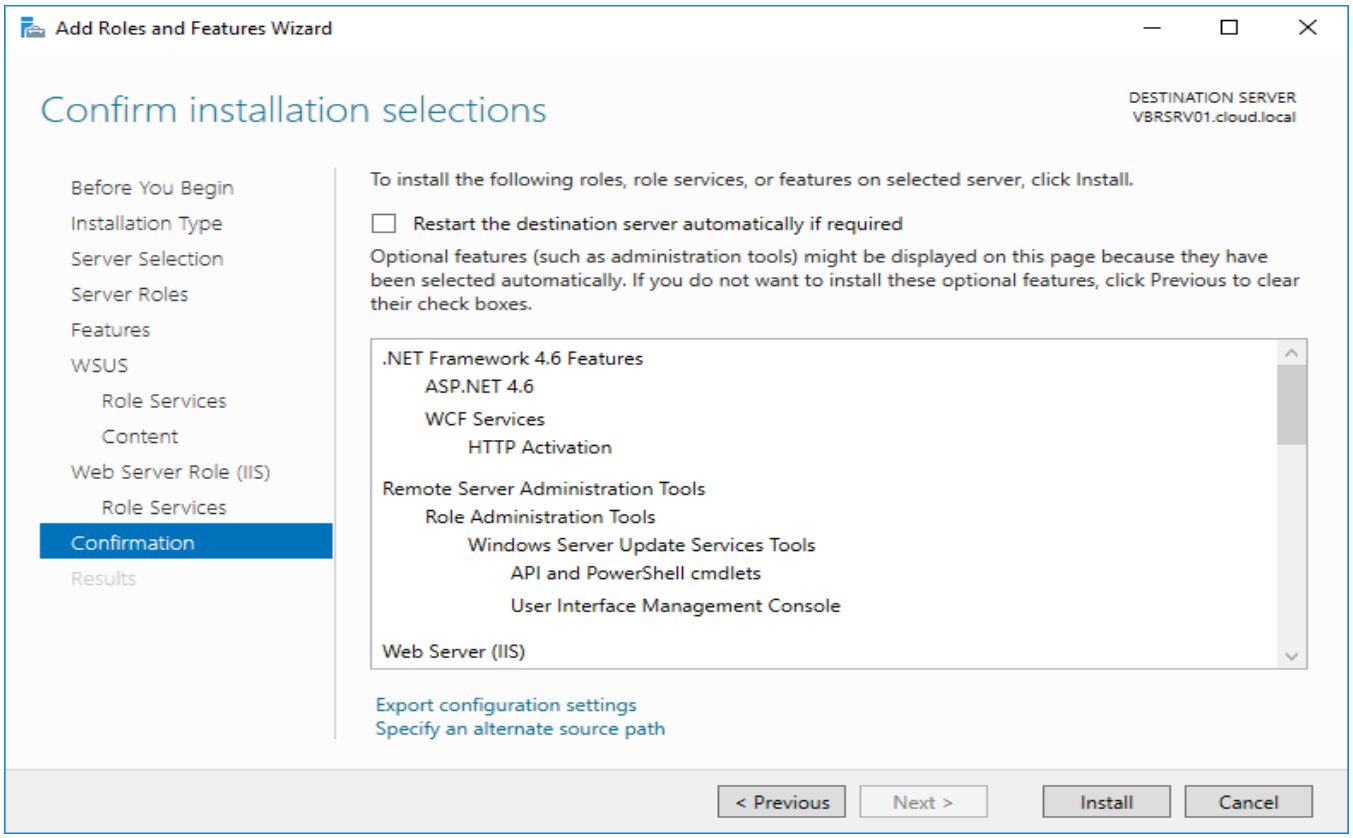


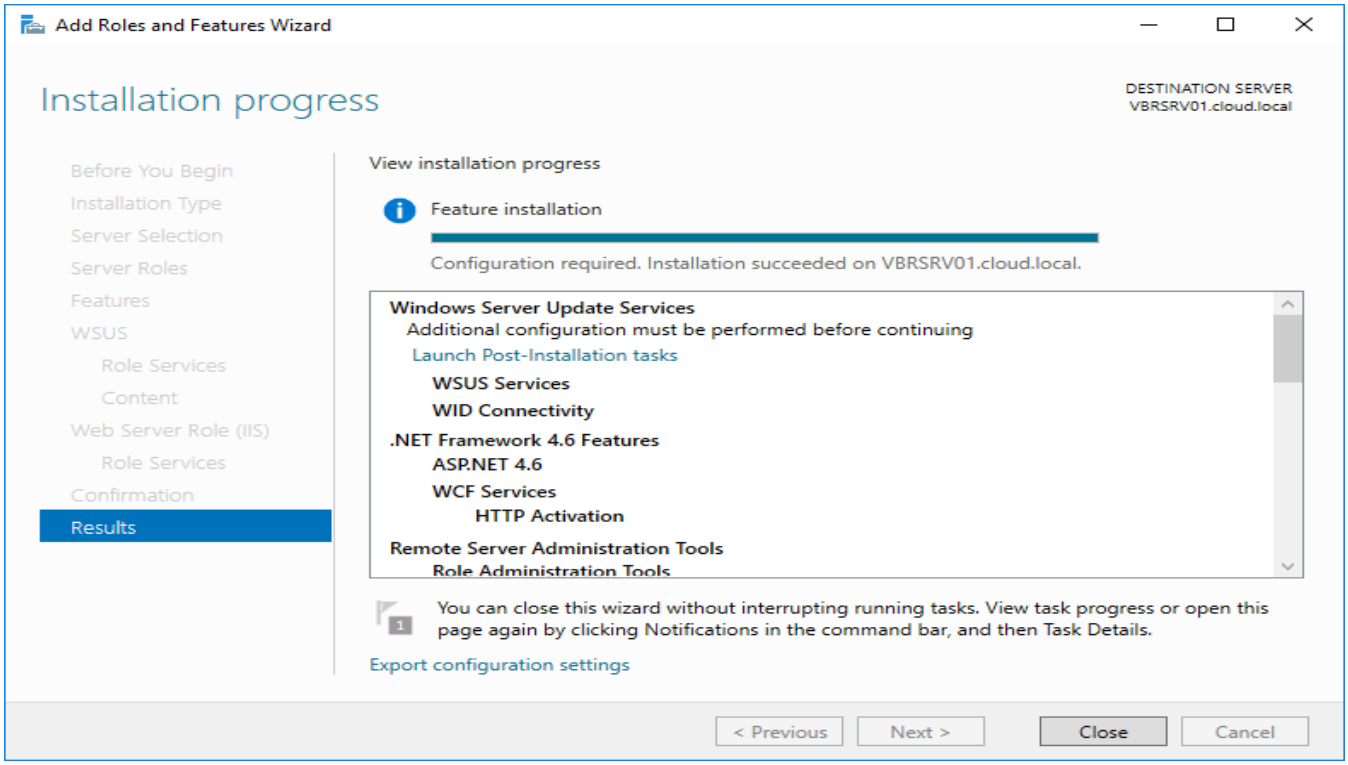
Here we select a file path to use for storing updates.



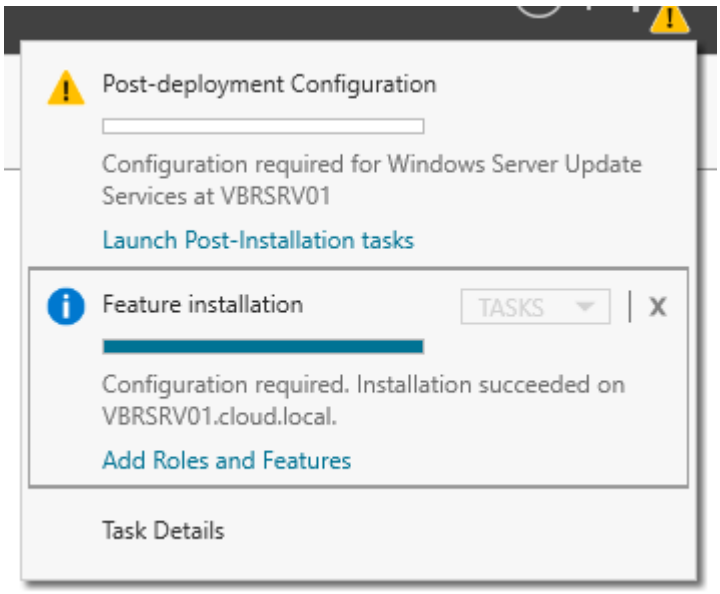
We will have Web Server Role services installed with WSUS.

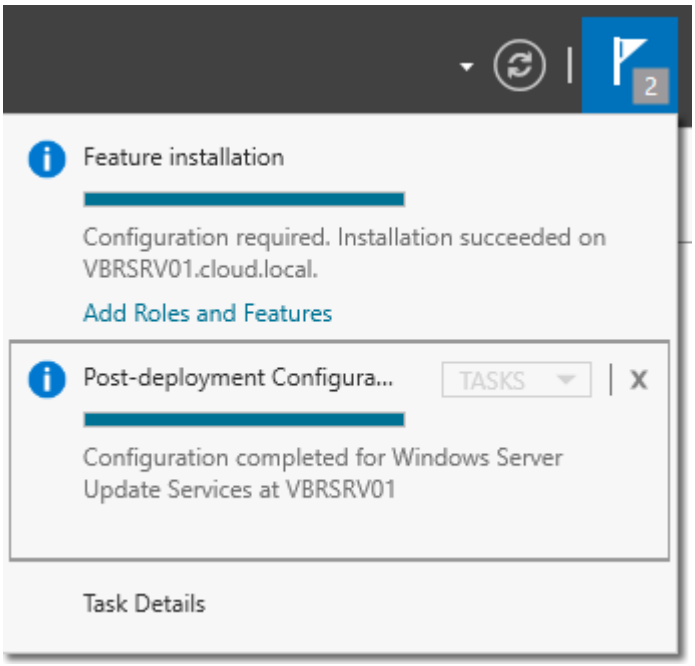

Add Roles and Features Wizard
Select role services
DESTINATION SERVER
VBRSRV01.cloud.local
Before You Begin
Installation Type
Server Selection
Server Roles
Features
WSUS
Role Services
Content
Web Server Role (IIS)
Role Services
Confirmation
Results
Select the role services to install for Web Server (IIS)
Role services
Web Server
Common HTTP Features
Default Document
Directory Browsing
HTTP Errors
Static Content
HTTP Redirection
WebDAV Publishing
Health and Diagnostics
HTTP Logging
Custom Logging
Logging Tools
ODBC Logging
Request Monitor
Tracing
Performance
Static Content Compression
Dynamic Content Compression
Security
Description
Web Server provides support for HTML Web sites and optional support for ASP.NET, ASP, and Web server extensions. You can use the Web Server to host an internal or external Web site or to provide an environment for developers to create Web-based applications.
< Previous
Next >
Install
Cancel


Add Roles and Features Wizard
Confirm installation selections
DESTINATION SERVER
VBRSRV01.cloud.local
Before You Begin
Installation Type
Server Selection
Server Roles
Features
WSUS
Role Services
Content
Web Server Role (IIS)
Role Services
Confirmation
Results
To install the following roles, role services, or features on selected server, click Install.
Restart the destination server automatically if required
Optional features (such as administration tools) might be displayed on this page because they have been selected automatically. If you do not want to install these optional features, click Previous to clear their check boxes.
.NET Framework 4.6 Features
ASP.NET 4.6
WCF Services
HTTP Activation
Remote Server Administration Tools
Role Administration Tools
Windows Server Update Services Tools
API and PowerShell cmdlets
User Interface Management Console
Web Server (IIS)
Export configuration settings
Specify an alternate source path
< Previous
Next >
Install
Cancel



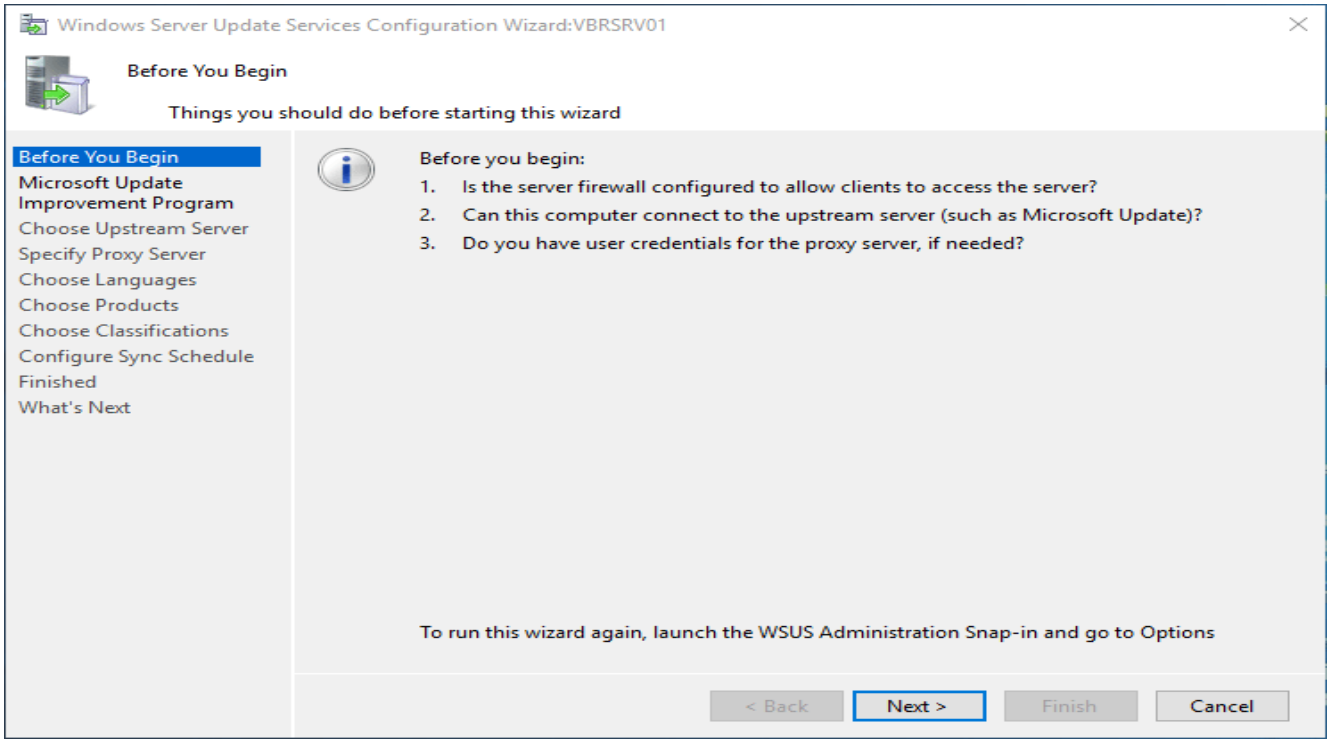
After the role service is installed, we will see a exclamation bang in the upper right hand corner of our Server Manager. It will show Post-deployment Configuration that will need to be done. Click this and it will finish things out.

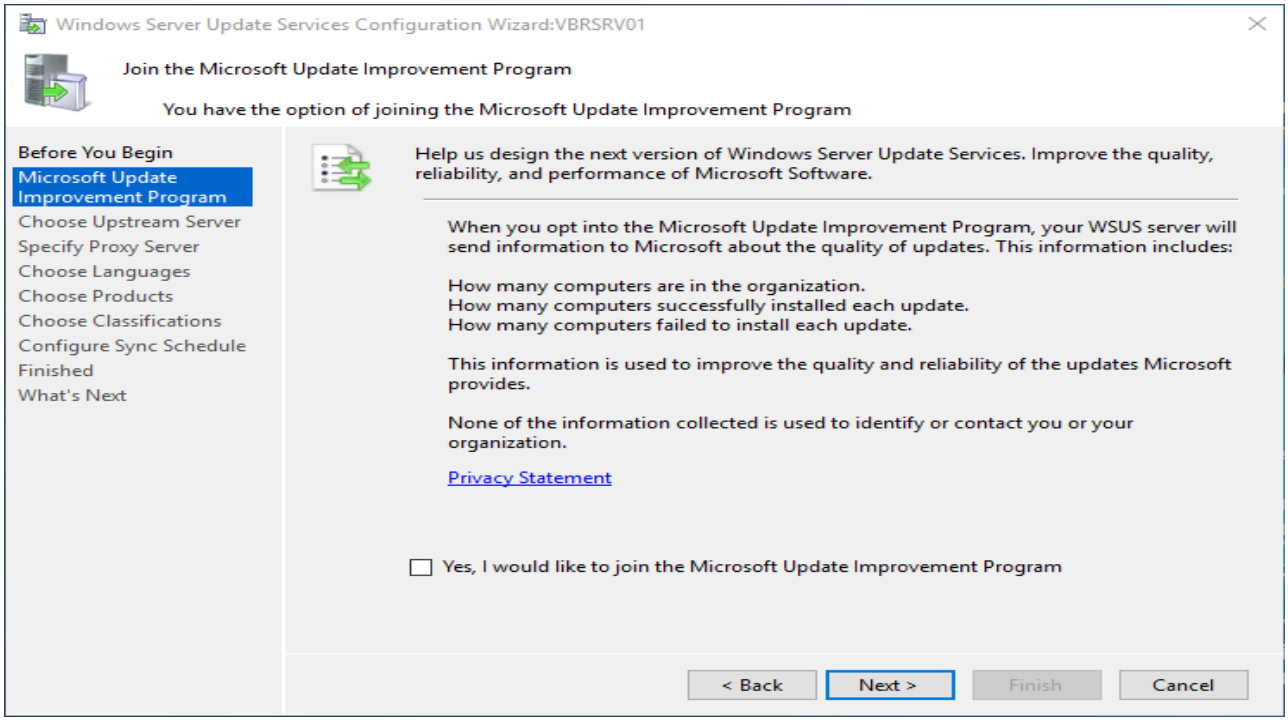




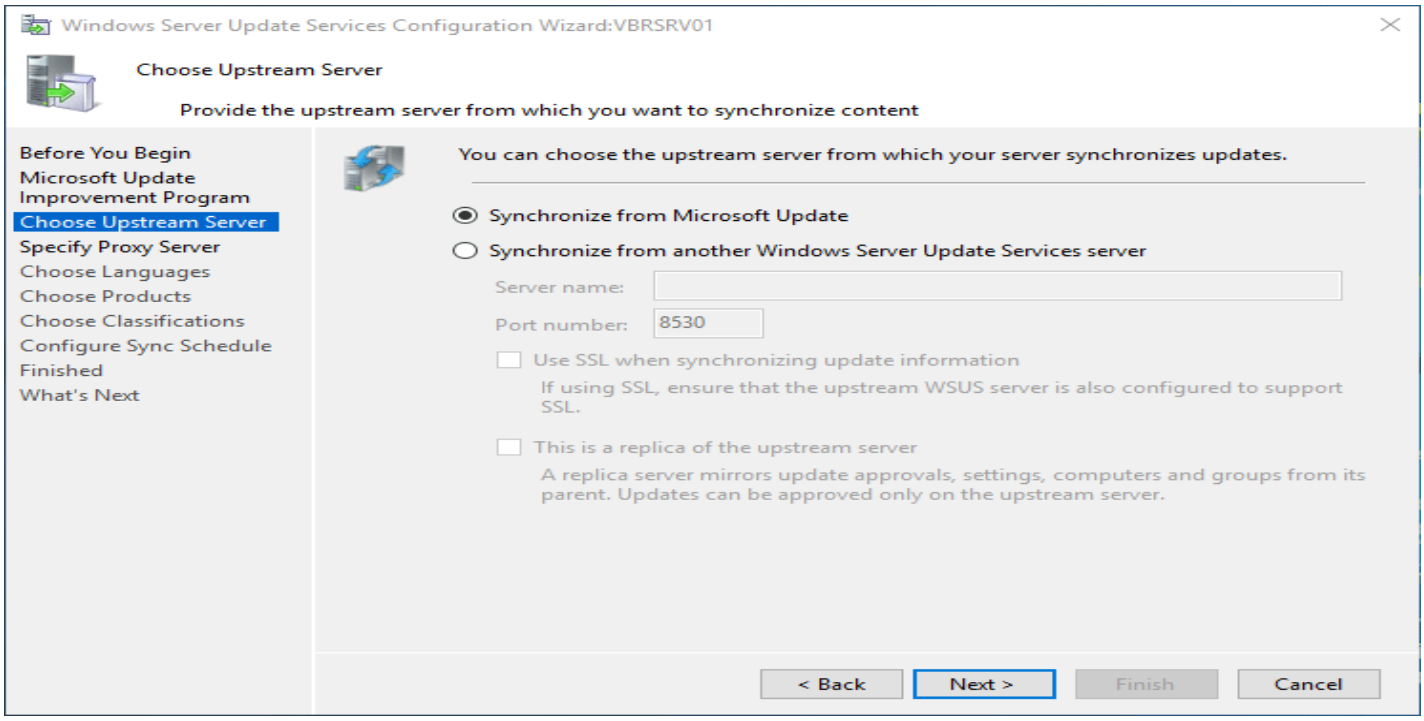
WSUS Specific Configuration

Now we begin the WSUS configuration itself where we actually setup our configuration for the WSUS server portion.

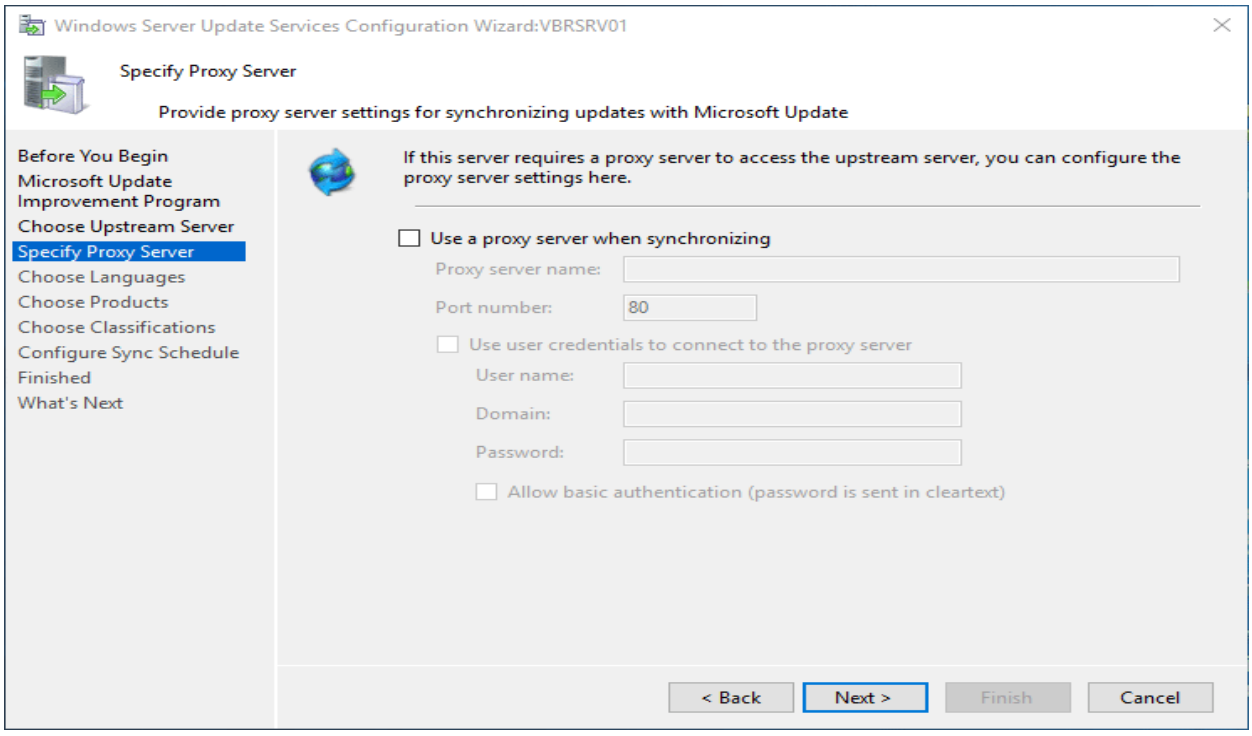




Since I don't have another WSUS server I am wanting to synchronize from, I choose to Synchronize from Microsoft Update which pulls directly from Microsoft.

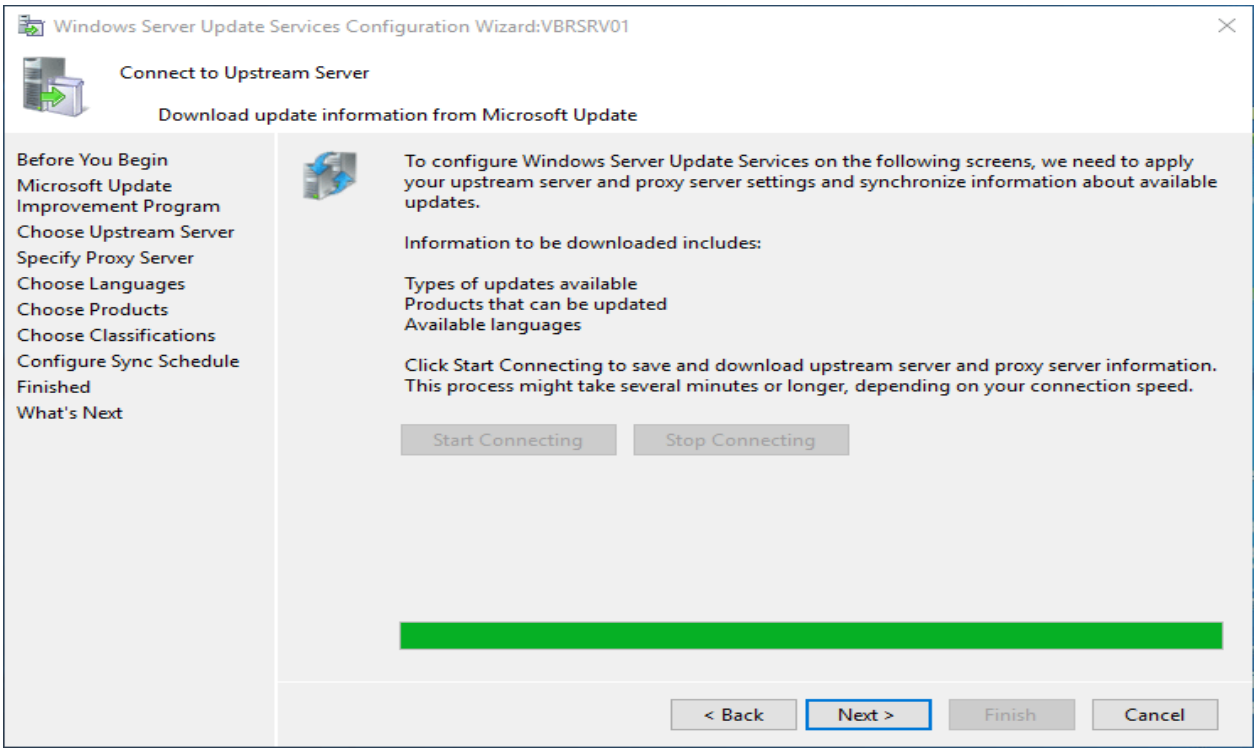


Choose your connectivity options here. If you use a proxy, you need to configure it.

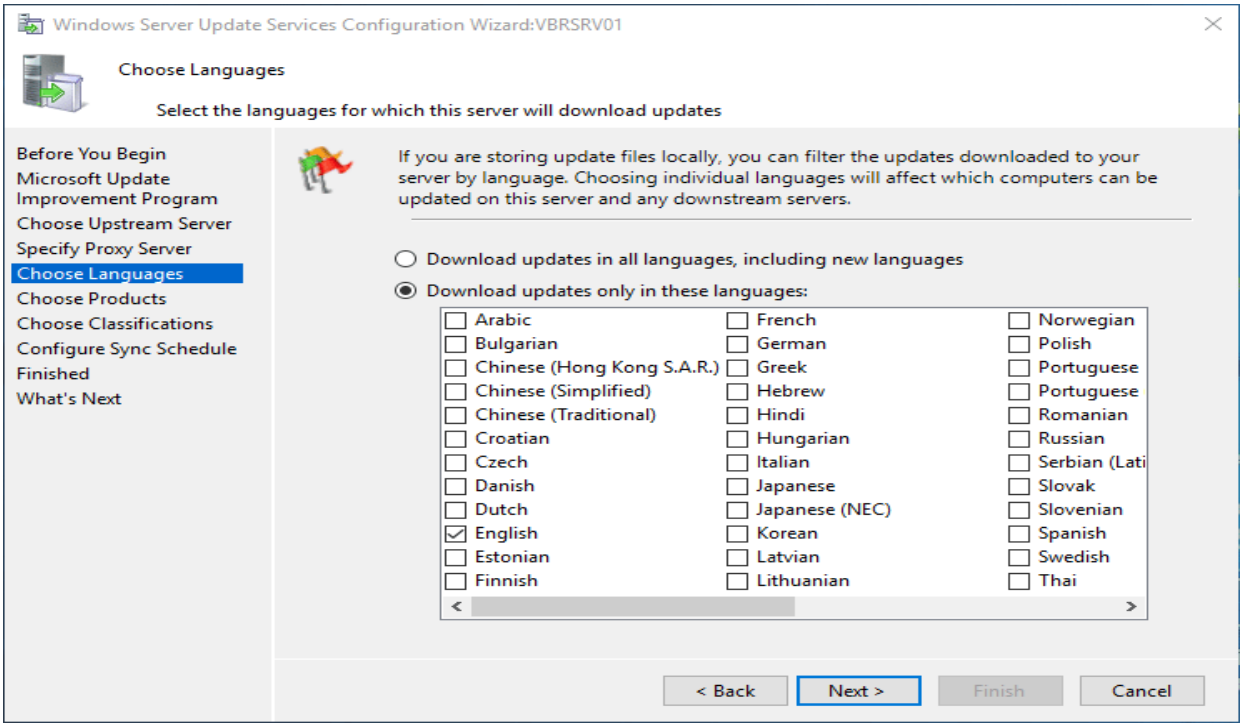


Now, click the Start Connecting button. This process will take a long time depending on your connection.

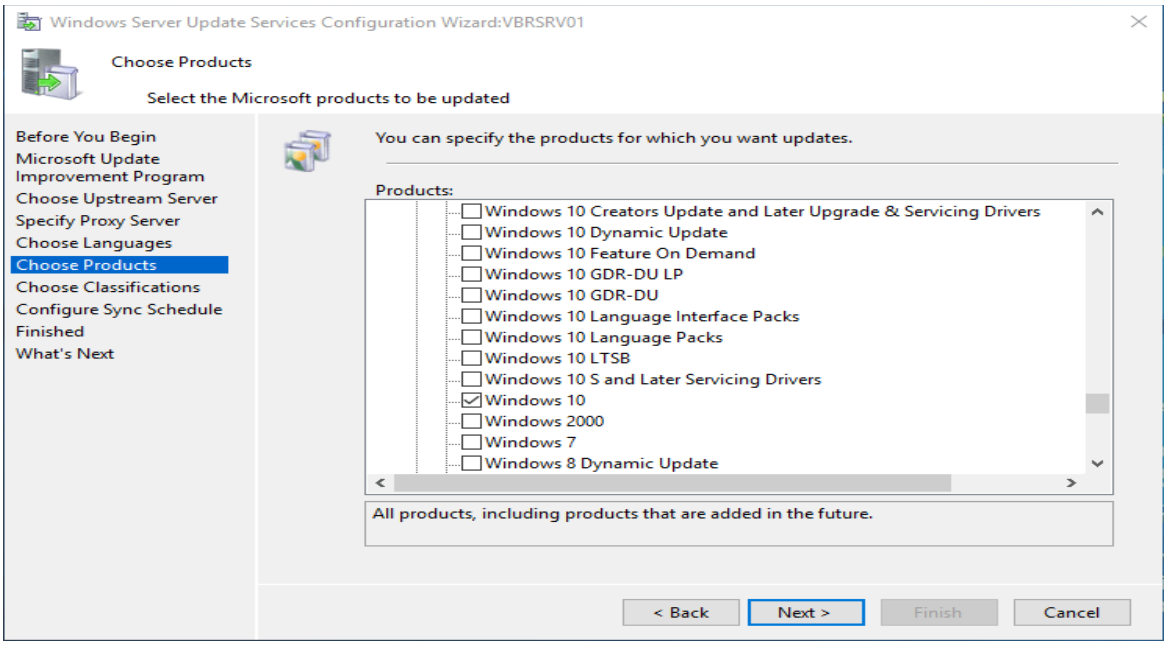
Click Next.



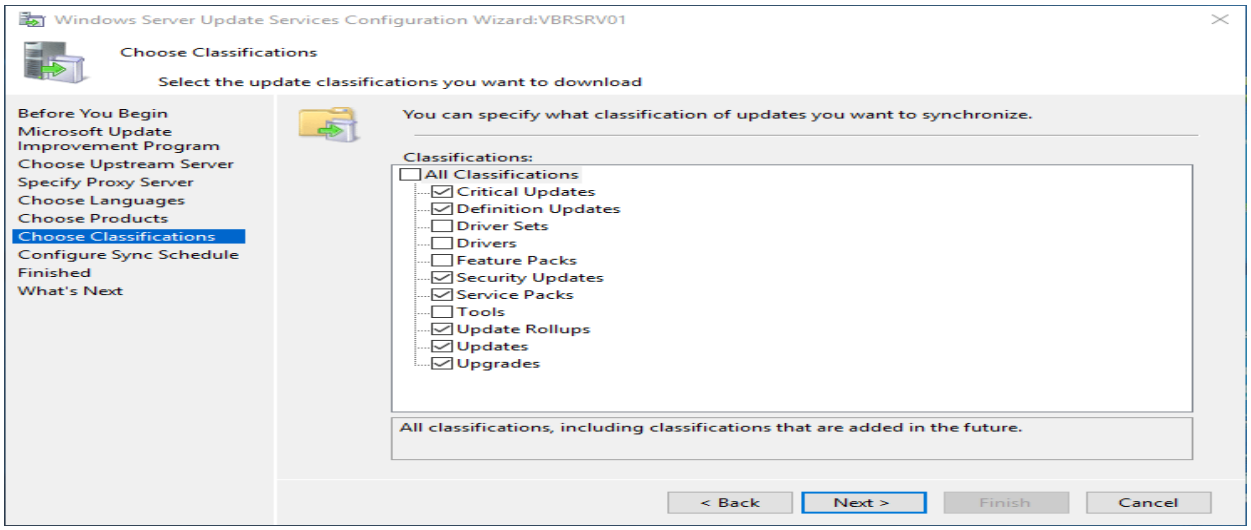
Choose your language here.



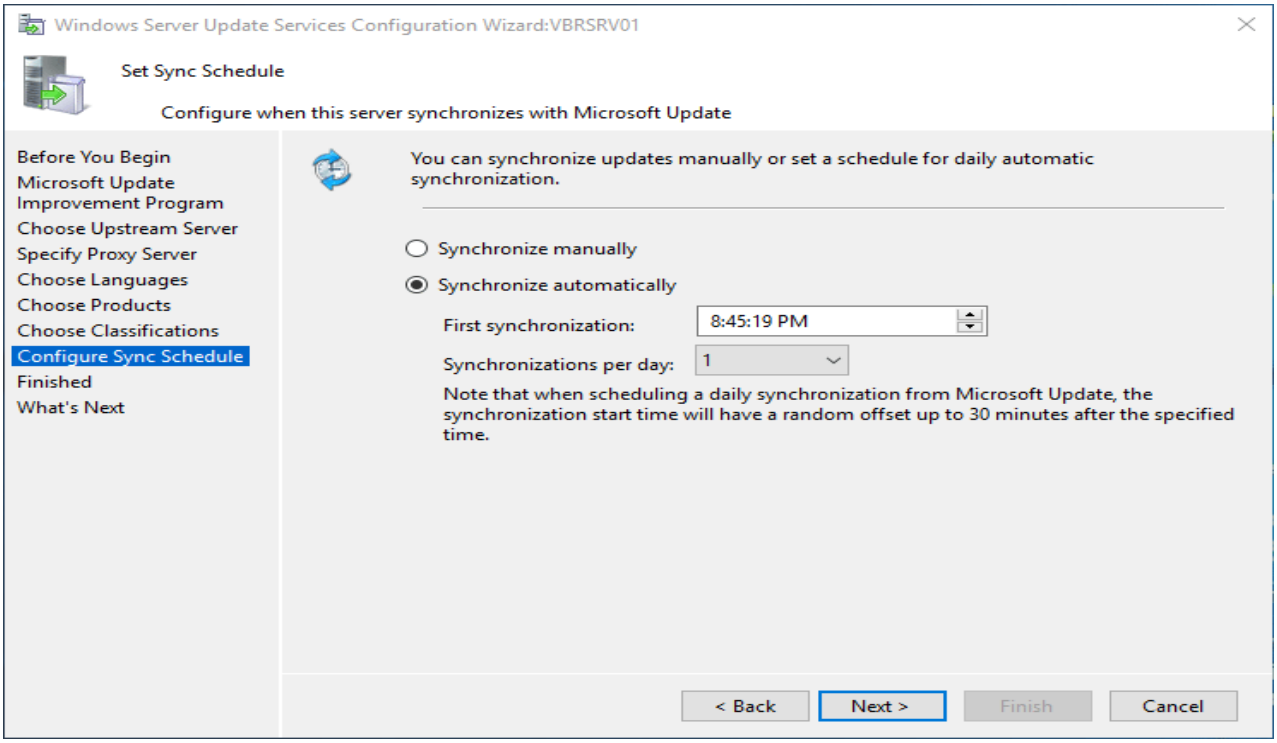
On our Choose Products screen we actually choose operating systems and products we want to pull down and store updates for.



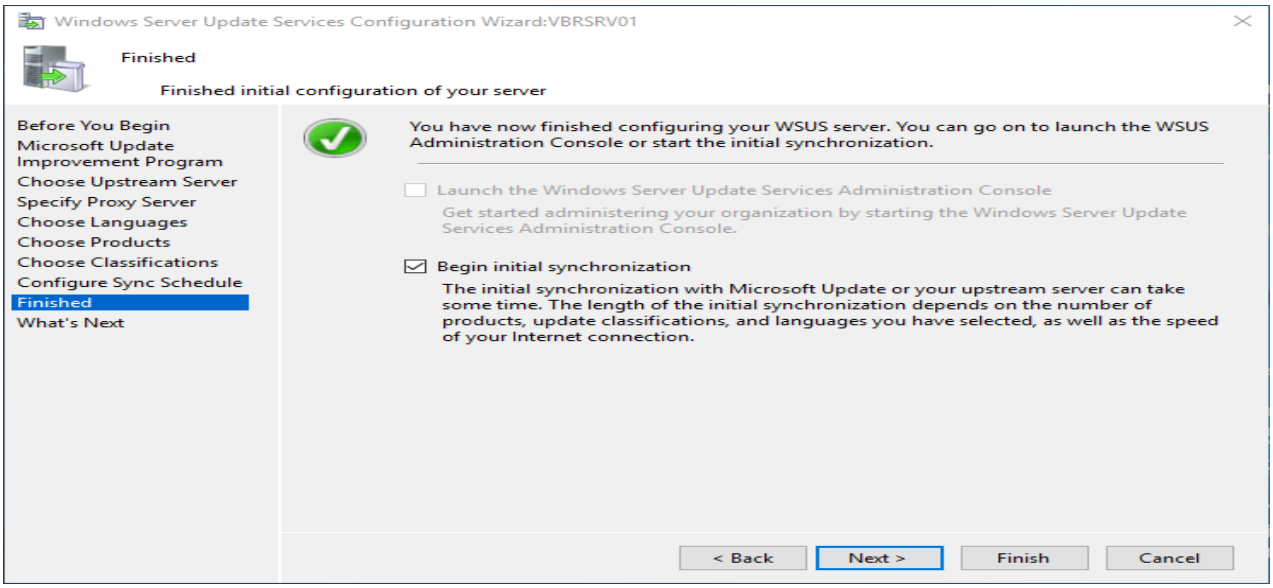
Next, we choose our Classifications where we can set the types of updates for the selected operating systems. This includes choices on Critical updates, drivers, feature packs, security updates, etc.



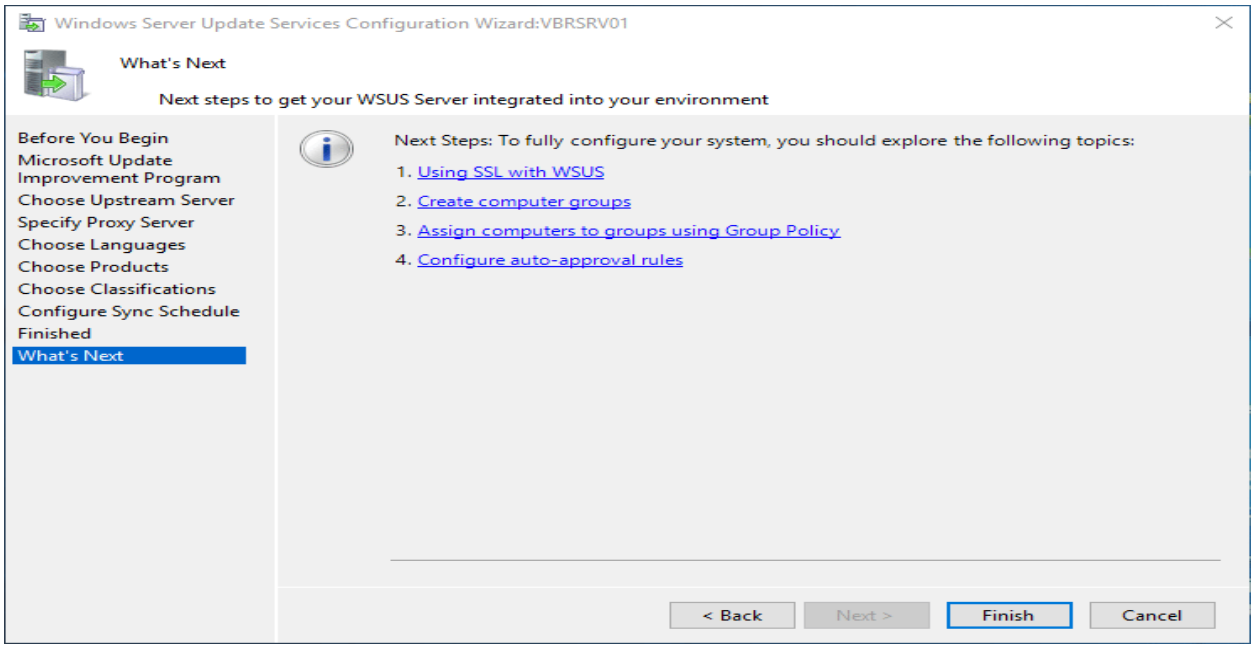
Next is our Sync Schedule where we configure when we want a synchronization with our upstream source server to happen. We can also set the number of synchronizations per day.



On the Finished screen, we can choose to Begin initial synchronization which will start pulling down the updates that meet the criteria.



The basic summary screen tells us what we might want to think about doing next including setting up SSL, creating computer groups, etc.

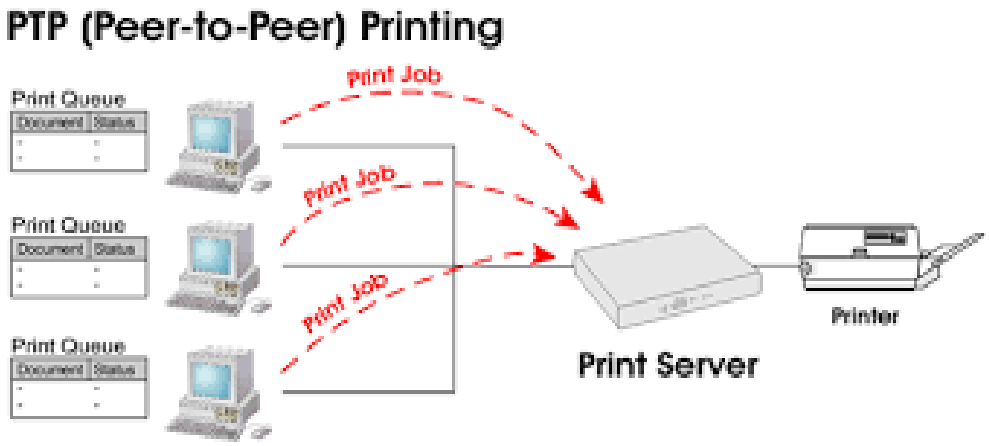


That concludes the basic Windows Server 2016 Install and Configure of WSUS.

17- printer server in window server

هو جهاز خادم موصل به طابعة أو أكثر بإمكانه استقبال أوامر الطباعة من جهاز حاسوب زبون خارجي موصل إلى خادم الطباعة عبر شبكة حاسوبية يقوم بعدها خادم الطباعة بإرسال البيانات إلى الطابعة (أو الطابعات) المناسبة التي يديرها.

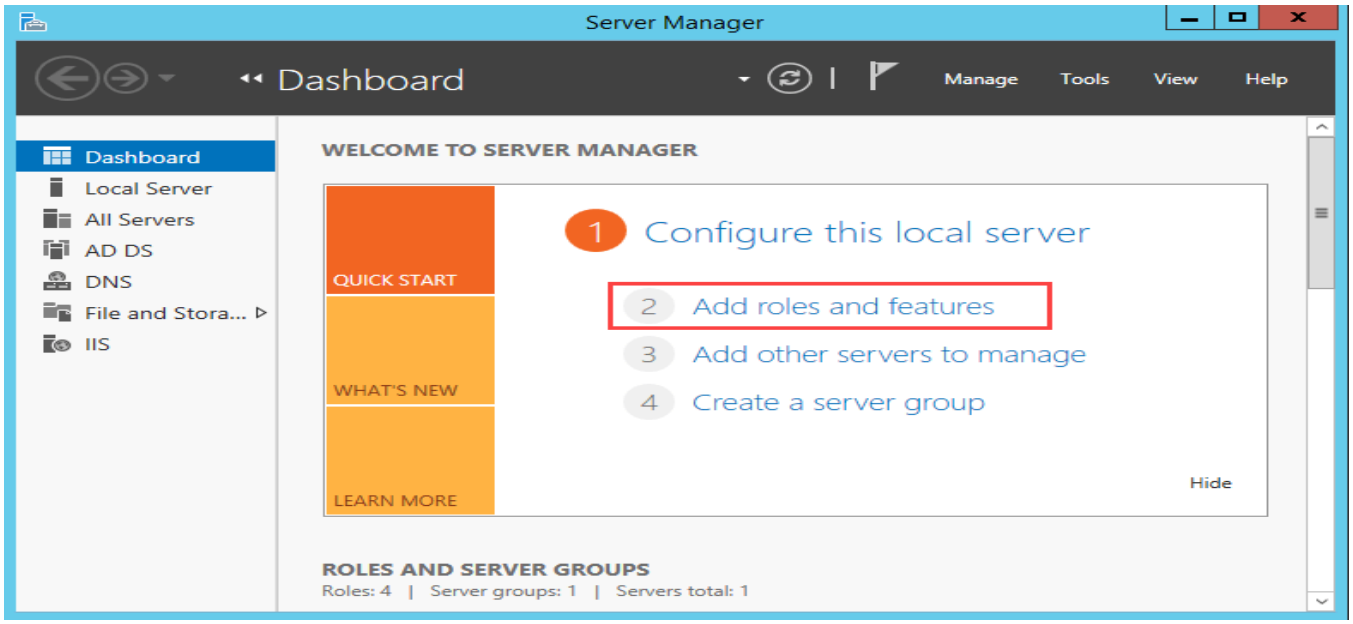
Printing and file sharing are the essential sectors for users, groups, organizations in a network. Like in a network, there are a large number of printers with different varieties and there are an enormous number of groups, users who need to use. As an administrator, you should know how to install and configure print services in Windows Server to manage tens or hundreds of printers in a network. As most of the modern printers have a network interface card and Internet Protocol (IP) address can be assigned to the printers. Therefore, all users through the network can access and use them. One of the most handful features in print services is print pooling by which a number of printers are added to a pool. When one is performing a print job, other printers perform the next print jobs sent to them. As you can grant priority access to a printer from 1 through 99. When there are two print jobs in the print server, the user with higher priority will get the job done before the another. In this lesson, we will learn + understand how to install and configure print services fully in Windows Server 2016. Let's get started.



17.1- Install Print Services Role in Windows Server 2016

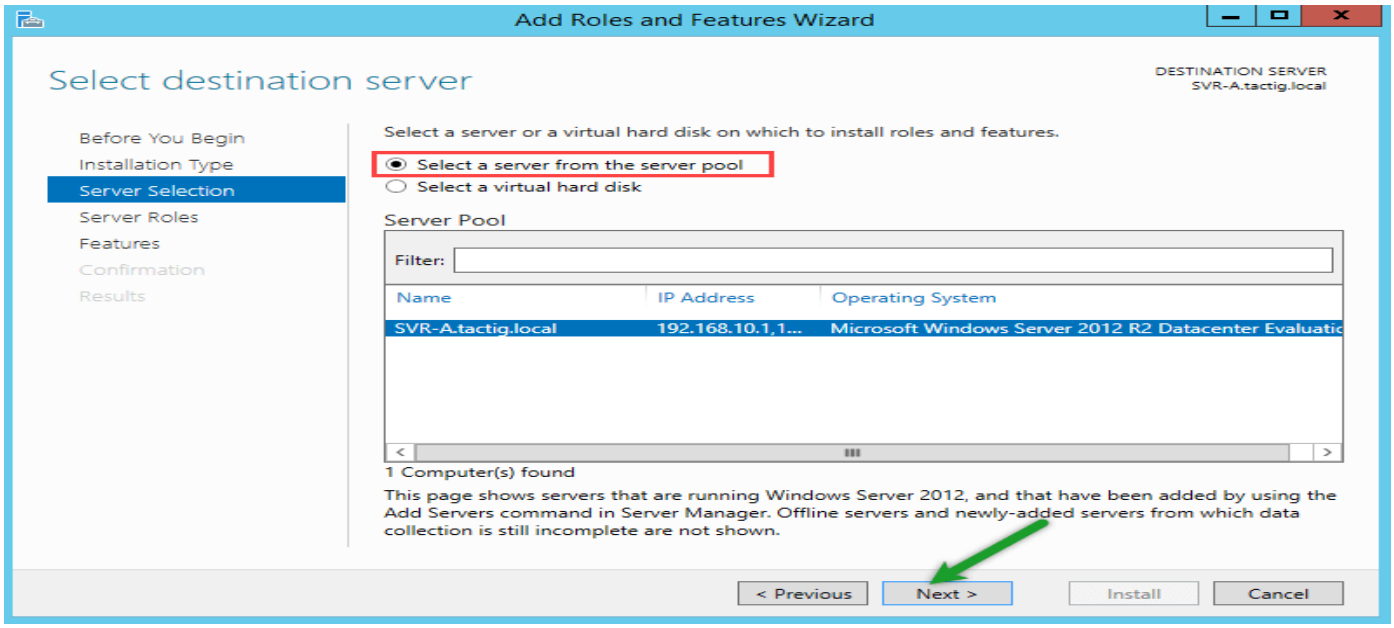
Role Installation

Open Server Manger and click on **Add roles and features** to install Print and document services role.



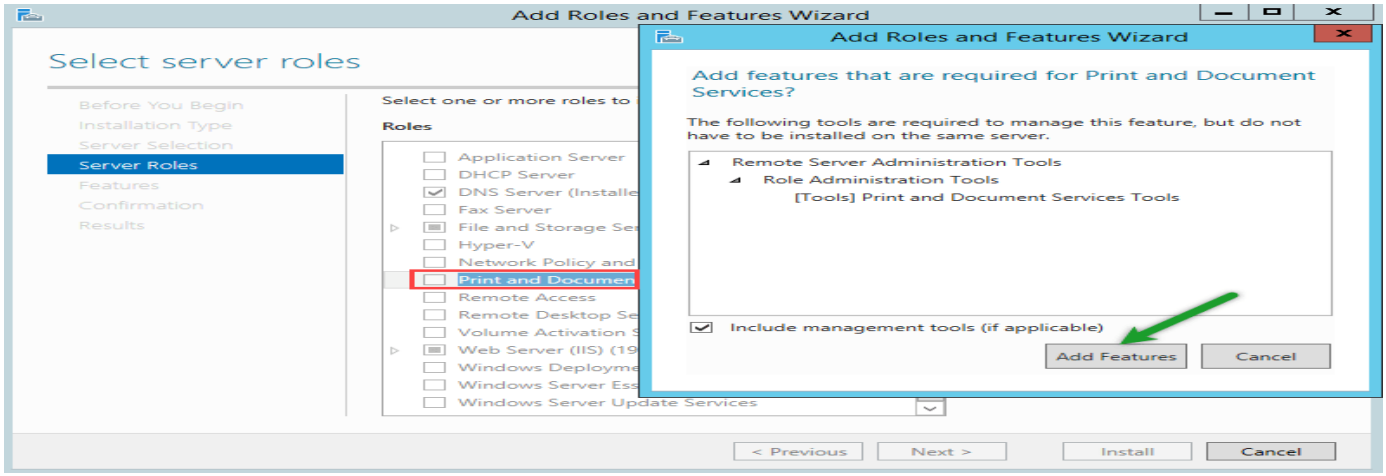
Add roles and features

In the Welcome we've got nothing to do at all. Click on **Next** button. In **Select destination server** page, elect the Select a server from the server pool. Select the server you want to install the role on from the list below. Click on **Next** button.



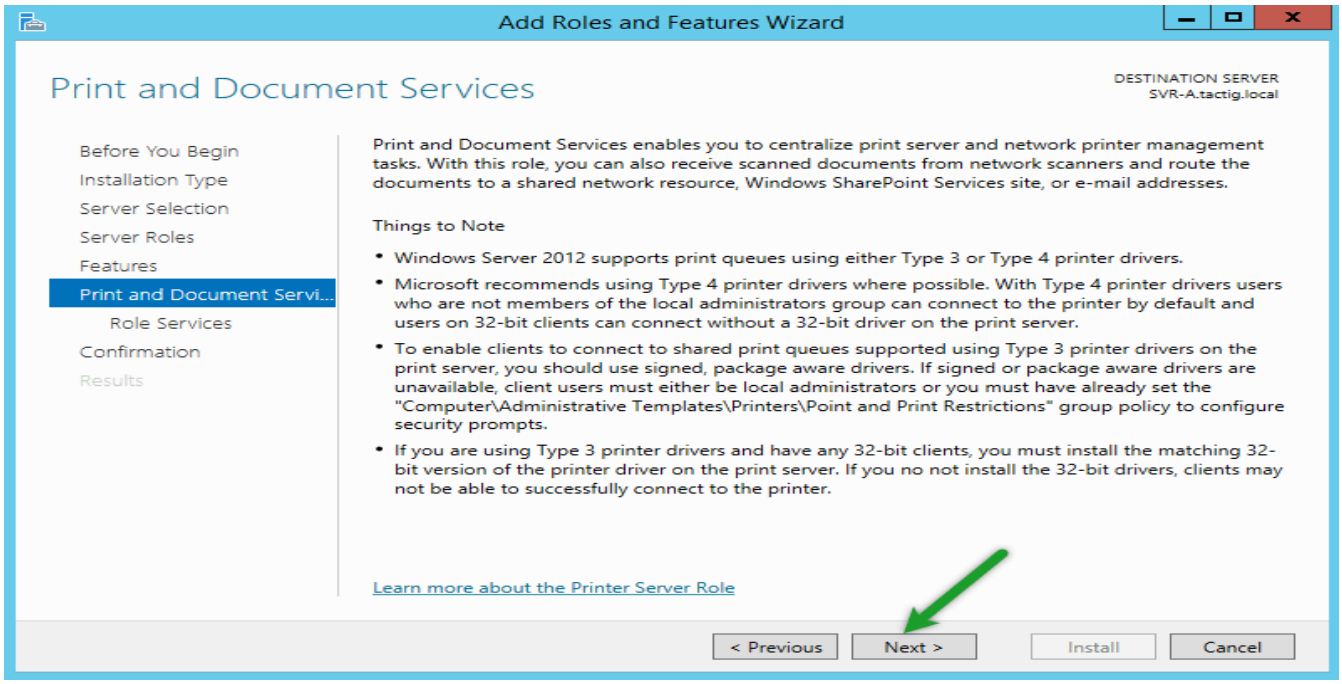
Select a server from server pool

Put a check mark in the box next to Print and document services. A small windows pops up and wants you to add some features for print services management. Click on Add features to install management tools. If you don't install the management features, you just install the core service.



Print and document services

In the **Print and Document Services** page, provided essential information about the services to be noted. Finally click on **Next** button.



Print and Document Services

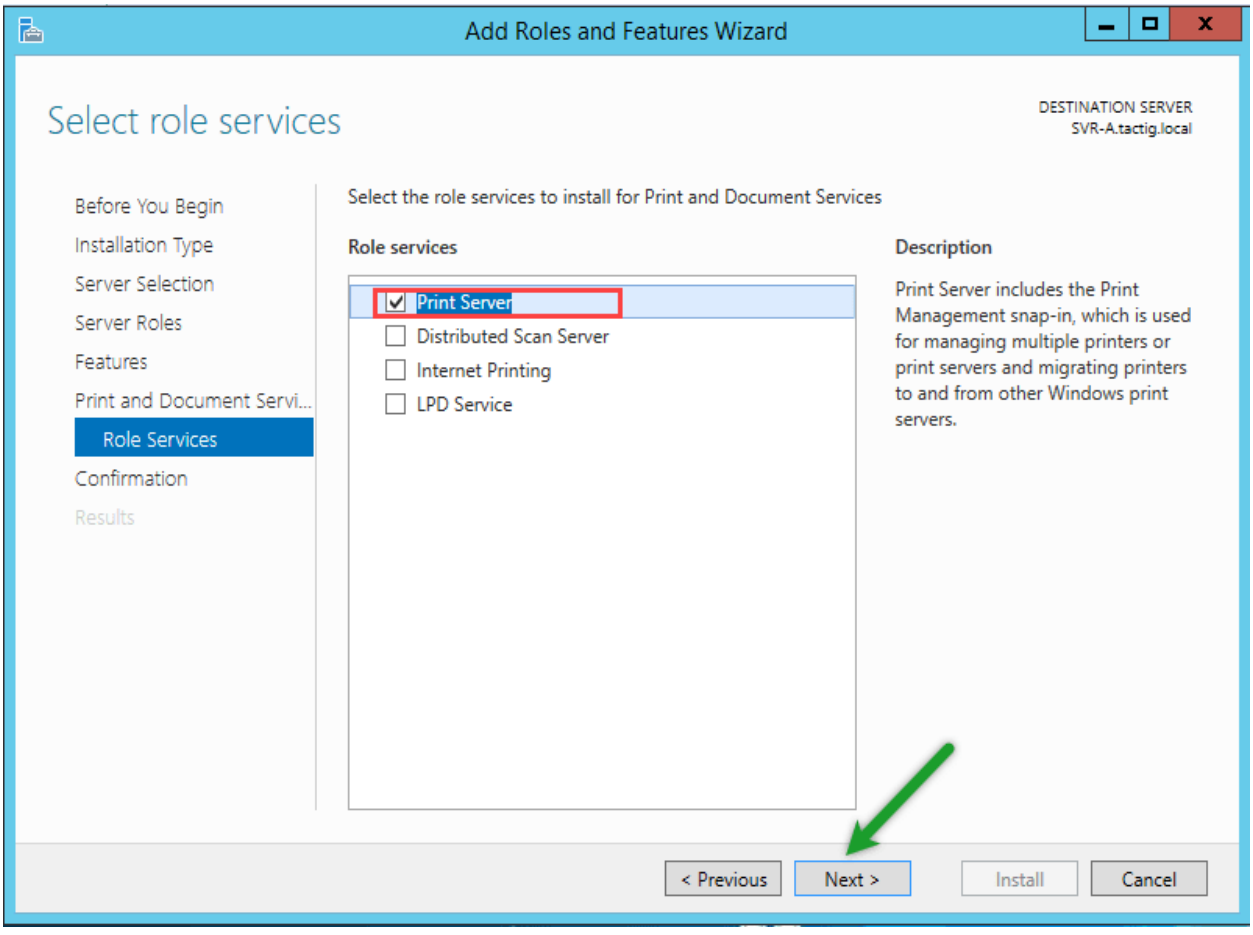
In the **Select role services** page four options are visible:

Print Server: It is the actual print server. Selecting this option you can manage print services components as printers and drivers and furthermore things.

Distributed Scan Server: allows you to send scanned images to specific users or groups in the domain.

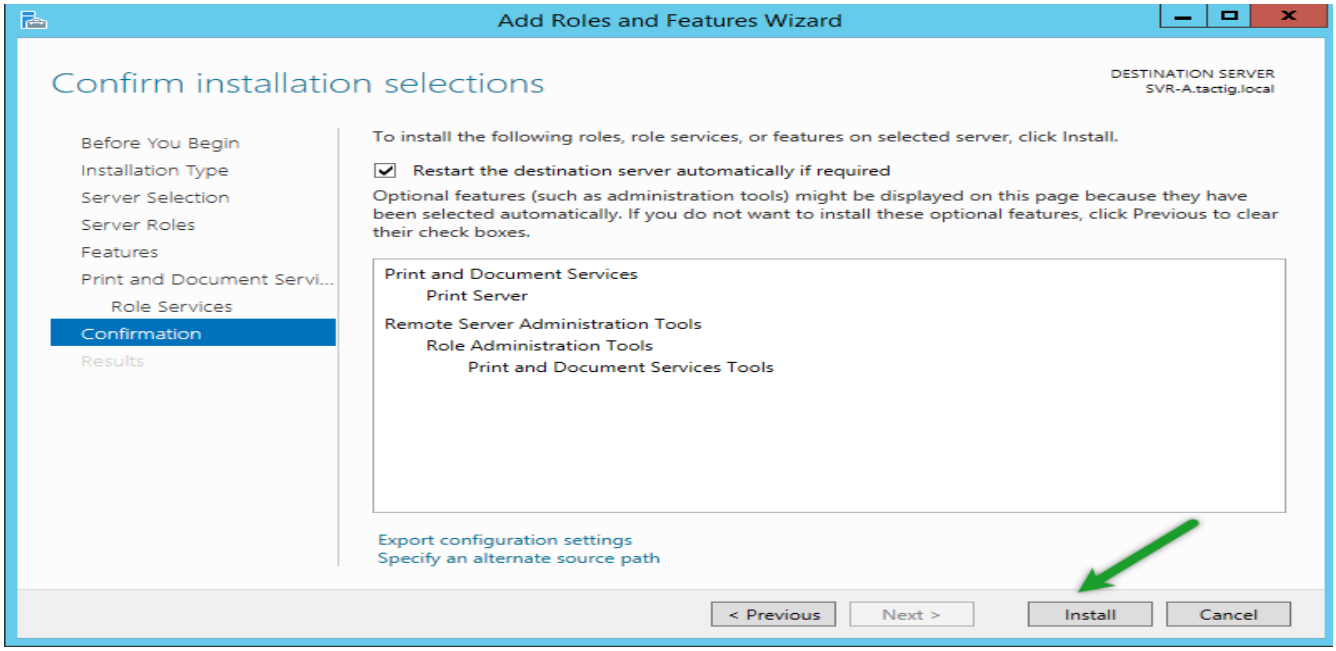
Internet Printing: It creates a web page and gives the access to printer clients using printers through IIS web server.

LPD Service: This option enables UNIX clients running line printer remote (LPR) to send print jobs to Windows printers. I install only Print Server.



Select Role Services

We're almost done. Click on **Install** button for installing the role on server. No reboot is needed.

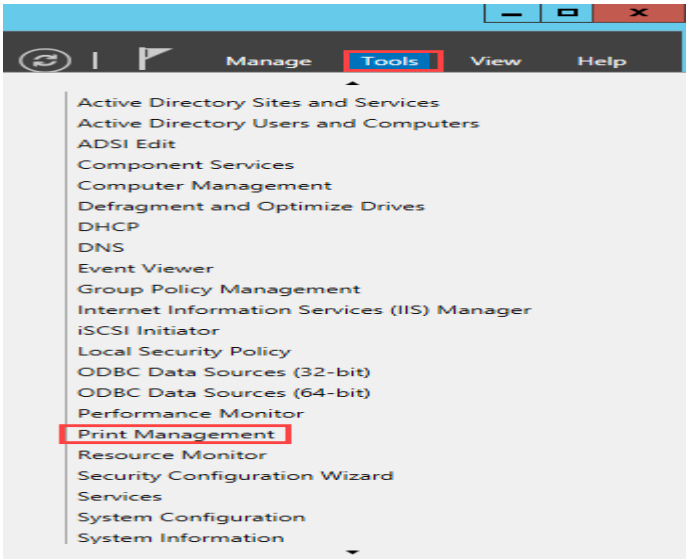


Confirm installation selections

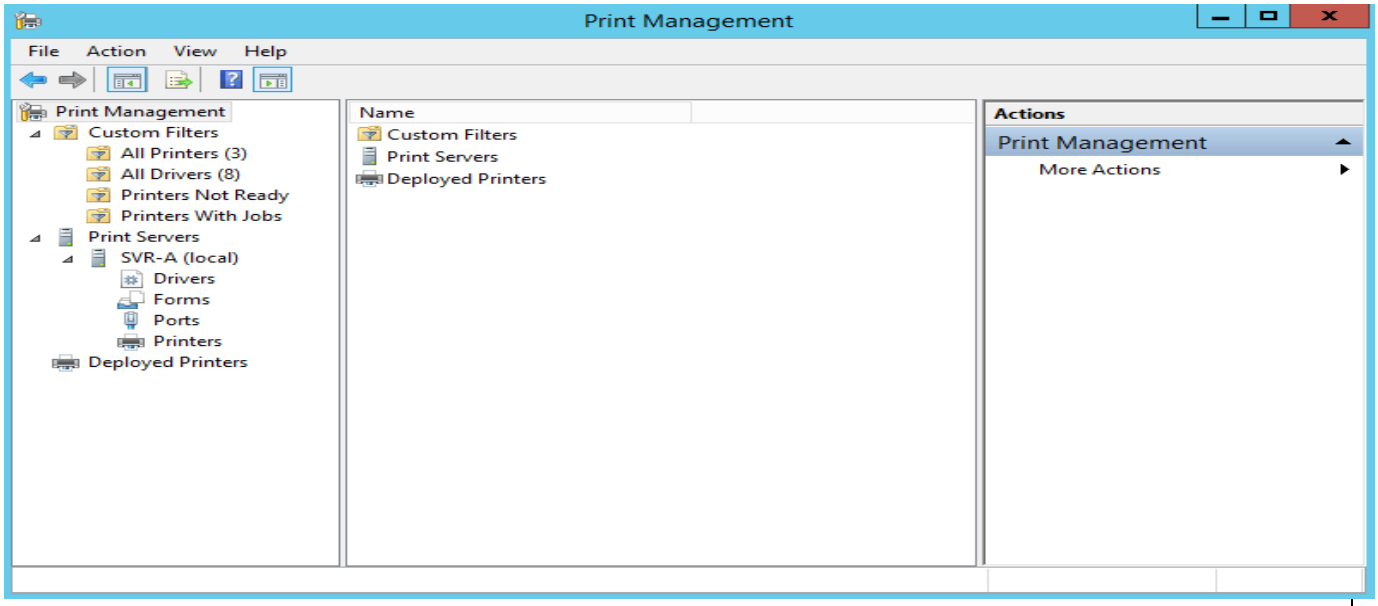
Configure Print Services in Windows Server

First of all we need to add some printers and drivers on the server and manage them.

Open Server Manager, click on **Tools** dropdown menu and select **Print Management** services. Using this tool we can add and manage print services easily.



Server Manager



While Print Management tool is opened. Expand Custom Filters on the left pane to see the custom filters. You see four default filters:

All Printers: It shows the list of all printer connected to the domain from all print servers.

All Drivers: You can see a complete list of all drivers available for your clients through all the domain.

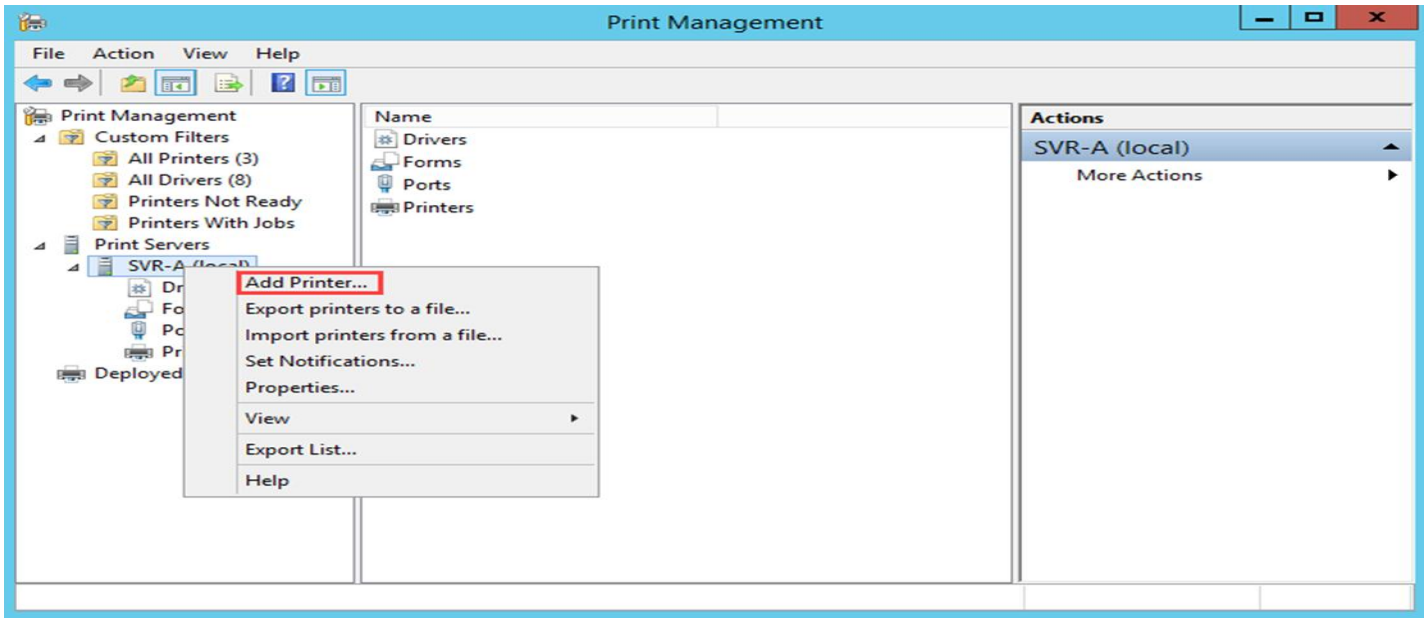
Printers Not Ready: It shows you list the servers which are not available to clients. They don't work, fix them.

Printers With Jobs: Shows the list of printers currently doing print jobs.

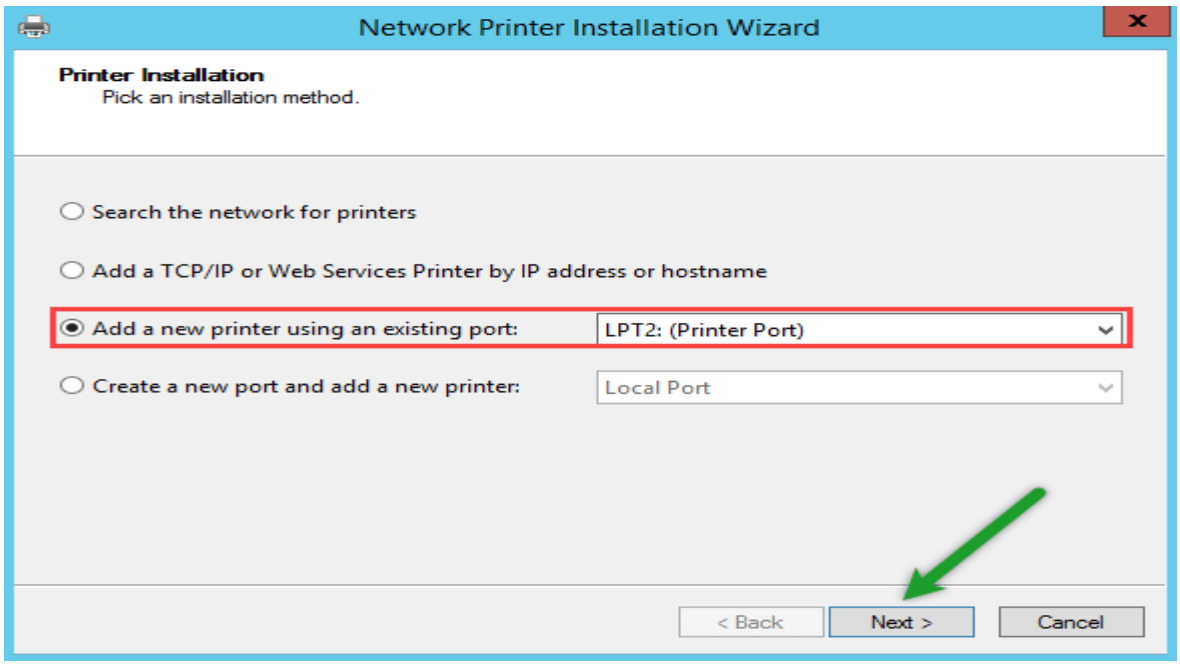
Below Custom Filters another option is visible by the name Print Servers. Expand it to see all the print server in your domain. You can add all print servers in the domain here for easy management. Just right-click on Print Servers and select Add Server and go on.

add printer

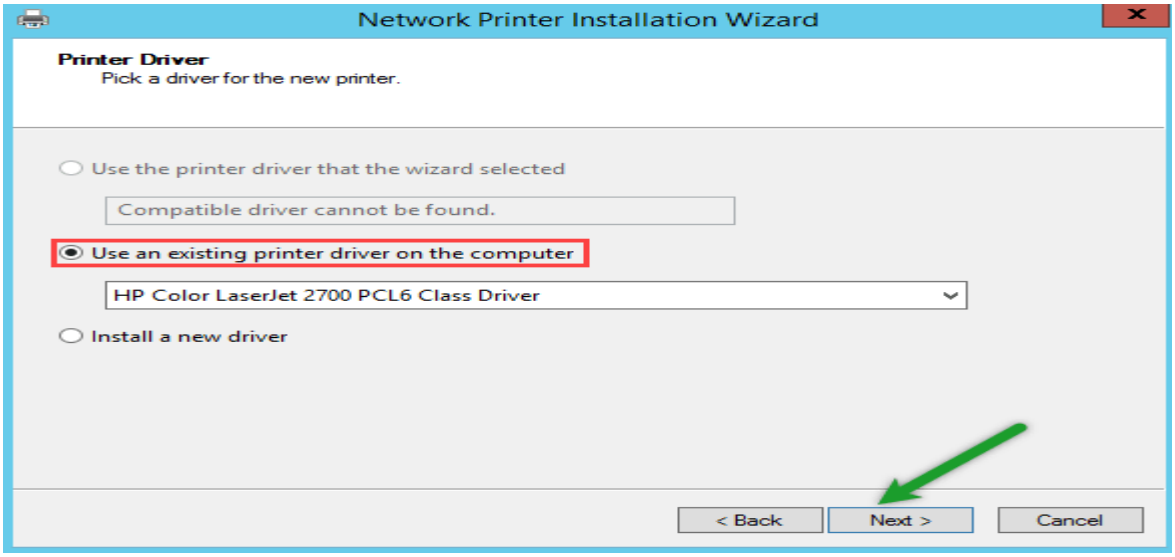
Print Management tool opened, expand Print Servers and right-click on the server and select Add Printer option.



In the Welcome page we've nothing to do so just click on Next button. In the Printer Installation page select the Add a new printer using an existing port. Elect a port and hit Next button.

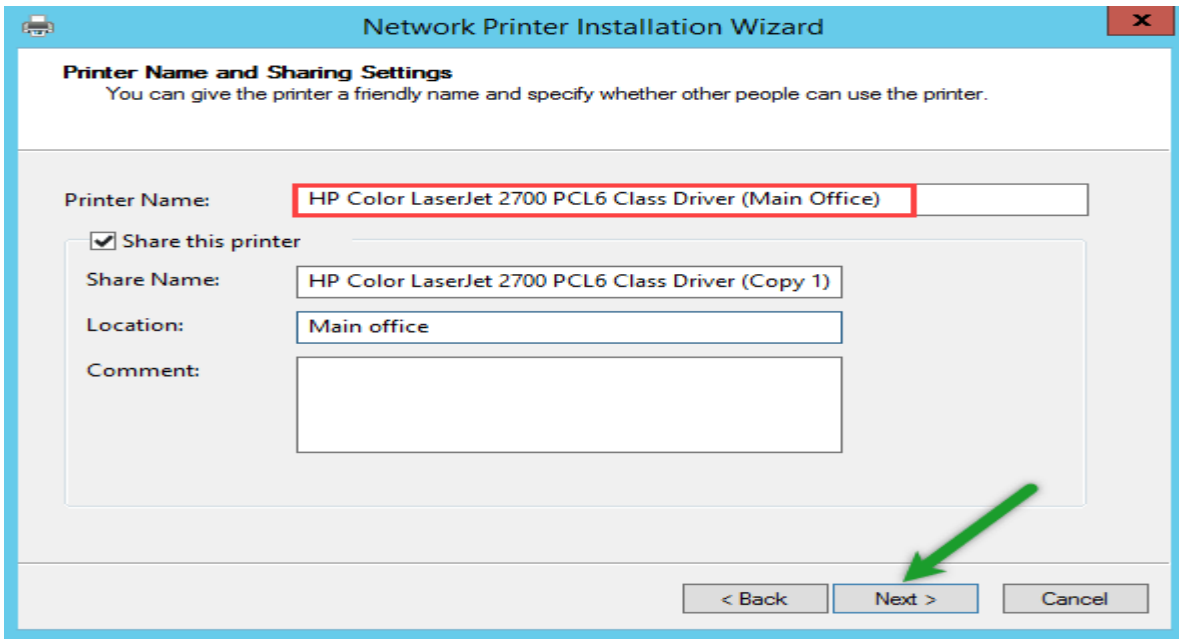


In the Printer Driver page select Use an existing printer driver on the computer option. From the drop-down list select a driver that matches your printer device manufacturer and model.



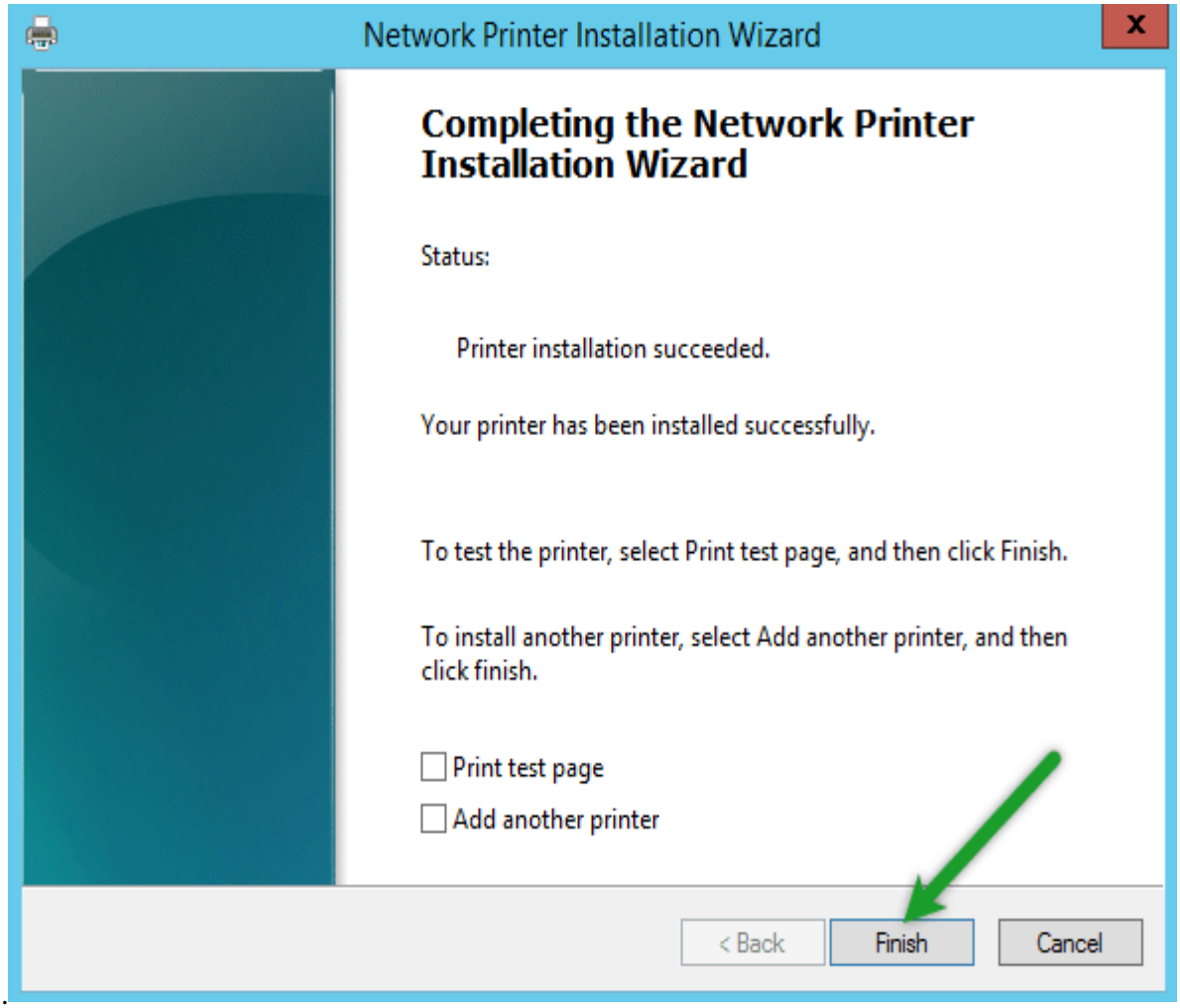
Use an existing printer driver

Now you need to type a name for the printer in the box shown in the picture below. Below the Printer Name you can also see another option: Share this printer. As a result you can choose a share name and location for the printer. If needed you can leave a comment for users guidance.



Printer Share Name and location

5. Finally we are done with adding printer on a server. Just click on Finish button to finish the wizard. While finished the wizard you can find the printer in All Printers option in the left pane. If you would like to print a test page selecting Print a test page at the bottom of the wizard also you can add another printer



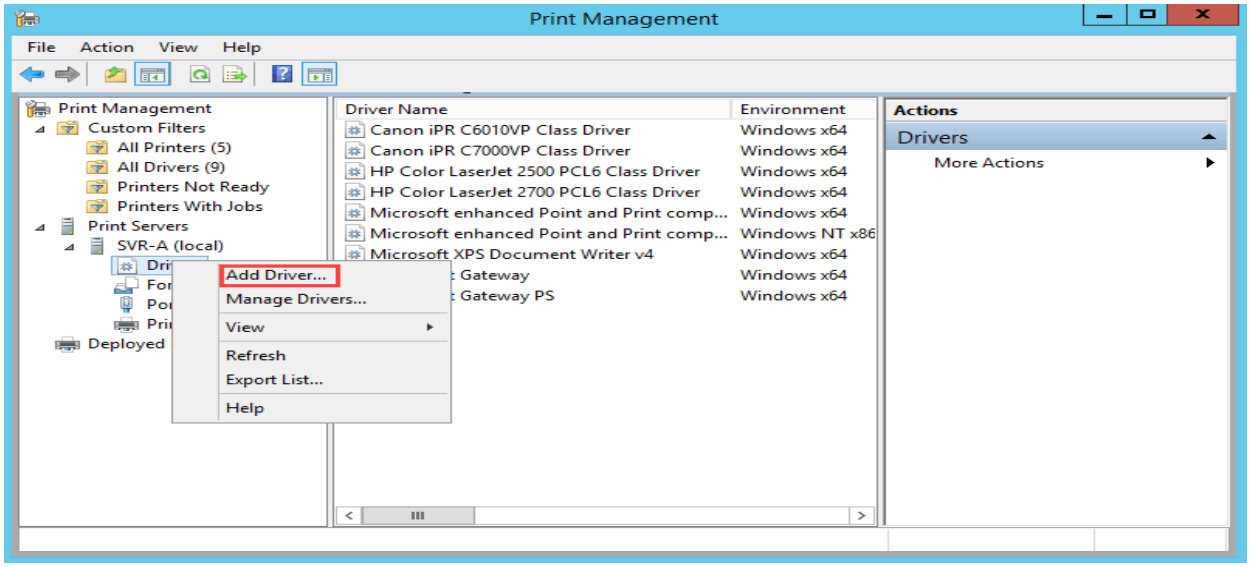
Finish the wizard

Add Driver

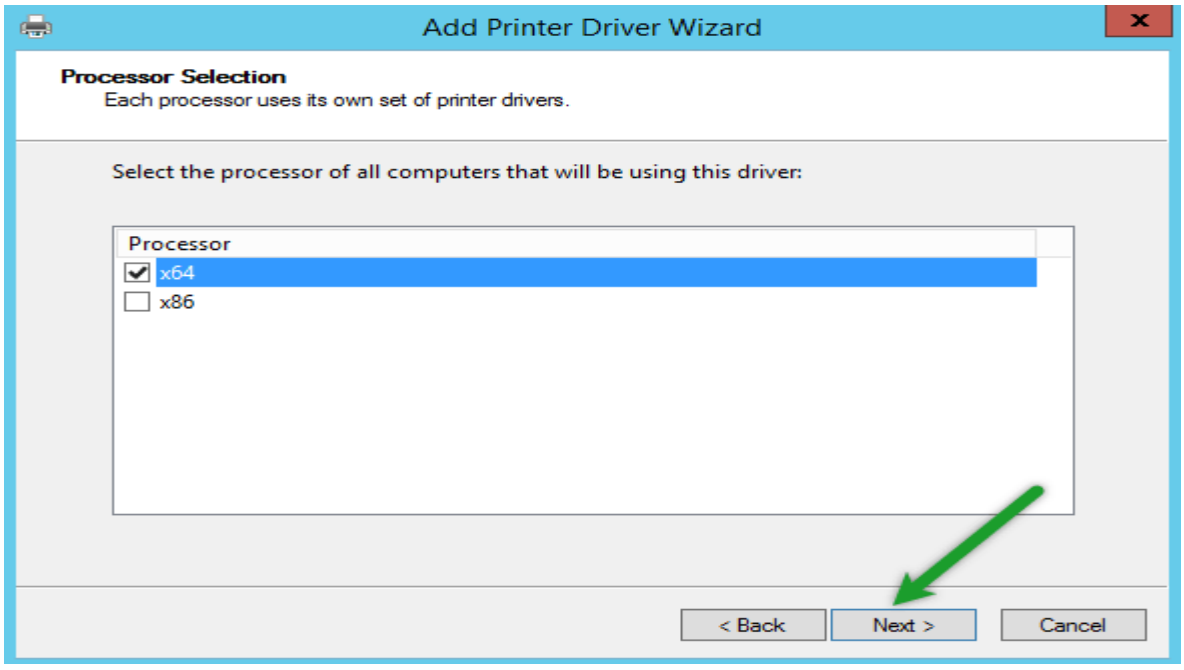
اختيار نوع الطابعة والشركة المصنعة ورقم الموديل

Maybe you need different kinds of drivers for client computers to use be able to use print device. So you need to have 32-bit and 64-bit drivers.

First of all you need to right-click on Drivers option below the server which you want to add driver to. Select the Add driver option.

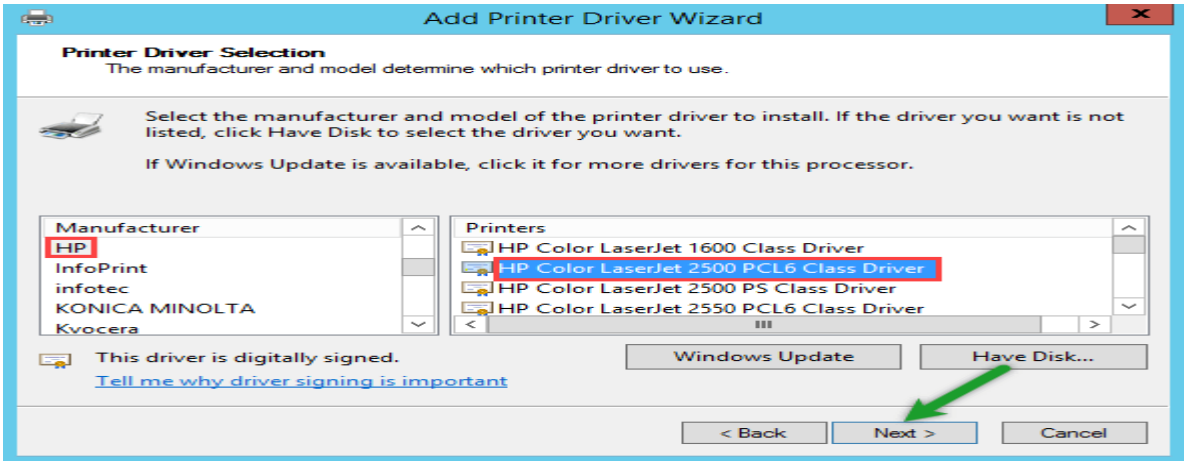


In the Welcome page we have nothing to do. In the Processor Selection page you need to specify which kind of processors do your clients use. You can one or both of the options and hit Next.



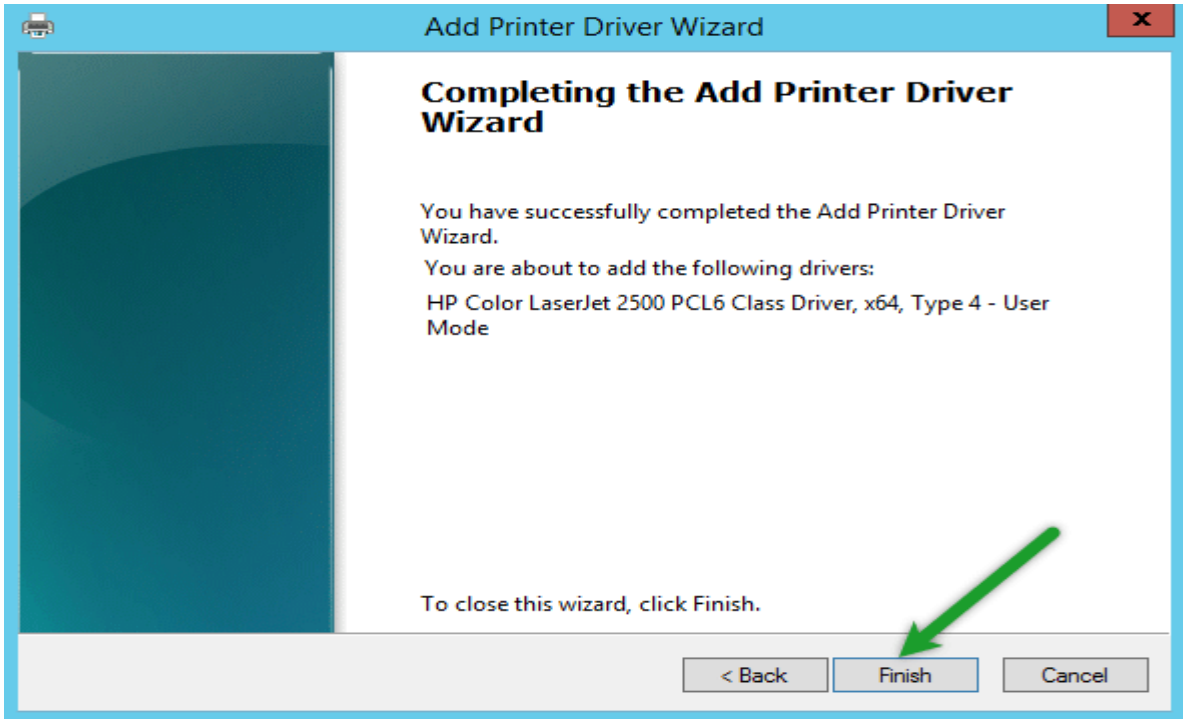
Processor selection

In the Printer Driver Selection page you need to specify two things. First of all you should specify your devices's manufacturer. Secondly specify the printer model. In addition to these you have one more useful option. If you have driver on a disk, you can click on Have Disk button and find path of the source and add it.



Printer Driver Selection

We are done and the driver was added to the server. So click on Finish button due to finish.



الرجاء تحميل باقي الكتاب الجانب العملي لشهادات MCSA _2016 _2008_2012الجزء الثاني من موقع كتب

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تحياتي المؤلف عبدالسلام صالح الراشدي