

Nikmah Daulae, S.Pd.,MTA.

# ADMINISTRASI Sistem Jaringan





**Administrasi Sistem Jaringan**

**SMK Jurusan Teknik Komputer Jaringan Kelas XI Semester 1**

**Penulis:** Nikmah Daulae

**ISBN** 978-602-5838-43-9

**Editor:** Sri Subekti

**Penata Letak:** @timsenyum

**Desain Sampul:** @kholidsenyum

Copyright © Pustaka Media Guru, 2018

vi, 124 hlm, 14,8 x 21 cm

Cetakan Pertama, Mei 2018

Diterbitkan oleh

**CV. Cipta Media Edukasi**

Grup Pustaka MediaGuru (Anggota IKAPI)

Jl. Dharmawangsa 7/14 Surabaya 60286

Website: [www.mediaguru.id](http://www.mediaguru.id)

Dicetak dan Didistribusikan oleh

**Pustaka Media Guru**

Hak Cipta Dilindungi Undang-Undang Republik Indonesia Nomor 19  
Tahun 2002 tentang Hak Cipta, PASAL 72

# Daftar Isi

Kata Pengantar .....	i
<a href="#">Daftar Isi .....</a>	<a href="#">iv</a>
<a href="#">Menginstalasi Sistem Operasi Jaringan.....</a>	<a href="#">1</a>
<a href="#">1.1 Indikator.....</a>	<a href="#">1</a>
<a href="#">1.2 Alat dan Bahan.....</a>	<a href="#">1</a>
<a href="#">1.3 Materi .....</a>	<a href="#">1</a>
<a href="#">1.4 Langkah-langkah Konfigurasi .....</a>	<a href="#">3</a>
<a href="#">1.5 Tugas .....</a>	<a href="#">36</a>
Mengkonfigurasi DHCP Server .....	39
2.1 Indikator .....	39
2.2 Alat dan Bahan .....	39
2.3 Materi.....	39
2.4 Langkah-langkah Konfigurasi .....	41
2.5 Tugas.....	63
Mengkonfigurasi FTP Server .....	65
3.1 Indikator .....	65
3.2 Alat dan Bahan .....	65
3.3 Materi.....	65
3.4 Langkah-langkah Konfigurasi.....	66
3.5 Tugas.....	94

Mengkonfigurasi Remote Server.....	97
4.1 Indikator.....	97
4.2 Alat dan Bahan .....	97
4.3 Materi .....	97
4.4 Langkah-langkah Konfigurasi.....	98
4.5 Tugas .....	121
Daftar Pustaka .....	123
Profil Penulis .....	124



# Menginstalasi Sistem Operasi Jaringan

## 1.1 Indikator

- ◆ Siswa mampu menginstalasi server core di windows server 2012.
- ◆ Siswa mampu menginstalasi server GUI di windows server 2012.
- ◆ Siswa mampu mengetahui persyaratan minimum instalasi windows server 2012.
- ◆ Siswa mampu mengetahui edisi windows server 2012.

## 1.2 Alat dan Bahan

- ◆ Virtual box versi 4.3.36.
- ◆ Iso windows server 2012 R2.

## 1.3 Materi

System requirements pada windows server 2012 R2 :

- ❖ Processor minimum : 1.4 GHz 64-bit processor
- ❖ Ram : 512 MB
- ❖ HDD : 32 MB

Berikut ini tabel minimum yang di rekomendasikan untuk menginstal windows server 2012 R2 :



**Table 2-2 Windows Server 2012 R2 Hardware Requirements**

Component	Minimum Requirement	Microsoft Recommended
Processor	1.4 GHz	2 GHz or faster
Memory	512 MB RAM	2 GB RAM or greater
Available Disk Space	32 GB	40 GB or greater
Optical Drive	DVD-ROM drive	DVD-ROM drive
Display	Super VGA (800x600) monitor	XGA (1024x768) monitor

Adapun edisi yang terdapat pada windows server 2012 R2 sebagai berikut .

- ❖ Windows Server 2012 R2 Datacenter on Microsoft Azure;
- ❖ Windows Server 2012 R2 Datacenter 64-bit ISO;
- ❖ Windows Server 2012 R2 Datacenter Virtual Lab;
- ❖ Windows Server 2012 R2 Datacenter 64-bit VHD.

Edisi dapat dicek pada situs dibawah ini. :

<https://www.microsoft.com/en-us/evalcenter/evaluate-windows-server-2012-r2>. Spesifikasi dari data di atas merupakan acuan buat kita untuk menginstalasi sistem operasi jaringan. Dalam hal ini kita bisa menggunakan Virtual box sebagai media virtual dalam percobaan ini.

Pertama sekali siapkan file ISO-nya jika melakukan Instalasi pada *Virtualisasi VMWare Workstation*, *VMWare vSphere*, *VirtualBox* atau *MS Virtual PC*. File ISO nya dapat di download

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

Setelah didownload kita bisa melakukan instalasi windows server tersebut dengan menggunakan virtualbox sebagai media percobaanya. Situs virtualbox dapat didownload di sini : <https://www.virtualbox.org/wiki/Downloads>.

Aplikasi virtualbox kita instal sampai selesai kemudian tidak akan di beritahukan lagi mengenai instalasi virtualbox. Karena proses instalasi virtualbox tersebut sangat mudah, tinggal next-next saja dan ikuti proses instalasi tersebut sampai selesai atau bisa juga cari tutorialnya di internet.

#### 1.4 Langkah-langkah Konfigurasi

Pertama sekali settingan pada virtualbox harus diperhatikan dengan *network interface* yang akan digunakan. Network yang digunakan dengan dua interface, yang satu diarahkan ke internet dan satu lagi ke local (LAN).



Gambar 1.1 Settingan network pada virtualbox.



Setelah settingan pada *virtualbox* selesai, masukkan file iso windows server 2012 yang sudah di download. Langkah-langkah Instalasi server core windows server 2012 sebagai berikut.

- 1) Tentukan terlebih dahulu bahasa yang digunakan dalam menginstalasi windows server tersebut dan time zone yang digunakan. Untuk keyboard pilih default saja sesuai standar US. Tampilan awali pilih bahasa Inggris dalam instalasi kemudian zona yang digunakan pilih Indonesia lalu klik next.



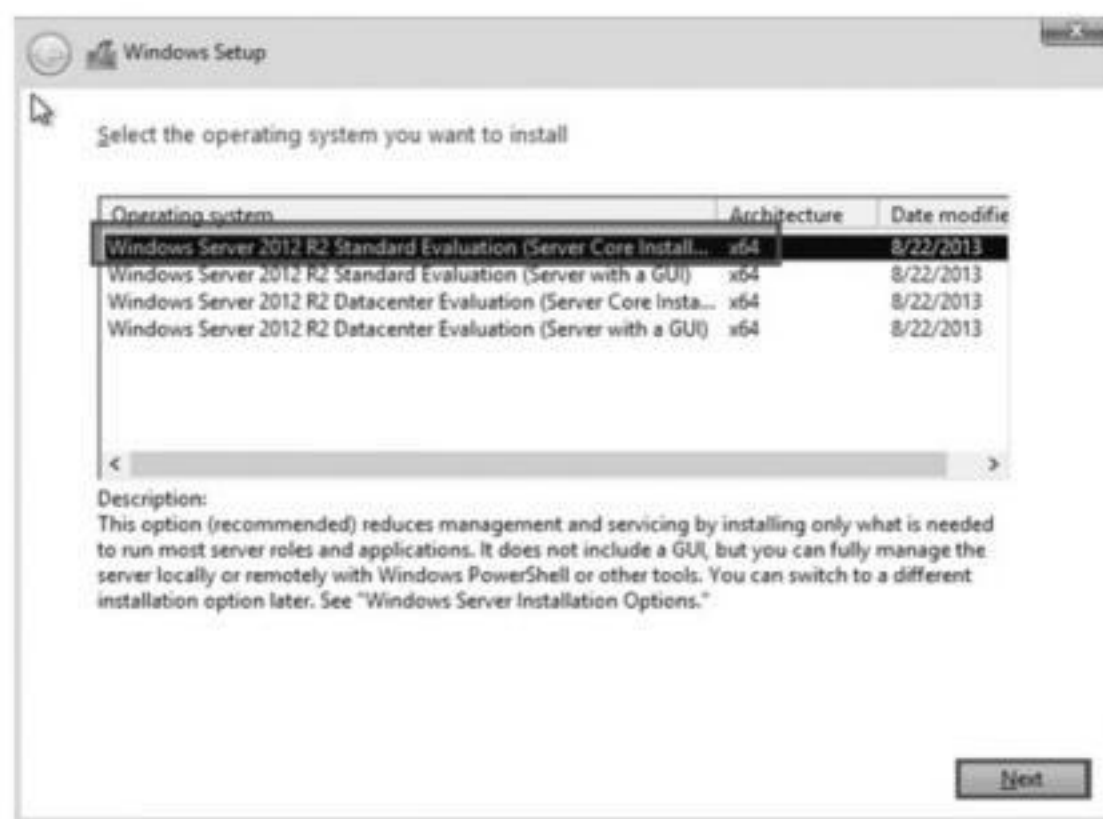
*Gambar 1.2 Pemilihan Bahasa dan zona.*

- 2) Kemudian pilih install now untuk memulai instalasi windows server.



Gambar 1.3 Pilih Instal Now.

- 3) Ada 4 pilihan dalam menginstalasi windows server : Standard Evaluation (Server core, Server GUI), DataCenter Evaluation, (Server core, Server GUI). Untuk instalasi kali ini kita gunakan Standard Evalutioan (server core installation).



Gambar 1.4 Pemilihan sistem operasi yang digunakan.

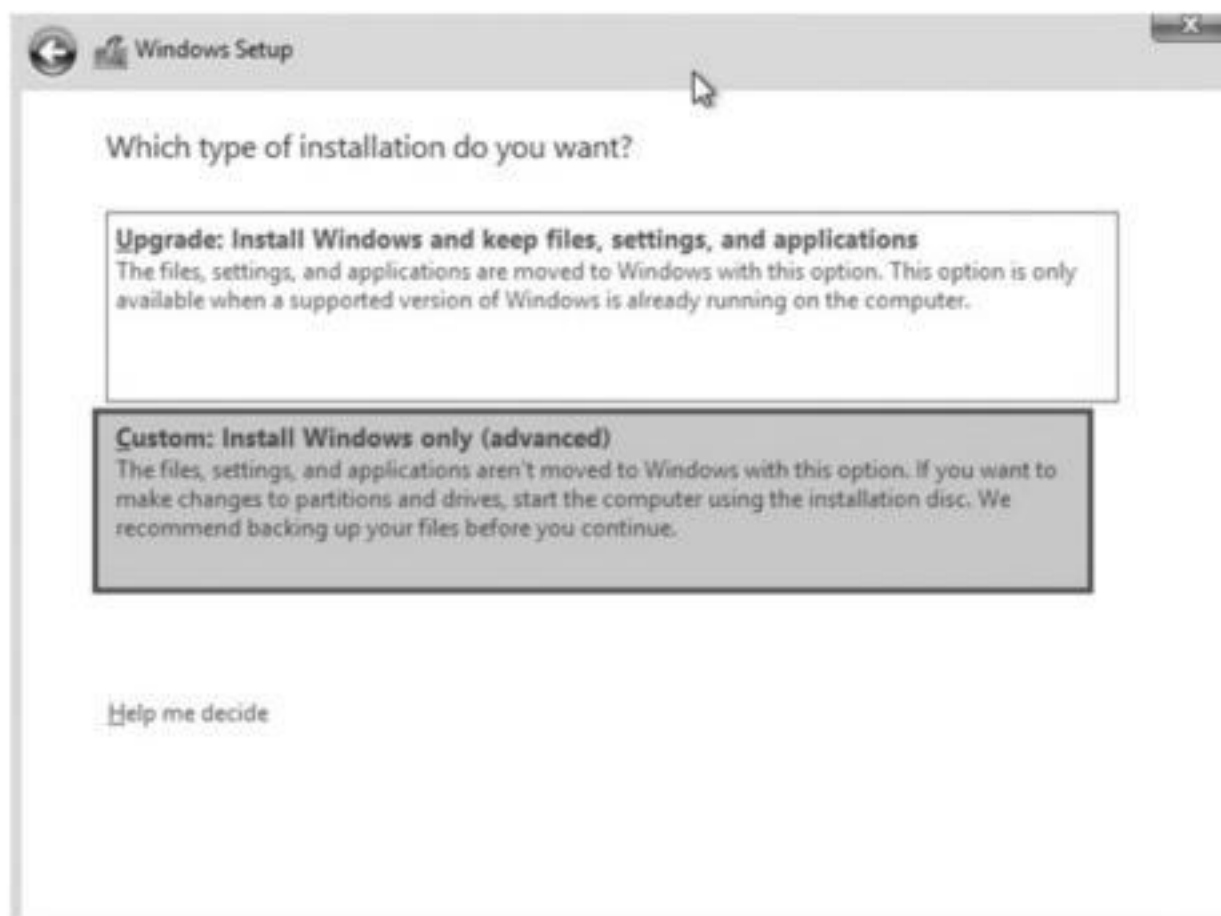
- 4) Selanjutnya membaca lisensi yang diberikan oleh microsoft dan memberi centang pada *I accept the licence term* .



Gambar 1.5 Mencentang lisensi yang diberikan microsoft.

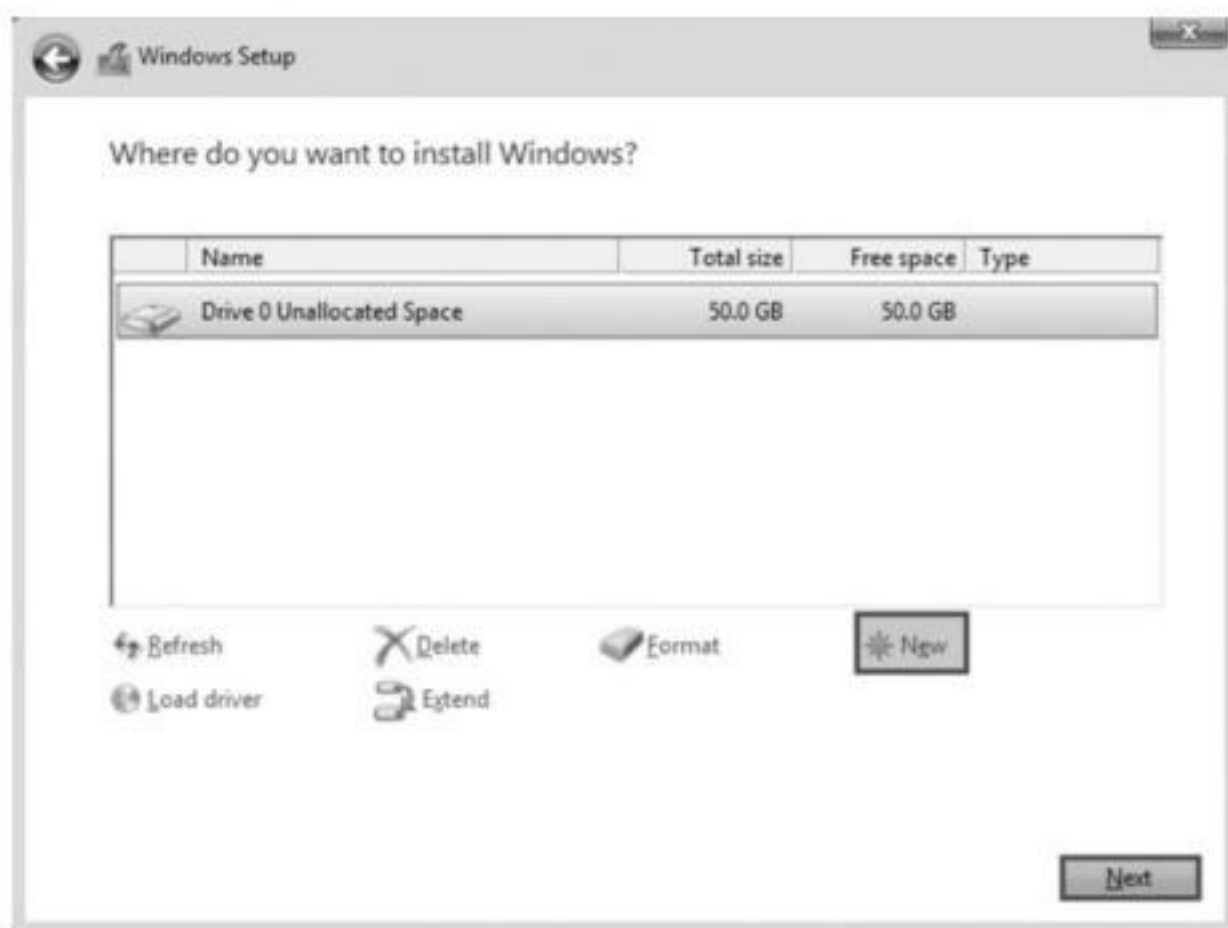
- 5) Memilih type instalasi yang digunakan dalam hal ini kita pilih *custom install* karena baru pertama sekali diinstal.





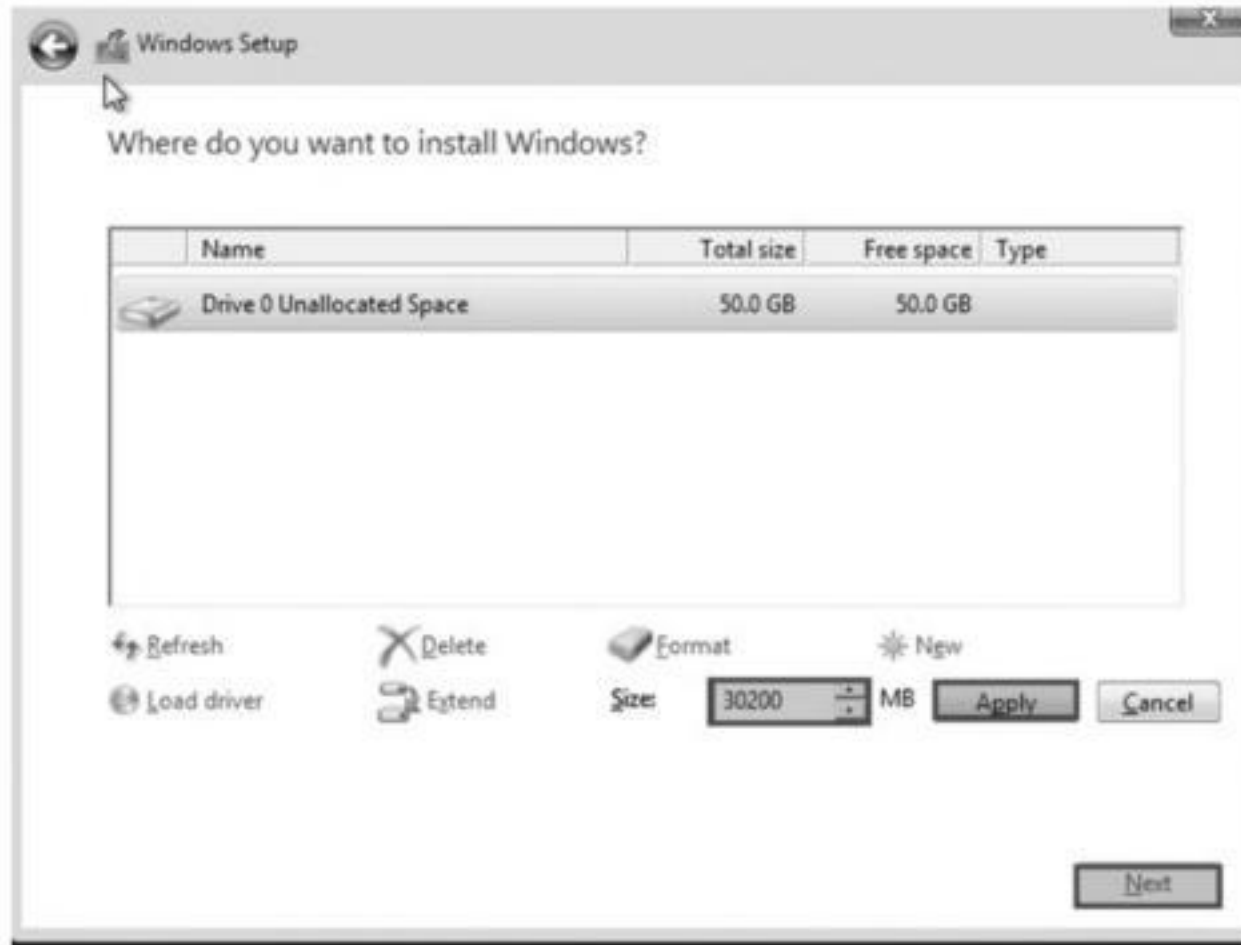
Gambar 1.6 Memilih type instalasi.

- 6) Membagi partisi yang akan digunakan dalam alokasi disini total hardisk yang digunakan sekitar 50 GB.



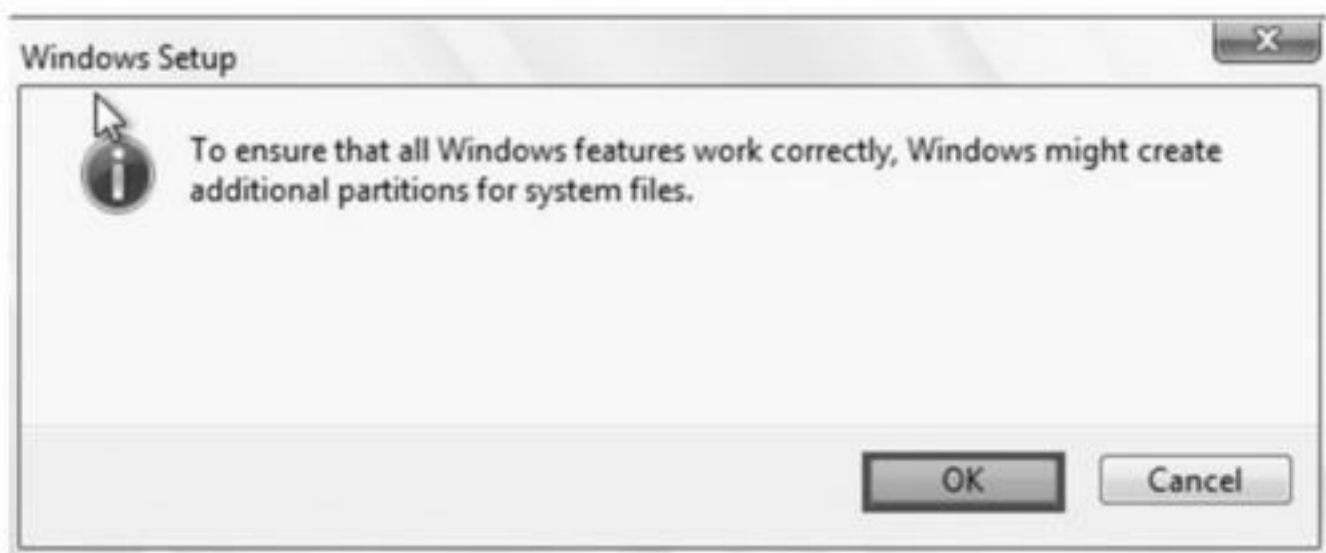
Gambar 1.7 Membagi partisi

- 7) Untuk drive C di alokasikan sekitar 30 GB sisanya akan diberikan tempat penyimpanan data sekitar 20 GB.



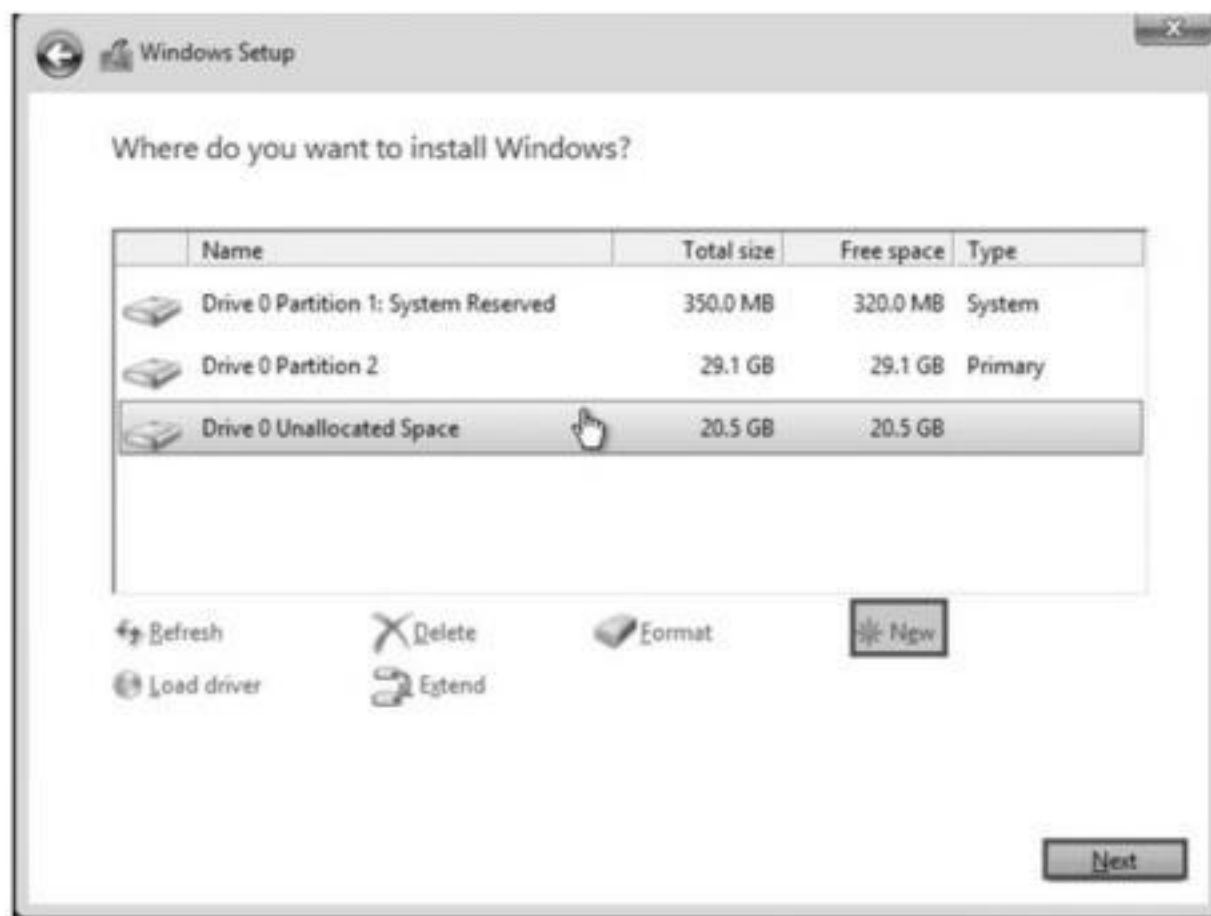
Gambar 1.8 Alokasi drive C : 30 GB.

- 8) Kemudian akan muncul pop up penambahan atau mengcreate partisi baru klik OK.



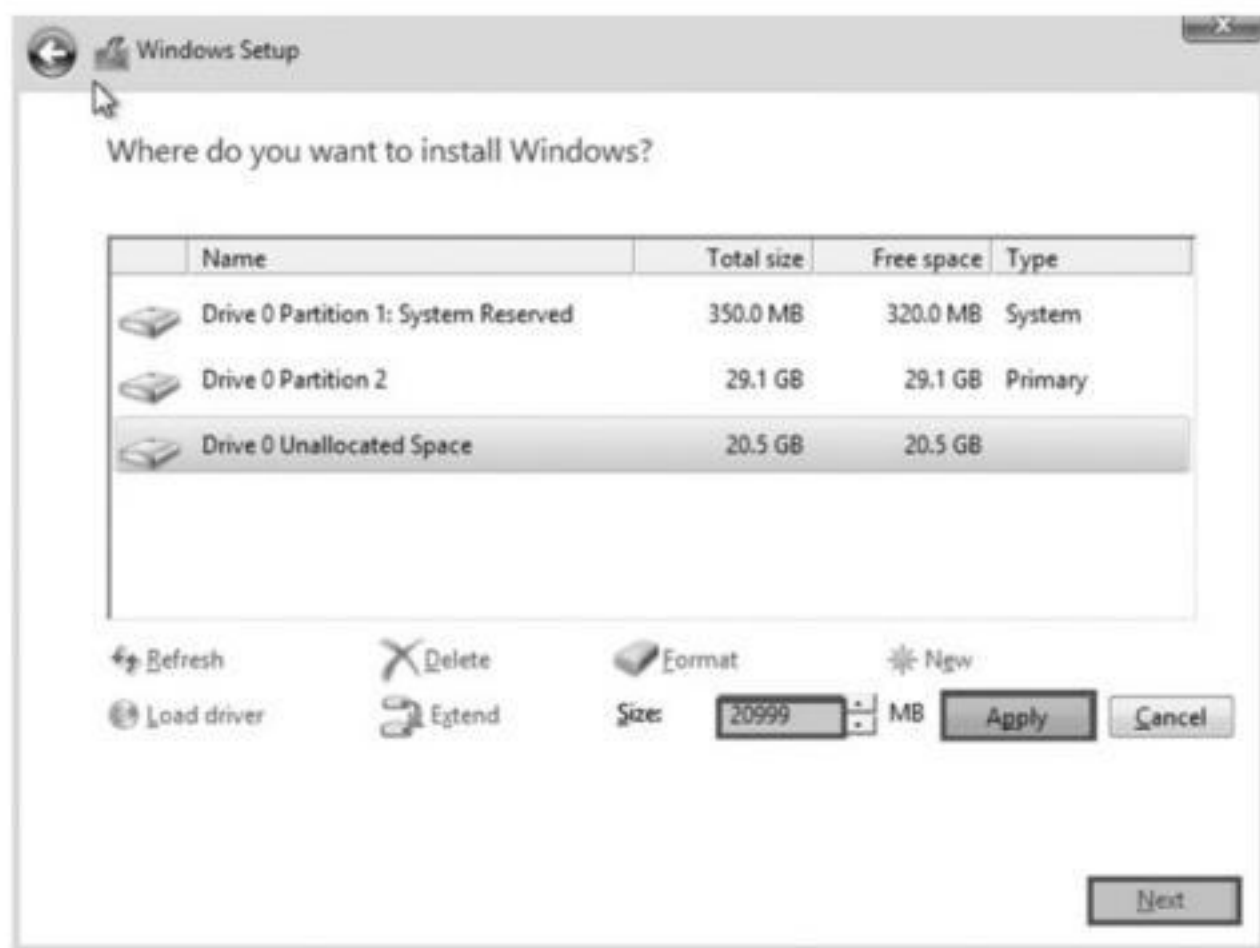
Gambar 1.9 Pop up penambahan partisi.

- 9) Kemudian format drive D yang akan dijadikan tempat penyimpanan data lalu klik New.



Gambar 1.10 Format drive D.

- 10) Selanjutnya sisa hardisk yang 20 GB diformat yang nantinya difungsikan sebagai media penyimpanan data.



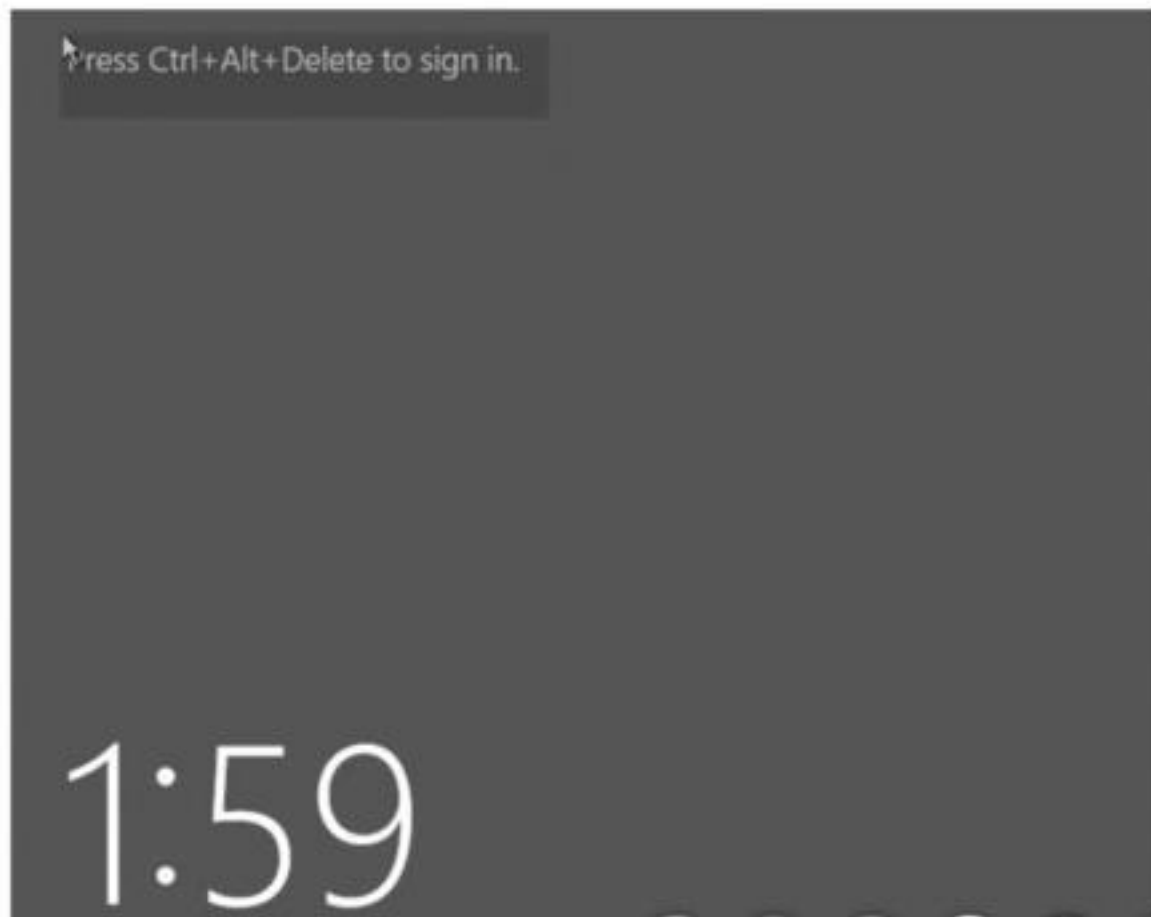
Gambar 1.11 Alokasi drive D: 20 GB.



*image  
not  
available*

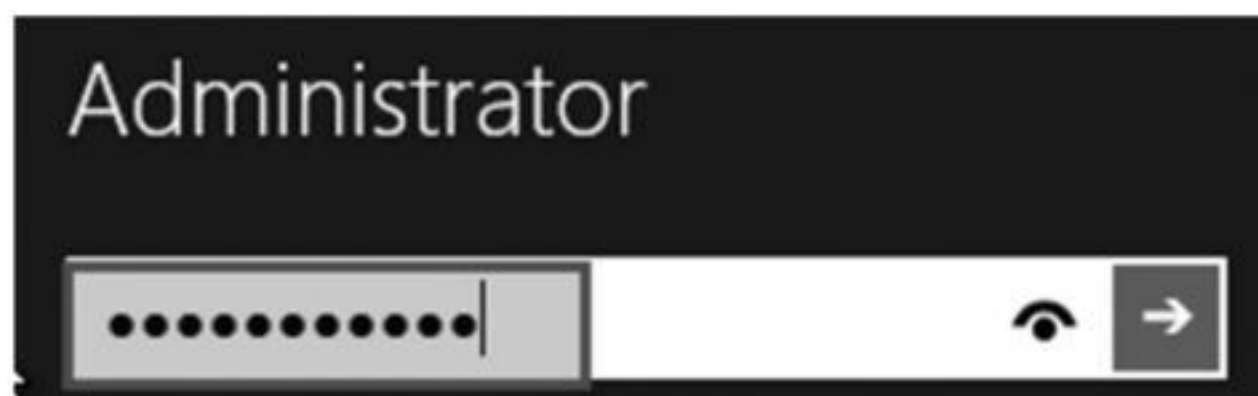
*image  
not  
available*

- 15) Tampilan awal windows server setelah selesai instalasi seperti di bawah ini kemudian tekan CTRL + DEL pada keyboard yang paling kanan.



*Gambar 1.16 Tampilan awal windows server..*

- 16) Login ke dalam windows server tersebut dengan memasukkan password yang sudah diberikan sebelumnya.



*Gambar 1.17 Tampilan awal windows server..*

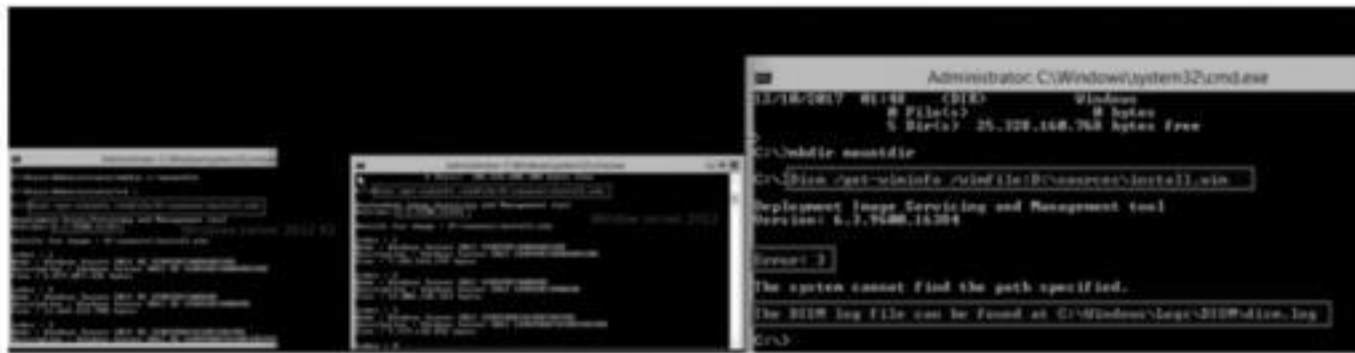


*image  
not  
available*

*image  
not  
available*

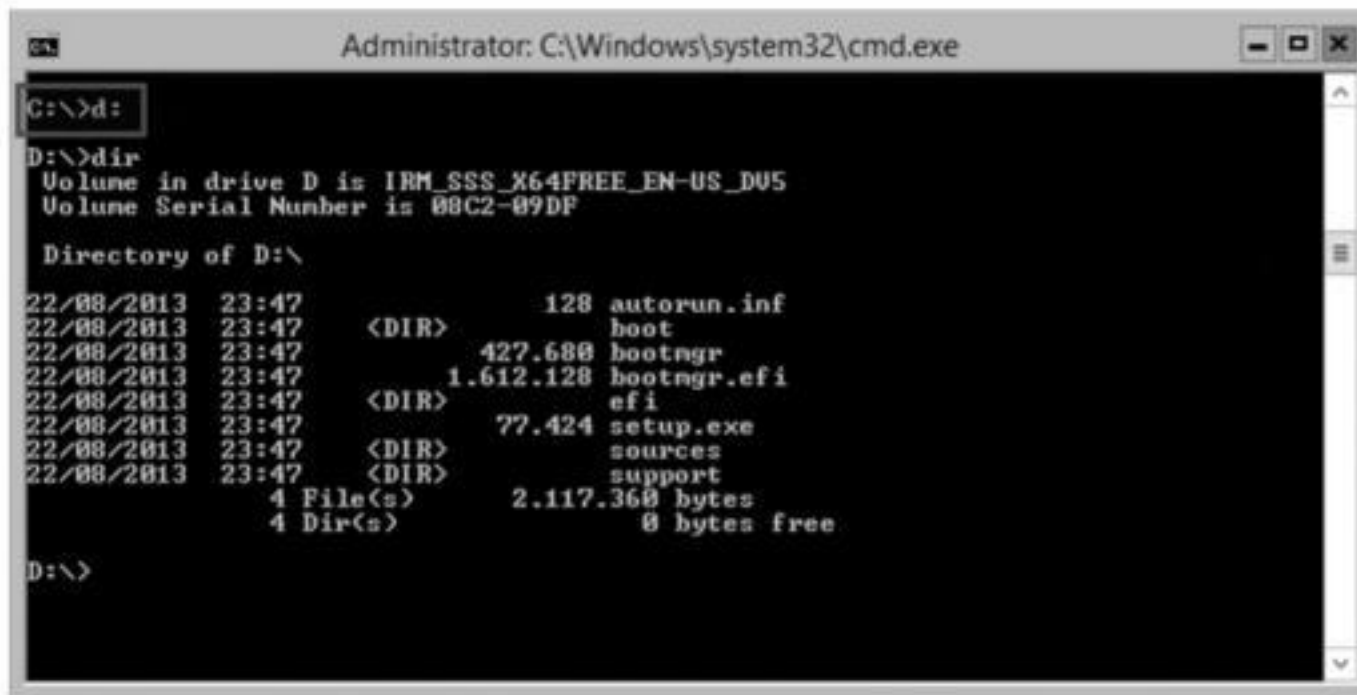
*image  
not  
available*





Gambar 1.23 Error 3.

- ❖ Untuk image yang ada pada drive D bisa kita lihat isi filenya dengan memindahkan dari drive C ke D lalu melihat isi file apa saja yang ada pada drive D dengan perintah *dir* :



Gambar 1.24 Isi file drive D.

- ❖ Berikut ini informasi image dari data yang ada pada drive D. Terdapat 4 mode index yakni :
  1. Index 1 : Windows server 2012 R2 Server standar core
  2. Index 2 : Windows server 2012 R2 Server standar
  3. Index 3 : Windows server 2012 R2 Server data center core
  4. Index 4: Windows server 2012 R2 Server data center.

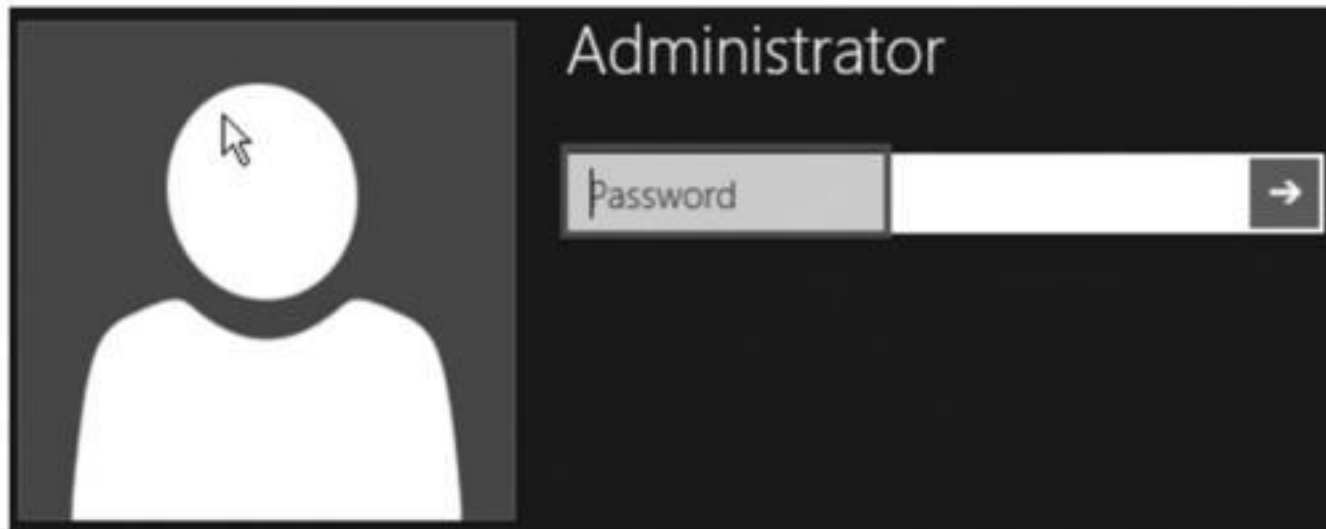
*image  
not  
available*

*image  
not  
available*

*image  
not  
available*

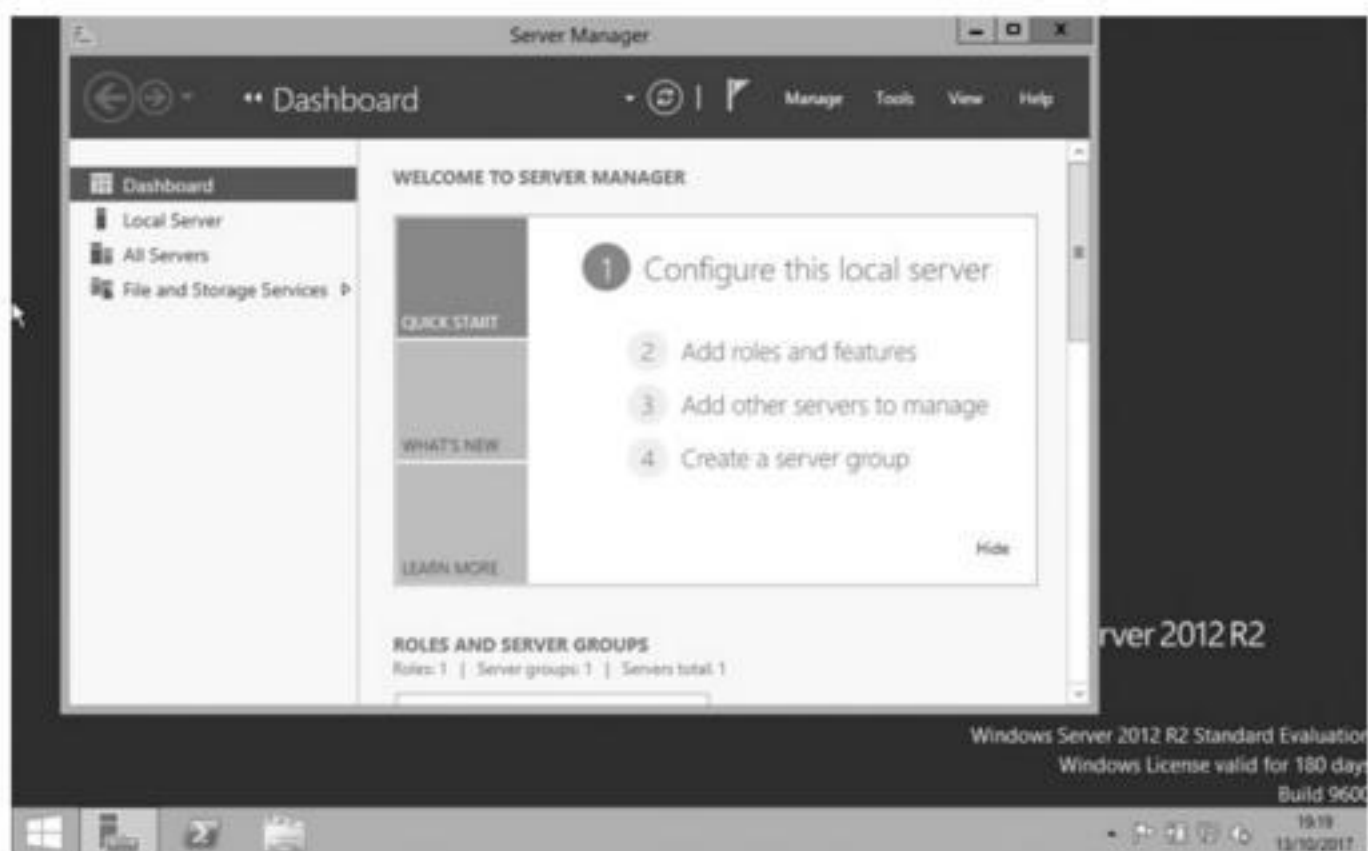


- ❖ Silakan login sebagai Administrator dan isikan passwordnya!



*Gambar 1.33 Isikan password administrator.*

- ❖ Tampilan login berbasis GUI siap digunakan.

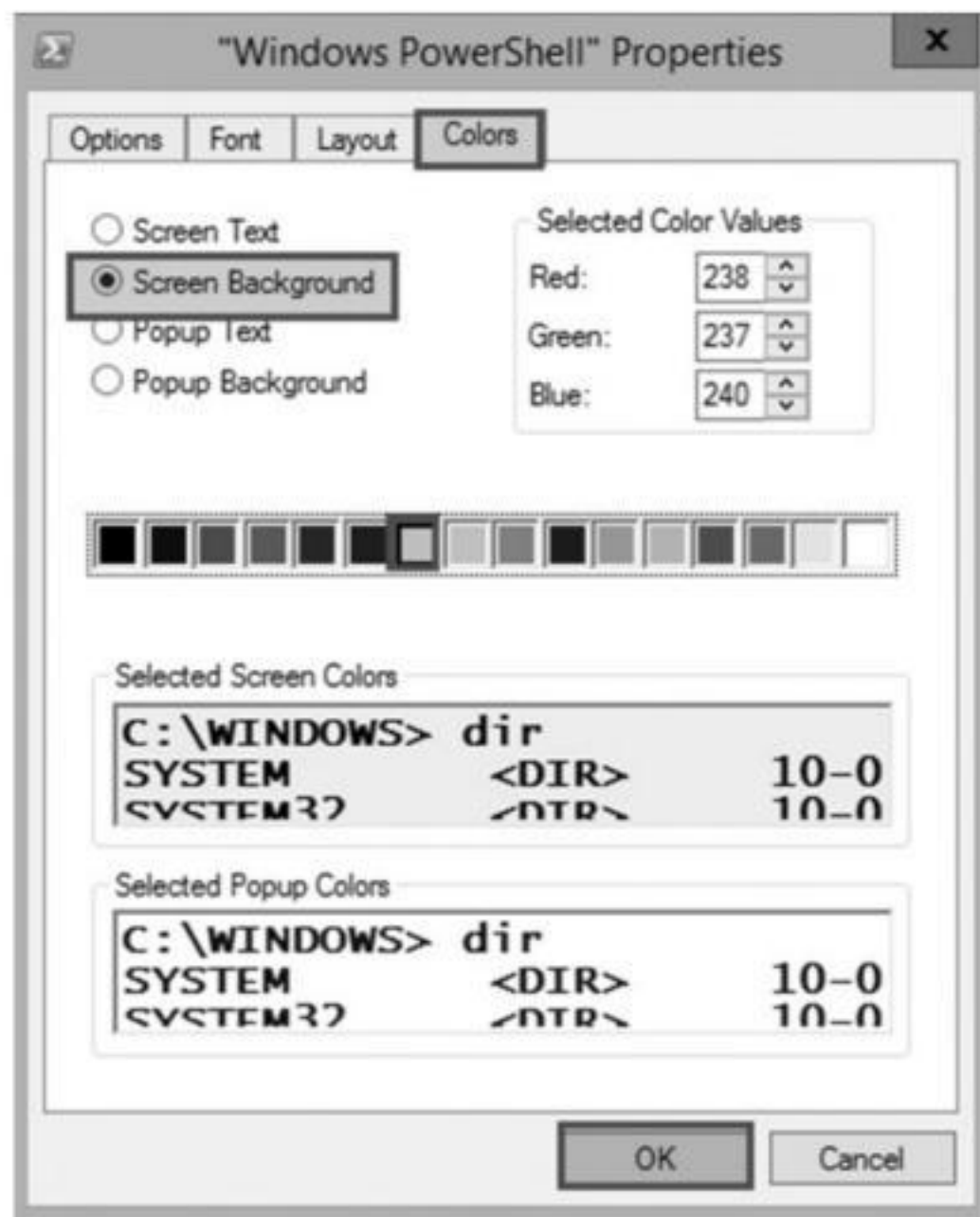


*Gambar 1.34 Login pertama windows server.*

*image  
not  
available*

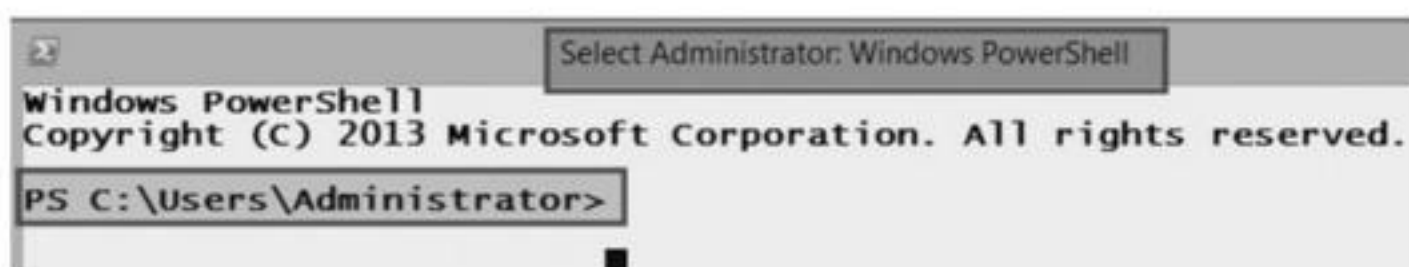
*image  
not  
available*

*image  
not  
available*



Gambar 1.39 Merubah warna background.

- ❖ Maka tampilan dari cmd seperti di bawah ini akan lebih jelas tulisannya dengan text warna hitam dan background warna putih.



Gambar 1.40 Mengubah tampilan cmd.



*image  
not  
available*

*image  
not  
available*

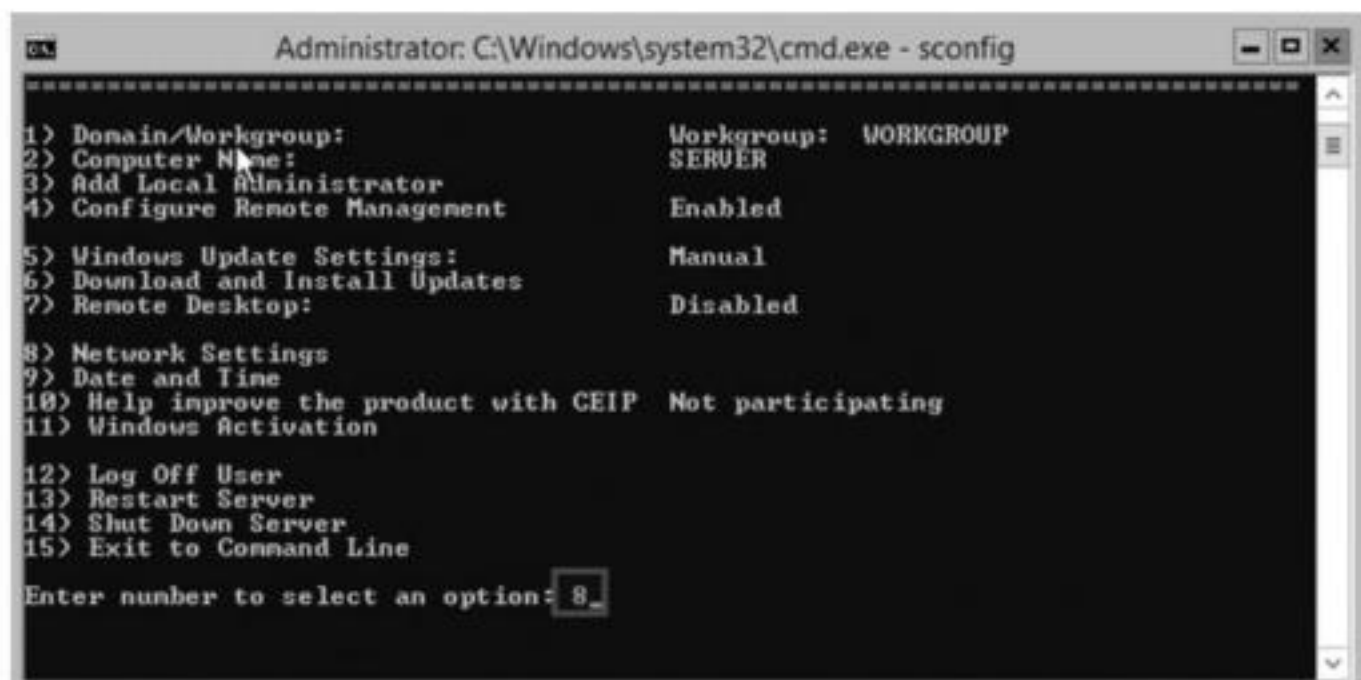
*image  
not  
available*

- ❖ Bisa juga dengan mengecek perubahan pada server configuration.



Gambar 1.49 Perubahan computer name.

- ❖ Langkah selanjutnya mengonfigurasi jaringan dalam hal ini kita ambil no 8 network settings.



Gambar 1.50 Konfigurasi network setting.

*image  
not  
available*



*image  
not  
available*

*image  
not  
available*

## Basic Powershell Command

- ❖ Perintah pertama adalah help memberikan informasi tentang command yang ada dalam windows server.

```
PS C:\Users\Administrator> help
TOPIC
    Windows PowerShell Help System
SHORT DESCRIPTION
    Displays help about Windows PowerShell cmdlets and concepts.
LONG DESCRIPTION
    Windows PowerShell Help describes Windows PowerShell cmdlets,
    functions, scripts, and modules, and explains concepts, including
    the elements of the Windows PowerShell language.

    Windows PowerShell does not include help files, but you can read the
    help topics online, or use the Update-Help cmdlet to download help
    to your computer and then use the Get-Help cmdlet to display the he
    topics at the command line.

    You can also use the Update-Help cmdlet to download updated help fi
    as they are released so that your local help content is never obsol

    Without help files, Get-Help displays auto-generated help for cmdle
    functions, and scripts.

ONLINE HELP
    You can find help for Windows PowerShell online in the TechNet Libr
    beginning at http://go.microsoft.com/fwlink/?LinkID=108518.

    To open online help for any cmdlet or function, type:
```

*Gambar 1.56 Perintah help.*

- ❖ Perintah kedua adalah Get-proses menginformasikan data penggunaan cpu beserta identitas ID lainnya.

*image  
not  
available*

*image  
not  
available*



*image  
not  
available*

```
PS C:\Users\Administrator> Get-Command *-firewall*
```

CommandType	Name	ModuleName
Function	Copy-NetFirewallRule	NetSecurity
Function	Disable-NetFirewallRule	NetSecurity
Function	Enable-NetFirewallRule	NetSecurity
Function	Get-NetFirewallAddressFilter	NetSecurity
Function	Get-NetFirewallApplicationFilter	NetSecurity
Function	Get-NetFirewallInterfaceFilter	NetSecurity
Function	Get-NetFirewallInterfaceTypeFilter	NetSecurity
Function	Get-NetFirewallPortFilter	NetSecurity
Function	Get-NetFirewallProfile	NetSecurity
Function	Get-NetFirewallRule	NetSecurity
Function	Get-NetFirewallSecurityFilter	NetSecurity
Function	Get-NetFirewallServiceFilter	NetSecurity
Function	Get-NetFirewallSetting	NetSecurity
Function	New-NetFirewallRule	NetSecurity
Function	Remove-NetFirewallRule	NetSecurity
Function	Rename-NetFirewallRule	NetSecurity
Function	Set-NetFirewallAddressFilter	NetSecurity
Function	Set-NetFirewallApplicationFilter	NetSecurity
Function	Set-NetFirewallInterfaceFilter	NetSecurity
Function	Set-NetFirewallInterfaceTypeFilter	NetSecurity
Function	Set-NetFirewallPortFilter	NetSecurity
Function	Set-NetFirewallProfile	NetSecurity
Function	Set-NetFirewallRule	NetSecurity
Function	Set-NetFirewallSecurityFilter	NetSecurity
Function	Set-NetFirewallServiceFilter	NetSecurity
Function	Set-NetFirewallSetting	NetSecurity
Function	Show-NetFirewallRule	NetSecurity

Gambar 1.63 Perintah get command firewall.

- ❖ Cara mengaktifkan RDP (remote desktop protocol) pada powershell :

```
PS C:\Windows\System32> .\qwinsta.exe /server:$computer
```

SESSIONNAME	USERNAME	ID	STATE	TYPE
services		0	Disc	
	daulae	1	Disc	
>console	Administrator	2	Active	

Gambar 1.64 Perintah get command firewall.

## 1.5 Tugas

1. Buatlah kesimpulan dari 4 sistem operasi ini!

```
Operating system
Windows Server 2012 R2 Standard Evaluation (Server Core Installation)
Windows Server 2012 R2 Standard Evaluation (Server with a GUI)
Windows Server 2012 R2 Datacenter Evaluation (Server Core Installation)
Windows Server 2012 R2 Datacenter Evaluation (Server with a GUI)
```

*image  
not  
available*

*image  
not  
available*

*image  
not  
available*

memegang tanggung jawab tersebut. Jadi, beban administrator jaringan bisa berkurang karena hanya sekali melakukan settingan di komputer yang menjalankan service DHCP.

DHCP terdiri dari tiga komponen :

1. Service DHCP, dimana akan merespon setiap permintaan dari *client* dengan setelah mengonfigurasi TCP/IP.
2. DHCP *client*, dimana setiap *request* dari *client* akan di *replay* oleh server sesuai dengan jaringan yang tersedia.
3. Protokol DHCP, dimana protokol yang digunakan sesuai dengan urutan antara server dan *client*.

Metode standar alokasi IP address DHCP terdiri atas 3 :

1. Alokasi dynamic, DHCP server di alokasikan sesuai dengan scope dan waktu yang diberikan. Ketika waktu yang diberikan sudah habis maka secara otomatis akan minta DHCP kembali ke server.
2. Automatic alokasi, DHCP server di design secara permanen diberikan kepada client sesuai dengan scope arenaya. Satu-satunya cara mengubahnya adalah mengonfigurasi ulang secara manual.
3. Manual alokasi, DHCP server secara permanen melakukan IP tertentu ke komputer client.

Protokol komunikasi DHCP mendefinisikan delapan pesan jenis, sebagai berikut.

- a) *DHCPDISCOVER* digunakan oleh klien untuk meminta parameter konfigurasi dari DHCP server;
- b) *DHCPOFFER* digunakan oleh server untuk menawarkan alamat IP untuk meminta klien;



*image  
not  
available*

*image  
not  
available*

*image  
not  
available*

- ❖ Kemudian akan muncul pop up Add role and feature wizard klik add features. Disini akan ditambahkan adminstration tool tentang DHCP server.



*Gambar 2.6 Menambahkan feature DHCP.*

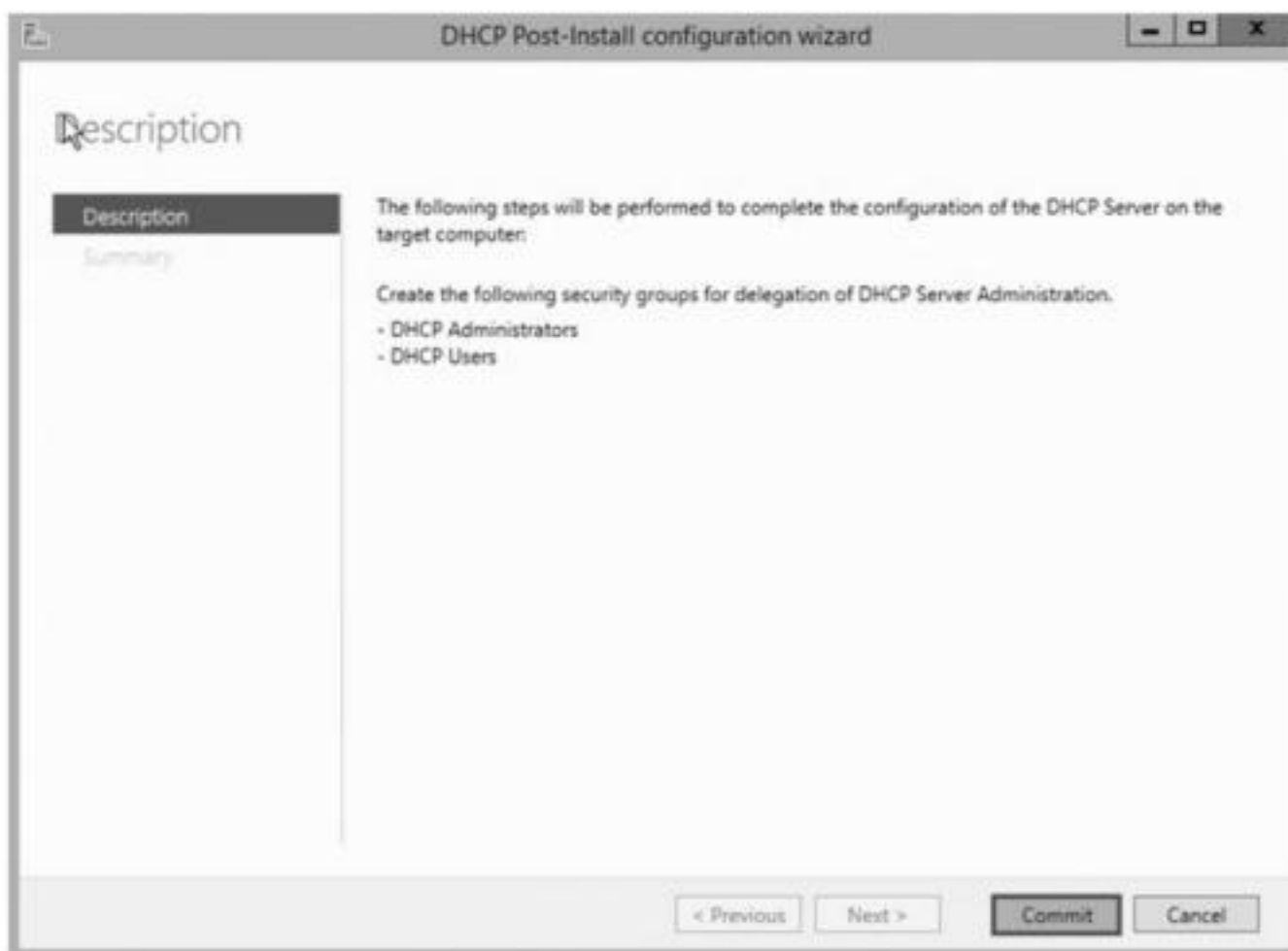
- ❖ Penambahan features lainnya tidak perlu, langsung klik next saja.

*image  
not  
available*

*image  
not  
available*

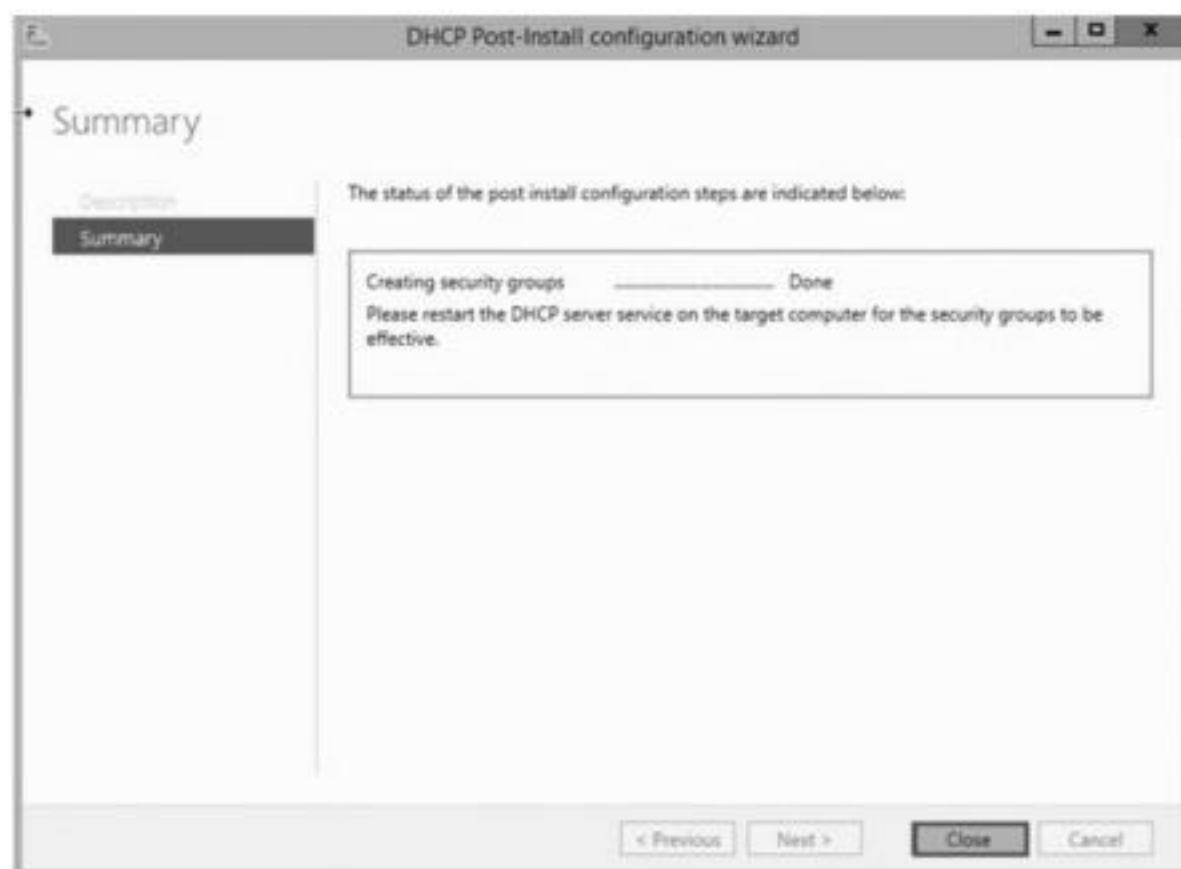
*image  
not  
available*





Gambar 2.11 Commit

- ❖ Ringkasan dari konfigurasi akhir ditampilkan DHCP server kemudian restart server tersebut.



Gambar 2.12 Summary DHCP

*image  
not  
available*

*image  
not  
available*

*image  
not  
available*

**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: 192 . 168 . 88 . 101

End IP address: 192 . 168 . 88 . 150

Configuration settings that propagate to DHCP Client

Length: 24

Subnet mask: 255 . 255 . 255 . 0

< Back   Next >   Cancel

Gambar 2.17 Range IP address.

- ❖ Menambahkan IP exclusion yang berfungsi IP address yang tidak akan diberikan oleh server. Misal mulai range dari IP address 192.168.88.101-192.168.88.105 lalu klik *add* kemudian klik *next*.

*image  
not  
available*

*image  
not  
available*



*image  
not  
available*

- ❖ Langkah selanjutnya domain name dan DNS server isikan sesuai dengan parent domain yang akan didaftarkan nantinya. Isikan parent domain sesuai kebutuhan.

The screenshot shows the 'New Scope Wizard' window, specifically the 'Domain Name and DNS Servers' step. The title bar reads 'New Scope Wizard'. The main heading is 'Domain Name and DNS Servers', followed by a description: 'The Domain Name System (DNS) maps and translates domain names used by clients on your network.' Below this, a text box explains: 'You can specify the parent domain you want the client computers on your network to use for DNS name resolution.' The 'Parent domain:' label is followed by a text input field containing 'daulae.net'. Below this, another text box states: 'To configure scope clients to use DNS servers on your network, enter the IP addresses for those servers.' This section contains two columns: 'Server name:' and 'IP address:'. The 'Server name' column has a single empty text box and a 'Resolve' button below it. The 'IP address' column has a single empty text box with a dotted pattern, and a list box below it. To the right of the list box are four buttons: 'Add', 'Remove', 'Up', and 'Down'. At the bottom of the window are three buttons: '< Back', 'Next >', and 'Cancel'.

*Gambar 2.22 Menambahkan parent domain.*

- ❖ Tambahkan IP address wins server jika ada biar bisa di convert dengan server name.

*image  
not  
available*

*image  
not  
available*

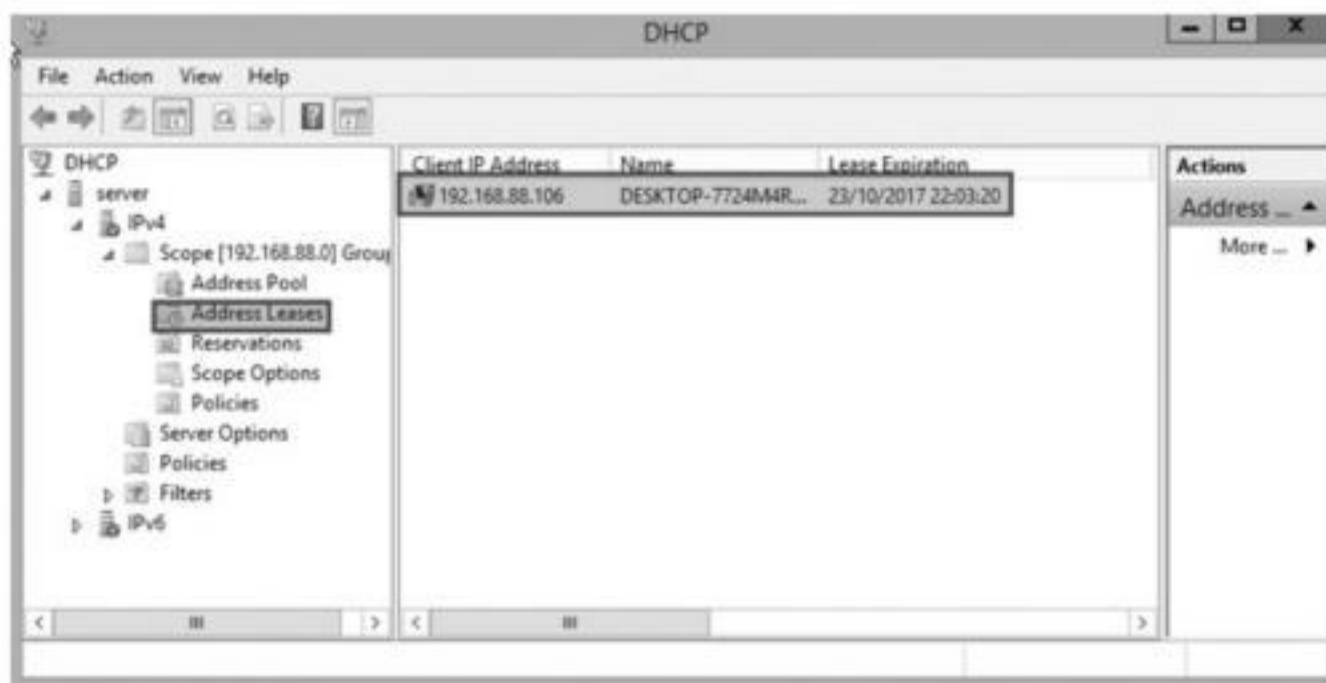
*image  
not  
available*

Sebelum verifikasi ubah dulu kedua network adapter yang terdapat pada virtualbox menjadi internal network. Agar client bisa mendapat IP DHCP dari server.



Gambar 2.26 Merubah network adapter.

- ❖ Jika client sudah ada yang terkoneksi maka pada server akan terlihat sesuai dengan scope yang diberikan sebelumnya.



Gambar 2.27 Address leases.

- ❖ Verifikasi pada client windows 10 dengan cara obtain network adapter yang ada pada client tersebut.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.





You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.





You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.





You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.





You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.





You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.





You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.



You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.