



Lab 1- Set up a virtualized Windows Server environment using VMware Workstation, install Windows Server 2022/2025 and Windows 11, and configure the networking to simulate a corporate IT infrastructure.

Lab 1 - Preparing the Course Environment

420-636-AB-Network

Installation and Administration
II

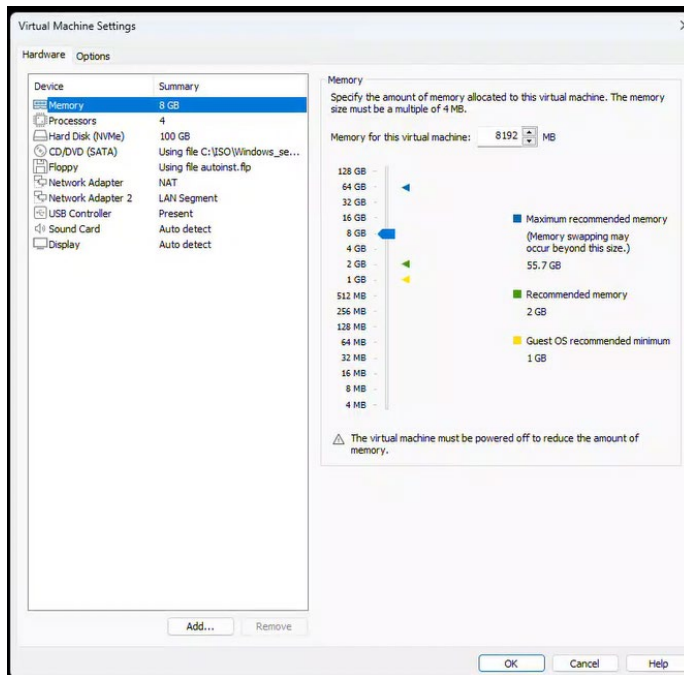
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1.1 DC101

1.1.1 VM settings (CPU, RAM, Disk, Network).



1.1.2 IP configurations

1.1.2.1 NIC 1

```
=====
Network adapter settings
=====

NIC index:      1
Description:    Intel(R) 82574L Gigabit Network Connection
IP address:     192.168.204.136,
                fe80::3860:8c8d:391d:4bc9
Subnet mask:    255.255.255.0
DHCP enabled:   True

Default gateway: 192.168.204.2
Preferred DNS server: 192.168.204.2
Alternate DNS server:

1) Set network adapter address
2) Set DNS servers
3) Clear DNS server settings

Enter selection (Blank=Cancel):
```

1.1.2.2 NIC 2

```
=====
                        Network adapter settings
=====

NIC index:      2
Description:    Intel(R) 82574L Gigabit Network Connection #2
IP address:     192.168.1.1,
                fe80::2420:fc6a:1c80:4f0f
Subnet mask:    255.255.255.0
DHCP enabled:   False

Default gateway:
Preferred DNS server: 192.168.1.1
Alternate DNS server:

    1) Set network adapter address
    2) Set DNS servers
    3) Clear DNS server settings

Enter selection (Blank=Cancel):
```

1.1.3 A working network ping test between servers

```
Default Gateway . . . . . :
PS C:\Users\Administrator> ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time=5ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 5ms, Average = 1ms
PS C:\Users\Administrator> ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128

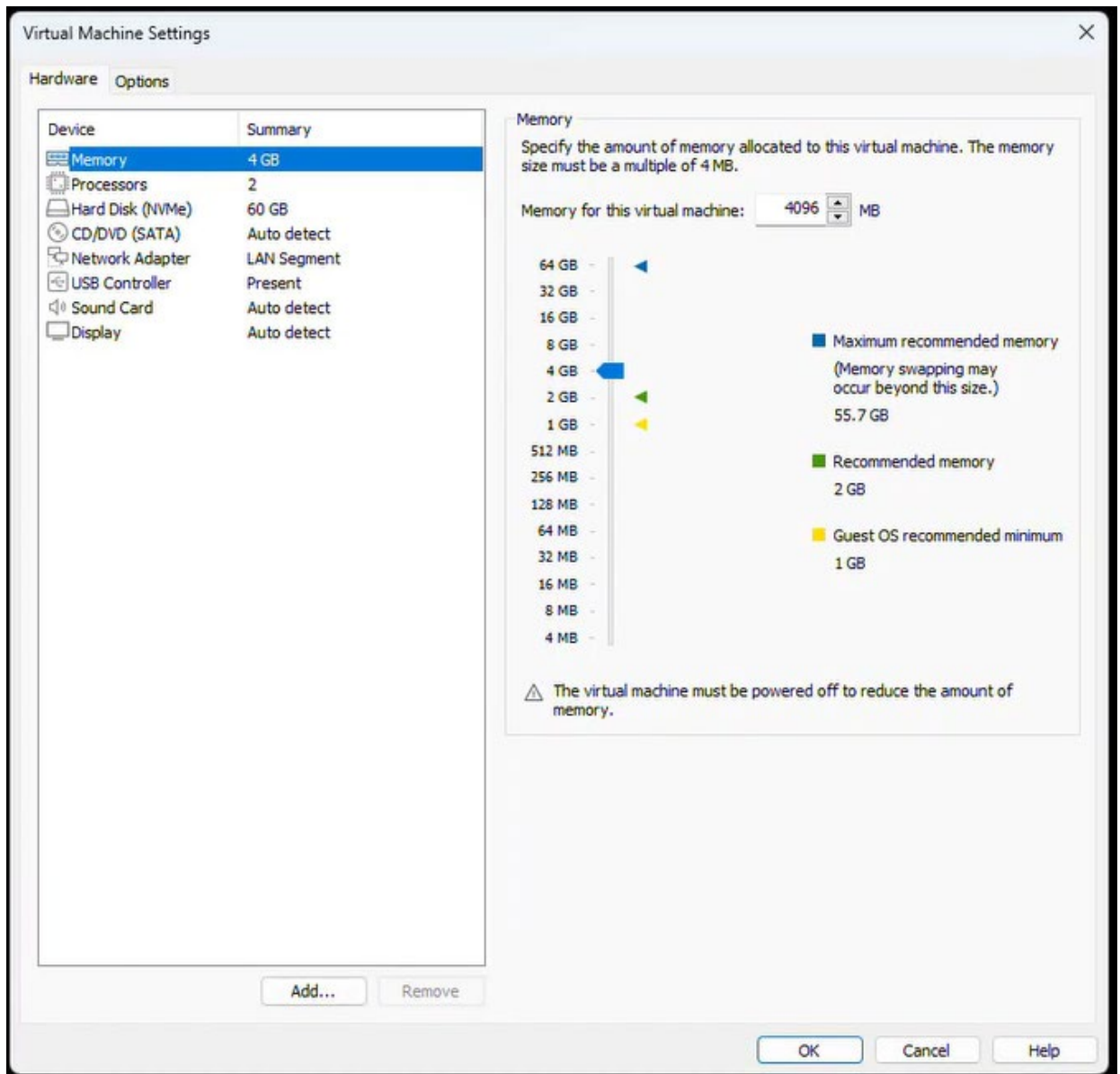
Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\Users\Administrator> ping 192.168.1.100

Pinging 192.168.1.100 with 32 bytes of data:
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\Users\Administrator> █
```

1.2 DC201

1.2.1 VM settings (CPU, RAM, Disk, Network).



1.2.2 IP configurations

```
PS C:\Users\Administrator> ipconfig

Windows IP Configuration

Ethernet adapter Ethernet0:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::c7a7:391e:ec50:ef4c%7
    IPv4 Address. . . . . : 192.168.1.2
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1
PS C:\Users\Administrator> █
```


1.2.3 A working network ping test between servers

```
PS C:\Users\Administrator> ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\Users\Administrator> ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128

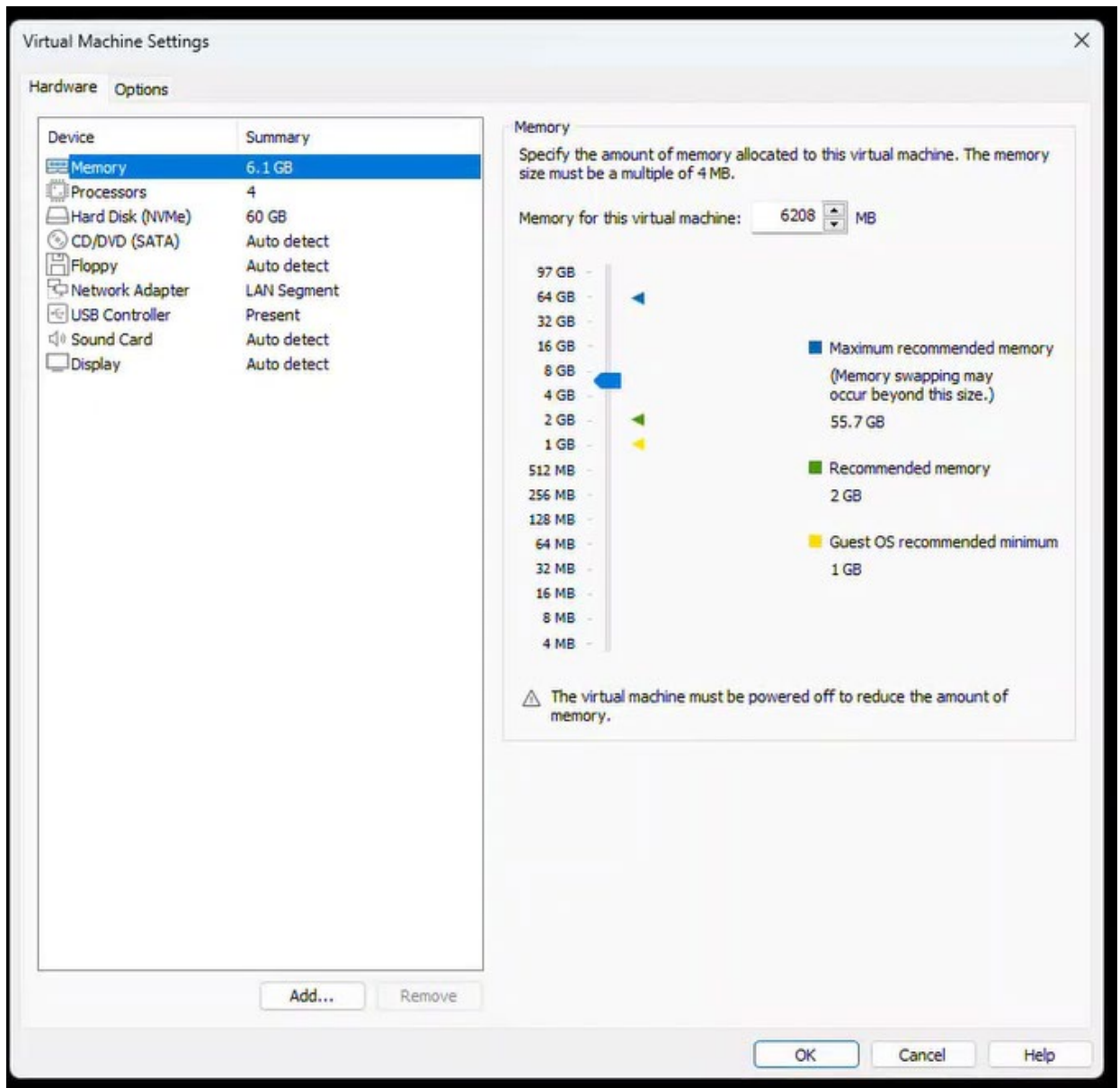
Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\Users\Administrator> ping 192.168.1.100

Pinging 192.168.1.100 with 32 bytes of data:
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time=1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
PS C:\Users\Administrator>
```

1.3 DC301

1.3.1 VM settings (CPU, RAM, Disk, Network).



1.3.1 IP configurations

```
PS C:\Users\Administrator> ipconfig

Windows IP Configuration

Ethernet adapter Ethernet0:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::a633:11d3:3b13:44e8%6
    IPv4 Address. . . . . : 192.168.1.3
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 

PS C:\Users\Administrator> █
```

1.3.2 A working network ping test between servers

```
PS C:\Users\Administrator> ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time=1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
PS C:\Users\Administrator> ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\Users\Administrator> ping 192.168.1.100

Pinging 192.168.1.100 with 32 bytes of data:
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\Users\Administrator> █
```

1.4 Client1

1.4.1 VM settings (CPU, RAM, Disk, Network).

Virtual Machine Settings

Hardware Options

Device	Summary
Memory	4 GB
Processors	2
Hard Disk (NVMe)	64 GB
CD/DVD (SATA)	Using file C:\ISO\Win11-EN.iso
Network Adapter	NAT
Network Adapter 2	LAN Segment
USB Controller	Present
Sound Card	Auto detect
Display	Auto detect
Trusted Platform Mo...	Present

Add...

Remove

Memory

Specify the amount of memory allocated to this virtual machine. The memory size must be a multiple of 4 MB.

Memory for this virtual machine: 4096 MB

128 GB
64 GB
32 GB
16 GB
8 GB
4 GB
2 GB
1 GB
512 MB
256 MB
128 MB
64 MB
32 MB
16 MB
8 MB
4 MB

- Maximum recommended memory
(Memory swapping may occur beyond this size.)
55.7 GB
- Recommended memory
4 GB
- Guest OS recommended minimum
4 GB

OK

Cancel

Help

1.4.1 IP configurations

```
PS C:\WINDOWS\system32> ipconfig

Windows IP Configuration

Ethernet adapter Ethernet1:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::9fdf:ba87:ebc:9c9d%3
    IPv4 Address. . . . . : 192.168.1.100
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 

Ethernet adapter Ethernet0:

    Connection-specific DNS Suffix  . : localdomain
    Link-local IPv6 Address . . . . . : fe80::fdf4:54a4:d07c:2bc8%5
    IPv4 Address. . . . . : 192.168.204.134
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.204.2
PS C:\WINDOWS\system32>
```


1.4.2 A working network ping test from ClientX

```
PS C:\WINDOWS\system32> ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\WINDOWS\system32> ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\WINDOWS\system32> ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time=20ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 20ms, Average = 5ms
PS C:\WINDOWS\system32> █
```

1.4.3 A working remote desktop test to all the servers from ClientX.

1.4.3.1 DC101

1.4.3.1.1 Test connection

Test-NetConnection -ComputerName DC101 -Port 3389

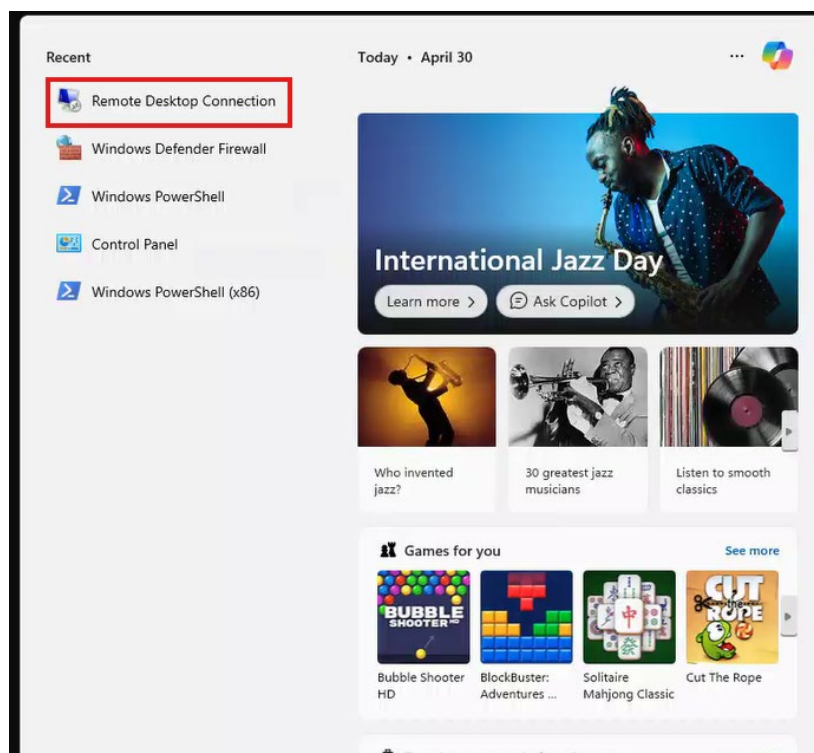
```
PS C:\WINDOWS\system32> Test-NetConnection -ComputerName DC101 -Port 3389

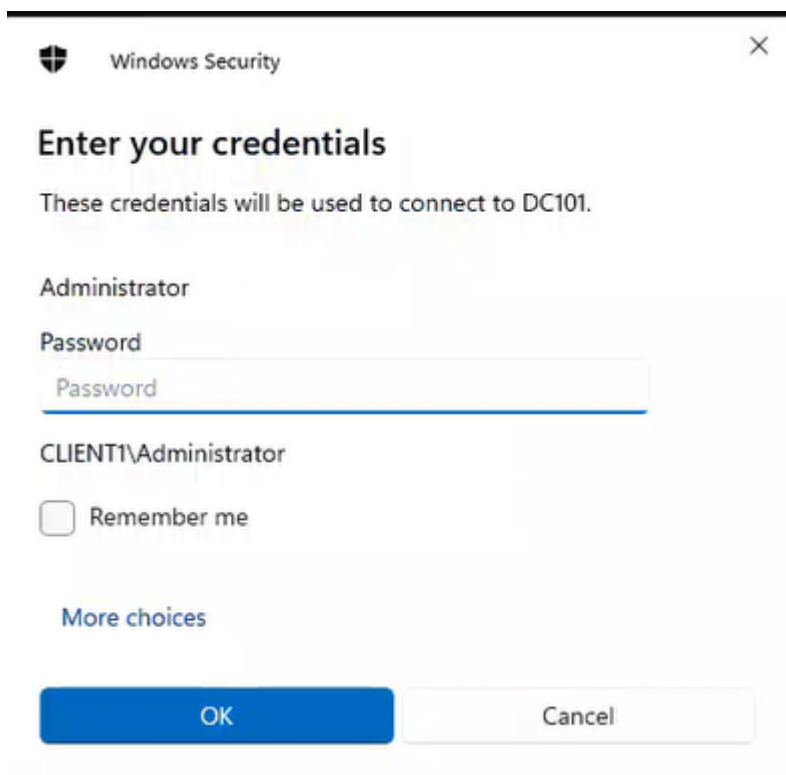
ComputerName      : DC101
RemoteAddress     : 192.168.204.136
RemotePort        : 3389
InterfaceAlias    : Ethernet0
SourceAddress     : 192.168.204.134
TcpTestSucceeded  : True

PS C:\WINDOWS\system32>
```

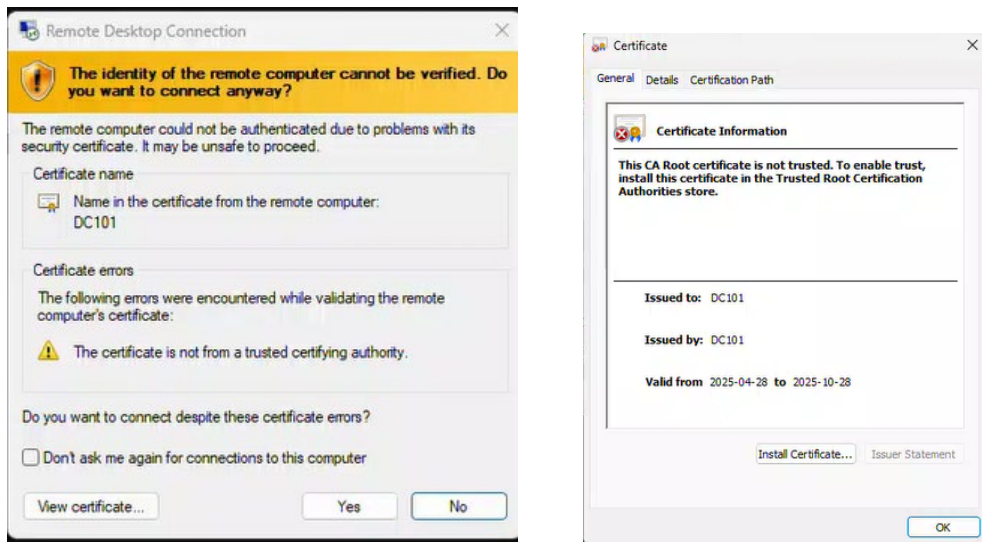
1.4.3.1.2 Connect

Use Remote method Connection

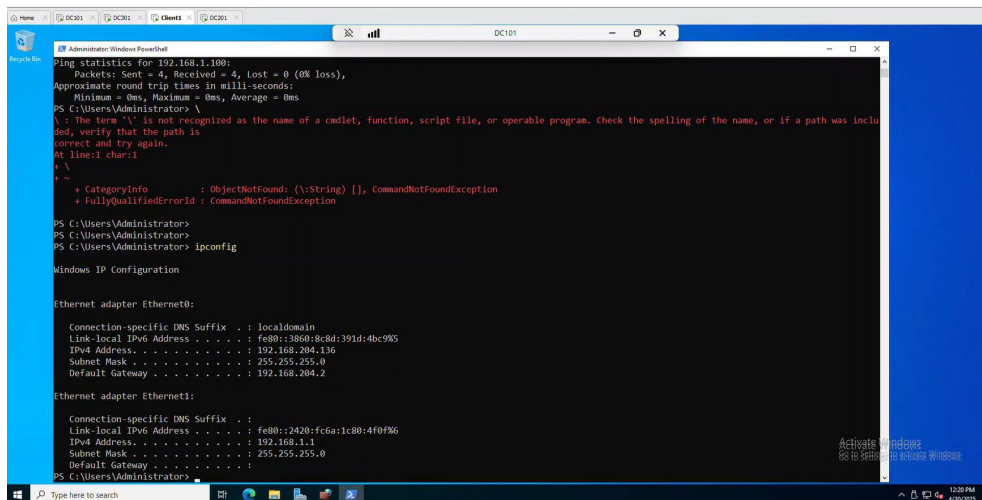




Warning for certificate shows, verify certificate

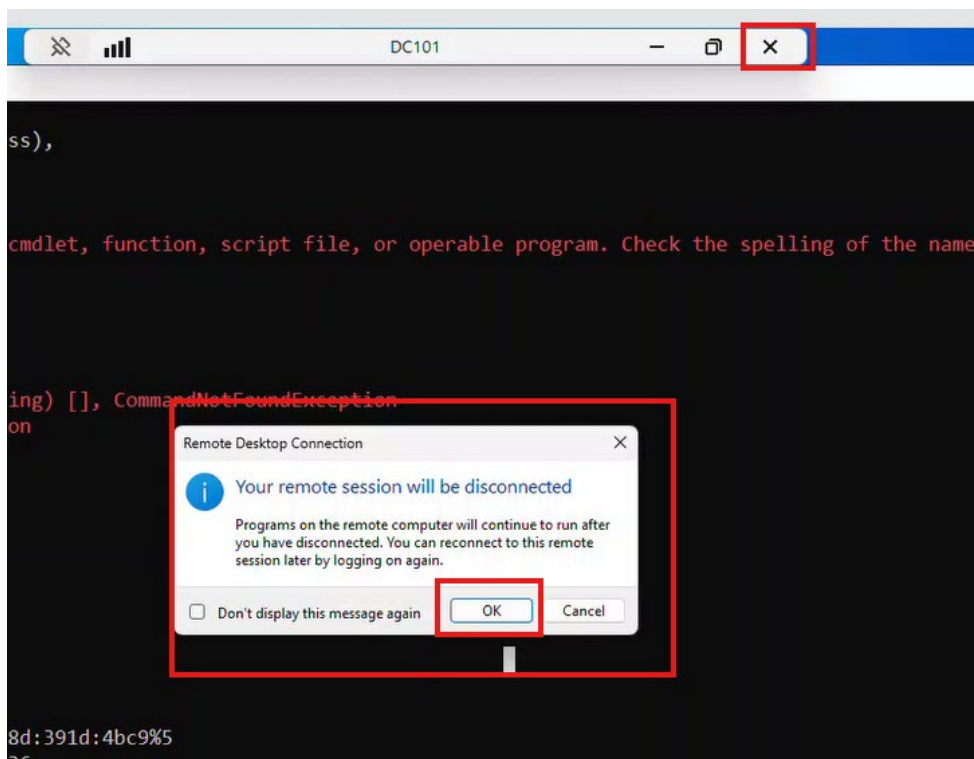


Trust certificate and Press OK to open Desktop



1.4.3.1.3 Disconnect

Exit remote desktop



1.4.3.2 DC201

1.4.3.2.1 Test connection

Test-NetConnection -ComputerName DC201 -Port 3389

```
Select Administrator: windows powershell
PS C:\WINDOWS\system32> Test-NetConnection -ComputerName DC201 -Port 3389

ComputerName      : DC201
RemoteAddress     : fe80::c7a7:391e:ec50:ef4c%3
RemotePort        : 3389
InterfaceAlias    : Ethernet1
SourceAddress     : fe80::9fdf:ba87:ebc:9c9d%3
TcpTestSucceeded  : True
```

1.4.3.2.2 Connect



Password and certificate process similar ads DC101 (prints omitted)

A screenshot of a Windows command prompt window. The title bar shows several open windows: "Home", "DC101", "DC301", "Client1", and "DC201". The "DC201" window is highlighted with a red box. The command prompt shows the following text:

```
PS C:\Users\Administrator> ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\Users\Administrator> ping 192.168.1.3

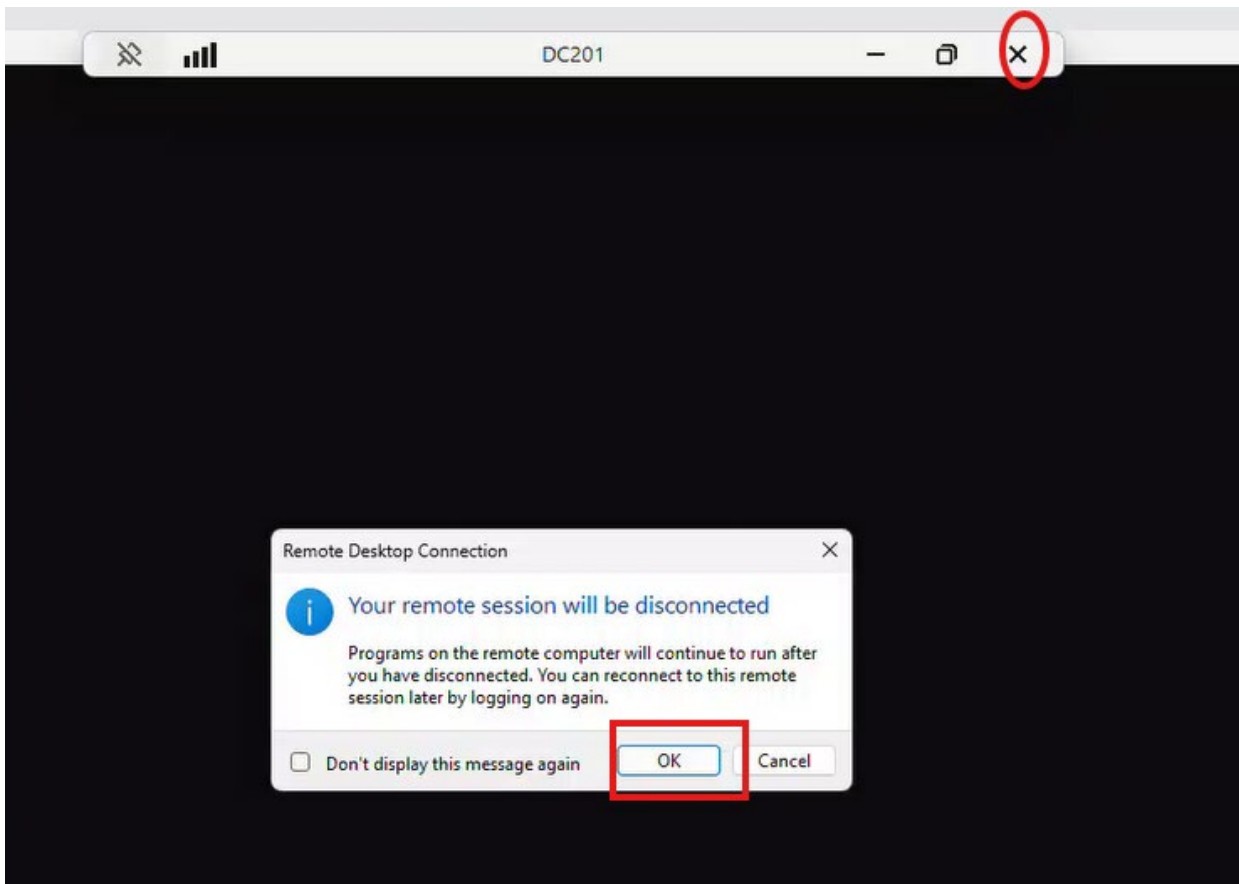
Pinging 192.168.1.3 with 32 bytes of data:
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\Users\Administrator> ping 192.168.1.100

Pinging 192.168.1.100 with 32 bytes of data:
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

1.4.3.2.3 Disconnect



1.4.3.3 DC301

1.4.3.3.1 Test connection

Test-NetConnection -ComputerName DC301 -Port 3389

```
PS C:\WINDOWS\system32> Test-NetConnection -ComputerName DC301 -Port 3389

ComputerName      : DC301
RemoteAddress     : fe80::a633:11d3:3b13:44e8%3
RemotePort        : 3389
InterfaceAlias    : Ethernet1
SourceAddress     : fe80::9fdf:ba87:ebc:9c9d%3
TcpTestSucceeded  : True

PS C:\WINDOWS\system32> _
```


1.4.3.3.2 Connect



```
Administrator: Windows PowerShell
PS C:\Users\Administrator> ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
PS C:\Users\Administrator> ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\Users\Administrator> ping 192.168.1.100

Pinging 192.168.1.100 with 32 bytes of data:
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\Users\Administrator>
```