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Course : CSEC 600 Introduction to Cyber Security

Title : System Administration 1

Lab : 7

Chapter : 9 & 6 (Network Naming)

Exercise 9. 01 :

Step 1 :

1. **DNS client checks its DNS resolver cache.**
2. **DNS client queries one of its local DNS servers.**
3. **Local DNS server queries one of the 13 root servers.**
4. **Root server gives a referral to authoritative TLD DNS servers.**
5. **Local DNS server queries one of the authoritative TLD DNS servers.**
6. **Authoritative TLD DNS server gives a referral to the destination domain's authoritative DNS servers.**
7. **Local DNS server queries one of the destination domain's authoritative DNS servers.**
8. **Destination domain's authoritative DNS server gives the DNS response to the local DNS server.**
9. **Local DNS server caches the response and gives the DNS response to the DNS client.**
10. **DNS client adds the response to its DNS resolver cache.**

Step 2 :

```
                                129.21.83.254
  DHCP Server . . . . . . . . . . . : 129.21.13.174
  DHCPv6 IAID . . . . . . . . . . . : 87556133
  DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-2A-D6-D5-56-04-D4-C4-79-9B-D2
  DNS Servers . . . . . . . . . . . : 129.21.3.17
                                      129.21.4.18
  NetBIOS over Tcpip. . . . . . . . : Enabled
```

IP address of my dns servers are

- 129.21.3.17
- 129.21.4.18

Step 3

```
C:\Users\dinot>ipconfig /displaydns

Windows IP Configuration

    1.0.0.127.in-addr.arpa
    ----------------------------------------
    Record Name . . . . . : 1.0.0.127.in-addr.arpa.
    Record Type . . . . . : 12
    Time To Live  . . . . : 583453
    Data Length . . . . . : 8
    Section . . . . . . . : Answer
    PTR Record  . . . . . : localhost


    array605.prod.do.dsp.mp.microsoft.com
    ----------------------------------------
    Record Name . . . . . : array605.prod.do.dsp.mp.microsoft.com
    Record Type . . . . . : 1
    Time To Live  . . . . : 1628
    Data Length . . . . . : 4
    Section . . . . . . . : Answer
    A (Host) Record . . . : 51.104.164.114


    1.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.ip6.arpa
    ----------------------------------------
    Record Name . . . . . : 1.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.ip6.arpa.
    Record Type . . . . . : 12
    Time To Live  . . . . : 583453
    Data Length . . . . . : 8
    Section . . . . . . . : Answer
    PTR Record  . . . . . : localhost


    capi.grammarly.com
    ----------------------------------------
    Record Name . . . . . : capi.grammarly.com
    Record Type . . . . . : 1
    Time To Live  . . . . : 13
    Data Length . . . . . : 4
    Section . . . . . . . : Answer
    A (Host) Record . . . : 3.223.142.60


    Record Name . . . . . : capi.grammarly.com
    Record Type . . . . . : 1
    Time To Live  . . . . : 13
    Data Length . . . . . : 4
    Section . . . . . . . : Answer
    A (Host) Record . . . : 52.22.251.204
```

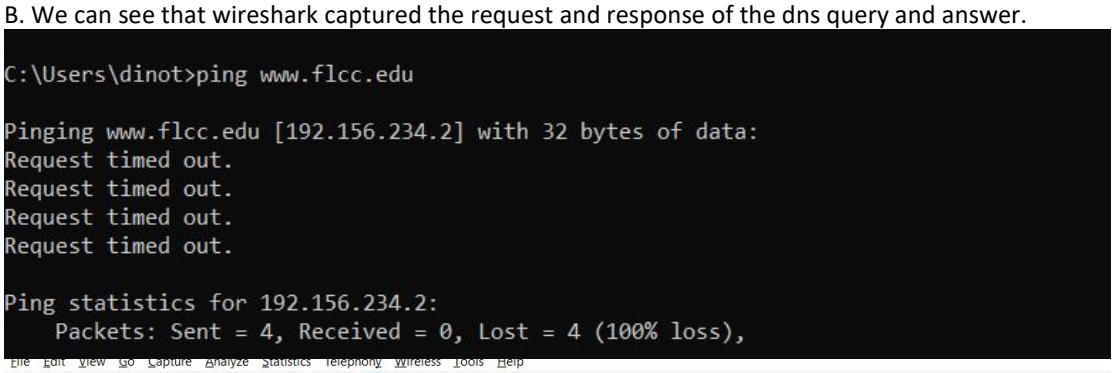
Step 4 :

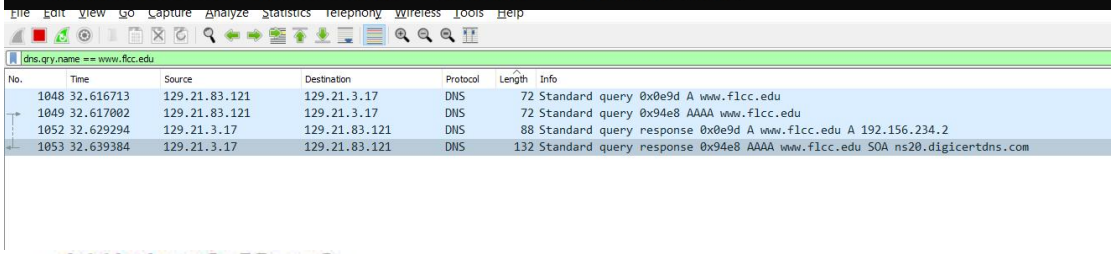
A.

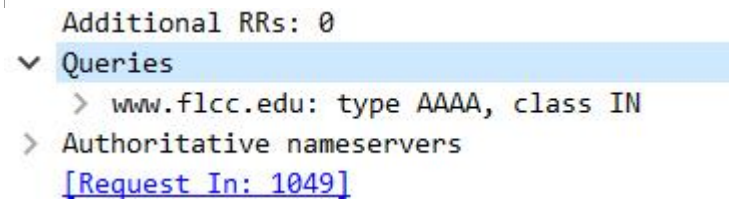
```
C:\Users\dinot>ipconfig /flushdns

Windows IP Configuration

Successfully flushed the DNS Resolver Cache.

C:\Users\dinot>ipconfig /displaydns

Windows IP Configuration

    1.0.0.127.in-addr.arpa
    ----------------------------------------
    Record Name . . . . . : 1.0.0.127.in-addr.arpa.
    Record Type . . . . . : 12
    Time To Live  . . . . : 583290
    Data Length . . . . . : 8
    Section . . . . . . . : Answer
    PTR Record  . . . . . : localhost


    1.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.ip6.arpa
    ----------------------------------------
    Record Name . . . . . : 1.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.ip6.arpa.
    Record Type . . . . . : 12
    Time To Live  . . . . : 583290
    Data Length . . . . . : 8
    Section . . . . . . . : Answer
    PTR Record  . . . . . : localhost


    localhost
    ----------------------------------------
    Record Name . . . . . : localhost
    Record Type . . . . . : 1
    Time To Live  . . . . : 1200
    Data Length . . . . . : 4
    Section . . . . . . . : Question
    A (Host) Record . . . : 127.0.0.1


    localhost
    ----------------------------------------
    Record Name . . . . . : localhost
    Record Type . . . . . : 28
    Time To Live  . . . . : 1200
    Data Length . . . . . : 16
    Section . . . . . . . : Question
    AAAA Record . . . . . : ::1
```

After flushing it seems like the dns entries and their IP addresses are deleted, just it has the information about the localhost is remaining.

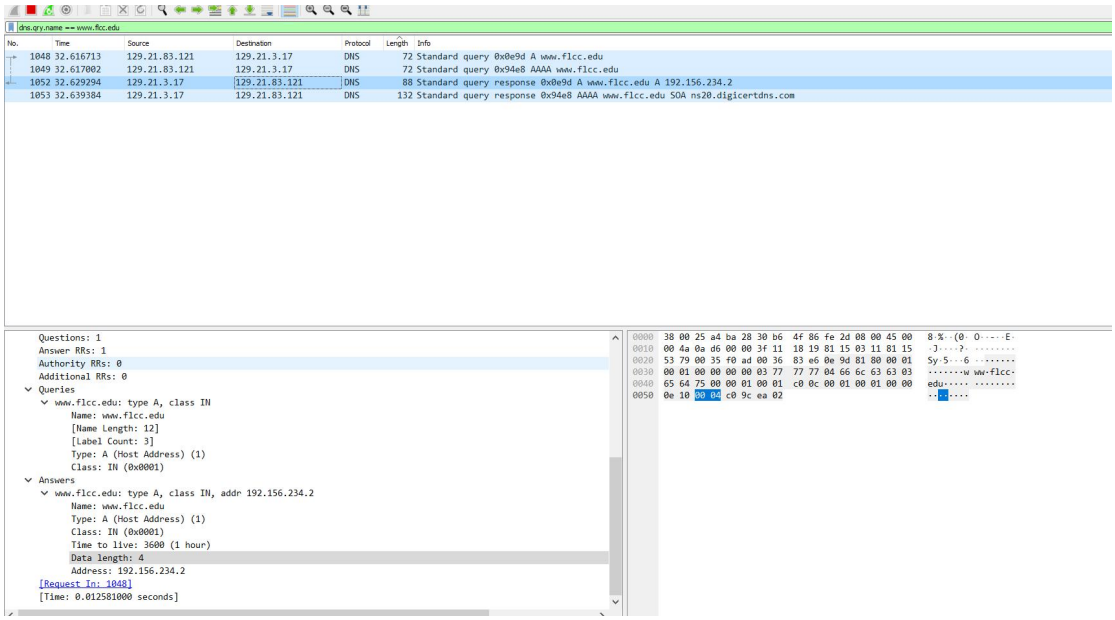
B. We can see that wireshark captured the request and response of the dns query and answer.







C.



Response of DNS query.
Both answers and query details is captured by the wireshark.

D.
Because of simple nature of UDP and enhance the performance of the web search, as TCP handle everything in traditional way and and it may slow down the process, where as Packet loss in udp are negligible in DNS queries. So to enhance performance and keep the query and response process simple UDP is used.

Step 5 :

Ip address of the www.flcc.edu is :

```
Answer RRs: 1
Authority RRs: 0
Additional RRs: 0
> Queries
v Answers
  v www.flcc.edu: type A, class IN, addr 192.156.234.2
      Name: www.flcc.edu
      Type: A (Host Address) (1)
      Class: IN (0x0001)
      Time to live: 3600 (1 hour)
      Data length: 4
      Address: 192.156.234.2
```

They use port destination by client is 53:

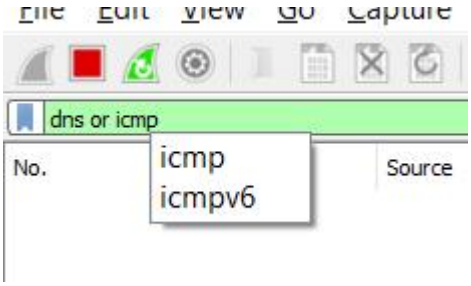
```
> Frame 1048: 72 bytes on wire (576 bits), 72 bytes captured (576 bits) on interface \Device\NPF_{A20B06CB
> Ethernet II, Src: IntelCor_a4:ba:28 (38:00:25:a4:ba:28), Dst: IETF-VRRP-VRID_01 (00:00:5e:00:01:01)
> Internet Protocol Version 4, Src: 129.21.83.121, Dst: 129.21.3.17
v User Datagram Protocol, Src Port: 61613, Dst Port: 53
    Source Port: 61613
    Destination Port: 53
    Length: 38
    Checksum: 0x58ec [unverified]
    [Checksum Status: Unverified]
    [Stream index: 122]
  v [Timestamps]
      [Time since first frame: 0.000000000 seconds]
      [Time since previous frame: 0.000000000 seconds]
    UDP payload (30 bytes)
```

Ports used by DNS client here is 61613:

```
> Frame 1052: 88 bytes on wire (704 bits), 88 bytes captured (704 bits) on interface \Device\NPF_{A20B06CB-7177-4AD
> Ethernet II, Src: JuniperN_86:fe:2d (30:b6:4f:86:fe:2d), Dst: IntelCor_a4:ba:28 (38:00:25:a4:ba:28)
> Internet Protocol Version 4, Src: 129.21.3.17, Dst: 129.21.83.121
v User Datagram Protocol, Src Port: 53, Dst Port: 61613
    Source Port: 53
    Destination Port: 61613
    Length: 54
    Checksum: 0x83e6 [unverified]
    [Checksum Status: Unverified]
    [Stream index: 122]
  v [Timestamps]
      [Time since first frame: 0.012581000 seconds]
      [Time since previous frame: 0.012581000 seconds]
    UDP payload (46 bytes)
v Domain Name System (response)
```

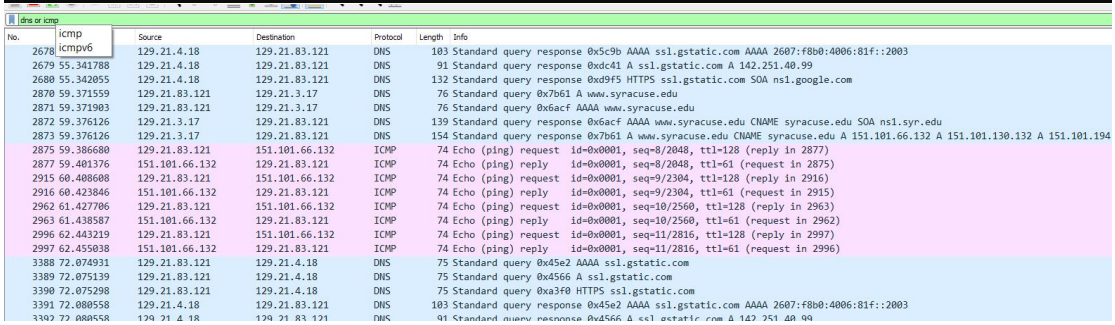
Step 6 :

A.



B.

```
C:\Users\dinot>ipconfig /flushdns

Windows IP Configuration

Successfully flushed the DNS Resolver Cache.

C:\Users\dinot>ping www.syracuse.edu

Pinging syracuse.edu [151.101.66.132] with 32 bytes of data:
Reply from 151.101.66.132: bytes=32 time=14ms TTL=61
Reply from 151.101.66.132: bytes=32 time=15ms TTL=61
Reply from 151.101.66.132: bytes=32 time=10ms TTL=61
Reply from 151.101.66.132: bytes=32 time=11ms TTL=61

Ping statistics for 151.101.66.132:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 10ms, Maximum = 15ms, Average = 12ms
```



C.

Yes the FQDN is resolved successfully :

```
Ping statistics for 151.101.66.132:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 10ms, Maximum = 15ms, Average = 12ms
```

D.

```
www.syracuse.edu
--------------------------------------
Record Name . . . . . : www.syracuse.edu
Record Type . . . . . : 5
Time To Live  . . . . : 29
Data Length . . . . . : 8
Section . . . . . . . : Answer
CNAME Record  . . . . : syracuse.edu


Record Name . . . . . : syracuse.edu
Record Type . . . . . : 1
Time To Live  . . . . : 29
Data Length . . . . . : 4
Section . . . . . . . : Answer
A (Host) Record . . . : 151.101.66.132


Record Name . . . . . : syracuse.edu
Record Type . . . . . : 1
Time To Live  . . . . : 29
Data Length . . . . . : 4
Section . . . . . . . : Answer
A (Host) Record . . . : 151.101.130.132


Record Name . . . . . : syracuse.edu
Record Type . . . . . : 1
Time To Live  . . . . : 29
Data Length . . . . . : 4
Section . . . . . . . : Answer
A (Host) Record . . . : 151.101.194.132


Record Name . . . . . : syracuse.edu
Record Type . . . . . : 1
Time To Live  . . . . : 29
Data Length . . . . . : 4
Section . . . . . . . : Answer
A (Host) Record . . . : 151.101.2.132
```

I got time to live like 29 seconds in my case.

E.

```
www.syracuse.edu
--------------------------------------
Record Name . . . . . : www.syracuse.edu
Record Type . . . . . : 5
Time To Live  . . . . : 11
Data Length . . . . . : 8
Section . . . . . . . : Answer
CNAME Record  . . . . : syracuse.edu


Record Name . . . . . : syracuse.edu
Record Type . . . . . : 1
Time To Live  . . . . : 11
Data Length . . . . . : 4
Section . . . . . . . : Answer
A (Host) Record . . . : 151.101.66.132


Record Name . . . . . : syracuse.edu
Record Type . . . . . : 1
Time To Live  . . . . : 11
Data Length . . . . . : 4
Section . . . . . . . : Answer
A (Host) Record . . . : 151.101.130.132


Record Name . . . . . : syracuse.edu
Record Type . . . . . : 1
Time To Live  . . . . : 11
Data Length . . . . . : 4
Section . . . . . . . : Answer
A (Host) Record . . . : 151.101.194.132


Record Name . . . . . : syracuse.edu
Record Type . . . . . : 1
Time To Live  . . . . : 11
Data Length . . . . . : 4
Section . . . . . . . : Answer
A (Host) Record . . . : 151.101.2.132
```

Yes it got reduced to 11 seconds.

F.

```
C:\Users\dinot>ipconfig /displaydns

Windows IP Configuration

    1.0.0.127.in-addr.arpa
    ----------------------------------------
    Record Name . . . . . : 1.0.0.127.in-addr.arpa.
    Record Type . . . . . : 12
    Time To Live  . . . . : 581451
    Data Length . . . . . : 8
    Section . . . . . . . : Answer
    PTR Record  . . . . . : localhost


    array605.prod.do.dsp.mp.microsoft.com
    ----------------------------------------
    Record Name . . . . . : array605.prod.do.dsp.mp.microsoft.com
    Record Type . . . . . : 1
    Time To Live  . . . . : 2905
    Data Length . . . . . : 4
    Section . . . . . . . : Answer
    A (Host) Record . . . : 51.104.164.114


    1.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.ip6.arpa
    ----------------------------------------
    Record Name . . . . . : 1.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.ip6.arpa.
    Record Type . . . . . : 12
    Time To Live  . . . . : 581451
    Data Length . . . . . : 8
    Section . . . . . . . : Answer
    PTR Record  . . . . . : localhost
```

Yes it got removed from the dns cache.

G.

I think after the time to live is over and the DNS records are deleted from the cache we can see the response again for the A records to ping again.

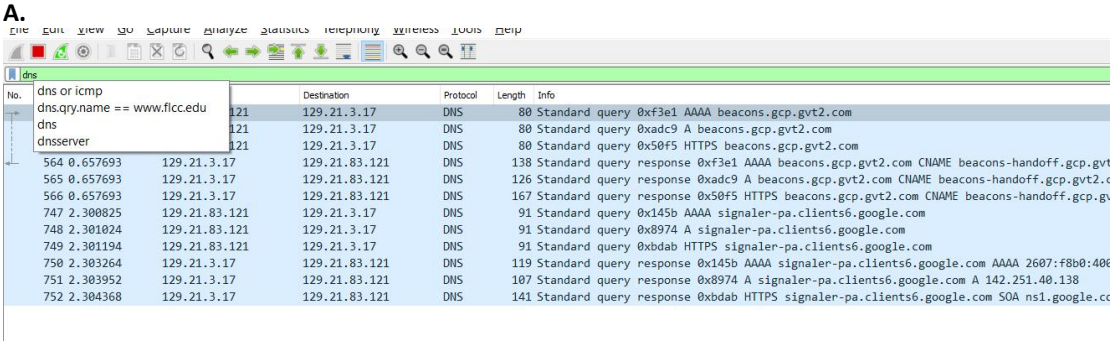
Exercise 9. 02 :

Nslookup (name server lookup)

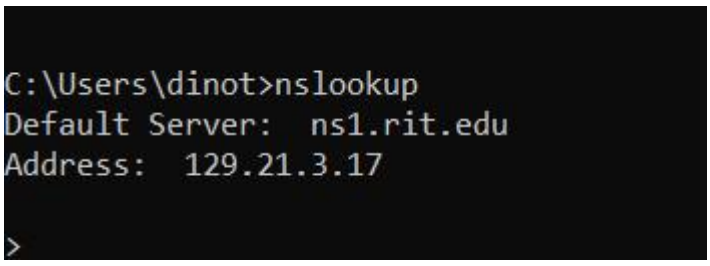
NSloopup operates on its own and does not look into any DNS resolver library.

Step 1 :

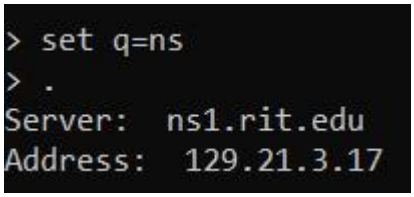
A.



B.



C.



D.

```
> set q=ns
> .
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
(root)  nameserver = a.root-servers.net
(root)  nameserver = b.root-servers.net
(root)  nameserver = c.root-servers.net
(root)  nameserver = d.root-servers.net
(root)  nameserver = e.root-servers.net
(root)  nameserver = f.root-servers.net
(root)  nameserver = g.root-servers.net
(root)  nameserver = h.root-servers.net
(root)  nameserver = i.root-servers.net
(root)  nameserver = j.root-servers.net
(root)  nameserver = k.root-servers.net
(root)  nameserver = l.root-servers.net
(root)  nameserver = m.root-servers.net
>
```

I can see the root servers of the dns server of ns1.rit.edu which has ip address of 129.21.3.17.

Step 2 :

```
> com
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
com     nameserver = c.gtld-servers.net
com     nameserver = i.gtld-servers.net
com     nameserver = l.gtld-servers.net
com     nameserver = e.gtld-servers.net
com     nameserver = m.gtld-servers.net
com     nameserver = f.gtld-servers.net
com     nameserver = b.gtld-servers.net
com     nameserver = j.gtld-servers.net
com     nameserver = h.gtld-servers.net
com     nameserver = g.gtld-servers.net
com     nameserver = a.gtld-servers.net
com     nameserver = k.gtld-servers.net
com     nameserver = d.gtld-servers.net
> com.
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
com     nameserver = c.gtld-servers.net
com     nameserver = i.gtld-servers.net
com     nameserver = l.gtld-servers.net
com     nameserver = e.gtld-servers.net
com     nameserver = m.gtld-servers.net
com     nameserver = f.gtld-servers.net
com     nameserver = b.gtld-servers.net
com     nameserver = j.gtld-servers.net
com     nameserver = h.gtld-servers.net
com     nameserver = g.gtld-servers.net
com     nameserver = a.gtld-servers.net
com     nameserver = k.gtld-servers.net
com     nameserver = d.gtld-servers.net
```

D

For

```
> net.
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
net     nameserver = c.gtld-servers.net
net     nameserver = f.gtld-servers.net
net     nameserver = a.gtld-servers.net
net     nameserver = d.gtld-servers.net
net     nameserver = i.gtld-servers.net
net     nameserver = j.gtld-servers.net
net     nameserver = k.gtld-servers.net
net     nameserver = m.gtld-servers.net
net     nameserver = l.gtld-servers.net
net     nameserver = e.gtld-servers.net
net     nameserver = g.gtld-servers.net
net     nameserver = b.gtld-servers.net
net     nameserver = h.gtld-servers.net
> edu.
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
edu     nameserver = k.edu-servers.net
edu     nameserver = c.edu-servers.net
edu     nameserver = d.edu-servers.net
edu     nameserver = g.edu-servers.net
edu     nameserver = a.edu-servers.net
edu     nameserver = f.edu-servers.net
edu     nameserver = b.edu-servers.net
edu     nameserver = j.edu-servers.net
edu     nameserver = m.edu-servers.net
edu     nameserver = e.edu-servers.net
edu     nameserver = l.edu-servers.net
edu     nameserver = i.edu-servers.net
edu     nameserver = h.edu-servers.net
> gov.
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
gov     nameserver = d.gov-servers.net
gov     nameserver = c.gov-servers.net
gov     nameserver = a.gov-servers.net
gov     nameserver = b.gov-servers.net
>
```

We can see all the tld gtld, edu, gov servers for rit.edu which is awesome.

Step 3 :

```
> rit.edu
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
rit.edu nameserver = ns1a.rit.edu
rit.edu nameserver = ns2a.rit.edu
rit.edu nameserver = accuvax.northwestern.edu

ns1a.rit.edu    internet address = 129.21.1.82
ns2a.rit.edu    internet address = 129.21.1.92
ns1a.rit.edu    AAAA IPv6 address = 2620:8d:8000:0:aba:ca:daba:ee
ns2a.rit.edu    AAAA IPv6 address = 2620:8d:8000:0:aba:ca:daba:ef
> flcc.edu
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
flcc.edu        nameserver = ns6.suny.edu
flcc.edu        nameserver = ns2.suny.edu
flcc.edu        nameserver = ns.suny.edu
flcc.edu        nameserver = ns3.suny.edu
flcc.edu        nameserver = ns4.suny.edu
flcc.edu        nameserver = ns5.suny.edu
> syr.edu
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
syr.edu nameserver = ns2.syr.edu
syr.edu nameserver = its-ndd-sc-extns-01.syr.edu
syr.edu nameserver = icarus.syr.edu
syr.edu nameserver = lurch.cns.syr.edu
syr.edu nameserver = lurch.syr.edu
syr.edu nameserver = its-ndd-nc-extns-01.syr.edu
syr.edu nameserver = ns1.syr.edu
> naz.edu
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
naz.edu nameserver = ns1-32.azure-dns.com
naz.edu nameserver = ns2-32.azure-dns.net
naz.edu nameserver = ns3-32.azure-dns.org
naz.edu nameserver = ns4-32.azure-dns.info
```

We can clearly see different name servers which we can use to query those servers easily and get the response back from those servers.

Step 4 :

```
> set q=mx
> rit.edu
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
rit.edu MX preference = 5, mail exchanger = mx03a-in01r.rit.edu
rit.edu MX preference = 5, mail exchanger = mx03b-in01r.rit.edu
rit.edu MX preference = 5, mail exchanger = mx03c-in01r.rit.edu
rit.edu MX preference = 5, mail exchanger = mx03d-in01r.rit.edu
rit.edu MX preference = 5, mail exchanger = mx03e-in01r.rit.edu
rit.edu MX preference = 5, mail exchanger = mx03f-in01r.rit.edu
rit.edu MX preference = 5, mail exchanger = mx03g-in01r.rit.edu
rit.edu MX preference = 5, mail exchanger = mx03h-in01r.rit.edu
rit.edu MX preference = 5, mail exchanger = mx03t-in01r.rit.edu
> flcc.edu
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
flcc.edu        MX preference = 60, mail exchanger = flcc-edu.mail.protection.outlook.com
> syr.edu
Server:  ns1.rit.edu
Address:  129.21.3.17

DNS request timed out.
    timeout was 2 seconds.
Non-authoritative answer:
syr.edu MX preference = 10, mail exchanger = mx-ext.syr.edu
> naz.edu
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
naz.edu MX preference = 1, mail exchanger = aspmx.l.google.com
naz.edu MX preference = 5, mail exchanger = alt1.aspmx.l.google.com
naz.edu MX preference = 5, mail exchanger = alt2.aspmx.l.google.com
naz.edu MX preference = 10, mail exchanger = aspmx2.googlemail.com
naz.edu MX preference = 10, mail exchanger = aspmx3.googlemail.com
>
```

We can see all the mail servers for the following subdomain and tld dns names.

Step 5 :

```
> set q=a
> www.rit.edu
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
Name:    web01www01.rit.edu
Address:  129.21.1.40
Aliases:  www.rit.edu
```

The IP address of rit web server is 129.21.1.40

CNAME are internal naming records, that enables us to make query for rit.edu into www.rit.edu automatically.

Step 6 :

```
> set q=aaaa
> www.rit.edu
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
Name:    web01www01.rit.edu
Address:  2620:8d:8000:0:aba:ca:daba:217
Aliases:  www.rit.edu
```

IPv6 address of rit webserver is 2620:8d:8000:0:aba:ca:daba:217.
A records are ipv4 where as ipv6 is four times bigger so “aaaa” record for ipv6
Step 7 :


```
> server 8.8.8.8
Default Server:  dns.google
Address:  8.8.8.8

> set q=a
> www.rit.edu
Server:  dns.google
Address:  8.8.8.8

Non-authoritative answer:
Name:    web01www01.rit.edu
Address:  129.21.1.40
Aliases:  www.rit.edu
```

Yes the queries went to the new server as we can see the address field at command promp and source and destination at wireshark capture.

Step 8 :
A.

```
> set q=a
>  k.edu-servers.net
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
Name:    k.edu-servers.net
Address:  192.52.178.30
```

k.edu.servers.net is fqdn of dns server and its address is 192.52.178.30

B.

```
>  mx03a-in01r.rit.edu
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
Name:    mx03a-in01r.rit.edu
Address:  129.21.10.156
```

We can see the FQDN and its ip address here.

Step 9 :

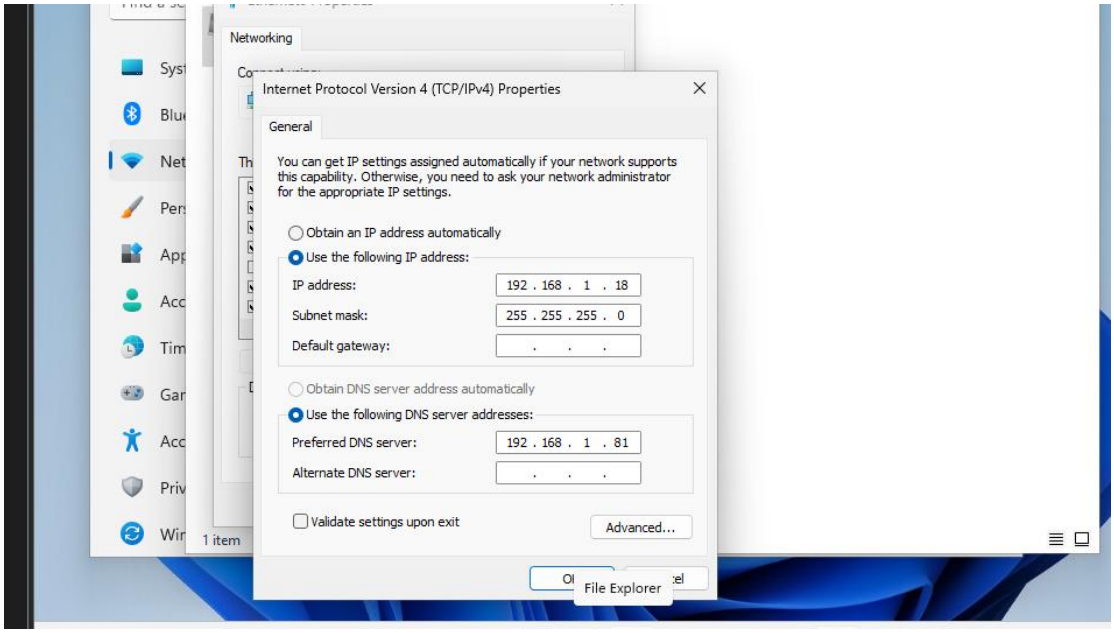
```
> set q=ptr
> 129.21.1.40
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
40.1.21.129.in-addr.arpa        name = web01www01.rit.edu
> 192.52.178.30
Server:  ns1.rit.edu
Address:  129.21.3.17

Non-authoritative answer:
30.178.52.192.in-addr.arpa      name = k.gtld-servers.net
>
```

We can clearly see the reverse of the ip and how pointer works.

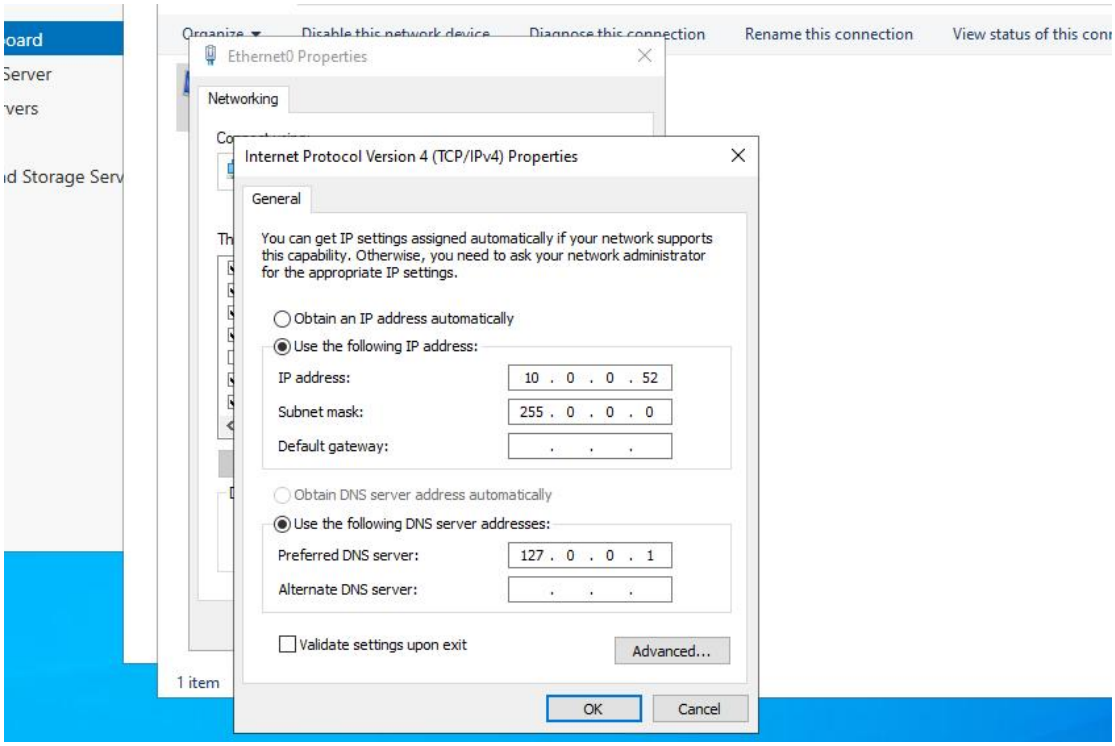
Step 10 :

RR type	The DNS query gives this to the DNS Server	The DNS response gives this to the DNS client
A	FQDN	IPV4 address
AAAA	FQDN	IPV6 address
NS	domain	FQDN
MX	domain	FQDN
PTR	Either an IPV4 or IPV6 address	FQDN

Exercise 9. 03 :
Step : 1
H.



Step 2 :
A.



B.

Device specifications

Device name	kpserver
Processor	Intel(R) Core(TM) i7-9750H CPU @ 2.60GHz 2.59 GHz (4 processors)
Installed RAM	4.00 GB
Device ID	D5B97649-BA23-42F7-81D4-9F62BE4C4024
Product ID	00456-50926-50478-AA361
System type	64-bit operating system, x64-based processor
Pen and touch	No pen or touch input is available for this display

Copy

C.

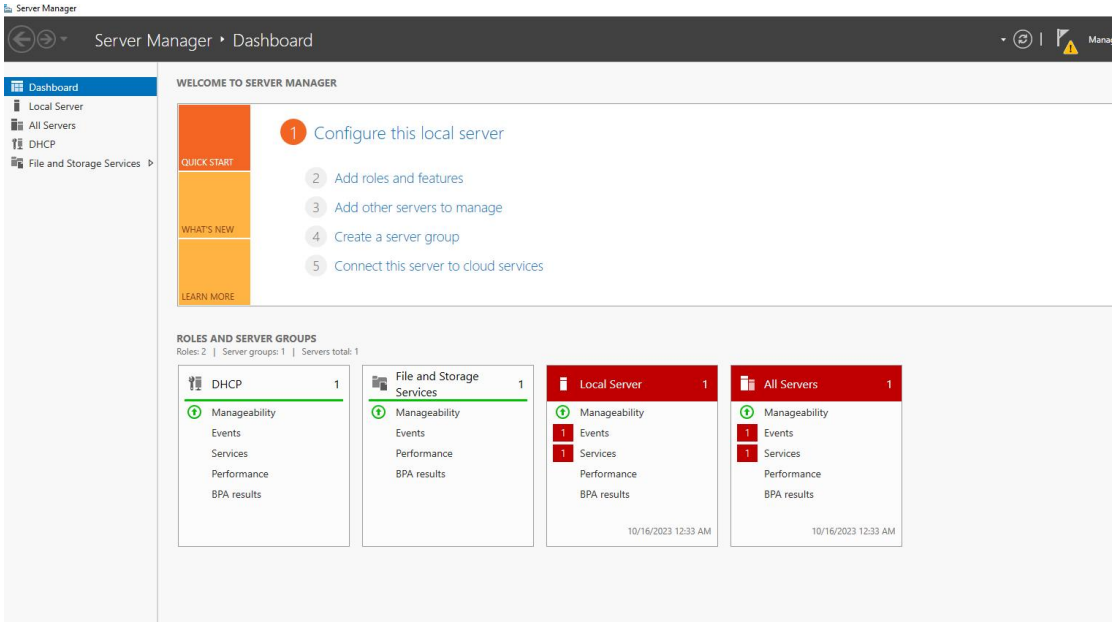
Device specifications

Device name	kpserver
Processor	Intel(R) Core(TM) i7-9750H CPU @ 2.60GHz 2.59 GHz (4 processors)
Installed RAM	4.00 GB
Device ID	D5B97649-BA23-42F7-81D4-9F62BE4C4024
Product ID	00456-50926-50478-AA361
System type	64-bit operating system, x64-based processor
Pen and touch	No pen or touch input is available for this display

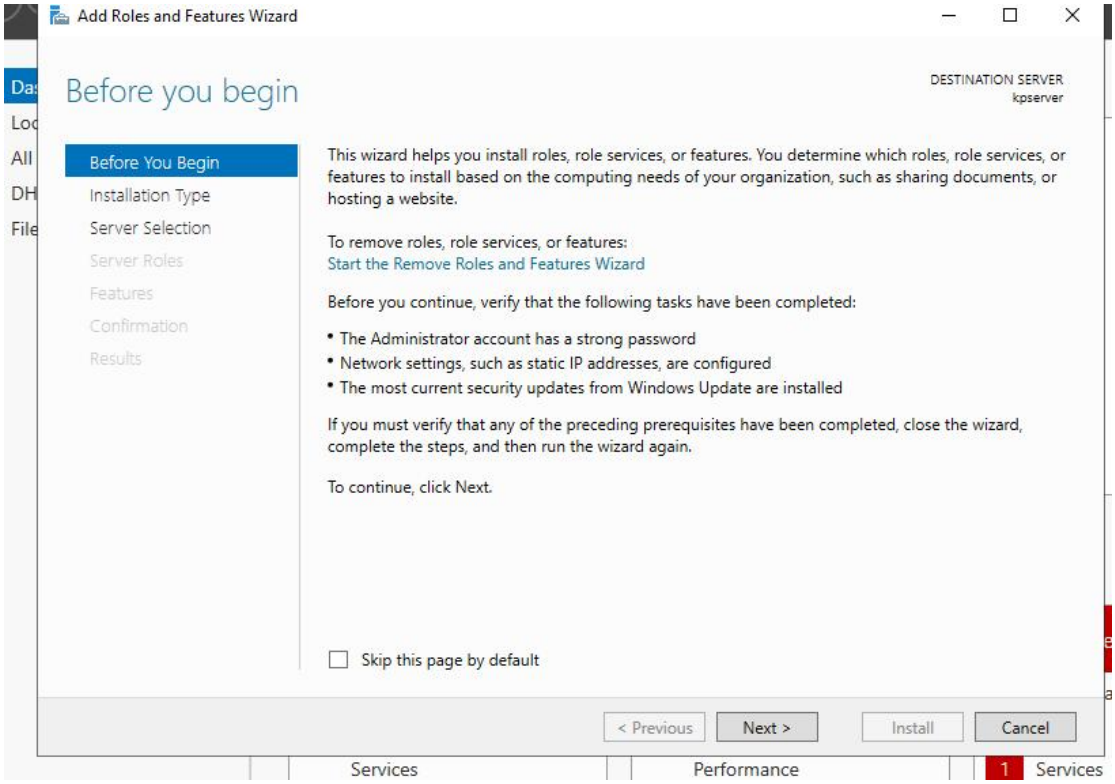
Copy

Step 3 :

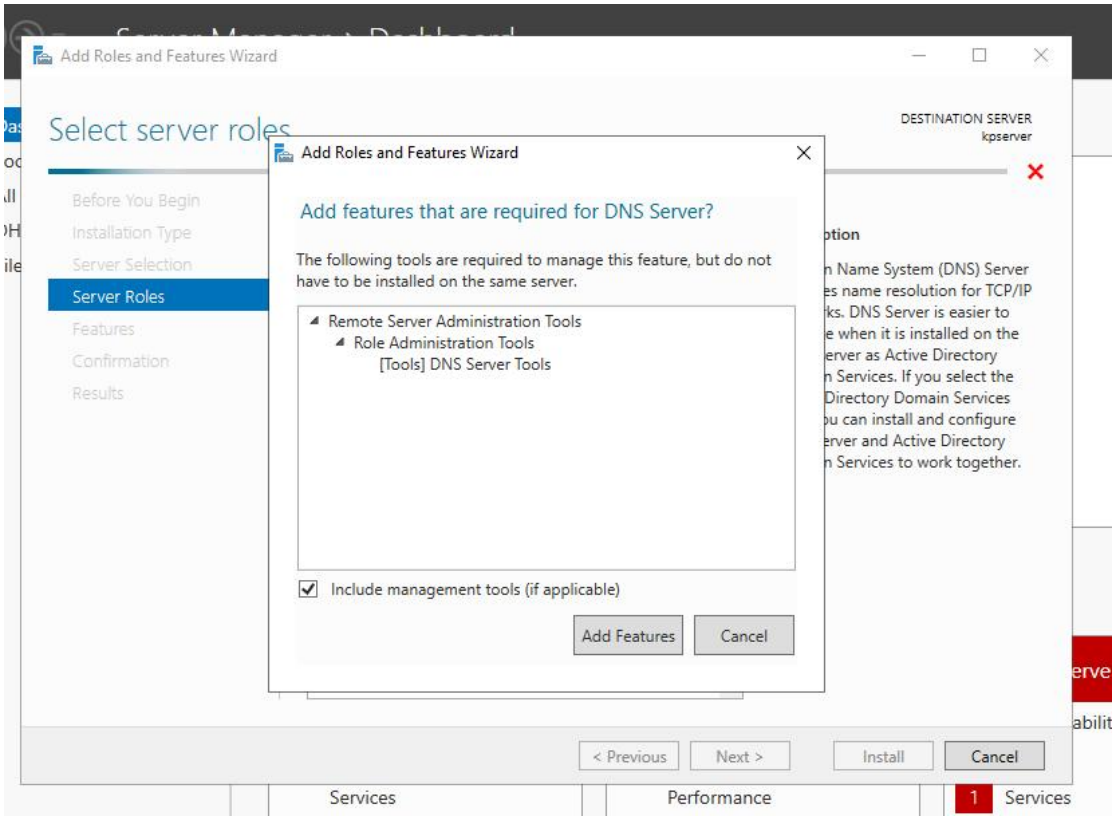
A.


Server Manager
Server Manager ‣ Dashboard
Dashboard
Local Server
All Servers
DHCP
File and Storage Services
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
ROLES AND SERVER GROUPS
Roles: 2 | Server groups: 1 | Servers total: 1
DHCP 1
Manageability
Events
Services
Performance
BPA results
File and Storage Services 1
Manageability
Events
Performance
BPA results
Local Server 1
Manageability
Events
Services
Performance
BPA results
10/16/2023 12:33 AM
All Servers 1
Manageability
Events
Services
Performance
BPA results
10/16/2023 12:33 AM

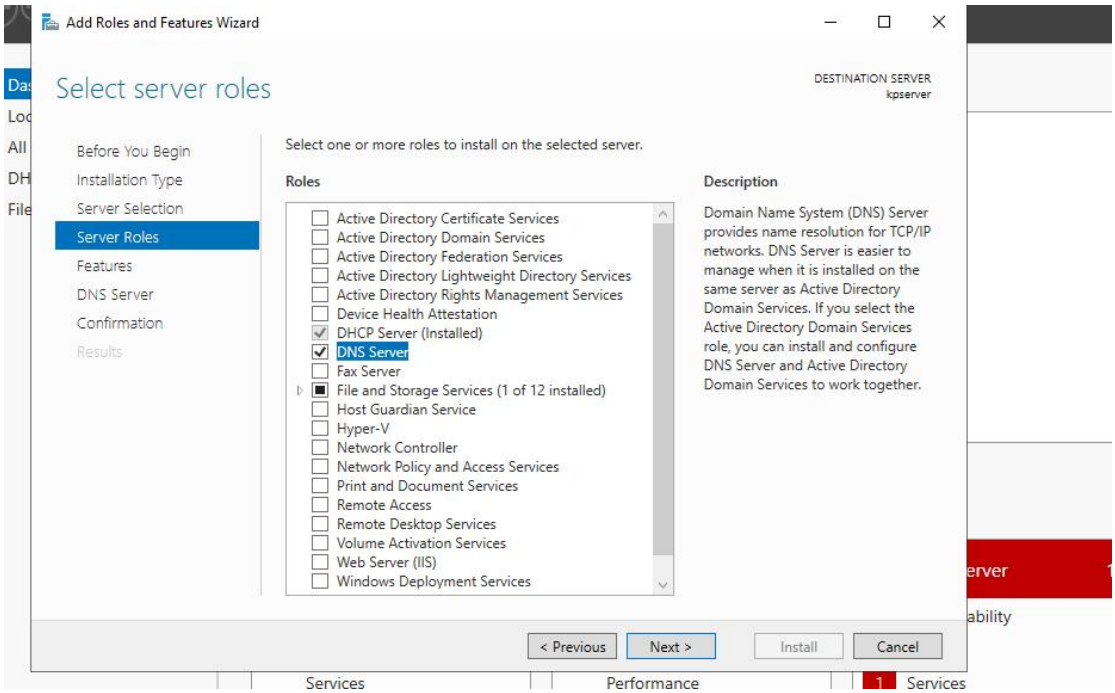
B.


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

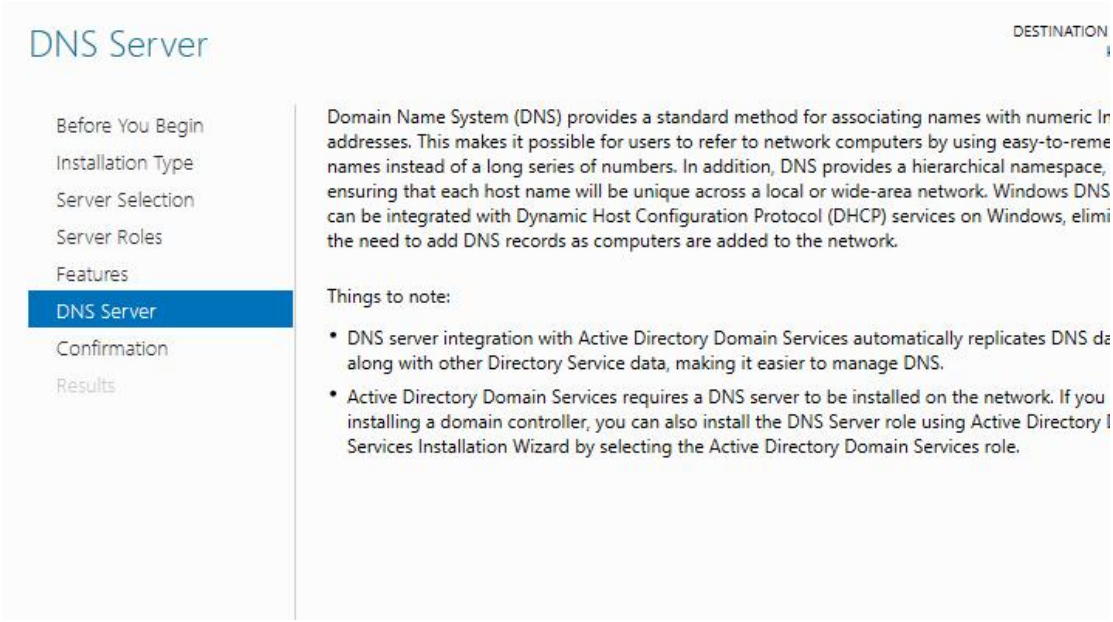
C.


Add Roles and Features Wizard
Select server roles
DESTINATION SERVER
kpserver
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
Add Roles and Features Wizard
Add features that are required for DNS Server?
The following tools are required to manage this feature, but do not have to be installed on the same server.
Remote Server Administration Tools
Role Administration Tools
[Tools] DNS Server Tools
Include management tools (if applicable)
Add Features
Cancel
< Previous
Next >
Install
Cancel
Services
Performance
Services

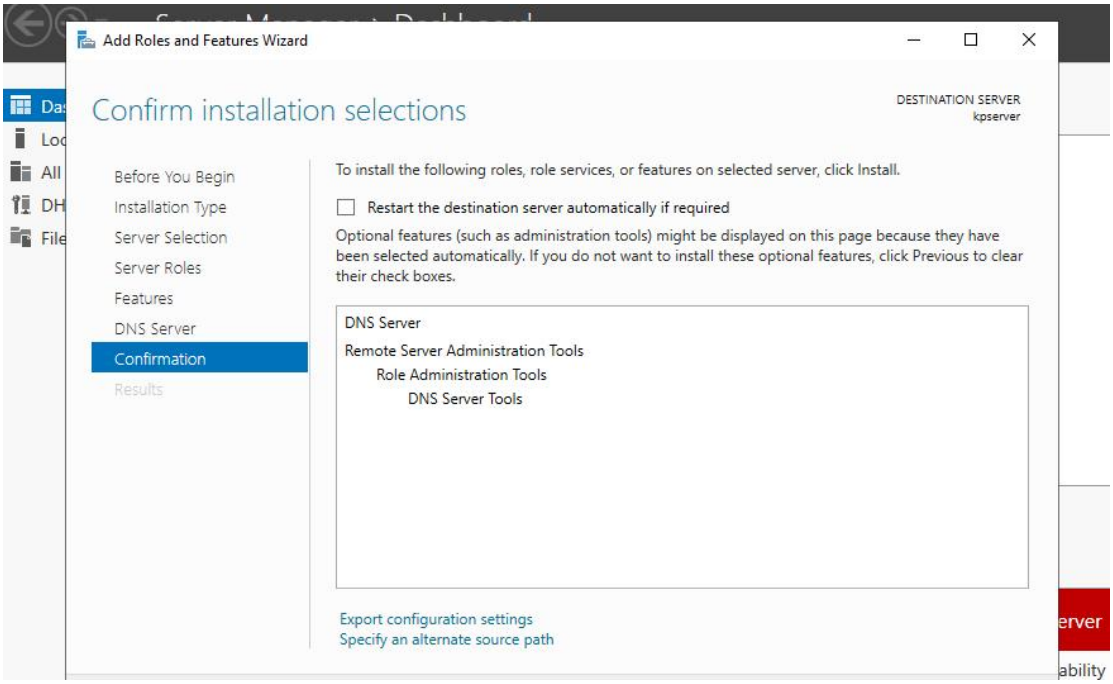
D.


Add Roles and Features Wizard
Select server roles
DESTINATION SERVER
kpserver
Before You Begin
Installation Type
Server Selection
Server Roles
Features
DNS Server
Confirmation
Results
Select one or more roles to install on the selected server.
Roles
Active Directory Certificate Services
Active Directory Domain Services
Active Directory Federation Services
Active Directory Lightweight Directory Services
Active Directory Rights Management Services
Device Health Attestation
DHCP Server (Installed)
DNS Server
Fax Server
File and Storage Services (1 of 12 installed)
Host Guardian Service
Hyper-V
Network Controller
Network Policy and Access Services
Print and Document Services
Remote Access
Remote Desktop Services
Volume Activation Services
Web Server (IIS)
Windows Deployment Services
Description
Domain Name System (DNS) Server provides name resolution for TCP/IP networks. DNS Server is easier to manage when it is installed on the same server as Active Directory Domain Services. If you select the Active Directory Domain Services role, you can install and configure DNS Server and Active Directory Domain Services to work together.
< Previous
Next >
Install
Cancel
Services
Performance
Services

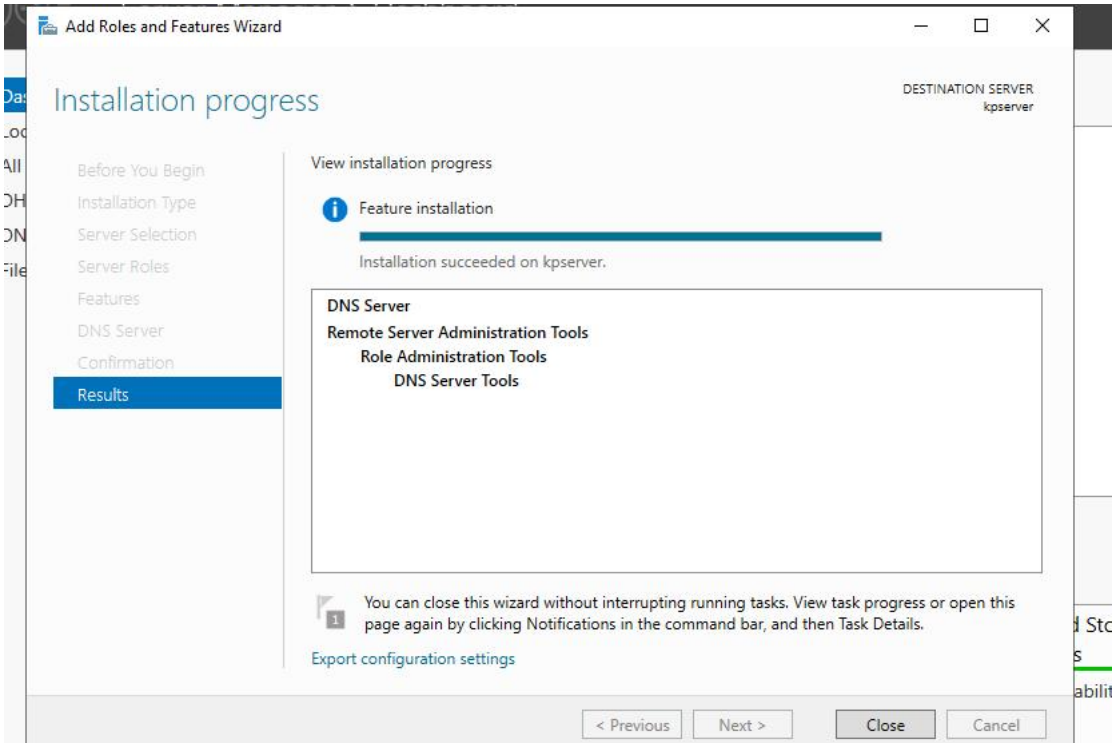
E.


DNS Server
DESTINATION
Before You Begin
Installation Type
Server Selection
Server Roles
Features
DNS Server
Confirmation
Results
Domain Name System (DNS) provides a standard method for associating names with numeric Ir
addresses. This makes it possible for users to refer to network computers by using easy-to-reme
names instead of a long series of numbers. In addition, DNS provides a hierarchical namespace,
ensuring that each host name will be unique across a local or wide-area network. Windows DNS
can be integrated with Dynamic Host Configuration Protocol (DHCP) services on Windows, elimi
the need to add DNS records as computers are added to the network.
Things to note:
• DNS server integration with Active Directory Domain Services automatically replicates DNS da
along with other Directory Service data, making it easier to manage DNS.
• Active Directory Domain Services requires a DNS server to be installed on the network. If you
installing a domain controller, you can also install the DNS Server role using Active Directory I
Services Installation Wizard by selecting the Active Directory Domain Services role.

F.

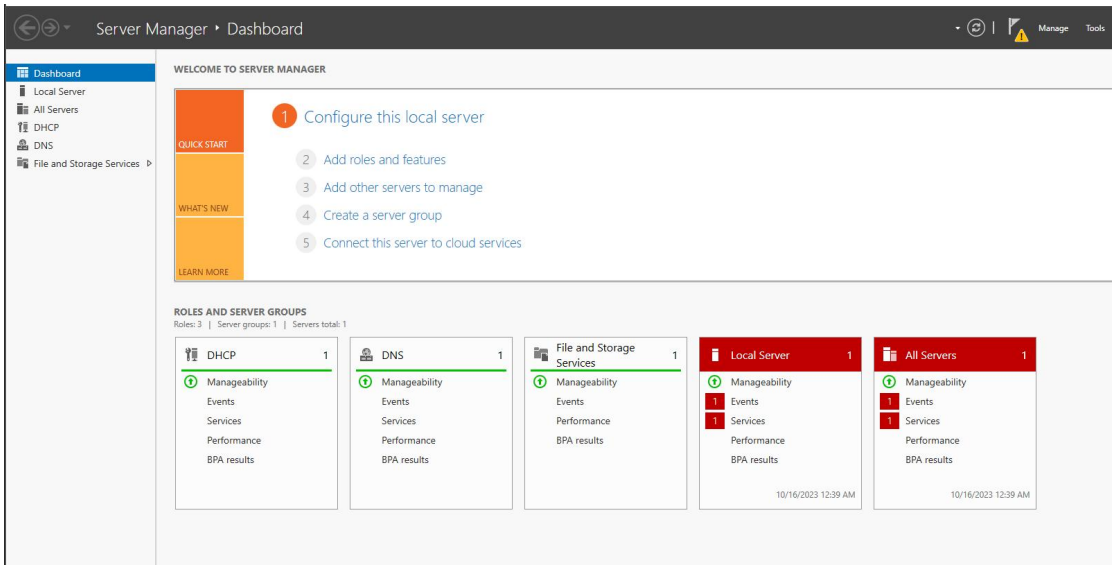

Add Roles and Features Wizard
Confirm installation selections
DESTINATION SERVER
kpserver
Before You Begin
Installation Type
Server Selection
Server Roles
Features
DNS Server
Confirmation
Results
To install the following roles, role services, or features on selected server, click Install.
Restart the 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.
DNS Server
Remote Server Administration Tools
Role Administration Tools
DNS Server Tools
Export configuration settings
Specify an alternate source path

G.

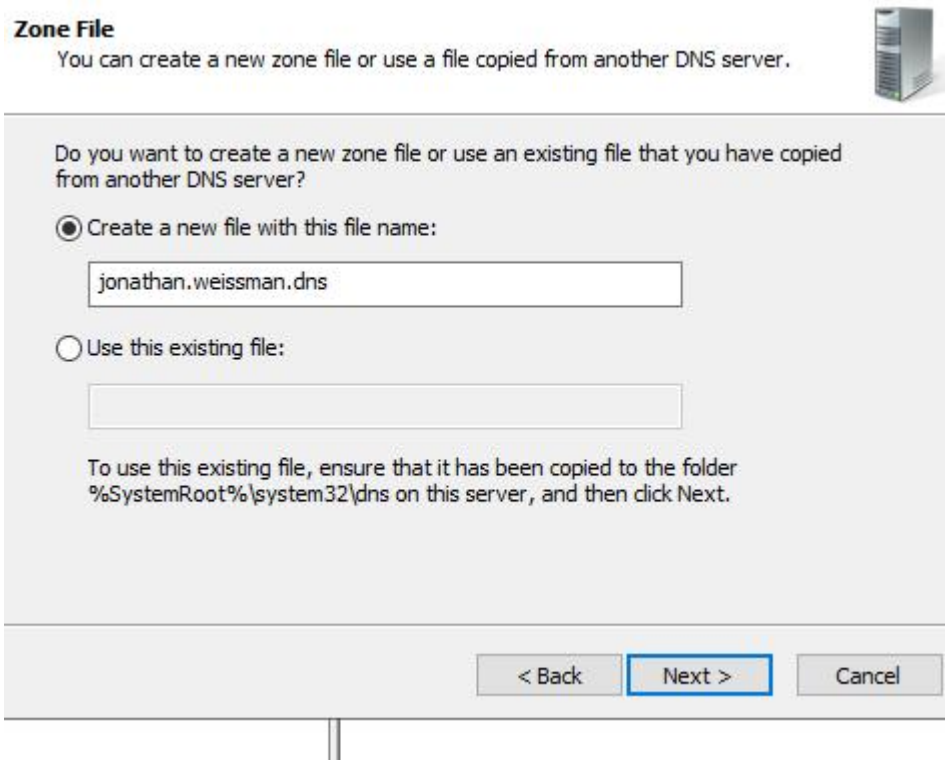

Add Roles and Features Wizard
Installation progress
DESTINATION SERVER
kpserver
Before You Begin
Installation Type
Server Selection
Server Roles
Features
DNS Server
Confirmation
Results
View installation progress
Feature installation
Installation succeeded on kpserver.
DNS Server
Remote Server Administration Tools
Role Administration Tools
DNS Server Tools
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

Step 4 :

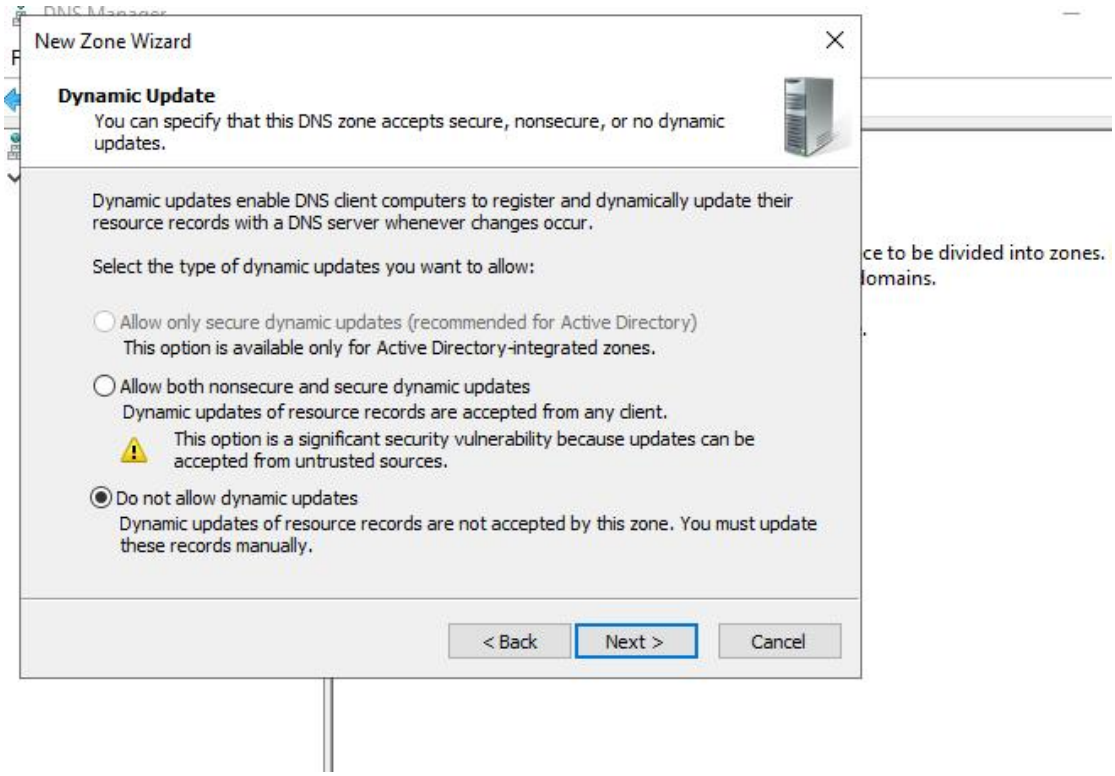
A.


Server Manager • Dashboard
Manage
Tools
Dashboard
Local Server
All Servers
DHCP
DNS
File and Storage Services
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
ROLES AND SERVER GROUPS
Roles: 3 | Server groups: 1 | Servers total: 1
DHCP 1
DNS 1
File and Storage Services 1
Local Server 1
All Servers 1
Manageability
Events
Services
Performance
BPA results
10/16/2023 12:39 AM

E.


Zone File
You can create a new zone file or use a file copied from another DNS server.
Do you want to create a new zone file or use an existing file that you have copied from another DNS server?
Create a new file with this file name:
jonathan.weissman.dns
Use this existing file:
To use this existing file, ensure that it has been copied to the folder %SystemRoot%\system32\dns on this server, and then click Next.
< Back
Next >
Cancel

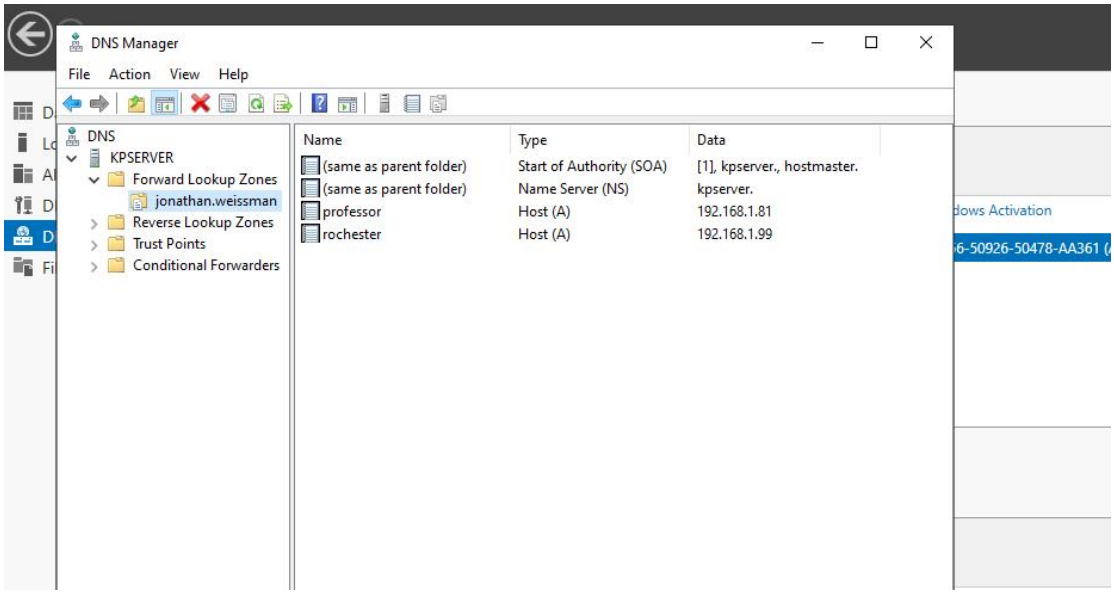
F.


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


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

Step 5 :

B.


DNS Manager
File Action View Help
DNS
KPSERVER
Forward Lookup Zones
jonathan.weissman
Reverse Lookup Zones
Trust Points
Conditional Forwarders
Name
Type
Data
(same as parent folder)
Start of Authority (SOA)
[1], kpserver., hostmaster.
(same as parent folder)
Name Server (NS)
kpserver.
professor
Host (A)
192.168.1.81
rochester
Host (A)
192.168.1.99

Step 6 :
D and E

```
C:\Users\dinot>ping professor.jonathan.weissman.
Ping request could not find host professor.jonathan.weissman.. Please check the name and try again.

C:\Users\dinot>ping rochester.jonathan.weissman.
Ping request could not find host rochester.jonathan.weissman.. Please check the name and try again.
```

I tried running the ping command, but it is not working. I followed the steps as it is, but can't figure out the problem.

Lab Analysis :

1. Because all are connected together like a tree structure where root servers are at the top and then TLD servers and then name servers and to host records. So it works in order and helps them to be used and handled world wide with large amount of dns data.

2. DNS resolver cache keeps the recent dns records for reusing, helps to save time, instead of going back to root server for request and getting back the address, each time it consume lot of time and energy, so dns resolver solves the problem locally, But it will have based on the time to live.

3. Nslookup is a great tool in looking the backend work and servers, and helps in troubleshooting and understanding the hierarchical structure of the dns records and its servers. We can customize in command prompt and query accordingly for retrieving the data and for troubleshooting purposes.

4. It asks the query to authoritative name servers of the domain, which will store in FQDN way, if charles wants to retrieve it, he should set q=a and query for the domain for getting its IP address.

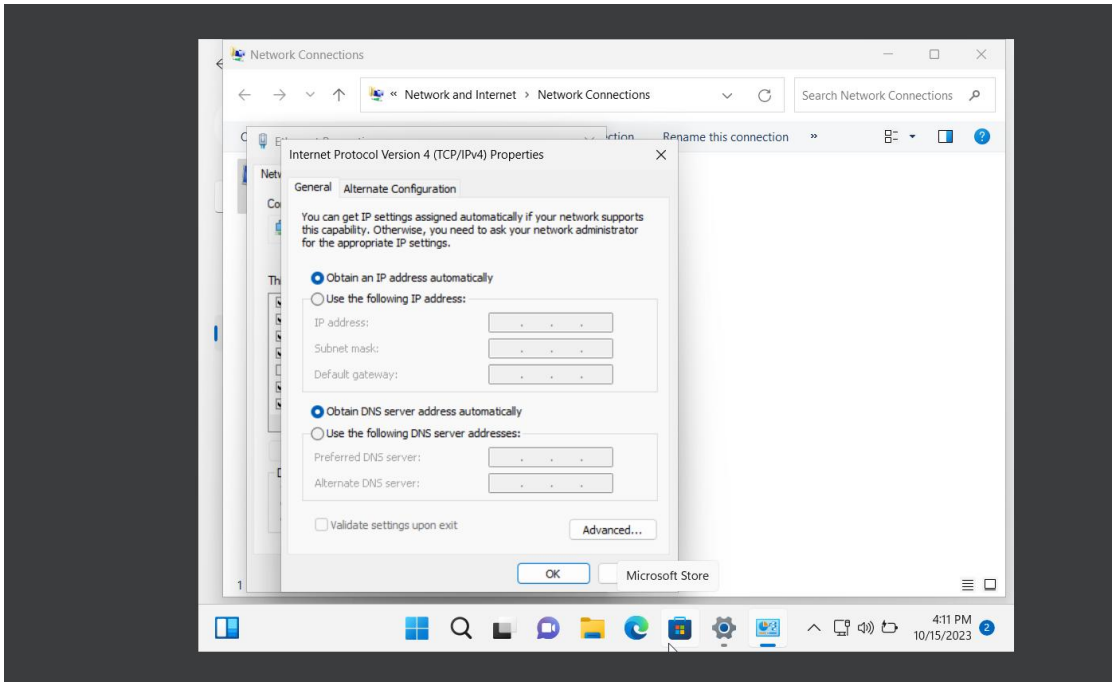
5. In my point of view zone has all the records regarding the mapping of FQDN and IP address of particular server. Each server may have many zones regarding to the data. Zones files will contain all the resource records for the domains under that zone of authority.

Key Term Quiz :
1. Nslookup
2. A
3. Ping , FQDN
4. Ipconfig /flushdns
5. Ipconfig /displaydns

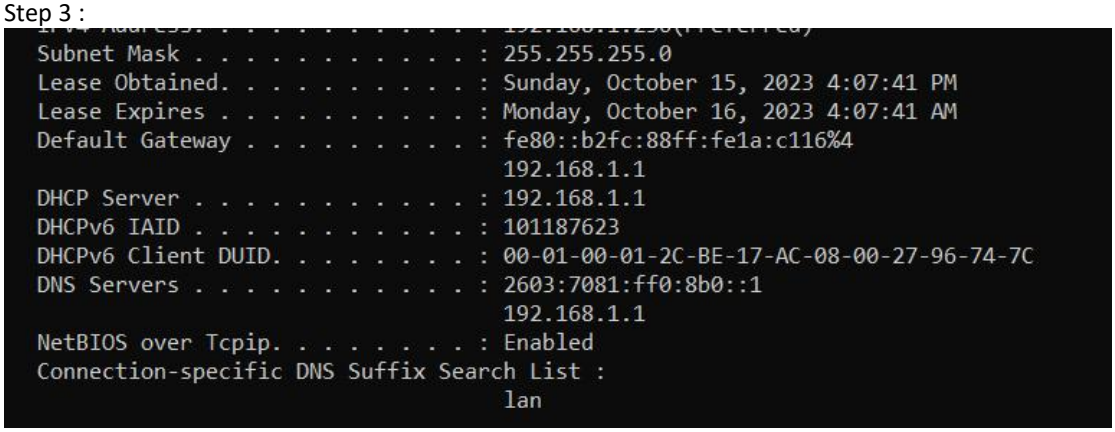
Chapter 6 TCP-IP Basics :
Lab Exercise : 6.6 :

Step 1 :
DHCP provides lot of benefits for TCP/IP network.
1. The DHCP take cares of assigning IP addresses for various systems without any need for manual configuration and it makes the process easy.
2. It helps in maintaining the IP address of the devices and also acts as central point which gives IP to devices dynamically.
3. No wastage of IP addresses, as it takes from the available IPs and configures it to the PCs and other devices.
4. DHCP helps the hardware to retain its IP address, even we try to switch the subnets or travel from one place to another.

Step 2 :
H.



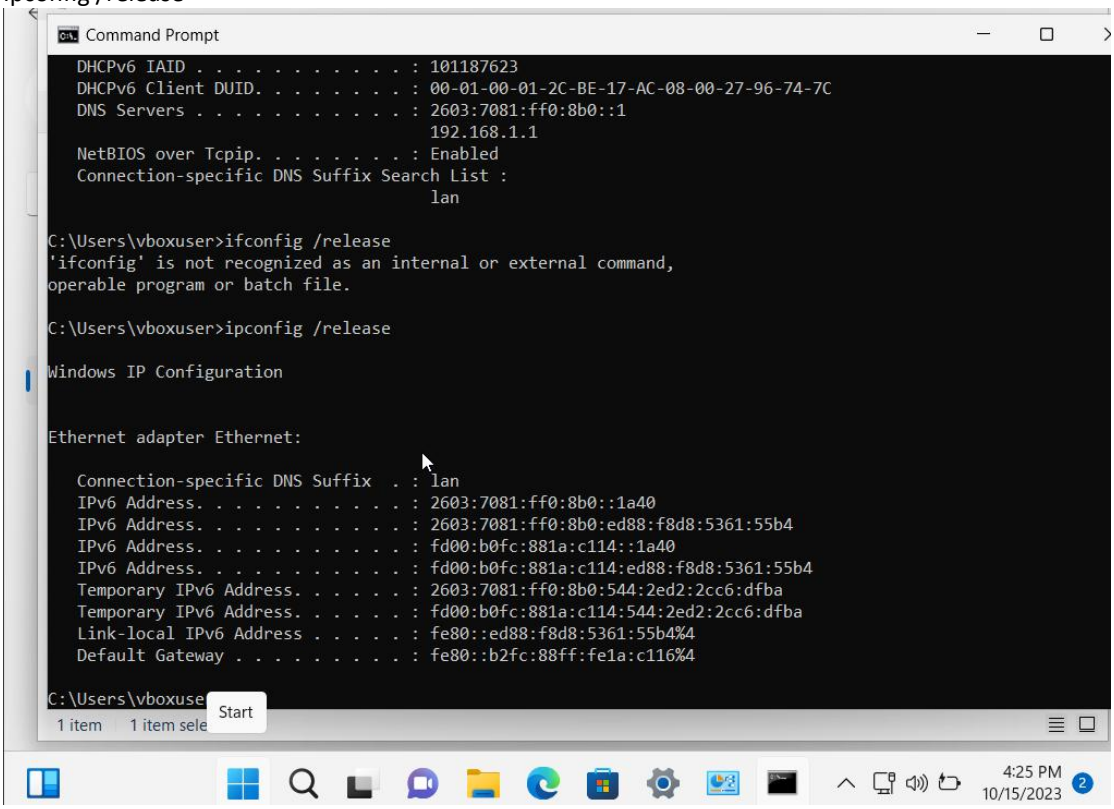
Step 3 :



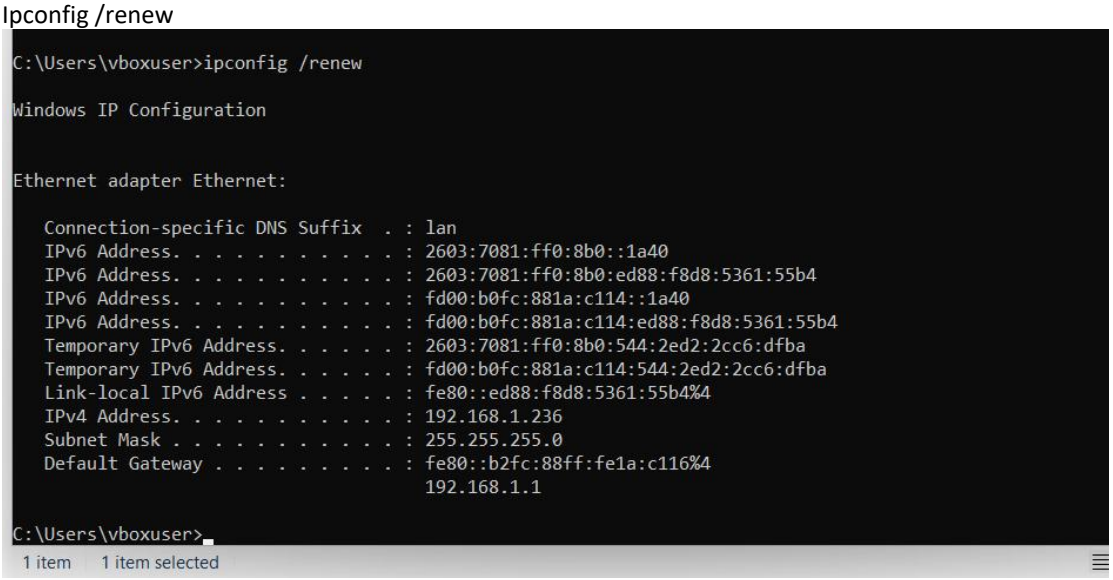
DHCP server IP : 192.168.1.1

Step 4 :

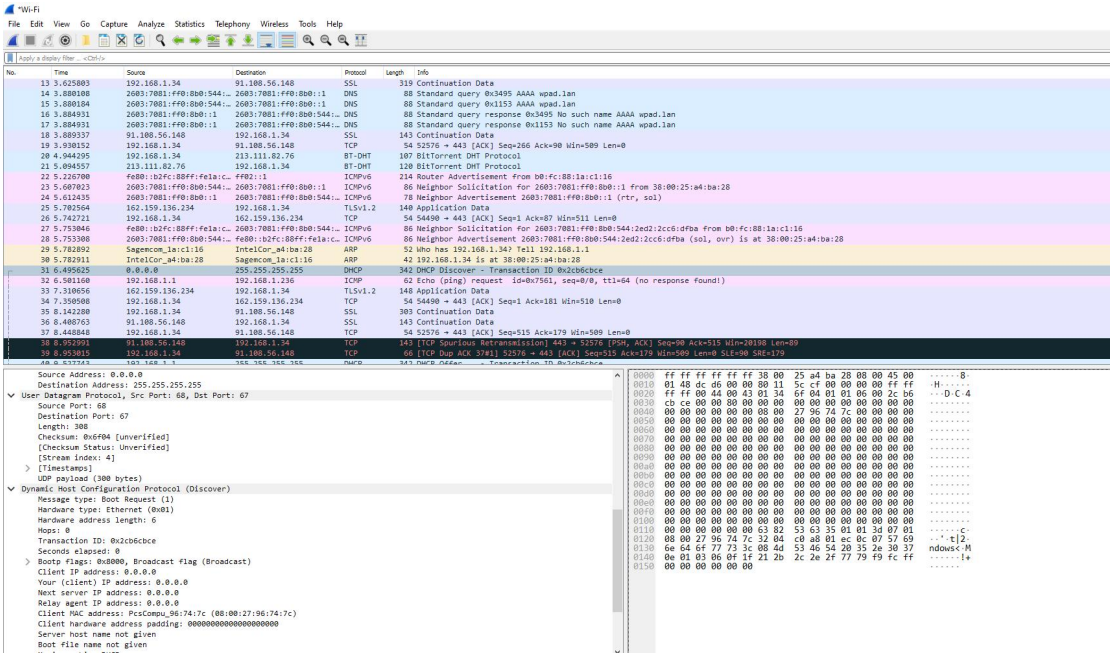
Ipconfig /release



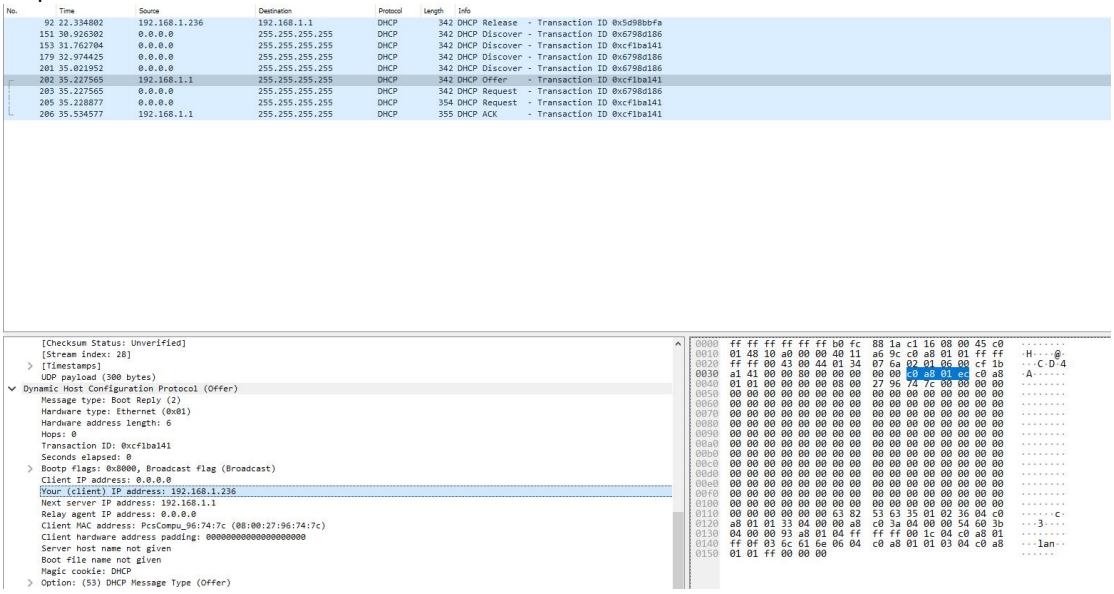
Ipconfig /renew



Step 5 :



Step 6 :



Step 7 :

A. Source IP address : 0.0.0.0

B. Destination IP address : 255.255.255.255

C. It may trying to look for all the options which is the pool available to this server.

D. Port 68 is client

E. Port 67 is used by server.

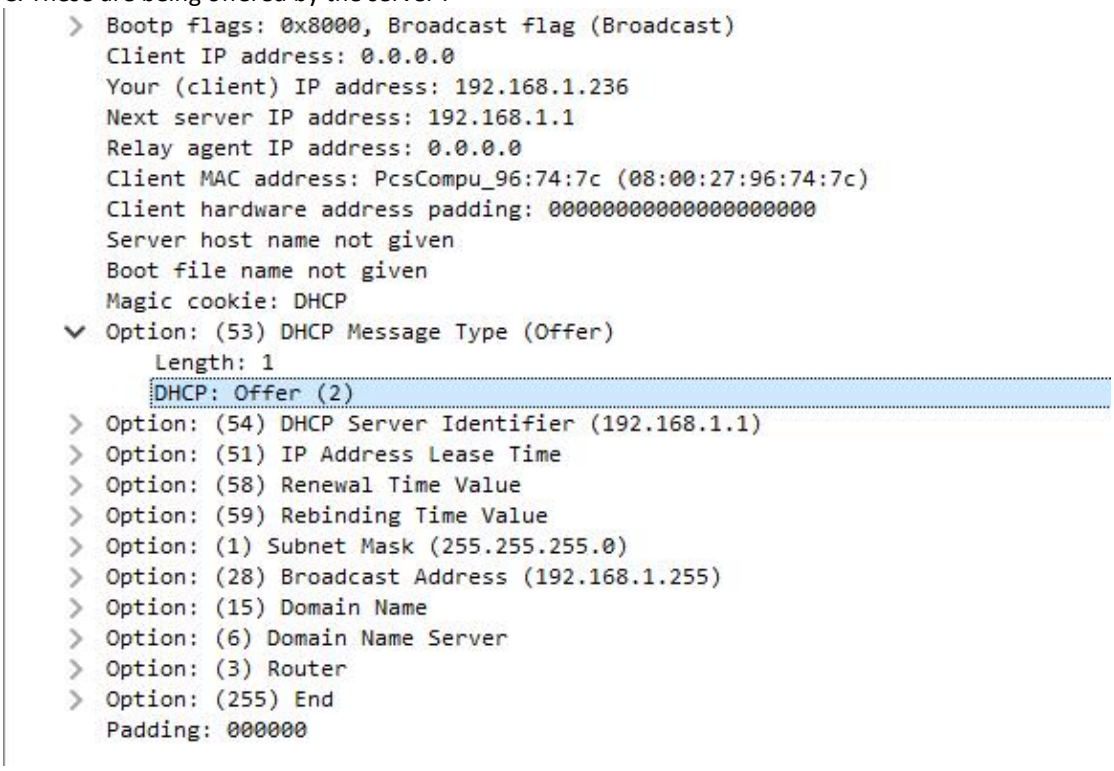
F. Yes it is trying to request a particular IP 192.168.1.236. It is requesting may be it don't want to the change the IP of the system that released it, to make ensure and enhance its mobility.

Step 8 :

A. The source IP address is 192.168.1.1 and destination IP address is 255.255.255.255.

B. It tries to offer 192.168.1.1

C. These are being offered by the server :



Step 9 :
A. Source IP address is 0.0.0.0
B. Destination IP address is 255.255.255.255
C. It is requesting the IP address that is offered by the DHCP server.
D. It has different params like HOST NAME, Client Fully Qualified Domain Name, Vendor class identifier.

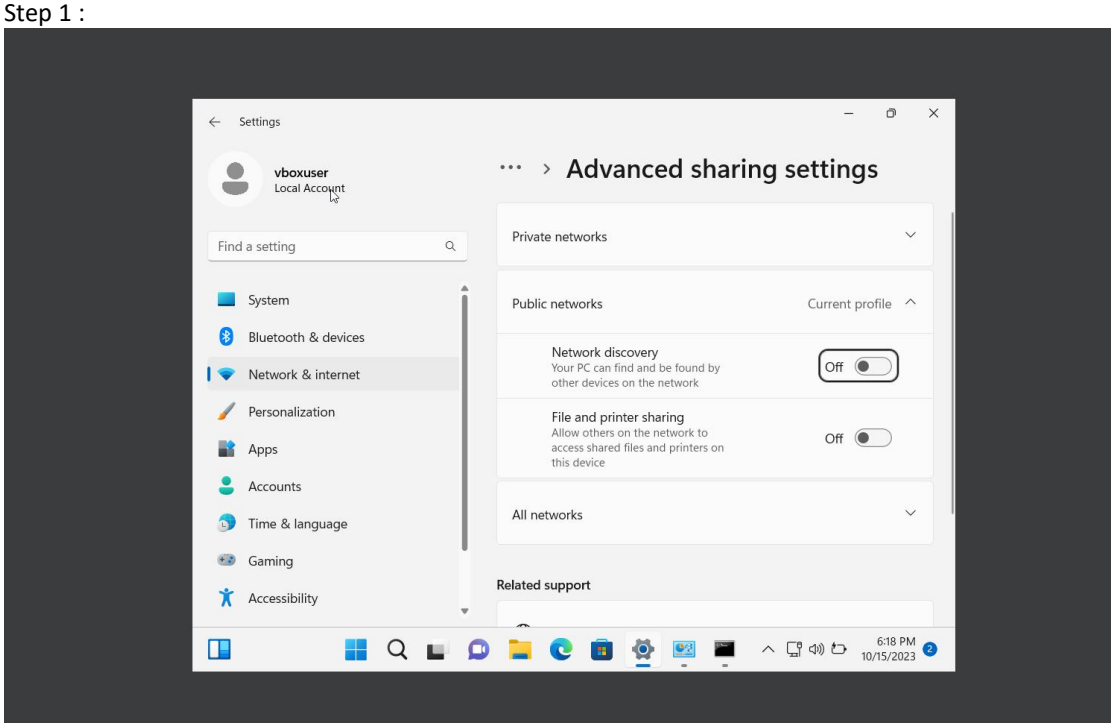
Step 10 :
A. Source IP address is 192.168.1.1 and Destination address is Flooded Broadcast
B. It is an acknowledgement, gives the details about the lease time and alloted IP and ensures the response of the server.
C. Client Fully Qualified Domain Name, this is the main factor which is absent in DHCP ACK server.

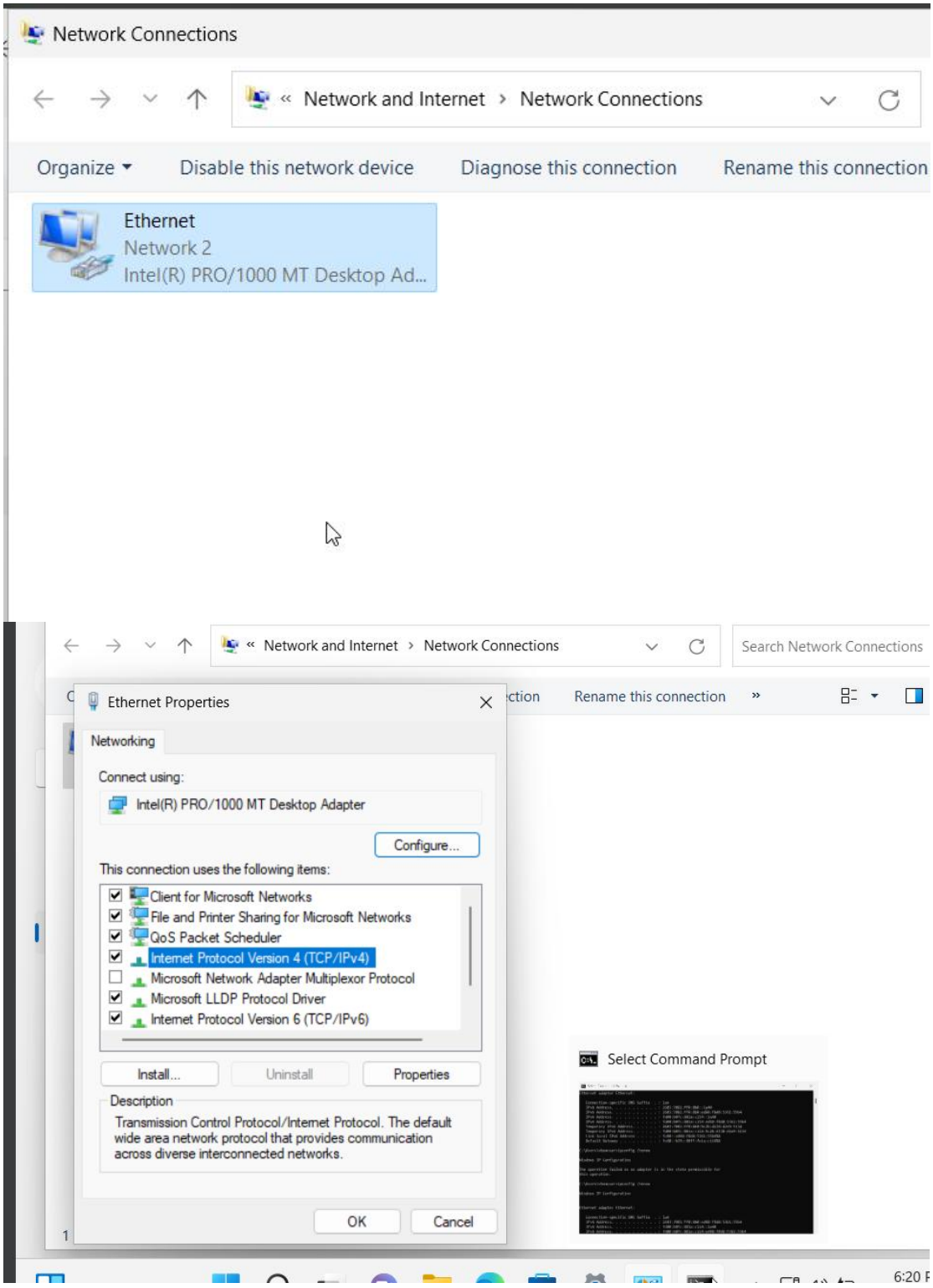
Step 11 :
DHCP Decline :
It is used to decline the request if the IP address requested is already in use to avoid conflicts between the IP address
DHCP NAK :
It is a negative acknowledgement sent by DHCP server to reject the request if DHCP server unable to fulfil it.
DHCP inform :
It is requested by the users to the server in order for asking the configuration like subnet mask, routers, DNS servers, etc. This is used when there is no need for new IP address and instead need for other parameters.

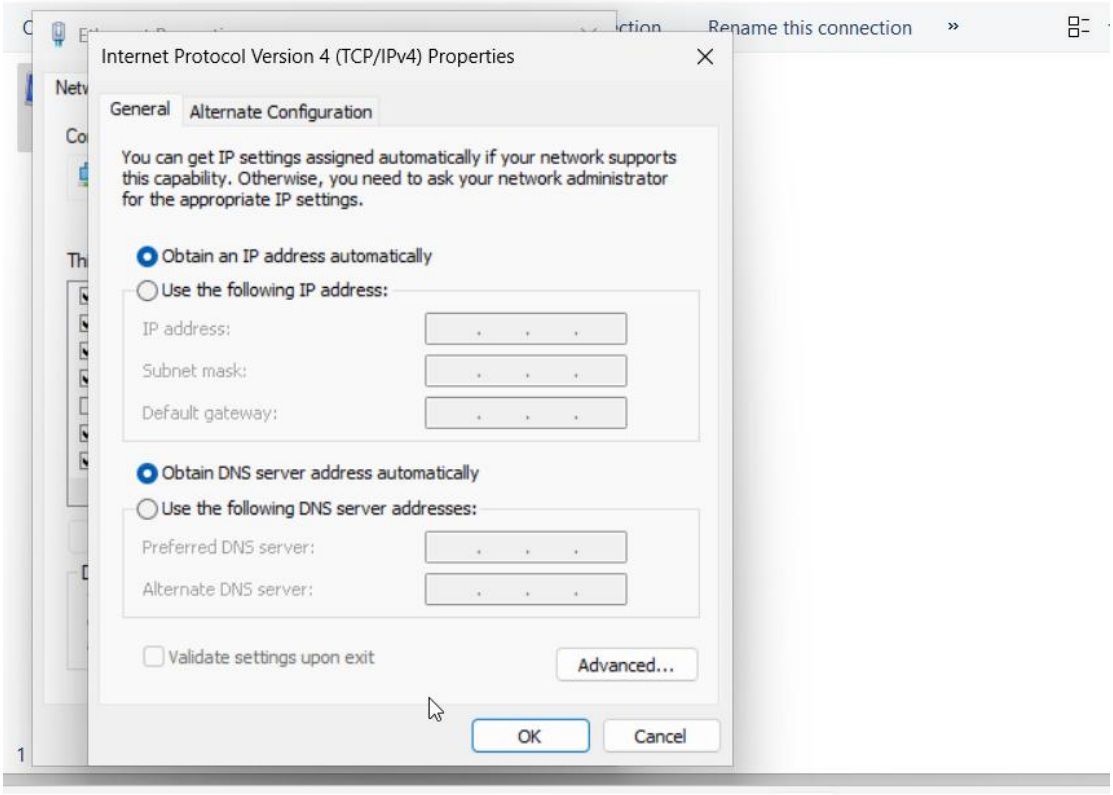
Step 12 :
I tried to stop the server manually and tried to disconnect the adapter, still it not works, if I disconnect the adapter it gives me the message :

```
C:\Users\vboxuser>ipconfig /renew

Windows IP Configuration

The operation failed as no adapter is in the state permissible for
this operation.
```

Exercise : 6. 07 :
Step 1 :

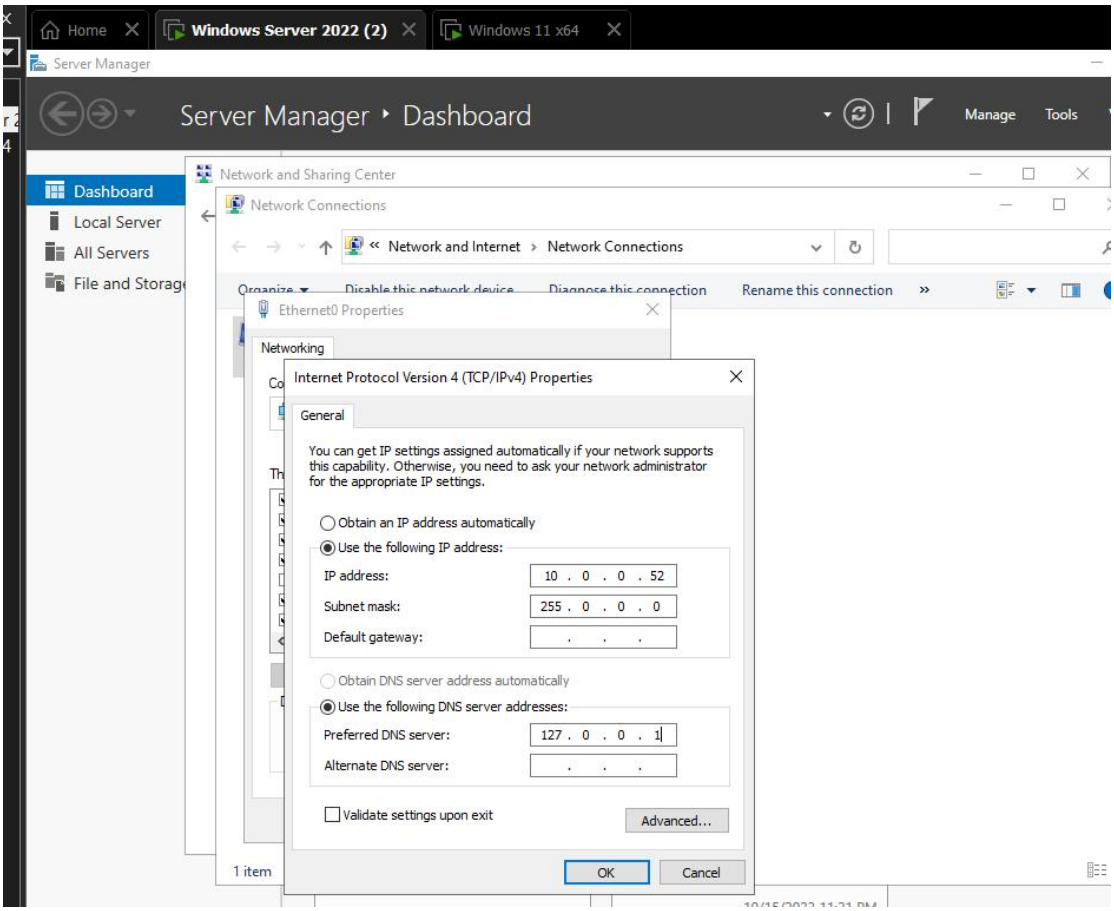



Network Connections
« Network and Internet › Network Connections
Organize
Disable this network device
Diagnose this connection
Rename this connection
Ethernet
Network 2
Intel(R) PRO/1000 MT Desktop Ad...
« Network and Internet › Network Connections
Search Network Connections
Rename this connection
Ethernet Properties
Networking
Connect using:
Intel(R) PRO/1000 MT Desktop Adapter
Configure...
This connection uses the following items:
Client for Microsoft Networks
File and Printer Sharing for Microsoft Networks
QoS Packet Scheduler
Internet Protocol Version 4 (TCP/IPv4)
Microsoft Network Adapter Multiplexor Protocol
Microsoft LLDP Protocol Driver
Internet Protocol Version 6 (TCP/IPv6)
Install...
Uninstall
Properties
Description
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
OK
Cancel
Select Command Prompt
6:20

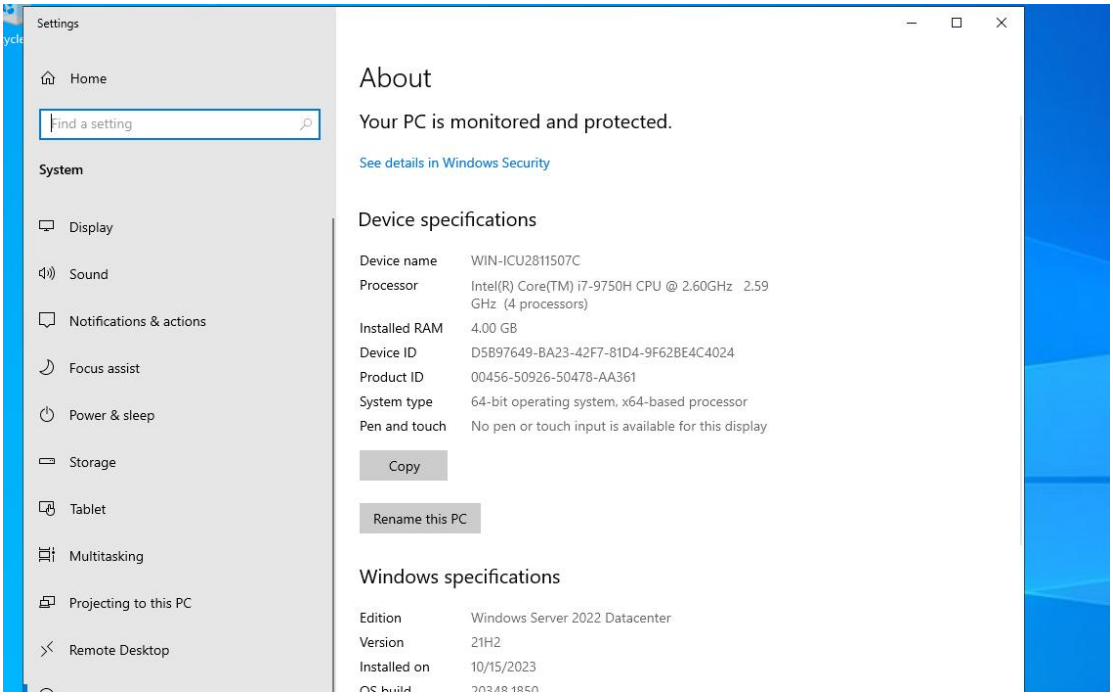

Rename this connection
Internet Protocol Version 4 (TCP/IPv4) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel

Step 2 :

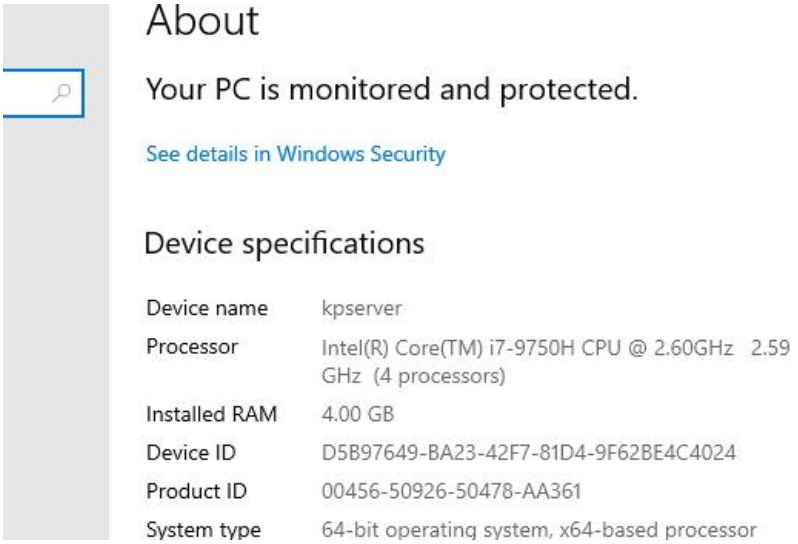
A.


Home
Windows Server 2022 (2)
Windows 11 x64
Server Manager
Server Manager • Dashboard
Manage
Tools
Dashboard
Local Server
All Servers
File and Storage
Network and Sharing Center
Network Connections
Network and Internet › Network Connections
Rename this connection
Ethernet0 Properties
Networking
Internet Protocol Version 4 (TCP/IPv4) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 10 . 0 . 0 . 52
Subnet mask: 255 . 0 . 0 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server: 127 . 0 . 0 . 1
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel
1 item

B.

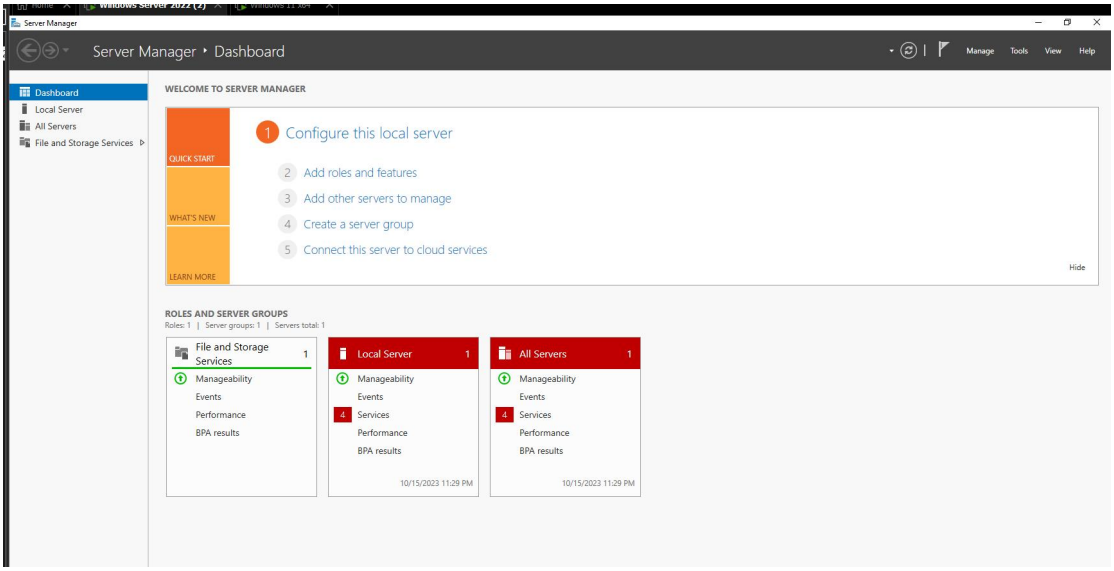

Settings
Home
Find a setting
System
Display
Sound
Notifications & actions
Focus assist
Power & sleep
Storage
Tablet
Multitasking
Projecting to this PC
Remote Desktop
About
Your PC is monitored and protected.
See details in Windows Security
Device specifications
Device name WIN-ICU2811507C
Processor Intel(R) Core(TM) i7-9750H CPU @ 2.60GHz 2.59 GHz (4 processors)
Installed RAM 4.00 GB
Device ID D5B97649-BA23-42F7-81D4-9F62BE4C4024
Product ID 00456-50926-50478-AA361
System type 64-bit operating system, x64-based processor
Pen and touch No pen or touch input is available for this display
Copy
Rename this PC
Windows specifications
Edition Windows Server 2022 Datacenter
Version 21H2
Installed on 10/15/2023

C.

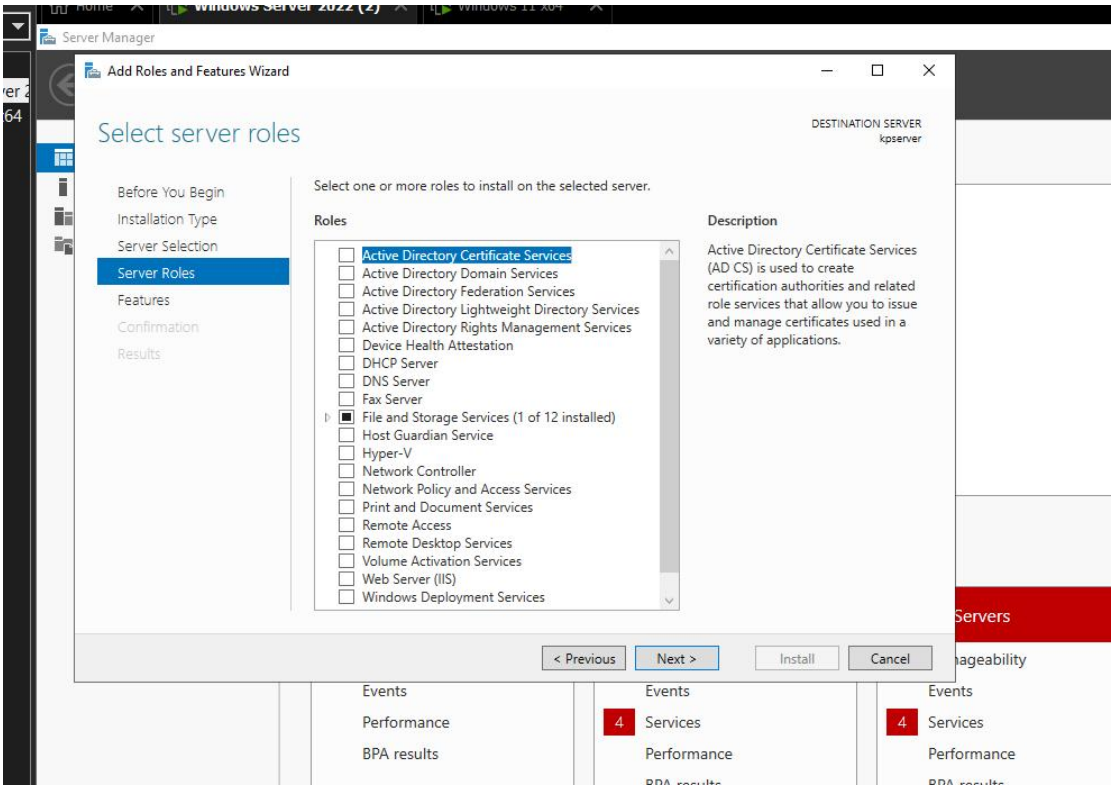

About
Your PC is monitored and protected.
See details in Windows Security
Device specifications
Device name kpserver
Processor Intel(R) Core(TM) i7-9750H CPU @ 2.60GHz 2.59 GHz (4 processors)
Installed RAM 4.00 GB
Device ID D5B97649-BA23-42F7-81D4-9F62BE4C4024
Product ID 00456-50926-50478-AA361
System type 64-bit operating system, x64-based processor

Step 3 :

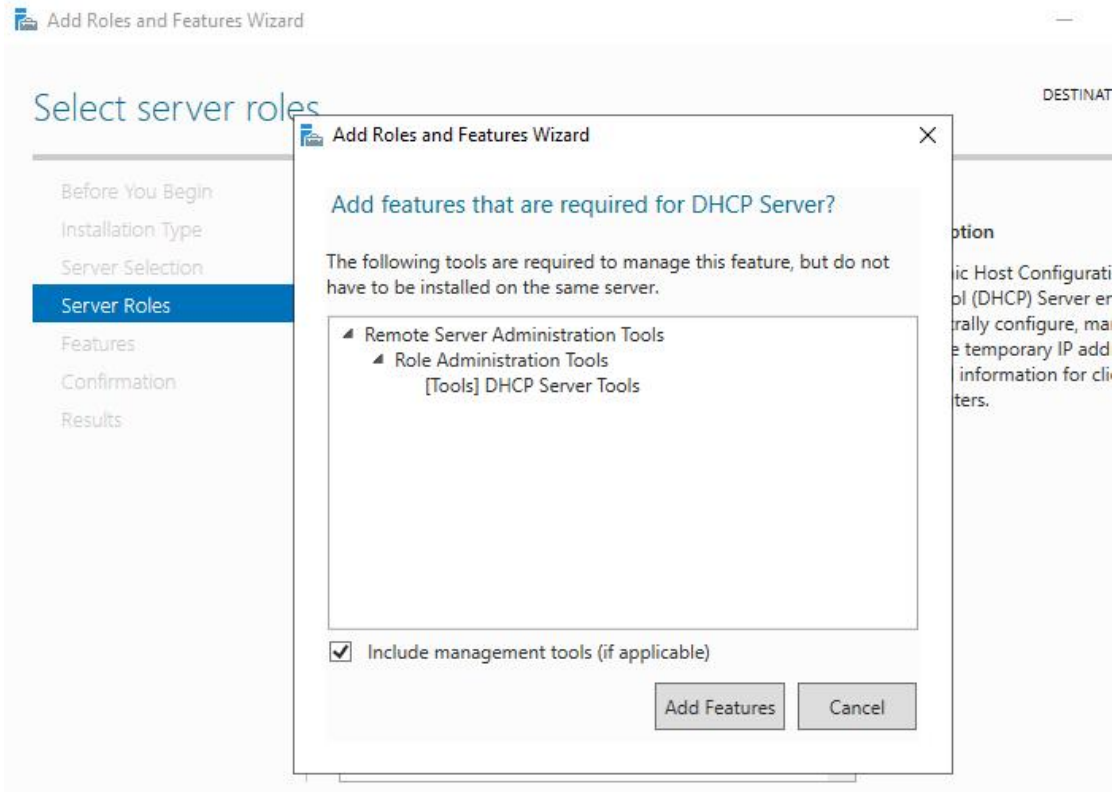
A.


Server Manager
Server Manager • Dashboard
Manage
Tools
View
Help
Dashboard
Local Server
All Servers
File and Storage Services
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
File and Storage Services
Manageability
Events
Performance
BPA results
Local Server
Manageability
Events
Services
Performance
BPA results
10/15/2023 11:29 PM
All Servers
Manageability
Events
Services
Performance
BPA results
10/15/2023 11:29 PM

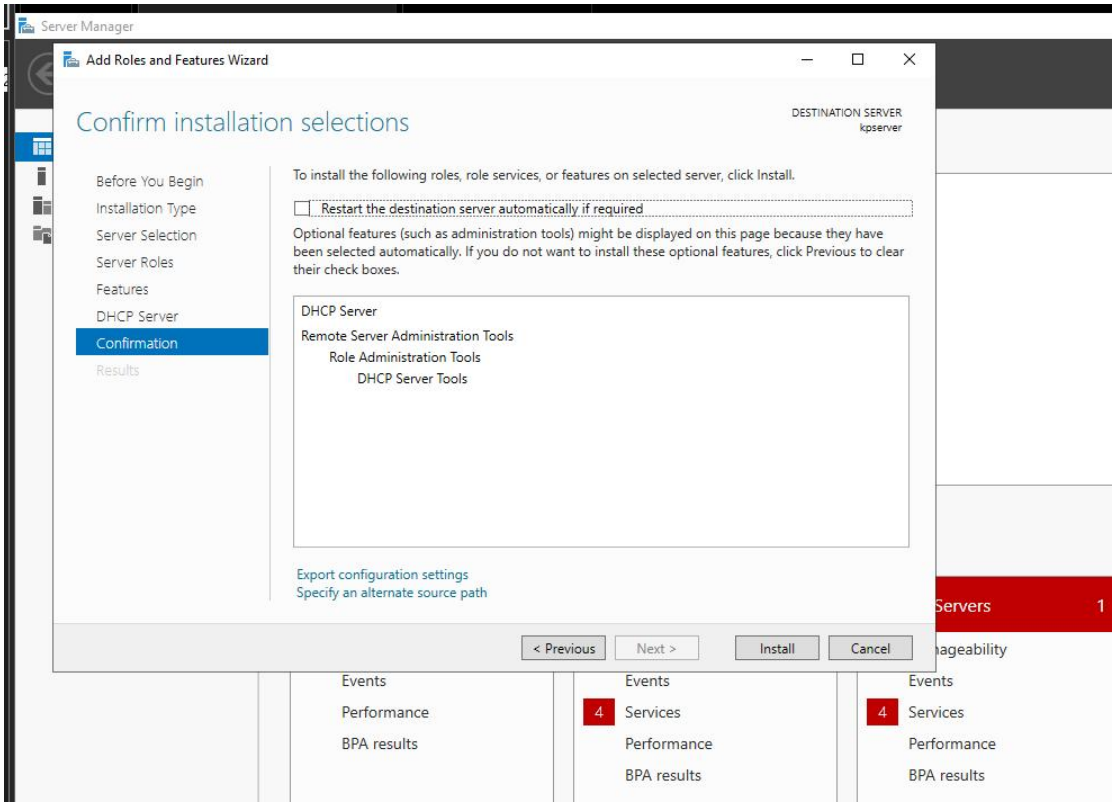
B.


Server Manager
Add Roles and Features Wizard
Select server roles
DESTINATION SERVER
kpserver
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 Certificate Services
Active Directory Domain Services
Active Directory Federation Services
Active Directory Lightweight Directory Services
Active Directory Rights Management Services
Device Health Attestation
DHCP Server
DNS Server
Fax Server
File and Storage Services (1 of 12 installed)
Host Guardian Service
Hyper-V
Network Controller
Network Policy and Access Services
Print and Document Services
Remote Access
Remote Desktop Services
Volume Activation Services
Web Server (IIS)
Windows Deployment Services
Description
Active Directory Certificate Services (AD CS) is used to create certification authorities and related role services that allow you to issue and manage certificates used in a variety of applications.
< Previous
Next >
Install
Cancel
Events
Performance
BPA results
Events
4 Services
Performance
Events
4 Services
Performance

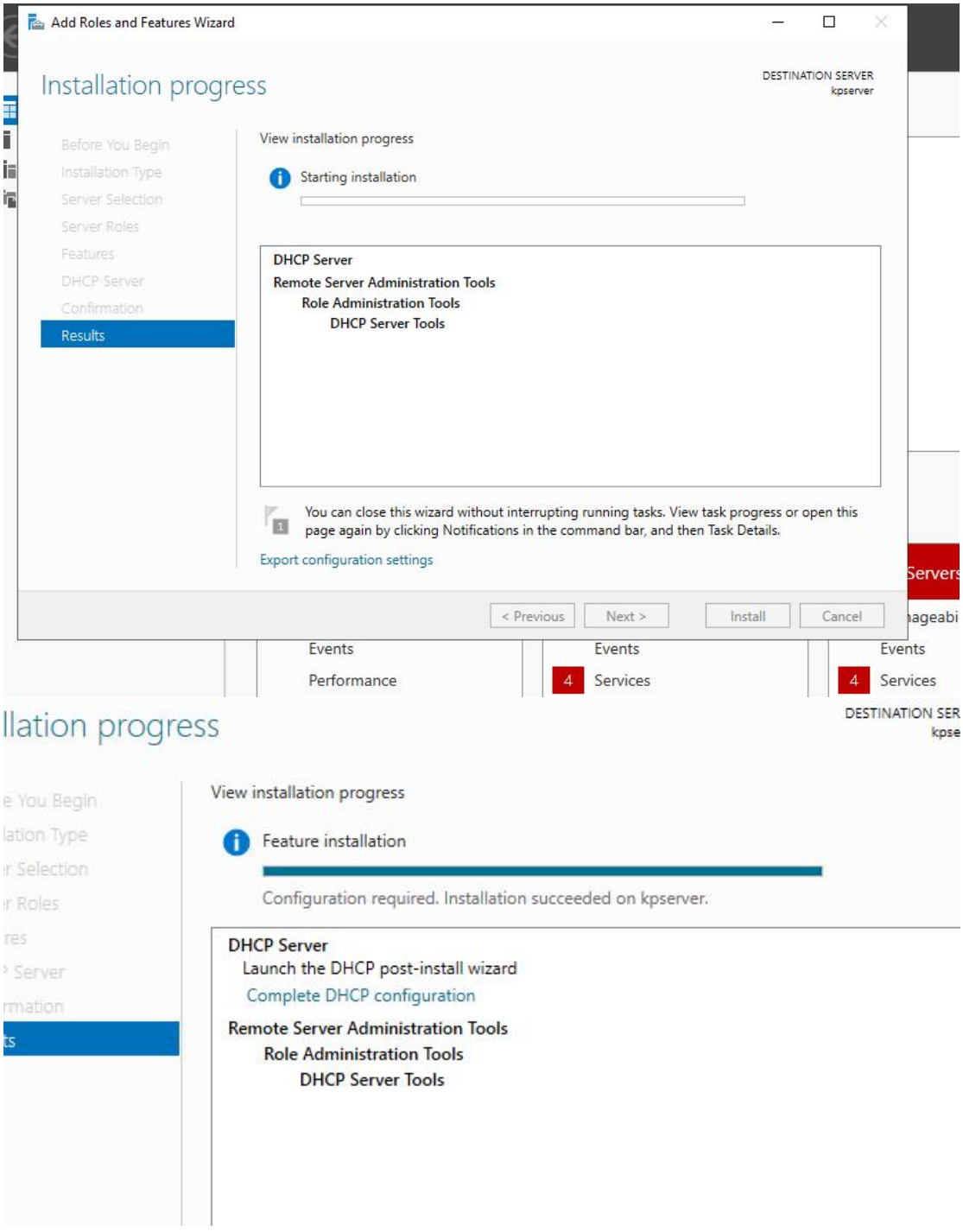
C


Add Roles and Features Wizard
Select server roles
DESTINAT
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
Add Roles and Features Wizard
Add features that are required for DHCP Server?
The following tools are required to manage this feature, but do not have to be installed on the same server.
Remote Server Administration Tools
Role Administration Tools
[Tools] DHCP Server Tools
Include management tools (if applicable)
Add Features
Cancel

D.

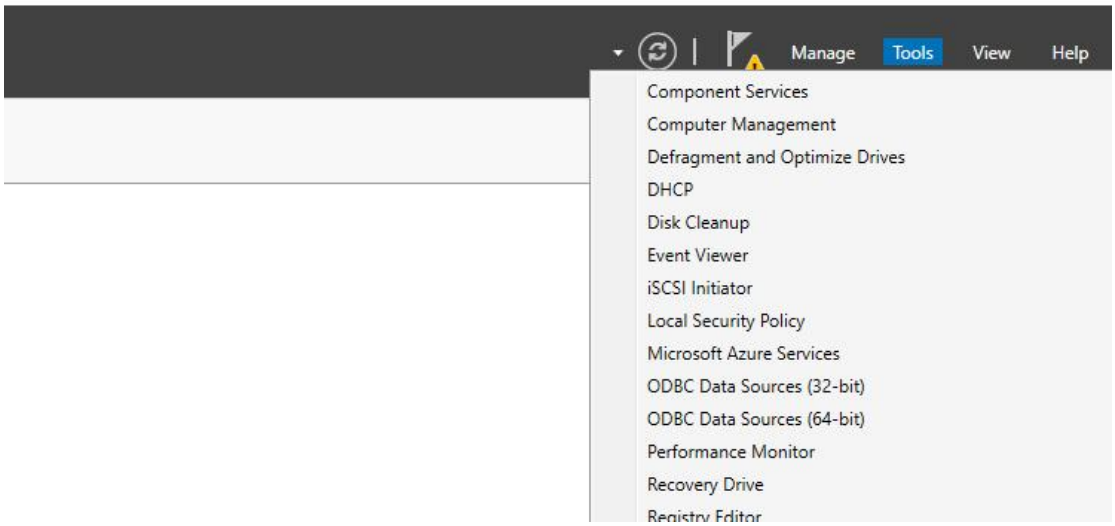

Server Manager
Add Roles and Features Wizard
Confirm installation selections
DESTINATION SERVER
kpserver
Before You Begin
Installation Type
Server Selection
Server Roles
Features
DHCP Server
Confirmation
Results
To install the following roles, role services, or features on selected server, click Install.
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.
DHCP Server
Remote Server Administration Tools
Role Administration Tools
DHCP Server Tools
Export configuration settings
Specify an alternate source path
< Previous
Next >
Install
Cancel
Servers
1
Events
Performance
BPA results
4
Services
Events
Performance
BPA results
4
Services
Events
Performance
BPA results

E.

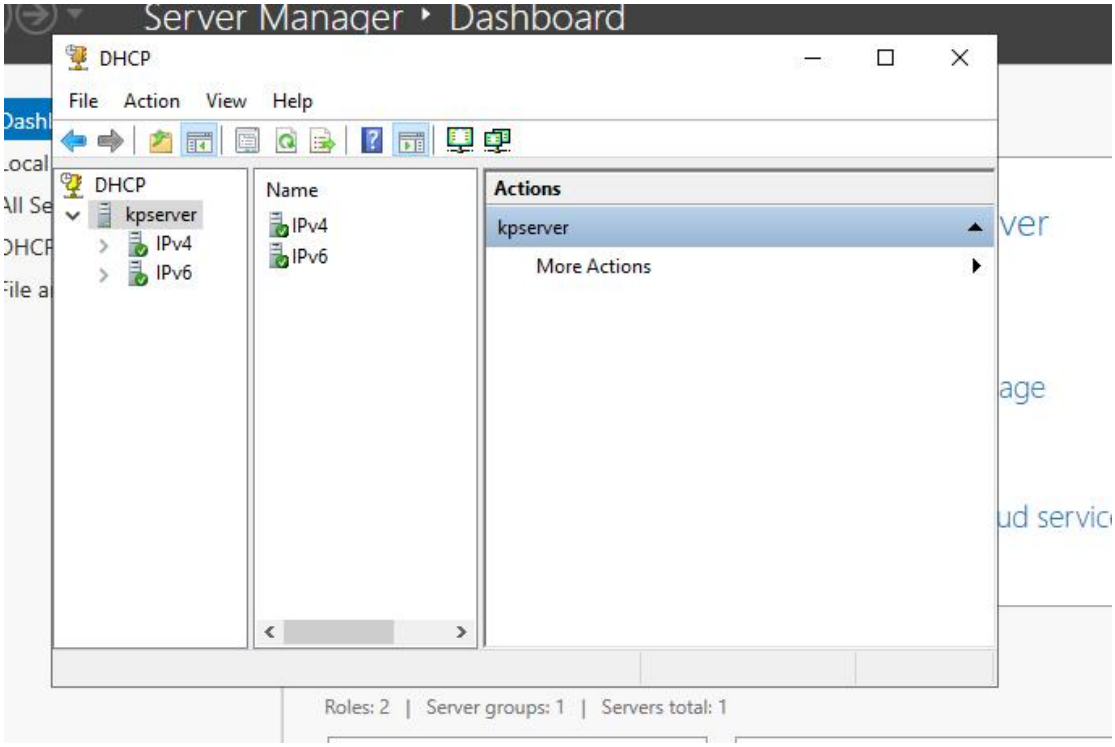

Add Roles and Features Wizard
Installation progress
DESTINATION SERVER
kpserver
Before You Begin
Installation Type
Server Selection
Server Roles
Features
DHCP Server
Confirmation
Results
View installation progress
Starting installation
DHCP Server
Remote Server Administration Tools
Role Administration Tools
DHCP Server Tools
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 >
Install
Cancel
Events
Performance
Events
4
Services
Events
4
Services
DESTINATION SER
kpse
View installation progress
Feature installation
Configuration required. Installation succeeded on kpserver.
DHCP Server
Launch the DHCP post-install wizard
Complete DHCP configuration
Remote Server Administration Tools
Role Administration Tools
DHCP Server Tools

Step 4 :

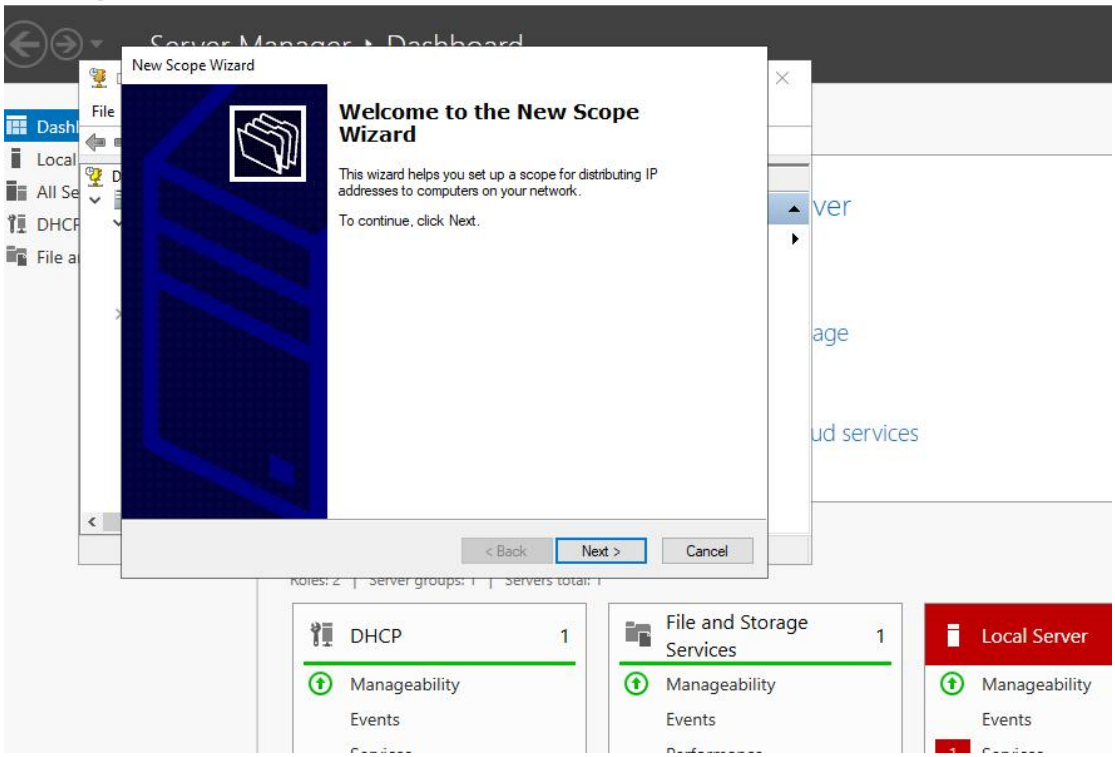
A.


Manage
Tools
View
Help
Component Services
Computer Management
Defragment and Optimize Drives
DHCP
Disk Cleanup
Event Viewer
iSCSI Initiator
Local Security Policy
Microsoft Azure Services
ODBC Data Sources (32-bit)
ODBC Data Sources (64-bit)
Performance Monitor
Recovery Drive
Registry Editor

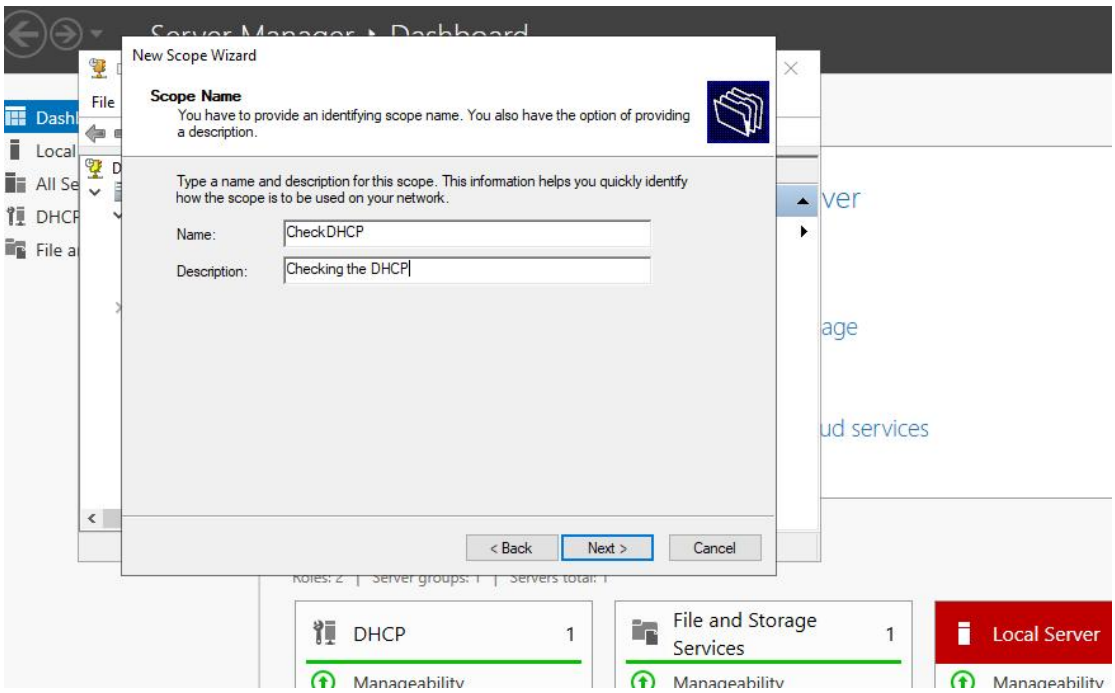
B.


Server Manager ‣ Dashboard
DHCP
File
Action
View
Help
DHCP
kpserver
IPv4
IPv6
Name
IPv4
IPv6
Actions
kpserver
More Actions
Roles: 2 | Server groups: 1 | Servers total: 1

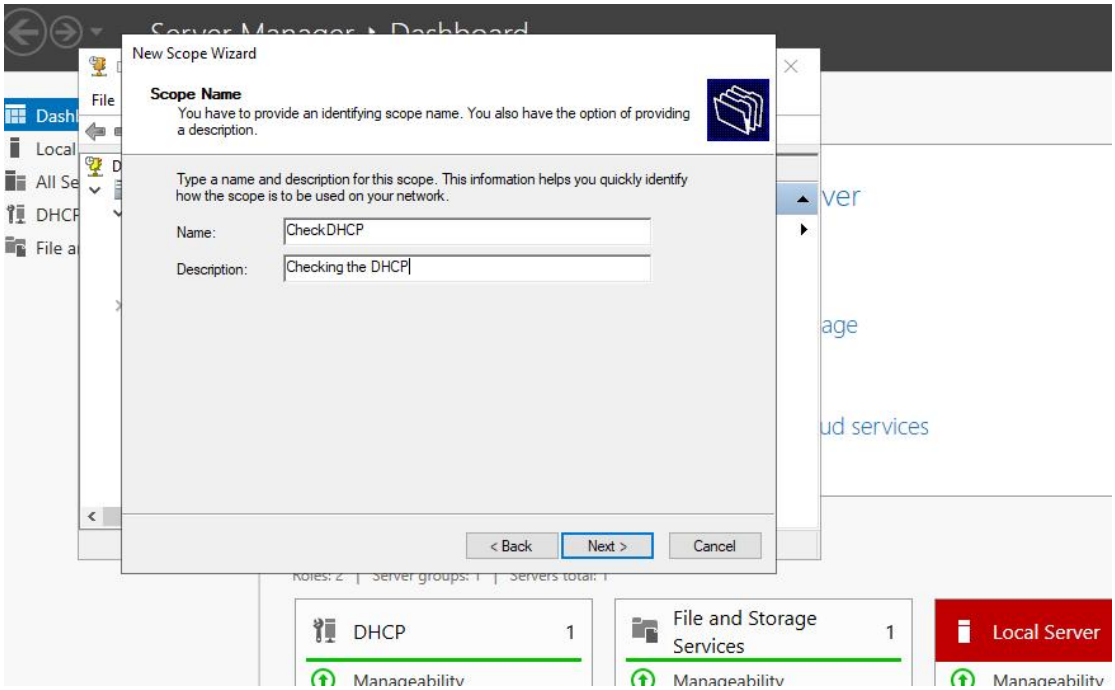
C.


New Scope Wizard
Welcome to the New Scope Wizard
This wizard helps you set up a scope for distributing IP addresses to computers on your network.
To continue, click Next.
< Back
Next >
Cancel
DHCP 1
Manageability
Events
File and Storage Services 1
Manageability
Events
Local Server
Manageability
Events

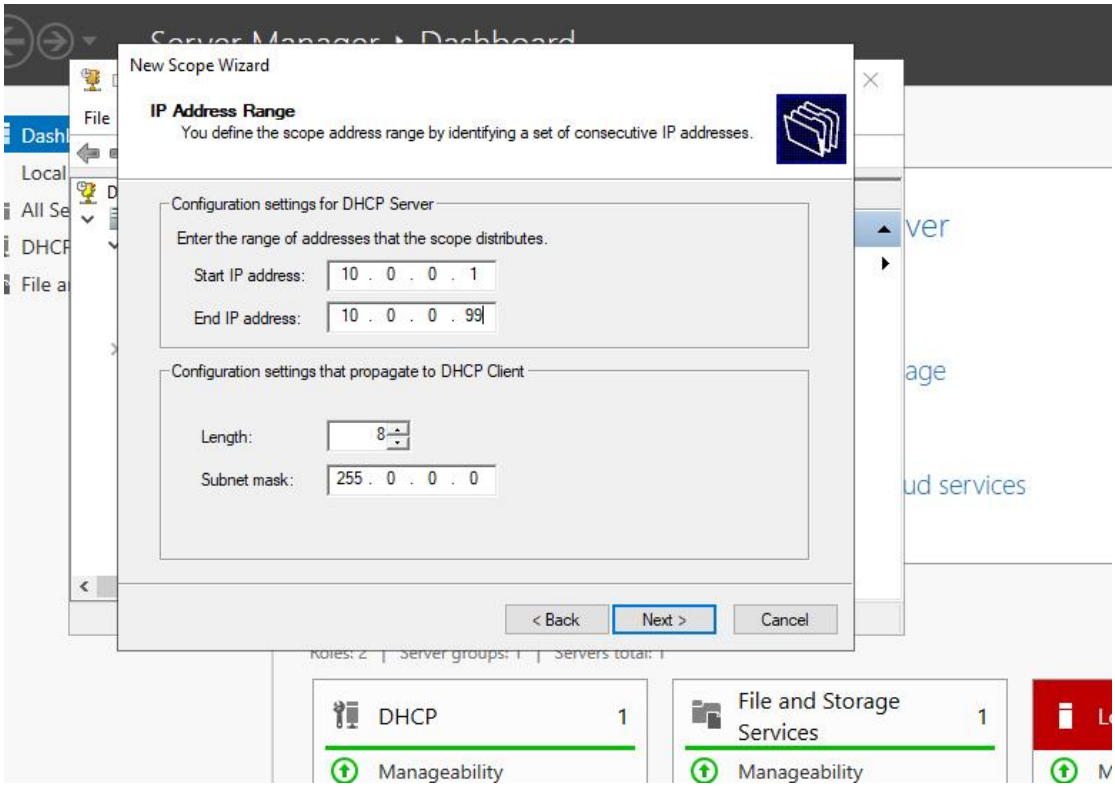
D.


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:
CheckDHCP
Description:
Checking the DHCP
< Back
Next >
Cancel
DHCP 1
File and Storage Services 1
Local Server

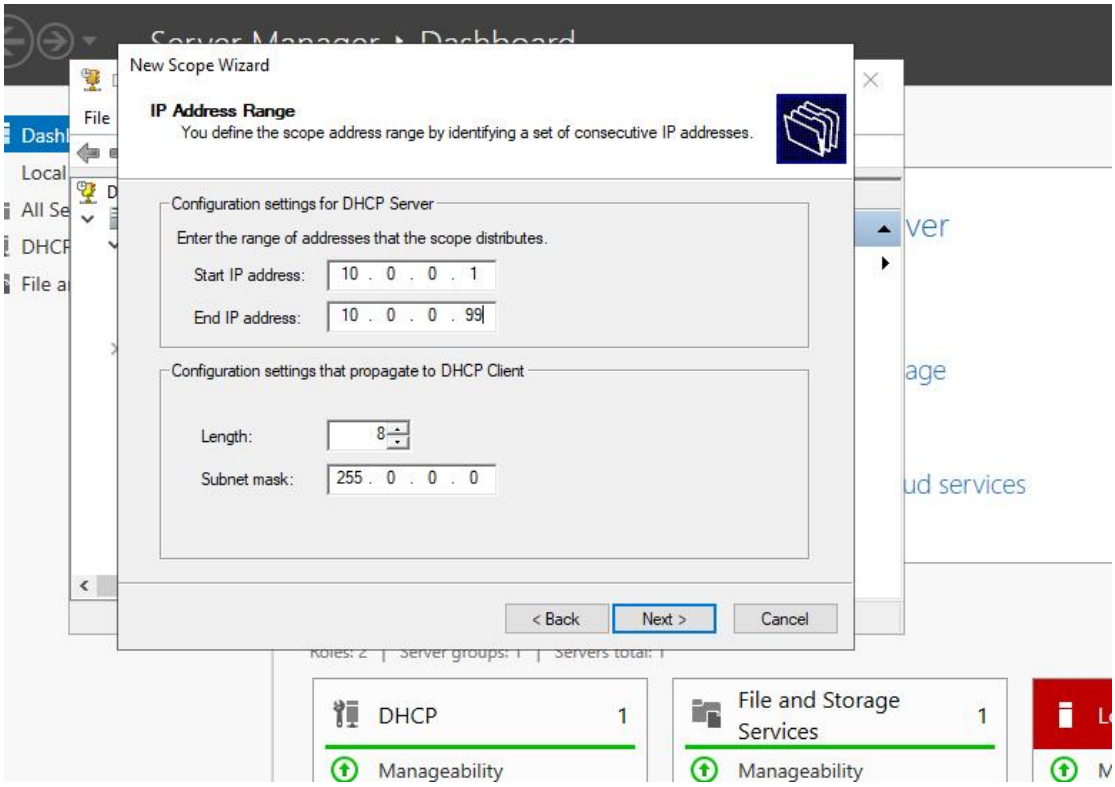
E.


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:
CheckDHCP
Description:
Checking the DHCP
< Back
Next >
Cancel
DHCP
1
File and Storage Services
1
Local Server
Manageability

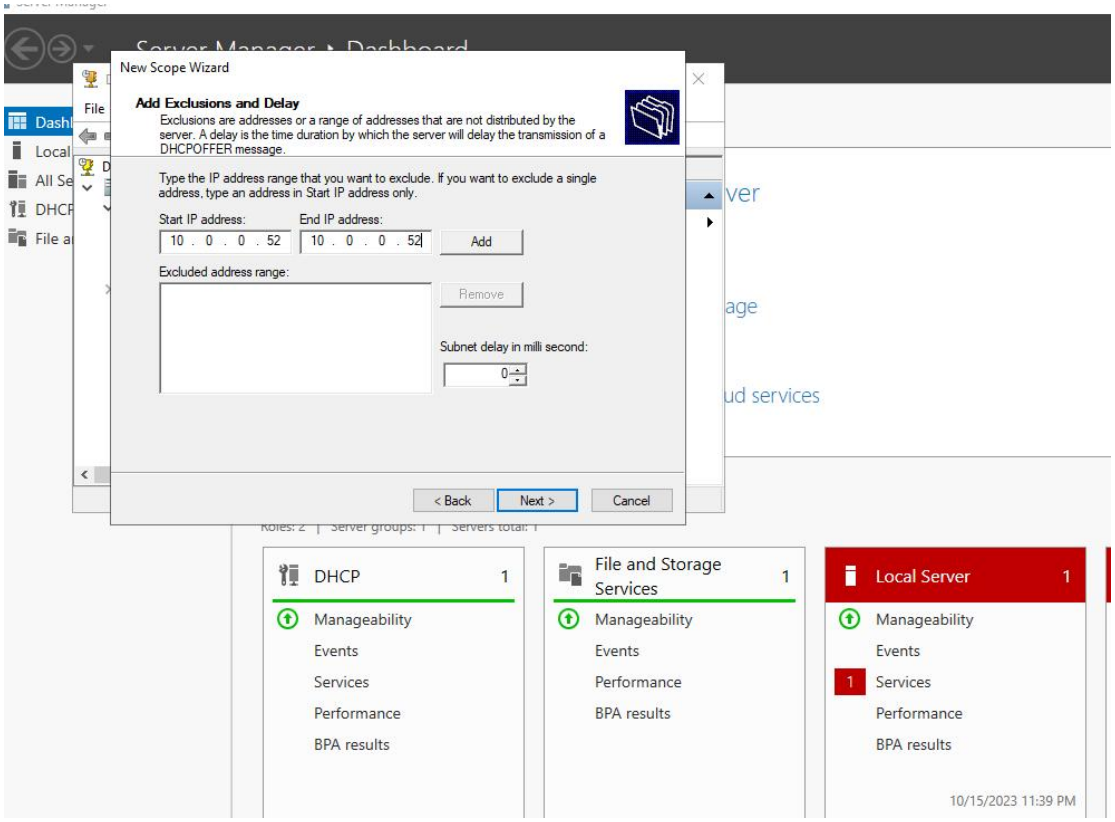
F.


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 . 99
Configuration settings that propagate to DHCP Client
Length:
8
Subnet mask:
255 . 0 . 0 . 0
< Back
Next >
Cancel
DHCP
1
File and Storage Services
1
Manageability
Manageability

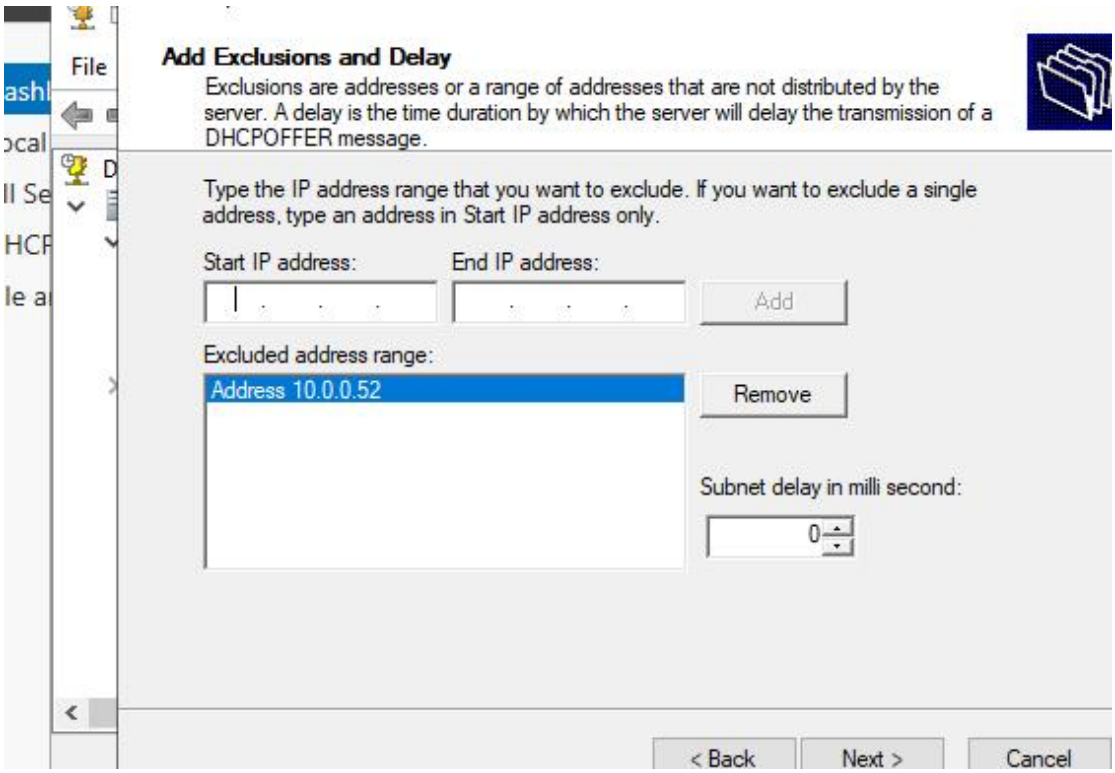
G.


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 . 99
Configuration settings that propagate to DHCP Client
Length: 8
Subnet mask: 255 . 0 . 0 . 0
< Back
Next >
Cancel
DHCP 1
Manageability
File and Storage Services 1
Manageability

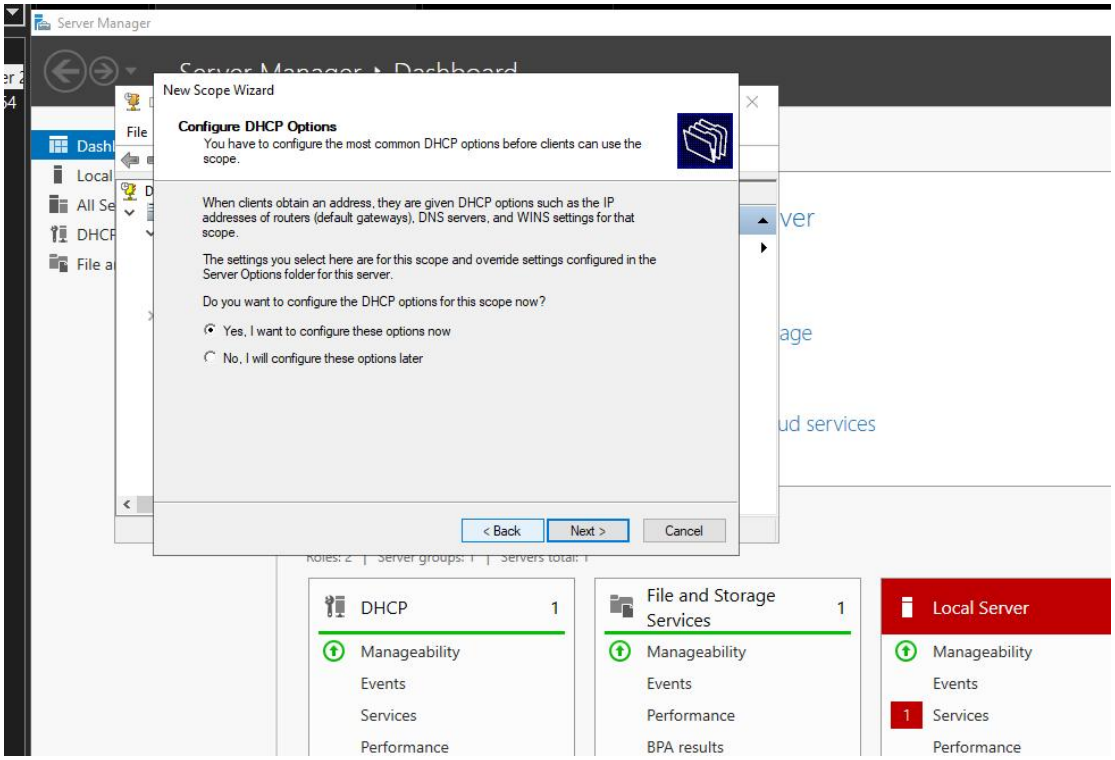
H.


New Scope Wizard
Add Exclusions and Delay
Exclusions are addresses or a range of addresses that are not distributed by the server. A delay is the time duration by which the server will delay the transmission of a DHCPOFFER message.
Type the IP address range that you want to exclude. If you want to exclude a single address, type an address in Start IP address only.
Start IP address: 10 . 0 . 0 . 52
End IP address: 10 . 0 . 0 . 52
Add
Excluded address range:
Remove
Subnet delay in milli second: 0
< Back
Next >
Cancel
DHCP 1
Manageability
Events
Services
Performance
BPA results
File and Storage Services 1
Manageability
Events
Performance
BPA results
Local Server 1
Manageability
Events
1 Services
Performance
BPA results
10/15/2023 11:39 PM

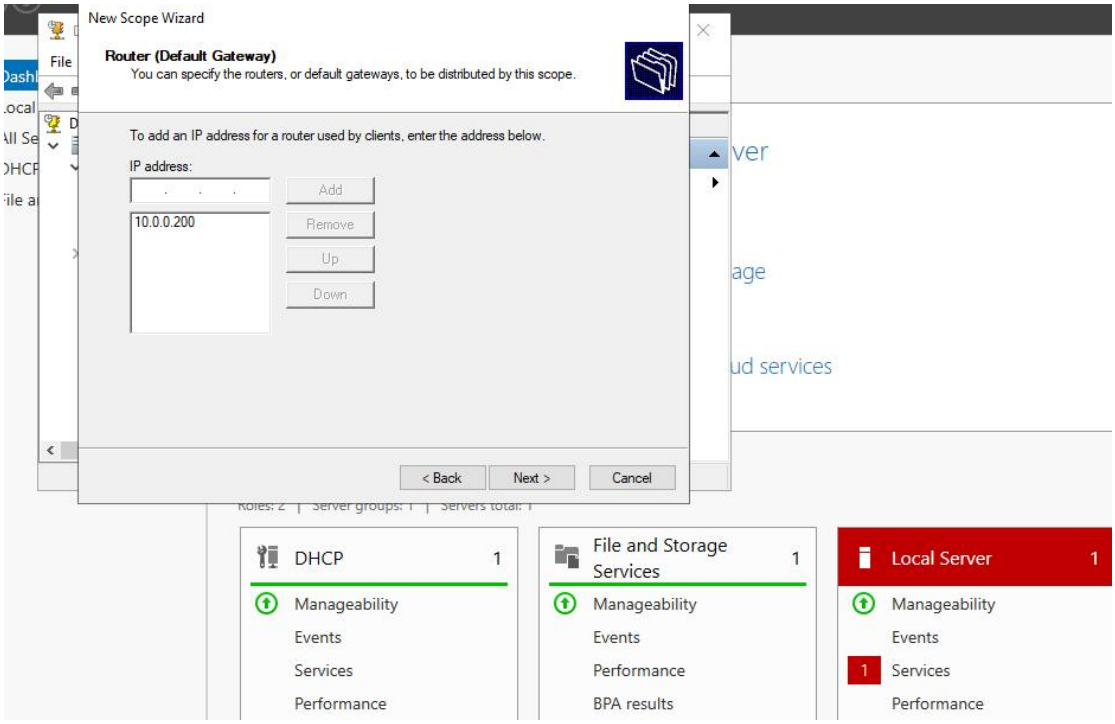
I.


Add Exclusions and Delay
Exclusions are addresses or a range of addresses that are not distributed by the server. A delay is the time duration by which the server will delay the transmission of a DHCPOFFER message.
Type the IP address range that you want to exclude. If you want to exclude a single address, type an address in Start IP address only.
Start IP address:
End IP address:
Add
Excluded address range:
Address 10.0.0.52
Remove
Subnet delay in milli second:
0
< Back
Next >
Cancel

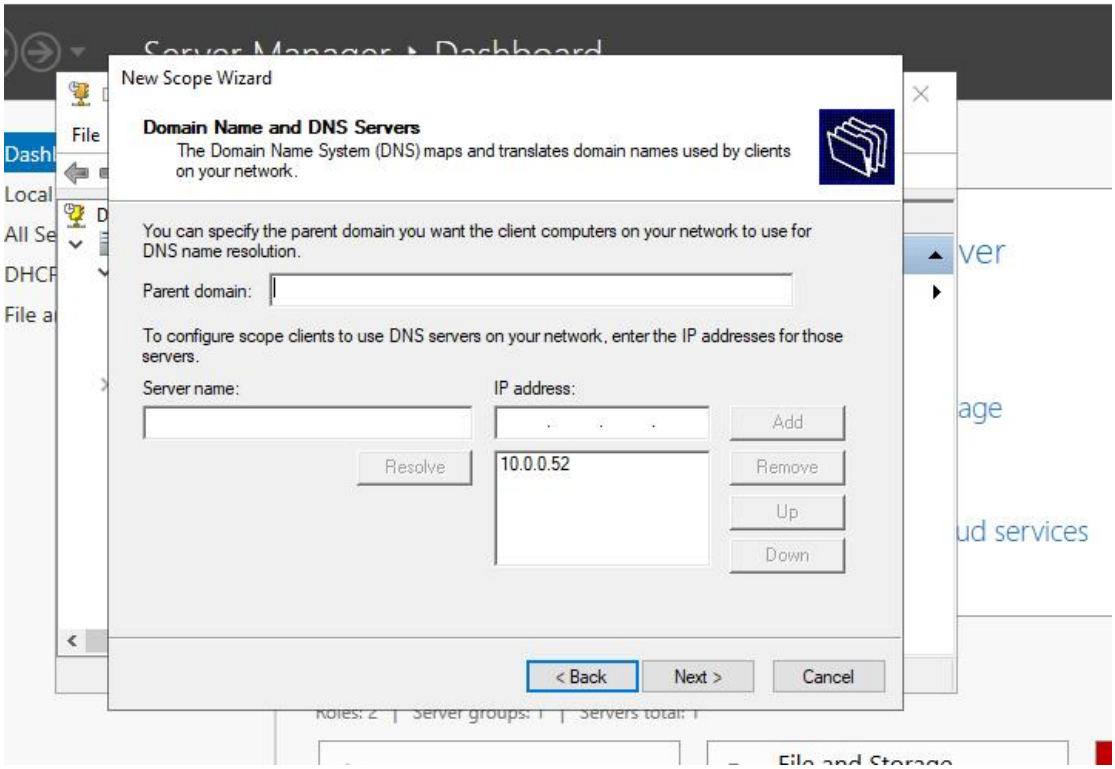
J.


Server Manager
New Scope Wizard
Configure DHCP Options
You have to configure the most common DHCP options before clients can use the scope.
When clients obtain an address, they are given DHCP options such as the IP addresses of routers (default gateways), DNS servers, and WINS settings for that scope.
The settings you select here are for this scope and override settings configured in the Server Options folder for this server.
Do you want to configure the DHCP options for this scope now?
Yes, I want to configure these options now
No, I will configure these options later
< Back
Next >
Cancel
DHCP 1
Manageability
Events
Services
Performance
File and Storage Services 1
Manageability
Events
Performance
BPA results
Local Server
Manageability
Events
Services
Performance

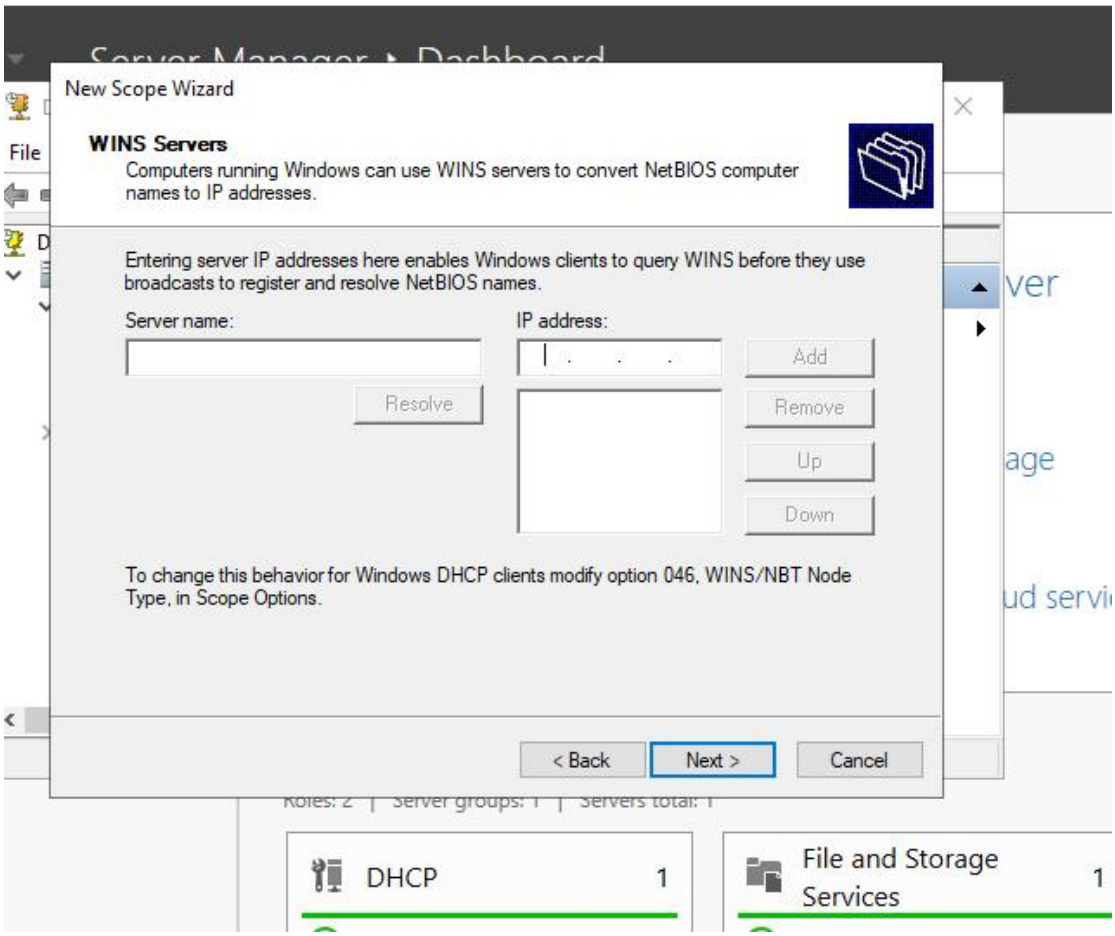
K.


New Scope Wizard
Router (Default Gateway)
You can specify the routers, or default gateways, to be distributed by this scope.
To add an IP address for a router used by clients, enter the address below.
IP address:
10.0.0.200
Add
Remove
Up
Down
< Back
Next >
Cancel
DHCP 1
Manageability
Events
Services
Performance
File and Storage Services 1
Manageability
Events
Performance
BPA results
Local Server 1
Manageability
Events
Services
Performance

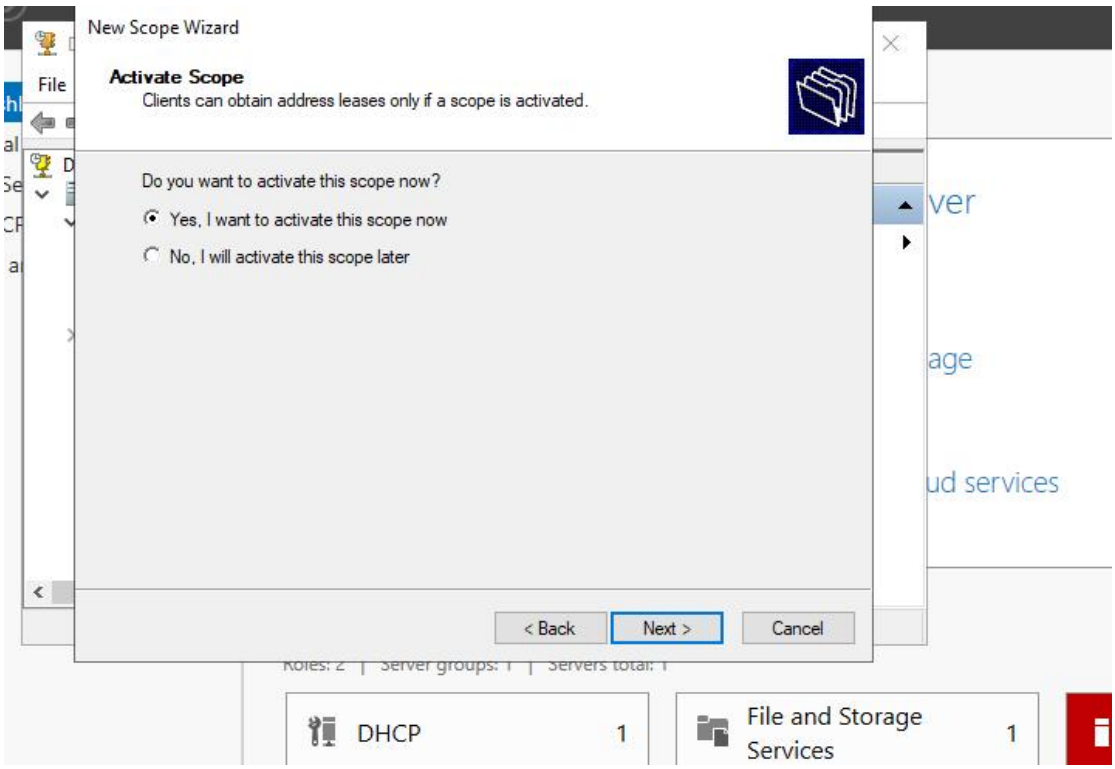
L.

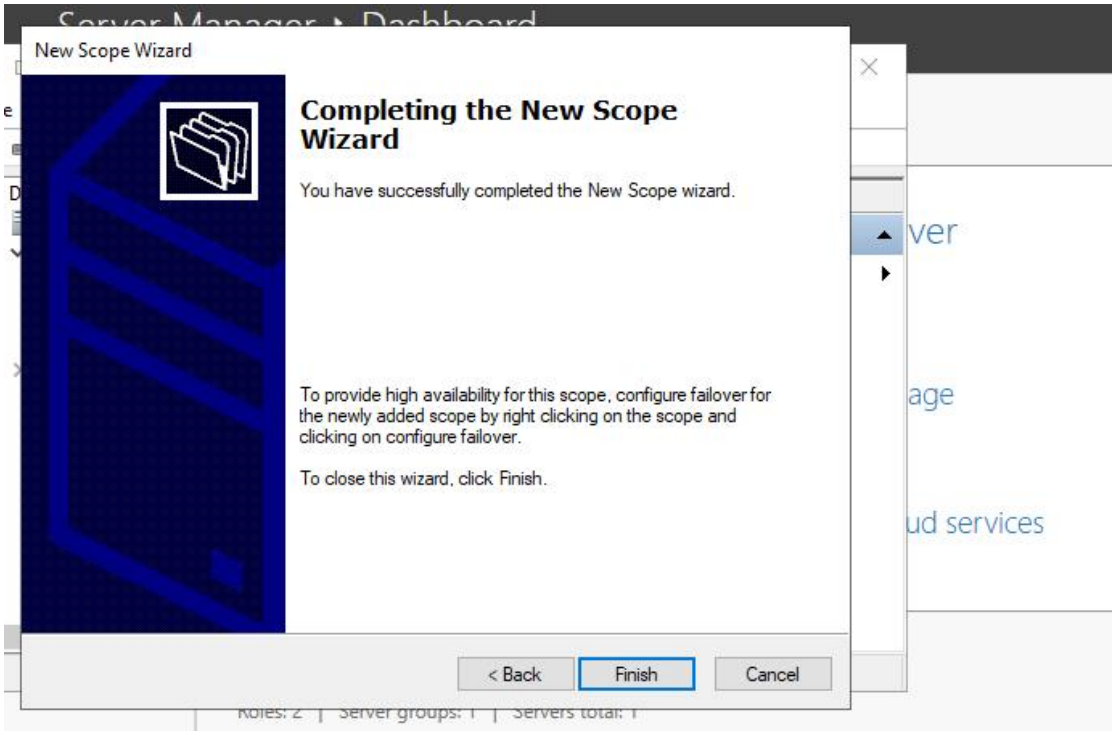

New Scope Wizard
Domain Name and DNS Servers
The Domain Name System (DNS) maps and translates domain names used by clients on your network.
You can specify the parent domain you want the client computers on your network to use for DNS name resolution.
Parent domain:
To configure scope clients to use DNS servers on your network, enter the IP addresses for those servers.
Server name:
IP address:
Resolve
10.0.0.52
Add
Remove
Up
Down
< Back
Next >
Cancel

M.

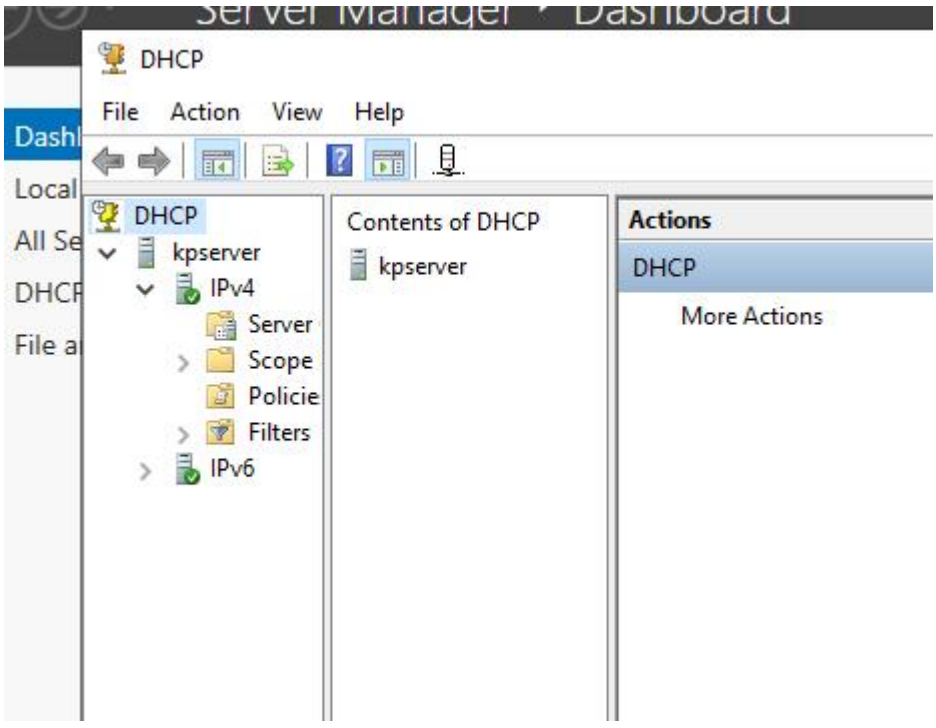

New Scope Wizard
WINS Servers
Computers running Windows can use WINS servers to convert NetBIOS computer names to IP addresses.
Entering server IP addresses here enables Windows clients to query WINS before they use broadcasts to register and resolve NetBIOS names.
Server name:
IP address:
Resolve
Add
Remove
Up
Down
To change this behavior for Windows DHCP clients modify option 046, WINS/NBT Node Type, in Scope Options.
< Back
Next >
Cancel
DHCP
1
File and Storage Services
1

N.


New Scope Wizard
Activate Scope
Clients can obtain address leases only if a scope is activated.
Do you want to activate this scope now?
Yes, I want to activate this scope now
No, I will activate this scope later
< Back
Next >
Cancel
DHCP
1
File and Storage Services
1

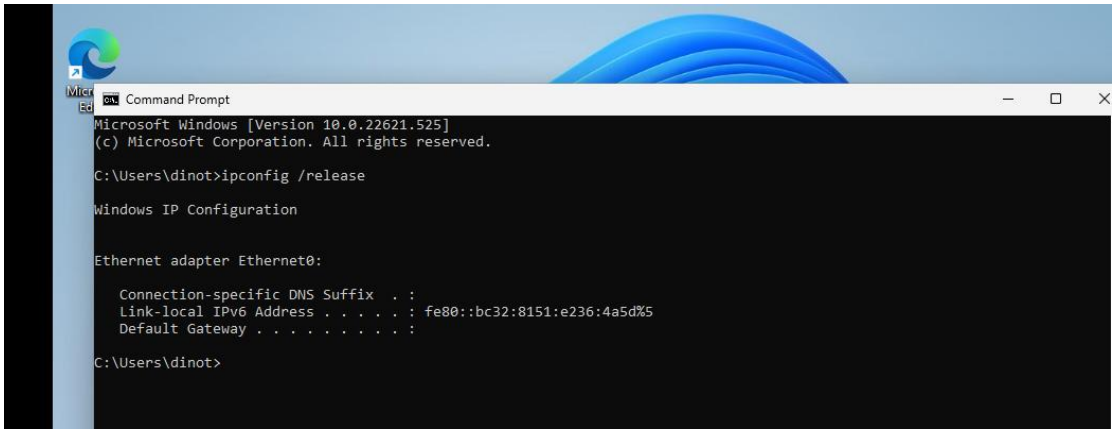

New Scope Wizard
Completing the New Scope Wizard
You have successfully completed the New Scope wizard.
To provide high availability for this scope, configure failover for the newly added scope by right clicking on the scope and clicking on configure failover.
To close this wizard, click Finish.
< Back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

O.

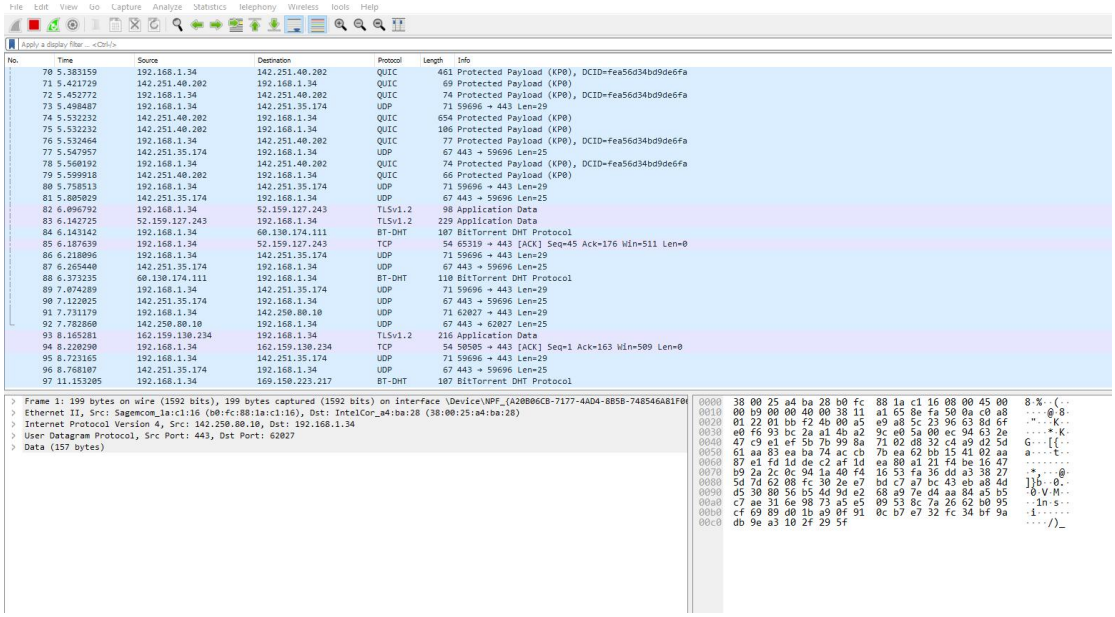

DHCP
File Action View Help
DHCP
kpserver
IPv4
Server
Scope
Policie
Filters
IPv6
Contents of DHCP
kpserver
Actions
DHCP
More Actions

Step 5 :

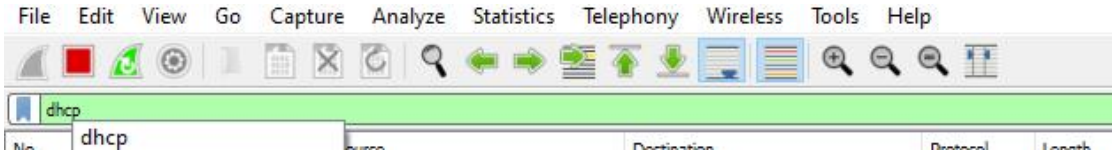
A.


Command Prompt
Microsoft Windows [Version 10.0.22621.525]
(c) Microsoft Corporation. All rights reserved.
C:\Users\dinot>ipconfig /release
Windows IP Configuration
Ethernet adapter Ethernet0:
Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . . : fe80::bc32:8151:e236:4a5d%5
Default Gateway . . . . . :
C:\Users\dinot>

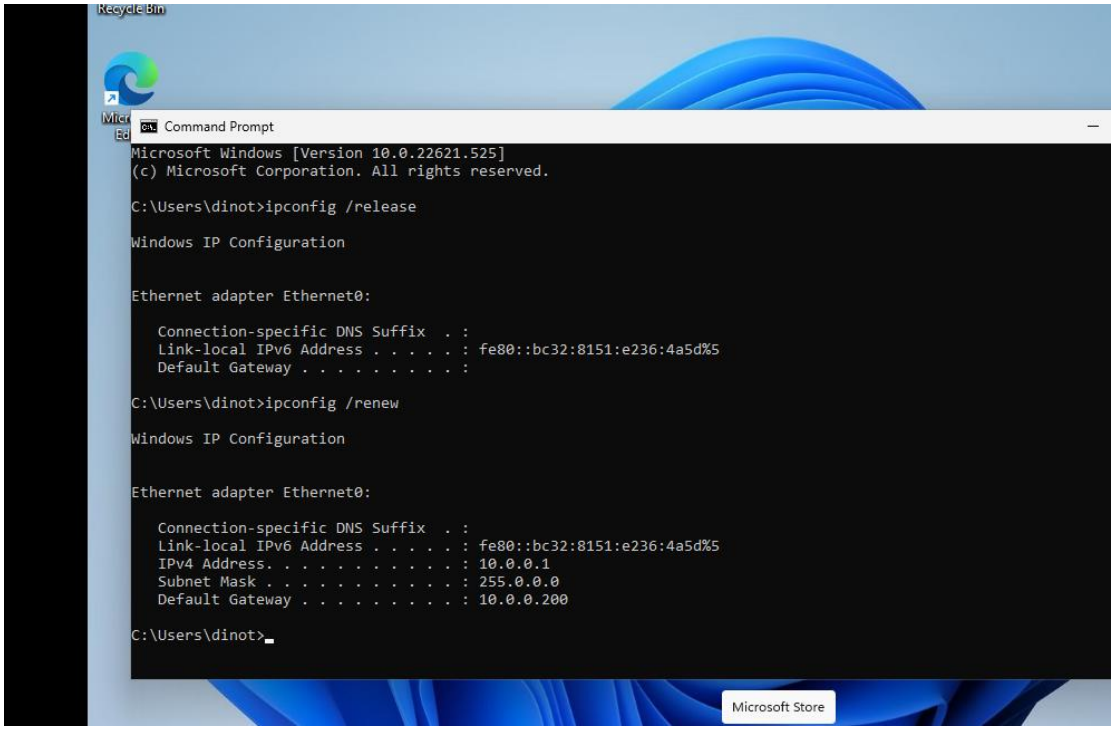
B.



C.


File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
dhcp
dhcp

D.


Recycle Bin
Command Prompt
Microsoft Windows [Version 10.0.22621.525]
(c) Microsoft Corporation. All rights reserved.
C:\Users\dinot>ipconfig /release
Windows IP Configuration
Ethernet adapter Ethernet0:
Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . . : fe80::bc32:8151:e236:4a5d%5
Default Gateway . . . . . :
C:\Users\dinot>ipconfig /renew
Windows IP Configuration
Ethernet adapter Ethernet0:
Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . . : fe80::bc32:8151:e236:4a5d%5
IPv4 Address. . . . . : 10.0.0.1
Subnet Mask . . . . . : 255.0.0.0
Default Gateway . . . . . : 10.0.0.200
C:\Users\dinot>
Microsoft Store