Konfiguracja serwera DHCP

Zad 1

Podstawowa konfiguracja

```
root@SRV1:~# apt install isc-dhcp-server
Czytanie list pakietów... Gotowe
Budowanie drzewa zależności... Gotowe
Odczyt informacji o stanie... Gotowe
The following additional packages will be installed:
  policycoreutils selinux-utils
Sugerowane pakiety:
  policykit-1 isc-dhcp-server-ldap ieee-data
Zostaną zainstalowane następujące NOWE pakiety:
  isc-dhcp-server policycoreutils selinux-utils
0 aktualizowanych, 3 nowo instalowanych, 0 usuwanych i 99 nieaktualizowanych.
Konieczne pobranie 1 766 kB archiwów.
Po tej operacji zostanie dodatkowo użyte 7 818 kB miejsca na dysku.
Kontynuować? [T/n]
```

Modyfikujemy poniższy plik:

```
/etc/dhcp/dhcpd.conf    [-M--] 20 L:[  1+10  11/108] *(259 /3499b) 0
# dhcpd.conf
#
# Sample configuration file for ISC dhcpd
#

# option definitions common to all supported networks...
option domain-name "example.org";
option domain-name-servers ns1.example.org, ns2.example.org;

default-lease-time 43200;
max-lease-time 43200;
```

```
/etc/dhcp/dhcpd.conf    [-M--] 40 L:[ 28+10  38/110
# DHCP server to understand the network topology.

#subnet 10.152.187.0 netmask 255.255.255.0 {
#}

# This is a very basic subnet declaration.

subnet 172.16.1.0 netmask 255.255.255.0 {
  range 172.16.1.2 172.16.1.10;
  option domain-name "contoso.com";
  option domain-name-servers 172.168.1.1;
  option routers 172.16.1.1;
}
```

Dodatkowo:


```
/etc/default/isc-dhcp-server    [-M--] 20 L:[  1+16  17/ 19] *(613 / 631b) 0034 0x022
# Defaults for isc-dhcp-server (sourced by /etc/init.d/isc-dhcp-server)

# Path to dhcpd's config file (default: /etc/dhcp/dhcpd.conf).
#DHCPDv4_CONF=/etc/dhcp/dhcpd.conf
#DHCPDv6_CONF=/etc/dhcp/dhcpd6.conf

# Path to dhcpd's PID file (default: /var/run/dhcpd.pid).
#DHCPDv4_PID=/var/run/dhcpd.pid
#DHCPDv6_PID=/var/run/dhcpd6.pid

# Additional options to start dhcpd with.
#<----->Don't use options -cf or -pf here; use DHCPD_CONF/ DHCPD_PID instead
#OPTIONS=""

# On what interfaces should the DHCP server (dhcpd) serve DHCP requests?
#<----->Separate multiple interfaces with spaces, e.g. "eth0 eth1".
INTERFACESv4="enp0s8"
INTERFACESv6=""
```
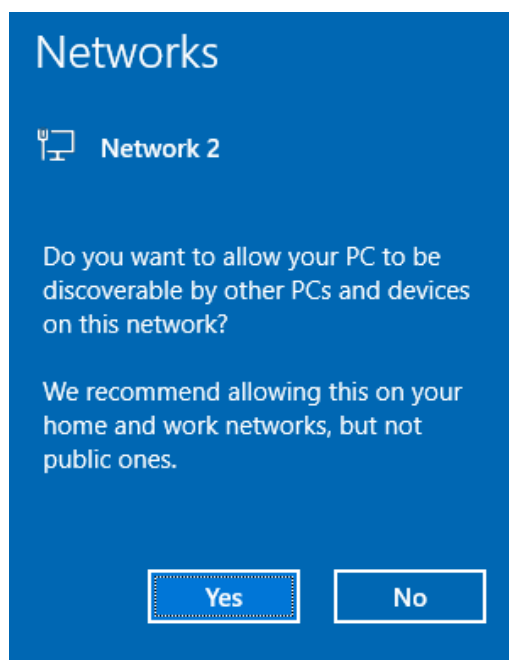
Sprawdzamy status:


```
root@SRV1:~# systemctl restart isc-dhcp-server.service
root@SRV1:~# systemctl status isc-dhcp-server.service
● isc-dhcp-server.service - LSB: DHCP server
     Loaded: loaded (/etc/init.d/isc-dhcp-server; generated)
     Active: active (running) since Mon 2024-12-09 23:20:13 CET; 26s ago
       Docs: man:systemd-sysv-generator(8)
    Process: 1029 ExecStart=/etc/init.d/isc-dhcp-server start (code=exited, status=0/SUCCESS)
      Tasks: 1 (limit: 3008)
     Memory: 4.4M
        CPU: 115ms
     CGroup: /system.slice/isc-dhcp-server.service
             └─1041 /usr/sbin/dhcpd -4 -q -cf /etc/dhcp/dhcpd.conf enp0s8

gru 09 23:20:11 SRV1 systemd[1]: Starting isc-dhcp-server.service - LSB: DHCP server...
gru 09 23:20:11 SRV1 isc-dhcp-server[1029]: Launching IPv4 server only.
gru 09 23:20:11 SRV1 dhcpd[1041]: Wrote 0 leases to leases file.
gru 09 23:20:11 SRV1 dhcpd[1041]: Server starting service.
gru 09 23:20:13 SRV1 isc-dhcp-server[1029]: Starting ISC DHCPv4 server: dhcpd.
gru 09 23:20:13 SRV1 systemd[1]: Started isc-dhcp-server.service - LSB: DHCP server.
root@SRV1:~# _
```

Sprawdzenie przypisanego adresu na Windowsie:

Networks

Network 2

Do you want to allow your PC to be discoverable by other PCs and devices on this network?

We recommend allowing this on your home and work networks, but not public ones.

Yes   No

```
Microsoft Windows [Version 10.0.19043.928]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\system32>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : contoso.com
   Link-local IPv6 Address . . . . . : fe80::4c88:ab69:ce8d:af25%6
   IPv4 Address. . . . . . . . . . . : 172.16.1.3
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 172.16.1.1

C:\Windows\system32>_
```

Sprawdzenie na Ubuntu:


```
user@user-VirtualBox:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group defau
lt qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP g
roup default qlen 1000
    link/ether 08:00:27:d5:0c:87 brd ff:ff:ff:ff:ff:ff
    inet 172.16.1.4/24 brd 172.16.1.255 scope global dynamic noprefixroute enp0
s3
       valid_lft 43114sec preferred_lft 43114sec
    inet6 fe80::995c:3333:95d0:ffb1/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
user@user-VirtualBox:~$
```

Sprawdzanie na serwerze DHCP:


```
root@SRV1:~# systemctl status isc-dhcp-server.service
● isc-dhcp-server.service - LSB: DHCP server
     Loaded: loaded (/etc/init.d/isc-dhcp-server; generated)
     Active: active (running) since Tue 2024-12-10 17:19:03 CET; 33min ago
       Docs: man:systemd-sysv-generator(8)
    Process: 550 ExecStart=/etc/init.d/isc-dhcp-server start (code=exited, status=0/SUCCESS)
      Tasks: 1 (limit: 3008)
     Memory: 6.8M
        CPU: 376ms
     CGroup: /system.slice/isc-dhcp-server.service
             └─565 /usr/sbin/dhcpd -4 -q -cf /etc/dhcp/dhcpd.conf enp0s8

gru 10 17:19:21 SRV1 dhcpd[565]: DHCPACK on 172.16.1.2 to 08:00:27:71:36:e8 (Nowak) via enp0s8
gru 10 17:41:12 SRV1 dhcpd[565]: DHCPDISCOVER from 08:00:27:44:85:4a via enp0s8
gru 10 17:41:14 SRV1 dhcpd[565]: DHCPOFFER on 172.16.1.3 to 08:00:27:44:85:4a (Nowak) via enp0s8
gru 10 17:41:14 SRV1 dhcpd[565]: DHCPREQUEST for 172.16.1.3 (172.16.1.1) from 08:00:27:44:85:4a (No>
gru 10 17:41:14 SRV1 dhcpd[565]: DHCPACK on 172.16.1.3 to 08:00:27:44:85:4a (Nowak) via enp0s8
gru 10 17:49:24 SRV1 dhcpd[565]: DHCPREQUEST for 10.0.2.15 from 08:00:27:d5:0c:87 via enp0s8: ignor>
gru 10 17:49:26 SRV1 dhcpd[565]: DHCPDISCOVER from 08:00:27:d5:0c:87 via enp0s8
gru 10 17:49:28 SRV1 dhcpd[565]: DHCPOFFER on 172.16.1.4 to 08:00:27:d5:0c:87 (user-VirtualBox) via>
gru 10 17:49:28 SRV1 dhcpd[565]: DHCPREQUEST for 172.16.1.4 (172.16.1.1) from 08:00:27:d5:0c:87 (us>
gru 10 17:49:28 SRV1 dhcpd[565]: DHCPACK on 172.16.1.4 to 08:00:27:d5:0c:87 (user-VirtualBox) via e>
lines 1-21/21 (END)
```

- cat /var/lib/dhcp/dhcpd.leases:

```
lease 172.16.1.3 {
  starts 2 2024/12/10 16:41:14;
  ends 3 2024/12/11 04:41:14;
  cltt 2 2024/12/10 16:41:14;
  binding state active;
  next binding state free;
  rewind binding state free;
  hardware ethernet 08:00:27:44:85:4a;
  uid "\001\010\000'D\205J";
  set vendor-class-identifier = "MSFT 5.0";
  client-hostname "Nowak";
}
lease 172.16.1.4 {
  starts 2 2024/12/10 16:49:28;
  ends 3 2024/12/11 04:49:28;
  cltt 2 2024/12/10 16:49:28;
  binding state active;
  next binding state free;
  rewind binding state free;
  hardware ethernet 08:00:27:d5:0c:87;
  uid "\001\010\000'\325\014\207";
  client-hostname "user-VirtualBox";
}
root@SRV1:~# _
```

(na maszynie nie miałem katalogu /var/log/syslog)

Zad 2

Statyczne przypisanie adresu IPv4

Modyfikujemy plik na serwerze DHCP (SRV1):

```
/etc/dhcp/dhcpd.conf    [-M--]  6 L:[ 30+15  45/138] *(1315/3918b) 0117 0x075
#subnet 10.152.187.0 netmask 255.255.255.0 {
#}

# This is a very basic subnet declaration.

subnet 172.16.1.0 netmask 255.255.255.0 {
  range 172.16.1.2 172.16.1.10;
  option domain-name "contoso.com";
  option domain-name-servers 172.168.1.1;
  option routers 172.16.1.1;
}

host windows_CL1 {
  hardware ethernet 08:00:27:44:85:4A;
  fixed-address 172.16.1.11;
  default-lease-time 86400;
  max-lease-time 86400;
# 1 dzień
}

host ubuntu_desktop {
  hardware ethernet 08:00:27:d5:0c:87;
  fixed-address 172.16.1.12;
  option routers 172.16.1.254;
  option domain-name-servers 172.16.1.254;
  default-lease-time 604800;
  max-lease-time 604800;
# 7 dni
}
```

```
root@SRV1:~# systemctl restart isc-dhcp-server.service
root@SRV1:~#
```

Test :

```
user@user-VirtualBox:~$ sudo dhclient -r enp0s3
Killed old client process
user@user-VirtualBox:~$ sudo dhclient  enp0s3
cmp: EOF on /tmp/tmp.mURIiXF3k5 which is empty
user@user-VirtualBox:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:d5:0c:87 brd ff:ff:ff:ff:ff:ff
    inet 172.16.1.12/24 brd 172.16.1.255 scope global dynamic enp0s3
       valid_lft 604797sec preferred_lft 604797sec
    inet6 fe80::995c:3333:95d0:ffb1/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
user@user-VirtualBox:~$
```

```
user@user-VirtualBox:~$ cat /var/lib/dhcp/dhclient.leases
lease {
  interface "enp0s3";
  fixed-address 172.16.1.12;
  option subnet-mask 255.255.255.0;
  option routers 172.16.1.254;
  option dhcp-lease-time 604800;
  option dhcp-message-type 5;
  option domain-name-servers 172.16.1.254;
  option dhcp-server-identifier 172.16.1.1;
  option domain-name "contoso.com";
  renew 2 2024/12/10 18:02:24;
  rebind 2 2024/12/10 18:02:24;
  expire 2 2024/12/10 18:02:24;
}
lease {
  interface "enp0s3";
  fixed-address 172.16.1.12;
  option subnet-mask 255.255.255.0;
  option routers 172.16.1.254;
  option dhcp-lease-time 604800;
  option dhcp-message-type 5;
  option domain-name-servers 172.16.1.254;
  option dhcp-server-identifier 172.16.1.1;
  option domain-name "contoso.com";
  renew 6 2024/12/14 05:47:19;
  rebind 1 2024/12/16 21:02:29;
  expire 2 2024/12/17 18:02:29;
}
user@user-VirtualBox:~$
```

(ewnetualnie przed t: ipconfig /release, ipconfig /renew)

```
C:\Windows\system32>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : contoso.com
   Link-local IPv6 Address . . . . . : fe80::4c88:ab69:ce8d:af25%6
   IPv4 Address. . . . . . . . . . . : 172.16.1.11
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 172.16.1.1

C:\Windows\system32>
```

Na serwerze:

```
root@SRV1:~# systemctl status isc-dhcp-server.service
• isc-dhcp-server.service - LSB: DHCP server
     Loaded: loaded (/etc/init.d/isc-dhcp-server; generated)
     Active: active (running) since Tue 2024-12-10 18:52:45 CET; 17min ago
       Docs: man:systemd-sysv-generator(8)
    Process: 868 ExecStart=/etc/init.d/isc-dhcp-server start (code=exited, status=0/SUCCESS)
      Tasks: 1 (limit: 3008)
     Memory: 4.1M
        CPU: 70ms
     CGroup: /system.slice/isc-dhcp-server.service
             └─881 /usr/sbin/dhcpd -4 -q -cf /etc/dhcp/dhcpd.conf enp0s8

gru 10 19:04:19 SRV1 dhcpd[881]: DHCPREQUEST for 172.16.1.12 (172.16.1.1) from 08:00:27:d5:0c:87 vi▷
gru 10 19:04:19 SRV1 dhcpd[881]: DHCPACK on 172.16.1.12 to 08:00:27:d5:0c:87 via enp0s8
gru 10 19:05:57 SRV1 dhcpd[881]: DHCPREQUEST for 172.16.1.3 from 08:00:27:44:85:4a via enp0s8: leas▷
gru 10 19:05:57 SRV1 dhcpd[881]: DHCPNAK on 172.16.1.3 to 08:00:27:44:85:4a via enp0s8
gru 10 19:05:57 SRV1 dhcpd[881]: uid lease 172.16.1.3 for client 08:00:27:44:85:4a is duplicate on ▷
gru 10 19:05:57 SRV1 dhcpd[881]: DHCPDISCOVER from 08:00:27:44:85:4a via enp0s8
gru 10 19:05:57 SRV1 dhcpd[881]: DHCPOFFER on 172.16.1.11 to 08:00:27:44:85:4a via enp0s8
gru 10 19:05:57 SRV1 dhcpd[881]: uid lease 172.16.1.3 for client 08:00:27:44:85:4a is duplicate on ▷
gru 10 19:05:57 SRV1 dhcpd[881]: DHCPREQUEST for 172.16.1.11 (172.16.1.1) from 08:00:27:44:85:4a vi▷
gru 10 19:05:57 SRV1 dhcpd[881]: DHCPACK on 172.16.1.11 to 08:00:27:44:85:4a via enp0s8
lines 1-21/21 (END)
```

```
/var/lib/dhcp/dhcpd.leases    [----]   0 L:[  7+34   41/ 56] *(1167/1571b
lease 172.16.1.2 {
  starts 2 2024/12/10 16:19:21;
  ends 3 2024/12/11 04:19:21;
  tstp 3 2024/12/11 04:19:21;
  cltt 2 2024/12/10 16:19:21;
  binding state active;
  next binding state free;
  rewind binding state free;
  hardware ethernet 08:00:27:71:36:e8;
  uid "\001\010\000'q6\350";
  set vendor-class-identifier = "MSFT 5.0";
  client-hostname "Nowak";
}
lease 172.16.1.3 {
  starts 2 2024/12/10 16:41:14;
  ends 3 2024/12/11 04:41:14;
  tstp 3 2024/12/11 04:41:14;
  cltt 2 2024/12/10 16:41:14;
  binding state active;
  next binding state free;
  rewind binding state free;
  hardware ethernet 08:00:27:44:85:4a;
  uid "\001\010\000'D\205J";
  set vendor-class-identifier = "MSFT 5.0";
  client-hostname "Nowak";
}
lease 172.16.1.4 {
  starts 2 2024/12/10 16:49:28;
  ends 3 2024/12/11 04:49:28;
  tstp 3 2024/12/11 04:49:28;
  cltt 2 2024/12/10 16:49:28;
  binding state active;
  next binding state free;
  rewind binding state free;
  hardware ethernet 08:00:27:d5:0c:87;
```

Zad 3

Dodatkowa klasa adresowa

Modyfikujemy plik:

```
/etc/dhcp/dhcpd.conf    [BM--]  1 L:[ 29+31  60/147]

#subnet 10.152.187.0 netmask 255.255.255.0 {
#}

# This is a very basic subnet declaration.

shared-network siedziba {

subnet 172.16.1.0 netmask 255.255.255.0 {
#  range 172.16.1.2 172.16.1.10;
  option domain-name "contoso.com";
  option domain-name-servers 172.168.1.1;
  option routers 172.16.1.1;
}

subnet 172.16.200.0 netmask 255.255.255.0 {
  range 172.16.200.2 172.16.200.254;
  option domain-name "contoso.com";
  option domain-name-servers 172.168.200.1;
  option routers 172.16.200.1;
}

host ubuntu_desktop {
  hardware ethernet 08:00:27:d5:0c:87;
  fixed-address 172.16.1.12;
  option routers 172.16.1.254;
  option domain-name-servers 172.16.1.254;
  default-lease-time 604800;
  max-lease-time 604800;
# 7 dni
}
```

```
root@SRV1:~# systemctl restart isc-dhcp-server.service
root@SRV1:~# _
```

Test:

```
user@user-VirtualBox:~$ sudo dhclient -r enp0s3
[sudo] hasło użytkownika user:
Killed old client process
user@user-VirtualBox:~$ sudo dhclient  enp0s3
cmp: EOF on /tmp/tmp.b9PTvBKsnA which is empty
user@user-VirtualBox:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default ql
en 1000
    link/ether 08:00:27:d5:0c:87 brd ff:ff:ff:ff:ff:ff
    inet 172.16.1.12/24 brd 172.16.1.255 scope global dynamic enp0s3
       valid_lft 604797sec preferred_lft 604797sec
    inet6 fe80::995c:3333:95d0:ffb1/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
user@user-VirtualBox:~$
```

```
C:\Windows\system32>ipconfig /renew

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : contoso.com
   Link-local IPv6 Address . . . . . : fe80::4c88:ab69:ce8d:af25%6
   IPv4 Address. . . . . . . . . . . : 172.16.200.2
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 172.16.200.1

C:\Windows\system32>
C:\Windows\system32>ip_
```

Na serwezrze:

```
root@SRV1:~# systemctl status isc-dhcp-server.service
● isc-dhcp-server.service - LSB: DHCP server
     Loaded: loaded (/etc/init.d/isc-dhcp-server; generated)
     Active: active (running) since Tue 2024-12-10 19:56:53 CET; 26min ago
       Docs: man:systemd-sysv-generator(8)
    Process: 1036 ExecStart=/etc/init.d/isc-dhcp-server start (code=exited, status=0/SUCCESS)
      Tasks: 1 (limit: 3008)
     Memory: 4.2M
        CPU: 102ms
     CGroup: /system.slice/isc-dhcp-server.service
             └─1048 /usr/sbin/dhcpd -4 -q -cf /etc/dhcp/dhcpd.conf enp0s8

gru 10 20:20:54 SRV1 dhcpd[1048]: DHCPREQUEST for 172.16.1.11 from 08:00:27:44:85:4a via enp0s8: un▷
gru 10 20:20:57 SRV1 dhcpd[1048]: DHCPREQUEST for 172.16.1.11 from 08:00:27:44:85:4a via enp0s8: un▷
gru 10 20:21:02 SRV1 dhcpd[1048]: DHCPREQUEST for 172.16.1.11 from 08:00:27:44:85:4a via enp0s8: un▷
gru 10 20:21:05 SRV1 dhcpd[1048]: DHCPREQUEST for 172.16.1.11 from 08:00:27:44:85:4a via enp0s8: un▷
gru 10 20:21:08 SRV1 dhcpd[1048]: DHCPREQUEST for 172.16.1.11 from 08:00:27:44:85:4a via enp0s8: un▷
gru 10 20:22:26 SRV1 dhcpd[1048]: DHCPRELEASE of 172.16.1.11 from 08:00:27:44:85:4a via enp0s8 (not▷
gru 10 20:22:32 SRV1 dhcpd[1048]: DHCPDISCOVER from 08:00:27:44:85:4a via enp0s8
gru 10 20:22:33 SRV1 dhcpd[1048]: DHCPOFFER on 172.16.200.2 to 08:00:27:44:85:4a (Nowak) via enp0s8
gru 10 20:22:33 SRV1 dhcpd[1048]: DHCPREQUEST for 172.16.200.2 (172.16.1.1) from 08:00:27:44:85:4a ▷
gru 10 20:22:33 SRV1 dhcpd[1048]: DHCPACK on 172.16.200.2 to 08:00:27:44:85:4a (Nowak) via enp0s8
lines 1-21/21 (END)
```

```
root@SRV1:~# cat /var/lib/dhcp/dhcpd.leases
# The format of this file is documented in the dhcpd.leases(5) manual page.
# This lease file was written by isc-dhcp-4.4.3-P1

# authoring-byte-order entry is generated, DO NOT DELETE
authoring-byte-order little-endian;

server-duid "\000\001\000\001.\352)\233\010\000'u>\275";

lease 172.16.200.2 {
  starts 2 2024/12/10 19:22:33;
  ends 3 2024/12/11 07:22:33;
  cltt 2 2024/12/10 19:22:33;
  binding state active;
  next binding state free;
  rewind binding state free;
  hardware ethernet 08:00:27:44:85:4a;
  uid "\001\010\000'D\205J";
  set vendor-class-identifier = "MSFT 5.0";
  client-hostname "Nowak";
}
root@SRV1:~# _
```

Zad 4

Agent przekazywania DHCP (tylko jeden serwer DHCP)

Na SRV2:

-apt update

-apt install isc-dhcp-relay (wpisujemy adres IPv4 SRV1, karty z automatycznie przypisywanym adresem)

```
/etc/default/isc-dhcp-relay    [----] 24 L:[  1+ 9  10/ 17] *(271 / 449b) 00
# Defaults for isc-dhcp-relay initscript
# sourced by /etc/init.d/isc-dhcp-relay
# installed at /etc/default/isc-dhcp-relay by the maintainer scripts

#
# This is a POSIX shell fragment
#

# What servers should the DHCP relay forward requests to?
SERVERS="192.168.94.180"_

# On what interfaces should the DHCP relay (dhrelay) serve DHCP requests?
INTERFACES="enp0s3 enp0s8"

# Additional options that are passed to the DHCP relay daemon?
OPTIONS=""
```

Na SRV1 modyfikujemy pliki:

```
/etc/dhcp/dhcpd.conf    [----]  0 L:[ 32+ 0  32/156] *(993

#
# This is a very basic subnet declaration.


shared-network siedziba {

subnet 172.16.1.0 netmask 255.255.255.0 {
#   range 172.16.1.2 172.16.1.10;
  option domain-name "contoso.com";
  option domain-name-servers 172.168.1.1;
  option routers 172.16.1.1;
}

subnet 172.16.200.0 netmask 255.255.255.0 {
  range 172.16.200.2 172.16.200.254;
  option domain-name "contoso.com";
  option domain-name-servers 172.168.200.1;
  option routers 172.16.200.1;
}
}

shared-network oddzial {
subnet 10.16.0.0 netmask 255.255.255.0 {
  range 10.16.0.5 10.16.0.254;
  option domain-name "contoso.com";
  option domain-name-servers 10.16.0.1;
  option routers 10.16.0.1;
}

subnet 192.168.94.0 netmask 255.255.255.0 {
}
}
```

```
/etc/default/isc-dhcp-server   [----] 27 L:[  1+16  17/ 19] *(620 / 638b) 00
# Defaults for isc-dhcp-server (sourced by /etc/init.d/isc-dhcp-server)

# Path to dhcpd's config file (default: /etc/dhcp/dhcpd.conf).
#DHCPDv4_CONF=/etc/dhcp/dhcpd.conf
#DHCPDv6_CONF=/etc/dhcp/dhcpd6.conf

# Path to dhcpd's PID file (default: /var/run/dhcpd.pid).
#DHCPDv4_PID=/var/run/dhcpd.pid
#DHCPDv6_PID=/var/run/dhcpd6.pid

# Additional options to start dhcpd with.
#<----->Don't use options -cf or -pf here; use DHCPD_CONF/ DHCPD_PID instead
#OPTIONS=""

# On what interfaces should the DHCP server (dhcpd) serve DHCP requests?
#<----->Separate multiple interfaces with spaces, e.g. "eth0 eth1".
INTERFACESv4="enp0s8 enp0s3"
INTERFACESv6=""
```

Na SRV2:

```
root@SRV2:~# echo "1" > /proc/sys/net/ipv4/ip_forward
root@SRV2:~# ip route add 172.16.1.0 via 192.168.94.180
```

Na SRV1:


```
root@SRV1:~# echo "1" > /proc/sys/net/ipv4/ip_forward
root@SRV1:~# ip route add 10.16.0.0/24 via 192.168.94.211
root@SRV1:~# systemclt restart isc-dhcp-server
-bash: systemclt: nie znaleziono polecenia
root@SRV1:~# systemctl restart isc-dhcp-server.service
root@SRV1:~# _
```



```
root@SRV2:~# systemctl status isc-dhcp-relay.service
● isc-dhcp-relay.service - LSB: DHCP relay
     Loaded: loaded (/etc/init.d/isc-dhcp-relay; generated)
     Active: active (running) since Thu 2024-12-19 09:45:30 CET; 30min ago
       Docs: man:systemd-sysv-generator(8)
    Process: 547 ExecStart=/etc/init.d/isc-dhcp-relay start (code=exited, status=0/SUCCESS)
      Tasks: 1 (limit: 3264)
     Memory: 2.6M
        CPU: 92ms
     CGroup: /system.slice/isc-dhcp-relay.service
             └─554 /usr/sbin/dhcrelay -q -i enp0s3 -i enp0s8 192.168.94.180

gru 19 09:45:30 SRV2 systemd[1]: Starting isc-dhcp-relay.service - LSB: DHCP relay...
gru 19 09:45:30 SRV2 isc-dhcp-relay[554]: Requesting: enp0s3 as upstream: Y downstream: Y
gru 19 09:45:30 SRV2 isc-dhcp-relay[554]: Requesting: enp0s8 as upstream: Y downstream: Y
gru 19 09:45:30 SRV2 systemd[1]: Started isc-dhcp-relay.service - LSB: DHCP relay.
root@SRV2:~# _
```



```
root@SRV1:~# systemctl status isc-dhcp-server.service
● isc-dhcp-server.service - LSB: DHCP server
     Loaded: loaded (/etc/init.d/isc-dhcp-server; generated)
     Active: active (running) since Thu 2024-12-19 10:19:22 CET; 2min 11s ago
       Docs: man:systemd-sysv-generator(8)
    Process: 1002 ExecStart=/etc/init.d/isc-dhcp-server start (code=exited, status=0/SUCCESS)
      Tasks: 1 (limit: 3691)
     Memory: 3.8M
        CPU: 77ms
     CGroup: /system.slice/isc-dhcp-server.service
             └─1014 /usr/sbin/dhcpd -4 -q -cf /etc/dhcp/dhcpd.conf enp0s8 enp0s3

gru 19 10:19:20 SRV1 systemd[1]: Starting isc-dhcp-server.service - LSB: DHCP server...
gru 19 10:19:20 SRV1 isc-dhcp-server[1002]: Launching IPv4 server only.
gru 19 10:19:20 SRV1 dhcpd[1014]: Wrote 0 leases to leases file.
gru 19 10:19:20 SRV1 dhcpd[1014]: Server starting service.
gru 19 10:19:22 SRV1 isc-dhcp-server[1002]: Starting ISC DHCPv4 server: dhcpd.
gru 19 10:19:22 SRV1 systemd[1]: Started isc-dhcp-server.service - LSB: DHCP server.
gru 19 10:19:33 SRV1 dhcpd[1014]: DHCPDISCOVER from 08:00:27:5f:82:1c via 10.16.0.1
gru 19 10:19:34 SRV1 dhcpd[1014]: DHCPOFFER on 10.16.0.5 to 08:00:27:5f:82:1c (Nowak) via 10.16.0.1
gru 19 10:19:34 SRV1 dhcpd[1014]: DHCPREQUEST for 10.16.0.5 (192.168.94.180) from 08:00:27:5f:82:1c
gru 19 10:19:34 SRV1 dhcpd[1014]: DHCPACK on 10.16.0.5 to 08:00:27:5f:82:1c (Nowak) via 10.16.0.1
lines 1-21/21 (END)
```

Test na CL2:


```
Microsoft Windows [Version 10.0.19043.928]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\system32>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : contoso.com
   Link-local IPv6 Address . . . . . : fe80::f9e7:85d6:b7ff:e1c5%6
   IPv4 Address. . . . . . . . . . . : 10.16.0.5
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 10.16.0.1

C:\Windows\system32>
```

Zad 5

Modyfikujemy poniższy plik na SRV1, a następnie resetujemy ustawienia sieciowe:

Dodatkowo odkomentowywujemy:

Wprowadzamy i sprawdzamy zmiany:

```
root@SRV1:~# sysctl -p
net.ipv6.conf.all.forwarding = 1
net.ipv6.conf.default.forwarding = 1
root@SRV1:~# cat /proc/sys/net/ipv6/conf/default/for
force_mld_version   force_tllao         forwarding
root@SRV1:~# cat /proc/sys/net/ipv6/conf/default/forwarding
1
root@SRV1:~# cat /proc/sys/net/ipv6/conf/all/forwarding
1
root@SRV1:~# _
```

```
root@SRV1:~# apt install radvd
Czytanie list pakietów... Gotowe
Budowanie drzewa zależności... Gotowe
Odczyt informacji o stanie... Gotowe
Zostaną zainstalowane następujące NOWE pakiety:
  radvd
```

Tworzymy i modyfikujemy plik:

```
/etc/radvd.conf       [-M--]
interface enp0s8 {
    AdvSendAdvert on;
    prefix fc00::/64 {};
};
```

```
root@SRV1:~# systemctl restart radvd
root@SRV1:~#
```

Test na CL1:

```
C:\Users\jnowak>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : contoso.com
   IPv6 Address. . . . . . . . . . . : fc00::1117:ccdc:e2eb:c4eb
   Temporary IPv6 Address. . . . . . : fc00::8004:9452:5095:b199
   Link-local IPv6 Address . . . . . : fe80::1117:ccdc:e2eb:c4eb%6
   IPv4 Address. . . . . . . . . . . : 172.16.200.2
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : fe80::a00:27ff:fe75:3ebd%6
                                       172.16.200.1

C:\Users\jnowak>ping fc00::1

Pinging fc00::1 with 32 bytes of data:
Reply from fc00::1: time=2ms
Reply from fc00::1: time=1ms

Ping statistics for fc00::1:
    Packets: Sent = 2, Received = 2, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 2ms, Average = 1ms
Control-C
^C
```

Zad 6

Konfiguracja serwera: obsługa podsieci IPv6 FC00::/64 w ramach mechanizmu "Stateless DHCPv6".

Modyfikujemy poniższy plik na SRV1:

Modyfikujemy plik:

Modyfikujemy plik:

```
/etc/default/isc-dhcp-server    [----] 20 L:[  1+17  18/ 19] *(638 / 640b) 003
# Defaults for isc-dhcp-server (sourced by /etc/init.d/isc-dhcp-server)

# Path to dhcpd's config file (default: /etc/dhcp/dhcpd.conf).
DHCPDv4_CONF=/etc/dhcp/dhcpd.conf
DHCPDv6_CONF=/etc/dhcp/dhcpd6.conf

# Path to dhcpd's PID file (default: /var/run/dhcpd.pid).
DHCPDv4_PID=/var/run/dhcpd.pid
DHCPDv6_PID=/var/run/dhcpd6.pid

# Additional options to start dhcpd with.
#<----->Don't use options -cf or -pf here; use DHCPD_CONF/ DHCPD_PID instead
#OPTIONS=""

# On what interfaces should the DHCP server (dhcpd) serve DHCP requests?
#<----->Separate multiple interfaces with spaces, e.g. "eth0 eth1".
INTERFACESv4="enp0s8 enp0s3"
INTERFACESv6="enp0s8_
```

Resetujemy ustawienia serwera dhcp

Test na CL1 (wczesniej: netsh interface set interface name="Wi-Fi" admin=disabled/ enabled):

```
C:\Windows\system32>ipconfig /release6

Windows IP Configuration

Adapter Ethernet is not enabled for DHCP.

Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : contoso.com
   IPv6 Address. . . . . . . . . . . : fc00::1117:ccdc:e2eb:c4eb
   Temporary IPv6 Address. . . . . . : fc00::bc48:2e07:c6ed:1b3e
   Link-local IPv6 Address . . . . . : fe80::1117:ccdc:e2eb:c4eb%6
   IPv4 Address. . . . . . . . . . . : 172.16.200.2
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : fe80::a00:27ff:fe75:3ebd%6
                                       172.16.200.1

C:\Windows\system32>ipconfig /renew6

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : contoso.com
   IPv6 Address. . . . . . . . . . . : fc00::1117:ccdc:e2eb:c4eb
   Temporary IPv6 Address. . . . . . : fc00::bc48:2e07:c6ed:1b3e
   Link-local IPv6 Address . . . . . : fe80::1117:ccdc:e2eb:c4eb%6
   IPv4 Address. . . . . . . . . . . : 172.16.200.2
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : fe80::a00:27ff:fe75:3ebd%6
                                       172.16.200.1
```

```
   Primary Dns Suffix  . . . . . . . :
   Node Type . . . . . . . . . . . . : Hybrid
   IP Routing Enabled. . . . . . . . : No
   WINS Proxy Enabled. . . . . . . . : No
   DNS Suffix Search List. . . . . . : contoso.com

Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : contoso.com
   Description . . . . . . . . . . . : Intel(R) PRO/1000 MT Desktop Adapter
   Physical Address. . . . . . . . . : 08-00-27-29-92-8F
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes
   IPv6 Address. . . . . . . . . . . : fc00::1117:ccdc:e2eb:c4eb(Preferred)
   Temporary IPv6 Address. . . . . . : fc00::bc48:2e07:c6ed:1b3e(Preferred)
   Link-local IPv6 Address . . . . . : fe80::1117:ccdc:e2eb:c4eb%6(Preferred)
   IPv4 Address. . . . . . . . . . . : 172.16.200.2(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Lease Obtained. . . . . . . . . . : Thursday, December 19, 2024 2:37:13 PM
   Lease Expires . . . . . . . . . . : Friday, December 20, 2024 12:20:13 AM
   Default Gateway . . . . . . . . . : fe80::a00:27ff:fe75:3ebd%6
                                       172.16.200.1
   DHCP Server . . . . . . . . . . . : 172.16.1.1
   DHCPv6 IAID . . . . . . . . . . . : 101187623
   DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-2E-F3-72-45-08-00-27-29-92-8F
   DNS Servers . . . . . . . . . . . : fc00::1
                                       172.168.200.1
   NetBIOS over Tcpip. . . . . . . . : Enabled
   Connection-specific DNS Suffix Search List :
                                       contoso.com

C:\Windows\system32>_
```

Na SRV1:

```
root@SRV1:~# cat /var/lib/dhcp/dhcpd6.leases
# The format of this file is documented in the dhcpd.leases(5) manual page.
# This lease file was written by isc-dhcp-4.4.3-P1

# authoring-byte-order entry is generated, DO NOT DELETE
authoring-byte-order little-endian;

server-duid "\000\001\000\001.\366\335\246\010\000'u>\275";

root@SRV1:~#
```

```
root@SRV1:~# systemctl restart isc-dhcp-server.service
root@SRV1:~# systemctl status isc-dhcp-server.service
● isc-dhcp-server.service - LSB: DHCP server
     Loaded: loaded (/etc/init.d/isc-dhcp-server; generated)
     Active: active (running) since Thu 2024-12-19 14:35:36 CET; 12s ago
       Docs: man:systemd-sysv-generator(8)
    Process: 3537 ExecStart=/etc/init.d/isc-dhcp-server start (code=exited, status=0/SUCCESS)
      Tasks: 2 (limit: 3691)
     Memory: 5.5M
        CPU: 97ms
     CGroup: /system.slice/isc-dhcp-server.service
             ├─3543 /usr/sbin/dhcpd -4 -q -cf /etc/dhcp/dhcpd.conf enp0s8 enp0s3
             └─3549 /usr/sbin/dhcpd -6 -q -cf /etc/dhcp/dhcpd6.conf enp0s8

gru 19 14:35:34 SRV1 dhcpd[3546]: For info, please visit https://www.isc.org/software/dhcp/
gru 19 14:35:34 SRV1 dhcpd[3549]: Internet Systems Consortium DHCP Server 4.4.3-P1
gru 19 14:35:34 SRV1 dhcpd[3549]: Copyright 2004-2022 Internet Systems Consortium.
gru 19 14:35:34 SRV1 dhcpd[3549]: All rights reserved.
gru 19 14:35:34 SRV1 dhcpd[3549]: For info, please visit https://www.isc.org/software/dhcp/
gru 19 14:35:34 SRV1 dhcpd[3549]: Wrote 0 NA, 0 TA, 0 PD leases to lease file.
gru 19 14:35:34 SRV1 dhcpd[3549]: Bound to *:547
gru 19 14:35:34 SRV1 dhcpd[3549]: Server starting service.
gru 19 14:35:36 SRV1 isc-dhcp-server[3537]: Starting ISC DHCPv6 server: dhcpd6.
gru 19 14:35:36 SRV1 systemd[1]: Started isc-dhcp-server.service - LSB: DHCP server.
root@SRV1:~#
```

Zad 7

Konfiguracja serwera: obsługa podsieci IPv6 FC00::/64 w ramach mechanizmu "Statefull DHCPv6".

Modyfikujemy plik na SRV1:

Test na CL1:

```
C:\Windows\system32>ipconfig /release6

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : contoso.com
   IPv6 Address. . . . . . . . . . . : fc00::1117:ccdc:e2eb:c4eb
   Temporary IPv6 Address. . . . . . : fc00::bc48:2e07:c6ed:1b3e
   Link-local IPv6 Address . . . . . : fe80::1117:ccdc:e2eb:c4eb%6
   IPv4 Address. . . . . . . . . . . : 172.16.200.2
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : fe80::a00:27ff:fe75:3ebd%6
                                       172.16.200.1

C:\Windows\system32>ipconfig /renew6

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : contoso.com
   IPv6 Address. . . . . . . . . . . : fc00::9fea
   IPv6 Address. . . . . . . . . . . : fc00::1117:ccdc:e2eb:c4eb
   Temporary IPv6 Address. . . . . . : fc00::bc48:2e07:c6ed:1b3e
   Link-local IPv6 Address . . . . . : fe80::1117:ccdc:e2eb:c4eb%6
   IPv4 Address. . . . . . . . . . . : 172.16.200.2
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : fe80::a00:27ff:fe75:3ebd%6
                                       172.16.200.1
```

```
   Primary Dns Suffix  . . . . . . . :
   Node Type . . . . . . . . . . . . : Hybrid
   IP Routing Enabled. . . . . . . . : No
   WINS Proxy Enabled. . . . . . . . : No
   DNS Suffix Search List. . . . . . : contoso.com

Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : contoso.com
   Description . . . . . . . . . . . : Intel(R) PRO/1000 MT Desktop Adapter
   Physical Address. . . . . . . . . : 08-00-27-29-92-8F
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes
   IPv6 Address. . . . . . . . . . . : fc00::9fea(Preferred)
   Lease Obtained. . . . . . . . . . : Thursday, December 19, 2024 2:48:41 PM
   Lease Expires . . . . . . . . . . : Saturday, January 18, 2025 2:47:56 PM
   IPv6 Address. . . . . . . . . . . : fc00::1117:ccdc:e2eb:c4eb(Preferred)
   Temporary IPv6 Address. . . . . . : fc00::bc48:2e07:c6ed:1b3e(Preferred)
   Link-local IPv6 Address . . . . . : fe80::1117:ccdc:e2eb:c4eb%6(Preferred)
   IPv4 Address. . . . . . . . . . . : 172.16.200.2(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Lease Obtained. . . . . . . . . . : Thursday, December 19, 2024 2:37:13 PM
   Lease Expires . . . . . . . . . . : Friday, December 20, 2024 12:20:07 AM
   Default Gateway . . . . . . . . . : fe80::a00:27ff:fe75:3ebd%6
                                       172.16.200.1
   DHCP Server . . . . . . . . . . . : 172.16.1.1
   DHCPv6 IAID . . . . . . . . . . . : 101187623
   DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-2E-F3-72-45-08-00-27-29-92-8F
   DNS Servers . . . . . . . . . . . : fc00::1
                                       172.168.200.1
   NetBIOS over Tcpip. . . . . . . . : Enabled
   Connection-specific DNS Suffix Search List :
                                       contoso.com
```

Na SRV1:

Konfiguracja dla systemu MS Windows przydzielania automatycznie statycznego adresu IPv6 FC00::100A

Modyfikujemy plik:

```
/etc/dhcp/dhcpd6.conf    [-M--] 18 L:[ 95+23 118/151] *(3645/3691b) 0032 0x020
#<----->option dhcp6.name-servers 3ffe:501:ffff:101:200:ff:fe00:3f3e;
#
#}

# A third subnet behind a relay agent chain
#subnet6 3ffe:501:ffff:102::/64 {
#<----->range6 3ffe:501:ffff:102::10 3ffe:501:ffff:102::11;
#}

authoritative;
default-lease-time 2592000;
preferred-lifetime 604800;

log-facility local7;

subnet6 fc00::/64 {
    range6 fc00::1000 fc00::ffff;
    option dhcp6.name-servers fc00::1;
    option dhcp6.domain-search "contoso.com";
}

host Windows_CL1 {
    hardware ethernet 08:00:27:29:92:8F;
    fixed-address6 fc00::100A;
}
```

Test na CL1:

```
C:\Windows\system32>ipconfig /release6

Windows IP Configuration


Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : contoso.com
    IPv6 Address. . . . . . . . . . . : fc00::1117:ccdc:e2eb:c4eb
    Temporary IPv6 Address. . . . . . : fc00::bc48:2e07:c6ed:1b3e
    Link-local IPv6 Address . . . . . : fe80::1117:ccdc:e2eb:c4eb%6
    IPv4 Address. . . . . . . . . . . : 172.16.200.2
    Subnet Mask . . . . . . . . . . . : 255.255.255.0
    Default Gateway . . . . . . . . . : fe80::a00:27ff:fe75:3ebd%6
                                        172.16.200.1

C:\Windows\system32>ipconfig /renew6

Windows IP Configuration


Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : contoso.com
    IPv6 Address. . . . . . . . . . . : fc00::100a
    IPv6 Address. . . . . . . . . . . : fc00::1117:ccdc:e2eb:c4eb
    Temporary IPv6 Address. . . . . . : fc00::bc48:2e07:c6ed:1b3e
    Link-local IPv6 Address . . . . . : fe80::1117:ccdc:e2eb:c4eb%6
    IPv4 Address. . . . . . . . . . . : 172.16.200.2
    Subnet Mask . . . . . . . . . . . : 255.255.255.0
    Default Gateway . . . . . . . . . : fe80::a00:27ff:fe75:3ebd%6
                                        172.16.200.1

C:\Windows\system32>
```

```
   Primary Dns Suffix . . . . . . . :
   Node Type . . . . . . . . . . . . : Hybrid
   IP Routing Enabled. . . . . . . . : No
   WINS Proxy Enabled. . . . . . . . : No
   DNS Suffix Search List. . . . . . : contoso.com

Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : contoso.com
   Description . . . . . . . . . . . : Intel(R) PRO/1000 MT Desktop Adapter
   Physical Address. . . . . . . . . : 08-00-27-29-92-8F
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes
   IPv6 Address. . . . . . . . . . . : fc00::100a(Preferred)
   Lease Obtained. . . . . . . . . . : Thursday, December 19, 2024 3:00:06 PM
   Lease Expires . . . . . . . . . . : Saturday, January 18, 2025 2:59:55 PM
   IPv6 Address. . . . . . . . . . . : fc00::1117:ccdc:e2eb:c4eb(Preferred)
   Temporary IPv6 Address. . . . . . : fc00::bc48:2e07:c6ed:1b3e(Preferred)
   Link-local IPv6 Address . . . . . : fe80::1117:ccdc:e2eb:c4eb%6(Preferred)
   IPv4 Address. . . . . . . . . . . : 172.16.200.2(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Lease Obtained. . . . . . . . . . : Thursday, December 19, 2024 2:37:13 PM
   Lease Expires . . . . . . . . . . : Friday, December 20, 2024 12:20:16 AM
   Default Gateway . . . . . . . . . : fe80::a00:27ff:fe75:3ebd%6
                                       172.16.200.1
   DHCP Server . . . . . . . . . . . : 172.16.1.1
   DHCPv6 IAID . . . . . . . . . . . : 101187623
   DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-2E-F3-72-45-08-00-27-29-92-8F
   DNS Servers . . . . . . . . . . . : fc00::1
                                       172.168.200.1
   NetBIOS over Tcpip. . . . . . . . : Enabled
   Connection-specific DNS Suffix Search List :
                                       contoso.com
```

Na SRV1:

```
root@SRV1:~# cat /var/lib/dhcp/dhcpd6.leases
# The format of this file is documented in the dhcpd.leases(5) manual page.
# This lease file was written by isc-dhcp-4.4.3-P1

# authoring-byte-order entry is generated, DO NOT DELETE
authoring-byte-order little-endian;

server-duid "\000\001\000\001.\366\335\246\010\000'u>\275";

ia-na "'\000\010\006\000\001\000\001.\363rE\010\000')\222\217" {
  cltt 4 2024/12/19 13:48:44;
  iaaddr fc00::9fea {
    binding state active;
    preferred-life 604800;
    max-life 2592000;
    ends 6 2025/01/18 13:48:44;
  }
}

server-duid "\000\001\000\001.\366\335\246\010\000'u>\275";

ia-na "'\000\010\006\000\001\000\001.\363rE\010\000')\222\217" {
  cltt 4 2024/12/19 14:00:25;
  iaaddr fc00::9fea {
    binding state released;
    preferred-life 604800;
    max-life 2592000;
    ends 6 2025/01/18 13:48:44;
  }
}

root@SRV1:~#
```