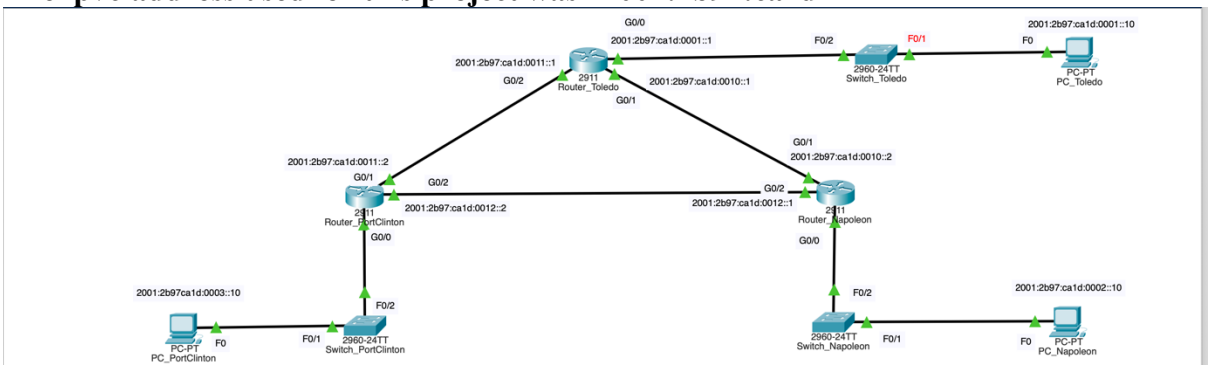
IPv6 Network Architecture for a Multi-Site Organization

1) Design an IPv6 subnet architecture using CIDR notation for a multi-site enterprise environment (Acme Corporation). The design should follow sound network architecture principles, including scalability, logical segmentation, and efficient address utilization. Develop a structured IPv6 addressing scheme for different device categories across the network, and apply this scheme consistently at each location. Produce a complete network diagram that reflects the IPv6 subnets and address assignments throughout the organization.

The ipv6 address used for this project was "2001:2b97:ca1d"



2) Using Cisco Packet Tracer complete the set-up of each router, switch, and PC in the Toledo-Napoleon-Port Clinton scenario.
   a. Each Router must use IPv6 Addressing
   b. Each location must have a switch connected to an Ethernet port
      The switch does not need to have an IP address assigned
   c. Each switch must have at least one PC connected using IPv6 addressing

Using the above mentioned IPv6 block I have come up with a ipv6 addressing scheme which is as follows
All the routers have the ipv6 address 2001:2b97:ca1d:xx1x::x
All the switches have the ipv6 address 2001:2b97:ca1d:xx1x::x.
All the Pc's have the ipv6 address 2001:2b97:ca1d:xx1x::x.

All the routers have the ipv6 address 2001:2b97:ca1d:001x::x

The connection between Toledo's router and port Clinton's router is 2001:2b97:ca1d:0011::x

The connection between Toledo's router and Napoleon's router is

2001:2b97:ca1d:0010::x

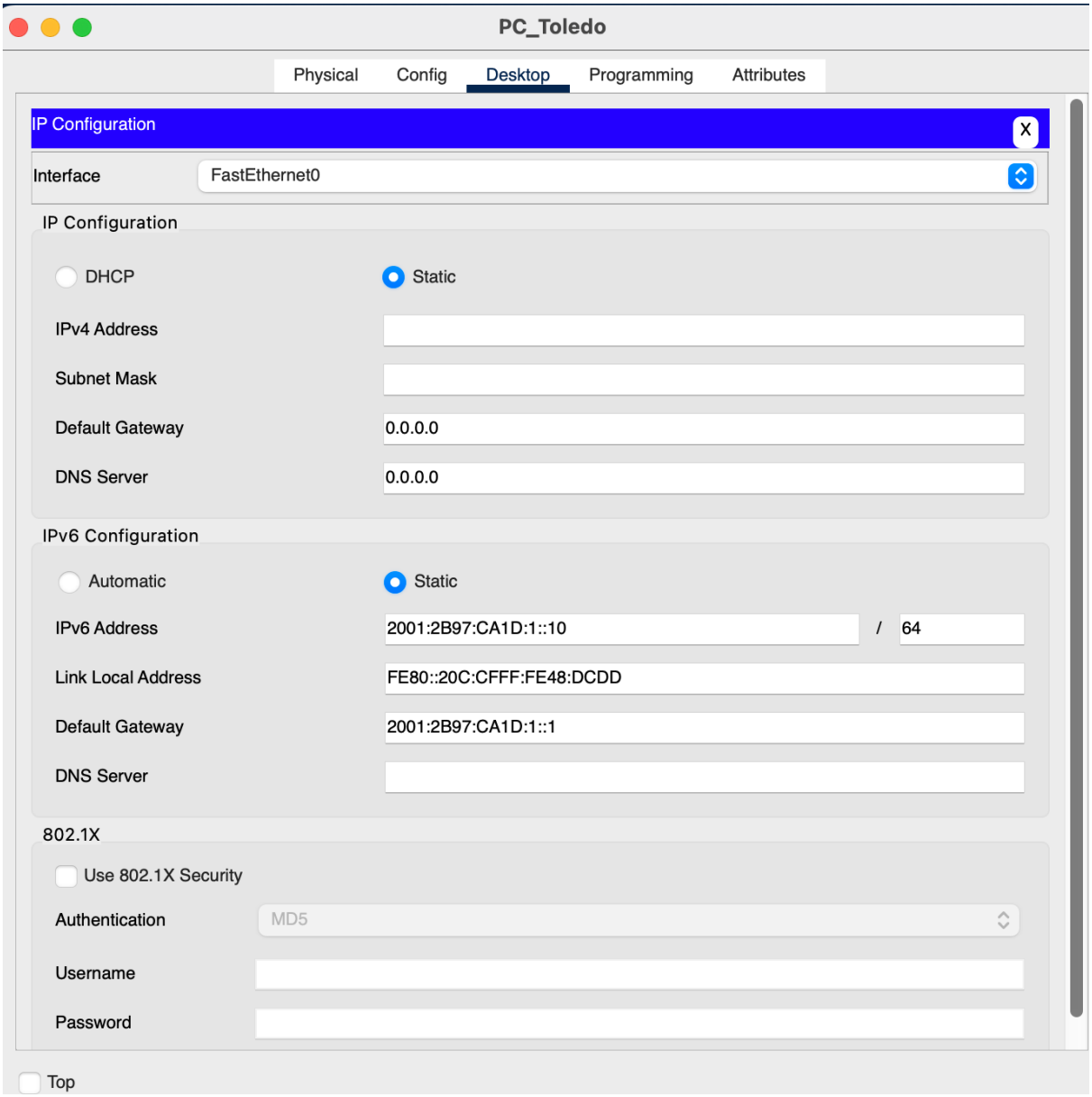
The connection between Port Clintons router and Napoleon's router is

2001:2b97:ca1d:0012::x

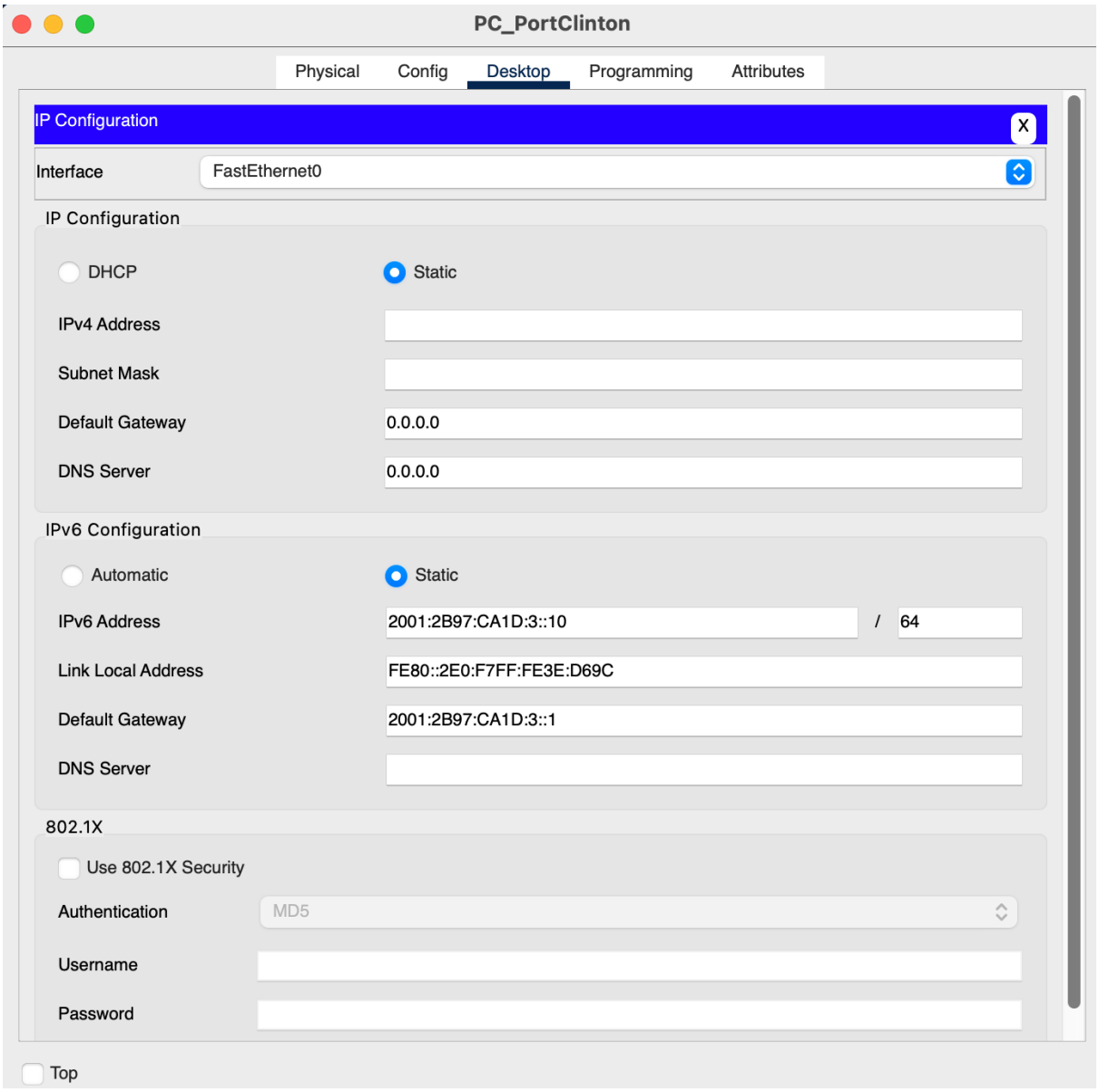
The above Ip address scheme makes it easy for us to figure out what kind of a device it is and its location.

Configuration of the PC's:

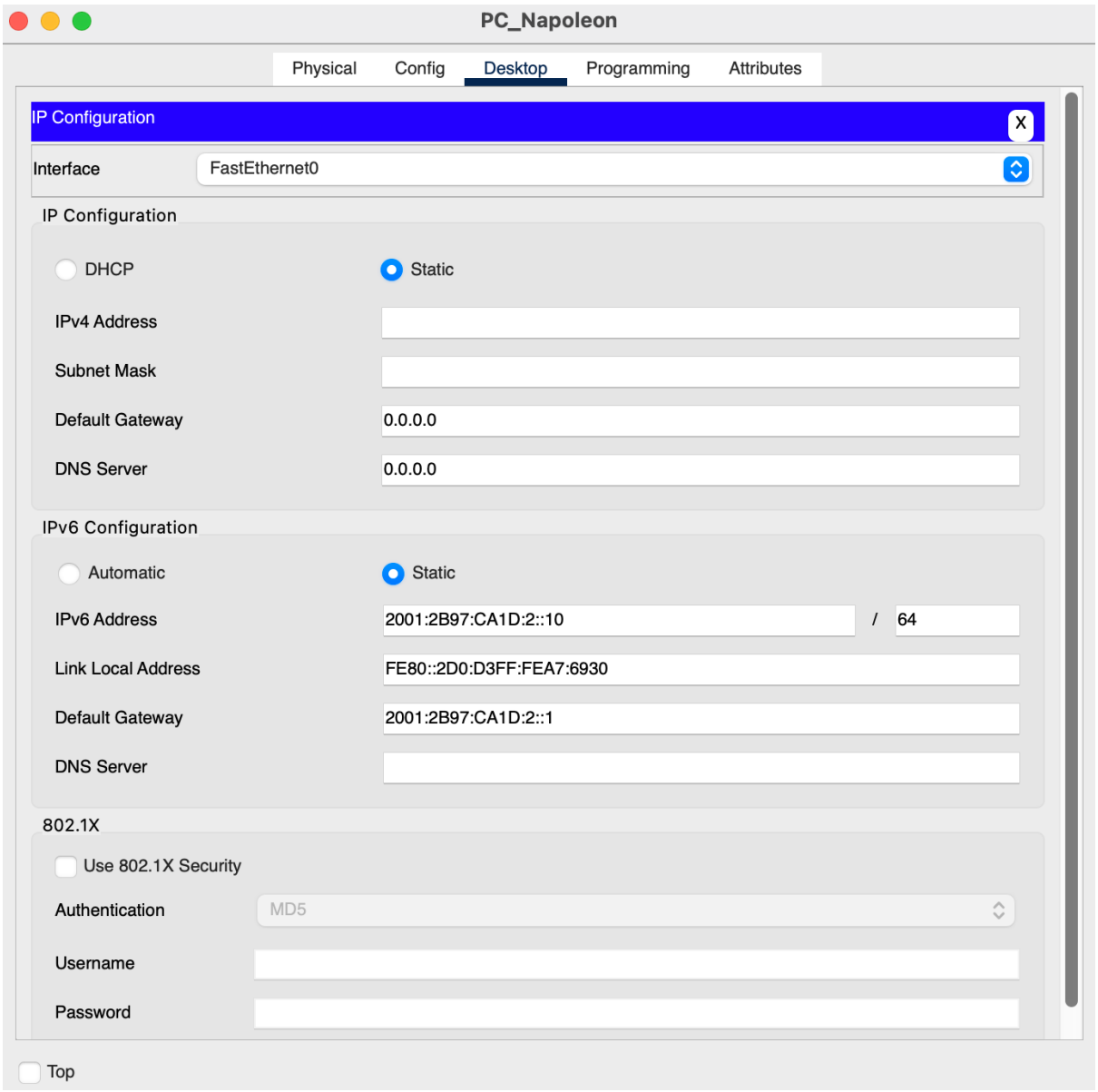
Toledo PC



Port Clinton PC:


PC_PortClinton
Physical
Config
Desktop
Programming
Attributes
IP Configuration
X
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
Subnet Mask
Default Gateway
0.0.0.0
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
2001:2B97:CA1D:3::10
/
64
Link Local Address
FE80::2E0:F7FF:FE3E:D69C
Default Gateway
2001:2B97:CA1D:3::1
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top

Napoleon PC:



3. Apply the configuration statements to enable static route entries to allow all devices on the inter-network to communicate?

Command format: ipv6 route <destination> <next-hop>

Commands executed on the Toledo router :
ipv6 route 2001:2B97:CA1D:2::/64 2001:2B97:CA1D:10::2

ipv6 route 2001:2B97:CA1D:3::/64 2001:2B97:CA1D:11::2

Result

```
ip flow-export version 9
!
ipv6 route 2001:2B97:CA1D:2::/64 2001:2B97:CA1D:10::2
ipv6 route 2001:2B97:CA1D:3::/64 2001:2B97:CA1D:11::2
!
!
```

Route table:
Command used: show ipv6 route

```
ToledoR#show ipv6 route
IPv6 Routing Table - 9 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route, M - MIPv6
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
       ND - ND Default, NDp - ND Prefix, DCE - Destination, NDr - Redirect
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
       ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
       D - EIGRP, EX - EIGRP external
C   2001:2B97:CA1D:1::/64 [0/0]
     via GigabitEthernet0/0, directly connected
L   2001:2B97:CA1D:1::1/128 [0/0]
     via GigabitEthernet0/0, receive
S   2001:2B97:CA1D:2::/64 [1/0]
     via 2001:2B97:CA1D:10::2
S   2001:2B97:CA1D:3::/64 [1/0]
     via 2001:2B97:CA1D:11::2
C   2001:2B97:CA1D:10::/64 [0/0]
     via GigabitEthernet0/1, directly connected
L   2001:2B97:CA1D:10::1/128 [0/0]
     via GigabitEthernet0/1, receive
C   2001:2B97:CA1D:11::/64 [0/0]
     via GigabitEthernet0/2, directly connected
L   2001:2B97:CA1D:11::1/128 [0/0]
     via GigabitEthernet0/2, receive
L   FF00::/8 [0/0]
     via Null0, receive
```

Commands executed on the Port Clinton router:

ipv6 route 2001:2B97:CA1D:1::/64 2001:2B97:CA1D:11::1.
ipv6 route 2001:2B97:CA1D:2::/64 2001:2B97:CA1D:12::1

Result:

```
!
ip flow-export version 9
!
ipv6 route 2001:2B97:CA1D:1::/64 2001:2B97:CA1D:11::1
ipv6 route 2001:2B97:CA1D:2::/64 2001:2B97:CA1D:12::1
!
```

Route table:
Command used: show ipv6 route

```
PortClintonR#show  ipv6 route
IPv6 Routing Table - 10 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route, M - MIPv6
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
       ND - ND Default, NDp - ND Prefix, DCE - Destination, NDr - Redirect
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
       ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
       D - EIGRP, EX - EIGRP external
S   2001:2B97:CA1D:1::/64 [1/0]
     via 2001:2B97:CA1D:11::1
S   2001:2B97:CA1D:2::/64 [1/0]
     via 2001:2B97:CA1D:12::1
C   2001:2B97:CA1D:3::/64 [0/0]
     via GigabitEthernet0/0, directly connected
L   2001:2B97:CA1D:3::1/128 [0/0]
     via GigabitEthernet0/0, receive
O   2001:2B97:CA1D:10::/64 [110/2]
     via FE80::202:16FF:FEBE:D203, GigabitEthernet0/1
     via FE80::201:63FF:FE0B:303, GigabitEthernet0/2
C   2001:2B97:CA1D:11::/64 [0/0]
     via GigabitEthernet0/1, directly connected
L   2001:2B97:CA1D:11::2/128 [0/0]
     via GigabitEthernet0/1, receive
C   2001:2B97:CA1D:12::/64 [0/0]
     via GigabitEthernet0/2, directly connected
L   2001:2B97:CA1D:12::2/128 [0/0]
     via GigabitEthernet0/2, receive
L   FF00::/8 [0/0]
     via Null0, receive
```

Commands executed on the Napoleon router:

ipv6 route 2001:2B97:CA1D:1::/64 2001:2B97:CA1D:10::1

ipv6 route 2001:2B97:CA1D:3::/64 2001:2B97:CA1D:12::2

Result:

```
!
ipv6 route 2001:2B97:CA1D:1::/64 2001:2B97:CA1D:10::1
ipv6 route 2001:2B97:CA1D:3::/64 2001:2B97:CA1D:12::2
!
'
```

Route table:
Command used: show ipv6 route

```
%SYS-5-CONFIG_I: Configured from console by console
show ipv6 route
IPv6 Routing Table - 10 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route, M - MIPv6
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
       ND - ND Default, NDp - ND Prefix, DCE - Destination, NDr - Redirect
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
       ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
       D - EIGRP, EX - EIGRP external
S   2001:2B97:CA1D:1::/64 [1/0]
     via 2001:2B97:CA1D:10::1
C   2001:2B97:CA1D:2::/64 [0/0]
     via GigabitEthernet0/0, directly connected
L   2001:2B97:CA1D:2::1/128 [0/0]
     via GigabitEthernet0/0, receive
S   2001:2B97:CA1D:3::/64 [1/0]
     via 2001:2B97:CA1D:12::2
C   2001:2B97:CA1D:10::/64 [0/0]
     via GigabitEthernet0/1, directly connected
L   2001:2B97:CA1D:10::2/128 [0/0]
     via GigabitEthernet0/1, receive
O   2001:2B97:CA1D:11::/64 [110/2]
     via FE80::202:16FF:FEBE:D202, GigabitEthernet0/1
     via FE80::210:11FF:FE54:8403, GigabitEthernet0/2
C   2001:2B97:CA1D:12::/64 [0/0]
     via GigabitEthernet0/2, directly connected
L   2001:2B97:CA1D:12::1/128 [0/0]
     via GigabitEthernet0/2, receive
L   FF00::/8 [0/0]
     via Null0, receive
```

4. Apply the configuration statements to enable IPv6 RIP dynamic routing protocol to allow all devices on the inter-network to communicate?

   Command format:
   First on router: ipv6 router rip ACME-RIP
   exit
   Then on the individual interfaces:
   interface GigabitEthernet x/x
   ipv6 rip ACME-RIP enable
   exit

   Commands executed on the Toledo router:

```
show ipv6 route
IPv6 Routing Table - 10 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route, M - MIPv6
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
       ND - ND Default, NDp - ND Prefix, DCE - Destination, NDr - Redirect
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
       ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
       D - EIGRP, EX - EIGRP external
C   2001:2B97:CA1D:1::/64 [0/0]
     via GigabitEthernet0/0, directly connected
L   2001:2B97:CA1D:1::1/128 [0/0]
     via GigabitEthernet0/0, receive
R   2001:2B97:CA1D:2::/64 [120/2]
     via FE80::201:63FF:FE0B:302, GigabitEthernet0/1
R   2001:2B97:CA1D:3::/64 [120/2]
     via FE80::210:11FF:FE54:8402, GigabitEthernet0/2
C   2001:2B97:CA1D:10::/64 [0/0]
     via GigabitEthernet0/1, directly connected
L   2001:2B97:CA1D:10::1/128 [0/0]
     via GigabitEthernet0/1, receive
C   2001:2B97:CA1D:11::/64 [0/0]
     via GigabitEthernet0/2, directly connected
L   2001:2B97:CA1D:11::1/128 [0/0]
     via GigabitEthernet0/2, receive
R   2001:2B97:CA1D:12::/64 [120/2]
     via FE80::201:63FF:FE0B:302, GigabitEthernet0/1
     via FE80::210:11FF:FE54:8402, GigabitEthernet0/2
L   FF00::/8 [0/0]
     via Null0, receive
```

Commands executed on the Port Clinton router:

```
show ipv6 route
IPv6 Routing Table - 10 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route, M - MIPv6
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
       ND - ND Default, NDp - ND Prefix, DCE - Destination, NDr - Redirect
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
       ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
       D - EIGRP, EX - EIGRP external
R   2001:2B97:CA1D:1::/64 [120/2]
     via FE80::202:16FF:FEBE:D203, GigabitEthernet0/1
R   2001:2B97:CA1D:2::/64 [120/2]
     via FE80::201:63FF:FE0B:303, GigabitEthernet0/2
C   2001:2B97:CA1D:3::/64 [0/0]
     via GigabitEthernet0/0, directly connected
L   2001:2B97:CA1D:3::1/128 [0/0]
     via GigabitEthernet0/0, receive
R   2001:2B97:CA1D:10::/64 [120/2]
     via FE80::201:63FF:FE0B:303, GigabitEthernet0/2
     via FE80::202:16FF:FEBE:D203, GigabitEthernet0/1
C   2001:2B97:CA1D:11::/64 [0/0]
     via GigabitEthernet0/1, directly connected
L   2001:2B97:CA1D:11::2/128 [0/0]
     via GigabitEthernet0/1, receive
C   2001:2B97:CA1D:12::/64 [0/0]
     via GigabitEthernet0/2, directly connected
L   2001:2B97:CA1D:12::2/128 [0/0]
     via GigabitEthernet0/2, receive
L   FF00::/8 [0/0]
     via Null0, receive
```

Commands executed on the Napoleon router:

```
show ipv6 route
IPv6 Routing Table - 10 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route, M - MIPv6
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
       ND - ND Default, NDp - ND Prefix, DCE - Destination, NDr - Redirect
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
       ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
       D - EIGRP, EX - EIGRP external
R   2001:2B97:CA1D:1::/64 [120/2]
     via FE80::202:16FF:FEBE:D202, GigabitEthernet0/1
C   2001:2B97:CA1D:2::/64 [0/0]
     via GigabitEthernet0/0, directly connected
L   2001:2B97:CA1D:2::1/128 [0/0]
     via GigabitEthernet0/0, receive
R   2001:2B97:CA1D:3::/64 [120/2]
     via FE80::210:11FF:FE54:8403, GigabitEthernet0/2
C   2001:2B97:CA1D:10::/64 [0/0]
     via GigabitEthernet0/1, directly connected
L   2001:2B97:CA1D:10::2/128 [0/0]
     via GigabitEthernet0/1, receive
R   2001:2B97:CA1D:11::/64 [120/2]
     via FE80::202:16FF:FEBE:D202, GigabitEthernet0/1
     via FE80::210:11FF:FE54:8403, GigabitEthernet0/2
C   2001:2B97:CA1D:12::/64 [0/0]
     via GigabitEthernet0/2, directly connected
L   2001:2B97:CA1D:12::1/128 [0/0]
     via GigabitEthernet0/2, receive
L   FF00::/8 [0/0]
     via Null0, receive
NapoleonR#
```

5. Apply the configuration statements to enable IPv6 OSPF dynamic routing protocol to allow all devices on the inter-network to communicate?

   Command format:
   First on router:
   ipv6 router ospf 1
   router-id 1.1.1.1 for (Port Clinton)
   router-id 2.2.2.2 for (Toledo)
   router-id 3.3.3.3 for (Napoleon)
   exit

   Then on all the interfaces:
   interface GigabitEthernet x/x
   ipv6 ospf 1 area 0

exit

Toledo Router:

```
ToledoR#show ipv6 route
IPv6 Routing Table - 10 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route, M - MIPv6
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
       ND - ND Default, NDp - ND Prefix, DCE - Destination, NDr - Redirect
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
       ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
       D - EIGRP, EX - EIGRP external
C   2001:2B97:CA1D:1::/64 [0/0]
     via GigabitEthernet0/0, directly connected
L   2001:2B97:CA1D:1::1/128 [0/0]
     via GigabitEthernet0/0, receive
O   2001:2B97:CA1D:2::/64 [110/2]
     via FE80::210:11FF:FE54:8402, GigabitEthernet0/2
O   2001:2B97:CA1D:3::/64 [110/2]
     via FE80::210:11FF:FE54:8402, GigabitEthernet0/2
C   2001:2B97:CA1D:10::/64 [0/0]
     via GigabitEthernet0/1, directly connected
L   2001:2B97:CA1D:10::1/128 [0/0]
     via GigabitEthernet0/1, receive
C   2001:2B97:CA1D:11::/64 [0/0]
     via GigabitEthernet0/2, directly connected
L   2001:2B97:CA1D:11::1/128 [0/0]
     via GigabitEthernet0/2, receive
O   2001:2B97:CA1D:12::/64 [110/2]
     via FE80::210:11FF:FE54:8402, GigabitEthernet0/2
L   FF00::/8 [0/0]
     via Null0, receive
```

Config file:

Using 919 bytes
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname ToledoR
!
!
!
!
!
!
!
!
!

```
ip cef
ipv6 unicast-routing
!
no ipv6 cef
!
!
!
!
license udi pid CISCO2911/K9 sn FTX1524SH8S-
!
!
!
!
!
!
!
!
!
!
!
spanning-tree mode pvst
!
!
!
!
!
!
!
interface GigabitEthernet0/0
no ip address
duplex auto
speed auto
ipv6 address 2001:2B97:CA1D:1::1/64
ipv6 ospf 1 area 0
!
interface GigabitEthernet0/1
no ip address
duplex auto
speed auto
ipv6 address 2001:2B97:CA1D:10::1/64
ipv6 ospf 1 area 0
!
interface GigabitEthernet0/2
no ip address
duplex auto
speed auto
ipv6 address 2001:2B97:CA1D:11::1/64
```

```
ipv6 ospf 1 area 0
!
interface Vlan1
no ip address
shutdown
!
ipv6 router ospf 1
router-id 2.2.2.2
log-adjacency-changes
!
ip classless
!
ip flow-export version 9
!
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
login
!
!
!
        End
```

Port Clinton router:

```
PortClintonR>
PortClintonR>show ipv6 route
IPv6 Routing Table - 10 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route, M - MIPv6
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
       ND - ND Default, NDp - ND Prefix, DCE - Destination, NDr - Redirect
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
       ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
       D - EIGRP, EX - EIGRP external
O   2001:2B97:CA1D:1::/64 [110/2]
     via FE80::202:16FF:FEBE:D203, GigabitEthernet0/1
O   2001:2B97:CA1D:2::/64 [110/1]
     via
C   2001:2B97:CA1D:3::/64 [0/0]
     via GigabitEthernet0/0, directly connected
L   2001:2B97:CA1D:3::1/128 [0/0]
     via GigabitEthernet0/0, receive
O   2001:2B97:CA1D:10::/64 [110/1]
     via
C   2001:2B97:CA1D:11::/64 [0/0]
     via GigabitEthernet0/1, directly connected
L   2001:2B97:CA1D:11::2/128 [0/0]
     via GigabitEthernet0/1, receive
C   2001:2B97:CA1D:12::/64 [0/0]
     via GigabitEthernet0/2, directly connected
L   2001:2B97:CA1D:12::2/128 [0/0]
     via GigabitEthernet0/2, receive
L   FF00::/8 [0/0]
     via Null0, receive
PortClintonR>
```

Config file
Building configuration...

Current configuration : 1040 bytes
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname PortClintonR
!
!
!
!

```
!
!
!
!
ip cef
ipv6 unicast-routing
!
no ipv6 cef
!
!
!
!
license udi pid CISCO2911/K9 sn FTX1524RZDN-
!
!
!
!
!
!
!
!
!
!
!
spanning-tree mode pvst
!
!
!
!
!
!
interface GigabitEthernet0/0
no ip address
duplex auto
speed auto
ipv6 address 2001:2B97:CA1D:3::1/64
ipv6 ospf 1 area 0
!
interface GigabitEthernet0/1
no ip address
ipv6 traffic-filter BLOCK-ICMP in
duplex auto
speed auto
ipv6 address 2001:2B97:CA1D:11::2/64
ipv6 ospf 1 area 0
!
```

```
interface GigabitEthernet0/2
no ip address
duplex auto
speed auto
ipv6 address 2001:2B97:CA1D:12::2/64
ipv6 ospf 1 area 0
!
interface Vlan1
no ip address
shutdown
!
ipv6 router ospf 1
router-id 1.1.1.1
log-adjacency-changes
!
ip classless
!
ip flow-export version 9
!
!
ipv6 access-list BLOCK-ICMP
deny icmp any any echo-request
permit ipv6 any any
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
login
!
!
!
end
```

Napoleon router:

```
NapoleonR>
NapoleonR>en
NapoleonR#show ipv6 route
IPv6 Routing Table - 10 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route, M - MIPv6
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
       ND - ND Default, NDp - ND Prefix, DCE - Destination, NDr - Redirect
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
       ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
       D - EIGRP, EX - EIGRP external
O   2001:2B97:CA1D:1::/64 [110/3]
     via FE80::201:63FF:FE0B:301, GigabitEthernet0/0
C   2001:2B97:CA1D:2::/64 [0/0]
     via GigabitEthernet0/0, directly connected
L   2001:2B97:CA1D:2::1/128 [0/0]
     via GigabitEthernet0/0, receive
O   2001:2B97:CA1D:3::/64 [110/2]
     via FE80::201:63FF:FE0B:301, GigabitEthernet0/0
C   2001:2B97:CA1D:10::/64 [0/0]
     via GigabitEthernet0/1, directly connected
L   2001:2B97:CA1D:10::2/128 [0/0]
     via GigabitEthernet0/1, receive
O   2001:2B97:CA1D:11::/64 [110/3]
     via FE80::201:63FF:FE0B:301, GigabitEthernet0/0
C   2001:2B97:CA1D:12::/64 [0/0]
     via GigabitEthernet0/2, directly connected
L   2001:2B97:CA1D:12::1/128 [0/0]
     via GigabitEthernet0/2, receive
L   FF00::/8 [0/0]
     via Null0, receive
```

Config file

version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname NapoleonR
!
!
!
!
!
!

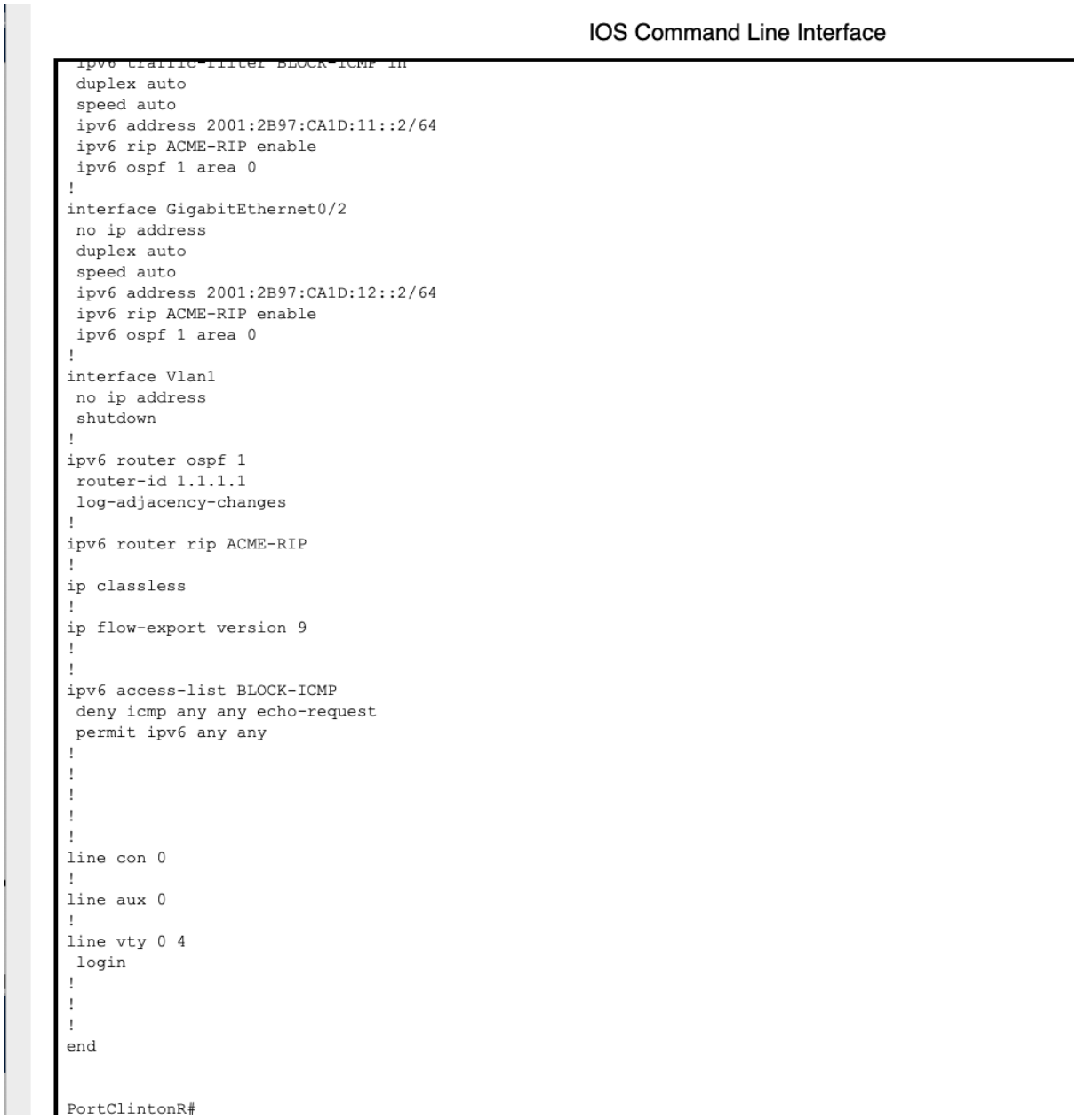
```
!
!
ip cef
ipv6 unicast-routing
!
no ipv6 cef
!
!
!
!
license udi pid CISCO2911/K9 sn FTX1524LK78-
!
!
!
!
!
!
!
!
!
!
!
spanning-tree mode pvst
!
!
!
!
!
!
interface GigabitEthernet0/0
no ip address
duplex auto
speed auto
ipv6 address 2001:2B97:CA1D:2::1/64
ipv6 rip ACME_RIP enable
ipv6 ospf 1 area 0
!
interface GigabitEthernet0/1
no ip address
duplex auto
speed auto
ipv6 address 2001:2B97:CA1D:10::2/64
ipv6 rip ACME_RIP enable
ipv6 ospf 1 area 0
!
interface GigabitEthernet0/2
```

```
no ip address
duplex auto
speed auto
ipv6 address 2001:2B97:CA1D:12::1/64
ipv6 rip ACME_RIP enable
ipv6 ospf 1 area 0
!
interface Vlan1
no ip address
shutdown
!
ipv6 router ospf 1
router-id 3.3.3.3
log-adjacency-changes
!
ipv6 router rip ACME_RIP
!
ip classless
!
ip flow-export version 9
!
!
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
login
!
!
!
end
```

Create an IPv6 Extended ACL to block ping echo request from your network.

steps to block the ping requests:

```
PortClintonR(config)#ipv6 access-list BLOCK-ICMP
PortClintonR(config-ipv6-acl)#deny icmp any any echo-request
PortClintonR(config-ipv6-acl)#permit ipv6 any any
PortClintonR(config-ipv6-acl)#exit
PortClintonR(config)#int g0/1
PortClintonR(config-if)#ipv6 traffic-filter BLOCK-ICMP in
PortClintonR(config-if)#exit
```



Before blocking ICMP on the port Clinton router.
Ping from the PC

```
C:\>ping 2001:2b97:ca1d:0003::10

Pinging 2001:2b97:ca1d:0003::10 with 32 bytes of data:

Reply from 2001:2B97:CA1D:3::10: bytes=32 time<1ms TTL=126
Reply from 2001:2B97:CA1D:3::10: bytes=32 time<1ms TTL=126
Reply from 2001:2B97:CA1D:3::10: bytes=32 time<1ms TTL=126
Reply from 2001:2B97:CA1D:3::10: bytes=32 time<1ms TTL=126

Ping statistics for 2001:2B97:CA1D:3::10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Ping from the router:

```
ToledoR>
ToledoR>ping 2001:2b97:ca1d:0003::10

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 2001:2b97:ca1d:0003::10, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms

ToledoR>
```

After blocking the ICMP on the port Clinton router

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 2001:2b97:ca1d:1003::10

Pinging 2001:2b97:ca1d:1003::10 with 32 bytes of data:

Reply from 2001:2B97:CA1D:3::1: Destination host unreachable.
Reply from 2001:2B97:CA1D:3::1: Destination host unreachable.
Request timed out.
Reply from 2001:2B97:CA1D:3::1: Destination host unreachable.

Ping statistics for 2001:2B97:CA1D:1003::10:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

```
ToledoR>ping 2001:2b97:ca1d:0003::10

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 2001:2b97:ca1d:0003::10, timeout is 2 seconds:
AAAAA
Success rate is 0 percent (0/5)

ToledoR>
```