

Piotr Boguszewski 63478 inis5_fd

The diagram illustrates a network topology with three routers (R1, R2, R3) and two PCs (PC-A, PC-C). R1 is connected to PC-A, R3 to PC-C, and all three routers are interconnected. A red path highlights the route from PC-A to PC-C via R2. The Internet is connected to R2 via a link labeled Lo0.

R1

R2

```

Device Name: R2
Device Model: 1941
Hostname: R2

Port          Link    VLAN    IP Address      IPv6 Address      MAC Address
GigabitEthernet0/0    Down   --      <not set>       <not set>         0060.3E61.5401
GigabitEthernet0/1    Down   --      <not set>       <not set>         0060.3E61.5402
Serial0/0/0           Up     --      192.168.12.2/30 <not set>         <not set>
Serial0/0/1           Up     --      192.168.23.1/30 <not set>         <not set>
Loopback0             Up     --      209.165.200.225/30 <not set>        0001.64B7.19DA
Vlan1                 Down   1       <not set>       <not set>         0060.5C41.9B1A

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > R2

```

R3

Device Name: R3
Device Model: 1941
Hostname: R3

Port	Link	VLAN	IP Address	IPv6 Address	MAC Address
GigabitEthernet0/0	Up	--	192.168.3.1/24	<not set>	0004.9A53.B301
GigabitEthernet0/1	Down	--	<not set>	<not set>	0004.9A53.B302
Serial0/0/0	Up	--	192.168.13.1/30	<not set>	<not set>
Serial0/0/1	Up	--	192.168.23.1/30	<not set>	<not set>
Vlan1	Down	1	<not set>	<not set>	00E0.A3A2.E4B8

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > R3

Konfiguracja protokołu trasowania

```
R1>show ip protocols
```

```
Routing Protocol is "ospf 1"
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Router ID 1.1.1.1
  Number of areas in this router is 1. 1 normal 0 stub 0 nssa
  Maximum path: 4
  Routing for Networks:
    192.168.1.0 0.0.0.255 area 0
    192.168.12.0 0.0.0.3 area 0
    192.168.13.0 0.0.0.3 area 0
  Routing Information Sources:
    Gateway         Distance      Last Update
    1.1.1.1          110          00:03:49
    2.2.2.2          110          00:03:49
    3.3.3.3          110          00:03:49
  Distance: (default is 110)
```

```
R1>show ip ospf
Routing Process "ospf 1" with ID 1.1.1.1
Supports only single TOS(TOS0) routes
Supports opaque LSA
SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
Number of external LSA 1. Checksum Sum 0x00e0e9
Number of opaque AS LSA 0. Checksum Sum 0x000000
Number of DCbitless external and opaque AS LSA 0
Number of DoNotAge external and opaque AS LSA 0
Number of areas in this router is 1. 1 normal 0 stub 0 nssa
External flood list length 0
  Area BACKBONE(0)
    Number of interfaces in this area is 3
    Area has no authentication
    SPF algorithm executed 3 times
    Area ranges are
    Number of LSA 3. Checksum Sum 0x00e9a8
    Number of opaque link LSA 0. Checksum Sum 0x000000
    Number of DCbitless LSA 0
    Number of indication LSA 0
    Number of DoNotAge LSA 0
    Flood list length 0
```

R2>show ip protocols

Routing Protocol is "ospf 1"

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

Router ID 2.2.2.2

It is an autonomous system boundary router

Redistributing External Routes from,

Number of areas in this router is 1. 1 normal 0 stub 0 nssa

Maximum path: 4

Routing for Networks:

192.168.12.0 0.0.0.3 area 0

192.168.23.0 0.0.0.3 area 0

Routing Information Sources:

Gateway	Distance	Last Update
---------	----------	-------------

1.1.1.1	110	00:04:18
---------	-----	----------

2.2.2.2	110	00:04:18
---------	-----	----------

3.3.3.3	110	00:04:18
---------	-----	----------

Distance: (default is 110)

R2>show ip ospf

Routing Process "ospf 1" with ID 2.2.2.2

Supports only single TOS(TOS0) routes

Supports opaque LSA

SPF schedule delay 5 secs, Hold time between two SPFs 10 secs

Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs

Number of external LSA 1. Checksum Sum 0x00e0e9

Number of opaque AS LSA 0. Checksum Sum 0x000000

Number of DCbitless external and opaque AS LSA 0

Number of DoNotAge external and opaque AS LSA 0

Number of areas in this router is 1. 1 normal 0 stub 0 nssa

External flood list length 0

Area BACKBONE(0)

Number of interfaces in this area is 2

Area has no authentication

SPF algorithm executed 3 times

Area ranges are

Number of LSA 3. Checksum Sum 0x00e9a8

Number of opaque link LSA 0. Checksum Sum 0x000000

Number of DCbitless LSA 0

Number of indication LSA 0

Number of DoNotAge LSA 0

Flood list length 0

R3>show ip protocols

Routing Protocol is "ospf 1"

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

Router ID 3.3.3.3

Number of areas in this router is 1. 1 normal 0 stub 0 nssa

Maximum path: 4

Routing for Networks:

192.168.3.0 0.0.0.255 area 0

192.168.13.0 0.0.0.3 area 0

192.168.23.0 0.0.0.3 area 0

Routing Information Sources:

Gateway	Distance	Last Update
---------	----------	-------------

1.1.1.1	110	00:04:42
---------	-----	----------

2.2.2.2	110	00:04:42
---------	-----	----------

3.3.3.3	110	00:04:42
---------	-----	----------

Distance: (default is 110)

R3>show ip ospf

Routing Process "ospf 1" with ID 3.3.3.3

Supports only single TOS(TOS0) routes

Supports opaque LSA

SPF schedule delay 5 secs, Hold time between two SPFs 10 secs

Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs

Number of external LSA 1. Checksum Sum 0x00e0e9

Number of opaque AS LSA 0. Checksum Sum 0x000000

Number of DCbitless external and opaque AS LSA 0

Number of DoNotAge external and opaque AS LSA 0

Number of areas in this router is 1. 1 normal 0 stub 0 nssa

External flood list length 0

Area BACKBONE(0)

Number of interfaces in this area is 3

Area has no authentication

SPF algorithm executed 2 times

Area ranges are

Number of LSA 3. Checksum Sum 0x00e9a8

Number of opaque link LSA 0. Checksum Sum 0x000000

Number of DCbitless LSA 0

Number of indication LSA 0

Number of DoNotAge LSA 0

Flood list length 0

Pingi na klientach

```
C:\>ping 209.165.200.225

Pinging 209.165.200.225 with 32 bytes of data:

Reply from 209.165.200.225: bytes=32 time=15ms TTL=254
Reply from 209.165.200.225: bytes=32 time=14ms TTL=254
Reply from 209.165.200.225: bytes=32 time=16ms TTL=254
Reply from 209.165.200.225: bytes=32 time=13ms TTL=254

Ping statistics for 209.165.200.225:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 13ms, Maximum = 16ms, Average = 14ms

C:\>ping 192.168.3.3

Pinging 192.168.3.3 with 32 bytes of data:

Reply from 192.168.3.3: bytes=32 time=27ms TTL=126
Reply from 192.168.3.3: bytes=32 time=22ms TTL=126
Reply from 192.168.3.3: bytes=32 time=17ms TTL=126
Reply from 192.168.3.3: bytes=32 time=35ms TTL=126

Ping statistics for 192.168.3.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 17ms, Maximum = 35ms, Average = 25ms
```

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 209.165.200.225

Pinging 209.165.200.225 with 32 bytes of data:

Reply from 209.165.200.225: bytes=32 time=17ms TTL=254
Reply from 209.165.200.225: bytes=32 time=18ms TTL=254
Reply from 209.165.200.225: bytes=32 time=16ms TTL=254
Reply from 209.165.200.225: bytes=32 time=18ms TTL=254

Ping statistics for 209.165.200.225:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 16ms, Maximum = 18ms, Average = 17ms

C:\>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time=23ms TTL=125
Reply from 192.168.1.3: bytes=32 time=22ms TTL=125
Reply from 192.168.1.3: bytes=32 time=13ms TTL=125
Reply from 192.168.1.3: bytes=32 time=9ms TTL=125

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 9ms, Maximum = 23ms, Average = 16ms

C:\>
```

Podsumowanie

Zadanie polegało na budowie prostej sieci z wykorzystaniem zaawansowanych funkcji protokołu OSPFv2, zgodnie z dostarczonymi instrukcjami, oraz na korygowaniu ewentualnych błędów. Dzięki notatkom z poprzednich zadań, łatwo było zidentyfikować i uzupełnić brakujące polecenia.