

# Lokalne sieci komputerowe

## Sprawozdanie z laboratorium

Data	Tytuł zajęć	Uczestnicy
07.04.2021 9:15	Podstawowa konfiguracja protokołu EIGRP	Bartosz Rodziewicz (226105)

### Podstawowa konfiguracja protokołu EIGRP dla IPv4

#### Tabela routingu

<pre>R1-226105(config)# R1-226105(config)# R1-226105(config-router)#router eigrp 10 R1-226105(config-router)#passive-interface g0/0 R1-226105(config-router)#2 R1-226105# %SYS-5-CONFIG_I: Configured from console by console  R1-226105#show ip route Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2 E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area * - candidate default, U - per-user static route, o - ODR P - periodic downloaded static route  Gateway of last resort is not set  10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks C 10.1.1.0/30 is directly connected, Serial0/0/0 C 10.1.1.1/32 is directly connected, Serial0/0/0 D 10.2.2.0/30 [90/2681856] via 10.1.1.2, 00:01:59, Serial0/0/0 C 10.3.3.0/30 is directly connected, Serial0/0/1 C 10.3.3.1/32 is directly connected, Serial0/0/1 C 10.3.3.1/24 is variably subnetted, 2 subnets, 2 masks L 152.168.1.0/24 is directly connected, GigabitEthernet0/0 L 152.168.1.1/32 is directly connected, GigabitEthernet0/0 D 152.168.2.0/24 [90/2172416] via 10.1.1.2, 00:05:03, Serial0/0/0 D 152.168.3.0/24 [90/2172416] via 10.3.3.2, 00:04:45, Serial0/0/1  R1-226105#</pre>	<pre>R2-226105(config-if)# R2-226105(config-if)#router eigrp 10 R2-226105(config-router)#passive-interface g0/0 R2-226105(config-router)#2 R2-226105# %SYS-5-CONFIG_I: Configured from console by console  R2-226105#show ip route Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2 E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area * - candidate default, U - per-user static route, o - ODR P - periodic downloaded static route  Gateway of last resort is not set  10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks C 10.1.1.0/30 is directly connected, Serial0/0/0 C 10.1.1.1/32 is directly connected, Serial0/0/0 C 10.2.2.0/30 is directly connected, Serial0/0/1 L 10.2.2.1/32 is directly connected, Serial0/0/1 D 10.3.3.0/30 [90/2681856] via 10.1.1.1, 00:01:48, Serial0/0/0 D 152.168.1.0/24 [90/1794860] via 10.1.1.1, 00:01:49, Serial0/0/0 L 152.168.2.0/24 is variably subnetted, 2 subnets, 2 masks C 152.168.2.0/24 is directly connected, GigabitEthernet0/0 L 152.168.2.1/32 is directly connected, GigabitEthernet0/0 D 152.168.3.0/24 [90/1794860] via 10.2.2.1, 00:01:47, Serial0/0/1  R2-226105#</pre>	<pre>R3-226105(config-if)# R3-226105(config-if)# R3-226105(config-router)#router eigrp 10 R3-226105(config-router)#passive-interface g0/0 R3-226105(config-router)#2 R3-226105# %SYS-5-CONFIG_I: Configured from console by console  R3-226105#show ip route Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2 E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area * - candidate default, U - per-user static route, o - ODR P - periodic downloaded static route  Gateway of last resort is not set  10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks D 10.1.1.0/30 [90/13824000] via 10.2.2.2, 00:01:40, Serial0/0/1 C 10.2.2.0/30 is directly connected, Serial0/0/1 L 10.2.2.1/32 is directly connected, Serial0/0/1 C 10.3.3.0/30 is directly connected, Serial0/0/0 L 10.3.3.2/32 is directly connected, Serial0/0/0 D 152.168.1.0/24 [90/13824660] via 10.2.2.2, 00:01:40, Serial0/0/1 D 152.168.2.0/24 [90/13314560] via 10.2.2.2, 00:01:40, Serial0/0/1 L 152.168.3.0/24 is variably subnetted, 2 subnets, 2 masks C 152.168.3.0/24 is directly connected, GigabitEthernet0/0 L 152.168.3.1/32 is directly connected, GigabitEthernet0/0  R3-226105#</pre>
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#### Pingi pomiędzy komputerami

<pre>PC-A Physical Config Desktop Programming Attributes Command Prompt C:\&gt;ping 192.168.2.3  Pinging 192.168.2.3 with 32 bytes of data:  Reply from 192.168.2.3: bytes=32 time=15ms TTL=126 Reply from 192.168.2.3: bytes=32 time=9ms TTL=126 Reply from 192.168.2.3: bytes=32 time=11ms TTL=126 Reply from 192.168.2.3: bytes=32 time=12ms TTL=126  Ping statistics for 192.168.2.3:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 9ms, Maximum = 15ms, Average = 11ms  C:\&gt;ping 192.168.3.3  Pinging 192.168.3.3 with 32 bytes of data:  Reply from 192.168.3.3: bytes=32 time=2ms TTL=126 Reply from 192.168.3.3: bytes=32 time=1ms TTL=126 Reply from 192.168.3.3: bytes=32 time=10ms TTL=126 Reply from 192.168.3.3: bytes=32 time=7ms 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 = 10ms, Maximum = 21ms, Average = 14ms</pre>	<pre>PC-B Physical Config Desktop Programming Attributes Command Prompt C:\&gt;ping 192.168.1.3  Pinging 192.168.1.3 with 32 bytes of data:  Reply from 192.168.1.3: bytes=32 time=16ms TTL=126 Reply from 192.168.1.3: bytes=32 time=11ms TTL=126 Reply from 192.168.1.3: bytes=32 time=13ms TTL=126 Reply from 192.168.1.3: bytes=32 time=10ms TTL=126  Ping statistics for 192.168.1.3:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 10ms, Maximum = 16ms, Average = 12ms  C:\&gt;ping 192.168.3.3  Pinging 192.168.3.3 with 32 bytes of data:  Reply from 192.168.3.3: bytes=32 time=12ms TTL=126 Reply from 192.168.3.3: bytes=32 time=12ms TTL=126 Reply from 192.168.3.3: bytes=32 time=12ms TTL=126 Reply from 192.168.3.3: bytes=32 time=11ms 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 = 11ms, Maximum = 16ms, Average = 12ms</pre>	<pre>PC-C Physical Config Desktop Programming Attributes Command Prompt C:\&gt;ping 192.168.2.3  Pinging 192.168.2.3 with 32 bytes of data:  Reply from 192.168.2.3: bytes=32 time=14ms TTL=126 Reply from 192.168.2.3: bytes=32 time=9ms TTL=126 Reply from 192.168.2.3: bytes=32 time=11ms TTL=126 Reply from 192.168.2.3: bytes=32 time=11ms TTL=126  Ping statistics for 192.168.2.3:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 9ms, Maximum = 16ms, Average = 11ms  C:\&gt;ping 192.168.1.3  Pinging 192.168.1.3 with 32 bytes of data:  Reply from 192.168.1.3: bytes=32 time=19ms TTL=126 Reply from 192.168.1.3: bytes=32 time=16ms TTL=126 Reply from 192.168.1.3: bytes=32 time=12ms TTL=126 Reply from 192.168.1.3: bytes=32 time=17ms TTL=126  Ping statistics for 192.168.1.3:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 12ms, Maximum = 19ms, Average = 16ms</pre>
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#### Do przemyślenia

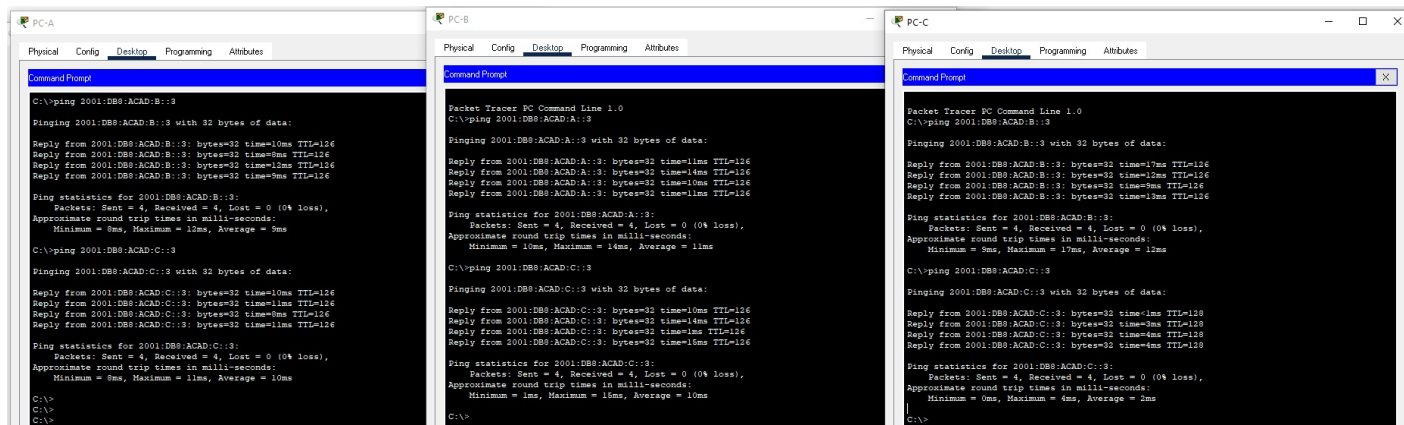
- Mogłeś wykorzystać tylko routing statyczny w tym laboratorium. Jakie są zalety korzystania z EIGRP? EIGRP jest w stanie automatycznie dopasowywać się do zmian topologii sieci, jak dodanie czy odłączenie jakiegś sieci. Dodatkowo EIGRP automatycznie wybiera najlepszą trasę gdy następuje zmiana szerokości pasma oraz posiada automatyczny load balancing w przypadku istnienia dwóch lub więcej tras o takim samym koszcie.

### Podstawowa konfiguracja protokołu EIGRP dla IPv6

#### Tabela routingu

<pre>R1-226105(config-if)#2 R1-226105# %SYS-5-CONFIG_I: Configured from console by console  R1-226105#show ipv6 eigrp topology IPv6-EIGRP Topology Table for AS 1/ID(1.1.1.1)  Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,        r - Reply status  P 2001::DB8::ACAD:A::/64, 1 successors, FD is 5120     via Connected, GigabitEthernet0/0 P 2001::DB8::ACAD:B::/64, 1 successors, FD is 2172416     via FE80::3 (2172416/5120), Serial0/0/0 P 2001::DB8::ACAD:C::/64, 1 successors, FD is 2172416     via FE80::3 (2172416/5120), Serial0/0/1 P 2001::DB8::ACAD:D::/64, 1 successors, FD is 2169856     via Connected, Serial0/0/0 P 2001::DB8::ACAD:E::/64, 1 successors, FD is 2169856     via Connected, Serial0/0/1 P 2001::DB8::ACAD:F::/64, 2 successors, FD is 2681856     via FE80::3 (2681856/2169856), Serial0/0/0     via FE80::3 (2681856/2169856), Serial0/0/1 R1-226105#</pre>	<pre>R2-226105(config-if)#2 R2-226105# %SYS-5-CONFIG_I: Configured from console by console  R2-226105#show ipv6 eigrp topology IPv6-EIGRP Topology Table for AS 1/ID(2.2.2.2)  Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,        r - Reply status  P 2001::DB8::ACAD:A::/64, 1 successors, FD is 2172416     via FE80::1 (2172416/5120), Serial0/0/0 P 2001::DB8::ACAD:B::/64, 1 successors, FD is 5120     via Connected, GigabitEthernet0/0 P 2001::DB8::ACAD:C::/64, 1 successors, FD is 2172416     via FE80::3 (2172416/5120), Serial0/0/1 P 2001::DB8::ACAD:D::/64, 1 successors, FD is 2169856     via Connected, Serial0/0/0 P 2001::DB8::ACAD:E::/64, 2 successors, FD is 2681856     via FE80::1 (2681856/2169856), Serial0/0/0     via FE80::3 (2681856/2169856), Serial0/0/1 P 2001::DB8::ACAD:F::/64, 1 successors, FD is 2169856     via Connected, Serial0/0/1 R2-226105#</pre>	<pre>R3-226105(config-if)#2 R3-226105# %SYS-5-CONFIG_I: Configured from console by console  R3-226105#show ipv6 eigrp topology IPv6-EIGRP Topology Table for AS 1/ID(3.3.3.3)  Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,        r - Reply status  P 2001::DB8::ACAD:A::/64, 1 successors, FD is 2172416     via FE80::1 (2172416/5120), Serial0/0/0 P 2001::DB8::ACAD:B::/64, 1 successors, FD is 2172416     via FE80::3 (2172416/5120), Serial0/0/1 P 2001::DB8::ACAD:C::/64, 1 successors, FD is 5120     via Connected, GigabitEthernet0/0 P 2001::DB8::ACAD:D::/64, 2 successors, FD is 2681856     via FE80::1 (2681856/2169856), Serial0/0/1     via FE80::3 (2681856/2169856), Serial0/0/0 P 2001::DB8::ACAD:E::/64, 1 successors, FD is 2169856     via Connected, Serial0/0/0 P 2001::DB8::ACAD:F::/64, 1 successors, FD is 2169856     via Connected, Serial0/0/1 R3-226105#</pre>
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## Pingi pomiędzy komputerami



## Do przemyślenia

- Gdzie można skonfigurować interfejsy pasywne? Dlaczego?  
Interfejsy pasywne najczęściej ustawia się na portach które nie są i nie będą wykorzystywane do podłączenia do innych routerów. Wykorzystanie pasywnego interfejsu powoduje że na danym interfejsie nie będą rozgłaszane komunikaty protokołu routingu powodując zmniejszenie niepotrzebnego ruchu w sieci, ponieważ takie komunikaty są istotne tylko dla routerów. Dodatkowo zastosowanie pasywnych interfejsów zwiększa bezpieczeństwo sieci uniemożliwiając wpięcie dodatkowego routera do sieci, który mógłby zostać wykorzystany do przejęcia ruchu w sieci.
- Jakie są korzyści z korzystania z EIGRP jako protokołu routingu w twojej sieci?  
EIGRP może być wykorzystany w sieciach każdego rozmiaru od bardzo małych do bardzo dużych, wymaga mniej mocy obliczeniowej niż inne protokoły dynamicznego routingu (jak np OSPF) oraz powoduje niewielkie obciążenie sieci swoimi komunikatami routingu.