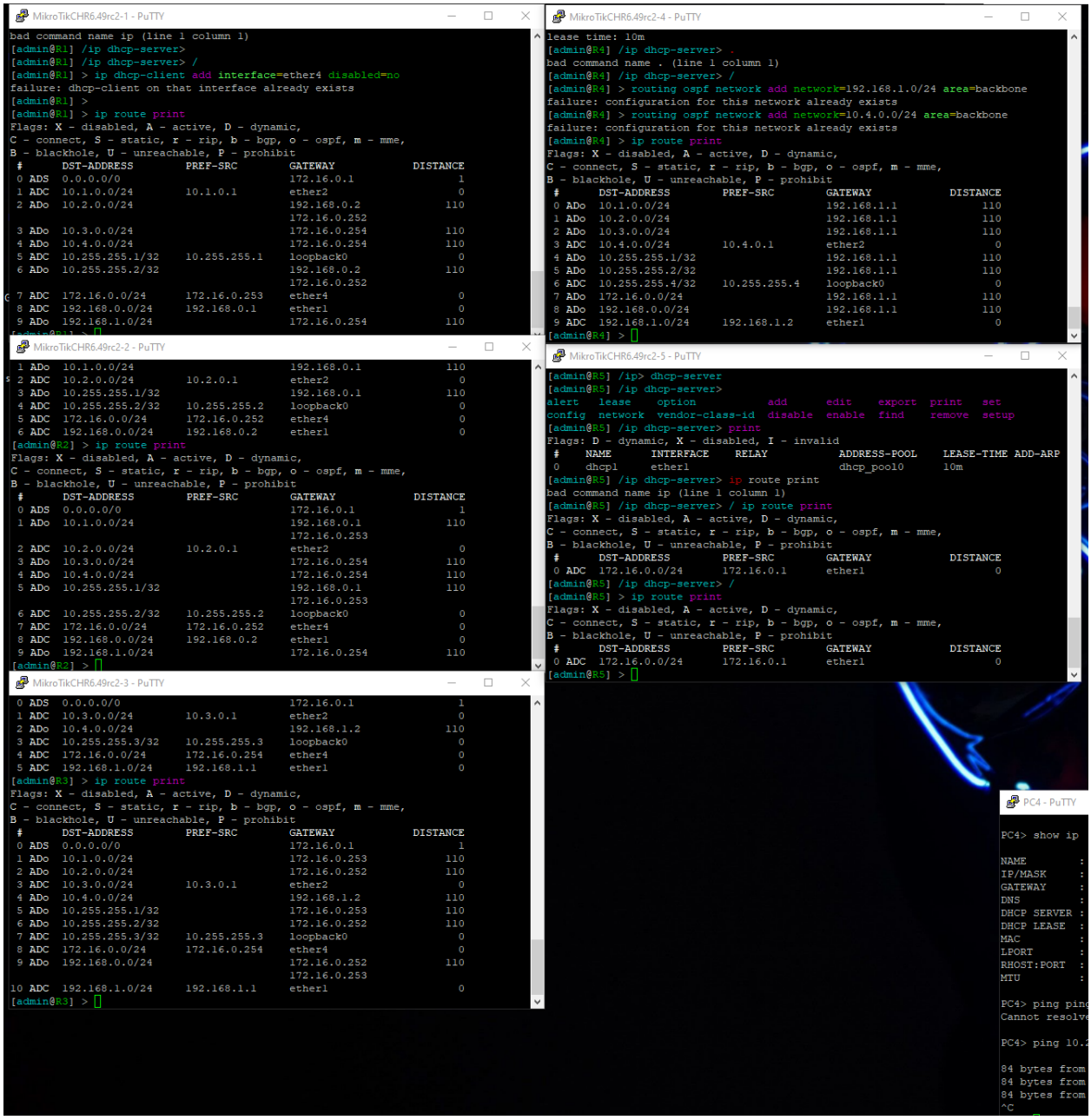

MikroTikCHR6.49rc2-1 - PuTTY
new password> *****
repeat new password> *****
Password changed
[admin@RouterOS] > system identity set name=R1
[admin@R1] > interface bridge add name=loopback0
[admin@R1] > ip address add address=10.255.255.1/32 interface=loopback0
[admin@R1] > ip address add address=192.168.0.1/24 interface=ether1
[admin@R1] > ip address add address=10.1.0.1/24 interface=ether2
[admin@R1] > ip address print
Flags: X - disabled, I - invalid, D - dynamic
ADDRESS NETWORK INTERFACE
0 10.255.255.1/32 10.255.255.1 loopback0
1 192.168.0.1/24 192.168.0.0 ether1
2 10.1.0.1/24 10.1.0.0 ether2
[admin@R1] > ping 10.1.0.42
SEQ HOST SIZE TTL TIME STATUS
0 10.1.0.42 56 64 3ms
1 10.1.0.42 56 64 1ms
2 10.1.0.42 56 64 2ms
3 10.1.0.42 56 64 1ms
sent=4 received=4 packet-loss=0% min-rtt=1ms avg-rtt=1ms max-rtt=3ms
[admin@R1] >
MikroTikCHR6.49rc2-2 - PuTTY
Change your password
new password> *****
repeat new password> *****
Password changed
[admin@RouterOS] > system identity set name=R2
[admin@R2] > interface bridge add name=loopback0
[admin@R2] > ip address add address=10.255.255.2/32 interface=loopback0
[admin@R2] > ip address add address=192.168.0.2/24 interface=ether1
[admin@R2] > ip address add address=10.2.0.1/24 interface=ether2
[admin@R2] > ping 192.168.0.2 count=2
SEQ HOST SIZE TTL TIME STATUS
0 192.168.0.2 56 64 1ms
1 192.168.0.2 56 64 0ms
sent=2 received=2 packet-loss=0% min-rtt=0ms avg-rtt=0ms max-rtt=1ms
[admin@R2] > ip address print
Flags: X - disabled, I - invalid, D - dynamic
ADDRESS NETWORK INTERFACE
0 10.255.255.2/32 10.255.255.2 loopback0
1 192.168.0.2/24 192.168.0.0 ether1
2 10.2.0.1/24 10.2.0.0 ether2
[admin@R2] >
e1
e1
PC1 - PuTTY
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.
Press '?' to get help.
Executing the startup file
PC1> ip 10.1.0.42/24 10.1.0.1
Checking for duplicate address...
PC1 : 10.1.0.42 255.255.255.0 gateway 10.1.0.1
PC1> save
Saving startup configuration to startup.vpc
. done
PC1> ping 10.255.255.1
84 bytes from 10.255.255.1 icmp_seq=1 ttl=64 time=2.185 ms
84 bytes from 10.255.255.1 icmp_seq=2 ttl=64 time=1.130 ms
84 bytes from 10.255.255.1 icmp_seq=3 ttl=64 time=1.305 ms
84 bytes from 10.255.255.1 icmp_seq=4 ttl=64 time=1.802 ms
^C
PC1> S
PC2 - PuTTY
84 bytes from 192.168.0.2 icmp_seq=1 ttl=64 time=2.094 ms
84 bytes from 192.168.0.2 icmp_seq=2 ttl=64 time=1.970 ms
84 bytes from 192.168.0.2 icmp_seq=3 ttl=64 time=1.864 ms
^C
PC2> ip address print
Invalid options
PC2> ping 10.1.0.1
*10.2.0.1 icmp_seq=1 ttl=64 time=3.502 ms (ICMP type:3, code:0, Destination network unreachable)
*10.2.0.1 icmp_seq=2 ttl=64 time=1.249 ms (ICMP type:3, code:0, Destination network unreachable)
*10.2.0.1 icmp_seq=3 ttl=64 time=1.077 ms (ICMP type:3, code:0, Destination network unreachable)
^C
PC2> ping 10.255.255.2
84 bytes from 10.255.255.2 icmp_seq=1 ttl=64 time=2.859 ms
84 bytes from 10.255.255.2 icmp_seq=2 ttl=64 time=1.246 ms
84 bytes from 10.255.255.2 icmp_seq=3 ttl=64 time=1.440 ms
84 bytes from 10.255.255.2 icmp_seq=4 ttl=64 time=1.344 ms
^C
PC2>
e1
e1
PC1 - PuTTY
GATEWAY : 10.1.0.1
DNS :
MAC : 00:50:79:66:68:00
LPORT : 20012
RHOST:PORT : 127.0.0.1:20013
MTU : 1500
PC1> ping 10.1.0.42 count=5
10.1.0.42 icmp_seq=1 ttl=64 time=0.001 ms
10.1.0.42 icmp_seq=2 ttl=64 time=0.001 ms
10.1.0.42 icmp_seq=3 ttl=64 time=0.001 ms
10.1.0.42 icmp_seq=4 ttl=64 time=0.001 ms
10.1.0.42 icmp_seq=5 ttl=64 time=0.001 ms
PC1> ping 10.2.0.42 count=5
84 bytes from 10.2.0.42 icmp_seq=1 ttl=62 time=8.344 ms
84 bytes from 10.2.0.42 icmp_seq=2 ttl=62 time=8.899 ms
84 bytes from 10.2.0.42 icmp_seq=3 ttl=62 time=4.030 ms
84 bytes from 10.2.0.42 icmp_seq=4 ttl=62 time=5.664 ms
84 bytes from 10.2.0.42 icmp_seq=5 ttl=62 time=6.853 ms
PC1>
PC2 - PuTTY
PC2> ipshow
Bad command: "ipshow". Use ? for help.
PC2> show ip
NAME : PC2[1]
IP/MASK : 10.2.0.42/24
GATEWAY : 10.2.0.1
DNS :
MAC : 00:50:79:66:68:01
LPORT : 20030
RHOST:PORT : 127.0.0.1:20031
MTU : 1500
PC2> ping 10.1.0.42 count=5
84 bytes from 10.1.0.42 icmp_seq=1 ttl=62 time=4.860 ms
84 bytes from 10.1.0.42 icmp_seq=2 ttl=62 time=4.686 ms
84 bytes from 10.1.0.42 icmp_seq=3 ttl=62 time=4.363 ms
84 bytes from 10.1.0.42 icmp_seq=4 ttl=62 time=3.918 ms
84 bytes from 10.1.0.42 icmp_seq=5 ttl=62 time=4.239 ms
PC2>
e1
e1


MikroTikCHR6.49rc2-1 - PuTTY
bad command name ip (line 1 column 1)
[admin@R1] /ip dhcp-server>
[admin@R1] /ip dhcp-server> /
[admin@R1] > ip dhcp-client add interface=ether4 disabled=no
failure: dhcp-client on that interface already exists
[admin@R1] >
[admin@R1] > ip route print
Flags: X - disabled, A - active, D - dynamic,
C - connect, S - static, r - rip, b - bgp, o - ospf, m - mme,
B - blackhole, U - unreachable, P - prohibit
DST-ADDRESS PREF-SRC GATEWAY DISTANCE
0 ADS 0.0.0.0/0 172.16.0.1 1
1 ADC 10.1.0.0/24 10.1.0.1 ether2 0
2 ADo 10.2.0.0/24 192.168.0.2 110
172.16.0.252
3 ADo 10.3.0.0/24 172.16.0.254 110
4 ADo 10.4.0.0/24 172.16.0.254 110
5 ADC 10.255.255.1/32 10.255.255.1 loopback0 0
6 ADo 10.255.255.2/32 192.168.0.2 110
172.16.0.252
7 ADC 172.16.0.0/24 172.16.0.253 ether4 0
8 ADC 192.168.0.0/24 192.168.0.1 ether1 0
9 ADo 192.168.1.0/24 172.16.0.254 110
MikroTikCHR6.49rc2-2 - PuTTY
1 ADo 10.1.0.0/24 192.168.0.1 110
2 ADC 10.2.0.0/24 10.2.0.1 ether2 0
3 ADo 10.255.255.1/32 192.168.0.1 110
4 ADC 10.255.255.2/32 10.255.255.2 loopback0 0
5 ADC 172.16.0.0/24 172.16.0.252 ether4 0
6 ADC 192.168.0.0/24 192.168.0.2 ether1 0
[admin@R2] > ip route print
Flags: X - disabled, A - active, D - dynamic,
C - connect, S - static, r - rip, b - bgp, o - ospf, m - mme,
B - blackhole, U - unreachable, P - prohibit
DST-ADDRESS PREF-SRC GATEWAY DISTANCE
0 ADS 0.0.0.0/0 172.16.0.1 1
1 ADo 10.1.0.0/24 192.168.0.1 110
172.16.0.253
2 ADC 10.2.0.0/24 10.2.0.1 ether2 0
3 ADo 10.3.0.0/24 172.16.0.254 110
4 ADo 10.4.0.0/24 172.16.0.254 110
5 ADo 10.255.255.1/32 192.168.0.1 110
172.16.0.253
6 ADC 10.255.255.2/32 10.255.255.2 loopback0 0
7 ADC 172.16.0.0/24 172.16.0.252 ether4 0
8 ADC 192.168.0.0/24 192.168.0.2 ether1 0
9 ADo 192.168.1.0/24 172.16.0.254 110
[admin@R2] >
MikroTikCHR6.49rc2-3 - PuTTY
0 ADS 0.0.0.0/0 172.16.0.1 1
1 ADC 10.3.0.0/24 10.3.0.1 ether2 0
2 ADo 10.4.0.0/24 192.168.1.2 110
3 ADC 10.255.255.3/32 10.255.255.3 loopback0 0
4 ADC 172.16.0.0/24 172.16.0.254 ether4 0
5 ADC 192.168.1.0/24 192.168.1.1 ether1 0
[admin@R3] > ip route print
Flags: X - disabled, A - active, D - dynamic,
C - connect, S - static, r - rip, b - bgp, o - ospf, m - mme,
B - blackhole, U - unreachable, P - prohibit
DST-ADDRESS PREF-SRC GATEWAY DISTANCE
0 ADS 0.0.0.0/0 172.16.0.1 1
1 ADo 10.1.0.0/24 172.16.0.253 110
2 ADo 10.2.0.0/24 172.16.0.252 110
3 ADC 10.3.0.0/24 10.3.0.1 ether2 0
4 ADo 10.4.0.0/24 192.168.1.2 110
5 ADo 10.255.255.1/32 172.16.0.253 110
6 ADo 10.255.255.2/32 172.16.0.252 110
7 ADC 10.255.255.3/32 10.255.255.3 loopback0 0
8 ADC 172.16.0.0/24 172.16.0.254 ether4 0
9 ADo 192.168.0.0/24 172.16.0.252 110
172.16.0.253
10 ADC 192.168.1.0/24 192.168.1.1 ether1 0
[admin@R3] >
MikroTikCHR6.49rc2-4 - PuTTY
lease time: 10m
[admin@R4] /ip dhcp-server> .
bad command name . (line 1 column 1)
[admin@R4] /ip dhcp-server> /
[admin@R4] > routing ospf network add network=192.168.1.0/24 area=backbone
failure: configuration for this network already exists
[admin@R4] > routing ospf network add network=10.4.0.0/24 area=backbone
failure: configuration for this network already exists
[admin@R4] > ip route print
Flags: X - disabled, A - active, D - dynamic,
C - connect, S - static, r - rip, b - bgp, o - ospf, m - mme,
B - blackhole, U - unreachable, P - prohibit
DST-ADDRESS PREF-SRC GATEWAY DISTANCE
0 ADo 10.1.0.0/24 192.168.1.1 110
1 ADo 10.2.0.0/24 192.168.1.1 110
2 ADo 10.3.0.0/24 192.168.1.1 110
3 ADC 10.4.0.0/24 10.4.0.1 ether2 0
4 ADo 10.255.255.1/32 192.168.1.1 110
5 ADo 10.255.255.2/32 192.168.1.1 110
6 ADC 10.255.255.4/32 10.255.255.4 loopback0 0
7 ADo 172.16.0.0/24 192.168.1.1 110
8 ADo 192.168.0.0/24 192.168.1.1 110
9 ADC 192.168.1.0/24 192.168.1.2 ether1 0
[admin@R4] >
MikroTikCHR6.49rc2-5 - PuTTY
[admin@R5] /ip> dhcp-server
[admin@R5] /ip dhcp-server>
alert lease option add edit export print set
config network vendor-class-id disable enable find remove setup
[admin@R5] /ip dhcp-server> print
Flags: D - dynamic, X - disabled, I - invalid
NAME INTERFACE RELAY ADDRESS-POOL LEASE-TIME ADD-ARP
0 dhcp1 ether1 dhcp_pool0 10m
[admin@R5] /ip dhcp-server> ip route print
bad command name ip (line 1 column 1)
[admin@R5] /ip dhcp-server> / ip route print
Flags: X - disabled, A - active, D - dynamic,
C - connect, S - static, r - rip, b - bgp, o - ospf, m - mme,
B - blackhole, U - unreachable, P - prohibit
DST-ADDRESS PREF-SRC GATEWAY DISTANCE
0 ADC 172.16.0.0/24 172.16.0.1 ether1 0
[admin@R5] /ip dhcp-server> /
[admin@R5] > ip route print
Flags: X - disabled, A - active, D - dynamic,
C - connect, S - static, r - rip, b - bgp, o - ospf, m - mme,
B - blackhole, U - unreachable, P - prohibit
DST-ADDRESS PREF-SRC GATEWAY DISTANCE
0 ADC 172.16.0.0/24 172.16.0.1 ether1 0
[admin@R5] >
PC4 - PuTTY
PC4> show ip
NAME :
IP/MASK :
GATEWAY :
DNS :
DHCP SERVER :
DHCP LEASE :
MAC :
LPORT :
RHOST:PORT :
MTU :
PC4> ping ping
Cannot resolve
PC4> ping 10.2
84 bytes from
84 bytes from
84 bytes from
^C

PC1 - PuTTY

```
84 bytes from 10.4.0.254 icmp_seq=3 ttl=61 time=9.761 ms
84 bytes from 10.4.0.254 icmp_seq=4 ttl=61 time=6.278 ms
84 bytes from 10.4.0.254 icmp_seq=5 ttl=61 time=10.899 ms
^C
PC1> show ip

NAME        : PC1[1]
IP/MASK     : 10.1.0.42/24
GATEWAY     : 10.1.0.1
DNS         :
MAC         : 00:50:79:66:68:00
LPORT       : 20012
RHOST:PORT  : 127.0.0.1:20013
MTU         : 1500

PC1> ping 10.1.0.42 count=5

10.1.0.42 icmp_seq=1 ttl=64 time=0.001 ms
10.1.0.42 icmp_seq=2 ttl=64 time=0.001 ms
10.1.0.42 icmp_seq=3 ttl=64 time=0.001 ms
10.1.0.42 icmp_seq=4 ttl=64 time=0.001 ms
10.1.0.42 icmp_seq=5 ttl=64 time=0.001 ms

PC1>
```

PC2 - PuTTY

```
84 bytes from 10.4.0.253 icmp_seq=2 ttl=61 time=8.615 ms
84 bytes from 10.4.0.253 icmp_seq=3 ttl=61 time=7.346 ms
84 bytes from 10.4.0.253 icmp_seq=4 ttl=61 time=9.192 ms
84 bytes from 10.4.0.253 icmp_seq=5 ttl=61 time=8.065 ms

PC2> trace 10.4.0.253
trace to 10.4.0.253, 8 hops max, press Ctrl+C to stop
 1   10.2.0.1   1.365 ms  0.885 ms  1.097 ms
 2   172.16.0.254   8.035 ms  3.914 ms  3.626 ms
 3   192.168.1.2   5.096 ms  7.245 ms  4.651 ms
 4   *10.4.0.253   4.603 ms (ICMP type:3, code:3, Destination port unreachable)

PC2> trace 10.4.0.253
trace to 10.4.0.253, 8 hops max, press Ctrl+C to stop
 1   *10.2.0.1   5.532 ms (ICMP type:3, code:0, Destination network unreachable)

PC2> trace 10.4.0.1
trace to 10.4.0.1, 8 hops max, press Ctrl+C to stop
 1   10.2.0.1   3.652 ms  2.573 ms  1.155 ms
 2   192.168.0.1   11.664 ms  5.635 ms  5.629 ms
 3   172.16.0.254   10.612 ms  7.048 ms  3.761 ms
 4   *10.4.0.1   15.121 ms (ICMP type:3, code:3, Destination port unreachable)

PC2> trace 10.4.0.253
trace to 10.4.0.253, 8 hops max, press Ctrl+C to stop
 1   10.2.0.1   2.289 ms  0.941 ms  1.279 ms
 2   192.168.0.1   4.138 ms  6.821 ms  3.323 ms
 3   172.16.0.254   5.600 ms  6.694 ms  5.077 ms
 4   192.168.1.2   10.539 ms  8.546 ms  6.666 ms
 5   *10.4.0.253   15.688 ms (ICMP type:3, code:3, Destination port unreachable)

PC2>
```

PC4 - PuTTY

```
DHCP SERVER : 10.4.0.1
DHCP LEASE  : 584, 600/300/525
MAC         : 00:50:79:66:68:03
LPORT       : 20076
RHOST:PORT  : 127.0.0.1:20077
MTU         : 1500

PC4> ip show
Invalid address

PC4> show ip

NAME        : PC4[1]
IP/MASK     : 10.4.0.253/24
GATEWAY     : 10.4.0.1
DNS         :
DHCP SERVER : 10.4.0.1
DHCP LEASE  : 440, 600/300/525
MAC         : 00:50:79:66:68:03
LPORT       : 20076
RHOST:PORT  : 127.0.0.1:20077
MTU         : 1500

PC4>
```

PC3 - PuTTY

```
DORA IP 10.3.0.254/24 GW 10.3.0.1

PC3> show ip

NAME        : PC3[1]
IP/MASK     : 10.3.0.254/24
GATEWAY     : 10.3.0.1
DNS         :
DHCP SERVER : 10.3.0.1
DHCP LEASE  : 549, 600/300/525
MAC         : 00:50:79:66:68:02
LPORT       : 20074
RHOST:PORT  : 127.0.0.1:20075
MTU         : 1500

PC3> ping 10.1.0.42 count=5

84 bytes from 10.1.0.42 icmp_seq=1 ttl=62 time=4.614 ms
84 bytes from 10.1.0.42 icmp_seq=2 ttl=62 time=7.397 ms
84 bytes from 10.1.0.42 icmp_seq=3 ttl=62 time=5.641 ms
84 bytes from 10.1.0.42 icmp_seq=4 ttl=62 time=7.954 ms
84 bytes from 10.1.0.42 icmp_seq=5 ttl=62 time=5.082 ms

PC3>
```


MikroTikCHR6.49rc2-1 - PuTTY
bad command name ip (line 1 column 1)
[admin@R1] /ip dhcp-server>
[admin@R1] /ip dhcp-server> /
[admin@R1] > ip dhcp-client add interface=ether4 disabled=no
failure: dhcp-client on that interface already exists
[admin@R1] >
[admin@R1] > ip route print
Flags: X - disabled, A - active, D - dynamic,
C - connect, S - static, r - rip, b - bgp, o - ospf, m - mme,
B - blackhole, U - unreachable, P - prohibit
DST-ADDRESS PREF-SRC GATEWAY DISTANCE
0 ADS 0.0.0.0/0 172.16.0.1 1
1 ADC 10.1.0.0/24 10.1.0.1 ether2 0
2 ADo 10.2.0.0/24 192.168.0.2 110
172.16.0.252
3 ADo 10.3.0.0/24 172.16.0.254 110
4 ADo 10.4.0.0/24 172.16.0.254 110
5 ADC 10.255.255.1/32 10.255.255.1 loopback0 0
6 ADo 10.255.255.2/32 192.168.0.2 110
172.16.0.252
7 ADC 172.16.0.0/24 172.16.0.253 ether4 0
8 ADC 192.168.0.0/24 192.168.0.1 ether1 0
9 ADo 192.168.1.0/24 172.16.0.254 110
MikroTikCHR6.49rc2-2 - PuTTY
2 ADC 10.2.0.0/24 10.2.0.1 ether2 0
3 ADo 10.3.0.0/24 172.16.0.254 110
4 ADo 10.4.0.0/24 172.16.0.254 110
5 ADo 10.255.255.1/32 192.168.0.1 110
172.16.0.253
6 ADC 10.255.255.2/32 10.255.255.2 loopback0 0
7 ADC 172.16.0.0/24 172.16.0.252 ether4 0
8 ADC 192.168.0.0/24 192.168.0.2 ether1 0
9 ADo 192.168.1.0/24 172.16.0.254 110
[admin@R2] > ip route print
Flags: X - disabled, A - active, D - dynamic,
C - connect, S - static, r - rip, b - bgp, o - ospf, m - mme,
B - blackhole, U - unreachable, P - prohibit
DST-ADDRESS PREF-SRC GATEWAY DISTANCE
0 ADo 10.1.0.0/24 192.168.0.1 110
1 ADC 10.2.0.0/24 10.2.0.1 ether2 0
2 ADo 10.3.0.0/24 192.168.0.1 110
3 ADo 10.4.0.0/24 192.168.0.1 110
4 ADo 10.255.255.1/32 192.168.0.1 110
5 ADC 10.255.255.2/32 10.255.255.2 loopback0 0
6 ADo 172.16.0.0/24 192.168.0.1 110
7 ADC 192.168.0.0/24 192.168.0.2 ether1 0
8 ADo 192.168.1.0/24 192.168.0.1 110
[admin@R2] >
MikroTikCHR6.49rc2-3 - PuTTY
0 ADS 0.0.0.0/0 172.16.0.1 1
1 ADC 10.3.0.0/24 10.3.0.1 ether2 0
2 ADo 10.4.0.0/24 192.168.1.2 110
3 ADC 10.255.255.3/32 10.255.255.3 loopback0 0
4 ADC 172.16.0.0/24 172.16.0.254 ether4 0
5 ADC 192.168.1.0/24 192.168.1.1 ether1 0
[admin@R3] > ip route print
Flags: X - disabled, A - active, D - dynamic,
C - connect, S - static, r - rip, b - bgp, o - ospf, m - mme,
B - blackhole, U - unreachable, P - prohibit
DST-ADDRESS PREF-SRC GATEWAY DISTANCE
0 ADS 0.0.0.0/0 172.16.0.1 1
1 ADo 10.1.0.0/24 172.16.0.253 110
2 ADo 10.2.0.0/24 172.16.0.252 110
3 ADC 10.3.0.0/24 10.3.0.1 ether2 0
4 ADo 10.4.0.0/24 192.168.1.2 110
5 ADo 10.255.255.1/32 172.16.0.253 110
6 ADo 10.255.255.2/32 172.16.0.252 110
7 ADC 10.255.255.3/32 10.255.255.3 loopback0 0
8 ADC 172.16.0.0/24 172.16.0.254 ether4 0
9 ADo 192.168.0.0/24 172.16.0.252 110
172.16.0.253
10 ADC 192.168.1.0/24 192.168.1.1 ether1 0
[admin@R3] >
MikroTikCHR6.49rc2-4 - PuTTY
lease time: 10m
[admin@R4] /ip dhcp-server> .
bad command name . (line 1 column 1)
[admin@R4] /ip dhcp-server> /
[admin@R4] > routing ospf network add network=192.168.1.0/24 area=backbone
failure: configuration for this network already exists
[admin@R4] > routing ospf network add network=10.4.0.0/24 area=backbone
failure: configuration for this network already exists
[admin@R4] > ip route print
Flags: X - disabled, A - active, D - dynamic,
C - connect, S - static, r - rip, b - bgp, o - ospf, m - mme,
B - blackhole, U - unreachable, P - prohibit
DST-ADDRESS PREF-SRC GATEWAY DISTANCE
0 ADo 10.1.0.0/24 192.168.1.1 110
1 ADo 10.2.0.0/24 192.168.1.1 110
2 ADo 10.3.0.0/24 192.168.1.1 110
3 ADC 10.4.0.0/24 10.4.0.1 ether2 0
4 ADo 10.255.255.1/32 192.168.1.1 110
5 ADo 10.255.255.2/32 192.168.1.1 110
6 ADC 10.255.255.4/32 10.255.255.4 loopback0 0
7 ADo 172.16.0.0/24 192.168.1.1 110
8 ADo 192.168.0.0/24 192.168.1.1 110
9 ADC 192.168.1.0/24 192.168.1.2 ether1 0
[admin@R4] >
MikroTikCHR6.49rc2-5 - PuTTY
[admin@R5] /ip> dhcp-server
[admin@R5] /ip dhcp-server>
alert lease option add edit export print set
config network vendor-class-id disable enable find remove setup
[admin@R5] /ip dhcp-server> print
Flags: D - dynamic, X - disabled, I - invalid
NAME INTERFACE RELAY ADDRESS-POOL LEASE-TIME ADD-ARP
0 dhcp1 ether1 dhcp_pool0 10m
[admin@R5] /ip dhcp-server> ip route print
bad command name ip (line 1 column 1)
[admin@R5] /ip dhcp-server> / ip route print
Flags: X - disabled, A - active, D - dynamic,
C - connect, S - static, r - rip, b - bgp, o - ospf, m - mme,
B - blackhole, U - unreachable, P - prohibit
DST-ADDRESS PREF-SRC GATEWAY DISTANCE
0 ADC 172.16.0.0/24 172.16.0.1 ether1 0
[admin@R5] /ip dhcp-server> /
[admin@R5] > ip route print
Flags: X - disabled, A - active, D - dynamic,
C - connect, S - static, r - rip, b - bgp, o - ospf, m - mme,
B - blackhole, U - unreachable, P - prohibit
DST-ADDRESS PREF-SRC GATEWAY DISTANCE
0 ADC 172.16.0.0/24 172.16.0.1 ether1 0
[admin@R5] >
PC4 - PuTTY
DHCP SERVER : 10.4.0.1
DHCP LEASE : 584, 600/300/525
MAC : 00:50:79:66:68:03
LPORT : 20076
RHOST:PORT : 127.0.0.1:20077
MTU : 1500
PC4> ip show
Invalid address
PC4> show ip
NAME : PC4[1]
IP/MASK : 10.4.0.253/24
GATEWAY : 10.4.0.1
DNS :
DHCP SERVER : 10.4.0.1
DHCP LEASE : 440, 600/300/525
MAC : 00:50:79:66:68:03
LPORT : 20076
RHOST:PORT : 127.0.0.1:20077
MTU : 1500

OSPF and BGP are two of the most common dynamic routing protocols. What are the primary differences between the two and when would you use one over the other:

BGP uses vector path routing that has a more complicated setup procedure, and takes longer for the routers to share and update information. In contrast, OSPF is more easily configured and can share updates between routers much faster. There are quite a few differences and I have attached a screen shot of my source below, but to choose: OSPF is better for internal networks or smaller networks (compared to WAN) such as a campus, the faster update times means moving devices can be quickly resolved and hierarchical structure can make management easier. BGB is good for ISP's and traversal between regions. If you think of your internet packets as a ball, BGB is the act of throwing it such that a team member can more precisely pass it on

	OSPF	BGP
Gateway Protocol	Internal gateway protocol	External gateway protocol
Implementation	Easy	Complex
Convergence	Fast	Slow
Design	Hierarchical network possible	Meshed
Need for device resources	Memory and CPU Intensive	Scaling is better in BGP although it relies on the size of the routing table
Size of the networks	Used on primarily smaller scale network which could be administered centrally	Mostly used on large scale networks such as the internet
Function	The fastest route is preferred over shortest	Best path is determined for the datagram
Algorithm Used	Dijkstra algorithm	Best path algorithm
Protocol	IP	TCP

Source is from https://community.fs.com/blog/ospf-vs-bgp-routing-protocol-choice.html

What would you need to add to the routers if you want traffic to go through R5? As an example connection, something like this:

I would make a route directly such that R1 goes to R5 and then R5 connections to R3. I'd also point out that this makes the switch redundant and removes it.

What would you need to do if you added another network to Switch 5? Think what happens with traffic from PC2->PC4 and what configuration you would need if you did something like this:

I would make what would be R6 use BGB protocols, then R7 back to OSPF so that the network can continue to grow. As adding the new network boils down to switch 5 talking to R7, any changes WITHIN the new network will not affect the flow of traffic UPTO R.