Assignment 1

CT3531 Networks and Data Communications 2

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Step 1

Assign private IP ranges and addresses on the links between the routers and on the VLAN interfaces.

Step 2

Clients devices on VLANs can be configured using DHCP

```
PC1-VLAN101> dhcp
DORA IP 192.168.101.254/24 GW 192.168.101.1
```

```
PC2-VLAN202> dhcp
DORA IP 192.168.202.254/24 GW 192.168.202.1
```

Step 3

Routers can ping each other over the direct links between each router.

EngBuilding can ping ITBuilding, and CoreRouter

```
[admin@EngBuilding] > ping 10.0.2.2
  SEQ HOST                                     SIZE TTL TIME  STATUS
    0 10.0.2.2                                   56  64 0ms
    1 10.0.2.2                                   56  64 0ms
    2 10.0.2.2                                   56  64 0ms
    sent=3 received=3 packet-loss=0% min-rtt=0ms avg-rtt=0ms max-rtt=0ms

[admin@EngBuilding] > ping 10.0.1.1
  SEQ HOST                                     SIZE TTL TIME  STATUS
    0 10.0.1.1                                   56  64 0ms
    1 10.0.1.1                                   56  64 0ms
    2 10.0.1.1                                   56  64 0ms
    sent=3 received=3 packet-loss=0% min-rtt=0ms avg-rtt=0ms max-rtt=0ms
```

CoreRouter can ping EngBuilding, and ITBuilding

```
[admin@CoreRouter] > ping 10.0.1.2
  SEQ HOST                                     SIZE TTL TIME  STATUS
    0 10.0.1.2                                   56  64 0ms
    1 10.0.1.2                                   56  64 0ms
    2 10.0.1.2                                   56  64 0ms
    sent=3 received=3 packet-loss=0% min-rtt=0ms avg-rtt=0ms max-rtt=0ms

[admin@CoreRouter] > ping 10.0.4.2
  SEQ HOST                                     SIZE TTL TIME  STATUS
    0 10.0.4.2                                   56  64 1ms
    1 10.0.4.2                                   56  64 0ms
    2 10.0.4.2                                   56  64 0ms
    sent=3 received=3 packet-loss=0% min-rtt=0ms avg-rtt=0ms max-rtt=1ms
```

ITBuilding can ping EngBuilding, and CoreRouter

```
[admin@ITBuilding] > ping 10.0.2.1
  SEQ HOST                                     SIZE TTL TIME  STATUS
    0 10.0.2.1                                   56  64 0ms
    1 10.0.2.1                                   56  64 0ms
    2 10.0.2.1                                   56  64 0ms
    sent=3 received=3 packet-loss=0% min-rtt=0ms avg-rtt=0ms max-rtt=0ms

[admin@ITBuilding] > ping 10.0.4.1
  SEQ HOST                                     SIZE TTL TIME  STATUS
    0 10.0.4.1                                   56  64 0ms
    1 10.0.4.1                                   56  64 0ms
    2 10.0.4.1                                   56  64 0ms
    sent=3 received=3 packet-loss=0% min-rtt=0ms avg-rtt=0ms max-rtt=0ms
```

Router configurations so far (for Step 1, 2, and 3 only)

More to date config at the end of doc

EngBuilding

/interface ethernet

set [find default-name=ether1] disable-running-check=no

set [find default-name=ether2] disable-running-check=no

set [find default-name=ether3] disable-running-check=no

set [find default-name=ether4] disable-running-check=no

/interface wireless security-profiles

```
set [ find default=yes ] supplicant-identity=MikroTik
/ip pool
add name=dhcp_pool0 ranges=192.168.101.2-192.168.101.254
/ip dhcp-server
add address-pool=dhcp_pool0 disabled=no interface=ether4
name=dhcp1
/ip address
add address=10.0.2.1/24 interface=ether1 network=10.0.2.0
add address=10.0.1.2/24 interface=ether3 network=10.0.1.0
add address=192.168.101.1/24 interface=ether4 network=192.168.101.0
/ip dhcp-client
add disabled=no interface=ether1
/ip dhcp-server network
add address=192.168.101.0/24 dns-server=8.8.8.8
gateway=192.168.101.1
/system identity
set name=EngBuilding
```

CoreRouter

```
/interface ethernet
set [ find default-name=ether1 ] disable-running-check=no
set [ find default-name=ether2 ] disable-running-check=no
set [ find default-name=ether3 ] disable-running-check=no
set [ find default-name=ether4 ] disable-running-check=no
/interface wireless security-profiles
set [ find default=yes ] supplicant-identity=MikroTik
/ip address
add address=10.0.4.1/24 interface=ether2 network=10.0.4.0
```

```
add address=10.0.1.1/24 interface=ether3 network=10.0.1.0
/ip dhcp-client
add disabled=no interface=ether1
/system identity
set name=CoreRouter

ITBuilding
/interface ethernet
set [ find default-name=ether1 ] disable-running-check=no
set [ find default-name=ether2 ] disable-running-check=no
set [ find default-name=ether3 ] disable-running-check=no
set [ find default-name=ether4 ] disable-running-check=no
/interface wireless security-profiles
set [ find default=yes ] supplicant-identity=MikroTik
/ip pool
add name=dhcp_pool0 ranges=192.168.202.2-192.168.202.254
/ip dhcp-server
add address-pool=dhcp_pool0 disabled=no interface=ether4
name=dhcp1
/routing ospf instance
set [ find default=yes ] redistribute-connected=as-type-1
/ip address
add address=192.168.202.1/24 interface=ether4 network=192.168.202.0
add address=10.0.4.2/24 interface=ether2 network=10.0.4.0
add address=10.0.2.2/24 interface=ether1 network=10.0.2.0
/ip dhcp-client
add disabled=no interface=ether1
/ip dhcp-server network
```

add address=192.168.202.0/24 dns-server=8.8.8.8 gateway=192.168.202.1

/system identity

set name=ITBuilding

Steps 4 – 7 done

Step 8

Each router can then ping the Loopback address on each of the other routers

```
[admin@CoreRouter] > ping 10.10.10.2
  SEQ HOST                                     SIZE TTL TIME  STATUS
    0 10.10.10.2                                 56  64 0ms
    1 10.10.10.2                                 56  64 1ms
    2 10.10.10.2                                 56  64 0ms
    3 10.10.10.2                                 56  64 0ms
    sent=4 received=4 packet-loss=0% min-rtt=0ms avg-rtt=0ms max-rtt=1ms

[admin@CoreRouter] > ping 10.10.10.3
  SEQ HOST                                     SIZE TTL TIME  STATUS
    0 10.10.10.3                                 56  64 1ms
    1 10.10.10.3                                 56  64 0ms
    2 10.10.10.3                                 56  64 1ms
    3 10.10.10.3                                 56  64 1ms
    4 10.10.10.3                                 56  64 0ms
    sent=5 received=5 packet-loss=0% min-rtt=0ms avg-rtt=0ms max-rtt=1ms
```

PC1 can ping PC2

```
PC1-VLAN101> dhcp
DORA IP 192.168.101.254/24 GW 192.168.101.1

PC1-VLAN101> ping 192.168.202.254

84 bytes from 192.168.202.254 icmp_seq=1 ttl=62 time=2.598 ms
84 bytes from 192.168.202.254 icmp_seq=2 ttl=62 time=2.247 ms
84 bytes from 192.168.202.254 icmp_seq=3 ttl=62 time=2.062 ms
84 bytes from 192.168.202.254 icmp_seq=4 ttl=62 time=1.826 ms
84 bytes from 192.168.202.254 icmp_seq=5 ttl=62 time=1.680 ms

PC1-VLAN101>
```

PC2 can ping PC1

```
PC2-VLAN202> dhcp
DORA IP 192.168.202.254/24 GW 192.168.202.1

PC2-VLAN202> ping 192.168.101.254

84 bytes from 192.168.101.254 icmp_seq=1 ttl=62 time=1.909 ms
84 bytes from 192.168.101.254 icmp_seq=2 ttl=62 time=1.773 ms
84 bytes from 192.168.101.254 icmp_seq=3 ttl=62 time=1.961 ms
84 bytes from 192.168.101.254 icmp_seq=4 ttl=62 time=1.867 ms
84 bytes from 192.168.101.254 icmp_seq=5 ttl=62 time=1.878 ms

PC2-VLAN202>
```

Step 9 and 10 done

Step 11

```
PC2-VLAN202> ping 8.8.8.8

8.8.8.8 icmp_seq=1 timeout
8.8.8.8 icmp_seq=2 timeout
8.8.8.8 icmp_seq=3 timeout
8.8.8.8 icmp_seq=4 timeout
8.8.8.8 icmp_seq=5 timeout
```

The internet is not reachable. Not sure why. I am using the remote server and connected to the university LAN.

```
[admin@CoreRouter] /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                          10.226.127.1              1
 1 ADC  10.0.1.0/24        10.0.1.1        ether3                    0
 2 ADo  10.0.2.0/24                        10.0.1.2                110
                                           10.0.4.2
 3 ADC  10.0.4.0/24        10.0.4.1        ether2                    0
 4 ADC  10.10.10.1/32      10.10.10.1      Loopback                  0
 5 ADo  10.10.10.2/32                      10.0.4.2                110
 6 ADo  10.10.10.3/32                      10.0.1.2                110
 7 ADC  10.226.127.0/24    10.226.127.62   ether1                    0
 8 ADo  192.168.101.0/24                   10.0.1.2                110
 9 ADo  192.168.202.0/24                   10.0.4.2                110
[admin@CoreRouter] /ip route>
```

Route #

0: The default route. This route is a default route that the router sends all network traffic that doesn't have a route specified in the route table. Used when devices send data to a destination outside of it's directly connected networks.

1: direct connection to EngBuilding router.

2: connection to ITBuilding via EngBuilding using ospf

3: direct connection to ITBuilding router

4: loopback to the CoreRouter itself

5: ospf route to ITBuilding

6: ospf route to EngBuilding

7: direct connection to the Cloud device

8: an ospf route to VLAN 101 via the gateway 10.0.1.2 (the EngBuilding)

9: an ospf route to VLAN 202 via the gateway 10.0.4.2 (the ITBuilding)

Step 12

If routers were not set up to redistribute connected networks then the routers are not automatically sharing information about directly connected networks with other routers in the ospf domain. Routers will not be aware of certain networks. E.g. The core router would not know about VLAN 101 because route 8 in the routing table would not be present because the EngBuilding router would not have redistributed it's connected networks.

Step 13

ICMP trace from PC1 to PC2

```
PC1-VLAN101> trace 192.168.202.254
trace to 192.168.202.254, 8 hops max, press Ctrl+C to stop
 1   192.168.101.1   0.637 ms  0.527 ms  0.378 ms
 2   10.0.2.2   1.130 ms  0.786 ms  0.880 ms
 3   *192.168.202.254   2.301 ms (ICMP type:3, code:3, Destination port unreachable)

PC1-VLAN101>
```

The packets go:

Floor3-Switch -> EngBuilding -> ITBuilding -> IT102-Switch -> PC2

The EngBuilding has the following line in its routing table.

9 ADo 192.168.202.0/24 10.0.2.2 110

Since 192.168.202.254 is in this network, the router routes this ICMP traffic through gateway 10.0.2.2 which is the ITBuilding.

Step 14

Long ping from the PC1-VLAN101 to PC2-VLAN202 and while this is running the link is suspended.

```
PC1-VLAN101> ping 192.168.202.254 -c 30

84 bytes from 192.168.202.254 icmp_seq=1 ttl=62 time=2.985 ms
84 bytes from 192.168.202.254 icmp_seq=2 ttl=62 time=1.839 ms
84 bytes from 192.168.202.254 icmp_seq=3 ttl=62 time=1.644 ms
84 bytes from 192.168.202.254 icmp_seq=4 ttl=62 time=1.875 ms
192.168.202.254 icmp_seq=5 timeout
84 bytes from 192.168.202.254 icmp_seq=6 ttl=61 time=3.518 ms
84 bytes from 192.168.202.254 icmp_seq=7 ttl=61 time=2.458 ms
84 bytes from 192.168.202.254 icmp_seq=8 ttl=61 time=2.612 ms
84 bytes from 192.168.202.254 icmp_seq=9 ttl=61 time=2.634 ms
84 bytes from 192.168.202.254 icmp_seq=10 ttl=61 time=2.565 ms
84 bytes from 192.168.202.254 icmp_seq=11 ttl=61 time=3.211 ms
84 bytes from 192.168.202.254 icmp_seq=12 ttl=61 time=2.362 ms
```

Step 15

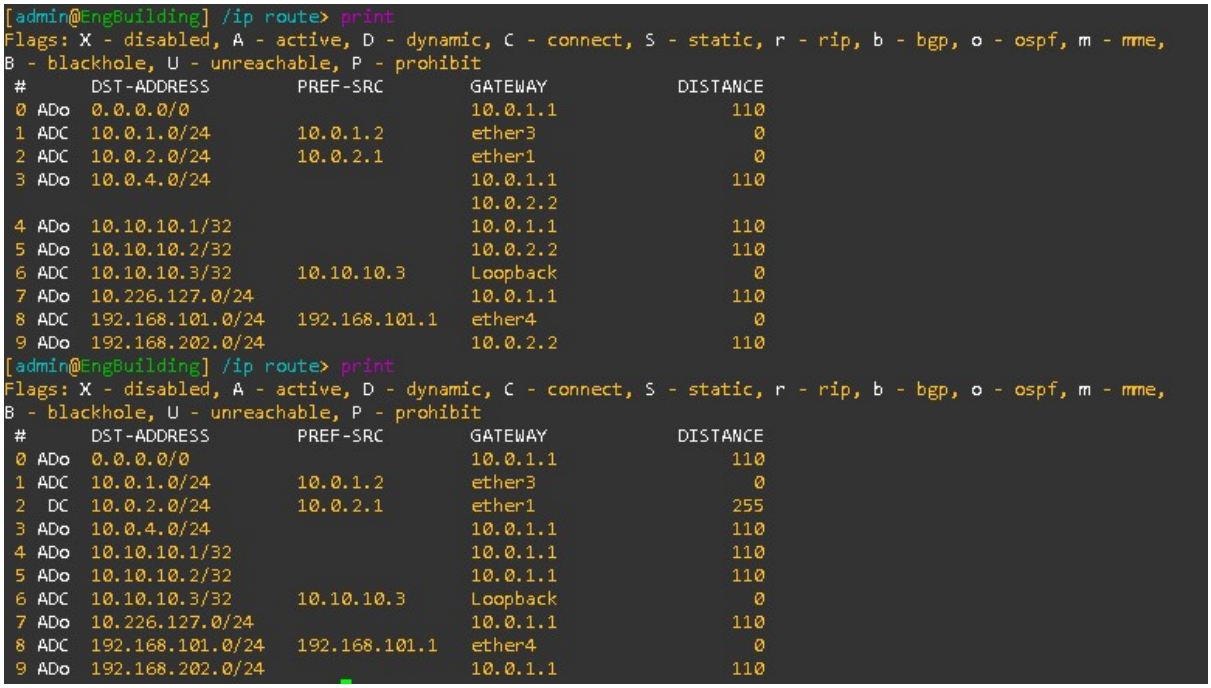
1 ping is dropped when the link is suspended. icmp_seq=5 is dropped.

It takes about 2 seconds for the ping to work again.

The new trace from PC1 to PC2

```
PC1-VLAN101> trace 192.168.202.254
trace to 192.168.202.254, 8 hops max, press Ctrl+C to stop
 1   192.168.101.1   1.572 ms  0.699 ms  0.613 ms
 2   10.0.1.1   2.261 ms  1.597 ms  1.419 ms
 3   10.0.4.2   2.456 ms  1.498 ms  1.358 ms
 4   *192.168.202.254   2.846 ms (ICMP type:3, code:3, Destination port unreachable)
```

When the line was suspended ospf automatically redistributed new routes. As a result route 9’s gateway changed.

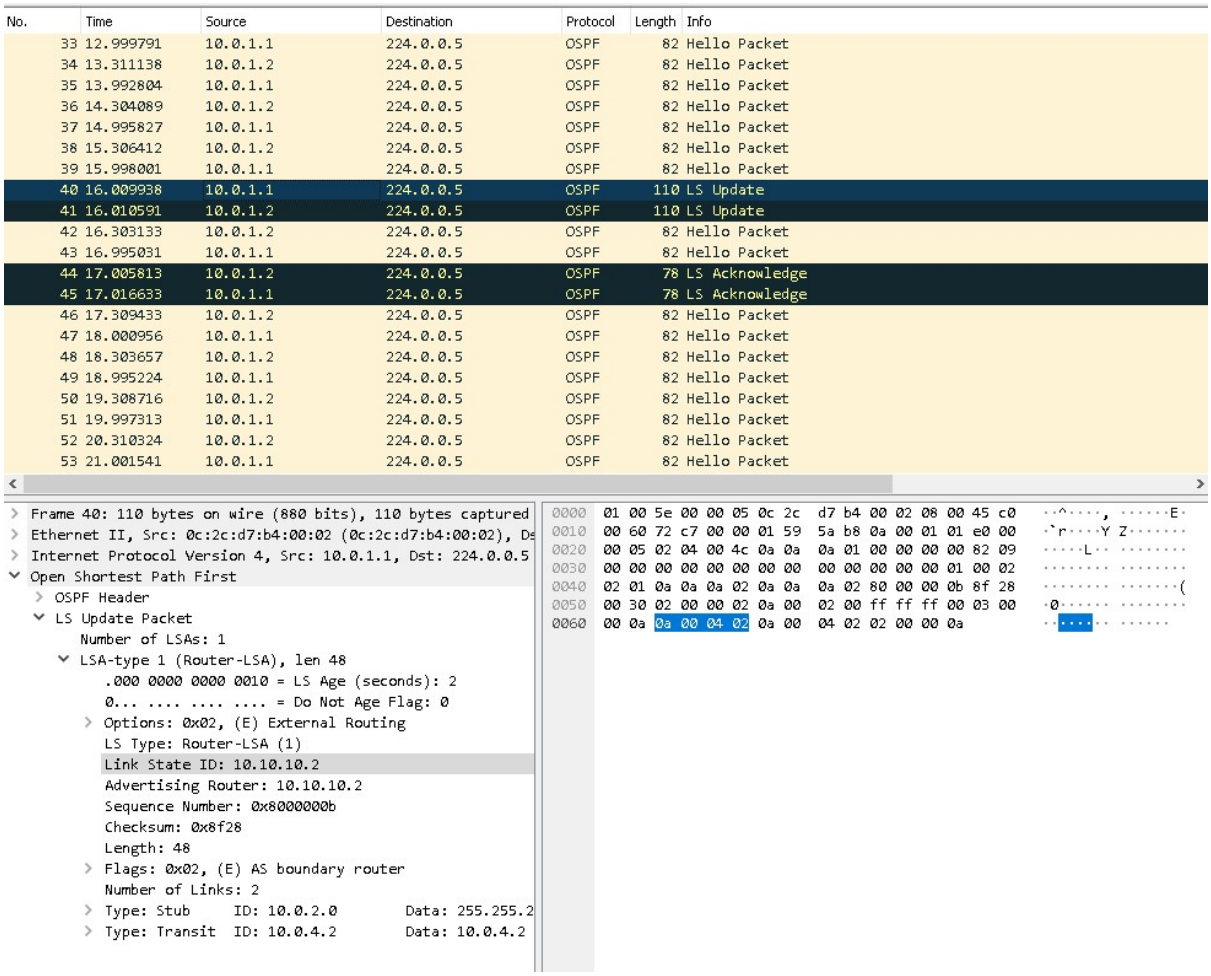


So the packets from PC1 to PC2 take a different route.

The packets now go through:

Floor3-Switch -> EngBuilding -> CoreRouter -> ITBuilding -> IT102-Switch -> PC2

Step 16 - 18



No.	Time	Source	Destination	Protocol	Length	Info
33	12.999791	10.0.1.1	224.0.0.5	OSPF	82	Hello Packet
34	13.311138	10.0.1.2	224.0.0.5	OSPF	82	Hello Packet
35	13.992804	10.0.1.1	224.0.0.5	OSPF	82	Hello Packet
36	14.304089	10.0.1.2	224.0.0.5	OSPF	82	Hello Packet
37	14.995827	10.0.1.1	224.0.0.5	OSPF	82	Hello Packet
38	15.306412	10.0.1.2	224.0.0.5	OSPF	82	Hello Packet
39	15.998001	10.0.1.1	224.0.0.5	OSPF	82	Hello Packet
40	16.009938	10.0.1.1	224.0.0.5	OSPF	110	LS Update
41	16.010591	10.0.1.2	224.0.0.5	OSPF	110	LS Update
42	16.303133	10.0.1.2	224.0.0.5	OSPF	82	Hello Packet
43	16.995031	10.0.1.1	224.0.0.5	OSPF	82	Hello Packet
44	17.005813	10.0.1.2	224.0.0.5	OSPF	78	LS Acknowledge
45	17.016633	10.0.1.1	224.0.0.5	OSPF	78	LS Acknowledge
46	17.309433	10.0.1.2	224.0.0.5	OSPF	82	Hello Packet
47	18.000956	10.0.1.1	224.0.0.5	OSPF	82	Hello Packet
48	18.303657	10.0.1.2	224.0.0.5	OSPF	82	Hello Packet
49	18.995224	10.0.1.1	224.0.0.5	OSPF	82	Hello Packet
50	19.308716	10.0.1.2	224.0.0.5	OSPF	82	Hello Packet
51	19.997313	10.0.1.1	224.0.0.5	OSPF	82	Hello Packet
52	20.310324	10.0.1.2	224.0.0.5	OSPF	82	Hello Packet
53	21.001541	10.0.1.1	224.0.0.5	OSPF	82	Hello Packet

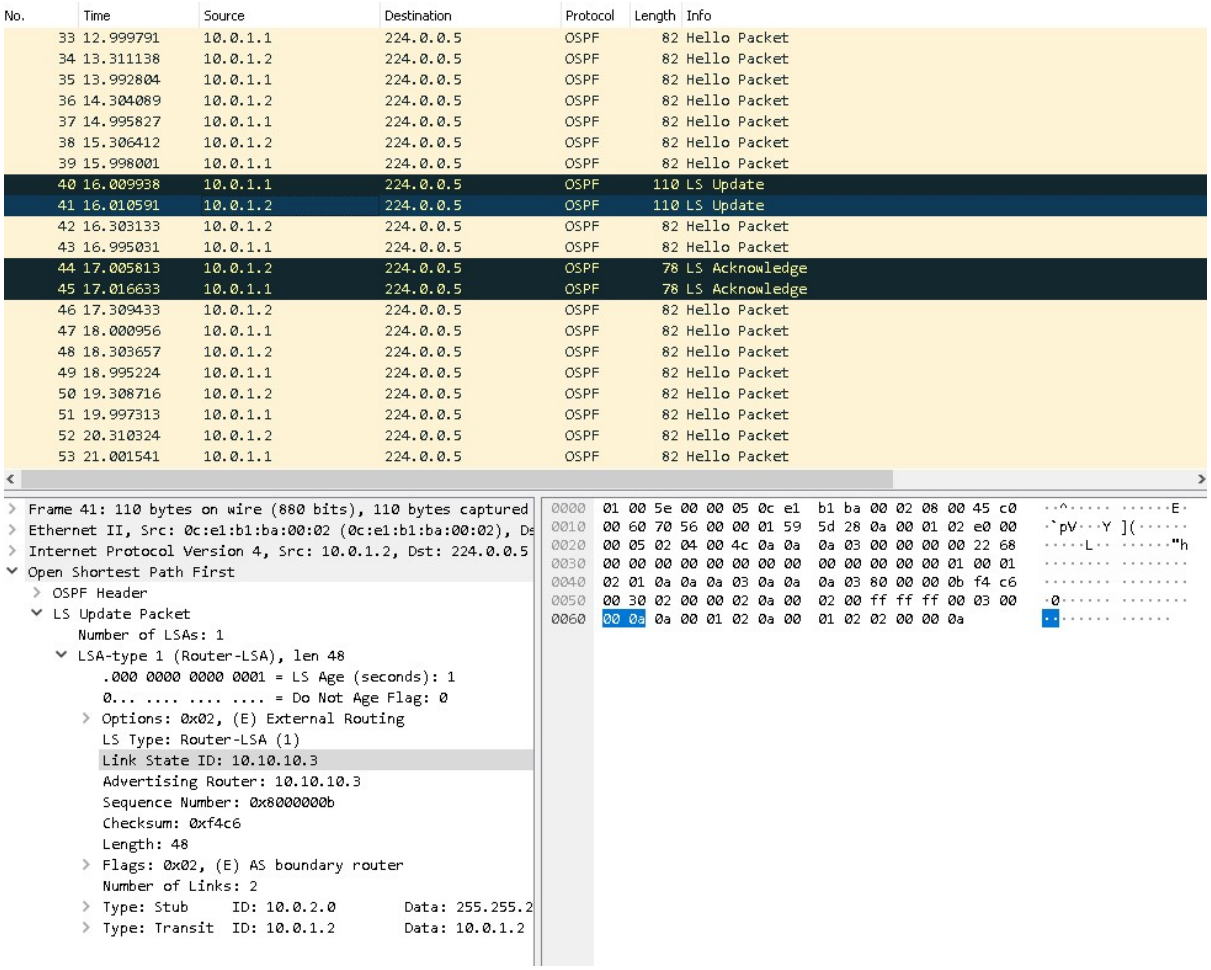
```
> Frame 40: 110 bytes on wire (880 bits), 110 bytes captured
> Ethernet II, Src: 0c:2c:d7:b4:00:02 (0c:2c:d7:b4:00:02), Ds
> Internet Protocol Version 4, Src: 10.0.1.1, Dst: 224.0.0.5
v Open Shortest Path First
  > OSPF Header
  v LS Update Packet
      Number of LSAs: 1
    v LSA-type 1 (Router-LSA), len 48
        .000 0000 0000 0010 = LS Age (seconds): 2
        0... .... .... .... = Do Not Age Flag: 0
      > Options: 0x02, (E) External Routing
        LS Type: Router-LSA (1)
        Link State ID: 10.10.10.2
        Advertising Router: 10.10.10.2
        Sequence Number: 0x8000000b
        Checksum: 0x8f28
        Length: 48
      > Flags: 0x02, (E) AS boundary router
        Number of Links: 2
      > Type: Stub     ID: 10.0.2.0        Data: 255.255.2
      > Type: Transit  ID: 10.0.4.2        Data: 10.0.4.2
```

```
0000  01 00 5e 00 00 05 0c 2c  d7 b4 00 02 08 00 45 c0   ··^····, ·····E·
0010  00 60 72 c7 00 00 01 59  5a b8 0a 00 01 01 e0 00   ·`r····Y Z·····
0020  00 05 02 04 00 4c 0a 0a  0a 01 00 00 00 00 82 09   ·····L·· ········
0030  00 00 00 00 00 00 00 00  00 00 00 00 00 01 00 02   ········ ········
0040  02 01 0a 0a 0a 02 0a 0a  0a 02 80 00 00 0b 8f 28   ········ ·······(
0050  00 30 02 00 00 02 0a 00  02 00 ff ff ff 00 03 00   ·0······ ········
0060  00 0a 0a 00 04 02 0a 00  04 02 02 00 00 0a         ······· ······
```

Link state update from the CoreRouter to the EngBuilding. Contains Link State Announcement for 10.0.2.0, it is accessible via 10.0.4.2.

“The CoreRouter is telling the EngBuilding that it can access the ITBuilding via the CoreRouter.”

This LS Update is acknowledged at packet no. 44.



No.	Time	Source	Destination	Protocol	Length	Info
33	12.999791	10.0.1.1	224.0.0.5	OSPF	82	Hello Packet
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35	13.992804	10.0.1.1	224.0.0.5	OSPF	82	Hello Packet
36	14.304089	10.0.1.2	224.0.0.5	OSPF	82	Hello Packet
37	14.995827	10.0.1.1	224.0.0.5	OSPF	82	Hello Packet
38	15.306412	10.0.1.2	224.0.0.5	OSPF	82	Hello Packet
39	15.998001	10.0.1.1	224.0.0.5	OSPF	82	Hello Packet
40	16.009938	10.0.1.1	224.0.0.5	OSPF	110	LS Update
41	16.010591	10.0.1.2	224.0.0.5	OSPF	110	LS Update
42	16.303133	10.0.1.2	224.0.0.5	OSPF	82	Hello Packet
43	16.995031	10.0.1.1	224.0.0.5	OSPF	82	Hello Packet
44	17.005813	10.0.1.2	224.0.0.5	OSPF	78	LS Acknowledge
45	17.016633	10.0.1.1	224.0.0.5	OSPF	78	LS Acknowledge
46	17.309433	10.0.1.2	224.0.0.5	OSPF	82	Hello Packet
47	18.000956	10.0.1.1	224.0.0.5	OSPF	82	Hello Packet
48	18.303657	10.0.1.2	224.0.0.5	OSPF	82	Hello Packet
49	18.995224	10.0.1.1	224.0.0.5	OSPF	82	Hello Packet
50	19.308716	10.0.1.2	224.0.0.5	OSPF	82	Hello Packet
51	19.997313	10.0.1.1	224.0.0.5	OSPF	82	Hello Packet
52	20.310324	10.0.1.2	224.0.0.5	OSPF	82	Hello Packet
53	21.001541	10.0.1.1	224.0.0.5	OSPF	82	Hello Packet

```
> Frame 41: 110 bytes on wire (880 bits), 110 bytes captured
> Ethernet II, Src: 0c:e1:b1:ba:00:02 (0c:e1:b1:ba:00:02), Ds
> Internet Protocol Version 4, Src: 10.0.1.2, Dst: 224.0.0.5
v Open Shortest Path First
  > OSPF Header
  v LS Update Packet
      Number of LSAs: 1
    v LSA-type 1 (Router-LSA), len 48
        .000 0000 0000 0001 = LS Age (seconds): 1
        0... .... .... .... = Do Not Age Flag: 0
      > Options: 0x02, (E) External Routing
        LS Type: Router-LSA (1)
        Link State ID: 10.10.10.3
        Advertising Router: 10.10.10.3
        Sequence Number: 0x8000000b
        Checksum: 0xf4c6
        Length: 48
      > Flags: 0x02, (E) AS boundary router
        Number of Links: 2
      > Type: Stub     ID: 10.0.2.0        Data: 255.255.2
      > Type: Transit  ID: 10.0.1.2        Data: 10.0.1.2
```

```
0000  01 00 5e 00 00 05 0c e1  b1 ba 00 02 08 00 45 c0   ··^····· ······E·
0010  00 60 70 56 00 00 01 59  5d 28 0a 00 01 02 e0 00   ·`pV···Y ](·····
0020  00 05 02 04 00 4c 0a 0a  0a 03 00 00 00 00 22 68   ·····L·· ·····"h
0030  00 00 00 00 00 00 00 00  00 00 00 00 00 01 00 01   ········ ········
0040  02 01 0a 0a 0a 03 0a 0a  0a 03 80 00 00 0b f4 c6   ········ ········
0050  00 30 02 00 00 02 0a 00  02 00 ff ff ff 00 03 00   ·0······ ········
0060  00 0a 0a 00 01 02 0a 00  01 02 02 00 00 0a         ······· ······
```

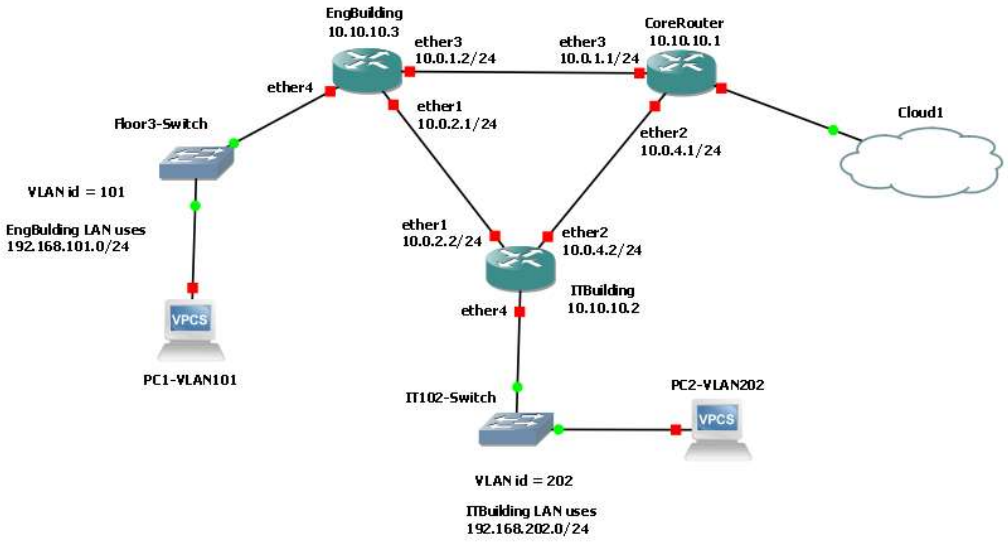
Link state update from the EngBuilding to the CoreRouter. Contains Link State Announcement for 10.0.2.0, it is accessible via 10.0.1.2.

“The EngBuilding is telling the CoreRouter that it can access the ITBuilding via the EngBuilding.”

This is the link that we previously disabled.

This LS Update is acknowledged at packet no. 45.

Router configurations



CoreRouter

/interface bridge

add name=Loopback

/interface ethernet

set [find default-name=ether1] disable-running-check=no

set [find default-name=ether2] disable-running-check=no

set [find default-name=ether3] disable-running-check=no

set [find default-name=ether4] disable-running-check=no

/interface wireless security-profiles

set [find default=yes] supplicant-identity=MikroTik

/routing ospf instance

set [find default=yes] distribute-default=if-installed-as-type-1 redistribute-connected=as-type-1 router-id=10.10.10.1

/ip address

add address=10.0.4.1/24 interface=ether2 network=10.0.4.0

add address=10.0.1.1/24 interface=ether3 network=10.0.1.0

add address=10.10.10.1 interface=Loopback network=10.10.10.1

/ip dhcp-client

add disabled=no interface=ether1

/ip firewall nat

add action=masquerade chain=srcnat out-interface=ether1

/routing ospf interface

add dead-interval=5s hello-interval=1s interface=ether2

add dead-interval=5s hello-interval=1s interface=ether3

/routing ospf network

add area=backbone network=10.0.1.0/24

add area=backbone network=10.0.4.0/24

/system identity

set name=CoreRouter

```
/interface bridge
add name=Loopback
/interface ethernet
set [ find default-name=ether1 ] disable-running-check=no
set [ find default-name=ether2 ] disable-running-check=no
set [ find default-name=ether3 ] disable-running-check=no
set [ find default-name=ether4 ] disable-running-check=no
/interface wireless security-profiles
set [ find default=yes ] supplicant-identity=MikroTik
/routing ospf instance
set [ find default=yes ] distribute-default=if-installed-as-type-1 redistribute-connected=as-type-1 router-id=10.10.10.1
/ip address
add address=10.0.4.1/24 interface=ether2 network=10.0.4.0
add address=10.0.1.1/24 interface=ether3 network=10.0.1.0
add address=10.10.10.1 interface=Loopback network=10.10.10.1
/ip dhcp-client
add disabled=no interface=ether1
/ip firewall nat
add action=masquerade chain=srcnat out-interface=ether1
/routing ospf interface
add dead-interval=5s hello-interval=1s interface=ether2
add dead-interval=5s hello-interval=1s interface=ether3
/routing ospf network
add area=backbone network=10.0.1.0/24
add area=backbone network=10.0.4.0/24
/system identity
set name=CoreRouter
```

ITBuilding

/interface bridge

add name=Loopback

/interface ethernet

```
set [ find default-name=ether1 ] disable-running-check=no
set [ find default-name=ether2 ] disable-running-check=no
set [ find default-name=ether3 ] disable-running-check=no
set [ find default-name=ether4 ] disable-running-check=no
/interface wireless security-profiles
set [ find default=yes ] supplicant-identity=MikroTik
/ip pool
add name=dhcp_pool0 ranges=192.168.202.2-192.168.202.254
/ip dhcp-server
add address-pool=dhcp_pool0 disabled=no interface=ether4
name=dhcp1
/routing ospf instance
set [ find default=yes ] redistribute-connected=as-type-1 router-
id=10.10.10.2
/ip address
add address=192.168.202.1/24 interface=ether4 network=192.168.202.0
add address=10.0.4.2/24 interface=ether2 network=10.0.4.0
add address=10.0.2.2/24 interface=ether1 network=10.0.2.0
add address=10.10.10.2 interface=Loopback network=10.10.10.2
/ip dhcp-client
add disabled=no interface=ether1
/ip dhcp-server network
add address=192.168.202.0/24 dns-server=8.8.8.8
gateway=192.168.202.1
/routing ospf interface
add dead-interval=5s hello-interval=1s interface=ether2
add dead-interval=5s hello-interval=1s interface=ether1
/routing ospf network
```

add area=backbone network=10.0.2.0/24

add area=backbone network=10.0.4.0/24

/system identity

set name=ITBuilding

```
/interface bridge
add name=Loopback
/interface ethernet
set [ find default-name=ether1 ] disable-running-check=no
set [ find default-name=ether2 ] disable-running-check=no
set [ find default-name=ether3 ] disable-running-check=no
set [ find default-name=ether4 ] disable-running-check=no
/interface wireless security-profiles
set [ find default=yes ] supplicant-identity=MikroTik
/ip pool
add name=dhcp_pool0 ranges=192.168.202.2-192.168.202.254
/ip dhcp-server
add address-pool=dhcp_pool0 disabled=no interface=ether4 name=dhcp1
/routing ospf instance
set [ find default=yes ] redistribute-connected=as-type-1 router-id=10.10.10.2
/ip address
add address=192.168.202.1/24 interface=ether4 network=192.168.202.0
add address=10.0.4.2/24 interface=ether2 network=10.0.4.0
add address=10.0.2.2/24 interface=ether1 network=10.0.2.0
add address=10.10.10.2 interface=Loopback network=10.10.10.2
/ip dhcp-client
add disabled=no interface=ether1
/ip dhcp-server network
add address=192.168.202.0/24 dns-server=8.8.8.8 gateway=192.168.202.1
/routing ospf interface
add dead-interval=5s hello-interval=1s interface=ether2
add dead-interval=5s hello-interval=1s interface=ether1
/routing ospf network
add area=backbone network=10.0.2.0/24
add area=backbone network=10.0.4.0/24
/system identity
set name=ITBuilding
```

EngBuilding

/interface bridge

add name=Loopback

/interface ethernet

set [find default-name=ether1] disable-running-check=no

set [find default-name=ether2] disable-running-check=no

set [find default-name=ether3] disable-running-check=no

set [find default-name=ether4] disable-running-check=no

/interface wireless security-profiles

```
set [ find default=yes ] supplicant-identity=MikroTik
/ip pool
add name=dhcp_pool0 ranges=192.168.101.2-192.168.101.254
/ip dhcp-server
add address-pool=dhcp_pool0 disabled=no interface=ether4
name=dhcp1
/routing ospf instance
set [ find default=yes ] redistribute-connected=as-type-1 router-
id=10.10.10.3
/ip address
add address=10.0.2.1/24 interface=ether1 network=10.0.2.0
add address=10.0.1.2/24 interface=ether3 network=10.0.1.0
add address=192.168.101.1/24 interface=ether4 network=192.168.101.0
add address=10.10.10.3 interface=Loopback network=10.10.10.3
/ip dhcp-client
add disabled=no interface=ether1
/ip dhcp-server network
add address=192.168.101.0/24 dns-server=8.8.8.8
gateway=192.168.101.1
/routing ospf interface
add dead-interval=5s hello-interval=1s interface=ether1
add dead-interval=5s hello-interval=1s interface=ether3
/routing ospf network
add area=backbone network=10.0.1.0/24
add area=backbone network=10.0.2.0/24
/system identity
set name=EngBuilding
```

```
/interface bridge
add name=Loopback
/interface ethernet
set [ find default-name=ether1 ] disable-running-check=no
set [ find default-name=ether2 ] disable-running-check=no
set [ find default-name=ether3 ] disable-running-check=no
set [ find default-name=ether4 ] disable-running-check=no
/interface wireless security-profiles
set [ find default=yes ] supplicant-identity=MikroTik
/ip pool
add name=dhcp_pool0 ranges=192.168.101.2-192.168.101.254
/ip dhcp-server
add address-pool=dhcp_pool0 disabled=no interface=ether4 name=dhcp1
/routing ospf instance
set [ find default=yes ] redistribute-connected=as-type-1 router-id=10.10.10.3
/ip address
add address=10.0.2.1/24 interface=ether1 network=10.0.2.0
add address=10.0.1.2/24 interface=ether3 network=10.0.1.0
add address=192.168.101.1/24 interface=ether4 network=192.168.101.0
add address=10.10.10.3 interface=Loopback network=10.10.10.3
/ip dhcp-client
add disabled=no interface=ether1
/ip dhcp-server network
add address=192.168.101.0/24 dns-server=8.8.8.8 gateway=192.168.101.1
/routing ospf interface
add dead-interval=5s hello-interval=1s interface=ether1
add dead-interval=5s hello-interval=1s interface=ether3
/routing ospf network
add area=backbone network=10.0.1.0/24
add area=backbone network=10.0.2.0/24
/system identity
set name=EngBuilding
```