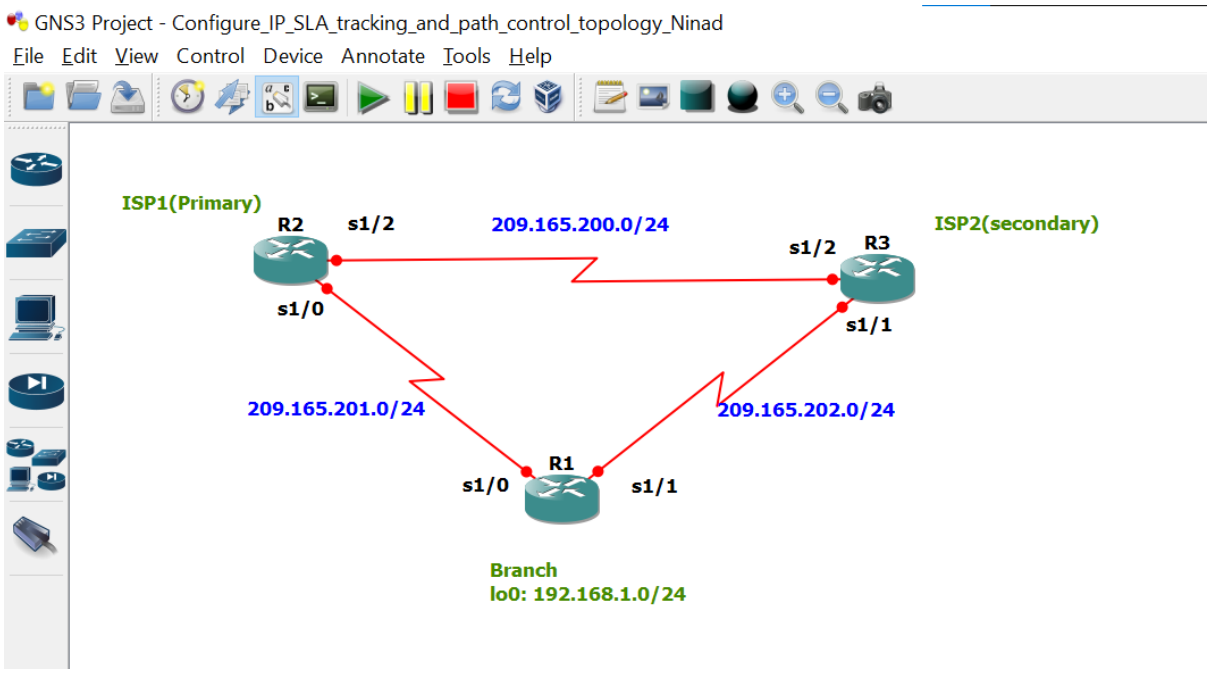
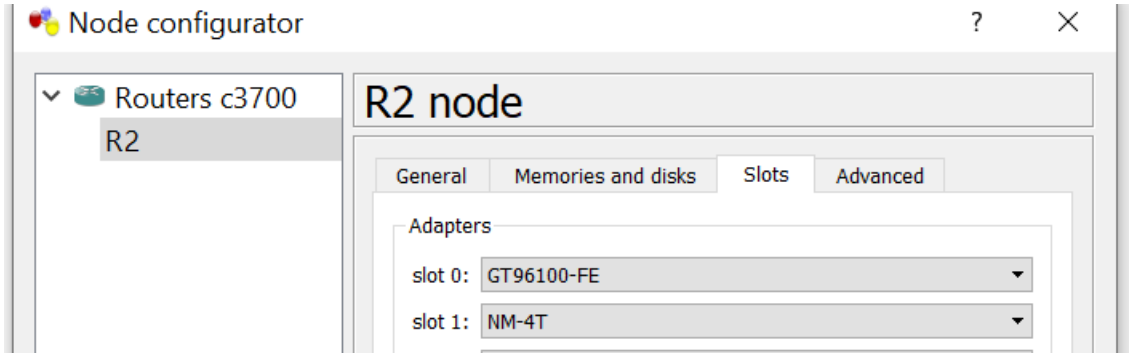
Practical No: 1 Ninad Karlekar 22306A1012 Date: 17/04/2023

Aim: Configure IP SLA tracking and path control topology.



Take 3 routers -> Configure -> slots -> NM-4T



Task 1: Configure IP SLA using GNS3

On router 1 console

```
R1  #
R1  #  conf t
R1(config)  #  int s1/0
R1(config-if)  #  ip add 209.165.201.1 255.255.255.0
R1(config-if)  #  no sh
R1(config-if)  #
```

R1(config-if) # int s1/1
R1(config-if) # ip add 209.165.202.1 255.255.255.0
R1(config-if) # no sh
R1(config-if) #
R1(config-if) # int lo0
R1(config-if) # ip add 192.168.1.1 255.255.255.0
R1(config-if) #
R1(config-if) # do sh ip int br | include up

```
R1#
R1#conf t
Enter configuration commands, one per line.  End wi
R1(config)#int s1/0
R1(config-if)#ip add 209.165.201.1 255.255.255.0
R1(config-if)#no sh
R1(config-if)#
```

```
R1(config-if)#
R1(config-if)#int s1/1
R1(config-if)#ip add 209.165.202.1 255.255.255.0
R1(config-if)#no sh
R1(config-if)#
```

```
R1(config-if)#int lo0
R1(config-if)#ip add 192.168.1.1 255.255.255.0
R1(config-if)#
R1(config-if)#do sh ip int br | include up
Serial1/0                  209.165.201.1   YES manual up                    down
Serial1/1                  209.165.202.1   YES manual up                    down
Loopback0                  192.168.1.1     YES manual up                    up
R1(config-if)#
```

On router 2 console

R2 # conf t
R2(config) # int s1/0
R2(config-if) # ip add 209.165.201.2 255.255.255.0
R2(config-if) # no sh
R2(config-if) #
R2(config-if) # int s1/2
R2(config-if) # ip add 209.165.200.2 255.255.255.0
R2(config-if) # no sh
R2(config-if) #
R2(config-if) # do sh ip int br | include up

```
R2#
R2#conf t
Enter configuration commands, one per line.  End wit
R2(config)#int s1/0
R2(config-if)#ip add 209.165.201.2 255.255.255.0
R2(config-if)#no sh
R2(config-if)#
```

```
R2(config-if)#
R2(config-if)#int s1/2
R2(config-if)#ip add 209.165.200.2 255.255.255.0
R2(config-if)#no sh
R2(config-if)#
```

```
R2(config-if)#
R2(config-if)#do sh ip int br | include up
Serial1/0                  209.165.201.2   YES manual up                    up
Serial1/2                  209.165.200.2   YES manual up                    up
R2(config-if)#exit
```

On router 3 console

R3 # conf t
R3(config) # int s1/1
R3(config-if) # ip add 209.165.202.3 255.255.255.0
R3(config-if) # no sh
R3(config-if) #
R3(config-if) # int s1/2
R3(config-if) # ip add 209.165.200.3 255.255.255.0
R3(config-if) # no sh
R3(config-if) #
R3(config-if) # do sh ip int br | include up

```
R3#
R3#conf t
Enter configuration commands, one per line.  End wi
R3(config)#int s1/1
R3(config-if)#ip add 209.165.202.3 255.255.255.0
R3(config-if)#no sh
R3(config-if)#
```

```
R3(config-if)#
R3(config-if)#int s1/2
R3(config-if)#ip add 209.165.200.3 255.255.255.0
R3(config-if)#no sh
R3(config-if)#
```

```
R3(config-if)#
R3(config-if)#do sh ip int br | include up
Serial1/1                  209.165.202.3   YES manual up                    up
Serial1/2                  209.165.200.3   YES manual up                    up
R3(config-if)#
R3(config-if)#
```

Task 2: Configure static routing on branch router and dynamic routing using eigrp

On router 1 console

R1 # conf t
R1(config) # ip route 0.0.0.0 0.0.0.0 209.165.201.2
R1(config) #

```
R1#
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#ip route 0.0.0.0 0.0.0.0 209.165.201.2
R1(config)#
R1(config)#
```

On router 2 console

R2(config) # router eigrp 1
R2(config-router) # network 209.165.200.0 0.0.0.255
R2(config-router) # network 209.165.201.0 0.0.0.255
R2(config-router) # no auto-summary

```
R2(config)#router eigrp 1
R2(config-router)#network 209.165.200.0 0.0.0.255
R2(config-router)#network 209.165.201.0 0.0.0.255
R2(config-router)#no auto-summary
R2(config-router)#
```

On router 3 console

R3(config) # router eigrp 1
R3(config-router) # network 209.165.200.0 0.0.0.255
R3(config-router) # network 209.165.202.0 0.0.0.255
R3(config-router) # no auto-summary

```
R3(config)#
R3(config)#router eigrp 1
R3(config-router)#network 209.165.200.0 0.0.0.255
R3(config-router)#network 209.165.202.0 0.0.0.255
R3(config-router)#no auto-summary
R3(config-router)#
```

On router 2 console

R2(config-router) # exit
R2(config) # ip route 192.168.1.0 255.255.255.0 209.165.201.1

```
R2(config-router)#exit
R2(config)#
R2(config)#ip route 192.168.1.0 255.255.255.0 209.165.201.1
```

On router 3 console

R3(config-router) # exit
R3(config) # ip route 192.168.1.0 255.255.255.0 209.165.202.1

```
R3(config-router)#exit
R3(config)#ip route 192.168.1.0 255.255.255.0 209.165.202.1
```

Ping other routers

R1(config) # do ping 209.165.200.3
R3(config) # do ping 209.165.201.1

```
R1(config)#
R1(config)#do ping 209.165.200.3

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 209.165.200.3, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 36/55/64 ms
R1(config)#
R1(config)#
```

```
R3(config)#
R3(config)#do ping 209.165.201.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 209.165.201.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 48/58/64 ms
R3(config)#
```

Ping other routers

R2(config) # do ping 192.168.1.1
R3(config) # do ping 192.168.1.1

```
R2(config)#
R2(config)#do ping 192.168.1.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 16/28/36 ms
R2(config)#
R2(config)#
```

```
R3(config)#
R3(config)#do ping 192.168.1.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 20/28/36 ms
R3(config)#
```

Give hostname

R1(config) # hostname r1-branch
R2(config) # hostname r2-isp1
R3(config) # hostname r3-isp2

Task 3: Configure IP SLA probes at branch router

On router 1 console

r1-branch(config) # ip sla 11
r1-branch(config-ip-sla) # icmp-echo 209.165.201.2
r1-branch(config-ip-sla-echo) # frequency 10
r1-branch(config-ip-sla-echo) # exit
r1-branch(config) #
r1-branch(config) # ip sla schedule 11 life forever start-time now
r1-branch(config) #
r1-branch(config) # do sh ip sla configuration 11

```
r1-branch(config)#
r1-branch(config)#ip sla 11
r1-branch(config-ip-sla)#icmp-echo 209.165.201.2
r1-branch(config-ip-sla-echo)#frequency 10
r1-branch(config-ip-sla-echo)#exit
r1-branch(config)#
r1-branch(config)#ip sla schedule 11 life forever start-time now
r1-branch(config)#
```

```
r1-branch(config)#
r1-branch(config)#do sh ip sla configuration 11
IP SLAs, Infrastructure Engine-II.
Entry number: 11
Owner:
Tag:
Type of operation to perform: icmp-echo
Target address/Source address: 209.165.201.2/0.0.0.0
Operation timeout (milliseconds): 5000
Type Of Service parameters: 0x0
Vrf Name:
Request size (ARR data portion): 28
Verify data: No
Schedule:
   Operation frequency (seconds): 10  (not considered i
   Next Scheduled Start Time: Start Time already passed
   Group Scheduled : FALSE
   Randomly Scheduled : FALSE
   Life (seconds): Forever
   Entry Ageout (seconds): never
   Recurring (Starting Everyday): FALSE
   Status of entry (SNMP RowStatus): Active
Threshold (milliseconds): 5000
Distribution Statistics:
   Number of statistic hours kept: 2
   Number of statistic distribution buckets kept: 1
   Statistic distribution interval (milliseconds): 4294
History Statistics:
   Number of history Lives kept: 0
   Number of history Buckets kept: 15
   History Filter Type: None
Enhanced History:
```

```
r1-branch(config)#
r1-branch(config)#do sh ip sla statistics

Round Trip Time (RTT) for       Index 11
        Latest RTT: 44 milliseconds
Latest operation start time: *00:41:49.903
Latest operation return code: OK
Number of successes: 6
Number of failures: 0
Operation time to live: Forever


r1-branch(config)#
r1-branch(config)#do wr
Building configuration...
[OK]
r1-branch(config)#
```