Router infotech
Beyond Certification

STUDENT LAB GUIDE

CCNA (640-802)

CCNA
CISCO

Developed By,

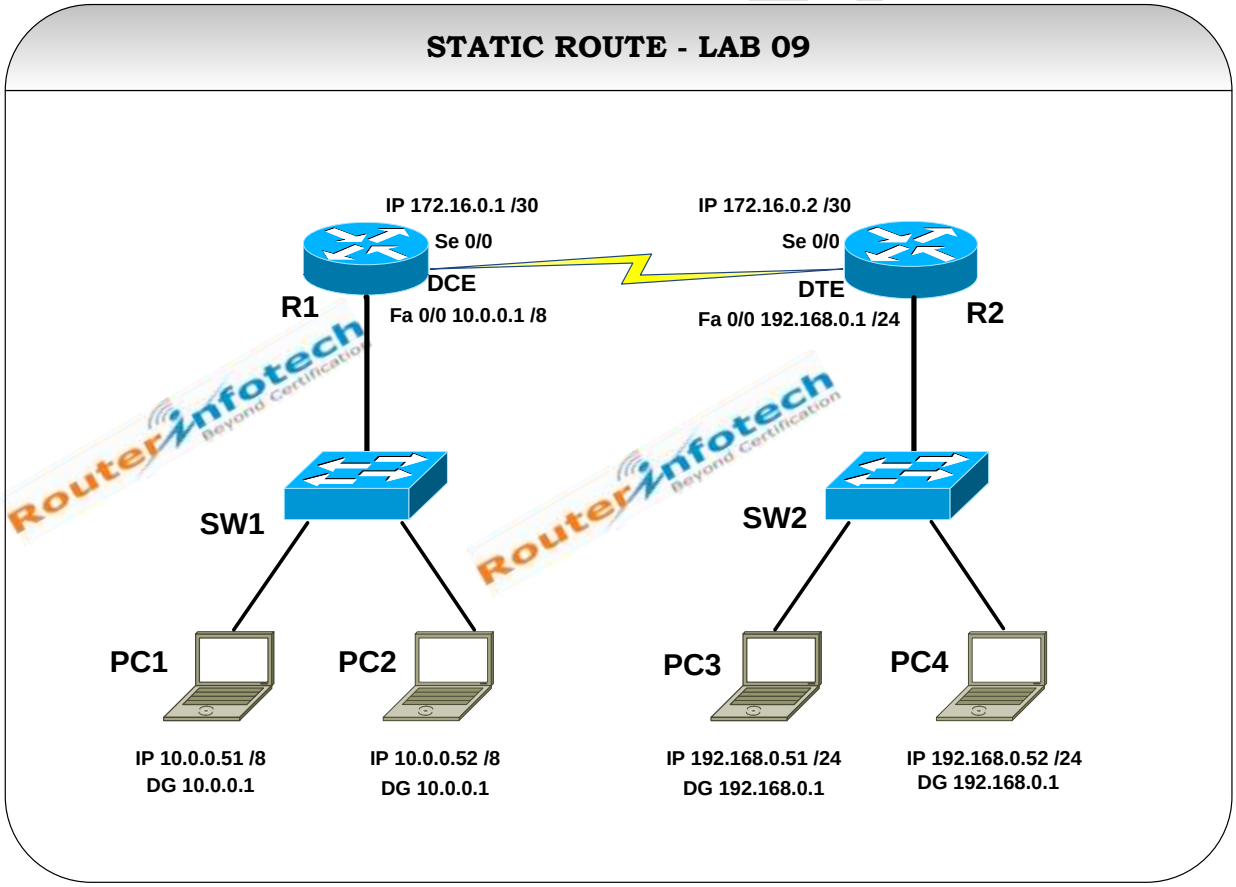
Router Infotech Career Academy

LAB: 09
Static Route Configuration

Objective:

To configure & implement Static Route successfully on said devices and test its all functionalities practicaly.

TOPOLOGY : Setup your lab topology as below.



Procedure:

1. Configure the hostnames for switches as SW1,SW2 & for Routers as R1,R2 as shown in above topology
2. Set the ip address of interface Fa 0/0 for R1 and R2 as shown in above topology
3. Set the ip address of interface Se 0/0 for R1, set clock rate for this interface & also set ip address of interface Se 0/0 for R2 as shown in above topology
4. Configure static route on R1 & R2
5. Set the ip address and default gateway for pc's PC1, PC2, PC3 & PC4 as shown in above topology
6. Verify the static route configured on R1 & R2 by using **show ip route** command
7. Check the connectivity between all PC's with each other

Configuration:

Step 1:

Configure the hostnames for switches as SW1,SW2 & for Routers as R1,R2 as shown in above topology

1.1: For SW1

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname SW1
SW1(config)#
```

1.2: For SW2

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname SW2
SW2(config)#
```

1.3: For R1

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R1
R1(config)#
```

1.4: For R2

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R2
R2(config)#
```

Step 2:

Set the ip address of interface Fa 0/0 for R1 and R2 as shown in above topology

2.1: For R1

```
R1(config)#interface fastEthernet 0/0
R1(config-if)#ip address 10.0.0.1 255.0.0.0
R1(config-if)#no shutdown
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
```

2.2: For R2

```
R2(config)#interface fastEthernet 0/0
R2(config-if)#ip address 192.168.0.1 255.255.255.0
R2(config-if)#no shutdown
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
```

Step 3:

Set the ip address of interface Se 0/0 for R1, set clock rate for this interface & also set ip address of interface Se 0/0 for R2 as shown in above topology

3.1: For R1

```
R1(config)#interface serial 0/0
R1(config-if)#ip address 172.16.0.1 255.255.255.252
R1(config-if)#clock rate 64000
R1(config-if)#no shutdown
```

3.2: For R2

```
R2(config)#interface serial 0/0
R2(config-if)#ip address 172.16.0.2 255.255.255.252
R2(config-if)#no shutdown
```

Step 4:

Configure static route on R1 & R2

4.1: For R1

```
R1(config)#ip route 192.168.0.0 255.255.255.0 172.16.0.2
```

OR

```
R1(config)#ip route 192.168.0.0 255.255.255.0 serial0/0
```

4.2: For R2

```
R2(config)#ip route 10.0.0.0 255.0.0.0 172.16.0.1
```

OR

```
R2(config)#ip route 10.0.0.0 255.0.0.0 serial0/0
```

Step 5:

Verify the static route configured on R1 & R2 by using show ip route command

5.1: For R1

```
R1#show ip route
Codes: C - connected, S - static, I - IGRP, 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

C    10.0.0.0/8 is directly connected, FastEthernet0/0
     172.16.0.0/30 is subnetted, 1 subnets
C       172.16.0.0 is directly connected, Serial0/0
S    192.168.0.0/24 [1/0] via 172.16.0.2
```

5.2: For R2

```
R2#show ip route
Codes: C - connected, S - static, I - IGRP, 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

S    10.0.0.0/8 [1/0] via 172.16.0.1
     172.16.0.0/30 is subnetted, 1 subnets
C       172.16.0.0 is directly connected, Serial0/0
C    192.168.0.0/24 is directly connected, FastEthernet0/0
```

Step 6:

Check the connectivity between all PC's with each other

6.1: Check the connectivity between PC1 & PC3

```
PC1>ping 192.168.0.51

Pinging 192.168.0.51 with 32 bytes of data:

Request timed out.
Reply from 192.168.0.51: bytes=32 time=141ms TTL=126
Reply from 192.168.0.51: bytes=32 time=140ms TTL=126
Reply from 192.168.0.51: bytes=32 time=140ms TTL=126

Ping statistics for 192.168.0.51:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 140ms, Maximum = 141ms, Average = 140ms
```

6.2: Check the connectivity between PC2 & PC4

```
PC2>ping 192.168.0.52

Pinging 192.168.0.52 with 32 bytes of data:

Request timed out.
Reply from 192.168.0.52: bytes=32 time=141ms TTL=126
Reply from 192.168.0.52: bytes=32 time=140ms TTL=126
Reply from 192.168.0.52: bytes=32 time=140ms TTL=126

Ping statistics for 192.168.0.52:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 140ms, Maximum = 141ms, Average = 140ms
```

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