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INTERNET PROTOCOL LAB – 8

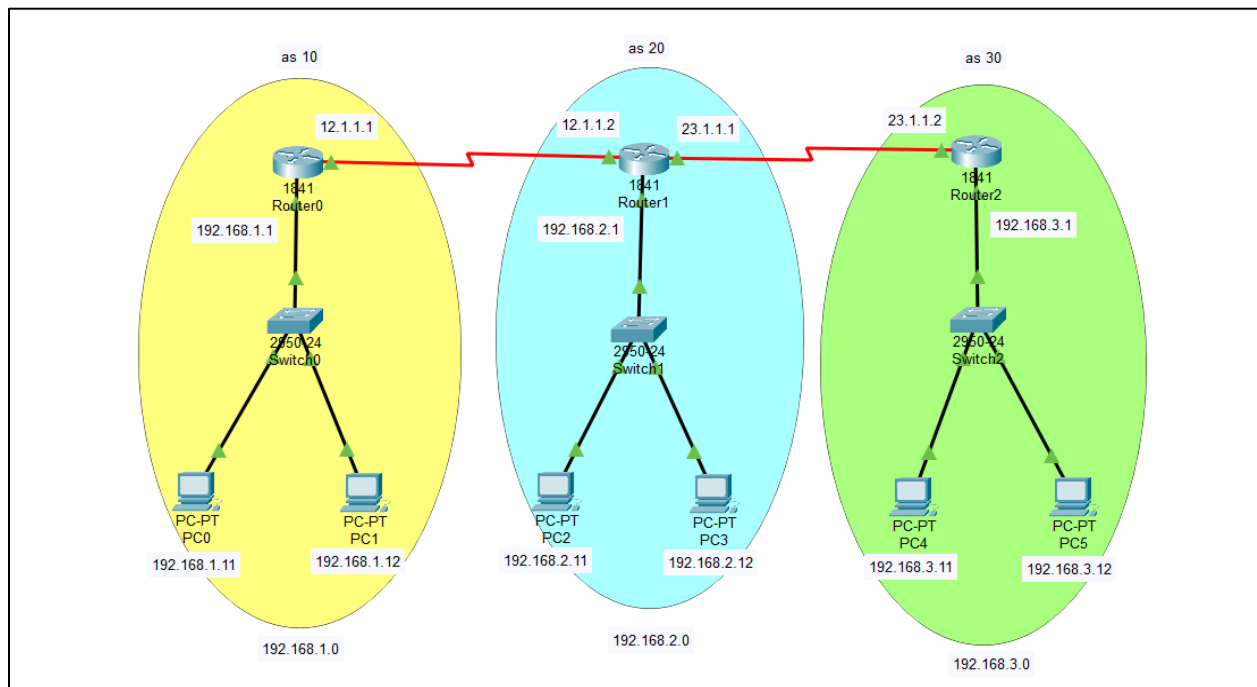## CONFIGURING BGP USING CISCO PACKET TRACER

AIM:

To configure BGP (Border Gateway Protocol) using Cisco packet tracer.

TOOLS REQUIRED:

Cisco packet tracer.

PROCDURE:

This is the network with BGP routing protocol.

1.The IP address, subnet mask and default gateway of the PC's are configured.

2. The IP address of the Fast ethernet and serial interface in routers are configured.

3. For BGP protocol AS(Autonomous systems) numbers should be assigned. Here 10, 20 and 30 are the respective as numbers of the respective networks.

4. Then each router is configured for BGP protocol.

5. After configuration we can check the connectivity of the net work by sending packets.

Configurations of PC:

PC0

| Physical | Config | Desktop | Programming | Attrib |

IP Configuration

Interface: FastEthernet0

IP Configuration
- ○ DHCP   ● Static
- IPv4 Address: 192.168.1.11
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.1.1
- DNS Server: 0.0.0.0

PC1

| Physical | Config | Desktop | Programming | Att |

IP Configuration

Interface: FastEthernet0

IP Configuration
- ○ DHCP   ● Static
- IPv4 Address: 192.168.1.12
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.1.1
- DNS Server: 0.0.0.0

PC2

| Physical | Config | Desktop | Programming | A |

IP Configuration

Interface: FastEthernet0

IP Configuration
- ○ DHCP   ● Static
- IPv4 Address: 192.168.2.11
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.2.1
- DNS Server: 0.0.0.0

PC3

| Physical | Config | Desktop | Programming | Att |

IP Configuration

Interface: FastEthernet0

IP Configuration
- ○ DHCP   ● Static
- IPv4 Address: 192.168.2.12
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.2.1
- DNS Server: 0.0.0.0

PC4

| Physical | Config | Desktop | Programming | Att |

IP Configuration

Interface: FastEthernet0

IP Configuration
- ○ DHCP   ● Static
- IPv4 Address: 192.168.3.11
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.3.1
- DNS Server: 0.0.0.0

PC5

| Physical | Config | Desktop | Programming | At |

IP Configuration

Interface: FastEthernet0

IP Configuration
- ○ DHCP   ● Static
- IPv4 Address: 192.168.3.12
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.3.1
- DNS Server: 0.0.0.0

Configuring BGP in routers:

ROUTER 0:

FastEthernet0/0	
Port Status	☑ On
Bandwidth	⚪ 100 Mbps ⚪ 10 Mbps ☑ Auto
Duplex	⚪ Half Duplex ⚫ Full Duplex ☑ Auto
MAC Address	0001.63AA.3E01
IP Configuration	
IPv4 Address	192.168.1.1
Subnet Mask	255.255.255.0

Serial0/0/0	
Port Status	☑ On
Duplex	⚫ Full Duplex
Clock Rate	2000000
IP Configuration	
IPv4 Address	12.1.1.1
Subnet Mask	255.0.0.0

```
Router>en
Router#conf ter
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router bgp 10
Router(config-router)#network 192.168.1.0
Router(config-router)#network 12.1.1.0
Router(config-router)#neigh
Router(config-router)#neighbor 192.168.2.0 remote-as 20
Router(config-router)#neighbor 192.168.3.0 remote-as 30
Router(config-router)#neighbor 12.1.1.2 remote-as 20
Router(config-router)#neighbor 23.1.1.2 remote-as 30
Router(config-router)#%BGP-5-ADJCHANGE: neighbor 12.1.1.2 Up
%BGP-5-ADJCHANGE: neighbor 23.1.1.2 Up
```

```
Router>en
Router#conf ter
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router bgp 10
Router(config-router)#network 192.168.1.0
Router(config-router)#network 12.1.1.0
Router(config-router)#neigh
Router(config-router)#neighbor 192.168.2.0 remote-as 20
Router(config-router)#neighbor 192.168.3.0 remote-as 30
Router(config-router)#neighbor 12.1.1.2 remote-as 20
Router(config-router)#neighbor 23.1.1.2 remote-as 30
Router(config-router)#%BGP-5-ADJCHANGE: neighbor 12.1.1.2 Up
%BGP-5-ADJCHANGE: neighbor 23.1.1.2 Up
```

ROUTER 1:

FastEthernet0/0	
Port Status	☑ On
Bandwidth	○ 100 Mbps ○ 10 Mbps ☑ Auto
Duplex	○ Half Duplex ◉ Full Duplex ☑ Auto
MAC Address	0001.4205.E601

IP Configuration
IPv4 Address: 192.168.2.1
Subnet Mask: 255.255.255.0

Serial0/0/0	
Port Status	☑ On
Duplex	◉ Full Duplex
Clock Rate	2000000

IP Configuration
IPv4 Address: 12.1.1.2
Subnet Mask: 255.0.0.0

Serial0/0/1	
Port Status	☑ On
Duplex	◉ Full Duplex
Clock Rate	2000000

IP Configuration
IPv4 Address: 23.1.1.1
Subnet Mask: 255.0.0.0

Router>en
Router#conf ter
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router bgp 20
Router(config-router)#network 192.168.2.0
Router(config-router)#network 12.1.1.0
Router(config-router)#network 23.1.1.0
Router(config-router)#nei
Router(config-router)#neighbor 192.168.1.0 rem
Router(config-router)#neighbor 192.168.1.0 remote-as 10
Router(config-router)#neighbor 192.168.3.0 remote-as 30
Router(config-router)#neighbor 12.1.1.1 remote-as 10
Router(config-router)#%BGP-5-ADJCHANGE: neighbor 12.1.1.1 Up

Router(config-router)#neighbor 23.1.1.2 remote-as 30
Router(config-router)#%BGP-5-ADJCHANGE: neighbor 23.1.1.2 Up

```
Router>en
Router#conf ter
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router bgp 20
Router(config-router)#network 192.168.2.0
Router(config-router)#network 12.1.1.0
Router(config-router)#network 23.1.1.0
Router(config-router)#nei
Router(config-router)#neighbor 192.168.1.0 rem
Router(config-router)#neighbor 192.168.1.0 remote-as 10
Router(config-router)#neighbor 192.168.3.0 remote-as 30
Router(config-router)#neighbor 12.1.1.1 remote-as 10
Router(config-router)#%BGP-5-ADJCHANGE: neighbor 12.1.1.1 Up

Router(config-router)#neighbor 23.1.1.2 remote-as 30
Router(config-router)#%BGP-5-ADJCHANGE: neighbor 23.1.1.2 Up
```

ROUTER 2:

FastEthernet0/0	
Port Status	
Bandwidth	○ 100 Mbps ○ 10
Duplex	○ Half Duplex ● Full D
MAC Address	0090.2B59.4101
IP Configuration	
IPv4 Address	192.168.3.1
Subnet Mask	255.255.255.0

Serial0/0/0		
Port Status		☑ On
Duplex	○ Full Duplex	
Clock Rate	2000000	⌄
IP Configuration		
IPv4 Address	23.1.1.2	
Subnet Mask	255.0.0.0	

Router>en
Router#conf ter
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router bgp 30
Router(config-router)#net
Router(config-router)#network 192.168.3.0
Router(config-router)#network 23.1.1.0
Router(config-router)#neigh
Router(config-router)#neighbor 192.168.1.0 rem
Router(config-router)#neighbor 192.168.1.0 remote-as 10
Router(config-router)#neighbor 192.168.2.0 remote-as 20
Router(config-router)#neighbor 23.1.1.1 remote-as 20
Router(config-router)#%BGP-5-ADJCHANGE: neighbor 23.1.1.1 Up
Router(config-router)#neighbor 23.1.1.1 remote-as 30
Router(config-router)#
%Cisco Packet Tracer does not support internal BGP in this version. Only external neighbors are supported.
Router(config-router)#neighbor 12.1.1.1 remote-as 10
Router(config-router)#%BGP-5-ADJCHANGE: neighbor 12.1.1.1 Up

```
Router>en
Router#conf ter
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router bgp 30
Router(config-router)#net
Router(config-router)#network 192.168.3.0
Router(config-router)#network 23.1.1.0
Router(config-router)#neigh
Router(config-router)#neighbor 192.168.1.0 rem
Router(config-router)#neighbor 192.168.1.0 remote-as 10
Router(config-router)#neighbor 192.168.2.0 remote-as 20
Router(config-router)#neighbor 23.1.1.1 remote-as 20
Router(config-router)#%BGP-5-ADJCHANGE: neighbor 23.1.1.1 Up

Router(config-router)#neighbor 23.1.1.1 remote-as 30
Router(config-router)#
%Cisco Packet Tracer does not support internal BGP in this version. Only
external neighbors are supported.


Router(config-router)#neighbor 12.1.1.1 remote-as 10
Router(config-router)#%BGP-5-ADJCHANGE: neighbor 12.1.1.1 Up
```

RESULT:

Thus, BGP protocol has been successfully configured in Cisco Packet Tracer.