Advanced Computer Network

PRACTICAL NO 2

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**Practical No 2**

**Aim:** Create a network with three routers with OSPF and each router associated network will have minimum three PC. Show connectivity.

**Show PC Connectivity:**

|  |  |
| --- | --- |
| **Machine name** | **IP Address** |
| PC\_PT\_PC0 | 10.0.0.2 |
| PC\_PT\_PC1 | 10.0.0.3 |
| PC\_PT\_PC2 | 10.0.0.4 |
| PC\_PT\_PC3 | 20.0.0.2 |
| PC\_PT\_PC4 | 20.0.0.3 |
| PC\_PT\_PC5 | 20.0.0.4 |
| PC\_PT\_PC6 | 30.0.0.2 |
| PC\_PT\_PC7 | 30.0.0.3 |
| PC\_PT\_PC8 | 30.0.0.4 |

**Source Code:**

**Flow Of Program:**

1] Connect PC\_PT\_PC0, PC\_PT\_PC1 and PC\_PT\_PC2 with Switch 0 and Switch 0 with Router 0 and configure it as follows:

Router>enable

Router#

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#interface FastEthernet0/0

Router(config-if)#no shutdown

Router(config-if)#

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit

Router(config)#interface FastEthernet0/0

Router(config-if)#ip address 10.0.0.1 255.0.0.0

Router(config-if)#ip address 10.0.0.1 255.0.0.0

Router(config-if)#

Router(config-if)#exit

Router(config)#interface Serial2/0

Router(config-if)#no shutdown

Router(config-if)#ip address 50.50.50.2 255.0.0.0

Router(config-if)#ip address 50.50.50.2 255.0.0.0

Router(config-if)#

%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config-if)#exit

Router(config)#interface Serial3/0

Router(config-if)#no shutdown

Router(config-if)#ip address 70.70.70.3 255.0.0.0

Router(config-if)#ip address 70.70.70.3 255.0.0.0

Router(config-if)#

%LINK-5-CHANGED: Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

**OSPF Configuration:**

Router#conf t

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#router ospf 1

Router(config-router)#network 10.0.0.0 0.255.255.255 area 0

Router(config-router)#network 50.0.0.0 0.255.255.255 area 0

Router(config-router)#network 70.0.0.0 0.255.255.255 area 0

Router(config-router)#exit

2] Connect PC\_PT\_PC3, PC\_PT\_PC4 and PC\_PT\_PC5 with Switch 1 and Switch 1 with Router 1 and configure it as follows:

Router>enable

Router#

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#interface FastEthernet0/0

Router(config-if)#no shutdown

Router(config-if)#

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit

Router(config)#interface FastEthernet0/0

Router(config-if)#ip address 20.0.0.1 255.0.0.0

Router(config-if)#ip address 20.0.0.1 255.0.0.0

Router(config-if)#

Router(config-if)#exit

Router(config)#interface Serial2/0

Router(config-if)#no shutdown

Router(config-if)#

%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

ip address 50.50.50.2 255.0.0.0

Router(config-if)#ip address 50.50.50.2 255.0.0.0

Router(config-if)#

Router(config-if)#exit

Router(config)#interface Serial3/0

Router(config-if)#no shutdown

Router(config-if)#ip address 60.60.60.2 255.0.0.0

Router(config-if)#ip address 60.60.60.2 255.0.0.0

Router(config-if)#

%LINK-5-CHANGED: Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

**OSPF Configuration:**

Router>en

Router#conf t

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#router ospf 2

Router(config-router)#network 20.0.0.0 0.255.255.255 area 0

Router(config-router)#network 50.0.0.0 0.255.255.255 area 0

Router(config-router)#network 60.0.0.0 0.255.255.255 area 0

Router(config-router)#exit

Router(config)#

3] Connect PC\_PT\_PC6, PC\_PT\_PC7 and PC\_PT\_PC8 with Switch 2 and Switch 2 with Router 2 and configure it as follows:

Router>enable

Router#

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#interface FastEthernet0/0

Router(config-if)#no shutdown

Router(config-if)#

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit

Router(config)#interface FastEthernet0/0

Router(config-if)#ip address 30.0.0.1 255.0.0.0

Router(config-if)#ip address 30.0.0.1 255.0.0.0

Router(config-if)#

Router(config-if)#exit

Router(config)#interface Serial2/0

Router(config-if)#no shutdown

Router(config-if)#

%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

ip address 60.60.60.3 255.0.0.0

Router(config-if)#ip address 60.60.60.3 255.0.0.0

Router(config-if)#

Router(config-if)#exit

Router(config)#interface Serial3/0

Router(config-if)#no shutdown

Router(config-if)#

%LINK-5-CHANGED: Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

ip address 70.70.70.3 255.0.0.0

Router(config-if)#ip address 70.70.70.3 255.0.0.0

Router(config-if)#

**OSPF Configuration:**

Router>en

Router#conf t

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#router ospf 3

Router(config-router)#network 30.0.0.0 0.255.255.255 area 0

Router(config-router)#network 60.0.0.0 0.255.255.255 area 0

Router(config-router)#network 70.0.0.0 0.255.255.255 area 0

Router(config-router)#exi

00:55:44: %OSPF-5-ADJCHG: Process 3, Nbr 60.60.60.2 on Serial2/0 from LOADING to FULL, Loading Done

**Output:**

