Multi-Area - OSPF - CC

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AIM:

To see the implementation of multi area OSPF using Ciscopacket Tracer.

Procedure:-

(i) Take 4 routers and 2 PC's

(ii) Connect the 4 routers using serd connection.

(iii) Connect the router to the switch and switch to PC's using fast ethernet connections.

(IV) Now go to router ① and enter the following CLI commands.

router ①: CLI commands

→ enable

→ configure terminal

→ Interface fast ethernet 0/0.

→ ip address 192.168.1.1 255.255.0.0.

→ no shutdown.

→ exit

→ interface serial 0/2/0.

→ ip addres 10.0.0.1 255.0.0.0

→ no shutdown

→ exit

→ router ospf 1

→ network 192.168.1.0   0.255.255.255 area 1

→ network 10.0.0.0   0.0.0 255 area 1.

→ exit

(v) Now, go to router 1 and enter the following commands.

Router 1 : 4 I commands

→ enable

→ configure terminal

→ Interface serval 0/2/0.

→ no shutdown

→ exit

→ Interface serval 3/0.

→ Ip addres 20.0.6.1   255.0.0.0.

→ no shutdown

→ exit

→ router ospf 1

→ ~~and~~ network 10.0.0.0   0.0.0.255 area 1.

→ network 10.0.0.0   0.0.0.255 area 0.

→ exit.

router 2 cli commands

→ enable
→ configure terminal.
→ Interface serial 3/0.
→ ip address 20.0.0.2 255.0.0.0
→ no shutdown
→ interface serial 2/0.
→ ~~ip address 20.0.0.2 255.0.0.0.~~
→ ~~no~~
→ ip address 30.0.0.1 255.0.0.0
→ no shutdown
→ exit

→ router ospf 1
→ network 20.0.0.0 0.0.0.255 area 0.
→ network 30.0.0.0 0.0.0.255 area 2.
→ exit.

router 3

→ enable
→ configure terminal
→ interface fast ethernet 0/0.
→ ip address 192.168.2.2 255.255.255.0.
→ no shutdown
→ exit
→ interface serial 2/0-
→

④

→ no shutdown

→ Router ospf 1

→ network 192.168.2.0 0.255.255.255
                                    area 2

→ network 30.0.0.0 0.0.0.255
                                area 2

→ exit

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Press RETURN to get started!


Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface serial  2/0
Router(config-if)#ip address 10.0.0.2 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

Router(config-if)#exit
Router(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config)#interface serial 3/0
Router(config-if)#ip address 20.0.0.1 255.0.0.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial3/0, changed state to down
Router(config-if)#exit
Router(config)#router ospf1
                         ^
% Invalid input detected at '^' marker.

Router(config)#router ospf 1
Router(config-router)#network 10.0.0.0 0.0.0.255 area 1
Router(config-router)#ne
00:14:25: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.1.1 on Serial2/0 from LOADING to FULL, Loading Done

% Ambiguous command: "ne"
Router(config-router)#network 20.0.0.0 0.0.0.255 area 0
Router(config-router)#exit
Router(config)#
```

Ctrl+F6 to exit CLI focus   Copy   Paste

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Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Would you like to enter the initial configuration dialog? [yes/no]: n


Press RETURN to get started!


Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface fastethernet 0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.
                                                     ^
% Invalid input detected at '^' marker.

Router(config-if)#ip address 192.168.1.1 255.255.255.0
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 serial 2/0
Router(config-if)#ip address 10.0.0.1 255.0.0.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#exit
Router(config)#router ospf 1
Router(config-router)#network 192.168.1.0 0.255.255.255
% Incomplete command.
Router(config-router)#network 192.168.1.0 0.255.255.255 area 1
Router(config-router)#network 10.0.0.0 0.0.0.255 area 1
Router(config-router)#exit
Router(config)#
Router(config)#
```

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Physical   Config   CLI   Attributes

IOS Command Line Interface

```
         --- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: n


Press RETURN to get started!



Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface serial 3/0
Router(config-if)#ip address 20.0.0.2 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial3/0, changed state to up

Router(config-if)#exit
Router(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

Router(config)#interface serial 2/0
Router(config-if)#ip address 30.0.0.1 255.0.0.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#exit
Router(config)#router ospf 1
Router(config-router)#network 20.0.0.0 0.0.0.255 area 0
Router(config-router)#
00:20:55: %OSPF-5-ADJCHG: Process 1, Nbr 20.0.0.1 on Serial3/0 from LOADING to FULL, Loading Done

Router(config-router)#network 30.0.0.0 0.0.0.255 area 2
Router(config-router)#exit
Router(config)#
Router(config)#
```

Ctrl+F6 to exit CLI focus   Copy   Paste

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Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Press RETURN to get started!



Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface fastethernet 0/0
Router(config-if)#ip address 192.168.3.2 255.255.255.0
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 serial 2/0
Router(config-if)#ip address 30
                              ^
% Invalid input detected at '^' marker.

Router(config-if)#ip address 30.0.0.2 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

Router(config-if)#exit
Router(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config)#router ospf 1
Router(config-router)#network 192.168.3.0 0.255.255.255 area 2
Router(config-router)#network 30.0.0.0 0.0.0.255 area 2
Router(config-router)#exit
Router(config)#
```

Ctrl+F6 to exit CLI focus   Copy   Paste

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PC1

Physical | Config | Desktop | Programming | Attributes

Command Prompt

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.0

Pinging 192.168.1.0 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time=5ms TTL=252
Reply from 10.0.0.1: bytes=32 time=3ms TTL=252
Reply from 10.0.0.1: bytes=32 time=3ms TTL=252
Reply from 10.0.0.1: bytes=32 time=3ms TTL=252

Ping statistics for 192.168.1.0:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 3ms, Maximum = 5ms, Average = 3ms

C:\>ping 10.0.0.0

Pinging 10.0.0.0 with 32 bytes of data:

Reply from 20.0.0.1: bytes=32 time=3ms TTL=253
Reply from 20.0.0.1: bytes=32 time=2ms TTL=253
Reply from 20.0.0.1: bytes=32 time=3ms TTL=253
Reply from 20.0.0.1: bytes=32 time=2ms TTL=253

Ping statistics for 10.0.0.0:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 3ms, Average = 2ms

C:\>
```

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PC0

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Command Prompt

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.3.0

Pinging 192.168.3.0 with 32 bytes of data:

Reply from 30.0.0.2: bytes=32 time=43ms TTL=252
Reply from 30.0.0.2: bytes=32 time=3ms TTL=252
Reply from 30.0.0.2: bytes=32 time=3ms TTL=252
Reply from 30.0.0.2: bytes=32 time=3ms TTL=252

Ping statistics for 192.168.3.0:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 3ms, Maximum = 43ms, Average = 13ms

C:\>ping 30.0.0.0

Pinging 30.0.0.0 with 32 bytes of data:

Reply from 20.0.0.2: bytes=32 time=2ms TTL=253
Reply from 20.0.0.2: bytes=32 time=2ms TTL=253
Reply from 20.0.0.2: bytes=32 time=2ms TTL=253
Reply from 20.0.0.2: bytes=32 time=2ms TTL=253

Ping statistics for 30.0.0.0:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 2ms, Average = 2ms

C:\>
```

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