



Objective:

In this lab you will configure a complex environment consisting of BGP and OSPF. You will then run basic testing commands to verify all links and protocols are working properly.

Hardware Requirements:

- Two Cisco routers with one serial port
- Two Cisco routers with two serial ports
- Cisco IOS 12.0 or higher
- A PC running a terminal emulation program
- Three back to back DTE/DCE serial cables
- Cisco console kit

Router Configurations

Router 1

```
Router#Config t
```

```
Router(config)#hostname R1
```

```
R1(config)#enable password ****
```

```
R1(config-line)#line vty 0 4
```

```
R1(config-line)# password *****
```

```
R1(config-line)# login
```

```
R1(config-line)#exit

R1(config)#interface Serial0/0

R1(config-if)#ip address 10.1.1.1 255.0.0.0

R1(config-if)#clockrate 64000

R1(config-if)#no shut

R1(config)# exit

R1(config)#interface Serial0/1

R1(config-if)#ip address 11.1.1.1 255.0.0.0

R1(config-if)#clockrate 64000

R1(config-if)#no shut

R1(config)#exit

R1(config)#router ospf 100

R1(config-router)# network 10.0.0.0 0.255.255.255 area 0

R1(config)#exit

R1(config)#router bgp 100

R1(config-router)# no synchronization

R1(config-router)# network 10.0.0.0

R1(config-router)# network 11.0.0.0

R1(config-router)# neighbor 10.1.1.2 remote-as 100

R1(config-router)# neighbor 10.1.1.2 route-reflector-client

R1(config-router)# neighbor 11.1.1.3 remote-as 100

R1(config-router)# neighbor 11.1.1.3 route-reflector-client

R1(config-line)#end
```

R1#**wr**

Router 2

Router#**conf t**

Router(config)#**hostname R2**

R2(config)#**enable password *******

R2(config)#**line vty 0 4**

R2(config-line)# **password *******

R2(config-line)# **login**

R2(config-line)# **exit**

R2(config)#**interface Loopback0**

R2(config-if)# **ip address 2.2.2.2 255.255.255.255**

R2(config-if)# **no shut**

R2(config-if)# **exit**

R2(config)#**interface Loopback1**

R2(config-if)# **ip address 2.2.2.1 255.255.255.255**

R2(config-if)# **no shut**

R2(config-if)# **exit**

R2(config)#**interface Loopback3**

R2(config-if)# **ip address 2.2.2.3 255.255.255.255**

R2(config-if)# **no shut**

R2(config)# **exit**

R2(config)#**interface Serial0**

R2(config-if)# **ip address 10.1.1.2 255.0.0.0**

```
R2(config-if)# no shut

R2(config-if)# exit

R2(config)#interface Serial1

R2(config-if)# ip address 12.1.1.2 255.255.255.0

R2(config-if)# no shut

R2(config-if)# exit

R2(config)#router ospf 100

R2(config-router)# network 2.2.2.1 0.0.0.0 area 1

R2(config-router)# network 2.2.2.2 0.0.0.0 area 0

R2(config-router)# network 2.2.2.3 0.0.0.0 area 1

R2(config-router)# network 10.0.0.0 0.255.255.255 area 0

R2(config-router)# network 12.0.0.0 0.255.255.255 area 1

R2(config-router)# exit

R2(config)#router bgp 100

R2(config-router)# no synchronization

R2(config-router)# network 2.2.2.1 mask 255.255.255.255

R2(config-router)# network 2.2.2.2 mask 255.255.255.255

R2(config-router)# network 10.0.0.0

R2(config-router)# network 12.0.0.0

R2(config-router)# neighbor 10.1.1.1 remote-as 100

R2(config-router)# neighbor 12.1.1.4 remote-as 200

R2(config-router)# exit

R2(config-line)#end
```

R2#**wr**

Router 3

Router#**conf t**

R3(config)#**hostname R3**

R3(config)#**enable password *******

R3(config)#**line vty 0 4**

R3(config-line)# **password *******

R3(config-line)# **login**

R3(config-line)# **exit**

R3(config)#**interface Loopback0**

R3(config-if)# **ip address 3.3.3.3 255.255.255.255**

R3(config-if)# **no shut**

R3(config-if)# **exit**

R3(config)#**interface Loopback1**

R3(config-if)# **ip address 3.3.3.4 255.255.255.255**

R3(config-if)# **no shut**

R3(config-if)#**exit**

R3(config)#**interface Serial0**

R3(config-if)# **ip address 11.1.1.3 255.0.0.0**

R3(config-if)# **no shut**

R3(config-if)# **exit**

R3(config)#**router ospf 100**

R3(config-router)# **network 3.3.3.4 0.0.0.0 area 0**

R3(config-router)# **network 11.0.0.0 0.255.255.255 area 0**

R3(config-router)# **exit**

R3(config)#**router bgp 100**

R3(config-router)# **no synchronization**

R3(config-router)# **network 3.3.3.3 mask 255.255.255.255**

R3(config-router)# **neighbor 11.1.1.1 remote-as 100**

R3(config-line)#**end**

R3#**wr**

Router 4

R4#**conf t**

R4(config)#**hostname R4**

R4(config)#**enable password *******

R4(config)#**line vty 0 4**

R4(config-line)# **password *******

R4(config-line)# **login**

R4(config-line)#**exit**

R4(config)#**interface Loopback0**

R4(config-if)# **ip address 4.4.4.4 255.255.255.255**

R4(config-if)# **NO SHUT**

R4(config-if)# **exit**

R4(config)#**interface Serial0**

R4(config-if)# **ip address 12.1.1.4 255.0.0.0**

R4(config-if)# **clockrate 64000**

R4(config-if)# **no shut**

R4(config-if)# **exit**

R4(config)#**router ospf 100**

R4(config-router)# **network 4.4.4.4 0.0.0.0 area 1**

R4(config-router)# **network 12.0.0.0 0.255.255.255 area 1**

R4(config-router)# **exit**

R4(config)#**router bgp 200**

R4(config-router)# **no synchronization**

R4(config-router)# **network 12.0.0.0**

R4(config-router)# **neighbor 12.1.1.2 remote-as 100**

R4(config-router)# **end**

R4(config-line)#**end**

R4# **wr**