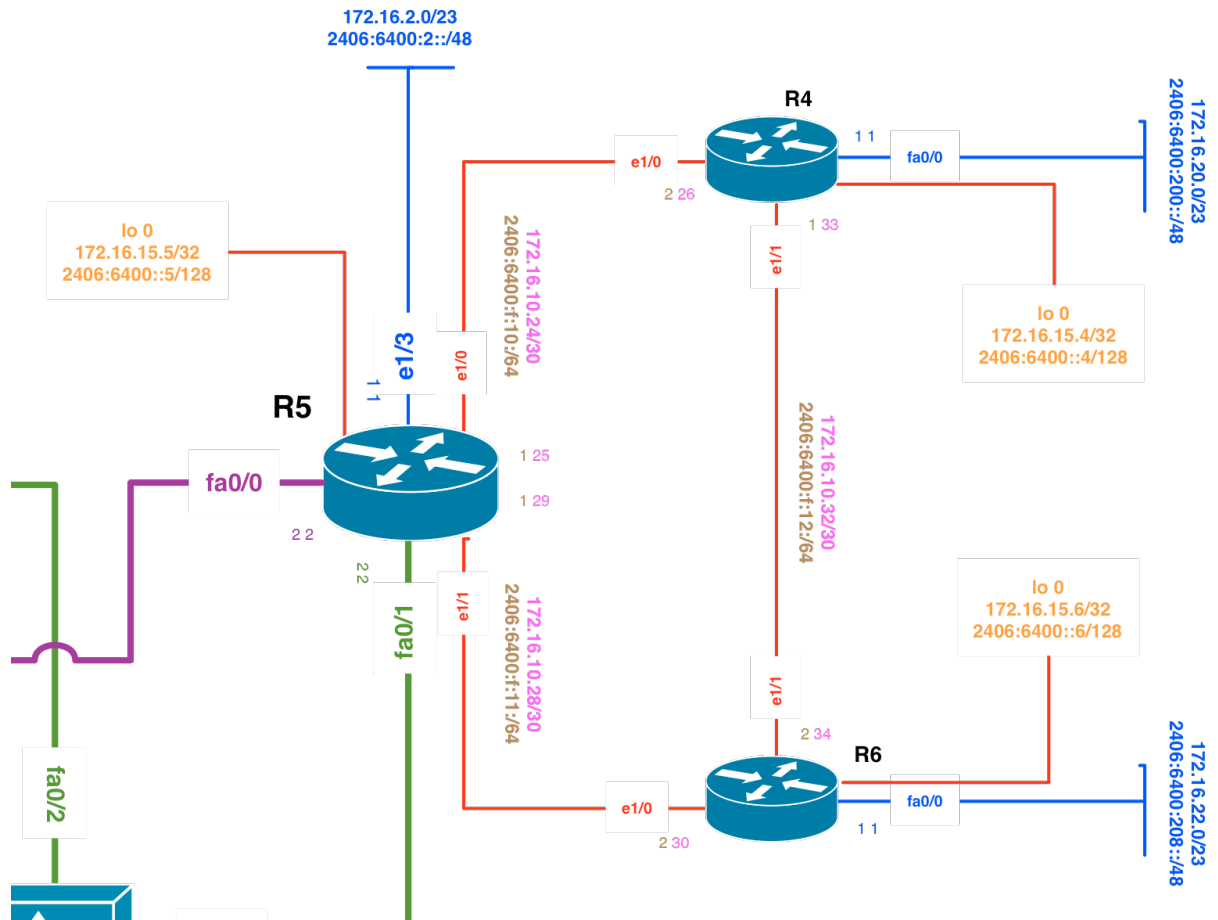


Standard router configuration for training ISP network Region2:



Basic Conf Router4

```

config t
hostname Router4
ip cef
no ip domain-lookup
no ip http server
no ip http secure-server
no ip finger
no service pad
no service udp-small-servers
no service tcp-small-server
no ip bootp server
no ip source-route
logging source-interface loopback 0
logging buffered 16384
service timestamps debug datetime msec
service timestamps log datetime msec
clock timezone AEST 10
ip routing
ip subnet-zero
  
```

```
ip classless
line console 0
logging synchronous
transport preferred none
exit
exit
wr
```

Basic Conf Router5

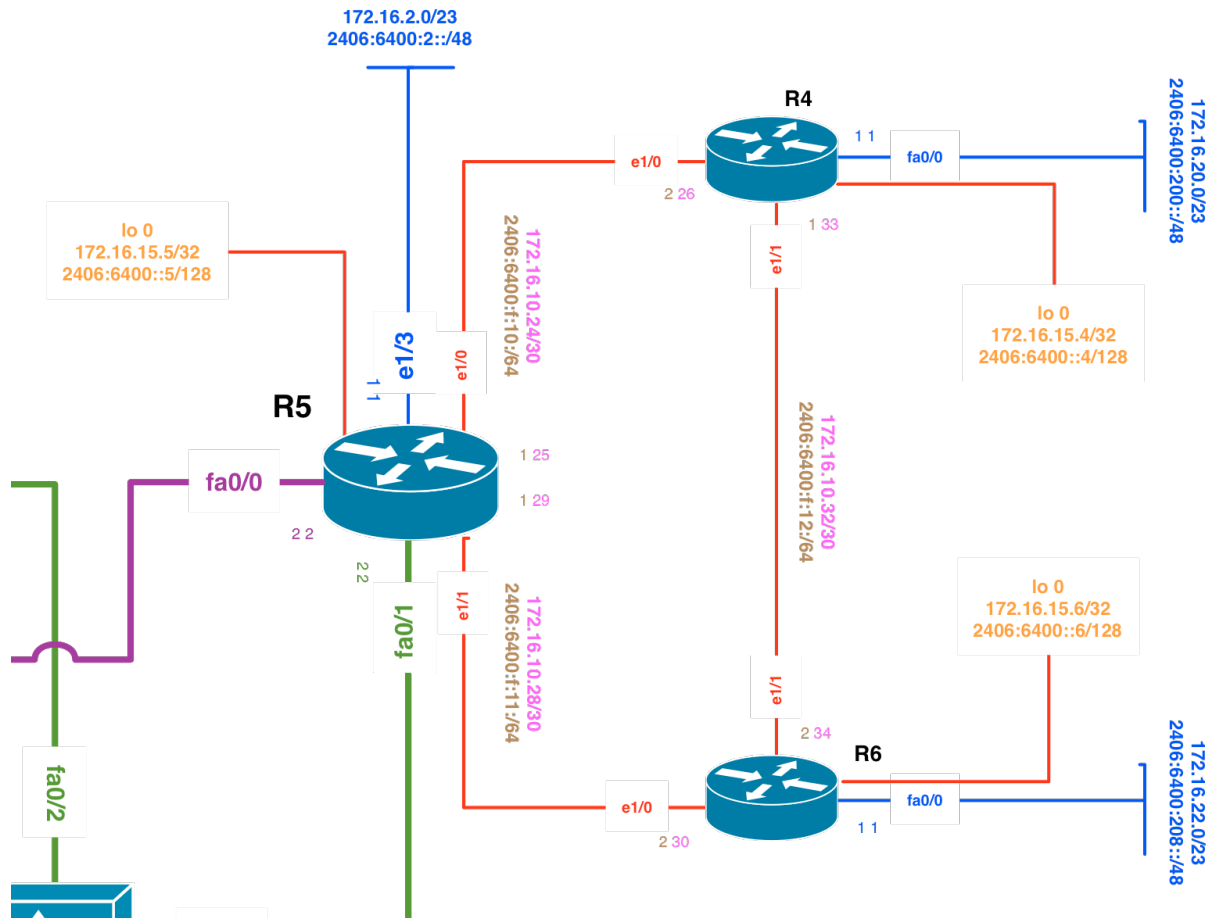
```
config t
hostname Router5
ip cef
no ip domain-lookup
no ip http server
no ip http secure-server
no ip finger
no service pad
no service udp-small-servers
no service tcp-small-server
no ip bootp server
no ip source-route
logging source-interface loopback 0
logging buffered 16384
service timestamps debug datetime msec
service timestamps log datetime msec
clock timezone AEST 10
ip routing
ip subnet-zero
ip classless
line console 0
logging synchronous
transport preferred none
exit
exit
wr
```

Basic Conf Router6

```
config t
hostname Router6
ip cef
no ip domain-lookup
no ip http server
no ip http secure-server
no ip finger
no service pad
no service udp-small-servers
```

```
no service tcp-small-server
no ip bootp server
no ip source-route
logging source-interface loopback 0
logging buffered 16384
service timestamps debug datetime msec
service timestamps log datetime msec
clock timezone AEST 10
ip routing
ip subnet-zero
ip classless
line console 0
logging synchronous
transport preferred none
exit
exit
wr
```

Interface configuration of training ISP network Region 2:



IPv4 Interface Conf Router4

```

config t
interface loopback 0
description Router4 Loopback
no ip redirects
no ip directed-broadcast
no ip unreachables
ip address 172.16.15.4 255.255.255.255
no shutdown
interface e1/0
description WAN R4-R5
no ip redirects
no ip directed-broadcast
no ip unreachables
ip address 172.16.10.26 255.255.255.252
no shutdown
interface e1/1
description WAN R4-R6
no ip redirects
no ip directed-broadcast

```

```
no ip unreachable
ip address 172.16.10.33 255.255.255.252
no shutdown
interface fa0/0
description Router4 customer network
no ip redirects
no ip directed-broadcast
no ip unreachable
no cdp enable
ip address 172.16.20.1 255.255.255.0
no shutdown
exit
exit
wr
```

Verify point-to-point connectivity:

```
ping 172.16.10.25
ping 172.16.10.34
```

IPv6 Interface Conf Router4:

```
config t
ipv6 unicast-routing
ipv6 cef
interface loopback 0
ipv6 address 2406:6400:0000:0000::4/128
ipv6 enable
interface e1/0
ipv6 address 2406:6400:000F:0010::2/64
ipv6 enable
interface e1/1
ipv6 address 2406:6400:000F:0012::1/64
ipv6 enable
interface fa0/0
ipv6 address 2406:6400:0200:0000::1/48
ipv6 enable
exit
exit
wr
```

Verify point-to-point connectivity:

```
ping 2406:6400:000F:0010::1
ping 2406:6400:000F:0012::2
```

IPV4 Interface Conf Router5:

```
config t
interface loopback 0
description Router5 Loopback
no ip redirects
no ip directed-broadcast
no ip unreachable
ip address 172.16.15.5 255.255.255.255
no shutdown
interface e1/0
description WAN R5-R4
no ip redirects
no ip directed-broadcast
no ip unreachable
ip address 172.16.10.25 255.255.255.252
no shutdown
interface e1/1
description WAN R5-R6
no ip redirects
no ip directed-broadcast
no ip unreachable
ip address 172.16.10.29 255.255.255.252
no shutdown
interface fa0/0
description Purple Transport Link
no ip redirects
no ip directed-broadcast
no ip unreachable
ip address 172.16.12.2 255.255.255.0
no shutdown
interface fa0/1
description Green Transport Link
no ip redirects
no ip directed-broadcast
no ip unreachable
ip address 172.16.13.2 255.255.255.0
no shutdown
interface e1/3
description Router5 DC net
no ip redirects
no ip directed-broadcast
no ip unreachable
ip address 172.16.2.1 255.255.255.0
no shutdown
exit
exit
wr
```

Verify point-to-point connectivity:

```
ping 172.16.10.26  
ping 172.16.10.30
```

Verify transport link:

```
ping 172.16.12.1  
ping 172.16.12.3  
ping 172.16.12.4  
ping 172.16.13.1  
ping 172.16.13.3  
ping 172.16.13.4
```

IPv6 Interface Conf Router5:

```
config t  
ipv6 unicast-routing  
ipv6 cef  
interface loopback 0  
ipv6 address 2406:6400:0000:0000::5/128  
ipv6 enable  
interface e1/0  
ipv6 address 2406:6400:000F:0010::1/64  
ipv6 enable  
interface e1/1  
ipv6 address 2406:6400:000F:0011::1/64  
ipv6 enable  
interface fa0/0  
ipv6 address 2406:6400:000D:0000::2/48  
ipv6 enable  
interface fa0/1  
ipv6 address 2406:6400:000E:0000::2/48  
ipv6 enable  
interface e1/3  
ipv6 address 2406:6400:0002:0000::1/48  
ipv6 enable  
exit  
exit  
wr
```

Verify point-to-point connectivity:

```
ping 2406:6400:000F:0010::2  
ping 2406:6400:000F:0011::2
```

Verify transport link:

```
ping 2406:6400:000D:0000::1
ping 2406:6400:000D:0000::3
ping 2406:6400:000D:0000::4
ping 2406:6400:000E:0000::1
ping 2406:6400:000E:0000::3
ping 2406:6400:000E:0000::4
```

IPv4 Interface Conf Router6:

```
config t
interface loopback 0
description Router6 Loopback
no ip redirects
no ip directed-broadcast
no ip unreachablees
ip address 172.16.15.6 255.255.255.255
no shutdown
interface e1/0
description WAN R6-R5
no ip redirects
no ip directed-broadcast
no ip unreachablees
ip address 172.16.10.30 255.255.255.252
no shutdown
interface e1/1
description WAN R6-R4
no ip redirects
no ip directed-broadcast
no ip unreachablees
ip address 172.16.10.34 255.255.255.252
no shutdown
interface fa0/0
description Router6 customer network
no ip redirects
no ip directed-broadcast
no ip unreachablees
no cdp enable
ip address 172.16.22.1 255.255.255.0
no shutdown
exit
exit
wr
```

Verify point-to-point connectivity:

```
ping 172.16.10.29
ping 172.16.10.33
```

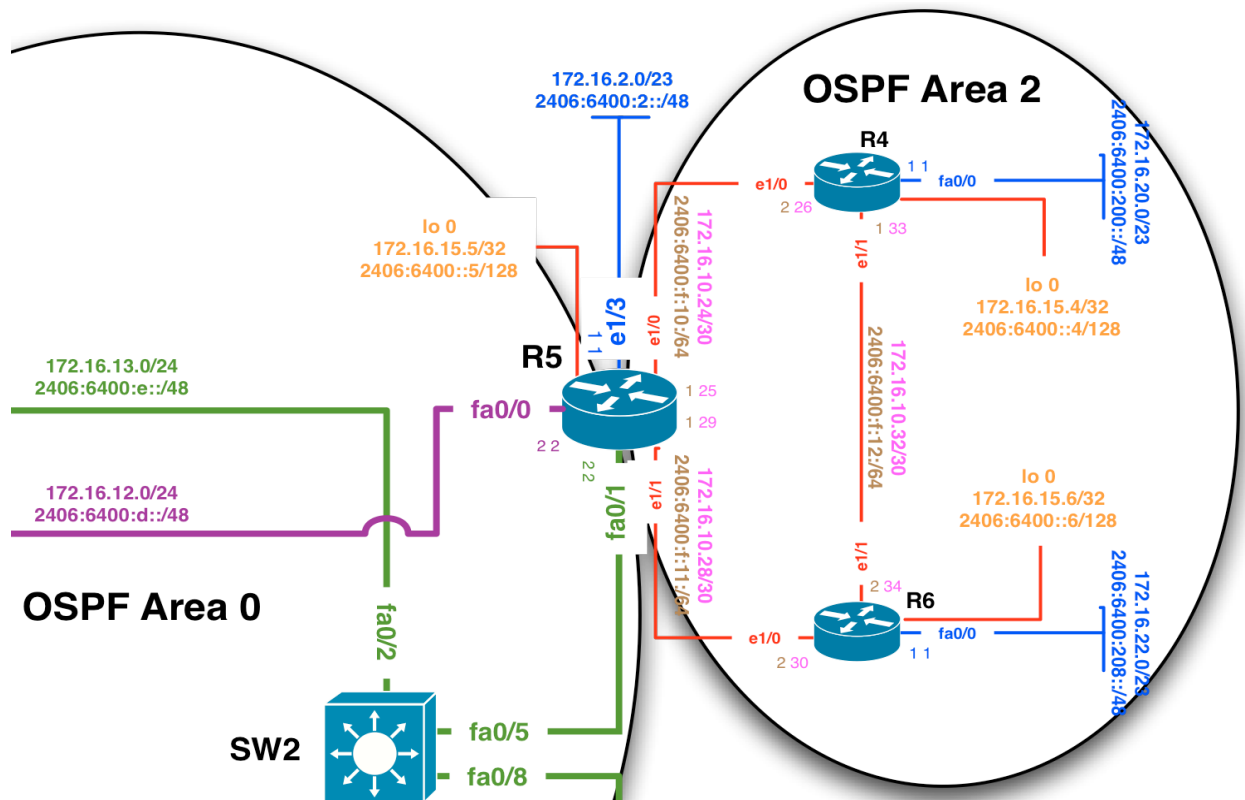

IPv6 Interface Conf Router6:

```
config t
ipv6 unicast-routing
ipv6 cef
interface loopback 0
ipv6 address 2406:6400:0000:0000::6/128
ipv6 enable
interface e1/0
ipv6 address 2406:6400:000F:0011::2/64
ipv6 enable
interface e1/1
ipv6 address 2406:6400:000F:0012::2/64
ipv6 enable
interface fa0/0
ipv6 address 2406:6400:0208:0000::1/48
ipv6 enable
exit
exit
wr
```

Verify point-to-point connectivity:

```
ping 2406:6400:000F:0011::1
ping 2406:6400:000F:0012::1
```

Configuration of OSPF in training ISP network Region2:



IPv4 OSPF Conf Router4:

```

config t
router ospf 17821
log-adjacency-changes
passive-interface default
network 172.16.15.4 0.0.0.0 area 2
no passive-interface e1/0
network 172.16.10.24 0.0.0.3 area 2
no passive-interface e1/1
network 172.16.10.32 0.0.0.3 area 2
exit
exit
wr
  
```

Verify IPv4 OSPF Configuration:

```

sh ip ospf neighbor
sh ip ospf database
sh ip route ospf
ping [router1....up to router12 loopback] !!!!!
ping [all WAN interface & transport interface] !!!!!
ping [any datacenter prefix] .....
ping [any customer prefix] .....
  
```

```
debug ip ospf packet
debug ip ospf adj
```

IPv6 OSPF Conf Router4:

```
config t
interface loopback 0
ipv6 ospf 17821 area 2
interface e1/0
ipv6 ospf 17821 area 2
interface e1/1
ipv6 ospf 17821 area 2
exit
exit
wr
```

Verify IPv6 OSPF Configuration:

```
sh ipv6 ospf neighbor
sh ipv6 ospf database
sh ipv6 route ospf
ping [router1....up to router12 loopback] !!!!!
ping [all WAN interface & transport interface] !!!!!
ping [any datacenter prefix] .....
ping [any customer prefix] .....
debug ipv6 ospf packet
debug ipv6 ospf adj
```

IPv4 OSPF Conf Router5:

```
config t
router ospf 17821
log-adjacency-changes
passive-interface default
network 172.16.15.5 0.0.0.0 area 0
no passive-interface e1/0
network 172.16.10.24 0.0.0.3 area 2
no passive-interface e1/1
network 172.16.10.28 0.0.0.3 area 2
no passive-interface fa0/0
network 172.16.12.0 0.0.0.255 area 0
no passive-interface fa0/1
network 172.16.13.0 0.0.0.255 area 0
exit
exit
wr
```

Verify IPv4 OSPF Configuration:

```
sh ip ospf neighbor
sh ip ospf database
sh ip route ospf
ping [router1....up to router12 loopback] !!!!!
ping [all WAN interface & transport interface] !!!!!
ping [any datacenter prefix] .....
ping [any customer prefix] .....
debug ip ospf packet
debug ip ospf adj
```

IPv6 OSPF Conf Router5:

```
config t
interface loopback 0
ipv6 ospf 17821 area 0
interface fa0/0
ipv6 ospf 17821 area 0
interface fa0/1
ipv6 ospf 17821 area 0
interface e1/0
ipv6 ospf 17821 area 2
interface e1/1
ipv6 ospf 17821 area 2
exit
exit
wr
```

Verify IPv6 OSPF Configuration:

```
sh ipv6 ospf neighbor
sh ipv6 ospf database
sh ipv6 route ospf
ping [router1....up to router12 loopback] !!!!!
ping [all WAN interface & transport interface] !!!!!
ping [any datacenter prefix] .....
ping [any customer prefix] .....
debug ipv6 ospf packet
debug ipv6 ospf adj
```

IPv4 OSPF Conf Router6:

```
config t
router ospf 17821
log-adjacency-changes
passive-interface default
network 172.16.15.6 0.0.0.0 area 2
no passive-interface e1/0
```

```
network 172.16.10.28 0.0.0.3 area 2
no passive-interface e1/1
network 172.16.10.32 0.0.0.3 area 2
exit
exit
wr
```

Verify IPv4 OSPF Configuration:

```
sh ip ospf neighbor
sh ip ospf database
sh ip route ospf
ping [router1....up to router12 loopback] !!!!!
ping [all WAN interface & transport interface] !!!!!
ping [any datacenter prefix] .....
ping [any customer prefix] .....
debug ip ospf packet
debug ip ospf adj
```

IPv6 OSPF Conf Router6:

```
config t
interface loopback 0
ipv6 ospf 17821 area 2
interface e1/0
ipv6 ospf 17821 area 2
interface e1/1
ipv6 ospf 17821 area 2
exit
exit
wr
```

Verify IPv6 OSPF Configuration:

```
sh ipv6 ospf neighbor
sh ipv6 ospf database
sh ipv6 route ospf
ping [router1....up to router12 loopback] !!!!!
ping [all WAN interface & transport interface] !!!!!
ping [any datacenter prefix] .....
ping [any customer prefix] .....
debug ipv6 ospf packet
debug ipv6 ospf adj
```