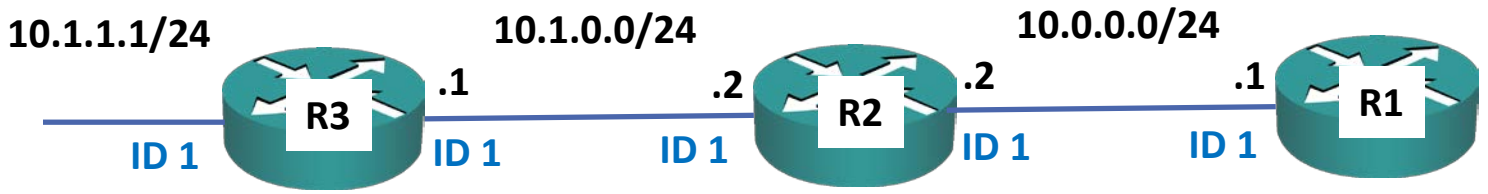
OSPF Versions

- OSPFv2 is used for IPv4
- OSPFv3 is used for IPv6 (and also supports IPv4)
- Both operate very similarly
- OSPFv2 sends and receives IPv4 routes and updates the IPv4 routing table
- OSPFv3 sends and receives IPv6 routes and updates the IPv6 routing table

OSPFv2 Configuration

```
R2(config)#router ospf 1
R2(config-router)#network 10.0.0.0 0.255.255.255 area 0
```



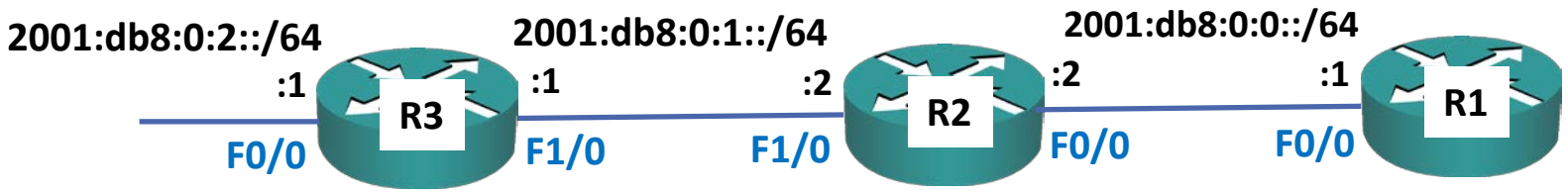
OSPF Configuration - network

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

- The network command means:
  - Look for interfaces with an IP address which falls within this range.
  - Enable OSPF on those interfaces – send out and listen for OSPF hello messages, and peer with adjacent OSPF routers if they are in the same area.
  - Advertise the network and mask which is configured on those interfaces.

OSPFv3 Configuration

```
R2(config)#ipv6 unicast-routing
R2(config)#ipv6 router ospf 1
R2(config-rtr)#interface f0/0
R2(config-if)#ipv6 ospf 1 area 0
R2(config-if)#interface f1/0
R2(config-if)#ipv6 ospf 1 area 0
```



OSPFv2 Router ID

- OSPFv2 routers are identified to each other by OSPF Router ID
- The Router ID is in the form of an IPv4 address
- The highest loopback address will be used by default (or highest address on another interface if no loopback is present)
- This can be overridden by manually configuring the Router ID

```
R1(config)#router ospf 1
R1(config-router)#router-id 10.0.0.1
```

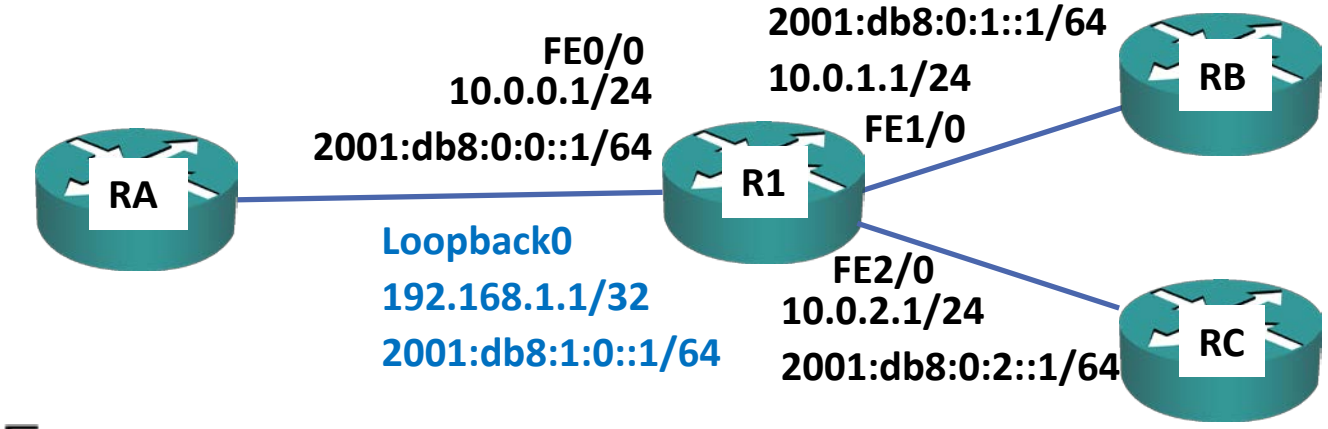
OSPFv3 Router ID

- The OSPFv3 Router ID is also in the form of an IPv4 address (not IPv6)
- The highest loopback address will be used by default (or highest address on another interface if no loopback is present)
- This can be overridden by manually configuring the Router ID

```
R1(config)#ipv6 router ospf 1
R1(config-rtr)#router-id 10.0.0.1
```

Passive Interfaces

- Passive interfaces allow you to include an IP subnet in the routing protocol without sending updates out of the interface
- If FastEthernet2/0 is configured as a passive interface, RA and RB will learn routes to 10.0.2.0 and 2001:DB8:0:2::/64, but internal network information will not be sent to RC



Passive Interfaces

```
R1(config)#router ospf 1
R1(config-rtr)#passive-interface loopback 0
R1(config-rtr)#passive-interface FastEthernet2/0

R1(config)#ipv6 router ospf 1
R1(config-rtr)#passive-interface loopback 0
R1(config-rtr)#passive-interface FastEthernet2/0
```

OSPF Verification