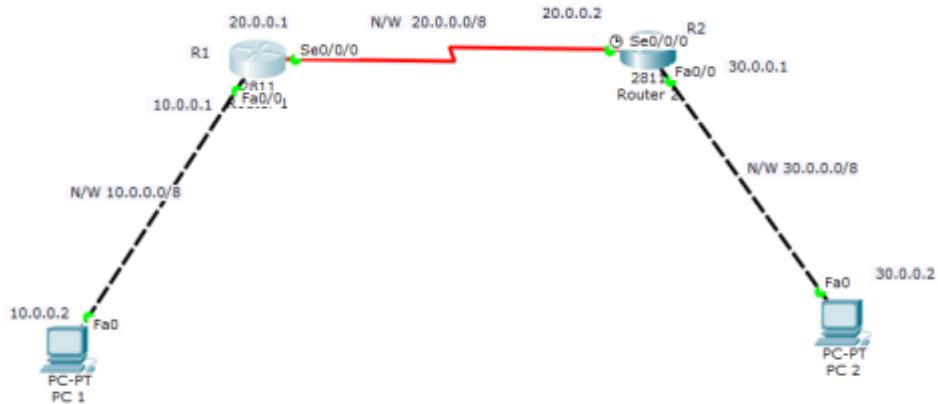


# Basic OSPF configuration

## 1. Build the network topology.



## 2. Configure IP addresses on PCs and router interfaces.

### Router 1

```
R1(config)#int fa 0/0
R1(config-if)#ip add 10.0.0.1 255.0.0.0
R1(config-if)#no shut
R1(config-if)#
R1(config-if)#int serial 0/0/0
R1(config-if)#ip add 20.0.0.1 255.0.0.0
R1(config-if)#no shut
```

### Router 2

```
R2(config-if)#int fa0/0
R2(config-if)#ip add 30.0.0.1 255.0.0.0
R2(config-if)#no shut
R2(config-if)#
R2(config-if)#int serial0/0/0
```

```
R2(config-if)#ip address 20.0.0.2 255.0.0.0
```

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

Now do IP configurations for the PCs.

PC1 IP add 10.0.0.2 Subnet mask 255.0.0.0 Default gateway 10.0.0.1

PC2 IP add 30.0.0.2 Subnet mask 255.0.0.0 Default gateway 30.0.0.1

### **3. Configure OSPF on the routers.**

The configuration is pretty simple and requires only two major steps:

1. Enable OSPF on a router using the router ospf PROCESS\_ID in the global configuration mode.
2. Define on which interfaces OSPF will run and what networks will be advertised using network IP\_ADDRESS WILCARD\_MASK AREA command in the OSPF configuration mode.

Note that the OSPF process ID doesn't have to be the same on all routers in order for the routers to establish a neighbour relationship, but the area parameter has to be the same on all neighbouring routers in order for the routers to become neighbours.

#### **Router 1**

```
R1(config)#
```

```
R1(config)#router ospf 1
```

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

```
R1(config-router)#network 20.0.0.0 0.255.255.255 area 0
```

#### **Router 2**

```
R2(config)#
```

```
R2(config)#router ospf 2
```

```
R2(config-router)#network 20.0.0.0 0.255.255.255 area 0
```

```
R2(config-router)#network 30.0.0.0 0.255.255.255 area 0
```

As you can see from the above picture, we just need to enable OSPF on the routers which then advertise the networks directly connected to each of them.

Have in mind: The OSPF process IDs used for the two routers have been made optionally different but their area numbers must be the same.

#### **4. Verify OSPF configuration**

First, let's verify that the routers have established a neighbour relationship by typing the show ip ospf neighbour command on R1:

```
R1#
R1#show ip ospf neighbor

Neighbor ID      Pri   State          Dead Time     Address
Interface
30.0.0.1         0     FULL/ -        00:00:30     20.0.0.2
Serial0/0/0
```

Next, to verify that R1 has learnt the route to 30.0.0.0/8 network, we'll use show ip route ospf command on R1:

```
R1#
R1#show ip route ospf
O    30.0.0.0 [110/65] via 20.0.0.2, 00:20:50, Serial0/0/0
```

Note that the letter O indicates OSPF routes.

Lastly, verify connectivity. Ping PC2 from PC1. Ping should be successful.

