Basic using OSPF and ACL (Solution).

The solution is marked as bold an italic.

The goal is practicing with the basic commands of OSPF and standard ACLs. You must do the next configurations:

1. - Configure the IP addresses as:

- Host A: 10.1.1.1/24. Gateway: 10.1.1.3
  IP: 10.1.1.1
  Mask: 255.255.255.0
  Gateway: 10.1.1.3
- Host B: 10.1.1.2/24. Gateway: 10.1.1.3
  IP: 10.1.1.2
  Mask: 255.255.255.0
  Gateway: 10.1.1.3
- R1´s G0/0: 10.1.1.3/24
  Router>enable
  Router#configure terminal
  Router (config)#interface g0/0
  Router (config-if)#ip address 10.1.1.3 255.255.255.0
  Router (config-if)#no shutdown
  Router (config-if)#end
- Host C: 10.3.3.3/25. Gateway: 10.3.3.1
  IP: 10.3.3.3
  Mask: 255.255.255.128
  Gateway: 10.3.3.1
- R1´s G0/1: 10.3.3.1/25
  Router#configure terminal
  Router (config)#interface g0/1
  Router (config-if)#ip address 10.3.3.1 255.255.255.128
  Router (config-if)#no shutdown
  Router (config-if)#end
- S1: 10.2.2.1/24. Gateway: 10.2.2.3
  IP: 10.2.2.1
  Mask: 255.255.255.0
  Gateway: 10.2.2.3
- S2: 10.2.2.2/24. Gateway: 10.2.2.3
  IP: 10.2.2.2
  Mask: 255.255.255.0
  Gateway: 10.2.2.3
- R2´s G0/0: 10.2.2.3/24
  Router>enable
  Router#configure terminal
  Router (config)#interface g0/0
  Router (config-if)#ip address 10.2.2.3 255.255.255.0
  Router (config-if)#no shutdown
  Router (config-if)#end

- R1´s S0/3/0: 10.4.4.1/30

Router#configure terminal
Router (config)#interface s0/3/0
Router (config-if)#ip address 10.4.4.1 255.255.255.252
Router (config-if)#no shutdown
Router (config-if)#end

- R2´s S0/3/0: 10.4.4.2/30

Router#configure terminal
Router (config)#interface s0/3/0
Router (config-if)#ip address 10.4.4.2 255.255.255.252
Router (config-if)#no shutdown
Router (config-if)#end

Check that you can ping between hosts in the same subnet:

- From Host A to Host B.
- From Host C to R1´s G0/1 interface.
- From S1 to S2.
- From R1´s S0/3/0 interface to R2´s S0/3/0 interface.

Note that you can´t ping between hosts in different subnets because the routers don´t have any entry in their routing table.

2. – Enable OSPF in all interfaces both R1 and R2 (area 0) with only one subcommand in the OSPF configuration.

R1:

Router#configure terminal
Router (config)#router ospf 1
Router (config-router)#network 10.0.0.0 0.255.255.255 area 0
Router (config-router)#end

R2:

Router#configure terminal
Router (config)#router ospf 1
Router (config-router)#network 10.0.0.0 0.255.255.255 area 0
Router (config-router)#end

Check that the neighboring relationships have been created between R1 and R2.

R1:

Router#show ip ospf neighbor

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Neighbor ID     Pri   State           Dead Time   Address         Interface
10.4.4.2          0   FULL/  -        00:00:39    10.4.4.2        Serial0/3/0
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R2:

Router#show ip ospf neighbor

Neighbor ID	Pri	State	Dead Time	Address	Interface
10.4.4.1	0	FULL/ -	00:00:34	10.4.4.1	Serial0/3/0

Check that, after configuring OSPF, you can ping between hosts in different subnets.

- From Host A to Host C.
- From Host C to S1.
- From Host A to S1.

2. – Configure ACL on the right routers, interfaces and directions based on these requirements:

- Permit packets from S1 going to subnet of hosts A and B.
- Deny packets from S2 going to subnet of host A and B.
- Permit packets from S2 going to subnet of host C.
- Deny packets from S1 going to subnet of host C.

Using an outbound ACL on R1´s G0/0, permit packets from S1 and deny all other packets.

Using an outbound ACL on R1´s G0/1, permit packets from S2 and deny all other packets.

R1:

Router#configure terminal
Router (config)#access-list 1 permit 10.2.2.1
Router (config)#access-list 2 permit 10.2.2.2
Router (config)#interface G0/0
Router (config-if)#ip access-group 1 out
Router (config-if)#interface G0/1
Router (config-if)#ip access-group 2 out
Router (config-if)#end

After configuring ACL, check that:

- You can ping from S1 to host A and B, but not to host C.
- You can ping from S2 to host C, but not to hosts A and B.