



Caribbean Workshop - Guadeloupe

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Routing hands-on: Local Lab

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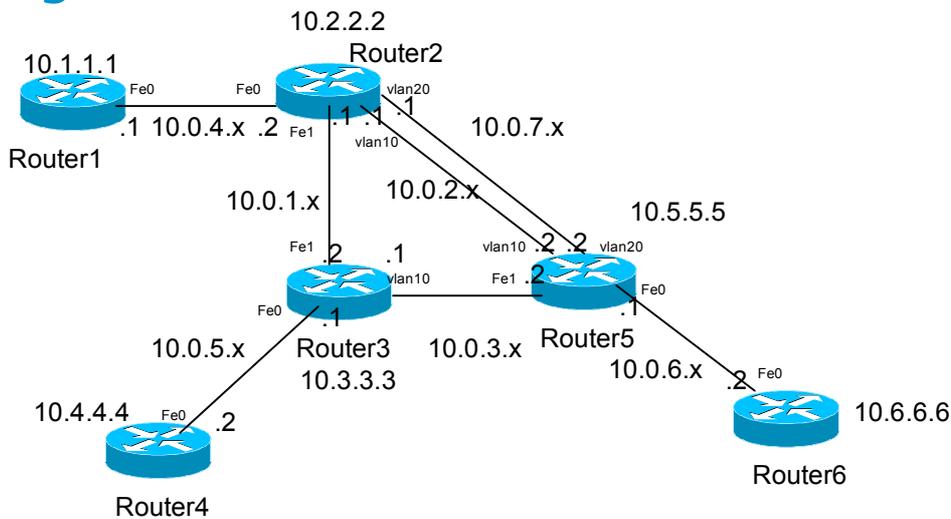
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Hands-on

Routing configuration / Paris laboratory

Testbed setup

- Logical Network:



Testbed diagram

Routers login:

Use telnet protocol with the

Router	IPv4 address
Router1	10.1.1.1
Router2	10.2.2.2
Router3	10.3.3.3
Router4	10.4.4.4
Router5	10.5.5.5
Router6	10.6.6.6

Routers connection information

Login: 6diss
Password: 6diss

Addressing configuration

1°) Configure the following addressing plan on the routers.

Loopbacks:

Name	IPv6 Loopback address	IPv4 Loopback address (for router-ID)
Router1	2001:DB8:CAFE:8001::1/64	10.1.1.1
Router2	2001:DB8:CAFE:8002::1/64	10.2.2.2
Router3	2001:DB8:CAFE:8003::1/64	10.3.3.3
Router4	2001:DB8:CAFE:8007::1/64	10.4.4.4
Router5	2001:DB8:CAFE:8008::1/64	10.5.5.5
Router6	2001:DB8:CAFE:8009::1/64	10.6.6.6

Interconnections:

Interconnections (R1 - R2)	Prefix
router1 - router2	2001:DB8:CAFE:8101::/64
router2 - router3	2001:DB8:CAFE:8102::/64
router2 - router5 (VLAN10)	2001:DB8:CAFE:8103::/64
router2 - router5 (VLAN20)	2001:DB8:CAFE:8104::/64
router3 - router4	2001:DB8:CAFE:8105::/64
router3 - router5	2001:DB8:CAFE:8106::/64
Router5 - router6	2001:DB8:CAFE:8107::/64

R1 has address = prefix::1

R2 has address = prefix::2

2°) Check you can ping address of the routers connected to the router you manage.

3°) Take a look at the IPv6 details of an interface. Write down the different addresses you observe and give their types and usage.

OSPF configuration for IPv6

- 1°) *Enable OSPFv3 routing protocol for IPv6 on all routers.*
- 2°) *Enable CEF switching for IPv6 on CISCO routers*
- 3°) *Enable the OSPFv3 process you have configured in question 1 on all interfaces of the lab (except loopback interfaces). Use area 0 for OSPFv3.*
- 4°) *Check OSPFv3 connections are established between routers.*
- 5°) *Redistribute the loopback addresses in OSPFv3.*
- 6°) *Check all routers in the labs receive all interconnection and loopback prefixes via OSPFv3.*
- 7°) *Check reachability of all routers loopback addresses from your router using ping command.*

BGP configuration for IPv6

1°) Configure an eMBGP peerings between router2, router3 and router5. For this purpose, interconnection addresses must be used to setup the peerings. Also note that:

- AS number of router2 is 65151
- AS number of router3 is 65152
- AS number of router5 is 65153

2°) Configure an iMBGP peering between:

- router1 and router2 (AS65151)
- router3 and router4 (AS65152)
- router5 and router6 (AS65153)

Note that the iMBGP full mesh is configured between loopback addresses of the routers.

3°) Check the status of the eMBGP and iMBGP peerings. They must be in established state before going to the next step.

4°) Check that you receive prefixes via the eMBGP peerings. Check they are properly propagated to the routers of the lab through iMBGP peerings.

Bonus:

5°) Enforce policies on the eMBGP peerings to accept only one loopback prefix (e.g: 2001:DB8:CAFE:8007::1/64).

6°) Apply a policy to prefer the path between router2 and router3 . For this purpose, configure on router3 the local-preference 200 on prefixes received from router2. Configure on router5 the local-preference of 150 on prefixes received from router2.

7°) Check the BGP details to make sure the policy is properly configured. Using traceroute command, make sure that the path between router2 and router3 is preferred.