

***IPv6 Workshop: Location***

***Date***

***Routing Hands-on – Paris Lab***

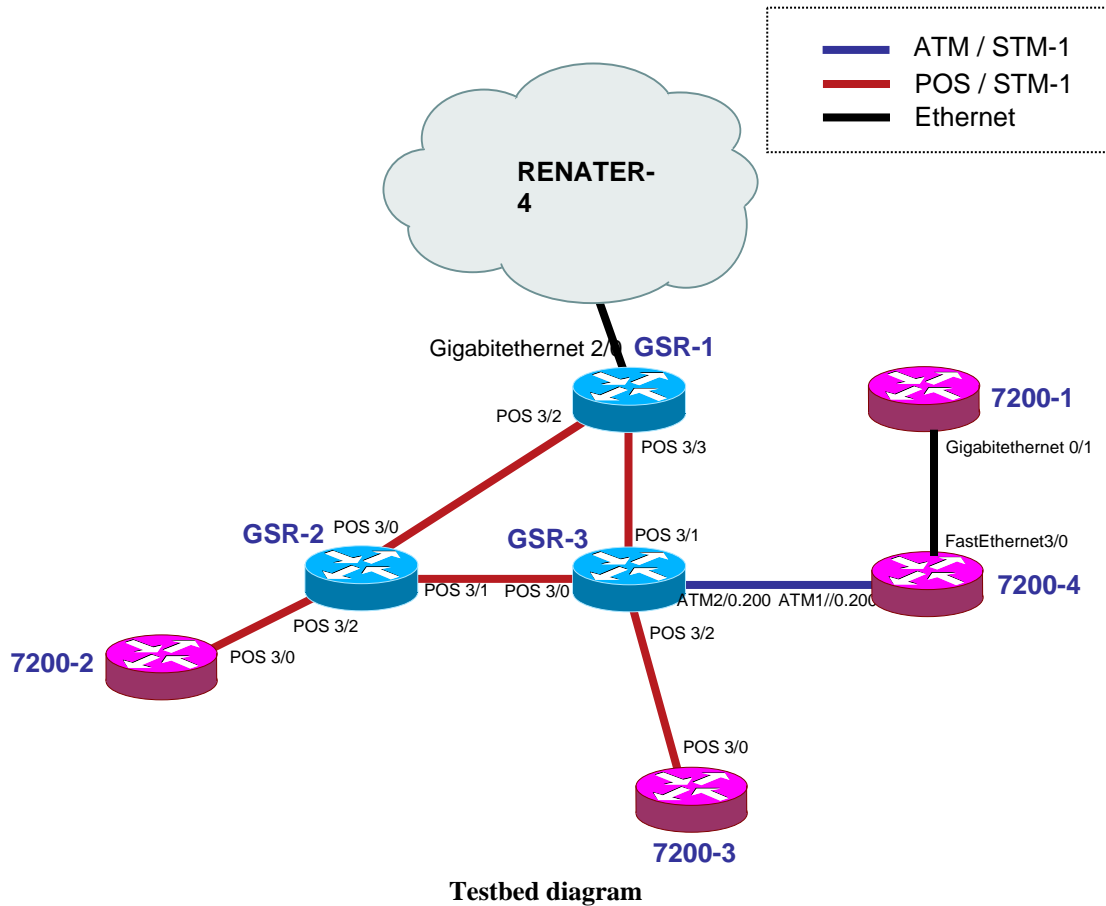
***Trainer Name***



# Hands-on

## Routing configuration / Paris laboratory

### Testbed setup



### Routers login:

Use telnet protocol with the

Router	IPv4 address
GSR-1	193.51.190.242
GSR-2	193.51.190.246
GSR-3	193.51.190.247
7200-1	193.51.190.245
7200-2	193.51.190.249
7200-3	193.51.190.250
7200-4	193.51.190.253

**Routers connection information**

Login: xxxxx  
 Password: xxxxx

## Addressing configuration

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

Loopbacks:

Name	IPv6 Loopback address	IPv4 Loopback address (for router-ID)
GSR-1	2001:660:3008:8001::1/64	194.254.101.130
GSR-2	2001:660:3008:8002::1/64	194.254.101.131
GSR-3	2001:660:3008:8003::1/64	194.254.101.132
7200-1	2001:660:3008:8006::1/64	194.254.101.133
7200-2	2001:660:3008:8007::1/64	194.254.101.134
7200-3	2001:660:3008:8008::1/64	194.254.101.135
7200-4	2001:660:3008:8009::1/64	194.254.101.136

Interconnections:

Interconnections (R1 - R2)	Prefix
GSR-1 - GSR-2	2001:660:3008:8101::/64
GSR-1 - GSR-3	2001:660:3008:8102::/64
7200-1 - 7200-4	2001:660:3008:8103::/64
7200-2 - GSR-2	2001:660:3008:8104::/64
GSR-2 - GSR-3	2001:660:3008:8105::/64
GSR-3 - 7200-3	2001:660:3008:8106::/64
GSR-3 - 7200-4	2001:660:3008:8107::/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.*

## Bonus: BGP configuration for IPv6

1°) Configure an eMBGP peering between GSR-2 and GSR-1 and another peering between GSR-3 and GSR-1. For this purpose, interconnection addresses must be used to setup the peerings. Also note that:

- AS number of GSR-1 is 65152
- AS number of GSR-2 is 65153
- AS number of GSR-3 is 65154

Note that you have to disable OSPF in “external” interfaces:

- for GSR1, OSPF must be disabled in POS3/2 and POS3/3
- for GSR2, OSPF must be disabled in POS3/0 and POS3/1
- for GSR3, OSPF must be disabled in POS3/0 and POS3/1

2°) Configure an iMBGP peering between:

- GSR-2 and 7200-2
- GSR-3 and 7200-3
- GSR3, 7200-4 and 7200-1 (full mesh)

Note: For iMBGP peerings, you have to specify the ipv6 address used for the BGP routing updates:

```
router bgp xxxx
...
...
address-family ipv6
...
...
neighbor X:X:X:X::X update-source Loopback 0
...
```

Note that the iMBGP full mesh is configured between loopback addresses of the routers. This is the reason why OSPF is needed to reach loopback addresses.

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.

5°) Check the connectivity to the IPv6 internet. Use the ping / traceroute commands from the routers to some well known IPv6 web servers

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