



***Caribbean Workshop - Guadeloupe***

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***Routing hands-on: Paris Lab***

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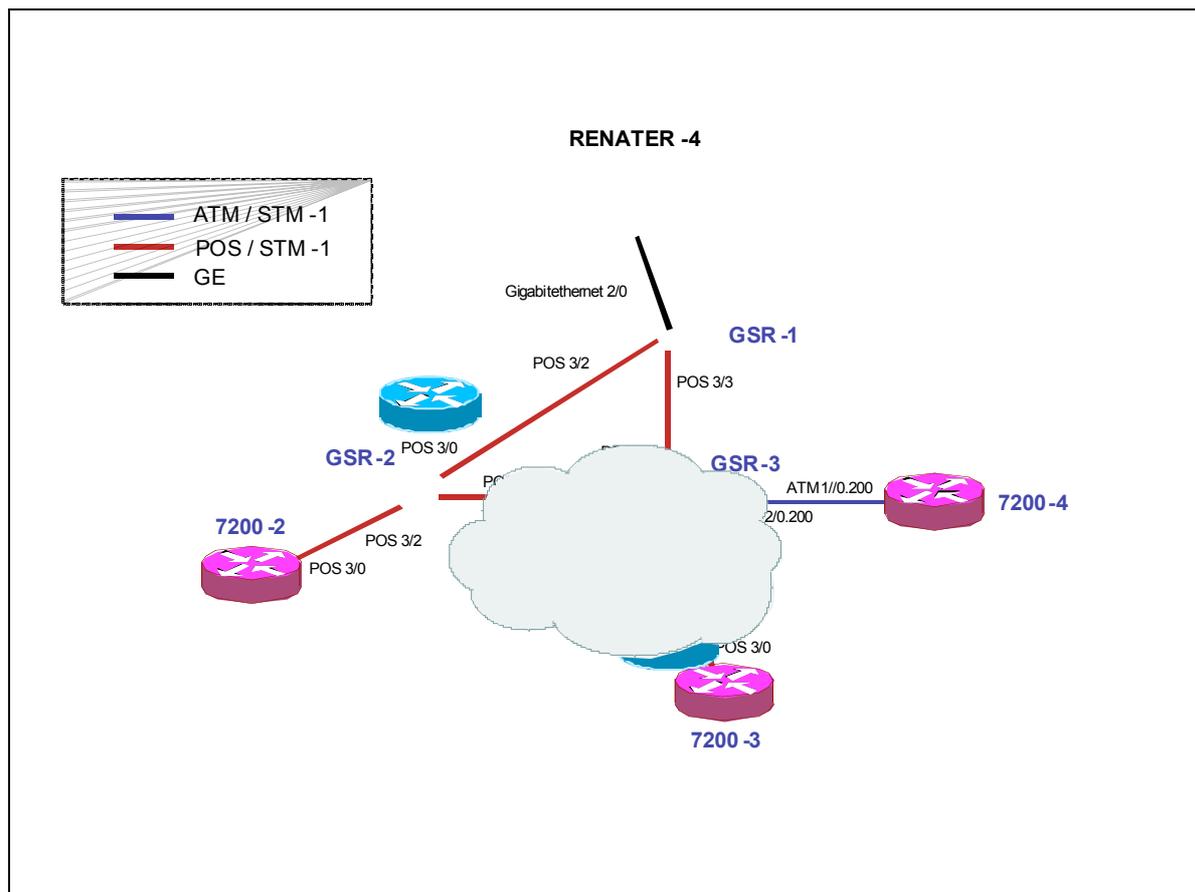
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# Hands-on

## Routing configuration / Paris laboratory

### Testbed setup



Testbed diagram

### 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
7200-2	193.51.190.249
7200-3	193.51.190.250
7200-4	193.51.190.253

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)
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
7200-2	2001:660:3008:8007::1/64	194.254.101.133
7200-3	2001:660:3008:8008::1/64	194.254.101.134
7200-4	2001:660:3008:8009::1/64	194.254.101.135

Interconnections:

Interconnections (R1 - R2)	Prefix
GSR-1 - GSR-2	2001:660:3008:8101::/64
GSR-1 - GSR-3	2001:660:3008:8102::/64
7200-2 - GSR-2	2001:660:3008:8103::/64
GSR-2 - GSR-3	2001:660:3008:8104::/64
GSR-3 - 7200-3	2001:660:3008:8105::/64
GSR-3 - 7200-4	2001:660:3008:8108::/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 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

2°) Configure an iMBGP peering between:

- GSR-2 and 7200-2
- GSR-3 and 7200-3
- GSR3 and 7200-4

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

- [www.6diss.org](http://www.6diss.org)
- [www.renater.fr](http://www.renater.fr)
- [www.kame.net](http://www.kame.net)
- ...

6°) Enforce policies on the eMBGP peerings to accept only legacy IPv6 prefixes. Some more details about this legacy prefixes and the way you can configure the policy can be found at <http://www.space.net/~gert/RIPE/ipv6-filters.html>

7°) Apply a policy to prefer the path between GSR-1 and GSR-2. For this purpose, configure on GSR-2 the local-preference 200 on prefixes received from GSR-1. Configure on GSR-3 the local-preference of 150 on prefixes received from GSR-1.

8°) Check the BGP details to make sure the policy is properly configured. Using traceroute command, make sure that the path between GSR-2 and GSR-1 is preferred.