

# LAB11: BGP – IPv6

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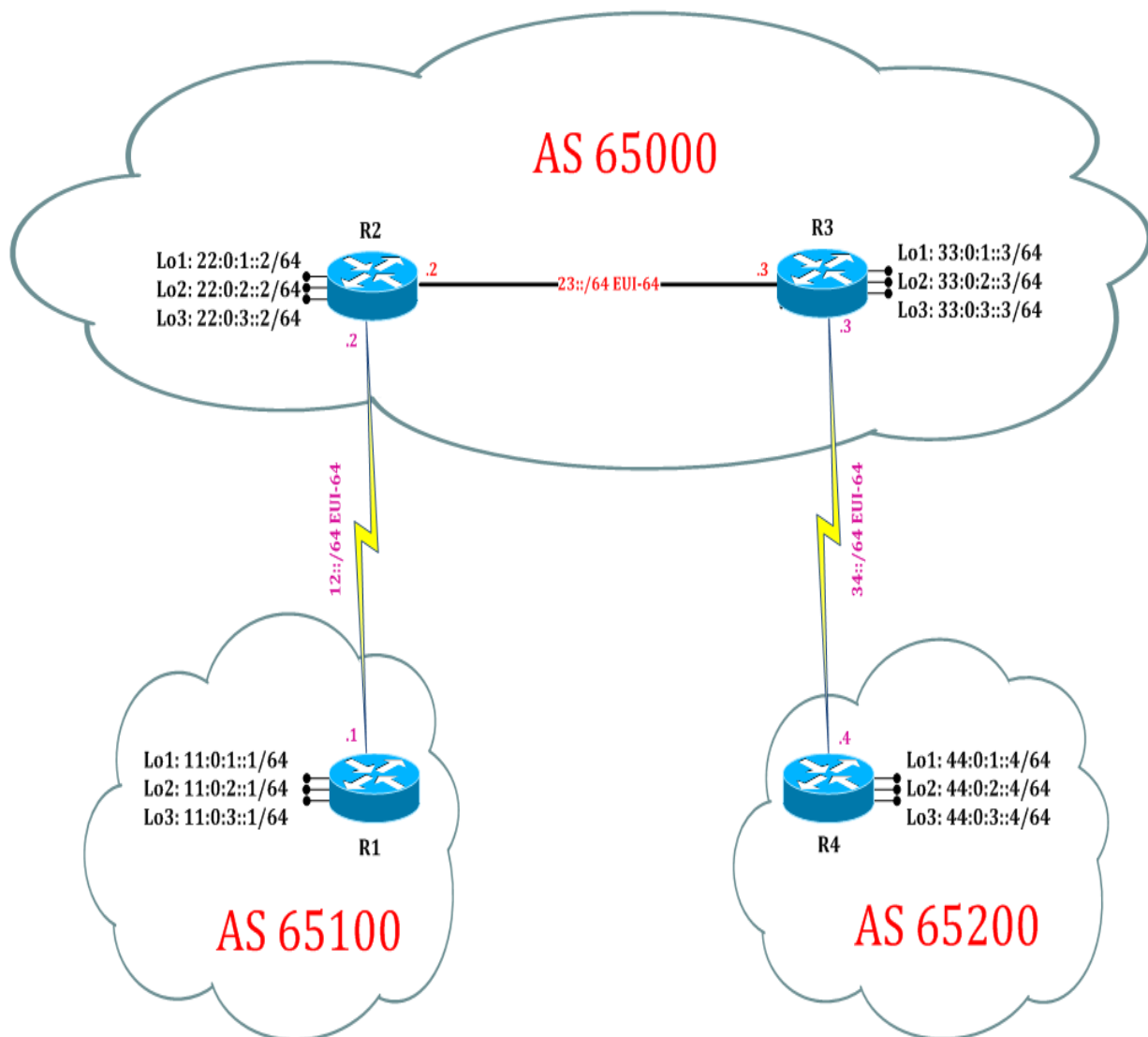
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**BGP: Local Preference**

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# LAB 11: Diagram

Note: This Lab was developed on Cisco IOS Version 15.2(4) M1 ADVENTERPRISEK9-M.



# LAB 11: Configure IPv6 BGP Local Preference Attributes

## Task 1: Configure IPv6 BGP Local Preference Attributes for Autonomous

Step 1 In the configuration mode of router configure BGP Local Preference Attributes by following command:

```
R2:
router bgp 65000
address-family ipv6
neighbor 11:0:1::1 route-map xyz in
exit
exit
route-map xyz permit 10
set local-preference 5000
exit
```

(A policy is call on Router R2 that to reach 100 network via 11:0:1::1 through AS 65000 preference is set 5000.)

```
R1:
router bgp 65100
address-family ipv6
neighbor 22:0:1::2 route-map xyz out
exit
exit
route-map xyz permit 10
set local-preference 10000
exit
```

(A policy is call on Router R1 that to reach 100 network via 22:0:1::2 through AS 65100 preference is set 10000.)

Step 2 Verify IPv6 BGP routes by following command

```
R2#show bgp ipv6 unicast
```

```
BGP table version is 29, local router ID is 22.0.3.2
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
               r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
               x best-external, a additional-path, c RIB-compressed,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found
```

Network	Next Hop	Metric	LocPrf	Weight	Path
*> 11:0:1::/64	11:0:1::1	0	5000	0	65100 i
*> 11:0:2::/64	11:0:1::1	0	5000	0	65100 i
*> 11:0:3::/64	11:0:1::1	0	5000	0	65100 i
*> 22:0:1::/64	::	0		32768	i
*> 22:0:2::/64	::	0		32768	i
*> 22:0:3::/64	::	0		32768	i
*>i 33:0:1::/64	33:0:1::3	0	100	0	i
*>i 33:0:2::/64	33:0:1::3	0	100	0	i
*>i 33:0:3::/64	33:0:1::3	0	100	0	i
*>i 44:0:1::/64	44:0:1::4	0	100	0	65200 i
*>i 44:0:2::/64	44:0:1::4	0	100	0	65200 i
*>i 44:0:3::/64	44:0:1::4	0	100	0	65200 i
*> 100::/64	11:0:1::1	0	5000	0	65100 i

(Local Preference is by default 100 which is seen only on IBGP neighbor  
Local Preference is Local to an Autonomous. It is non-transitive parameter and is stripped of when routes are moving from one AS to another AS.

R2 - Router R2 now selects 11:0:1::1 as best path because it can reach 100 network through As 65200 with Local Preference 5000, where as to reach 100 network via 44:0:1::4 through AS 65200 with Local Preference 100

Hence path is manipulated with help of Local Preference.

We as an Administrator changed the decision of Router R2 to reach 100:: network via 44:0:1::4 to path via 11:0:1::1 as best path. Therefore it shows only one path in its BGP Table and is ironically known as Sukhiram.)

R3# show bgp ipv6 unicast

BGP table version is 29, local router ID is 33.0.3.3

Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal,  
r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,  
x best-external, a additional-path, c RIB-compressed,

Origin codes: i - IGP, e - EGP, ? - incomplete

RPKI validation codes: V valid, I invalid, N Not found

Network	Next Hop	Metric	LocPrf	Weight	Path
*>i 11:0:1::/64	11:0:1::1	0	5000	0	65100 i
*>i 11:0:2::/64	11:0:1::1	0	5000	0	65100 i
*>i 11:0:3::/64	11:0:1::1	0	5000	0	65100 i
*>i 22:0:1::/64	22:0:1::2	0	100	0	i
*>i 22:0:2::/64	22:0:1::2	0	100	0	i
*>i 22:0:3::/64	22:0:1::2	0	100	0	i
*> 33:0:1::/64	::	0		32768	i
*> 33:0:2::/64	::	0		32768	i
*> 33:0:3::/64	::	0		32768	i
*> 44:0:1::/64	44:0:1::4	0		0	65200 i
*> 44:0:2::/64	44:0:1::4	0		0	65200 i

```
*> 44:0:3::/64 44:0:1::4 0 0 65200 i
*>i 100::/64 11:0:1::1 0 5000 0 65100 i
* 44:0:1::4 0 0 65200 i
```

(R3 - As Local Preference is Local to an Autonomous and R3 belongs to same Autonomous, therefore Router R3 will also select best path as 11:0:1::1 but will show both the path in its BGP table and is ironically known as Dukhiram )