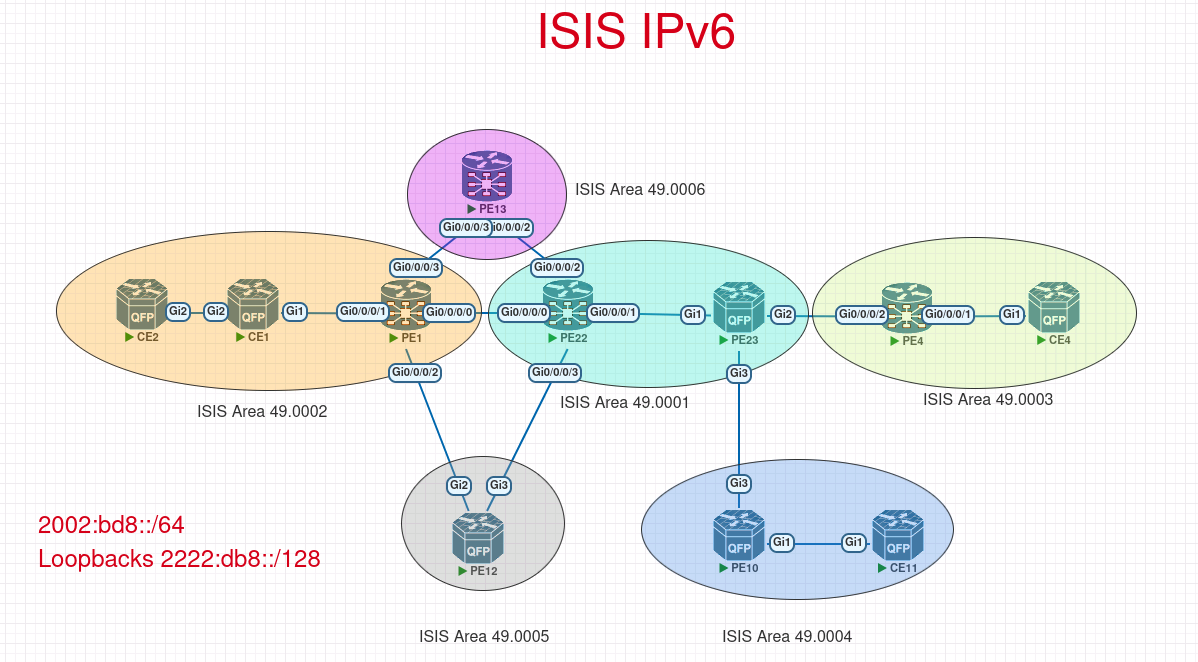
# ISIS Lab Workbook 3 IPV6



## Instructions

IPv6 addressing and ISIS IPv6 has been complete on Areas 0001, 0002 and 0003 and their Net addressing has been amended.  
Three new networks are being moved into the company however they will need to remain in their own areas, later redistribution from other routing protocols will take place.  
  
Task1

Area 0004 will need their ISIS IPv4 adjacencies set up using the net format 49.area.xxxx.router.nsel , name the ISIS process after the area.   
Area 0005 will need their ISIS IPv4 adjacencies set up using the net format 49.area.xxxx.xxxx.router.nsel , name the ISIS process after the area.  
Area 0006 will need their ISIS IPv4 adjacencies set up using the net format 49.area.xxxx.xxxx.router.nsel , name the ISIS process after the area.  
Examine the ISIS database on CE11 and CE4 and explain your findings.  
Add IPv6 addressing to routers in areas 0004, 0005 and 0006.

## Questions

What is the difference between using the different ID format in the net address?  
What is the correct length in bytes for the ID value?  
How to you preform a ping to an IPv6 global address?  
What do you have to include when attempting to ping a link-local address?

## Task 1 Solutions

PE10#show run | s isis

router isis area4

net 49.0004.0000.0010.00

passive-interface Loopback0

PE10#

interface Loopback0

ip address 100.10.10.10 255.255.255.255

ipv6 address 2222:DB8:100::10/128

!

interface GigabitEthernet1

ip address 10.2.11.10 255.255.255.0

ip router isis area4

ipv6 address 2002:DB8:1011::10/64

!

interface GigabitEthernet3

ip address 23.2.10.10 255.255.255.0

ip router isis area4

ipv6 address 2002:DB8:2310::10/64

CE11#

router isis area4

net 49.0004.0000.0011.00

passive-interface Loopback0

interface Loopback0

ip address 100.11.11.11 255.255.255.255

ipv6 address 2222:BD8:100::11/128

!

interface GigabitEthernet1

ip address 10.2.11.11 255.255.255.0

ip router isis area4

ipv6 address 2002:DB8:1011::11/64

PE12#

router isis area5

net 49.0005.0000.0000.0012.00

passive-interface Loopback0

!

interface Loopback0

ip address 100.12.12.12 255.255.255.255

ipv6 address 2222:DB8:100::12/128

!

interface GigabitEthernet2

ip address 1.2.12.12 255.255.255.0

ip router isis area5

ipv6 address 2002:DB8:1212::12/64

ipv6 router isis area5

isis circuit-type level-2-only

!

interface GigabitEthernet3

ip address 22.2.12.12 255.255.255.0

ip router isis area5

ipv6 address 2002:DB8:2212::12/64

isis circuit-type level-2-only  
  
PE13#

interface Loopback0

ipv4 address 100.13.13.13 255.255.255.255

ipv6 address 2222:db8:100::13/128

!

interface GigabitEthernet0/0/0/2

ipv4 address 22.2.13.13 255.255.255.0

ipv6 address 2002:db8:2213::13/64

!

interface GigabitEthernet0/0/0/3

ipv4 address 1.2.13.13 255.255.255.0

ipv6 address 2002:db8:1213::13/64

!

router isis area6

net 49.0006.0000.0000.0013.00

address-family ipv4 unicast

!

interface Loopback0

passive

address-family ipv4 unicast

!

interface GigabitEthernet0/0/0/2

circuit-type level-2-only

address-family ipv4 unicast

!

interface GigabitEthernet0/0/0/3

circuit-type level-2-only

address-family ipv4 unicast  
  
CE4#show isis database detail

Tag 1:

IS-IS Level-1 Link State Database:

LSPID LSP Seq Num LSP Checksum LSP Holdtime/Rcvd ATT/P/OL

CE4.00-00 \* 0x00000002 0x9971 1061/\* 0/0/0

Area Address: 49.0002

NLPID: 0xCC 0x8E

CE11#show isis database detail

Tag area4:

IS-IS Level-1 Link State Database:

LSPID LSP Seq Num LSP Checksum LSP Holdtime/Rcvd ATT/P/OL

PE10.00-00 0x00000037 0x5501 678/1199 1/0/0

Area Address: 49

NLPID: 0xCC



## Task2

Enable ISIS for IPv6 areas 0004,0005 and 0006  
Ensure all IPv6 routes are propagated throughout the areas  
Examine the routing from PE12 to PE13

## Questions

On what devices do you need to enable address-family IPv6?  
By default what topology does IOS-XE and IOS-XR use and what is the difference?  
By default what metric style is used on XE and XR?

## Task2 Solutions

PE13#

router isis area6

net 49.0006.0000.0000.0013.00

address-family ipv6 unicast

single-topology

!

interface Loopback0

address-family ipv6 unicast

!

!

interface GigabitEthernet0/0/0/2

address-family ipv6 unicast

!

!

interface GigabitEthernet0/0/0/3

address-family ipv6 unicast

!

PE12#

interface GigabitEthernet2

ipv6 router isis area5

!

interface GigabitEthernet3

ipv6 router isis area5  
  
PE10#

interface GigabitEthernet1

ipv6 router isis area4

!

interface GigabitEthernet3

ipv6 router isis area4

CE11#

interface GigabitEthernet1

ipv6 router isis area4

PE12#

show ip route 100.13.13.13

Routing entry for 100.13.13.13/32

Known via "isis", distance 115, metric 20, type level-2

Redistributing via isis area5

Last update from 22.2.12.22 on GigabitEthernet3, 00:26:32 ago

Routing Descriptor Blocks:

22.2.12.22, from 100.13.13.13, 00:26:32 ago, via GigabitEthernet3

Route metric is 20, traffic share count is 1

\* 1.2.12.1, from 100.13.13.13, 00:26:32 ago, via GigabitEthernet2

Route metric is 20, traffic share count is 1

show ipv6 route 2222:db8:100::13

Routing entry for 2222:DB8:100::13/128

Known via "isis area5", distance 115, metric 20, type level-2

Route count is 2/2, share count 0

Routing paths:

FE80::52C2:C5FF:FE00:B403, GigabitEthernet2

From FE80::52C2:C5FF:FE00:B403

Last updated 00:27:05 ago

FE80::52C8:10FF:FE00:B504, GigabitEthernet3

From FE80::52C8:10FF:FE00:B504

Last updated 00:27:05 ago

## 