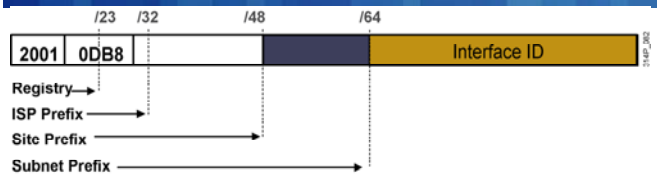
IPv6 Unicast (and Anycast) Addresses



- IPv6 has same address format for global unicast and for anycast:
  - Uses a global routing prefix—a structure that enables aggregation upward, eventually to the ISP.
  - A single interface may be assigned multiple addresses of any type (unicast, anycast, multicast).
  - Every IPv6-enabled interface must contain at least one loopback (::1/128) and one link-local address.
  - Optionally, every interface can have multiple unique local and global addresses.
  - Anycast address is a global unicast address assigned to a set of interfaces (typically on different nodes).
  - IPv6 anycast is used for a network multihomed to several ISPs that have multiple connections to each other.

IPv6 Unicast Addressing

- IPv6 addressing rules are covered by multiple RFCs.
  - Architecture defined by RFC 4291.
- Unicast: One-to-one
  - Global
  - Link local (FE80::/10)
  - Site Local (FEC0::/10)
- A single interface may be assigned multiple IPv6 addresses of any type: unicast, anycast, or multicast.

Internet Protocol Version 6 Address Space

(last updated 2007-07-19)

IPv6 Prefix	Allocation	Reference	Note
0000::/8	Reserved by IETF	[RFC4291]	[1] [5]
0100::/8	Reserved by IETF	[RFC4291]	
0200::/7	Reserved by IETF	[RFC4048]	[2]
0400::/6	Reserved by IETF	[RFC4291]	
0800::/5	Reserved by IETF	[RFC4291]	
1000::/4	Reserved by IETF	[RFC4291]	
2000::/3	Global Unicast	[RFC4291]	[3]
4000::/3	Reserved by IETF	[RFC4291]	
6000::/3	Reserved by IETF	[RFC4291]	
8000::/3	Reserved by IETF	[RFC4291]	
A000::/3	Reserved by IETF	[RFC4291]	
C000::/3	Reserved by IETF	[RFC4291]	
E000::/4	Reserved by IETF	[RFC4291]	
F000::/5	Reserved by IETF	[RFC4291]	
F800::/6	Reserved by IETF	[RFC4291]	
FC00::/7	Unique Local Unicast	[RFC4193]	
FE00::/9	Reserved by IETF	[RFC4291]	
FE80::/10	Link Local Unicast	[RFC4291]	
FEC0::/10	Reserved by IETF	[RFC3879]	[4]
FF00::/8	Multicast	[RFC4291]	

Notes:

[0] The IPv6 address management function was formally delegated to IANA in December 1995 [RFC1881].

[1] The "unspecified address", the "loopback address", and the IPv6 Addresses with Embedded IPv4 Addresses are assigned out of the 0000::/8 address block.

[2] 0200::/7 was previously defined as an OSI NSAP-mapped prefix set [RFC4548]. This definition has been deprecated as of December 2004 [RFC4048].

[3] The IPv6 Unicast space encompasses the entire IPv6 address range with the exception of FF00::/8. [RFC4291] IANA unicast address assignments are currently limited to the IPv6 unicast address range of 2000::/3. IANA assignments from this block are registered in the IANA registry: iana-ipv6-unicast-address-assignments.

[4] FEC0::/10 was previously defined as a Site-Local scoped address prefix. This definition has been deprecated as of September 2004 [RFC3879].

[5] 0000::/96 was previously defined as the "IPv4-compatible IPv6 address" prefix. This definition has been deprecated by [RFC4291].

References

[RFC1881] The IAB and IESG, "IPv6 Address Allocation Management", RFC 1881, December 1995.

[RFC1888] J. Bound et al, "OSI NSAPs and IPv6", RFC 1888, August 1996.

[RFC3879] C. Huitema and B. Carpenter, "Deprecating Site Local Addresses", RFC 3879, September 2004.

[RFC4048] B. Carpenter, "RFC 1888 is obsolete", RFC 4048, April 2005.

[RFC4147] G. Huston, "Proposed changes to the format of the IANA IPv6 Registry", RFC 4147, August 2005.

[RFC4193] R. Hinden and B. Haberman, "Unique Local IPv6 Unicast Addresses" RFC 4193, October 2005.

[RFC4291] R. Hinden, Nokia, "IP Version 6 Addressing Architecture", RFC 4291, February 2006.

[RFC4548] E. Gray, J. Rutemiller and G. Swallow, "Internet Code Point Assignments for NSAP Addresses", RFC XXXX, Month Year.

IPV6 GLOBAL UNICAST ADDRESS ASSIGNMENTS [0]

[last updated 2006-12-22]

Global Unicast Prefix	Assignment	Date	Note
2001:0000::/23	IANA	01 Jul 99	[1]
2001:0200::/23	APNIC	01 Jul 99	
2001:0400::/23	ARIN	01 Jul 99	
2001:0600::/23	RIPE NCC	01 Jul 99	
2001:0800::/23	RIPE NCC	01 May 02	
2001:0A00::/23	RIPE NCC	02 Nov 02	
2001:0C00::/23	APNIC	01 May 02	[2]
2001:0E00::/23	APNIC	01 Jan 03	
2001:1200::/23	LACNIC	01 Nov 02	
2001:1400::/23	RIPE NCC	01 Feb 03	
2001:1600::/23	RIPE NCC	01 Jul 03	
2001:1800::/23	ARIN	01 Apr 03	
2001:1A00::/23	RIPE NCC	01 Jan 04	
2001:1C00::/22	RIPE NCC	01 May 04	
2001:2000::/20	RIPE NCC	01 May 04	
2001:3000::/21	RIPE NCC	01 May 04	
2001:3800::/22	RIPE NCC	01 May 04	
2001:3C00::/22	RESERVED	11 Jun 04	[3]
2001:4000::/23	RIPE NCC	11 Jun 04	
2001:4200::/23	AfriNIC	01 Jun 04	
2001:4400::/23	APNIC	11 Jun 04	
2001:4600::/23	RIPE NCC	17 Aug 04	
2001:4800::/23	ARIN	24 Aug 04	
2001:4A00::/23	RIPE NCC	15 Oct 04	
2001:4C00::/23	RIPE NCC	17 Dec 04	
2001:5000::/20	RIPE NCC	10 Sep 04	
2001:8000::/19	APNIC	30 Nov 04	
2001:A000::/20	APNIC	30 Nov 04	
2001:B000::/20	APNIC	08 Mar 06	
2002:0000::/16	6to4	01 Feb 01	[4]
2003:0000::/18	RIPE NCC	12 Jan 05	
2400:0000::/12	APNIC	03 Oct 06	[8]
2600:0000::/12	ARIN	03 Oct 06	[9]

```
2610:0000::/23        ARIN           17 Nov 05
2620:0000::/23        ARIN           12 Sep 06
2800:0000::/12        LACNIC         03 Oct 06   [7]
2A00:0000::/12        RIPE NCC       03 Oct 06   [5]
2C00:0000::/12        AfriNIC        03 Oct 06
```

Notes:

[0] The assignable Global Unicast Address space is defined in [RFC3513] as being the address block defined by the prefix 2000::/3. All address space in this block not listed in the table above is reserved by IANA for future allocation.

[1] IANA Special Purpose Address Block [RFC4773].
See: http://www.iana.org/assignments/iana-ipv6-special-registry

[2] 2001:0DB8::/32 has been assigned as a NON-ROUTABLE range to be used for documentation purpose [RFC3849].

[3] 2001:3C00::/22 is reserved for possible future allocation to the RIPE NCC.

[4] 2002::/16 is reserved for use in 6to4 deployments [RFC3056].

[5] 2A00:0000::/21 was originally allocated on 19 Apr 05. 2A01:0000::/23 was allocated on 14 Jul 05. 2A01:0000::/16 (incorporating the 2A01:0000::/23) was allocated 15 Dec 2005. The more recent allocation (03 Oct 2006) incorporates these previous allocations.

[7] 2800:0000::/23 was allocated on 17 Nov 05. The more recent allocation (03 Oct 06) incorporates the previous allocation.

[8] 2400:0000::/19 was allocated on 20 May 05. 2400:2000::/19 was allocated on 08 Jul 05. 2400:4000::/21 was allocated on 08 Aug 05. 2404:0000::/23 was allocated on 19 Jan 06. The more recent allocation (03 October 06) incorporates all these previous allocations.

[9] 2600:0000::/22, 2604:0000::/22, 2608:0000::/22 and 260C:0000::/22 were allocated on 19 Apr 05. The more recent allocation (03 Oct 06) incorporates all these previous allocations.

References

[RFC2471] Hinden, R., R. Fink, J. Postel, "IPv6 Testing Address Allocation", RFC 2471, December 1998.

[RFC2928] Hinden, R., Deering, S., Fink, R., Hain, T., , "Initial IPv6 Sub-TLA ID Assignments", RFC 2928, September 2000.

[RFC3056] Carpenter, B., K. Moore, "Connection of IPv6 Domains via IPv4 Clouds without Explicit Tunnels", RFC 3056, February 2001.

[RFC3513] Hinden, R., "IP Version 6 Addressing Architecture", RFC 3513, April 2003.

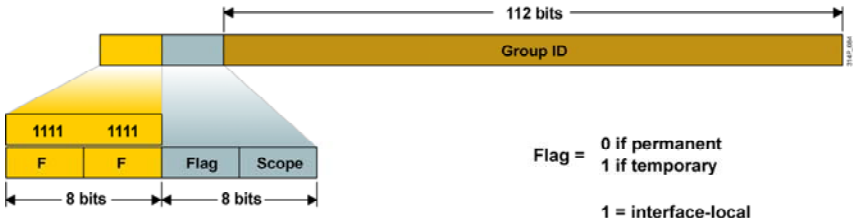
[RFC3849] Huston, G., A. Lord, P. Smith, "IPv6 Address Prefix Reserved for Documentation", RFC 3849, July 2004.

[RFC4147] Huston, G., "Proposed changes to the format of the IANA IPv6 Registry", RFC 4147, August 2005.

[RFC4380] C. Huitema, "Teredo: Tunneling IPv6 over UDP through NATs", RFC 4380, February 2006.

[RFC4773] G. Huston, "Administration of the IANA Special Purpose Address Block", RFC 4773, December 2006.

Multicasting



Flag = 0 if permanent
1 if temporary

Scope = 1 = interface-local
2 = link-local
3 = subnet-local
4 = admin-local
5 = site-local
8 = organization
E = global

Permanent Multicast Addresses

	Meaning	Scope
FF02::1	All nodes 	Link-local
FF02::2	All routers 	Link-local
FF02::9	All RIP routers 	Link-local
FF02::1:FFXX:XXXX	Solicited-node 	Link-local
FF05::101	All NTP Servers 	Site-local

RIPng

```
ipv6 unicast-routing
!
interface Ethernet0/1
 no ip address
 half-duplex
 ipv6 address 2005:0:104::1/64
 ipv6 address FE80::1 link-local
 ipv6 rip R1Rip enable
!
interface Serial0/1
 no ip address
 ipv6 address 2005:0:102::1/64
 ipv6 address FE80::1 link-local
 ipv6 rip R1Rip enable
 clock rate 64000
!
ipv6 router rip R1Rip
```

Configuration Modes in OSPFv3

- Entering router mode
  - [no] ipv6 router ospf <process ID>
- Entering interface mode
  - [no] ipv6 ospf <process ID> area <area ID>
- Exec mode
  - [no] show ipv6 ospf [<process ID>]
  - clear ipv6 ospf [<process ID>]

Cisco IOS OSPFv3 Specific Attributes

- Configuring area range
  - [no] area <area ID> range <prefix>/<prefix length>
- Showing new LSA
  - show ipv6 ospf [<process ID>] database link
  - show ipv6 ospf [<process ID>] database prefix

OSPFv3 Debug Commands

- **Adjacency is not appearing**
  - **[no] debug ipv6 ospf adj**
  - **[no] debug ipv6 ospf hello**
- **SPF is running constantly**
  - **[no] debug ipv6 ospf spf**
  - **[no] debug ipv6 ospf flooding**
  - **[no] debug ipv6 ospf events**
  - **[no] debug ipv6 ospf lsa-generation**
  - **[no] debug ipv6 ospf database-timer**
- **General purpose**
  - **[no] debug ipv6 ospf packets**
  - **[no] debug ipv6 ospf retransmission**
  - **[no] debug ipv6 ospf tree**

"show ipv6 ospf rib“

"show ipv6 ospf rib“

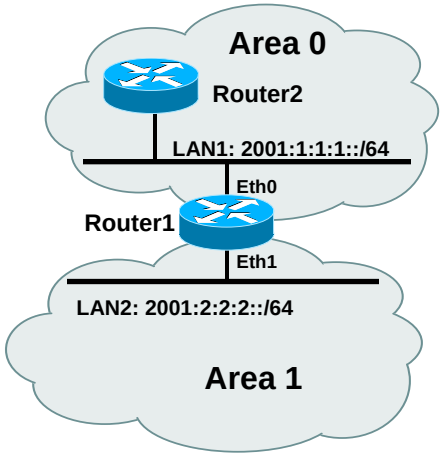
This hidden command shows the OSPFv3 local RIB. OSPFv3 adds entries to the local RIB during SPF, then updates the IPv6 master RIB from the "best" routes in the local RIB. Can be useful to see all the routes OSPFv3 is holding.

OSPFv3 configuration example

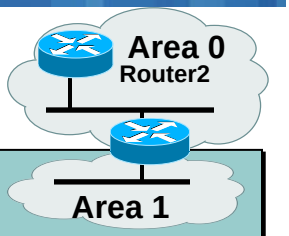
```
Router1#
 interface Ethernet0
   ipv6 address 2001:1:1:1::1/64
   ipv6 ospf 1 area 0

  interface Ethernet1
    ipv6 address 2001:2:2:2::2/64
    ipv6 ospf 1 area 1

  ipv6 router ospf 1
   router-id 1.1.1.1
   area 1 range 2001:2:2::/48
```



Cisco IOS OSPFv3 Display




```
Router 2# show ipv6 route ospf
IPv6 Routing Table - 9 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext1, OE2 - OSPF ext2
O   2001:1:1:2::1/128 [110/1]
     via FE80::205:5FFF:FEAF:2C38, Ethernet0
OI  2001:2:2::/48 [110/2]
     via FE80::205:5FFF:FEAF:2C38, Ethernet0
```

MBGP – IPv6

```
R2#sh run | b bgp
router bgp 100
 no synchronization
 bgp router-id 2.2.2.2
 bgp log-neighbor-changes
 neighbor 2000:3:3:: remote-as 100
 neighbor 2000:3:3:: update-source Serial1/1
 no neighbor 2000:3:3:: activate
 neighbor 2005:0:102::1 remote-as 200
 no neighbor 2005:0:102::1 activate
 no auto-summary
 !
 address-family ipv6
 neighbor 2000:3:3:: activate
 neighbor 2005:0:102::1 activate
 network 2006:2:2::/128
 exit-address-family
!
```

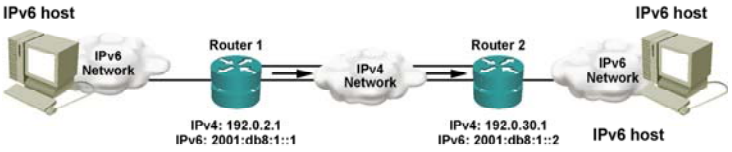

Configuring Prefix-Lists (Cont.)

What will be matched by:

- **ipv6 prefix-list A permit ::/0 ge 128**
- **ipv6 prefix-list B permit FEC0::/10 ge 11**
- **ipv6 prefix-list C permit ::/0 le 128**
- **ipv6 prefix-list D permit ::/0**
- **ipv6 prefix-list E permit xxxx:xxxx:xxxx:xxxx::/64**

a) All host routes
b) Any site local address space
c) All routes
d) Just the default route
e) A specific prefix with a length of 64 bits

Tunnel Configuration



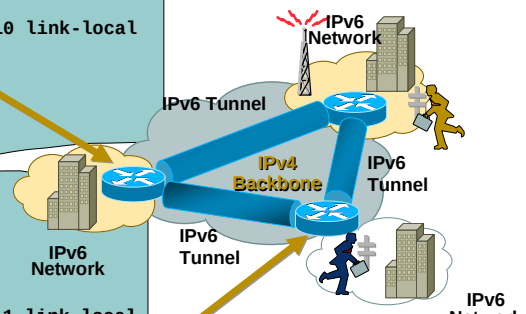

```
Router1#
 interface Tunnel0
  ipv6 address 2001:db8:1::1/64
  tunnel source 192.0.2.1
  tunnel destination 192.0.30.1
  tunnel mode ipv6ip
```

```
Router 2#
 interface Tunnel0
  ipv6 address 2001:db8:1::2/64
  tunnel source 192.0.30.1
  tunnel destination 192.0.2.1
  tunnel mode ipv6ip
```


OSPFv3 on IPv6 Tunnels over IPv4

```
interface Tunnel0
 no ip address
 ipv6 address 2001:0001::45A/64
 ipv6 address FE80::10:7BC2:ACC9:10 link-local
 ipv6 router ospf 1 area 0
 tunnel source Ethernet1
 tunnel destination 10.42.2.1
 tunnel mode ipv6ip
!
ipv6 router ospf 1
```

```
interface Tunnel0
 no ip address
 ipv6 address 2001:0001::45C/64
 ipv6 address FE80::10:7BC2:B280:11 link-local
 ipv6 router ospf 1 area 0
 tunnel source Ethernet2
 tunnel destination 10.42.1.1
 tunnel mode ipv6ip
!
ipv6 router ospf 1
```



IPv4-Compatible Tunnel

- With an IPv4-compatible tunnel, the tunnel destination is automatically determined by the IPv4 address in the low-order 32 bits of IPv4-compatible IPv6 addresses. The host or router at each end of an IPv4-compatible tunnel must support both the IPv4 and IPv6 protocol stacks

```
interface tunnel 0
tunnel source Ethernet 0
tunnel mode ipv6ip auto-tunnel

interface ethernet 0
ip address 10.27.0.1 255.255.255.0
ipv6 address 3000:2222::1/64

router bgp 65000
no synchronization
no bgp default ipv4-unicast
neighbor ::10.67.0.2 remote-as 65002

address-family ipv6
neighbor ::10.67.0.2 activate
neighbor ::10.67.0.2 next-hop-self
network 2001:2222:d00d:b10b::/64
```

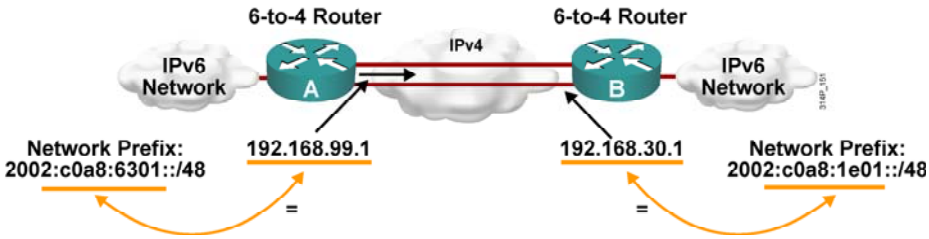

ISTAP Tunnel

- **The ISATAP tunnels are typically used to tunnel between routers and dual stack hosts that are connected via an IPv4 network. The tunnel's IPv6 address must use a modified EUI-64 address because the last 32 bits will be constructed using the IPv4 address of the tunnel source. By default routing updates are suppressed, this needs to be re-enable for the host to use autoconfigure for their addressing.**

```
interface tunnel 1
 tunnel source ethernet 0
 tunnel mode ipv6ip isatap
 ipv6 address 2001:0DB8::/64 eui-64

no ipv6 nd suppress-ra
```

6-to-4 Tunneling



- 6-to-4:
  - Is an automatic tunnel method
  - Gives a prefix to the attached IPv6 network

6to4 Tunnel Configuration

```
R1#
interface FastEthernet0/0
 ip address 180.40.7.66 255.255.255.224
!
interface Tunnel0
 no ip address
 no ip redirects
 ipv6 address 2002:B428:742::/64
 tunnel source FastEthernet0/0
 tunnel mode ipv6ip 6to4
!
ipv6 route 2002::/16 Tunnel0

R7#sh run
interface FastEthernet0/1
 ip address 180.40.7.1 255.255.255.224
!
interface Tunnel0
 no ip address
 no ip redirects
 ipv6 address 2002:B428:701::/64
 tunnel source FastEthernet0/1
 tunnel mode ipv6ip 6to4
!
ipv6 route 2002::/16 Tunnel0
```

6to4 Tunnel with BGP

```
R1#
interface FastEthernet0/0
 ip address 180.40.7.66 255.255.255.224
!
interface Tunnel0
 no ip address
 no ip redirects
 ipv6 address 2002:B428:742::/64
 tunnel source FastEthernet0/0
 tunnel mode ipv6ip 6to4
!
ipv6 route 2002::/16 Tunnel0

router bgp 100
 neighbor 2002:b428:701:: remote-as 200
 neighbor 2002:b428:701 :: ebgp-multihop 2
```

NAT Protocol Translation

```
Interface fa 0/0
 ip address 180.40.7.7 255.255.255.0
 ipv6 nat
!
Interface s 1/0
 ipv6 address 2005:0:307::7/64
 ipv ospf 1 area 0
 ipv6 nat
!
router rip
 version 2
 redistribute static metric 2
 network 180.40.0.0
 no auto-summary
!
ip route 33.33.33.0 255.255.255.0 Null0
!
ipv6 router ospf 1
 router-id 7.7.7.7
 log-adjacency-changes
 distribute-list prefix-list ProbE out connected
 redistribute connected
!
ipv6 nat v4v6 source list 1 pool ProbE
ipv6 nat v4v6 pool ProbE 2006:6:6::1 2006:6:6::F prefix-length 96
ipv6 nat v6v4 source 2005:0:237:0:212:7FFF:FE7D:3A00 33.33.33.33
ipv6 nat prefix 2006:6:6::/96
ipv6 prefix-list ProbE seq 5 permit 2006:6:6::/96
```


You must identify the interfaces involved using the ipv6 nat command, note that there is no direction. You have to determine if you want to have a dynamic pool for IPv4 or IPv6, you can't have dynamic nat for both, one must be a static configuration. In this example, there is a static translation for an IPv6 address to an IPv4 address. There rest is to support a dynamic pool for IPv4 to IPv6. You have to identify a prefix that is going to be used for the nat process, note that it has to be a /96 even though the help shows a range of 0-128. The prefix will show up in the IPv6 RIB as a connected route. To get the IPv6 prefix advertised to the other IPv6 routers, redistribute connected into which ever routing protocol you are using. For the IPv4 prefix, you'll need to either add an address to a loopback interface or create a static route to null 0. Then pass that into the routing protocol for IPv4. The concept for the pools is standard nat.

R1

```
interface Loopback2
 description To inject into OSPF for R5
  ip address 199.199.199.1 255.255.255.0
!
interface FastEthernet0/0
 ipv6 nat
!
interface Serial0/0.1 multipoint
 ipv6 nat  !  note that there's no diretion
!
interface Virtual-Template1
 ipv6 nat  !  same command on the IPv4 interface
!
router eigrp 174
 network 199.199.199.1 0.0.0.0
!
ipv6 router ospf 1
distribute-list prefix-list NATPT out connected
 redistribute connected
!
ipv6 nat v4v6 source 172.22.52.5 2006:5:5::5 ! the static translation
ipv6 nat v6v4 source list NATPT pool MyPool  !  mapping to the pool
ipv6 nat v6v4 pool MyPool 199.199.199.2 199.199.199.100 prefix-length 24
ipv6 nat prefix 2006:5:5::/96  !  a must even if you're only going to use 1 address
!  and it has to be a 96 length
!
ipv6 prefix-list NATPT seq 5 permit 2006:5:5::/96
!
ipv6 access-list NATPT
 permit ipv6 any any
```

!

show ipv6 nat translation

ping or telnet from a IPv6 router to 2006:5:5::5

```
R1#show ipv6 nat translations
Prot  IPv4 source              IPv6 source
      IPv4 destination         IPv6 destination
---   ---                      ---
      172.22.52.5              2006:5:5::5

---   199.199.199.2            2005:26:26::6
      172.22.52.5              2006:5:5::5

---   199.199.199.2            2005:26:26::6
      ---                      ---
```

```
R1#show ipv6 nat statistics
R1#show ipv6 nat statistics
Total active translations: 3 (1 static, 2 dynamic; 0 extended)
NAT-PT interfaces:
  FastEthernet0/0, Serial0/0.1, NVI0, Virtual-Access1, Virtual-Template1
Hits: 0  Misses: 0
Expired translations: 0
```

```
R5#show ipv6 int brief
FastEthernet0/0            [administratively down/down]
FastEthernet0/1            [up/up]
FastEthernet0/1.52         [up/up]
FastEthernet1/0            [administratively down/down]
Serial1/0                  [up/up]
FastEthernet1/1            [administratively down/down]
Serial1/1                  [administratively down/down]
Serial1/2                  [administratively down/down]
Serial1/3                  [administratively down/down]
Virtual-Access1            [up/up]
Virtual-Template1          [down/down]
```

```
Virtual-Access2            [down/down]
Loopback0                  [up/up]
Loopback1                  [up/up]

------------------------------------------------------------------------

R5#show ip route 199.199.199.0
Routing entry for 199.199.199.0/24
  Known via "eigrp 174", distance 90, metric 42688000, type internal
  Redistributing via eigrp 174
  Last update from 172.22.51.1 on Virtual-Access1, 00:33:54 ago
  Routing Descriptor Blocks:
  * 172.22.51.1, from 172.22.51.1, 00:33:54 ago, via Virtual-Access1
      Route metric is 42688000, traffic share count is 1
      Total delay is 105000 microseconds, minimum bandwidth is 64 Kbit
      Reliability 255/255, minimum MTU 1500 bytes
      Loading 1/255, Hops 1

------------------------------------------------------------------------

R6#show ipv6 route 2006:5:5::5
IPv6 Routing Table - 15 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
       ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
R   2006:5:5::/96 [120/3]
     via FE80::2, Tunnel0

------------------------------------------------------------------------

R1#debug ipv6 nat
IPv6 NAT-PT debugging is on


R6#ping 2006:5:5::5
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 2006:5:5::5, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 72/73/76 ms


R1#
09:21:59: IPv6 NAT: icmp src (2005:26:26::6) -> (199.199.199.2), dst
(2006:5:5::5) -> (172.22.52.5)
09:21:59: IPv6 NAT: icmp src (172.22.52.5) -> (2006:5:5::5), dst
(199.199.199.2) -> (2005:26:26::6)
09:22:00: IPv6 NAT: icmp src (2005:26:26::6) -> (199.199.199.2), dst
(2006:5:5::5) -> (172.22.52.5)
09:22:00: IPv6 NAT: icmp src (172.22.52.5) -> (2006:5:5::5), dst
(199.199.199.2) -> (2005:26:26::6)
09:22:00: IPv6 NAT: icmp src (2005:26:26::6) -> (199.199.199.2), dst
(2006:5:5::5) -> (172.22.52.5)
09:22:00: IPv6 NAT: icmp src (172.22.52.5) -> (2006:5:5::5), dst
(199.199.199.2) -> (2005:26:26::6)
09:22:00: IPv6 NAT: icmp src (2005:26:26::6) -> (199.199.199.2), dst
(2006:5:5::5) -> (172.22.52.5)
09:22:00: IPv6 NAT: icmp src (172.22.52.5) -> (2006:5:5::5), dst
(199.199.199.2) -> (2005:26:26::6)
09:22:00: IPv6 NAT: icmp src (2005:26:26::6) -> (199.199.199.2), dst
(2006:5:5::5) -> (172.22.52.5)
09:22:00: IPv6 NAT: icmp src (172.22.52.5) -> (2006:5:5::5), dst
(199.199.199.2) -> (2005:26:26::6)


-------------------------------------------------------------------------


R6#telnet 2006:5:5::5
Trying 2006:5:5::5 ... Open



User Access Verification


Password:
R5>
```