



Junos[®] OS

OSPF Version 3 for IPv6 Feature Guide

Release

11.3



Published: 2011-09-21

Juniper Networks, Inc.
1194 North Mathilda Avenue
Sunnyvale, California 94089
USA
408-745-2000
www.juniper.net

This product includes the Envoy SNMP Engine, developed by Epilogue Technology, an Integrated Systems Company. Copyright © 1986-1997, Epilogue Technology Corporation. All rights reserved. This program and its documentation were developed at private expense, and no part of them is in the public domain.

This product includes memory allocation software developed by Mark Moraes, copyright © 1988, 1989, 1993, University of Toronto.

This product includes FreeBSD software developed by the University of California, Berkeley, and its contributors. All of the documentation and software included in the 4.4BSD and 4.4BSD-Lite Releases is copyrighted by the Regents of the University of California. Copyright © 1979, 1980, 1983, 1986, 1988, 1989, 1991, 1992, 1993, 1994. The Regents of the University of California. All rights reserved.

GateD software copyright © 1995, the Regents of the University. All rights reserved. Gate Daemon was originated and developed through release 3.0 by Cornell University and its collaborators. Gated is based on Kirton's EGP, UC Berkeley's routing daemon (routed), and DCN's HELLO routing protocol. Development of Gated has been supported in part by the National Science Foundation. Portions of the GateD software copyright © 1988, Regents of the University of California. All rights reserved. Portions of the GateD software copyright © 1991, D. L. S. Associates.

This product includes software developed by Maker Communications, Inc., copyright © 1996, 1997, Maker Communications, Inc.

Juniper Networks, Junos, Steel-Belted Radius, NetScreen, and ScreenOS are registered trademarks of Juniper Networks, Inc. in the United States and other countries. The Juniper Networks Logo, the Junos logo, and JunosE are trademarks of Juniper Networks, Inc. All other trademarks, service marks, registered trademarks, or registered service marks are the property of their respective owners.

Juniper Networks assumes no responsibility for any inaccuracies in this document. Juniper Networks reserves the right to change, modify, transfer, or otherwise revise this publication without notice.

Products made or sold by Juniper Networks or components thereof might be covered by one or more of the following patents that are owned by or licensed to Juniper Networks: U.S. Patent Nos. 5,473,599, 5,905,725, 5,909,440, 6,192,051, 6,333,650, 6,359,479, 6,406,312, 6,429,706, 6,459,579, 6,493,347, 6,538,518, 6,538,899, 6,552,918, 6,567,902, 6,578,186, and 6,590,785.

Junos® OS OSPF Version 3 for IPv6 Feature Guide

Release 11.3

Copyright © 2011, Juniper Networks, Inc.

All rights reserved.

Revision History

September 2011—R1 Junos OS 11.3

The information in this document is current as of the date listed in the revision history.

YEAR 2000 NOTICE

Juniper Networks hardware and software products are Year 2000 compliant. The Junos OS has no known time-related limitations through the year 2038. However, the NTP application is known to have some difficulty in the year 2036.

END USER LICENSE AGREEMENT

The Juniper Networks product that is the subject of this technical documentation consists of (or is intended for use with) Juniper Networks software. Use of such software is subject to the terms and conditions of the End User License Agreement ("EULA") posted at <http://www.juniper.net/support/eula.html>. By downloading, installing or using such software, you agree to the terms and conditions of that EULA.

Table of Contents

Part 1	OSPF Version 3 for IPv6	
Chapter 1	OSPF Version 3 for IPv6 Concepts and Reference Materials	3
	OSPF Version 3 for IPv6 Overview	3
	OSPF Version 3 for IPv6 System Requirements	5
	OSPF Version 3 for IPv6 Terms and Acronyms	5
Chapter 2	OSPF Version 3 for IPv6 Configuration	7
	Configuring OSPFv3 as the Routing Protocol	7
	Configuring Interfaces in OSPFv3 Areas	7
	Configuring Virtual Links for OSPFv3	7
Chapter 3	OSPF Version 3 for IPv6 Configuration Example	9
	Example: Configuring OSPFv3 for IPv6	9
	Verifying Your Work	15
	Router 0 Status	16
	Router 1 Status	19
	Router 2 Status	21
	Router 3 Status	24
	Router 4 Status	28
	Router 5 Status	31
	For More Information	33
Part 2	Index	
	Index	37

List of Figures

Part 1	OSPF Version 3 for IPv6	
Chapter 3	OSPF Version 3 for IPv6 Configuration Example	9
	Figure 1: OSPFv3 for IPv6 Topology Diagram	9

PART 1

OSPF Version 3 for IPv6

- [OSPF Version 3 for IPv6 Concepts and Reference Materials on page 3](#)
- [OSPF Version 3 for IPv6 Configuration on page 7](#)
- [OSPF Version 3 for IPv6 Configuration Example on page 9](#)

CHAPTER 1

OSPF Version 3 for IPv6 Concepts and Reference Materials

This chapter covers these topics:

- [OSPF Version 3 for IPv6 Overview on page 3](#)
- [OSPF Version 3 for IPv6 System Requirements on page 5](#)
- [OSPF Version 3 for IPv6 Terms and Acronyms on page 5](#)

OSPF Version 3 for IPv6 Overview

OSPF version 2, introduced as RFC 2328 in 1998, has been one of the most widely deployed interior gateway protocols (IGPs) for intradomain routing. The protocol is extended in version 3 (RFC 2740) to support OSPF in IPv6 networks. Most of the functionality of OSPFv2 carries over into OSPFv3, but there are some significant changes to explore.

OSPFv3 adds support for IPv6 in the Open Shortest Path First (OSPF) routing protocol, as detailed in RFC 2740. Most configuration and operational commands function essentially the same as in OSPFv2:

- All OSPFv3 operational and configuration commands include the identifier **ospf3** in place of the familiar **ospf** option. For example, **show ospf database** in OSPFv2 becomes **show ospf3 database** in OSPFv3.
- OSPFv3 Router IDs, Area IDs, and LSA link-state IDs remain at the OSPFv2 IPv4 size of 32 bits.
- All the optional capabilities in OSPFv2 for IPv4, such as not-so-stubby areas (NSSA), are supported in OSPFv3 for IPv6.

However, there are many significant changes to note about OSPFv3 for IPv6:

- Router link-state advertisements (LSAs) and Network LSAs no longer carry prefix information. In OSPFv3, these LSAs only carry topology information.



NOTE: Because addressing information in the LSA header, Router LSA, and Network LSA (Type 2) has been removed, the OSPFv3 protocol is designed to be network protocol independent.

- New and modified LSAs have been created to handle the flow of IPv6 addresses and prefixes in an OSPFv3 network. As a result, some **show** command output appears in a different format for OSPFv3. The LSAs that have been modified are:
 - Interarea-Prefix LSA—This replaces the Network Summary or Type 3 LSA.
 - Interarea Router LSA—This replaces the Autonomous System Boundary Router (ASBR) Summary or Type 4 LSA.

New LSAs introduced in OSPFv3 are:

- Link LSA—This LSA has local scope and does not extend beyond the link it is associated with. The purpose of a link LSA is to provide the router's IPv6 link-local address to neighbors, inform other routers of the associated IPv6 prefixes available on the link, and provide information to the Network LSA. On all OSPF interfaces except virtual links, OSPF packets are sent using the interface's link-local address as the source address.



NOTE: A link-local address is an IPv6 address that starts with the first 10 bits set to 111111010. This is often displayed in hexadecimal as fe80.

Juniper Networks M Series Multiservice Edge Routers, Juniper Networks MX Series Ethernet Services Routers, and Juniper Networks T Series Core Routers automatically generate link-local addresses when IPv6 is enabled. The routing platform selects one interface MAC address (derived from the available interfaces) and appends this to the fe80 prefix with some additional bit stuffing. For more information about link-local addresses, see RFC 2373.

- Intra-Area-Prefix LSA—This carries all IPv6 prefix information to all OSPFv3 routers within an area (this information in IPv4 is carried by the Router and Network LSAs).
- OSPFv3 now runs on a per-link basis, instead of on a per-IP-subnet basis.
- IPv6 link-local addresses are used for OSPFv3 neighbor exchanges (except over virtual links).
- The flooding scope for LSAs has been generalized into three categories for OSPFv3:
 - Link-local scope—The OSPFv3 packet is flooded to the members of a link.
 - Area scope—The OSPFv3 packet is flooded to all members of an OSPFv3 area.

- AS scope—The OSPFv3 packet is flooded to all members of an AS.
- Authentication has been removed from the OSPFv3 protocol itself and relies on the authentication header (AH) and Encapsulating Security Payload (ESP) portions of the IP Security (IPsec) protocol for all authentication tasks in IPv6. For more information about configuring IPsec, see the *Junos IPsec Feature Guide*.
- Label-switched paths (LSPs) and traffic engineering are not supported in OSPFv3.
- Neighboring routers are always identified by the 32-bit router ID in OSPFv3.

OSPF Version 3 for IPv6 System Requirements

To implement OSPFv3 for IPv6, your system must meet these minimum requirements:

- Junos OS Release 8.2 or later for MX Series routing platforms
- Junos OS Release 7.2 or later for J Series Services Routers
- Junos OS Release 5.5 or later for M Series and T Series routers
- Two J Series, M Series, MX Series, or T Series routers

OSPF Version 3 for IPv6 Terms and Acronyms

L

link-state advertisement (LSA)	A multi-tiered message format for OSPFv2 and OSPFv3 that carries information about the OSPF network to OSPF-enabled routers. The collection of LSAs forms the link-state database used by the routers to select optimum paths. Different LSA levels limit the scope of OSPF protocol message delivery to links, areas, or autonomous systems (ASs).
---------------------------------------	---

O

Open Shortest Path First (OSPF)	A link-state IGP that makes routing decisions based on the shortest-path-first (SPF) algorithm (also referred to as the <i>Dijkstra algorithm</i>).
OSPFv3	The IPv6-enabled version of the OSPF protocol.

CHAPTER 2

OSPF Version 3 for IPv6 Configuration

To implement OSPFv3 for IPv6, you must configure the following:

- [Configuring OSPFv3 as the Routing Protocol on page 7](#)
- [Configuring Interfaces in OSPFv3 Areas on page 7](#)
- [Configuring Virtual Links for OSPFv3 on page 7](#)

Configuring OSPFv3 as the Routing Protocol

You enable OSPFv3 almost the same way you enable OSPFv2. The only difference is that you use the **ospf3** statement in place of **ospf** at the **[edit protocols]** hierarchy level.

```
[edit]
protocols {
  ospf3 {
    ...
  }
}
```

Configuring Interfaces in OSPFv3 Areas

To place selected interfaces in an OSPFv3 area, use the **interface** statement at the **[edit protocols ospf3 area area-number]** hierarchy level.

```
[edit]
protocols {
  ospf3 {
    area 0 {
      interface at-0/0/0.0;
      interface fe-1/1/1;
    }
  }
}
```

Configuring Virtual Links for OSPFv3

Virtual links can connect discontinuous sections of the OSPF backbone Area 0 or extend backbone access to areas not directly adjacent to Area 0 (a requirement of the OSPF protocol). To configure a virtual link, configure the **virtual-link** statement at the **[edit protocols ospf3 area 0]** hierarchy level. In the statement, specify the router ID of your

neighbor (often the loopback interface IP address) and the OSPFv3 area that the virtual link travels across to reach Area 0.

```
[edit]
protocols {
  ospf3 {
    area 0.0.0.0 {
      virtual-link neighbor-id neighbor-router-id transit-area area;
    }
  }
}
```


CHAPTER 3

OSPF Version 3 for IPv6 Configuration Example

This chapter covers these topics:

- [Example: Configuring OSPFv3 for IPv6 on page 9](#)
- [For More Information on page 33](#)

Example: Configuring OSPFv3 for IPv6

Figure 1: OSPFv3 for IPv6 Topology Diagram

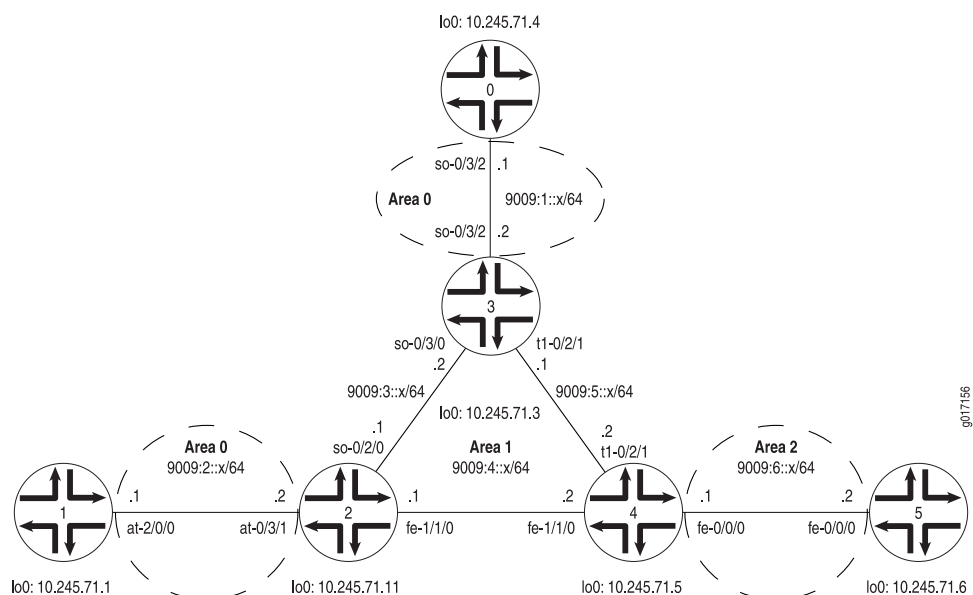


Figure 1 on page 9 shows an OSPFv3 topology. Routers 0, 1, 2, and 3 are connected to the OSPFv3 backbone Area 0; Routers 2, 3, and 4 connect to each other across Area 1; and Area 2 is located between Router 4 and Router 5. Because Router 5 does not have a direct adjacency to Area 0, a virtual link is required across Area 1 between Router 3 and Router 4. Similarly, because Routers 0 and 1 have two separate Area 0 backbone sections, you need to configure a second virtual link across Area 1 between Routers 2 and 3.

On Router 0, add the `so-0/3/2` interface into Area 0 of the OSPFv3 process.

```
Router 0 [edit]
interfaces {
  so-0/3/2 {
    unit 0 {
      family inet {
        address 10.19.1.1/24;
      }
      family inet6 {
        address 9009:1::1/64;
      }
    }
  }
  lo0 {
    unit 0 {
      family inet {
        address 10.245.71.4/32;
      }
      family inet6 {
        address feee::10:255:71:4/128;
      }
    }
  }
}
protocols {
  ospf3 {
    area 0.0.0.0 {
      interface so-0/3/2.0;
      interface lo0.0 {
        passive;
      }
    }
  }
}
```

On Router 1, add the **at-2/0/0** interface into Area 0 of the OSPFv3 process:

```
Router 1 [edit]
interfaces {
  at-2/0/0 {
    atm-options {
      vpi 0;
    }
    unit 0 {
      vci 0.77;
      family inet {
        address 10.19.2.1/24;
      }
      family inet6 {
        address 9009:2::1/64;
      }
    }
  }
  lo0 {
    unit 0 {
      family inet {
        address 10.245.71.1/32;
      }
    }
  }
}
```

```

    }
    family inet6 {
        address feee::10:255:71:1/128;
    }
}
}
}
protocols {
    ospf3 {
        area 0.0.0.0 {
            interface at-2/0/0.0;
            interface lo0.0 {
                passive;
            }
        }
    }
}
}

```

On Router 2, add the interfaces connected to Routers 1, 3, and 4 into the OSPFv3 process. You must also complete the virtual link to Router 3 through Area 1 so that Router 1 can access the discontinuous portion of the OSPF backbone found on Router 0.

```

Router 2 [edit]
interfaces {
    so-0/2/0 {
        unit 0 {
            family inet {
                address 10.19.3.1/24;
            }
            family inet6 {
                address 9009:3::1/64;
            }
        }
    }
    at-0/3/1 {
        atm-options {
            vpi 0 {
                maximum-vcs 1200;
            }
        }
        unit 0 {
            vci 0.77;
            family inet {
                address 10.19.2.2/24;
            }
            family inet6 {
                address 9009:2::2/64;
            }
        }
    }
    fe-1/1/0 {
        unit 0 {
            family inet {
                address 10.19.4.1/24;
            }
            family inet6 {

```

```

        address 9009:4::1/64;
    }
}
lo0 {
    unit 0 {
        family inet {
            address 10.245.71.11/32;
        }
        family inet6 {
            address feee::10:255:71:11/128;
        }
    }
}
}
protocols {
    ospf3 {
        area 0.0.0.0 {
            virtual-link neighbor-id 10.245.71.3 transit-area 0.0.0.1;
            interface at-0/3/1.0;
        }
        area 0.0.0.1 {
            interface so-0/2/0.0 {
                metric 1;
            }
            interface fe-1/1/0.0 {
                metric 10;
            }
            interface lo0.0 {
                passive;
            }
        }
    }
}
}

```

For the OSPFv3 process on Router 3, configure the interfaces connected to Router 2 and Router 4 into Area 1 and the interface connected to Router 0 into Area 0. You must also configure two virtual links through Area 1—one connecting to Router 2 and the second connecting to Router 4. The virtual links allow Router 5 to access the OSPF backbone, and connect the discontinuous sections of Area 0 located at Router 0 and Router 1.

```

Router 3 [edit]
interfaces {
    t1-0/2/1 {
        unit 0 {
            family inet {
                address 10.19.5.1/24;
            }
            family inet6 {
                address 9009:5::1/64;
            }
        }
    }
    so-0/3/0 {
        unit 0 {
            family inet {

```

```

        address 10.19.3.2/24;
    }
    family inet6 {
        address 9009:3::2/64;
    }
}
so-0/3/2 {
    unit 0 {
        family inet {
            address 10.19.1.2/24;
        }
        family inet6 {
            address 9009:1::2/64;
        }
    }
}
lo0 {
    unit 0 {
        family inet {
            address 10.245.71.3/32;
        }
        family inet6 {
            address feee::10:255:71:3/128;
        }
    }
}
}
protocols {
    ospf3 {
        area 0.0.0.0 {
            virtual-link neighbor-id 10.245.71.11 transit-area 0.0.0.1;
            virtual-link neighbor-id 10.245.71.5 transit-area 0.0.0.1;
            interface so-0/3/2.0;
        }
        area 0.0.0.1 {
            interface so-0/3/0.0 {
                metric 1;
            }
            interface t1-0/2/1.0 {
                metric 1;
            }
            interface lo0.0 {
                passive;
            }
        }
    }
}
}

```

On Router 4, add the connected interfaces into the OSPFv3 process. You must also complete the virtual link to Router 3 through Area 1 so that Router 5 can access the OSPF backbone.

```

Router 4 [edit]
interfaces {
    fe-0/0/0 {

```

```
    unit 0 {
      family inet {
        address 10.19.6.1/24;
      }
      family inet6 {
        address 9009:6::1/64;
      }
    }
  }
  t1-0/2/1 {
    unit 0 {
      family inet {
        address 10.19.5.2/24;
      }
      family inet6 {
        address 9009:5::2/64;
      }
    }
  }
  fe-1/1/0 {
    unit 0 {
      family inet {
        address 10.19.4.2/24;
      }
      family inet6 {
        address 9009:4::2/64;
      }
    }
  }
  lo0 {
    unit 0 {
      family inet {
        address 10.245.71.5/32;
      }
      family inet6 {
        address feee::10:255:71:5/128;
      }
    }
  }
}
protocols {
  ospf3 {
    area 0.0.0.1 {
      interface fe-1/1/0.0 {
        metric 10;
      }
      interface t1-0/2/1.0 {
        metric 1;
      }
      interface lo0.0 {
        passive;
      }
    }
    area 0.0.0.0 {
      virtual-link neighbor-id 10.245.71.3 transit-area 0.0.0.1;
    }
  }
}
```

```

        area 0.0.0.2 {
            interface fe-0/0/0.0;
        }
    }
}

```

On Router 5, add the **fe-0/0/0** interface into the OSPFv3 process to complete this example:

```

Router 5 [edit]
interfaces {
  fe-0/0/0 {
    unit 0 {
      family inet {
        address 10.19.6.2/24;
      }
      family inet6 {
        address 9009:6::2/64;
      }
    }
  }
  lo0 {
    unit 0 {
      family inet {
        address 10.245.71.6/32;
      }
      family inet6 {
        address feee::10:255:71:6/128;
      }
    }
  }
}
protocols {
  ospf3 {
    area 0.0.0.2 {
      interface fe-0/0/0.0;
      interface lo0.0 {
        passive;
      }
    }
  }
}
}

```

Verifying Your Work

To verify proper operation of OSPFv3 for IPv6, use the following commands:

- **show ospf3 interface**
- **show ospf3 neighbor**
- **show ospf3 database**
- **show ospf3 route**
- **show interfaces terse** (to see the IPv6 link local address assigned to the **lo0** interface)



NOTE: To view prefix information, you must use the extensive option with the `show ospf3 database` command.

The following sections show the output of these commands used with the configuration example.



NOTE: In the below sample output, the stars indicate the “best” routes. These routes are the routes that are installed in the routing table.

- [Router 0 Status on page 16](#)
- [Router 1 Status on page 19](#)
- [Router 2 Status on page 21](#)
- [Router 3 Status on page 24](#)
- [Router 4 Status on page 28](#)
- [Router 5 Status on page 31](#)

Router 0 Status

```
user@router0> show ospf3 database
```

```
OSPF link state database, area 0.0.0.0
```

Type	ID	Adv Rtr	Seq	Age	Cksum	Len
Router	0.0.0.1	10.245.71.1	0x80000005	764	0x89ce	40
Router	0.0.0.1	10.245.71.3	0x80000006	1360	0x2357	72
Router	*0.0.0.1	10.245.71.4	0x80000004	758	0xc09c	40
Router	0.0.0.1	10.245.71.5	0x80000003	1891	0xf774	40
Router	0.0.0.1	10.245.71.11	0x80000005	1393	0x7f6b	56
InterArPfx	0.0.0.1	10.245.71.3	0x80000003	758	0x9f52	36
InterArPfx	0.0.0.2	10.245.71.3	0x80000003	616	0xb13d	36
InterArPfx	0.0.0.3	10.245.71.3	0x80000003	473	0x1da2	36
InterArPfx	0.0.0.4	10.245.71.3	0x80000003	458	0x99f0	44
InterArPfx	0.0.0.5	10.245.71.3	0x80000004	1058	0xbf22	36
InterArPfx	0.0.0.6	10.245.71.3	0x80000002	1958	0x5c67	36
InterArPfx	0.0.0.7	10.245.71.3	0x80000002	1816	0xf088	44
InterArPfx	0.0.0.8	10.245.71.3	0x80000002	1673	0xd3d6	36
InterArPfx	0.0.0.9	10.245.71.3	0x80000002	1658	0xa3df	44
InterArPfx	0.0.0.1	10.245.71.5	0x80000004	479	0xd50f	36
InterArPfx	0.0.0.2	10.245.71.5	0x80000003	310	0xa547	36
InterArPfx	0.0.0.3	10.245.71.5	0x80000003	913	0x1cbb	36
InterArPfx	0.0.0.5	10.245.71.5	0x80000003	163	0xddcd	36
InterArPfx	0.0.0.6	10.245.71.5	0x80000003	13	0xadd6	44
InterArPfx	0.0.0.7	10.245.71.5	0x80000002	2633	0x5f8a	36
InterArPfx	0.0.0.8	10.245.71.5	0x80000002	2488	0x427c	36
InterArPfx	0.0.0.9	10.245.71.5	0x80000002	2338	0xdcda	36
InterArPfx	0.0.0.10	10.245.71.5	0x80000002	2188	0x5929	44
InterArPfx	0.0.0.11	10.245.71.5	0x80000002	2038	0xc2af	44
InterArPfx	0.0.0.12	10.245.71.5	0x80000002	763	0x664	44
InterArPfx	0.0.0.1	10.245.71.11	0x80000003	463	0x6f7a	36
InterArPfx	0.0.0.2	10.245.71.11	0x80000003	328	0xa935	36
InterArPfx	0.0.0.3	10.245.71.11	0x80000003	193	0x427c	36
InterArPfx	0.0.0.4	10.245.71.11	0x80000003	163	0xd69d	44
InterArPfx	0.0.0.5	10.245.71.11	0x80000002	1993	0x6b78	36
InterArPfx	0.0.0.6	10.245.71.11	0x80000002	1963	0xd6dd	36


```

InterArPfx 0.0.0.7      10.245.71.11    0x80000002  1828  0x532c  44
InterArPfx 0.0.0.8      10.245.71.11    0x80000002  1663  0xa9f7  36
InterArPfx 0.0.0.9      10.245.71.11    0x80000002  1528  0x7901  44
InterArRtr 0.0.0.1      10.245.71.5     0x80000002   620  0xc69c  32
IntraArPfx 0.0.0.1      10.245.71.1     0x80000005   464  0x3f8   76
IntraArPfx 0.0.0.1      10.245.71.3     0x80000005  1509  0x5cc1  64
IntraArPfx *0.0.0.1     10.245.71.4     0x80000004   458  0xba44  64
IntraArPfx 0.0.0.1      10.245.71.11    0x80000003  1693  0xd835  64

```

OSPF AS SCOPE link state database

Type	ID	Adv Rtr	Seq	Age	Cksum	Len
Extern	*0.0.0.1	10.245.71.4	0x80000003	1058	0x8449	36
Extern	0.0.0.1	10.245.71.6	0x80000003	1064	0xdc9e	36

OSPF Link-Local link state database, interface so-0/3/2.0

Type	ID	Adv Rtr	Seq	Age	Cksum	Len
Link	0.0.0.6	10.245.71.3	0x80000004	158	0xae30	56
Link	*0.0.0.2	10.245.71.4	0x80000004	158	0x9e80	56

user@router0> show ospf3 interface

Interface	State	Area	DR-ID	BDR-ID
Nbrs				
lo0.0	DRother	0.0.0.0	0.0.0.0	0.0.0.0
0				
so-0/3/2.0	PtToPt	0.0.0.0	0.0.0.0	0.0.0.0
1				

user@router0> show ospf3 neighbor

ID	Interface	State	Pri	Dead
10.245.71.3	so-0/3/2.0	Full	128	34

Neighbor-address fe80::201:afff:fe00:86ca

user@router0> show ospf3 route

Prefix	Path type	Route type	NH type	Metric
10.245.71.1	Intra	Router	IP	25
NH-interface so-0/3/2.0				
10.245.71.3	Intra	Area BR	IP	12
NH-interface so-0/3/2.0				
10.245.71.5	Intra	Area BR	IP	13
NH-interface so-0/3/2.0				
10.245.71.6	Inter	AS BR	IP	33
NH-interface so-0/3/2.0				
10.245.71.11	Intra	Area BR	IP	13
NH-interface so-0/3/2.0				
9009:1::/64	Intra	Network	IP	12
NH-interface so-0/3/2.0				
9009:1::2/128	Intra	Network	IP	12
NH-interface so-0/3/2.0				
9009:2::/64	Intra	Network	IP	25
NH-interface so-0/3/2.0				
9009:2::2/128	Intra	Network	IP	13
NH-interface so-0/3/2.0				
9009:3::/64	Inter	Network	IP	13
NH-interface so-0/3/2.0				
9009:4::/64	Inter	Network	IP	23
NH-interface so-0/3/2.0				
9009:5::/64	Inter	Network	IP	13
NH-interface so-0/3/2.0				
9009:6::/64	Inter	Network	IP	33
NH-interface so-0/3/2.0				
9009:110::/64	Intra	Network	IP	27
NH-interface so-0/3/2.0				

9009:120::/64	Inter	Network	IP	25
NH-interface so-0/3/2.0				
9009:130::/64	Inter	Network	IP	15
NH-interface so-0/3/2.0				
9009:140::/64	Inter	Network	IP	16
NH-interface so-0/3/2.0				
9009:150::/64	Ext2	Network	IP	0
NH-interface so-0/3/2.0				
feee::10:255:71:1/128	Intra	Network	IP	25
NH-interface so-0/3/2.0				
feee::10:255:71:3/128	Inter	Network	IP	12
NH-interface so-0/3/2.0				
feee::10:255:71:4/128	Intra	Network	IP	0
NH-interface lo0.0				
feee::10:255:71:5/128	Inter	Network	IP	13
NH-interface so-0/3/2.0				
feee::10:255:71:6/128	Inter	Network	IP	33
NH-interface so-0/3/2.0				
feee::10:255:71:11/128	Inter	Network	IP	13
NH-interface so-0/3/2.0				

```

user@router0> show interfaces terse
Interface      Admin Link Proto Local                               Remote
...
so-0/3/2       up    up
so-0/3/2.0     up    up    inet  10.19.1.1/24
                              inet6 9009:1::1/64
                              fe80::201:afff:fe03:6fa1/64
...
lo0            up    up
lo0.0          up    up    inet  10.245.71.4      --> 0/0
                              127.0.0.1        --> 0/0
                              inet6 fe80::201:afff:fe03:6fa1
                              feee::10:255:71:4
...

```

To provide a comparison between OSPFv3 **show** commands and legacy OSPFv2 **show** commands, the following is some sample output of the OSPFv2 connection between Routers 0 and 3:

```

user@router0> show ospf interface
Interface      State      Area          DR ID          BDR ID
Nbrs
lo0.0          DRother   0.0.0.0       0.0.0.0       0.0.0.0
0
lo0.0          DRother   0.0.0.0       0.0.0.0       0.0.0.0
0
so-0/3/2.0     PtToPt    0.0.0.0       0.0.0.0       0.0.0.0
1

user@router0> show ospf neighbor
Address        Interface    State      ID              Pri  Dead
10.19.1.2      so-0/3/2.0  Full      10.245.71.3    128  35

user@router0> show ospf database
OSPF link state database, area 0.0.0.0
Type      ID          Adv Rtr        Seq          Age  Opt  Cksum  Len
Router    10.245.71.3  10.245.71.3    0x80000002   636  0x2  0x5c45  60
Router    *10.245.71.4 10.245.71.4    0x80000002   640  0x2  0x267a  60

user@router0> show ospf route

```

Prefix	Path	Route	NH	Metric	NextHop	Nexthop
	Type	Type	Type		Interface	addr/label
10.245.71.3	Intra	Router	IP	1	so-0/3/2.0	
10.19.1.0/24	Intra	Network	IP	1	so-0/3/2.0	
10.245.71.3/32	Intra	Network	IP	1	so-0/3/2.0	
10.245.71.4/32	Intra	Network	IP	0	lo0.0	

Router 1 Status

user@router1> show ospf3 interface

Interface	State	Area	DR-ID	BDR-ID
Nbrs				
at-2/0/0.0	PtToPt	0.0.0.0	0.0.0.0	0.0.0.0
1				
ge-1/1/0.0	DRother	0.0.0.0	0.0.0.0	0.0.0.0
0				
lo0.0	DRother	0.0.0.0	0.0.0.0	0.0.0.0
0				

user@router1> show ospf3 neighbor

ID	Interface	State	Pri	Dead
10.245.71.11	at-2/0/0.0	Full	128	36
Neighbor-address fe80::2a0:a5ff:fe3d:56				

user@router1> show ospf3 database

OSPF link state database, area 0.0.0.0

Type	ID	Adv Rtr	Seq	Age	Cksum	Len
Router	*0.0.0.1	10.245.71.1	0x80000005	574	0x89ce	40
Router	0.0.0.1	10.245.71.3	0x80000006	1174	0x2357	72
Router	0.0.0.1	10.245.71.4	0x80000004	574	0xc09c	40
Router	0.0.0.1	10.245.71.5	0x80000003	1706	0xf774	40
Router	0.0.0.1	10.245.71.11	0x80000005	1205	0x7f6b	56
InterArPfx	0.0.0.1	10.245.71.3	0x80000003	572	0x9f52	36
InterArPfx	0.0.0.2	10.245.71.3	0x80000003	430	0xb13d	36
InterArPfx	0.0.0.3	10.245.71.3	0x80000003	288	0x1da2	36
InterArPfx	0.0.0.4	10.245.71.3	0x80000003	273	0x99f0	44
InterArPfx	0.0.0.5	10.245.71.3	0x80000004	873	0xbf22	36
InterArPfx	0.0.0.6	10.245.71.3	0x80000002	1773	0x5c67	36
InterArPfx	0.0.0.7	10.245.71.3	0x80000002	1630	0xf088	44
InterArPfx	0.0.0.8	10.245.71.3	0x80000002	1488	0xd3d6	36
InterArPfx	0.0.0.9	10.245.71.3	0x80000002	1473	0xa3df	44
InterArPfx	0.0.0.1	10.245.71.5	0x80000004	293	0xd50f	36
InterArPfx	0.0.0.2	10.245.71.5	0x80000003	124	0xa547	36
InterArPfx	0.0.0.3	10.245.71.5	0x80000003	727	0x1cbb	36
InterArPfx	0.0.0.5	10.245.71.5	0x80000002	2695	0xdfcc	36
InterArPfx	0.0.0.6	10.245.71.5	0x80000002	2601	0xafd5	44
InterArPfx	0.0.0.7	10.245.71.5	0x80000002	2448	0x5f8a	36
InterArPfx	0.0.0.8	10.245.71.5	0x80000002	2302	0x427c	36
InterArPfx	0.0.0.9	10.245.71.5	0x80000002	2152	0xdcda	36
InterArPfx	0.0.0.10	10.245.71.5	0x80000002	2002	0x5929	44
InterArPfx	0.0.0.11	10.245.71.5	0x80000002	1852	0xc2af	44
InterArPfx	0.0.0.12	10.245.71.5	0x80000002	577	0x664	44
InterArPfx	0.0.0.1	10.245.71.11	0x80000003	275	0x6f7a	36
InterArPfx	0.0.0.2	10.245.71.11	0x80000003	140	0xa935	36
InterArPfx	0.0.0.3	10.245.71.11	0x80000003	5	0x427c	36
InterArPfx	0.0.0.4	10.245.71.11	0x80000002	2105	0xd89c	44
InterArPfx	0.0.0.5	10.245.71.11	0x80000002	1805	0x6b78	36
InterArPfx	0.0.0.6	10.245.71.11	0x80000002	1775	0xd6dd	36
InterArPfx	0.0.0.7	10.245.71.11	0x80000002	1640	0x532c	44
InterArPfx	0.0.0.8	10.245.71.11	0x80000002	1475	0xa9f7	36

```

InterArPfx 0.0.0.9      10.245.71.11  0x80000002  1340 0x7901 44
InterArRtr 0.0.0.1      10.245.71.5   0x80000002  434  0xc69c 32
IntraArPfx *0.0.0.1    10.245.71.1   0x80000005  274  0x3f8  76
IntraArPfx 0.0.0.1      10.245.71.3   0x80000005  1323 0x5cc1 64
IntraArPfx 0.0.0.1      10.245.71.4   0x80000004  275  0xba44 64
IntraArPfx 0.0.0.1      10.245.71.11  0x80000003  1505 0xd835 64

```

OSPF AS SCOPE link state database

Type	ID	Adv Rtr	Seq	Age	Cksum	Len
Extern	0.0.0.1	10.245.71.4	0x80000003	874	0x8449	36
Extern	0.0.0.1	10.245.71.6	0x80000003	877	0xdc9e	36

OSPF Link-Local link state database, interface at-2/0/0.0

Type	ID	Adv Rtr	Seq	Age	Cksum	Len
Link	*0.0.0.3	10.245.71.1	0x80000004	874	0x296b	56
Link	0.0.0.6	10.245.71.11	0x80000003	605	0xaf4f	56

```
user@router1> show ospf3 route
```

Prefix	Path type	Route type	NH type	Metric
10.245.71.3	Intra	Area BR	IP	13
NH-interface at-2/0/0.0				
10.245.71.4	Intra	AS BR	IP	25
NH-interface at-2/0/0.0				
10.245.71.5	Intra	Area BR	IP	14
NH-interface at-2/0/0.0				
10.245.71.6	Inter	AS BR	IP	34
NH-interface at-2/0/0.0				
10.245.71.11	Intra	Area BR	IP	12
NH-interface at-2/0/0.0				
9009:1::/64	Intra	Network	IP	25
NH-interface at-2/0/0.0				
9009:1::2/128	Intra	Network	IP	13
NH-interface at-2/0/0.0				
9009:2::/64	Intra	Network	IP	12
NH-interface at-2/0/0.0				
9009:2::2/128	Intra	Network	IP	12
NH-interface at-2/0/0.0				
9009:3::/64	Inter	Network	IP	13
NH-interface at-2/0/0.0				
9009:4::/64	Inter	Network	IP	22
NH-interface at-2/0/0.0				
9009:5::/64	Inter	Network	IP	14
NH-interface at-2/0/0.0				
9009:6::/64	Inter	Network	IP	34
NH-interface at-2/0/0.0				
9009:100::/64	Ext2	Network	IP	0
NH-interface at-2/0/0.0				
9009:110::/64	Intra	Network	IP	2
NH-interface ge-1/1/0.0				
9009:120::/64	Inter	Network	IP	24
NH-interface at-2/0/0.0				
9009:130::/64	Inter	Network	IP	16
NH-interface at-2/0/0.0				
9009:140::/64	Inter	Network	IP	17
NH-interface at-2/0/0.0				
9009:150::/64	Ext2	Network	IP	0
NH-interface at-2/0/0.0				
feee::10:255:71:1/128	Intra	Network	IP	0
NH-interface lo0.0				
feee::10:255:71:3/128	Inter	Network	IP	13
NH-interface at-2/0/0.0				
feee::10:255:71:4/128	Intra	Network	IP	25

```

NH-interface at-2/0/0.0
feee::10:255:71:5/128          Inter Network IP 14
NH-interface at-2/0/0.0
feee::10:255:71:6/128          Inter Network IP 34
NH-interface at-2/0/0.0
feee::10:255:71:11/128         Inter Network IP 12
NH-interface at-2/0/0.0

```

```

user@router1> show interfaces terse
Interface      Admin Link Proto Local                               Remote
...
at-2/0/0       up    up
at-2/0/0.0     up    up    inet 10.19.2.1/24
                                   inet6 9009:2::1/64
                                   fe80::2a0:a5ff:fe3d:dbf/64
...
lo0            up    up
lo0.0          up    up    inet 10.245.71.1      --> 0/0
                                   127.0.0.1      --> 0/0
                                   inet6 fe80::2a0:a5ff:fe3d:dbf
                                   feee::10:255:71:1
...

```

Router 2 Status

```

user@router2> show ospf3 interface
Interface      State      Area      DR-ID      BDR-ID
Nbrs
at-0/3/1.0     PtToPt    0.0.0.0    0.0.0.0    0.0.0.0
1
v1 -10.245.71.3 PtToPt    0.0.0.0    0.0.0.0    0.0.0.0
1
at-0/3/0.0     PtToPt    0.0.0.1    0.0.0.0    0.0.0.0
0
fe-1/1/0.0     DR        0.0.0.1    10.245.71.11 10.245.71.5
1
lo0.0          DRother   0.0.0.1    0.0.0.0    0.0.0.0
0
so-0/2/0.0     PtToPt    0.0.0.1    0.0.0.0    0.0.0.0
1

```

```

user@router2> show ospf3 neighbor
ID            Interface      State      Pri  Dead
10.245.71.1   at-0/3/1.0     Full      128  36
Neighbor-address fe80::2a0:a5ff:fe3d:dbf
10.245.71.3   v1 -10.245.71.3 Full      0    33
Neighbor-address 9009:3::2
10.245.71.5   fe-1/1/0.0     Full      128  36
Neighbor-address fe80::290:69ff:fe98:909d
10.245.71.3   so-0/2/0.0     Full      128  33
Neighbor-address fe80::201:afff:fe00:86ca

```

```

user@router2> show ospf3 database
OSPF link state database, area 0.0.0.0
Type      ID            Adv Rtr      Seq      Age  Cksum  Len
Router    0.0.0.1       10.245.71.1  0x80000005 277  0x89ce 40
Router    0.0.0.1       10.245.71.3  0x80000006 875  0x2357 72
Router    0.0.0.1       10.245.71.4  0x80000004 275  0xc09c 40
Router    0.0.0.1       10.245.71.5  0x80000003 1407 0xf774 40
Router    *0.0.0.1      10.245.71.11 0x80000005 906  0x7f6b 56
InterArPfx 0.0.0.1       10.245.71.3  0x80000003 273  0x9f52 36

```

InterArPfx	0.0.0.2	10.245.71.3	0x80000003	131	0xb13d	36
InterArPfx	0.0.0.3	10.245.71.3	0x80000002	2225	0x1fa1	36
InterArPfx	0.0.0.4	10.245.71.3	0x80000002	2076	0x9bef	44
InterArPfx	0.0.0.5	10.245.71.3	0x80000004	574	0xbf22	36
InterArPfx	0.0.0.6	10.245.71.3	0x80000002	1474	0x5c67	36
InterArPfx	0.0.0.7	10.245.71.3	0x80000002	1331	0xf088	44
InterArPfx	0.0.0.8	10.245.71.3	0x80000002	1189	0xd3d6	36
InterArPfx	0.0.0.9	10.245.71.3	0x80000002	1174	0xa3df	44
InterArPfx	0.0.0.1	10.245.71.5	0x80000003	2923	0xd70e	36
InterArPfx	0.0.0.2	10.245.71.5	0x80000002	2537	0xa746	36
InterArPfx	0.0.0.3	10.245.71.5	0x80000003	428	0x1cbb	36
InterArPfx	0.0.0.5	10.245.71.5	0x80000002	2396	0xdfcc	36
InterArPfx	0.0.0.6	10.245.71.5	0x80000002	2302	0xafd5	44
InterArPfx	0.0.0.7	10.245.71.5	0x80000002	2149	0x5f8a	36
InterArPfx	0.0.0.8	10.245.71.5	0x80000002	2003	0x427c	36
InterArPfx	0.0.0.9	10.245.71.5	0x80000002	1853	0xdcda	36
InterArPfx	0.0.0.10	10.245.71.5	0x80000002	1703	0x5929	44
InterArPfx	0.0.0.11	10.245.71.5	0x80000002	1553	0xc2af	44
InterArPfx	0.0.0.12	10.245.71.5	0x80000002	278	0x664	44
InterArPfx	*0.0.0.1	10.245.71.11	0x80000002	2108	0x7179	36
InterArPfx	*0.0.0.2	10.245.71.11	0x80000002	2076	0xab34	36
InterArPfx	*0.0.0.3	10.245.71.11	0x80000002	1941	0x447b	36
InterArPfx	*0.0.0.4	10.245.71.11	0x80000002	1806	0xd89c	44
InterArPfx	*0.0.0.5	10.245.71.11	0x80000002	1506	0x6b78	36
InterArPfx	*0.0.0.6	10.245.71.11	0x80000002	1476	0xd6dd	36
InterArPfx	*0.0.0.7	10.245.71.11	0x80000002	1341	0x532c	44
InterArPfx	*0.0.0.8	10.245.71.11	0x80000002	1176	0xa9f7	36
InterArPfx	*0.0.0.9	10.245.71.11	0x80000002	1041	0x7901	44
InterArRtr	0.0.0.1	10.245.71.5	0x80000002	135	0xc69c	32
IntraArPfx	0.0.0.1	10.245.71.1	0x80000004	877	0x5f7	76
IntraArPfx	0.0.0.1	10.245.71.3	0x80000005	1024	0x5cc1	64
IntraArPfx	0.0.0.1	10.245.71.4	0x80000003	1176	0xbc43	64
IntraArPfx	*0.0.0.1	10.245.71.11	0x80000003	1206	0xd835	64
OSPF link state database, area 0.0.0.1						
Type	ID	Adv Rtr	Seq	Age	Cksum	Len
Router	0.0.0.1	10.245.71.3	0x80000006	574	0xad3f	56
Router	0.0.0.1	10.245.71.5	0x80000006	577	0xde02	56
Router	*0.0.0.1	10.245.71.11	0x80000007	576	0x8853	56
Network	*0.0.0.4	10.245.71.11	0x80000003	606	0xfd16	32
InterArPfx	0.0.0.1	10.245.71.3	0x80000002	1774	0xc722	36
InterArPfx	0.0.0.2	10.245.71.3	0x80000002	1624	0x7b2f	44
InterArPfx	0.0.0.3	10.245.71.3	0x80000002	874	0x877	44
InterArPfx	0.0.0.1	10.245.71.5	0x80000003	352	0x30a9	36
InterArPfx	0.0.0.3	10.245.71.5	0x80000002	205	0x6013	44
InterArPfx	*0.0.0.1	10.245.71.11	0x80000003	141	0xa33c	36
InterArPfx	*0.0.0.2	10.245.71.11	0x80000003	6	0x5749	44
InterArPfx	*0.0.0.3	10.245.71.11	0x80000002	1776	0x6f5e	36
InterArPfx	*0.0.0.4	10.245.71.11	0x80000002	1641	0x7ff9	44
InterArRtr	0.0.0.1	10.245.71.3	0x80000002	724	0x6609	32
InterArRtr	0.0.0.1	10.245.71.5	0x80000002	64	0xc69c	32
IntraArPfx	0.0.0.1	10.245.71.3	0x80000004	424	0x4a98	88
IntraArPfx	0.0.0.1	10.245.71.5	0x80000004	502	0x3691	76
IntraArPfx	*0.0.0.1	10.245.71.11	0x80000005	441	0x2c5	76
IntraArPfx	*0.0.0.5	10.245.71.11	0x80000003	741	0xfa59	44
OSPF AS SCOPE link state database						
Type	ID	Adv Rtr	Seq	Age	Cksum	Len
Extern	0.0.0.1	10.245.71.4	0x80000003	575	0x8449	36
Extern	0.0.0.1	10.245.71.6	0x80000003	578	0xdc9e	36
OSPF Link-Local link state database, interface at-0/3/1.0						
Type	ID	Adv Rtr	Seq	Age	Cksum	Len
Link	0.0.0.3	10.245.71.1	0x80000004	577	0x296b	56

```

Link          *0.0.0.6          10.245.71.11      0x80000003      306 0xaf4f 56
  OSPF Link-Local link state database, interface fe-1/1/0.0
  Type      ID      Adv Rtr      Seq      Age  Cksum  Len
Link        0.0.0.5      10.245.71.5      0x80000003      727 0x40dc 56
Link        *0.0.0.4      10.245.71.11     0x80000004      876 0x73ab 56
  OSPF Link-Local link state database, interface so-0/2/0.0
  Type      ID      Adv Rtr      Seq      Age  Cksum  Len
Link        0.0.0.4      10.245.71.3      0x80000003      2074 0x9d6 56
Link        *0.0.0.3      10.245.71.11     0x80000004      276 0xed12 56

```

```
user@router2> show ospf3 route
```

Prefix	Path type	Route type	NH type	Metric
10.245.71.1	Intra	Router	IP	12
NH-interface at-0/3/1.0				
10.245.71.3	Intra	Area BR	IP	1
NH-interface so-0/2/0.0				
10.245.71.4	Intra	AS BR	IP	13
NH-interface so-0/2/0.0				
10.245.71.5	Intra	Area BR	IP	2
NH-interface so-0/2/0.0				
10.245.71.6	Inter	AS BR	IP	22
NH-interface so-0/2/0.0				
10.245.71.11;0.0.0.4	Intra	Transit	IP	10
NH-interface fe-1/1/0.0				
9009:1::/64	Intra	Network	IP	13
NH-interface so-0/2/0.0				
9009:1::2/128	Intra	Network	IP	1
NH-interface so-0/2/0.0				
9009:2::/64	Intra	Network	IP	12
NH-interface at-0/3/1.0				
9009:2::2/128	Intra	Network	IP	0
NH-interface at-0/3/1.0				
9009:3::/64	Intra	Network	IP	1
NH-interface so-0/2/0.0				
9009:4::/64	Intra	Network	IP	10
NH-interface fe-1/1/0.0				
9009:5::/64	Intra	Network	IP	2
NH-interface so-0/2/0.0				
9009:6::/64	Inter	Network	IP	22
NH-interface so-0/2/0.0				
9009:100::/64	Ext2	Network	IP	0
NH-interface so-0/2/0.0				
9009:110::/64	Intra	Network	IP	14
NH-interface at-0/3/1.0				
9009:120::/64	Intra	Network	IP	12
NH-interface at-0/3/0.0				
9009:130::/64	Intra	Network	IP	4
NH-interface so-0/2/0.0				
9009:140::/64	Intra	Network	IP	5
NH-interface so-0/2/0.0				
9009:150::/64	Ext2	Network	IP	0
NH-interface so-0/2/0.0				
feee::10:255:71:1/128	Intra	Network	IP	12
NH-interface at-0/3/1.0				
feee::10:255:71:3/128	Intra	Network	IP	1
NH-interface so-0/2/0.0				
feee::10:255:71:4/128	Intra	Network	IP	13
NH-interface so-0/2/0.0				
feee::10:255:71:5/128	Intra	Network	IP	2
NH-interface so-0/2/0.0				

```

feee::10:255:71:6/128          Inter Network IP 22
NH-interface so-0/2/0.0
feee::10:255:71:11/128         Intra Network IP 0
NH-interface lo0.0

```

user@router2> show interfaces terse

Interface	Admin	Link	Proto	Local	Remote
...					
so-0/2/0	up	up			
so-0/2/0.0	up	up	inet	10.19.3.1/24	
			inet6	9009:3::1/64	
				fe80::2a0:a5ff:fe3d:56/64	
...					
at-0/3/1	up	up			
at-0/3/1.0	up	up	inet	10.19.2.2/24	
			inet6	9009:2::2/64	
				fe80::2a0:a5ff:fe3d:56/64	
...					
fe-1/1/0	up	up			
fe-1/1/0.0	up	up	inet	10.19.4.1/24	
			inet6	9009:4::1/64	
				fe80::290:69ff:fea0:809d/64	
...					
lo0	up	up			
lo0.0	up	up	inet	10.245.71.11	--> 0/0
				127.0.0.1	--> 0/0
			inet6	fe80::2a0:a5ff:fe3d:56	
				feee::10:255:71:11	
...					

Router 3 Status

user@router3> show ospf3 interface

Interface	State	Area	DR-ID	BDR-ID
Nbrs				
so-0/3/2.0	PtToPt	0.0.0.0	0.0.0.0	0.0.0.0
1				
v1-10.245.71.11	PtToPt	0.0.0.0	0.0.0.0	0.0.0.0
1				
v1-10.245.71.5	PtToPt	0.0.0.0	0.0.0.0	0.0.0.0
1				
at-1/2/0.0	PtToPt	0.0.0.1	0.0.0.0	0.0.0.0
0				
lo0.0	DRother	0.0.0.1	0.0.0.0	0.0.0.0
0				
so-0/3/0.0	PtToPt	0.0.0.1	0.0.0.0	0.0.0.0
1				
t1-0/2/1.0	PtToPt	0.0.0.1	0.0.0.0	0.0.0.0
1				

user@router3> show ospf3 neighbor

ID	Interface	State	Pri	Dead
10.245.71.4	so-0/3/2.0	Full	128	38
	Neighbor-address	fe80::201:afff:fe03:6fa1		
10.245.71.11	v1-10.245.71.11	Full	0	36
	Neighbor-address	9009:3::1		
10.245.71.5	v1-10.245.71.5	Full	0	35
	Neighbor-address	9009:5::2		
10.245.71.11	so-0/3/0.0	Full	128	37
	Neighbor-address	fe80::2a0:a5ff:fe3d:56		
10.245.71.5	t1-0/2/1.0	Full	128	39

Neighbor-address fe80::2a0:a5ff:fe3d:b63

user@router3> show ospf3 database

OSPF link state database, area 0.0.0.0

Type	ID	Adv Rtr	Seq	Age	Cksum	Len
Router	0.0.0.1	10.245.71.1	0x80000005	94	0x89ce	40
Router	*0.0.0.1	10.245.71.3	0x80000006	690	0x2357	72
Router	0.0.0.1	10.245.71.4	0x80000004	90	0xc09c	40
Router	0.0.0.1	10.245.71.5	0x80000003	1222	0xf774	40
Router	0.0.0.1	10.245.71.11	0x80000005	723	0x7f6b	56
InterArPfx	*0.0.0.1	10.245.71.3	0x80000003	88	0x9f52	36
InterArPfx	*0.0.0.2	10.245.71.3	0x80000002	2188	0xb33c	36
InterArPfx	*0.0.0.3	10.245.71.3	0x80000002	2040	0x1fa1	36
InterArPfx	*0.0.0.4	10.245.71.3	0x80000002	1891	0x9bef	44
InterArPfx	*0.0.0.5	10.245.71.3	0x80000004	388	0xbf22	36
InterArPfx	*0.0.0.6	10.245.71.3	0x80000002	1288	0x5c67	36
InterArPfx	*0.0.0.7	10.245.71.3	0x80000002	1146	0xf088	44
InterArPfx	*0.0.0.8	10.245.71.3	0x80000002	1003	0xd3d6	36
InterArPfx	*0.0.0.9	10.245.71.3	0x80000002	988	0xa3df	44
InterArPfx	0.0.0.1	10.245.71.5	0x80000003	2738	0xd70e	36
InterArPfx	0.0.0.2	10.245.71.5	0x80000002	2352	0xa746	36
InterArPfx	0.0.0.3	10.245.71.5	0x80000003	243	0x1cbb	36
InterArPfx	0.0.0.5	10.245.71.5	0x80000002	2211	0xdfcc	36
InterArPfx	0.0.0.6	10.245.71.5	0x80000002	2117	0xafd5	44
InterArPfx	0.0.0.7	10.245.71.5	0x80000002	1964	0x5f8a	36
InterArPfx	0.0.0.8	10.245.71.5	0x80000002	1818	0x427c	36
InterArPfx	0.0.0.9	10.245.71.5	0x80000002	1668	0xdcda	36
InterArPfx	0.0.0.10	10.245.71.5	0x80000002	1518	0x5929	44
InterArPfx	0.0.0.11	10.245.71.5	0x80000002	1368	0xc2af	44
InterArPfx	0.0.0.12	10.245.71.5	0x80000002	93	0x664	44
InterArPfx	0.0.0.1	10.245.71.11	0x80000002	1925	0x7179	36
InterArPfx	0.0.0.2	10.245.71.11	0x80000002	1893	0xab34	36
InterArPfx	0.0.0.3	10.245.71.11	0x80000002	1758	0x447b	36
InterArPfx	0.0.0.4	10.245.71.11	0x80000002	1623	0xd89c	44
InterArPfx	0.0.0.5	10.245.71.11	0x80000002	1323	0x6b78	36
InterArPfx	0.0.0.6	10.245.71.11	0x80000002	1293	0xd6dd	36
InterArPfx	0.0.0.7	10.245.71.11	0x80000002	1158	0x532c	44
InterArPfx	0.0.0.8	10.245.71.11	0x80000002	993	0xa9f7	36
InterArPfx	0.0.0.9	10.245.71.11	0x80000002	858	0x7901	44
InterArRtr	0.0.0.1	10.245.71.5	0x80000001	2743	0xc89b	32
IntraArPfx	0.0.0.1	10.245.71.1	0x80000004	694	0x5f7	76
IntraArPfx	*0.0.0.1	10.245.71.3	0x80000005	839	0x5cc1	64
IntraArPfx	0.0.0.1	10.245.71.4	0x80000003	990	0xbc43	64
IntraArPfx	0.0.0.1	10.245.71.11	0x80000003	1023	0xd835	64

OSPF link state database, area 0.0.0.1

Type	ID	Adv Rtr	Seq	Age	Cksum	Len
Router	*0.0.0.1	10.245.71.3	0x80000006	389	0xad3f	56
Router	0.0.0.1	10.245.71.5	0x80000006	393	0xde02	56
Router	0.0.0.1	10.245.71.11	0x80000007	393	0x8853	56
Network	0.0.0.4	10.245.71.11	0x80000003	423	0xfd16	32
InterArPfx	*0.0.0.1	10.245.71.3	0x80000002	1588	0xc722	36
InterArPfx	*0.0.0.2	10.245.71.3	0x80000002	1438	0x7b2f	44
InterArPfx	*0.0.0.3	10.245.71.3	0x80000002	688	0x877	44
InterArPfx	0.0.0.1	10.245.71.5	0x80000003	168	0x30a9	36
InterArPfx	0.0.0.3	10.245.71.5	0x80000002	21	0x6013	44
InterArPfx	0.0.0.1	10.245.71.11	0x80000002	2193	0xa53b	36
InterArPfx	0.0.0.2	10.245.71.11	0x80000002	2059	0x5948	44
InterArPfx	0.0.0.3	10.245.71.11	0x80000002	1593	0x6f5e	36
InterArPfx	0.0.0.4	10.245.71.11	0x80000002	1458	0x7ff9	44
InterArRtr	*0.0.0.1	10.245.71.3	0x80000002	538	0x6609	32
InterArRtr	0.0.0.1	10.245.71.5	0x80000001	2743	0xc89b	32

```

IntraArPfx *0.0.0.1      10.245.71.3      0x80000004    238 0x4a98 88
IntraArPfx 0.0.0.1      10.245.71.5      0x80000004    318 0x3691 76
IntraArPfx 0.0.0.1      10.245.71.11     0x80000005    258 0x2c5 76
IntraArPfx 0.0.0.5      10.245.71.11     0x80000003    558 0xfa59 44
  OSPF AS SCOPE link state database
    Type      ID      Adv Rtr      Seq      Age      Cksum      Len
Extern      0.0.0.1    10.245.71.4    0x80000003    390 0x8449 36
Extern      0.0.0.1    10.245.71.6    0x80000003    394 0xdc9e 36
  OSPF Link-Local link state database, interface so-0/3/0.0
    Type      ID      Adv Rtr      Seq      Age      Cksum      Len
Link      *0.0.0.4    10.245.71.3    0x80000003    1888 0x9d6 56
Link      0.0.0.3    10.245.71.11    0x80000004     93 0xed12 56
  OSPF Link-Local link state database, interface so-0/3/2.0
    Type      ID      Adv Rtr      Seq      Age      Cksum      Len
Link      *0.0.0.6    10.245.71.3    0x80000003    1589 0xb02f 56
Link      0.0.0.2    10.245.71.4    0x80000003     690 0xa07f 56
  OSPF Link-Local link state database, interface t1-0/2/1.0
    Type      ID      Adv Rtr      Seq      Age      Cksum      Len
Link      *0.0.0.5    10.245.71.3    0x80000003    1738 0x4399 56
Link      0.0.0.3    10.245.71.5    0x80000002    2423 0x618c 56

```

```
user@router3> show ospf3 route
```

Prefix	Path type	Route type	NH type	Metric
10.245.71.1	Intra	Router	IP	13
NH-interface (null), NH-addr feee::10:255:71:11				
10.245.71.4	Intra	AS BR	IP	12
NH-interface so-0/3/2.0				
10.245.71.5	Intra	Area BR	IP	1
NH-interface t1-0/2/1.0				
10.245.71.6	Inter	AS BR	IP	21
NH-interface t1-0/2/1.0				
10.245.71.11	Intra	Area BR	IP	1
NH-interface so-0/3/0.0				
10.245.71.11;0.0.0.4	Intra	Transit	IP	11
NH-interface so-0/3/0.0				
NH-interface t1-0/2/1.0				
9009:1::/64	Intra	Network	IP	12
NH-interface so-0/3/2.0				
9009:1::2/128	Intra	Network	IP	0
NH-interface so-0/3/2.0				
9009:2::/64	Intra	Network	IP	13
NH-interface so-0/3/0.0				
9009:2::2/128	Intra	Network	IP	1
NH-interface so-0/3/0.0				
9009:3::/64	Intra	Network	IP	1
NH-interface so-0/3/0.0				
9009:4::/64	Intra	Network	IP	11
NH-interface so-0/3/0.0				
NH-interface t1-0/2/1.0				
9009:5::/64	Intra	Network	IP	1
NH-interface t1-0/2/1.0				
9009:6::/64	Inter	Network	IP	21
NH-interface t1-0/2/1.0				
9009:100::/64	Ext2	Network	IP	0
NH-interface so-0/3/2.0				
9009:110::/64	Intra	Network	IP	15
NH-interface so-0/3/0.0				
9009:120::/64	Intra	Network	IP	13
NH-interface so-0/3/0.0				
9009:130::/64	Intra	Network	IP	3

```

NH-interface at-1/2/0.0
9009:140::/64          Intra Network IP 4
NH-interface t1-0/2/1.0
9009:150::/64          Ext2 Network IP 0
NH-interface t1-0/2/1.0
feee::10:255:71:1/128 Intra Network IP 13
NH-interface so-0/3/0.0
feee::10:255:71:3/128 Intra Network IP 0
NH-interface lo0.0
feee::10:255:71:4/128 Intra Network IP 12
NH-interface so-0/3/2.0
feee::10:255:71:5/128 Intra Network IP 1
NH-interface t1-0/2/1.0
feee::10:255:71:6/128 Inter Network IP 21
NH-interface t1-0/2/1.0
feee::10:255:71:11/128 Intra Network IP 1
NH-interface so-0/3/0.0

```

```

user@router3> show interfaces terse
Interface      Admin Link Proto Local                               Remote
...
t1-0/2/1.0     up    up    inet  10.19.5.1/24
              inet6 9009:5::1/64
              fe80::201:aaff:fe00:86ca/64
...
so-0/3/0       up    up
so-0/3/0.0     up    up    inet  10.19.3.2/24
              inet6 9009:3::2/64
              fe80::201:aaff:fe00:86ca/64
so-0/3/1       up    up
so-0/3/2       up    up
so-0/3/2.0     up    up    inet  10.19.1.2/24
              inet6 9009:1::2/64
              fe80::201:aaff:fe00:86ca/64
...
lo0            up    up
lo0.0          up    up    inet  10.245.71.3      --> 0/0
              127.0.0.1        --> 0/0
              inet6 fe80::201:aaff:fe00:86ca
              feee::10:255:71:3
...

```

To provide a comparison between OSPFv3 **show** commands and legacy OSPFv2 **show** commands, the following is some sample output of the OSPFv2 connection between Routers 0 and 3:

```

user@router3> show ospf interface
Interface      State      Area          DR ID          BDR ID
Nbrs
lo0.0          DRother   0.0.0.0       0.0.0.0       0.0.0.0
0
lo0.0          DRother   0.0.0.0       0.0.0.0       0.0.0.0
0
so-0/3/2.0     PtToPt    0.0.0.0       0.0.0.0       0.0.0.0
1

user@router3> show ospf neighbor
Address        Interface    State      ID              Pri  Dead
10.19.1.1      so-0/3/2.0  Full      10.245.71.4    128  38

user@router3> show ospf database

```

```

      OSPF link state database, area 0.0.0.0
Type      ID          Adv Rtr      Seq      Age  Opt  Cksum  Len
Router   *10.245.71.3   10.245.71.3  0x80000002  67  0x2  0x5c45  60
Router   10.245.71.4   10.245.71.4  0x80000002  74  0x2  0x267a  60

```

```
user@router3> show ospf route
```

Prefix	Path	Route	NH	Metric	NextHop	NextHop
	Type	Type	Type		Interface	addr/label
10.245.71.4	Intra	Router	IP	1	so-0/3/2.0	
10.19.1.0/24	Intra	Network	IP	1	so-0/3/2.0	
10.245.71.3/32	Intra	Network	IP	0	lo0.0	
10.245.71.4/32	Intra	Network	IP	1	so-0/3/2.0	

Router 4 Status

```
user@router4> show ospf3 interface
```

Interface	State	Area	DR-ID	BDR-ID
Nbrs				
v1- 10.245.71.3	PtToPt	0.0.0.0	0.0.0.0	0.0.0.0
1				
at-0/3/0.0	PtToPt	0.0.0.1	0.0.0.0	0.0.0.0
0				
fe-1/1/0.0	BDR	0.0.0.1	10.245.71.11	10.245.71.5
1				
lo0.0	DRother	0.0.0.1	0.0.0.0	0.0.0.0
0				
t1-0/2/1.0	PtToPt	0.0.0.1	0.0.0.0	0.0.0.0
1				
fe-0/0/0.0	BDR	0.0.0.2	10.245.71.6	10.245.71.5
1				

```
user@router4> show ospf3 neighbor
```

ID	Interface	State	Pri	Dead
10.245.71.3	v1 -10.245.71.3	Full	0	32
Neighbor-address	9009:5::1			
10.245.71.11	fe-1/1/0.0	Full	128	37
Neighbor-address	fe80::290:69ff:fea0:809d			
10.245.71.3	t1-0/2/1.0	Full	128	32
Neighbor-address	fe80::201:afff:fe00:86ca			
10.245.71.6	fe-0/0/0.0	Full	128	35
Neighbor-address	fe80::290:69ff:fe94:c400			

```
user@router4> show ospf3 database
```

```

      OSPF link state database, area 0.0.0.0
Type      ID          Adv Rtr      Seq      Age  Cksum  Len
Router   0.0.0.1        10.245.71.1  0x80000004  894  0x8bcd  40
Router   0.0.0.1        10.245.71.3  0x80000006  590  0x2357  72
Router   0.0.0.1        10.245.71.4  0x80000003  1190  0xc29b  40
Router   *0.0.0.1        10.245.71.5  0x80000003  1120  0xf774  40
Router   0.0.0.1        10.245.71.11 0x80000005  623  0x7f6b  56
InterArPfx 0.0.0.1        10.245.71.3  0x80000002  2114  0xa151  36
InterArPfx 0.0.0.2        10.245.71.3  0x80000002  2089  0xb33c  36
InterArPfx 0.0.0.3        10.245.71.3  0x80000002  1940  0x1fa1  36
InterArPfx 0.0.0.4        10.245.71.3  0x80000002  1791  0x9bef  44
InterArPfx 0.0.0.5        10.245.71.3  0x80000004  289  0xbf22  36
InterArPfx 0.0.0.6        10.245.71.3  0x80000002  1188  0x5c67  36
InterArPfx 0.0.0.7        10.245.71.3  0x80000002  1046  0xf088  44
InterArPfx 0.0.0.8        10.245.71.3  0x80000002  904  0xd3d6  36
InterArPfx 0.0.0.9        10.245.71.3  0x80000002  888  0xa3df  44
InterArPfx *0.0.0.1        10.245.71.5  0x80000003  2636  0xd70e  36

```

InterArPfx	*0.0.0.2	10.245.71.5	0x80000002	2250	0xa746	36
InterArPfx	*0.0.0.3	10.245.71.5	0x80000003	141	0x1cbb	36
InterArPfx	*0.0.0.5	10.245.71.5	0x80000002	2109	0xdfcc	36
InterArPfx	*0.0.0.6	10.245.71.5	0x80000002	2015	0xafd5	44
InterArPfx	*0.0.0.7	10.245.71.5	0x80000002	1862	0x5f8a	36
InterArPfx	*0.0.0.8	10.245.71.5	0x80000002	1716	0x427c	36
InterArPfx	*0.0.0.9	10.245.71.5	0x80000002	1566	0xdcda	36
InterArPfx	*0.0.0.10	10.245.71.5	0x80000002	1416	0x5929	44
InterArPfx	*0.0.0.11	10.245.71.5	0x80000002	1266	0xc2af	44
InterArPfx	*0.0.0.12	10.245.71.5	0x80000001	2641	0x863	44
InterArPfx	0.0.0.1	10.245.71.11	0x80000002	1825	0x7179	36
InterArPfx	0.0.0.2	10.245.71.11	0x80000002	1793	0xab34	36
InterArPfx	0.0.0.3	10.245.71.11	0x80000002	1658	0x447b	36
InterArPfx	0.0.0.4	10.245.71.11	0x80000002	1523	0xd89c	44
InterArPfx	0.0.0.5	10.245.71.11	0x80000002	1223	0x6b78	36
InterArPfx	0.0.0.6	10.245.71.11	0x80000002	1193	0xd6dd	36
InterArPfx	0.0.0.7	10.245.71.11	0x80000002	1058	0x532c	44
InterArPfx	0.0.0.8	10.245.71.11	0x80000002	893	0xa9f7	36
InterArPfx	0.0.0.9	10.245.71.11	0x80000002	758	0x7901	44
InterArRtr	*0.0.0.1	10.245.71.5	0x80000001	2641	0xc89b	32
IntraArPfx	0.0.0.1	10.245.71.1	0x80000004	594	0x5f7	76
IntraArPfx	0.0.0.1	10.245.71.3	0x80000005	739	0x5cc1	64
IntraArPfx	0.0.0.1	10.245.71.4	0x80000003	890	0xbc43	64
IntraArPfx	0.0.0.1	10.245.71.11	0x80000003	923	0xd835	64

OSPF link state database, area 0.0.0.1

Type	ID	Adv Rtr	Seq	Age	Cksum	Len
Router	0.0.0.1	10.245.71.3	0x80000006	289	0xad3f	56
Router	*0.0.0.1	10.245.71.5	0x80000006	291	0xde02	56
Router	0.0.0.1	10.245.71.11	0x80000007	292	0x8853	56
Network	0.0.0.4	10.245.71.11	0x80000003	322	0xfd16	32
InterArPfx	0.0.0.1	10.245.71.3	0x80000002	1488	0xc722	36
InterArPfx	0.0.0.2	10.245.71.3	0x80000002	1339	0x7b2f	44
InterArPfx	0.0.0.3	10.245.71.3	0x80000002	589	0x877	44
InterArPfx	*0.0.0.1	10.245.71.5	0x80000003	66	0x30a9	36
InterArPfx	*0.0.0.3	10.245.71.5	0x80000001	2641	0x6212	44
InterArPfx	0.0.0.1	10.245.71.11	0x80000002	2092	0xa53b	36
InterArPfx	0.0.0.2	10.245.71.11	0x80000002	1958	0x5948	44
InterArPfx	0.0.0.3	10.245.71.11	0x80000002	1492	0x6f5e	36
InterArPfx	0.0.0.4	10.245.71.11	0x80000002	1357	0x7ff9	44
InterArRtr	0.0.0.1	10.245.71.3	0x80000002	439	0x6609	32
InterArRtr	*0.0.0.1	10.245.71.5	0x80000001	2641	0xc89b	32
IntraArPfx	0.0.0.1	10.245.71.3	0x80000004	139	0x4a98	88
IntraArPfx	*0.0.0.1	10.245.71.5	0x80000004	216	0x3691	76
IntraArPfx	0.0.0.1	10.245.71.11	0x80000005	157	0x2c5	76
IntraArPfx	0.0.0.5	10.245.71.11	0x80000003	457	0xfa59	44

OSPF link state database, area 0.0.0.2

Type	ID	Adv Rtr	Seq	Age	Cksum	Len
Router	*0.0.0.1	10.245.71.5	0x80000004	366	0x252e	40
Router	0.0.0.1	10.245.71.6	0x80000004	1492	0x64d	40
Network	0.0.0.2	10.245.71.6	0x80000003	892	0xfd22	32
InterArPfx	*0.0.0.1	10.245.71.5	0x80000003	2636	0xd70e	36
InterArPfx	*0.0.0.2	10.245.71.5	0x80000002	2179	0xa746	36
InterArPfx	*0.0.0.3	10.245.71.5	0x80000002	2091	0xf3ba	36
InterArPfx	*0.0.0.4	10.245.71.5	0x80000002	1938	0xc3c3	44
InterArPfx	*0.0.0.5	10.245.71.5	0x80000002	1791	0x7378	36
InterArPfx	*0.0.0.6	10.245.71.5	0x80000002	1641	0x566a	36
InterArPfx	*0.0.0.7	10.245.71.5	0x80000002	1491	0xf0c8	36
InterArPfx	*0.0.0.8	10.245.71.5	0x80000002	1341	0x6d17	44
InterArPfx	*0.0.0.9	10.245.71.5	0x80000002	1191	0xd69d	44
InterArPfx	*0.0.0.10	10.245.71.5	0x80000002	1049	0x6776	36
InterArPfx	*0.0.0.11	10.245.71.5	0x80000002	979	0x1b83	44

```

InterArPfx *0.0.0.12      10.245.71.5      0x80000002    908  0x6772  36
InterArPfx *0.0.0.13      10.245.71.5      0x80000002    891  0x1b7f  44
InterArPfx *0.0.0.14      10.245.71.5      0x80000002    815  0x3195  36
InterArPfx *0.0.0.15      10.245.71.5      0x80000002    738  0x4131  44
InterArPfx *0.0.0.16      10.245.71.5      0x80000002    662  0x7fef  44
InterArRtr *0.0.0.1       10.245.71.5      0x80000002    591  0x6408  32
IntraArPfx 0.0.0.1        10.245.71.6      0x80000005    1192 0x42b9  52
IntraArPfx 0.0.0.3        10.245.71.6      0x80000003    592  0xfe61  44
  OSPF AS SCOPE link state database
    Type      ID      Adv Rtr      Seq      Age  Cksum  Len
  Extern      0.0.0.1    10.245.71.4    0x80000003    290  0x8449  36
  Extern      0.0.0.1    10.245.71.6    0x80000003    292  0xdc9e  36
  OSPF Link-Local link state database, interface fe-0/0/0.0
    Type      ID      Adv Rtr      Seq      Age  Cksum  Len
  Link        *0.0.0.4    10.245.71.5    0x80000003    516  0x3b6  56
  Link        0.0.0.2    10.245.71.6    0x80000004    1792 0x782  56
  OSPF Link-Local link state database, interface fe-1/1/0.0
    Type      ID      Adv Rtr      Seq      Age  Cksum  Len
  Link        *0.0.0.5    10.245.71.5    0x80000003    441  0x40dc  56
  Link        0.0.0.4    10.245.71.11   0x80000004    592  0x73ab  56
  OSPF Link-Local link state database, interface t1-0/2/1.0
    Type      ID      Adv Rtr      Seq      Age  Cksum  Len
  Link        0.0.0.5    10.245.71.3    0x80000003    1639 0x4399  56
  Link        *0.0.0.3    10.245.71.5    0x80000002    2321 0x618c  56

```

```
user@router4> show ospf3 route
```

Prefix	Path type	Route type	NH type	Metric
10.245.71.1	Intra	Router	IP	14
NH-interface (null), NH-addr feee::10:255:71:3				
10.245.71.3	Intra	Area BR	IP	1
NH-interface t1-0/2/1.0				
10.245.71.4	Intra	AS BR	IP	13
NH-interface t1-0/2/1.0				
10.245.71.6	Intra	AS BR	IP	20
NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe94:c400				
10.245.71.6;0.0.0.2	Intra	Transit	IP	20
NH-interface fe-0/0/0.0				
10.245.71.11	Intra	Area BR	IP	2
NH-interface t1-0/2/1.0				
10.245.71.11;0.0.0.4	Intra	Transit	IP	10
NH-interface fe-1/1/0.0				
9009:1::/64	Intra	Network	IP	13
NH-interface t1-0/2/1.0				
9009:1::2/128	Intra	Network	IP	1
NH-interface t1-0/2/1.0				
9009:2::/64	Intra	Network	IP	14
NH-interface t1-0/2/1.0				
9009:2::2/128	Intra	Network	IP	2
NH-interface t1-0/2/1.0				
9009:3::/64	Intra	Network	IP	2
NH-interface t1-0/2/1.0				
9009:4::/64	Intra	Network	IP	10
NH-interface fe-1/1/0.0				
9009:5::/64	Intra	Network	IP	1
NH-interface t1-0/2/1.0				
9009:6::/64	Intra	Network	IP	20
NH-interface fe-0/0/0.0				
9009:100::/64	Ext2	Network	IP	0
NH-interface t1-0/2/1.0				
9009:110::/64	Intra	Network	IP	16

```

NH-interface t1-0/2/1.0
9009:120::/64                Intra Network IP 14
NH-interface t1-0/2/1.0
9009:130::/64                Intra Network IP 4
NH-interface t1-0/2/1.0
9009:140::/64                Intra Network IP 3
NH-interface at-0/3/0.0
9009:150::/64                Ext2 Network IP 0
NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe94:c400
feee::10:255:71:1/128        Intra Network IP 14
NH-interface t1-0/2/1.0
feee::10:255:71:3/128        Intra Network IP 1
NH-interface t1-0/2/1.0
feee::10:255:71:4/128        Intra Network IP 13
NH-interface t1-0/2/1.0
feee::10:255:71:5/128        Intra Network IP 0
NH-interface lo0.0
feee::10:255:71:6/128        Intra Network IP 20
NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe94:c400
feee::10:255:71:11/128       Intra Network IP 2
NH-interface t1-0/2/1.0

```

```

user@router4> show interfaces terse
Interface      Admin Link Proto Local Remote
fe-0/0/0       up    up
fe-0/0/0.0     up    up    inet  10.19.6.1/24
                              inet6 9009:6::1/64
                              fe80::290:69ff:fe98:9000/64
...
t1-0/2/1       up    up
t1-0/2/1.0     up    up    inet  10.19.5.2/24
                              inet6 9009:5::2/64
                              fe80::2a0:a5ff:fe3d:b63/64
...
fe-1/1/0       up    up
fe-1/1/0.0     up    up    inet  10.19.4.2/24
                              inet6 9009:4::2/64
                              fe80::290:69ff:fe98:909d/64
...
lo0            up    up
lo0.0          up    up    inet  10.245.71.5    --> 0/0
                              127.0.0.1      --> 0/0
                              inet6 fe80::2a0:a5ff:fe3d:b63
                              feee::10:255:71:5
...

```

Router 5 Status

```

user@router5> show ospf3 interface
Interface      State Area DR-ID BDR-ID
Nbrs
fe-0/0/0.0     DR 0.0.0.2 10.245.71.6 10.245.71.5
1
lo0.0          DRother 0.0.0.2 0.0.0.0 0.0.0.0
0
user@router5> show ospf3 neighbor
ID Interface State Pri Dead
10.245.71.5 fe-0/0/0.0 Full 128 33
Neighbor-address fe80::290:69ff:fe98:9000

user@router5> show ospf3 database

```

```

    OSPF link state database, area 0.0.0.2
    Type      ID      Adv Rtr      Seq      Age  Cksum  Len
Router      0.0.0.1      10.245.71.5  0x80000003 2237 0x272d 40
Router      *0.0.0.1      10.245.71.6  0x80000004 1082 0x64d 40
Network     *0.0.0.2      10.245.71.6  0x80000003 482  0xfd22 32
InterArPfx  0.0.0.1      10.245.71.5  0x80000003 2228 0xd70e 36
InterArPfx  0.0.0.2      10.245.71.5  0x80000002 1771 0xa746 36
InterArPfx  0.0.0.3      10.245.71.5  0x80000002 1683 0xf3ba 36
InterArPfx  0.0.0.4      10.245.71.5  0x80000002 1530 0xc3c3 44
InterArPfx  0.0.0.5      10.245.71.5  0x80000002 1383 0x7378 36
InterArPfx  0.0.0.6      10.245.71.5  0x80000002 1233 0x566a 36
InterArPfx  0.0.0.7      10.245.71.5  0x80000002 1083 0xf0c8 36
InterArPfx  0.0.0.8      10.245.71.5  0x80000002 933  0x6d17 44
InterArPfx  0.0.0.9      10.245.71.5  0x80000002 783  0xd69d 44
InterArPfx  0.0.0.10     10.245.71.5  0x80000002 641  0x6776 36
InterArPfx  0.0.0.11     10.245.71.5  0x80000002 570  0x1b83 44
InterArPfx  0.0.0.12     10.245.71.5  0x80000002 500  0x6772 36
InterArPfx  0.0.0.13     10.245.71.5  0x80000002 483  0x1b7f 44
InterArPfx  0.0.0.14     10.245.71.5  0x80000002 406  0x3195 36
InterArPfx  0.0.0.15     10.245.71.5  0x80000002 330  0x4131 44
InterArPfx  0.0.0.16     10.245.71.5  0x80000002 253  0x7fef 44
InterArRtr  0.0.0.1      10.245.71.5  0x80000002 183  0x6408 32
IntraArPfx  *0.0.0.1      10.245.71.6  0x80000005 782  0x42b9 52
IntraArPfx  *0.0.0.3      10.245.71.6  0x80000003 182  0xfe61 44

    OSPF AS SCOPE link state database
    Type      ID      Adv Rtr      Seq      Age  Cksum  Len
Extern      0.0.0.1      10.245.71.4  0x80000002 1082 0x8648 36
Extern      *0.0.0.1      10.245.71.6  0x80000002 1682 0xde9d 36

    OSPF Link-Local link state database, interface fe-0/0/0.0
    Type      ID      Adv Rtr      Seq      Age  Cksum  Len
Link        0.0.0.4      10.245.71.5  0x80000003 108  0x3b6 56
Link        *0.0.0.2      10.245.71.6  0x80000004 1382 0x782 56

user@router5> show ospf3 route
Prefix
10.245.71.4
    NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000
10.245.71.5
    NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000
10.245.71.6;0.0.0.2
    NH-interface fe-0/0/0.0
9009:1::/64
    NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000
9009:1::2/128
    NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000
9009:2::/64
    NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000
9009:2::2/128
    NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000
9009:3::/64
    NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000
9009:4::/64
    NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000
9009:5::/64
    NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000
9009:6::/64
    NH-interface fe-0/0/0.0
9009:100::/64
    NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000
9009:110::/64
    NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000

```

Prefix	Path type	Route type	NH type	Metric
10.245.71.4	Inter	AS BR	IP	33
10.245.71.5	Intra	Area BR	IP	20
10.245.71.6;0.0.0.2	Intra	Transit	IP	20
9009:1::/64	Inter	Network	IP	33
9009:1::2/128	Inter	Network	IP	21
9009:2::/64	Inter	Network	IP	34
9009:2::2/128	Inter	Network	IP	22
9009:3::/64	Inter	Network	IP	22
9009:4::/64	Inter	Network	IP	30
9009:5::/64	Inter	Network	IP	21
9009:6::/64	Intra	Network	IP	20
9009:100::/64	Ext2	Network	IP	0
9009:110::/64	Inter	Network	IP	36


```

9009:120::/64                                Inter Network    IP    34
  NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000
9009:130::/64                                Inter Network    IP    24
  NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000
9009:140::/64                                Inter Network    IP    23
  NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000
feee::10:255:71:1/128                       Inter Network    IP    34
  NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000
feee::10:255:71:3/128                       Inter Network    IP    21
  NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000
feee::10:255:71:4/128                       Inter Network    IP    33
  NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000
feee::10:255:71:5/128                       Inter Network    IP    20
  NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000
feee::10:255:71:6/128                       Intra Network    IP    0
  NH-interface lo0.0
feee::10:255:71:11/128                      Inter Network    IP    22
  NH-interface fe-0/0/0.0, NH-addr fe80::290:69ff:fe98:9000

```

```

user@router5> show interfaces terse
Interface      Admin Link Proto Local                               Remote
...
fe-0/0/0       up    up
fe-0/0/0.0     up    up    inet  10.19.6.2/24
                               inet6 9009:6::2/64
                               fe80::290:69ff:fe94:c400/64
...
lo0            up    up
lo0.0          up    up    inet  10.245.71.6      --> 0/0
                               127.0.0.1        --> 0/0
                               inet6 fe80::2a0:a5ff:fe12:33a2
                               feee::10:255:71:6
...

```

For More Information

For additional information about OSPFv3 for IPv6, see the following resources:

- *Junos Routing Protocols Configuration Guide*
- RFC 2328, *OSPF Version 2*
- RFC 2460, *Internet Protocol, Version 6 (IPv6) Specification*
- RFC 2740, *OSPF for IPv6*
- RFC 3513, *IP Version 6 Addressing Architecture*

PART 2

Index

- [Index on page 37](#)

Index

O

OSPFv3

configuration procedure.....	7
example configuration.....	9
operational mode commands.....	15
overview.....	3
system requirements.....	5

S

system requirements

OSPFv3.....	5
-------------	---

