IS-IS Configuration Guide

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1. Introduction to RBFS IS-IS

The RtBrick Full Stack (RBFS) is a distributed, web-scale network operating system based on micro-service architecture and packaged in a Linux container currently based on Ubuntu 18.04. The RBFS decreases the complexity of a network by providing users with capabilities such as composability, programmability, and elasticity in a visionary way.

The RBFS operating system operates on the leaf and spine framework. This framework provides the network operators with methods to configure and manage a network brick by brick, and provides full control of the network so the focus can be on the deployment of the new services and not the constant juggling of hardware. The Intermediate System-to-Intermediate System (IS-IS) protocol is an interior gateway protocol (IGP) that uses link-state information to make routing decisions.

1.1. IS-IS Overview

IS-IS, or Intermediate System to Intermediate System, is an open standard routing protocol. ISO published the standard as a way to route datagrams as part of their OSI stack. IETF later republished the standard, and added IP route support.

It is a link-state routing protocol, similar to OSPF. It forms neighbor adjacencies, has areas, exchanges link-state packets, builds a link-state database and runs the Dijkstra SPF algorithm to find the best path to each destination, which is installed in the routing table.

This guide provides the various IS-IS configuration and show CLI commands for RBFS.

2. Configuring IS-IS

The basic IS-IS configuration tasks that must be performed are:

- enable IS-IS protocol
- configure IS-IS Instance
    - configure system ID
    - configure area addresses
    - configure instance level
- configure interfaces
- configure address-family

2.1. Entering configuration mode

The following example shows how to enter the configuration mode.

```
root@rtbrick:~$ cli
root@rtbrick: op> switch-mode config
Activating syntax mode : cfg [config]
root@rtbrick: cfg>
```

From this prompt, you can enter the set commands to configure the various IS-IS components.

2.2. Enabling IS-IS Protocol

To enable IS-IS, you must configure the ISIS protocol under a specific instance.

set instance <instance> protocol isis

instance	Name of the IS-IS instance

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis
root@rtbrick: cfg> commit
```

2.3. Configuring an IS-IS Instance

After enabling IS-IS, the following parameters can be configured in an instance.

2.3.1. Configure the System ID

A system ID uniquely identifies a device.

```
set instance <instance> protocol isis system-id <system_id>
```

instance	Name of the IS-IS instance
system_id	specifies the system ID of the device.

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis system-id 1920.0100.4001
root@rtbrick: cfg> commit
```

2.3.2. Configuring the ISO Area Addresses

```
set instance <instance> protocol isis area <area>
```

instance	Name of the IS-IS instance
area	The area can be represented in 1, 3, 5, 13 bytes format.

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis area 49.000/24
root@rtbrick: cfg> commit
```

2.3.3. Configuring the Holding Time

```
set instance <instance> protocol isis holding-time <holding_time>
```

instance	Name of the IS-IS instance

holding-time	Specifies how long a neighbor should consider this routing device to be operative without receiving another hello packet. Default value: 30 seconds Range: 1 through 65535 seconds

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis holding-time 45
root@rtbrick: cfg> commit
```

2.3.4. Configuring the Router ID

This command allows add a 'router-id' configuration option to IS-IS and advertise the configured router id in TLV 132 (IP Interface Address) and TLV 134 (TE Router ID)as part of the LSP.

Syntax

set instance <instance-name> **protocol isis router-id** <router-id>

Command arguments

<instance-name>	Name of the instance
<router-id>	Router identifier

Example

```
supervisor@isis_ler1: cfg> set instance service protocol isis router-id
19.10.11.14
supervisor@isis_ler1: cfg> commit
```

2.3.5. Configuring the SRGB Base

set instance <instance> protocol isis srgb-base <srgb_base>

instance	Name of the IS-IS instance

srgb_base	Specifies the segment routing global block (SRGB) in source packet routing.

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis srgb-base 10000
root@rtbrick: cfg> commit
```

2.3.6. Configuring the SRGB Index Range

set instance <instance> protocol isis srgb-index-range <srgb_range>

instance	Name of the IS-IS instance
srgb_range	Specifies the index range of the SRGB label block.

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis srgb-index-range 1000
root@rtbrick: cfg> commit
```

2.3.7. Configuring the Host Name

set instance <instance> protocol isis <hostname>

instance	Name of the IS-IS instance
hostname	Specifies the hostname mapped to the system identifier.

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis hostname SPINE1
root@rtbrick: cfg> commit
```

2.3.8. Configuring the Authentication Type

set instance <instance> protocol isis authentication level-1 type <level1_authentication_type>

instance	Name of the IS-IS instance
level1_authentication_type	Enables you to specify the authentication scheme for IS-IS. If you enable authentication, you must specify a password by including the authentication-key statement. The following authentication types are supported: • clear_text • md5 • sha1

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-1
type md5
root@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-2
type md5
root@rtbrick: cfg> commit
```

2.3.9. Configuring the Authentication Keys

set instance <instance> protocol isis authentication level-1 key1-plain-text <level1_authentication_key>

set instance <instance> protocol isis authentication level-2 key1-plain-text <level2_authentication_key>

set instance <instance> protocol isis authentication level-1 key2-plain-text <level1_authentication_key2>

set instance <instance> protocol isis authentication level-2 key2-plain-text <level2_authentication_key2>

instance	Name of the IS-IS instance

level1_authentication_key level2_authentication_key level1_authentication_key2 level2_authentication_key2	The level-1/level-2 authentication keys specify the authentication keys (passwords) that are used by the neighboring routing devices to verify the authenticity of packets sent from this interface. For the key to work, you also must include the authentication-type statement.

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-1
key1-plain-text testkey1
root@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-1
key2-plain-text testkey2
root@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-2
key1-plain-text testkey1
root@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-2
key2-plain-text testkey2
root@rtbrick: cfg> commit
```

2.3.10. Configuring the Authentication Key ID

```
set instance <instance> protocol isis authentication level-1 key-id1
<level1_authentication_key_id>
```

```
set instance <instance> protocol isis authentication level-1 key-id2
<level1_authentication_key_id2>
```

```
set instance <instance> protocol isis authentication level-2 key-id1
<level2_authentication_key_id>
```

```
set instance <instance> protocol isis authentication level-2 key-id2
<level2_authentication_key_id2>
```

instance	Name of the IS-IS instance
level1_authentication_key_id level1_authentication_key_id2 level2_authentication_key_id level2_authentication_key_id2	The key ID allows you to specify the key identifiers for level-1/level-2 authentication.

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-1
key-id1 100
root@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-1
key-id2 200
root@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-2
key-id1 100
root@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-2
key-id2 200
root@rtbrick: cfg> commit
```

2.3.11. Configuring the Authentication Check

set instance <instance> protocol isis authentication level-1 check <level1_authentication_check>

set instance <instance> protocol isis authentication level-2 check <level2_authentication_check>

instance	Name of the IS-IS instance
level1_authentication_check level2_authentication_check	The level-1/level-2 authentication check parameter specifies an authentication check to reject PDUs that do not match the type or key requirements. You can enable or disable the authentication check.

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-1
check disable
root@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-2
check disable
root@rtbrick: cfg> commit
```

Configuration example

```
admin@rtbrick:~$ cli
admin@rtbrick: op> switch-mode config
Activating syntax mode : cfg [config]
admin@rtbrick: cfg> set instance ip2vrf protocol isis system-id
1920.0100.4001
admin@rtbrick: cfg> set instance ip2vrf protocol isis area 49.000/24
admin@rtbrick: cfg> set instance ip2vrf protocol isis holding-time 45
admin@rtbrick: cfg> set instance ip2vrf protocol isis srgb-base 10000
admin@rtbrick: cfg> set instance ip2vrf protocol isis srgb-index-range 1000
admin@rtbrick: cfg> set instance ip2vrf protocol isis hostname SPINE1
admin@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-1
type md5
admin@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-1
key1-plain-text testkey1
admin@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-1
key2-plain-text testkey2
admin@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-1
check disable
admin@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-2
type md5
admin@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-2
key1-plain-text testkey1
admin@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-2
key2-plain-text testkey2
admin@rtbrick: cfg> set instance ip2vrf protocol isis authentication level-2
check disable
admin@rtbrick: cfg> commit
admin@rtbrick: cfg>
```

2.3.12. Ignoring the attached bit on IS-IS

This configuration allows you to enable the routing device to ignore the attached bit on incoming Level 1 link-state PDUs. If the attached bit is ignored, no default route, which points to the routing device which has set the attached bit, is installed.

Syntax

set instance <instance-name> **protocol isis ignore-attached-bit** <true | false>

Command arguments

<instance-name>	Name of the instance
<true/false>	Specifies whether ignore-attached-bit configuration is enabled or not

Example

```
admin@rtbrick: cfg> set instance <instance-name> protocol isis ignore-
attached-bit true
admin@rtbrick: cfg> commit
```

2.3.13. Configuring no-mpls-transit-route

This configuration allows you to prevent IS-IS from installing the transit path for the received Segment Index for IS-IS segment routing. This configuraton should be used only if the router is an edge node which is neither expected to act as "router on a stick" or as a transit node in any topology change.

Syntax

set instance <instance-name> **protocol isis no-mpls-transit-path** <true|false>

<instance-name>	Name of the instance
<true/false>	Specifies whether no-mpls-transit-route configuration is enabled or not

Example

```
supervisor@isis_ler1: cfg> set instance <instance-name> protocol isis no-
mpls-transit-path true
supervisor@isis_ler1: cfg> commit
```

2.3.14. Disabling IP version 6 (IPv6) routing

By default, RBFS supports both IPv4 and IPv6 routing. When IS-IS is used only for IPv4, you can disable the IPv6 routing so that RBFS does not send IPv6 data.

Syntax

set instance <instance-name> **protocol isis ipv6-disable** <true | false>

<instance-name>	Name of the instance
<true/false>	Specifies whether the ipv6-disable configuration is enabled or not. When you set this value to "true", it indicates that IPv6 configuration is disabled.

Example

```
supervisor@isis_ler1: cfg> set instance default protocol isis ipv6-disable
true
supervisor@isis_ler1: cfg> commit
```

The example below shows the configuration after ipv6-disable is performed.

```
supervisor@isis_ler1: op> show datastore confd table
global.isis.instance.config
Object: 0, Sequence: 4, Last update: Thu Feb 18 05:26:15 GMT +0000 2021
  Attribute                                 Type
Length      Value
  instance_name (1)                         string (9)
7     ip2vrf
  system_id (22)                            iso-sysid (23)
6     1921.6800.1001
  area (23)                                 array (7), iso-prefix (49)
4     ['49.0001/24']
  ipv6_disable (42)                         boolean (6)
1     True


supervisor@isis_ler1: op> show isis database level-1 lsp id
1921.6800.1001.00-00
Instance: ip2vrf, Level: 1
  LSP ID: 1921.6800.1001.00-00
    Interface:
    LSP Header:
      Sequence: 0x13
      Checksum: 0xa823
      Remaining lifetime: 65535 seconds
      Flags: Attached: 0, Overload: 0
    Packet:
      Length: 134 bytes
      Last received time: 2021-02-18T05:26:27.564225+0000
      Expiry: expires in 18h 11m 26s 606172us
    System ID: 1921.6800.1001
    Dynamic Hostname TLV (137): none
    Protocols Supported TLVs (129):
      Network layer protocol ID: IPv4
    Area Address TLVs (1):
      Area address: 49.0001
    Authentication TLV (10):
      none
    IS Reachability TLVs (22):
      IS neighbor: 1921.6800.1002.00
      IS neighbor: 1921.6800.1002.00
      IS neighbor: 1921.6800.1005.00
      IS neighbor: 1921.6800.1006.00
    IPv4 Reachability TLVs (135):
      IPv4 prefix: 12.0.1.0/24                    Metric:  1000000    Internal
 Up
      IPv4 prefix: 12.0.2.0/24                    Metric:  1000000    Internal
 Up
```

```
     IPv4 prefix: 15.0.1.0/24                     Metric:  1000000    Internal
Up
     IPv4 prefix: 16.0.1.0/24                     Metric:  1000000    Internal
Up
     IPv4 prefix: 82.168.1.1/32                   Metric:  1000000    Internal
Up
     IPv4 prefix: 192.168.1.1/32                  Metric:  1000000    Internal
Up
   IPv6 Reachability TLVs (236):
   Segment Routing TLVs (242/sub 2):
     none
   IPv4 SID/Label Binding TLVs (149):
     none
   IPv6 SID/Label Binding TLVs (149):
     none
supervisor@isis_ler1: op>
```

3. Configuring IS-IS Interface

By default, there are no interfaces associated with IS-IS.You must configure at least one IS-IS interface for ISIS adjacency formation.

After enabling IS-IS, you need to specify on which interface IS-IS will be run with the following command:

> set instance <instance> protocol isis interface <interface>

instance	Name of the IS-IS instance
interface	Name of the interface

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis interface memif-1/2/1/0
root@rtbrick: cfg> commit
```

3.1. Configuring the Interface Type

> set instance <instance> protocol isis interface <interface> type <interface_type>

instance	Name of the IS-IS instance
interface	Name of the IS-IS interface
interface_type	The interface_type specifies the interface type. NOTE: The point-to-point is the default interface type and hence you actually do not need to configure it.

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis interface memif-1/2/1/0
type point-to-point
root@rtbrick: cfg> commit
```

3.2. Configuring the Interface Adjacency

> set instance <instance> protocol isis interface <interface> level-1 adjacency-disable <level1_disable>

> set instance <instance> protocol isis interface <interface> level-2 adjacency-disable <level2_disable>

These commands allow you to disable level-1/level-2 adjacencies on an interface.

instance	Name of the IS-IS instance
interface	Name of the IS-IS interface
level1_disable level2_disable	These parameters allow you to enable to disable the level-1/level-2 interface adjacency

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis interface memif-1/2/1/0
level-1 adjacency-disable true
root@rtbrick: cfg> set instance ip2vrf protocol isis interface memif-1/2/1/0
level-2 adjacency-disable true
root@rtbrick: cfg> commit
```

3.3. Configuring the Interface Level Metric

> set instance <instance> protocol isis interface <interface> level-1 metric <level1_metric>

> set instance <instance> protocol isis interface <interface> level-2 metric <level2_metric>

instance	Name of the IS-IS instance
interface	Name of the IS-IS interface
level1_metric level2_metric	These parameters allow you to specify the interface level-1/level-2 metric value. If the metric value is not set, the default value is set to 1000000.

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis interface memif-1/2/1/0
level-1 metric 10
root@rtbrick: cfg> set instance ip2vrf protocol isis interface memif-1/2/1/0
level-2 metric 10
root@rtbrick: cfg> commit
```

3.4. Configuring the IS-IS interfaces as passive

set instance <instance> protocol isis interface <interface> passive <is_passive>

instance	Name of the IS-IS instance
interface	Name of the IS-IS interface
is_passive	This parameter sets the interface in passive mode. In this mode, no IS-IS hello packets are sent out on the interface and no IS-IS adjacencies are created. But the IP prefixes will be mentioned in the self LSP to make the network reachable via other links. The is_passive parameter can be configured as one of two values: true or false.

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis interface memif-1/2/1/0
passive true
root@rtbrick: cfg> commit
```

3.5. Configuring IS-IS LSP Interval

set instance <instance> protocol isis interface <interface> lsp-interval <lsp_interval>

instance	Name of the IS-IS instance
interface	Name of the IS-IS interface
lsp_interval	Specifies the link-state PDU interval time. The default interval time is 100 milliseconds. The range is 1 to 1000 milliseconds.

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis interface memif-1/2/1/0
lsp-interval 600
root@rtbrick: cfg> commit
```

3.6. Configuring the Interface System ID

set instance <instance> protocol isis interface <interface> system-id <local_system_id>

instance	Name of the IS-IS instance
interface	Name of the IS-IS interface
local_system_id	The local_system_id specifies the system ID of the device.

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis interface memif-1/2/1/0
system-id 2af0.1100.da44
root@rtbrick: cfg> commit
```

3.7. Configuring the Segment Routing IPv4/IPv6 Index

set instance <instance> protocol isis interface <interface> segment-routing ipv4 index <ipv4_sid>

set instance <instance> protocol isis interface <interface> segment-routing ipv6 index <ipv6_sid>

set instance <instance> protocol isis interface <interface> segment-routing ipv4 anycast-index <ipv4_anycast_sid>

set instance <instance> protocol isis interface <interface> segment-routing ipv6 anycast-index <ipv6_anycast_sid>

instance	Name of the IS-IS instance
interface	Name of the IS-IS interface
ipv4_sid ipv6_sid ipv4_anycast_sid ipv6_anycast_sid	These parameters specify the segment routing IPv4/IPv6 index

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis interface memif-1/2/1/0
segment-routing ipv4 index 100
root@rtbrick: cfg> set instance ip2vrf protocol isis interface memif-1/2/1/0
segment-routing ipv6 index 200
root@rtbrick: cfg> set instance ip2vrf protocol isis interface memif-1/2/1/0
segment-routing ipv4 anycast-index 300
root@rtbrick: cfg> set instance ip2vrf protocol isis interface memif-1/2/1/0
segment-routing ipv6 anycast-index 400
root@rtbrick: cfg> commit
```

3.8. Configuring the Level-1/Level-2 SNP Authentication

```
set instance <instance> protocol isis interface <interface> level-1 snp-authentication <level1_snp_authentication>
```

```
set instance <instance> protocol isis interface <interface> level-2 snp-authentication <level2_snp_authentication>
```

instance	Name of the IS-IS instance
interface	Name of the IS-IS interface
level1_snp_authentication level2_snp_authentication	These parameters allow you to specify the Sequence Number PDU (SNP) Authentication. You can either enable or disable the SNP authentication.

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis interface memif-1/2/1/0
level-1 snp-authentication disable
root@rtbrick: cfg> set instance ip2vrf protocol isis interface memif-1/2/1/0
level-2 snp-authentication disable

root@rtbrick: cfg> commit
```

3.9. Configuring the Level-1/Level-2 Hello Authentication

set instance <instance> protocol isis interface <interface> level-1 hello-authentication <level1_hello_authentication>

set instance <instance> protocol isis interface <interface> level-2 hello-authentication <level2_hello_authentication>

instance	Name of the IS-IS instance
interface	Name of the IS-IS interface
level1_hello_authentication level2_hello_authentication	These parameters can be used to enable or disable the authentication for hello packets.

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis interface memif-1/2/1/0
level-1 hello-authentication disable
root@rtbrick: cfg> set instance ip2vrf protocol isis interface memif-1/2/1/0
level-2 hello-authentication disable
root@rtbrick: cfg> commit
```

4. Configuring Address Family

The address-family command allows you to enable the address families that IS-IS will route and configure settings that are distinct to that address family. The address families supported are IPv4 unicast and IPv6 unicast.

4.1. Configuring Route Redistribution

```
set instance <instance> protocol isis address-family <afi> <safi> redistribute
level-1 <source>

set instance <instance> protocol isis address-family <afi> <safi> redistribute
level-2 <source>
```

instance	Name of the IS-IS instance
afi safi	These parameters specify the address-family.
source	Specifies the source from which the routes are to be redistributed from. The available options are bgp, ospf, direct, and static.

Configuration Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis address-family ipv4
unicast redistribute level-1 static
root@rtbrick: cfg> set instance ip2vrf protocol isis address-family ipv4
unicast redistribute level-2 static
admin@rtbrick: cfg> commit
```

5. Configuring IS-IS Flood Filtering

5.1. Introduction

IS-IS flood filtering reduces flooding that allows to match and filter on specific IS-IS systems IDs.

5.2. Topology
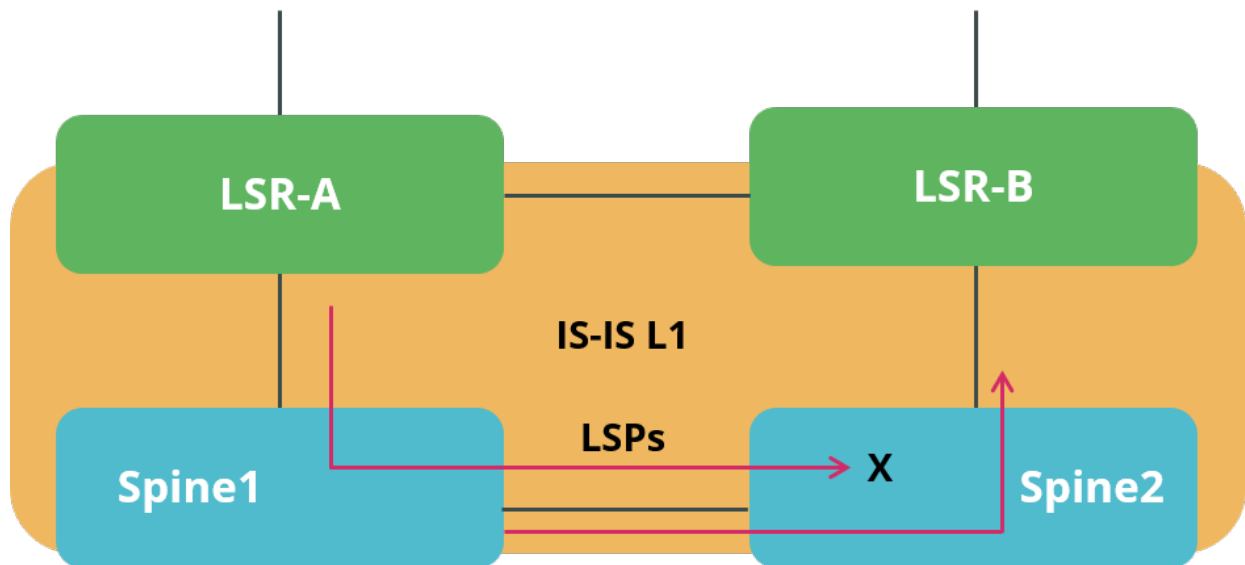
5.3. Configuring IS-IS Flood Filtering

5.3.1. Global Configuration

Use these commands to filter flooding Globally.

Syntax

```
set global protocol isis flood-filter <filter_name> <ordinal_number> ordinal-name <ordinal_name>

set global protocol isis flood-filter <filter_name> <ordinal_number> system-id <match_system_id>

set global protocol isis flood-filter <filter_name> <ordinal_number> action <action>
```

filter_name	Filter-name which binds a flooding filter to an IS-IS interface

ordinal_number	Number to filter rule
ordinal_name	Name to filter rule
match_system_id	ID which matches ISIS system-ID
action	Action required to flood or not

Example

```
root@rtbrick: cfg> set global protocol isis flood-filter
spine1_lsr1_flood_filter 1 ordinal-name spine1
root@rtbrick: cfg> set global protocol isis flood-filter
spine1_lsr1_flood_filter 1 system-id 1920.0100.4001
root@rtbrick: cfg> set global protocol isis flood-filter
spine1_lsr1_flood_filter 1 action flood
root@rtbrick: cfg> commit
```

5.3.2. Interface-level Configuration

Use this command to filter flooding on interface level.

Syntax

```
set instance <instance_name> protocol isis interface <interface_name>
flood-filter <filter_name>
```

instance_name	configured Instance vrf name
interface_name	Interface name
filter_name	Filter-name which binds a flooding filter to an IS-IS interface

Example

```
root@rtbrick: cfg> set instance ip2vrf protocol isis interface memif-1/1/1/1
flood-filter spine1_lsr1_flood_filter
root@rtbrick: cfg> commit
```

6. IS-IS Show Commands

6.1. show isis neighbor

```
supervisor@rtb_spine_1: op> show isis neighbor
Instance: ip2vrf
  Interface          System           Level   State    Type     Up since
Expires
  memif-0/1/2/12    1920.0100.4002.00  L1    Up       P2P      Mon Nov 02
06:18:36     in 28s 228094us
  memif-0/1/6/16    1920.0000.0006.00  L1    Up       P2P      Mon Nov 02
06:18:30     in 24s 420225us
```

6.2. show isis neighbor detail

```
supervisor@rtb_spine_1: op> show isis neighbor detail
Instance: ip2vrf
  System: 1920.0100.4002.00, Interface: memif-0/1/2/12
    State: Up, Level: L1, Adjacency type: P2P
    Holding time: 30.0s, Expiry time: in 25s 144032us
    Local IPv4 address: 10.4.12.0, Remote IPv4 address: 10.4.12.1
    Local IPv6 address: fe80::7801:49ff:fe60:102, Remote IPv6 address:
fe80::7816:7bff:fe60:201
    Up since: Mon Nov 02 06:18:36 GMT +0000 2020, Last down reason: NA
    Last transition: 2020-11-02T06:18:36.947601+0000, Number of transitions:
2
    Error counters:
    Level mismatch: 0, Area mismatch: 0, System ID: 0, Subnet mismatch: 0
    Hold timeout: 0, Neighbor down: 0, Interface down: 0, Admin reset: 0
    Interface configuration: 0, Area configuration: 0, Other: 0
  System: 1920.0000.0006.00, Interface: memif-0/1/6/16
    State: Up, Level: L1, Adjacency type: P2P
    Holding time: 30.0s, Expiry time: in 23s 961367us
    Local IPv4 address: 10.0.16.0, Remote IPv4 address: 10.0.16.1
    Local IPv6 address: fe80::7801:49ff:fe60:106, Remote IPv6 address:
fe80::785c:e4ff:fe60:601
    Up since: Mon Nov 02 06:18:30 GMT +0000 2020, Last down reason: NA
    Last transition: 2020-11-02T06:18:30.356111+0000, Number of transitions:
2
    Error counters:
    Level mismatch: 0, Area mismatch: 0, System ID: 0, Subnet mismatch: 0
    Hold timeout: 0, Neighbor down: 0, Interface down: 0, Admin reset: 0
    Interface configuration: 0, Area configuration: 0, Other: 0
```

6.3. show isis neighbor instance <instance-name>

```
supervisor@rtb_spine_1: op> show isis neighbor instance ip2vrf
Instance: ip2vrf
  Interface          System            Level    State    Type     Up since
Expires
  memif-0/1/2/12    1920.0100.4002.00  L1      Up       P2P      Mon Nov 02
06:18:36     in 28s 678329us
  memif-0/1/6/16    1920.0000.0006.00  L1      Up       P2P      Mon Nov 02
06:18:30     in 28s 88085us
supervisor@rtb_spine_1: op>
```

6.4. show isis neighbor instance <instance-name> detail

```
supervisor@rtb_spine_1: op> show isis neighbor instance ip2vrf detail
Instance: ip2vrf
  System: 1920.0100.4002.00, Interface: memif-0/1/2/12
    State: Up, Level: L1, Adjacency type: P2P
    Holding time: 30.0s, Expiry time: in 21s 706586us
    Local IPv4 address: 10.4.12.0, Remote IPv4 address: 10.4.12.1
    Local IPv6 address: fe80::7801:49ff:fe60:102, Remote IPv6 address:
fe80::7816:7bff:fe60:201
    Up since: Mon Nov 02 06:18:36 GMT +0000 2020, Last down reason: NA
    Last transition: 2020-11-02T06:18:36.947601+0000, Number of transitions:
2
    Error counters:
    Level mismatch: 0, Area mismatch: 0, System ID: 0, Subnet mismatch: 0
    Hold timeout: 0, Neighbor down: 0, Interface down: 0, Admin reset: 0
    Interface configuration: 0, Area configuration: 0, Other: 0
  System: 1920.0000.0006.00, Interface: memif-0/1/6/16
    State: Up, Level: L1, Adjacency type: P2P
    Holding time: 30.0s, Expiry time: in 22s 832756us
    Local IPv4 address: 10.0.16.0, Remote IPv4 address: 10.0.16.1
    Local IPv6 address: fe80::7801:49ff:fe60:106, Remote IPv6 address:
fe80::785c:e4ff:fe60:601
    Up since: Mon Nov 02 06:18:30 GMT +0000 2020, Last down reason: NA
    Last transition: 2020-11-02T06:18:30.356111+0000, Number of transitions:
2
    Error counters:
    Level mismatch: 0, Area mismatch: 0, System ID: 0, Subnet mismatch: 0
    Hold timeout: 0, Neighbor down: 0, Interface down: 0, Admin reset: 0
    Interface configuration: 0, Area configuration: 0, Other: 0
supervisor@rtb_spine_1: op>
```

6.5. show isis overview

```
supervisor@rtb_spine_1: op> show isis overview
Instance: ip2vrf
  System ID: 1920.0100.4001
  System hostname: spine1
  Areas: 49.0001/24
  Neighbor hold time: 30 sec
  LSP life time: 65535 sec
  Overload bit set: False
  Overload timer: 300 sec
  SRGB base: 10000
  SRGB range: 2000
  Authentication: Level 1: md5, Level 2: none
supervisor@rtb_spine_1: op>
```

6.6. show isis hostname

```
supervisor@rtb_spine_1: op> show isis hostname
Instance     System-ID          Hostname
ip2vrf       1920.0100.4001       spine1
supervisor@rtb_spine_1: op>


show isis interface


supervisor@rtb_spine_1: op> show isis interface
Instance: ip2vrf
  Interface         Level   Adjacencies   Metric     Type
Passive
  lo-0/0/4/1            1            0   1000000   loopback          True
  memif-0/1/2/12       1            0   1000000   point-to-point    False
  memif-0/1/6/16       1            0   1000000   point-to-point    False
```

6.7. show isis interface instance <instance-name>

```
supervisor@rtb_spine_1: op> show isis interface instance ip2vrf
Instance: ip2vrf
  Interface         Level   Adjacencies   Metric     Type
Passive
  lo-0/0/4/1            1            0   1000000   loopback          True
  memif-0/1/2/12       1            0   1000000   point-to-point    False
  memif-0/1/6/16       1            0   1000000   point-to-point    False
```

6.8. show isis interface <ifl-name>

```
supervisor@rtb_spine_1: op> show isis interface memif-0/1/6/16
Instance: ip2vrf
  Interface: memif-0/1/6/16, Level: 1
    Type: point-to-point, Passive: False
    Metric: 1000000
    Adjacencies: 1
    CNSP: In: 24 Out: 34 Success: 24 Fail: 0
    PSNP: In: 8 Out: 10 Success: 5 Fail: 1
    LSP:  In: 14 Out: 11 Success: 11 Fail: 2 In Purge: 0 In Auth Fail: 2
    IIH:  In: 121 Out: 163
```

6.9. show isis interface statistics

```
supervisor@rtb_spine_1: op> show isis interface statistics
Instance: ip2vrf
  Interface      Level  CSNP In  CSNP Out  CSNP Fail  PSNP In  PSNP Out  PSNP
Fail  LSP In  LSP Out  LSP Fail  IIH In  IIH Out
  lo-0/0/4/1        1      0        0          0        0        0         0
0       0        0        0
  memif-0/1/2/12    1      32       32         0        9        6         1
9       10       0   117    138
  memif-0/1/6/16    1      22       32         0        6        6         1
9       8        0   115    138
supervisor@rtb_spine_1: op>
```

6.10. show isis route

```
supervisor@rtb_spine_1: op> show isis route
Instance: ip2vrf, AFI: ipv4, SAFI: unicast
  Prefix                   Level   Metric   Type        Next Hop
Interface
  10.0.16.0/31                 1  1000000   Internal  n/a
local
  10.0.27.0/31                 1  2000000   Internal  10.4.12.1
memif-0/1/2/12
  10.0.68.0/31                 1  2000000   Internal  10.0.16.1
memif-0/1/6/16
  10.0.69.0/31                 1  2000000   Internal  10.0.16.1
memif-0/1/6/16
  10.4.12.0/31                 1  1000000   Internal  n/a
local
  192.0.0.6/32                 1  2000000   Internal  10.0.16.1
memif-0/1/6/16
  192.1.4.1/32                 1  1000000   Internal  n/a
local
  192.1.4.2/32                 1  2000000   Internal  10.4.12.1
memif-0/1/2/12
Instance: ip2vrf, AFI: ipv4, SAFI: labeled-unicast
  Prefix                   Level   Metric   SID Index   Next Hop
Interface          Label
  192.0.0.6/32                 1  2000000           6  10.0.16.1
memif-0/1/6/16      10006
  192.1.4.2/32                 1  2000000           2  10.4.12.1
memif-0/1/2/12      10002
Instance: ip2vrf, AFI: ipv6, SAFI: unicast
  Prefix                   Level   Metric   Type        Next Hop
Interface
  192:1:4::1/128               1  1000000   Internal  n/a
local
  192:1:4::2/128               1  2000000   Internal
fe80::7816:7bff:fe60:201  memif-0/1/2/12
```

6.11. show isis route instance <instance-name>

```
supervisor@rtb_spine_1: op> show isis route instance ip2vrf
Instance: ip2vrf, AFI: ipv4, SAFI: unicast
  Prefix                    Level   Metric   Type        Next Hop
Interface
  10.0.16.0/31                  1  1000000   Internal  n/a
local
  10.0.27.0/31                  1  2000000   Internal  10.4.12.1
memif-0/1/2/12
  10.0.68.0/31                  1  2000000   Internal  10.0.16.1
memif-0/1/6/16
  10.0.69.0/31                  1  2000000   Internal  10.0.16.1
memif-0/1/6/16
  10.4.12.0/31                  1  1000000   Internal  n/a
local
  192.0.0.6/32                  1  2000000   Internal  10.0.16.1
memif-0/1/6/16
  192.1.4.1/32                  1  1000000   Internal  n/a
local
  192.1.4.2/32                  1  2000000   Internal  10.4.12.1
memif-0/1/2/12
Instance: ip2vrf, AFI: ipv4, SAFI: labeled-unicast
  Prefix                    Level   Metric   SID Index   Next Hop
Interface           Label
  192.0.0.6/32                  1  2000000           6   10.0.16.1
memif-0/1/6/16      10006
  192.1.4.2/32                  1  2000000           2   10.4.12.1
memif-0/1/2/12      10002
Instance: ip2vrf, AFI: ipv6, SAFI: unicast
  Prefix                    Level   Metric   Type        Next Hop
Interface
  192:1:4::1/128                1  1000000   Internal  n/a
local
  192:1:4::2/128                1  2000000   Internal
fe80::7816:7bff:fe60:201  memif-0/1/2/12
```

6.12. show isis route instance <instance-name> <afi> <safi>

Example 1:

```
supervisor@rtb_spine_1: op> show isis route instance ip2vrf ipv4 unicast
Instance: ip2vrf, AFI: ipv4, SAFI: unicast
  Prefix                     Level   Metric   Type          Next Hop
Interface
  10.0.16.0/31                   1   1000000   Internal   n/a
local
  10.0.27.0/31                   1   2000000   Internal   10.4.12.1
memif-0/1/2/12
  10.0.68.0/31                   1   2000000   Internal   10.0.16.1
memif-0/1/6/16
  10.0.69.0/31                   1   2000000   Internal   10.0.16.1
memif-0/1/6/16
  10.4.12.0/31                   1   1000000   Internal   n/a
local
  192.0.0.6/32                   1   2000000   Internal   10.0.16.1
memif-0/1/6/16
  192.1.4.1/32                   1   1000000   Internal   n/a
local
  192.1.4.2/32                   1   2000000   Internal   10.4.12.1
memif-0/1/2/12
supervisor@rtb_spine_1: op>
```

Example 2:

```
supervisor@rtb_spine_1: op> show isis route instance ip2vrf ipv4 labeled-
unicast
Instance: ip2vrf, AFI: ipv4, SAFI: labeled-unicast
  Prefix                     Level   Metric   SID Index    Next Hop
Interface         Label
  192.0.0.6/32                   1   2000000          6   10.0.16.1
memif-0/1/6/16        10006
  192.1.4.2/32                   1   2000000          2   10.4.12.1
memif-0/1/2/12        10002
```

Example 3:

```
supervisor@rtb_spine_1: op> show isis route instance ip2vrf ipv6 unicast
Instance: ip2vrf, AFI: ipv6, SAFI: unicast
  Prefix                     Level   Metric   Type          Next Hop
Interface
  192:1:4::1/128                 1   1000000   Internal   n/a
local
  192:1:4::2/128                 1   2000000   Internal
fe80::7816:7bff:fe60:201   memif-0/1/2/12
```

6.13. show isis spf result

```
supervisor@rtb_spine_1: op> show isis spf result
Instance: ip2vrf, Level: 1
  Destination Node         Metric        Neighbor Node          Interface
Nexthop   Address
  1920.0000.0006.00        1000000       1920.0000.0006.00      memif-0/1/6/16
IPv4      10.0.16.1
                                         1920.0000.0006.00      memif-0/1/6/16
IPv6      fe80::785c:e4ff:fe60:601
  1920.0100.4001.00               0                            local
  1920.0100.4002.00        1000000       1920.0100.4002.00      memif-0/1/2/12
IPv6      fe80::7816:7bff:fe60:201
                                         1920.0100.4002.00      memif-0/1/2/12
IPv4      10.4.12.1
Instance: ip2vrf, Level: 2
  Destination Node         Metric        Neighbor Node          Interface
Nexthop   Address
  1920.0100.4001.00               0                            local
supervisor@rtb_spine_1: op>
```

6.14. show isis spf result level-1

```
supervisor@rtb_spine_1: op> show isis spf result level-1
Instance: ip2vrf, Level: 1
  Destination Node        Metric        Neighbor Node      Interface
Nexthop   Address
  1920.0000.0006.00       1000000       1920.0000.0006.00  memif-0/1/6/16
IPv4    10.0.16.1
                                        1920.0000.0006.00  memif-0/1/6/16
IPv6    fe80::785c:e4ff:fe60:601
  1920.0100.4001.00              0                         local
  1920.0100.4002.00       1000000       1920.0100.4002.00  memif-0/1/2/12
IPv6    fe80::7816:7bff:fe60:201
                                        1920.0100.4002.00  memif-0/1/2/12
IPv4    10.4.12.1
supervisor@rtb_spine_1: op>
```

6.15. show isis spf result level-2

```
supervisor@rtb_spine_1: op> show isis spf result level-2
Instance: ip2vrf, Level: 2
  Destination Node         Metric        Neighbor Node          Interface
Nexthop   Address
  1920.0100.4001.00               0                            local
supervisor@rtb_spine_1: op>
```

6.16. show isis spf result instance <instance-name> level-1

```
supervisor@rtb_spine_1: op> show isis spf result instance ip2vrf level-1
Instance: ip2vrf, Level: 1
  Destination Node          Metric        Neighbor Node         Interface
Nexthop   Address
  1920.0000.0006.00         1000000       1920.0000.0006.00   memif-0/1/6/16
IPv4    10.0.16.1
                                          1920.0000.0006.00   memif-0/1/6/16
IPv6    fe80::785c:e4ff:fe60:601
  1920.0100.4001.00             0                             local
  1920.0100.4002.00         1000000       1920.0100.4002.00   memif-0/1/2/12
IPv6    fe80::7816:7bff:fe60:201
                                          1920.0100.4002.00   memif-0/1/2/12
IPv4    10.4.12.1
supervisor@rtb_spine_1: op>
```

6.17. show isis spf result instance <instance-name> level-2

```
supervisor@rtb_spine_1: op> show isis spf result instance ip2vrf level-2
Instance: ip2vrf, Level: 2
  Destination Node          Metric        Neighbor Node         Interface
Nexthop   Address
  1920.0100.4001.00             0                             local
supervisor@rtb_spine_1: op>
```

6.18. show isis database

```
supervisor@rtb_spine_1: op> show isis database
Instance: ip2vrf, Level: 1
  LSP ID                        Sequence    Checksum    Lifetime    Expiry
Overload    Attached
  1920.0000.0006.00-00              0xa     0x8beb      65534    in 18h 3m 43s
702598us            0           0
  1920.0000.0007.00-00              0x5     0xdfbb      65533    in 17h 35m 20s
181083us            0           0
  1920.0000.0008.00-00              0x6     0x76f3      65533    in 17h 35m 22s
270431us            0           0
  1920.0000.0009.00-00              0x6     0x5b18      65533    in 17h 35m 21s
978405us            0           0
  spine1.00-00                      0xc     0x9c74      65535    in 18h 3m 25s
374286us            0           0
  1920.0100.4002.00-00              0x9     0x89a6      65534    in 18h 2m 37s
714196us            0           0
Instance: ip2vrf, Level: 2
  LSP ID                        Sequence    Checksum    Lifetime    Expiry
Overload    Attached
  spine1.00-00                     0x12     0x6407      65535    in 18h 3m 45s
338086us            0           0
supervisor@rtb_spine_1: op>
```

6.19. show isis database detail

```
supervisor@rtb_spine_1: op> show isis database detail
Instance: ip2vrf, Level: 1
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0xc
    Checksum: 0x9c74
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 168 bytes
    Last received time: 2020-11-02T06:46:46.473726+0000
    Expiry: expires in 17h 55m 48s 816627us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    Value: 77b259cb36930819b0abb6120ceee2fd
    IS Reachability TLVs:
    IS neighbor: 1920.0000.0006.00
    IS neighbor: 1920.0100.4002.00
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                Metric:  1000000    Internal
Up
    IPv4 prefix: 10.4.12.0/31                Metric:  1000000    Internal
Up
```

```
     IPv4 prefix: 192.1.4.1/32                    Metric:  1000000    Internal
Up    SID:    1   Flags: Node
     IPv6 Reachability TLVs:
     IPv6 prefix: 192:1:4::1/128                  Metric:  1000000    Internal
Up
   Segment Routing TLVs:
    SRGB: Base: 10000, Range: 2000
  LSP ID: 1920.0100.4002.00-00
    Interface: memif-0/1/2/12
    LSP Header:
    Sequence: 0x9
    Checksum: 0x89a6
    Remaining lifetime: 65534 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 149 bytes
    Last received time: 2020-11-02T06:45:59.814186+0000
    Expiry: expires in 17h 55m 1s 156532us
    Dynamic Hostname TLV: none
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    Value: 5892f2d37d7f23abcfcb48466276659c
    IS Reachability TLVs:
    IS neighbor: 1920.0100.4001.00
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.27.0/31                     Metric:  1000000    Internal
Up
    IPv4 prefix: 10.4.12.0/31                     Metric:  1000000    Internal
Up
    IPv4 prefix: 192.1.4.2/32                     Metric:  1000000    Internal
Up    SID:    2   Flags: Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::2/128                   Metric:  1000000    Internal
Up
   Segment Routing TLVs:
    SRGB: Base: 70000, Range: 2000
Instance: ip2vrf, Level: 2
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0x12
    Checksum: 0x6407
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 247 bytes
    Last received time: 2020-11-02T06:47:06.466723+0000
    Expiry: expires in 17h 56m 8s 748908us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
```

```
    Authentication TLV:
    none
    IS Reachability TLVs:
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                    Metric:  1000000   Internal
 Up
    IPv4 prefix: 10.0.27.0/31                    Metric:  2000000   Internal
 Up
    IPv4 prefix: 10.0.68.0/31                    Metric:  2000000   Internal
 Up
    IPv4 prefix: 10.0.69.0/31                    Metric:  2000000   Internal
 Up
    IPv4 prefix: 10.4.12.0/31                    Metric:  1000000   Internal
 Up
    IPv4 prefix: 192.0.0.6/32                    Metric:  2000000   Internal
 Up   SID:    6   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.1/32                    Metric:  1000000   Internal
 Up   SID:    1   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.2/32                    Metric:  2000000   Internal
 Up   SID:    2   Flags: Re-advertisement, Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128                  Metric:  1000000   Internal
 Up
    IPv6 prefix: 192:1:4::2/128                  Metric:  2000000   Internal
 Up
  Segment Routing TLVs:
   SRGB: Base: 10000, Range: 2000
supervisor@rtb_spine_1: op>
```

6.20. show isis database lsp <lsp-id>

This command includes an option for entering the system ID part either by hostname or by ID.

```
supervisor@rtb_spine_1: op> show isis database lsp 1920.0100.4001.00-00
Instance: ip2vrf, Level: 1
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0xc
    Checksum: 0x9c74
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 168 bytes
    Last received time: 2020-11-02T06:46:46.473726+0000
    Expiry: expires in 17h 52m 34s 950743us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
```

```
      Value: 77b259cb36930819b0abb6120ceee2fd
      IS Reachability TLVs:
      IS neighbor: 1920.0000.0006.00
      IS neighbor: 1920.0100.4002.00
      IPv4 Reachability TLVs:
      IPv4 prefix: 10.0.16.0/31                     Metric:  1000000    Internal
Up
      IPv4 prefix: 10.4.12.0/31                     Metric:  1000000    Internal
Up
      IPv4 prefix: 192.1.4.1/32                     Metric:  1000000    Internal
Up    SID:    1   Flags: Node
      IPv6 Reachability TLVs:
      IPv6 prefix: 192:1:4::1/128                   Metric:  1000000    Internal
Up
   Segment Routing TLVs:
    SRGB: Base: 10000, Range: 2000
Instance: ip2vrf, Level: 2
  LSP ID: 1920.0100.4001.00-00
      Interface:
      LSP Header:
      Sequence: 0x12
      Checksum: 0x6407
      Remaining lifetime: 65535 seconds
      Flags: Attached: 0, Overload: 0
      Packet:
      Length: 247 bytes
      Last received time: 2020-11-02T06:47:06.466723+0000
      Expiry: expires in 17h 52m 54s 889789us
      Dynamic Hostname TLV: spine1
      Protocols Supported TLVs:
      Network layer protocol ID: IPv6
      Network layer protocol ID: IPv4
      Area Address TLVs:
      Area address: 49.0001
      Authentication TLV:
      none
      IS Reachability TLVs:
      IPv4 Reachability TLVs:
      IPv4 prefix: 10.0.16.0/31                     Metric:  1000000    Internal
Up
      IPv4 prefix: 10.0.27.0/31                     Metric:  2000000    Internal
Up
      IPv4 prefix: 10.0.68.0/31                     Metric:  2000000    Internal
Up
      IPv4 prefix: 10.0.69.0/31                     Metric:  2000000    Internal
Up
      IPv4 prefix: 10.4.12.0/31                     Metric:  1000000    Internal
Up
      IPv4 prefix: 192.0.0.6/32                     Metric:  2000000    Internal
Up    SID:    6   Flags: Re-advertisement, Node
      IPv4 prefix: 192.1.4.1/32                     Metric:  1000000    Internal
Up    SID:    1   Flags: Re-advertisement, Node
      IPv4 prefix: 192.1.4.2/32                     Metric:  2000000    Internal
Up    SID:    2   Flags: Re-advertisement, Node
      IPv6 Reachability TLVs:
      IPv6 prefix: 192:1:4::1/128                   Metric:  1000000    Internal
Up
      IPv6 prefix: 192:1:4::2/128                   Metric:  2000000    Internal
```

```
Up
    Segment Routing TLVs:
     SRGB: Base: 10000, Range: 2000
supervisor@rtb_spine_1: op>
```

6.21. show isis database system <system-id>

ⓘ | This command includes an option for entering the system ID part either by hostname or by ID.

```
supervisor@rtb_spine_1: op> show isis database system 1920.0100.4001
Instance: ip2vrf, Level: 1
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0xc
    Checksum: 0x9c74
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 168 bytes
    Last received time: 2020-11-02T06:46:46.473726+0000
    Expiry: expires in 17h 51m 17s 103817us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    Value: 77b259cb36930819b0abb6120ceee2fd
    IS Reachability TLVs:
    IS neighbor: 1920.0000.0006.00
    IS neighbor: 1920.0100.4002.00
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                    Metric:  1000000   Internal
Up
    IPv4 prefix: 10.4.12.0/31                    Metric:  1000000   Internal
Up
    IPv4 prefix: 192.1.4.1/32                    Metric:  1000000   Internal
Up   SID:    1   Flags: Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128                   Metric:  1000000   Internal
Up
   Segment Routing TLVs:
     SRGB: Base: 10000, Range: 2000
Instance: ip2vrf, Level: 2
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0x12
    Checksum: 0x6407
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
```

```
    Packet:
    Length: 247 bytes
    Last received time: 2020-11-02T06:47:06.466723+0000
    Expiry: expires in 17h 51m 37s 38655us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    none
    IS Reachability TLVs:
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                  Metric:  1000000   Internal
Up
    IPv4 prefix: 10.0.27.0/31                  Metric:  2000000   Internal
Up
    IPv4 prefix: 10.0.68.0/31                  Metric:  2000000   Internal
Up
    IPv4 prefix: 10.0.69.0/31                  Metric:  2000000   Internal
Up
    IPv4 prefix: 10.4.12.0/31                  Metric:  1000000   Internal
Up
    IPv4 prefix: 192.0.0.6/32                  Metric:  2000000   Internal
Up   SID:    6   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.1/32                  Metric:  1000000   Internal
Up   SID:    1   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.2/32                  Metric:  2000000   Internal
Up   SID:    2   Flags: Re-advertisement, Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128                Metric:  1000000   Internal
Up
    IPv6 prefix: 192:1:4::2/128                Metric:  2000000   Internal
Up
  Segment Routing TLVs:
    SRGB: Base: 10000, Range: 2000
supervisor@rtb_spine_1: op>
```

6.22. show isis database level-1 detail

```
supervisor@rtb_spine_1: op> show isis database level-1 detail
Instance: ip2vrf, Level: 1
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0xc
    Checksum: 0x9c74
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 168 bytes
    Last received time: 2020-11-02T06:46:46.473726+0000
    Expiry: expires in 17h 50m 31s 759013us
    Dynamic Hostname TLV: spine1
```

```
     Protocols Supported TLVs:
     Network layer protocol ID: IPv6
     Network layer protocol ID: IPv4
     Area Address TLVs:
     Area address: 49.0001
     Authentication TLV:
     Value: 77b259cb36930819b0abb6120ceee2fd
     IS Reachability TLVs:
     IS neighbor: 1920.0000.0006.00
     IS neighbor: 1920.0100.4002.00
     IPv4 Reachability TLVs:
     IPv4 prefix: 10.0.16.0/31                  Metric:   1000000   Internal
 Up
     IPv4 prefix: 10.4.12.0/31                  Metric:   1000000   Internal
 Up
     IPv4 prefix: 192.1.4.1/32                  Metric:   1000000   Internal
 Up   SID:    1   Flags: Node
     IPv6 Reachability TLVs:
     IPv6 prefix: 192:1:4::1/128               Metric:   1000000   Internal
 Up
   Segment Routing TLVs:
     SRGB: Base: 10000, Range: 2000
  LSP ID: 1920.0100.4002.00-00
     Interface: memif-0/1/2/12
     LSP Header:
     Sequence: 0x9
     Checksum: 0x89a6
     Remaining lifetime: 65534 seconds
     Flags: Attached: 0, Overload: 0
     Packet:
     Length: 149 bytes
     Last received time: 2020-11-02T06:45:59.814186+0000
     Expiry: expires in 17h 49m 44s 99010us
     Dynamic Hostname TLV: none
     Protocols Supported TLVs:
     Network layer protocol ID: IPv6
     Network layer protocol ID: IPv4
     Area Address TLVs:
     Area address: 49.0001
     Authentication TLV:
     Value: 5892f2d37d7f23abcfcb48466276659c
     IS Reachability TLVs:
     IS neighbor: 1920.0100.4001.00
     IPv4 Reachability TLVs:
     IPv4 prefix: 10.0.27.0/31                  Metric:   1000000   Internal
 Up
     IPv4 prefix: 10.4.12.0/31                  Metric:   1000000   Internal
 Up
     IPv4 prefix: 192.1.4.2/32                  Metric:   1000000   Internal
 Up   SID:    2   Flags: Node
     IPv6 Reachability TLVs:
     IPv6 prefix: 192:1:4::2/128               Metric:   1000000   Internal
 Up
   Segment Routing TLVs:
     SRGB: Base: 70000, Range: 2000
supervisor@rtb_spine_1: op>
```

6.23. show isis database level-1 lsp <lsp-id>

```
supervisor@rtb_spine_1: op> show isis database level-1 lsp 1920.0100.4001.00-
00
Instance: ip2vrf, Level: 1
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0xc
    Checksum: 0x9c74
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 168 bytes
    Last received time: 2020-11-02T06:46:46.473726+0000
    Expiry: expires in 17h 48m 21s 320089us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    Value: 77b259cb36930819b0abb6120ceee2fd
    IS Reachability TLVs:
    IS neighbor: 1920.0000.0006.00
    IS neighbor: 1920.0100.4002.00
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                  Metric:  1000000   Internal
Up
    IPv4 prefix: 10.4.12.0/31                  Metric:  1000000   Internal
Up
    IPv4 prefix: 192.1.4.1/32                  Metric:  1000000   Internal
Up   SID:   1   Flags: Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128                Metric:  1000000   Internal
Up
   Segment Routing TLVs:
    SRGB: Base: 10000, Range: 2000
supervisor@rtb_spine_1: op>
```

6.24. show isis database level-1 system <system-id>

```
supervisor@rtb_spine_1: op> show isis database level-1 system 1920.0100.4001
Instance: ip2vrf, Level: 1
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0xc
    Checksum: 0x9c74
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 168 bytes
    Last received time: 2020-11-02T06:46:46.473726+0000
    Expiry: expires in 17h 47m 49s 370231us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    Value: 77b259cb36930819b0abb6120ceee2fd
    IS Reachability TLVs:
    IS neighbor: 1920.0000.0006.00
    IS neighbor: 1920.0100.4002.00
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                     Metric:  1000000   Internal
 Up
    IPv4 prefix: 10.4.12.0/31                     Metric:  1000000   Internal
 Up
    IPv4 prefix: 192.1.4.1/32                     Metric:  1000000   Internal
 Up   SID:    1   Flags: Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128                   Metric:  1000000   Internal
 Up
   Segment Routing TLVs:
    SRGB: Base: 10000, Range: 2000
supervisor@rtb_spine_1: op>
```

6.25. show isis database level-2 detail

```
supervisor@rtb_spine_1: op> show isis database level-2 detail
Instance: ip2vrf, Level: 2
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0x12
    Checksum: 0x6407
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 247 bytes
    Last received time: 2020-11-02T06:47:06.466723+0000
    Expiry: expires in 17h 47m 42s 657607us
    Dynamic Hostname TLV: spine1
```

```
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    none
    IS Reachability TLVs:
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                  Metric:  1000000   Internal
Up
    IPv4 prefix: 10.0.27.0/31                  Metric:  2000000   Internal
Up
    IPv4 prefix: 10.0.68.0/31                  Metric:  2000000   Internal
Up
    IPv4 prefix: 10.0.69.0/31                  Metric:  2000000   Internal
Up
    IPv4 prefix: 10.4.12.0/31                  Metric:  1000000   Internal
Up
    IPv4 prefix: 192.0.0.6/32                  Metric:  2000000   Internal
Up   SID:    6   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.1/32                  Metric:  1000000   Internal
Up   SID:    1   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.2/32                  Metric:  2000000   Internal
Up   SID:    2   Flags: Re-advertisement, Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128                Metric:  1000000   Internal
Up
    IPv6 prefix: 192:1:4::2/128                Metric:  2000000   Internal
Up
  Segment Routing TLVs:
    SRGB: Base: 10000, Range: 2000
supervisor@rtb_spine_1: op>


show isis database level-2 lsp <lsp-id>


supervisor@rtb_spine_1: op> show isis database level-2 lsp 1920.0100.4001.00-
00
Instance: ip2vrf, Level: 2
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0x12
    Checksum: 0x6407
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 247 bytes
    Last received time: 2020-11-02T06:47:06.466723+0000
    Expiry: expires in 17h 46m 56s 57724us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    none
```

```
    IS Reachability TLVs:
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                  Metric:  1000000   Internal
 Up
    IPv4 prefix: 10.0.27.0/31                  Metric:  2000000   Internal
 Up
    IPv4 prefix: 10.0.68.0/31                  Metric:  2000000   Internal
 Up
    IPv4 prefix: 10.0.69.0/31                  Metric:  2000000   Internal
 Up
    IPv4 prefix: 10.4.12.0/31                  Metric:  1000000   Internal
 Up
    IPv4 prefix: 192.0.0.6/32                  Metric:  2000000   Internal
 Up   SID:    6   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.1/32                  Metric:  1000000   Internal
 Up   SID:    1   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.2/32                  Metric:  2000000   Internal
 Up   SID:    2   Flags: Re-advertisement, Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128                Metric:  1000000   Internal
 Up
    IPv6 prefix: 192:1:4::2/128                Metric:  2000000   Internal
 Up
  Segment Routing TLVs:
   SRGB: Base: 10000, Range: 2000
supervisor@rtb_spine_1: op>
```

6.26. show isis database level-2 system <system-id>

```
supervisor@rtb_spine_1: op> show isis database level-2 system 1920.0100.4001
Instance: ip2vrf, Level: 2
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0x12
    Checksum: 0x6407
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 247 bytes
    Last received time: 2020-11-02T06:47:06.466723+0000
    Expiry: expires in 17h 45m 59s 489955us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    none
    IS Reachability TLVs:
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                      Metric:  1000000   Internal
Up
    IPv4 prefix: 10.0.27.0/31                      Metric:  2000000   Internal
Up
    IPv4 prefix: 10.0.68.0/31                      Metric:  2000000   Internal
Up
    IPv4 prefix: 10.0.69.0/31                      Metric:  2000000   Internal
Up
    IPv4 prefix: 10.4.12.0/31                      Metric:  1000000   Internal
Up
    IPv4 prefix: 192.0.0.6/32                      Metric:  2000000   Internal
Up   SID:    6   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.1/32                      Metric:  1000000   Internal
Up   SID:    1   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.2/32                      Metric:  2000000   Internal
Up   SID:    2   Flags: Re-advertisement, Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128                    Metric:  1000000   Internal
Up
    IPv6 prefix: 192:1:4::2/128                    Metric:  2000000   Internal
Up
  Segment Routing TLVs:
    SRGB: Base: 10000, Range: 2000
supervisor@rtb_spine_1: op>
```

6.27. show isis database instance <instance-name>

```
supervisor@rtb_spine_1: op> show isis database instance ip2vrf
Instance: ip2vrf, Level: 1
  LSP ID                      Sequence    Checksum    Lifetime    Expiry
Overload    Attached
  1920.0000.0006.00-00           0xa      0x8beb      65534    in 17h 44m 13s
390502us          0            0
  1920.0000.0007.00-00           0x5      0xdfbb      65533    in 17h 15m 49s
869683us          0            0
  1920.0000.0008.00-00           0x6      0x76f3      65533    in 17h 15m 51s
959359us          0            0
  1920.0000.0009.00-00           0x6      0x5b18      65533    in 17h 15m 51s
667570us          0            0
  spine1.00-00                   0xc      0x9c74      65535    in 17h 43m 55s
63659us           0            0
  1920.0100.4002.00-00           0x9      0x89a6      65534    in 17h 43m 7s
403686us          0            0
Instance: ip2vrf, Level: 2
  LSP ID                      Sequence    Checksum    Lifetime    Expiry
Overload    Attached
  spine1.00-00                   0x12     0x6407      65535    in 17h 44m 15s
21189us           0            0
supervisor@rtb_spine_1: op>
```

6.28. show isis database instance <instance-name> detail

```
supervisor@rtb_spine_1: op> show isis database instance ip2vrf detail
Instance: ip2vrf, Level: 1
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0xc
    Checksum: 0x9c74
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 168 bytes
    Last received time: 2020-11-02T06:46:46.473726+0000
    Expiry: expires in 17h 55m 48s 816627us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    Value: 77b259cb36930819b0abb6120ceee2fd
    IS Reachability TLVs:
    IS neighbor: 1920.0000.0006.00
    IS neighbor: 1920.0100.4002.00
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31              Metric:  1000000    Internal
Up
```

```
    IPv4 prefix: 10.4.12.0/31                        Metric:  1000000    Internal
Up
    IPv4 prefix: 192.1.4.1/32                        Metric:  1000000    Internal
Up   SID:   1   Flags: Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128                      Metric:  1000000    Internal
Up
  Segment Routing TLVs:
    SRGB: Base: 10000, Range: 2000
  LSP ID: 1920.0100.4002.00-00
    Interface: memif-0/1/2/12
    LSP Header:
    Sequence: 0x9
    Checksum: 0x89a6
    Remaining lifetime: 65534 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 149 bytes
    Last received time: 2020-11-02T06:45:59.814186+0000
    Expiry: expires in 17h 55m 1s 156532us
    Dynamic Hostname TLV: none
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    Value: 5892f2d37d7f23abcfcb48466276659c
    IS Reachability TLVs:
    IS neighbor: 1920.0100.4001.00
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.27.0/31                        Metric:  1000000    Internal
Up
    IPv4 prefix: 10.4.12.0/31                        Metric:  1000000    Internal
Up
    IPv4 prefix: 192.1.4.2/32                        Metric:  1000000    Internal
Up   SID:   2   Flags: Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::2/128                      Metric:  1000000    Internal
Up
  Segment Routing TLVs:
    SRGB: Base: 70000, Range: 2000
Instance: ip2vrf, Level: 2
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0x12
    Checksum: 0x6407
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 247 bytes
    Last received time: 2020-11-02T06:47:06.466723+0000
    Expiry: expires in 17h 56m 8s 748908us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
```

```
     Area Address TLVs:
     Area address: 49.0001
     Authentication TLV:
     none
     IS Reachability TLVs:
     IPv4 Reachability TLVs:
     IPv4 prefix: 10.0.16.0/31                Metric:  1000000    Internal
 Up
     IPv4 prefix: 10.0.27.0/31                Metric:  2000000    Internal
 Up
     IPv4 prefix: 10.0.68.0/31                Metric:  2000000    Internal
 Up
     IPv4 prefix: 10.0.69.0/31                Metric:  2000000    Internal
 Up
     IPv4 prefix: 10.4.12.0/31                Metric:  1000000    Internal
 Up
     IPv4 prefix: 192.0.0.6/32                Metric:  2000000    Internal
 Up    SID:    6   Flags: Re-advertisement, Node
     IPv4 prefix: 192.1.4.1/32                Metric:  1000000    Internal
 Up    SID:    1   Flags: Re-advertisement, Node
     IPv4 prefix: 192.1.4.2/32                Metric:  2000000    Internal
 Up    SID:    2   Flags: Re-advertisement, Node
     IPv6 Reachability TLVs:
     IPv6 prefix: 192:1:4::1/128              Metric:  1000000    Internal
 Up
     IPv6 prefix: 192:1:4::2/128              Metric:  2000000    Internal
 Up
   Segment Routing TLVs:
    SRGB: Base: 10000, Range: 2000
supervisor@rtb_spine_1: op>
```

6.29. show isis database instance <instance-name> lsp <lsp-id>

```
supervisor@rtb_spine_1: op> show isis database instance ip2vrf lsp
1920.0100.4001.00-00
Instance: ip2vrf, Level: 1
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0xc
    Checksum: 0x9c74
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 168 bytes
    Last received time: 2020-11-02T06:46:46.473726+0000
    Expiry: expires in 17h 52m 34s 950743us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
```

```
    Authentication TLV:
    Value: 77b259cb36930819b0abb6120ceee2fd
    IS Reachability TLVs:
    IS neighbor: 1920.0000.0006.00
    IS neighbor: 1920.0100.4002.00
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                  Metric: 1000000   Internal
Up
    IPv4 prefix: 10.4.12.0/31                  Metric: 1000000   Internal
Up
    IPv4 prefix: 192.1.4.1/32                  Metric: 1000000   Internal
Up   SID:   1   Flags: Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128                Metric: 1000000   Internal
Up
  Segment Routing TLVs:
    SRGB: Base: 10000, Range: 2000
Instance: ip2vrf, Level: 2
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0x12
    Checksum: 0x6407
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 247 bytes
    Last received time: 2020-11-02T06:47:06.466723+0000
    Expiry: expires in 17h 52m 54s 889789us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    none
    IS Reachability TLVs:
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                  Metric: 1000000   Internal
Up
    IPv4 prefix: 10.0.27.0/31                  Metric: 2000000   Internal
Up
    IPv4 prefix: 10.0.68.0/31                  Metric: 2000000   Internal
Up
    IPv4 prefix: 10.0.69.0/31                  Metric: 2000000   Internal
Up
    IPv4 prefix: 10.4.12.0/31                  Metric: 1000000   Internal
Up
    IPv4 prefix: 192.0.0.6/32                  Metric: 2000000   Internal
Up   SID:   6   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.1/32                  Metric: 1000000   Internal
Up   SID:   1   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.2/32                  Metric: 2000000   Internal
Up   SID:   2   Flags: Re-advertisement, Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128                Metric: 1000000   Internal
Up
```

```
     IPv6 prefix: 192:1:4::2/128                   Metric:  2000000   Internal
Up
    Segment Routing TLVs:
     SRGB: Base: 10000, Range: 2000
supervisor@rtb_spine_1: op>
```

6.30. show isis database instance <instance-name> system <system-id>

```
supervisor@rtb_spine_1: op> show isis database instance ip2vrf system
1920.0100.4001
Instance: ip2vrf, Level: 1
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0xc
    Checksum: 0x9c74
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 168 bytes
    Last received time: 2020-11-02T06:46:46.473726+0000
    Expiry: expires in 17h 51m 17s 103817us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    Value: 77b259cb36930819b0abb6120ceee2fd
    IS Reachability TLVs:
    IS neighbor: 1920.0000.0006.00
    IS neighbor: 1920.0100.4002.00
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                      Metric:  1000000   Internal
Up
    IPv4 prefix: 10.4.12.0/31                      Metric:  1000000   Internal
Up
    IPv4 prefix: 192.1.4.1/32                      Metric:  1000000   Internal
Up   SID:    1   Flags: Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128                    Metric:  1000000   Internal
Up
    Segment Routing TLVs:
     SRGB: Base: 10000, Range: 2000
Instance: ip2vrf, Level: 2
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0x12
    Checksum: 0x6407
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
```

```
    Packet:
    Length: 247 bytes
    Last received time: 2020-11-02T06:47:06.466723+0000
    Expiry: expires in 17h 51m 37s 38655us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    none
    IS Reachability TLVs:
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                  Metric:  1000000   Internal
Up
    IPv4 prefix: 10.0.27.0/31                  Metric:  2000000   Internal
Up
    IPv4 prefix: 10.0.68.0/31                  Metric:  2000000   Internal
Up
    IPv4 prefix: 10.0.69.0/31                  Metric:  2000000   Internal
Up
    IPv4 prefix: 10.4.12.0/31                  Metric:  1000000   Internal
Up
    IPv4 prefix: 192.0.0.6/32                  Metric:  2000000   Internal
Up   SID:    6   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.1/32                  Metric:  1000000   Internal
Up   SID:    1   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.2/32                  Metric:  2000000   Internal
Up   SID:    2   Flags: Re-advertisement, Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128                Metric:  1000000   Internal
Up
    IPv6 prefix: 192:1:4::2/128                Metric:  2000000   Internal
Up
  Segment Routing TLVs:
   SRGB: Base: 10000, Range: 2000
supervisor@rtb_spine_1: op>
```

6.31. show isis database instance <instance-name> level-1 detail

```
supervisor@rtb_spine_1: op> show isis database instance ip2vrf level-1 detail
Instance: ip2vrf, Level: 1
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0xc
    Checksum: 0x9c74
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 168 bytes
    Last received time: 2020-11-02T06:46:46.473726+0000
```

```
    Expiry: expires in 17h 50m 31s 759013us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    Value: 77b259cb36930819b0abb6120ceee2fd
    IS Reachability TLVs:
    IS neighbor: 1920.0000.0006.00
    IS neighbor: 1920.0100.4002.00
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                 Metric:  1000000   Internal
 Up
    IPv4 prefix: 10.4.12.0/31                 Metric:  1000000   Internal
 Up
    IPv4 prefix: 192.1.4.1/32                 Metric:  1000000   Internal
 Up   SID:    1   Flags: Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128               Metric:  1000000   Internal
 Up
  Segment Routing TLVs:
   SRGB: Base: 10000, Range: 2000
 LSP ID: 1920.0100.4002.00-00
   Interface: memif-0/1/2/12
   LSP Header:
   Sequence: 0x9
   Checksum: 0x89a6
   Remaining lifetime: 65534 seconds
   Flags: Attached: 0, Overload: 0
   Packet:
   Length: 149 bytes
   Last received time: 2020-11-02T06:45:59.814186+0000
   Expiry: expires in 17h 49m 44s 99010us
   Dynamic Hostname TLV: none
   Protocols Supported TLVs:
   Network layer protocol ID: IPv6
   Network layer protocol ID: IPv4
   Area Address TLVs:
   Area address: 49.0001
   Authentication TLV:
   Value: 5892f2d37d7f23abcfcb48466276659c
   IS Reachability TLVs:
   IS neighbor: 1920.0100.4001.00
   IPv4 Reachability TLVs:
   IPv4 prefix: 10.0.27.0/31                  Metric:  1000000   Internal
 Up
   IPv4 prefix: 10.4.12.0/31                  Metric:  1000000   Internal
 Up
   IPv4 prefix: 192.1.4.2/32                  Metric:  1000000   Internal
 Up   SID:    2   Flags: Node
   IPv6 Reachability TLVs:
   IPv6 prefix: 192:1:4::2/128                Metric:  1000000   Internal
 Up
  Segment Routing TLVs:
   SRGB: Base: 70000, Range: 2000
supervisor@rtb_spine_1: op>
```

6.32. show isis database instance <instance-name> level-1 lsp <lsp-id>

```
supervisor@rtb_spine_1: op> show isis database instance ip2vrf level-1 lsp
1920.0100.4001.00-00
Instance: ip2vrf, Level: 1
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0xc
    Checksum: 0x9c74
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 168 bytes
    Last received time: 2020-11-02T06:46:46.473726+0000
    Expiry: expires in 17h 48m 21s 320089us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    Value: 77b259cb36930819b0abb6120ceee2fd
    IS Reachability TLVs:
    IS neighbor: 1920.0000.0006.00
    IS neighbor: 1920.0100.4002.00
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                    Metric:  1000000    Internal
Up
    IPv4 prefix: 10.4.12.0/31                    Metric:  1000000    Internal
Up
    IPv4 prefix: 192.1.4.1/32                    Metric:  1000000    Internal
Up    SID:    1   Flags: Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128                  Metric:  1000000    Internal
Up
  Segment Routing TLVs:
    SRGB: Base: 10000, Range: 2000
supervisor@rtb_spine_1: op>
```

6.33. show isis database instance <instance-name> level-1 system <system-id>

```
supervisor@rtb_spine_1: op> show isis database instance ip2vrf level-1 system
1920.0100.4001
Instance: ip2vrf, Level: 1
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0xc
```

```
    Checksum: 0x9c74
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 168 bytes
    Last received time: 2020-11-02T06:46:46.473726+0000
    Expiry: expires in 17h 47m 49s 370231us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    Value: 77b259cb36930819b0abb6120ceee2fd
    IS Reachability TLVs:
    IS neighbor: 1920.0000.0006.00
    IS neighbor: 1920.0100.4002.00
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                       Metric:  1000000    Internal
 Up
    IPv4 prefix: 10.4.12.0/31                       Metric:  1000000    Internal
 Up
    IPv4 prefix: 192.1.4.1/32                       Metric:  1000000    Internal
 Up    SID:    1    Flags: Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128                      Metric:  1000000    Internal
 Up
   Segment Routing TLVs:
    SRGB: Base: 10000, Range: 2000
supervisor@rtb_spine_1: op>


show isis database instance <instance-name> level-2 detail


supervisor@rtb_spine_1: op> show isis database instance ip2vrf level-2 detail
Instance: ip2vrf, Level: 2
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0x12
    Checksum: 0x6407
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 247 bytes
    Last received time: 2020-11-02T06:47:06.466723+0000
    Expiry: expires in 17h 47m 42s 657607us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    none
    IS Reachability TLVs:
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                       Metric:  1000000    Internal
```

```
Up
    IPv4 prefix: 10.0.27.0/31                    Metric:  2000000    Internal
Up
    IPv4 prefix: 10.0.68.0/31                    Metric:  2000000    Internal
Up
    IPv4 prefix: 10.0.69.0/31                    Metric:  2000000    Internal
Up
    IPv4 prefix: 10.4.12.0/31                    Metric:  1000000    Internal
Up
    IPv4 prefix: 192.0.0.6/32                    Metric:  2000000    Internal
Up   SID:    6   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.1/32                    Metric:  1000000    Internal
Up   SID:    1   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.2/32                    Metric:  2000000    Internal
Up   SID:    2   Flags: Re-advertisement, Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128                  Metric:  1000000    Internal
Up
    IPv6 prefix: 192:1:4::2/128                  Metric:  2000000    Internal
Up
  Segment Routing TLVs:
   SRGB: Base: 10000, Range: 2000
supervisor@rtb_spine_1: op>
```

6.34. show isis database instance <instance-name> level-2 lsp <lsp-id>

```
supervisor@rtb_spine_1: op> show isis database instance ip2vrf level-2 lsp
1920.0100.4001.00-00
Instance: ip2vrf, Level: 2
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0x12
    Checksum: 0x6407
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 247 bytes
    Last received time: 2020-11-02T06:47:06.466723+0000
    Expiry: expires in 17h 46m 56s 57724us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    none
    IS Reachability TLVs:
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                     Metric:  1000000   Internal
Up
    IPv4 prefix: 10.0.27.0/31                     Metric:  2000000   Internal
Up
    IPv4 prefix: 10.0.68.0/31                     Metric:  2000000   Internal
Up
    IPv4 prefix: 10.0.69.0/31                     Metric:  2000000   Internal
Up
    IPv4 prefix: 10.4.12.0/31                     Metric:  1000000   Internal
Up
    IPv4 prefix: 192.0.0.6/32                     Metric:  2000000   Internal
Up   SID:    6   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.1/32                     Metric:  1000000   Internal
Up   SID:    1   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.2/32                     Metric:  2000000   Internal
Up   SID:    2   Flags: Re-advertisement, Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128                   Metric:  1000000   Internal
Up
    IPv6 prefix: 192:1:4::2/128                   Metric:  2000000   Internal
Up
  Segment Routing TLVs:
    SRGB: Base: 10000, Range: 2000
supervisor@rtb_spine_1: op>
```

6.35. show isis database instance <instance-name> level-2 system <system-id>

```
supervisor@rtb_spine_1: op> show isis database instance ip2vrf level-2 system
1920.0100.4001
Instance: ip2vrf, Level: 2
  LSP ID: 1920.0100.4001.00-00
    Interface:
    LSP Header:
    Sequence: 0x12
    Checksum: 0x6407
    Remaining lifetime: 65535 seconds
    Flags: Attached: 0, Overload: 0
    Packet:
    Length: 247 bytes
    Last received time: 2020-11-02T06:47:06.466723+0000
    Expiry: expires in 17h 45m 59s 489955us
    Dynamic Hostname TLV: spine1
    Protocols Supported TLVs:
    Network layer protocol ID: IPv6
    Network layer protocol ID: IPv4
    Area Address TLVs:
    Area address: 49.0001
    Authentication TLV:
    none
    IS Reachability TLVs:
    IPv4 Reachability TLVs:
    IPv4 prefix: 10.0.16.0/31                   Metric:  1000000   Internal
Up
    IPv4 prefix: 10.0.27.0/31                   Metric:  2000000   Internal
Up
    IPv4 prefix: 10.0.68.0/31                   Metric:  2000000   Internal
Up
    IPv4 prefix: 10.0.69.0/31                   Metric:  2000000   Internal
Up
    IPv4 prefix: 10.4.12.0/31                   Metric:  1000000   Internal
Up
    IPv4 prefix: 192.0.0.6/32                   Metric:  2000000   Internal
Up   SID:    6   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.1/32                   Metric:  1000000   Internal
Up   SID:    1   Flags: Re-advertisement, Node
    IPv4 prefix: 192.1.4.2/32                   Metric:  2000000   Internal
Up   SID:    2   Flags: Re-advertisement, Node
    IPv6 Reachability TLVs:
    IPv6 prefix: 192:1:4::1/128                 Metric:  1000000   Internal
Up
    IPv6 prefix: 192:1:4::2/128                 Metric:  2000000   Internal
Up
   Segment Routing TLVs:
    SRGB: Base: 10000, Range: 2000
supervisor@rtb_spine_1: op>
```