IS-IS CLI Command Reference

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Table of Contents

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 CLI Overview

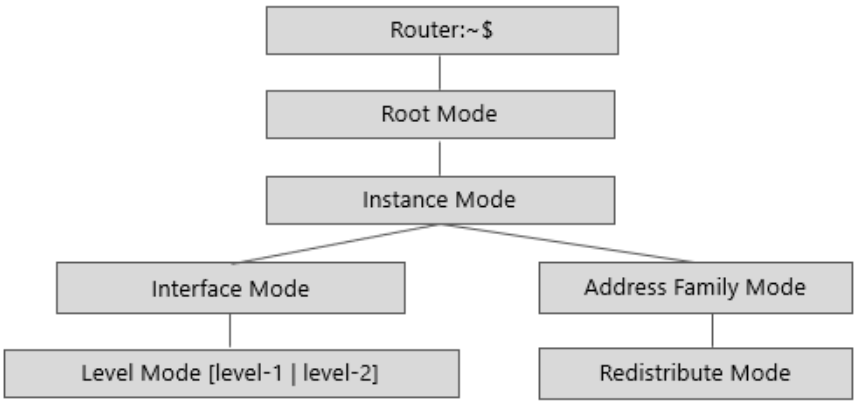
This guide provides the various IS-IS configuration and show CLI commands for RBFS. It shows you how to configure IS-IS using the **confd** daemon, view the command hierarchy, and make configuration changes.

2. RBFS IS-IS Instance Hierarchy

The RBFS uses a distinct hierarchy for the IS-IS statements and commands. When installed, the RBFS runs a default instance named “default.”

You can apply IS-IS configuration statements and commands at the instance, address family, or protocol IS-IS hierarchy level.

The figure below shows the IS-IS command hierarchy:



The table below shows the IS-IS configuration modes and CLI prompts:

Configuration Mode	Prompt
Root	root@confd:/>
Instance	root@confd:/isis>
Interface	root@confd:/isis/interface>
Interface level [level-1 | level-2]	root@confd:/isis/twc-0/0/1/1/1/level-1> root@confd:/isis/twc-0/0/1/1/1/level-2>
Address Family [ipv4 | ipv6]	root@confd:/isis/ipv4-unicast> root@confd:/isis/ipv6-unicast>
Redistribute	root@confd:/isis/ipv4-unicast/redistribute>

2.1. Modes and Commands

All edit and set operations are performed through the configuration daemon **CONFD**. Their end result is similar, but the terms apply to slightly different configuration methods:

- **Mode:** An “edit” is used to provide a hierarchical configuration option for the module instance.
- **Commands:** A “set” is used to set the statement parameters and attributes for the module instance.

In a typical configuration session, you will use both methods.

Syntax

```
root@is-is-router:confd> edit instance red
[ instance red ]
root@is-is-router:confd> edit protocol isis
[ instance red protocol isis ]
```

> You can execute the **exit** command to exit the current level of the statement hierarchy, returning to the level prior to the last edit command. To exit from the configuration mode, enter the **end** and **exit** commands.

2.2. IS-IS Instance

To enter into the IS-IS default instance mode, enter the following command:

```
root@rta:confd> edit instance protocol isis
[ instance protocol isis ]
root@rta:confd>
```

2.3. Interface

In this mode, you can configure the interface-specific IS-IS properties.

Example (Default Instance)

```
root@is-is-router:confd> edit interface twc-0/0/1/2/1
[ instance protocol isis interface twc-0/0/1/2/1 ]
root@rta:confd>
```

Example (VRF Instance)

```
root@is-is-router:confd> edit interface twc-0/0/1/2/1
[ instance red protocol isis interface twc-0/0/1/2/1 ]
root@rta:confd>
```

2.4. Level (IS-IS Interfaces)

The level mode enables you to configure the IS-IS operational characteristics of the interface at Level 1 and/or Level 2. Level 1 and Level 2 can be configured inside a

logical interface. By default, an interface operates in both Level 1 and Level 2 modes.

- Level 1: Specifies the IS-IS operational characteristics of the interface at level 1.
- Level 2: Specifies the IS-IS operational characteristics of the interface at level 2.

Example (Default Instance)

```
root@is-is-router:confd> edit level-1
[ instance protocol isis interface twc-0/0/1/2/1 level-1 ]
root@is-is-router:confd> edit level-2
[ instance protocol isis interface twc-0/0/1/2/1 level-2 ]
```

Example (VRF Instance)

```
root@is-is-router:confd> edit level-1
[ instance red protocol isis interface twc-0/0/1/2/1 level-1 ]

root@is-is-router:confd> edit level-2
[ instance red protocol isis interface twc-0/0/1/2/1 level-2 ]
```

2.5. Redistribute

IS-IS determines support for route redistribution based on address family. The selected address family can redistribute local interface routes, static routes, routes learned by IS-IS, and so on.

The examples below show the route redistribution options:

Example (Default Instance)

```
root@isr1:confd> edit instance protocol isis address-family ipv4 unicast
[ instance protocol isis address-family ipv4 unicast ]
root@isr1:confd>
```

Example (VRF Instance)

```
root@ is-is-router:confd> edit instance vrf1
instance vrf1 ]
root@ is-is-router:confd> edit address-family ipv4 unicast
[ instance vrf1 address-family ipv4 unicast ]
```

3. IS-IS Instance Configuration Commands

This section describes the commands used to configure IS-IS in an instance.

3.1. IS-IS Instance

To enter into the IS-IS default instance mode configuration mode, enter the following command:

```
root@rta:confd> edit instance protocol isis
[ instance protocol isis ]
root@rta:confd>
```

Example

```
root@isr1:confd> edit instance protocol isis
[ instance protocol isis ]
root@isr1:confd>

root@isr1:confd> set
  address-family           Address family config
  area                     ISO area
  holding-time             ISIS neighbor hold time
  hostname                 ISIS System Host Name
  interface                Interface Configuration
  lsp                      LSP Flooding Related Configuration
  overload                 Set ISIS Overload bit in LSP
  system-id                ISO system id associated with the system
[ instance protocol isis ]
root@isr1:confd>
```

3.2. area

This command specifies the ISO area.

Syntax

set area <area>

Command arguments

<area>	The area can be represented in 1, 3, 5, 13 bytes format.

Example

```
root@rta:confd> edit instance protocol isis
root@rta:confd> set area 49.0001/24
```

3.3. holding-time

This command sets the adjacency expiry interval. This is a global setting for the instance.

Syntax

set holding-time < seconds>

Command arguments

<seconds>	Specifies the adjacency expiry and the hello interval time in seconds. Default value: 30 seconds Range: 1 through 65535 seconds **Note:** You need to adjust the hold time configuration for stable operations.

Example

```
root@rta:confd> edit instance protocol isis
root@rta:confd> set holding-time 30000
```

3.4. lsp lifetime

This command sets the link-state PDU (LSP) lifetime, after which the LSP expires.

Syntax

set lsp lifetime <seconds>

Command arguments

<seconds>	Specifies the LSP lifetime in seconds. Default value: 20 seconds Range: 5 through 65535 seconds

Example

```
root@rta:confd> edit instance protocol isis
root@rta:confd> set lsp lifetime 30000
```

3.5. hostname

This command sets the IS-IS hostname of the node.

Syntax

set isis hostname <name>

Command arguments

<name>	Specifies the IS-IS hostname of the node.

Example

```
root@rta:confd> edit instance protocol isis
root@rta:confd> set hostname rta
```

3.6. overload

This command sets the IS-IS overload bit in a link-state PDU (LSP).

Syntax

set overload

Example

```
root@rta:confd> edit instance protocol isis
root@rta:confd> set overload
```

3.7. system-id

This command sets the ISO system ID.

Syntax

set system-id <system ID>

Command arguments

<system ID>	Six-byte value that identifies a system in an area.

Example

```
root@rta:confd> edit instance protocol isis
root@rta:confd> set system-id 1921.0000.1001
```

4. IS-IS Interface Configuration Commands

This section describes the IS-IS interface mode configuration commands.

4.1. interface-type

This command sets the interface type. You can execute this command from the Instance mode.

Syntax

set isis interface twc-0/0/1/1/1 interface-type <interface-type>

Command arguments

<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@isr1:confd> edit instance protocol isis interface twc-0/0/1/2/1
[ instance protocol isis interface twc-0/0/1/2/1 ]
[ instance protocol isis interface twc-0/0/1/2/1 ]
root@isr1:confd> set interface-type point-to-point
```

4.2. passive

This command 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. You can execute this command from the interface mode.

Syntax

set isis interface twc-0/0/1/1/1 passive

Example

```
root@isr1:confd> edit instance protocol isis interface twc-0/0/1/2/1
[ instance protocol isis interface twc-0/0/1/2/1 ]
root@isr1:confd> set passive
```

5. IS-IS Level (Interface) Configuration Commands

This section describes the IS-IS interface level configuration mode commands.

5.1. level-1 disable

This command disables level-1 adjacencies on an interface. By default, it is enabled. You can execute this command from the interface level mode.

Syntax

set isis interface twc-0/0/1/1/1 level-1 disable

Example

```
root@isr1:confd> edit instance protocol isis interface twc-0/0/1/2/1
level-1
[ instance protocol isis interface twc-0/0/1/2/1 level-1 ]
root@isr1:confd> set disable
```

5.2. level-2 disable

This command disables the level-2 adjacencies on an interface. By default, it is enabled. You can execute this command from the interface level mode.

Syntax

set isis interface twc-0/0/1/1/1 level-2 disable

Example

```
root@isr1:confd> edit instance protocol isis interface twc-0/0/1/2/1
level-2
[ instance protocol isis interface twc-0/0/1/2/1 level-2 ]
root@isr1:confd> set disable
```

5.3. level-1 metric

This command sets the interface level-1 metric value. If the metric value is not set, the default value is set to 1000000. You can execute this command from the interface level mode.

Syntax

set isis interface twc-0/0/1/1/1 level-1 metric <metric value>

Command arguments

<metric value>	This option sets the level-1 metric value. Default Value: 1000000

Example

```
[ instance protocol isis interface twc-0/0/1/2/1 ]
root@isr1:confd> set level-1 metric 10
```

5.4. level-2 metric

This command sets the interface level-2 metric value. If the metric value is not set, the default value is set to 1000000. You can execute this command from the interface level mode.

Syntax

set isis interface twc-0/0/1/1/1 level-2 metric <metric value>

Command arguments

<metric value>	Specifies the level-2 metric value. Default Value: 1000000

Example

```
[ instance protocol isis interface twc-0/0/1/2/1 ]
root@isr1:confd> set level-2 metric 10
```

6. IS-IS Redistribute Configuration Commands

This section describes the IS-IS redistribute configuration commands.

6.1. redistribute source

This command redistributes route from a selected source into a selected IS-IS level database. This configuration command can be executed from the redistribute or address family modes.

Syntax

set isis address-family ipv4 unicast redistribute source <source> **into isis** [level-1 | level-2]

Command arguments

<source>	Specifies the source from which the routes are to be redistributed from. The available options are *bgp*, *ospf*, *direct*, and *static*.
level-1 | level-2	Specifies the IS-IS level database into which the selected routes will be redistribute to.

Example

```
root@isr1:confd> edit instance protocol isis address-family ipv4 unicast
[ instance protocol isis address-family ipv4 unicast ]
root@isr1:confd> set r
  source                                Source to be distibuted
  [<Enter>]                             Execute the command
[ instance protocol isis address-family ipv4 unicast ]
root@isr1:confd> set redistribute sou
  bgp                                   <source>
  direct                                <source>
  ospf                                  <source>
  static                                <source>
[ instance protocol isis address-family ipv4 unicast ]
root@isr1:confd> set redistribute source st
  level-1                               <dest-sub-type>
  level-2                               <dest-sub-type>
[ instance protocol isis address-family ipv4 unicast ]
root@isr1:confd> set redistribute source static into isis level-1
```

7. IS-IS Show Commands for IOD

Configuration statements can be shown to be working properly using show commands. IS-IS is implemented in two modules: IOD and APPD.

This section details the fields displayed by IS-IS show commands handled by the IOD module.

7.1. show isis neighbors

This command shows the summary of the IS-IS neighbors.

Syntax

show isis neighbors

show isis neighors instance <instance name>

Command arguments

<instance name>	Displays the neighbors in the specified instance. By default, the neighbors in the default instance are shown.

Example (default instance)

```
ubuntu@isr1:~$ rtb isis.iod.1 show isis neighbors
  ISIS neighbor information summary for the mentioned instance is given
below:
  Instance: default
 Interface          System          Level State   Type  UP from
Expires in
 twc-0/0/1/2/1      1921.6800.1002  L1    Up      P2P   0d:1h:3m:32s
expires in 28s 38...
 twc-0/0/1/3/1      1921.6800.1003  L1    Up      P2P   0d:1h:2m:40s
expires in 20s 22...
ubuntu@isr1:~$
```

Output Fields

Name	Description
Interface	Name of the interface on which the neighbor is identified
System	System ID of the neighbor
Level	Specifies the interface level (1, 2)

Name	Description
State	State of the IS-IS neighbor (Up, Down, etc.)
Type	Type of the adjacency on which neighbor is identified
UP from	The time for which session is in UP state
Expires in	Number of seconds until adjacency expires

Example (vrf instance)

```
ubuntu@bangalore:~$ rtb isis.iod.1 show isis neighbors instance isisvrf

  ISIS neighbor information summary for the mentioned instance is given
below:

  Instance: isisvrf
 Interface          System          Level State   Type  UP from
Expires in
 ifl-0/0/2/1/1      1921.6800.1001  L1L2  Down    P2P   0d:0h:0m:0s
expires in 49710d...
 ifl-0/0/2/1/1      1921.6800.1002  L1L2  Up      P2P   0d:0h:3m:48s
expires in 24s 77...
```

7.2. show isis neighbors detail

This command shows the detailed information about the IS-IS neighbors.

Syntax

show isis neighbors detail

show isis neighors instance <instance name> **detail**

Command arguments

<instance name>	Displays the neighbors in the specified instance. By default, the neighbors in the default instance are shown.

Example

```
ubuntu@isr1:~$ rtb isis.iod.1 show isis neighbors detail

Neighbor System ID: 1921.6800.1002, Interface: twc-0/0/1/2/1
  State: Up, Level: L1, Adjacency type: P2P
  Holding time: 30, Expiry time: 24s 640162us
  Local IPv4 address: 12.1.1.1, Remote IPv4 address: 12.1.1.2
  Local IPv6 address: fe80::2:0:faff:febd:1020, Remote IPv6 address:
fe80::2:0:faff:febd:2010
  Last Down Reason: Parameter change
  Neighbor Up Since: 0d:1h:5m:54s
  Last transition times:
    Last transition time: 2019-11-13T14:14:09.250134+0530

Neighbor System ID: 1921.6800.1003, Interface: twc-0/0/1/3/1
  State: Up, Level: L1, Adjacency type: P2P
  Holding time: 30, Expiry time: 20s 404566us
  Local IPv4 address: 13.1.1.1, Remote IPv4 address: 13.1.1.2
  Local IPv6 address: fe80::2:0:faff:febd:1030, Remote IPv6 address:
fe80::2:0:faff:febd:3010
  Last Down Reason: Parameter change
  Neighbor Up Since: 0d:1h:5m:2s
  Last transition times:
    Last transition time: 2019-11-13T14:15:01.717950+0530
```

Output Fields

Name	Description
Interface	Interface through which the neighbor is reachable
Neighbor System ID	System ID of the neighbor
Level	Level negotiated for neighbor • 1—Level 1 only • 2—Level 2 only
State	State of the IS-IS neighbor
Adjacency type	Adjacencies established on the interface. The value is P2P.
Type	Type of the adjacency on which neighbor is identified
Last Down Reason	Reason the adjacency is down
Neighbor Up Since	The time for which session is in UP state
Expiry time	The time after which the session expires
Holding time	The adjacency expiry interval configured
Local IPv4 address	Local IP address from matching subnet with neighbor

Name	Description
Remote IPv4 address	Remote IP address from matching subnet with neighbor
Local IPv6 address	Local IPv6 address from matching subnet with neighbor
Remote IPv6 address	Remote IPv6 address from matching subnet with neighbor

7.3. show isis interface

This command shows the summary of IS-IS interfaces.

Syntax

show isis interface

show isis interface instance <instance name>

Command arguments

<instance name>	Displays the neighbors in the specified instance. By default, the neighbors in the default instance is shown.

Example

```
ubuntu@isr1:~$ rtb isis.iod.1 show isis interface

  ISIS interface information summary for the mentioned instance is given
below:

  Instance: default
 Interface          Level Adjacencies  Metric       Type
Passive
 twc-0/0/1/2/1      1     1            10           point-to-point
false
 twc-0/0/1/2/1      2     1            10           point-to-point
false
 twc-0/0/1/3/1      1     1            10           point-to-point
false
 twc-0/0/1/3/1      2     1            10           point-to-point
false
ubuntu@isr1:~$
```

Output Fields

Name	Description
Interface	Interface configured for IS-IS
Level	Configured level of IS-IS • 1—Level 1 only • 2—Level 2 only
Adjacencies	Number of neighbors in UP state
Type	Type of the interface, that is, point-to-point
Metric	Metric configured on the interface
Passive	Interface passive state

7.4. show isis interface level

This command shows the detailed information of a specific IS-IS interface per level.

Syntax

show isis interface <interface name> **level** [level-1 | level-2]

Command arguments

<interface name>	Interface configured for IS-IS Level

Example

```
ubuntu@isr1:~$ rtb isis.iod.1 show isis interface twc-0/0/1/2/1 level-1
Interface: twc-0/0/1/2/1, Level: 1
  Adjacencies: 1, Metric: 10, Interface type: point-to-point
  Local Circuit ID: 1, Passive: false
  CSNP : In: 10                  , Out: 113                 , Fail: 0
  PSNP : In: 6                   , Out: 6                   , Fail: 0
  LSP  : In: 8                   , Out: 6                   , Fail: 0
, Processed: 3                   , Purge In: 0
  IIH  : In: 413                 , Out: 416
ubuntu@isr1:~$ rtb isis.iod.1 show isis interface twc-0/0/1/2/1 level-2
Interface: twc-0/0/1/2/1, Level: 2
  Adjacencies: 1, Metric: 10, Interface type: point-to-point
  Local Circuit ID: 1, Passive: false
  CSNP : In: 46                  , Out: 113                 , Fail: 0
  PSNP : In: 4                   , Out: 9                   , Fail: 0
  LSP  : In: 12                  , Out: 4                   , Fail: 0
, Processed: 10                  , Purge In: 0
  IIH  : In: 32                  , Out: 418
ubuntu@isr1:~$
```

Output Fields

Name	Description
Interface	Name of the interface on which IS-IS is configured
Level	Configured level of IS-IS • 1—Level 1 only • 2—Level 2 only
Adjacencies	Number of neighbors in UP state
Interface type	Type of the interface - point-to-point
Metric	Metric configured on the interface
Passive	Interface passive state
CSNP In	Count of incoming CSNP packets on that interface for the specified level
CSNP Out	Count of outgoing CSNP packets on that interface for the specified level
CSNP Fail	Count of failed parse cases for CSNP packets on that interface for the specified level
PSNP In	Count of incoming PSNP packets on that interface for the specified level
PSNP Out	Count of outgoing PSNP packets on that interface for the specified level

Name	Description
PSNP Fail	Count of failed parse cases for Partial Sequence Number Packets (PSNP) on that interface for the specified level
LSP In	Count of incoming LSP packets on that interface for the specified level
LSP Out	Count of outgoing LSP packets on that interface for the specified Level
LSP Fail	Count of failed parse cases for LSP packets on that interface for the specified level
LSP Processed	Count of non-duplicate LSP packets processed on that interface for the specified level
LSP Purge In	Count of LSP purge packets processed on that interface for the specified level
IIH In	Count of incoming IS-IS Hello (IIH) packets on that interface for the specified level
IIH Out	Count of outgoing IIH packets on that interface for the specified level

7.5. show isis lsp database

This command shows the IS-IS LSP database summary for L1 and L2.

Syntax

show isis lsp database

show isis lsp database instance <instance name>

Command arguments

<instance name>	Displays the neighbors in the specified instance. By default, the neighbors in the default instance are displayed.

Example

```
ubuntu@isr1:~$ rtb isis.iod.1 show isis lsp database

  ISIS database summary for the mentioned instance is given below:

  Instance: default Level: 1
             ID            Level     Sequence    Checksum Lifetime
Expiry Status          Purged
    1921.6800.1001.00-00     1          7          52839    65535
expires in 17h 3m 57s 96564...
    1921.6800.1002.00-00     1          5          36037    65534
expires in 17h 3m 5s 685363us
    1921.6800.1003.00-00     1          5          41602    65534
expires in 17h 3m 57s 97062...

  ISIS database summary for the mentioned instance is given below:

  Instance: default Level: 2
             ID            Level     Sequence    Checksum Lifetime
Expiry Status          Purged
    1921.6800.1001.00-00     2          12         24073    65535
expires in 17h 4m 81219us
    1921.6800.1002.00-00     2          13         48990    65526
expires in 17h 3m 58s 87700...
    1921.6800.1003.00-00     2          13         11067    65526
expires in 17h 3m 58s 87703...
    1921.6800.1004.00-00     2          5          58170    65434
expires in 16h 57m 27s 4173...
    1921.6800.1005.00-00     2          5          26798    65494
expires in 16h 57m 27s 4105...
    1921.6800.1006.00-00     2          5          60451    65454
expires in 16h 57m 27s 4260...
ubuntu@isr1:~$
```

Output Fields

Name	Description
ID	The LSP identifier
Level	Configured level of IS-IS • 1—Level 1 only • 2—Level 2 only
Sequence	Sequence number of LSP
Checksum	Checksum of the entire LSP packet
Lifetime	Link-state PDU lifetime, in seconds
Expiry Status	Time after which LSP expires

Name	Description
Purged	This field is set if the LSP is in purge holddown mode

7.6. show isis lsp database level

This command shows the IS-IS Link State Database (LSDB) summary for a specific level (level-1 or level-2).

Syntax

show isis lsp database [level-1 | level-2]

show isis lsp database [level-1 | level-2] **instance** <instance name>

Command arguments

level-1 | level-2	This option will select the level database to be displayed.
<instance name>	This option will list the neighbors in the specified instance. By default, the neighbors in the default instance is shown.

Example

```
ubuntu@isr1:~$ rtb isis.iod.1 show isis lsp database level-1

  ISIS database summary for the mentioned instance is given below:

  Instance: default Level: 1
             ID            Level     Sequence    Checksum Lifetime
Expiry Status          Purged
    1921.6800.1001.00-00     1          3          44687    65535
expires in 18h 4m 59s 88463us
    1921.6800.1002.00-00     1          3          17129    65534
expires in 18h 4m 58s 61250...
    1921.6800.1003.00-00     1          3          21971    65533
expires in 18h 4m 58s 23672...
ubuntu@isr1:~$
```

Output Fields

Name	Description
ID	The LSP identifier

Name	Description
Level	Configured level of IS-IS • 1—Level 1 only • 2—Level 2 only
Sequence	Sequence number of LSP
Checksum	Checksum of the entire LSP packet
Lifetime	Link-state PDU lifetime, in seconds
Expiry status	Time after which LSP expires

7.7. show isis lsp database level detail

This command shows the actual content of the link state database.

Syntax

show isis lsp database [level-1 | level-2] **detail**

show isis lsp database [level-1 | level-2] **detail instance** <instance name>

Command arguments

level-1 | level-2	This option will select the level database to be displayed.
<instance name>	This option will list the neighbors in the specified instance. By default, the neighbors in the default instance is shown.

Example

```
ubuntu@isr1:~$ rtb isis.iod.1 show isis lsp database level-1 detail

LSP ID: 1921.6800.1001.00-00, Level: 1
  Sequence no: 3, Checksum: 44687, Remaining Lifetime: 65535
  Attached bit: 0, Overload bit: 0
  Last received time: 2019-11-18T17:31:37.083306+0530
  Expiry time: expires in 18h 8m 24s 123427us
    Supported Protocols:
      Protocol supported: IPv6
      Protocol supported: IPv4
    Neighbor List:
      Node ID: 1921.6800.1002.00, Metric: 10
    IPv4 Prefix List:
      Prefix: 12.1.1.0/24, Metric: 10
      Prefix: 1.1.1.1/32, Metric: 10
    IPv6 Prefix List:

LSP ID: 1921.6800.1002.00-00, Level: 1
  Sequence no: 3, Checksum: 17129, Remaining Lifetime: 65534
  Attached bit: 0, Overload bit: 0
  Last received time: 2019-11-18T17:31:37.607666+0530
  Expiry time: expires in 18h 8m 23s 647289us
    Supported Protocols:
      Protocol supported: IPv6
      Protocol supported: IPv4
    Neighbor List:
      Node ID: 1921.6800.1001.00, Metric: 10
      Node ID: 1921.6800.1003.00, Metric: 10
    IPv4 Prefix List:
      Prefix: 12.1.1.0/24, Metric: 10
      Prefix: 23.1.1.0/24, Metric: 10
      Prefix: 2.2.2.2/32, Metric: 10
    IPv6 Prefix List:

LSP ID: 1921.6800.1003.00-00, Level: 1
  Sequence no: 3, Checksum: 21971, Remaining Lifetime: 65533
  Attached bit: 0, Overload bit: 0
  Last received time: 2019-11-18T17:31:38.232094+0530
  Expiry time: expires in 18h 8m 23s 271164us
    Supported Protocols:
      Protocol supported: IPv6
      Protocol supported: IPv4
    Neighbor List:
      Node ID: 1921.6800.1002.00, Metric: 10
    IPv4 Prefix List:
      Prefix: 23.1.1.0/24, Metric: 10
      Prefix: 3.3.3.3/32, Metric: 10
    IPv6 Prefix List:
ubuntu@isr1:~$
```

Output Fields

Name	Description
ID	The LSP identifier
Level	Configured level of IS-IS • 1—Level 1 only • 2—Level 2 only
Sequence	Sequence number of LSP
Checksum	Checksum of the entire LSP packet
Remaining Lifetime	Link-state PDU lifetime, in seconds
Expiry status	Time after which LSP expires

8. IS-IS Show Commands for APPD

This section details the fields displayed by IS-IS show commands handled by the APPD module.

8.1. show isis spf-results level

This command shows the IS-IS SPF results for a specific level and topology.

Syntax

show isis spf-results level [level-1 | level-2] **topology** [ipv4-unicast | ipv6-unicast]

show isis spf-results instance <instance name> **level** [level-1 | level-2] **topology** [ipv4- unicast | ipv6-unicast]

Command arguments

level-1 | level-2	Displays the configured level of IS-IS • 1—Level 1 only • 2—Level 2 only
<instance name>	Displays the neighbors in the specified instance. By default, the neighbors in the default instance is shown.
ipv4-unicast | ipv6-unicast	This option will select the topology

Example

```
ubuntu@isr1:~$ rtb isis.appd.1 show isis spf-results level level-1
topology ipv4-unicast
 Node                Metric     Nexthop
 1921.6800.1001.00   0          via local
 1921.6800.1002.00   10         12.1.1.2 via twc-0/0/1/2/1
 1921.6800.1003.00   10         13.1.1.2 via twc-0/0/1/3/1
ubuntu@isr1:~$
```

Output Fields

Name	Description
Node	IS-IS Node ID
Metric	Metric value associated with the route
Nexthop	Displays the nexthop IP address

8.2. show isis routes

This command shows the IS-IS routes for the selected topology.

Syntax

show isis routes [ipv4-unicast | ipv6-unicast] **summary**

show isis routes [ipv4-unicast | ipv6-unicast] **instance** <instance name> **summary**

Command arguments

<instance name>	Displays the neighbors in the specified instance. By default, the neighbors in the default instance are displayed.
ipv4-unicast | ipv6-unicast	This option will select the topology.

Example

```
ubuntu@isr1:~$ rtb isis.appd.1 show isis routes ipv4-unicast summary
 Prefix               Metric     Source     Nexthop
 12.1.1.0/24          10         isis       via local
 13.1.1.0/24          10         isis       via local
 23.1.1.0/24          20         isis       12.1.1.2 via twc-0/0/1/2/1
 24.1.1.0/24          20         isis       12.1.1.2 via twc-0/0/1/2/1
 25.1.1.0/24          20         isis       12.1.1.2 via twc-0/0/1/2/1
 26.1.1.0/24          20         isis       12.1.1.2 via twc-0/0/1/2/1
 1.1.1.1/32           10         isis       via local
 2.2.2.2/32           20         isis       12.1.1.2 via twc-0/0/1/2/1
 3.3.3.3/32           20         isis       13.1.1.2 via twc-0/0/1/3/1
 4.4.4.4/32           30         isis       12.1.1.2 via twc-0/0/1/2/1
 5.5.5.5/32           30         isis       12.1.1.2 via twc-0/0/1/2/1
 6.6.6.6/32           30         isis       12.1.1.2 via twc-0/0/1/2/1
ubuntu@isr1:~$
```

Output Fields

Name	Description
Prefix	The IPv4/IPv6 prefix and mask
Metric	Metric value associated with the route
Source	Source of the route. This value is always IS-IS.
Nexthop	Displays the nexthop IP address