

Enable debugging for the routing protocol

The routing protocol in SONiC is implemented using FRRouting. By default, debug logs are not enabled to minimize log size. However, it is possible to enable debug flags to receive more detailed debug logs. In the system view, FRR is implemented specifically for routing purposes, which means it may have a different logging system compared to SONiC's original syslog. When encountering routing-related issues, you can refer to this guide to obtain additional information for debugging purposes. It will assist you in packaging more helpful information within the support dump for effective troubleshooting.

Integrating syslog with the enabled FRR log
Steps 1. Configure the syslog level.

```
admin@sonic:~$ vtysh
```

```
Hello, this is FRRouting (version 8.1).  
Copyright 1996-2005 Kunihiro Ishiguro, et al.
```

```
sonic# configure
```

```
sonic(config)#
```

Steps 2. Enable the debugging log and store it in syslog.

```
sonic(config)# log syslog debugging
```

```
sonic(config)# log stdout debugging
```

Note. You can use the command below to disable logging.

```
sonic(config)# no log stdout
```

Steps 3. This is an example of how to enable the debug flag for BGP neighbor events.(For detailed debugging flags information, please refer to the table in the Appendix)

```
sonic(config)# debug bgp neighbor-events
```

Note. You can use the command below to disable the flag.

```
sonic(config)# no debug bgp neighbor-events
```

Steps 4. Check the configuration status regarding the debug flags.

```
sonic(config)# do show debugging
```

```
  Zebra debugging status:
```

```
  OSPF debugging status:
```

```
  BGP debugging status:
```

```
    BGP neighbor-events debugging is on
```

```
  isis debugging status:
```

```
  PIM debugging status
```

```
  Staticd debugging status
```

```
  BFD debugging status:
```

```
sonic(config)#
```

Appendix

Debug flags Purpose

BGP

debug bgp zebra

Communications between bgpd and zebra.

debug bgp nht

BGP nexthop tracking.

debug bgp update-groups

This provides general information on group creation, deletion, join and prune events.

debug bgp updates

This provides information on BGP UPDATE messages transmitted and received between local and remote instances.

debug bgp neighbor-events

This provides general information on BGP events such as peer connection / disconnection, session establishment / teardown, and capability negotiation.

debug bgp evpn mh es

This provides information about the Ethernet Segment (ES) in EVPN multihoming.

debug bgp evpn mh route

This provides information about the EVPN routes in EVPN multihoming.

OSPF

debug ospf packet all detail

Dump Packet for debugging

debug ospf ism status

This provide the information about ISM(Interface state machine).

debug ospf nsm status

This provide the information about NSM(Network state machine).

debug ospf event

This provide the information about the OSPF events.

debug ospf nssa

This provide the information about the "Not So Stub Area".

debug ospf lsa

This provide the information about the LSA(Link state messages)

debug ospf zebra

Communications between ospf and zebra.

IS-IS

debug isis adj-packets

This provide the information about the adjacency packets.

debug isis events

This provide the information about the events of ISIS.

debug isis packet-dump

This provide the information about the packet dumps of ISIS protocol.

debug isis route-events

This provide the information about the route events of ISIS protocol.

debug isis spf-events

This provide the information about spf information, including "Shortest Path First Events, Timing and Statistic Data and triggering events".

debug isis update-packets

This provide the information about spf update packets of ISIS protocol.

Zebra

debug zebra dplane

Dataplane / FIB events.

debug zebra events

ZEBRA events

debug zebra evpn mh es

This provide the address informations about the ES in the context of EVPN multihoming.

debug zebra evpn mh mac

This provide the address informations about the MAC in the context of EVPN multihoming.

debug zebra evpn mh neigh

This provide the address informations about the nighbors in the context of EVPN multihoming.

debug zebra evpn mh nh

This provide the address informations about the nexthop tracking in the context of EVPN multihoming.

debug zebra fpm

FPM (forwarding-plane manager) events.

debug zebra kernel

Kernel / OS events.

debug zebra nexthop detail

Nexthop and nexthop-group events.

debug zebra nht detail

Nexthop-tracking / reachability information

debug zebra packet detail

ZAPI message and packet details

debug zebra rib detailed

RIB events.

debug zebra vxlan

VxLAN (EVPN) events