Release Notes for SONiC on Cisco 8000 Series Routers, Release 202405.1.x

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Cisco 8000 series routers support disaggregating the hardware and software to provide a more robust, open ecosystem for service provider networks.

With the introduction of Open Compute Project (OCP), vendors collaborate on designs and specifications to enable a more efficient, scalable, and versatile consumption of hardware and software. This initiative broadens the spectrum for cloud and service provider transformations, hardware innovations, software evolutions, flexibility, lower costs, and better control of the network infrastructure.

As part of the disaggregation journey, Cisco supports installing Software for Open Networking in the Cloud (SONiC) on the following PIDs on the Cisco 8000 series routers:

Product ID (PID)	Description
8101-32FH-O	Cisco 8100 1 RU Chassis with 32x400G QSFP56-DD with Open Software and without HBM on Q200 Silicon.
8102-64H-O	Cisco 8100 2 RU Chassis with 64x100G QSFP28 with Open Software and without HBM on Q200 Silicon.
8122-64EH-O	Cisco 8100 2 RU Chassis with 64x800G or 128x400GbE QSFP-DD800 with Open Software and without HBM.
8102-28FH-DPU-O	This first-generation Smart Switch features the Cisco Silicon One Q200L switching processor and an AMD DSC-200 Data Processing Unit (DPU), all within a two-rack unit form factor. It provides a total network bandwidth of 12.8 Tbps, consisting of 11.2 Tbps for switching and 1.6 Tbps for DPU processing. The switch is equipped with 28 QSFP-DD 400 GbE ports.

SONiC is an open source network operating system based on Linux that runs on switches from multiple vendors and ASICs. SONiC offers a full-suite of network functionality, like BGP and RDMA, that has been production-hardened in the data centers of some of the largest cloud-service providers. Cisco is part of this ecosystem harnessing the innovation in Cisco Silicon One to provide seamless infrastructure experience in data center deployments. Cisco Silicon One devices can assign ports to be generic Ethernet or a fully scheduled fabric. The Cisco Silicon One architecture enables optimized fixed form factor systems. Cisco leverages the SONiC capabilities from the community for a deployment-hardened network stack on the Cisco 8000 series routers.

SONiC uses Switch Abstraction Interface (SAI) API version 1.13.0 for release 202405. The SAI API defines the API to provide a mechanism to control forwarding elements, such as a switching ASIC, an NPU or a software switch in a uniform manner. For more information about SAI APIs, refer the Github repository.

For more information about the benefits of integrated innovation, see Cisco 8000 series routers.

Component Version

This table outlines the versions of various components included in this release:

Component	Version
Linux kernel	`6.1.0-22-2-amd64`
SAI API	`1.13.0`
FRR	`8.5.4-sonic-0`
LLDPD	`1.0.16-1+deb12u1`
TeamD	`1.31-1`
SNMPD	`5.9.3+dfsg-2`
Python	`3.11.2-1+b1`
SYNCD	`1.0.0`
swss	`1.0.0`
Radvd	`1:2.19-1+b1`
Isc-dhcp	`4.4.3-P1-2`
sonic-gnmi version	`0.1`
redis-server	`5:7.0.15-1~deb12u1`
redis-tools version	`5:7.0.15-1~deb12u1`
eventd version	`1.0.0-0`
mgmt-framework version	`1.0-01`

Baseline Features

The following list provides common baseline features supported on SONiC:

- TACACS+ authentication for IPv4 or IPv6 addresses
- SSHv2 authentication for IPv4 or IPv6 addresses
- AAA authentication
- Syslog logging for IPv4 or IPv6 addresses
- Network Time Protocol (NTP) for IPv4 or IPv6 addresses
- Simple Network Management Protocol (SNMP) over IPv4 and IPv6 transport

- TFTP file transfers over IPv4 or IPv6 addresses
- Secure Copy (SCP) server support
- Dynamic Host Configuration Protocol (DHCP) relay agent
- Access Control Lists (ACLs) over IPv4 and IPv6 addresses
- IPv4 or IPv6 ACL match on 7 tuple
- ERSPAN and Everflow Support
    - Source interface to support IPv4 capture and IPv6 capture at the same time
    - Bit-wise match on DSCP
    - Capture IPv4 and IPv6 source packets and encapsulation with either IPv4 or IPv6 addresses
- IPv4 or IPv6 decapsulation
- IPv4 or IPv6 routing
- Static route
- iBGP over IPv4 or IPv6 addresses
- eBGP over IPv4 or IPv6 addresses
- Route policies
- IP prefix lists
- BGP
    - Multihop, AS-set, prefix-set, community-list
    - Max prefix limit
    - Bestpath as-path multipath-relax
    - Soft reconfiguration
    - Update source loopback
- 32-way ECMP
- LAG: IPv4 or IPv6 interfaces addresses
- LACP Support
- RDMA: QOS-RDMA and QOS-ECN
- MTU: Jumbo MTU 9100 for Management, Switched Virtual Interface (SVI) and Native interfaces
- SNMP: Trap source management interface in the management VRF
- COPP/LPTS: For both management and inband interfaces (v4 or v6 UMPP)
- NTP:
    - Support of IPv4 or IPv6 Servers

    - Access-group server ACL

- Security ACL:
    - SSH IPv4 and IPv6 access
    - Physical interfaces—IPv4 and IPv6 ACL support
    - ACL permit, deny actions or counters
- ACL

  Match conditions:
    - 5-tuple match for an ACL (source and destination IP, source and destination port and protocol type)
    - port range
- QoS classification and scheduling over IPv4 or IPv6 addresses
- Syslog support
- gRPC: Dial-out support to stream telemetry data
- Virtual local area network (VLAN)
- Added Resolution Protocol (ARP)
- FAN, PSU management
- Virtual Extensible Local Area Network (VXLAN) is supported on Cisco 8101-32FH-O and Cisco 8102-64H-O routers
- Bidirectional Forwarding Detection (BFD) is supported on Cisco 8101-32FH-O and Cisco 8102-64H-O routers
- Dynamic Host Configuration Protocol (DHCP) relay is supported on Cisco 8101-32FH-O and Cisco 8102-64H-O routers

What's New in the Release

The following features are introduced or enhanced in this release:

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These features are supported in this release:

- Onboard Failure Logging (OBFL) enablement in SONiC for Cisco 8101-32FH-O and 8102-64H-O Routers.
- Forwarding entries debug enhancements
- Support Cisco 8122-64EH-O Router as a SONIC management fanout device
- Supported Optics:
    - 100G: QSFP-100G-AOC-xM, QSFP-100G-CuxM, QSFP-100G-SR4-S

- 400G: QDD-400G-CUxM, QDD-400G-DR4+
- QDD 800G DR8
- 2x400G FR4 : QDD-8x100G-DR8, QDD-8x100G-DR8+
- 800G AEC : QDD-8x100G-AEC-Y-Cable

Known Issues

This section outlines potential issues that users may encounter and provides possible workarounds for these challenges.

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Here are the known issues for Release 202405.1.1 observed in the Cisco 8122-64EH-O router:

- The default Maximum Transmission Unit (MTU) functions as expected in the Cisco 8122-64EH-O router, but modifying the MTU is unsupported.
- When creating MAC addresses sequentially, the Cisco 8122-64EH-O router supports a limit of 5K addresses. This restriction does not apply to random MAC address ranges.
- In the Cisco 8122-64EH-O router, the policer applies a stricter policy. To address this, configure the Class of Service (CoPP) policy to a rate of 1.7 times the expected punt rate (X packets per second).
- Queue counters in the Cisco 8122-64EH-O router are active only when congestion occurs.

Software Download

Download the SONiC image from the Cisco Software Download Center.

Related Documentation

Refer the following pages for more information about SONiC on Cisco 8000 Series Routers:

- Explore SONiC on Cisco 8000 Series Routers
  - Install SONiC on Cisco 8000 Series Routers
  - Setup SONiC on Cisco 8000 Series Routers
  - Network Scenario: 3-Stage Clos Network with Static VXLAN
  - Serviceability
- Cisco 8000 Series Routers Data Sheet