

Junos[®] OS Release 15.1X54–D51 Release Notes

Release 15.1X54–D51
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Revision 1

These release notes accompany Release 15.1X54–D51 of the Junos operating system (Junos OS) for Juniper Networks ACX5000 Universal Access Routers. They describe device documentation and known problems with the software. Junos OS runs on all ACX Series routers.

For the latest, most complete information about outstanding and resolved issues with the Junos OS software, see the Juniper Networks online software defect search application at <http://www.juniper.net/prsearch>.

You can also find these release notes on the Juniper Networks Junos OS Documentation Web page, which is located at <https://www.juniper.net/techpubs/software/junos/>.

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Junos OS Release Notes for ACX Series Routers

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New Features in Junos OS Release 15.1X54–D51 for ACX Series Routers

Powered by Junos OS, the ACX5000 Universal Access Routers are low-cost, high-density, high-capacity, low-power consumption aggregation routers that support 1-Gigabit Ethernet, 10-Gigabit Ethernet, and 40-Gigabit Ethernet interfaces and provide E-LINE, E-LAN, and IP-VPN services for Metro and Carrier Ethernet aggregation environments. The ACX5000 routers are available in AC and DC power variants.

The following are the key features of the ACX5048 router:

- Forty-eight 10-Gigabit Ethernet SFP+ ports that can be configured as 1-Gigabit Ethernet ports that support 1-gigabit small form-factor pluggable transceivers (SFP)
- Six 40-Gigabit Ethernet ports with quad form-factor pluggable plus transceivers (QSFP+)
- Aggregate throughput of up to 1.44 Tbps
- Maximum power requirement of up to 350 W (with optical SFPs)
- Supports channelized 10-Gigabit Ethernet interfaces



NOTE: You can configure one 40-Gigabit Ethernet interface to be channelized into four 10-Gigabit Ethernet interfaces.

The following are the key features of the ACX5096 router:

- Ninety-six 10-Gigabit Ethernet SFP+ ports that can be configured as 1-Gigabit Ethernet ports and support 1-gigabit small form-factor pluggable transceivers (SFP)
- Eight 40-Gigabit Ethernet ports with quad form-factor pluggable plus transceivers (QSFP+)
- Aggregate throughput of up to 2.56 Tbps
- Maximum power requirement of up to 550 W (with optical SFPs)
- Supports channelized 10-Gigabit Ethernet interfaces

**NOTE:**

- You can configure one 40-Gigabit Ethernet interface to be channelized into four 10-Gigabit Ethernet interfaces.
- When channelizing the 40-Gigabit Ethernet interfaces on the ACX5096 router, the router's Packet Forwarding Engine is expected to reboot.

The following features have been added to Junos OS Release 15.1X54–D51 for the ACX5000 line of universal access routers. Following the description is the title of the manual or manuals to consult for further information:

- [Software on page 4](#)

Software

- **Support for DHCP option 82 over bridge domain**—Starting in Release 15.1X54–D51, Junos OS for ACX5000 Universal Access Routers support configuring DHCP option 82 over bridge domain. In a Layer 2 switched networks, there can be one or more devices acting as switches between the client and the Layer 3 DHCP relay agent or DHCP server. In this scenario, some of the client device information required by the Layer 3 DHCP relay agent may not be visible. In such cases, a Layer 2 relay agent can be used to add the option 82 information so that the Layer 3 relay agent and the DHCP server can perform their roles in configuration and address assignment.

ACX5048 and ACX5096 routers support option 82 type, length, and value (TLV) information for DHCP client messages over bridge domain.

You can configure Layer 2 DHCP snooping with option 82 over bridge domains by including the **option-82** CLI statement under the **[edit vlans *vlan-name* forwarding-options dhcp-security]** hierarchy level.

The following is a sample DHCP option 82 configuration:

```
[edit vlans]
GF {
  interface ge-0/0/49.0;
  interface ge-0/0/48.0;
  forwarding-options {
    dhcp-security {
      group GF {
        overrides {
          trusted;
        }
        interface ge-0/0/49.0;
      }
    }
    option-82 {
      circuit-id {
        prefix {
          host-name;
        }
      }
    }
  }
}
```

}



NOTE: ACX5048 and ACX5096 routers support only the **option-82**, **group**, and **no-dhcp-snooping** attributes under the **[edit vlans *vlan-name* forwarding-options dhcp-security]** hierarchy level.

Related Documentation

- [Known Limitations in Junos OS Release 15.1X54-D51 for ACX Series Routers on page 5](#)
- [Resolved Issues in Junos OS Release 15.1X54-D51 for ACX Series Routers on page 10](#)
- [Upgrade and Downgrade Instructions for Junos OS Release 15.1X54-D51 for ACX Series Routers on page 15](#)

Known Limitations in Junos OS Release 15.1X54-D51 for ACX Series Routers

The following software limitations currently exist in Juniper Networks ACX Series Universal Access Routers. The identifier following the descriptions is the tracking number in the Juniper Networks Problem Report (PR) tracking system.

Interfaces and Chassis

- The counters for oversized frames and jabber frames does not increment properly. This happens in the case of a tagged interface for a packet size between 1519 and 1522 bytes. [[PR1060169](#): This is a known limitation.]
- A commit error is not seen while configuring channelization in the following scenario:

If you configure channelization on a port, the configuration should throw a commit error when the channelization on the port is configured individually and as well as configured as a part of port-range as shown below:

```
[edit chassis]
fpc 0 {
  pic 0 {
    port 53 {
      channel-speed 10g;
    }
    port 54 {
      channel-speed 10g;
    }
    port-range 53 54 {
      channel-speed 10g;
    }
  }
}
```

[[PR1051245](#): This is a known limitation.]

- On ACX5000 routers, whenever a **force switch** command is issued on the ring protection link, the status of ring protection link shows unblocked. This happens when ERPS is in idle state. [[PR1070583](#): This is a known limitation.]

- When you configure VRRP on ACX5000 routers, the master router gets toggled on IRB interfaces. [[PR1131595](#): This is a known limitation.]
- On ACX5000 router, the Integrated Routing and Bridging (IRB) interface goes down whenever you delete a data channel VLAN from an ERPS RPL owner followed by Forwarding Engine Board (FEB) restart. [[PR1135534](#): This is a known limitation.]
- Whenever you make a configuration change to the VLAN ID on a logical interface having **vlan-id-list** encapsulation, the output stats shows incorrect information. [[PR1176530](#): This is a known limitation.]
- When ACX5000 Series router is acting as an label-switching router (LSR),
 - Traffic belonging to same CCC/VPLS pseudowire cannot be load balanced based on L2/L3/L4 fields.
 - Traffic belonging to multiple CCC pseudowire sessions can be load balanced but traffic belonging to multiple VPLS pseudowire sessions cannot be load balanced.[[PR1181853](#): This is a known limitation.]
- If explicit null is configured on an egress label edge router (LER), then forwarding of non-MPLS transit traffic does not work on label-switching router (LSR). [[PR1180757](#): This is a known limitation.]

Class of Service

- When the **show class-of-service scheduler-map** CLI command is run, the output does not show the drop profiles attached to a non-TCP traffic. Drop profiles attached to only TCP traffic are displayed. [[PR1048408](#): This is a known limitation.]
- Weighted random early detection (WRED) profiles do not have any effect on multicast, unknown unicast, broadcast, and mirrored packets. WRED profiles affect only queue tail drops.
- ACX5048 and ACX5096 routers do not support DSCP classification for MPLS packets received from core on routing instance configured with BGP for per-prefix-label.
- On ACX5048 and ACX5096 routers, whenever scheduler parameters are changed while the traffic is flowing with shaping applied, the entire traffic on the egress physical interface is blocked temporarily.

DHCP

- If DHCP persistence is configured on relay, then the DHCP renew release packets are dropped after restarting the dhcp-service. [PR1208669: This is a known limitation.]

VPN

- When the router restores from fast reroute (FRR) link failures, less than 1 millisecond traffic loss is seen on few Layer 3 VPNs. [PR1017210: This is a known limitation.]

VPLS

- When the **show vpls statistics** CLI command is run, the statistics for various output fields show value as 0. [PR1057240: This is a known limitation.]
- The **ping vpls** CLI command is not supported on ACX5048 and ACX5096 routers. [PR1065202: This is a known limitation.]
- The shaping rate for VPLS flood cases with bidirectional traffic does not work correctly. [PR1078664: This is a known limitation.]
- When a VLAN tagged traffic is sent on a logical interface with Ethernet-VPLS encapsulation configured, only single VLAN tagged traffic is received instead of dual tagged traffic. This occurs when you configure Ethernet-VPLS encapsulation and VLAN-VPLS encapsulation on logical interfaces that are part of a VPLS routing instance configured with **vlan-id none**. [PR1100255: This is a known limitation.]

Firewall

- When you configure firewall on a logical interface with **native-vlan-id** configured, the configuration might erroneously match the traffic on other logical interfaces on the same physical interface. [PR1048860: This is a known limitation.]
- On ACX5000 Series routers, **family any** egress filter will not match MPLS (VPWS/VPLS) packets. [PR1100698: This is a known limitation.]
- A filter with multiple terms having different **learn-vlan-id** will not work, instead you must configure multiple filters for each **learn-vlan-id**. [PR1198064: This is a known limitation.]

Operations Administration and Maintenance

- Customer edge (CE-to-CE) link fault management (LFM) session does not come up on circuit cross-connect (CCC) logical interface configured with **native-vlan** and input (push-pop) VLAN map operation. [PR1044997: This is a known limitation.]
- When a bridge domain interface is configured with explicit VLAN map (input or output), maintenance association intermediate point (MIP) cannot be configured. [PR1058393: This is a known limitation.]
- If you make any changes to the COS configuration after the CFM (OAM) session is up then those changes will not have any effect on the CCM (OAM) packets generated

from the device. The workaround is to deactivate and activate the OAM protocol for the COS configuration changes to take effect. [[PR1054908](#): This is a known limitation.]

- In ACX5000 line of routers, if you configure CFM UP MEP over Layer 2 circuit, the continuity check messages (CCM) will not be transmitted causing the peer router to remain in a failed state. This issue might occur if you had configured both layer 2 circuit and CFM together and committed them at the same time. To avoid this issue, you need to first configure Layer 2 circuit and commit the configuration and then add the CFM configuration and commit the configuration. As a workaround, you need to deactivate and activate the failed OAM sessions.



NOTE: You might also notice this issue after upgrading to 15.1X54-D50.13 image. In this case, it is recommended to run the **restart ethernet-connectivity-fault-management** CLI command after upgrading or rebooting the router.

[[PR1161699](#): This is a known limitation.]

Transparent Clock

- When transparent clock is configured in the router and when the router resumes after reboot, the transparent clock status is shown as **ENABLED** and **ACTIVE**, instead of **ENABLED** and **INACTIVE**. This condition is transient and has no functional impact.

```
user@host# run show ptp global-information
PTP Global Configuration:
Transparent-clock-config : ENABLED
Transparent-clock-status : ACTIVE
```

[[PR1051500](#): This is a known limitation.]

- When you run the **restart clksyncd-service** CLI command, incorrect correction field values are seen when transparent clock is **INACTIVE**. This does not have any functional impact. [[PR1067583](#): This is a known limitation.]
- When transparent clock is in **ENABLED** or **DISABLED** state and if you try to add, delete, or modify any of the interfaces, the transparent clock **ENABLED** or **DISABLED** messages are seen in the packet forwarding engine (PFE). This does not have any functional impact. [[PR1069516](#): This is a known limitation.]
- Whenever an AE-based pseudowire flaps, the following messages are seen:

```
Jul  2 14:37:14 acx5k11-dc fpc0
ACX_COS_HALP(acx_cos_classifier_type_bind_svp:2218): Classifier bind to IFL 559
failed
Jul  2 14:42:52 acx5k11-dc fpc0
ACX_COS_HALP(acx_cos_bind_classifier_dscp_ifl_pvt:2288): bcm_port_dscp_map_set()
API ERROR : Entry not found
```

This does not have any functional impact. [[PR1102004](#): This is a known limitation.]

Messages

- The following error message is seen whenever the PFE is restarted:

LOG: Err] PORTDEV: OPTIC State changed for port

This does not have any functional impact. [[PR1066899](#)]

- The following error message is seen in the PFE when **firewall family ccc filter** scale is reached:

LOG: Info] ipc_pipe_write_wait(): Failed! (broken pipe)

This does not have any functional impact. [[PR1098169](#)]

- The following error message is seen in the PFE when you delete the pseudowire with scale:

LOG: Err] acx_bcm_mpls_nni_port_delete: port stat ctr get failed VPN:12295
mpls_gport:402657148 (-7:Entry not found)

This does not have any functional impact. [[PR1096405](#)]

- The following error message is seen when multiple MPLS service scale configuration is replaced with another multiple MPLS service scale configuration:

LOG: Err] ACX_NH::acx_nh_mpls_tunnel_uninstall(),1142:acx_nh_mpls_tunnel_uninstall:
BCM L3 Egress destroy object failed for (-10:Operation still running),
BCM NH Obj: 0x1875a

This does not have any functional impact. [[PR1093326](#)]

- An error message is seen when aggregated Ethernet interface configuration is removed from the VPLS service. This does not have any functional impact. [[PR1090923](#)]
- The following messages are seen when the MPLS label-switched path (LSP) configurations are removed at scale:

LIBJSNMP_NS_LOG_NOTICE: NOTICE: Dropping Trap - Defer send disabled

This does not have any functional impact. [[PR1077913](#)]

- The following messages are seen when you enable fixed classification on IRB:

Jul 30 10:46:01 acx5k11-dc cosd[1606]: COSD_GENCFG_WRITE_FAILED: GENCFG
write failed (op, minor_type) = (add, fixed classification) for tbl 2 if 555 irb.1 Reason:
File exists

This does not have any functional impact. [[PR1109259](#)]

- The following messages are seen when a Layer 3 interface (family inet) is converted to a Layer 2 interface (family Ethernet switching) with IRB:

Sun Feb 14 17:29:39.335 LOG: Err]
ACX_NH::acx_nh_composite_mcast_uninstall(),418:acx_nh_composite_mcast_uninstall:
nh 1739 Couldn't create multicast group: (-10:Operation still running)

[Sun Feb 14 17:29:39.336 LOG: Err] nh_composite_delete:3773Failed to uninstall
composite nh:1739

[Sun Feb 14 17:29:39.338 LOG: Err] nh_composite_delete:3773Failed to uninstall
composite nh:1742

This does not have any functional impact. [[PR1126002](#)]

- The following messages are seen when you configure Layer 3 VPN:

[Thu Apr 7 07:19:53.713 LOG: Err] nh_unilist_change_platform:897Failed to install in h/w[Thu Apr 7 07:19:53.717 LOG: Err]
ACX_NH::acx_nh_stat_attach(),1804:bcm_l3_egress_stat_attach failed for NH:131295
HW Idx:100433proto:6(IPv6) stat:426071 (-8:Entry exists)

[Thu Apr 7 07:19:53.717 LOG: Err] nh_unilist_change_platform:897Failed to install in h/w[Thu Apr 7 07:19:53.741 LOG: Err]
ACX_NH::acx_nh_stat_attach(),1804:bcm_l3_egress_stat_attach failed for NH:131296
HW Idx:100436proto:6(IPv6) stat:426070 (-8:Entry exists)

This does not have any functional impact. [[PR1173907](#)]

- If you make any modification to a logical interface configured with **vlan-id-list** or **vlan-id-range** encapsulation, the output shows incorrect statistics.
[\[PR1158493\]](#) and [PR1176530](#)
- If you have configured label-switched paths (LSPs) as OSPF neighbors and you try to run the **show snmp mib walk decimal 1.3.6.1.2.1.14** CLI command, you will get the following message in the output and the command stops abruptly.

Request failed: OID not increasing: ospfNbrIpAddr.192.168.100.7.0 >=
ospfNbrIpAddr.192.168.100.7.0

[\[PR1177315\]](#)

Related Documentation

- [New Features in Junos OS Release 15.1X54–D51 for ACX Series Routers on page 3](#)
- [Resolved Issues in Junos OS Release 15.1X54–D51 for ACX Series Routers on page 10](#)
- [Upgrade and Downgrade Instructions for Junos OS Release 15.1X54–D51 for ACX Series Routers on page 15](#)

Resolved Issues in Junos OS Release 15.1X54–D51 for ACX Series Routers

This section lists the issues fixed in the Junos OS Release 15.1X54–D51 for ACX Series Routers

For the most complete and latest information about known Junos OS defects, use the Juniper Networks online [Junos Problem Report Search](#) application.

Interfaces and Chassis

- If explicit null was configured on an egress label edge router (LER), then forwarding of non-MPLS transit traffic did not work on label-switching router (LSR). [PR1180757](#)
- The ARP policer on ACX5000 Series router dropped transit ARP traffic. [PR1197997](#)

DHCP

- Support for DHCP option 82 support on VLANs (with DHCP Snooping). [PR1196863](#)
- On ACX5000 Series routers, if you had deactivated and activated **dhcp-security** under a bridge domain, the interfaces which were grouped as trusted becomes untrusted. [PR1199140](#)

- On ACX5000 Series routers, the **use-vlan-id** CLI option under the DHCP option 82 configuration over bridge domain needs to be removed from the **[edit vlans vlan-name forwarding-options dhcp-security option-82 circuit-id]** hierarchy. [PR1199663](#)
- On ACX5000 Series routers, the **remote-id** and the request packet for DHCP option 82 was not updated. [PR1199886](#)
- The **use-string** CLI option for **vendor-id** under DHCP option 82 configuration did not work as expected. [PR1204811](#)

Firewall Filters

- Firewall filter did not work if more than one **learn_vlan_id** was configured. [PR1191020](#)

Messages

- On ACX5000 routers, when MPLS services is configured, the following nexthop statistics error messages were seen:

```
fpc0 ACX_NH::acx_nh_stat_delete(),1771:bcm_stat_group_destroy failed for NH:1924
HW Idx:100219proto:8(IPv6->MPLS) stat:426057 (-11:Operation failed)
fpc0 ACX_NH::acx_nh_stat_attach(),1804:bcm_l3_egress_stat_attach failed for
NH:131074 HW Idx:100035proto:6(IPv6) stat:426195 (-8:Entry exists)
fpc0 nh_unlist_change_platform:897Failed to install in h/w
```

Nexthop statistics is a feature added to support MPLS auto-bandwidth. These messages do not have a functional impact and can be ignored if MPLS auto-bandwidth is not configured under protocol MPLS. [PR1173907](#)

- FPC crash was seen at **#0 0x09d90bd3 in kill () at kill.S:2**. [PR1192171](#)
- MPLS LSP was affected because nexthop failed to be programmed resulted in the following error:

```
acx_bcm_mpls_nni_port_add: NNI stat group (nh) create failed (-11:Operation failed)
```

Since the stat group creation got failed, the MPLS port was not added resulting in traffic flow interruption. [PR1195419](#)

- On ACX5000 Series routers, when the DHCP option-82 was configured the following error message was seen during the dhcp-service restart:

```
ACX_NH::acx_nh_ucast_uninstall(),2692:acx_nh_ucast_uninstall: nh 1692 type:Discard
proto:DHCPv6-Snooping Type is unsupported
```

[PR1198852](#)

- The following error messages were seen during feb reboot:

```
ACX_COS_HALP(acx_cos_classifier_type_bind_svp:2074): ifd not found for IFL 560
ACX_COS_HALP(acx_cos_classifier_type_bind_svp:2074): ifd not found for IFL 559
ACX_COS_HALP(acx_cos_classifier_type_bind_svp:2074): ifd not found for IFL 558
ACX_COS_HALP(acx_cos_classifier_type_bind_svp:2074): ifd not found for IFL 557
```

[PR1199185](#)

- On ACX5000 Series router, the following error messages were seen when the link in the primary path of LSP was flapped:

```

ACX_NH::acx_nh_ccc_tag_hw_uninstall(),2444:acx_nh_ccc_tag_hw_uninstall: nh 1988
egress uninstall failed: (-10:Operation still running) hw_index: 100436
ACX_NH::acx_nh_mpls_tunnel_uninstall(),1150:acx_nh_mpls_tunnel_uninstall: BCM L3
Egress destroy object failed for (-10:Operation still running), BCM NH Obj: 0x18847
acx_bcm_mpls_nni_port_add: NNI VPWS port_add failed (-4:Invalid parameter)
acx_rt_vpls_eth_vpn_nni_port_add: NNI VPLS port_add failed AC-IFL:611 UC-NH:1888
in_label 262163 flags 0x1123 port 0x18000036 vpn 28674 (-4:Invalid parameter)
acx_rt_vpls_eth_pw_protection_add: REINSTALL - add of NNI port failed for PW-ifl: 611,
status: 1000
acx_rt_vpls_entry_install: REINSTALL - add of NNI protected port failed for PW-ifl: 611,
status: 1000
Failed to re-install route entry (status: 1000)
RT-HAL,rt_entry_topo_handler,4812: rt_half_vectors->rt_rebake failed
RT-HAL,rt_entry_topo_handler,4818: nh_id = 0x20034, nh_type = 5, rpf_nh_index =
0x0, prefix = 00004 00000 0006b/51
RT-HAL,rt_entry_topo_handler,4821: rt = 0x0x2242a640, rtt = 0x0x2065d1d0, nh =
0x0x224ca218, dc = 0x0x0, sc = 0x0x0, rpf_nh = 0x0x0, cos = 0x0x0
acx_bcm_mpls_nni_port_add: NNI VPWS port_add failed (-4:Invalid parameter)
acx_rt_vpls_eth_vpn_nni_port_add: NNI VPLS port_add failed AC-IFL:611 UC-NH:1888
in_label 262163 flags 0x1123 port 0x18000036 vpn 28674 (-4:Invalid parameter)
acx_rt_vpls_eth_pw_protection_add: REINSTALL - add of NNI port failed for PW-ifl: 611,
status: 1000
acx_rt_vpls_entry_install: REINSTALL - add of NNI protected port failed for PW-ifl: 611,
status: 1000
Failed to re-install route entry (status: 1000)
RT-HAL,rt_entry_topo_handler,4812: rt_half_vectors->rt_rebake failed
RT-HAL,rt_entry_topo_handler,4818: nh_id = 0x20034, nh_type = 5, rpf_nh_index =
0x0, prefix = 00004 00000 0006b/51
RT-HAL,rt_entry_topo_handler,4821: rt = 0x0x2242a640, rtt = 0x0x2065d1d0, nh =
0x0x224ca218, dc = 0x0x0, sc = 0x0x0, rpf_nh = 0x0x0, cos = 0x0x0

```

PR1204714

- The following error message was seen when the **chained-composite-next-hop** CLI option was enabled:

```

ACX_NH::acx_nh_stat_delete(),1836:bcm_l3_egress_stat_detach failed for NH:3912
HW Idx:100148proto:4(IPv4->MPLS) stat:426206 (-11:Operation failed)

```

PR1195698

- The following error message was seen when interface link was flapped:

```

ACX_NH::acx_nh_stat_delete(),1851:bcm_stat_group_destroy failed for NH:1746 HW
Idx:100020proto:8(IPv6->MPLS) stat:425997 (-11:Operation failed)

```

PR1197671

Related Documentation

- [New Features in Junos OS Release 15.1X54–D51 for ACX Series Routers on page 3](#)
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Errata and Changes in Documentation for Junos OS Release 15.1X54-D51 for ACX Series Routers

- [Errata on page 13](#)
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Errata

- Support for multifield classifiers is incorrectly omitted from the ACX Series documentation. Multifield classifiers allow fine grained classification by examination of multiple fields in the packet header—for example, the source and destination address of the packet, and the source and destination port numbers of the packet. A multifield classifier typically matches one or more of the six packet header fields: destination address, source address, IP protocol, source port, destination port, and DSCP. Multifield classifiers are used when a simple BA classifier is insufficient to classify a packet.

In the Juniper Networks Junos operating system (Junos OS), you configure a multifield classifier with a firewall filter and its associated match conditions. This enables you to use any filter match criteria to locate packets that require classification. From a CoS perspective, multifield classifiers (or firewall filter rules) provide the following services:

- Classify packets to a forwarding class and loss priority. The forwarding class determines the output queue. The loss priority is used by schedulers in conjunction with the random early discard (RED) algorithm to control packet discard during periods of congestion.
- Police traffic to a specific bandwidth and burst size. Packets exceeding the policer limits can be discarded, or can be assigned to a different forwarding class, to a different loss priority, or to both.



NOTE: You police traffic on input to conform to established CoS parameters, setting loss handling and forwarding class assignments as needed. You shape traffic on output to make sure that router resources, especially bandwidth, are distributed fairly. However, input policing and output shaping are two different CoS processes, each with their own configuration statements.

To configure multifield classifiers, include the following statements at the **[edit firewall]** hierarchy level:

```
[edit firewall]
family family-name {
  filter filter-name {
    term term-name {
      from {
        match-conditions;
      }
      then {
        dscp 0;
        forwarding-class class-name;
        loss-priority (high | low);
      }
    }
  }
}
```

```

    }
  }
  simple-filter filter-name {
    term term-name {
      from {
        match-conditions;
      }
      then {
        forwarding-class class-name;
        loss-priority (high | low | medium);
      }
    }
  }
}

```

The minimum configuration required to define a multified classifier is the following:

```

[edit firewall]
family family-name {
  simple-filter filter-name {
    term term-name {
      then {
        forwarding-class class-name;
        loss-priority (high | low | medium);
      }
    }
  }
}

```

After defining the multified classifier, you can apply the multified classifier to an individual interface with the following configuration:

```

[edit interfaces]
interface-name {
  unit logical-unit-number {
    family family {
      filter {
        input filter-name;
      }
    }
  }
}

```

[ACX Series Universal Access Router Configuration Guide]

- The *Configuring Load Balancing Based on MPLS Labels on ACX Series Routers* topic fails to explicitly state that load balancing using MPLS labels is supported only for aggregated Ethernet (ae) or LAG interfaces and not for equal-cost multipath (ECMP) links. To load-balance based on the MPLS label information for LAG interfaces, configure the **family mpls** statement at the **[edit forwarding-options hash-key]** hierarchy level.

[ACX Series Universal Access Router Configuration Guide]

Changes to the Junos OS ACX Documentation

There are no changes to the ACX Documentation in Junos OS Release 15.1X54-D51.

- Related Documentation**
- [New Features in Junos OS Release 15.1X54-D51 for ACX Series Routers on page 3](#)
 - [Known Limitations in Junos OS Release 15.1X54-D51 for ACX Series Routers on page 5](#)
 - [Resolved Issues in Junos OS Release 15.1X54-D51 for ACX Series Routers on page 10](#)
 - [Upgrade and Downgrade Instructions for Junos OS Release 15.1X54-D51 for ACX Series Routers on page 15](#)

Upgrade and Downgrade Instructions for Junos OS Release 15.1X54-D51 for ACX Series Routers

This section discusses the following topics:

- [Basic Procedure for Upgrading to Release 15.1X54-D51 on page 15](#)
- [Upgrade and Downgrade Support Policy for Junos OS Releases on page 17](#)

Basic Procedure for Upgrading to Release 15.1X54-D51

When upgrading or downgrading Junos OS, always use the **jinstall** package. Use other packages (such as the **jbundle** package) only when so instructed by a Juniper Networks support representative. For information about the contents of the **jinstall** package and details of the installation process, see the *Installation and Upgrade Guide*.



NOTE: Before upgrading, back up the file system and the currently active Junos configuration so that you can recover to a known, stable environment in case the upgrade is unsuccessful. Issue the following command:

```
user@host> request system snapshot
```

The installation process rebuilds the file system and completely reinstalls Junos OS. Configuration information from the previous software installation is retained, but the contents of log files might be erased. Stored files on the routing platform, such as configuration templates and shell scripts (the only exceptions are the `juniper.conf` and `ssh` files), might be removed. To preserve the stored files, copy them to another system before upgrading or downgrading the routing platform. For more information, see *Understanding System Snapshot on an ACX Series Router*.

On ACX5000 series router, you can take a snapshot of the existing Junos OS by inserting an external USB storage device and executing the **request system snapshot slice alternate** command. This command takes a snapshot of the current running Junos OS on to the external USB storage device.

The download and installation process for Junos OS Release 15.1X54-D51 is different from previous Junos OS releases.

1. Using a Web browser, navigate to the **All Junos Platforms** software download URL on the Juniper Networks web page:
<http://www.juniper.net/support/downloads/>
2. Select the name of the Junos platform for the software that you want to download.
3. Select the release number (the number of the software version that you want to download) from the **Release** drop-down list to the right of the Download Software page.
4. Select the **Software** tab.
5. In the **Install Package** section of the **Software** tab, select the software package for the release.
6. Log in to the Juniper Networks authentication system using the username (generally your e-mail address) and password supplied by Juniper Networks representatives.
7. Review and accept the End User License Agreement.
8. Download the software to a local host.
9. Copy the software to the routing platform or to your internal software distribution site.
10. Install the new **jinstall** package on the routing platform.



NOTE: We recommend that you upgrade all software packages out of band using the console because in-band connections are lost during the upgrade process.

Customers in the United States and Canada use the following command:

```
user@host> request system software add validate reboot  
source/jinstall-acx5k-15.1X54-D51.7-domestic-signed.tgz force-host
```



NOTE: In ACX5000 line of routers, you must always use the **force-host** option for a full software upgrade, which also includes the host software upgrade. An upgrade without the **force-host** option can cause unexpected behaviors and is not recommended.

Replace **source** with one of the following values:

- **/pathname**—For a software package that is installed from a local directory on the router.
- For software packages that are downloaded and installed from a remote location:
 - **ftp://hostname/pathname**
 - **http://hostname/pathname**
 - **scp://hostname/pathname** (available only for Canada and U.S. version)

The **validate** option validates the software package against the current configuration as a prerequisite to adding the software package to ensure that the router reboots successfully. This is the default behavior when the software package being added is a different release.

Adding the **reboot** command reboots the router after the upgrade is validated and installed. When the reboot is complete, the router displays the login prompt. The loading process can take 5 to 10 minutes.

Rebooting occurs only if the upgrade is successful.



NOTE: After you install a Junos OS Release 15.1X54-D51 jinstall package, you cannot issue the **request system software rollback** command to return to the previously installed software. Instead you must issue the **request system software add validate** command and specify the jinstall package that corresponds to the previously installed software.

Upgrade and Downgrade Support Policy for Junos OS Releases

Support for upgrades and downgrades that span more than three Junos OS releases at a time is not provided, except for releases that are designated as Extended End-of-Life (EEOL) releases. EEOL releases provide direct upgrade and downgrade paths—you can upgrade directly from one EEOL release to the next EEOL release even though EEOL releases generally occur in increments beyond three releases.

You can upgrade or downgrade to the EEOL release that occurs directly before or after the currently installed EEOL release, or to two EEOL releases before or after. For example, Junos OS Releases 10.0, 10.4, and 11.4 are EEOL releases. You can upgrade from Junos

OS Release 10.0 to Release 10.4 or even from Junos OS Release 10.0 to Release 11.4. However, you cannot upgrade directly from a non-EEOL release that is more than three releases ahead or behind. For example, you cannot directly upgrade from Junos OS Release 10.3 (a non-EEOL release) to Junos OS Release 11.4 or directly downgrade from Junos OS Release 11.4 to Junos OS Release 10.3.

To upgrade or downgrade from a non-EEOL release to a release more than three releases before or after, first upgrade to the next EEOL release and then upgrade or downgrade from that EEOL release to your target release.

For more information on EEOL releases and to review a list of EEOL releases, see <http://www.juniper.net/support/eol/junos.html>.

**Related
Documentation**

- [New Features in Junos OS Release 15.1X54–D51 for ACX Series Routers on page 3](#)
- [Known Limitations in Junos OS Release 15.1X54–D51 for ACX Series Routers on page 5](#)
- [Resolved Issues in Junos OS Release 15.1X54–D51 for ACX Series Routers on page 10](#)

Junos OS Documentation and Release Notes

For a list of related Junos OS documentation, see <http://www.juniper.net/techpubs/software/junos/>.

If the information in the latest release notes differs from the information in the documentation, follow the *Junos OS Release Notes*.

To obtain the most current version of all Juniper Networks® technical documentation, see the product documentation page on the Juniper Networks website at <http://www.juniper.net/techpubs/>.

Juniper Networks supports a technical book program to publish books by Juniper Networks engineers and subject matter experts with book publishers around the world. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration using the Junos operating system (Junos OS) and Juniper Networks devices. In addition, the Juniper Networks Technical Library, published in conjunction with O'Reilly Media, explores improving network security, reliability, and availability using Junos OS configuration techniques. All the books are for sale at technical bookstores and book outlets around the world. The current list can be viewed at <http://www.juniper.net/books>.

Documentation Feedback

We encourage you to provide feedback, comments, and suggestions so that we can improve the documentation. You can send your comments to techpubs-comments@juniper.net, or fill out the documentation feedback form at <https://www.juniper.net/cgi-bin/docbugreport/>. If you are using e-mail, be sure to include the following information with your comments:

- Document name
- Document part number
- Page number
- Software release version

Requesting Technical Support

Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active J-Care or JNASC support contract, or are covered under warranty, and need postsales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the JTAC User Guide located at <http://www.juniper.net/customers/support/downloads/710059.pdf>.
- Product warranties—For product warranty information, visit <http://www.juniper.net/support/warranty/>.

- JTAC Hours of Operation —The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

Self-Help Online Tools and Resources

For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: <http://www.juniper.net/customers/support/>
- Search for known bugs: <http://www2.juniper.net/kb/>
- Find product documentation: <http://www.juniper.net/techpubs/>
- Find solutions and answer questions using our Knowledge Base: <http://kb.juniper.net/>
- Download the latest versions of software and review release notes: <http://www.juniper.net/customers/csc/software/>
- Search technical bulletins for relevant hardware and software notifications: <https://www.juniper.net/alerts/>
- Join and participate in the Juniper Networks Community Forum: <http://www.juniper.net/company/communities/>
- Open a case online in the CSC Case Management tool: <http://www.juniper.net/cm/>

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool located at <https://tools.juniper.net/SerialNumberEntitlementSearch/>.

Opening a Case with JTAC

You can open a case with JTAC on the Web or by telephone.

- Use the Case Management tool in the CSC at <http://www.juniper.net/cm/> .
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, visit us at <http://www.juniper.net/support/requesting-support.html>.

If you are reporting a hardware or software problem, issue the following command from the CLI before contacting support:

```
user@host> request support information | save filename
```

To provide a core file to Juniper Networks for analysis, compress the file with the **gzip** utility, rename the file to include your company name, and copy it to **ftp.juniper.net:pub/incoming**. Then send the filename, along with software version information (the output of the **show version** command) and the configuration, to **support@juniper.net**. For documentation issues, fill out the bug report form located at <https://www.juniper.net/cgi-bin/docbugreport/>.

Revision History

1 September, 2016—Revision 1, Junos OS Release 15.1X54-D51 – ACX Series Routers.

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