

AOS-CX 10.10.1100 Release Notes

9300 Switch Series



a Hewlett Packard
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Products Supported

This release applies to the 9300Switch Series. The following table lists any applicable minimum software versions required for that model of switch.



If your product is not listed in the below table, no minimum software version is required.

Product number	Product name	Minimum software version
R9A29A	Aruba 9300-32D 32p 100/200/400G QSFP-DD 2p 10G SFP+ Front-to-Back 6 Fans 2 AC PSU Bundle	10.10.1000
R9A30A	Aruba 9300-32D 32p 100/200/400G QSFP-DD 2p 10G SFP+ Back-to-Front 6 Fans 2 AC PSU Bundle	10.10.1000
R8Z96A	Aruba 9300-32D 32-port 100/200/400G QSFP-DD 2-port 10G Switch	10.10.1000

Important information for 9300 Switches



Starting from AOS-CX 10.10.1090, switches will only support TLSv1.2 ciphers and curves approved by the NIAP on all supported applications such as Secure RADIUS (RadSec), Captive Portal, and EAP-TLS clients. It is advised to upgrade your Secure RADIUS server to a version that supports the NIAP approved ciphers and curves and disable the unsupported ciphers from your EAP-TLS clients. NIAP approved ciphers and curves are DHE-RSA-AES128-GCM-SHA256, DHE-RSA-AES256-GCM-SHA384, ECDHE-ECDSA-AES128-GCM-SHA256, ECDHE-ECDSA-AES256-GCM-SHA384, ECDHE-RSA-AES128-GCM-SHA256, ECDHE-RSA-AES256-GCM-SHA384, secp521r1, secp384r1, and prime256v1.

To avoid damage to your equipment, do not interrupt power to the switch during a software update.



Diffie-Helman algorithm is no longer enabled by default for key exchange. To enable using Diffie-Helman for key exchange, use the command `ssh key-exchange-algorithms <KEY-EXCHANGE-ALGORITHM-LIST>.`

AOS-CX BGP implementations support resolving a BGP route's nexthop to a default route (0.0.0.0/0). However, this is not generally recommended in network deployments. Considering the default route to be the last resort route, resolving the BGP route's nexthop to a default route can cause potential routing loops in the network, if they are not properly designed and monitored. Route flaps and/or traffic drops may be observed in such cases.



In a future release, AOS-CX will not support the BGP route's nexthop resolving to a default route in the Route table. To avoid this problem and to be prepared for the update, Aruba recommends configuring a more specific static route (or host route) for BGP nexthops that are multihops away that are resolving via the default route.

If using the Web UI, you should clear the browser cache after upgrading to this version of software before logging into the switch using a Web UI session. This will ensure the Web UI session downloads the latest changes. Do not upgrade to 10.11 using REST API or WebUI unless your switch is running 10.09.1060, 10.10.1020 or later versions of these releases.



If a switch has RPVST enabled and the native VLAN ID configured for a trunk interface is not the default VLAN ID 1, and the native VLAN ID is also used as the management VLAN, the switch may not be accessible over the trunk interface after upgrading from any 10.04.00xx version of software.

To fix the issue after an upgrade, log into the switch using the OOBM interface or serial port console and configure the following:



```
switch# configure
switch(config)# spanning-tree rpvst-mstp-interconnect-vlan <VLAN_ID>
```

where <VLAN_ID> is the native VLAN ID configured on the trunk interface.

If there are multiple trunk interfaces configured on the switch, each with a different VLAN ID, contact the Aruba Support Team.

To upgrade to:	Your switch must be running this version or later ***
AOS-CX 10.10.xxxx Note: 10.10 is an LSR, recommended release is 10.10.10xx.	AOS-CX 10.06.0110

*** Note that all switch models may not support this minimum upgrade version.

Refer to the Approved Product Lists sites for the Common Criteria, FIPS 140-2 and DoDIN APL to obtain the product certification details. Products should be used as evaluated and defined in the respective configuration guides.

- Common Criteria: <https://www.niap-ccevs.org/Product/>
- FIPS 140-2: <https://csrc.nist.gov/Projects/Cryptographic-Module-Validation-Program/Validated-Modules/Search>
- DoDIN APL: <https://aplits.disa.mil/processAPList.action>

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```
Hewlett Packard Enterprise Company
Attn: General Counsel
6280 America Center Drive
San Jose, CA 95002
U.S.A.
```

Please specify the product and version for which you are requesting source code. You may also request a copy of this source code free of charge at: <https://hpe.com/software/opensource>

Version history

All released versions are fully supported by Aruba, unless noted in the table.

Version number	Release date	Remarks
10.10.1100	2023-12-12	Released, fully supported, and posted on the Web.
10.10.1090	2023-10-05	Released, fully supported, and posted on the Web.
10.10.1080	2023-08-10	Released, fully supported, and posted on the Web.
10.10.1071	2023-07-20	Released, fully supported, and posted on the Web.
10.10.1070	2023-06-21	Released, fully supported, and posted on the Web.
10.10.1060	2023-05-04	Released, fully supported, and posted on the Web.
10.10.1050	2023-03-17	Released, fully supported, and posted on the Web.
10.10.1040	2023-02-08	Released, fully supported, and posted on the Web.
10.10.1030	2022-12-08	Released, fully supported, and posted on the Web.
10.10.1020	2022-11-07	Released, fully supported, and posted on the Web.
10.10.1010	2022-09-22	Released, fully supported, and posted on the Web.
10.10.1000	2022-08-14	Initial release of AOS-CX for the 9300 Switch Series.

Compatibility/interoperability

The switch web agent supports the following web browsers:

Browser	Minimum supported versions
Edge (Windows)	41
Chrome (Ubuntu)	76 (desktop)
Firefox (Ubuntu)	56
Safari (MacOS)	12
Safari (iOS)	10 (Version 12 is not supported)



Internet Explorer is not supported.

Recommended versions of network management software for switches found in this release note:

Management software	Recommended version(s)
NetEdit	2.7.0
Aruba Fabric Composer	6.2.0
Aruba CX Mobile App	2.8.4
Network Automation	10.10, 10.11, 10.20, 10.21, 10.30, 10.40
Network Node Manager	10.10, 10.20, 10.21, 10.30, 10.40



For more information, see the respective software manuals.



To upgrade software using NetEdit, make sure to upgrade to the above version of NetEdit first and then execute the switch software upgrade on devices discovered by this version of NetEdit.

Enhancements

This section describes the enhancements introduced in this release.

Category	Description
PKI	<p>In previous releases, under a certificate configuration context, the key-size or curve-size is a mandatory keyword following a key-type, even when the key-size to configure is the default value. For example:</p> <pre>(config-cert01)# key-type rsa key-size 2048 (config-cert01)# key-type ecdsa curve-size 256</pre> <p>Starting with AOS-CX 10.10.1100, when the key-curve-size to configure is the default</p>

Category	Description
	<p>value, the key-size/curve-size keyword is optional and may be omitted. For example, this command</p> <pre>(config-cert01)# key-type ecdsa</pre> <p>Is equivalent to:</p> <pre>(config-cert01)# key-type ecdsa curve-size 256</pre> <p>And this command:</p> <pre>(config-cert01)# key-type rsa</pre> <p>Is equivalent to:</p> <pre>(config-cert01)# key-type rsa key-size 2048</pre>

Fixes

This section lists released builds that include fixes found in this branch of the software. Unless otherwise noted, each software version listed includes all fixes added in earlier versions.

The Symptom statement describes what a user might experience if this is seen on the network. The Scenario statement provides additional environment details and trigger summaries. When available, the Workaround statement provides a workaround to the issue for customers who decide not to update to this version of software.

For a list of issues resolved in the previous releases of 9300 switches, refer to the [AOS-CX Release Notes Portal](#).



The Bug ID is used for tracking purposes.

Resolved Issues

This topic describes the resolved issues in this release.

Category	Bug ID	Description
WebUI	279019	<p>Symptom: After uploading an invalid PER certificate, the hpe-restd process becomes unstable, the WebUI temporarily stops responding, and all REST API calls from the WebUI fail.</p> <p>Scenario: If a user uploads a corrupt PEM certificate file using WebUI certificate management window, selecting the Upload button in the WebUI causes the WebUI to stop working completely. To recover from this state, restart the hpe-restd process from the bash prompt in the command-line interface or restart the switch.</p> <p>Workaround: Use the CLI to upload certificates.</p>

Category	Bug ID	Description
SNMP	281792	<p>Symptom: A desired source IP address is not seen when inform packets are received by the inform receiver.</p> <p>Scenario: This issue occurs when a user sets a source IP address for traps.</p>
BGP	285425	<p>Symptom: Aruba Central and NetEdit is unable to synchronize new configuration changes to a device. Aruba Central MultiEdit will display the following- warning message:</p> <pre>neighbor 1.1.1.1 remove-private-AS] Incomplete command or invalid parameters</pre> <p>A device validation failure will display the following- warning message:</p> <pre>Neighbor 1.1.1.1 does not exist</pre> <p>Scenario: A configuration synchronization failure will occur while using the NetEdit or Aruba Central MultiEdit to modify a switch configuration that has the BGP configuration neighbor remove-private-AS in the current running-config.</p> <p>Workaround: Manually configure the switch from the switch command-line interface.</p>
PKI	281380	<p>Symptom: When a certificate is validated, the event log did not indicate what CA certificate was used to validate the certificate. A new event is added to this release to provide the CA certificate information.</p> <p>Scenario: This issue occurs when validating an Aruba Central server certificate.</p>
SNMP	285540	<p>Symptom: If both IPv4 and IPv6 neighbors are used while configuring BGP, the SNMP walk displays incorrect information about IPv4 peer sessions.</p> <p>Scenario: This issue occurs when the user configures both IPv4 and IPv6 neighbors. As a result, the SNMP walk displays information about non-existent IPv4 peers.</p>
PKI	262792	<p>Symptom: The hep text for the crypto pki certificate command had an additional special character) in the default value.</p> <p>Scenario: Enter the certificate context to configure a X509 certificate and then type shift+? to see the help text.</p>

Feature caveats

The following are feature caveats that should be taken into consideration when using this version of the software.

Feature	Description
BGP	If a route-map is applied and none of the routes satisfy the match condition (s) in any of the route-map entries, then all routes are dropped.

Feature	Description
TFTP	Blocksize greater than 1480 is not supported in 4100i, 6100 and 6000 Switch series.
VRRP	The same virtual link-local address cannot be used across different VRFs.
VRRP	MD5 authentication interoperation is not supported with Comware-based switches
REST	Boundary values for match vni and set local preference in a route-map system cannot be set via the REST API and must be manually configured on the switch via the CLI.
BGP	<p>In multi-VRF environments, while performing mutual route leaking on the VRRP peers with BGP neighborhood established in between and towards the upstream network, the switch will install both routes as ECMP instead of preferring the leaked route. Use route-maps to give lower/higher preference to the routes received from an iBGP peer. For example:</p> <pre> ! route-map rmap permit seq 10 set local-preference 50 ! router bgp 100 vrf red neighbor 1.1.1.2 remote-as 100 address-family ipv4 unicast neighbor 1.1.1.2 activate neighbor 1.1.1.2 route-map rmap in exit-address-family </pre> <p>In the above example, since a lower value of local-preference (i.e. 50, whereas default value is 100) has been set to the routes received from iBGP peer, the leaked routes get preferred and get installed as best routes.</p>
DHCP Server DHCP Relay DHCP Snooping	<p>Note the following caveats for these features:</p> <ul style="list-style-type: none"> ▪ DHCP Relay and DHCP Snooping can co-exist on the same switch. DHCP Snooping and DHCP Server cannot co-exist on the same switch. ▪ DHCP Snooping, DHCP Relay, and DHCP Server together cannot co-exist on the same switch.
BGP	<p>The next-hop-unchanged option needs to be explicitly configured to preserve nexthop while advertising routes to eBGP peers, in the L2VPN EVPN address-family. For example:</p> <pre> router bgp 1 neighbor 1.1.1.1 remote-as 2 address-family l2vpn evpn neighbor 1.1.1.1 activate neighbor 1.1.1.1 next-hop-unchanged neighbor 1.1.1.1 send-community extended exit-address-family ! </pre>
Classifiers	Classifier policies, IPv6 and MAC ACLs are not supported on egress.
Classifiers	DSCP remarking is performed only on routed packets.
Classifiers	For Classifier policy modifications to be secure, Aruba strongly encourages modifications be done as a three-step process: Bring down the port, modify,

Feature	Description
	and bring the port back up.
Classifiers	IPv4 egress ACLs can be applied only to route-only ports.
Classifiers	Policies containing both MAC and IPv6 classes are not allowed.
CMF	Automatic downgrade of the startup-config is not supported during a software downgrade.
CMF	No other checkpoint besides "startup-configuration" gets migrated during the upgrade process.
Counters	Classifier Counters: Max number Classifier entries with count action: JL363A=32K, JL365A=32K, JL366A=16K.
Counters	Counters are shared between ACL and Layer 3 ports. The Max number of ACL entries with count action plus Layer 3 counters is: JL363A=24K, JL365A=24K, JL366A=8K. Enabling counters on a Layer 3 port consumes 6 ACL counter entries.
Counters	Layer 3 Route-only port counters are not enabled by default. Enabling them will remove them from the counter resources shared with ACLs.
DHCP Server, DHCP Relay, and DHCP Snooping	DHCP Snooping and DHCP Server cannot co-exist on the same switch. DHCP Snooping, DHCP Relay, and DHCP Server together cannot co-exist on the same switch.
EVPN	iBGP split-horizon rule is not followed between different address families. Use route-map to block the routes getting advertised to the iBGP peer.
ICMP Redirect	The switch may only software forward an 100pps IP frame that triggers ICMP redirect.
ICMP Redirect	The switch may incorrectly duplicate an IP frame that triggers ICMP redirect.
IGMP/PIM on Loopback and GRE interfaces	<ul style="list-style-type: none"> ▪ IGMP cannot be enabled on both Loopback and GRE interfaces. ▪ PIM can be enabled on a Loopback interface. ▪ PIM will not work on GRE tunnels and 6in6.
Multicast and VXLAN	<ul style="list-style-type: none"> ▪ VXLAN must be configured prior to configuring VSX. ▪ IPv6 multicast is not supported for VXLAN overlay. ▪ Multicast support for static VXLAN in the overlay has limited support. Contact Aruba Support for details.
MVRP and VSX	MVRP is mutually exclusive with VSX.
Network Analytics Engine (NAE)	After management module failover, up to 5 minutes of alert history could be lost.
Network Analytics Engine (NAE)	Agents monitoring a resource that has column type enum with a list of strings (as opposed to a single string enum) is not supported.
Network Analytics Engine (NAE)	Network Analytics Engine (NAE) agents execute Command Line Interface (CLI)

Feature	Description
	actions as 'admin' user, so they have permission to run any command by default. However, when the authentication, authorization and accounting (AAA) feature is enabled, the same restrictions applied to 'admin' will also apply to NAE agents. When using AAA, make sure to give the admin user the permissions to run all commands needed by enabled NAE agents. Otherwise, some CLI commands may be denied and their outputs won't be available. Actions other than CLI won't be affected and will execute normally. Also, NAE agents won't authenticate, thus the AAA service configuration must not block authorization for unauthenticated 'admin' user. ClearPass doesn't support such configuration, so it cannot be used as a TACACS+ server.
Network Analytics Engine (NAE)	The following tables are not supported for NAE scripts: OSPF_Route, OSPF_LSA, OSPF_Neighbor, BGP_Route.
OSPF	OSPFv2 and OSPFv3 do not support detailed LSA show commands.
RADIUS	Authorization by means of HPE VSAs is not supported.
REST	REST supports the 'admin' and 'operator' roles but does not work with TACACS+ command authorization.
RIP/RIPng	Redistribute RIP/RIPng is not supported in BGP/BGP+.
RIP/RIPng	RIP/RIPng metric configuration support is not available.
RPVST+ and MSTP	Spanning Tree can only run in MSTP or RPVST+ mode.
RPVST+ and MVRP	RPVST+ is mutually exclusive with MVRP.
sFlow and Mirroring	sFlow and port mirroring are mutually exclusive per port. A port cannot support both sFlow and mirroring at the same time.
Sub-interface	BFD is not supported on a sub-interface. A sub-interface as underlay for EVPN-VXLAN is not supported
UDLD	For a UDLD-enabled interface to not lose traffic during a failover operation, the result of multiplying 'interval' and 'retries' should be at least 8 seconds. The default values are 7000 ms (interval) x 4 (retries) = 28 seconds.
Tunnels	When configuring tunnels (VXLAN/IP tunnels) with the underlay as a static route, the next-hop IP should be an SVI or ROP IP and not configured as the Active-Gateway.
VRF	VRF names are limited to 31 characters.
VRRP	The same virtual link-local address cannot be used across different VRFs.
VRRP-MD5 authentication interop	Not supported with Comware-based switches
VRRP and VXLAN	VRRP and VXLAN are mutually exclusive.
VSX and Static VXLAN	Static VXLAN on VSX configuration is not supported. Use VSX and EVPN or VSX and HSC.
VXLAN	DSCP-enabled packets carried in a VXLAN tunnel are treated as best-effort traffic.

Feature	Description
VXLAN	Static vxlan is not supported.

Known Issues

The following are known open issues with this branch of the software. The **Symptom** statement describes what a user might experience if this is seen on the network. The **Scenario** statement provides environment details and trigger summaries. When available, the **Workaround** statement provides a workaround to the issue.

Category	Bug ID	Description
VXLAN	226965	<p>Symptom: Continuous ICMP6 Echo Reply packets are sent for single ICMP6 Echo Request.</p> <p>Scenario: This issue occurred when a ping was sent from a host to a switch virtual interface (SVI) IPv6 address on the switch, where the host is reachable over an L3VNI.</p> <p>Workaround: Issue the command no ip icmp redirect.</p>

Upgrade information

AOS-CX 10.101000 uses ServiceOS CL.01.11.0007



Do not interrupt power to the switch during this important update.

Manual configuration restore for software downgrade

To restore a previous configuration when downgrading to a previous version of software, follow these steps:

1. Use the **show checkpoint** command to see the saved checkpoints and ensure that you have a checkpoint that is an exact match of the target software version. (See the **Image Version** column in the output of the command, for example, CL.10.10.yyyy)

This checkpoint can be the startup-config-backup automatically created during the initial upgrade or any other manually created checkpoint for the target software version.

2. Copy the backup checkpoint into the startup-config.
3. Boot the switch to the target version (lower version), making sure to select **no** when prompted to save the current configuration.

Performing the upgrade

For additional upgrade and downgrade scenarios, including limitations of automatic upgrade and downgrade scenarios provided by the Configuration Migration Framework (CMF), refer to the [AOS-CX 10.10 Fundamentals Guide](#).



This version may contain a change of BootROM from the current running version. A BootROM update is a non-failsafe update. Do not interrupt power to the switch during the update process or the update could permanently damage the device.

1. Copy the new image into the non-current boot bank on the switch using your preferred method.
2. Depending on the version being updated, there may be device component updates needed. Preview any devices updates needed using the `boot system <BOOT-BANK>` command and entering `n` when asked to continue.

For example, if you copied the new image to the secondary boot bank and no device component updates are needed, you will see this:

```
switch# boot system secondary
Default boot image set to secondary.
Checking if the configuration needs to be saved...

Checking for updates needed to programmable devices...
Done checking for updates.

This will reboot the entire switch and render it unavailable
until the process is complete.
Continue (y/n)? n
```

In this example, three device updates will be made upon reboot, one of which is a non-failsafe device:

```
switch# boot system secondary
Default boot image set to secondary.
Checking if the configuration needs to be saved...

Checking for updates needed to programmable devices...
Done checking for updates.

2 device(s) need to be updated during the boot process.
The estimated update time is between 2 and 3 minute(s).
There may be multiple reboots during the update process.

1 non-failsafe device(s) also need to be updated.
Please run the 'allow-unsafe-updates' command to enable these updates.

This will reboot the entire switch and render it unavailable
until the process is complete.
Continue (y/n)? n
```

3. When ready to update the system, if a non-failsafe device update is needed, make sure the system will not have any power interruption during the process. Invoke the `allow unsafe updates` command to allow updates to proceed after a switch reboot. Proceed to step 4 within the configured time.

```
switch# config
switch(config)# allow-unsafe-updates 30
```

```
This command will enable non-failsafe updates of programmable devices for the next 30 minutes. You will first need to wait for all line and fabric modules to reach the ready state, and then reboot the switch to begin applying any needed updates. Ensure that the switch will not lose power, be rebooted again, or have any modules removed until all updates have finished and all line and fabric modules have returned to the ready state.
```

```
WARNING: Interrupting these updates may make the product unusable!
```

```
Continue (y/n)? y
```

```
Unsafe updates      : allowed (less than 30 minute(s) remaining)
```

4. Use the `boot system <BOOT-BANK>` command to initiate the upgrade. On the switch console port an output similar to the following will be displayed as various components are being updated:

```
switch# boot system secondary
Default boot image set to secondary.
Checking if the configuration needs to be saved...

Checking for updates needed to programmable devices...
Done checking for updates.

3 device(s) need to be updated during the boot process.
The estimated update time is between 2 and 3 minute(s).
There may be multiple reboots during the update process.

This will reboot the entire switch and render it unavailable
until the process is complete.
Continue (y/n)? y
The system is going down for reboot.

Looking for SVOS.

Primary SVOS:  Checking...Loading...Finding...Verifying...Booting...

ServiceOS Information:
  Version:      <serviceOS_number>
  Build Date:   yyyy-mm-dd hh:mm:ss PDT
  Build ID:     ServiceOS:<serviceOS_number>:
6303a2a501ba:202006171659
  SHA:         6303a2a501bad91100d9e71780813c59f19c12fe

Boot Profiles:

0. Service OS Console
1. Primary Software Image [xx.10.10.1030]
2. Secondary Software Image [xx.10.10.1040]

Select profile(secondary):

ISP configuration:
  Auto updates      : enabled
  Version comparisons : match (upgrade or downgrade)
  Unsafe updates    : allowed (less than 29 minute(s) remaining)
```

```

Advanced:
  Config path      : /fs/nos/isp/config [DEFAULT]
  Log-file path   : /fs/logs/isp [DEFAULT]
  Write-protection : disabled [DEFAULT]
  Package selection : 0 [DEFAULT]

3 device(s) need to be updated by the ServiceOS during the boot process.
The estimated update time by the ServiceOS is 2 minute(s).
There may be multiple reboots during the update process.

MODULE 'mc' DEVICE 'svos_primary' :
  Current version : '<serviceOS_number>'
  Write-protected : NO
  Packaged version : '<version>'
  Package name    : '<svos_package_name>'
  Image filename  : '<filename>.svos'
  Image timestamp : 'Day Mon dd hh:mm:ss yyyy'
  Image size     : 22248723
  Version upgrade needed

Starting update...

Writing... Done.
Erasing... Done.
Reading... Done.
Verifying... Done.
Reading... Done.
Verifying... Done.

Update successful (0.5 seconds).

reboot: Restarting system

```

Multiple components may be updated and several reboots will be triggered during these updates. When all component updates are completed, the switch console port will arrive at the login prompt with a display similar to following:

```

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switch login:

```



Aruba recommends waiting until all upgrades have completed before making any configuration changes.

Aruba is committed to ensuring you have the resources you need to be successful. Check out these learning and documentation resources:

- AOS-CX switch software documentation portal: https://www.arubanetworks.com/techdocs/AOS-CX/help_portal/Content/home.htm
- AOS-CX 10.10 playlist of technical training videos on YouTube: <https://www.youtube.com/playlist?list=PLsYGHuNuBZcZmHTZQC9LuivtrVecOx5vk>

A Security Bulletin is the first published notification of security vulnerabilities and is the only communication vehicle for security vulnerabilities.

- Fixes for security vulnerabilities are not documented in manuals, release notes, or other forms of product documentation.
- A Security Bulletin is released when all vulnerable products still in support life have publicly available images that contain the fix for the security vulnerability.

The Aruba security policy can be found at <https://www.arubanetworks.com/en-au/support-services/sirt/>. Security bulletins can be found at <https://www.arubanetworks.com/en-au/support-services/security-bulletins/>. You can sign up at https://sirt.arubanetworks.com/mailman/listinfo/security-alerts_sirt.arubanetworks.com to initiate a subscription to receive future Aruba Security Bulletin alerts via email.