

AOS-CX 10.10.1120 Release Notes

9300 Switch Series

The Aruba logo consists of the word "aruba" in a lowercase, rounded, orange sans-serif font.

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Products Supported

This release applies to the 9300 Switch 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>

This product includes code licensed under the GNU General Public License, the GNU Lesser General Public License, and/or certain other open-source licenses. A complete machine-readable copy of the source code corresponding to such code is available upon request. This offer is valid to anyone in receipt of this information and shall expire three years following the date of the final distribution of this product version by Hewlett Packard Enterprise Company. To obtain such source code, send a check or money order in the amount of US \$10.00 to:

```
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 |
|----------------|--------------|---|
| 10.10.1120 | 2024-04-09 | Released, fully supported, and posted on the Web. |
| 10.10.1110 | 2024-02-22 | Released, fully supported, and posted on the Web. |
| 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. |
| 10.10.1070 | 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 | 2.10.0 |
| 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

There are no new enhancements introduced in this release.

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 |
|----------|--------|--|
| VSX | 291905 | <p>Symptom: Packet drop is observed and packets are not redirected to the other VSX member if the ISL LAG is reconfigured while the local MCLAG is down.</p> <p>Scenario: If the local MCLAG port on a VSX member is down and the MCLAG on the other VSX member is up, then traffic should be redirected over ISL to the VSX partner. If the ISL LAG is reconfigured, the redirection will fail, causing packets headed toward that MCLAG to be dropped.</p> <p>Workaround: Remove and re-configure the ISL LAG and assign port membership before setting the LAG as ISL.</p> |
| IGMP/MLD | 292078 | <p>Symptom: The event message, Event ID 2628: "IGMP/MLD internal queue limit exceeded. Needs admin intervention" is logged multiple times.</p> <p>Scenario: This issue is observed in VXLAN overlay networks that do not have any multicast configuration.</p> <p>Workaround: Enable IGMP snooping on each VLAN carried in the overlay on all switches acting as VTEPs. Alternatively, use the logging filter command to deny log messages with the Event ID 2628.</p> |
| VSX Sync | 299838 | <p>Symptom: The interface VLAN configuration did not synchronize on the secondary switch.</p> <p>Scenario: This issue is observed in a pair of switches where the user configures an interface VLAN with vsx-sync configuration on the primary VSX and then creates the same interface VLAN on the secondary switch.</p> <p>Workaround: When vsx-sync is enabled on the interface VLAN of the primary VSX member, it is recommended to wait for at least 15 seconds before configuring the same on the secondary switch. Alternatively, configure the interface VLAN on the secondary switch and then enable vsx-sync on the primary switch.</p> |

Feature caveats

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

| Feature | Description |
|---------|--|
| IP-SLA | Reserved ports or ports used by other applications/services within the system are not recommended to be used for other services. When two services use the same port, users might observe some unexpected behaviors from these services. The best practice is to use unique port for each service across the system. |
| BGP | If a route-map is applied and none of the routes satisfy the match condition(s) |

| Feature | Description |
|--|--|
| | in any of the route-map entries, then all routes are dropped. |
| 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. |

| Feature | Description |
|--|---|
| Classifiers | For Classifier policy modifications to be secure, Aruba strongly encourages modifications be done as a three-step process: Bring down the port, modify, 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. |

| Feature | Description |
|---------------------------------|--|
| Network Analytics Engine (NAE) | Network Analytics Engine (NAE) agents execute Command Line Interface (CLI) 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 |

| Feature | Description |
|---------|--------------------------------|
| | traffic. |
| 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> |
| GRE Tunnels | 279874 | <p>Symptom: BGP sessions go down.</p> <p>Scenario: This issue occurs after traffic is sent over two tunnels. However, BGP session does not go down if there's no traffic.</p> |

Upgrade information

AOS-CX 10.10.1120 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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  * Software feature updates
  * New product announcements
  * Special events
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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.