Technical White Paper

aruba

a Hewlett Packard Enterprise company

ARUBA CENTRAL SWITCHING FUNDAMENTALS

Contents

Revision History

Document Version	Reason for Change	Revision Date
1.0	Initial release	Jul 2021
2.0	Updated for Central 2.5.4	Oct 2021

Purpose

Aruba Central can be used to streamline deployment of switches, gateway controllers, and wireless access points. This guide can be used to quickly set up a new Central account, onboard devices, and manage switches based on the AOS-CX and AOS-Switch platforms.

Start Here

In addition to this Quick Start guide, a video series is available on YouTube, and additional resources are available in the **Resources** section at the end of this document.

Prerequisites

Aruba CX switch platforms

Supported hardware and software

The listed Aruba CX switch models running the minimum listed software versions or later are supported in Aruba Central.

Any switch model running an older version than the minimum supported must be updated prior to being onboarded.

The *recommended* software release for switches being managed by Central is **10.07.0030** or **10.06.0150** (with the exception of the 4100i platform, which requires **10.08.0001** or later). Switch software downloads can be found on the Aruba Support Portal, or via Central's firmware update functionality.

Platform	Supported Versions	Recommended Version	Config Group Types
4100i	10.08.0001 or later	10.08.0001 or later	UI and Template
6100	10.06.0110 or later	10.07.0030 or 10.06.0150	UI and Template
6200	10.05.0021 or later	10.07.0030 or 10.06.0150	UI and Template
6300	10.05.0021 or later	10.07.0030 or 10.06.0150	UI and Template
6300 (JL762A)	10.06.0001 or later	10.07.0030 or 10.06.0150	UI and Template
6405	10.05.0021 or later	10.07.0030 or 10.06.0150	Template
6410	10.05.0021 or later	10.07.0030 or 10.06.0150	Template
8320	10.05.0021 or later	10.07.0030 or 10.06.0150	UI and Template
8325	10.05.0021 or later	10.07.0030 or 10.06.0150	UI and Template
8360	10.06.0001 or later	10.07.0030 or 10.06.0150	UI and Template
8400	10.06.0001 or later	10.07.0030 or 10.06.0150	Template

Connectivity requirements

In order to be managed by Central, Aruba CX switches require an Internet connection on either the **default** VRF or **mgmt** VRF; this may be a direct ISP connection, through a NAT router and/or firewall, or via HTTP proxy. A DNS service capable of resolving the public hostnames of the Activate and Central services must be accessible from the switch. If there is a firewall between the switch and Central, permit outbound connections using TCP port 443 (SSL/TLS) to the appropriate Activate and Central URLs listed here.

To connect to Central via HTTP proxy server, the switch must be running AOS-CX 10.7 or later; the proxy FQDN or IPv4 address may be configured from the switch CLI or using DHCP vendor-specific suboption 148. The HTTP proxy configuration uses one of the following string formats:

- Fully-qualified domain name (FQDN): *http-proxy.arubanetworks.com:8088*

- IPv4 address: *192.168.1.254:8088*

Note: HTTPS and SOCKS proxy servers are not supported.

Use the `http-proxy` CLI command from the switch **config** context to manually configure the proxy server:

```
switch(config)# http-proxy 192.168.1.254:8088 vrf mgmt
```

If the proxy setting is received via DHCP option, the VRF on which the DHCP option was received is used automatically. When the HTTP proxy is manually configured via the CLI, a specific VRF (such as the **mgmt** VRF) can be specified to use the proxy connection; if none is specified, the **default** VRF is used. A manually-configured HTTP proxy will override any proxy settings received from other sources.

For AOS-CX software upgrades, a minimum of 2 Mbps of Internet downlink bandwidth is required for each switch being upgraded in parallel; image transfers must be completed within a 60-minute software upgrade timeout period.

VSF stacking (CX 6200 and CX 6300 series)

Central is capable of managing CX 6200 and CX 6300 VSF stacks in both UI and template groups.

Note: To use auto-stacking to provision a VSF stack with either UI configuration or a Central configuration template, all stack members other than the Conductor must be in a factory default state running AOS-CX 10.7 or later, with VSF links fully connected.

UI-based management of VSF stacks running AOS-CX 10.7 or later supports the following stack maintenance functions:

- Creating a stack
- Adding a stack member
- Removing a stack member
- Modifying VSF links
- Changing the secondary member
- Rebooting a conductor

The following tasks for template-managed VSF stacks require disabling Central management, making the necessary changes locally, then modifying the template to reflect the updated stack configuration before re-enabling Central management:

- Adding or removing members
- Replacing stack members with a different model
- Changing the standby member ID
- Modifying, adding, or removing VSF links

Central configuration templates will only be synced to VSF stacks where the stack primary (member ID 1) is operating as the stack Conductor; if a failover has occurred and the secondary is operating as the conductor, configuration syncing will not occur. The stack must be returned to normal operation with the stack primary operating as conductor to resume Central template configuration syncing.

Password requirements for templates

For Aruba CX switches being managed by configuration templates, Central requires the switch admin password (or the password of at least one other user belonging to the switch *administrators* user group) to be specified in plaintext, either hardcoded into the template itself or substituted as a variable. For this reason, it is important to restrict access to Central management functions to only authorized administrators. (Note that the switch management connection to Central is encrypted via TLS, preventing interception of these credentials in transit.)

When an Aruba CX configuration is imported into Central as a template, any passwords defined in the configuration are imported as ciphertext; before the template can be saved and applied to switches in the group, at least one password for a user in the *administrators* group must be replaced with the equivalent plaintext or with a variable containing the plaintext password.

A factory default switch, assigned to a template group before provisioning, will use passwords defined in the downloaded configuration template upon initial connection to Central.

Miscellaneous operating notes

The following additional notes apply to Central-managed Aruba CX switches:

- All in-band switch ports on 8320, 8325, 8360, and 8400 switches are disabled by default; to manage these switches using in-band ports, pre-configuration from the switch console or Aruba CX mobile app is required to enable at least one in-band port, assign IP addressing and DNS server settings, and enable SSH and HTTPS server processes on the default VRF
- Usage of the *vsx-sync* feature is not recommended for VSX pairs (6400, 8320, 8325, 8360, 8400) being managed by a common template
    - Use of variables and conditional checks to distinguish between VSX primary and secondary roles is strongly recommended for VSX pairs being managed within a single template group
- To use the remote console feature, the SSH server process must be enabled on the VRF being used by the switch to connect to Central
- To restore a switch to factory default settings before onboarding it to Central, use the `erase all zeroize` command instead of `erase startup-config`

AOS-Switch platforms

Supported hardware and software

The following AOS-Switch hardware platforms and software versions are supported by Aruba Central for device management, with the specified configuration group types supported for each platform.

Platform	Supported Versions	Recommended Version	Config Group Types
2530	YA/YB.16.05.0008 or later	YA/YB.16.10.0016	UI and Template
2540	YC.16.03.0004 or later	YC.16.10.0016	UI and Template
2920	WB.16.03.0004 or later	WB.16.10.0016	UI and Template
2930F	WC.16.03.0004 or later	WC.16.10.0016	UI and Template
2930M	WC.16.04.0008 or later	WC.16.10.0016	UI and Template
3810M	KB.16.03.0004 or later	KB.16.10.0016	UI and Template
5400R	KB.16.04.0008 or later	KB.16.10.0016	Template

Connectivity requirements

AOS-Switch devices require either a direct Internet connection or connection via a proxy server, as with Aruba CX switch platforms. AOS-Switch uses the same protocols and web endpoints for Activate and Central as AOS-CX, and the requirement to allow outbound TLS connections to Activate and Central FQDNs on TCP port 443 applies.

The HTTP proxy FQDN or IPv4 address and TCP port may be configured via DHCP vendor-specific suboption 148 or via the CLI, using one of the following string formats:

- Fully-qualified domain name (FQDN): **`http://http-proxy.arubanetworks.com:8088`**
- IPv4 address: **`http://192.168.1.254:8088`**

Note: HTTPS and SOCKS proxy servers are not supported.

Use the `proxy server` command from the CLI config context to configure the HTTP proxy server:

```
switch(config)# proxy server http://http-proxy.arubanetworks.com:8088
```

To add an exception to the switch proxy settings for a hostname, IPv4 address, or IPv4 subnet, use the `proxy exception` CLI command from the config context:

```
switch(config)# proxy exception ip 192.168.1.0/24
```

The switch will bypass the configured proxy server for connections to services using hostnames or IPv4 addresses/subnets configured as exceptions.

Monitor-only mode

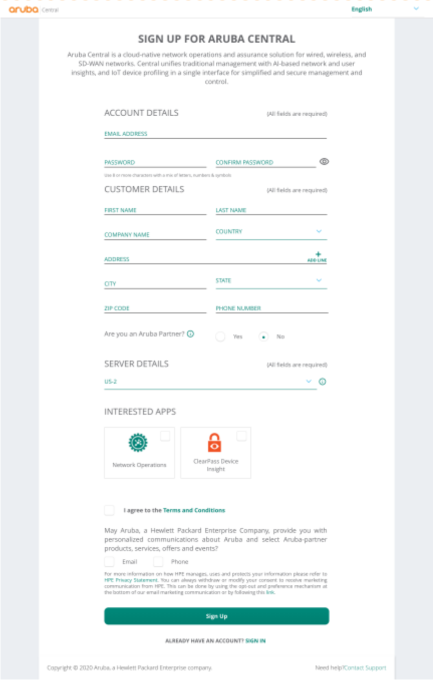
Central can monitor AOS-Switch devices without managing their configuration. This is a group-level setting that is defined during group creation; groups with this setting enabled do not provide AOS-Switch UI configuration, and any applicable switches added to the group will only provide monitoring data to Central.

Monitor-only mode with local configuration is fully supported in AOS-Switch 16.10.0010 or later; local configuration of switches running 16.10.0009 or earlier requires administrators to enable the Support Mode feature from the switch CLI:

```
switch(config)# aruba-central support-mode enable
```

Central account sign-up

The first step is to ensure you have a working Aruba Central account. If you do not already have an account, open this sign-up page and enter the requested information. Select the appropriate regional server cluster from the **Server Details** dropdown list, and choose which applications you wish to evaluate — **Network Operations** is the application used for device management and monitoring, so ensure that its box is checked. Once the form has been completed and you have reviewed and agreed to the Terms and Conditions, select **Sign Up**.



SIGN UP FOR ARUBA CENTRAL

Aruba Central is a cloud-native network operations and assurance solution for wired, wireless, and SD-WAN networks. Central unifies traditional management with AI-based network and user insights, and IoT device profiling in a single interface for simplified and secure management and control.

ACCOUNT DETAILS (All fields are required)

EMAIL ADDRESS

PASSWORD CONFIRM PASSWORD

Use 8 or more characters with a mix of letters, numbers & symbols

CUSTOMER DETAILS (All fields are required)

FIRST NAME LAST NAME

COMPANY NAME COUNTRY

ADDRESS ADD LINE

CITY STATE

ZIP CODE PHONE NUMBER

Are you an Aruba Partner? ○ Yes ● No

SERVER DETAILS (All fields are required)

US-2

INTERESTED APPS

□ Network Operations □ ClearPass Device Insight

□ I agree to the Terms and Conditions

May Aruba, a Hewlett Packard Enterprise Company, provide you with personalized communications about Aruba and select Aruba-partner products, services, offers and events?

□ Email □ Phone

For more information on how HPE manages, uses and protects your information please refer to HPE Privacy Statement. You can always withdraw or modify your consent to receive marketing communication from HPE. This can be done by using the opt-out and preference mechanism at the bottom of our email marketing communication or by following this link.

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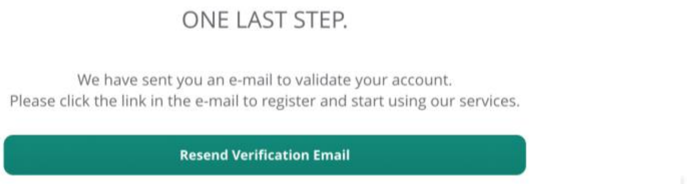
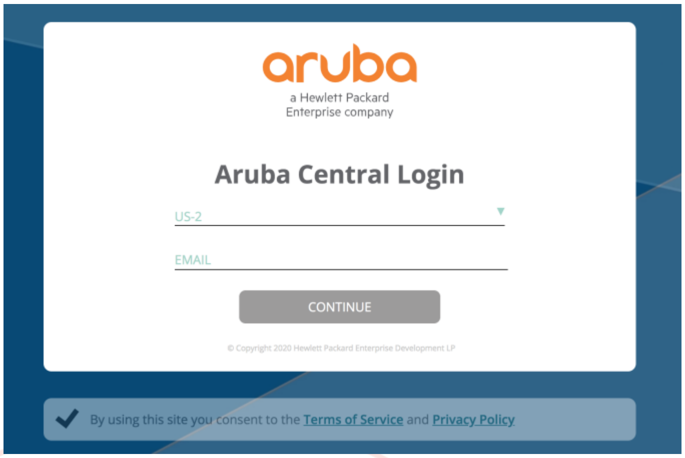
When you are prompted to verify your email address, check your inbox for the verification email and use the link in the email to complete the verification process.



ONE LAST STEP.

We have sent you an e-mail to validate your account.
Please click the link in the e-mail to register and start using our services.

Once the signup process is complete, open the Central portal page, select the server cluster you specified during signup, and use your credentials to sign in.



Aruba Central Login

US-2

EMAIL

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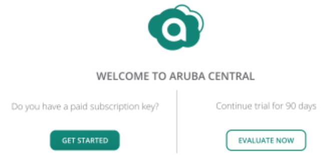
By using this site you consent to the Terms of Service and Privacy Policy

Onboarding workflow

Adding switches to inventory

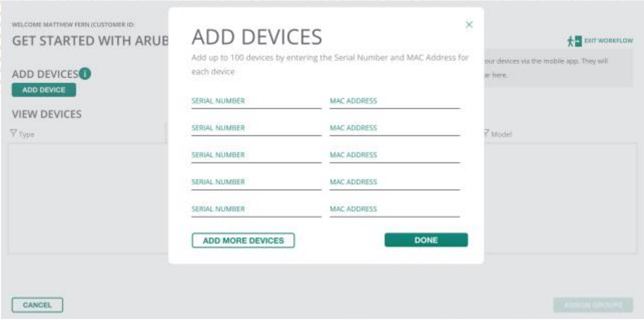
After logging into Central for the first time, you will be presented with a "Welcome to Aruba Central" page. Choose the **EVALUATE NOW** link to continue to the onboarding workflow, or if you have paid subscription keys, instead choose **GET STARTED**.


WELCOME TO ARUBA CENTRAL

Do you have a paid subscription key?

Continue trial for 90 days

The onboarding workflow will prompt you to add at least one device to Central. Select **ADD DEVICE**, then enter the serial number and MAC address for each switch. If you would prefer to add devices via Activate or CSV import, instead select **EXIT WORKFLOW**.


WELCOME MATTHEW FERN (CUSTOMER ID:

GET STARTED WITH ARUB

ADD DEVICES

VIEW DEVICES

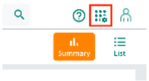
ADD DEVICES

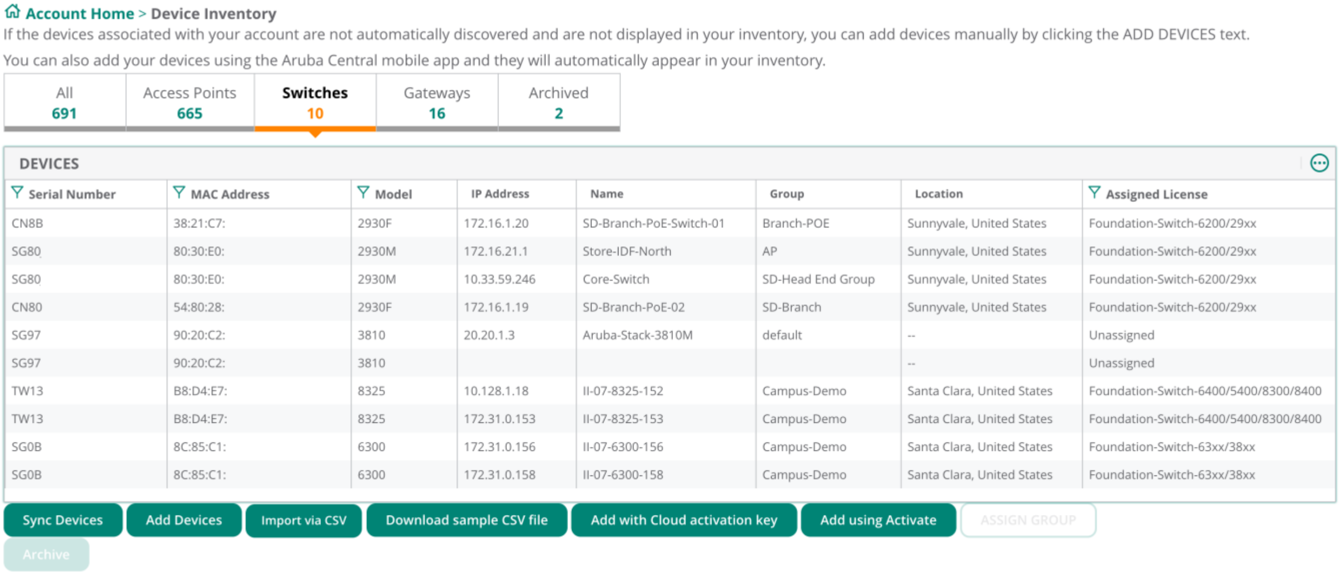
Add up to 100 devices by entering the Serial Number and MAC Address for each device

Each device is validated as its entry is completed, and will be added automatically with a "Device added successfully" status message displayed below the serial number. If the serial number and MAC address do not match, or if a device that is already being managed by another Central account is entered, a red error message such as "Blocked device" will be displayed instead.

Note: An Aruba switch, access point, or gateway can only be managed by a single Central account at any given time. To migrate a managed device to a different Central account, any active management license(s) assigned to the device in the account of origin must first be unassigned; otherwise, the device will be blocked from being added to the new account's inventory.

To onboard a large number of devices, exit the onboarding workflow using the **EXIT WORKFLOW** link. Open the Account Home page using the highlighted icon in the top-right corner, then open the **DEVICE INVENTORY** page. Use one of the following options: **Sync Devices**, **Import via CSV**, or **Add using Activate**.




Account Home > Device Inventory

If the devices associated with your account are not automatically discovered and are not displayed in your inventory, you can add devices manually by clicking the ADD DEVICES text.

You can also add your devices using the Aruba Central mobile app and they will automatically appear in your inventory.

All	Access Points	Switches	Gateways	Archived
691	665	10	16	2

DEVICES

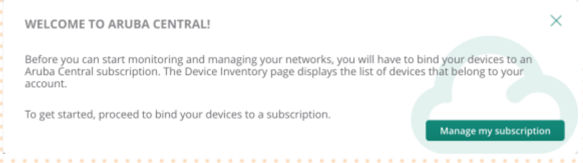
Serial Number	MAC Address	Model	IP Address	Name	Group	Location	Assigned License
CN8B	38:21:C7:	2930F	172.16.1.20	SD-Branch-PoE-Switch-01	Branch-POE	Sunnyvale, United States	Foundation-Switch-6200/29xx
SG80	80:30:E0:	2930M	172.16.21.1	Store-IDF-North	AP	Sunnyvale, United States	Foundation-Switch-6200/29xx
SG80	80:30:E0:	2930M	10.33.59.246	Core-Switch	SD-Head End Group	Sunnyvale, United States	Foundation-Switch-6200/29xx
CN80	54:80:28:	2930F	172.16.1.19	SD-Branch-PoE-02	SD-Branch	Sunnyvale, United States	Foundation-Switch-6200/29xx
SG97	90:20:C2:	3810	20.20.1.3	Aruba-Stack-3810M	default	--	Unassigned
SG97	90:20:C2:	3810				--	Unassigned
TW13	B8:D4:E7:	8325	10.128.1.18	II-07-8325-152	Campus-Demo	Santa Clara, United States	Foundation-Switch-6400/5400/8300/8400
TW13	B8:D4:E7:	8325	172.31.0.153	II-07-8325-153	Campus-Demo	Santa Clara, United States	Foundation-Switch-6400/5400/8300/8400
SG0B	8C:85:C1:	6300	172.31.0.156	II-07-6300-156	Campus-Demo	Santa Clara, United States	Foundation-Switch-63xx/38xx
SG0B	8C:85:C1:	6300	172.31.0.158	II-07-6300-158	Campus-Demo	Santa Clara, United States	Foundation-Switch-63xx/38xx

Note: Activate device sync, manual Activate import, CSV bulk import, and cloud activation key features require at least one non-evaluation subscription key to be assigned to the Central account.

When finished adding devices, select **DONE**, then **ASSIGN GROUPS**.

License assignment

Before actually assigning switches to groups, they must first be assigned device management licenses. When prompted, select **Manage my subscription** from the pop-up, or return to the account home page and select **LICENSE ASSIGNMENT**.



WELCOME TO ARUBA CENTRAL!

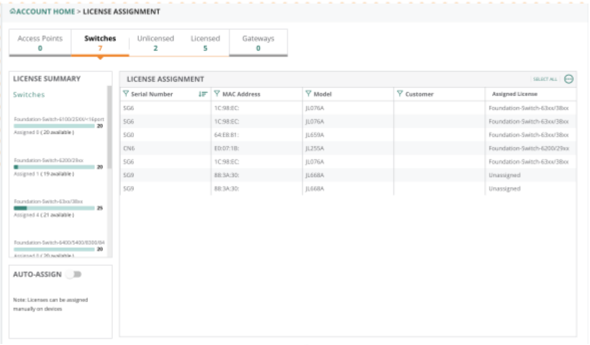
Before you can start monitoring and managing your networks, you will have to bind your devices to an Aruba Central subscription. The Device Inventory page displays the list of devices that belong to your account.

To get started, proceed to bind your devices to a subscription.

The current release of Central uses a licensing model based on device families and feature levels. Switch licenses are divided into the following four groups:

- 2530, 2540, CX 4100i, CX 6100
- 2920, 2930, CX 6200
- 3810, CX 6300
- 5400R, CX 6400, CX 8320, CX 8325, CX 8360, CX 8400

There are two feature levels of licenses currently defined in Central for switch management: **Foundation** and **Advanced**. Currently, all switch management functionality is provided by the **Foundation** license type; the **Advanced** license type is not in use.



ACCOUNT HOME > LICENSE ASSIGNMENT

LICENSE SUMMARY

Switches

Foundation-Switch-6100/25XX/<16port 20
Assigned 0 (20 available)

Foundation-Switch-6200/29xx 20
Assigned 1 (19 available)

Foundation-Switch-63xx/38xx 25
Assigned 4 (21 available)

Foundation-Switch-6400/5400/8300/84 20
Assigned 0 (20 available)

AUTO-ASSIGN

Note: Licenses can be assigned manually on devices

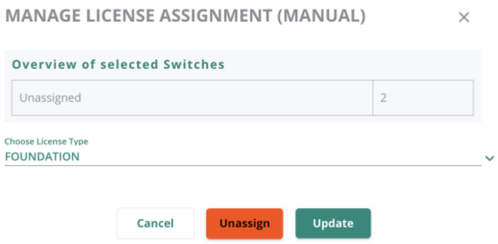
LICENSE ASSIGNMENT

Serial Number	MAC Address	Model	Customer	Assigned License
SG6	1C:98:EC:	JL076A		Foundation-Switch-63xx/38xx
SG6	1C:98:EC:	JL076A		Foundation-Switch-63xx/38xx
SG0	64:E8:81:	JL659A		Foundation-Switch-63xx/38xx
CN6	E0:07:1B:	JL255A		Foundation-Switch-6200/29xx
SG6	1C:98:EC:	JL076A		Foundation-Switch-63xx/38xx
SG9	88:3A:30:	JL668A		Unassigned
SG9	88:3A:30:	JL668A		Unassigned

There are two methods of assigning device management licenses. The first is to use the **auto-assign** feature; when enabled, all devices added to the Central account inventory will automatically be assigned appropriate licenses until the available license pool for that device family is exhausted.

The second method is to manually assign device subscriptions. To assign a subscription to one or more devices, highlight them by selecting each entry in the list, then choose **MANAGE ASSIGNMENT**. Choose the **FOUNDATION** license type, and select **Update**.

To unassign licenses from devices, highlight them in the list, select **MANAGE ASSIGNMENT**, then select **Unassign**.



MANAGE LICENSE ASSIGNMENT (MANUAL)

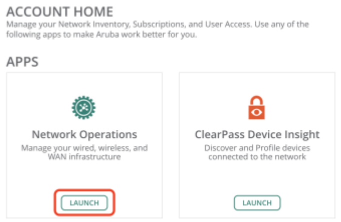
Overview of selected Switches

Unassigned	2

Choose License Type: FOUNDATION

Group management

Return to the account home page and launch **Network Operations**.



ACCOUNT HOME

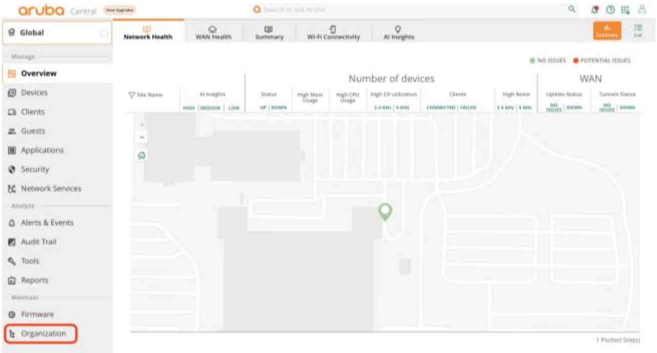
Manage your Network Inventory, Subscriptions, and User Access. Use any of the following apps to make Aruba work better for you.

APPS

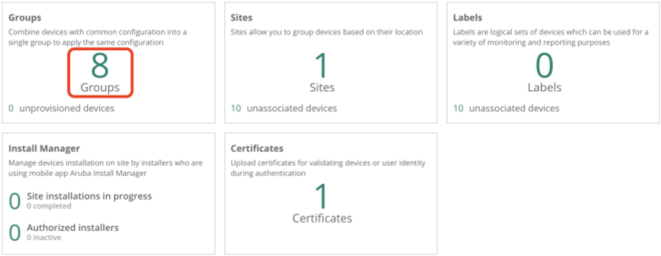
Network Operations: Manage your wired, wireless, and WAN infrastructure

ClearPass Device Insight: Discover and Profile devices connected to the network

Navigate to the **Organization** page using the navigation menu on the left side of the window.



To manage configuration groups, select the link that displays the current number of configuration groups.



Groups
Combine devices with common configuration into a single group to apply the same configuration
8 Groups
0 unprovisioned devices

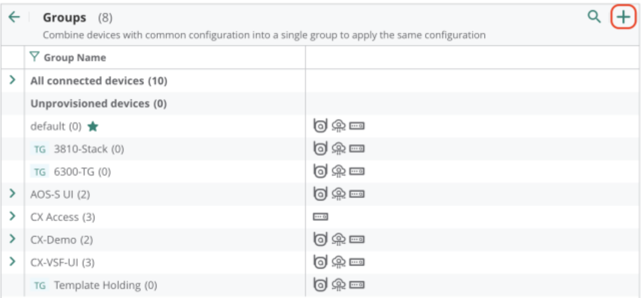
Sites
Sites allow you to group devices based on their location
1 Sites
10 unassociated devices

Labels
Labels are logical sets of devices which can be used for a variety of monitoring and reporting purposes
0 Labels
10 unassociated devices

Install Manager
Manage devices installation on site by installers who are using mobile app Aruba Install Manager
0 Site installations in progress
0 completed
0 Authorized installers
0 inactive

Certificates
Upload certificates for validating devices or user identity during authentication
1 Certificates

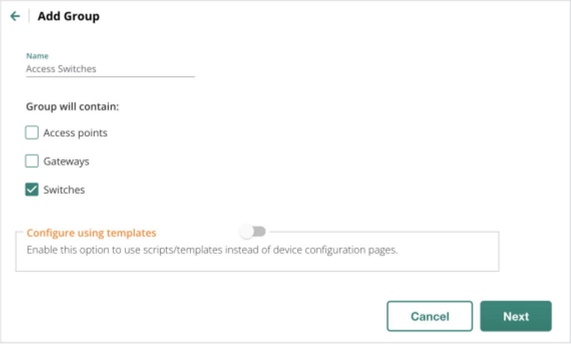
Create a new group by selecting the **+** icon in the top right corner of the groups list.



Groups (8)
Combine devices with common configuration into a single group to apply the same configuration

Group Name
All connected devices (10)
Unprovisioned devices (0)
default (0) ★
TG 3810-Stack (0)
TG 6300-TG (0)
AOS-S UI (2)
CX Access (3)
CX-Demo (2)
CX-VSF-UI (3)
TG Template Holding (0)

Give the new group a name, and check the box next to **Switches**. A setting will appear below to enable template mode; this setting can be selectively enabled or disabled for access points and gateways, switches, or both. If left disabled, all devices in this group will be managed in UI mode. Select **Next** to continue.



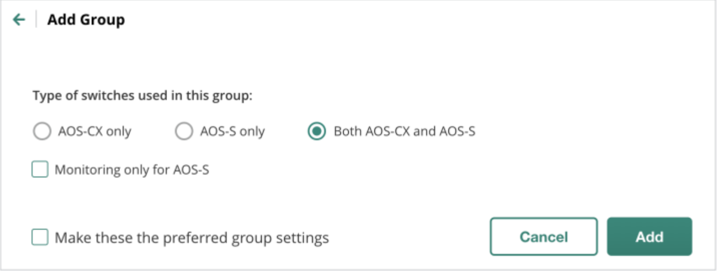
Add Group

Name
Access Switches

Group will contain:
☐ Access points
☐ Gateways
☑ Switches

Configure using templates
Enable this option to use scripts/templates instead of device configuration pages.

In the second step, choose the switch platforms that will be managed as part of this group — AOS-CX only, AOS-Switch only, or both AOS-CX and AOS-Switch. This setting will determine which configuration options appear when managing the group in the Central UI. If the AOS-Switch platform is included in the group, a setting is available to enable 'Monitor-only' mode — Central will collect monitoring data from these switches, but no AOS-Switch configuration UI will be provided.



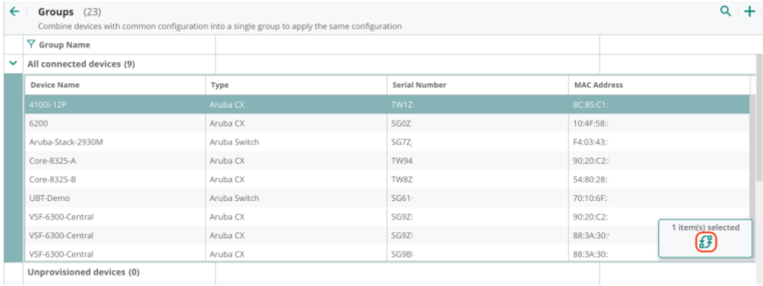
Add Group

Type of switches used in this group:
○ AOS-CX only ○ AOS-S only ● Both AOS-CX and AOS-S
☐ Monitoring only for AOS-S

☐ Make these the preferred group settings

If you would like to use these group settings by default when creating new groups in the future, check the box next to **Make these the preferred group settings**. Once all group settings have been correctly defined, select **Add** to create the new group.

Once the group has been created, expand either **All connected devices, Unprovisioned devices**, or an existing group from the group list. Select one or more switches to be assigned to the newly created group, then select the highlighted move button. If the switch you wish to move into the group is not visible, ensure it is connected to the Internet and running the minimum supported software version, and try again.



Groups (23)
Combine devices with common configuration into a single group to apply the same configuration

Group Name
All connected devices (9)

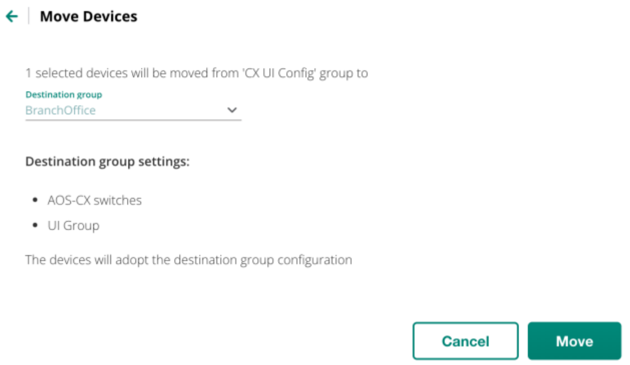
Device Name	Type	Serial Number	MAC Address
4100i-12P	Aruba CX	TW1Z	8C:85:C1:
6200	Aruba CX	SG0Z	10:4F:58:
Aruba-Stack-2930M	Aruba Switch	SG7Z	F4:03:43:
Core-8325-A	Aruba CX	TW94	90:20:C2:
Core-8325-B	Aruba CX	TW8Z	54:80:28:
UBT-Demo	Aruba Switch	SG61	70:10:6F:
VSF-6300-Central	Aruba CX	SG9Z	90:20:C2:
VSF-6300-Central	Aruba CX	SG9Z	88:3A:30:
VSF-6300-Central	Aruba CX	SG9B	88:3A:30:

1 item(s) selected

Unprovisioned devices (0)

In the pop-up window that opens, select the destination group for the selected devices, then select **Move** to confirm the move.

Note: Before moving a VSF stack into a template group, first ensure that any template that could be applicable to that stack contains the proper VSF member and link configuration to avoid disruption of stack operations.



Move Devices

1 selected devices will be moved from 'CX UI Config' group to

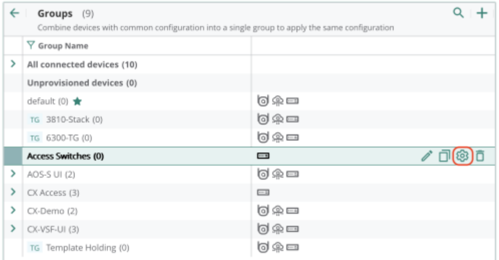
Destination group
BranchOffice

Destination group settings:

- AOS-CX switches
- UI Group

The devices will adopt the destination group configuration

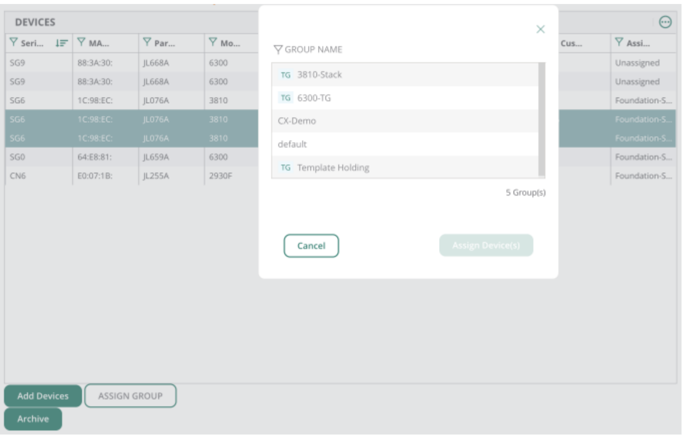
Once switches have been moved into the group, select the gear icon next to the group name to open the group configuration page.



Groups (9)
Combine devices with common configuration into a single group to apply the same configuration

Group Name
All connected devices (10)
Unprovisioned devices (0)
default (0) ★
TG 3810-Stack (0)
TG 6300-TG (0)
Access Switches (0)
AOS-S UI (2)
CX Access (3)
CX-Demo (2)
CX-VSF-UI (3)
TG Template Holding (0)

To assign switches to a group before they have been connected to Central for the first time, return to Account Home and open the **DEVICE INVENTORY** page. Highlight one or more switches from the device list, and select **ASSIGN GROUP**. Choose the desired group, then select **Assign Device(s)**. When these switches connect to Central, they will be attached to the explicitly assigned group instead of the **default** group.



DEVICES

Seri...	MA...	Par...	Mo...	Cus...	Assi...
SG9	88:3A:30:	JL668A	6300		Unassigned
SG9	88:3A:30:	JL668A	6300		Unassigned
SG6	1C:98:EC:	JL076A	3810		Foundation-S...
SG6	1C:98:EC:	JL076A	3810		Foundation-S...
SG6	1C:98:EC:	JL076A	3810		Foundation-S...
SG0	64:E8:81:	JL659A	6300		Foundation-S...
CN6	E0:07:1B:	JL255A	2930F		Foundation-S...

GROUP NAME
TG 3810-Stack
TG 6300-TG
CX-Demo
default
TG Template Holding

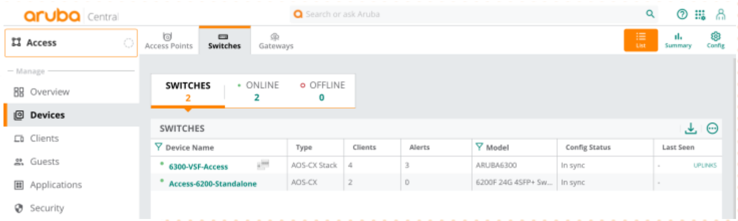
5 Group(s)

Aruba switch configuration

AOS-CX UI configuration

Note: Moving a Central-managed Aruba CX switch or VSF stack into a UI configuration group will result in immediate replacement of the existing switch configuration with the group configuration. To prevent this behavior, disable auto-commit at the individual device context prior to moving the device into the new group.

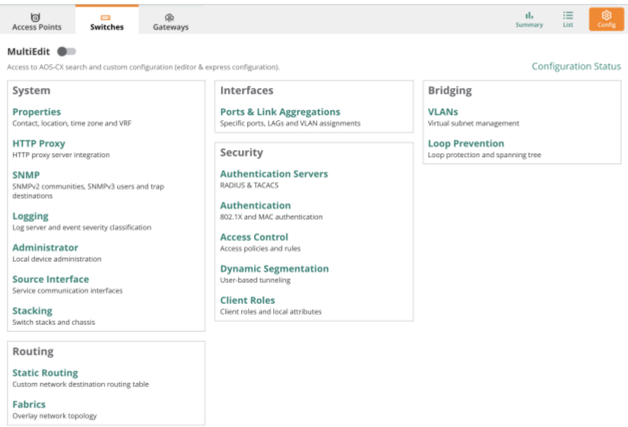
From the group context, displayed in the top left corner, open the **Devices** page from the left hand navigation menu, then select the **Switches** tab from the bar at the top. This displays the list of switches that are assigned to the group and have connected to Central at least once. Select the **Config** link in the top-right corner; if the group contains no devices, or a mix of AOS-Switch and AOS-CX switches, instead select the **AOS-CX** link.



Device Name	Type	Clients	Alerts	Model	Config Status	Last Seen
6300-VSF-Access	AOS-CX Stack	4	3	ARUBA6300	In sync	- UPLINKS
Access-6200-Standalone	AOS-CX	2	0	6200F 24G 4SFP+ Sw...	In sync	-

Feature-level configuration is divided into five distinct categories:

- **System**: Basic system properties, HTTP proxy, SNMP, logging, management access controls, IP source interface, and VSF stacking
- **Routing**: Static routes and overlay fabrics
- **Interfaces**: Port and link aggregation group (LAG) settings, VLAN assignments
- **Security**: Port access (AAA), Dynamic Segmentation, client roles
- **Bridging**: VLAN definitions, loop protection, and spanning tree



Access to AOS-CX search and custom configuration (editor & express configuration).

System
Properties – Contact, location, time zone and VRF
HTTP Proxy – HTTP proxy server integration
SNMP – SNMPv2 communities, SNMPv3 users and trap destinations
Logging – Log server and event severity classification
Administrator – Local device administration
Source Interface – Service communication interfaces
Stacking – Switch stacks and chassis

Routing
Static Routing – Custom network destination routing table
Fabrics – Overlay network topology

Interfaces
Ports & Link Aggregations – Specific ports, LAGs and VLAN assignments

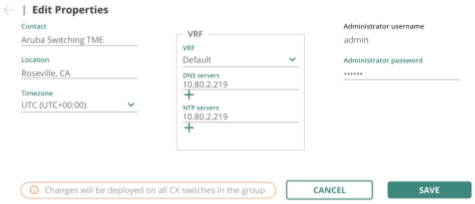
Security
Authentication Servers – RADIUS & TACACS
Authentication – 802.1X and MAC authentication
Access Control – Access policies and rules
Dynamic Segmentation – User-based tunneling
Client Roles – Client roles and local attributes

Bridging
VLANs – Virtual subnet management
Loop Prevention – Loop protection and spanning tree

Note: Certain settings at the group UI context, including **Static Routing**, **Ports & Link Aggregations**, **Authentication**, **Access Control**, and **Loop Prevention**, apply only to standalone switches; for VSF stacks in the group, these settings can only be modified at the individual stack context or via MultiEdit.

Configuration changes can be made at the **group** context or **individual device** (standalone switch or stack) context, with the current context displayed in the top-left corner. For settings that exist at both the group and individual device contexts, the *most recent change* prevails — a setting changed at the device level will be overridden by a later change to the same setting made at the group level, and vice versa.

To modify settings, select the appropriate link under each heading. To return to the main configuration page *without* making changes, select the ← icon in the top-left corner. Once changes have been made and validated, select the **SAVE** button to apply them and return to the main configuration UI. To discard the changes and return to the main configuration page, instead select **CANCEL**.



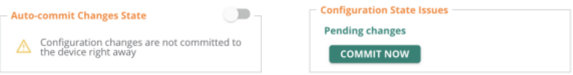
Contact: Aruba Switching TME
Location: Roseville, CA
Timezone: UTC (UTC+00:00)
VRF
VRF: Default
DNS servers: 10.80.2.219
NTP servers: 10.80.2.219
Administrator username: admin
Administrator password: ******

Changes will be deployed on all CX switches in the group

Note: To prevent interruption of the Central management connection if switches in the group will be assigned static IP addresses, first ensure that the appropriate static routes are defined on the **Static Routing** page or use MultiEdit to configure any necessary static routes and/or routing protocols *before* assigning the static IP addresses.

By default, any configuration changes made in the Central UI are applied immediately to all managed switches in the group. This behavior is controlled by the auto-commit setting for each managed device, which is enabled by default. To change this setting for a managed device, return to the group device list using the **List** icon in the top-right corner, then select the desired switch using the link in the Device Name column. Open the **Device** page from the left-hand navigation menu, then select

Configuration Status in the top-right corner of the page. The auto-commit setting can be enabled or disabled using the toggle switch next to **Auto-commit Changes State** on the left side of the page.



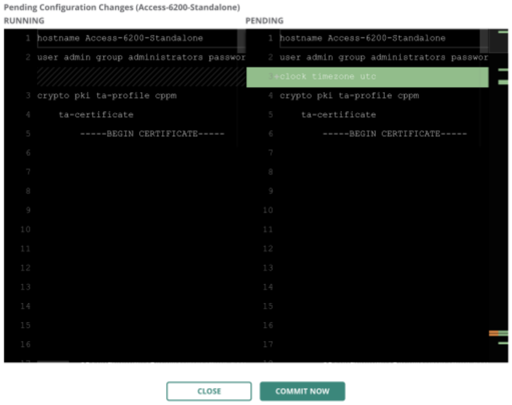
Auto-commit Changes State

⚠ Configuration changes are not committed to the device right away

Configuration State Issues

Pending changes

When auto-commit is disabled, pending configuration changes can be reviewed by selecting the **Pending changes** link from the Configuration Status page before being committed to the switch running and startup configuration.



Pending Configuration Changes (Access-6200-Standalone)

RUNNING

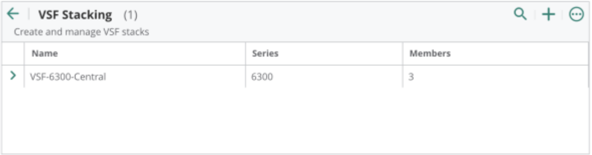
```
hostname Access-6200-Standalone
user admin group administrators passwor

crypto pki ta-profile cppm
    ta-certificate
        -----BEGIN CERTIFICATE-----
```

PENDING

```
hostname Access-6200-Standalone
user admin group administrators passwor
+clock timezone utc
crypto pki ta-profile cppm
    ta-certificate
        -----BEGIN CERTIFICATE-----
```

VSF stack management

Starting with the Central 2.5.4 release, AOS-CX VSF stacks can be created, managed, and removed in UI configuration groups. Open the stack management page by selecting the **Stacking** link in the **System** section of the group configuration UI.



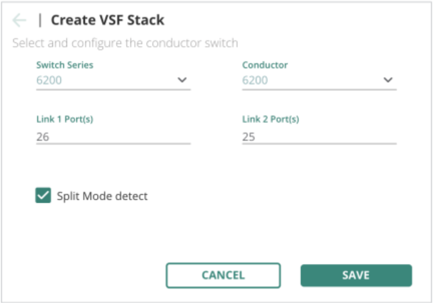
VSF Stacking (1)

Create and manage VSF stacks

Name	Series	Members
VSF-6300-Central	6300	3

Note: Central UI group VSF stack creation and management requires AOS-CX 10.7 or later.

Stack creation using the Central UI requires stack members other than the desired stack Conductor to be in a factory default state running AOS-CX 10.7 or later, with VSF link cables connected to the Conductor using reserved VSF link ports (25 and 26 *or* 49 and 50). The switch to be used as the Conductor must be managed by Central and assigned to an AOS-CX UI configuration group, and all stack members must be part of the Central inventory with device management licenses assigned.



Create VSF Stack

Select and configure the conductor switch

Switch Series: 6200

Conductor: 6200

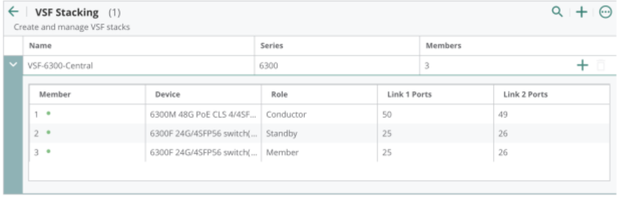
Link 1 Port(s): 26

Link 2 Port(s): 25

☑ Split Mode detect

To create a new VSF stack, select the + button in the top-right corner. Choose the switch family (6200 or 6300), and select an existing standalone switch in the group to be the Conductor. Link 1 and Link 2 port numbers will be automatically populated based on the selected Conductor's model (either ports 25 and 26 or ports 49 and 50); in order to ensure proper stack build order based on the AOS-CX auto-stacking feature, it is recommended to use the higher-numbered port for Link 1 and the lower-numbered port for Link 2 on the Conductor, as shown here. If VSF split detection using the primary and secondary member management ports will be used, check the **Split Mode detect** checkbox. Select **SAVE** to apply the VSF link and split detection configuration to the Conductor.

Once the Conductor has been configured, VSF auto-stacking will automatically discover, configure, and reboot each new stack member in sequence; new stack members will be displayed in the Central UI within about 5 minutes of joining the stack.



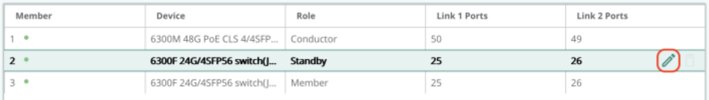
VSF Stacking (1)

Create and manage VSF stacks

Name	Series	Members
VSF-6300-Central	6300	3

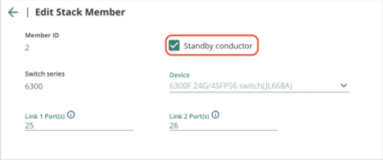
Member	Device	Role	Link 1 Ports	Link 2 Ports
1 ●	6300M 48G PoE CL5 4/4SF...	Conductor	50	49
2 ●	6300F 24G/4SFP56 switch(...	Standby	25	26
3 ●	6300F 24G/4SFP56 switch(...	Member	25	26

Once the stack has been fully provisioned, member settings can be modified by highlighting the member in the list and selecting the edit icon to the right edge of the row.



Member	Device	Role	Link 1 Ports	Link 2 Ports
1 ●	6300M 48G PoE CLS 4/4SFP...	Conductor	50	49
2 ●	**6300F 24G/4SFP56 switch(J...**	**Standby**	**25**	**26**
3 ●	6300F 24G/4SFP56 switch(J...	Member	25	26

By default, Central does not designate a secondary member ID to act as the stack Standby. Any member other than member 1 can be designated the secondary by editing its settings and checking the box next to **Standby conductor**, then selecting **SAVE**. Any saved changes to this setting will result in an immediate reboot of the new secondary member (as well as the old secondary member, if there was one previously assigned).



← | Edit Stack Member

Member ID: 2

☑ Standby conductor

Switch series: 6300

Device: 6300F 24G/4SFP56 switch(JL668A)

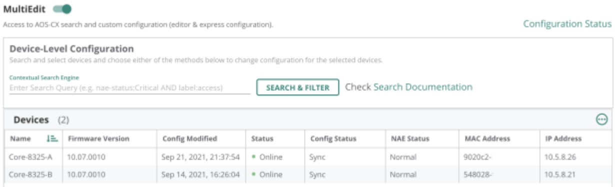
Link 1 Port(s): 25

Link 2 Port(s): 26

For other VSF stack maintenance tasks, including adding, removing, or replacing stack members, refer to the Managing AOS-CX VSF Stacks section of the Aruba Central online documentation.

MultiEdit

Enable MultiEdit mode by selecting the toggle switch on the top of the group Config page. This will open a device list from which one or more devices can be selected to view or modify the switch configuration, or utilize the Express Config feature to deploy Network Analytics Engine agents or device profile settings.



MultiEdit

Access to AOS-CX search and custom configuration (editor & express configuration).

Device-Level Configuration

Search and select devices and choose either of the methods below to change configuration for the selected devices.

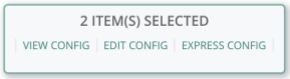
Contextual Search Engine: Enter Search Query (e.g. nae-status:Critical AND label:access)

Devices (2)

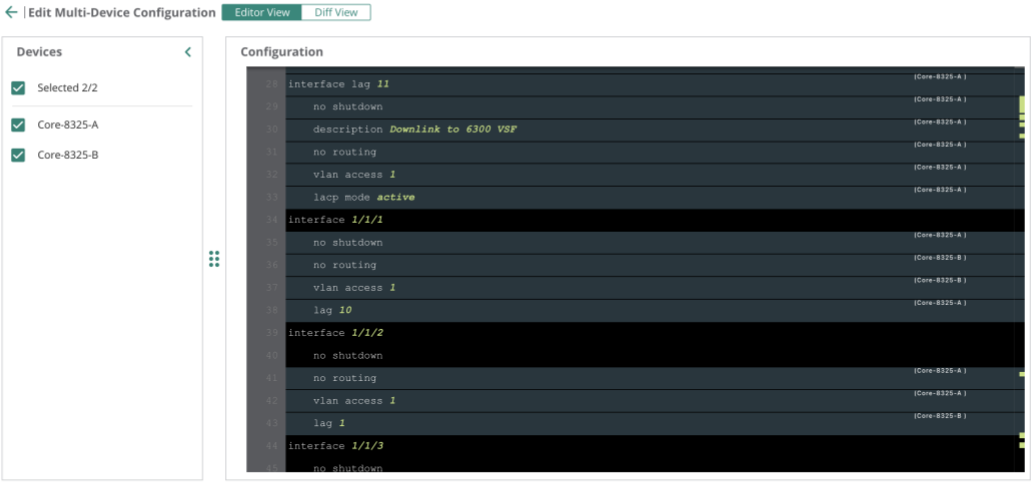
Name	Firmware Version	Config Modified	Status	Config Status	NAE Status	MAC Address	IP Address
Core-8325-A	10.07.0010	Sep 21, 2021, 21:37:54	● Online	Sync	Normal	9020c2-	10.5.8.26
Core-8325-B	10.07.0010	Sep 14, 2021, 16:26:04	● Online	Sync	Normal	548028-	10.5.8.21

Configuration editing

Highlight at least one device in the list, and select **EDIT CONFIG** from the pop-up in the bottom right corner. This opens the configuration editor UI for the selected switches.



2 ITEM(S) SELECTED



← | Edit Multi-Device Configuration

Devices

☑ Selected 2/2

☑ Core-8325-A

☑ Core-8325-B

Configuration

```
interface lag 11                                   [Core-8325-A]
    no shutdown                                    [Core-8325-A]
    description Downlink to 6300 VSF               [Core-8325-A]
    no routing                                     [Core-8325-A]
    vlan access 1                                  [Core-8325-A]
    lacp mode active                               [Core-8325-A]
interface 1/1/1
    no shutdown                                    [Core-8325-A]
    no routing                                     [Core-8325-B]
    vlan access 1                                  [Core-8325-B]
    lag 10                                         [Core-8325-A]
interface 1/1/2
    no shutdown
    no routing                                     [Core-8325-A]
    vlan access 1                                  [Core-8325-A]
    lag 1                                          [Core-8325-B]
interface 1/1/3
    no shutdown
```

To hide or show device configurations from the editor view, uncheck or check each device from the list on the left; use the **<** icon to minimize the device list and maximize the editor view.

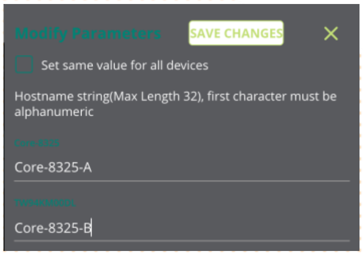
When multiple switch configurations are displayed simultaneously, the following behaviors apply:

- **Any** portion of the configuration that differs between the switches currently displayed is highlighted in green
- If a specific configuration line only exists on a subset of the displayed switches, the name(s) of the applicable devices or a fraction of the total being edited (e.g. **4 / 7** if four out of seven contain the line) is displayed near the top-right corner of that line
- If a configuration line exists on all displayed switches but there are differences in the *number or types* of parameters configured between displayed switches, the line will be displayed multiple times with the applicable switch(es) or fractions

each version of the line applies to displayed in the top-right corner of that line

- If a configuration line exists on all displayed switches and differs only in the *values* of specified parameters, only the specific parameters that differ are highlighted and displayed as a placeholder

To modify any command or parameter that exists, but is different, for multiple displayed devices, right-click the highlighted placeholder to open the **Modify Parameters** pop-up; after making changes, select **SAVE CHANGES** from inside the pop-up (*not* the **SAVE** button in the bottom-right corner) to return to the editor.



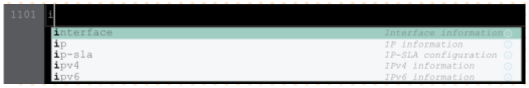
□ Set same value for all devices

Hostname string(Max Length 32), first character must be alphanumeric

Core-8325
Core-8325-A

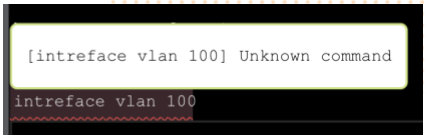
TW94KM00DL
Core-8325-B

The configuration editor provides autocompletion and syntax validation functionality. The autocomplete feature displays valid commands and parameters below the line being edited based on characters that have already been entered, and can be utilized by selecting the desired command or parameter from the displayed list using the up/down arrow and Tab keys or by using the mouse pointer or touch screen.



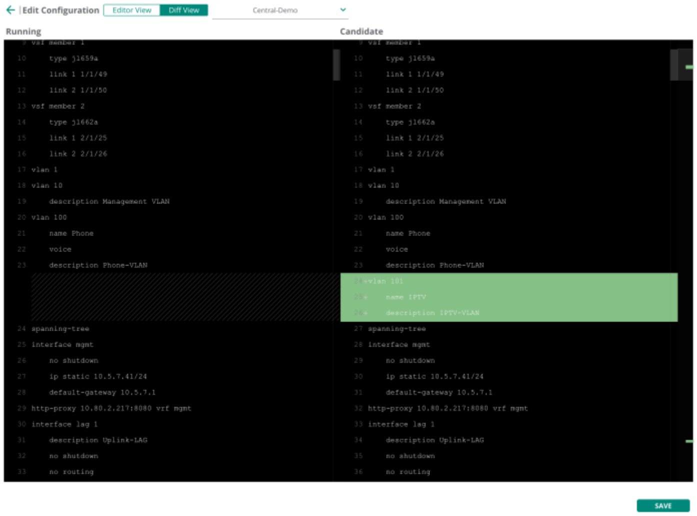
```
1101 i
interface        Interface information
ip               IP information
ip-sla           IP-SLA configuration
ipv4             IPv4 information
ipv6             IPv6 information
```

Syntax validation ensures that only valid commands are entered; syntax errors are denoted by highlighting and underlining the applicable line in red, and the detected error is displayed by hovering the mouse pointer over the highlighted portion of the line. Common syntax errors include typographical errors, invalid parameters, or entering commands or parameters outside of a supported context (see note above).



```
[intreface vlan 100] Unknown command
intreface vlan 100
```

When finished making changes, use the **Diff View** to compare the current running configuration with the edited candidate configuration; changes are highlighted in green and/or orange. Select **SAVE** to apply the candidate configuration to the selected devices.



Running

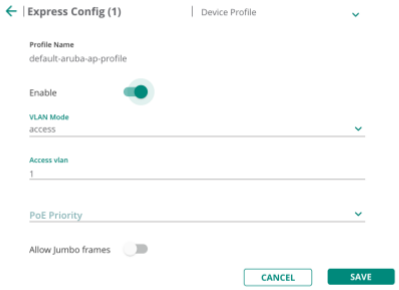
```
vsf member 1
    type jl659a
    link 1 1/1/49
    link 2 1/1/50
vsf member 2
    type jl662a
    link 1 2/1/25
    link 2 2/1/26
vlan 1
vlan 10
    description Management VLAN
vlan 100
    name Phone
    voice
    description Phone-VLAN
spanning-tree
interface mgmt
    no shutdown
    ip static 10.5.7.41/24
    default-gateway 10.5.7.1
http-proxy 10.80.2.217:8080 vrf mgmt
interface lag 1
    description Uplink-LAG
    no shutdown
    no routing
```

Candidate

```
vsf member 1
    type jl659a
    link 1 1/1/49
    link 2 1/1/50
vsf member 2
    type jl662a
    link 1 2/1/25
    link 2 2/1/26
vlan 1
vlan 10
    description Management VLAN
vlan 100
    name Phone
    voice
    description Phone-VLAN
+vlan 101
+    name IPTV
+    description IPTV-VLAN
spanning-tree
interface mgmt
    no shutdown
    ip static 10.5.7.41/24
    default-gateway 10.5.7.1
http-proxy 10.80.2.217:8080 vrf mgmt
interface lag 1
    description Uplink-LAG
    no shutdown
    no routing
```

Express Config

The Express Config workflow can be used to deploy Aruba AP device profile settings or selected Network Analytics Engine agents to a managed Aruba CX switch. Select one or more switches from the device list, and choose **EXPRESS CONFIG**. Select either Device Profile or Network Analytics Engine from the drop-down menu in the top-right, and choose an agent from the **NAE Script Name** menu (if applicable). Modify settings for the selected feature or NAE agent as desired, then select **SAVE** to deploy the profile or agent to the selected switches.



Device Profile

Profile Name
default-aruba-ap-profile

Enable ●

VLAN Mode
access

Access vlan
1

PoE Priority

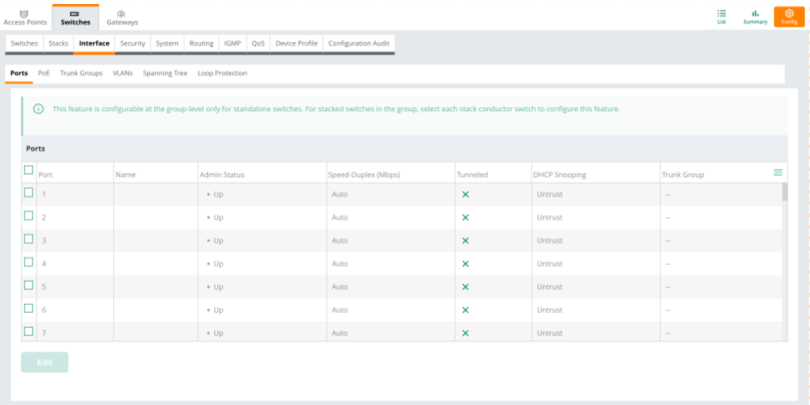
Allow Jumbo frames ○

AOS-Switch UI configuration

Note: Moving a configured AOS-Switch device into a UI configuration group will result in the switch configuration being immediately replaced with the group configuration, unless auto-commit has been disabled at the device or group context.

Feature-level configuration is grouped under the following tab-based headings:

- **Switches**: Basic system properties
- **Stacks**: Virtual Switching Framework (VSF) and backplane stacking (BPS) deployment and configuration
- **Interface**: Port, PoE, trunk group (LAG), VLAN, spanning tree, and loop protection
- **Security**: Access policies, DHCP snooping, rate limiting, RADIUS, downloadable user roles, authentication, and tunneling
- **System**: Management access, DNS, time synchronization, SNMP, Cisco Discovery Protocol (CDP), DHCP, IP Client Tracker
- **Routing**: IP routing setting, Static route definitions
- **IGMP**: VLAN-level IGMP configuration, unknown multicast filtering
- **QoS**: QoS traffic policy definitions and DSCP mapping
- **Device Profile**: Device Profile and Device Identifier definitions

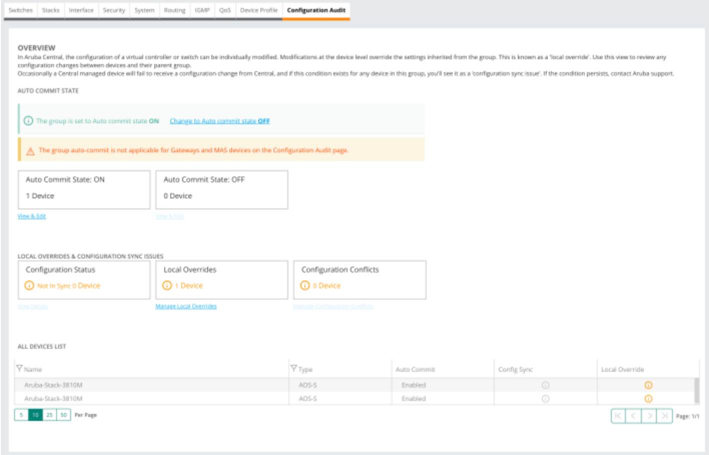


This feature is configurable at the group-level only for standalone switches. For stacked switches in the group, select each stack conductor switch to configure this feature.

Ports

□	Port	Name	Admin Status	Speed-Duplex (Mbps)	Tunneled	DHCP Snooping	Trunk Group
□	1		• Up	Auto	✕	Untrust	–
□	2		• Up	Auto	✕	Untrust	–
□	3		• Up	Auto	✕	Untrust	–
□	4		• Up	Auto	✕	Untrust	–
□	5		• Up	Auto	✕	Untrust	–
□	6		• Up	Auto	✕	Untrust	–
□	7		• Up	Auto	✕	Untrust	–

To modify settings, choose the appropriate section from the tab bar across the top of the group configuration UI, as well as the desired subsection where required. Once changes have been made and reviewed, select **SAVE** from the feature settings pop-up; changes will be applied immediately unless auto-commit has been disabled at the device or group level, in which case they would be manually committed to devices by the administrator from the **Configuration Audit** page.



OVERVIEW
In Aruba Central, the configuration of a virtual controller or switch can be individually modified. Modifications at the device level override the settings inherited from the group. This is known as a 'local override'. Use this view to review any configuration changes between devices and their parent group.
Occasionally a Central managed device will fail to receive a configuration change from Central, and if this condition exists for any device in this group, you'll see it as a 'configuration sync issue'. If the condition persists, contact Aruba support.

AUTO COMMIT STATE

The group is set to Auto commit state **ON** Change to Auto commit state **OFF**

The group auto-commit is not applicable for Gateways and MAS devices on the Configuration Audit page.

Auto Commit State: ON
1 Device

Auto Commit State: OFF
0 Device

LOCAL OVERRIDES & CONFIGURATION SYNC ISSUES

Configuration Status
Not In Sync 0 Device

Local Overrides
1 Device

Configuration Conflicts
0 Device

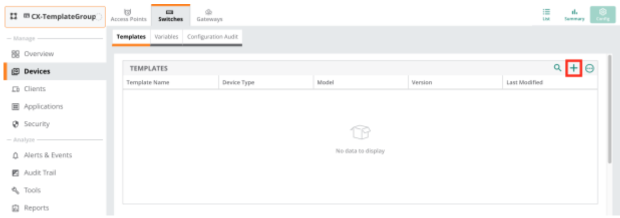
ALL DEVICES LIST

Name	Type	Auto Commit	Config Sync	Local Override
Aruba-Stack-3810M	AOS-S	Enabled	ⓘ	ⓘ
Aruba-Stack-3810M	AOS-S	Enabled	ⓘ	ⓘ

Template creation and application

From the group's **Devices** page, open the **Switches** tab from the top navigation bar, then **Config** in the top-right corner.

This opens the group template management page. In a newly-created group, this list will be empty. Select the + icon in the top-right corner of the template list to create a new template.

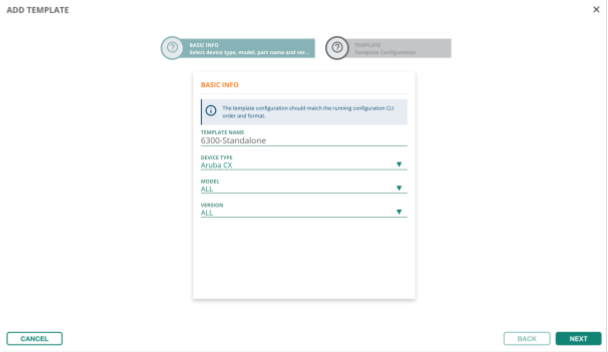


TEMPLATES

Template Name	Device Type	Model	Version	Last Modified

No data to display

The template name, like group names, cannot contain spaces. Select the appropriate device type: **Aruba Switch** (AOS-Switch) or **Aruba CX**. You may either choose specific device models, part names, and software versions to which the new template will apply, or select **ALL** for one or more of these to create a more generic template that may apply to a range of switches. Select **NEXT** to continue.



The template configuration should match the running configuration CLI order and format.

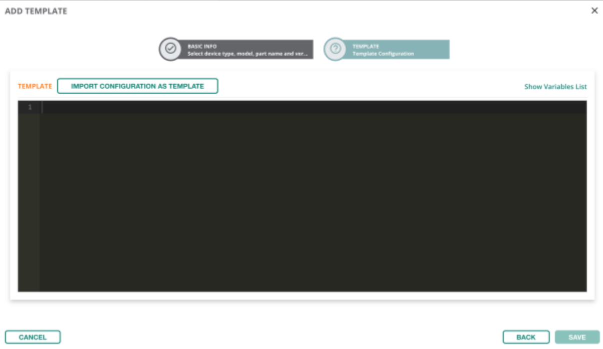
TEMPLATE NAME: 6300-Standalone

DEVICE TYPE: Aruba CX

MODEL: ALL

VERSION: ALL

This opens the template editor. If there is at least one switch already assigned to the group, its configuration can be imported as a template and modified as desired.



Templates may contain *variables* and *conditional statements* (if, else) in order to apply the same template to multiple devices without also applying the same values (such as IP addresses or hostnames) to those devices. These functions are utilized by enclosing the variable or conditional statement in '%' characters, as in the following examples:

```
hostname %_sys_hostname%
%if vlan_1_dhcp%
ip dhcp
%else%
ip address %vlan_1_ip%/%vlan_1_mask%
no ip dhcp
%endif%
```

Note: An `%endif%` statement *must* be present for every `%if%` statement present in the template; any mismatch between the number of `%if%` and `%endif%` statements will be flagged as a template syntax error and the affected template will not be applied to any managed devices until the error is corrected.

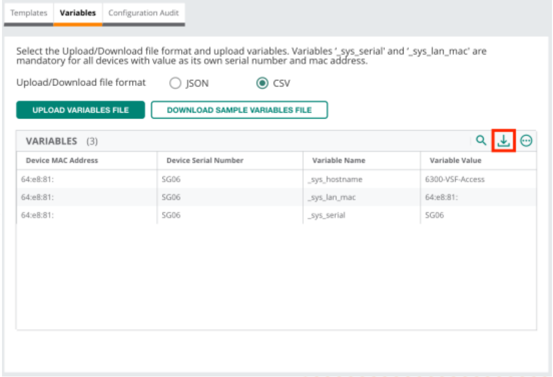
Variables and conditional statements can be used to define a template that selectively applies portions of a template based on the specific value contained in the variable; in the following example, the **`Stack_Members_Total`** variable is used to define the size of a particular VSF stack; the **=** and **>=** comparisons are used to check the value contained in the variable to determine which portion of the template is actually applied:

```
vsf member 1
type %Stack_Member_1_Model%
%if Stack_Members_Total>=2%
    link 1 %Stack_Member_1_Link_1_Interface%
    link 2 %Stack_Member_1_Link_2_Interface%
    vsf secondary-member 2
    vsf member 2
    type %Stack_Member_2_Model%
    link 1 %Stack_Member_2_Link_1_Interface%
    link 2 %Stack_Member_2_Link_2_Interface%
%endif%
%if Stack_Members_Total>=3%
    vsf member 3
    type %Stack_Member_3_Model%
    link 1 %Stack_Member_3_Link_1_Interface%
    link 2 %Stack_Member_3_Link_2_Interface%
```

```
%endif%
%if Stack_Members_Total>=4%
    vsf member 4
    type %Stack_Member_4_Model%
    link 1 %Stack_Member_4_Link_1_Interface%
    link 2 %Stack_Member_4_Link_2_Interface%
%endif%
```

If the value for `Stack_Members_Total` is *less than* the value being checked, that portion of the template up to the following `%endif%` statement is skipped; if the variable is not defined at all or does not contain any value (i.e. the value is an empty string), *any* section bounded by a non-empty conditional check for that variable will be skipped.

Variables are defined on a per-device or per-stack basis, and may be edited either within Central itself or offline using a downloaded copy of the variable set for the displayed group or device. Select the desired upload/download file format (JSON or CSV), then use the highlighted download button in the top-right corner of the variable list to download the group variable file. Make any desired changes, then re-upload the modified file using the **UPLOAD VARIABLES FILE** button.



Select the Upload/Download file format and upload variables. Variables '_sys_serial' and '_sys_lan_mac' are mandatory for all devices with value as its own serial number and mac address.

Upload/Download file format ○ JSON ● CSV

VARIABLES (3)

Device MAC Address	Device Serial Number	Variable Name	Variable Value
64:e8:81:	SG06	_sys_hostname	6300-VSF-Access
64:e8:81:	SG06	_sys_lan_mac	64:e8:81:
64:e8:81:	SG06	_sys_serial	SG06

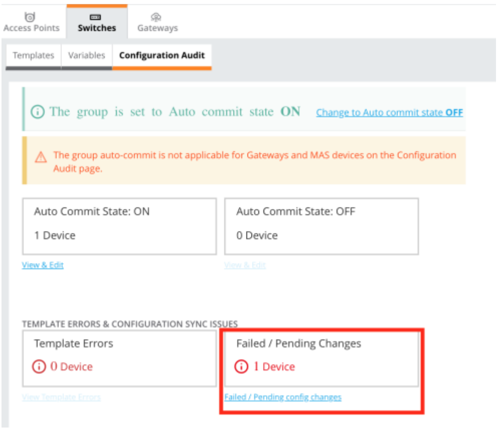
Note: The CSV variable file format contains a Modified field for each device in the file, with a default value of N; change this value to Y for any device with modified variables that will need to be updated when the file is uploaded.

Once the new template has been created, select **SAVE**. The template will immediately be applied to all specified devices in the group, so ensure that it has been reviewed for possible effects on connectivity and features prior to saving it.

Note that when multiple templates are present that may apply to a given switch assigned to the group, Central automatically selects the *most specific* template — the template that matches the most parameters (model, part name, and version) — to apply to that switch.

Once the template has been saved, open the **Configuration Audit** page. The first thing you might notice is that the **Failed / Pending Changes** portion of the page lists 1 or more devices. This is usually normal; it indicates that a configuration change (either to the template or variables) has been detected and a configuration change has been queued to be pushed to affected devices.

Select the **Failed / Pending config changes** link below the box.



The group is set to Auto commit state ON Change to Auto commit state OFF

The group auto-commit is not applicable for Gateways and MAS devices on the Configuration Audit page.

Auto Commit State: ON
1 Device
View & Edit

Auto Commit State: OFF
0 Device
View & Edit

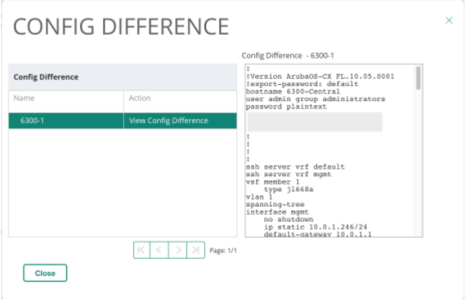
TEMPLATE ERRORS & CONFIGURATION SYNC ISSUES

Template Errors
0 Device
View Template Errors

Failed / Pending Changes
1 Device
Failed / Pending config changes

Choose a displayed device in the list and select **View Config Difference**. If the template has no syntax or configuration errors for the listed switch, the resulting configuration being pushed to the switch will be displayed in the right side of the popup. If there are any syntax errors in the template, or Central is otherwise unable to apply the configuration to the switch, this will be displayed instead.

Select **Close** to return to the **Configuration Audit** page.


CONFIG DIFFERENCE

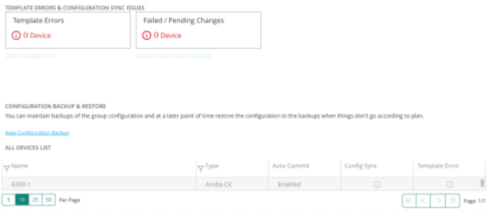
Config Difference

Name	Action
6300-1	View Config Difference

Config Difference - 6300-1

```
!
!Version ArubaOS-CX FL.10.05.0001
!export-password: default
hostname 6300-Central
user admin group administrators
password plaintext
[redacted]
!
!
!
!
ssh server vrf default
ssh server vrf mgmt
vsf member 1
    type jl668a
vlan 1
spanning-tree
interface mgmt
    no shutdown
    ip static 10.0.1.246/24
    default-gateway 10.0.1.1
```

The lower portion of the page provides access to the configuration backup and restore feature, and a list of devices in the group with **Config Sync** and **Template Error** status. Switches with no configuration or template issues are displayed with grey icons, while those with errors instead display a **red** icon.



TEMPLATE ERRORS & CONFIGURATION SYNC ISSUES

Template Errors
ⓘ 0 Device

Failed / Pending Changes
ⓘ 0 Device

View Template Errors

Failed / Pending config changes

CONFIGURATION BACKUP & RESTORE

You can maintain backups of the group configuration and at a later point of time restore the configuration to the backups when things don't go according to plan.

New Configuration Backup

ALL DEVICES LIST

Name	Type	Auto Commit	Config Sync	Template Error
6300-1	Aruba CX	Enabled	ⓘ	ⓘ

5 10 25 50 Per Page

Page: 1/1

Troubleshooting switch connectivity to Central

If a managed switch loses connectivity to Central, it will be displayed as Offline in the global or group device list under the Switches tab. The status of the connection to Activate and Central can be checked from the switch console using the `show aruba-central` CLI command.

```
switch# show aruba-central
Central admin state                        : enabled

Central location                           : device-prod2-d2.central.arubanetworks.com
VRF for connection                         : mgmt
Central connection status                  : connected

Central source                             : activate
Central source connection status           : connected
Central source last connected on           : Wed Sep 22 18:39:05 UTC 2021
System time synchronized from Activate     : True

Activate Server URL                        : devices-v2.arubanetworks.com
CLI location                               : N/A
CLI VRF                                    : N/A

Source IP                                  : 10.5.7.27
Source IP Overridden                       : False

Central support mode                       : disabled
```

Check and correct the following when troubleshooting Central connectivity issues:

- Central admin state is **enabled**
- Layer 3 reachability to switch gateway and external hosts
- DNS resolution of Activate and Central hostnames (e.g. devices-v2.arubanetworks.com)
- Reachability of Activate and Central hosts from the switch on TCP port 443 (TLS/SSL)
    - Firewall rules may be required to permit outbound connections on TCP port 443
- HTTP proxy is configured on the VRF used for Central management, where required
- If Central location is provided by ZTP DHCP option or CLI override, ensure the correct FQDN or IPv4 address is defined for the Central instance managing the switch

Note that certain configuration changes pushed by Central, such as interface, IP addressing, DNS server, or HTTP proxy configuration, may cause a temporary or persistent loss of connectivity when applied to the running configuration on the switch; ensure that proposed configuration changes will not remove or change settings that are required to maintain or re-establish the management connection before applying them.

Applicable platforms

The content of the Aruba Central Switching Fundamentals guide is applicable to the following platforms:

- Aruba CX 4100i Switch Series
- Aruba CX 6100 Switch Series
- Aruba CX 6200 Switch Series
- Aruba CX 6300 Switch Series
- Aruba CX 6400 Switch Series
- Aruba CX 8320 Switch Series
- Aruba CX 8325 Switch Series
- Aruba CX 8360 Switch Series
- Aruba CX 8400 Switch Series

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