

Aruba Central

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Agenda:-

- Introduction
- Account Creation
- Aruba Central UI
- Device Management
- Managed Service Provider (MSP)
- Bringing up IAP's on Aruba Central
- Cloud Guest
- Basics of Switch communication with Central
- Different methods of provisioning switches.

WHAT IS ARUBA CENTRAL ?

Aruba Central :

- Aruba Central is a cloud-based platform that enables you to manage your Aruba Wi-Fi network. Designed as a software-as-a-service (SAAS) subscription, Central provides a standard web-based interface that allows you to configure and monitor multiple Aruba Wi-Fi networks from anywhere.

Central offers the following key features:

- Streamlined management of devices
- Dashboard for network view and client monitoring
- Application Analytics
- Easy grouping of devices n Centralized configuration of APs and Switches
- Easy management of user accounts
- Subscription based access to devices
- Guest Wi-Fi access configuration
- Report Generation n Troubleshooting devices

Operational Modes and Interfaces:-

Aruba offers the following variants of the Central web interface:

- **Standard Enterprise mode :-** The Standard Enterprise interface is intended for customers who manage their respective accounts end to end. In the Standard Enterprise mode, the customers have complete access to their accounts. They can also provision and manage their respective accounts.
- **Managed Service mode:-** Central offers the Managed Service Portal for managed service providers who need to manage multiple customer networks. With Managed Service Portal, the MSP administrators can provision customer accounts, allocate devices, assign licenses, and monitor customer accounts and their networks. The administrators can also drill down to a specific tenant account and perform administration and configuration tasks. The tenants can access only their respective accounts, and only those features and application services to which they have subscribed

Flexible and Cost-Effective Cloud Networking:-

HARDWARE

Includes Limited Lifetime Warranty



INSTANT
ACCESS POINTS



ARUBA-OS
SWITCHES

CLOUD MANAGEMENT

License Per Managed **Device**
Transferrable Between Devices
1/3/5-yr Subscriptions
Includes Tech Support

OPTIONAL SERVICES

License Per **Service** Per Device
Transferrable Between Services
1/3/5-yr Subscriptions
Includes Tech Support

- Low entry point for cloud-managed networks adoption.
- Flexibility to transfer subscriptions across different devices and services.
 - Easy to add new services as needed.
 - Additional support not required.
- Low Effort management and monitoring (wizards, updates, menus, CLI support, and so on).
 - **For ArubaOS (IAP, switches) only.**

ACCOUNT CREATION:-

Account Creation Process:-

1. Customer signs up for eval account using the following URL:

www.arubanetworks.com/solutions/central/eval/

The image shows two overlapping screenshots from the Aruba Central website. The background screenshot is the 'Try Aruba Central' page, which has a breadcrumb trail: HOME > PRODUCTS > NETWORKING PRODUCTS > NETWORK MANAGEMENT > ARUBA CENTRAL > TRY ARUBA CENTRAL. The page title is 'Try Aruba Central'. Below the title, there is a question: 'Are you ready to experience the power and simplicity of cloud services for your network and business operations? Test drive Aruba Central for 90 days.' This text is enclosed in a red dashed box. Below this, it says 'Here's what you'll be able to do:' followed by a bulleted list of features. The first two items in the list are also enclosed in a red dashed box: 'Manage up to 10 Instant APs and/or switches during your trial period' and 'Monitor your network, client health and application performance'. A red dashed arrow points from the bottom of this list towards the sign-up form in the foreground. The foreground screenshot is the 'Sign up with Aruba Central' form. It has a title 'Sign up with Aruba Central' and a description: 'Aruba Central, a cloud based Software-As-a-Service solution, provides streamlined management of Wired and Wireless network devices.' Below this is a form field for 'Email Address:' and a 'Continue' button. To the right of the email field, there is a red arrow pointing to the field with the text 'e-mail required'. At the bottom of the form, it says 'Copyright © 2017 Aruba, a Hewlett Packard Enterprise company.'

HOME > PRODUCTS > NETWORKING PRODUCTS > NETWORK MANAGEMENT > ARUBA CENTRAL > TRY ARUBA CENTRAL

Try Aruba Central

Are you ready to experience the power and simplicity of cloud services for your network and business operations? Test drive Aruba Central for 90 days.

Here's what you'll be able to do:

- Manage up to 10 Instant APs and/or switches during your trial period
- Monitor your network, client health and application performance
- Set up guest Wi-Fi with custom portals
- Access presence analytics
- Be able to troubleshoot remotely

[Terms & Conditions](#)

SIGN UP NOW!

Sign up with Aruba Central

Aruba Central, a cloud based Software-As-a-Service solution, provides streamlined management of Wired and Wireless network devices.

Email Address:




Continue

e-mail required

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90 days free eval account :-

Email Address:

Password:    OK

Confirm Password:

First Name: Last Name:

Company:

Address(Line1):

Address(Line2): Optional

Country: State:

City: ZIP Code:

Dial Code: Phone Number:

☐ I have an Aruba Activate account

☒ I agree to the [Terms and Conditions](#)


Sign Up

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.

Resend Verification Email

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Welcome to Aruba Central 

Please activate your account

Hello,

Welcome to Aruba Central, a cloud-based service to help you manage your wireless LAN from anywhere in the world!

Your account is ready to be activated, and you are minutes away from using Aruba Central.

✓ **Registration with Aruba Central**
Your registration has been processed.

Activate your account
Click [here](#) to activate your account.

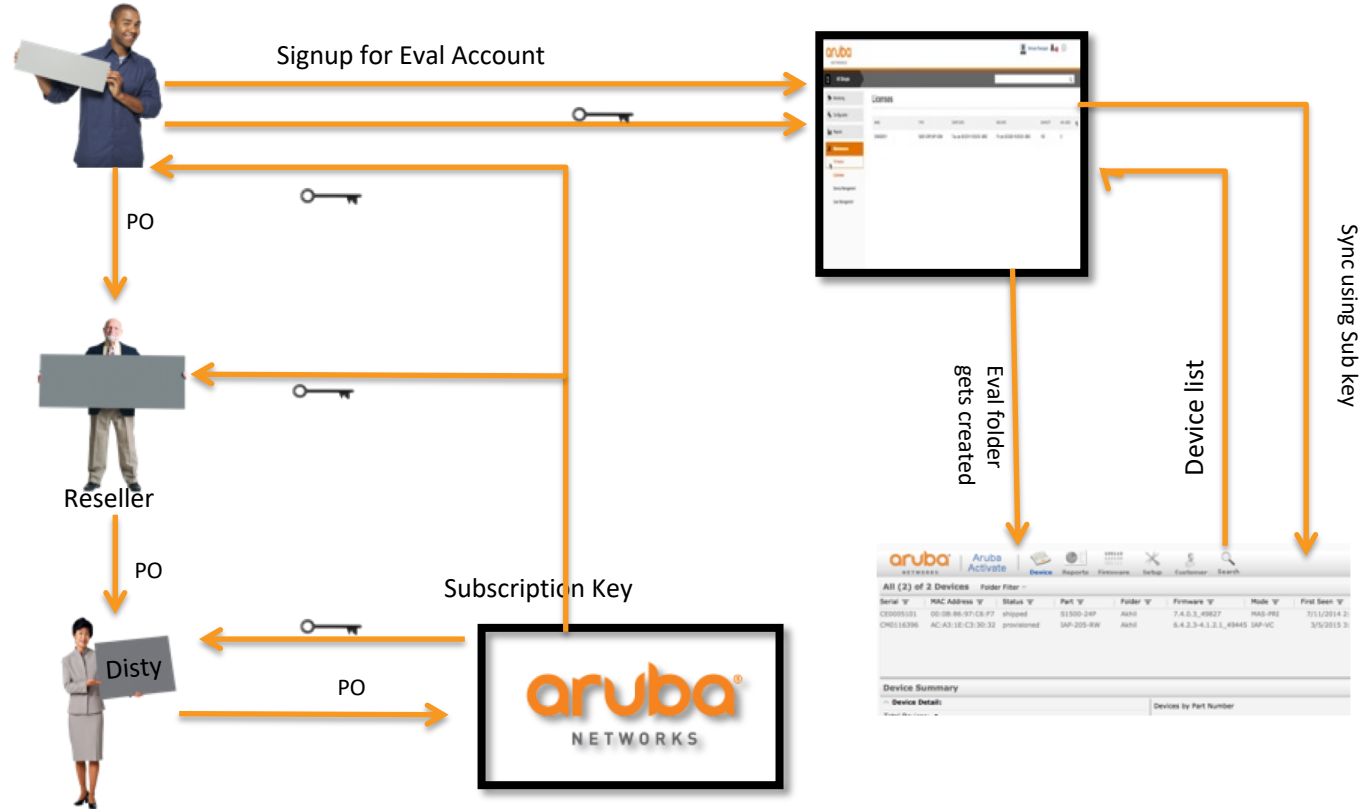
If the link does not work, please copy and paste the following URL in the address bar of your browser.
URL- https://portal.central.arubanetworks.com/global_signup/v1/signup/verify/6386bc71edd9f7ad9710e84f5cfe456f

Enjoy Aruba Central!

No Aruba
Activate
account
required.

Account
confirmation
link.

Eval to Paid account conversion:



Paid account workflow:-

1. Customer places order (PO) with reseller or distributor.
2. Those orders will be placed with Aruba (SAP).
3. SAP generates a **Subscription Key** and emails it to distributor/Reseller/End user
4. End user receives the **Subscription key** via e-mail.
5. If end user doesn't get email VAR/VAD can forward the Subscription Key.
6. End user "**CLAIMS**" the Subscription key on his Central account.
7. Start date for subscription will be on the day of actual activation from Central (not when the customer receives the e-mail)
8. At this point the Subscription Key gets activated
9. Central account is now a PAID account.


Types of Subscriptions:

Aruba Central supports the following types of subscriptions:

- **Device management subscriptions**:-Allows you to add and manage devices (Instant APs and Switches), and avail basic services such as device configuration, monitoring dashboard, reports, and application analytics. The device subscriptions can be assigned only to the devices managed by Central. For example, if your account has any Instant APs managed by AirWave, you can assign only service subscription to these devices.
- **Cloud service subscriptions**:-Enables access to a cloud service on any capable device. For example, access to application services such as Presence Analytics is based on the cloud service subscription. As of today, the cloud services portfolio includes Clarity, Guest Access, and Presence Analytics.

Aruba Central UI:-

<https://portal.central.arubanetworks.com/>




aruba
a Hewlett Packard
Enterprise company

Log in to Aruba Central

Meet the new cloud and IoT ready
Aruba 2540 campus switch series.





[Learn more](#) →



Sign In

[Need help?](#)

Sign In



[Terms of Service](#) | [Privacy Policy](#) | [FAQ](#)

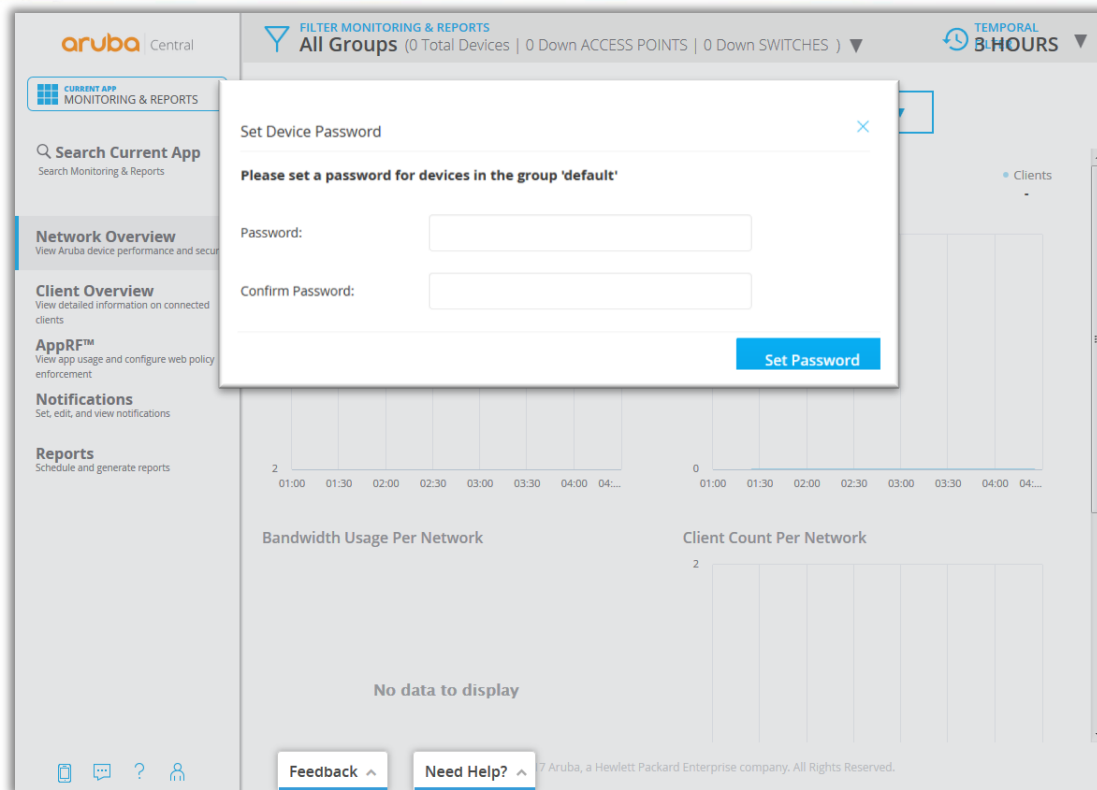
Copyright © 2017 Aruba, a Hewlett Packard Enterprise company.

Provide the e-mail
and password used
to create the Aruba
Central test account.

ARUBA CENTRAL UI:-

Aruba Central UI (cont):-

- You have to define the **Default Group password** in the first access of a new Central account.
 - All new subscribed devices will be associated to the Default Group.
- **About this password:**
 - It's different from the one used to access the Aruba Central Account.
 - It's the console password (CLI and GUI) for devices associated to the Group.



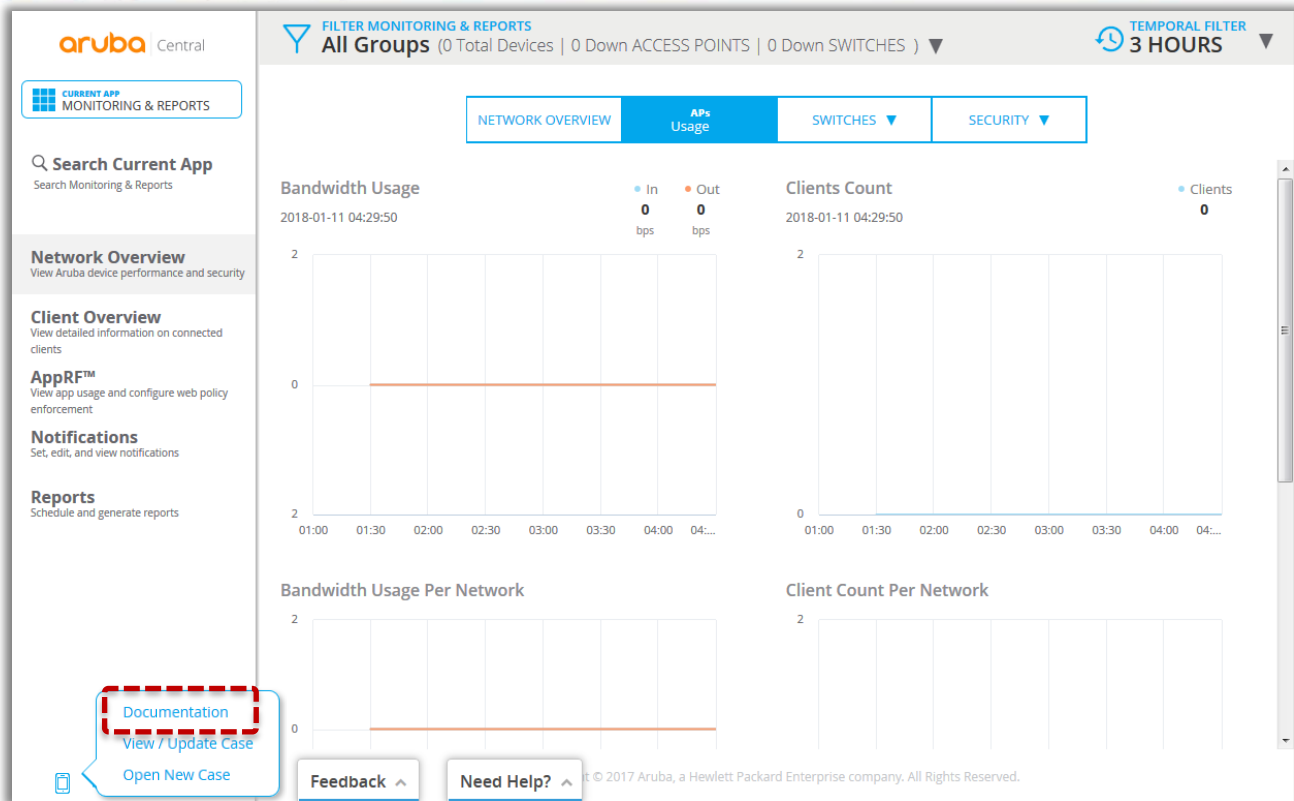
Aruba Central UI(cont):-

The screenshot displays the Aruba Central web interface. On the left is a sidebar with navigation links: 'aruba Central', 'CURRENT APP MONITORING & REPORTS', 'Search Current App', 'Network Overview', 'Client Overview', 'AppRF™', 'Notifications', and 'Reports'. The main content area is titled 'FILTER MONITORING & REPORTS All Groups (0 Total Devices | 0 Down ACCESS POINTS | 0 Down SWITCHES)'. A 'TEMPORAL 3 HOURS' filter is also visible. A large white modal window is centered on the screen with the heading 'Welcome to Aruba Central!'. The modal text states: 'Before you can start monitoring and managing your networks, you will have to bind your devices to an Aruba Central subscription. The Device Provisioning page in the Global settings section displays the list of devices that belong to your account. To get started, proceed to bind your devices to a subscription.' A blue button labeled 'Manage my subscription' is at the bottom right of the modal. A red dashed box highlights a close button (an 'X' icon) in the top right corner of the modal. Below the modal, there are two empty line charts: 'Bandwidth Usage Per Network' and 'Client Count Per Network', both showing 'No data to display'. At the bottom of the interface are links for 'Feedback' and 'Need Help?'. The footer text reads: '© 2017 Aruba, a Hewlett Packard Enterprise company. All Rights Reserved.'

On the first access in a new account, Aruba Central will ask for you to provision devices (IAPs, SWs).

Aruba Central UI(cont):-

On-line Aruba Central
Manual and
documentation.



DEVICE MANAGEMENT:-

Device provisioning:-

Procedure:



App Icon » GS (Global Settings)

- **Confirm available licenses:**
 - *Key Management »*
- **Associate (provision) devices to an Aruba Central account:**
 - *Device Inventory »*
- **Assign licenses:**
 - *Subscription Assignment »*
 - **Device Subscriptions » Select Devices**
 - **Network Service Subscriptions** (*select the IAP and drag & drop over the service*)

Subscription Key Management:-

aruba | Central

CURRENT APP
GLOBAL SETTINGS

Manage Groups
View, edit, and add configuration groups

Device Inventory
View an inventory of all your devices

Key Management
Track all your subscription keys

Subscription Assignment
Assign and modify device and service subscriptions

Labels
Create and manage labels for monitoring

Users & Roles
Manage user access control to Aruba Central

KEY MANAGEMENT

View and manage your subscription keys here. When you order new subscription keys, Aruba sends an email containing the keys to the address listed on the order. If you're looking for a key that you purchased, and you can't find it in this list, consult your Aruba reseller.

MANAGE KEYS

KEY NUMBER	TYPE	TILL EXPIRATION	QUANTITY
EMPWHATUCN3VQSOG	Device	13 days	5
EUFTV84XQMT6HHI5	Device	13 days	5
E8JXBHAY7DN4GAKO	Service	13 days	20

3 Key(s)

Add Key

0 Assigned Device Subscriptions

- 0 IAP
- 0 Switches

10 Available Device Subscriptions

The Aruba Central free test account includes:

- **10 Device** licenses (IAPs, switches).
- **20 Services** licenses (Network Analytics, Presence Analytics, Guest Access).
- **90 days** use period.

Addition of devices to Central:-

The screenshot displays the Aruba Central web interface. On the left sidebar, the 'Device Inventory' option is highlighted with a red dashed box. A red arrow points from this box to the 'ADD DEVICES' modal window. The modal window is titled 'ADD DEVICES' and contains a table for adding devices manually. The table has two columns: 'SERIAL NUMBER' and 'MAC ADDRESS'. There are five rows of input fields, each with a blue link icon to its left. Below the table is a button labeled '+ 5 more rows'. At the bottom right of the modal is an 'OK' button. The background interface shows the 'DEVICE INVENTORY' section with a description and an 'ADD DEVICES' button.

aruba Central

CURRENT APP
GLOBAL SETTINGS

Manage Groups
View, edit, and add configuration groups

Device Inventory
View an inventory of all your devices

Key Management
Track all your subscription keys

Subscription Assignment
Assign and modify device and service subscriptions

Labels
Create and manage labels for monitoring

Users & Roles
Manage user access control to Aruba Central

DEVICE INVENTORY

When you place an order for new devices, those devices will automatically appear in your Aruba Central inventory once the order is processed. If you don't see a purchased device in your inventory, you can manually add it. Aruba Central allows you to add up to 32 devices manually by entering the valid MAC and serial number combination for each device. If you need to add more than 32 devices, you can use the Aruba Cloud Activation Key to do so.

ADD DEVICES

ADD BY MAC/SN **ADD BY CLOUD ACTIVATION KEY**

DEVICES

▽ SERIAL N... ▾ ▾ MAC ADDR

• DN0009376	00:0B:86:ED:00:00
-------------	-------------------

ASSIGN GROUP

ADD DEVICES

Central supports adding up to 32 total devices manually.

<u>SERIAL NUMBER</u>	<u>MAC ADDRESS</u>
<u>SERIAL NUMBER</u>	<u>MAC ADDRESS</u>
<u>SERIAL NUMBER</u>	<u>MAC ADDRESS</u>
<u>SERIAL NUMBER</u>	<u>MAC ADDRESS</u>
<u>SERIAL NUMBER</u>	<u>MAC ADDRESS</u>
<u>SERIAL NUMBER</u>	<u>MAC ADDRESS</u>

+ 5 more rows

OK

Options:

- **MAC/NS:** manual entry the MAC addresses and serial numbers (found this info in the device's labels).
- **Cloud Activation:** aggregate several devices of the same purchase with a single activation code (**show about**, or, **Maintenance > About**)
- **Activate:** imports all devices present in an Aruba Activate account.

Adding Subscription Key:

aruba Central

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Manage user access control to Aruba Central

KEY MANAGEMENT

View and manage your subscription keys here. When you order new subscription keys, Aruba sends an email containing the keys to the address listed on the order. If you're looking for a key that you purchased, and you can't find it in this list, consult your Aruba reseller.

MANAGE KEYS

KEY NUMBER	TYPE	EXPIRATION DATE	QUANTITY
AUNRK3ILGTKLP7DI	Device	11/25/2026	10
AS7D9THAUFQKPVQD	Device	11/25/2026	5
ARFCA9FVYGN5STGH	Service	11/25/2026	20

3 Key(s)

Add Key

3 Assigned Device Subscriptions

- 2 IAP
- 1 Switches

12 Available Device Subscriptions

Enter Your Subscription Key

Already received the Aruba Central Subscription key?
Enter it below to activate your account!

Activate **Cancel**

Device licenses: assigned and available

Account's licenses table, includes the expiration date.

To aggregate Device or Service licenses, add a subscription key.

Subscription Assignment:

aruba Central

CURRENT APP
GLOBAL SETTINGS

Manage Groups
View, edit, and add configuration groups

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View an inventory of all your devices

Key Management
Track all your subscription keys

Subscription Assignment
Assign and modify device and service

Labels
Create and manage labels for monitoring

Users & Roles
Manage user access control to Aruba Central

SUBSCRIPTION ASSIGNMENT

Aruba Central has two types of subscriptions: Device Management and Network Services. A device management subscription entitles the subscribed device to be managed in Aruba Central and enables most functionality. Network Service subscriptions enable devices to participate in Cloud Guest networks, to be included in Presence Analytics, and to be monitored through Clarity.

Selecting Auto-Subscribe will automatically apply a Device Management subscription to a device as soon as it appears in your Aruba Central inventory. Regardless of whether Auto-Subscribe is enabled, any subscribed device that has an expired subscription will automatically be assigned a new valid subscription, if you have any available. You can check your available subscriptions on the Key Management page.

DEVICE SUBSCRIPTIONS

☒ **AUTO SUBSCRIBE DEVICE SUBSCRIPTION KEYS (RECOMMENDED)**

Keys are applied first come, first serve.

SELECT DEVICES

NETWORK SERVICE SUBSCRIPTIONS

DRAG AND DROP DEVICE(S) ONTO A SERVICE TO ASSIGN
TO SELECT MULTIPLE DEVICES SHIFT+CLICK OR CTRL+CLICK
TO REMOVE MULTIPLE DEVICES FROM A SERVICE. USE BATCH REMOVE

SUBSCRIPTIONS	DEVICES
ALL DEVICES	1
NO SUBSCRIPTIONS	1
Clarity	0
Cloud Guest	0
Presence Analytics	0

DRAG
DROP

SERIAL NUMBER	DEVICE NAME	TYPE	LOCATION	SERVICES
DN0009376	--	iap	-	0

BATCH REMOVE SUBSCRIPTIONS

1 Device(s)

Device subscription:
assign a **Device License** to the IAP or switch.

Service subscription:
assign a **Service License** to the IAP.

Assignment of Device licenses:-

aruba Central

CURRENT APP
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Manage Groups
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TO SELECT MULTIPLE DEVICES SHIFT+CLICK OR CTRL+CLICK
TO REMOVE MULTIPLE DEVICES FROM A SERVICE. USE BATCH REMOVE

SUBSCRIPTIONS	DEVICES
ALL DEVICES	1
NO SUBSCRIPTIONS	1
Clarity	0
Cloud Guest	0
Presence Analytics	0

20 TOTAL SUBSCRIPTIONS
20 AVAILABLE

DRAG & DROP

BATCH REMOVE SUBSCRIPTIONS

APPLY SUBSCRIPTIONS

with auto-apply disabled, you'll need to manually select which devices you'll manage in Aruba Central

<input checked="" type="checkbox"/>	SUBSCRIBED	▽ SERIAL NUMBER	▽ MAC ADDR	▽ MODEL
<input checked="" type="checkbox"/>	0	DN0009376	00:0B:86:ED:CA:F8	IAP-205H-RW

0 Selected
1 Remaining

SAVE

Device Subscription

✔ "1" devices have been assigned subscriptions
"0" devices have been unsubscribed

OK

Assignment of Service licenses:-

aruba Central

CURRENT AND GLOBAL SETTINGS

- Manage Groups**
View, edit, and add configuration groups
- Device Inventory**
View an inventory of all your devices
- Key Management**
Track all your subscription keys
- Subscription Assignment**
Assign and modify device and service subscriptions
- Labels**
Create and manage labels for monitoring
- Users & Roles**
Manage user access control to Aruba Central

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SELECT DEVICES

NETWORK SERVICE SUBSCRIPTIONS

DRAG AND DROP DEVICE(S) ONTO A SERVICE TO ASSIGN
TO SELECT MULTIPLE DEVICES SHIFT+CLICK OR CTRL+CLICK
TO REMOVE MULTIPLE DEVICES FROM A SERVICE, USE BATCH REMOVE

SUBSCRIPTIONS	DEVICES	SERIAL NUMBER	DEVICE NAME	TYPE	LOCATION	SERVICES
ALL DEVICES	1	DN0009376	--	iap	--	0
NO SUBSCRIPTIONS	1					
Clarity	0					
Cloud Guest	0					
Presence Analytics	0					

20 TOTAL SUBSCRIPTIONS
20 AVAILABLE

1 Device(s)

Confirm Action

Clarity will be applied to device

No Yes

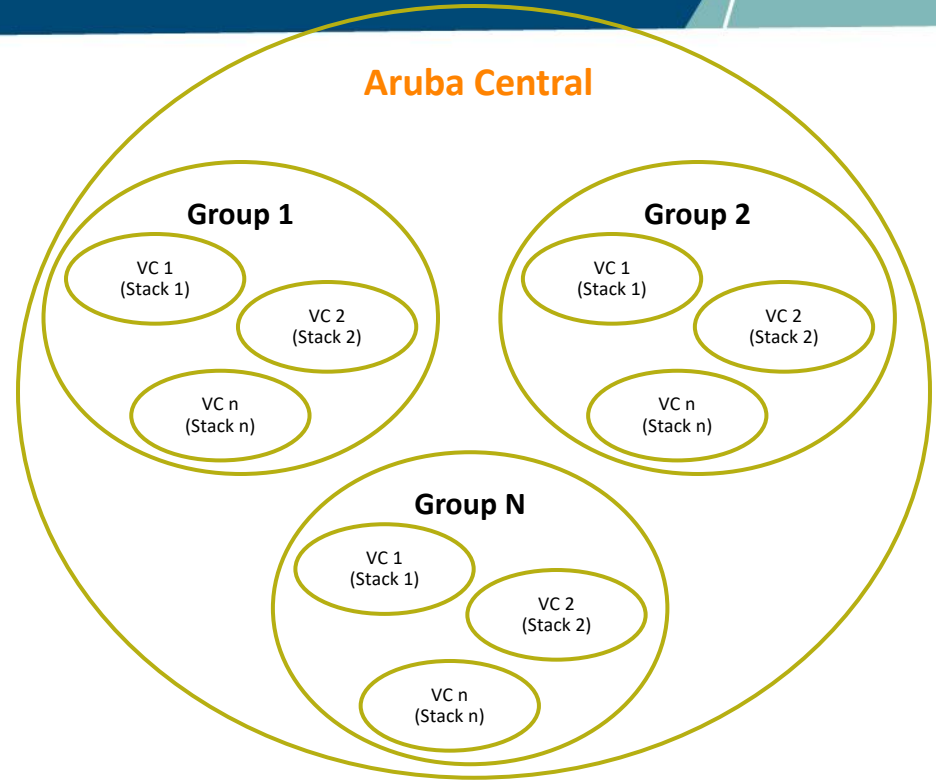
1. Select the IAP.
2. Drag & Drop over the required service.
3. Confirm.

How does licensing works in Central?

- Central doesn't bind license key with devices, instead central maintain license pool.
- Whenever license key is added (irrespective of paid or eval), associated quantity of license is added into license pool.
- Whenever device is licensed, quantity is consumed from the license pool.
- Whenever license is expired(No matter whether eval or paid), licenses quantity is deducted from the license pool
 - If remaining licenses are sufficient, there won't be any impact on existing licensed devices.
 - Licenses are unassigned upon license expiry if remaining licenses are not sufficient for existing devices. Devices which were licensed first will be unlicensed first upon license expiry.

Groups:-

- **Aruba Central defines a Group as a subset of the devices that share common configuration settings.**
 - The group configuration is shared across all devices.
 - For example, if one or several VCs are grouped together with a cluster of APs, you can configure the APs associated with each VC as a single unit from the Central UI. These configuration parameters are assigned with the same default value.
- **A Group can have a size from one device to hundreds of devices.**
- **An Aruba Central account supports several Groups.**



Groups configuration and maintenance:-

Procedure



App Icon » Global Settings » Manage Groups

- **Create Groups:**

- “+ New Group”
- Define name.
- Define password. This one will be used for accessing the devices’ CLI or GUI; all devices in the Group has this console password.
- Save.

- **Associate a VC to a Group:**

- Select the VC.
- Drag & Drop over the Groups name.
- Confirm.

Creation of Groups:-

aruba | Central

CURRENT APP
GLOBAL SETTINGS

Manage Groups
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Create and manage labels for monitoring


Users & Roles
Manage user access control to Aruba Central

GROUPS

A group is the primary configuration element in Aruba Central. Aruba IAPs are automatically organized into clusters, which allows IAPs to work together as a virtual WLAN controller. Group policies will be automatically applied as you add switches and IAP clusters to a group.

MANAGE GROUPS

DRAG AND DROP CLUSTERS AND SWITCHES BETWEEN GROUPS
TO SELECT MULTIPLE DEVICES SHIFT+CLICK OR CTRL+CLICK

GROUP NAME	DE...	NAME	LOCATI...	TYPE	SERIAL #	MAC AD...
ALL CONNECTED DE...	0	 No data to display				
UNASSIGNED DEVICES	0					
default	0					

DRAG & DROP

+ New Group
Clone Selected Group

1 Group(s)

Import Configuration to New Group

CREATE NEW GROUP

GROUP NAME

☒ USE AS A TEMPLATE GROUP (optional)
This allows configuration template to be applied for all the devices in the device group. Once designated as a Template Group, UI based configuration wizards cannot be used for this device group

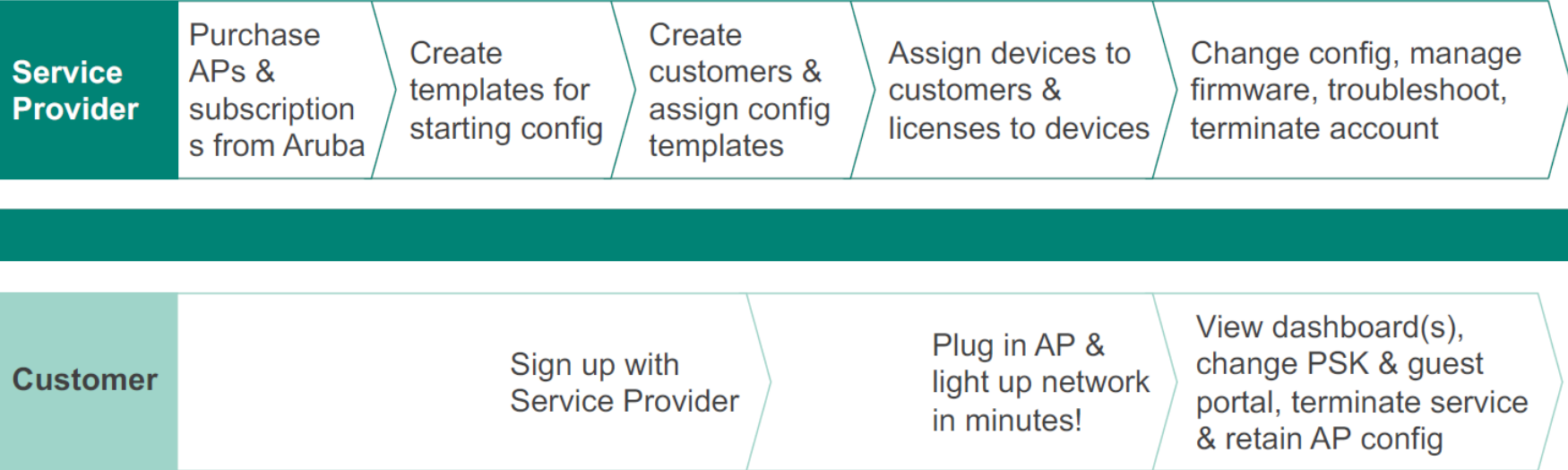
PASSWORD

CONFIRM PASSWORD

Add Group Cancel

MANAGED SERVICE PROVIDER(MSP):

How Does MSP works ?



MSP – No license Needed:

aruba Central All Groups

Monitoring

Network Management

Monitoring

Overview

Access Points

Switches

Clients

AppRF™

Wireless Security

Notifications

Configuration

Reports

Maintenance

Monitorin
g

ACCESS POINTS
12 Up 15 Down

SWITCHES
4 Up 4 Down

CLIENTS
18 Wireless 0 Wired

Overview for the last 3 hours

Bandwidth Usage
2017-09-27 04:20:00

In 35 kbps Out 38.8 kbps

Clients Count
2017-09-27 04:35:00

Enable MSP!
No special license needed

Top APs By Usage
2017-09-27 04:35

Top 5 Clients
2017-09-27 04:35

vmann@arubanetworks.com

ArubaNetworks

ID: 5001098

Switch Customer

Change Password

User Settings

Managed Service Mode

Terms of Service

Logout

aruba Central All Groups

Ownership

ACCESS POINTS
2

SWITCHES
1

CUSTOMERS
0

DEVICE SUBSCRIPTIONS
15 AVAILABLE 2 USED

Overview

Top Customers

Subscription Renewal Schedule (Next 12 Months)

Disable MSP! if all Customers are deleted!

vmann@arubanetworks.com

ArubaNetworks

ID: 5000726

Switch Customer

Change Password

User Settings

Disable Managed Service Mode

Terms of Service

Logout

a Hewlett Packard Enterprise company

Enabling MSP Mode:

The screenshot shows the Aruba Central 'CURRENT APP MONITORING & REPORTS' page. The 'Network Overview' section displays a 'Bandwidth Usage' graph for '2018-05-20 18:35:00'. The graph shows a flat line at 0 bps. A large orange star with the text 'No license needed' is overlaid on the graph. The right sidebar shows the user profile for 'nsingla@arubanetworks.com' with options like 'Switch Customer', 'Change Password', 'User Settings', 'Managed Service Mode' (highlighted with a green box), 'Terms of Service', and 'Logout'.

The screenshot shows the same Aruba Central interface, but with the 'Managed Service Mode' option in the sidebar now disabled. A large orange star with the text 'Disable MSP Mode' is overlaid on the graph. The 'Managed Service Mode' option is now greyed out and has a black border around it. The user profile options remain the same.

MSP INTERFACE:

Header
Pane

aruba Central

All Groups ▾

ACCESS POINTS
116

SWITCHES
10

CUSTOMERS
7

DEVICE SUBSCRIPTIONS
150 AVAILABLE
34 USED

Ownership!



Network Management

Overview

Cust
omer
ID

Monitoring

Overview

All Customers

Notifications

Configuration

Customers

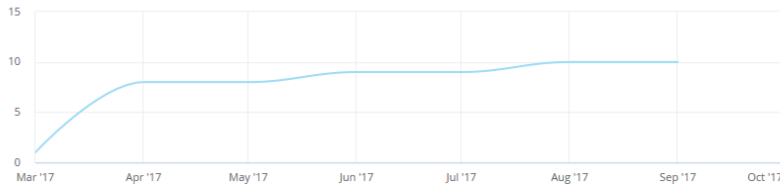
Maintenance

Top Customers

ID	Name	Device (Total)	Licensed Device
5001621	Chrispy Coffee	17	10
5001380	Jefferson Schools	1	0

Data for the last 6 months

Device Under Management

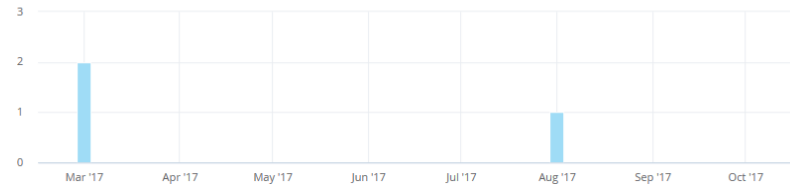


Subscription Renewal Schedule (Next 12 Months)



Added Total

Customers Added



MSP Customer Interface:

Logo

All Groups ▼

[Return to MSP View](#)

Customer: Chrispy Coffee

Header Pane

ACCESS POINTS
2 Up 0 Down

SWITCHES
1 Up 0 Down

CLIENTS
5 Wireless 0 Wired

Monitoring

?

Network Management

Monitoring

Overview

Access Points

Switches

Clients

AppRF™

Wireless Security

Notifications

Configuration

Reports

Maintenance

Overview for the last 3 hours

Top APs By Usage

2017-09-13 17:25

Home IAP	5.55 GB
----------	---------

Top 5 Clients

2017-09-13 17:25

localhost	5.46 GB
VaishaliPhone6S	81.68 MB
Vaishalis-iPad	2.03 MB
02AA01AC461409WQ	632 KB
02AA01AC461409WQ	5 KB

Application Usage

App Categories

Streaming
98.2%

Apps

netflix.com
97.9%

Web Categories

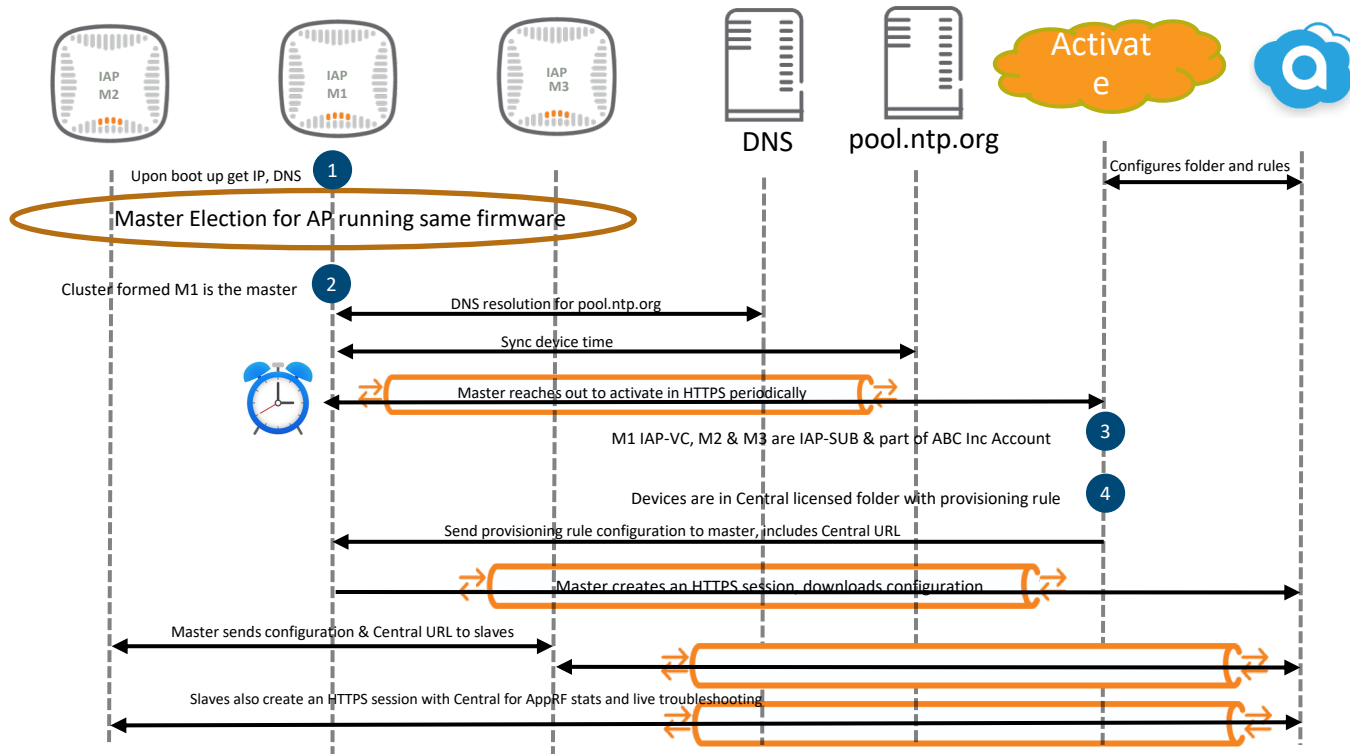
Category unknown
97.8%

Web Reputation

Trustworthy
1.3%

IAP TO CENTRAL COMMUNICATION:

How does IAP Joins Central ?



IAP with default configuration joining central:-

- **Devices on default configuration**
 - Create groups & pre-provision devices to groups
 - If not, devices move into default group:
 - Create groups
 - Move device into respective groups

Device Inventory
View an inventory of all your devices

Key Management
Track all your subscription keys

Subscription Assignment
Assign and modify device and service subscriptions

Labels and Sites
Create and manage labels and sites for monitoring

Users & Roles
Manage user access control to Aruba Central

DEVICES

ADD BY MAC/SN

ADD WITH CLOUD ACTIVATION KEY

ADD USING ACTIVATE

▽ SERIAL #	▽ MAC	▽ TYPE	IP	NAME	LABELS	MODEL	GROUP	▽ STATUS
CT0347249	94:B4:0F:C6:9B:36	iap	--	--	0	IAP-225-RW	--	Unsubscribed
CT0080772	18:64:72:C9:C4:9C	iap	--	--	0	IAP-225-RW	--	Unsubscribed

2 Device(s)

ASSIGN GROUP

DEVICES

ADD BY MAC/SN

ADD WITH CLOUD ACTIVATION KEY

ADD USING ACTIVATE

▽ SERIAL #	▽ MAC	▽ TYPE	IP	NAME	LABELS	MODEL	GROUP	▽ STATUS
CT0347249	94:B4:0F:C6:9B:36	iap	--	--	0	IAP-225-RW	--	Unsubscribed
CT0080772	18:64:72:C9:C4:9C	iap	--	--	0	IAP-225-RW	--	Unsubscribed

2 Device(s)

ASSIGN GROUP

ASSIGN A GROUP TO THE SELECTED DEVICE

▽ GROUP NAME

default

TAC

2 Group(s)

Assign Device(s)

Cancel

Continued..

DEVICES

ADD BY MAC/SNADD WITH CLOUD ACTIVATION KEYADD U

▽ SERIAL #	▽ MAC	▽ TYPE
CT0347249	94:B4:0F:C6:9B:36	iap
CT0080772	18:64:72:C9:C4:9C	iap

ASSIGN GROUP

ASSIGN A GROUP TO THE SELECTED DEVICE

▽ GROUP NAME

default

TAC

2 Group(s)

Assign Device(s)Cancel

MODEL	GROUP	▽ STATUS
IAP-225-RW	--	Unsubscribed
IAP-225-RW	--	Unsubscribed

2 Device(s)

IAP with non-default config joins central:-

- Create groups & pre-provision devices to groups (same as before) which will move the device automatically to the provisioned group.
- If not, devices move into un-provisioned section,

MANAGE GROUPS
DRAG AND DROP CLUSTERS AND SWITCHES BETWEEN GROUPS
TO SELECT MULTIPLE DEVICES SHIFT+CLICK OR CTRL+CLICK

GROUP NAME	DEVICES	NAME	LOCATION	TYPE	SERIAL #	MAC ADDR.
ALL CONNECTED DEVICES	1	SetMeUp-C6:9B:36	Bengaluru,India	VC	CT0347249	94:b4:0f:c6:9b:36
UNASSIGNED DEVICES	1					
default	0					
TAC	0					

- Move to existing group – which will override the configuration on IAP and push group config

MANAGE GROUPS
DRAG AND DROP CLUSTERS AND SWITCHES BETWEEN GROUPS
TO SELECT MULTIPLE DEVICES SHIFT+CLICK OR CTRL+CLICK

GROUP NAME	DEVICES	NAME	LOCATION	TYPE	SERIAL #	MAC ADDR.
ALL CONNECTED DEVICES	1	SetMeUp-C6:9B:36	Bengaluru,India	VC	CT0347249	94:b4:0f:c6:9b:36
UNASSIGNED DEVICES	1					
default	0					
TAC	0					

CONFIRM ACTION

⚠ Moving devices to another group changes the configuration of the selected devices and reboots in a few minutes. Do you want to continue?

Yes No

IMPORTING IAP CONFIGURATION TO A GROUP:-

- Create a new group using device configuration - which will help to import the configuration from IAP to central

The screenshot displays the 'GROUPS' management interface in Aruba Central. A modal dialog titled 'IMPORT CONFIGURATION' is open, featuring input fields for 'GROUP NAME', 'PASSWORD', and 'CONFIRM PASSWORD', along with 'Import Configuration' and 'Cancel' buttons. The background interface includes a 'MANAGE GROUPS' section with a table of existing groups and a bottom toolbar with a 'New Group' button and an 'Import Configuration to New Group' button, the latter of which is highlighted with a red box.

GROUPS
A group is the primary configuration element in Aruba Central. Aruba IAPs are automatically organized into clusters, which allows IAPs to work together as a virtual WLAN controller. Group policies will be automatically applied as you add switches and IAP clusters to a group.

MANAGE GROUPS
DRAG AND DROP CLUSTERS AND SWITCHES BETWEEN GROUPS TO SELECT MULTIPLE DEVICES SHIFT+CLICK OR CTRL+CLICK

GROUP NAME

ALL CONNECTED DEVICES

UNASSIGNED DEVICES

default

TAC

IMPORT CONFIGURATION

GROUP NAME

PASSWORD

CONFIRM PASSWORD

Import Configuration

Cancel

NAME	LOCATION	TYPE	SERIAL #	MAC ADDR.
SetMeUp-C6-98-36	Bengaluru,India	VC	CT0347249	94:b4:0f:c6:98:36

New Group

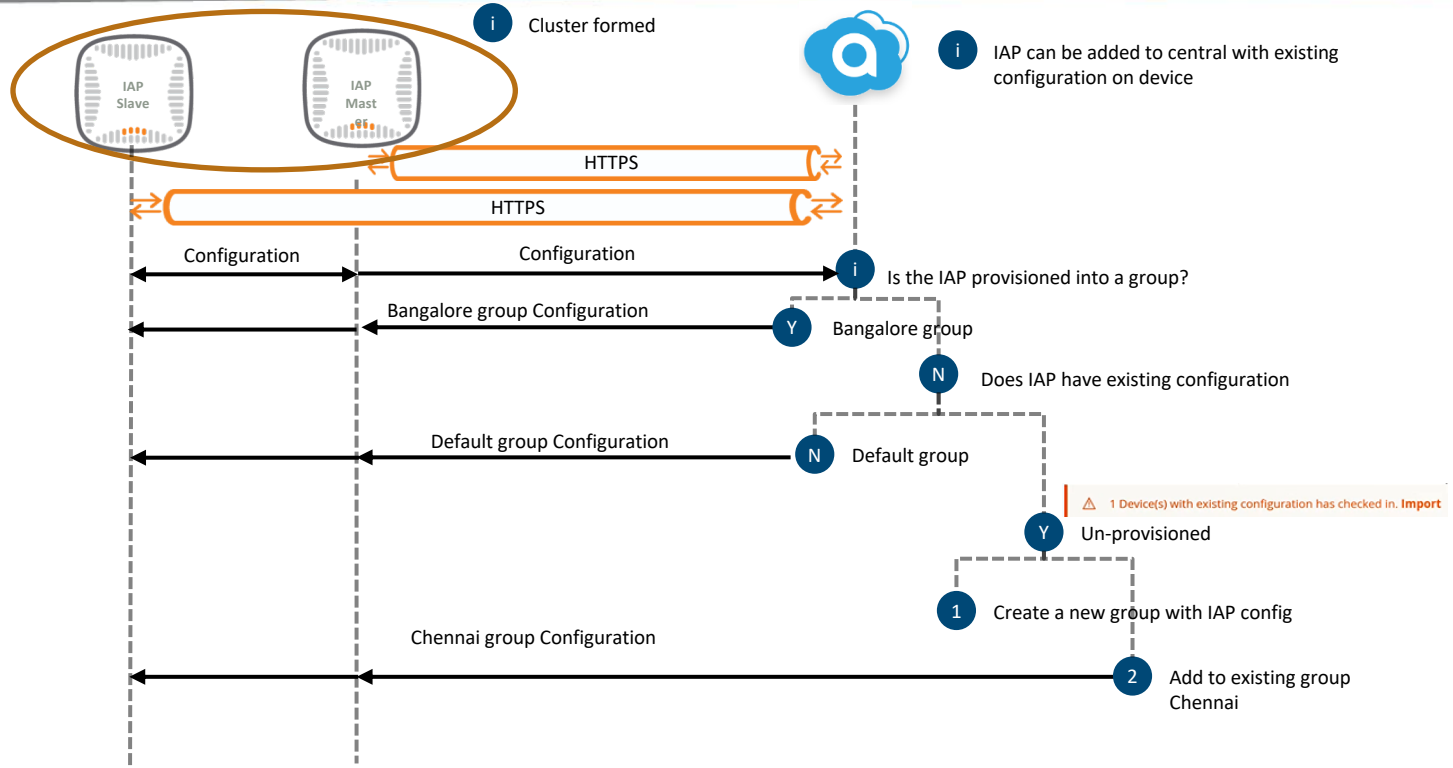
Clone Selected Group

2 Group(s)

Import Configuration to New Group

1 Device(s)

IAP view of provisioning:-



IAP CLI Statistics:

- IAP has been added on Central but there is no license assigned to it.
- Activate has not received any rules from Central
- IAP shows as locally managed.

```
94:b4:0f:c6:9b:36# show activate status
```

```
IAP MAC Address      :94:b4:0f:c6:9b:36  
IAP Serial Number    :CT0347249  
Cloud Activation Key  :X1X1PAX0  
Activate Server       :device.arubanetworks.com  
Activate Status       :fail-prov-no-rule  
Provision Interval    :5 minutes  
94:b4:0f:c6:9b:36# show ap debug cloud-server
```

```
IAP mgmt mode         :local-mgmt  
cloud config recved    :FALSE  
autojoin mode         :disable  
state diff            :disable  
Device Cert status    :SUCCESS  
94:b4:0f:c6:9b:36#
```

IAP CLI Statistics:

- IAP has been assigned device subscription on Central.
- Activate provides the Central URL to the IAP
- IAP initiated HTTPS connection with Central.

```
94:b4:0f:c6:9b:36# show activate status
```

```
IAP MAC Address      :94:b4:0f:c6:9b:36
IAP Serial Number    :CT0347249
Cloud Activation Key  :X1X1PAX0
Activate Server       :device.arubanetworks.com
Activate Status       :success
Aruba Central Server  :app1.central.arubanetworks.com
Last provision time   :2018-05-20 11:04:55
Provision interval    :5 minutes
```

```
94:b4:0f:c6:9b:36# show log provision | include Activate
```

```
Sun May 20 10:55:08 2018 Activate In progress Attempting provisioning via Activate server: device.arubanetworks.com
Sun May 20 10:55:10 2018 Activate Debug Sent challenge response to Activate Server: device.arubanetworks.com
Sun May 20 10:55:48 2018 Activate In progress Attempting provisioning via Activate server: device.arubanetworks.com
Sun May 20 10:55:50 2018 Activate Debug Sent challenge response to Activate Server: device.arubanetworks.com
Sun May 20 10:56:49 2018 Activate In progress Attempting provisioning via Activate server: device.arubanetworks.com
Sun May 20 10:56:51 2018 Activate Debug Sent challenge response to Activate Server: device.arubanetworks.com
Sun May 20 10:57:50 2018 Activate In progress Attempting provisioning via Activate server: device.arubanetworks.com
Sun May 20 10:57:51 2018 Activate Debug Sent challenge response to Activate Server: device.arubanetworks.com
Sun May 20 10:58:50 2018 Activate In progress Attempting provisioning via Activate server: device.arubanetworks.com
Sun May 20 10:58:52 2018 Activate Debug Sent challenge response to Activate Server: device.arubanetworks.com
Sun May 20 10:59:51 2018 Activate In progress Attempting provisioning via Activate server: device.arubanetworks.com
Sun May 20 10:59:53 2018 Activate Debug Sent challenge response to Activate Server: device.arubanetworks.com
Sun May 20 11:04:53 2018 Activate In progress Attempting provisioning via Activate server: device.arubanetworks.com
Sun May 20 11:04:55 2018 Activate Debug Sent challenge response to Activate Server: device.arubanetworks.com
Sun May 20 11:04:57 2018 Activate Completed Received instruction from Activate Server to connect to Aruba Central server at app1.central.arubanetworks.com
94:b4:0f:c6:9b:36#
```


IAP CLI Statistics:

- IAP establishes connection with Central.

```
94:b4:0f:c6:9b:36# show ap debug cloud-se

IAP mgmt mode      :athena-mgmt
Cloud Config rcvcd :TRUE
autojoin mode      :disable
state diff         :disable
Device Cert status :SUCCESS

Aruba Central server      :52.24.202.83
Aruba Central proxy server :None
Aruba Central redirect from :appl.central.arubanetworks.com
Aruba Central Protocol    :WSS
Aruba Central uptimes     :43s
Aruba Central status      :Login_done

Cloud Debug Statistics
-----
Key                               value
---
Connect establish success 1(1)
Login done times          1(1)
Connect retry times       1(1)

Cloud Last connect status
-----
Last connect ID           :1
Last connect time         :2018-05-20 11:05:55
Last connect trigger      :athena redirect

Cloud Last login done status
-----
Last connect done         :2018-05-20 11:05:58
94:b4:0f:c6:9b:36# show log provision | include Central
Sun May 20 11:04:56 2018 UAP ADP warning ADP info: Save the Central rule from cloud into flash.
Sun May 20 11:04:57 2018 Activate Completed Received instruction from Activate Server to connect to Aruba Central server at appl.central.arubanetworks.com
Sun May 20 11:05:54 2018 Central In progress Connecting to Aruba Central server at appl.central.arubanetworks.com
Sun May 20 11:05:57 2018 Central In progress Connecting to Aruba Central server 52.24.202.83, triggered by athena redirect
Sun May 20 11:05:57 2018 Central In progress Received new Aruba Central server address: 52.24.202.83
Sun May 20 11:05:58 2018 Central In progress Established connection with Aruba Central server 52.24.202.83, authenticating...
Sun May 20 11:05:59 2018 Central Completed Login done to Aruba Central server 52.24.202.83 by websocket
Sun May 20 11:06:00 2018 Central In progress Received configuration audit command from Aruba Central
Sun May 20 11:06:00 2018 Central In progress Sent current config to Aruba Central for audit
Sun May 20 11:06:04 2018 Central Completed Applied new configuration settings from Aruba Central, provisioning completed
Sun May 20 11:06:05 2018 Central In progress Received configuration audit command from Aruba Central
Sun May 20 11:06:05 2018 Central In progress Sent current config to Aruba Central for audit
```

IAP Troubleshooting Commands:

- 1. We need to ensure that IAP has a DNS server configured on it so that it can resolve activate.arubanetworks.com. In case of missing or non-functioning DNS, we will see the following error:

```
94:b4:0f:c6:9b:36# show activate status
IAP MAC Address      :94:b4:0f:c6:9b:36
IAP Serial Number    :CT0347249
Cloud Activation Key  :
Activate Server       :device.arubanetworks.com
Activate Status      :connection-failed
Activate fail reason   :dns_error
Provision Interval   :1 minutes
```

- 2. We need to check if we are able to ping activate server.

```
94:b4:0f:c6:9b:36# ping device.arubanetworks.com
Press 'q' to abort.
PING 104.36.249.201 (104.36.249.201): 56 data bytes
64 bytes from 104.36.249.201: icmp_seq=0 ttl=46 time=244.1 ms
64 bytes from 104.36.249.201: icmp_seq=1 ttl=46 time=243.8 ms
64 bytes from 104.36.249.201: icmp_seq=2 ttl=46 time=243.8 ms
64 bytes from 104.36.249.201: icmp_seq=3 ttl=46 time=243.2 ms
64 bytes from 104.36.249.201: icmp_seq=4 ttl=46 time=243.5 ms

--- 104.36.249.201 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 243.2/243.6/244.1 ms

94:b4:0f:c6:9b:36# ping device.arubanetworks.com
Press 'q' to abort.
PING 104.36.249.201 (104.36.249.201): 56 data bytes
64 bytes from 104.36.249.201: icmp_seq=0 ttl=46 time=244.3 ms
64 bytes from 104.36.249.201: icmp_seq=1 ttl=46 time=243.3 ms
64 bytes from 104.36.249.201: icmp_seq=2 ttl=46 time=243.3 ms
64 bytes from 104.36.249.201: icmp_seq=3 ttl=46 time=244.2 ms
64 bytes from 104.36.249.201: icmp_seq=4 ttl=46 time=243.7 ms

--- 104.36.249.201 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 243.3/243.7/244.3 ms

94:b4:0f:c6:9b:36# █
```

Troubleshooting CONTD:

- 3. IAP sets up a SSL connection with Activate server over port 443. So, it needs to validate the certificate used for building the connection which requires the clock to be correct on the IAP.
- In case, the clock is incorrect, we will see the following message:
- **IAP# show clock**

Current Time :1999-12-31 20:09:32

IAP# show log ap-debug | include awc

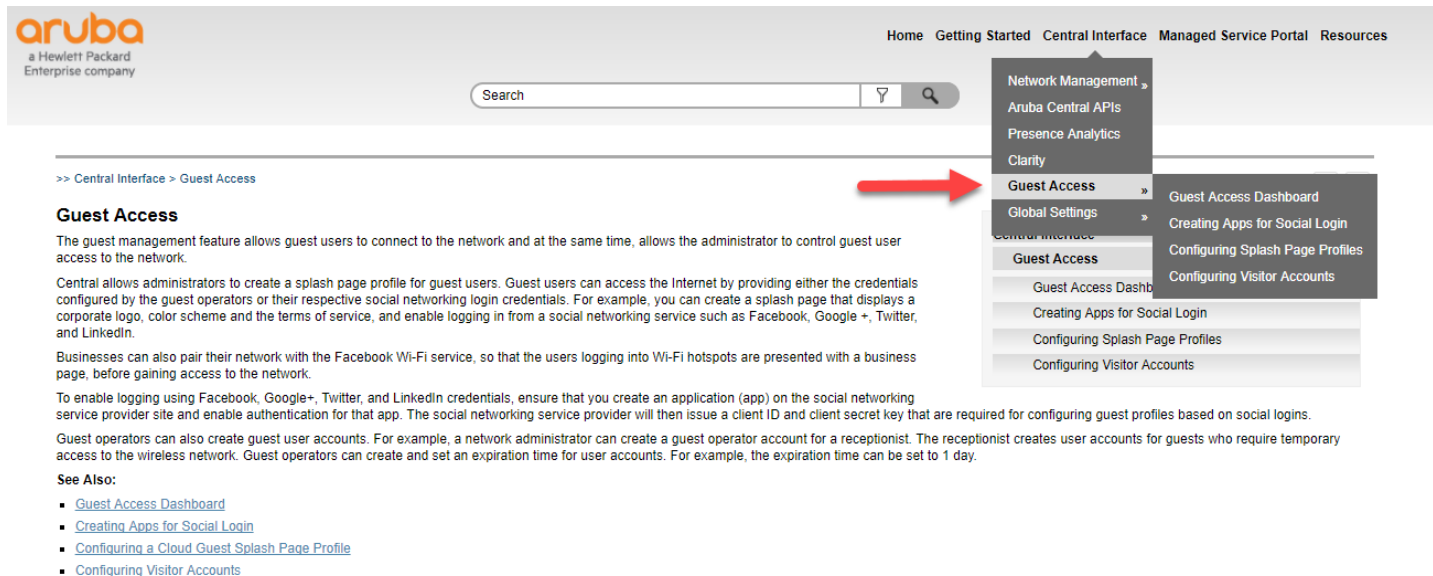
- Dec 31 20:06:48 awc[1594]: isc_exit: 603: disconnected
- Dec 31 20:07:47 awc[1594]: awc_init_connection: 2004: connecting to device.arubanetworks.com:443
- Dec 31 20:07:47 awc[1594]: tcp_connect: 163: rcv timeout set to 5
- Dec 31 20:07:47 awc[1594]: tcp_connect: 170: send timeout set to 5
- **Dec 31 20:07:47 awc[1594]: awc_init_connection: 2043: connected to device.arubanetworks.com:443**
- **Dec 31 20:07:47 awc[1594]: awc_init_connection: 2085: Loading local CA certificates**
- **Dec 31 20:07:47 awc[1594]: awc_init_connection: 2092: Failed to load CA root certificate: ASN date error, current date before**
- Dec 31 20:07:47 awc[1594]: isc_init failed

Please refer to the following link to get more insight in to the ports needs for successful communication with Central:

http://help.central.arubanetworks.com/2.4.1/documentation/online_help/content/public_cloud/get_started/communication_ports.htm?Highlight=ports

Cloud Guest:

- User guide section for Aruba Central provides valuable information on how to configure Aruba Central for Cloud guest.



The screenshot displays the Aruba Central web interface. At the top, the Aruba logo is on the left, and navigation links (Home, Getting Started, Central Interface, Managed Service Portal, Resources) are on the right. A search bar is located below the navigation links. The main content area shows the breadcrumb path '>> Central Interface > Guest Access'. The 'Guest Access' section title is followed by a paragraph explaining the feature. Below this, there are three paragraphs detailing configuration steps for social login and guest user accounts. A 'See Also:' section lists four links: 'Guest Access Dashboard', 'Creating Apps for Social Login', 'Configuring a Cloud Guest Splash Page Profile', and 'Configuring Visitor Accounts'. On the right side, a navigation sidebar is open, showing a list of menu items. A red arrow points to the 'Guest Access' item, which is highlighted. The sidebar also shows other categories like 'Network Management', 'Aruba Central APIs', 'Presence Analytics', 'Clarity', 'Global Settings', and 'Central Interface'.

aruba
a Hewlett Packard
Enterprise company

Home Getting Started Central Interface Managed Service Portal Resources

Search

>> Central Interface > Guest Access

Guest Access

The guest management feature allows guest users to connect to the network and at the same time, allows the administrator to control guest user access to the network.

Central allows administrators to create a splash page profile for guest users. Guest users can access the Internet by providing either the credentials configured by the guest operators or their respective social networking login credentials. For example, you can create a splash page that displays a corporate logo, color scheme and the terms of service, and enable logging in from a social networking service such as Facebook, Google +, Twitter, and LinkedIn.

Businesses can also pair their network with the Facebook Wi-Fi service, so that the users logging into Wi-Fi hotspots are presented with a business page, before gaining access to the network.

To enable logging using Facebook, Google+, Twitter, and LinkedIn credentials, ensure that you create an application (app) on the social networking service provider site and enable authentication for that app. The social networking service provider will then issue a client ID and client secret key that are required for configuring guest profiles based on social logins.

Guest operators can also create guest user accounts. For example, a network administrator can create a guest operator account for a receptionist. The receptionist creates user accounts for guests who require temporary access to the wireless network. Guest operators can create and set an expiration time for user accounts. For example, the expiration time can be set to 1 day.

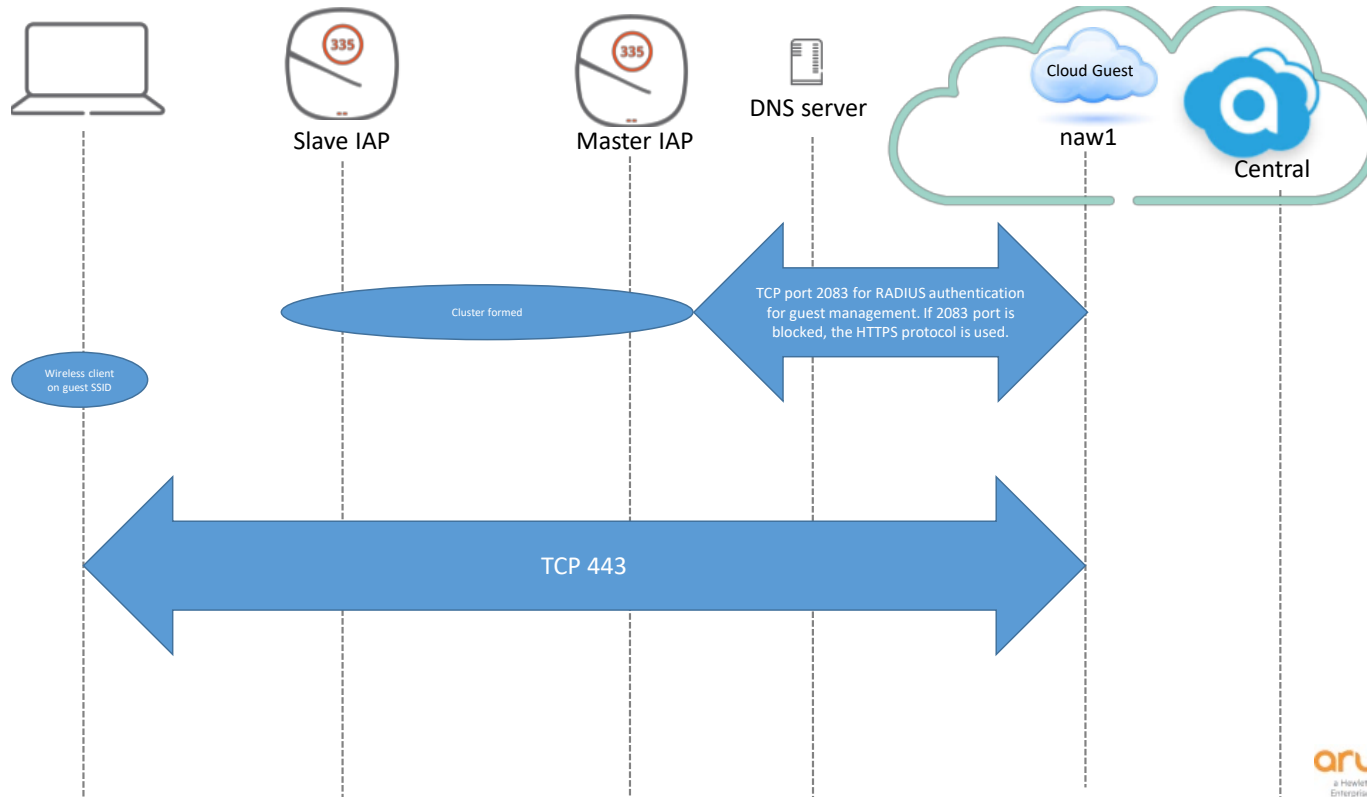
See Also:

- [Guest Access Dashboard](#)
- [Creating Apps for Social Login](#)
- [Configuring a Cloud Guest Splash Page Profile](#)
- [Configuring Visitor Accounts](#)

Network Management »
Aruba Central APIs
Presence Analytics
Clarity
Guest Access »
Global Settings »
Central Interface
Guest Access
Guest Access Dashboard
Creating Apps for Social Login
Configuring Splash Page Profiles
Configuring Visitor Accounts

CLOUD GUEST:

Architecture:



How to check cloud guest server status::

1. We can run the command “show radius status” on IAP to check status of connectivity with cloud guest servers.

```
94:b4:0f:c6:9b:36# show radius status
```

```
Radius server status
```

Name	Server IP	Source IP	Server Name	Protocol	Port	NAS IP	Connected sockets	Status	Last connection tried at	Next connection a
InternalServer	127.0.0.1	10.17.171.190	Not configured	RADIUS/UDP	1616	127.0.0.1	Not Applicable	Not applicable	Not Applicable	Not Applicable
AS2_#quest#_	52.220.83.99	10.17.171.190	asw1-elb.cloudquest.central.arubanetworks.com	RADIUS/TLS	443	10.17.171.190	1	CONNECTED	2018-05-24 21:33:38.150335	Not Applicable
AS1_#quest#_	52.74.197.151	10.17.171.190	asw1.cloudquest.central.arubanetworks.com	RADIUS/TLS	2083	10.17.171.190	1	CONNECTED	2018-05-24 21:33:39.154289	Not Applicable

```
94:b4:0f:c6:9b:36#
```

2. If time on IAP is not correct, the authentication will fail as RADSEC can not be set. Status will be set to INIT.

```
Radius server status
```

Name	Server IP	Source IP	Server Name	Protocol	Port	NAS IP	Connected sockets	Status	Last connection tried
InternalServer	127.0.0.1	192.168.8.111	Not configured	RADIUS/UDP	1616	127.0.0.1	Not Applicable	Not Applicable	Not Applicable
AS2_#quest#_	54.243.238.65	192.168.8.111	naw1-elb.cloudquest.central.arubanetworks.com	RADIUS/TLS	443	192.168.8.111	0	INIT	1990-05-23 19:16:20.82
AS1_#quest#_	54.163.253.5	192.168.8.111	naw1.cloudquest.central.arubanetworks.com	RADIUS/TLS	2083	192.168.8.111	0	INIT	1990-05-23 19:20:04.44

Cloud Guest troubleshooting Contd:

1. We should not change the RADSEC certificate mapped under Security settings. In case, this is changed, IAP won't be able to establish TLS connection with cloud guest servers.

Certificate Usage

Select the suitable certificate for each of the usage types below. The chosen certificate shall be used to provide the authentication

USAGE TYPE	CERTIFICATE
Certificate Authority:	default
Authentication Server:	default
Captive Portal:	aruba_default
RadSec:	default
RadSec Certificate Authority:	default

2. In case I change it to different one, we would see the following:

Certificate Usage

Select the suitable certificate for each of the usage types below. The chosen certificate shall be used to provide the authentication

USAGE TYPE	CERTIFICATE
Certificate Authority:	default
Authentication Server:	default
Captive Portal:	aruba_default
RadSec:	aruba_default
RadSec Certificate Authority:	default

Cloud Guest troubleshooting Contd:

- Changing RADSEC certificate results in TLS failure.

Radius server status

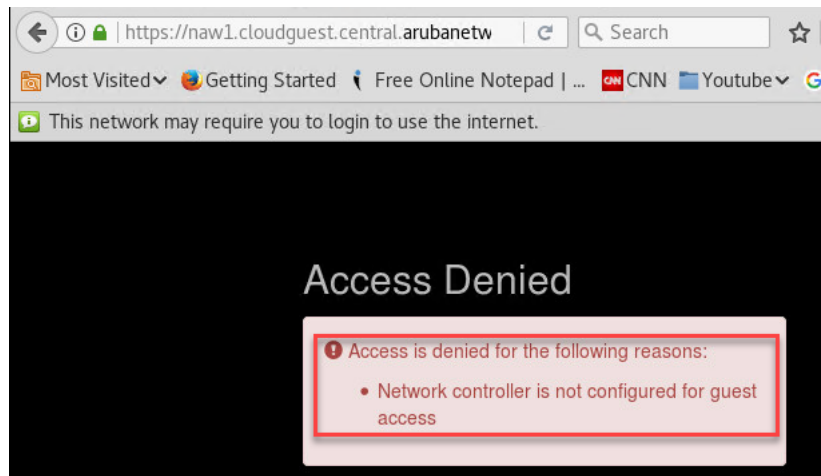
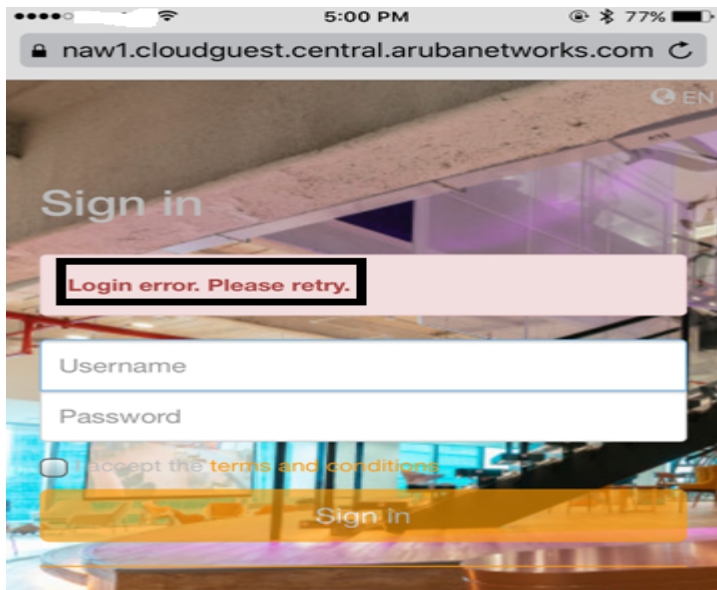
Name	Server IP	Source IP	Server Name	Protocol	Port	NAS IP	Connected sockets	Status	Last connection tried at	Next connection at
InternalServer	127.0.0.1	10.17.171.190	Not configured	RADIUS/UDP	1616	127.0.0.1	Not Applicable	Not Applicable	Not Applicable	Not Applicable
AS2_guest#_	54.254.175.140	10.17.171.190	asw1-elb.cloudquest.central.arubanetworks.com	RADIUS/TLS	443	10.17.171.190	0	INIT	2018-05-25 04:52:50.883899	2018-05-25 04:53:10.20883899
AS1_guest#_	52.74.197.151	10.17.171.190	asw1.cloudquest.central.arubanetworks.com	RADIUS/TLS	2083	10.17.171.190	0	INIT	2018-05-25 04:52:50.782227	2018-05-25 04:53:10.20782227

```
94:b4:0f:c6:9b:36# show log security

May 24 07:44:36 stm[3870]: <121030> <ERRS> AP 94:b4:0f:c6:9b:36@10.17.171.190 stm |aaa| RADIUS: Error 98, Address already in use in rfc3576 bind
May 24 21:33:38 stm[3870]: <199802> <ERRS> AP 94:b4:0f:c6:9b:36@10.17.171.190 stm |rc_rad_tls.c, RadsecStatusServerResponseTimeoutHandler:199: Terminate the connection since server stopped responding the status server 54.254.175.140
May 24 21:33:39 stm[3870]: <199802> <ERRS> AP 94:b4:0f:c6:9b:36@10.17.171.190 stm |rc_rad_tls.c, RadsecStatusServerResponseTimeoutHandler:199: Terminate the connection since server stopped responding the status server 52.74.197.151
May 25 04:52:40 stm[3870]: <199802> <ERRS> AP 94:b4:0f:c6:9b:36@10.17.171.190 stm |rc_rad_tls.c, RadsecTLSNegotiationHandler:515: Failed to open TLS socket error revcd alert fatal error
May 25 04:52:40 stm[3870]: <199802> <ERRS> AP 94:b4:0f:c6:9b:36@10.17.171.190 stm |rc_rad_tls.c, RadsecTLSNegotiationHandler:517: calling cleanup for 52.74.197.151
May 25 04:52:40 stm[3870]: <199802> <ERRS> AP 94:b4:0f:c6:9b:36@10.17.171.190 stm |rc_rad_tls.c, radsec_start_connection_retry_timer:110: Failed to establish TLS connection to server AS1_guest#_. Retry in 10 seconds
May 25 04:52:41 stm[3870]: <199802> <ERRS> AP 94:b4:0f:c6:9b:36@10.17.171.190 stm |rc_rad_tls.c, RadsecTLSNegotiationHandler:515: Failed to open TLS socket error revcd alert fatal error
May 25 04:52:41 stm[3870]: <199802> <ERRS> AP 94:b4:0f:c6:9b:36@10.17.171.190 stm |rc_rad_tls.c, RadsecTLSNegotiationHandler:517: calling cleanup for 54.254.175.140
May 25 04:52:41 stm[3870]: <199802> <ERRS> AP 94:b4:0f:c6:9b:36@10.17.171.190 stm |rc_rad_tls.c, radsec_start_connection_retry_timer:110: Failed to establish TLS connection to server AS2_guest#_. Retry in 10 seconds
May 25 04:52:51 stm[3870]: <199802> <ERRS> AP 94:b4:0f:c6:9b:36@10.17.171.190 stm |rc_rad_tls.c, RadsecTLSNegotiationHandler:515: Failed to open TLS socket error revcd alert fatal error
May 25 04:52:51 stm[3870]: <199802> <ERRS> AP 94:b4:0f:c6:9b:36@10.17.171.190 stm |rc_rad_tls.c, RadsecTLSNegotiationHandler:517: calling cleanup for 52.74.197.151
May 25 04:52:51 stm[3870]: <199802> <ERRS> AP 94:b4:0f:c6:9b:36@10.17.171.190 stm |rc_rad_tls.c, radsec_start_connection_retry_timer:110: Failed to establish TLS connection to server AS1_guest#_. Retry in 20 seconds
May 25 04:52:51 stm[3870]: <199802> <ERRS> AP 94:b4:0f:c6:9b:36@10.17.171.190 stm |rc_rad_tls.c, RadsecTLSNegotiationHandler:515: Failed to open TLS socket error revcd alert fatal error
May 25 04:52:51 stm[3870]: <199802> <ERRS> AP 94:b4:0f:c6:9b:36@10.17.171.190 stm |rc_rad_tls.c, RadsecTLSNegotiationHandler:517: calling cleanup for 54.254.175.140
May 25 04:52:51 stm[3870]: <199802> <ERRS> AP 94:b4:0f:c6:9b:36@10.17.171.190 stm |rc_rad_tls.c, radsec_start_connection_retry_timer:110: Failed to establish TLS connection to server AS2_guest#_. Retry in 20 seconds
```

Cloud Guest troubleshooting Contd:

- Users will notice the following error on the cloud guest page.
- In case cloud guest license is not assigned to IAP, the error shown in the screenshot on the right would be seen.



ARUBA SWITCH COMMUNICATION WITH CENTRAL:

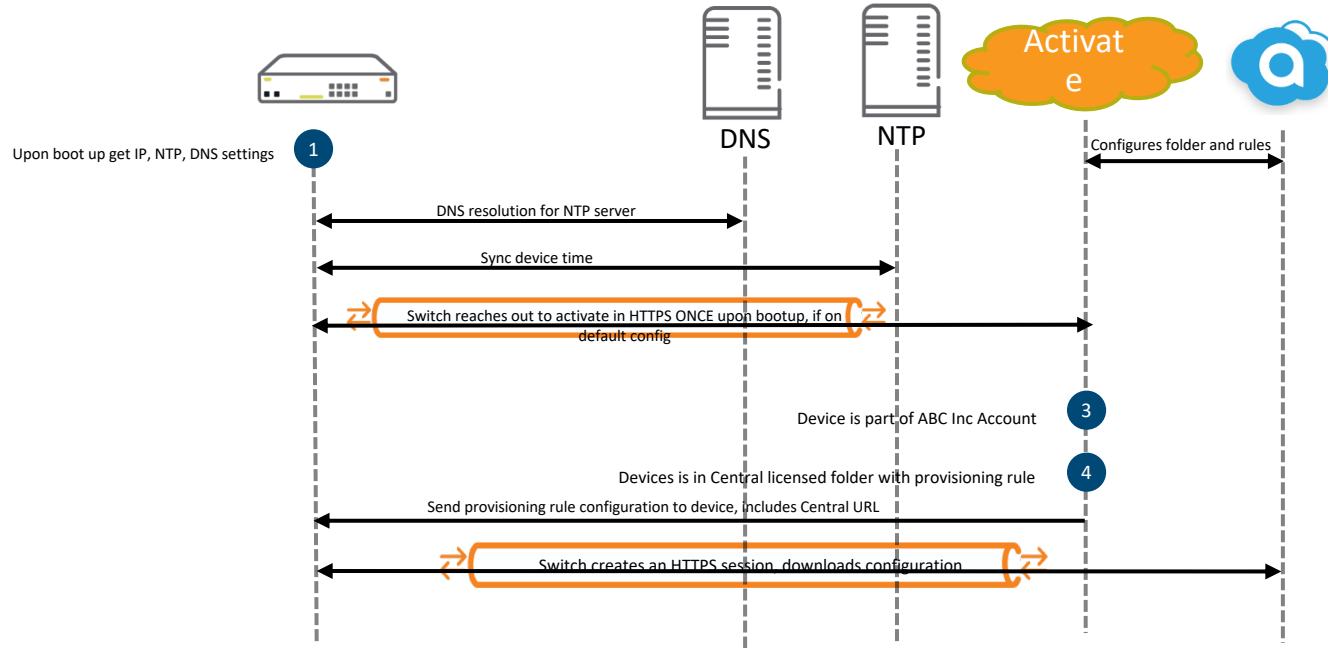
Supported Switches:

- The Aruba switches enable secure, role-based network access for wired users and devices, independent of their location or application.

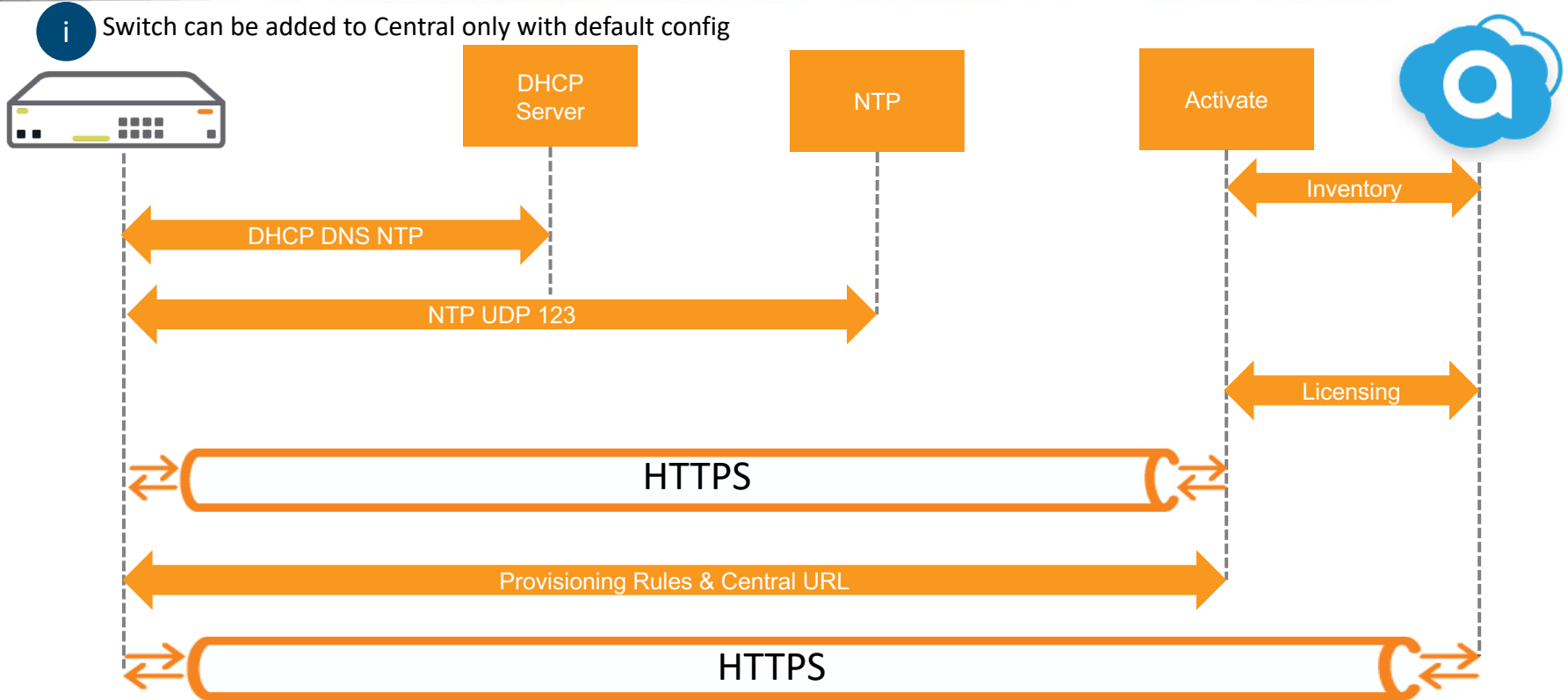
Switch Platform	Supported Software Versions	Recommended Software Versions
Aruba 2530 Switch Series	YA/YB.16.04.0008 or later	YA/YB.16.05.0008 or later
Aruba 2540 Switch Series	YC.16.03.0003 or later	YC.16.05.0007 or later
Aruba 2920 Switch Series	WB.16.03.0003 or later	WB.16.05.0007 or later
Aruba 2930F Switch Series	WC.16.03.0003 or later	WC.16.05.0007 or later
Aruba 2930M Switch Series	WC.16.04.0004 or later	WC.16.05.0007 or later
Aruba 3810 Switch Series	KB.16.03.0003 or later	WC.16.05.0007 or later
Aruba 5400R Switch Series	KB.16.04.0008 or later	KB.16.05.0007 or later

Mobility Access Switch Series	Supported Software Versions
<ul style="list-style-type: none">■ S1500-12P■ S1500-24P■ S2500-24P■ S3500-24T	<ul style="list-style-type: none">ArubaOS 7.3.2.6ArubaOS 7.4.0.3ArubaOS 7.4.0.4ArubaOS 7.4.0.5ArubaOS 7.4.0.6

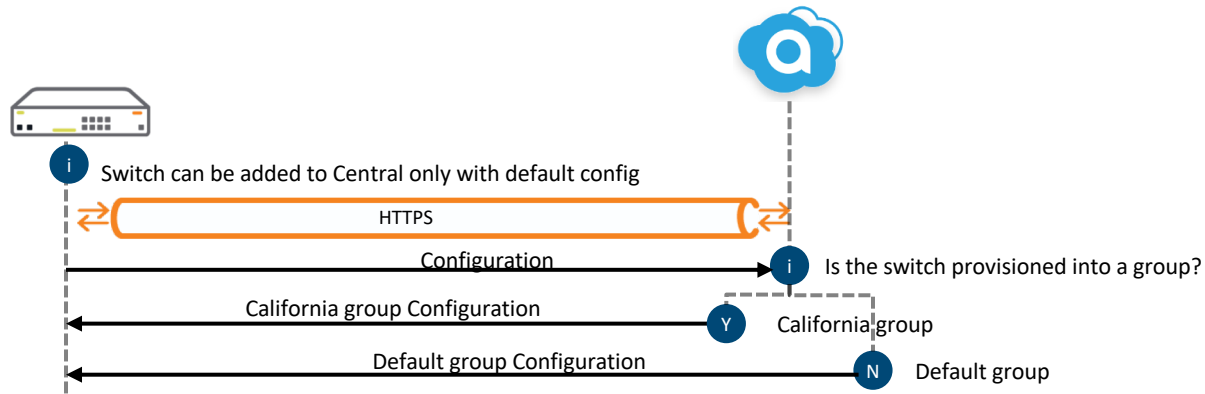
Switch Communication with Central:-



Zero Touch Provisioning (ZTP):



ZTP Cont:



Device Bootup:-

Filter: (udp.port==123 or dns or ip.addr==104.36.249.200 or ip.addr==104.36.249.201) Expand

Filter: DNS, NTP, Activate IP

No.	Time	Source	Destination	Protocol	Details
40	3.147621	0.0.0.0	255.255.255.255	DHCP	DHCP Discover - Transaction ID 0x88de2bd0
50	3.460726	10.70.26.1	10.70.26.54	DHCP	DHCP Offer - Transaction ID 0x88de2bd0
133	7.047568	0.0.0.0	255.255.255.255	DHCP	DHCP Discover - Transaction ID 0x88de6096
134	7.049439	10.70.26.1	10.70.26.54	DHCP	DHCP Offer - Transaction ID 0x88de6096
240	12.048208	0.0.0.0	255.255.255.255	DHCP	DHCP Request - Transaction ID 0x88de6096
241	12.050542	10.70.26.1	10.70.26.54	DHCP	DHCP ACK - Transaction ID 0x88de6096
255	12.760572	10.70.26.54	10.1.1.10.10	DNS	Standard query 0x0001 A pool.ntp.org
256	12.761686	10.1.1.10.10	10.70.26.54	DNS	Standard query response 0x0001 A pool.ntp.org A 45.33.84.208 A 208.77.187.100 A 154.16.245.246
257	12.762176	10.70.26.54	154.16.245.246	NTP	NTP Version 1, reserved
258	12.851041	154.16.245.246	10.70.26.54	NTP	NTP Version 1, server
261	12.879205	10.70.26.54	10.1.1.10.10	DNS	Standard query 0x0002 A device.arubanetworks.com
262	12.879902	10.1.1.10.10	10.70.26.54	DNS	Standard query response 0x0002 A device.arubanetworks.com A 104.36.249.201
		10.70.26.54	104.36.249.201	TCP	52553 - 443 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=2 SACK_PERM=1 TSval=192490 TSecr=0
		104.36.249.201	10.70.26.54	TCP	443 - 52553 [SYN, ACK] Seq=0 Ack=1 Win=28960 Len=0 MSS=1460 SACK_PERM=1 TSval=3442508729 TSecr=192490 WS=128
		10.70.26.54	104.36.249.201	TLSv1.2	Client Hello
		104.36.249.201	10.70.26.54	TCP	443 - 52553 [ACK] Seq=1 Ack=174 Win=30080 Len=0 TSval=3442508730 TSecr=192500
		104.36.249.201	10.70.26.54	TLSv1.2	Server Hello
		104.36.249.201	10.70.26.54	TCP	[TCP segment of a reassembled PDU]
		104.36.249.201	10.70.26.54	TLSv1.2	Certificate
		104.36.249.201	10.70.26.54	TCP	[TCP Retransmission] 443 - 52553 [PSH, ACK] Seq=2897 Ack=174 Win=30080 Len=117 TSval=3442508740 TSecr=192500
		10.70.26.54	104.36.249.201	TCP	52553 - 443 [ACK] Seq=174 Ack=3014 Win=66608 Len=0 TSval=192500 TSecr=3442508730
		10.70.26.54	104.36.249.201	TLSv1.2	Client Key Exchange
		10.70.26.54	104.36.249.201	TLSv1.2	Change Cipher Spec
		10.70.26.54	104.36.249.201	TLSv1.2	Hello Request, Hello Request
		10.70.26.54	104.36.249.201	TCP	[TCP Dup ACK 271#1] 52553 - 443 [ACK] Seq=492 Ack=3014 Win=66608 Len=0 TSval=192540 TSecr=3442508740
		104.36.249.201	10.70.26.54	TCP	443 - 52553 [ACK] Seq=3014 Ack=492 Win=31104 Len=0 TSval=3442508776 TSecr=192540
		104.36.249.201	10.70.26.54	TLSv1.2	Change Cipher Spec, Encrypted Handshake Message
278	12.937666	10.70.26.54	104.36.249.201	TLSv1.2	Application data
279	12.939336	104.36.249.201	10.70.26.54	TLSv1.2	Application data
282	13.145403	104.36.249.201	10.70.26.54	TCP	[TCP Retransmission] 443 - 52553 [PSH, ACK] Seq=3065 Ack=718 Win=32256 Len=518 TSval=3442508989 TSecr=192550
285	13.352612	104.36.249.201	10.70.26.54	TCP	[TCP Retransmission] 443 - 52553 [PSH, ACK] Seq=3065 Ack=718 Win=32256 Len=518 TSval=3442509196 TSecr=192550
292	13.768938	104.36.249.201	10.70.26.54	TCP	[TCP Retransmission] 443 - 52553 [PSH, ACK] Seq=3065 Ack=718 Win=32256 Len=518 TSval=3442509611 TSecr=192550
295	13.928844	10.70.26.54	104.36.249.201	TCP	52553 - 443 [ACK] Seq=718 Ack=3583 Win=66038 Len=0 TSval=192750 TSecr=3442508782
296	13.928860	10.70.26.54	104.36.249.201	TCP	[TCP Dup ACK 295#1] 52553 - 443 [ACK] Seq=718 Ack=3583 Win=66038 Len=0 TSval=193540 TSecr=3442508989
297	13.928861	10.70.26.54	104.36.249.201	TCP	[TCP Dup ACK 295#2] 52553 - 443 [ACK] Seq=718 Ack=3583 Win=66038 Len=0 TSval=193540 TSecr=3442509196
298	13.931953	10.70.26.54	104.36.249.201	TCP	[TCP Dup ACK 295#3] 52553 - 443 [ACK] Seq=718 Ack=3583 Win=66038 Len=0 TSval=193540 TSecr=3442509611
313	14.960756	10.70.26.54	104.36.249.201	TCP	[TCP segment of a reassembled PDU]
314	14.960770	10.70.26.54	104.36.249.201	TLSv1.2	Application data
315	14.961324	104.36.249.201	10.70.26.54	TCP	443 - 52553 [ACK] Seq=3583 Ack=3183 Win=37120 Len=0 TSval=3442510804 TSecr=194570
320	15.032640	104.36.249.201	10.70.26.54	TLSv1.2	Application data
321	15.032642	104.36.249.201	10.70.26.54	TCP	443 - 52553 [FIN, ACK] Seq=3942 Ack=3183 Win=37120 Len=0 TSval=3442510875 TSecr=194570
322	15.053271	10.70.26.54	104.36.249.201	TCP	52553 - 443 [ACK] Seq=3183 Ack=3943 Win=65078 Len=0 TSval=194640 TSecr=3442510875
354	15.333265	10.70.26.54	104.36.249.201	TCP	52553 - 443 [FIN, PSH, ACK] Seq=3183 Ack=3943 Win=65078 Len=0 TSval=194940 TSecr=3442510875
355	15.333266	10.70.26.54	10.1.1.10.10	DNS	Standard query 0x0003 A internal.central.arubanetworks.com
356	15.334061	104.36.249.201	10.70.26.54	TCP	443 - 52553 [ACK] Seq=3943 Ack=3184 Win=37120 Len=0 TSval=3442511177 TSecr=194940
357	15.334070	10.1.1.10.10	10.70.26.54	DNS	Standard query response 0x0003 A internal.central.arubanetworks.com CNAME prod-internal2-public-device-elb-282623156.us-west-2.elb.amazonaws.com
1200	33.255000	10.70.26.54	10.1.1.10.10	DNS	Standard query 0x0004 A internal.central.arubanetworks.com
1201	33.268778	10.1.1.10.10	10.70.26.54	DNS	Standard query response 0x0004 A internal.central.arubanetworks.com CNAME prod-internal2-public-device-elb-282623156.us-west-2.elb.amazonaws.com

SSL Activate

DHCP

DNS pool.ntp.org

NTP

DNS device.arubanetworks.com

DNS internal.central.arubanetworks.com

Activate SYNC:

Following message will appear in logs:

- Aruba-2930F# show log -r

I05/02/18 13:26:57 05226 activate: Successfully resolved the Activate server address device.arubanetworks.com to 104.36.249.201.

- Trigger a forced activate provision by:

Aruba-2930F(config)# activate provision force

How to interpret activate response as per logs ?:

1. Device has not been added in a central account:

I05/02/18 13:26:57 05228 activate: Received failure response from the Activate

server with status code: fail-prov-no-shipped

Switch Status:

- 2. Device has been added into a central account, but not assigned a license

105/02/18 13:26:57 05228 activate: Received failure response from the Activate server with status code: fail-prov-no-rule

- 3. Device has been added and assigned a license in central

105/02/18 13:26:57 05223 activate: Successfully established connection with the

Activate server;parsing final provision service response.

How to validate status of connectivity to Aruba Central?

"During Zero Touch Provisioning, the Aruba Switches can join Central only if they are running the factory default configuration, and have a valid IP address and DNS settings from a DHCP server."

Aruba-2930F # show activate provision

Configuration and Status - Activate Provision Service

Activate Server Address : device.arubanetworks.com

Activate Provision Service : Enabled

Activation Key : 1KDSCEAV

Aruba-2930-F# show aruba-central

Configuration and Status - Aruba Central

Server URL : <https://internal.central.arubanetworks.com/ws>

Connected : Yes

Mode : Managed

Last Disconnect Time : Tue May 19 19:15:56 2018

Debugging:-

Debugging for Zero Touch Provisioning:

HP-2920-24G-PoEP# debug ztp

For Aruba Central:-

HP-2920-24G-PoEP# debug aruba-central

Validating Debug:

Aruba-2930-F# show debug

Debug Logging

Source IP Selection: Outgoing Interface

Origin identifier: Outgoing Interface IP

Destination:

Session

Enabled debug types:

aruba-central

ztp

Debugging contd:- :-

- Switch checks into activate every 5 minutes to look for any provisioning rule configured.

HP-2920-24G-PoEP# show log -r

Keys: W=Warning I=Information

M=Major D=Debug E=Error

---- Reverse event Log listing: Events Since Boot ----

I 05/18/18 20:39:47 05221 activate: The device is provisioned with the Central

<https://internal.central.arubanetworks.com/ws>.

I 05/18/18 20:39:47 03125 mgr: Startup configuration changed by SNMP. New seq. number 11

I 05/18/18 20:39:46 05223 activate: Successfully established connection with the

Activate server;parsing final provision service response.

I 05/18/18 20:39:45 05226 activate: Successfully resolved the Activate server address device.arubanetworks.com to 104.36.249.201.

Debugging Contd:- :-

- ZTP debug for the previous command:
- 0002:14:32:55.52 ZTP mwsCloudCtrl:IP: 104.36.249.201:443
- 0002:14:32:55.52 ZTP mwsCloudCtrl:socket created
- 0002:14:32:55.52 ZTP mwsCloudCtrl:socket in progress: 36
- 0002:14:32:55.52 ZTP mwsCloudCtrl:connect passed
- 0002:14:32:55.52 ZTP mwsCloudCtrl:set session passed
- 0002:14:32:55.66 ZTP mwsCloudCtrl:Registration with Activate started.
- 0002:14:32:56.81 ZTP mwsCloudCtrl:activate connection established
- 0002:14:32:56.81 ZTP mwsCloudCtrl:Central URL is <https://internal.central.arubanetworks.com/ws>

Debugging Contd:-

- Following outputs are seen when ZTP & Central debugs are enabled.
- HP-2920-24G-PoEP(config)# aruba-central disable
- 0002:14:31:13.32 cloud mwsCloudCtrl:Received ARUBA CENTRAL DISABLE request.
- HP-2920-24G-PoEP(config)# aruba-central enable
- 0002:14:31:19.11 cloud mwsCloudCtrl:Received ARUBA CENTRAL ENABLE request.
- 0002:14:31:19.11 cloud mwsCloudCtrl:Aruba Central server has been updated to
- <https://internal.central.arubanetworks.com/ws>.

Stacking Support:

Model	Does the device support VSF Front Plane Stacking outside Central?	Does the device support Back Plane Stacking outside Central?	Central Support of Stacking	Central Support for Device configuration
5400	Yes	No	No	Templates Only
3810	Yes	No	No	Template & UI
2920	No	Yes	Yes via template group only	Template & UI
2530	No	No	No	Template & UI
2540	No	No	No	Template & UI
2930M	No	Yes	No	Template & UI
2930F	Yes	No	No	Template & UI

Provisioning Switches:

1. Switch Provisioning through UI Groups:

Central allows switches to join groups only if the switches are running factory default configuration. Switches with factory default configuration are automatically assigned to the default group.

The administrators can either move the switch to an existing group or create a new group.

Device Configuration:

Central allows the following configuration operations at the following levels for switches in a group:

1. Per group configuration:— Central allows you to maintain unique configuration settings for each group.

However, these settings are applied to all devices within that group. For example, all switches within a group can have common VLAN settings.

2. Per Device Configuration:—Although the Switches inherit group configuration, the users can maintain device-specific configuration, for example, ports or DHCP pools.

Provisioning Switches:-

2. CLI Snippets:

For switches, Central currently includes limited configuration options in the UI. If certain configuration parameters, are not available in the UI, Aruba recommends that you use CLI snippets to push configuration changes to switches.

Central does not support CLI snippets for Aruba Mobility Access Switches and Instant APs.

The following configuration conditions apply to CLI snippets:

1. The UI configuration overrides the configuration changes pushed through the CLI snippets. Hence, CLI snippets must be used only if the configuration parameters are not available in the UI menu options for switch configuration.
2. The configuration changes pushed through CLI snippets are stored in the flash memory of a switch. When this switch reloads, the configuration changes applied through the CLI snippet persist.
3. If the switch resets to factory default configuration, the configuration changes applied through the CLI snippets are overwritten.
4. If the CLI snippet configuration changes are applied on a device in a group, the new devices joining this group will not inherit these changes

Provisioning Switches:-

3. Device Provisioning through Template Groups:

You can set a group as a template group, so that a common configuration is applied through CLI configuration templates for all devices in that group. For the devices in a template group, you can use a configuration template with a standard set of CLI scripts, configuration commands, and variables to push changes to a device.

Configuration Templates and Variable Definitions:

You can also provision devices using CLI configuration templates. To use the CLI configuration templates, the devices must be provisioned in a template group. The configuration options for the devices in a template group include adding and uploading CLI configuration templates and variable definitions.

Questions?

THANK YOU!