

Aruba Central PoC Integrating Purple

Adolfo Bolivar January 2019



Agenda

- Setup Guest WiFi on Aruba Central and points to Purple Cloud service
- Setup Purple Dashboard
- Test Guest Access



Task: Setup Guest WiFi on Aruba Central and points to Purple Cloud service

Create new WiFi network

oruba Central

CURRENT APP WIRELESS MANAGEMENT

Q Search Current App Find devices, clients and networks

Networks Add and edit networks

Access Points View APs and set device parameters

RF Set Aruba Adaptive Radio Management

Wireless IDS/IPS Manage Intrustion detection and prevention

Security Set advanced security parameters

VPN Manage controller VPN connections

$\overline{}$	FILTER	WIRELESS	MANA	GEMEN

Home Cl 159 (3 Total Devices | 1 Offline APs | 0 Offline SWITCHES | 0 Offline GATEWAYS)

Networks

Networks

N

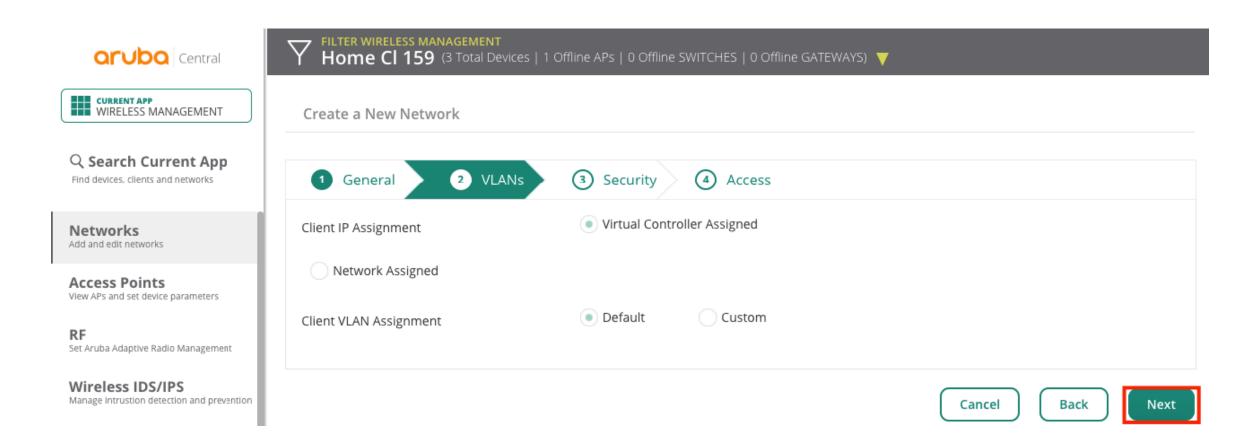
NAME	ТҮРЕ	SECURITY	ACCESS TYPE
Familia Bolivar2	employee	wpa2-psk-aes	unrestricted
wired-SetMeUp	guest		network-based
default_wired_port_profile	employee		unrestricted



Set WiFi as Guest

aruba Central	FILTER WIRELESS MANAGEMENT Home Cl 159 (3 Total Devices 1 Offline APs 0 Offline SWITCHES 0 Offline GATEWAYS)	
CURRENT APP WIRELESS MANAGEMENT	Create a New Network	
Q Search Current App Find devices, clients and networks	1 General 2 VLANs 3 Security 4 Access	
Networks Add and edit networks	⊖ Basic Settings	
Access Points View APs and set device parameters	Name (SSID): Guest	
RF	ESSID:	
Set Aruba Adaptive Radio Management	Type:	
Wireless IDS/IPS Manage Intrustion detection and prevention	Primary Usage: Employee Ouest Voice	
Security Set advanced security parameters		
	Broadcast/Multicast	





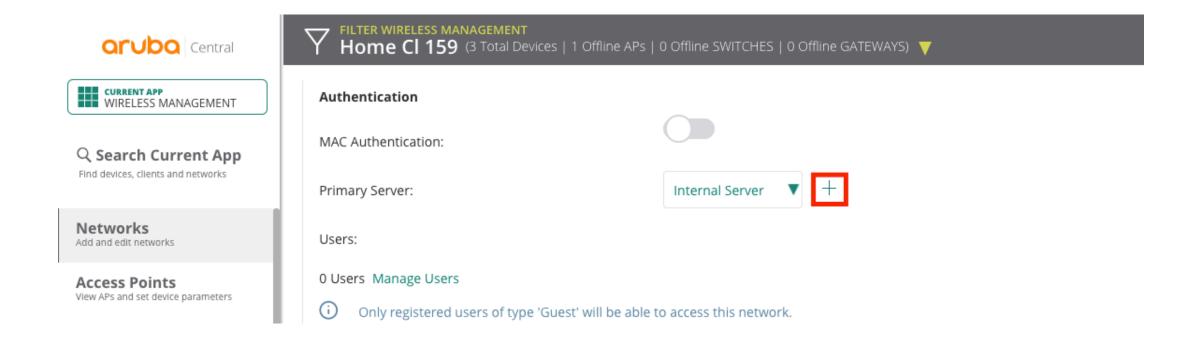
Set Splash Page as External, create new profile

aruba Central	FILTER WIRELESS MANAGEMENT Home Cl 159 (3 Total Devices 1 Offline APs)	0 Offline SWITCHES 0 Offline GATEWAYS) 🔻		
CURRENT APP WIRELESS MANAGEMENT	1 General 2 VLANs 3 Security 4 Access			
Q Search Current App Find devices, clients and networks	Splash Page			
	Splash Page Type:	External 🔻		
Networks Add and edit networks	Captive Portal Proxy Server IP :			
Access Points View APs and set device parameters	Captive Portal Proxy Server Port :			
RF Set Aruba Adaptive Radio Management	Captive Portal Profile:			
Wireless IDS/IPS Manage Intrustion detection and prevention	Encryption:			

New Captive portal profile

Central	FILTER WIRELESS MANAGEMENT Home Cl 159 (3 Total Devices 1 O	ffline APs 0 Offline SWITCHES 0 Offline GATEWAYS) 🔻	
CURRENT APP WIRELESS MANAGEMENT	EXTERNAL CAPTIVE PORTAL - NEW		×
Q Search Current App	Name:	Purple	
Find devices, clients and networks	Туре:	RADIUS Authentication	
Networks Add and edit networks	IP or Hostname:	region1.purpleportal.n region1.purpleport	al.net
Access Points View APs and set device parameters	URL:	/access/	
RF Set Aruba Adaptive Radio Management	Port:	80	
Wireless IDS/IPS Manage Intrustion detection and prevention	Use HTTPS:		
Security Set advanced security parameters	Captive Portal Failure:	Deny Internet 🛛 🔻	
	Redirect URL:	https://region1.purpler https://region1.pur	pleportal.net/access/?res=success

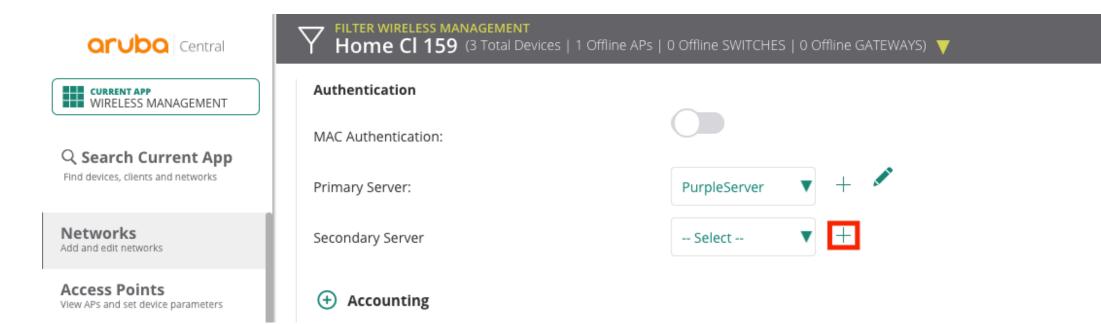
Add Authentication server



Enter Primary Server information

Central	Home CI 1	MANAGEMENT 59 (3 Total Devices 1 Offline APs (0 Offline SWITCHES 0 Offline GATE	WAYS) 🔻
CURRENT APP WIRELESS MANAGEMENT	NEW SERVER			×
C Search Current App	RADIUS			
	Name:	PurpleServer	Timeout:	
Networks Add and edit networks			5	sec
Access Points	IP Address:	54.217.112.62	Retry Count:	
View APs and set device parameters			3	
RF Set Aruba Adaptive Radio Management	Shared Key:		NAS IP Address:	
Wireless IDS/IPS Manage Intrustion detection and prevention			optional	
Security Set advanced security parameters	Retype Key:	•••••	NAS Identifier:	
· · · · · · · · · · · · · · · · · · ·			optional	
VPN Manage controller VPN connections	Cancel	6n8!5ETGb^nd		Save
DHCP Manage DHCP scopes				Sure

Add Authentication server



Enter Secondary Server information

aruba Central	Tilter wireless Home CI 1	MANAGEMENT 59 (3 Total Devices 1 Offline APs	0 Offline SWITCHES 0 Offline GAT	'EWAYS) 🔻	
CURRENT APP WIRELESS MANAGEMENT	NEW SERVER			×	
C Search Current App	RADIUS	LDAP			
	Name:	PurpleServer2	Timeout:		
Networks Add and edit networks			5	sec	
Access Points	IP Address:	176.34.118.13	Retry Count:		
View APs and set device parameters			3		
RF Set Aruba Adaptive Radio Management	Shared Key:		NAS IP Address:		
Wireless IDS/IPS Manage Intrustion detection and prevention			optional		
Security Set advanced security parameters	Retype Key:	•••••	NAS Identifier:		
VDN			optional		
VPN Manage controller VPN connections	Cancel	6n8!5ETGb^nd		Save	
DHCP Manage DHCP scopes					

Enable Accouting

FILTER WIRELESS MANAGEMENT Home CI 159 (3 Total Devices | 1 Offline APs | 0 Offline SWITCHES | 0 Offline GATEWAYS) $\overline{}$ **Orubo** Central Accounting CURRENT APP WIRELESS MANAGEMENT ACCOUNTING: Use authentication servers **Q** Search Current App Find devices, clients and networks Accounting Mode: Authentication N Networks Accounting Interval: 3 Min Add and edit networks Access Points (+)Walled Garden View APs and set device parameters Disable if uplink type is \oplus RF Set Aruba Adaptive Radio Management Advanced Wireless IDS/IPS Manage Intrustion detection and prevention Reauth Interval: 24 hrs Security Set advanced security parameters Blacklisting: VPN Manage controller VPN connections Enforce DHCP: DHCP Use IP for Calling Station ID : Manage DHCP scopes പ്പ ••• ? Need Help? ^

Add whitelist sites

orubo Central	FILTER WIRELESS MANAGEMENT Home Cl 159 (3 Total Devices 1 Offline APs 0 Offline S	WITCHES 0 Offline GATEWAYS) 🔻	
CURRENT APP WIRELESS MANAGEMENT	🕞 Walled Garden		
Q Search Current App Find devices, clients and networks	(i) Blacklist	Whitelist	
Networks Add and edit networks	BLACKLIST	WHITELIST	
Access Points View APs and set device parameters RF Set Aruba Adaptive Radio Management			
Wireless IDS/IPS Manage Intrustion detection and prevention	No data to display	No data to display	
Security Set advanced security parameters	+		
VPN Manage controller VPN connections	Disable if uplink type is		
DHCP Manage DHCP scopes	O Advanced		

Whitelist domains

	FILTER WIRELESS MANAGEMENT Home Cl 159 (3 Total Devices 1 Offline APs	0 Offline SWITCHES	5 0 Offline GATEWAYS) 🔻	
WIRELESS MANAGEMENT	 Walled Garden i 			
Q Search Current App Find devices, clients and networks	Blacklist		Whitelist	
	BLACKLIST	\equiv	WHITELIST	\equiv
Networks Add and edit networks			region1.purpleportal.net	
Access Points	F		cloudfront.net	
View APs and set device parameters			openweathermap.org	
RF Set Aruba Adaptive Radio Management		venuewifi.com		
Wireless IDS/IPS	No data to display		stripe.com	
Manage intrustion detection and prevention	No data to display		+	
Security Set advanced security parameters	+			

Role Based Access

orubo Central	FILTER WIRELESS MANAGEMENT Home Cl 159 (3 Total Devices 1 Offline)	e APs 0 Offline SWITCHES 0 Offline GATEWAYS) 🔻	
CURRENT APP WIRELESS MANAGEMENT	Create a New Network		
Q Search Current App Find devices, clients and networks	1 General 2 VLANs 3	Security 4 Access	
Networks Add and edit networks	Access Rules:	Role Based Network Based Unrestricted	
Access Points View APs and set device parameters	Roles	Access Rules For Selected Roles	
RF Set Aruba Adaptive Radio Management	ROLE	Allow any to all destinations	~ ~ 🖍 💼
Wireless IDS/IPS	Familia Bolivar2	+	
Manage intrustion detection and prevention	default_wired_port		
Security Set advanced security parameters	wired-SetMeUp		
VPN Manage controller VPN connections	+		

Enter new Role

aruba Central	FILTER WIRELESS MANAGEMENT Home Cl 159 (3 Total Devices 1 Offline APs 0 Offline SWITCHES 0 Offline GATEWAYS)	
WIRELESS MANAGEMENT	ADD ROLE	×
C Search Current App Find devices, clients and networks	Roles: PreAuth	
Networks Add and edit networks	Cancel	ок
Access Points View APs and set device parameters		
RF	default_wired_port	
Set Aruba Adaptive Radio Management	wired-SetMeUp	
Wireless IDS/IPS Manage Intrustion detection and prevention	+	

Add rules for PreAuth Role

aruba Central	FILTER WIRELESS MANAGEMENT Home Cl 159 (3 Total Devices 1 C	Offline APs 0 Offline SWITCHES 0 Offline GATEWAYS) 🔻	
CURRENT APP WIRELESS MANAGEMENT	1 General 2 VLANs	3 Security 4 Access	
Q Search Current App Find devices, clients and networks	Access Rules:	Role Based Network Based Unrestricted	
Networks Add and edit networks	Roles	Access Rules For Selected Roles	
Access Points View APs and set device parameters	ROLE		^ V 🖍 💼
RF	wired-SetMeUp		
Set Aruba Adaptive Radio Management	Guest		
Wireless IDS/IPS Manage Intrustion detection and prevention	PreAuth 👕		
Security Set advanced security parameters	+		

Add domain names

aruba Central	Tilter wireless manage Home CI 159 (3 To) Offline SWITCHES 0 Offline GATE\	WAYS) 🔻	
WIRELESS MANAGEMENT	ACCESS RULE			×	
Search Current App	Rule Type:	Service:	Action:		
Find devices, clients and networks	Access Control	 Network App Category 	Any v Allow	▼	
Networks		Application	Destination:		
Add and edit networks		Web Category	To a Domain Name 🛛 🔻		~ × 🖍 💼
Access Points View APs and set device parameters		Web Reputation			~ ¥ 🖉 🔳
RF Set Aruba Adaptive Radio Management			Domain Name:		
Set Al upa Adaptive Radio Management			egion1.purpleportal.ne		
Wireless IDS/IPS Manage Intrustion detection and prevention			egiontiparpieportai.ne		
Cogurity	Options:	<u> </u>			
Security Set advanced security parameters			region1.purpleportal.net		
VPN	Cancel			Save	
Manage controller VPN connections					

Add rules for PreAuth Role

aruba Central	Home CI 159 (3 To	EMENT otal Devices 1 Offline APs 0 Offline SWITCHES 0 Offline GATEWAYS) 🔻	
WIRELESS MANAGEMENT	1 General 2	VLANs 3 Security 4 Access	
Q Search Current App Find devices, clients and networks	Access Rules:	Role Based Network Based Unrestricted	
Networks Add and edit networks	Roles	Access Rules For Selected Roles	
Access Points View APs and set device parameters	ROLE	 Allow any on domain region1.purpleportal.net Allow any on domain cloudfront.net Allow any on domain cloudfront.net 	
RF Set Aruba Adaptive Radio Management	wired-SetMeUp Guest	Allow any on domain instagram.com	
Wireless IDS/IPS Manage Intrustion detection and prevention	PreAuth 👕	 Allow any on domain venuewifi.com Allow any on domain stripe.com Allow any on domain stripe.com 	
Security Set advanced security parameters	+	 Deny any to all destinations 	

Define pre-authentication role as PreAuth

aruba Central	FILTER WIRELESS MANAGEMENT Home Cl 159 (3 Total Devices 1 Offline APs 0 Offline SWITCHES 0 Offline GATEWAYS)	
CURRENT APP WIRELESS MANAGEMENT	Guest	
C Search Current App Find devices, clients and networks	PreAuth +	
Networks Add and edit networks		
Access Points View APs and set device parameters	Role Assignment Rules	
RF Set Aruba Adaptive Radio Management	ROLE ASSIGNMENT RULES Effault role:Guest	
Wireless IDS/IPS Manage Intrustion detection and prevention	+	
Security Set advanced security parameters	ASSIGN PRE-AUTHENTICATION ROLE:	
VPN Manage controller VPN connections		
DHCP Manage DHCP scopes	Cancel Back Finish	

Guest WiFi Network ready

wired-SetMeUp

+

default_wired_port_profile

guest

employee

FILTER WIRELESS MANAGEMENT

orubo Central

CURRENT APP WIRELESS MANAGEMENT

 Q Search Current App

Find devices, clients and networks

Networks Add and edit networks

Access Points View APs and set device parameters

RF Set Aruba Adaptive Radio Management

Wireless IDS/IPS

Manage Intrustion detection and prevention

Security Set advanced security parameters

N = ferrer al en				
Networks				
Networks				
NAME	TYPE	SECURITY	ACCESS TYPE	=
Guest	guest	open system	role-based	1

network-based

unrestricted

Add speed limit rule to 1Mbps

Manage controller VPN connections

 ∇ **aruba** Central Home CI 159 (3 Total Devices | 1 Offline APs | 0 Offline SWITCHES | 0 Offline GATEWAYS) > Authentication Servers CURRENT APP WIRELESS MANAGEMENT > User For Internal Server **Q** Search Current App Find devices, clients and networks ✓ Roles Access Rules For Selected Roles Networks Roles Add and edit networks 1 💼 Allow any to all destinations \equiv ROLE Access Points + View APs and set device parameters Familia Bolivar2 RF Set Aruba Adaptive Radio Management PreAuth Wireless IDS/IPS Manage Intrustion detection and prevention default_wired_port_pr... Security wired-SetMeUp Set advanced security parameters +VPN

Speed limit rule -> 1Mbps

Orubo Central	Home CI 159 (3 Tota	ENT Il Devices 1 Offline APs 0 Offline SWIT(THES 0 Offline GATEWAYS) 🔻		
CURRENT APP WIRELESS MANAGEMENT	ACCESS RULE			×	
Q Search Current App Find devices, clients and networks	Rule Type:	Service: Downstream: 1000 Kbps			
Networks Add and edit networks		Upstream: 1000 Kbps	S Per User		~ × 🖍 🗊
Access Points View APs and set device parameters RF	Cancel			Save	
Set Aruba Adaptive Radio Management	PreAuth				
Wireless IDS/IPS Manage Intrustion detection and prevention	default_wired_port_pr				
Security Set advanced security parameters	wired-SetMeUp				
VPN Manage controller VPN connections	+				

Rule limit applied

Orubo Central

CURRENT APP WIRELESS MANAGEMENT

Q Search Current App Find devices, clients and networks

Networks Add and edit networks

Access Points View APs and set device parameters

RF Set Aruba Adaptive Radio Management

Wireless IDS/IPS Manage Intrustion detection and prevention

Security Set advanced security parameters

VPN Manage controller VPN connections

DHCP Manage DHCP scopes

Services Enable additional Central services

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✓ Roles

Guest

+

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Roles ROLE

Familia Bolivar2

> Authentication Servers

> User For Internal Server

PreAuth

default_wired_port_pr...

wired-SetMeUp

> Blacklisting

> Firewall Settings

Access Rules For Selected Roles → Bandwidth Contract: upstream 1000 kbps (peruser) downstream 1000 kbps (peruser) Allow any to all destinations

+

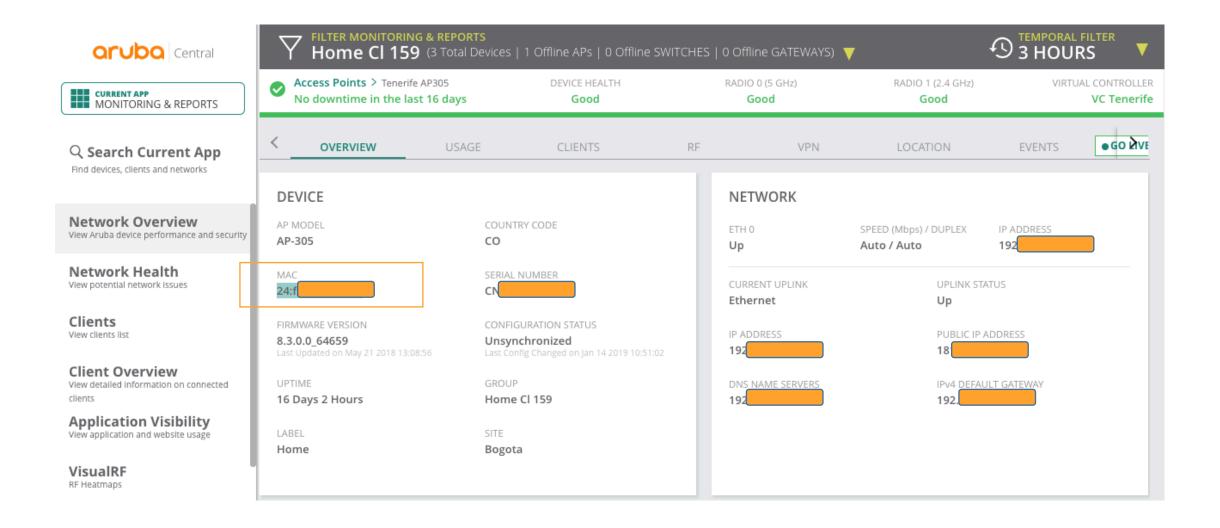
FILTER WIRELESS MANAGEMENT Home Cl 159 (3 Total Devices | 1 Offline APs | 0 Offline SWITCHES | 0 Offline GATEWAYS)

 \equiv

Cancel

Save Settings

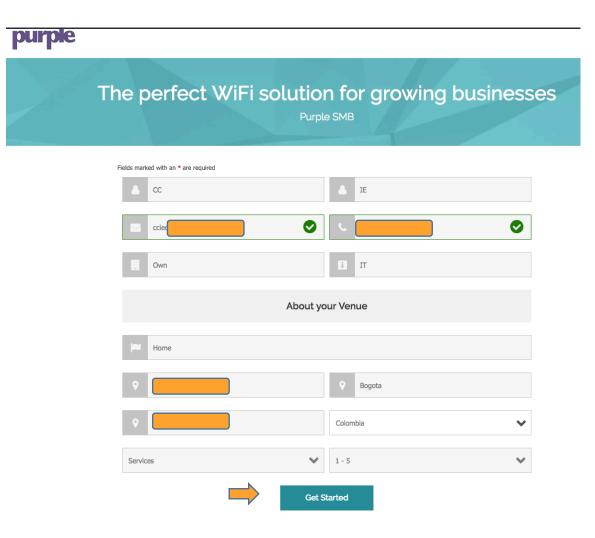
Take note of MAC Address



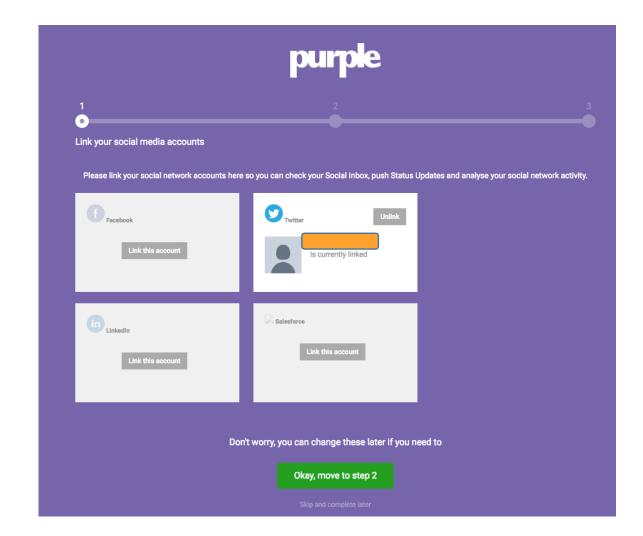


Task: Setup Purple Dashboard

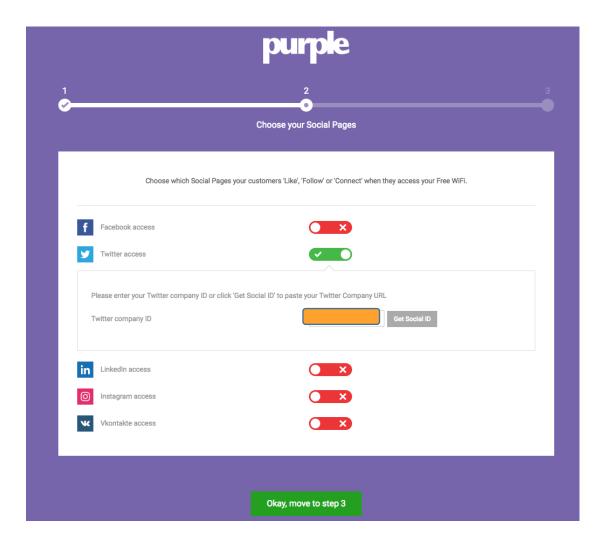
Enter <u>https://purple.ai/get-started/smb/</u> and complete the form



Link the account to your social media



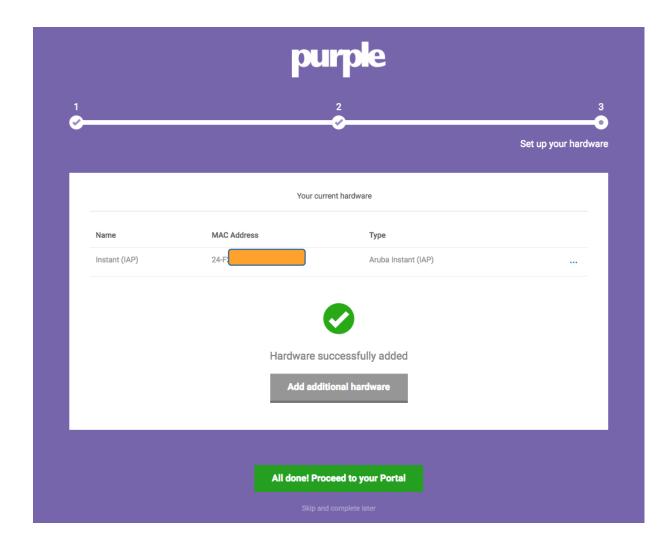
Click move to step 3



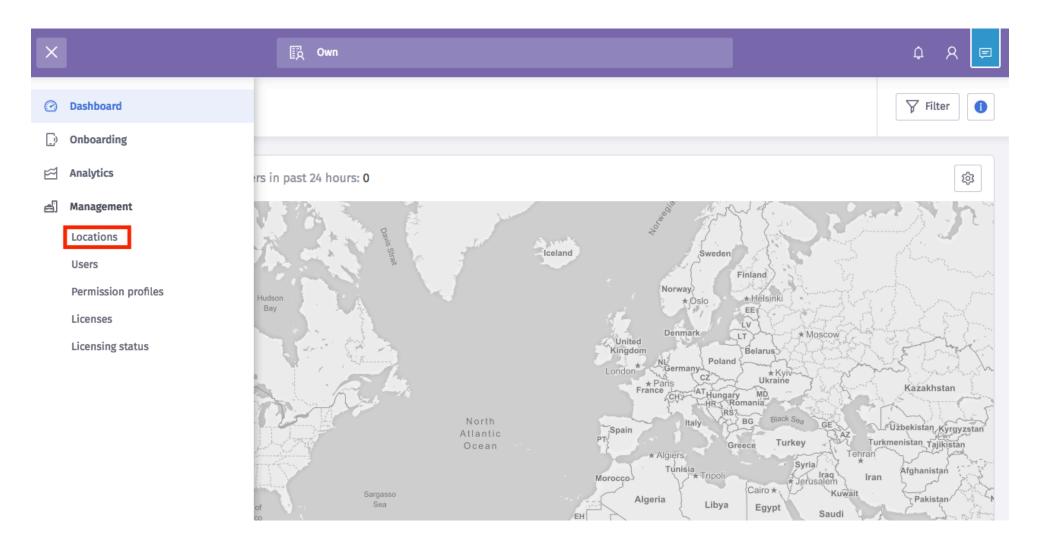
Add MAC Address of AP

	purple 2	
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	ıp your haı
	Add your hardware will use to offer Free WiFi. You can download the firmware once you have entered your hard you have a router, you won't need to configure any further Access Points.	dware
	Instant (IAP)	
Router type		
Router type Name	Instant (IAP)	]
		]
Name	Instant (IAP)	]

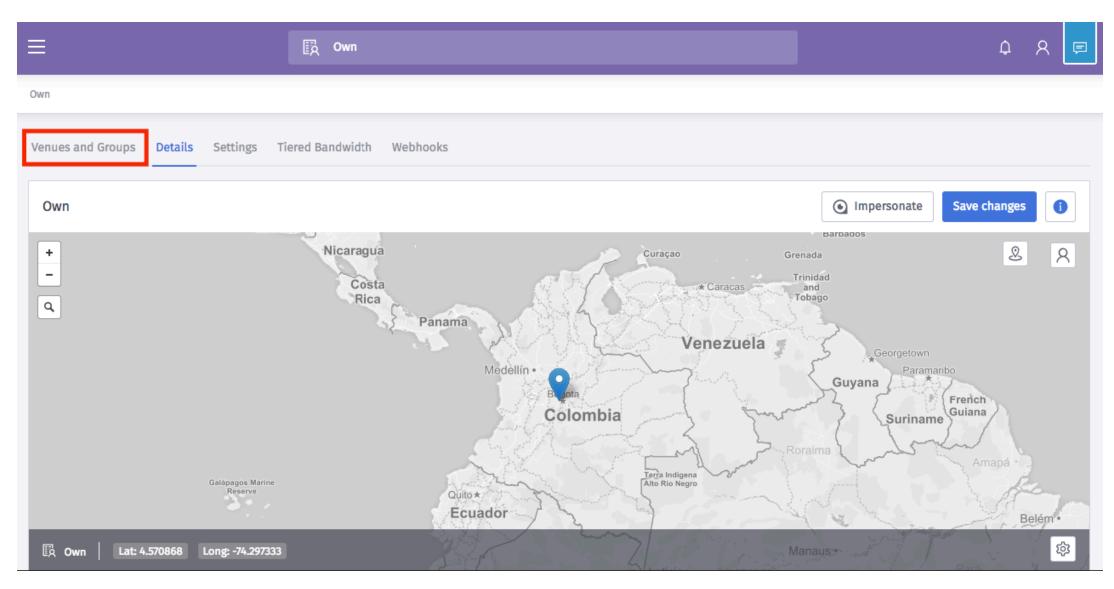
#### Dashboard created



#### Click on Locations



#### Click on Venues



### Click on "Home" venue

≡	₽ġ Own	¢	ନ 厚
Own			
Venues and Groups Details Settings	Tiered Bandwidth Webhooks		
Own Source: Website			•
View venues by groups View venues as lis	t		
Own (customer)			•••
& Home			•••

#### Click on Hardware to check MAC Address of AP

≡	Cwn			ር ନ 🖻
Own / Home				
	Linked Networks Settings			
Associated hardware			Add hardware Ren	new license 🚺
Name	MAC	Туре	License	Actions
Instant (IAP)	24-F2	Aruba Instant (IAP)	Free mode	•••

### Click on Splash pages and Create new template

×		🚯 Own		¢	8	Ē
🕑 Da	ashboard					
🗋 Or	nboarding					
Sp	plash pages		Create new	template		
Ac	ccess journeys					
🖾 An	nalytics					
j Ma	anagement					
		You have no splash page templates available Click the 'Create new template' button				

#### Click on Create New template

	ြာ Own				¢	8	Ē
Your templates System templates	Create a new template						
Your templates	Name	DemoTemplate		Create	e new template		Ð
	Use	Offline -	0				
	Ownership scope	Location	8				
	Owned by	Home	8				
	Туре	Standard 👻	]0				
		Close	Create New				
	Click Life C	sicute new temptate batton					

#### Upload images, change colors

≡	ြည် Own			ф Я 📮
Onboarding DemoTemplate			Return to library	Save ()
	> 🖻 Connect to our WiFi network usin	ng our form		
	Contraction of the second seco			

#### Template created

≡	Cwn			¢	ନ 🖻
Your templates System templates					
Your templates			Create	e new template	•
Template name	Language	Created	Туре		
DemoTemplate	0	1/14/19 Home (Venue)	Offline Standard		•••
		·			

### Click on Access journeys

×		Dwn			¢	8	Ę
Ø	Dashboard						
D	Onboarding						
_	Splash pages				Create new templat	e (	D
	Access journeys	Language	Created	Тур	e		
Ē	Analytics	0	1/14/19	Offl	ine	ſ	•••
പ്	Management		Home (Venue)	Sta	ndard		
	Locations						
	Users						
	Permission profiles						
	Licenses						
	Licensing status						

#### Create the new journey

≡	Cwn			¢ R	Ę
Your journeys	Create a new journey				0
	Name	DemoJourney			
	Ownership scope	Location -	0		
	Owned by	Home	0		
		Close	Create New		

#### Select template and then click on save journey

≡	ြာ Own	¢ & 🖻
Onboarding > Access Journeys DemoJourney		Return to library Publish Unpublish Save
Splash Page Custom Terms Options		Save journey Create language version
Splash page template DemoTemplate	•	
	Connect to our WiFi network using our form	
	Form	

#### Publish the journey

≡	ିନ୍ଧୁ Own	¢ R 📮
Onboarding > Access Journeys DemoJourney	Publish Settings	ary Publish Unpublish Save ()
Splash Page Custom Terms Options	What would you like to apply this template to? A Venue	
Splash page template DemoTemplate	Location Home -	
	Close Publish	

#### Journey published

≡	🛱 Own		¢ R 📮
Your journeys			Create new journey
Journey name	Splash Page	Created	Published
DemoJourney	DemoTemplate 0 languages	1 <b>/14/19</b> Home (Venue)	PUBLISHED 🖂 1

#### Go to locations, Home and set timeout to 30min

=	Ξ Ē⊼ Own			¢	8	Ę
	wn / Home					
	Details Hardware Access Methods Linked Networks Settings					
	Home			Save 0	Options	5
	Custom user timeout 🕜					
	Session timeout	30 minutes	• ?			
	Idle timeout	5 minutes	• <b>?</b>			
	MAC authentication ?					
	Enable Profile Portal (Inherits: Disabled)	Disable Inherit Enable ?				



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### Task: Test Guest Access

#### Android phone connected to the Guest SSID

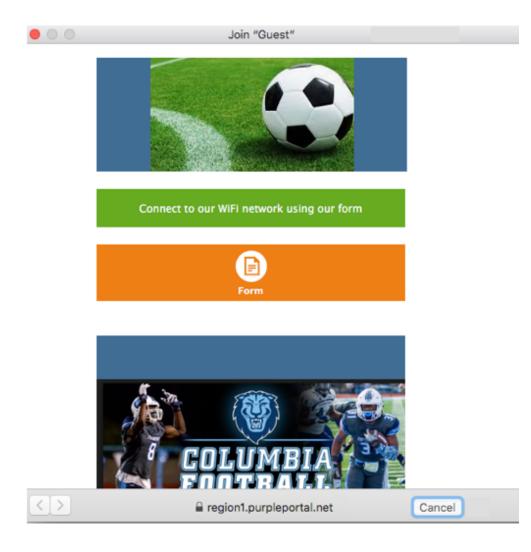
#### Smartphone in "PreAuth" Role

Tenerife AP305# show clients

Client List

							<b>1</b>				
Name	IP Address	MAC Address	0S	ESSID	Access Point	Channel	Туре	Role	IPv6 Address	Signal	Speed (mbps)
939	17	8c:85:	OS X	Guest	Tenerife AP305	157+	AC	Guest	fe80::	36(good)	400(good)
ble	17	2c:0e:	Android	Guest	Tenerife AP305		AC	PreAuth	fe80::	31(good)	-
Tenerife AP305#											

#### Captive portal working as expected



#### Form must be completed

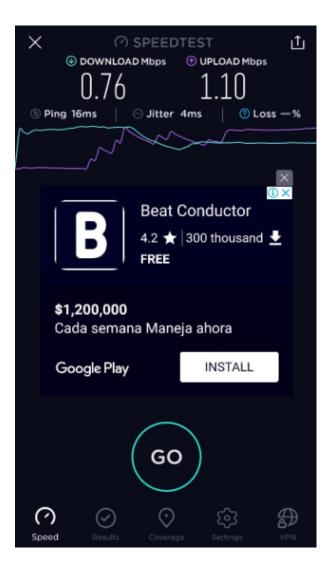
Sign ir	n to Wi	Fine	twork	<		MORE
<		Ba	ack			
	Reg	ister a	n ac	coun	t	
	Already ha	ve an acc	count?	Sign in n	WO	
GENDER *						
Male						$\mathbb{Y}$
FIRST NAM	E*					
Ad						
LAST NAM	E *					
Bol						
DATE OF B			2	7		
1 2	3 4	4 5	6	<u> </u>	89	0
q w	e r	ť	y	u	i o	p
а	s d	f	g h	j	k	ľ
+	zx	c	v b	'n	m	
	2					Go

# After submit the form -> Role changes from "Preauth" to "Guest"

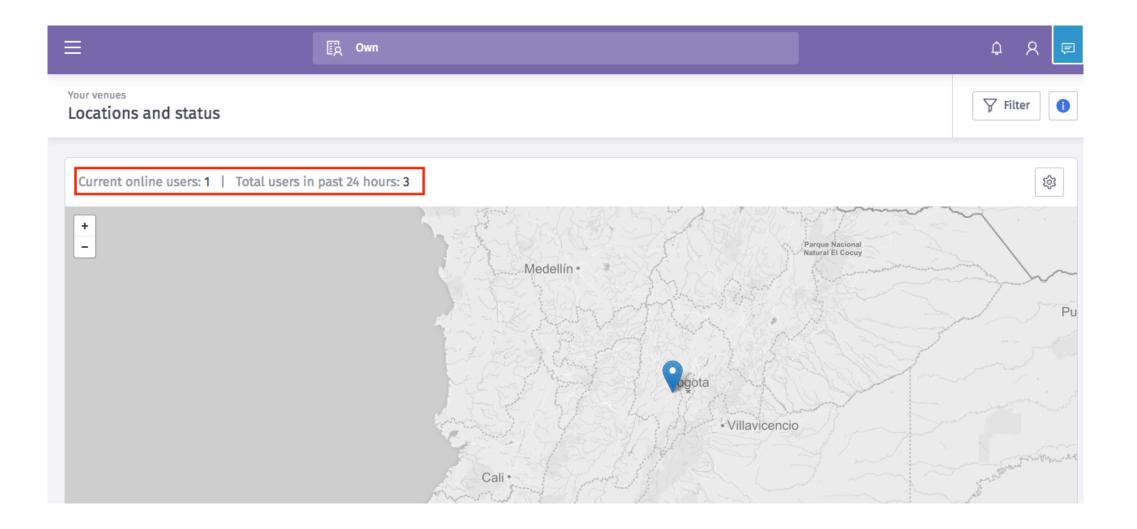
#### Smartphone in "Guest" Role:

Tenerite AP305# show clients											
Client List											
Name	IP Address	MAC Address	0S	ESSID	Access Point	Channel	Туре	Role	IPv6 Address	Signal	Speed (mbps)
blee0	172.	2c:0	 Android	Guest	Tenerife AP305	157+		Guest	fe80::	32(good)	200(good)

#### Speed test successful -> 1Mbps



#### Purple Dashboard shows Users connected





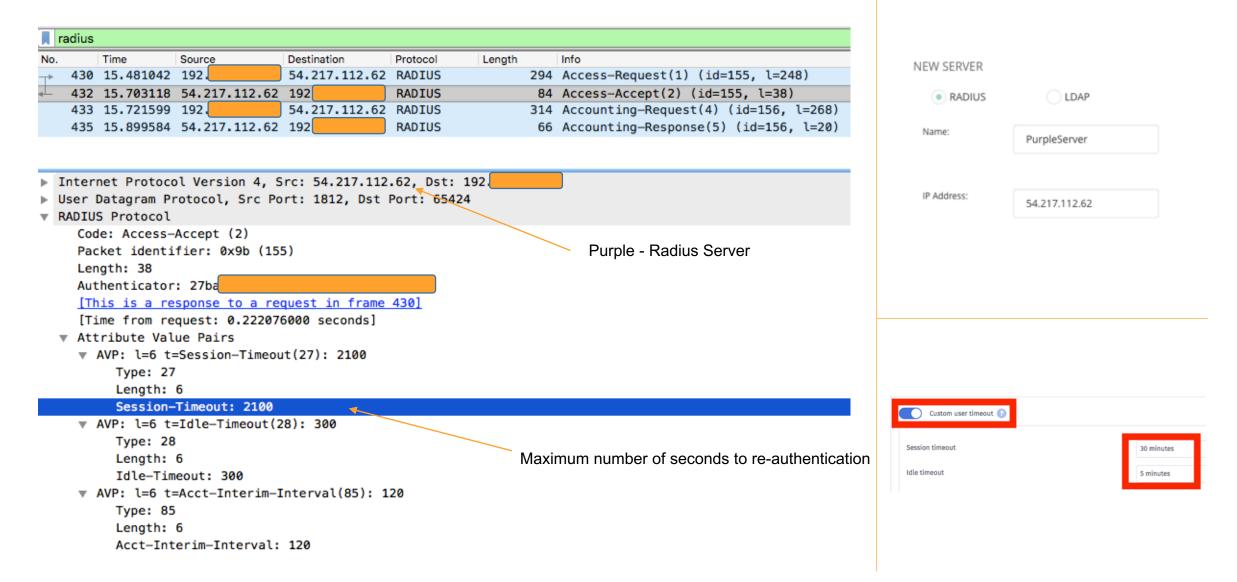
a Hewlett Packard Enterprise company

## Task: Checking Radius packets

#### Packet capture – Radius protocol

No.       Time       Source       Destination       Protocol       Length       Into         4 430       15.481042       192.       54.217.112.62       RADIUS       294 Access-Request(1) (id=155, 1=38)         4 33       15.721599       192.       54.217.112.62       RADIUS       314 Access-Accept(2) (id=156, 1=28)         4 33       15.721599       192.       54.217.112.62       RADIUS       314 Access-Accept(2) (id=156, 1=28)         4 33       15.721599       192.       54.217.112.62       RADIUS       56 Access-16.0005() (id=156, 1=28)         4 33       15.701509       100.000       100.0000       100.0000       100.0000         P KADULS       064       Access-Acquest (1)       Post-Access-16.0000       Purple - Radius Server         Length: 248       Authenticator: 91       Intercesponse to this request is in frame 432]       Purple - Radius Server         A WP: 164       tempth-Nade(2): Encrypted)       Walce-Name(1): off       Walce-Name(2): control       MAC Address of Instant AP305         > AVP: 164       tempth-Station-Id(30): 246       Yalce       MAC Address of Instant AP305         > AVP: 164       tempth-Station-Id(31): c8       Yalce       MAC Address of Instant AP305         > AVP: 164       tempthacce       Yalce       Yalce	radius									
432       15.703118       54.217.112.62       192.       RADIUS       84       Acceash-Accept(2)       (id=155, 1=38)         433       15.721599       192.       54.217.112.62       RADIUS       314       Accounting-Recupest(1)       (id=155, 1=28)         435       15.721599       192.       RADIUS       64       Acceash-Accept(2)       (id=155, 1=28)         435       15.721599       192.       RADIUS       64       Acceash-Accept(2)       (id=155, 1=28)         435       15.89584       54.217.112.62       192.       RADIUS       64       Acceash-Accept(2)       (id=155, 1=28)         MaDUS Protocol       Code:       Acceash-Request (1)       Packet identifier:       848       Purple - Radius Server         Attribute Value Pairs       AVP:       1=6       theAS-Port(5): 0       Purple - Radius Server       Purple - Radius Server         A AVP:       1=34       tedentsifier:       8492       NAP:       1=6       tedentsifier:       8492         A AVP:       1=6       tedentsifier:       8492       NAP:       1=6       tedentsifier:       MAC Address of Instant AP305         A AVP:       1=34       tedele-Station-Id(3):       246       NAP:       MAC Address of Instant AP305	No. Time Source Destination Protocol Length Info									
<pre>433 15.72159 192. 54.217.112.62 RADIUS 314 Accounting-Request(4) (id=156, 1=26) 435 15.899584 54.217.112.62 192. RADIUS 66 Accounting-Response(5) (id=156, 1=20) FInternet Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.62 Warriser Protocol Version 4, Src: 192. , Dst: 54.217.112.112.112.112.112.112.112.112.112</pre>	→ 430 15.481042 192. 54.217.112.62 RADIUS 294 Access-Request(1) (id=155, l=248)									
<pre>435 15.899584 54.217.112.62 192. PADIUS 66 Accounting-Response(5) (id=156, 1=20)   Therenet Protocol Version 4, Src: 192. , Dst: 54.217.112.62  WaDius Protocol  Code: Access-Request (1)  Packet identifier: 0x9b (155)  Length: 248  Authenticator: 912  The response to this request is in frame 432!  Attribute Value Pairs     AVP: Le6 t=NAS-Port(5): 0     AVP: Le6 t=NAS-Port(5): 0     AVP: Le5 t=user-Name(1): cdf     AVP: Le5 t=user-Name(1): cdf     AVP: Le5 t=user-Name(1): cdf     AVP: Le5 t=ider-Type(6): login(1)     AVP: Le14 t=Called-Station=Id(30): 24f;     Type: 30     Length: 14     Called-Station=Id(30): 24f;     Type: 30     Length: 14     Called-Station=Id(30): 24f;     AVP: Le5 t=vador-Specific(26) v=Aruba Networks Inc(14823)     AVP: Le19 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)     AVP: Le19 t=vendor-Specific(26) v=Aruba Networks Inc(14823)     AVP: Le11 t=Called-Specific(26) v=Aruba Networks Inc(14823)     AVP: Le11 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)     AVP: Le11 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)     AVP: Le11 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)     YAV: Le11 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)     YAVP: Le11 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)     Y</pre>	↓ 432 15.703118 54.217.112.62 192. RADIUS 84 Access-Accept(2) (id=155, l=38)									
<pre>&gt; Internet Protocol Version 4, Src: 192. , Dst: 54.217.112.62 &gt; User Datagram Protocol, Src Port: 65424, Dst Port: 1812 RADIUS Protocol Code: Access-Request (1) Packet identifier: &amp;vsb (155) Length: 248 Authenticator: 912 The response to this request is in frame 432] &gt; AVP: 1e5 t=NAS-Port(5): 0 &gt; AVP: 1e5 t=NAS-Port(5): 0 &gt; AVP: 1e5 t=NAS-Port(5): 0 &gt; AVP: 1e5 t=NaS-Port(5): 0 &gt; AVP: 1e5 t=Service-Type(6): Login(1) &gt; AVP: 1e5 t=Service-Type(6): Login(1) &gt; AVP: 1e14 t=Calling-Station-Id(30): 24f; Type: 30 Length: 14 Called-Station-Id(30): 24f; Type: 30 Length: 14 Called-Station-Id(26) v=Aruba Networks Inc(14823) &gt; AVP: 1e12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) &gt; VSA: 1e15 t=Aruba-Device-Type(12): Ind </pre>	433 15.721599 192. 54.217.112.62 RADIUS 314 Accounting-Request(4) (id=156, l=	268)								
<pre>&gt; User Datagram Protocol, Src Port: 65424, Dst Port: 1812 &gt; RADUS Protocol Code: Access-Request (1) Packet identifier: 0x9b (155) Length: 248 Authenticator: 912 IThe response to this request is in frame 432] A Attribute Value Pairs</pre>	435 15.899584 54.217.112.62 192. RADIUS 66 Accounting-Response(5) (id=156, U	=20)								
<pre>RADIUS Protocol Code: Access-Request (1) Packet identifier: 0x9b (155) Length: 248 Authenticator: 912 The response to this request is in frame 432] * Attribute Value Pairs</pre>	▶ Internet Protocol Version 4, Src: 192, Dst: 54.217.112.62									
Code: Access-Request (1) Packet identifier: 0x9b (155) Length: 248 Authenticator: 912 The response to this request is in frame 432] * Attribute Value Pairs > AVP: 1=6 t=NAS-Port(5): 0 > AVP: 1=6 t=NAS-Port(5): 0 > AVP: 1=52 t=User-Name(1): cdf > AVP: 1=34 t=User-Password(2): Encrypted > AVP: 1=34 t=Calling-Station-Id(3): cdf * AVP: 1=14 t=Calling-Station-Id(3): cdf * AVP: 1=14 t=Called-Station-Id(3): cdf * AVP: 1=14 t=Called-Station-Id(3): cdf * AVP: 1=14 t=Called-Station-Id(3): cdf * AVP: 1=12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) > AVP: 1=19 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) * AVP: 1=19 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) * AVP: 1=12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) * VSA: 1=6 t=Aruba-Device-Type(12): iPad Device Type	User Datagram Protocol, Src Port: 65424, Dst Port: 1812									
<pre>Packet identifier: 0x9b (155) Length: 248 Authenticator: 912 [The response to this request is in frame 432] Attribute Value Pairs A VP: l=6 t+NAS-IP-rddress(4): 192 AVP: l=6 t+NAS-Port-Type(6): Wireless-802.11(19) A VP: l=52 tulser-Name(1): cdf AVP: l=52 tulser-Name(1): cdf AVP: l=6 t=Service-Type(6): Login(1) AVP: l=14 t=Calling=Station=Id(30): 24f; Type: 30 Length: 14 Called=Station=Id(30): 24f; Type: 30 Length: 14 Called=Station=Id(30): 24f; AVP: l=14 t=Calling=Station=Id(30): 24f; Type: 30 Length: 14 Called=Station=Id(26) v=Aruba Networks Inc(14823) AVP: l=12 t=Vendor=Specific(26) v=Aruba Networks Inc(14823) AVP: l=19 t=Vendor=Specific(26) v=Aruba Networks Inc(14823) AVP: l=12 t=Vendor=Specific(26) v=Aruba Networks Inc(14823) AVP: l=12 t=Vendor=Specific(26) v=Aruba Networks Inc(14823) Type: 26 Length: 12 Vendor ID: Aruba Networks Inc (14823) VSi: l=6 t=Aruba=Device=Type(12): iPad Device Type</pre>	RADIUS Protocol									
Length: 248 Authenticator: 912 [The response to this request is in frame 432] v Attribute Value Pairs > AVP: 1=6 t=NAS-Port(5): 0 > AVP: 1=6 t=NAS-Port(5): 0 > AVP: 1=5 t=User-Name(1): cdf > AVP: 1=34 t=User-Password(2): Encrypted > AVP: 1=34 t=User-Password(2): Encrypted > AVP: 1=4 t=Calling-Station-Id(31): c8 v AVP: 1=14 t=Calling-Station-Id(30): 24f Type: 30 Length: 14 Called-Station-Id: 24 > AVP: 1=3 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) > AVP: 1=12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) > VF: 1=12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) > VP: 1=12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) > VF: 1=12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) > VF: 1=12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) > VF: 1=12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) > VSA: 1=6 t=Aruba-Device-Type(12): iPad Device Type	Code: Access-Request (1)									
Length: 248 Authenticator: 912 IThe response to this request is in frame 4321 Attribute Value Pairs AVP: le6 t=NAS-IP-Address(4): 192. AVP: le6 t=NAS-Port-Type(61): Wireless-802.11(19) AVP: le52 t=User-Maxen(1): cdf AVP: le32 t=User-Maxen(2): cdf AVP: le34 t=Called-Station-Id(31): c8 VP: le14 t=Called-Station-Id(30): 24f; Type: 30 Length: 14 Called-Station-Id: 24 AVP: le15 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) AVP: le13 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) AVP: le12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) AVP: le12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) AVP: le12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) AVP: le13 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) AVP: le13 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) AVP: le13 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) VP: le14 t=Called-Station-Specific(26) v=Aruba Networks Inc(14823) VP: le15 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) VP: le15 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) VP: VSA: l=6 t=Aruba-Device-Type(12): iPad Device Type	Packet identifier: 0x9b (155)	le - Radius Server								
<pre>Interesponse to this request is in frame 432]  Attribute Value Pairs  Attribute Value</pre>	Length: 248									
<pre>* Attribute Value Pairs AVP: 1=6 t=NAS-PortAdress(4): 192. AVP: 1=6 t=NAS-Port-Type(6): Wireless=802.11(19) AVP: 1=52 t=User=Name(1): cdf AVP: 1=52 t=User=Name(2): Encrypted AVP: 1=4 t=Called=Station=Id(31): c8t AVP: 1=14 t=Called=Station=Id(31): c8t AVP: 1=14 t=Called=Station=Id(30): 24f Type: 30 Length: 14 Called=Station=Id: 24 AVP: 1=6 t=Framed=IP-Address(8): 172 AVP: 1=13 t=Vendor=Specific(26) v=Aruba Networks Inc(14823) AVP: 1=12 t=Vendor=Specific(26) v=Aruba Networks Inc(14823) Fype: 26 Length: 12 Vendor ID: Aruba Networks Inc(14823) VSA: 1=6 t=Aruba-Device=Type(12): iPad     Device Type </pre>	Authenticator: 912									
<pre>&gt; AVP: l=6 t=NAS-IP-Address(4): 192. &gt; AVP: l=6 t=NAS-Port(5): 0 &gt; AVP: l=6 t=NAS-Port-Type(61): Wireless=802.11(19) &gt; AVP: l=52 t=User=Name(1): cdf &gt; AVP: l=52 t=User=Name(1): cdf &gt; AVP: l=54 t=User=Password(2): Encrypted &gt; AVP: l=6 t=Service=Type(6): Login(1) &gt; AVP: l=14 t=Called=Station=Id(30): 24f; Type: 30 Length: 14 Called=Station=Id: 24f; &gt; AVP: l=6 t=Framed=IP-Address(8): 172 &gt; AVP: l=13 t=Vendor=Specific(26) v=Aruba Networks Inc(14823) &gt; AVP: l=13 t=Vendor=Specific(26) v=Aruba Networks Inc(14823) &gt; AVP: l=19 t=Vendor=Specific(26) v=Aruba Networks Inc(14823) &gt; AVP: l=12 t=Vendor=Specific(26) v=Aruba Networks Inc(14823) &gt; AVP: l=12 t=Vendor=Specific(26) v=Aruba Networks Inc(14823) &gt; AVP: l=12 t=Vendor=Specific(26) v=Aruba Networks Inc(14823) &gt; VSA: l=6 t=Aruba=Device=Type(12): iPad Device Type</pre>	[The response to this request is in frame 432]									
<pre>&gt; AVP: l=6 t=NAS-Port(5): 0 &gt; AVP: l=6 t=NAS-Port-Type(61): Wireless=802.11(19) &gt; AVP: l=52 t=User=Name(1): cdf &gt; AVP: l=54 t=User=Password(2): Encrypted &gt; AVP: l=6 t=Service=Type(6): Login(1) &gt; AVP: l=14 t=Calling=Station=Id(31): c8</pre>	▼ Attribute Value Pairs									
<pre>&gt; AVP: l=6 t=NAS-Port-Type(61): Wireless-802.11(19) &gt; AVP: l=52 t=User-Name(1): cdf &gt; AVP: l=34 t=User-Password(2): Encrypted &gt; AVP: l=6 t=Service-Type(6): Login(1) &gt; AVP: l=14 t=Calling-Station-Id(31): c8t &gt; AVP: l=14 t=Called-Station-Id(30): 24f; Type: 30 Length: 14 called-Station-Id: 24 &gt; AVP: l=6 t=Framed-IP-Address(8): 172 &gt; AVP: l=13 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) &gt; AVP: l=22 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) &gt; AVP: l=19 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) &gt; AVP: l=12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) &gt; AVP: l=10 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) &gt; VP: l=10 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) &gt; VSA: l=6 t=Aruba-Device-Type(12): iPad Device Type</pre>	AVP: l=6 t=NAS-IP-Address(4): 192.									
<pre>&gt; AVP: l=52 t=User-Name(1): cdf &gt; AVP: l=34 t=User-Password(2): Encrypted &gt; AVP: l=6 t=Service-Type(6): Login(1) &gt; AVP: l=14 t=Calling-Station-Id(31): c8</pre>	▶ AVP: l=6 t=NAS-Port(5): 0									
<pre>&gt; AVP: l=34 t=User-Password(2): Encrypted &gt; AVP: l=6 t=Service-Type(6): Login(1) &gt; AVP: l=14 t=Calling-Station-Id(31): c8t</pre>	AVP: l=6 t=NAS-Port-Type(61): Wireless-802.11(19)									
<pre>&gt; AVP: l=6 t=Service-Type(6): Login(1) &gt; AVP: l=14 t=Calling-Station-Id(31): c8</pre>	► AVP: l=52 t=User-Name(1): cdf									
<pre>&gt; AVP: l=6 t=Service-Type(6): Login(1) &gt; AVP: l=14 t=Calling-Station-Id(31): c8</pre>	▶ AVP: l=34 t=User-Password(2): Encrypted M/	C Address of Instant AP305								
<pre>     AVP: l=14 t=Called-Station-Id(30): 24f     Type: 30     Length: 14     Called-Station-Id: 24     AVP: l=6 t=Framed-IP-Address(8): 172     AVP: l=13 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)     AVP: l=22 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)     AVP: l=19 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)     AVP: l=12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)     Type: 26     Length: 12     Vendor ID: Aruba Networks Inc (14823)     VSA: l=6 t=Aruba-Device-Type(12): iPad     Device Type </pre>	AVP: l=6 t=Service-Type(6): Login(1)	C Address of Instant Ar 505								
Type: 30 Length: 14 Called-Station-Id: 24 AVP: l=6 t=Framed-IP-Address(8): 172 AVP: l=13 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) AVP: l=22 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) AVP: l=19 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) VP: l=12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) Type: 26 Length: 12 Vendor ID: Aruba Networks Inc (14823) VSA: l=6 t=Aruba-Device-Type(12): iPad	AVP: l=14 t=Calling-Station-Id(31): c8									
Length: 14 Called-Station-Id: 24 AVP: l=6 t=Framed-IP-Address(8): 172 AVP: l=13 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) AVP: l=22 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) AVP: l=19 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) VAVP: l=12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) Type: 26 Length: 12 Vendor ID: Aruba Networks Inc (14823) VSA: l=6 t=Aruba-Device-Type(12): iPad	▼ AVP: l=14 t=Called-Station-Id(30): 24f2									
Called-Station-Id: 24 AVP: l=6 t=Framed-IP-Address(8): 172 AVP: l=13 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) AVP: l=22 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) AVP: l=19 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) VAVP: l=12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) Type: 26 Length: 12 Vendor ID: Aruba Networks Inc (14823) VSA: l=6 t=Aruba-Device-Type(12): iPad	Type: 30									
<pre>&gt; AVP: l=6 t=Framed-IP-Address(8): 172 &gt; AVP: l=13 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) &gt; AVP: l=22 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) &gt; AVP: l=19 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)</pre>										
<ul> <li>AVP: l=13 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)</li> <li>AVP: l=22 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)</li> <li>AVP: l=19 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)</li> <li>AVP: l=12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)</li> <li>Type: 26         Length: 12         Vendor ID: Aruba Networks Inc (14823)         VSA: l=6 t=Aruba-Device-Type(12): iPad</li> </ul>										
<ul> <li>AVP: l=22 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)</li> <li>AVP: l=19 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)</li> <li>AVP: l=12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)</li> <li>Type: 26</li> <li>Length: 12</li> <li>Vendor ID: Aruba Networks Inc (14823)</li> <li>VSA: l=6 t=Aruba-Device-Type(12): iPad</li> </ul>										
<ul> <li>AVP: l=19 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)</li> <li>AVP: l=12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) Type: 26 Length: 12 Vendor ID: Aruba Networks Inc (14823)</li> <li>VSA: l=6 t=Aruba-Device-Type(12): iPad</li> </ul>	AVP: l=13 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)									
<ul> <li>AVP: l=12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823) Type: 26 Length: 12 Vendor ID: Aruba Networks Inc (14823)</li> <li>VSA: l=6 t=Aruba-Device-Type(12): iPad</li> </ul>										
Type: 26 Length: 12 Vendor ID: Aruba Networks Inc (14823) VSA: l=6 t=Aruba-Device-Type(12): iPad										
Length: 12 Vendor ID: Aruba Networks Inc (14823) VSA: l=6 t=Aruba-Device-Type(12): iPad	AVP: l=12 t=Vendor-Specific(26) v=Aruba Networks Inc(14823)									
Vendor ID: Aruba Networks Inc (14823) VSA: l=6 t=Aruba-Device-Type(12): iPad	Type: 26									
VSA: l=6 t=Aruba-Device-Type(12): iPad	Length: 12									
	Vendor ID: Aruba Networks Inc (14823)									
▶ AVP: l=18 t=Message-Authenticator(80): d73f	▶ VSA: l=6 t=Aruba-Device-Type(12): iPad De									
	▶ AVP: l=18 t=Message-Authenticator(80): d73f									

#### Packet capture – Radius protocol





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## Thanks

### References

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