

Stellar AP

Deployment & Configuration & Troubleshooting Guide

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Table of Contents

1.1 REVISION HISTORY 1.2 OBJECTIVE 1.3 GLOSSARY 2 STELLAR OVERVIEW	4 4 4 6
1.2 OBJECTIVE 1.3 GLOSSARY 2 STELLAR OVERVIEW	4 4 6
 1.3 GLOSSARY 2 STELLAR OVERVIEW 	4 6
2 STELLAR OVERVIEW	6
2.1 INTRODUCTION	6
2.2 Product Matrix	8
2.3 WORKING MODES	11
3 DEPLOYMENT	13
3.1 AP Placement & Guidelines	13
3.1.1 General Recommendations	13
3.1.2 Three Sample Solutions to AP Placement Problems	13
3.1.3 Interferers	15
3.1.4 Channel and Transmission power Considerations	17
3.2 EXPRESS MODE	19
3.3 OV CLOUD MODE	20
3.4 OV ENTERPRISE MODE	21
4 SOFTWARE UPGRADING	23
4.1 UPGRADING IN EXPRESS MODE	23
4.2 Upgrading in OV Cloud mode	25
4.3 Upgrading in OV Enterprise mode	
4.4 Upgrading through Bootloader	34
4.4.1 Entering Bootloader	34
4.4.2 AP1101	
4.4.3 AP1220 Series	35

4.4.4	AP1230 Series	6
4.4.5	AP1251	7
4.4.6	AP1201	8
4.5 U	PGRADING UBOOT	9
4.5.1	AP1101	9
4.5.2	AP1220 Series	0
4.5.3	AP1230 Series	0
4.5.4	AP1251	1
4.5.5	AP1201	2
FEATURES	AND CONFIGURATIONS4	3
4.6 A	CS & DRM4	3
4.6.1	Feature description	3
4.6.2	Configuration and Recommendation	3
4.7 A	PC4	5
4.7.1	Feature description	5
4.7.2	Configuration and Recommendation4	6
4.8 L	DAD BALANCING4	6
4.8.1	Feature description	6
4.8.2	Configuration and Recommendation4	7
4.9 B	AND STEERING4	7
4.9.1	Feature description	7
4.9.2	Configuration and Recommendation4	8
4.10 B	ACKGROUND SCANNING	8
4.10.1	Feature description	8
4.10.2	Configuration and Recommendation4	8
4.11 V	OICE OVER WLAN	8
4.11.1	Feature description4	8



	4.11	.2	Configuration and Recommendation	48
	4.12	<n< th=""><th>1ORE FEATURES TO BE INTRODUCED></th><th>48</th></n<>	1ORE FEATURES TO BE INTRODUCED>	48
5	USE	FUL	CLI COMMANDS	50
	5.1	Sy	STEM INFORMATION	50
	5.2	WI	IRELESS MANAGEMENT	53
	5.3	CL	IENT MANAGEMENT	57
	5.4	CA	APTIVE PORTAL MANAGEMENT	59
	5.5	CL	USTER MANAGEMENT	61
	5.6	NE	TWORK MANAGEMENT	62
6	TRO	UBI	LESHOOTING	.67
	6.1	Int	RODUCTION OF THE AP LOGS	67
	6.1.	1	Log files	67
	6.1.2	2	Log level	67
	6.1.	3	Log collection	67
	6.2	TRO	OUBLESHOOTING FOR SPECIFIC FEATURES (后续持续补充)	69
	6.2.	1 /	AP Reboot	69
	6.2.2	2	Band steering	70
	6.2.	3	Throughput issues	70
	6.2.4	4,	Authentication	70
	6.2.	5 1	Portal	70

1 Introduction

1.1 Revision History

Ed.	Date	Descripotion
1.0	Sep-2018	New creation for knowledge transfer with ALE team.
2.0	Jan-2019	Update Software Upgrading for AP1201 and useful CLI Commands
		New creation for log collection and AP reboot log collection method

1.2 Objective

The objective of this document is to give a brief introduction of Stellar series solution on the features, configurations and troubleshooting, in order to help and guide the TSS team to provide better service to the end customers.

1.3 Glossary

ACS	Auto Channel Selection
ALE	Alcatel-Lucent Enterprise
AP	Access Point
АРС	Auto Power Control
BLE	Bluetooth Low Energy



CLI	Command Line Interface
DCM	Dynamic Client Management
DRM	Dynamic Radio Management
IG	Installation Guide
ΜΙΜΟ	Multiple-Input Multiple-Output
MU-MIMO	Multi-User Multiple-Input Multiple-Out
ονς	OmniVista Cirrus
OVE	OmniVista Enterprise
QSG	Quick Start Guide
WBM	Web Based Management
ZTP	Zero Touch Provision

2 Stellar Overview

2.1 Introduction

The high-performance OmniAccess Stellar Series featuring enhanced WLAN technology with RF Radio Dynamic Adjustment, a distributed control Wi-Fi architecture, secure network admission control with unified access, built in application intelligence and analytics, making it ideal for enterprises of all sizes demanding a simple, secure and scalable wireless solution.

Deliver enterprise-grade Wi-Fi to high-density client environments in offices, hospitals, schools, retail stores and warehouses. Achieve our highest speeds and best performance for your network services and applications. Ensure your users have network access anywhere on your campus.

Main features are:

- Seamless roaming and Quality of Service for real-time applications
- VoWLAN support with QoS for each application (Voice, Video, Collaboration, etc..)
- Integrated simple guest management
- Built-in customizable captive portal
- Support of role-based management access (Admin, Viewer and Guest Manager)
- Enhanced RF technology Radio Dynamic Adjustment with DFS/TPC to deliver reliable, high-performance WLAN access
- OmniVista 2500 managed deployment embeds a visionary controllerless architecture, providing user-friendly workflows for unified access plus an integrated unified policy authentication manager



• Zero-touch provisioning (ZTP)

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2.2 Product Matrix

Model	AP1101	AP1220 Series	AP1230	AP1251	AP1201H	AP1201
Product Class	Indoor (Low-end)	Indoor (Mid-end)	Indoor (High-end)	Outdoor	Indoor Hospitality	Indoor IoT
	802.11ac	802.11ac Wave 2	802.11ac Wave 2	802.11ac Wave 2	802.11ac Wave 2	802.11ac Wave 2
Form Factor	tor					
Radio	dual-radio,	dual radio, 5 GHz 802.11ac	tri radio, dual 5 GHz	dual radio, 5 GHz	dual radio, 5 GHz	dual radio, 5 GHz
	802.11ac 2x2	4x4:4 MU-MIMO and 2.4	802.11ac 4x4:4 MU-	802.11ac 2x2:2 MU-	802.11ac 2x2:2 MU-	802.11ac 2x2:2 MU-
	MIMO,	GHz 802.11n 2x2:2 MIMO	MIMO and 2.4 GHz	MIMO and 2.4 GHz	MIMO, and 2.4 GHz	MIMO and 2.4 GHz
			802.11n 4x4:4 MIMO	802.11n 2x2:2 MIMO	802.11n 2x2:2 MIMO	802.11n 2x2:2 MIMO
Antennas	Built-in 2×2:2, 3.4	AP1221: Built-in 2×2:2 @	AP1231: Built-in	Built-in 2×2:2 @	Built-in 2×2:2 @ 2.4	Built-in 2×2:2 @ 2.4
	dBi @ 2.4 GHz, 2.55	2.4 GHz, 4x4:4 @ 5 GHz	4×4:4 @ 2.4 GHz,	2.4GHz, 2x2:2 @	GHz, 2x2:2 @ 5 GHz	GHz, 2x2:2 @ 5
	dBi @ 5 GHz	AP1222 External 2×2:2 @	dual 4x4:4 @ 5 GHz	5GHz		GHz ,
		2.4 GHz, 4x4:4 @ 5 GHz	AP1232: External			BLE antenna
			4×4:4 @ 2.4 GHz,			

Model	AP1101	AP1220 Series	AP1230	AP1251	AP1201H	AP1201
			dual 4x4:4 @ 5 GHz 8 RP-SMA connectors for external dual band antennas			
Network Interfaces	1× 10/100/1000 Mb/s full/half- duplex Ethernet (RJ-45)	1x 10/100/1000Base-T (RJ- 45) 1x USB 2.0 (Type A)	1x 100/1000/2500Base- T(RJ-45) 1x 10/100/1000Base- T 1x BLE radio, integrated	2x 10/100/1000Base- T (RJ-45)	4x10/100/1000Base-T (RJ-45), include 1xPSE 1x USB 2.0 (Type A)	1x 10/100/1000Base-T 1x BLE radio, integrated
Other Interfaces	1x console port (RJ- 45)	1x console port (RJ-45)	1x console port (RJ- 45)	1x management console port (Micro- USB)	N/A	1x console port (RJ- 45)
Power	10 W (802.3at PoE or DC)	<15.6 W (802.3at PoE or DC	27.6 W (PoE or DC)	<11.8W (802.3af PoE)	11W (802.3af PoE w/o PSE)	Supports direct DC power and Power over Ethernet (PoE)





Stellar AP | Deployment & Configuration & Troubleshooting Guide

2.3 Working Modes

Three working modes are supported by all Stellar APs:

• Express mode - Plug and Play: Secure Web managed (HTTPS) cluster deployment

Stellar Series APs by default operates in a cluster architecture to provide simplified plug-and-play deployment. The access point cluster is an autonomous system that consists of a group of OmniAccess Stellar APs and a virtual controller, which is a selected access point, for cluster management. One AP cluster supports up to 64 APs. The access point cluster architecture ensures simplified and quick deployment. Once the first AP is configured using the configuration wizard, the remaining APs in the network will come up automatically with an updated configuration. This ensures the whole network is up and functional within a few minutes. Stellar Series APs also supports secure zero-touch provisioning with Alcatel- Lucent OXO Connect R2, a mechanism by which all access points in a cluster will obtain bootstrap data securely from an on premise OXO Connect.

• OVC mode - Cloud enabled with OmniVista Cirrus

Stellar Series APs can be managed by Alcatel-Lucent OmniVista® Cirrus cloud platform. OmniVista® Cirrus powers a secure, resilient and scalable cloudbased network management platform. It offers hassle free network deployment and easy service rollout with advanced analytics for smarter decision making. Offers IT friendly Unified Access with secure authentication and policy enforcement for users and devices.

• **OVE mode** - OmniVista 2500 managed deployment



Stellar Series APs can be managed by Alcatel-Lucent OmniVista® 2500 on premise Network Management System. The access points are managed as one or more access point (AP) groups (a logical grouping of one or more access points). The OmniVista 2500 next generation management suite embeds a visionary controller-less architecture, providing user friendly workflows for unified access together with an integrated unified policy authenticati on manager (UPAM) which helps define authentication strategy and policy enforcement for employees, guest management and BYOD devices. Stellar Series APs has built-in DPI technology providing real-time Application Monitoring and enforcement. The network administrator can obtain a comprehensive view of applications running in the network and apply adequate control to optimize the performance of the network for business critical applications. OmniVista 2500 provides advanced options for RF management, WIDS/WIPS for intrusion detection and prevention, and a heat map for WLAN site planning.



3 Deployment

3.1 AP Placement & Guidelines

- 3.1.1 General Recommendations
 - Position the APs above obstructions.
 - Position the APs vertically near the ceiling in the center of each coverage area, if possible. APs are designed to be installed vertically, either standing up in a plenum or hanging from a ceiling, to create the largest coverage area per AP. Hanging the AP from the ceiling provides the best coverage.
 - Position APs in locations where users are expected to be. For example, large rooms are typically a better location for APs than a hallway.
 - Place APs no more than 40 meters apart from each other. Placing APs further apart almost always results in poor coverage.
 - Do not mount APs outside buildings.
 - Do not mount APs on building perimeter walls unless the operator wants to provide coverage outside the building.
 - Important: Do not mount AP antennas within one meter (3 feet) of any metal obstructions. The radio frequency waves from the APs are blocked and/or reflected by metal objects, such as ducts, conduit, pipes, bookcases, elevator shafts, stairwells, and walls.

3.1.2 Three Sample Solutions to AP Placement Problems

In the first example, there is a large concrete wall in the middle of one coverage area.





The figure on the left shows a poor installation of two APs indicated with an X. The figure on the right shows a better solution. Both APs are mounted in hallways. The leftmost AP is moved to other side of wall to provide coverage on left side of the wall and the rightmost AP is moved slightly left to provide better coverage to overlap area.

In the second example, there is a large metal wall next to a planned location.



The figure on the left shows a poor installation of two APs indicated with an X. The figure on the right shows a better solution. The right most AP is moved to the hallway slightly to the right of one end of the metal wall. The left most AP is moved up and to the left to provide better coverage to overlap area.

In the third example, the AP needs to be mounted in a right angle corner of a hallway.



In the right angle corner of a hallway, mount the AP at a 45 degree angle to the two hallways as shown in the figure on the right. The Alcatel-Lucent AP internal antennas are not omnidirectional, and will cover a larger area if mounted this way.

3.1.3 Interferers

802.11b/g/n standards share the unlicensed Industrial, Scientific and Medical (ISM) band (2.4 GHz) with a number of other wireless technologies. Bluetooth devices and microwave ovens are the most common ones and can be found on a site where WLAN will be deployed. AP placement should be chosen in order to minimize interferences on the WLAN system' s performance. Interferences by WLAN on other technologies is not discussed, except cohabitation with DECT APs. For more information, see Cohabitation with DECT APs.

Cohabitation with Bluetooth Devices

Bluetooth technology is based on frequency hopping over 79 channels in the 2400 to 2483.5 MHz band.

There are 3 power classes

- Power class 1: max transmit power: +20 dBm (range 100 m)
 - Voice application: do not mount an Alcatel-Lucent AP within 10 meters of a power class 1 Bluetooth AP. The number of maximum simultaneous calls on WLAN AP can decrease significantly if a Bluetooth AP class 1 emits within 10 meters.
 - 802b/g/n data application: for maximum throughput, do not mount an
 Alcatel-Lucent AP within 10 meters of a power class 1 Bluetooth AP.

802.11b/g/n data throughput is reduced when a user within 10 meters from a class 1 Bluetooth device in use. To ensure 80% of the maximum data throughput, users should be at least 10 meters away from a Bluetooth class 1 device.

- Power class 2: maximum transmit power: +4 dBm (range 10m)
 - Voice application: do not mount an Alcatel-Lucent AP within 1 meter of a power class 2 Bluetooth AP. WLAN handset users can experience cuts in the audio when placed less than 1 meter from a Bluetooth class 2 device in use. Cuts are less than 1 second long and can appear in bursts. General audio quality is minimally impacted.
 - 802b/g Data application: for maximum throughput, do not mount an
 Alcatel-Lucent AP within 10 meters of a power class 2 Bluetooth AP.
 - 802.11b/g data throughput is reduced when a user is within 10 meters from a class 2 Bluetooth device in use. To ensure 80% of the maximum data throughput, users should be at least 3 meters away from a Bluetooth class 2 device.
- Power class 3: max transmit power: 0 dBm (range 10 cm)
 - Not tested, interferences should be minimal on WLAN.

Cohabitation with Microwave Ovens

Microwave ovens emit signals in the ISM band. Depending on how well the oven is shielded, emissions can disturb WLAN applications. To reduce interference from microwave ovens, check the label on the microwave which should provide the central operating frequency. Most microwave ovens operate at a central frequency of 2.45 GHz, Emissions occur in a large band, so typically disturb channels 6 to 11. In this case, an AP close to a microwave oven should be set to channel 1.

Cohabitation with other WLAN APs

Adjacent APs need to use different radio channels to prevent interference between them. See Channel and Transmission power Considerations.

Cohabitation with DECT APs

Place WLAN APs at least 3.5 meters from DECT APs in order not to disturb DECT communications.

3.1.4 Channel and Transmission power Considerations

Adjacent APs need to use different radio channels to prevent interference between them. The 802.11b/g/n standard provides for three non-interfering channels: channels 1, 6, and 11. APs within range of each other should always be set to noninterfering channels to maximize the capacity and performance of the wireless infrastructure, as shown in the diagram below.



If adjacent APs are set to the same channel, or use channels with overlapping frequency bands, the resulting interference will cause a significant reduction in the network performance and throughput, and will degrade overall voice quality.

In an 802.11a/n deployment, all 23 channels are considered non-overlapping, since there is 20 MHz of separation between the center frequencies of each channel.



However, since there is some frequency overlap on adjacent 802.11a channel sidebands, there should always be at least one cell separating adjacent channels and two cells separating the same channel, as shown in the diagram below.



For voice only applications: do not use the same channel for APs placed less than 3.5 meters from each other. This distance assumes that the AP's transmit power is 100 mW, For an interfering AP emitting at a different power level, the rule is, the interferer has to be at such a distance that it should not been seen by the system at more than –40 dBm.

For voice and data applications in 802.11b/g band: do not use the same channel for APs placed less than 12 meters from each other. This distance assumes that the AP's transmit power is 100 mW, For an interfering AP emitting at a different power level, the rule is, the interferer has to be at such a distance that it should not been seen by the system at more than –47 dBm.

The transmission power of APs can be increased or decreased to provide more or less AP coverage area. Generally, the transmission power setting should be the same for all APs in a facility. This minimizes the chance of higher-power APs interfering with nearby lower-power APs and provides consistent coverage.

It is recommended to set AP power output to 100 mW. If this cannot be accommodated, use a 50 mW setting or a minimum of 30 mW. With lower power output settings, special attention must be made to AP placement to ensure there are no frequency reuse issues. Regardless of the selected power level settings, all APs and handsets must be configured with the same settings to avoid channel conflicts and unwanted cross-channel interference.

In mixed 802.11b/g environments, set the power of the 802.11b and 802.11g radios to the same setting, if they are separately configurable. For example, set both radio to 30mW to ensure identical coverage on both radios. For mixed 802.11a/b/g environments, where the AP uses all three radios types, AP placement should first be determined by modeling for the characteristics of 802.11a, since this environment will typically have the shortest range. Then, the transmission power of the 802.11b and 802.11g radios should be adjusted to provide the required coverage levels for those networks, within the already established AP locations.

Where possible, all APs should be set to the same transmission power level within a given radio type. For example, set all 802.11a radios to 50 mW and set all 802.11b and 802.11g radios to 30 mW. It crucial to then set the transmission power of the handset to match the transmission power of the APs. This will ensure a symmetrical communication link. Mismatched transmission power outputs will result in reduced range, poor handoff, one-way audio and other QoS issues.

3.2 Express mode

Stellar APs, by default, are running in "**Express mode**". To configure the AP outof-box, connect the AP to the network and powered by POE or power adapter, and ensure the AP could retrieve an IP address from the network. When the LED on AP would be in "Green Blinking" state, a SSID named with "**APxx:xx**" (xx:xx is the last 4 characters of the AP MAC address) will be able to detected and connected. After associated with this WLAN SSID, the AP Web Based Management page would be able to reached via below default URL: <u>http://mywifi.alenterprise.com:8080/</u> or <u>http://<AP_IP_Address>:8080/</u>. After login with the default account (user: **Administrator** / Password: **admin**), the "**configuration wizard**" would be displayed on WBM configuration, user may follow the wizard to configure the AP.

For more details, please refer to the QSG document of each AP model.

In case of some abnormal situation, below methods could help to make the AP back to "factory settings" :

- Long pressing the "reset" button
- Command "*firstboot*" + "*reboot*" input via Console or SSH connection
- Click "Clear All Configuration" from "WBM -> AP Configuration"

3.3 OV Cloud Mode

Stellar APs could be centralized managed by OmniVista Cirrus. A default OVC Server URL is built-in AP software. The AP will be switched to OVC mode automatically when below two conditions are met:

- AP network is able to reach the built-in OVC Server URL
- The AP hardware information has been correctly configured in OVC Server.

For more details, please refer to the related guides or documents of OmniVista Cirrus.

3.4 OV Enterprise mode

Stellar APs could also be centralized managed by OmniVista Enterprise. Below two methods could be used to switch the AP to OVE mode:

- AP receives option 43 or option 138 from the DHCP server specifying the OmniVista IP, the AP will boot up and connect to OmniVista 2500 for management.
- AP in "Express mode" could be switched to OVE mode through Web Based Management as below:
 - Login AP WBM, go to "AP Configuration", and click "Convert To Enterprise" button.

AP Configuration							
Primary Name	IP	Firmware	Operate			Detailed Information	
AP 120 1H-2D:50	172.24.191.114(AP) (M)	PVC 3.0.4.19 SVC EMBER	©cfg Öreboot	^	AP Name: MAC: Location: Status: Role in Group:	AP 120 1H-2D:50 Edit DC:08:56:0D:2D:50 Edit Working PVC	
AP1101-C7:30	172.24.191.113	3.0.4.19 Ioining Yending	●cfg Ůreboot		Serial Number: Model: Firmware:	SSZ182000092 OAW-AP1201H 3.0.4.19	
Neighboring Group					Upgrade Time: Upgrade Flag:	Mon Jul 30 09:20:45 2018 successfully	
				~	IP Mode: IP: Netmask: Default gateway: DNS:	Static Edit 172.24.191.114 255.255.255.0 172.24.191.2 10.67.0.254	
					AP Mode:	Express Edit	
Reboot All AP	Clear All Configuration	Backup All Cor	ifiguration Restore All Configu	uration U	ipgrade All Firmware	Connect To Cloud Convert To Enterprise]

• Specify the OVE Server IP address, and press "Convert"

AP Configuration		Convert To Enterprise			×		
Primary Name	Ib	Management Server:	172.24.190.238			ailed Information	
AP 120 1H-2D:50	172.24.191.114(AF (M)	Cance	Conver		3)1H-2D:50 Edit :56:0D:2D:50 :	
AP1101-C7:30	172.24.191.113	3.0.4.19 Ocfg Öreboot		Role in Group: Serial Number:	PVC SSZ18	2000092	
		Joining		Model:	OAW-	AP 120 1H	
		Pending		Firmware:	3.0.4.	19	
Neighboring Group				Upgrade Time:	Mon J	ul 30 09:20:45 2018	



For more details, please refer to the related guides or documents of OmniVista Enterprise.

4 Software Upgrading

4.1 Upgrading in Express mode

Working in "Express mode", the AP software upgrading could be managed from the Web Based Management. The software upgrading could be managed either in the whole cluster or per single AP. While to avoid any incompatibility issue, strongly recommend to keep all the APs within the whole cluster in the same software versions.

Procedures of AP upgrading in the whole cluster

 Login AP WBM, go to "AP Configuration", and click "Upgrade All Firmware" button.

AP Group : Sha Shanghai Office	AP Configuration								Administra ×
Enable: 2 Dis	Primary Name	IP	Firmware	Opera	ate	^		Detailed Information	1
	AP231-10:D0	192.168.30.94(AP) 192.168.30.253(M)	3.0.4.17	€cfg	Oreboot		AP Name: MAC:	AP231-10:D0 Edit DC:08:56:00:10:D0	
			SVC				Location: Status:	Edit Working	
	AP01-CD:F0	192.168.30.49	3.0.4.17	⊚cfg	Oreboot		Role in Group:	PVC	
		ME	EMBER				Serial Number:	SSZ171800170	
For Group: Sh	AP05-CD:70	192.168.30.65	3.0.4.17	©cfg	Oreboot		Model:	OAW-AP1221	
MAC	AP06-B5:70	192.168.30.64	3.0.4.17	©cfg	Oreboot		Upgrade Time:	Thu Jul 19 17:31:43 20	18
ae:23	AP02-BC:10	192.168.30.70	3.0.4.17	€cfg	Oreboot		Upgrade Flag:	successfully	
7 ae:23	AP03-BB:00	192.168.30.47	3.0.4.17	©cfg	Oreboot				
3 ae:23 5 ae:23 00:21	AP12-87:30	192.168.30.73	3.0.4.17	Octg	Creboot	v	IP Mode: IP: Netmask: Default gateway: DNS: AP Mode:	DHCP Edit 192.168.30.94 255.255.0 192.168.30.1 10.1.1.11 Express Edit	
	Reboot All AP	Clear All Configuration	Backup All Cor	ıfiguratio	n Restore A	All Configuration	Upgrade All Firmware	Connect To Cloud	Convert To Enterprise

• Click the AP modes need to be upgraded, and select the AP firmware accordingly. Then press "Upload All".

Importance: Don't turn off the power during the upgrade process.



Multi-model Upgrade					
Model	Firmware	AP Quantity		Upgrade Firmware	
AP1220	3.0.4.17	1	Expand		-
AP1101	3.0.4.17	9	Expand	Image File URL	
AP1101	3.0.4.9020	5	Expand	AP1101	
TopAP 8000 TAP-42200(H)	3.0.4.1020	1	Expand	浏览 OAW-AP1101 3.0.4.1021.bin	
AP1201H	3.0.4.11	1	Expand	OAW-AP1101_3.0.4.1021.bin	
				Size	
				AP1220	
				浏览 OAW-AP1220_3.0.4.1021.bin	
				Name	
				Size	
				Remove All Upload All	×

Procedures of Single AP Software Upgrading:

• Login AP Cluster WBM, go to "**AP Configuration**" and Select the IP address of AP which need to be upgraded.

AP Configuration						
Primary Name	IP	Firmware	Operate			Detailed Information
		PVC		^		
AP231-10:D0	192.168.30.94(AP) 192.168.30.253(M)	3.0.4.17	©cfg Ůreboot		AP Name: MAC:	AP231-10:D0 Edit DC:08:56:00:10:D0
		SVC			Location:	Edit
AP01-CD:F0	192.168.30.49	3.0.4.17	©cfg Ůreboot		Status: Role in Group:	Working PVC
	м	EMBER			Serial Number:	SSZ171800170
AP05-CD:70	192.168.30.65	3.0.4.17	©cfg Ůreboot		Model:	OAW-AP1221
AP06-B5:70	192.168.30.64	3.0.4.17	©cfg Ůreboot		Firmware:	3.0.4.17
AP02-BC:10	192.168.30.70	3.0.4.17	©cfg ⁽ Ureboot		Upgrade Flag:	successfully
AP03-BB:00	192.168.30.47	3.0.4.17	Ocfg Oreboot			
AP12-B7:30	192.168.30.73	3.0.4.17	©cfg Ureboot	~	IP Mode:	DHCP Edit
					IP:	192.168.30.94
					Netmask:	255.255.255.0

 A new WBM page (apui) will be opened. Click "Image File" from "System" and select the AP software according to the AP model. Press "Upload" button to start the upgrading.

Importance: Don't turn off the power during the upgrade process.



4.2 Upgrading in OV Cloud mode

When working in OVC (OmniVista Cloud) mode, the AP software could be centralized managed through OVC management server. Single or all APs could be upgraded as requested.

✓ Note: From AWOS-3.0.4.x and later releases, the AP upgrading will be started in 30 minutes. Regarding the previous releases (AWOS-3.0.3.x), "manual restart" of the AP would be required to trigger the upgrading.

Procedures of the upgrading in OVC mode:

Upgrade when registering a new AP to OV Cloud

 Log in OV cloud, enter the Network -> inventory -> device Catalog page, click the "+" button, enter the MAC and SN, and select the software version that wants to be updated in the "Desired Software Version", then click create.

			# Home		-	Support Center	C Videos	About	G Logout
NETWORK -		UNIFIED ACCESS •	SECURITY •	ADMINISTRATOR •	WLA	N + UPAM +			
talog									
									?
WKS162101100								(*) indicates a	required field
34:E7:08:00:08:30									
Do not Upgrade									
Q Search					\$				
3.0.4.14					•			Create	Cancel
3.0.4.15									
3.0.4.17									
3.0.4.18									
3.0.4.19					-				
	WKS162101100 34:E7:06:00:06:30 Do not Upgrade Q Search 30.4.15 30.4.17 30.4.18 30.4.19	NEWWRK CONFRONTION talog r WKS162101100 34/E7/08/00/08/30 Do not Upgrade Q Search 304.14 30.4.15 30.4.18 30.4.19	NETWORK CONTROLIGATION DESIDE ACCESS talog	INTERPORT UNITED ACCESS SECURITY talog	NETWORK CONTROLINATION UNITED ACCESS SECURITY ADMINISTRATION talog	NETWORK CONFRONTATION UNITED ACCESS SECRETY ADMINISTRATION WEA talog WKS162101100	Intelline ALCOLOGISTICATION CONTROLINATION CONTROLIN	Hone ALX/20001 Support Center Museus NETWORK- CONTROJERATION- UNIVELD ACCESS- SECURITY- ADMINISTRATOR- UNIVELS talog WKS162101100	Interne Interne Interne Support tenter Avdices Ovdoor NETWORK- CONTROLRATION- UNINFED ACCESS- SECURITY- Administration- UNINF- UNINF- talog () Indicates () Indicates () Indicates () Indicates r () Search () () () () 3.0.4.14 () Search () () () () 3.0.4.15 () () () () () () 3.0.4.18 () () () () () () ()

• AP will be registered to OV cloud after upgrading to the selected version.

Upgrade for one registered AP

 Go to the Network -> inventory -> device Catalog page, select the AP need to be upgraded, and click the "Set Software Version" button.

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		Seria	al Number	Model		Current Software Vers	Desired Softwa	re Vers D	vice Status		Device Cat	tegory	Device	Name	IP Add	ress
	~	<u>SSZ1</u>	71700023	••• OAW-AI	91251	3.0.4.19	Do not upgrade	(V Managed	i	Stellar AP		AP-01:60)	192.16	3.70.19
*			Basic Infor	mation												
"			Serial Numbe	r	D	evice Status										
			SSZ1717000	23 🚯	0'	V Managed 🕚										
			Part Number		Co	onfig Status										
			903929-90		U	nsaved										
			Model		D	evice Category										
			OAW-AP125	1	St	ellar AP										
			Current Soft	vare Version	м	AC Address										
			3.0.4.19		D	C:08:56:00:01:60										
			Desired Soft	ware Version	A	P Group										
https	//102.16	8 10 30	Do not upgra	de									_			

Model	Part Number(s)	↓² Serial Num	ber(s)	Desired Software Version	
OAW-AP1251	903929-90	SSZ17170002	23	Do not Upgrade	•
				3.0.4.10	
				3.0.4.1021 (Latest Ve	Ca
ease License Vie	ew Activation Log	ŵ		3.0.4.12	
	Current Software Vers	Desired Software Vers	Device Statu	3.0.4.13	Catego
1251	3.0.4.19	Do not upgrade	OV Managed	20414	λP

• Select the version you want to upgrade in "**Desired Software Version**" and click **apply**.

The AP will start to upgrade when the next callhome is sent.

Upgrade for multiple registered AP

 Go to the Network -> inventory -> device Catalog page, select multiple (or all) AP need to be upgraded, and click the "Set Software Version" button

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INVENTORY 🛶	# H	lome > Network > Ir	nventory > Device Cata	log				
Device Catalog	De	vice Catalog				•••	Manage Device Licenses	mport + 🤊
Managed Inventory		the catalog						
	Q	Search all	Advance	ed Filter				
	Sh	howing All 17 items						
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		Serial Number	Model	Current Software Vers	Desired Software Vers	12 Device Status	Device Category	Device Na
		WKS163300087	OAW-AP1101	3.0.4.19	Do not upgrade	Connected To OV	 Stellar AP 	
		SSZ171700023	••• 0AW-AP1251	3.0.4.19	Do not upgrade	OV Managed	i Stellar AP	AP-01:60
<pre></pre>	«Ì L'	WKS165100890	••• OAW-AP1101	3.0.4.19	Do not upgrade	OV Managed	 Stellar AP 	AP-CA:30
		WKS163300023	OAW-AP1101	3.0.4.19	Do not upgrade	OV Managed	i Stellar AP	AP-17:10
		WKS182111007	••• 0AW-AP1101	3.0.4.19	Do not upgrade	OV Managed	3 Stellar AP	AP-01:E0
		SSZ171100006	••• 0AW-AP1221	3.0.3.1044	Do not upgrade	OV Managed	Stellar AP	AP-CD:E0
	- E	SSZ174501744	OAW-AP1231	3.0.4.19	Do not upgrade	Registered	Stellar AP	
		SSZ173200168	OAW-AP1231	3.0.4.19	Do not upgrade	Registered	 Stellar AP 	
		SSZ181400073	OAW-AP1201H	3.0.4.18	Do not upgrade	Registered	 Stellar AP 	
	- E	SSZ181400006	OAW-AP1201H	3.0.4.18	Do not upgrade	Registered	Stellar AP	
	- E	SSZ173100141	OAW-AP1222	3.0.4.19	Do not upgrade	Registered	i Stellar AP	
	- E	SSZ170200020	0AW-AP1221	3.0.4.19	Do not upgrade	Registered	Stellar AP	
	- E	WKS165100889	OAW-AP1101	3.0.4.19	Do not upgrade	Registered	 Stellar AP 	
	- E	SSZ173210007	OAW-AP1101	3.0.4.19	Do not upgrade	Registered	Stellar AP	
		Z W/C102110000	0AW/ AD1101	20410	Do not unorado	Depictored	A Challer AD	

 Select the "Set Different Software Version For Each Model" option, select the version to be upgraded in the "Desired Software Version" drop-down box, and click apply.

Q Search all	
Model Part Number(s) Serial Number(s)	Desired Software Version
DAW-AP1231 903926-90, 903925-90 SSZ174501744, SS	5Z1732 Do not Upgrade 🔹
DAW-AP1221 903919-90 SSZ170200020, S	3.0.4.1021
DAW-AP1251 903929-90 SSZ171700023	3.0.4.12
DAW-AP1222 903921-90 SSZ173100141	3.0.4.13
DAW-AP1101 903917-90 WKS165100890, V	WKS16 3.0.4.14
DAW-AP1201H 904012-90 SSZ181400073, SS	5Z1814 3.0.4.15 🗸

• The APs will start to upgrade when the next callhome is sent.

4.3 Upgrading in OV Enterprise mode

When working in OVE (OmniVista Enterprise) mode, the AP software could be centralized managed through OVE management server. Single or all APs could be upgraded as requested.

Note: Reboot of the AP is mandatory during the AP upgrading, so no WLAN service at that moment.

Procedures of the upgrading in OVE mode:

AP Software versions uploading:



• Log in OV Enterprise, enter the **Configuration--Resource Manager--Upgrade Image** page, click **import** to upload the AP software version to be upgraded.

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Enterprise		NETWORK -		UNIFIED ACCESS -	SECURITY -		WLAN -	UPAM -			
RESOURCE MANAGER 🖈	# Home > Configuration	> Resource Manager > Up	ograde Image								
Resource Manager Home	Upgrade Image									Import	• ?
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Upgrade Image	Q Search all										
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					_		_	_			
Import File											
	File	AW05 3.0.4.1021.7	ip				Bro	wse			
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• After uploading the AP software version, select the file, and click the **install** button, and then go to **devices selection** step.

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Switch File Set	Туре	Dat	e		Version			Descript	tion		
Settings	AD AD	Aug	17 2018 10:17:38 pm		3041021			AP firmw	are images: IOAW	AP1220 3.0.4.1	021 bin
		AUE	.17,2010 10.17.36 pm		5.0.4.1021			70 IIIIIW	ore moges. (OAW	74 1220_3.0.4.1	021.0110



RESOURCE MANAGER 🖈	1. Firmware File Selection	Firmware File Selection
Resource Manager Home Backup/Restore > Upgrade Image Inventory Auto Configuration Switch File Set Settings	Printwale Prie Selection Software Installation:	File Name AW05_3.0.4.1021.zip File Details Sort by File Details Sort by File Name \$

Upgrade per AP/APs

 Click the "next" to open the device selection window. Click the ADD button of device and use "Use Picker" or "Use Topology App" to select the AP to be upgraded.

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A En	terprise	NETWORK -		UNIFIED ACCESS -	SECURITY -	ADMINISTRATOR -	WLAN -	UPAM v			
	Home > Configuration > Resource Manage	r > Upgrade Image									
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	■ Install Upgrade Software										
	1. Firmware File Selection	Devices Selection									
	2. Devices Selection		AP Groups	n							
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							<	Back Ne	ext > Instal	Software	Cancel

• In the "Use Picker" page, select the AP, and click the **add** button to add to the selected window, then click **OK**



AVAILABLE 1							SELE	CTED 0					
Q Search all							۹	Search all					
 Friendly Name 	Туре	Version	Status	Name	Address			Friendly Name	Туре	Version	Status	Name	Address
2 192.168.51.1	OAW-AP1101	3.0.4.19	Up	AP-06:50	192.168.51.:	Add>							
						Add All >							
						< Remove							
						« Remove All							
										No items to show			
Show 1000 T			howing Page 1 of	1 1 1			< sh	ow 1000 v		Show	ing Page 1 of	61 / /	1
		3	HOWING PAGE I OI	1	1 7 2		51			5110 W	ing rage 1 0		1 2 2
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In the "Use Topology App" page, select the AP need to be upgraded and click OK.

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Enterprise		NETWORK -	CONFIGURATION -	UNIFIED ACCESS -	SECURITY -		WLAN -	UPAM 👻			
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▼ Highlight Panel Hide								>	Detail Panel		
Device O Link O Alarm									1 Device select	ted	î
O Up (1)									Type OAW-AP1101		
O Down (0) O Warning (0)									Version 3.0.4.19		
Device Type O Stack (0)	192.168.51.1								Address 192.168.51.1		
O Virtual Chassis (0) O OmniAccess Stellar APs (1)									MAC Address 34:e7:0b:00:06	5:50	
Device Configuration O Need Certify (0) O Unsaved (0)									Serial Number WKS16350000	01	
Device Synchronization O Need Synchronize (0)									Up		
MultiMedia Services									<n a=""></n>		
Gateway (0) Tunnel (0) Researcher (0)									System Contact http://www.al-	enterprise.co	om
									Name AP-06:50		
Q, Reset Zoom Q,									DNS Name		-
										ОК	Cancel

Upgrade per AP Group

- In the **device selection** window, click the **ADD** button of AP Groups, go to the group selection window.
- Select AP Groups, and click the **Add** button, and click OK.



AVAILABLE 1		SELECTED 0
Q Search all		Q. Search all
Name		Name
default group	Add >	
	Add All »	
	< Remove	
	« Remove All	
		No items to show
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Showing rage 1011		Showing Page 1 01 1 1 1 7 7
		Cancel

• After selecting the AP, click the "**Next**" to enter the Software Installation page.

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En	terprise		NETWORK -		UNIFIED ACCESS -	SECURITY •		WLAN v	UPAM -			
	Home > Configuration > Resource Manage	r > Upgrade Ima	age									
	Upgrade Image											?
	■ Install Upgrade Software											
	1. Firmware File Selection	Devices Select	ion									
	2. Devices Selection	0 Devices		1 AP Group	ит							
»	3. Software Installation	List of Selec	roup	ups	<u></u>							
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Home > Configuration > Resource I	Manager > Upgrade Image	CONFIGURATION *	UNITED ACCESS *	SECONT	ADMINISTRATOR	WEAR O	OPAM *			
Upgrade Image										
≡ Install Upgrade Software										
1. Firmware File Selection	Software Installation									
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	File Name	Version	Desc	ription	~~ Da	te	screen	view to see m	ore data.	
	OAW-AP1201H_3.0.4.1021.bin	3.0.4.1021	OAW	-AP1201H 3.0.4	1.1021		GOT IT			
	OAW-AP1101_3.0.4.1021.bin	3.0.4.1021	OAW	-AP1101 3.0.4.	1021			142213	87	
	OAW-AP1230_3.0.4.1021.bin	3.0.4.1021	OAW	-AP1230 3.0.4.	1021			258220	98	
	OAW-AP1250_3.0.4.1021.bin	3.0.4.1021	OAW	-AP1250 3.0.4.	1021			221520	74	
	OAW-AP1201_3.0.4.1021.bin	3.0.4.1021	OAW	-AP1201 3.0.4.	1021			226763	59	
	Show: All						Sho	wing All 6 row	is « <	>
							Dack Lat	urt a loctat	Coffuero	c

• Click the "install software" button to enter the upgrade page.

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	NETWORK -		ACCESS - SECURITY -	ADMINISTRATOR -	WLAN -	UPAM 🕶			
Home > Configuration > Resource Manage	er > Upgrade Image								
Upgrade Image									?
1. Firmware File Selection	Finish								
									*. (SV
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	Sort by IP Address	• 1 ^z					Search		
	IP Address	Status	Message			Т	mestamp		
	192.168.51.1	IN PROGRESS	Transferring fi 0001/0AW-AF	le imports/ss2018 91101_3.0.4.1021.1	0817- bin	Au	ug 17, 2018 2: m	43:11	
	192.168.51.1	IN PROGRESS	Starting opera	tion on the device		Au	ug 17, 2018 2: m	43:11	
	Total: 1 page							< < 1	> .»
			20	÷					
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✓ Note: To avoid incompatibility issues, suggest keeping the same AP software version in the AP group. So, it's better to use "AP Group" when upgrading the APs.

4.4 Upgrading through Bootloader

In some specific cases, the AP may be not in a normal operation state, which cannot be succeeded upgraded though any of the working modes. It will need to upgrade the AP through Bootloader.

4.4.1 Entering Bootloader

To enter the bootloader, it will need to connect the console port and open the console session. During the AP initialization, pressing any key when below words showing on the screen of console:

Hit any key to stop autoboot: 0

4.4.2 AP1101

Procedure of the upgrading AP1101 through bootloader:

- ✓ To setup a TFTP server on a PC, and put the images on the TFTP server path:
 - OAW-AP1101-UBOOT_KERNEL_3.0.x.x.bin
 - OAW-AP1101-UBOOT_ROOTFS_**3.0.x.x**.bin
- \checkmark To enter the bootloader during AP initialization, which is described in <u>4.4.1</u>.
- ✓ Network configuration (IP Address, TFTP Server Address...)

Example: IP address=172.16.18.11; TFTP Server Address=172.16.18.129

- # set ipaddr 172.16.18.11
- # set serverip **172.16.18.129**
- ✓ AP upgrading through bootloader

set bootcmd bootm 0x9f050000

mw 0x18060008 0x0

set lk-aos "tftp 0x80060000 OAW-AP1101-UBOOT_KERNEL_**3.0.x.x**.bin && erase 0x9f050000 +0x180000 &&cp.b 0x80060000 0x9f050000 0x180000"

set lf-aos "tftp 0x80060000 OAW-AP1101-UBOOT_ROOTFS_**3.0.x.x**.bin && erase 0x9f1d0000 +0xc20000 &&cp.b 0x80060000 0x9f1d0000 0xc20000"

run lk-aos && run lf-aos && reset

4.4.3 AP1220 Series

Procedure of the upgrading AP1220 Series through bootloader:

- ✓ To setup a TFTP server on a PC, and put the images on the TFTP server path:
 - OAW-AP1220-UBOOT_FIRMWARE_**3.0.x.x**.bin
- \checkmark To enter the bootloader during AP initialization, which is described in <u>4.4.1</u>.
- ✓ Network configuration (IP Address, TFTP Server Address...)

Example: IP address=172.16.18.11; TFTP Server Address=172.16.18.129

- # set ipaddr 172.16.18.11
- # set serverip 172.16.18.129
- # save
- ✓ AP upgrading through bootloader
 - # tftpboot 0x84000000 OAW-AP1220-UBOOT_FIRMWARE_3.0.x.x.bin
 - # nand erase 0x0 0x10000000 && nand write 0x84000000 0x0 \$filesize
nand read 0x85000000 0x0 \$filesize

md5sum 0x85000000 \$filesize

reset

✓ After AP reboot, entering below commands to make dual system working.

fm_switch

reboot

4.4.4 AP1230 Series

There' re two Ethernet ports on AP1230 Series, one is Gigabit Ethernet port, another one is 2.5 Gigabit Ethernet port. We **MUST** use the **Gigabit Ethernet** port for both upgrading AP through bootloader and upgrading UBoot version.

Procedure of the upgrading AP1230 through bootloader:

- ✓ To setup a TFTP server on a PC, and put the images on the TFTP server path:
 - OAW-AP1230-UBOOT_FIRMWARE_**3.0.x.x**.bin
- \checkmark To enter the bootloader during AP initialization, which is described in <u>4.4.1</u>.
- ✓ Network configuration (IP Address, TFTP Server Address...)

Example: IP address=172.16.18.11; TFTP Server Address=172.16.18.129

- # set ipaddr 172.16.18.11
- # set serverip 172.16.18.129

save

✓ AP upgrading through bootloader

tftpboot 0x42000000 OAW-AP1230-UBOOT_FIRMWARE_3.0.x.x.bin

nand erase 0x0 0x10000000 && nand write 0x42000000 0x0 \$filesize && nand read 0x42000000 0x3000000 \$filesize

nand read 0x43000000 0x0 \$filesize && md5sum 0x43000000 \$filesize

nand read 0x44000000 0x3000000 \$filesize && md5sum 0x44000000 \$filesize

reset

After AP reboot, entering below commands to make dual system working.
 # fm_switch

reboot

4.4.5 AP1251

Procedure of the upgrading AP1250 Series through bootloader:

- ✓ To setup a TFTP server on a PC, and put the images on the TFTP server path:
 - OAW-AP1250-UBOOT_FIRMWARE_**3.0.x.x**.bin
- \checkmark To enter the bootloader during AP initialization, which is described in <u>4.4.1</u>.
- ✓ Network configuration (IP Address, TFTP Server Address...)

Example: IP address=172.16.18.11; TFTP Server Address=172.16.18.129

set ipaddr 172.16.18.11

set serverip 172.16.18.129

save

✓ AP upgrading through bootloader

tftpboot 0x84000000 OAW-AP1250-UBOOT_FIRMWARE_**3.0.x.x**.bin

nand erase 0x0 0x10000000 && nand write 0x84000000 0x0 \$filesize && nand read 0x84000000 0x03000000 \$filesize

nand read 0x85000000 0x0 \$filesize && md5sum 0x85000000 \$filesize

nand read 0x83000000 0x03000000 \$filesize && md5sum 0x83000000 \$filesize

reset

✓ After AP reboot, entering below commands to make dual system working.

fm_switch

reboot

4.4.6 AP1201

Procedure of the upgrading AP1201 Series through bootloader:

- ✓ To setup a TFTP server on a PC, and put the images on the TFTP server path:
 - OAW-AP1201-UBOOT_FIRMWARE_3.0.x.x.bin
- ✓ Network configuration (IP Address, TFTP Server Address...)

Example: IP address=172.16.18.11; TFTP Server Address=172.16.18.129

set ipaddr **172.16.18.11**

set serverip 172.16.18.129

✓ AP upgrading through bootloader

tftpboot 0x84000000 OAW-AP1201-UBOOT_FIRMWARE_3.0.x.x.bin

nand erase 0x0 0x8000000 && nand write 0x84000000 0x0 \$filesize && nand write 0x84000000 0x03000000 \$filesize

nand read 0x85000000 0x0 \$filesize && md5sum 0x85000000 \$filesize Second check Md5 Command:

nand read 0x83000000 0x03000000 \$filesize && md5sum 0x83000000 \$filesize

reset

4.5 Upgrading UBoot

Normally, it' s **NOT** necessary to upgrade UBoot software of APs. While in some very special cases, the new UBoot software version maybe needed to solve some issues.

This chapter describes the procedure of the UBoot upgrading for different AP models.

4.5.1 AP1101

Procedure of UBoot upgrading:

- ✓ To setup a TFTP server on a PC, and put the images on the TFTP server path:
 - hos-r21-boot.bin
- \checkmark To enter the bootloader during AP initialization, which is described in <u>4.4.1</u>.
- ✓ Network configuration (IP Address, TFTP Server Address...)

Example: IP address= 172.16.18.11; TFTP Server Address= 172.16.18.129

ath> set ipaddr **172.16.18.11**

ath> set serverip 172.16.18.129

UBoot Upgrading

ath> run lu

4.5.2 AP1220 Series

Procedure of UBoot upgrading:

- ✓ To setup a TFTP server on a PC, and put the images on the TFTP server path:
 - OAW-AP1220-uboot_1.x.bin
- \checkmark To enter the bootloader during AP initialization, which is described in <u>4.4.1</u>.
- ✓ Network configuration (IP Address, TFTP Server Address...)

Example: IP address=172.16.18.11; TFTP Server Address=172.16.18.129

set ipaddr **172.16.18.11**

set serverip 172.16.18.129

✓ UBoot Upgrading

tftpboot 0x84000000 OAW-AP1220-uboot_1.x.bin

- # imgaddr=0x84000000 && source \$imgaddr:script && reset
- 4.5.3 AP1230 Series

Procedure of UBoot upgrading:

- ✓ To setup a TFTP server on a PC, and put the images on the TFTP server path:
 - OAW-AP1230-uboot_1.x.bin
- \checkmark To enter the bootloader during AP initialization, which is described in <u>4.4.1</u>.

Network configuration (IP Address, TFTP Server Address...)
 Example: IP address=172.16.18.11; TFTP Server Address=172.16.18.129

 # set ipaddr 172.16.18.11
 # set serverip 172.16.18.129
 # save

 UBoot Upgrading

 # tftpboot 0x42000000 OAW-AP1230-uboot_1.x.bin
 # imgaddr=0x42000000&&sf probe&&source \$imgaddr:script
 # reset

4.5.4 AP1251

Procedure of UBoot upgrading:

- ✓ To setup a TFTP server on a PC, and put the images on the TFTP server path:
 - OAW-AP1250-uboot_1.x.bin
- \checkmark To enter the bootloader during AP initialization, which is described in <u>4.4.1</u>.
- ✓ Network configuration (IP Address, TFTP Server Address...)

Example: IP address=172.16.18.11; TFTP Server Address=172.16.18.129

- # set ipaddr 172.16.18.11
- # set serverip 172.16.18.129

save

✓ UBoot Upgrading

tftpboot 0x84000000 OAW-AP1250-uboot_1.x.bin

imgaddr=0x84000000 source \$imgaddr:script && reset

4.5.5 AP1201

Procedure of UBoot upgrading:

- ✓ To setup a TFTP server on a PC, and put the images on the TFTP server path:
 - OAW-AP1201-uboot_1.x.bin
- \checkmark To enter the bootloader during AP initialization, which is described in <u>4.4.1</u>.

Example: IP address=172.16.18.11; TFTP Server Address=172.16.18.129

set ipaddr 172.16.18.11

set serverip 172.16.18.129

- ✓ UBoot Upgrading
 - # tftpboot 0x84000000 OAW-AP1201-uboot_1.0.bin
 - # imgaddr=0x84000000 source \$imgaddr:script

reset

4.6 ACS & DRM

4.6.1 Feature description

Adjacent APs need to use different radio channels to prevent interference between them. APs within range of each other should always be set to non-interfering channels to maximize the capacity and performance of the wireless infrastructure. Please check <u>chapter</u> <u>3.1.3</u> for more detail.

To avoid mutual interference with adjacent APs, ACS (auto channel selection) could be used to make the AP to check and select a best channel under the radio environment automatically. The algorithm will help the AP to find the channel with best radio performance.

And if working on 5G radio, the DRM could be used to define a "Channel List" to make the AP to select the channels from the list.

Administrator Logout | About Help | English 🔹 | 🎲 Alcatel Lucent 🅢 AP Group : AP-Group - 172.16.25.222 Tools | Polling Cycle: 30s • Enterprise 🌣 WLAN WLAN Name Status Clients Primary Nar Status Clients 上行 下行 AP-C1:D0 AP-DB:20 AP-04:20 AP-A2:E0 on SSID Y RF Working Working 14:56:20 15-01-6 14:56:20 15-01-10 8 6 4 2 WLAN System 1 Wireless Access

4.6.2 Configuration and Recommendation

• Login the WEB UI and go to "Wireless" sub-menu. As below.

• Go to "**RF**" configuration, and select the AP to be configured.



	RF Configuration						2.4GHZ	5GHZ Client Rand	6034	Client Health
	AP	2.4GHz Channel	2.4GHz Power(dBm)	5GHz Channel	5GHz Power(dBm)				RF Information	
	AP-C1:D0	auto(1)	auto(6)	auto(165)	auto(7)			AP Name:	AP-C1:D0	A.
🗘 RF	AP-04:20	auto(11)	auto(6)	auto(48)	auto(24)	1		AP MAC-	34:e7:0b:03:c1:d0	
	AP-DB:20	auto(11)	auto(11)	auto(64)	auto(20)	1		01105	5-107.00.05.01.00	
				Select th	e AP to configu	re	APC: Chan Powe Chan 5GHz ACS: APC:	er(dBm): enel Width(MHz):	ON auto(1) auto(6) 20 ON ON	_
		_	_	_	Acces	5	_	_		_
2					Netwo	'k				

• The ACS could be turn ON/OFF separately on 2.4GHz or 5GHz.

	RF Configuration						2.4GHZ 50 Client Rand	H2	483 1	989) Client Health X	
-	AP	2.4GHz Channel	2.4GHz Power(dBm)	5GHz Channel	5GHz Power(dBm)			Edit RF Information			
8	AP-C1:D0	auto(1)	auto(6)	auto(165)	auto(7)	1	AP Name:	AP-C1:D0		^	
🌣 RF	AP-04:20	auto(11)	auto(6)	auto(48)	auto(24)	1	AD MAC	24:e7:0b:02:c1:d0			
	AP-DB:20	auto(11)	auto(11)	auto(64)	auto(20)	1	AF PAC.	54.67.05.05.01.00			
				Automa switch	tic channel	-	ACS: APC Channel: Power(dBm): Channel Wildth(WHz): SGHz ACS:	ON ©OFF ®ON ©OFF 1 * 6 • 20 * ®ON ©OFF	(4-20)		i di ili ili ili ili ili ili ili ili ili il
					Access						
U					Networl	<					

• On 5GHz radio, the DRM could be configured.

							Client Band	Client Health
	RF Configuration							×
_	AP	2.4GHz Channel	2.4GHz Power(dBm)	5GHz Channel	5GHz Power(dBm)		Edit RF Information	
<u>a</u>	AP-C1:D0	auto(1)	auto(6)	auto(165)	auto(7)	1	5GHz	- 1
🗘 RF	AP-04:20	auto(11)	auto(6)	auto(48)	auto(24)	1	ACS: ON OFF	
	AP-DB:20	auto(11)	auto(11)	auto(64)	auto(20)	1	APC: ON OFF	
2.4GHz Ch	AP-A2:E0	auto(11)	auto(20)	auto(153)	auto(23)	1	Channel: 165 *	
						-	Power(dBm): 7 (7-2	25) 6 17 18 19 20
					Automatic c switch	hannel	Channel Auto Width(MHz):	90 100 110
							Channel List: Note: -The DF configuration requires 30 seconds to take the AP after you click "Save", it is not recommended to m NF changes on bias AP during this period. Const	effect on ske other Save
6		_	_	_	Acces	55		_
2					Netwo	ork		

4.7 APC

4.7.1 Feature description

In order to have a better radio coverage, and less mutual interference between the adjacent APs, APC (Auto Power Control) could be used to make the AP to scan the other APs transmission power, and then to calculate and control its owner RF transmission power.

4.7.2 Configuration and Recommendation

APC configuration is similar to ACS, which has been described in <u>5.1.2</u>.

APC could be turned ON/OFF separately on 2.4GHz or 5GHz as below.



₩ Clients	For Group: A	P-Group		Total	:1	10			·	10		_
User Name	RF Configuration										×	
	AP	2.4GHz Channel	2.4GHz Power(dBm)	5GHz Channel	5GHz Power(dBm)				Edit RF Information			0
	AP-04:E0	auto(11)	auto(3)	auto(48)	auto(5)	1	5GHz				^	
	AP-C1:D0	auto(6)	auto(17)	auto(64)	auto(18)	1		ACS:	●ON OFF			
	AP-FF:E0	auto(11)	auto(6)	5G_low:auto 5G_high:aut	5G_low:auto 5G_high:aut	1		APC:	●ON OFF			
2	AP-04:20	auto(11)	auto(6)	auto(48)	auto(13)	1	/	Channel:	48	*		_
3							ſ	Power(dBm):	5	(3-23)		
¢ RF					Automatic po	wer swit	ch.	Channel Width(MHz):	80	¥		
2.4GHz Ch								Channel List:				
								Note : The RF confi the AP after you cli RF changes on this	guration requires 30 secon ck 'Save', it is not recomm AP during this period. Com	nds to take effect ended to make ot save	on her	6 17 18 19 20 60 100 110 Exclude
				Rogue AP				_	Roaming RSSI:	2.4G: 0	5G: 0	Save

4.8 Load Balancing

4.8.1 Feature description

Load balancing is used to make the wireless clients could be associated to the AP with good performance, by checking the number clients associated, and uplink RSSI info synchronized between the neighbor APs.

It's balancing the clients working on the same radio band.

4.8.2 Configuration and Recommendation

The "load balancing" could be activated from "WEB UI -> Wireless" page as below:

<u>.</u>		Wireless	
🌣 RF	●2.4GHz ○5GHz	WIDS/WIPS	Performance Optimization
2.4GHz Channel Distribution	1 • 11	Rogue Suppress: . off Dynamic Blacklist: . off Wireless Attack Detection: . off	Background Scanning on
		Unknown AP • 34:E7:08:02:CB:F0 • 34:E7:08:02:BC:10	Scanning Duration: 20ms 20 30 40 50 60 70 80 90 100 110
		 DC:08:56:00:10:D0 34:E7:08:02:B5:70 	Band Steering: on . Exclude
		Interfering AP	RSSI Threshold: 2.4G: 5G: 10 🐑 Save
		Rogue AP	Roaming RSSI: 2.46: 56: 15 Save 10 •
		0 50 90	Voice and Video on . Awareness:

4.9 Band Steering

4.9.1 Feature description

Dual-band devices could be associated with the AP either in 2.4GHz or 5GHz. "Band Steering" feature is able to help this kind of devices to be associated on a better radio band, which is based on:

- RSSI in 5GHz radio.
- RF utilization of the channel of each radio band.
- Number of stations on the radio
- The difference of the stations on the two radio bands.

The band steering feature is handled during "Pre-association" phase.



4.9.2 Configuration and Recommendation

The "load balancing" could be activated from "WEB UI -> Wireless" page as below:



4.10 Background scanning

- 4.10.1 Feature description
- 4.10.2 Configuration and Recommendation

4.11 Voice over WLAN

- 4.11.1 Feature description
- 4.11.2 Configuration and Recommendation

4.12 <More features to be introduced>

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5 Useful CLI Commands

5.1 System information

```
✓ Free // To check the memory usage.
```

Example:

support@ support@	AP-C7:20:~\$ AP-C7:20:~\$ fr	ee			
	total	used	free	shared	buffers
Mem:	245560	143608	101952	0	11420
-/+ buff	ers:	132188	113372		
Swap:	0	0	0		
support@	AP-C7:20:~\$				

✓ Showsysinfo // To check the AP hardware information.

Example:

✓ ps |grep <process> // To check the status of the related software process.

Example:

support@AP-C7:20:~\$ ps |grep cluster 13157 root 5532 5 /sbin/cluster_mgt -I 666 -p ff:ff:ff:ff:ff: 13158 root 3144 5 /sbin/cluster_cor -I 666 -p ff:ff:ff:ff:ff: 20756 support 1344 s grep cluster support@AP-C7:20:~\$ support@AP-C7:20:~\$ support@AP-C7:20:~\$ ps |grep wam 2846 root 2916 5 wam -g /var/run/wam/global -d -f /var/log/wam.log 22860 support 1344 R grep wam support@AP-C7:20:~\$

✓ ps |grep D

// To check if there' s any software process in D (dead) state.



```
support@AP-C7:20:~$ ps |grep D
PID USER VSZ STAT COMMAND
19314 root 4528 S /usr/sbin/lighttpd -D -f /etc/lighttpd/lighttpd_https.conf
31185 support 1344 R grep D
support@AP-C7:20:~$
```

✓ uptime // To check the AP run time

Example:

support@AP-C7:20:~\$ uptime
21:13:00 up 2:24, load average: 0.58, 0.39, 0.38

✓ date // To check AP system date and time

Example:

support@AP-C7:20:~\$ date Wed Nov 22 21:18:17 2017

✓ ssudo passwd // To modify the password of "support" account

Example:

support@AP-C7:20:~\$
support@AP-C7:20:~\$ ssudo passwd
Changing password for support
New password:
Bad password: too weak
Retype password:
Password for support changed by root
support@AP-C7:20:~\$
support@AP-C7:20:~\$

✓ showver // To check AP firmware version

Example:

support@AP-C/:20:~\$
support@AP-C7:20:~\$
3.0.0.63
support@AP-C7:20:~\$

✓ *reset_reason get*

// To check the recent reset reasons

Example:

Support@AP-78:00:~\$ reset_reason get [1] Fri Nov 17 18:32:32 2017 Update firmware [1] Mon Nov 20 10:56:04 2017 Clear all configuration [1] Tue May 30 00:00:12 2017 Power off reboot [1] Tue May 30 00:00:12 2017 Power off reboot [1] Tue May 30 00:00:12 2017 Power off reboot [1] Tue May 30 00:00:12 2017 Power off reboot [1] Mon Nov 20 07:54:43 2017 Restore all configuration [1] Thu Nov 23 16:38:56 2017 Update firmware [1] Thu Nov 23 16:38:56 2017 Restore all configuration

✓ ssudo firstboot // To clear all the settings and reset to factory.

Example:

```
support@AP-36:D0:~$
support@AP-36:D0:~$
support@AP-36:D0:~$
This will erase all settings and remove any installed packages. Are you sure? [N/y]
/dev/mtdblock4 is mounted as /overlay, only erasing files
support@AP-36:D0:~$
support@AP-36:D0:~$
```

✓ ssudo reboot // To reboot the AP device

Example:

support@AP-36:D0:~\$ ssudo reboot
support@AP-36:D0:~\$

✓ iwpriv wifi0 getCountry //To check the "Country Code" of the AP

Example:

```
support@AP-78:00:~$
support@AP-78:00:~$
wifi0 getCountry:CN
support@AP-78:00:~$
support@AP-78:00:~$
support@AP-78:00:~$
support@AP-78:00:~$
```

cat /proc/kes_syslog // To check the system log and filter could be used for specific requests.

support@AP-78:00:~\$
support@AP-78:00:~\$ cat /proc/kes_syslog
t txpower= 3][atp_control.c:558]
10n Nov 27 15:32:29 2017 kern.warn kernel: [264341.910000] wmi_unified_vdev_stop_send for vap 0 (864f0000)
10n Nov 27 15:32:29 2017 kern.warn kernel: [264341.910000] STOPPED EVENT for vap 0 (864f0000)
10n Nov 27 15:32:29 2017 kern.warn kernel: [264341.950000] OL vap_start +
10n Nov 27 15:32:29 2017 kern.warn kernel: [264341.950000] wmi_unified_vdev_start_send for vap 0 (864f0000)
10n Nov 27 15:32:29 2017 kern.warn kernel: [264341.950000] OL vap_start -
10n Nov 27 15:32:29 2017 daemon.notice [DRM-LOG]: [radio 2 ifname is NULL][atp_control.c:453]
10n Nov 27 15:32:29 2017 kern.warn kernel: [264342.010000] ol_vdev_start_resp_ev for vap 0 (864f0000)
Mon Nov 27 15:32:29 2017 kern.warn kerne]: [264342.010000] wmi_unified_vdev_up_send for vap 0 (864f0000)
Mon Nov 27 15:32:30 2017 kern.warn kernel: [264343.110000] [wifil] FWLOG: [2252392] WAL_DBGID_TX_BA_SETUP (0x436980, 0x6, 0x19, 0x10040, 0x7cb0a507)
Aon Nov 27 15:32:30 2017 kern.warn kernel: [264343.110000] [witi1] FWLOG: [2252396] WAL_DBGID_TX_BA_SETUP (0x436980, 0x0, 0x2c4, 0x10040, 0x7cb0a507)
Aon Nov 27 15:32:41 2017 user.notice core-mon: timer CORE_TIMER_CHECK_ONLINE_USR_ALIVE
Non Nov 27 15:32:42 2017 user.notice core-mon: online user = [1], alive = [1]
Aon Nov 27 15:32:42 2017 user.notice core-mon: timer CORE_TIMER_CHECK_WAM
10n Nov 27 15:32:42 2017 kern.warn kernel: [264355.110000] [witil] FWLOG: [2264667] WAL_DBGID_TX_BA_SETUP (0x436980, 0x0, 0x0, 0x2, 0x7cb0a507)
Aon Nov 27 15:32:42 2017 kern.warn kernel: [264355.110000] [witi1] FWLOG: [2264668] WAL_DBGID_TX_BA_SETUP (0x436980, 0x6, 0x0, 0x2, 0x7cb0a507)
10n Nov 27 15:32:46 2017 kern.warn kernel: [264359.110000] [witi1] FWLOG: [2268809] WAL_DBGID_TX_BA_SETUP (0x436980, 0x0, 0x2c6, 0x10040, 0x7cb0a507)
Non Nov 27 15:32:52 2017 kern.warn kernel: [264365.110000] [w1f11] FWLOG: [2274907] WAL_DBGID_TX_BA_SETUP (0x436980, 0x0, 0x0, 0x2, 0x7cb0a507)
Aon Nov 27 15:32:55 2017 kern.warn kernel: [264368.030000] Inst RSSI value of node-7c:b0:c2:bc:a5:07: 50
10n Nov 27 15:32:55 2017 kern.warn kernel: [264368.030000] Inst RSSI value of node-7c:b0:c2:bc:a5:07: 50
Non Nov 27 15:32:55 2017 kern.warn kernel: [264368.030000] Inst RSSI value of node-/c:b0:c2:bc:a5:0/: 49
Aon Nov 27 15:32:55 2017 kern.warn kernel: [264368.030000] Inst RSSI value of node-7c:b0:c2:bc:a5:07: 50
10n Nov 27 15:32:55 2017 kern.warn kernel: 264368.030000 Inst RSSI value of node-7c:b0:c2:bc:a5:07: 51

5.2 Wireless Management

✓ Iwconfig // To check the wireless configuration

Example:

support@AF br-wan	2-78:00:∼\$ iwconfig no wireless extensions.
ifb0	no wireless extensions.
ath01	IEEE 802.11ng ESSID:"test1" Mode:Master Frequency:2.412 GHz Access Point: DC:08:56:00:78:01 Bit Rate:144.4 Mb/s Tx-Power=20 dBm RTS thr:off Fragment thr:off Power Management:off Link Quality=0/94 Signal level=-95 dBm Noise level=-95 dBm Rx invalid nwid:2 Rx invalid crypt:0 Rx invalid frag:0 Tx excessive retries:0 Invalid misc:0 Missed beacon:0
gre0	no wireless extensions.
wifi0	no wireless extensions.
10	no wireless extensions.
gretap0	no wireless extensions.
teq10	no wireless extensions.
ath11-unta	ag no wireless extensions.
athscan1	IEEE 802.11ac ESSID:"athscan1" Mode:Monitor Frequency:5.18 GHz Access Point: Not-Associated Bit Rate:866.7 Mb/s Tx-Power=23 dBm RTS thr:off Fragment thr:off Power Management:off Link Quality=0/94 Signal level=-95 dBm Noise level=-95 dBm Rx invalid nwid:0 Rx invalid crypt:0 Rx invalid frag:0 Tx excessive retries:0 Invalid misc:0 Missed beacon:0
imq1	no wireless extensions.
ath01-unta	ag no wireless extensions.
ath11	IEEE 802.11ac ESSID:"test1" Mode:Master Frequency:5.18 GHz Access Point: DC:08:56:00:78:09 Bit Rate:866.7 Mb/s Tx-Power=23 dBm RTS thr:off Fragment thr:off Power Management:off Link Quality=87/94 Signal level=-62 dBm Noise level=-95 dBm Rx invalid nwid:12 Rx invalid crypt:0 Rx invalid frag:0 Tx excessive retries:0 Invalid misc:0 Missed beacon:0
athscan0	IEEE 802.11ng ESSID:"athscan0" Mode:Master Frequency:2.412 GHz Access Point: DC:08:56:00:78:00 Bit Rate:144.4 Mb/s Tx-Power=20 dBm RTS thr:off Fragment thr:off Power Management:off Link Quality=0/94 Signal level=-95 dBm Noise level=-95 dBm Rx invalid nwid:2503 Rx invalid crypt:0 Rx invalid frag:0 Tx excessive retries:0 Invalid misc:0 Missed beacon:0
eth0	no wireless extensions.
imq0	no wireless extensions.
ifb1	no wireless extensions.
wifi1	no wireless extensions.

✓ *cat /etc/config/wireless*

// To check the wireless configuration



```
config wifi-device 'wifi0'
option type 'gcawifi'
option channel 'auto'
option txpower 'auto'
option bcnburst '1'
option hwmode '11ng'
option disabled '0'
                                option bcnuu se
option hwmode '11ng
option disabled '0'
config wifi-device 'wifi1'
option type 'gcawifi'
option channel 'auto'
option txpower 'auto'
option bcnburst '1'
option hwmode '11ac'
option disabled '0'
option country 'CN'
config wifi-iface 'athscan1'
option device 'wifi1'
option mode 'ap'
option ifname 'athscan1'
option ssid 'athscan1'
option hidden '1'
                                option vif_monitor
option enable '0'
                                                                                                        '1'
config wifi-iface 'athscan0'
option device 'wifi0'
option mode 'ap'
option ifname 'athscan0'
option ssid 'athscan0'
option hidden '1'
option vif_monitor '1'
option athnewind '1'
option enable '0'
 config wifi-global 'global'
config wifi-iface '7465737431_2G_wifi0'
    option ssid 'test1'
    option device 'wifi0'
    option metwork 'wan'
    option network 'wan'
    option network_type 'employee'
    option hidden '0'
    option enable '1'
    option probe threshold '0'
                                option maxsta 04
option probe_threshold '0'
option encryption 'psk-mixed+tkip+aes'
option key '3236e9e1c70a76b5199e60e53e9eaffe'
option stream_limit_sw '1'
                                 option stream_limit_sw
 config wifi-iface '7465737431_5G_wifi1'
    option ssid 'test1'
    option device 'wifi1'
    option mode 'ap'
    option network 'wan'
    option network_type 'employee'
    option hidden '0'
    option enable '1'
    option maxsta '64'
    option probe threshold '0'
                                 option probe_threshold '0'
                                option encryption 'psk-mixed+tkip+aes'
option key '3236e9e1c70a76b5199e60e53e9eaffe'
```

support@AP-78:00:~\$ cat /etc/config/wireless

cat /tmp/config/rfprofile.conf // To check the RF configuration



✓ *iwlist ath01 channel* // To check the cannel of ath01 interface. The same for other interfaces

Example:

<pre>support@AP-78:00:~\$ iwlist ath01 channel</pre>	support@AP-78:00:~\$ iwlist ath11 channel
ath01 57 channels in total; available frequencies :	ath11 75 channels in total; available frequencies :
Channel 01 : 2.412 GHz	Channel 36 : 5.18 GHz
Channel 02 : 2.417 GHz	Channel 40 : 5.2 GHz
Channel 03 : 2.422 GHz	Channel 44 : 5.22 GHz
Channel 04 : 2.427 GHz	Channel 48 : 5.24 GHz
Channel 05 : 2.432 GHz	Channel 52 : 5.26 GHz
Channel 06 : 2.437 GHz	Channel 56 : 5.28 GHz
Channel 07 : 2.442 GHz	Channel 60 : 5.3 GHz
Channel 08 : 2.447 GHz	Channel 64 : 5.32 GHz
Channel 09 : 2.452 GHz	Channel 149 : 5.745 GHz
Channel 10 : 2.457 GHz	Channel 153 : 5.765 GHz
Channel 11 : 2.462 GHz	Channel 157 : 5.785 GHz
Channel 12 : 2.467 GHz	Channel 161 : 5,805 GHZ
Channel 13 : 2.472 GHz	Channel 165 : 5.825 GHz
Current Frequency:2.437 GHz (Channel 6)	Current Frequency:5.32 GHz (Channel 64)

✓ iwlist ath01 txpower // To check the txpower of ath01 interface. The same for other interfaces



support@AP-78:00:~\$ iwlist ath01 txpower	<pre>support@AP-78:00:~\$ iwlist ath11 txpower</pre>
ath01 6 available transmit-powers :	ath11 6 available transmit-powers :
0 dBm (1 mW)	0 dBm (1 mW)
3 dBm (1 mW)	3 dBm (1 mw)
3 dBm (1 mW)	3 dBm (1 mW)
3 dBm (1 mW)	3 dBm (1 mW)
3 dBm (1 mW)	3 dBm (1 mw)
3 dBm (1 mw)	3 dBm (1 mW)
Current Tx-Power=3 dBm (1	L mW) Current Tx-Power=3 dBm (1 mW)

✓ *iwlist ath01 bitrate*

//To check the bit rate of ath01 interface. The same for

other interfaces

Example:

<pre>support@AP-78:00:~\$ support@AP-78:00:~\$ support@AP-78:00:~\$ ill bitrate ath01 12 available bit-rates : 1 Mb/s 2 Mb/s 5.5 Mb/s 11 Mb/s 6 Mb/s 9 Mb/s 12 Mb/s 18 Mb/s 24 Mb/s 36 Mb/s 48 Mb/s 54 Mb/s Current Bit Rate:144.4 Mb/s</pre>	support@AP-78:00:~\$ support@AP-78:00:~\$ iwlist ath11 bitrate ath11 8 available bit-rates : 6 Mb/s 9 Mb/s 12 Mb/s 18 Mb/s 24 Mb/s 36 Mb/s 48 Mb/s 54 Mb/s Current Bit Rate:866.7 Mb/s
---	---

✓ *iwpriv ath01 get_mode*

//To check the interface mode of ath01. The same for

other interfaces

Example:

support@AP-78:00:~\$ iwpriv ath01 get_mode
ath01 get_mode:11NGHT20
support@AP-78:00:~\$

support@AP-78:00:~\$
support@AP-78:00:~\$
ath11 get_mode:11ACVHT80
support@AP-78:00:~\$

✓ iwpriv wifi0 get_txchainmask or iwpriv wifi1 get_txchainmask //To check the

spatial streams quantity supported by the Steller AP

Example:

```
support@AP-28:C0:~$
support@AP-28:C0:~$
wifi0 get_txchainmask:3
support@AP-28:C0:~$
support@AP-28:C0:~$
wifi1 get_txchainmask:3
support@AP-28:C0:~$
```

✓ telnet 127.0.0.1:7787 then stadb and s //To check the clients supported band

currently detected by the AP

support@AP-28:C0:~\$ Use 'h' and `help' f Use `dbg here' to se @ stadb @stadb s Num entries = 119	telnet 127.(or help mess e log messag).0.1:7787 ages ges; other	dbg cmds for log level		
MAC Address 54:9F:13:45:B6:29 @stadb_support@AP-28	Age 31 :c0:~\$	Bands 5	Assoc? (age) APId 255 ChanId 165 ESSId 0	Active? (age) (3807) no (12)	Flags BTM RRM PS Steer Allowed
support@AP-28:C0:~\$ t Use `h' and `help' fo Use `dbg here' to see @ & stadb @stadb s Num entries = 116	elnet 127.0. r help messa log message	0.1:7787 ges s; other o	lbg cmdx for log level		
MAC Address 54:9F:13:45:B6:29 @stadb @stadb support@AP-28:	Age 1553 C0:~\$	Bands 25	Assoc? (age) (5616)	Active? (age)	Flags BTM RRM PS Steer Allowed
Press ctrl+d to ex	it				

✓ cat /proc/kes_syslog |grep DRM //To check the logs of ACS and APC

management

Example:

supportBAP.78:00:-5 son Nov 27:15:27:29 201 daemon.notic [DBM-LOG]: [DBMs [n=192:168.92:36, max priority neighbor.[n=88.1.1:0][atp_control.c:372] Non Nov 27:15:27:29 201 daemon.notic [DBM-LOG]: [NTIG Current channel = 11, current_typer = 3, min_tspoer=2, max_tspoer=2;max_rssi neighbor:[n 192.168.92:46, txpower 3, rssi 55, channel 11;other info (atp_control.c:338] Non Nov 27:15:27:29 201 daemon.notic [DBM-LOG]: [NTIG Current channel = 11, current_typer = 3, min_tspoer=-3, max_tspoer=2;max_rssi neighbor:[n 192.168.92:46, txpower 3, rssi 55, channel 11;other info (mon Nov 27:15:27:29 201 daemon.notic [DBM-LOG]: [NTIG Current channel = 165, current_typer = 5, min_tspoer=-3, max_tspoer=2;max_rssi neighbor:[n 192.168.92:46, txpower 3, rssi 51, channel 11;other info Non Nov 27:15:27:29 201 daemon.notic [DBM-LOG]: [NTIG Current channel = 16; current_typer = 5, min_tspoer=-3;max_tspie regibbor:[n 192.168.92:46, txpower 3, rssi 51, channel 11;other info Non Nov 27:15:27:29 201 daemon.notic [DBM-LOG]: [NTIG Current channel = 16; current_typer = 5, min_tspoer=-3;max_tspi = [n];per 10:10;10:	<pre>idist = 3, best txpower= 3] foidist = 3, best txpower= 3] idist = 3, best txpower= 3] foidist = 3, best txpower= 3] foidist = 3, best txpower= 3] foidist = 3, best txpower= 3]</pre>
Mon Nov 2/ 5:25:29 2017 daemon.notice [DBM-LoG]: [DB& 12:26; 3:26; as priority neignor_1=0=83.11.12/=-[atp.control.c:5/2]] Non Nov 27 5:25:29 2017 daemon.notice [DBM-LoG]: [wifii current channel = 165; current typomer = 5, min_txpower=3, max_txpower=3; max_rssi neighbor:ip 192.168.92.46, txpower 3, rssi 62, channel 165; other in Mon Nov 27 5:25:29 2017 daemon.notice [DBM-LoG]: [radio 2 ifname is Nu II[atp.control.c:493]	o:dist = 3, best txpower= 3]

5.3 Client Management

✓ ssudo sta_list

// To list all the clients associated with this AP

ssudo wam_debug sta_list

support@AP-D0:A0:~\$	ssudo sta_list										
STA_MAC	IP	OnlineTime	RX	ТХ		FREQ	AUTH	Final_role	VLANID	TUNNELID	FARENDIP
STA_MAC 54:9f:13:45:b6:29 support@AP-D0:A0:~\$	IP 172.16.18.121	OnlineTime 333	RX 95373739	TX 11982277	5GHz	FREQ OPEN	AUTH 15445	Final_role 92109710arp	VLANID 0 0	TUNNELID	FARENDIP



	Data": [
1	"iface": "zthol", "sate", "lisu-zy", "frod": "lisu-zy", "security": "Open", "wlanservice": "1546845869291"
ť	"iface": "athl1", "ssid": "11Su-Ex", "freq": "SGMz", "security": "Open",
	"wlanService": "1546845869291", "staData": [
	"stawAG": "54.9f:13.45:b6:29", "stawAG": "54.9f:13.45:b6:29", "associationnime" 362, "assignedVLaw": 0, "assignedVLaw": 0, "assignedVLaw": 1546645869291arp", "macAuthResult": "", "MAFFORMACAUT": "", "redirectuRLFromMACAUTM": ".", "redirectuRLFromMACAUTM": ".", "CPAuthResult": "FAILED", "OFFORMED2LAUTM": ".", "AFFORMED2LAUTM": ".", "AFFORMED2LAUTM": ".", "AFFORMED2LAUTM": ".", "AFFORMED2LAUTM": ".", "AFFORMED2LAUTM": ".", "AFFORMED2LAUTM": ".", "AFFORMED2LAUTM: ".",

✓ wlanconfig ath11 list // To list all clients on specific AP interface

Example:

549995 CC	7													
support@AP-/8:00:~	٠.													
support@AP-78:00:~	S w]a	anconfig ath:	11 list											
ADDR	AID	CHAN TXRATE	RXRATE	RSSI	MINRSSI	MAXRSSI	IDLE	TXSEQ	RXSEQ	CAPS	ACAPS	ERP	STATE MAXRATE(DOT11) HTCAPS ASSOCTIME IES MODE PSMODE	
54:9f:13:45:b6:29	1	149 433M	351M	47	35	54	0	0	65535	EP	0	b	0 AWOS 00:02:25 RSN WME IEEE80211_MODE_11AC_VHT80 1	
7c:b0:c2:bc:a5:07	2	149 468M	585M	44	44	51	7	0	65535	EPS	0	b	0 AWPSM 00:01:39 RSN WME IEEE80211_MODE_11AC_VHT80 0)
support@AP-78:00:~	\$													

✓ cat /proc/kes_syslog |grep tid // To check the OS type of the clients on AP

Example:

support@AP-78:00:~\$	sta_list							
SSID:test							-1 - 2 - 2	
STA_MAC	IP	OnlineTime	RX	тх	FREQ	AUTH	Final_role	VLANID
SSID:test							-1 3 3	
STA_MAC	IP	onlineTime	RX	тх	FREQ	AUTH	Final_role	VLANID
54:9f:13:45:b6:29	192.168.92.30	859	4199469	70188539	5GHZ	PSK	test_arp	0
support@AP-78:00:~\$								
support@AP-78:00:~\$								
support@AP-78:00:~\$								
support@AP-78:00:~\$	cat /proc/kes_syslog	grep tid			_			
Fri Nov 24 17:21:06	2017 daemon.notice tid	: [tid]: [TID_DHC	P_PROTOCO	L] ip:[],	mac:[7c:	b0:c2:bc	:a5:07], hostname:[MS-20161013HMQJ],	ostype:[]
Fri Nov 24 17:21:10	2017 daemon.notice tic	: [tid]: [TID_DHC	P_PROTOCO	L] ip:[],	mac:[7c:	b0:c2:bc	:a5:07], hostname:[MS-20161013HMQJ],	ostype:[]
Fri Nov 24 17:21:10	2017 daemon.notice tic	: [tid]: [TID_DHC	P_PROTOCO	L] ip:[],	mac:[7c:	b0:c2:bc	:a5:07], hostname:[MS-20161013HMQJ],	ostype:[]
Fri Nov 24 17:21:14	2017 daemon.notice tic	l: [tid]: [TID_DHC	P_PROTOCO	L] ip:[],	mac:[7c:	b0:c2:bc	:a5:07], hostname:[MS-20161013HMQJ],	ostype:[]
Fri Nov 24 17:21:14	2017 daemon.notice tid	l: [tid]: [TID_DHC	P_PROTOCO	L] ip:[],	mac:[7c:	b0:c2:bc	::a5:07], hostname:[MS-20161013HMQJ],	ostype:[]
Fri Nov 24 17:21:16	2017 daemon.notice tid	: [tid]: [TID_NET	BIOS_PROT	OCOL] ip:[192.168.	92.32],	mac:[7c:b0:c2:bc:a5:07], hostname:[]	
Fri Nov 24 17:21:16	2017 daemon.notice tic	: [tid]: [TID_NET	BIOS_PROT	OCOL] ip:[192.168.	92.32],	<pre>mac:[7c:b0:c2:bc:a5:07], hostname:[]</pre>	
Fri Nov 24 17:22:29	2017 daemon.notice tic	l: [tid]: [TID_DHC	P_PROTOCO	L] ip:[],	mac:[7c:	b0:c2:bc	:a5:07], hostname:[MS-20161013HMQJ],	ostype:[]
Fri Nov 24 17:22:29	2017 daemon.notice tid	l: [tid]: [TID_DHC	P_PROTOCO	L] ip:[],	mac:[7c:	b0:c2:bc	::a5:07], hostname:[MS-20161013HMQJ],	ostype:[]
Fri Nov 24 17:31:16	2017 daemon.notice tid	: [tid]: [ТІD_НТТ	P_PROTOCO	L] ip:[192	.168.92.	30], mac	:[54:9f:13:45:b6:29], os type:[iO5]	
Fri Nov 24 17:31:16	2017 daemon.notice tid	l: [tid]: [TID_HTT	P_PROTOCO	L] ip:[192	.168.92.	30], mac	:[54:9f:13:45:b6:29], os type:[iOS]	
support@AP-78:00:~\$								

cat /proc/kes_syslog |grep "<MAC>" // To check the access logs of specific
 client

suppor	TRAP-	78:00:~\$													
suppor	TRAP-	78:00:~\$													
suppor	TRAP-	78:00:~\$	cat	/proc/kes s	vsloa la	rep "54:9f:13:	45:b6:2	9"							
Fri N	ov 24	17:20:21	2017	daemon.not	ice netif	fd: mvlan add	user ma	c success	5: 54:9	9f:13:4	5:b6:29				
Fri N	ov 24	17:20:24	2017	daemon.war	n um: [ur	m]:um_user_upd	ate cre	at:1 mac:	: 54:91	13:45	:b6:29	ip:192.168	.92.30		
Eri N	ov 24	17:21:11	2017	kern.warn	kernel:	[11667.300000]	Inst R	SSI valu	e of no	ode-54:	9f:13:4	5:b6:29: 5	0		
Eri N	ov 24	17:21:11	2017	kern.warn	kernel:	[11667.300000]	Inst R	SSI valu	e of no	ode-54:	91:13:4	5:b6:29: 4	9		
EFT N	JV 24	17:21:11	2017	kern.warn	kernel:	11667.300000	Inst R	SSI Value	e or no	DOE-54:	91:13:4	5:D0:29: 4	9		
Eri N	JV 24	17.21.11	2017	kern warn	kornel:	11667 200000	Inst R	SSI Value	of n	ode 54 :	0F+12+4	5.b6.29.4	Ô		
Eri N	1v 24	17:21:35	2017	kern warn	kernel:	[11691.260000]	That R	SST value	e of no	nde-54 :	of:13:4	5:b6:29: 6	7		
Eri N	ov 24	17:21:35	2017	kern, warn	kernel:	11691.2600001	Inst R	SSI valu	e of no	ode-54:	9f:13:4	5:b6:29: 6	7		
Fri N	ov 24	17:21:35	2017	kern.warn	kernel:	[11691.270000]	Inst R	SSI valu	e of no	ode-54:	9f:13:4	5:b6:29: 6	6		
Fri N	ov 24	17:21:35	2017	kern.warn	kernel:	[11691.270000]	Inst R	SSI valu	e of no	ode-54:	9f:13:4	5:b6:29: 6	6		
Fr1 N	DV 24	17:21:35	2017	kern.warn	kernel:	[11691.270000]	Inst R	SSI valu	e of no	ode-54:	91:13:4	5:b6:29: 6	6		
Ecti N	3V 24	17:27:56	2017	kern warn	kernel:	[120/1./90000]	INSU R	SSI Value	e or no	ode-54:	91:13:4 0f+12+4	5:b6:29: 5	9		
Eri N	W 24	17.27.56	2017	kern warn	kernel.	[12071 790000]	That P	SST value	of n	nde-54	0f • 1 3 • 4	5.b6.29. 5	8		
Eri N	ov 24	17:27:56	2017	kern, warn	kernel:	12071.7900001	Inst R	SSI valu	ofno	ode-54:	9f:13:4	5:b6:29: 5	8		
Eri N	ov 24	17:27:56	2017	kern.warn	kernel:	[12071.790000]	Inst R	SSI value	e of no	ode-54:	9f:13:4	5:b6:29: 5	9		
Eri N	ov 24	17:28:51	2017	kern.warn	kernel:	[12127.090000]	Inst R	SSI valu	e of no	ode-54:	9f:13:4	5:b6:29: 6	0		
Eri N	ov 24	17:28:51	2017	kern.warn	kernel:	[12127.090000]	Inst R	SSI valu	e of no	ode-54:	9f:13:4	5:b6:29: 5	8		
End N	DV 24	17.28:51	2017	kern.warn	kernel:	[12127.090000]	Inst R	SSI Value	e or no	00e-54:	9T:13:4	5:06:29: 5	7		
Eri N	DV 24	17.28.51	2017	kern warn	kernel:	[12127.090000]	Thet P	SSI Value	a of n	ode-54.	0f • 1 2 • 4	5.b6.29. 5	7		
Fri N	av 24	17:30:10	2017	kern, warn	kernel:	[12206, 350000]	Inst R	SSI valu	of n	ode-54:	9f:13:4	5:b6:29: 4	9		
Fri N	ov 24	17:30:10	2017	kern.warn	kerne1:	[12206.350000]	Inst R	SSI valu	e of no	de-54:	9f:13:4	5:b6:29: 4	9		
Fri N	ov 24	17:30:10	2017	kern.warn	kernel:	[12206.350000]	Inst R	SSI valu	e of no	ode-54:	9f:13:4	5:b6:29: 4	9		
Fri N	ov 24	17:30:10	2017	kern.warn	kernel:	[12206.350000]	Inst R	SSI valu	e of no	ode-54:	9f:13:4	5:b6:29: 4	7		
Er1 N	ov 24	17:30:10	2017	kern.warn	kernel:	[12206.350000]	Inst R	SSI value	e or no	DDE-54:	91:13:4	5:06:29: 4	0	es tumer [doc]	
Eri N	JV 24	17:31:10	2017	daemon not	ice tid:	tid TTD H	TTP_PRU	TOCOL 1 in	102	168 07	301 m	ac: 54.91.	13:45:b6:29	os type: [105]	
Eri N	ov 24	17:31:45	2017	kern, warn	kernel:	[12300.660000]	Inst R	SSI valu	e of no	ode-54:	9f:13:4	5:b6:29: 5	5	op cyper[iop]	
Fri N	ov 24	17:31:45	2017	kern.warn	kernel:	12300.6600001	Inst R	SSI value	e of no	ode-54:	9f:13:4	5:b6:29: 5	4		
Fri N	ov 24	17:31:45	2017	kern.warn	kernel:	[12300.660000]	Inst R	SSI valu	e of no	ode-54:	9f:13:4	5:b6:29: 5	4		
Fr1 N	ov 24	17:31:45	2017	kern.warn	kernel:	[12300.660000]	Inst R	SSI valu	e of no	ode-54:	91:13:4	5:b6:29: 5	4		
FC1 N	DV 24	17:31:45	2017	kern.warn	kernel:	[12300.660000]	Inst R	SSI Valu	e or no	00e-54:	9T:13:4	5:06:29: 5	4		
Eri N	W 24	17:32:01	2017	kern warn	kernel:	[12317.040000]	TOST P	SSI valu	of n	ode-54.	of -13-4	5.h6.29.5	5		
Eri N	ov 24	17:32:01	2017	kern, warn	kernel:	12317.0400001	Inst R	SSI valu	ofno	ode-54:	9f:13:4	5:b6:29: 5	š		
Eri N	ov 24	17:32:01	2017	kern.warn	kernel:	[12317.040000]	Inst R	SSI value	e of no	ode-54:	9f:13:4	5:b6:29: 5	4		
Eri N	ov 24	17:32:01	2017	kern.warn	kernel:	[12317.040000]	Inst R	SSI valu	e of no	ode-54:	9f:13:4	5:b6:29: 5	3		
Eri N	ov 24	17:32:36	2017	kern.warn	kernel:	[12351.860000]	Inst R	SSI value	e of no	ode-54:	9f:13:4	5:b6:29: 5	4		
End N	OV 24	17:32:30	2017	kern.warn	kernel:	[12351.860000]	Inst R	SSI Value	e or no	00e-54:	9T:13:4	5:D6:29: 5	2		
Eri N	1v 24	17:32:30	2017	kern warn	kernel:	[12351.860000]	TINST R	SST value	e of n	nde-54	of 13.4	5-b6-29- 5	4		
Fri N	ov 24	17:32:36	2017	kern.warn	kernel:	12351.8600001	Inst R	SSI valu	ofno	ode-54:	9f:13:4	5:b6:29: 5	4		
Fri N	ov 24	17:32:56	2017	kern.warn	kernel:	[12372.340000]	Inst R	SSI valu	e of no	ode-54:	9f:13:4	5:b6:29: 5	4		
Fri N	ov 24	17:32:56	2017	kern.warn	kernel:	[12372.340000]	Inst R	SSI valu	e of no	ode-54:	9f:13:4	5:b6:29: 5	5		
Er1 N	ov 24	17:32:56	2017	kern.warn	kernel:	[12372.340000]	Inst R	SSI valu	e of no	ode-54:	91:13:4	5:b6:29: 5	3		
Ect N	3V 24	17:32:30	2017	kern.warn	kernel:	[123/2.340000]	Inst R	SSI Value	e or no	ode-54:	9F:13:4 0F+12+4	5:b6:29: 5	2		
Eri N	1v 24	17:33:56	2017	kern, warn	kernel:	12431.7300001	TINST R	SSI value	of n	ode-54:	9f:13:4	5:b6:29: 5	1		
Fri N	ov 24	17:33:56	2017	kern.warn	kernel:	12431.730000	Inst R	SSI value	ofno	ode-54:	9f:13:4	5:b6:29: 5	3		
Fri N	ov 24	17:33:56	2017	kern.warn	kernel:	[12431.730000]	Inst R	SSI valu	e of no	ode-54:	9f:13:4	5:b6:29: 5	3		
Fri N	ov 24	17:33:56	2017	kern.warn	kernel:	[12431.730000]	Inst R	SSI valu	e of no	ode-54:	9f:13:4	5:b6:29: 5	2		
Fr1 N	DV 24	17:33:56	2017	kern.warn	kernel:	[12451.730000]	Inst R	SSI value	e of no	ode-54:	9T:13:4	5:06:29: 5	5		
Eri N	av 24	17 - 24 - 42	2017	kern warn	kernel:	[124/8.430000] [12478.420000]	INSU R	SSI Value	e or no	ode-54	0f • 1 2 • 4	5-b6-20- 5	7		
Eri N	iv 24	17:34:43	2017	kern, warn	kernel:	12478,4300001	TINST R	SST valu	of n	de-54:	9f:13:4	5:b6:29: 5	4		
Fri N	ov 24	17:34:43	2017	kern.warn	kerne1:	[12478.430000]	Inst R	SSI valu	ofno	ode-54:	9f:13:4	5:b6:29: 5	4		
Fri N	ov 24	17:34:43	2017	kern.warn	kernel:	[12478.430000]	Inst R	SSI valu	e of no	ode-54:	9f:13:4	5:b6:29: 5	3		
Fri N	ov 24	17:35:19	2017	daemon.not	ice netif	fd: mvlan remo	ve user	mac succ	cess:	54:9f:1	3:45:b6	:29			
Eri No	ov 24	1/:43:14	2017	daemon.not	ice netif	td: mvlan add	user ma	c success	51 54:9	91:13:4	5:06:29				
Eri N	3V 24	17-43:10	2017	daemon.war	n um: Lui	=j: 1p 1s not		r 5419f13 at:1 mag	5401	00:29 1 -13-45	n arp	in:0 0 0 0			
Eri N	av 24 nv 24	17:43:10	2017	daemon, not	ice tid:	fidl: [TID D	HCP PRO	TOCOL 1 in	. 14:91	nac:[54	·9f ·13·	45:b6:291	hostname: [Ar	minisdeiPhonel.	ostype:[i05]
Fri N	ov 24	17:43:16	2017	daemon. not	ice tid:	[tid]: [TID_D	HCP_PRO	TOCOL 1	6H. i	nac: 54	:9f:13:	45:b6:291.	hostname: A	iminisdeiPhone].	ostype: [i05]
Fri N	ov 24	17:43:16	2017	daemon.war	'n um: [ur	m]: ip is not	find fo	r 54:9f:	13:45:1	o6:29 i	n arp				
Eri N	ov 24	17:43:17	2017	daemon.war	ກຸມຫ: [ມ	m]: ip is not	find fo	r 54:9f:1	13:45:6	6:29 i	n arp				
Fri N	ov 24	17:43:17	2017	daemon.not	ice tid:	[t1d]: [TID_D	HCP_PRO	TOCOL] i	2:Ц. (nac:[54	:91:13:	45:b6:29],	hostname:[Ac	<pre>Jm1n1sdeiPhone],</pre>	ostype:[i05]
Fr1 N	JV 24	1/:43:17	2017	caemon.not	ice tid:	[ti0]: [T1D_D	HLP_PRO	IUCOLJ 1	:U, 1	naC:[54	:9T:13:	45:06:29],	nustname:[Ad	minisdelphone],	oscype:[105]
Isahhoi	CEAP-	10.00.~3													

5.4 Captive Portal Management

✓ ps |grep eag // To check if the thread of "eag" is running well.

Example:

support@AP-78:00:~\$
support@AP-78:00:~\$
2307 root 10152 5 /usr/sbin/eag_app -c
12087 support 1520 5 grep eag
support@AP-78:00:~\$

✓ eag_cli show user all/list

// To list the clients authenticated by captive

portal

suppor	t@AP-78:00:~\$							
suppor	t@AP-78:00:~\$ eag_c1	i show user list						
user n	um : 2							
ID	UserName	UserIP	UserMAC	SessionTime	OutputFlow	InputFlow	AuthType	ESSID
1	zheng	192.168.92.30	54:9F:13:45:B6:29	0:10:58	32960	133066	PORTAL	test-portal
2	zheng	192.168.92.32	7C:B0:C2:BC:A5:07	0:00:33	520922	1281951	PORTAL	test-portal
support	t@AP-78:00:~\$							
suppor	t@AP-78:00:~\$							
suppor	t@AP-78:00:~\$							
suppor	t@AP-78:00:~\$ eag_c1	i show user all						
user n	um: 2							
ID	UserName	UserIP	UserMAC	SessionTime	OutputFlow	InputFlow	AuthType	ESSID
1	zheng	192.168.92.30	54:9F:13:45:B6:29	0:11:13	32960	133066	PORTAL	test-portal
2	zheng	192.168.92.32	7C:B0:C2:BC:A5:07	0:00:48	659998	1533077	PORTAL	test-portal
suppor	t@AP-78:00:~\$							



✓ eag_cli kick user index 1

// To delete a user from Portal authenticated

user list.

Example:

su	pport@AP-78:00:~\$ eag_cl	i show user all						
ID	UserName	UserIP	UserMAC	SessionTime	OutputFlow	InputFlow	AuthType	ESSID
1	zheng	192.168.92.30	54:9F:13:45:B6:29	0:11:13	32960	133066	PORTAL	test-portal
2	zheng	192.168.92.32	7C:B0:C2:BC:A5:07	0:00:48	659998	1533077	PORTAL	test-portal
su	pport@AP-78:00:~\$							
su	pport@AP-78:00:~\$							
su	pport@AP-78:00:~\$							
su	pport@AP-/8:00:~\$_eag_cl	1 KICK USER INDEX 1						
τη	e command sucsessful	distant second data						
su	pport@AP-78:00:~\$ eag_c1	1 snow user list						
us	er num : 1	US ON TO	US OF MAC	Consignation	Output Flow	TRRUTEION	Author	FEETD
10	Thoma	102 168 02 22	7C+P0+C2+PC+AE+07	0.06.05	752217	1505014	POPTAL	tost poptal
	pport@AP_78:00:\$	192.108.92.52	/C.BU.C2.BC.AJ.U/	0.00.05	/ 3231/	1393914	PURTAL	test-portai
su	pport@AP-78:00:~\$							
su	pport@AP-78:00:~\$ eag_cl	i show user list						
us	er num : 2				-	_		
ID) UserName	UserIP	UserMAC	SessionTime	OutputFlow	InputFlow	AuthType	ESSID
1	zheng	192.168.92.32	7C:B0:C2:BC:A5:07	0:12:27	830670	1608523	PORTAL	test-portal
2	zneng	192.168.92.30	54:9F:13:45:B6:29	0:02:07	34129	132819	PORTAL	test-portal
- Su + F	pporteap-78:00:~\$ eag_cr	T KTCK user Tridex 2						
	ie command Sucsessful							
50	pport@AP-78:00:~\$ ead cl	i show user list						
us	er num : 1	i show user trise						
IC	UserName	UserIP	UserMAC	SessionTime	OutputFlow	InputFlow	AuthType	ESSID
1	zhena	192.168.92.32	7C:B0:C2:BC:A5:07	0:12:47	831679	1608631	PORTAL	test-portal
su	pport@AP-78:00:~\$							

✓ tail -f /tmp/log/eag.log

cat /proc/kes_syslog |grep eag

cat /var/log/eag.log

// To check the related logs of push portal.

Example:



Supp	orti	RAP-	-/8:00:~5	cat	/proc/kes_sys	slog grep	eag			
Mon	NOV	27	10:29:53	2017	user.notice	core-mon:	eag	-	pid [2307]	
Mon	Nov	27	10:29:53	2017	user.notice	core-mon:	eag	-	process state	[5]
Mon	NOV	27	10:34:53	2017	user.notice	core-mon:	eag	-	pid [2307]	
Mon	NOV	27	10:34:53	2017	user.notice	core-mon:	ead	-	process state	[5]
Mon	NOV	27	10:39:54	2017	user.notice	core-mon:	eag	-	pid [2307]	
Mon	Nov	27	10:39:54	2017	user.notice	core-mon:	eag	-	process state	[S]
Mon	NOV	27	10:44:54	2017	user.notice	core-mon:	eag	-	pid [2307]	
Mon	NOV	27	10:44:54	2017	user.notice	core-mon:	eag	-	process state	[5]
Mon	NOV	27	10:49:56	2017	user.notice	core-mon:	ead	-	pid [2307]	
Mon	NOV	27	10:49:56	2017	user.notice	core-mon:	eag	-	process state	[5]

n Nov 7 14:25:18 2017 user.notice core-mon: eag - process state [5] n Nov 7 14:25:18 2017 user.notice core-mon: eag - pid (2007) n Nov 7 14:25:21 2017 user.notice core-mon: eag - pid (2007) n Nov 7 14:25:21 2017 user.notice core-mon: eag - pid (2007) n Nov 7 14:25:21 2017 user.notice core-mon: eag - pid (2007) n Nov 7 14:25:21 2017 user.notice core-mon: eag - pid (2007) n Nov 7 14:25:21 2017 user.notice core-mon: eag - pid (2007) n Nov 7 14:25:21 2017 user.notice core-mon: eag - pid (2007) n Nov 7 14:25:21 2017 user.notice core-mon: eag - pid (2007) n Nov 7 14:25:21 2017 user.notice core-mon: eag - pid (2007) n Nov 7 14:25:22 2017 user.notice core-mon: eag - pid (
upport84P-78:00:-5 cat /var/log/eag.log 2017-11-27 14:36:10]: appcom.c1:863:appcom.check.flux user1p-192.168.92.30, output_octets=3581, total_octets=31969
017-11-27 14:36:27 017-11-27 14:36:27 017-11-27 14:36:27 017-11-27 14:36:20 017-11-27 14:36:30 017-11-27 14:36:30 017-11
<pre>UBL: UBL: Dirl:27 11:62:12] = appcrom.cital:ag.lpinfo.get tefre user[-0429.168.92.10] UFL:12 11:62:12] = appcrom.cital:ag.lpinfo.get tefre user[-0429.168.92.10] UFL:1</pre>

5.5 Cluster Management

✓ cluster_mgt -x show=self // To check the AP Cluster role and status

Example:

support@AP-7	78:00:~\$			
support@AP-7	78:00:~\$ cluster_mgt	-x show=self		
ClusterID	MAC	role	priority	status
111	dc:08:56:00:78:00	PVC	000461007800	RUN
support@AP-7	78:00:~\$			

✓ cluster_mgt -x show=pvc // To check the PVC of the cluster

Example:

support@AP-78:00:~\$ support@AP-78:00:~\$ IP MAC priority status 192.168.92.36 dc:08:56:00:78:00 000465007800 RUN support@AP-78:00:~\$

✓ *show_cluster*

// To check all the AP members in the cluster

<pre>support@AP-C2:F0:~\$</pre>								
support@AP-C2:F0:~\$	show_cluster							
mac	ip	prio	state	r	ole a	auth name	version	ptype
34:e7:0b:03:c2:f0	192.168.92.49	0	3	1	1	AP-C2:F0	3.0.0.63	6
34:e7:0b:00:07:e0	192.168.92.40	0	3	3	1	AP-07:E0	3.0.0.63	4
34:e7:0b:00:06:50	192.168.92.48	0	3	3	1	AP-06:50	3.0.0.63	4
34:e7:0b:00:0a:d0	192.168.92.45	0	3	3	1	AP-0A:D0	3.0.0.63	4
34:e7:0b:03:c2:50	192.168.92.44	0	3	3	1	AP-C2:50	3.0.0.63	6
34:e7:0b:03:c6:90	192.168.92.42	0	3	2	1	AP-C6:90	3.0.0.63	6
support@AP-C2:F0:~\$								

✓ show_cluster /wc -I

// To check the AP numbers in the cluster

Example:

support@AP-C2:F0:~\$	show_cluster							
mac	ip	prio	state	rol	e a	auth name	version	ptype
34:e7:0b:03:c2:f0	192.168.92.49	'o	3	1	1	AP-C2:F0	3.0.0.63	6
34:e7:0b:00:07:e0	192.168.92.40	0	3	3	1	AP-07:E0	3.0.0.63	4
34:e7:0b:00:06:50	192.168.92.48	0	3	3	1	AP-06:50	3.0.0.63	4
34:e7:0b:00:0a:d0	192.168.92.45	0	3	3	1	AP-0A:D0	3.0.0.63	4
34:e7:0b:03:c2:50	192.168.92.44	0	3	3	1	AP-C2:50	3.0.0.63	6
34:e7:0b:03:c6:90	192.168.92.42	0	3	2	1	AP-C6:90	3.0.0.63	6
support@AP-C2:F0:~\$	show_cluster wc	-1						
7								
support@AP-C2:F0:~\$								
		-						

The AP numbers is the output value minus one.

✓ ps |grep cluster // To check if "cluster" process is working normally

Example:

support@AP-78:00:~\$
support@AP-78:00:~\$ ps |grep cluster
12181 root 5600 s /sbin/cluster_mgt -I 111 -p ff:ff:ff:ff:ff:ff:
22137 support 1520 s grep cluster
31545 root 3240 s /sbin/cluster_cor -I 111 -p ff:ff:ff:ff:ff:ff:
support@AP-78:00:~\$

Two "cluster_mgt" thread existing indicates abnormal behavior as below example:

support@AP-OC:E0:-\$ ps 3484 root 7144 s 3485 root 9208 s 26955 root 7144 R 28666 support 1184 s support@AP-OC:E0:-\$	grep cluster /sbin/cluster_mgt /sbin/cluster_cor /sbin/cluster_mgt grep cluster	-I 100 -I 100 -I 100	-p 0 -p 0 -p 0	-v 10.0.0	.1

5.6 Network Management

✓ cat /etc/resolv.conf

```
// To check the DNS server information
```

Example:

```
support@AP-78:00:~$
support@AP-78:00:~$ cat /etc/resolv.conf
# Interface wan
nameserver 219.141.136.10
nameserver 219.141.140.10
support@AP-78:00:~$
```

✓ cat /tmp/TZ

// To check the Timezone configuration

Example:

support@AP-78:00:~\$
support@AP-78:00:~\$ cat /tmp/TZ
UTC-08
support@AP-78:00:~\$

✓ cat /proc/kes_syslog |grep ntp

// To check the NTP logs

Example:

support@AP-78:00:~\$				
Support cont 70.00. ¢		-les leves sta		
Suppor Leap-78:00:~5	cat /proc/kes_sys	slog ignep nup		_
Mon Nov 27 15:30:09	2017 user.notice	root: _GOLSOH_time wa	is synced fr	om pool.ntp.org
Mon Nov 27 15:45:09	2017 user.notice	root: _GOLSOH_time wa	is synced fr	om pool.ntp.org
Mon Nov 27 16:00:09	2017 user.notice	root: _GOLSOH_time wa	s synced fr	om pool.ntp.org
Mon Nov 27 16:15:09	2017 user.notice	root: _GOLSOH_time wa	s synced fr	om pool.ntp.org
Mon Nov 27 16:30:09	2017 user.notice	root: _GOLSOH_time wa	s synced fr	om pool.ntp.org
Mon Nov 27 16:45:10	2017 user.notice	root: _GOLSOH_time wa	s synced fr	om pool.ntp.org
Mon Nov 27 17:00:08	2017 user.notice	root: _GOLSOH_time wa	s synced fr	om pool.ntp.org
Mon Nov 27 17:15:09	2017 user.notice	root: _GOLSOH_time wa	is synced fr	om pool.ntp.org
Mon Nov 27 17:30:08	2017 user.notice	root: _GOLSOH_time wa	s synced fr	om pool.ntp.org
Mon Nov 27 17:45:08	2017 user.notice	root: _GOLSOH_time wa	s synced fr	om pool.ntp.org
Mon Nov 27 18:00:07	2017 user.notice	root: _GOLSOH_time wa	s synced fr	om pool.ntp.org
support@AP-78:00:~\$			-	
support@AP-78:00:~\$				

✓ *cat /etc/config/rogueap*

// To check the "Rogue AP" configuration

cat /tmp/config/wids.conf

Example:

✓ ps/grep light

// To check if the WBM service is running



Example:

```
support@AP-78:00:~$
support@AP-78:00:~$ ps|grep light
    8645 root    4748 s    /usr/sbin/lighttpd -D -f /etc/lighttpd/lighttpd_http
    28166 support 1520 s    grep light
    support@AP-78:00:~$
```

cat /etc/cert/serial

// To check the serial of the certificate

Example:

```
support@AP-78:00:~$
support@AP-78:00:~$ cat /etc/cert/serial
DC085600780000008425A
support@AP-78:00:~$
```

✓ ifconfig br-wan // To check the IP address configuration of AP

ssudo ifconfig br-wan

Example:

```
support@AP-36:D0:~$ ifconfig br-wan
br-wan Link encap:Ethernet Hwaddr DC:08:56:0A:36:D0
inet addr:172.16.18.167 Bcast:172.16.18.255 Mask:255.255.255.0
inet6 addr: fe80::de08:56ff:fe0a:36d0/64 Scope:Link
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:4100 errors:0 dropped:0 overruns:0 frame:0
TX packets:1313 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:0
RX bytes:263864 (257.6 KiB) TX bytes:172549 (168.5 KiB)
support@AP-36:D0:~$ ssudo ifconfig br-wan
br-wan Link encap:Ethernet Hwaddr DC:08:56:0A:36:D0
inet addr:172.16.18.167 Bcast:172.16.18.255 Mask:255.255.255.0
inet6 addr: fe80::de08:56ff:fe0a:36d0/64 Scope:Link
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:1352 errors:0 dropped:0 overruns:0 frame:0
TX packets:1352 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:0
RX bytes:274704 (268.2 KiB) TX bytes:177581 (173.4 KiB)
```

support@AP-36:D0:~\$

✓ ssudo ping

// To check the network connectivity

support@AP-36:D0:~\$ ssudo ping 172.16.18.1
PING 172.16.18.1 (172.16.18.1): 56 data bytes
64 bytes from 172.16.18.1: seq=0 ttl=64 time=0.699 ms
64 bytes from 172.16.18.1: seq=1 ttl=64 time=0.506 ms
64 bytes from 172.16.18.1: seq=2 ttl=64 time=0.487 ms
64 bytes from 172.16.18.1: seq=4 ttl=64 time=0.496 ms
64 bytes from 172.16.18.1: seq=4 ttl=64 time=0.470 ms
64 bytes bytes from 172.16.18.1: bytes from 172.16.18.1: bytes from 172.16.18.1: bytes from 172.16.18.1: seq=5 ttl=64 time=0.479 seq=6 ttl=64 time=0.554 seq=7 ttl=64 time=0.504 seq=8 ttl=64 time=0.517 64 time=0.479 ms 64 ms time=0.504 64 ms 64 ms 64 bytes from 172.16.18.1: seq=9 ttl=64 time=0.479 ms 64 bytes from 1/2.16.18.1: seq=9 ttl=64 time=0.4/9 ms 64 bytes from 1/2.16.18.1: seq=10 ttl=64 time=0.523 ms 64 bytes from 1/2.16.18.1: seq=11 ttl=64 time=0.487 ms 64 bytes from 1/2.16.18.1: seq=12 ttl=64 time=0.513 ms 64 bytes from 1/2.16.18.1: seq=13 ttl=64 time=0.494 ms ۸C --- 172.16.18.1 ping statistics ---14 packets transmitted, 14 packets received, 0% packet loss round-trip min/avg/max = 0.479/0.517/0.699 ms support@AP-36:D0:~\$ support@AP-36:D0:~\$
support@AP-36:D0:~\$
support@AP-36:D0:~\$
support@AP-36:D0:~\$
support@AP-36:D0:~\$
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support@AP-36:D0:~\$
support@AP-36:D0:~\$
support@AP-36:D0:~\$
support@AP-36:B0:~\$
s bytes from 220.181.111.188: seq=6 ttl=54 time=4.746 ms 64 ٨C --- www.baidu.com ping statistics --7 packets transmitted, 7 packets received, 0% packet loss
round-trip min/avg/max = 3.360/5.871/7.625 ms
support@AP-36:D0:~\$

ssudo traceroute

// To check the network trace route

Example:

support@AP-36:D0:~\$ ssudo traceroute www.baidu.com traceroute to www.baidu.com (220.181.111.188), 30 hops max, 38 byte packets 1 bogon (172.16.18.1) 0.164 ms 0.285 ms 0.296 ms 2 * *^C support@AP-36:D0:~\$ ssudo traceroute 172.16.18.1 traceroute to 172.16.18.1 (172.16.18.1), 30 hops max, 38 byte packets 1 bogon (172.16.18.1) 0.212 ms 0.026 ms 0.236 ms support@AP-36:D0:~\$

✓ ssudo tcpdump

// To capture the packets from "br-wan" interface

tftp

// To transfer files via TFTP







6 Troubleshooting

- 6.1 Introduction of the AP Logs
- 6.1.1 Log files
- 6.1.2 Log level
- 6.1.3 Log collection
- 6.1.3.1 For R3.0.3 Build
- ✓ To setup a TFTP server on a PC, and put the script "take_snapshot_v1.4.sh" on the TFTP server path:

Example: TFTP Server Address=172.16.18.166

✓ Log collection through the root account

root@AP-D1:40:~# root@AP-D1:40:~# cd /tmp root@AP-D1:40:/tmp# tftp -gr take_snapshot_v1.4.sh 172.16.18.166 root@AP-D1:40:/tmp# chmod +x take_snapshot_v1.4.sh root@AP-D1:40:/tmp# ./take_snapshot_v1.4.sh start 172.16.18.166



communication of its contents not permitted without written authorization from

6.1.3.2 For R3.0.4 Build

There are two methods to collect the logs:

A. Use the script "take_snapshot_v1.4.sh", the same as R3.0.3 Build.

B. Use the GUI Tools.

• For Express mode, refer to below screenshot:

→ C ▲ Not set	cure https://172.10	6.18.107/static/m	ain.html							
Alcatel-Lu Enterprise	cent 🕢	AP Group WhiteSulphur	: GC3-Group - 10	.0.90.10				Administrato	r Logout About Tools Po	Help English • Iling Cycle: 30s
Ø WLAN	Enable: 4	Disable: 0	ф AP				Monitoring			
WLAN Name	Status	Clients	Primary Name	Status	s Cl	ients				
11111 111_portal 101010	on (. on (. on (.	0 0 0	AP-D0:A0 AP-C0:70 AP-C6:90	Workin Workin Workin	ig ig	0 0 0	3		10	
199	(on ()	Tools								
User Name	IP	ATTE	NTION:The log info ess	ormation is c	ollecting,Pl	ease wai	t two minutes to download from	n Tftp Server		
		文件 查查 帮助	b							
		TFTP MES	R器 启动时	间	位置	字节	状态			
		设置 1717 设置 1717	Nov 21 Nov 21 自动(点击这	, 2018 15:05:52 , 2018 15:05:07	172.16.18.107 本地	408072 0	接仗 34E70B03D0A0_snapshot_201 正在监听 TFTP 请求于 IP 地址: 172.1	1811210203091ar-gz 弾助記 408072 - 66.18.137, 第日 69		
20		纪录至 Tftpt log	(点击这里得							

• For Enterprise mode, it supports in R3.0.4MR2 or later build, see below screeshot

✓ Enable "AP Web" first.

Alcatel·Lucent 🅢					
Enterprise	NETWORK -	CONFIGURATION - UNIFIED ACCESS	SECURITY ADMINISTRATOR	WLAN - UPAM -	
AP REGISTRATION < 🏶 Home > No	etwork > AP Registration > AP G	roup			
Access Points AP Group					3
Certificate 🛛 🗮 Registrati	on				
External Captive Portal Config File 1. Edit Group 2. Review	Edit Grou Edit Grou	Jp Description			
	Edit G	roup			
-					
AP Web					
For Administrator Account:					
*Password					
Confirm			ĥ	5	

About Plos

÷ 0

-> C O NOL Sec	ure 172.16.18.174:808	0/static/apui.html		1946.0				07
Alcatel - Luo Enterprise	cent 🕢	OV IP:172.16.18.18 Connection Time:00	8 ays 1h 59m 52s	Þ			Administrator Lo	gout About Englis Tools Settings
AP				W	LAN			
MAC	IP	Status	Clients	WU	AN Name	Status	Туре	Clients
DC:08:56:03:0B:40	172.16.18.174	OV	0	112	xh	enable	Open	0
				han	_support	enable	Open	0
				sup	port_wlan1	enable	Open	0
Litter Alagoia	Result:							
	ATTE	NTION: The command is e	ecuting, please wait about 2	minutes to complete	e the collection	and TFTP upload.		
		3CDaemon						
		Content and a c						
		SCDaemon 文件 查查 帮助 TFTP 服务	25 月 一届初时间	位置 字节	() 秋态			
		CDaemon 文件 查查 相助 TFTF 服务	篇	位置 字节 172.16.18.174 29873 173.16.18.19.02 40897	 ↓ 状态 ○ 接收[DC08560300 → 接付 3457080300 	840_snapshot_201811210006	47.tar.gz. 1561 298730	

Login the AP Web with "http://AP_IP:8080" or "https://AP_IP"

6.1.3.3 For long time collection of the log.

For some cases, it needs to collect the logs for hours or days, please use the script "take_snapshot_v1.4.sh" and "get_log_v1.4.sh" together as below:

root@AP-D1:40:/tmp# tftp -gr take_snapshot_v1.4.sh 172.16.18.166

root@AP-D1:40:/tmp# mv take_snapshot_v1.4.sh /usr/bin root@AP-D1:40:/tmp# tftp -gr get_log_v1.4.sh 172.16.18.166 root@AP-D1:40:/tmp# chmod +x /usr/bin/take_snapshot_v1.4.sh root@AP-D1:40:/tmp# chmod +x ./get_log_v1.4.sh root@AP-D1:40:/tmp# sh ./get_log_v1.4.sh 172.16.18.166 &

Note: when finish the log collection, please first type "fg" then press ctrl+c to end the script.

6.2 Troubleshooting for specific features (To be finished)

6.2.1 AP Reboot

Collection the logs under support account:

✓ To setup a TFTP server on a PC, for example: TFTP Server
 Address=*172.16.18.166*

support@AP-CA:70:~\$ cd /tmp

support@AP-CA:70:/tmp\$

support@AP-CA:70:/tmp\$ reset_reason get

support@AP-CA:70:/tmp\$ tftp -pl kes_debug.log 172.16.18.166

support@AP-CA:70:/tmp\$ tftp -pl kes_dmsg.log 172.16.18.166

support@AP-CA:70:/tmp\$ tftp -pl kes_history_syslog.log 172.16.18.166

support@AP-CA:70:/tmp\$ tftp -pl kes_history_traps.log 172.16.18.166

6.2.2 Band steering

- Related log description
- How to capture this trace
- Necessary analysis.
- 6.2.3 Throughput issues
- 6.2.4 Authentication
- 6.2.5 Portal

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- END OF DOCUMENT -