

Overview

Aruba Mobility Master Controller

Work environments are transforming to digital workplaces, with billions of mobile workers using their mobile devices for business critical services. Mobility, IoT and business critical applications are enabling these workers to be more productive and efficient, but at the same time driving up the demands on the network.

To enable an always-on network with the desired performance and user experience, enterprises must deliver an intelligent WLAN with advanced technologies to be more predictive, enable always-on connectivity, and improve network efficiency.

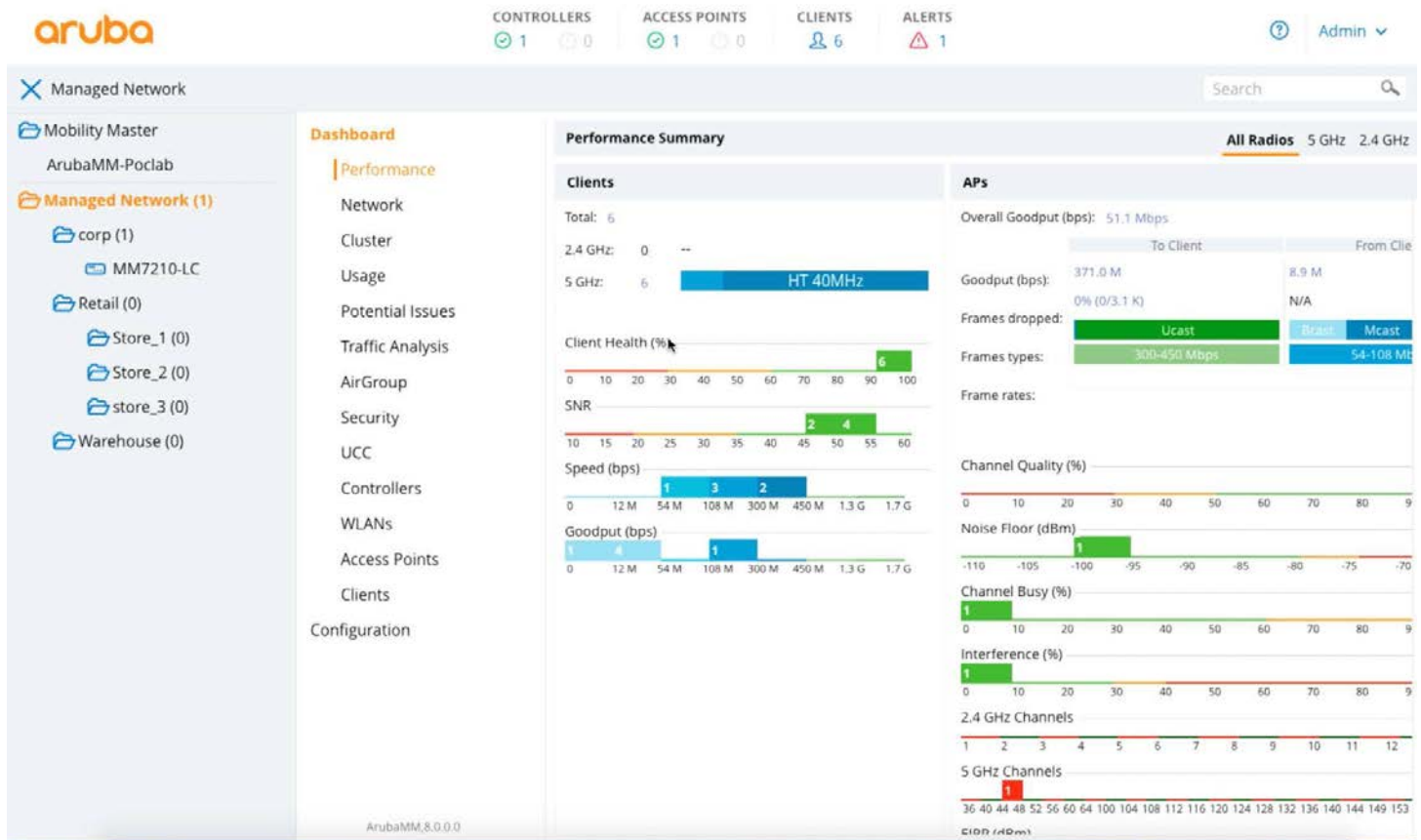


Figure 1: ArubaOS dashboard

Aruba Mobility Master

The Aruba Mobility Master is the next generation of master controller that can be either deployed as a virtual machine (VM) or installed on an x86-based hardware appliance. The Mobility Master provides better user experience, flexible deployment, simplified operations and enhanced performance. Existing Aruba customers can migrate their master controller configuration and licenses over to the Mobility Master and start taking advantage of these unique capabilities.

Flexible Deployment

Customers have the flexibility of deploying a VM or an x86-based hardware appliance depending on their environment and needs. Customers who already have a VM environment can benefit from ease of operation and right-size their VM by adjusting their CPU or memory. Moving to a VM-based deployment that has more memory and compute allows you to manage more services on the network. The Virtual Mobility Master can run on open source KVM or VMware ESXi hypervisor.

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Simplified Operations

Centralized configuration and visibility

The Mobility Master consolidates all-master, single master multiple local, and multiple master-local deployments into a single deployment model. ArubaOS 8 uses a centralized, multi-tier architecture under a new UI that provides a clear separation between management, control, and forwarding functions. The entire configuration for both the Mobility Master and managed devices is set up from a centralized dashboard, thereby simplifying and streamlining the configuration process.

Simplified upgrades with “Live Upgrade”*

Upgrading to a new operating system includes downtime for the entire network. However, when we run mission critical data on the network, finding a maintenance window becomes harder. With “Live Upgrades,” your entire network can be upgraded to the latest operating system in real-time – with zero downtime and no users being affected.

Mobility Master also introduces the ability to dynamically update individual service modules (AppRF, AirGroup, ARM, AirMatch, NBAPI, UCM, WebCC) that reside on the Mobility Master, without requiring an entire system reboot.

Multi-tenant wireless network with MultiZone

The new MultiZone feature in ArubaOS 8 allows IT organizations to have multiple and separate secure networks while using the same Access Point (AP). Historically if you wanted to have 2 secure networks in one physical location you had to have 2 separate APs which would create RF interference and be costly. With MultiZone enabled, one AP can terminate 2 different SSIDs on 2 different controllers. The data is encrypted from the client to the controller. When the data is flowing through the AP it is still encrypted. This means the networks are completely separate and secure even though the traffic runs through the same AP. This feature is very useful for federal, airport, retail or office buildings as it allows for easy policy implementation in environments where data privacy, separation and network security are critical.

In Figure 2 we show how MultiZone can be deployed in environments with multiple networks running from the same access point. In an airport for instance, there can be separate networks for the airlines, public and airport security that run off the same access point. The airport security Wi-Fi runs their network through their controller, while the airport public Wi-Fi runs through a public Wi-Fi controller – and all are using the same access point. In government use cases, you can run both classified and non-classified networks from one access point, with complete separation of data passing through their own respective controllers.

*Only available in ArubaOS 8.1

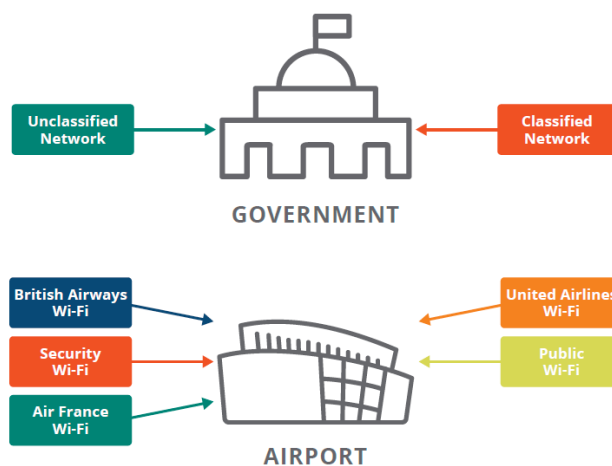


Figure 2: MultiZone use cases

Better Stability and User Experience with Controller Clustering

Massive traffic is hitting the network from mobile devices, IoT and business critical applications. Users expect no interruption in their mobile experience. Controller Clustering enables that seamless experience across giant campuses, in the event of a failure or significant crowd density. Clustering provides the following benefits for a better user experience.

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Hitless failover – Users will not notice any issues in the rare event of a controller failure. Voice calls, video, data transfers would all continue without noticeable impact. User session information is shared across controllers in the cluster to ensure there is no single point of failure for any user.

Automatic user load balancing – Users are distributed evenly across controllers to prevent congestion on a single controller. This ensures a large amount of available throughput for each user even when massive crowds gather.

Automatic AP load balancing – The access points automatically are load balanced across cluster of controller for better resource utilization and high availability when controller goes down. AP load balancing is done in seamless fashion so users are not affected.

Seamless roaming – Users do not experience any delays while moving through a large campus while on mission critical applications such as a Skype for Business call. All of the controllers in a cluster work together to manage the users. A user can roam across 10,000 APs without ever getting a new IP address, re-authenticating, or losing firewall state information.

In Figure 3 we have 8 clients spread out evenly across 3 controllers. In Figure 4, in the event of a failure of the Controllers 1 and 2 all 8 clients move over to controller 3 – making sure users are not affected from the controller failure.

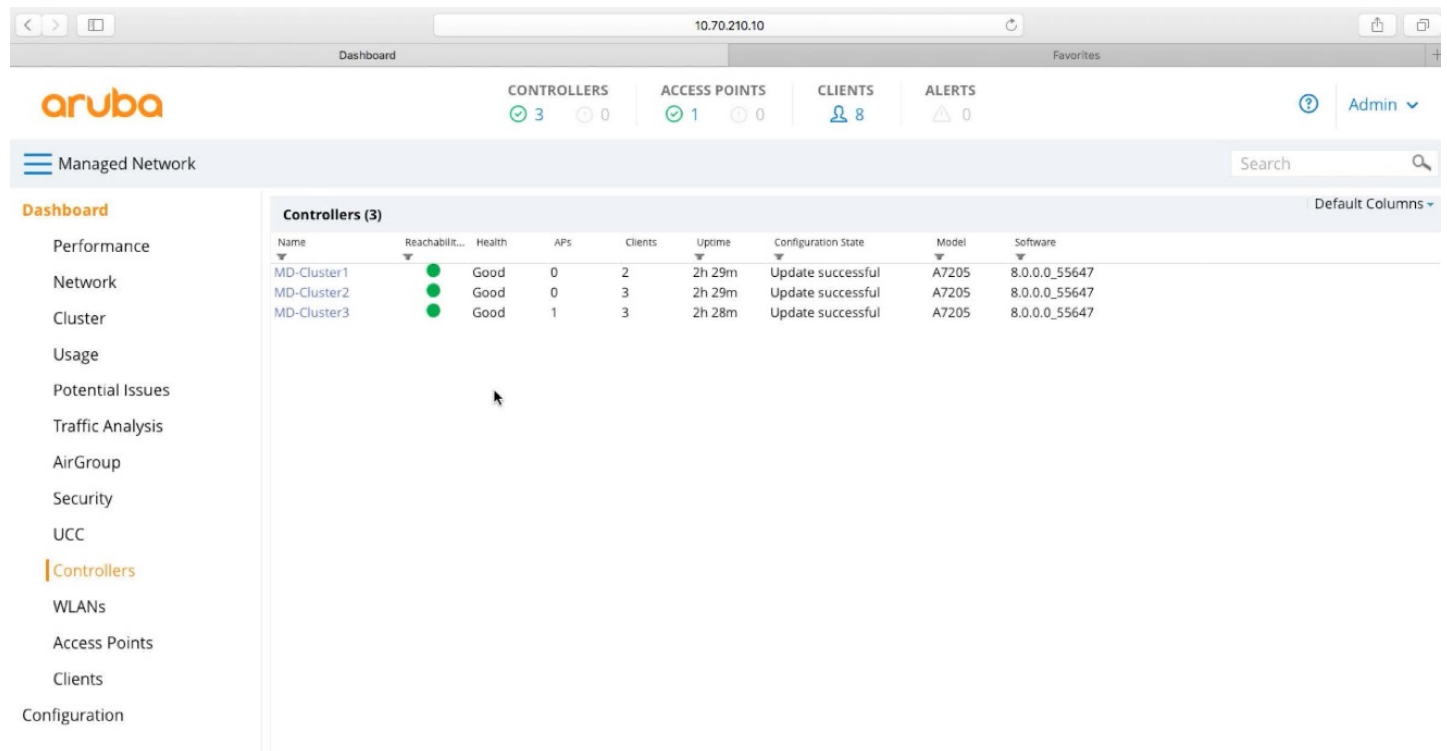


Figure 3: Clients are load balanced between controllers

Overview

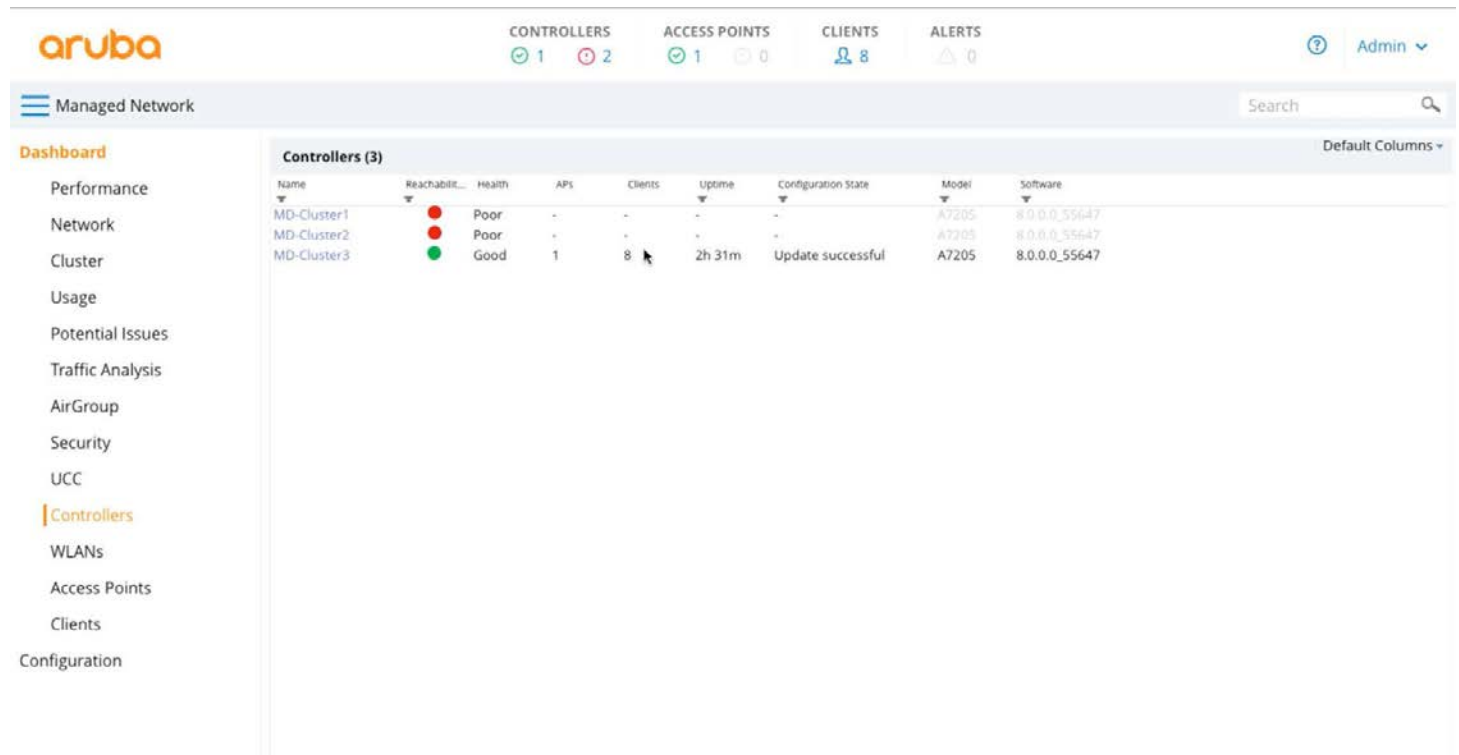


Figure 4: Clients failed over to one controller in the event of a failure

Enhanced WLAN Performance

The Mobility Master with ArubaOS 8 extends the capabilities of the Aruba WLAN to be more intelligent. AirMatch intelligently automates Wi-Fi tuning, while the NorthBound APIs provide unparalleled visibility to the network and AppRF customization brings better application user experience.

High performance Wi-Fi with AirMatch

ArubaOS 8 enhances the **Adaptive Radio Management** (ARM) technology with **AirMatch** – the new RF optimization system. AirMatch is designed with the modern RF environment in mind. AirMatch is tuned for noisy and high density environments with scarce clean or free air space. It gathers RF statistics for the past 24 hours and proactively optimizes the network for the next day. With automated channel, channel widths and transmit power optimization, AirMatch ensures even channel use, assists in interference mitigation and maximizes system capacity.

The capacity optimization is not just co-channel interference mitigation. AirMatch will also dynamically adjust channel width. This ensures the best network capacity whether you are in a high density environment like a lecture hall (20 MHz channels) or low density environments (80 MHz channels).

Client devices often make mistakes. AirMatch will minimize EIRP variances across the network to give clients the best chances to make the right decisions. **ClientMatch** will step in to help the clients that may still behave poorly.

AirMatch Benefits:	
Even channel assignment	Provides even distribution of radios across available channels, interference mitigation and maximized system capacity
Dynamic channel width adjustment	Dynamically adjusts between 20MHz, 40MHz and 80MHz to match the density of your environment
Automatic transmit power adjustment	Examines the entire WLAN coverage and automatically adjusts the transmit power of APs to ensure the best coverage and user experience

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North-bound APIs (NBAPI) for increased network intelligence

Mobility Master has a full set of northbound APIs that enable deep visibility into the network. The NBAPIs provide RF health metrics, app utilization, device type and user data in an easy to integrate format. 3rd party applications can receive information from the controller and analyze all these metrics for better visibility and monitoring.

AppRF Customization

AppRF brings application awareness to WLANs. It uses deep packet inspection to identify enterprise, cloud and mobile apps. It also enables IT to prioritize applications per user and device. Now in ArubaOS 8 we are extending the App RF capabilities by adding the capability for customers to define custom application and application categories to get a better user experience.

Configuration

Ordering Guide

Aruba Mobility Master is available as a license for a virtual machine, or as hardened hardware with the software pre-loaded. Choose your virtual machine license based on the desired device capacity.

Description	Part Number
Aruba MM-VA-50 Mobility Master Virtual Appliance with Support for up to 50 Devices E-LTU	JZ106AAE
Aruba MM-VA-500 Mobility Master Virtual Appliance with Support for up to 500 Devices E-LTU	JY895AAE
Aruba MM-VA-1K Mobility Master Virtual Appliance with Support for up to 1000 Devices E-LTU	JY896AAE
Aruba MM-VA-5K Mobility Master Virtual Appliance with Support for up to 5000 Devices E-LTU	JY897AAE
Aruba MM-VA-10K Mobility Master Virtual Appliance with Support for up to 10000 Devices E-LTU	JY898AAE
Aruba MM-VA-50 Virtual Mobility Master FIPS/TAA Software with Support for up to 50 Devices E-LTU	JZ395AAE
Aruba MM-VA-500 Virtual Mobility Master FIPS/TAA Software with Support for up to 500 Devices E-LTU	JZ376AAE
Aruba MM-VA-1K Virtual Mobility Master FIPS/TAA Software with Support for up to 1000 Devices E-LTU	JZ377AAE
Aruba MM-VA-5K Virtual Mobility Master FIPS/TAA Software with Support for up to 5000 Devices E-LTU	JZ378AAE
Aruba MM-VA-10K Virtual Mobility Master FIPS/TAA Software with Support for up to 10000 Devices E-LTU	JZ379AAE

If a hardware solution is preferred, see step 1, below.

Step 1. Select the appropriate hardware model based on desired device capacity

Description	Part Number
Aruba MM-HW-1K Mobility Master Hardware Appliance with Support for up to 1000 Devices	JY791A
Aruba MM-HW-5K Mobility Master Hardware Appliance with Support for up to 5000 Devices	JY792A
Aruba MM-HW-10K Mobility Master Hardware Appliance with Support for up to 10000 Devices	JY793A

NOTE: Devices include APs and Controllers

Step 2. Power cords: Requires 2 AC power cords for the dual power supplies

Description	Part Number
PC-AC-ARG Argentina 220V AC 10A 2-meter AC Power Cord	JW113A
PC-AC-AUS Australian AC Power Cord	JW114A
PC-AC-BR Brazil AC Power Cord	JW115A
PC-AC-CHN China AC Power Cord	JW116A
PC-AC-DEN Denmark 220V AC 10A 2-meter AC Power Cord	JW117A
PC-AC-EC Continental European/Schuko AC Power Cord	JW118A
PC-AC-IN India AC Power Cord	JW119A
PC-AC-IL Israel 250V AC 10A 2-meter AC Power Cord	JW120A
PC-AC-IT Italian AC Power Cord	JW121A
PC-AC-JP Japanese AC Power Cord	JW122A
PC-AC-KOR Korea AC Power Cord	JW123A
PC-AC-NA North America AC Power Cord	JW124A
PC-AC-SWI Switzerland 220V AC 10A 2-meter AC Power Cord	JW125A
PC-AC-TW Taiwan AC Power Cord	JW126A
PC-AC-UK UK AC Power Cord	JW127A

Configuration

NOTE: Aruba Mobility Master Hardware Appliance ships with dual power supplies. Must order region specific power cords from this list.

Step 3. Select transceivers for SFP/SFP+ ports (optional)

Description	Part Number
SFP-LX 1000BASE-LX SFP 1310nm LC Connector Pluggable GbE XCVR	JW087A
SFP-SX 1000BASE-SX SFP 850nm LC Connector Pluggable GbE XCVR	JW088A
SFP-TX 1000BASE-T SFP Copper GbE RJ45 Connector Pluggable XCVR	JW089A
SFP-10GE-SR 10GBASE-SR SFP+ 850nm Pluggable LC Connector 10GbE XCVR	JW091A
SFP-10GE-LR 10GBASE-LR SFP+ 1310nm Pluggable LC Connector 10GbE XCVR	JW092A
DAC-SFP-10GE-1M 1m 10GbE SFP+ Twinax Connectors Direct Attach Cable	JW101A
DAC-SFP-10GE-3M 3m 10GbE SFP+ Twinax Connectors Direct Attach Cable	JW102A
DAC-SFP-10GE-50CM 50cm 10GbE SFP+ Twinax Connectors Direct Attach Cable	JW100A
DAC-SFP-10GE-5M 5m 10GbE SFP+ Twinax Connectors Direct Attach Cable	JW103A
DAC-SFP-10GE-7M 7m 10GbE SFP+ Twinax Connectors Direct Attach Cable	JW104A
HPE X132 10G SFP+ LC LR Transceiver	J9151A
HPE X132 10G SFP+ LC SR Transceiver	J9150A
HPE X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable	J9281B
HPE X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	J9283B
HPE X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable	J9285B

NOTE: There are 2x 10GbE SFP/SFP+ ports on MM-HW

Step 4. Select spares (optional)

Description	Part Number
Aruba SPR-RK-MNT 7200 / S3500 / S1500-24/48 / S2500 Spare Front or Mid Mount	JW107A
MMPSU-400-AC 400W AC Spare Power Supply for Mobility Master Hardware Appliance	JY986A
MM-FT Spare Fan Tray for Mobility Master Hardware Appliance	JZ072A

NOTE:

MM-HW ships with rack mount kit

MM-HW ships with dual PSUs and 3 fan trays installed

Step 5. Available individual AP licenses

Description	Part Number
Aruba LIC-AP Controller per AP Capacity License E-LTU	JW472AAE
Aruba LIC-PEF Controller Policy Enforcement Firewall Per AP License E-LTU	JW473AAE
Aruba LIC-RFP Controller RFPProtect Per AP License E-LTU	JW474AAE
Aruba LIC-ACR Controller Advanced Cryptography 1 Session License E-LTU	Q9B90AAE
Aruba LIC-ACR-8 Controller Advanced Cryptography 8 Session License E-LTU	JW538AAE
Aruba LIC-ACR-32 Controller Advanced Cryptography 32 Session E-LTU	JW539AAE
Aruba LIC-ACR-64 Controller Advanced Cryptography 64 Session License E-LTU	JW540AAE
Aruba LIC-ACR-128 Controller Advanced Cryptography 128 Session License E-LTU	JW541AAE
Aruba LIC-ACR-256 Controller Advanced Cryptography 256 Session License E-LTU	JW542AAE
Aruba LIC-ACR-512 Controller Advanced Cryptography 512 Session License E-LTU	JW543AAE
Aruba LIC-ACR-1024 Controller Advanced Cryptography 1024 Session License E-LTU	JW544AAE
Aruba Controller Web Content Classification 1 Year Subscription E-STU	JY028AAE
Aruba Controller Web Content Classification 3 Year Subscription E-STU	JY029AAE
Aruba Controller Web Content Classification 5 Year Subscription E-STU	JY030AAE

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Aruba Controller Web Content Classification 7 Year Subscription E-STU	JY031AAE
Aruba Controller Web Content Classification 10 Year Subscription E-STU	JY032AAE
Aruba LIC-VIA Per VIA Client Controller VPN License E-LTU	JZ148AA

NOTE: For each AP attached to the controller the minimal configuration is 1xLIC-AP per AP.

Step 6. Bundled AP license

Description

Aruba LIC-ENT Enterprise (LIC-AP LIC-PEF LIC-RFP and LIC-AW) Licence Bundle E-LTU

Part Number

JW471AAE

NOTE:

Configure these as at least one per AP connected to the controller

LIC-ENT (JW471AAE) is equivalent to 1 each of LIC-AP, LIC-REF, LIC-RFP, and LIC-AW

LIC-AW is a device license for AirWave Management system

Technical Specifications

Mobility Master Models And Capacities

Aruba Mobility Master Virtual Appliance	MM-VA-50	MM-VA-500	MM-VA-1K	MM-VA-5K	MM-VA-10K
Number of Devices	50	500	1,000	5,000	10,000
Number of Clients	500	5,000	10,000	50,000	100,000
Number of Controllers	5	50	100	500	1,000

Aruba Mobility Master Hardware Appliance	MM-HW-1K	MM-HW-5K	MM-HW-10K
Number of Devices	1,000	5,000	10,000
Number of Clients	10,000	50,000	100,000
Number of Controllers	100	500	1,000

NOTE: Aruba Mobility Master Hardware Appliance is based on x86 hardware appliance

Mobility Master Hardware Appliance Specifications

Interfaces and Indicators

- Two 10GBASE-X (SFP+) ports
- One 1GBASE-T Management port
- One USB 3.0
- One RJ-45 Console port
- Port LINK/ACT and status LEDs
- Front panel LEDs – Power, Status, Peered

Dimensions and Weight

- 4.4 cm (H) x 44.2 cm (W) x 40.1 cm (D)
(1.73" x 17.40" x 15.79")
- Weight: 7.2 kg (15.87 lbs)

Environmental

- Operating temperature range: 0°C to 40°C (-40°F to 104°F)
- Operating humidity: 10% to 90% (RH) non-condensing
- Storage temperature range: -40°C to 70°C (-40°F to 158°F)
- Storage humidity: 10% to 95% (RH) non-condensing
- Operating altitude: Up to 10,000 feet

Acoustic Noise

- Sound pressure: 57 dBA *
- Sound power: 64.4 dBA **

* Measured at Rear center

** Nominal fan speed at room temperature

Sound power per ETSI 300 753; Sound pressure per ISO 7779

Power Supply Specifications

- Dual 400-watt load shared redundant configuration
- Input: 100-240V AC
- Output: 12V DC
- AC Input Current: 6.0 A max
- AC Input Frequency: 50-60 H

Regulatory and Safety Compliance

- FCC Part 15 Class A CE
- Industry Canada Class A
- VCCI Class A (Japan)
- EN 55032 Class A (CISPR 32 Class A), EN 61000-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11, EN 55024, AS/NZS 3548
- UL 60950, EN60950
- CAN/CSA 22.2 #60950
- CE mark, cTUVus, CB, C-tick, Anatel, NOM, MIC

Regulatory SKU Information

- Regulatory Model: ARCNMMHW

Minimum ArubaOS Release

- AOS 8.1

Warranty

- Hardware: 1 year parts/labor*
- Software: 90 days*

* Extended with support contract

Summary of Changes

Date	Version History	Action	Description of Change
15-Jan-2018	From Version 3 to 4	Added	SKUs added: JW538AAE, JW539AAE, JW540AAE, JW541AAE, JW542AAE, JW543AAE, JW544AAE, JY028AAE, JY029AAE, JY030AAE, JY031AAE, JY032AAE, JZ148AA
08-Jan-2018	From Version 2 to 3	Added	SKU added: Q9B90AAE
04-Dec-2017	From Version 1 to 2	Added	SKUs added: JZ106AAE, JY895AAE, JY896AAE, JY897AAE, JY898AAE, JZ395AAE, JZ376AAE, JZ377AAE, JZ378AAE, JZ379AAE
		Changed	Document name updated to Aruba Mobility Master Controller
08-May-2017	Version 1	Created	Document creation.



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