

## DATA SHEET

# ARUBA MOBILITY MASTER

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.

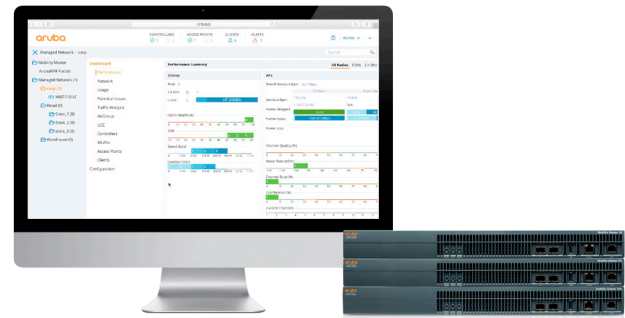
To enable an always-on network with the desired performance and user experience, enterprises must deliver an intelligent WLAN with advanced technologies to be more predictive, enable always-on connectivity, and improve network efficiency.

### ARUBA MOBILITY MASTER

The Aruba Mobility Master is the next generation of master controller that can be either deployed as a virtual appliance (VA) 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.

### IMPROVED RELIABILITY

Massive traffic is hitting the network from mobile devices, IoT and business critical applications. Users expect no interruption in their mobile experience. Controller Clustering, Live upgrade, in-service upgrade as well as Multi OS support would drastically increase availability of the network.



### Controller Clustering

Controller Clustering provides the following benefits for a better user experience.

**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 1 we have 8 clients spread out evenly across 3 controllers. In Figure 2, 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.

The screenshot shows the Aruba Mobility Master dashboard with the following data:

- CONTROLLERS: 3 (all green)
- ACCESS POINTS: 1 (green), 0 (grey)
- CLIENTS: 8 (blue icon)
- ALERTS: 0 (triangle icon)

Name	Reachability	Health	APs	Clients	Uptime	Configuration State	Model	Software
MD-Cluster1	●	Good	0	2	2h 29m	Update successful	A7205	8.0.0.0_55647
MD-Cluster2	●	Good	0	3	2h 29m	Update successful	A7205	8.0.0.0_55647
MD-Cluster3	●	Good	1	3	2h 28m	Update successful	A7205	8.0.0.0_55647

Figure 1: Clients are load balanced between controllers

The screenshot shows the Aruba Mobility Master dashboard after a failure, with the following data:

- CONTROLLERS: 1 (green), 2 (red)
- ACCESS POINTS: 1 (green), 0 (grey)
- CLIENTS: 8 (blue icon)
- ALERTS: 0 (triangle icon)

Name	Reachability	Health	APs	Clients	Uptime	Configuration State	Model	Software
MD-Cluster1	●	Poor	-	-	-	-	A7205	8.0.0.0_55647
MD-Cluster2	●	Poor	-	-	-	-	A7205	8.0.0.0_55647
MD-Cluster3	●	Good	1	8	2h 31m	Update successful	A7205	8.0.0.0_55647

Figure 2: Clients failed over to one controller in the event of a failure

### No downtime 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 minimum 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, with “In service upgrade” without/ requiring an entire system reboot, bringing availability at all levels.

### Multi-OS support

To minimize network downtime when upgrading to a new OS release, this new technology allows IT administrators to test and play around with the new software update in one area (controller cluster) without affecting the entire network. This can work as a gradual migration tool to adopt new innovations while minimizing risk.

## ENHANCED USER EXPERIENCE

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 20 MHz, 40 MHz and 80 MHz 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

### 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.

## SIMPLIFIED OPERATIONS AND FLEXIBILITY OF DEPLOYMENT

### 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. Network configuration can be directed from the Mobility Master to all the Mobility Controllers in the network making the configuration process more simplified and efficient.

### 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, VMWare ESXi hypervisor or Microsoft HyperV.

## ENHANCED SECURITY

### 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.

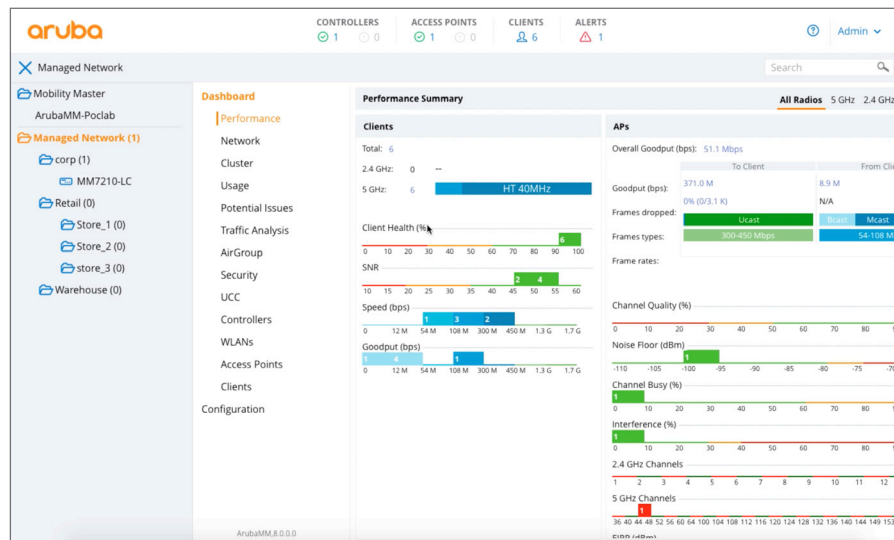


Figure 3: ArubaOS dashboard

In Figure 4 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 turn off the same access point. The airport security Wi-Fi runs 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.

### Tunnel Node – unified wired wireless policy

Many IoT and mobile devices that require power over Ethernet (PoE) and network access, such as security cameras, IP phones, payment card readers and medical devices, don't have built-in security software, which creates a threat to the network.

Tunnel Node allows you to extend your wireless policies to your wired, allowing to have one unified policy per user regardless of how the user is connected. With this feature all the traffic tunnels from wired ports to the Mobility Controller where all the policies for firewall, finger printing and packet inspection resides.

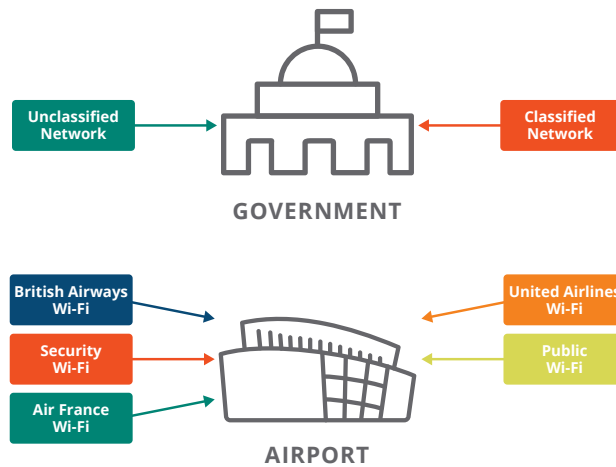


Figure 4: MultiZone use cases

## 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

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 Consumption

- 120W (Ubuntu running all cores, memory test, 10G traffic, this may vary by 10% based on software config)

### 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 Hz

### 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

## ORDERING INFORMATION

Part Number	Description
<b>Aruba Mobility Master Virtual Appliance</b>	
JZ106AAE	Aruba MM-VA-50 Mobility Master Virtual Appliance with Support for up to 50 Devices E-LTU
JY895AAE	Aruba MM-VA-500 Mobility Master Virtual Appliance with Support for up to 500 Devices E-LTU
JY896AAE	Aruba MM-VA-1K Mobility Master Virtual Appliance with Support for up to 1,000 Devices E-LTU
JY897AAE	Aruba MM-VA-5K Mobility Master Virtual Appliance with Support for up to 5,000 Devices E-LTU
JY898AAE	Aruba MM-VA-10K Mobility Master Virtual Appliance with Support for up to 10,000 Devices E-LTU
JZ395AAE	Aruba MM-VA-50-F1 Mobility Master Virtual Appliance FIPS/TAA with Support for 50 Devices E-LTU
JZ376AAE	Aruba MM-VA-500-F1 Mobility Master Virtual Appliance FIPS/TAA with Support for 500 Devices E-LTU
JZ377AAE	Aruba MM-VA-1K-F1 Mobility Master Virtual Appliance FIPS/TAA with Support for 1,000 Devices E-LTU
JZ378AAE	Aruba MM-VA-5K-F1 Mobility Master Virtual Appliance FIPS/TAA with Support for 5,000 Devices E-LTU
JZ379AAE	Aruba MM-VA-10K-F1 Mobility Master Virtual Appliance FIPS/TAA with Support 10,000 Devices E-LTU

## ORDERING INFORMATION

Part Number	Description
<b>Aruba Mobility Master Hardware Appliance and Accessories</b>	
JY791A	Aruba MM-HW-1K Mobility Master Hardware Appliance with Support for up to 1,000 Devices
JY792A	Aruba MM-HW-5K Mobility Master Hardware Appliance with Support for up to 5,000 Devices
JY793A	Aruba MM-HW-10K Mobility Master Hardware Appliance with Support for up to 10,000 Devices
JZ396A	Aruba MM-HW-1K-F1 Mobility Master Hardware Appliance FIPS/TAA with Support for up to 1,000 Devices
JZ397A	Aruba MM-HW-5K-F1 Mobility Master Hardware Appliance FIPS/TAA with Support for up to 5,000 Devices
JZ398A	Aruba MM-HW-10K-F1 Mobility Master Hardware Appliance FIPS/TAA with Support for up to 10,000 Devices
JY986A	MMPSU-400-AC 400W AC Spare Power Supply for Mobility Master Hardware Appliance – Order region specific power cord
JZ072A	MM-FT Spare Fan Tray for Mobility Master Hardware Appliance
JW107A	Aruba SPR-RK-MNT Spare Rack Mount
JW087A	SFP-LX 1000BASE-LX SFP 1310nm LC Connector Pluggable GbE XCVR
JW088A	SFP-SX 1000BASE-SX SFP 850nm LC Connector Pluggable GbE XCVR
JW089A	SFP-TX 1000BASE-T SFP Copper GbE RJ-45 Connector Pluggable XCVR
JW091A	SFP-10GE-SR 10GBASE-SR SFP+ 850nm Pluggable LC Connector 10GbE XCVR
JW092A	SFP-10GE-LR 10GBASE-LR SFP+ 1310nm Pluggable LC Connector 10GbE XCVR
J9151A	HPE X132 10G SFP+ LC LR Transceiver
J9150A	HPE X132 10G SFP+ LC SR Transceiver
J9281B	HPE X242 10G SFP+ to SFP+ 1m DAC Cable
J9283B	HPE X242 10G SFP+ to SFP+ 3m DAC Cable
J9285B	HPE X242 10G SFP+ to SFP+ 7m DAC Cable
JW100A	DAC-SFP-10GE-50CM 50cm 10GbE SFP+ Twinax Connectors Direct Attach Cable
JW101A	DAC-SFP-10GE-1M 1m 10GbE SFP+ Twinax Connectors Direct Attach Cable
JW102A	DAC-SFP-10GE-3M 3m 10GbE SFP+ Twinax Connectors Direct Attach Cable
JW103A	DAC-SFP-10GE-5M 5m 10GbE SFP+ Twinax Connectors Direct Attach Cable
JW104A	DAC-SFP-10GE-7M 7m 10GbE SFP+ Twinax Connectors Direct Attach Cable



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