

This document describes new features, resolved issues, and known issues in this AirWave release and includes the following sections:

- "What's New in this Release" on page 1
- "Changes" on page 9
- "The Support Download Page" on page 12
- "Fixed Issues" on page 13
- "Known Issues" on page 14

What's New in this Release

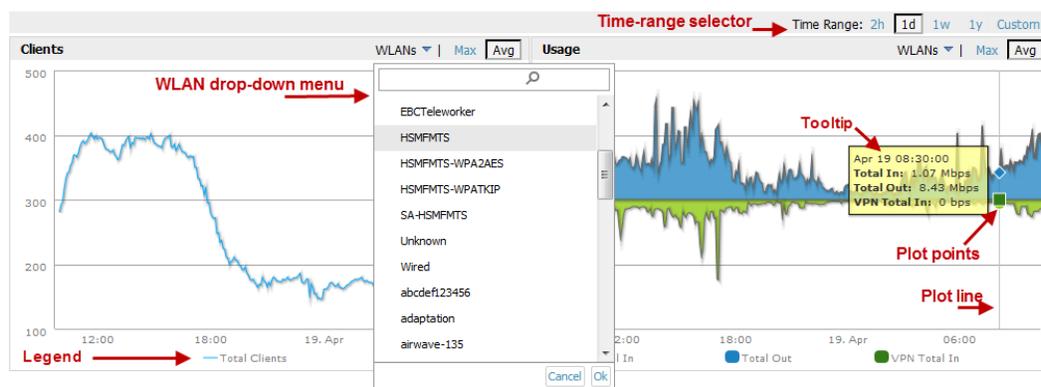
Highcharts

All Flash charts within AirWave have been replaced with Highcharts. Unlike the previous charts, Highcharts are built with JavaScript, so it can run directly through your browser without the need for additional client-side plugins. This makes it possible to view your AirWave charts on a mobile device.

These updated charts can be used and customized as follows.

- A Time Range selector in the upper right portion of the charts (including pop-up charts) allows you to select a common or a custom date range for your data. The preconfigured ranges for AirWave charts are current 2 hours, 1 day, 1 week, and 1 year.
- Drop-down menus are available for viewing client and usage for specific SSIDs and/or all SSIDs. A search field is available to help you quickly find a specific WLAN.
You can select up to six options from each drop-down menu. Once selected, each option will appear in the color-coded legend below the chart. Clicking on an option in this legend will disable or enable that information in the graph. Note that even if an option is disabled from viewing in the graph, that option will still remain in the legend until you deselect it from the drop-down menu.
- Max and Avg options allow you to change the chart view to show the maximum or average client and usage information.
- Plot points display within the chart at varying intervals, depending on the selected time range. Tooltips and a plot line appear as you hover over each plot point, showing you the detailed information for that specific time.
- Click on any chart to view a pop-up version. In this version, you can easily zoom in on a range of data by using your mouse to drag a rectangle in the chart. While you are zoomed in, a **Reset zoom** button appears, enabling you to return to the original view. The pop-up charts also include a legend that displays the Last, Min, Max, and Avg values for the selected graph.
- Some charts include a drop-down option next to the graph title. For example, on the **APs/Devices > Monitor** page for Radio Statistics, you can select the drop-down beside the graph title to view a graph for Client, Usage, Radio Channel, Radio Noise, Radio Power, Radio Errors, and 802.11 Counters information. In prior versions of AirWave, these graphs appeared as separate tabs.

Figure 1 Example of Highcharts in use on the Home > Overview page



Policy Enforcement Firewall (PEF) Visibility

The ArubaOS Policy Enforcement Firewall module on Aruba controllers provides identity-based controls to enforce application-layer security and prioritization. With PEF, IT can enforce network access policies that specify who can access the network, with which mobile devices, and in which areas of the network. The Aruba AppRF technology integrated with PEF delivers mobile application traffic visibility through a simple dashboard on your controller UI.



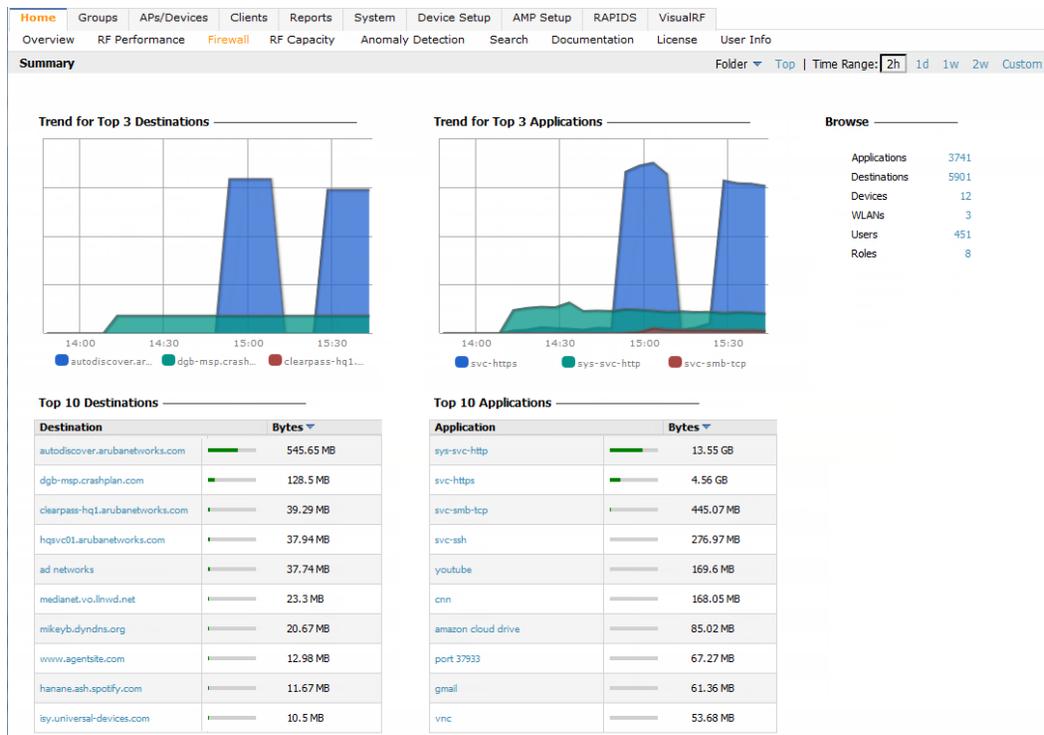
This feature is only supported for controllers running ArubaOS version 6.2 or greater with AMON enabled.

This version of AirWave includes a new **Home > Firewall** page, which allows network admins to view mobile app usage and performance on the network. This page provides charts to easily view trending information for the top three destinations and applications for a selected folder. You can drill down to view more specific information based on the user ID, device, application, role, destination, and WLAN. AirWave can provide up to two weeks of network data for multiple controllers. This data can be used to troubleshoot application performance in real time, to set WLAN policies, and to plan for future network enhancements.



The **Home > Firewall** pages may show IP addresses rather than resolved names. AirWave receives this message from the controller via AMON and does not automatically resolve the IP addresses. In addition, the query that performs this function requires an authenticated controller user with the appropriate CLI credentials.

Figure 2 Home > Firewall page



Support for ARM 3.0

This version of AirWave includes support for Adaptive Radio Management (ARM) 3.0. Aruba's ARM technology employs infrastructure-based controls to optimize Wi-Fi client behavior, ensuring that Aruba access points (APs) stay clear of interference. This results in a more reliable, high performance WLAN infrastructure.



Support for ARM 3.0 is only available for AMPs added in a controller running ArubaOS 6.3 or greater.

When ARM is enabled on an Aruba device, AirWave will monitor the connected clients. AirWave uses the information that it gathers to determine the client health information and to note any steering events, including the from and to APs, the number of steers, the steer time, and the steer reason.



Steer Reasons are currently derived directly from the controller.

You can view steering events on the following pages:

- Clients > Diagnostics
- Clients > Details

You can view health information on the following pages:

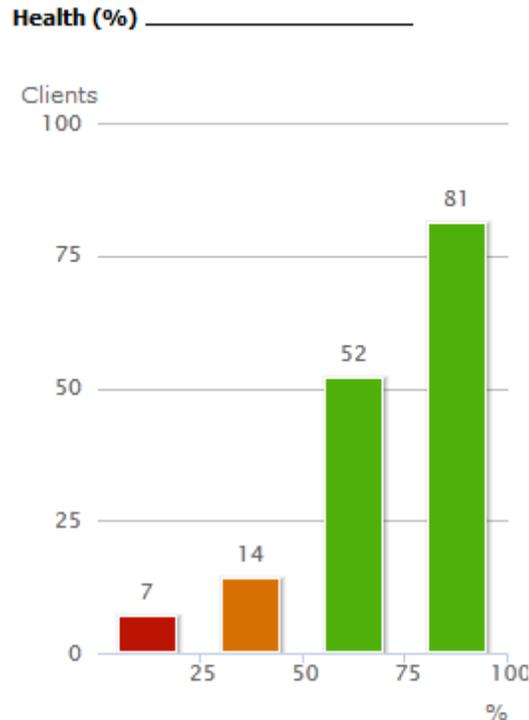
- Home > RF Performance, including pop-up tables
- Clients > Diagnostics
- Clients > Client Detail
- Visual RF. Health is indicated by colored spots for clients in floor plans.

Additional information about these new features is available in the sections that follow.

Health Information

The **Home > RF Performance** page now includes a Health bar chart and a legend showing the Least Healthy Clients. As with other RF Performance charts, you can select one of the Least Healthy Clients in the table below the chart to view the **Clients > Diagnostics** page for the selected client. Similarly, you can click on an item in the chart to drill down to more detailed information on a pop-up page. This pop-up now includes a new Health % column.

Figure 3 Health chart on the Home > RF Performance page



Least Healthy Clients

Client	Health (%) ▲
mradella	0
scotth	0
ARUBANETWORKS\gbh...	0
ARUBANETWORKS\ymal...	14
00:24:D7:8C:9B:88	15

[More](#)

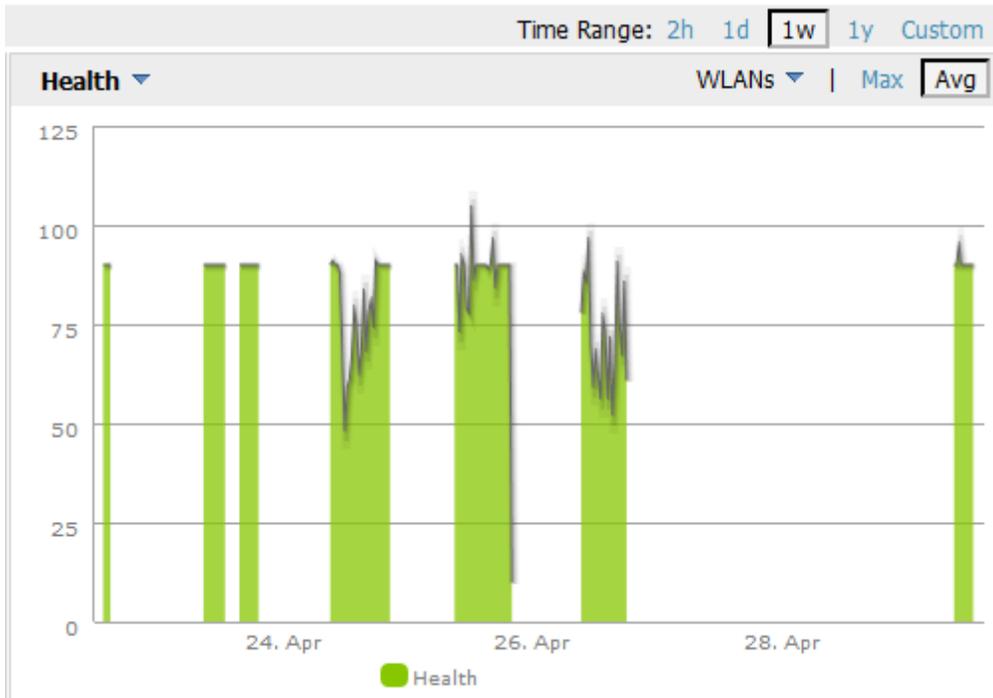
Client Health Graphs

New Client Health graphs are included on the **Clients > Diagnostics** and **Clients > Client Detail** pages. These charts display the average health for a specific client over a 2-hour, 1-day, 5-day, 1-month, or 1-year period. display within the chart at varying intervals, depending on the selected time range. Tooltips and a plot line appear as you hover over each plot point, showing you the detailed information for that specific time.



The Health chart on the **Clients > Client Detail** page does not display by default. Click the drop-down button beside the title to select the Health chart. In addition, the chart on this page does not include a 1-month option. To view health information for a one-month period, use the Custom option to change the time range.

Figure 4 Client Health graph



Visibility into Radios

Included with support for ARM 3.0, a new table named "Radios That Can Hear This Client" was added to the **Clients > Client Detail** page. This table provides information about the AP(s) that the client connect to, including the Radio type, SNR value, current number of clients, the usage (in Kbps), the AP uptime, and whether the device was recently added.

Figure 5 Radios That Can Hear This Client

Radios That Can Hear This Client

AP/Device	Radio	SNR ▼	Client Count	Usage (Kbps)	Uptime	Recently Associated
1242-ac	802.11ac	8	6	0.00	5 hrs 1 min	Yes

VisualRF Support

Health information was added to VisualRF. In a floor plan, you can click on a client to view the client's Health information two ways:

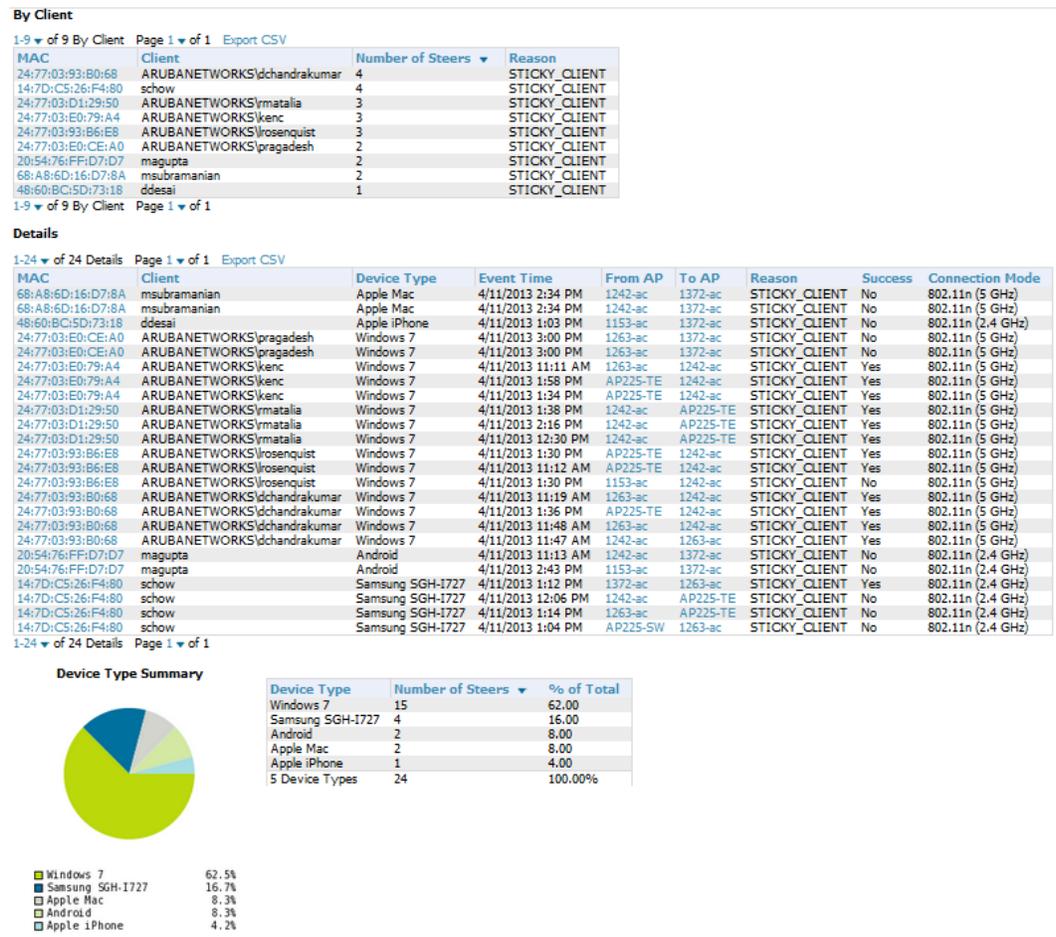
- Selecting a client adds a colored circle around the device. Green devices have good health, orange devices have medium health, and red devices have poor health.
- Selecting a client opens the Properties pop-up for the client. A new Health label was added to this pop-up.

In addition, a new Health check box was added to the Overlays tab.

Steer Event Report

Related to support for ARM 3.0, AirWave 7.7 introduces a new Steer Event report. This report can be used to track steering events per folder, AP, and client. You can also include graphical information that summarizes events by connection mode, device type, and reason. Similarly, you can choose to show detailed information in the report, including MAC addresses, clients, device types, event time, the from and to AP, the reason for the steer, whether the steer was a success, and the connection mode.

Figure 6 Sample output for Steer Event Report



Anomaly Detection

The **Home > Anomaly Detection** page provides graphs that track your network's Client and Usage information and draw attention to unusual network usage patterns. These graphs can show you, for example, if heavy network traffic is occurring during off hours, or they can be used to detect the time(s) of day when your network traffic peaks.

By default, the graph lines display the previous 2 hours of client and usage information for the current day of the week averaged out over the last 40 weeks. The shaded area indicates the standard deviation, which defaults to 1. So, for example, if you launch this page at 9:00 am on a Friday, then a 2-hour graph will show the average number of connected clients and usage between 7:00 AM and 9:00 AM on all Fridays over the last 40 weeks. You can change this range to 4 hours, 8 hours, or 1 day using the time-range options in the upper-right corner of this page, and AMP will remember the new setting the next time the page is launched.

These graphs include plot points that display at five-minute intervals. You can select/drag a set of plot points to zoom in and view a smaller time range. Click the **Reset zoom** button to return to the specified time range.

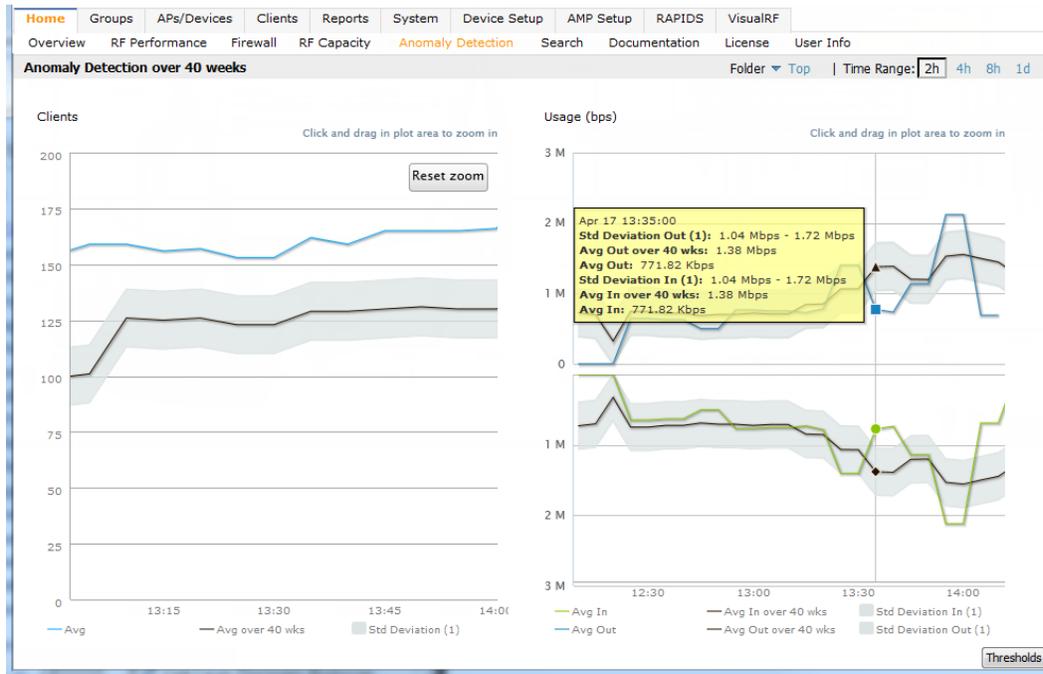
The left graph shows client information - specifically the average number of clients over the last 40 weeks during the selected time range. The right graphs show usage information - specifically the average incoming and outgoing bits-per-second over the last 40 weeks during the selected time range. The shaded/gray color within the graphs indicates the standard deviation. Any blue lines (Avg Clients, Avg Out Usage) or green lines (Avg In Usage) that appear outside of the shaded/gray area can be considered an anomaly points because their value does not come within the range of the calculated standard deviation.



Because this operation consumes bandwidth by parsing through large amounts of data, you may have to wait up to a

minute before seeing the initial graph plot points. In addition, this page does not automatically refresh, rather it refreshes each time this page is selected and/or each time you click Refresh. As a result, if you click this page, navigate away, and then return to this page, the page will begin to load again. If your network includes a large amount of data, then a best practice is to open this page in a new tab before navigating to another page. In this case, the Anomaly Detection page will continue to load while you continue to work in AMP.

Figure 7 Home > Anomaly Detection page



The first time this page is launched, the graphs will display information for all devices in the Top folder. To specify a different folder, simply select one from the folder drop down in the upper-right corner, and then refresh the page. AMP will remember the new setting the next time that the page is launched.

By default, the graphs display average and standard deviation information for the current time over the last 40 weeks. Click the **Thresholds** button in the lower right corner to change these defaults. AMP will remember the new setting the next time that the page is launched.



The **Thresholds** button is disabled while the page is loading. The **Folder** drop down is disabled until the first plot points display.

Figure 8 Anomaly Threshold

Anomaly Threshold
✕

Calculate Avg. Metrics over (20-40 weeks)

Number of Std. Deviations (1-3)

[Reset Thresholds]

Mobility Access Switch Configuration

A new **Switch Config** page has been added to the **Groups** tab and provides configuration support for Mobility Access Switches. Similar to Controller Config (formerly known as Aruba Config), this page is visible when the **Use Global**

Aruba Configuration option is set to **No** on the **AMP Setup > General** page.

The Aruba Mobility Access Switch supports profile-based configuration for interfaces, interface-groups, port channels, and VLANs. You can use profiles to apply the same configuration to multiple interfaces and VLANs rather than individually. The same profile can be applied to multiple interfaces that share the same characteristics, such as physical specifications, type, and VLAN membership. You can also apply these profiles to an interface-group, or a port-channel. This enables you to more easily provision role-based access for wired users.



Mobility Access Switches cannot be configured by regular templates.

Both the Controller Config and Switch Config features in AMP consolidate ArubaOS configuration and push global Aruba configurations from one utility. For a complete description of ArubaOS profiles, refer to the *ArubaOS User Guide* and/or the *ArubaOS Mobility Access Switch User Guide* for your release. For information on preparing your AMP for MAS Config, refer to the Switch Config chapter in the *AirWave 7.7 Device Configuration Guide*.



This feature is available for Mobility Access Switches that are running ArubaOS version 7.2 or greater.

Figure 9 *Groups > Switch Config* page

	Name ▲	Gigabitethernet	VLAN	Wired Auth	Interface	User Rules	Controller
<input type="checkbox"/>	default	-	-	-	-	-	-
<input type="checkbox"/>	default-dot1x	-	-	-	-	-	-
<input type="checkbox"/>	default-mac-auth	-	-	-	-	-	-



The Used By columns will remain empty for profiles that are overridden. This is because the Switch Config feature is only supported under Group configuration mode and not in global configuration mode.

Watched Clients

In AirWave 7.7, a new **Watched Client** option is available on the **Clients > Client Detail**.

Figure 10 Watched Client option

Aruba HTTP Fingerprint: Mozilla/5.0 (iPhone; CPU iPhone OS 6_0_1 like Mac OS X; en-us)
AppleWebKit/534.46.0 (KHTML, like Gecko) CriOS/21.0.1180.80 Mobi

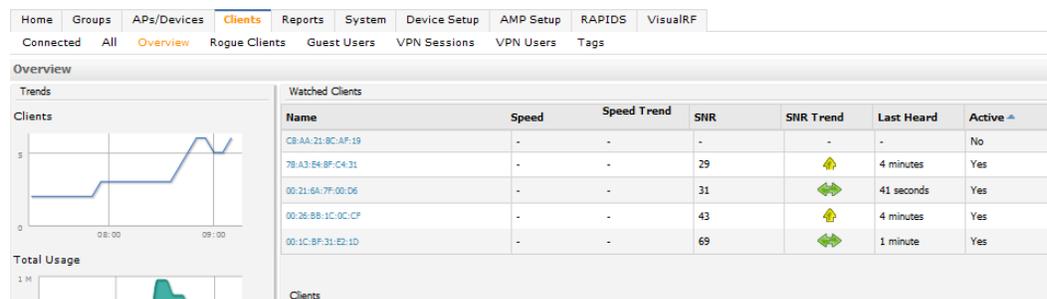
Classification: Valid

Watched Client: Yes No

Notes:
Monitor signal quality.

You can specify this option for selected "VIP" clients, and those clients will be included on a watched list. A watched list is a useful method for tracking performance metrics for selected clients. For example, you might have a regular user who cites repeated connectivity issues when moving from one room to another. Adding this client to a watched list allows you to more easily track this and other watched clients. Navigate to the **Clients > Overview** page to view speed and SNR trends for all watched clients.

Figure 11 Clients > Overview page



There is currently no limit as to the number of watched clients you can add, but a best practice is to limit this to approximately 10 regular clients and to not include guest users who are on site temporarily.

Changes

Changes to AMP were added in the following general categories:

- "Installation" on page 9
- "AOS Support" on page 9
- "Aruba Instant Support" on page 10
- "Highcharts" on page 1
- "Monitoring Support with AMON" on page 10
- "New Devices" on page 10
- "Reporting Enhancements" on page 10
- "SNMPv3 Informs" on page 11

Installation

Beginning in AirWave 7.7, support for CD installations has been deprecated and replaced with only DVD support. Customers who previously created an installation CD from the .iso disc image must upgrade to a DVD.

AOS Support

Support has been added for ArubaOS 6.3. This version includes a series of new and updated profiles.

Aruba Instant Support

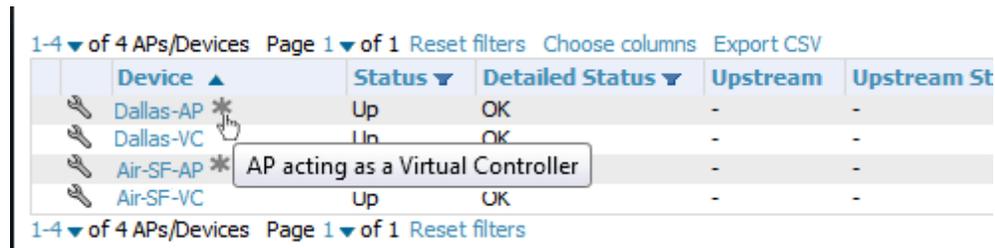
New Firmware Support

Support has been added for IAP 6.2.0.0-3.3.0.0

Acting-VC Icon

A new icon is available in AirWave for lists that show IAP devices. This icon indicates that an AP is acting as a virtual controller.

Figure 12 AP Acting as a Virtual Controller Icon



Device	Status	Detailed Status	Upstream	Upstream St
Dallas-AP *	Up	OK	-	-
Dallas-VC	Un	OK	-	-
Air-SF-AP *	Up	OK	-	-
Air-SF-VC	Up	OK	-	-

New Devices

Support has been added for the following devices:

- AP-224/AP-225 (802.11ac)
- RAP 155/155P

Monitoring Support with AMON

AirWave utilizes AMON for monitoring controllers. In prior versions, AMON support was limited to Client Goodput, Speed, and Radio Utilization information. Beginning in 7.7, support is extended to Client Monitoring (state and stat).



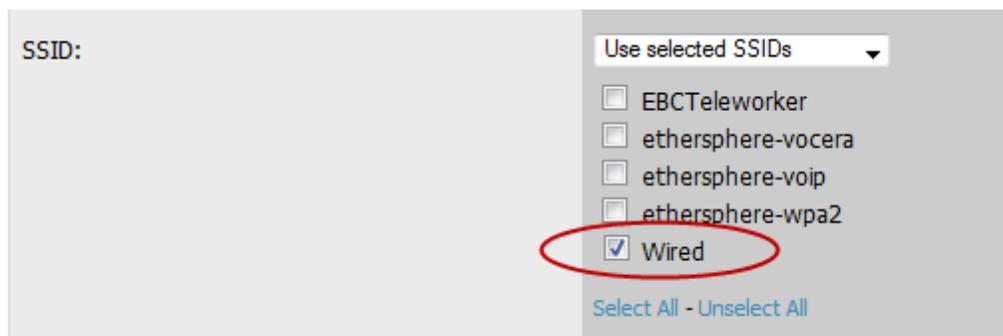
Client Monitoring is only supported for AMON-enabled controllers running AOS 6.3 or greater.

Reporting Enhancements

Network Usage Report

When defining a Network Usage report, users can now include information for Wired Networks.

Figure 13 Wired networks option



SSID:

Use selected SSIDs

- EBCTeleworker
- ethersphere-vocera
- ethersphere-voip
- ethersphere-wpa2
- Wired

Select All - Unselect All

Scheduling

When scheduling monthly reports, a new field was added that allows users to specify the frequency with which the report should be run. This allows you to schedule recurring quarterly reports or reports that should be run with less frequency than a daily or weekly report.

Using the **Basic** option, you can specify that the report should be run every month, every two months, and so on based on a date within the month (for example, "day 1 of each month"). Using the **Advanced** option, you can specify a particular day of the week (for example, on the second Sunday of every other month). In the example below, the report is configured to run every six months on the first Sunday beginning June 2, 2013.

Figure 14 Monthly scheduling options

Scheduling Options

Schedule: Yes No

Occurs: Monthly

The: First Sunday

Of Every (1-12): 6 month(s)

Specify a start time, such as **12:30pm**.

Current Local Time: April 29, 2013 3:48 pm PDT

Desired Start Time: May 1, 2013 12:00 am PDT

Emailing Reports

Users can now email reports in CSV format.

Figure 15 Report Email options

Email Options

Email Report: Yes No

Email When Empty: Yes No

Disable AMP Hyperlinks: Yes No

Email Format: HTML

Sender Address:

Enter multiple email addresses of the form user@domain separated by spaces, commas, or semicolons.

Recipient Email Addresses:

SNMPv3 Informs

AirWave allows users to send SNMPv3 informs to an external NMS server. When this option is selected from the **AMP Setup > NMS** page, then the following additional options become available:

- Username
- Authentication Protocol (MD5 or SHA-1) and Passphrase
- Privilege Protocol (DES or AES) and Passphrase

The above options are specific to SNMPv3. In addition, you also specify the Hostname and values for SNMP Retries and Timeout.



Be sure that you also configure your application (i.e the application that will receive the traps/informs) for SNMPv3. Before you can receive the SNMPv3 informs, you must specify the engine ID, authentication, and privilege parameters, and then restart your application.

Figure 16 *SNMPv3 Informs Support*

NMS Integration

AMP can send SNMPv1, SNMPv2 traps or SNMPv3 informs to NMS servers. First, add one or more NMS servers below, then select *NMS* as a notification option for *triggers*.

The *Sync* action will send one traps/informs for each device managed by AMP to notify an NMS of each one's up/down and configuration status.

[Download](#) the AMP MIB files.

NMS Server

Hostname:

Port (1-65535):

SNMP Version:

Enabled: Yes No

Send Configuration Traps: Yes No

The Support Download Page

The table below describes the different packages/files that you might see on the Support site when you download AirWave 7.7.

Table 1: *Download page file descriptions*

File name	Description
Install iso	Standalone installation media including CentOS operating system. This can fit on a CD/DVD, or it can be mounted as a virtual disk for installation.
Install rpm	Used for installation on a customer-installed CentOS or RHEL server
Upgrade package	Used for AirWave upgrades. Note that updates are only supported from up to two versions prior. Contact support if you are upgrading from three versions prior or more (for example, from 7.3 to 7.6).
Upgrade script	Optional update script. This script is included in the upgrade package.*
Virtual appliance ova	VMware OVA template for AirWave deployment on VMware ESXi infrastructure.

*Not required for download. This is used by the upgrade package to facilitate upgrades done via the Internet.

Fixed Issues

Table 2 lists the fixed issues for AirWave 7.7 Beta B.

Table 2: Fixed Issues in AirWave 7.7 Beta B

ID	Description
DE13840	Fixed an issue with the "Summarize report by" option that caused options selected in earlier versions of AirWave to become deselected after upgrading to 7.7.
DE14148	Fixed an issue with the Client Inventory report, which caused the report to generate successfully, but the log file filled with "uninitialized value" errors.
DE14500	The Highcharts drop down option beside each title now works properly on the AP Monitoring, Radios Statistics, Interface Monitoring, and Client Monitoring pages.

Table 3 lists the fixed issues for AirWave 7.7 Beta A. Note that this is an internal release.

Table 3: Fixed Issues in AirWave 7.7 Beta A

ID	Description
DE12914	Information from interfering devices now correctly expires when the controller stops sending spectrum messages over AMON.
DE13327	Fixed an issue that occurred in Instant AP channel configurations. Now when a user configures Channel and Channel Width settings for a single Instant AP, AMP validates the configuration and verifies whether a configuration error exists.
DE13419	In VisualRF, fixed an issue that occurred when large numbers of floor plans were imported at once.
DE13455	In VisualRF, floor plans with a client count greater than 9999 now include all of the digits rather than just the first four.
DE13551	In VisualRF, client association lines now update correctly after refreshing a floor plan.
DE13554	Fixed an upgrade issue that caused postgres to shut down before completing its current process..
DE13615	The 'no cppm-server' command now works correctly in the Aruba Instant CLI. This ensures that a Policy Manager server can be deleted from an Instant template without causing an error or a mismatch.
DE13621	On the Controller Config > Security page, updates that are made to the Campus AP Whitelist profile are now correctly pushed to the controller.
DE13644	Ignored interfaces and VLANs are now included in ARP polling.
DE13830	Fixed an issue in the Import Unreferenced Profiles feature that resulted in a mismatch after importing an unreferenced user role.
DE14359	The asynch_logger_lifetime value is now set to 2 days rather than 7 on customer installations. Note that if your existing asynch_logger_lifetime value is already less than 2, then your value will not change.
DE14478	A change was made to the method in which clients are counted. For customers with a high number of frequently roaming clients, this fix will result in a significantly reduced chance of double counting your clients as they roam from one AP to another. In earlier versions of AirWave, it was possible that a client could roam from an AP in one group to an AP in another group just as each group was being counted, thus resulting in a double count. For those customers who previously did experience this behavior and who now upgrade to AirWave 7.7, the software may report a decreased number of clients when compared to client counts in the historical data.

ID	Description
US10155	<p>Users have the ability to auto-acknowledge the following triggers:</p> <ul style="list-style-type: none"> • Device Uplink Status • Device RADIUS Authentication Issues • Channel Utilization • Connected Client • Connected VPN User • Device Uplink Status • Disk Usage • IDS Event • Managed AMP Down • Radio Down

Known Issues

Table 4 lists the known issues for AirWave 7.7 Beta B.

Table 4: Known Issues in AirWave 7.7 Beta B

ID	Description
N/A	The Home > Firewall and Home > Anomaly Detection pages can be slow to load.
DE14450	If controller groups are imported before AP groups, AMP will poll the controllers and discover APs. This can result in duplicate APs when APs are imported, and as a result, AMP will only update the new records. In addition, when viewing the Monitor page of the APs that were imported, the controller label indicates "controller deleted."
DE14558	Most of the new highcharts graphs by default display 2 hours of data. If you change this value and then click in the graph to open the graph pop-up, the pop-up graph displays the selected range of data, but the Time Range label does not change and indicates that 2h is selected.

Table 5 lists the known issues for AirWave 7.7 Beta A. Note that this is an internal release.

Table 5: Known Issues in AirWave 7.7 Beta A

ID	Description
N/A	The Home > RF Capacity (Beta) page is still under development at the time of this early Beta release. This page currently cannot be used for previewing radio information.
N/A	The AirWave 7.7 documentation is still in development. The Home > Documentation page still points to AirWave 7.6 documentation.
DE13382	Inserting <code>async_logger_client</code> into <code>client_historical</code> can fail. This is due to an integer being defined as "inf."
DE13674	When viewing the floor plan information for a client from the Clients > Diagnostics page, a color legend is currently not available for the Heatmap and Data-rate tabs.
DE13779	The Uptime value that displays on the APs/Devices > Monitor page for a device can mismatch with Time Since Last Boot value in an Uptime report. This is currently related to the way that this value is calculated on the AMP page and in the report.
DE13800	The RAPIDS > List page includes a Signal Strength column. This signal strength information is not available, however, on the Rogue's detailed information page.

ID	Description
DE13806	<p>Several "look and feel" improvements are scheduled to be made in a future release. Examples include the following:</p> <ul style="list-style-type: none"> • Total Data (MB)" and Avg Usage (Kbps)" columns can contain decimal values (for example, 12563215.20). • Large numbers currently do not include commas.
DE13844	<p>AMP currently does not ignore routers that are wired clients that do not disassociate on Aruba controllers. Note that the number of IP addresses seen by this router continue to accumulate.</p>
DE13847	<p>An issue exists with the Threshold option on the Home > Anomaly Detection page. When increasing the threshold value, the page auto refreshes with the previously configured threshold value instead of the new one. A workaround is to manually refresh the page. Note that this issue does not occur when decreasing the threshold value.</p>
DE13875	<p>Device configurations that are attempted via telnet does not work on Cent6.</p>
DE14062	<p>In VisualRF, attempting to import a backup floor plan that includes custom walls can result in errors in the visualrf.log file.</p>
DE14108	<p>When viewing the new Steer Events tables, a More button is available when the table is empty.</p>
DE14127	<p>An issue exists on the Home > Firewall page. In some instances, the Top 10 Destinations/Applications tables below the charts will show completely full or completely empty bars. This can occur when you change the folder filter away from Top and then change it back to Top.</p>
DE14286	<p>The Custom time selector on the new Highcharts sill remembers a user-entered time even if the user cancels the edit.</p>
DE14331	<p>An issue exists with PCI 4.1.1 Compliance. In some cases, a PCI report passes, but the status displays as "Unable to Determine." This is likely due to AMP counting bandwidth for sessions that were learned by Traps.</p>
DE14349	<p>In VisualRF, when you focus on an AP that is associated with clients that have client health information, the client health information will still be visible for clients that are not associated to the AP.</p>
DE14378	<p>In some cases, AMP is unable to interpret the use of "[" when that value is pulled into a template.</p>
DE14398	<p>Popup windows that display when clicking buttons and when drilling down currently have inconsistent coloring/appearance.</p>
DE14465	<p>On the new Home > Firewall page, users may see a mismatch of data between summary and detailed information for applications and destinations.</p>
DE14484	<p>When manually provisioning rack gear in VisualRF, the Aruba S1500 switch is not available in the list of devices.</p>
DE14491	<p>On the APs/Devices > Monitor page, the Memory Utilization chart does not display properly for switches.</p>
DE14505	<p>SSIDs that include the "&" character display as "&#amp;" in AirWave.</p>
DE14506	<p>When users select the 802.11 Counters drop-down option on the Radio Statistics monitoring page, the graph defaults to showing all Sources rather than six Sources.</p>
US8723	<p>The Client count and Bandwidth graphs for groups/folders can mismatch. This can occur, for example, when monitoring falls behind, either due to problems on the device or on the AMP. The group and folder graphs do not reflect the actual values and mismatch the device level graphs.</p>