



# MSM3xx / MSM4xx Access Points

## 5.5.3.0 Release Notes

### Introduction

This document applies to these HP E-MSM products (“WW” identifies worldwide versions for the rest of the world):

Model	WW	Americas	Japan	Israel
E-MSM430	J9651A	J9650A	J9652A	J9653A
E-MSM460	J9591A	J9590A	J9589A	J9618A
E-MSM466	J9622A	J9621A	J9620A	

Model	WW	USA	Japan	Israel
MSM310 (E-MSM310)	J9379A/B	J9374A/B	J9524A/B	
MSM310-R (E-MSM310-R)	J9383A/B	J9380A/B		
MSM317 (E-MSM317)	J9423A	J9422A	J9423A	
MSM320 (E-MSM320)	J9364A/B	J9360A/B	J9527A/B	
MSM320-R (E-MSM320-R)	J9368A/B	J9365A/B	J9528A/B	
MSM325 (E-MSM325)	J9373A/B	J9369A/B		
MSM335 (E-MSM335)	J9357A/B	J9356A/B		
MSM410 (E-MSM410)	J9427A/B	J9426A/B	J9529A/B	J9616A
MSM422 (E-MSM422)	J9359A/B	J9358A/B	J9530A/B	J9617A

The product models in the table immediately above include alternative product names in parenthesis. For example, the MSM422 is also known as the E-MSM422. Both names refer to the same product. Except for E-MSM430, E-MSM460, and E-MSM466, the original MSM product names (without “E-”) are used throughout the rest of this document.

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# Release 5.5.3.0

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## General information

### Terminology

The following terminology is used in these Release Notes and other 5.5.x documentation as follows:

Term	Description
AP	The term “access point” is generally abbreviated as AP.
Controller	Refers to the HP MSM7xx (HP E-MSM7xx) Controllers.

### Documentation

You can download documentation from the HP Support Website at: [www.hp.com/support/manuals](http://www.hp.com/support/manuals). Search for your product model.

### Critical software update required (controlled mode)

(Applies to E-MSM430, E-MSM460, and E-MSM466 operating in controlled mode only.) The flash boot section of these APs can become corrupted over time, resulting in a start up issue. **It is critical that you update your MSM7xx series controllers to version 5.5.2.0 or greater to prevent this issue.**

### Software Updates and Licensing portal

The Software Updates and Licensing portal provides access to the latest software updates to customers with a support contract. An HP Passport is required to access the Software Updates and Licensing portal at [www.hp.com/go/hpsoftwareupdatesupport](http://www.hp.com/go/hpsoftwareupdatesupport) and available to customers that have purchased a maintenance and support agreement.

### Updating software

(Not applicable to MSM317.) For autonomous APs, update the software as described in the *Software updates* section of the *MSM3xx / MSM4xx Management and Configuration Guide*.

For controlled APs including the MSM317, update the controller software as described in the *Software updates* section of the *MSM7xx Controllers Management and Configuration Guide*. Once the controller is updated, it automatically updates all of its controlled devices to the same software version.

## About Rev B MSM APs

As of July 1, 2010, Rev B MSM APs are available. This applies to the Rev B version of the following MSM APs: MSM310, MSM310-R, MSM320, MSM320-R, MSM325, MSM335, MSM410, MSM422.

Rev B MSM APs (product number ends with the letter “B” as in “J9xxxB”) ship from the factory with at least software v5.3.5 pre-installed. Rev B MSM APs cannot be downgraded to earlier versions of v5.3.x software. Therefore when adding a Rev B MSM AP to a network of controlled APs, the MSM7xx Controller must be running at least software v5.3.5, otherwise the Rev B MSM AP will not be recognized by an MSM7xx Controller. Only MSM7xx Controllers and MSM Access Points that are covered by a software Care Pack or software Contract can be upgraded from v5.3.x or 5.4.x to v5.5.0. Please contact HP Support for entitlement determination and download instructions. Support contact information is available on the HP Support Web page at: [www.hp.com/networking](http://www.hp.com/networking). Look under Support > ProCurve.

## Regulatory information

As of this v5.5.3.0 release, DFS channels (52-64 and 100-140) are now available on these product versions (Americas): E-MSM430 (J9650A), E-MSM460 (J9590A), and E-MSM466 (J9621A). These DFS channels were already available for product versions from other regions.

## Information for PCM and PMM software users

PCM 3.20 and PMM 3.10 software supports MSM devices as follows:

- Full support of MSM devices at software version 5.4.2.0 or higher.
- Limited support of MSM devices at software version 5.3.x and 5.4.0.
- No support of MSM devices at software version 5.4.1.

**Note:** Purchase of PCM 3.20 and/or PMM 3.10 does not entitle you to an upgrade for MSM products. Only MSM products covered by a care pack or contract that includes software upgrades are entitled to upgrades.

## Sensors and RF Manager

Sensors (applies to: MSM320, MSM325, MSM335) at version 5.5.3.0 are ONLY compatible with RF Manager version 6.0.157. If your RF Manager appliance is not running version 6.0.157 (or if you will not be upgrading it to that version), DO NOT install v5.5.3.0 software on any MSM7xx Controller that manages sensors used with RF Manager as this will automatically update the sensors and render those sensors incompatible with your RF Manager appliance.

## Beamforming

(Only supported on the E-MSM430, E-MSM460, E-MSM466.)

The beamforming feature is available in v5.5.1 and higher for all product versions as follows:

Model	WW	Americas	Japan	Israel
E-MSM430	J9651A	J9650A	J9652A	J9653A
E-MSM460	J9591A	J9590A	J9589A	J9618A
E-MSM466	J9622A	J9621A	J9620A	

## Fixes

The following issues have been fixed since release 5.5.2.0:

ID	Description
55920	When the auto channel feature is enabled on the radio page, and the channel exclusion list is set to 1, 6, and 11, most APs incorrectly end up on the same channel.
55778	The auto channel feature fails to select non-overlapping channels in the 2.4GHz band.
53650	(Only E-MSM430, E-MSM460, and E-MSM466.) When a VSC is configured for WPA/WPA2, CCMP keys (instead of TKIP keys) are sent to wireless clients at startup for a period of 5 seconds.
52922	On APs in autonomous mode, the VSC configuration page does not show basic rates for the radio column.
52915	In a teaming environment with the location-aware feature enabled the CPU utilization goes very high and this syslog message appears: <pre>SendMessageToListeners: Error sending packet: Resource temporarily unavailable(11) to listener #5(/tmp/busclient.iappd_sc.458.1)</pre>
52827	(Only E-MSM430, E-MSM460, and E-MSM466.) Radios do not support Shared-key WEP authentication.
52799	Beacon power settings are wrong.
52504	The CLI command "show dot11 statistics client-traffic dot11n" does not display the 802.11n rates from MSC16 to MSC23.
44471	The <b>Wireless &gt; Neighborhood</b> page displays duplicate and erroneous information.
44281	(Only Americas SKUs for E-MSM430, E-MSM460, and E-MSM466.) The radio page allows power to be configured up to 27dBm, although the maximum supported values are 22dBm for radio 1 and 20 dBm for radio 2.
44246	(Only E-MSM430, E-MSM460, and E-MSM466.) On the radio page, if wireless rates 1, 2, 5.5, 6, 9 and 12Mbps are removed from the 802.11n rates column, radio 2 goes into 802.11g protection mode.
44130	The <b>Wireless &gt; Neighborhood</b> page always displays WPA2 regardless of the configuration of neighboring devices.
43962	Beacon/probe packets show incorrect vendor ID.

ID	Description
43961	(Only E-MSM430, E-MSM460, and E-MSM466.) The controller shows inaccurate boot messages advertising incorrect LDPC encoding support capabilities.
43960	(Only E-MSM430, E-MSM460, and E-MSM466.) Some management frames may be corrupted when the number of inactive clients changes.
43875	(Only E-MSM430, E-MSM460, and E-MSM466.) The <b>Wireless &gt; Neighborhood</b> page is empty unless a radio is in Monitor mode. At startup the page should be populated even if Monitor mode is not enabled.
43780	(Only MSM310 and MSM320.) Incorrect serial numbers are shown in the local mesh neighborhood table.
43747	(Only with Country=New Zealand.) On the radio configuration page, the "Auto 20/40Mhz" channel bonding option for 5 GHz is missing.
43620	On the radio configuration page, the <b>Use maximum power</b> parameter is not activating maximum radio power.
43602	The SOAP "ControlledNetworkGetInterfaceStatus" and "GetInterfaceStatus" API methods do not return wireless interface information.
43521	(Only E-MSM430, E-MSM460, and E-MSM466.) The Spectralink VIEW retry mechanism is not available.
43324	When configuring wireless neighborhood settings, adding a value to site scan causes a timeout on the management tool web page.
43183	When the radio is operating in the 2.4 GHz band, every 10th beacon transmits at full power regardless of the configured transmit power setting.
43098	An HP printer operating as both a wireless client and a wireless AP (802.11n) is not able to establish a wireless connection with an MSM AP.
43082	(Only E-MSM430, E-MSM460, and E-MSM466.) When the AP is configured to operate in local mesh mode using WEP security and TKIP encryption, after synchronization the AP restarts and displays the following message on the console: <code>SoftDog: Unexpected close, not stopping watchdog!</code>
43003	The CLI command "show all config" provides an incorrect value for the total number of users.
42974	(Only E-MSM430, E-MSM460, and E-MSM466.) When more than two Spectralink phones are connected to an AP, the Push-to-talk functionality does not work.
42960	(Only E-MSM430, E-MSM460, and E-MSM466.) If a VSC is configured with 802.1X and wireless security filters are enabled, wireless clients are unable to connect until the AP is restarted.
42414	(Only E-MSM430, E-MSM460, and E-MSM466.) These APs are sending malformed acknowledgment frames (as captured with wireless trace).
42364	(Only E-MSM430, E-MSM460, and E-MSM466.) The radio page incorrectly shows the maximum output power as 20dBm. It should be 18dBm or less.
42355	(Only MSM317, E-MSM430, E-MSM460, and E-MSM466.) Hardware revision incorrectly shows ZZ-ZZ-ZZZZ-ZZ-A.

ID	Description
42280	(Only MSM335.) If the AP receives 20 malformed packets in a row, a log message is generated and the radio is reset.
42229	Some wireless devices (gaming consoles, printers, etc.) may not connect when the band steering feature is enabled on the radio page.
41562	(Only E-MSM430, E-MSM460, and E-MSM466.) On the Wireless neighborhood page, the <b>Repeat scan</b> and <b>interval</b> options are not supported on these APs and should not be displayed.
41130	If a client station is connected to a switch port on the E-MSM317, it must reboot after its MAC address is removed from the MAC lockout list in order to connect.

## Known issues

The following known issues are present in this release:

ID	Description
103449	(Only E-MSM430, E-MSM460, and E-MSM466.) When IP filters are enabled and a wireless client connects to the VSC, the AP reboots. Disable IP filters to avoid this issue.
102799	The E-MSM430, E-MSM460, and E-MSM466 APs are not supported in these countries: Aruba, Barbados, Belize, Bolivia, and Haiti.
55755	The E-MSM430, E-MSM460, and E-MSM466 are unable to support more than 125 WPA2 clients.
55687	(Only 802.11n APs.) When operating in mixed mode (802.11 n/g or n/a), throughput for 802.11n clients may be reduced when 802.11g clients use a lot of bandwidth (for example, when downloading a large file).
53777	The auto-channel feature does not respect the channel exclusion list and allows the radio to select excluded channels for operation.
43417	When an E-MSM466 operating in autonomous mode is configured to support monitor mode on its radio, it may become unresponsive.
44281	(E-MSM430, E-MSM460, and E-MSM466 in autonomous mode only.) The maximum radio power value displayed may be higher than the regulatory limit but the actual output power respects the limit.
43516	(MSM410 and MSM422 radio 1 only.) When operating in 802.11n/a mode and Automatic Power Control is enabled, 802.11n clients can experience low throughput. As a workaround, disable Automatic Power Control.
66449	(Remote Syslog only.) If in the management tool you add a remote log with the name “\” the remote log cannot be deleted except by the CLI or SOAP. Avoid using this name.
65868	(E-MSM430, E-MSM460, and E-MSM466 only.) A radio cannot be set to monitor mode if it is currently assigned to a VSC using the <b>Transmit/receive on</b> setting under <b>Virtual AP</b> . As a workaround, first assign the VSC to another radio, then enable monitor mode.

ID	Description
65752	RADIUS profile names must be less than 20 characters in length.
65602	If a VSC is configured to support <b>Band steering</b> , you must first disable <b>Band steering</b> before changing the <b>Transmit/receive on</b> option from <b>Radio 1 and 2</b> to a single radio. Failure to do this results in configuration errors in the log file.
65437	The wireless MIBs do not completely support all new features in this release.
65101	(MSM317 only.) LLDP multicast advertisements must not be sent until the port is in an authenticated state.
64517	(E-MSM430, E-MSM460, and E-MSM466 only.) sFlow <b>sFlow</b> samples do not include the extended field for 802.11 Tx information.
61080	In the SNMP system name, using the %serial_number% placeholder with any other text will result in the %serial_number% placeholder not being converted to its value.
60483	(Only Teaming mode.) A previously-associated client (using WPA2 Enterprise) that is the first to attempt to re-authenticate after a controller failover will not be successful. Subsequent clients attempting to authenticate will not have this issue.
59807	When a radio is set to Auto Power, the radio always starts with the Maximum allowed value for the specific country and adjusts from that point. Setting the Maximum radio power will have no affect.
59727	(Only Mobility Traffic Manager.) Throughput is low when client traffic is tunneled between two controllers that are not part of the same team.
54193	Revision B MSM410 and MSM422 APs (J numbers end with "B") do not support 802.11a Turbo mode. Setting a revision B MSM410 or MSM422 to 802.11a Turbo mode and selecting a DFS channel will cause the configuration to be reset.
53553	If you plan to connect APs (as slaves) to a controller via local mesh, the APs must first be upgraded to the same software version that is running on the controller. For example, APs running version 5.3.5 cannot connect to a controller as local mesh slaves when the controller is running 5.4.0. Software can only be upgraded on controllers entitled to be upgraded.
52913	When a controller is an interim manager, the <b>Security-&gt;Firewall</b> page is not locked. No changes should be made to an interim manager, only a primary manager.
52848	(Only MSM317.) If wired devices with static IP addresses are connected to the switch ports, the devices are able to communicate with each other regardless of the type of authentication that is enabled on the VSCs bound to the ports, as long as the ports have the same VLAN or no VLAN (untagged).
52840	If you downgrade an AP from 5.3.5 to 5.3.1 and the AP is operating in controlled mode with both radios set to 802.11a on a specific DFS channel, the AP will not be able to synchronize with the controller. To enable the AP to synchronize, go to the radio page and select auto channel or pick a non-DFS channel.

ID	Description
52305	<p>The online help for the CLI command "rcapture" is incorrect. The correct information is as follows:</p> <p>Syntax:</p> <pre>rcapture -u URI [-c count] -i interface</pre> <p>Description:</p> <p>Capture data on a port and send it to a file on an FTP server.</p> <p>Parameters:</p> <p>URI: Address of the FTP site and file where the trace will be saved, for example:  ftp://user:pass@ftp.mysite.com/trace.pcap</p> <p>count: Number of packets to capture.</p> <p>interface: Interface to trace, where:</p> <ul style="list-style-type: none"> <li>eth0 = Internet port</li> <li>eth1 = LAN port</li> <li>wvlan0 = wireless port</li> </ul>
48316	<p>If there are more than 80 APs shown on the Neighbor page, the following message may be logged: "Radio 1's node table is full. Too many nodes in the surroundings (max is 256)."</p>
45094	<p>If the radio is set to operate in 802.11n/g mode, it continues to provide support for 802.11b mode. You can fix this behavior by removing support for the 802.11b modes in each VSC (under <b>Virtual AP &gt; Allowed wireless rates</b>).</p>
42976	<p>(E-MSM430, E-MSM460, and E-MSM466 APs only.) Some 802.11b clients cannot associate with these APs. Ensure that the Multicast rate is a basic rate (1, 2, 5.5 or 11Mbps for 802.11b).</p>
42929	<p>(E-MSM430, E-MSM460, and E-MSM466 in Local Mesh promiscuous mode only.) After the loss of the master, These APs in 802.11n/a mode will not find the new master. The APs must be restarted or power cycled to recover.</p>
39994	<p>The Axis2 SOAP client toolkit has issues dealing with some SOAP responses. It is recommended that you use a different SOAP client toolkit.</p>
39804	<p>When configuring the <b>Allowed wireless rates</b> option under <b>Virtual AP</b> in a VSC, the user can disable support for all 802.11n data rates. If the VSC is only operating on 802.11n, then one non-MSC rate must remain operational or the VSC will not function correctly.</p>
38750	<p>(Only MSM317.) The MSM317 may generate a <b>CFG_SYNC_FAILURE</b> in the log when it synchronizes after a number of configuration changes have been made on the controller. The MSM317 will then restart, apply all changes, and operate normally.</p>



ID	Description
38621	<p>(Only MSM317.) Applies only when at least one <b>non-access-controlled VSC</b> is configured with <b>Ethernet Switch</b> as the VSC ingress mapping, and one <b>access controlled VSC</b> is configured with a <b>VLAN</b> as the VSC ingress mapping.)</p> <p>This message may appear in the system log:</p> <pre>err confighandl Failed to read ingress VLAN information for Virtual Service</pre> <p>This message should be ignored.</p>
38305	<p>(Only MSM317.) Making any configuration change on an MSM317 (or group of MSM317s) results in all wired 802.1X users on the MSM317 (or group of MSM317s) having their connections erroneously terminated during the synchronization process.</p>
34173	<p>(Only MSM422.) When radio 1 is set to 802.11n (5GHz) and radio 2 is set to 802.11a, and both are configured for local mesh, if one radio is set to a specific channel and the other is configured for auto- channel, both radios can end up to be on the same channel. Therefore, configure each radios for a specific (and different) channel or configure both radios for auto-channel.</p>
33604	<p>(Only MSM335 and MSM320/325.) The Wireless status light for a radio configured in Sensor mode does not turn on. This is true even when the sensor is enabled and operational.</p>

# Release 5.5.2.0

## Fixes

The following issues have been fixed since release 5.5.1:

ID	Description
44246	(E-MSM430, E-MSM460 and E-MSM466 only.) When legacy data rates are disabled in a VSC, the radio always operates in transmit protection mode leading to reduced throughput for 802.11n clients.
44015	(Applies to E-MSM430, E-MSM460, and E-MSM466 operating in controlled mode only.) The flash boot section of these APs can become corrupted over time, resulting in a start up issue. It is critical that you update your MSM7xx series controllers to version 5.5.2.0 or greater to prevent this issue.
44002	(E-MSM430 and E-MSM460 only.) Maximum transmit power is too low on both radios.
43961	(E-MSM430, E-MSM460 and E-MSM466 only.) The AP advertises support for LDPC which may cause problems for some older clients.
43960	(E-MSM430, E-MSM460 and E-MSM466 only.) Beacon frames can become corrupted when multiple clients are in powersave mode resulting in connectivity issues for all associated clients.
43620	(E-MSM430, E-MSM460 and E-MSM466 only.) Radio output power is not changed when the Transmit Power is modified on the radio configuration page.
43178	Undesired log messages appear each time a Spectralink phone goes into power-save mode.

# Release 5.5.1

## Fixes

The following issues have been fixed since release 5.5.0:

ID	Description
68346	If you add a VLAN to an autonomous E-MSM430, E-MSM460, or E-MSM466 AP and then attempt to access its management tool from the VLAN, the AP reboots.
67052	With Bandsteering enabled, some dual-band clients will not be able to connect.
66980	Although the E-MSM430 and E-MSM460 permit radio 2 to be set to 802.11n/a (5 GHz band), radio 2 on these devices must be kept set to 802.11n/b/g (2.4 GHz band). Do not attempt to use these devices with both radios configured on the 5 GHz band.
66529	The <b>show config</b> command does not reflect correct snmp trap syslog-severity level.
66177	(E-MSM430, E-MSM460 only.) Due to interference, it should not be possible to set both radios to the 5 GHz band. (Now Radio 1 is fixed at 5 GHz and Radio 2 is fixed at 2.4 GHz.)
66163	(E-MSM430, E-MSM460, and E-MSM466 only.) When radio 2 on the AP is operating in 11n/b/g mode, the default setting for Multicast Tx rate is 6 Mbps. This prevents 802.11b clients from associating. The default rate should be 1 Mbps.
65943	(E-MSM430, E-MSM460 and E-MSM466 only.) The Wireless status page does not show correct values for these items: Tx multicast octets, Tx unicast octets, Tx packets, Tx dropped, Tx errors, Rx packets, Rx dropped, Rx multicast octets, and Rx multicast octets.
65816	(E-MSM430, E-MSM460, and E-MSM466 only.) QoS data packets are not properly decoded when running a Network Trace.
65561	(E-MSM430, E-MSM460, and E-MSM466 only.) When a master node switches to a new channel, it may take slave nodes up to two minutes to follow and synchronize on the new channel.
65163	(E-MSM430, E-MSM460, and E-MSM466 only.) When provisioning connectivity settings for an AP, the local mesh option <b>Any mesh</b> does not work on radio 2.
63217	The CLI command <b>#no ip filter all</b> is not working.

ID	Description
55973	<p>DSCP tag mapping could not be configured. This has been corrected to allow overriding of the default DSCP mappings that are used when you select <b>DiffServ</b> as the <b>Priority mechanism</b> for <b>Quality of service</b> on a VSC. To define a mapping, select <b>Network &gt; IP QoS</b>, and then specify a decimal number for DSCP tag in the range 0 to 63. Next, select a <b>Priority level</b> and then select <b>Add</b>. Priority levels map to QoS queues as follows: Voice = Queue 1, Video = Queue 2, Best Effort = Queue 3, Background = Queue 4.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"><li>• Multiple DSCP tags can be assigned to the same priority level if needed.</li><li>• This override applies to downstream traffic (traffic sent by the AP to wireless clients) only.</li><li>• This override also affects the QoS setting for local mesh links.</li></ul>
49182	<p>Under a very heavy wireless load, wireless client traffic can become very slow after several large file transfers. Terminating and reassociating client stations does not resolve the issue. The only solution is to restart the AP.</p>

# Release 5.5.0

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## New features and management tool changes

**Note:** The newest version of this information is found in the *MSM3xx / MSM4xx Access Points Management and Configuration Guide* and in the online help. See [“Documentation” on page 2](#).

This section describes the new/changed features for this release and the related MSM3xx / MSM4xx Access Points management tool changes.

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**Note:** For more detailed new feature descriptions, see the *MSM3xx / MSM4xx Access Points Management and Configuration Guide*, and the online help.

## New access points

This release adds support for three new 802.11n dual-radio APs, the E-MSM430, E-MSM460, and E-MSM466.

Each new AP features two radios, providing 802.11n/a on radio 1 and 802.11n/a/b/g on radio 2. For maximum performance, the E-MSM460 and E-MSM466 both support 3x3 MIMO three-spatial-stream 802.11n. The E-MSM430 supports 2x3 MIMO two-spatial-stream 802.11n.

The E-MSM430 and the E-MSM460 each contain two 3-element, dual-band, MIMO antennas. The E-MSM466 includes no integrated antennas. It provides three antenna connectors for each radio.

Only the following antennas are approved for use with the E-MSM466:

Part	Type	Band	Gain	Use	Elements
J9169A	Narrow Beam Sector	2.4/5 GHz	8/10.7dBi	Outdoor	3
J9170A	Directional	2.4/5 GHz	10.9/13.5dBi	Outdoor	3
J9171A	Omni-directional	2.4/5 GHz	3/4dBi	Indoor	3
J9659A	Omni-directional	2.4/5 GHz	1.5/5dBi	Indoor	6

See also the *E-MSM430, E-MSM460, and E-MSM466 802.11n Access Points Quickstart*, the *MSM3xx / MSM4xx Access Points Management and Configuration Guide*, and the respective MIMO antenna guides.

### **Caution:** Important radio configuration information

On the E-MSM430 and E-MSM460, radio 2 must be kept set to 802.11b/g/n mode (2.4 GHz band).

On the E-MSM466, if you set both radios to 802.11n/a mode (5 GHz band), respect the following guidelines:

- You cannot use the six element MIMO antenna because three of its elements are used for the 2.4 GHz band.
- The two three-element antennas should be separated by four feet to get optimal performance. A minimum separation of two feet is required.
- If using the E-MSM466 with outdoor antennas, aim the two antennas in different directions.

## Band steering

*(Only supported on the MSM422, E-MSM430, E-MSM460, E-MSM466.)*

Band steering is a new feature that is designed to help solve dense client issues. When band steering is enabled, APs will attempt to move wireless clients that are capable of 802.11a/n onto the 5 GHz band, thus reducing the load on the slower and more crowded 2.4 GHz band, leaving it for less capable legacy (802.11b/g) clients.

### How it works

An AP uses the following methods to encourage a wireless client to associate at 5 GHz instead of 2.4 GHz:

- The AP waits 200ms before responding to the first probe request sent by a client at 2.4 GHz.
- If the AP has learned that a client is capable of transmitting at 5 GHz, the AP refuses the first association request sent by the client at 2.4 GHz.
- Once a client is associated at 5 GHz, the AP will not respond to any 2.4 GHz probes from the client as long as the client's signal strength at 5 GHz is greater than -80 dBm (decibel milliwatt). If the client's signal strength falls below -80 dBm, then the AP will respond to 2.4 GHz probes from the client without delay.

**Note:** To support band steering, the VSC must be configured to support two radios. One radio must be configured for 2.4 GHz operation and the other for 5 GHz operation.

**Note:** Band steering is temporarily suspended on an AP when the radio configured for 5 GHz operation reaches its maximum number of supported clients.

## Configuration

Band steering is configured individually for each VSC (under Virtual AP). For example:

**Virtual AP** ?

**WLAN**

Name (SSID):

DTIM count:

Transmit/receive on:

Broadcast name (SSID)

Advertise TX power

Broadcast filtering

Band steering

**Wireless clients**

Max clients:

Allow traffic between:  wireless clients

**Quality of service**

**Allowed wireless rates (advanced)**

## Beamforming

(Only supported on the E-MSM430, E-MSM460, E-MSM466.)

Beamforming is a new feature that is designed to help increase throughput by improving the quality of the signal sent to wireless clients.

Beamforming is configured on the Radios configuration page for an AP (under Advanced wireless settings). For example:

**Advanced wireless settings**

Collect statistics for wireless clients

Tx beamforming

RTS threshold:  bytes

Tx protection:

Guard interval:

Beacon interval:  time units (TU)

Multicast Tx rate:

**Transmit power control**

Maximum available power = 20 dBm

Use maximum power

Set power to  dBm  
which is  % of max power

Automatic power control

Interval:

When this option is enabled, APs use beamforming techniques to optimize the signal strength for each individual wireless client. Beamforming works by changing the characteristics of the transmitter to create a focused beam that can be more optimally received by a wireless client.

HP APs support the following two explicit beamforming techniques:

- Non-compressed beamforming, in which the client calculates and sends the steering matrix to the AP.
- Compressed beamforming, in which the client sends a compressed steering matrix to the AP.

Radio calibration is not required when using either of these two methods.

**Note:** Beamforming only works with wireless clients that are configured to support it.

## Transmission protection

*(Only supported on the E-MSM430, E-MSM460, E-MSM466.)*

When an AP is operating in an 802.11n mode, and legacy (a/b/g) traffic is present on the same channel as 802.11n traffic, the **Tx protection** feature can be used to ensure maximum 802.11n throughput. It is available on the Radios configuration page (under **Advanced wireless settings**). For example:

The screenshot shows two identical panels of the 'Advanced wireless settings' configuration page. The 'Tx protection' dropdown menu is highlighted with a blue dashed box and is set to 'CTS-to-self'. Other visible settings include 'Guard interval: Short', 'Beacon interval: 100 time units (TU)', 'Multicast Tx rate: 6.0 Mb/s', and 'Transmit power control' set to 'Use maximum power' (20 dBm, which is 100% of max power). A 'Save' button is located at the bottom right of the configuration area.

The following options are available:

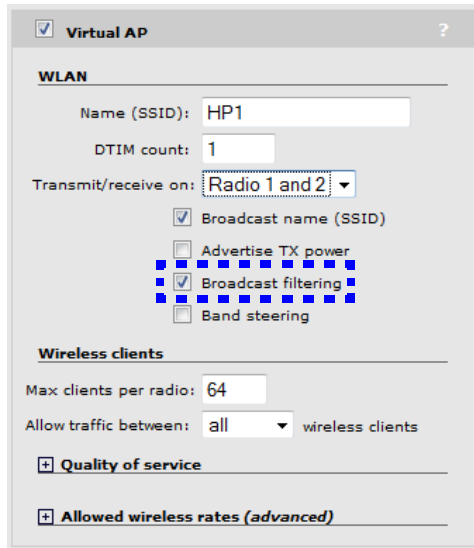
- **CTS-to-self:** 802.11n transmissions are protected by sending a Clear To Send (CTS) frame that blocks other wireless clients from accessing the wireless network.
- **RTS/CTS:** 802.11n transmissions are protected by sending a Request To Send (RTS) frame followed by a CTS frame. This is a more robust, but slightly slower solution than CTS-to-self. However, this method resolves the hidden station problem (where certain legacy stations may not see only a CTS frame).
- **No MAC protection:** This setting gives the best performance for 802.11n clients in the presence of 802.11g or 802.11a legacy clients or APs. No protection frames (CTS-to-self or RTS/CTS) are sent at the MAC layer by the AP. PHY-based protection remains active, which alerts legacy clients to stay off the air while the AP is transmitting data to 802.11n clients. This method of protection is supported by most 802.11g or 802.11a clients, but is not supported for 802.11b-only clients and should not be used if such clients are expected on the network.



## Broadcast filtering

Broadcast filtering is a new feature that is designed to help conserve wireless bandwidth by filtering out non-essential broadcast traffic.

Broadcast filtering is supported by all HP APs. It is configured individually for each VSC (under Virtual AP) as follows:



The screenshot shows the configuration page for a Virtual AP. The title is "Virtual AP" with a checkmark and a help icon. Under the "WLAN" section, the following settings are visible:

- Name (SSID): HP1
- DTIM count: 1
- Transmit/receive on: Radio 1 and 2
- Broadcast name (SSID)
- Advertise TX power
- Broadcast filtering
- Band steering

Under the "Wireless clients" section:

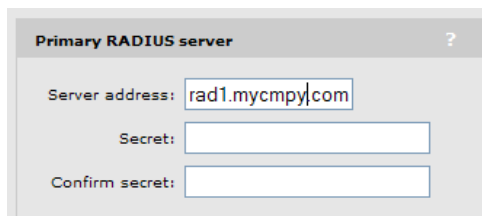
- Max clients per radio: 64
- Allow traffic between: all wireless clients

At the bottom, there are expandable sections for "Quality of service" and "Allowed wireless rates (advanced)".

When broadcast filtering is enabled, the AP filters out all DHCP and ARP broadcasts that are not intended for wireless clients that are known to the AP.

## Identify RADIUS server by host name

When defining a RADIUS profile (on the **Authentication > RADIUS profiles** page) you can now identify the primary and secondary RADIUS server by their IP address **or** their fully-qualified domain name.



The screenshot shows the configuration page for a Primary RADIUS server. The title is "Primary RADIUS server" with a help icon. The following fields are visible:

- Server address: rad1.mycmpyj.com
- Secret: [text input field]
- Confirm secret: [text input field]

## Radio page changes

- Advanced wireless options have been re-organized.
- DFS message has been moved into the online help.

(See also the *Wireless Configuration* chapter of the *MSM3xx / MSM4xx Access Points Management and Configuration Guide* and the online help.)

Previous release

**Radio**
?

Regulatory domain: [UNITED STATES](#)

Operating mode: Access point only

Wireless mode: 802.11n/a

Channel width: Auto 20/40 MHz

Channel: Automatic

Interval: Time of Day

Time of day: 00 hh 00 mm

Currently: **Channel 161, 5.805GHz**

Automatic channel exclusion list:

- Channel 1, 2.412GHz
- Channel 2, 2.417GHz
- Channel 3, 2.422GHz

Max clients: 255

---

**Advanced wireless settings**

Collect statistics for wireless clients

Guard interval: Short

Spectralink VIEW:

Distance between access points: Large

RTS threshold: bytes

Beacon interval: 100 time units (TU)

Multicast Tx rate: 6.0 Mb/s

**Transmit power control**

Maximum available output power

17 dBm = 100 % of max output power

Automatic power control

Interval: 1 hour

Maximum output power: 17 dBm

This release

**Radio**
?

Regulatory domain: [UNITED STATES](#)

Operating mode: Access point and Local mesh

Wireless mode: 802.11n/a

Channel width: Auto 20/40 MHz

Channel: Automatic

Interval: Time of Day

Time of day: 00 hh 00 mm

Currently: **Channel 157, 5.785GHz**

Automatic channel exclusion list:

- Channel 1, 2.412GHz
- Channel 2, 2.417GHz
- Channel 3, 2.422GHz

Max clients: 255

---

**Advanced wireless settings**

Collect statistics for wireless clients

RTS threshold: bytes

Spectralink VIEW

Guard interval: Short

Maximum range (ack timeout): 0-1 km

Distance between APs: Large

Beacon interval: 100 time units (TU)

Multicast Tx rate: 6.0 Mb/s

**Transmit power control**

Maximum output power: 17 dBm

Use maximum power

Set power to 17 dBm which is 100 % of max power

Automatic power control

Interval: 1 hour

## Certificates page changes

The following certificates have been added to support communication with HP PCM/PMM software:

- **Management Console Dummy Authority:** Used when the management tool communicates with HP PCM/PMM software.
- **Management Default client certificate:** This certificate is used to identify the management tool when it communicates with HP PCM/PMM software.

The certificate **wireless.hp.internal** was called wireless.colubris.com in the previous release. To see the new certificate you must reset the AP to factory default settings.

**Trusted CA certificate store** ?

ID	Issued to	Current usage	CRL	Delete
1	<a href="#">SOAP API Certificate Authority</a>	SOAP Server	No	
2	<a href="#">Management Console Dummy Authority</a>	HP Management console	No	

PKCS #7 file or X.509 certificate:

---

**Certificate and private key store** ?

ID	Issued to	Issued by	Current usage	Delete
1	<a href="#">wireless.hp.internal</a>	wireless.hp.internal	Web Management Tool, SOAP Server, HTML authentication, Billing records logging system	
2	<a href="#">Management Console Default client certificate</a>	Management Console Dummy Authority	HP Management console	

PKCS #12 file:  
 PKCS #12 password:

## Fixes

The following issues have been fixed since release 5.4.2.0:

ID	Description
52310	There is no log message to indicate that the maximum number of clients has been reached on a VSC or on a radio.
54677	APs on DFS channels may frequently change channels for due to false radar detection.
57679	The first octet of the Wireless base MAC address is wrongly restricted to 00. Any valid initial octet should be allowed.
61972	(Not applicable to E-MSM430, E-MSM460, nor E-MSM466.) When a maximum power limit is set and Automatic power control is enabled for a radio, the power setting used is actually one dBm below the value set.
63450	There is no matching CLI command for the parameter "Collect statistics for wireless clients" which appears on the Radio configuration page under "Advanced wireless settings."
63510	The CLI command "public forwarding" in the context "Enable > config > virtual ap (VSC name)" does not work.
64284	(MSM317 only.) If the Inherited checkbox for specific configuration settings on an MSM317 is disabled, the MSM317 is incorrectly marked as unsynchronized when changes are made at the group level.