HIGH-DENSITY WI-FI BENCHMARK TEST
Aruba Networks AP-135 and Cisco AP3602i

Conducted at Aruba Proof-of-Concept (PoC) Lab
August 2012
Statement of Test Result Confidence

- Aruba makes every attempt to optimize all vendors for performance and follow best practices for configuration.

- Wireless LAN (WLAN) systems under test utilize similar access point (AP) mounting positions, Wi-Fi client locations and AP radio configurations. They are installed with the latest shipping firmware.

- 802.11 Wi-Fi channels configured are ensured to be consistent when testing 2.4-GHz and 5-GHz bands for all vendors.

- Aruba believes the test results are both repeatable and reproducible in similar test environments.
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Executive Summary

The Aruba Networks® proof-of-concept lab is an environment dedicated to showcasing complex networking solutions in a real-world setup. Aruba customers, partners and prospects rely on the lab to validate interoperability with other technology solutions as well as test WLAN deployment scenarios. The lab is also fully equipped to conduct feature and performance benchmark tests for customer evaluations.

This report summarizes WLAN performance test results with high densities of mobile devices, plus Aruba AP-135 and Cisco AP3602i 802.11n APs with three spatial streams and a wireless data rate of 450 Mbps per radio. Results from the tests are shown in Table 1 below.

### Table 1: Test results summary

<table>
<thead>
<tr>
<th>Test scenario</th>
<th>Test case</th>
<th>Aruba WLAN</th>
<th>Cisco WLAN</th>
<th>Aruba advantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wi-Fi performance with high density and variety of mobile devices</td>
<td>Impact of increasing number of mobile devices to Wi-Fi performance</td>
<td>0%</td>
<td>- 60%</td>
<td>Predictable performance</td>
</tr>
<tr>
<td></td>
<td>2.4-GHz performance with 20 1x1:1 MIMO smartphones (Mbps)</td>
<td>32</td>
<td>7</td>
<td>Four-times more bandwidth</td>
</tr>
<tr>
<td></td>
<td>5-GHz performance with 1x1:1 tablets and 3x3:3 MIMO tablets (Mbps), 20 each</td>
<td>68</td>
<td>27</td>
<td>Airtime fairness between laptops &amp; tablets</td>
</tr>
<tr>
<td></td>
<td>AP performance with smartphones, tablets and tablets (Mbps), 20 each</td>
<td>104</td>
<td>38</td>
<td>Three-times more AP capacity</td>
</tr>
</tbody>
</table>

The test results indicate a significant variation in performance between Aruba and Cisco Wi-Fi products. The remainder of this report provides comprehensive details of the test cases, test bed setup, observations and results collected.
## Test Environment

The following tables detail the test tools and network components used for conducting the tests.

### Table 2: Devices under test

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Device</th>
<th>Firmware version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aruba</td>
<td>AP-135</td>
<td>ArubaOS 6.1.3.4</td>
</tr>
<tr>
<td></td>
<td>Mobility Controller 3600</td>
<td>ArubaOS 6.1.3.4</td>
</tr>
<tr>
<td>Cisco</td>
<td>3602i</td>
<td>7.2.103.0</td>
</tr>
<tr>
<td></td>
<td>5508 wireless controller</td>
<td>7.2.103.0</td>
</tr>
</tbody>
</table>

### Table 3: Test equipment used

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Specifications</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wi-Fi devices</td>
<td>Laptops</td>
<td>MacBook Pro (13) BCM43XX-1.0-(5.100.98.75.18)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dell Latitude with Intel 6300 Wi-Fi chipset (47) 15.1.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dell with Intel 4965 chipset (10) 15.1.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Smartphones</td>
<td>Apple iPhone iOS 5.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tablets</td>
<td>Apple iPad2 iOS 5.1</td>
</tr>
<tr>
<td>2</td>
<td>Test tools</td>
<td>Performance Evaluation Software</td>
<td>Ixia Chariot 7.10 SP 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VLC media server 2.0.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Air Video server 3.0</td>
</tr>
<tr>
<td>3</td>
<td>Switch</td>
<td>Type</td>
<td>Aruba Mobility Access Switch S3500-48P Release 7.1</td>
</tr>
<tr>
<td>4</td>
<td>AP mounting</td>
<td>Type</td>
<td>Ceiling</td>
</tr>
</tbody>
</table>

All APs were connected at Layer 2 to the Aruba S3500 Mobility Access Switch. The Aruba ClearPass Policy Manager provided RADIUS authentication services for the mobile devices, which were provisioned with 802.1X PEAP authentication. The controller configurations are included in the appendix for reference.
Benchmark Test Scenarios

The following real-world scenarios were tested in the proof-of-concept lab for benchmarking. These tests measure maximum aggregate TCP throughput with a variety of clients sending and receiving data at the same time as is typical in an office environment.

- 2.4-GHz radio performance with increasing number of smartphones
- 5-GHz radio performance with 20 tablets and 20 laptops
- AP performance with 20 smartphones, 20 tablets and 20 laptops

With BYOD becoming common in the workplace, each user carries at least two, if not three, mobile devices. These devices are always on and connect to the network automatically whether in use or not. This puts an additional unwanted load on the network.

Benchmark tests utilized a mix of device types like laptops, tablets and smartphones with varying speed capabilities (65 Mbps to 450 Mbps) in a typical office environment. The tests use Ixia Chariot as the primary test tool and bidirectional (to and from clients) TCP traffic flows to measure peak Wi-Fi performance.

A. Performance with increasing number of smartphones

This test measures the impact on aggregate network performance as additional smartphones connect wirelessly to the network. Ideally, the total measured throughput should remain constant, regardless of the number of devices on the network. The AP radios should distribute available airtime equally among all devices.

Table 4: Performance with increasing number of smartphones test setup

<table>
<thead>
<tr>
<th>Clients used for testing</th>
<th>20 x Apple iPhones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tools used for testing</td>
<td>Ixia Chariot, TCP Protocol, throughput.scr script, one stream per client per traffic direction</td>
</tr>
<tr>
<td>AP operation mode</td>
<td>2.4-GHz radio, same channel used for both Aruba and Cisco.</td>
</tr>
</tbody>
</table>
Chart 1: Performance impact of adding more smartphones

These tests show that the overall performance of the Aruba AP-135 stays consistently high as more smartphones connect.

However, the Cisco 3602i is unable to handle the increasing load and its total AP performance drops by 60%, from 20 Mbps to 7 Mbps. This equates to more than a 10-fold drop in performance of individual clients. With five clients, Cisco 3602i provides 4 Mbps average bandwidth per client and with 20 clients, it provides 350 Kbps.

B. 2.4-GHz radio performance with 20 smartphones

This test measures the peak network performance with 20 smartphones connected to the network and simultaneously downloading and uploading data at the same time. The tests were repeated by transmitting data to measure download only, upload only, as well as bidirectional traffic. Measuring bidirectional Wi-Fi performance is critical because it more accurately represents real-world environments.

Table 5: Setup for high density 2.4-GHz radio performance test

<table>
<thead>
<tr>
<th>Clients used for testing</th>
<th>20 x Apple iPhones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tools used for</td>
<td>Ixia Chariot, TCP protocol, throughput.scr script, one stream per client per traffic direction</td>
</tr>
</tbody>
</table>
High-Density Wi-Fi Benchmark Test: Aruba Networks AP-135 and Cisco AP3602i

| testing | AP operation mode          | 2.4-GHz radio, same channel used for both Aruba and Cisco. |

**Chart 2: Peak performance with 20 smartphones**

It is clear from the chart above that in all three scenarios the Aruba AP-135 outperforms the Cisco 3602i in smartphone Wi-Fi performance. Since the majority of devices that associate to a WLAN are smartphones – almost every user has one – the Aruba AP-135 will provide significant performance benefits in real-world WLAN deployments.

**C. 5-GHz radio performance with 20 tablets and 20 laptops**

This test measures how the network treats 802.11n-capable mobile devices with varying capabilities – laptops at 450 Mbps maximum speeds and tablets at 65 Mbps maximum speeds – in a typical office environment. The WLAN infrastructure should allow each device to transmit and receive at maximum speed without impacting overall network performance. It should also ensure that no group of mobile devices monopolize the available Wi-Fi resources and prevent adverse effects on total network performance.

<table>
<thead>
<tr>
<th>Table 6</th>
<th>Setup for high density 5-GHz radio performance test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clients used for testing</td>
<td>20 Laptops</td>
</tr>
<tr>
<td></td>
<td>10 x Apple MacBook Pro</td>
</tr>
<tr>
<td></td>
<td>10 x Dell Windows</td>
</tr>
<tr>
<td></td>
<td>20 Tablets</td>
</tr>
<tr>
<td></td>
<td>20 x Apple iPads</td>
</tr>
<tr>
<td>Tools used for testing</td>
<td>Ixia Chariot, TCP protocol, throughput.scr script, two streams per client per traffic direction</td>
</tr>
</tbody>
</table>
These results clearly show that the Aruba AP-135 enables every client to operate at its peak, thereby improving the total available bandwidth. While no single client dominates the network, performance is optimized for each client. Faster laptop clients perform at greater speeds as expected, while tablets also receive a fair share of available Wi-Fi resources.

With the Cisco 3602i, the slower tablet clients dominate the use of airtime, severely compromising total Wi-Fi performance and slowing down faster laptop clients.

D. AP performance with 60 mobile devices

This last test captures a typical BYOD scenario where users with smartphones, tablets and laptops all contend for bandwidth on the same AP.

In this test, the smartphones are associated with the 2.4-GHz band while the laptops and tablets connected to the higher-capacity 5-GHz band. It is expected that the WLAN infrastructure should allow each device to transmit and receive at maximum speed without impacting overall network performance and per device-type performance.
Table 6: Maximum performance with 20 smartphones test setup

<table>
<thead>
<tr>
<th>Clients used for testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 Smartphones</td>
</tr>
<tr>
<td>20 x Apple iPhones</td>
</tr>
<tr>
<td>20 Laptops</td>
</tr>
<tr>
<td>10 x Apple MacBook Pros</td>
</tr>
<tr>
<td>10 x Dell Windows</td>
</tr>
<tr>
<td>20 Tablets</td>
</tr>
<tr>
<td>20 x Apple iPads</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tools used for testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ixia Chariot, TCP protocol, throughput.scr script, two streams per client per traffic direction</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AP operation mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.4- and 5-GHz radio, same channels used for both Aruba and Cisco</td>
</tr>
</tbody>
</table>

Chart 4: Peak performance with 20 smartphones

When faced with a challenge to support 60 devices per AP, the Aruba AP-135 delivers three-times more aggregate throughput than Cisco and ensures that every client gets its fair share of bandwidth, evidenced by laptops getting the highest amount of bandwidth. Note that smartphones outperform tablets since tablets have to contend with laptops for available airtime in the 5-GHz band.

No single client suffers when connected to the Aruba AP-135. With the Cisco 3602i AP, the smartphones suffer and only achieve 2 Mbps collectively.
Summary & Conclusions

The tests showcased in this report represent real-word environments with high densities of mobile devices operating at various speeds and throughput.

In these tests, the Cisco WLAN offers increasingly less bandwidth as more mobile devices connect to the Wi-Fi network. This results in unpredictable bandwidth allocation for individual clients.

Conversely, the Aruba WLAN offers significantly better performance in high-density Wi-Fi client environments. With Aruba, no group of clients monopolizes resources at the expense of other clients.
Appendix – Vendor Configurations

The configurations for both Aruba and Cisco WLAN controllers used for test cases are shown below.

**Aruba Configuration:**

hostname "3600-3"

clock timezone PDT -7

location "Building1.floor1"

controller config 305

ip NAT pool dynamic-srcnat 0.0.0.0 0.0.0.0

ip NAT pool sample 192.168.50.1

192.168.50.254 10.68.1.5

ip access-list eth validuserethacl

permit any

! netservice svc-netbios-dgm udp 138

netservice svc-snmp-trap udp 162

netservice svc-pcoip2-tpc tcp 4172

netservice svc-syslog udp 514

netservice svc-ftp udp 1701

netservice svc-ike udp 500

netservice svc-smb-tpc tcp 445

netservice svc-dhcp udp 67 68 alg dhcp

netservice svc-https tcp 443

netservice svc-citrix tcp 2598

netservice svc-pptp tcp 1723

netservice svc-ica tcp 1494

netservice svc-sec-papi udp 8209

netservice svc-scscp tcp 2000 alg scscp

netservice svc-telnet tcp 23

netservice svc-lpd tcp 515

netservice svc-netbios-ssn tcp 139

netservice svc-sip-tpc tcp 5060

netservice svc-kerberos udp 88

netservice svc-tftp udp 69 alg tftp

netservice svc-http-proxy3 tcp 8888

netservice svc-noe udp 32512 alg noe

netservice svc-cfgm-tpc tcp 8211

netservice svc-adp udp 8200

netservice svc-pop3 tcp 110

netservice svc-pcoip-tpc tcp 50002

netservice svc-pcoip-udp udp 50002

netservice svc-rtp tcp 554 alg rtp

netservice svc-msrpc-tpc tcp 135 139

netservice svc-dns udp 53 alg dns

netservice svc-h323-udp udp 1718 1719

netservice svc-h323-tpc tcp 1720

netservice svc-vocera udp 5002 alg vocera

netservice svc-http tcp 80

netservice svc-http-proxy2 tcp 8080

netservice svc-sip-udp udp 5060

netservice svc-nterm tcp 1026 1028

netservice svc-noe-oxo udp 5000 alg noe

netservice svc-papi udp 8211

netservice svc-natt udp 4500

netservice svc-ftp tcp 21 alg ftp

netservice svc-microsoft-ds tcp 445

netservice svc-svp 119 alg svp

netservice svc-smtp tcp 25

netservice svc-gre 47

netservice svc-netbios-ns udp 137

netservice svc-sips tcp 5061 alg sips

netservice svc-smb-udp udp 445

netservice svc-ipp-tpc tcp 631

netservice svc-esp 50

netservice svc-v6-dhcp udp 546 547

netservice svc-snmp udp 161

netservice svc-bootp udp 67 69

netservice svc-pcoip2-udp udp 4172

netservice svc-msrpc-udp udp 135 139

netservice svc-ntp udp 123

netservice svc-icmp 1

netservice svc-ipp-udp udp 631

netservice svc-ssh tcp 22

netservice svc-v6-icmp 58

netservice svc-http-proxy1 tcp 3128

netservice svc-vmware-rdp tcp 3389

netdestination GuestConnect

host 10.68.1.7

! netdestination mcast-server

network 224.0.0.0 255.0.0.0

network 239.0.0.0 255.0.0.0

! netdestination internal-network

network 10.0.0.0 255.0.0.0

! netdestination byod-laz

name intranet.arubanetworks.com

name arubapedia.arubanetworks.com

! netdestination byod-exec

name arubapedia.arubanetworks.com

name intranet.arubanetworks.com

name benedict.poc.arubanetworks.com

! netexthdr default

! time-range night-hours periodic
weekday 18:01 to 23:59
weekday 00:00 to 07:59
!
time-range weekend periodic
weekend 00:00 to 23:59
!
time-range working-hours periodic
weekday 08:00 to 18:00
!
time-range night-hours periodic
weekday 18:01 to 23:59
weekday 00:00 to 07:59
!
time-range weekend periodic
weekend 00:00 to 23:59
!
time-range working-hours periodic
weekday 08:00 to 18:00
!
ip access-list session v6-icmp-acl
ipv6 any any svc-v6-icmp permit
!
ip access-list session control
user any udp 68 deny
any any svc-dns permit
any any svc-papi permit
any any svc-sec-papi permit
any any svc-cfgm-tcp permit
any any svc-adp permit
any any svc-tftp permit
any any svc-dhcp permit
any any svc-natt permit
!
ip access-list session allow-diskservices
any any svc-netbios-dgm permit
any any svc-netbios-ssn permit
any any svc-microsoft-ds permit
any any svc-netbios-ns permit
!
ip access-list session Allow-GuestConnect
user alias GuestConnect svc-http permit
!
ip access-list session validuser
network 169.254.0.0 255.255.0.0 any any deny
any any any permit
ipv6 any any any permit
!
ip access-list session v6-https-acl
ipv6 any any svc-https permit
!
ip access-list session vocera-acl
any any svc-vocera permit queue high
!
ip access-list session vmware-acl
any any svc-vmware-rdp permit tos 46 dot1p-priority 6
any any svc-pcoip-tcp permit tos 46 dot1p-priority 6
any any svc-pcoip-udp permit tos 46 dot1p-priority 6
any any svc-pcoip2-tcp permit tos 46 dot1p-priority 6
any any svc-pcoip2-udp permit tos 46 dot1p-priority 6
!
ip access-list session sample-icmp-guest
any any svc-icmp src-nat pool sample
!
ip access-list session icmp-acl
any any svc-icmp permit
!
ip access-list session airvideo
any any tcp 45631 permit queue high tos 56
!
ip access-list session mcast_video
disable-scanning queue high tos 40
any any tcp 45631 permit queue high tos 56
any any permit
!
ip access-list session v6-dhcp-acl
ipv6 any any svc-v6-dhcp permit
!
ip access-list session captiveportal
user alias controller svc-https dst-nat 8081
user any svc-http dst-nat 8080
user any svc-https dst-nat 8081
user any svc-http-proxy1 dst-nat 8088
user any svc-http-proxy2 dst-nat 8088
user any svc-http-proxy3 dst-nat 8088
!
ip access-list session v6-dns-acl
ipv6 any any svc-dns permit
!
ip access-list session allowall
any any any permit
ipv6 any any any permit
!
ip access-list session lync-acl
any any tcp 5061 permit classify-media
!
ip access-list session https-acl
any any svc-https permit
!
ip access-list session sip-acl
any any svc-sip-udp permit queue high
any any svc-sip-tcp permit queue high
!
ip access-list session dns-acl
any any svc-dns permit
ip access-list session ra-guard
  ipv6 any any icmpv6 rtr-adv deny
!
ip access-list session Allow-GC-Welcome
  user alias GuestConnect svc-https permit
!
ip access-list session citrix-acl
  any any svc-citrix permit tos 46 dot1p-priority 6
  any any svc-ica permit tos 46 dot1p-priority 6
!
ip access-list session v6-allowall
  ipv6 any any any permit
!
ip access-list session tftp-acl
  any any svc-tftp permit
!
ip access-list session skinny-acl
  any any svc-sccp permit queue high
!
ip access-list session srcnat
  user any src-nat
!
ip access-list session vpnlogon
  user any svc-ike permit
  user any svc-esp permit
  any any svc-l2tp permit
  any any svc-pptp permit
  any any svc-gre permit
!
ip access-list session logon-control
  user any udp 68 deny
  any any svc-icmp permit
  any any svc-dns permit
  any any svc-dhcp permit
  any any svc-natt permit
!
ip access-list session allow-printservices
  any any svc-lpd permit
  any any svc-ipp-tcp permit
  any any svc-ipp-udp permit
!
ip access-list session block-internal
  user alias internal-network any deny
!
ip access-list session lycn-acl
  any any tcp 5061 permit classify-media queue high
  any any udp 5061 permit classify-media queue high
!
ip access-list session clogout
  user alias controller svc-https dst-nat 8081
!
ip access-list session video_acl
  any alias mcast-server any permit tos 40
  any any any permit
!
ip access-list session v6-http-acl
  ipv6 any any svc-http permit
!
ip access-list session http-acl
  any any svc-http permit
!
ip access-list session dhcp-acl
  any any svc-dhcp permit
!
ip access-list session captiveportal6
  ipv6 user alias controller6 svc-https captive
  ipv6 user any svc-http captive
  ipv6 user any svc-https captive
  ipv6 user any svc-http-proxy1 captive
  ipv6 user any svc-http-proxy2 captive
  ipv6 user any svc-http-proxy3 captive
!
ip access-list session ap-uplink-acl
  any any udp 68 permit
  any any svc-icmp permit
  any host 224.0.0.251 udp 5353 permit
!
ip access-list session noe-acl
  any any svc-noe permit queue high
!
ip access-list session svp-acl
  any any svc-svp permit queue high
  user host 224.0.1.116 any permit
!
ip access-list session ap-acl
  any any svc-gre permit
  any any svc-syslog permit
  any user svc-snmp permit
  user any svc-snmp-trap permit
  user any svc-ntp permit
  user alias controller svc-ftp permit
!
ip access-list session dynamic-session-acl
  any any src-nat pool dynamic-srcnat
!
ip access-list session v6-logon-control
  ipv6 user any udp 68 deny
  ipv6 any any svc-v6-icmp permit
  ipv6 any any svc-v6-dhcp permit
  ipv6 any any svc-dns permit
!
ip access-list session h323-acl
  any any svc-h323-cp permit queue high
  any any svc-h323-udp permit queue high
!
ip access-list session byod-laz
  user alias byod-laz any permit
!
ip access-list session byod-exec
user alias byod-exec any permit

vpn-dialer default-dialer
ike authentication PRE-SHARE ••••••

aaa bandwidth-contract employee-byod kbits 512
user-role ap-role
access-list session control
access-list session ap-acl
!
user-role denyall
!
user-role default-vpn-role
access-list session allowall
access-list session v6-allowall
!
user-role cpbase
!
user-role employee
vlan 689
access-list session lync-acl
access-list session allowall
access-list session v6-allowall
!
user-role byod-enrol

captive-portal "PoC-BYOD-Enrol"
access-list session logon-control
access-list session Allow-GuestConnect
access-list session captiveportal
!
user-role Game-Console
access-list session dhcp-acl
access-list session icmp-acl
access-list session dns-acl
access-list session Allow-GuestConnect
access-list session Allow-GC-Welcome
access-list session cplogout
access-list session block-internal
access-list session http-acl
access-list session https-acl
access-list session v6-dhcp-acl
access-list session v6-icmp-acl
access-list session v6-dns-acl
access-list session v6-http-acl
access-list session v6-https-acl
!
user-role voice
access-list session sip-acl
access-list session oe-acl
access-list session svp-acl
access-list session vocera-acl
access-list session skinny-acl
access-list session h323-acl
access-list session dhcp-acl
access-list session tftp-acl
access-list session dns-acl
access-list session icmp-acl
!
user-role default-via-role
via "via-poc-connection"
access-list session allowall
!
user-role lync-logon
access-list session allowall
!
user-role guest-logon

captive-portal "POC-Guest-CP"
access-list session logon-control
access-list session Allow-GuestConnect
access-list session Allow-GC-Welcome
access-list session cplogout
access-list session block-internal
access-list session http-acl
access-list session https-acl
access-list session v6-dhcp-acl
access-list session v6-icmp-acl
access-list session v6-dns-acl
access-list session v6-http-acl
access-list session v6-https-acl
!
user-role stateful-dot1x
!
user-role authenticated
access-list session airvideo
access-list session lync-acl
access-list session allowall
access-list session v6-allowall
!
user-role lync-authenticated
access-list session lync-acl
access-list session allowall
!
user-role logon
access-list session lync-acl
access-list session video_acl
access-list session logon-control
access-list session captiveportal
access-list session vpnlogon
access-list session v6-logon-control
access-list session captiveportal6
!
High-Density Wi-Fi Benchmark Test: Aruba Networks AP-135 and Cisco AP3602i

user-role byod-exec
access-list session lync-acl
access-list session logon-control
access-list session byod-exec
access-list session Allow-GuestConnect
access-list session block-internal
access-list session allowall
!
user-role byod-laz
bw-contract employee-byod per-user upstream
downstream
access-list session lync-acl
access-list session logon-control
access-list session byod-laz
access-list session Allow-GuestConnect
access-list session block-internal
access-list session allowall
!
!
controller-ip vlan 683
interface mgmt
  shutdown
!
dialer group evdo_us
  init-string ATQ0V1E0
dial-string ATDT#777
!
dialer group gsm_us
  init-string
AT+CGDCONT=1,"IP","ISP.CINGULAR"
dial-string ATD*99#
!
dialer group gsm_asia
  init-string AT+CGDCONT=1,"IP","internet"
dial-string ATD*99***1#
!
dialer group vivo_br
  init-string
AT+CGDCONT=1,"IP","zap.vivo.com.br"
dial-string ATD*99#
!
vlans 23
vlans 683
vlans-name VLAN_1
vlans VLAN_1 1
vlans-name management
vlans management 23

no spanning-tree

! interface gigabitethernet 1/0
  description "GE1/0"
  trusted
  trusted vlan 1-4094
  switchport access vlan 20
!

! interface gigabitethernet 1/1
  description "GE1/1"
  shutdown
  trusted
  trusted vlan 1-4094
  lACP group 1 mode active
!

! interface gigabitethernet 1/2
  description "GE1/2"
  shutdown
  trusted
  trusted vlan 1-4094
  lACP group 1 mode active
!

! interface gigabitethernet 1/3
  description "GE1/3"
  trusted
  trusted vlan 1-4094
  ip access-group "mcast_video"

  session
    switchport mode trunk
    switchport access vlan 683
    switchport trunk native vlan 683
    switchport trunk allowed vlan 40,50,683
!

! interface port-channel 0
  shutdown
  trusted vlan 1-4094
!

! interface port-channel 1
  shutdown
  trusted vlan 1-4094
  switchport mode trunk
  switchport trunk native vlan 681
  switchport trunk allowed vlan 1-22,24-4094
!

! interface vlan 683
  ip address 10.68.3.53 255.255.255.0
  ip igmp snooping
!
interface vlan 1
  no ip routing
  shutdown
!
interface vlan 23
  ip address 192.168.1.1 255.255.255.0
  no ip routing
  shutdown
!
ip default-gateway 10.68.3.1
uplink disable
ap mesh-recovery-profile cluster
Recovery/GEgwCvprCDsKrVj wpa-hexkey
crypto isakmp policy 20
  encryption aes256
!
crypto isakmp key "******" address 0.0.0.0
netmask 0.0.0.0
crypto ipsec transform-set default-boc-bm-transform esp-3des esp-sha-hmac
crypto ipsec transform-set default-rap-transform esp-aes256 esp-sha-hmac
crypto ipsec transform-set default-aes esp-aes256 esp-sha-hmac
crypto dynamic-map default-dynamicmap 10000
  set transform-set "default-transform" "default-aes"
!
crypto isakmp eap-passthrough eap-tls
crypto isakmp eap-passthrough eap-peap
crypto isakmp eap-passthrough eap-mschapv2

ip local pool "rap-via-pool" 10.68.7.50
  10.68.7.254
vpdn group pptp
  client configuration dns 10.68.1.6 10.1.1.50
  ppp authentication MSchapv2
!
ip dhcp excluded-address 192.168.1.1
  192.168.1.100
ip dhcp excluded-address 192.168.1.200
  192.168.1.211
ip dhcp excluded-address 192.168.40.1
  192.168.40.100
ip dhcp pool vlan
  lease 0 23 0 0
  network 192.168.1.0 255.255.255.0
  authoritative
!

dhcp pool guest
  default-router 192.168.40.1
  dns-server 10.68.1.6 8.8.8.8
domain-name poc.arubanetworks.com
  lease 0 8 0 0
  network 192.168.40.0 255.255.255.0
  authoritative
!
dhcp pool guest-pool
  default-router 192.168.50.1
  dns-server 10.68.1.6 8.8.8.8
  lease 8 8 0 0
  network 192.168.50.0 255.255.255.0
  authoritative
!
service dhcp
!
syslocation "POC Lab"
syscontact "Mark Jodan"
ssm-solver community aruba123
vpdn-group pptp
!
tunneled-node-address 0.0.0.0
adp discovery enable
adp igmp-join enable
adp igmp-vlan 0

voice rtcp-inactivity disable
voice sip-midcall-req-timeout disable
ap ap-blacklist-time 3600

ssh mgmt-auth username/password
mgmt-user admin root
  00e4d4e401139da215ce4c1c9ae16ecdb433b8f
  42e51de85c5
no database synchronize
database synchronize rf-plan-data

ip mobile domain default
!

global router
ip igmp
!
ipv6 mld
!
no firewall attack-rate cp 1024
firewall shape-mcast
firewall clear-sessions-role-update
ipv6 firewall ext-hdr-parse-len 100
!
firewall cp
!
firewall cp
packet-capture-defaults tcp disable udp disable
sysmsg disable other disable
!
ip domain lookup
!
country AR
aaa rfc-3576-server "10.68.1.7"
key e609841ae68be1eb30049f79e598b40f2de064b50f334d78
!
aaa rfc-3576-server "10.68.1.9"
key d4ad25e9de8473818a8f04c4ff0f34bd19d94c8e6b445092
!
aaa authentication mac "default"
!
aaa authentication dot1x "aruba-ap-dot1x_prof"
!
aaa authentication dot1x "ClearPass-1x"
  machine-authentication machine-default-role "employee"
  machine-authentication user-default-role "byod-enrol"
!
aaa authentication dot1x "default"
!
aaa authentication dot1x "dot1x_prof-bbf53"
!
aaa authentication dot1x "dot1x_prof-eid34"
!
aaa authentication dot1x "dot1x_prof-mdy66"
!
aaa authentication dot1x "dot1x_prof-ofq14"
!
aaa authentication dot1x "dot1x_prof-qxc74"
!
aaa authentication dot1x "dot1x_prof-smf29"
!
aaa authentication dot1x "internal-server-dot1x"
  termination enable
  termination eap-type eap-peap
  termination inner-eap-type eap-mschapv2
!
aaa authentication dot1x "wpa2"
  termination enable
  termination eap-type eap-peap
  termination inner-eap-type eap-mschapv2
!
aaa authentication-server radius "amigopod"
  host "192.168.1.2"
  key 3de6c2abcfc8a8724cbf72aa820c667fc2123889f9b9e027
!
aaa authentication-server radius "CPPM"
  host "10.68.9.28"
  key 958ee85cc59025e9e2312aa281c3db97a89490301a809c4b
!
aaa authentication-server radius "CPPM-HA"
  host "10.68.9.28"
  key ed611cf23aa340f8ce005768332071acd7534eb6425f408
!
aaa authentication-server radius "POC-ClearPass"
  host "10.68.1.9"
  key 8f8a392486f151fa4208f9a2591f0d5f097323db364dda9e
!
aaa authentication-server radius "POC-GuestConnect"
  host "10.68.1.7"
  key fe24474bf0491b09bd56431ce7a05d8fe347200ae67f871d
  nas-identifier "POC-3600"
  nas-ip 10.68.1.5
!
aaa server-group "amigopod"
  auth-server amigopod
!
aaa server-group "AS_srvgrp-kgj35"
  auth-server CPPM-HA
!
aaa server-group "ClearPass"
  auth-server POC-ClearPass
!
aaa server-group "ClearPass-Accounting"
  auth-server POC-GuestConnect
  auth-server POC-ClearPass
!
aaa server-group "CPPM-HA"
  auth-server CPPM-HA
!
aaa server-group "default"
  auth-server Internal
!
aaa server-group "GuestConnect"
  auth-server POC-GuestConnect
Aruba Networks, Inc.

aaa authentication via connection-profile "default"

aaa authentication via connection-profile "via-poc-connection"
  server addr "remote.poc.arubanetworks.com"
  internal-ip 10.68.1.5 desc "poc-via-controller"
  position 0
  auth-profile "via-poc" position 0
  no auto-upgrade
  tunnel address 10.0.0.0 netmask 255.255.255.0
  split-tunneling
  ikev2-policy "10004"
  no validate-server-cert
  dns-suffix-list "arubanetworks.com"

aaa authentication via web-auth "default"
  auth-profile "via-poc" position 0

aaa authentication via global-config

aaa profile "AS-aaa_prof"
  authentication-dot1x "dot1x_prof-bb53"
  dot1x-default-role "authenticated"
  dot1x-server-group "AS_srvgrp-kj35"

aaa profile "Copy_of_lync-test-2-aaa_prof"
  initial-role "lync-authenticated"
  authentication-dot1x "dot1x_prof-smlf29"

aaa profile "default"
  authentication-dot1x "default-psk"

aaa profile "lync-test-2-aaa_prof"
  initial-role "lync-authenticated"
  authentication-dot1x "dot1x_prof-qxc74"

aaa profile "POC-Employee-AAA"
  authentication-dot1x "ClearPass-1x"
  dot1x-default-role "employee"
  dot1x-server-group "ClearPass"
  radius-accounting "GuestConnect"
  radius-interim-accounting
  rfc-3576-server "10.68.1.7"
  rfc-3576-server "10.68.1.9"
  no devtype-classification

aaa profile "POC-Guest-AAA"
  initial-role "guest-logon"
  radius-accounting "GuestConnect"
  radius-interim-accounting
  rfc-3576-server "10.68.1.7"

aaa profile "PoC-tunneled-node"
  initial-role "guest-logon"
  authentication-dot1x "ClearPass-1x"
  dot1x-default-role "employee"
  dot1x-server-group "ClearPass"

aaa profile "RAP-poc-wired-AAA"
  initial-role "guest-logon"
  authentication-dot1x "ClearPass-1x"
  dot1x-default-role "employee"
  dot1x-server-group "ClearPass"
  l2-auth-fail-through
  radius-accounting "ClearPass"
  rfc-3576-server "10.68.1.7"
  no devtype-classification

aaa profile "sample-guest"
  initial-role "guest-logon"
  no devtype-classification

aaa profile "TEMP-aaa_prof"
  initial-role "authenticated"
  authentication-dot1x "dot1x_prof-eid34"

aaa profile "Temp_Only-aaa_prof"
  initial-role "authenticated"
  authentication-dot1x "dot1x_prof-mdy66"

aaa profile "wpa2"
  initial-role "guest-logon"
  authentication-dot1x "wpa2"
  dot1x-default-role "logon"
  dot1x-server-group "amigopod"
  radius-accounting "amigopod"

aaa authentication captive-portal "default"

aaa authentication captive-portal "PoC-BYOD-Enrol"
  default-role "byod-enrol"
  server-group "GuestConnect"
  redirect-pause 2
  no logout-popup-window
  protocol-http
  no enable-welcome-page
  switchip-in-redirection-url

aaa authentication captive-portal "POC-Guest-CP"
  server-group "GuestConnect"
  redirect-pause 2
  no logout-popup-window
  protocol-http
  welcome-page "https://guestconnect.poc.arubanetworks.com/Aruba_welcome.php"
  switchip-in-redirection-url !
  aaa authentication captive-portal "sample-guest" !
  aaa authentication wispr "default" !
  aaa authentication vpn "default"
    default-role "default-via-role"
    server-group "ClearPass"
    no cert-cn-lookup !
  aaa authentication vpn "default-rap" !
  aaa authentication mgmt !
  aaa authentication stateful-ntlm "default" !
  aaa authentication stateful-kerberos "default" !
  aaa authentication stateful-dot1x !
  aaa authentication via auth-profile "default"
    server-group "ClearPass"
  !
  aaa authentication via auth-profile "via-poc"
    server-group "ClearPass"
    desc "poc-via-employee" !
  aaa authentication wired !
  web-server
    session-timeout 3600 !
  papi-security !
  guest-access-email !
  voice logging !
  voice dialplan-profile "default" !
  voice real-time-config !
  voice sip !
  aaa password-policy mgmt !
  control-plane-security
    no cpsec-enable
    auto-cert-prov
  ids management-profile !
  ids wms-general-profile poll-retries 3 !
  ids wms-local-system-profile !
  ids ap-rule-matching !
  valid-network-oui-profile !
  ap system-profile "apsys_prof-hvd22" !
  ap system-profile "apsys_prof-pr41" !
  ap system-profile "apsys_prof-mly58"
    telnet !
  ap system-profile "default"
    telnet !
  ap system-profile "defaultexit" !
  ap system-profile "mark-ap-sys-profile"
    lms-ip 10.68.1.5 !
  ap system-profile "rap-poc" !
  ap regulatory-domain-profile "default"
    country-code AR
    valid-11g-channel 1
    valid-11g-channel 6
    valid-11g-channel 11
    valid-11a-channel 36
    valid-11a-channel 40
    valid-11a-channel 44
    valid-11a-channel 48
    valid-11a-channel 52
    valid-11a-channel 56
    valid-11a-channel 60
    valid-11a-channel 64
    valid-11a-channel 100
    valid-11a-channel 104
    valid-11a-channel 108
    valid-11a-channel 112
    valid-11a-channel 116
    valid-11a-channel 120
    valid-11a-channel 124
    valid-11a-channel 128
    valid-11a-channel 132
    valid-11a-channel 136
    valid-11a-channel 140
    valid-11a-channel 149
    valid-11a-channel 153
    valid-11a-channel 157
valid-11a-channel 161
valid-11a-channel 165
valid-11g-40mhz-channel-pair 1-5
valid-11g-40mhz-channel-pair 7-11
valid-11a-40mhz-channel-pair 36-40
valid-11a-40mhz-channel-pair 44-48
valid-11a-40mhz-channel-pair 52-56
valid-11a-40mhz-channel-pair 60-64
valid-11a-40mhz-channel-pair 100-104
valid-11a-40mhz-channel-pair 108-112
valid-11a-40mhz-channel-pair 116-120
valid-11a-40mhz-channel-pair 124-128
valid-11a-40mhz-channel-pair 132-136
valid-11a-40mhz-channel-pair 149-153
valid-11a-40mhz-channel-pair 157-161

ap wired-ap-profile "default"

ap wired-ap-profile "rap-poc-wired"
    wired-ap-enable
    switchport mode trunk
    switchport trunk native vlan 688

ap enet-link-profile "default"

ap mesh-ht-ssid-profile "default"

ap mesh-cluster-profile "default"

ap wired-port-profile "default"

ap wired-port-profile "rap-poc-wired"
    wired-ap-profile "rap-poc-wired"
    aaa-profile "RAP-poc-wired-AAA"

ap mesh-radio-profile "default"

ids general-profile "default"
    wireless-containment none

ids rate-thresholds-profile "default"

ids signature-profile "default"

ids impersonation-profile "default"
    no detect-ap-spoofing

ids unauthorized-device-profile "default"
    no detect-windows-bridge
    no classification
    no overlay-classification
    no oui-classification
    no prop-wm-classification
    no detect-unencrypted-valid-client
    no detect-adhoc-using-valid-ssid
    no detect-valid-client-misassociation

ids signature-matching-profile "default"

ids dos-profile "default"
    no detect-disconnect-sta
    no detect-omerta-attack
    no detect-fata-jack-attack
    no detect-malformed-large-duration
    no detect-block-ack-dos
    no detect-power-save-dos-attack

ids profile "default"

rf arm-profile "arm-maintain"
    assignment maintain

rf arm-profile "arm-scan"

rf arm-profile "default"
    assignment disable
    noise-wait-time 15

rf arm-profile "default-a"
    min-tx-power 15
    voip-aware-scan

rf arm-profile "performance-s"
    assignment disable
    min-tx-power 127
    voip-aware-scan

rf arm-profile "rapid-scan"
    no client-aware
    no multi-band-scan
    scan-interval 1
    no video-aware-scan
    backoff-time 120
    min-scan-time 4

rf arm-profile "slb-arm"

rf arm-profile "spectrum"

rf optimization-profile "default"

rf event-thresholds-profile "default"

rf am-scan-profile "default"

rf dot11a-radio-profile "default"
    tx-power 127
    spectrum-load-balancing
    mgmt-frame-throttle-limit 100
    arm-profile "default-a"
    spectrum-monitoring
rf dot11a-radio-profile "default-a-radio"
  tx-power 16
  mgmt-frame-throttle-limit 100
  arm-profile "default-a"
  spectrum-monitoring

rf dot11a-radio-profile "Performance"
  no radio-enable
  channel 149+
  tx-power 127
  spectrum-load-balancing
  spectrum-load-bal-domain "dmo"
  arm-profile "performance-s"

rf dot11a-radio-profile "rp-maintain-a"
  arm-profile "arm-maintain"

rf dot11a-radio-profile "rp-monitor-a"
  mode am-mode

rf dot11a-radio-profile "rp-scan-a"
  arm-profile "arm-scan"

rf dot11a-radio-profile "slb-a"
  no radio-enable
  spectrum-load-balancing
  slb-update-interval 1
  slb-threshold 10
  spectrum-load-bal-domain "slb"
  arm-profile "slb-arm"

rf dot11a-radio-profile "spectrum-a"
  mode spectrum-mode
  arm-profile "spectrum"

rf dot11a-radio-profile "test-slb"
  no radio-enable
  channel 149+
  tx-power 127
  spectrum-load-balancing
  slb-update-interval 3
  slb-threshold 10
  spectrum-load-bal-domain "slb"
  arm-profile "performance-s"

rf dot11g-radio-profile "default"
  channel 11
  tx-power 127
  spectrum-monitoring

rf dot11g-radio-profile "default-b-radio"
  arm-profile "default-a"
  spectrum-monitoring

rf dot11g-radio-profile "Performance"
  no radio-enable
  channel 1
  tx-power 127
  spectrum-load-balancing
  spectrum-load-bal-domain "dmo"
  arm-profile "performance-s"

rf dot11g-radio-profile "rp-maintain-g"
  arm-profile "arm-maintain"

rf dot11g-radio-profile "rp-monitor-g"
  mode am-mode

rf dot11g-radio-profile "rp-scan-g"
  arm-profile "arm-scan"

rf dot11g-radio-profile "slb-g"
  spectrum-load-balancing
  slb-update-interval 1
  slb-threshold 10
  spectrum-load-bal-domain "slb"
  arm-profile "slb-arm"

rf dot11g-radio-profile "spectrum"
  mode spectrum-mode
  arm-profile "spectrum"

rf dot11g-radio-profile "test-slb"
  channel 1
  tx-power 127
  spectrum-load-balancing
  slb-update-interval 1
  slb-threshold 10
  spectrum-load-bal-domain "slb"
  arm-profile "rapid-scan"

wlan dot11k-profile "default"

wlan voip-cac-profile "default"

wlan ht-ssid-profile "ArubaShowcase-htssid_prof"

wlan ht-ssid-profile "AS-htssid_prof"
  temporal-diversity

wlan ht-ssid-profile "Copy_of_lync-test-2-htssid_prof"

wlan ht-ssid-profile "default"

wlan ht-ssid-profile "lync-test-2-htssid_prof"
  temporal-diversity

wlan ht-ssid-profile "TEMP-htssid_prof"

wlan ht-ssid-profile "Temp_ONLY-htssid_prof"
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wlan wmm-traffic-management-profile "lync"
  voice 40
  video 50
  best-effort 9
  background 1
!
wlan edca-parameters-profile station "default"
!
wlan edca-parameters-profile station "station"
  best-effort aifsn 2 ecw-min 3 ecw-max 4 txop 94 acm 0
!
wlan edca-parameters-profile ap "default"
!
wlan edca-parameters-profile ap "voice-video"
  best-effort aifsn 5 ecw-min 5 ecw-max 10 txop 0 acm 0
  voice aifsn 1 ecw-min 1 ecw-max 3 txop 47 acm 0
!
wlan ssid-profile "ArubaShowcase-ssid_prof"
  essid "ArubaShowcase"
  opmode wpa2-psk-aes
  wmm
  wpa-passphrase
  6f7d044e71f4baf71f952016c32fa9ad88af6a56986e8fea

ht-ssid-profile "ArubaShowcase-htssid_prof"
!
wlan ssid-profile "AS-ssid_prof"
  essid "ArubaShowcase"
  opmode wpa2-aes
  wpa2-tkip
  max-clients 100
  wmm
  mcast-rate-opt
  ht-ssid-profile "AS-htssid_prof"
!
wlan ssid-profile "AS1SSID_prof"
  essid "ArubaShowcase1"
  mcast-rate-opt
!
wlan ssid-profile "Copy_of_lync-test-2-ssid_prof"
  essid "Copy_of_lync-test-2"
  opmode wpa-psk-aes
  wpa-passphrase
  6f4ce5bcfe906bd60afbd48a405d375ebff22526e5e2f

ht-ssid-profile "Copy_of_lync-test-2-htssid_prof"
!
wlan ssid-profile "default"
  essid "default"
  wmm
wpa-passphrase
  89acc327688d2f089e88b20371115b9c97c30aa7fa9c10
  mcast-rate-opt
!
wlan ssid-profile "lync-test-2-ssid_prof"
  essid "lync-test-2"
  opmode wpa2-psk-aes
  wmm
  wpa-passphrase
  476a6992f00a26167c35a2b824bce948cf7cb53e5d35f22

ht-ssid-profile "lync-test-2-htssid_prof"
!
wlan ssid-profile "PoC-Employee"
  essid "PoC-Employee"
  opmode wpa2-aes
!
wlan ssid-profile "PoC-Guest"
  essid "PoC-Guest"
!
wlan ssid-profile "sample-guest"
  essid "sample-guest"
!
wlan ssid-profile "SLB"
  essid "SLB_Connect"
  wmm
  mcast-rate-opt
!
wlan ssid-profile "TEMP-ssid_prof"
  essid "TEMP"
  opmode wpa2-psk-aes
  wpa-passphrase
  b917efc738143504b2df20d0f9ae3c71e706c8fc8a37ceda

ht-ssid-profile "TEMP-htssid_prof"
!
wlan ssid-profile "Temp_Only-ssid_prof"
  essid "Temp_Only"
  opmode wpa2-psk-aes
  wpa-passphrase
  0f38a4b7f24aa160e109013919c9342d5cf84e0692fc36e0

ht-ssid-profile "Temp_Only-htssid_prof"
!
wlan ssid-profile "Video-demo"
  essid "Video-demo"
  opmode wpa2-psk-aes
  wmm
  wpa-passphrase
  bb5d86c92d69cda988a99d80db6fcac0976dd9f868077b44

mcast-rate-opt
!
wlan ssid-profile "wpa2"
  essid "neela-wpa2"
opmode wpa2-aes
  wmm
  mcast-rate-opt
! wlan virtual-ap "ArubaShowcase-vap_prof"
  aaa-profile "default-dot1x-psk"
  ssid-profile "ArubaShowcase-ssid_prof"
  vlan 50
dynamic-mcast-optimization
dynamic-mcast-optimization-thresh 100
!

wlan virtual-ap "AS-vap_prof"
  aaa-profile "AS-aaa_prof"
  ssid-profile "AS-ssid_prof"
  vlan 683
dynamic-mcast-optimization
dynamic-mcast-optimization-thresh 100
  band-steering
  steering-mode force-5ghz
!

wlan virtual-ap "AS1-vap"
  no vap-enable
  aaa-profile "AS-aaa_prof"
  ssid-profile "AS1_ssid_prof"
  vlan 50
  forward-mode decrypt-tunnel
!

wlan virtual-ap "Copy_of_lync-test-2-vap_prof"
  aaa-profile "Copy_of_lync-test-2-aaa_prof"
  ssid-profile "Copy_of_lync-test-2-ssid_prof"
  vlan 1
!

wlan virtual-ap "default"
  vlan 689
dynamic-mcast-optimization
dynamic-mcast-optimization-thresh 30
  band-steering
!

wlan virtual-ap "ipad-demo"
  aaa-profile "default-dot1x"
  ssid-profile "Video-demo"
  vlan 689
!

wlan virtual-ap "lync-test-2-vap_prof"
  no vap-enable
  aaa-profile "lync-test-2-aaa_prof"
  ssid-profile "lync-test-2-ssid_prof"
  vlan 40
  wmm-traffic-management-profile "lync"
!

wlan virtual-ap "PoC-Employee"
  aaa-profile "POC-Employee-AAA"
  ssid-profile "PoC-Employee"
  vlan 689
  band-steering
!

wlan virtual-ap "PoC-Guest"
  aaa-profile "POC-Guest-AAA"
  ssid-profile "PoC-Guest"
  vlan 688
!

wlan virtual-ap "sample-guest"
  aaa-profile "sample-guest"
  ssid-profile "sample-guest"
  vlan 50
!

wlan virtual-ap "SLB"
  aaa-profile "default-open"
  ssid-profile "SLB"
  vlan 23
dynamic-mcast-optimization
dynamic-mcast-optimization-thresh 30
  band-steering
!

wlan virtual-ap "TEMP-vap_prof"
  no vap-enable
  aaa-profile "TEMP-aaa_prof"
  ssid-profile "TEMP-ssid_prof"
  vlan 683
!

wlan virtual-ap "Temp_Only-vap_prof"
  aaa-profile "Temp_Only-aaa_prof"
  ssid-profile "Temp_Only-ssid_prof"
  vlan 683
!

wlan virtual-ap "wpa2"
  no vap-enable
  aaa-profile "wpa2"
  ssid-profile "wpa2"
  vlan 689
dynamic-mcast-optimization
dynamic-mcast-optimization-thresh 40
  band-steering
!

wlan traffic-management-profile "fair"
  bw-alloc virtual-ap "ArubaShowcase-vap_prof"
  share 100
  shaping-policy fair-access
!

ap provisioning-profile "default"
!

ap spectrum local-override
!

ap-group "am"
  virtual-ap "default"
  virtual-ap "Temp_Only-vap_prof"
  dot11a-radio-profile "spectrum-a"
  dot11g-radio-profile "spectrum"
!

ap-group "apps"
  virtual-ap "lync-test-2-vap_prof"
  virtual-ap "TEMP-vap_prof"
High-Density Wi-Fi Benchmark Test: Aruba Networks AP-135 and Cisco AP3602i

```
dot11a-traffic-mgmt-profile "fair"
dot11g-traffic-mgmt-profile "fair"
!
ap-group "AS"
  virtual-ap "AS-vap_prof"
dot11a-radio-profile "default-a-radio"
dot11g-radio-profile "default-b-radio"
ap-system-profile "apsys_prof-mly58"
dot11a-traffic-mgmt-profile "fair"
dot11g-traffic-mgmt-profile "fair"
!
ap-group "default"
  virtual-ap "default"
  virtual-ap "wpa2"
  virtual-ap "PoC-Guest"
  virtual-ap "PoC-Employee"
dot11a-radio-profile "Performance"
dot11g-radio-profile "Performance"
dot11a-traffic-mgmt-profile "fair"
dot11g-traffic-mgmt-profile "fair"
!
ap-name "ap1"
!
logging level debugging security
logging level debugging security subcat all
logging level warnings security subcat ids
logging level warnings security subcat ids-ap

snmp-server enable trap
snmp-server host 10.68.1.8 version 2c aruba123
udp-port 162

process monitor log
end

Cisco Configuration:

(Cisco Controller) >show running-config

System Information
Manufacturer's Name.................. Cisco Systems Inc.
Product Name.................. Cisco Controller
Product Version.................. 7.2.103.0
Boostrap Version.................. 1.0.1
Field Recovery Image Version........ 6.0.182.0
Firmware Version.................. FPGA 1.3, Env 1.6, USB console 1.27
Build Type.................. DATA + WPS

System Name.................. TM-E Cisco-1
System Location..................
System Contact..................

System ObjectID.................. 1.3.6.1.4.1.9.1.1069
IP Address.................. 10.68.3.52
Last Reset.................. Software reset
System Up Time.................. 54 days
  18 hrs 25 mins 34 secs
System Timezone Location..........

Configured Country............... US - United States
Operating Environment..........
Commercial (0 to 40 C)
Internal Temp Alarm Limits........ 0 to 65 C
Internal Temperature........... +46 C
External Temperature........... +30 C
Fan Status.................. OK
State of 802.11b Network..........
Enabled
State of 802.11a Network..........
Enabled
Number of WLANs............ 1
Number of Active Clients...... 0

Port Summary
   STP Admin Physical Physical Link
Link
Pr Type Stat Mode Mode Status
Status Trap POE SFPType
-- ------ ----------- --- ----- ---
1 Normal Forw Enable Auto 1000 Full Up
Enable N/A 1000BaseSX
2 Normal Disa Enable Auto Auto Down
Enable N/A Not Present
3 Normal Disa Enable Auto Auto Down
Enable N/A Not Present
4 Normal Disa Enable Auto Auto Down
Enable N/A Not Present
5 Normal Disa Enable Auto Auto Down
Enable N/A Not Present
6 Normal Disa Enable Auto Auto Down
Enable N/A Not Present
7 Normal Disa Enable Auto Auto Down
Enable N/A Not Present
8 Normal Disa Enable Auto Auto Down
Enable N/A Not Present

AP Summary
Number of APs............. 1

AP Name Slots AP Model
Ethernet MAC Location Port Country Priority
```

Aruba Networks, Inc.

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802.11a Configuration
802.11a Network............................. Enabled
11nSupport..................................... Enabled
  802.11a Low Band.......................... Enabled
  802.11a Mid Band.......................... Enabled
  802.11a High Band........................ Enabled

802.11a Operational Rates
  802.11a 6M Rate............................
    Mandatory
  802.11a 9M Rate............................
    Supported
  802.11a 12M Rate...........................
    Mandatory
  802.11a 18M Rate...........................
    Supported
  802.11a 24M Rate...........................
    Mandatory
  802.11a 36M Rate...........................
    Supported
  802.11a 48M Rate...........................
    Supported
  802.11a 54M Rate...........................
    Supported

802.11n MCS Settings:
  MCS 0................................. Supported
  MCS 1................................. Supported
  MCS 2................................. Supported
  MCS 3................................. Supported
  MCS 4................................. Supported
  MCS 5................................. Supported
  MCS 6................................. Supported
  MCS 7................................. Supported
  MCS 8................................. Supported
  MCS 9................................. Supported
  MCS 10................................. Supported
  MCS 11................................. Supported
  MCS 12................................. Supported
  MCS 13................................. Supported
  MCS 14................................. Supported
  MCS 15................................. Supported
  MCS 16................................. Supported
  MCS 17................................. Supported
  MCS 18................................. Supported
  MCS 19................................. Supported
  MCS 20................................. Supported
  MCS 21................................. Supported
  MCS 22................................. Supported
  MCS 23................................. Supported

802.11n Status:
  A-MPDU Tx:
    Priority 0......................... Enabled
    Priority 1......................... Disabled
    Priority 2......................... Disabled
    Priority 3......................... Disabled
    Priority 4......................... Enabled
    Priority 5......................... Enabled
    Priority 6......................... Disabled
    Priority 7......................... Disabled

A-MSDU Tx:
  Priority 0......................... Enabled
  Priority 1......................... Enabled
  Priority 2......................... Enabled
  Priority 3......................... Enabled
  Priority 4......................... Enabled
  Priority 5......................... Enabled
  Priority 6......................... Disabled
  Priority 7......................... Disabled
  Rifs Rx.............................. Enabled
  Guard Interval...................... Any
  Beacon Interval...................... 100
  CF Pollable mandatory................. Disabled
  CF Poll Request mandatory............. Disabled
  CFP Period............................. 4
  CFP Maximum Duration................... 60
  Default Channel....................... 36
  Default Tx Power Level.................. 1
  DTPC Status........................... Enabled
  Fragmentation Threshold.............. 2346
  TI Threshold.......................... -50
  Legacy Tx Beamforming setting........ Enabled
  Traffic Stream Metrics Status........ Enabled
  Expedited BW Request Status.......... Enabled
  World Mode............................ Enabled
  EDCA profile type..................... optimized-video-voice
  Voice MAC optimization status........ Enabled
  Maximum Number of Clients per AP..... 200
  Radio.......................... 200
  RF Event and Performance Logging
    Channel Update Logging............... Off
    Coverage Profile Logging............... Off
    Foreign Profile Logging............... Off
    Load Profile Logging................... Off
    Noise Profile Logging.................. Off
    Performance Profile Logging........... Off
    TxPower Update Logging................ Off
    Default 802.11a AP performance profiles
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>802.11a Global Interference threshold</td>
<td>10 %</td>
</tr>
<tr>
<td>802.11a Global noise threshold</td>
<td>-70 dBm</td>
</tr>
<tr>
<td>802.11a Global RF utilization threshold</td>
<td>80 %</td>
</tr>
<tr>
<td>802.11a Global throughput threshold</td>
<td>1000000 bps</td>
</tr>
<tr>
<td>802.11a Global clients threshold</td>
<td>12 clients</td>
</tr>
<tr>
<td>Default 802.11a AP monitoring</td>
<td>802.11a Monitor Mode: enable</td>
</tr>
<tr>
<td>802.11a Monitor Mode for Mesh AP</td>
<td>disable</td>
</tr>
<tr>
<td>Country channels</td>
<td>802.11a RRM Neighbor Discover Type:</td>
</tr>
<tr>
<td></td>
<td>Transparent</td>
</tr>
<tr>
<td>802.11a AP Coverage Interval</td>
<td>180 seconds</td>
</tr>
<tr>
<td>802.11a AP Load Interval</td>
<td>60 seconds</td>
</tr>
<tr>
<td>802.11a AP Noise Interval</td>
<td>180 seconds</td>
</tr>
<tr>
<td>802.11a AP Signal Strength Interval</td>
<td>60 seconds</td>
</tr>
<tr>
<td>Leader Automatic Transmit Power Assignment</td>
<td>OFF</td>
</tr>
<tr>
<td>Transmit Power Assignment Mode</td>
<td>OFF</td>
</tr>
<tr>
<td>Transmit Power Update Interval</td>
<td>600 seconds</td>
</tr>
<tr>
<td>Transmit Power Threshold</td>
<td>-70 dBm</td>
</tr>
<tr>
<td>Transmit Power Neighbor Count</td>
<td>3 APs</td>
</tr>
<tr>
<td>Min Transmit Power</td>
<td>-10 dBm</td>
</tr>
<tr>
<td>Max Transmit Power</td>
<td>30 dBm</td>
</tr>
<tr>
<td>Transmit Power Update Contribution</td>
<td>SNI..</td>
</tr>
<tr>
<td>TPC Mode</td>
<td>Version 1</td>
</tr>
<tr>
<td>TPCv2 Target RSSI</td>
<td>-67 dBm</td>
</tr>
<tr>
<td>TPCv2 VoWLAN Guide RSSI</td>
<td>-67.0 dBm</td>
</tr>
<tr>
<td>TPCv2 SOP</td>
<td>-85.0 dBm</td>
</tr>
<tr>
<td>TPCv2 Default Client Ant Gain</td>
<td>0.0 dBi</td>
</tr>
<tr>
<td>TPCv2 Path Loss Decay Factor</td>
<td>3.6</td>
</tr>
<tr>
<td>TPCv2 Search Intensity</td>
<td>50 Iterations</td>
</tr>
<tr>
<td>Coverage Hole Detection</td>
<td>Enabled</td>
</tr>
<tr>
<td>802.11a Coverage Hole Detection Mode</td>
<td>Enabled</td>
</tr>
<tr>
<td>802.11a Coverage Voice Packet Count</td>
<td>100 packets</td>
</tr>
<tr>
<td>802.11a Coverage Voice Packet Percentage</td>
<td>50%</td>
</tr>
<tr>
<td>802.11a Coverage Voice RSSI Threshold</td>
<td>-80 dBm</td>
</tr>
<tr>
<td>802.11a Coverage Data Packet Count</td>
<td>50 packets</td>
</tr>
<tr>
<td>802.11a Coverage Data Packet Percentage</td>
<td>50%</td>
</tr>
<tr>
<td>802.11a Global coverage exception level</td>
<td>25%</td>
</tr>
<tr>
<td>802.11a Global client minimum exception level</td>
<td>3 clients</td>
</tr>
<tr>
<td>Leader Automatic Channel Assignment</td>
<td>OFF</td>
</tr>
<tr>
<td>Channel Assignment Mode</td>
<td>OFF</td>
</tr>
<tr>
<td>Anchor time (Hour of the day)</td>
<td>0</td>
</tr>
<tr>
<td>CleanAir Event-driven RRM option</td>
<td>SNI..</td>
</tr>
<tr>
<td>CleanAir Event-driven RRM sensitivity</td>
<td>Disabled</td>
</tr>
<tr>
<td>Channel Assignment Leader</td>
<td>TME-Cisco-1 (10.68.3.52)</td>
</tr>
<tr>
<td>Last Run</td>
<td>564 seconds ago</td>
</tr>
<tr>
<td>DCA Sensitivity Level</td>
<td>MEDIUM (15 dB)</td>
</tr>
<tr>
<td>DCA 802.11n Channel Width</td>
<td>40 MHz</td>
</tr>
<tr>
<td>DCA Minimum Energy Limit</td>
<td>-95 dBm</td>
</tr>
<tr>
<td>Channel Energy Levels</td>
<td>unknown</td>
</tr>
<tr>
<td>Channel Dwell Times</td>
<td>unknown</td>
</tr>
<tr>
<td>Minimum</td>
<td>unknown</td>
</tr>
<tr>
<td>Average</td>
<td>unknown</td>
</tr>
<tr>
<td>Maximum</td>
<td>unknown</td>
</tr>
<tr>
<td>TPCv2 5 GHz Auto-RF Channel List</td>
<td>Allowed Channel List</td>
</tr>
<tr>
<td>Allowed Channel List</td>
<td>36,40,44,48,52,56,60,64,149,153,157,161</td>
</tr>
<tr>
<td>802.11 4.9 GHz Auto-RF Channel List</td>
<td>Allowed Channel List</td>
</tr>
<tr>
<td>Allowed Channel List</td>
<td>1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26</td>
</tr>
</tbody>
</table>
High-Density Wi-Fi Benchmark Test: Aruba Networks AP-135 and Cisco AP3602i

DCA Outdoor AP option.......................... Disabled
Radio RF Grouping
  802.11a Group Mode.......................... AUTO
  802.11a Group Update Interval................. 600 seconds
  802.11a Group Leader......................... TME-Cisco-1 (10.68.3.52)
  802.11a Group Member......................... TME-Cisco-1 (10.68.3.52)
  802.11a Last Run.................. 564 seconds ago
802.11a CleanAir Configuration

Clean Air Solution.......................... Enabled

Air Quality Settings:
  Air Quality Reporting........................ Enabled
  Air Quality Reporting Period (min)............ 15
  Air Quality Alarms.......................... Enabled
  Air Quality Alarm Threshold.................. 35

Interference Device Settings:
  Interference Device Reporting................. Enabled

Enabled
  Interference Device Types:
    TDD Transmitter......................... Enabled
    Jammer.................................. Enabled
    Continuous Transmitter................. Enabled

Enabled
  DECT-like Phone.......................... Enabled
  Video Camera.............................. Enabled
  WiFi Inverted............................ Enabled
  WiFi Invalid Channel...................... Enabled
  SuperAG.................................. Enabled
  Canopy................................. Enabled
  WiMax Mobile............................. Enabled
  WiMax Fixed.............................. Enabled
  ......................................... Disabled

Interference Device Alarms.................. Disabled

Disabled

Interference Device Types Triggering Alarms:
  TDD Transmitter...... Disabled
  Jammer..................... Enabled
  Continuous Transmitter...... Disabled

Disables

Disabled

Air Quality Settings:
  Air Quality Reporting............. Enabled
  Air Quality Reporting Period (min).... 15
  Air Quality Alarms.................. Enabled
  Air Quality Alarm Threshold........ 35

Air Quality Settings:
  Air Quality Reporting............. Enabled
  Air Quality Reporting Period (min).... 15
  Air Quality Alarms.................. Enabled
  Air Quality Alarm Threshold........ 35

Unclassified Interference............ Enabled
  Unclassified Severity Threshold........ 20

Interference Device Settings:
  Interference Device Reporting........... Enabled

Enabled
  Interference Device Types:
    TDD Transmitter......................... Enabled
    Jammer.................................. Enabled
    Continuous Transmitter................. Enabled

Enabled
  DECT-like Phone.......................... Enabled
  Video Camera.............................. Enabled
  WiFi Inverted............................ Enabled
  WiFi Invalid Channel...................... Enabled
  SuperAG.................................. Enabled
  Canopy................................. Enabled
  WiMax Mobile............................. Enabled
  WiMax Fixed.............................. Enabled
  ......................................... Disabled

Interference Device Alarms.................. Disabled

Disabled

Interference Device Types Triggering Alarms:
  TDD Transmitter...... Disabled
  Jammer..................... Enabled
  Continuous Transmitter...... Disabled

Disables

Disabled

Canopy................................. Disabled
WiMax Mobile............................. Disabled
WiMax Fixed.............................. Disabled

Additional Clean Air Settings:
  CleanAir ED-RRM State..................... Enabled
  CleanAir ED-RRM Sensitivity................ Medium
  CleanAir ED-RRM Custom Threshold......... 50

Clean Air Persistent Devices State........ Disabled
Clean Air Persistent Device Propagation...... Disabled

802.11a CleanAir AirQuality Summary
AQ = Air Quality
DFS = Dynamic Frequency Selection

AP Name Channel Avg AQ Min AQ Interferers DFS
----------------------- ------- ------ ------- ------- ------- ------ ------
  802.11b Configuration
  802.11b Network.......................... Enabled
  11gSupport............................... Enabled
  11nSupport............................... Enabled
  802.11b/g Operational Rates
    802.11b/g 1M Rate..................... Mandatory
    802.11b/g 2M Rate..................... Mandatory
    802.11b/g 5.5M Rate................... Mandatory
    802.11b/g 11M Rate.................... Mandatory
    802.11b/g 6M Rate..................... Supported
    802.11b/g 9M Rate..................... Supported
    802.11b/g 12M Rate...................
    802.11b/g 18M Rate...................
    802.11g 24M Rate....................... Supported
  802.11n MCS Settings:
    MCS 0................................. Supported
    MCS 1................................. Supported
### 802.11n Status:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-MPDU Tx:</td>
<td></td>
</tr>
<tr>
<td>Priority 0</td>
<td>Enabled</td>
</tr>
<tr>
<td>Priority 1</td>
<td>Disabled</td>
</tr>
<tr>
<td>Priority 2</td>
<td>Disabled</td>
</tr>
<tr>
<td>Priority 3</td>
<td>Disabled</td>
</tr>
<tr>
<td>Priority 4</td>
<td>Enabled</td>
</tr>
<tr>
<td>Priority 5</td>
<td>Enabled</td>
</tr>
<tr>
<td>Priority 6</td>
<td>Disabled</td>
</tr>
<tr>
<td>Priority 7</td>
<td>Disabled</td>
</tr>
<tr>
<td>Aggregation scheduler</td>
<td>Enabled</td>
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<tr>
<td>Realtime Timeout</td>
<td>10</td>
</tr>
<tr>
<td>A-MSDU Tx:</td>
<td></td>
</tr>
<tr>
<td>Priority 0</td>
<td>Enabled</td>
</tr>
<tr>
<td>Priority 1</td>
<td>Enabled</td>
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<td>Priority 2</td>
<td>Enabled</td>
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<tr>
<td>Priority 3</td>
<td>Enabled</td>
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<tr>
<td>Priority 4</td>
<td>Enabled</td>
</tr>
<tr>
<td>Priority 5</td>
<td>Enabled</td>
</tr>
<tr>
<td>Priority 6</td>
<td>Disabled</td>
</tr>
<tr>
<td>Priority 7</td>
<td>Disabled</td>
</tr>
<tr>
<td>Riffs Rx</td>
<td>Enabled</td>
</tr>
<tr>
<td>Guard Interval</td>
<td>Any</td>
</tr>
<tr>
<td>Beacon Interval</td>
<td>100</td>
</tr>
<tr>
<td>CF Pollable mode</td>
<td>Disabled</td>
</tr>
<tr>
<td>CF Poll Request mandatory</td>
<td>Disabled</td>
</tr>
<tr>
<td>CFP Period</td>
<td>4</td>
</tr>
<tr>
<td>CFP Maximum Duration</td>
<td>60</td>
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<tr>
<td>Default Channel</td>
<td>1</td>
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<tr>
<td>Default Tx Power Level</td>
<td>1</td>
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<tr>
<td>DTPC Status</td>
<td>1</td>
</tr>
<tr>
<td>Call Admission Limit</td>
<td>105</td>
</tr>
<tr>
<td>G711 CU Quantum</td>
<td>15</td>
</tr>
<tr>
<td>ED Threshold</td>
<td>15</td>
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<tr>
<td>Fragmentation Threshold</td>
<td>2346</td>
</tr>
<tr>
<td>PBCC mandatory</td>
<td>Disabled</td>
</tr>
<tr>
<td>RTS Threshold</td>
<td>2347</td>
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<tr>
<td>Short Preamble mandatory</td>
<td>Enabled</td>
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<tr>
<td>Short Retry Limit</td>
<td>7</td>
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<tr>
<td>Legacy Tx Beamforming setting</td>
<td>Enabled</td>
</tr>
<tr>
<td>Traffic Stream Metrics Status</td>
<td>Disabled</td>
</tr>
<tr>
<td>Expedited BW Request Status</td>
<td>Disabled</td>
</tr>
<tr>
<td>World Mode</td>
<td>Enabled</td>
</tr>
<tr>
<td>Faster Carrier Tracking Loop</td>
<td>Disabled</td>
</tr>
<tr>
<td>EDCA profile type</td>
<td>default-wmm</td>
</tr>
<tr>
<td>Voice MAC optimization status</td>
<td>Disabled</td>
</tr>
<tr>
<td>Call Admission Control (CAC) configuration</td>
<td>Disabled</td>
</tr>
<tr>
<td>Voice AC - Admission control (ACM)</td>
<td>Disabled</td>
</tr>
<tr>
<td>Voice Stream-Size</td>
<td>84000</td>
</tr>
<tr>
<td>Voice Max-Streams</td>
<td>2</td>
</tr>
<tr>
<td>Voice max RF bandwidth</td>
<td>75</td>
</tr>
<tr>
<td>Voice reserved roaming bandwidth</td>
<td>6</td>
</tr>
<tr>
<td>Voice CAC Method</td>
<td>Load-Based</td>
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<tr>
<td>Voice tspec inactivity timeout</td>
<td>Disabled</td>
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<tr>
<td>CAC SIP-Voice configuration</td>
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<tr>
<td>SIP based CAC</td>
<td>Disabled</td>
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<td>SIP Codec Type</td>
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<tr>
<td>CODEC_TYPE_G711</td>
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<td>SIP call bandwidth</td>
<td>64</td>
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<tr>
<td>SIP call bandwidth sample-size</td>
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<td>Video AC - Admission control (ACM)</td>
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<td>Video max RF bandwidth</td>
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<td>Video reserved roaming bandwidth</td>
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</tr>
<tr>
<td>Background AC - Admission control (ACM)</td>
<td>Disabled</td>
</tr>
<tr>
<td>Maximum Number of Clients per AP</td>
<td>200</td>
</tr>
<tr>
<td>Press Enter to continue or &lt;ctrl-z&gt; to abort</td>
<td>z</td>
</tr>
</tbody>
</table>

### 802.11b Advanced Configuration

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>802.11b Airwave Director Configuration</td>
<td></td>
</tr>
</tbody>
</table>
RF Event and Performance Logging
Channel Update Logging........................ Off
Coverage Profile Logging........................... Off
Foreign Profile Logging............................ Off
Load Profile Logging............................... Off
Noise Profile Logging.............................. Off
Performance Profile Logging........................ Off
Transmit Power Update Logging...................... Off

Default 802.11b AP performance profiles
802.11b Global Interference threshold............ 10 %
802.11b Global noise threshold.................... -70 dBm
802.11b Global RF utilization threshold......... 80 %
802.11b Global throughput threshold............ 1000000 bps
802.11b Global clients threshold................. 12 clients

Default 802.11b AP monitoring
802.11b Monitor Mode............................... enable
802.11b Monitor Channels...........................

Country channels
802.11b RRM Neighbor Discovery Type............ Transparent
802.11b AP Coverage Interval..................... 180 seconds
802.11b AP Load Interval......................... 60 seconds
802.11b AP Noise Interval......................... 180 seconds
802.11b AP Signal Strength Interval............. 60 seconds

Leader Automatic Transmit Power Assignment
Transmit Power Assignment Mode................... AUTO
Transmit Power Update Interval................... 600 seconds
Transmit Power Threshold.......................... -70 dBm
Transmit Power Neighbor Count.................... 3 APs
Min Transmit Power............................... -10 dBm
Max Transmit Power............................... 30 dBm
Transmit Power Update Contribution............. SNI..

TPCv2 Default Client Ant Gain.................... 0.0 dBi
TPCv2 Path Loss Decay Factor.................... 3.6
TPCv2 Search Intensity........................... 50 iterations

Coverage Hole Detection
802.11b Coverage Hole Detection Mode............ Enabled
802.11b Coverage Voice Packet Count................ 100 packets
802.11b Coverage Voice Packet Percentage....... 50%
802.11b Coverage Voice RSSI Threshold............ -80 dBm

More or (q)uit current module or <ctrl-z> to abort
802.11b Coverage Data Packet Count................ 50 packets
802.11b Coverage Data Packet Percentage....... 50%
802.11b Coverage Data RSSI Threshold............ -80 dBm
802.11b Global coverage exception level........ 25%
802.11b Global client minimum exception level... 3 clients

Leader Automatic Channel Assignment
Channel Assignment Mode......................... AUTO
Channel Update Interval......................... 600 seconds
Anchor time (Hour of the day)................... 0
Channel Update Contribution..................... SNI..
CleanAir Event-driven RRM option................ Disabled
CleanAir Event-driven RRM sensitivity........... Medium

Channel Assignment Leader....................... TME-Cisco-1 (10.68.3.52)
Last Run........................................ 598 seconds ago

DCA Sensitivity Level:.................. MEDIUM (10 dB)
DCA Minimum Energy Limit..................... -95 dBm

Channel Energy Levels
Minimum........................ unknown
Average................................ unknown
Maximum................................. unknown

Channel Dwell Times
Minimum........................ unknown
Average................................ unknown
Maximum................................. unknown
802.11b Auto-RF Allowed Channel List.............. 1,6,11
Auto-RF Unused Channel List.............. 2,3,4,5,7,8,9,10
Radio RF Grouping
  802.11b Group Mode.............................. AUTO
  802.11b Group Update Interval................... 600 seconds
  802.11b Group Leader...................... TME-Cisco-1 (10.68.3.52)
  802.11b Group Member...................... TME-Cisco-1 (10.68.3.52)
  802.11b Last Run....................... 598 seconds ago
802.11a CleanAir Configuration

Clean Air Solution................................. Enabled
Air Quality Settings:
  Air Quality Reporting............................ Enabled
  Air Quality Reporting Period (min)............ 15
  Air Quality Alarms............................. Enabled
  Air Quality Alarm Threshold................... 35
Unclassified Interference................. Enabled
  Unclassified Severity Threshold............. 20
Interference Device Settings:
  Interference Device Reporting................ Enabled
  Interference Device Types:
    Bluetooth Link............................... Enabled
    Microwave Oven............................. Enabled
    802.11 FH.................................. Enabled
    Bluetooth Discovery........................ Enabled
    TDD Transmitter.............................. Enabled
    Jammer...................................... Enabled
    Continuous Transmitter...................... Enabled
  DECT-like Phone............................. Enabled
  Video Camera............................... Enabled
  802.15.4.................................. Enabled
  WiFi Inverted................................ Enabled
  WiFi Invalid Channel...................... Enabled
  SuperAG...................................... Enabled
  Canopy....................................... Enabled
  Microsoft Device............................. Enabled
  WiMax Mobile................................. Enabled
  WiMax Fixed................................. Enabled
  WiMax Fixed................................. Enabled
Interference Device Alarms............... Enabled
  Interference Device Types Triggering Alarms:
    Bluetooth Link............................... Disabled
    Microwave Oven............................. Disabled
    802.11 FH.................................. Disabled
    Bluetooth Discovery........................ Disabled
    TDD Transmitter.............................. Disabled
    Jammer...................................... Enabled
Continuous Transmitter................... Disabled
  DECT-like Phone............................. Disabled
  Video Camera............................... Disabled
  802.15.4.................................. Disabled
  WiFi Inverted................................ Enabled
  WiFi Invalid Channel...................... Enabled
  SuperAG...................................... Enabled
  Canopy....................................... Enabled
  Microsoft Device............................. Disabled
  WiMax Mobile................................. Disabled
  WiMax Fixed................................. Disabled
  WiMax Fixed................................. Disabled
Additional Clean Air Settings:
  CleanAir ED-RRM State......................... Enabled
  CleanAir ED-RRM Sensitivity................... Medium
  CleanAir ED-RRM Custom Threshold........... 50
  CleanAir Persistent Devices state.... Disabled
  CleanAir Persistent Device Propagation........ Enabled

802.11a CleanAir AirQuality Summary
AQ = Air Quality
DFS = Dynamic Frequency Selection

--More or (q)uit current module or <ctrl-z> to abort

AP Name  Channel Avg AQ Min AQ
------------------

--- Mobility Configuration ---
Mobility Architecture................. flat
Mobility Protocol Port............... 16666
Default Mobility Domain............... TME
Multicast Mode........................... Disabled
Mobility Domain ID for 802.11r........... 0x8536
Mobility Keepalive Interval............ 10
Mobility Keepalive Count............... 3
Mobility Group Members Configured....... 1
Mobility Control Message DSCP Value...... 0
Interface Name.......................... management
MAC Address.............................. 00:24:97:69:5d:80
IP Address............................... 10.68.3.52
IP Netmask............................... 255.255.255.0
IP Gateway............................... 10.68.3.1
External NAT IP State.................... Disabled
External NAT IP Address.......................... 0.0.0.0
VLAN.............................................. untagged
Quarantine-vlan.................................. 0
Active Physical Port............................. 1
Primary Physical Port............................ 1
Backup Physical Port......................... Unconfigured
Primary DHCP Server.............................. 10.68.1.6
Secondary DHCP Server.............. Unconfigured
DHCP Option 82................................. Disabled
AP Manager....................................... Yes
Guest Interface.................................. No
L2 Multicast..................................... Disabled

WLAN Configuration
WLAN Identifier.................................. 4
Profile Name..................................... ArubaShowcase
Network Name (SSID)............................. ArubaShowcase
Status........................................... Enabled
MAC Filtering.................................. Disabled
Broadcast SSID................................. Enabled
AAA Policy Override............................ Disabled
Network Admission Control
  Radius-NAC State......................... Disabled
  SNMP-NAC State............................ Disabled
  Disabled
Quarantine VLAN.................................. 0
Maximum number of Associated Clients......... 0
Maximum number of Clients per AP Radio...... 200
Number of Active Clients..................... 0
Exclusionlist Timeout........................... 60 seconds
Session Timeout............................... 1800 seconds
CHD per WLAN.................................. Enabled
Webauth DHCP exclusion........................ Disabled
Interface........................................ management
Multicast Interface............................ Not Configured
WLAN IPv4 ACL................................. Unconfigured
WLAN IPv6 ACL................................. unconfigured
DHCP Server..................................... Default
DHCP Address Assignment Required............. Disabled
Static IP client tunneling..................... Disabled
Quality of Service............................. Silver
Scan Defer Priority........................... 4,5,6
Scan Defer Time................................. 100 ms
WMM.............................................. Allowed
WMM UAPSD Compliant Client Support........... Disabled
Media Stream Multicast-direct................. Enabled
CCX - Aironetle Support......................... Enabled
CCX - Gratuitous ProbeResponse (GPR)............ Disabled
CCX - Diagnostics Channel Capability........... Disabled
Dot11-Phone Mode (7920)......................... Disabled
Wired Protocol................................... None
Passive Client Feature.......................... Disabled
Peer-to-Peer Blocking Action.................... Disabled
Radio Policy.................................... All
DTIM period for 802.11a radio................... 1
DTIM period for 802.11b radio................... 1
Security
  Wi-Fi Protected Access (WPA/WPA2)............. Enabled
    WPA (SSN IE)............................... Disabled
    WPA2 (RSN IE)............................. Enabled
    TKIP Cipher................................ Disabled
    AES Cipher................................ Enabled
    Auth Key Management
      802.1x.................................. Disabled
      PSK.................................... Enabled
      CCKM................................... Disabled
      FT(802.11r)............................. Disabled
      FT-PSK(802.11r)........................ Disabled
      FT Reassociation Timeout............... 20
      FT Over-The-Air mode.................... Enabled
      FT Over-The-Ds mode..................... Enabled
      GTK Randomization....................... Enabled
      SKC Cache Support........................ Disabled
      CCKM TSF Tolerance....................... 1000
      Wi-Fi Direct policy configured........... Disabled
      EAP-Passthrough.......................... Disabled
      CKIP.................................... Disabled
      Web Based Authentication................ Disabled
      Web-Passthrough.......................... Disabled
      Conditional Web Redirect................. Disabled
      Splash-Page Web Redirect............... Disabled
      Auto Anchor............................. Disabled
High-Density Wi-Fi Benchmark Test: Aruba Networks AP-135 and Cisco AP3602i

FlexConnect Local Switching........Disabled
FlexConnect Local Authentication........Disabled
FlexConnect Learn IP Address........Enabled
Client MFP..........................Optional
Tkip MIC Countermeasure Hold-down Timer...60
Call Snooping.........................Disabled
Roamed Call Re-Anchor Policy........Disabled
SIP CAC Fail Send-486-Busy Policy.....Enabled
SIP CAC Fail Send Dis-Association Policy...Disabled
KTS based CAC Policy.................Disabled
Band Select..........................Enabled
Load Balancing........................Enabled
Multicast Buffer.......................Disabled
Mobility Anchor List
WLAN ID   IP Address   Status

802.11u...............................Disabled
Access Network type..............Not configured
Network Authentication type........Not configured
Internet service..................Disabled
HESSID..............................00:00:00:00:00
Hotspot 2.0.........................Disabled
WAN Metrics configuration
Link status.......................0
Link symmetry.....................0
Downlink speed...................0
Uplink speed......................0
About Aruba Networks, Inc.

Aruba Networks is a leading provider of next-generation network access solutions for the mobile enterprise. The company’s Mobile Virtual Enterprise (MOVE) architecture unifies wired and wireless network infrastructures into one seamless access solution for corporate headquarters, mobile business professionals, remote workers and guests. This unified approach to access networks enables IT organizations and users to securely address the Bring Your Own Device (BYOD) phenomenon, dramatically improving productivity and lowering capital and operational costs.

Listed on the NASDAQ and Russell 2000® Index, Aruba is based in Sunnyvale, California, and has operations throughout the Americas, Europe, Middle East, and Asia-Pacific regions. To learn more, visit Aruba at http://www.arubanetworks.com. For real-time news updates follow Aruba on Twitter and Facebook.