



Avaya WLAN 8100 Quick Start Guide

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Chapter 1: Before you begin

Introduction

Use this Quick Start Guide to configure the Avaya WLAN 8100 system to provide basic Wireless LAN services using Open Authentication. This document does not cover all the functionality required for a typical enterprise network and is intended to be used in a demo/test environment.

To configure the Wireless LAN services on the WLAN 8100, complete the following steps:

- complete the preliminary configuration on the WLAN Controller (WC) 8180.
- configure the WC 8120 using the command line interface.
- configure the WC using the Wireless Management System.
- configure the WC using the Enterprise Device Manager.

Avaya WLAN 8100 system components

The WLAN 8100 Solution comprises the following components:

- WLAN Controller 8180
- WLAN Access Point 8120
- WLAN Management Software 8100

For more information about these components and the complete solution, see the WLAN 8100 product documentation suite at www.avaya.com.



Important:

The WC 8180 Controller requires licenses to manage the Access Points. The license activation code for the controller and the instructions to generate the license file are included in the paper package that is included as part of the controller shipment. You must have the license file to complete the configuration described in this document.

Avaya WLAN 8100 system configuration options

You can use one of the following tools to configure the WLAN 8100:

- command line interface (CLI)
- WLAN Management System 8100 (WMS) software
- Enterprise Device Manager (EDM)

You must use the CLI to complete the preliminary configuration to connect the Wireless Controller (WC) 8180 to the network. After you have configured the WC 8180 to connect to the network, you can use the CLI, WMS, or EDM to configure wireless services.

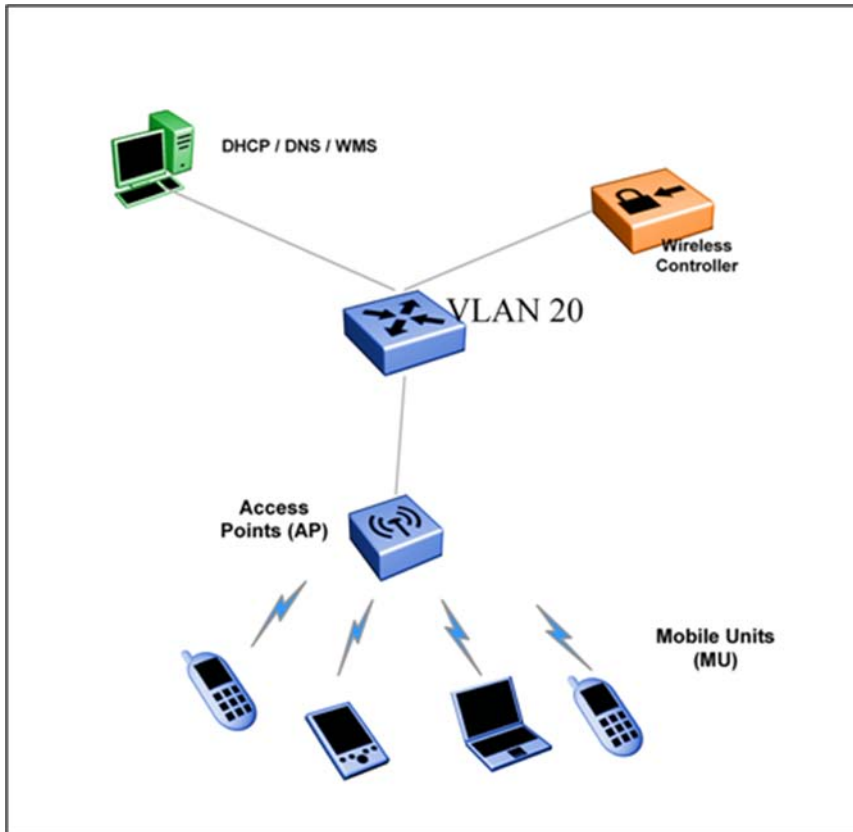
Configuration requirements

The following components are required to achieve the configuration described in this document:

- Wireless Controller (WC) 8180
- Access Point (AP) 8120
- Power over Ethernet PoE) switch or power injector for AP
- DHCP server
- wireless client
- WLAN Management System (WMS) software server (optional)
- wired client (optional , for WMS or EDM use)

WLAN network design

This guide provides procedures on how to configure the following types of network design.



WLAN 8100 network example 1

Chapter 2: Preliminary Configuration

Completing the preliminary controller configuration

This chapter provides the procedure to complete the preliminary configuration on the Wireless Controller (WC) 8180 before you complete the wireless configuration.

Prerequisites

Remove the WC 8180 from its packaging and ensure you have the following components and materials:

- WC 8180 device
- console cable

-
1. Power on the WC 8180.
 2. When the WC 8120 is up, connect the console cable.
 3. Press **Ctrl+Y** to start.
 4. From the MENU screen, select **Command Line Interface** to go to the CLI.
You are now connected to the WC 8180 device.
 5. Use the following command sequence to configure the Layer 2 VLAN. The following example uses vlan 20 as the VLAN to provide management and wireless services.

```
WC8180>en
WC8180#configure t
Enter configuration commands, one per line. End with CNTL/Z.
WC8180(config)#vlan create 20 name mgmt-wireless type port
WC8180(config)#vlan members remove 1 1-26
WARNING: STP configuration may be lost on selected ports. You may
need to reconfigure the ports manually.
WC8180(config)#vlan members add 20 1-4
WC8180(config)#vlan mgmt 20
```



Note:

Before you create the interface IP, select Management Vlan. After you create the interface IP, you cannot make further changes to the management VLAN.

6. Use the following command sequence to configure Layer 3.

```
WC8180(config)#interface vlan 20
WC8180(config-if)#ip address 20.20.20.45 255.255.255.0
WC8180(config-if)#exit
WC8180(config)#ip route 0.0.0.0 0.0.0.0 20.20.20.1 1
```

```
WC8180(config)#ip route 0.0.0.0 0.0.0.0 20.20.20.1 enable
WC8180(config)#ip routing WC8180(config)#show ip route
=====
Ip Route
=====
=====
=====
DST          MASK          NEXT          COST    VLAN  PORT  PROT  TYPE  PRF
-----
0.0.0.0      0.0.0.0        20.20.20.1    10      20   12    S    IB    5
20.20.20.0   255.255.255.0  20.20.20.45   1       20   ----  C    DB    0
Total Routes: 2
-----
TYPE Legend:
I=Indirect Route, D=Direct Route, A=Alternative Route, B=Best Route,
E=Ecmp Route,
U=Unresolved Route, N=Not in HW
WC8180(config)#
WC8180(config)#show vlan ip
=====
=====
Vid  ifIndex Address          Mask          MacAddress          Offset  Routing
=====
Primary Interfaces
-----
20   10020   20.20.20.45      255.255.255.0   00:24:B5:1F:7F:80 1          Enabled
-----
% Total of Primary Interfaces: 1
WC8180(config)#
```

7. Use the following command sequence to verify controller connectivity.

```
WC8180#ping 20.20.20.1
Host is reachable
WC8180#
```

8. Use the following command sequence to enable TELNET and SNMP access.

```
WC8180(config)#
WC8180(config)#telnet-access enable
WC8180(config)#
WC8180(config)#snmp-server enable
WC8180(config)#
```

9. Install and verify the license.

You must place the WC 8180 license file on a TFTP server that the WC can reach. Alternatively, you can load the license file onto the WC from a USB stick where the license is stored.

For more details on generating the license for the WC, see [Licensing the controller](#)

After you load the license onto the WC, the WC reboots.

In the following example, **640024B51F7F00.lic** is the 64 AP License file downloaded for the controller.

```
WC8180#copy tftp license address 20.20.20.9 filename 640024B51F7F00.lic
License successfully downloaded.
NOTE: system must be rebooted to activate license.
WC8180#boot Reboot the unit(s) (y/n) ? yRebooting . . .
```

Or

```
WC8180#copy usb license filename 640024B51F7F00.lic
License successfully downloaded.
NOTE: system must be rebooted to activate license.
WC8180#boot Reboot the unit(s) (y/n) ? yRebooting . . .
```

10. Verify that the licenses are installed correctly. The AP License Count should indicate the number of APs the controller is licensed to connect to.

```
WC8180#show wireless controller license-info
Platform AP Capacity      : 256
Licensed AP Capacity      : Unlimited
AP License Count          : 64
AP License Used Count     : 0
WC8180#
```

11. Enable the Wireless system and configure the Wireless system interface.
Use VLAN 20 for the Management interface, Wireless system interface, and Wireless client connectivity. In production networks, these can be separate VLANs to isolate network management traffic from wireless traffic.

```
WC8180#conf t
Enter configuration commands, one per line. End with CNTL/Z.
WC8180(config)#wireless
WC8180(config-wireless)#interface-ip 20.20.20.45
WC8180(config-wireless)#enable
WC8180(config-wireless)#

WC8180(config-wireless)#show wireless
Status          : Enabled
Interface IP     : 20.20.20.45
TCP/UDP base port : 61000
WC8180(config-wireless)#
```

12. Configure the controller to be MDC capable.

```
WC8180(config-wireless)#
WC8180(config-wireless)#controller mdc-capable
% Domain password should be between 10-15 characters long.
% Password must contain a minimum of 2 upper, 2 lowercase letters
% 2 numbers and 2 special characters like !@#$%^&*()
Enter domain password: *****
Verify Domain password: *****
WC8180(config-wireless)#
```

The WC 8180 is now configured to provision the controller for Wireless services.

Chapter 3: Configuring the Wireless Controller using the CLI

Complete this procedure to configure the Wireless Controller (WC) 8120 using the command line interface (CLI).

Prerequisites

You must complete the preliminary controller configuration before you can configure the WC.

1. Use the following command sequence to join the WC with the Mobility Domain.

```
WC8180#wireless controller join-domain domain-name AVAYA mdc-address 20.20.20.45
Enter Domain Secret: *****
Use 'show wireless controller domain-membership' to see join status.
WC8180#show wireless controller domain-membership
Domain Name           : AVAYA
Domain Role           : Active MDC
Domain Action Status  : Join Success
Action Failure Reason : None
WC8180#
```

2. Connect Access Points (AP) to the network.



Note:

The AP 8120 is powered by Power over Ethernet (PoE). You can connect a PoE switch or an external power injector to the AP.

3. Configure the DHCP server for AP discovery.

The Avaya AP 8120 discovers the controller IP addresses using DHCP option 43 or DNS. This following example uses the DHCP option. The Option 43 setting must be 08 08 41 56 41 59 41 20 41 50 01 04 14 14 14 2D, where 14 14 14 2D is the HEX representation of the controller IP 20.20.20.45. For details on how to configure the DHCP server, see [DHCP server configuration for access points](#) on page 65.

4. Discover the APs. Power on the APs by connecting them to the PoE switch or external power injector.
5. Ensure the APs are connected to the DHCP server.
6. Once the AP receives the controller information from the DHCP server, the AP connects to the controller.

All the discovered APs are placed in the discovered AP Table on the controller.

7. Use the following command sequence to verify that the connected AP is discovered by the controller.

```
WC8180(config-wireless)#show wireless domain ap discovered
Total number of discovered AP: 3
```

```

-----
AP MAC                AP IP                Model    Serial Number
-----
00:24:B5:65:65:60    54.54.54.5          AP8120   LBNNTMJXAC004V
00:24:B5:65:65:C0    54.54.54.6          AP8120   LBNNTMJXAC006L
5C:E2:86:0F:51:60    54.54.54.8          AP8120   LBNNTMJXAC018N
-----
WC8180(config-wireless)#

```

8. Use the following command sequence to auto-promote discovered APs to the domain AP database.

```

WC8180(config-wireless)#
WC8180(config-wireless)#domain auto-promote-discovered-ap
% Warning: AP database will be synchronized after running config-sync
command.
WC8180(config-wireless)#

```



Note:

You can also manually add APs to the domain AP database (insert x-ref to step: which will be explained later in the flow of this section).

9. Use the following command sequence to display the AP status. The following commands display the Managed Status of the APs and other relevant information. All APs must have a status of Managed to provide the configured Wireless services.

```

WC8180#show wireless ap status
Total APs: 3, Managed APs: 3, Failed APs: 0
-----
AP MAC                AP IP                Controller IP        Status              Need Image
-----
Upgrade
-----
00:24:B5:65:65:60    54.54.54.5          20.20.20.45         Managed             Yes ☐
00:24:B5:65:65:C0    54.54.54.6          20.20.20.45         Managed             Yes ☐
5C:E2:86:0F:51:60    54.54.54.8          20.20.20.45         Managed             Yes
-----
WC8180#

```

10. Use one of the following command sequences to perform either a bulk or single AP image upgrade.

Bulk AP image upgrade

```

WC8180#
WC8180#wireless domain ap image-update start
WC8180#

```

Single AP image upgrade

```

WC8180#
WC8180#wireless ap image-update ?
H.H.H  AP MAC Address
WC8180#wireless ap image-update 00:24:B5:65:65:60

```

11. After you have applied the image upgrade to the AP, use the following command sequence to verify the upgrade status.

```

WC8180#show wireless ap status
Total APs: 3, Managed APs: 3, Failed APs: 0
-----
11 AP MAC                AP IP                Controller IP        Status              Need Image
-----
Upgrade
-----

```

```

00:24:B5:65:65:60  54.54.54.5      20.20.20.45      Managed          No ☐
00:24:B5:65:65:C0  54.54.54.6      20.20.20.45      Managed          No ☐
5C:E2:86:0F:51:60  54.54.54.8      20.20.20.45      Managed          No ☐
-----
WC8180#

```

12. Complete steps 13 through 23 to create profiles. These steps are optional and provided for demonstration purposes.

13. Use the following command sequence to create a mobility VLAN.

```

WC8180(config-wireless)#
WC8180(config-wireless)#domain mobility-vlan Mobile-Clients
WC8180(config-wireless)#
WC8180(config-wireless)#show wireless domain mobility-vlan
-----
Mobility VLAN Name      Status
-----
default-MVLAN          Active
Mobile-Clients          Active
-----
WC8180(config-wireless)#

```

14. Use the following command sequence to create a network profile.

```

WC8180(config-wireless)#network-profile 2
Creating network-profile (id = 2) ...
WC8180(config-network-profile)#profile-name AVAYA-Demo
WC8180(config-network-profile)#ssid AVAYA-Demo
WC8180(config-network-profile)#mobility-vlan Mobile-Clients
WC8180(config-network-profile)#exit
WC8180(config-wireless)# WC8180(config-wireless)#show wireless network-profile 2
-----
Id  Profile Name      Mobility VLAN      Security Mode  Captive Portal
-----
2  AVAYA-Demo        Mobile-Clients    open          Disabled
-----
WC8180(config-wireless)#
WC8180(config-wireless)#show wireless network-profile 2 detail
Network Profile ID      : 2
Name                    : AVAYA-Demo
SSID                    : AVAYA-Demo
Hide SSID               : No
Mobility Vlan Name      : Mobile-Clients
No Response to Probe Request : Disabled
Captive Portal Mode     : Disabled
User Validation         : open
Captive Portal Profile Id : 0
Local User Group        : Default
RADIUS Authentication Profile Name :
RADIUS Accounting Profile Name :
RADIUS Accounting Mode  : Disabled
Security Mode           : open
MAC Validation           : Disabled
Wireless ARP Suppression : Disabled
WC8180(config-wireless)#

```

15. Use the following command sequence to create and view a radio profile.

```

WC8180(config-wireless)#radio-profile 3 access-wids a-n
Creating a radio-profile (id = 3) ...
WC8180(config-radio-profile)#profile-name A-N
WC8180(config-radio-profile)#exit
WC8180(config-wireless)#radio-profile 4 access-wids bg-n
Creating a radio-profile (id = 4) ...
WC8180(config-radio-profile)#profile-name BG-N
WC8180(config-radio-profile)#exit

```

Configuring the Wireless Controller using the CLI

```
WC8180(config-wireless)#show wireless radio-profile 3 detail
Radio Profile Id: 3
```

Name	: A-N
Operation Mode	: access-wids
IEEE 802.11 Mode	: 802.11a/n
RF Scan - Other Channels	: No
Broadcast/Multicast Rate Limiting	: Disabled
Broadcast/Multicast Rate Limit (Normal)	: 50 pkts/sec
Broadcast/Multicast Rate Limit (Burst)	: 75 pkts/sec
Beacon Interval	: 100 msec
DTIM Period	: 10
Fragmentation Threshold	: 2346
RTS Threshold	: 2347
Short Retry Limit	: 7
Long Retry Limit	: 4
Max Transmit Lifetime	: 512 msec
Max Receive Lifetime	: 512 msec
Max Clients	: 200
Auto Channel Adjustment Mode	: Yes
Auto Power Adjustment Mode	: Yes
Non-Auto Transmit Power	: 80 %
WMM(Wi-Fi Multimedia Mode)	: Enabled
Load Balancing Mode	: Disabled
Load Balance Utilization Threshold	: 60 %
Station Isolation Mode	: Disabled
Channel Bandwidth	: 40 MHz
Primary Channel	: Lower
802.11n Protection Mode	: Auto
SGI(Short Guard Interval)	: Disabled
STBC(Space Time Block Code) Mode	: Enabled
Multicast Transmit Rate	: Auto
APSD(Auto Power Save Delivery) Mode	: Enabled
No ACK for Incorrectly Received Frames	: Disabled
RRM(Radio Resource Measurement)	: Enabled

```
WC8180(config-wireless)#
```

```
WC8180(config-wireless)#show wireless radio-profile 4 detail
Radio Profile Id: 4
```

Name	: BG-N
Operation Mode	: access-wids
IEEE 802.11 Mode	: 802.11bg/n
RF Scan - Other Channels	: No
Broadcast/Multicast Rate Limiting	: Disabled
Broadcast/Multicast Rate Limit (Normal)	: 50 pkts/sec
Broadcast/Multicast Rate Limit (Burst)	: 75 pkts/sec
Beacon Interval	: 100 msec
DTIM Period	: 10
Fragmentation Threshold	: 2346
RTS Threshold	: 2347
Short Retry Limit	: 7
Long Retry Limit	: 4
Max Transmit Lifetime	: 512 msec
Max Receive Lifetime	: 512 msec
Max Clients	: 200
Auto Channel Adjustment Mode	: Yes
Auto Power Adjustment Mode	: Yes
Non-Auto Transmit Power	: 80 %
WMM(Wi-Fi Multimedia Mode)	: Enabled
Load Balancing Mode	: Disabled
Load Balance Utilization Threshold	: 60 %
Station Isolation Mode	: Disabled
Channel Bandwidth	: 20 MHz
Primary Channel	: Lower
802.11n Protection Mode	: Auto
SGI(Short Guard Interval)	: Disabled

```

STBC(Space Time Block Code) Mode      : Enabled
Multicast Transmit Rate                : Auto
APSD(Auto Power Save Delivery) Mode   : Enabled
No ACK for Incorrectly Received Frames : Disabled
RRM(Radio Resource Measurement)       : Enabled

```

```
WC8180(config-wireless)#
```

16. Use the following command sequence to create an AP profile, and to assign radio profiles and a network profile to it.

```

WC8180(config-wireless)#ap-profile 2
Creating ap-profile (id = 2) ...
WC8180(config-ap-profile)#profile-name AP-Profile-2
WC8180(config-ap-profile)#radio 1 profile-id 3 enable
WC8180(config-ap-profile)#radio 2 profile-id 4 enable
WC8180(config-ap-profile)#network 1 1 profile-id 2
WC8180(config-ap-profile)#network 2 1 profile-id 2
WC8180(config-ap-profile)#exit
WC8180(config-wireless)#show wireless ap-profile network 2
-----
AP Profile Id  Radio Id  VAP Id  Network Profile Id  Radio Operation
-----
2              1          1          1              2              On
2              2          1          2              2              On
-----
WC8180(config-wireless)#show wireless ap-profile radio 2
-----
AP Profile Id  Radio Id  Radio Profile Id  Radio Status
-----
2              1          3              On
2              2          4              On
-----

```

17. Use the following command sequence to manually add APs to the Domain AP Database. You must add all the APs to the Domain AP Database to provide wireless services. Using this menu, you can also modify other AP parameters. These parameters are not shown in the following sample code.

```

WC8180(config-wireless)#domain ap 00:24:B5:65:65:60
Entering domain AP (mac = 00:24:B5:65:65:60) configuration mode...
WC8180(config-domain-ap)#profile-id 2
WC8180(config-domain-ap)#exit
WC8180(config-wireless)#

```

18. Use the following command sequence to apply the wireless configuration to the AP.

```

Do config-sync to apply changes to AP.
WC8180#
WC8180#wireless controller config-sync
WC8180#

```

19. If the domain AP related parameters have changed (for example, if the AP profile has changed), then you must reset the APs for the configuration to take effect.

```

WC8180#
WC8180#wireless domain ap reset start
WC8180#

```

20. Use the following command sequence to display the AP status.

The following commands show the Managed Status, and other relevant information, of the APs. All APs must have a Managed status to be able to provide the configured wireless services.

```

Total APs: 3, Managed APs: 3, Failed APs: 0
-----

```

Configuring the Wireless Controller using the CLI

```

AP MAC           AP IP           Controller IP    Status          Need Image
-----
Upgrade
-----
00:24:B5:65:65:60 54.54.54.5      20.20.20.45     Managed         No
00:24:B5:65:65:C0 54.54.54.6      20.20.20.45     Managed         No
5C:E2:86:0F:51:60 54.54.54.8      20.20.20.45     Managed         No
-----
WC8180#
WC8180#show wireless ap status detail
Total APs: 3, Managed APs: 3, Failed APs: 0
-----
AP (MAC=00:24:B5:65:65:60)
  IP Address           : 54.54.54.5
  Status               : Managed
  Hardware Type        : Avaya AP8120
  Software Version     : 1.0.0.0
  Serial Number        : LBNNTMJXAC004V
  Location             :
  Age (since last update) : 0d:00:00:03
  System Up Time       : 0d:00:31:33
  Discovery Reason      : Controller IP via DHCP
  Managing Controller   : Local Controller
  Controller IP Address : 20.20.20.45
  Profile Id           : 2
  Profile Name          : ap_002
  Configuration Apply Status : Success
  Protocol Version     : 2
  Authenticated Clients : 0
  Last Failing Configuration Elements : 0
  Configuration Failure Error :
  Reset status         : Not Started
  Code Download Status  : Not Started
  Image Upgrade Needed  : No
  Ap Techdump Status   : Not Started
-----
WC8180#

```

21. Use the following command sequence to display the AP VAP (SSID) status.

```

WC8180#show wireless ap vap status
AP MAC Address: 5C:E2:86:0F:51:60
-----
[ ] Radio/
# of Auth
VAP Id    VAP MAC Address      SSID                      Clients
-----
1 / 1     5C:E2:86:0F:51:60      AVAYA-Demo                0
2 / 1     5C:E2:86:0F:51:70      AVAYA-Demo                1
-----
Total Number of AP(s): 1
WC8180#

```

22. Use the following command sequence to display the AP radio status

```

WC8180#show wireless ap radio status
-----
AP MAC           Radio Operation Channel Power 802.11 Mode      Auth Clients
-----
2                On          5      80          802.11b/g/n      1
-----
WC8180#

```

23. Use the following command sequence to verify wireless client connectivity.

At this point the wireless network is ready for client connectivity. Scan for wireless networks and connect a wireless client to the network "AVAYA-Demo". Verify the client status and details on the WC.

```
WC8180#show wireless client status
```

```
Total number of clients: 1
```

Client MAC Address	Client IP Address	Associated Controller	Mobility VLAN	Status
00:21:91:7F:02:B4	20.20.20.203	20.20.20.45	Mobile-Clients	Authenticated

```
WC8180#
```

```
WC8180#show wireless client status detail
```

```
Total number of clients: 1
```

```
Client (MAC=00:21:91:7F:02:B4)
```

```

Client IP Address           : 20.20.20.203
User Name                   :
SSID                        : AVAYA-Demo
Mobility Vlan               : Mobile-Clients
Status                      : Authenticated
Captive Portal Authenticated User : No
Transmit Data Rate          : 130 Mbps
Inactive Period             : 0d:00:00:01
Age (since last update)    : 0d:00:00:00
Network Time                : 0d:00:17:41
Associating Controller      : Local Controller
Controller IP Address       : 20.20.20.45
Controller MAC Address      : 00:24:B5:1F:80:74
802.11n Capable             : Yes
STBC Capable                : No
AP MAC Address              : 5C:E2:86:0F:51:60
BSSID                       : 5C:E2:86:0F:51:70
Radio Interface             : 2
Channel                     : 5
Network Profile ID          : 2
NetBios Name                : VISHNUK1
Radio Resource Measurement (RRM) : Unsupported
  Location Report Requests  : Unsupported
  AP Detection via Beacon Table Report : Unsupported
  Beacon Active Scan Capability : Unsupported
  Beacon Passive Scan Capability : Unsupported
  Channel Load Measurement   : Unsupported

```

```
WC8180#
```


Chapter 4: Configuring the Wireless Controller using the WMS

Before you can use the Wireless Management System (WMS) software to configure the Wireless Controller (WC), you must first install and license the WMS software.

Installing the Wireless Management System software

This procedure is used to install the WMS. Avaya recommends and supports installing WMS on Windows Server 2003, Windows 2008, or Linux platforms.

-
1. Download the latest version of the WMS application.
 2. Enter the installation path in the field provided. If not value is entered, the default path will be used.
 3. Click **Next**.
 4. WMS installs a version of MySQL to support database operations.



Note:

You can use an existing version of MySQL but it is not recommended. Leave the *Use existing MySQL* server check box unselected unless you are an advanced MySQL administrator.

5. Click **Next**.
 6. The WMS installer can detect if there any conflicts between the ports it uses by default and those already in use on the server. If conflicts exist, the user will be prompted to enter new port values.
 7. Click **Next**.
 8. Confirm installation options.
 9. Click **Finish**.
-

Licensing the Wireless Management System software

The base Wireless Management (WMS) software allows domain configuration. However, licenses are required for using the monitoring functionality within WMS. For more details on downloading and installing the WMS server license, see [Licensing the Wireless Management System software](#) on page 71. For licenses to take effect, stop and start WMS services.



Note:

You must have a Base License Certificate to initially license your WMS or to apply an incremental license. Incremental licenses are optional. When you load an incremental license, the base license file must also be present.

Configuring the Wireless Controller using the WMS

Complete this procedure to configure the Wireless Controller (WC) using the WMS 8100 software.

Prerequisites

You must install the WMS before you can configure the WC using the WMS.

You must complete the preliminary WC configuration before you can configure the WC using the WMS.

-
1. To connect to the WMS, launch a browser and type the WMS server IP address in the address bar.



Note:

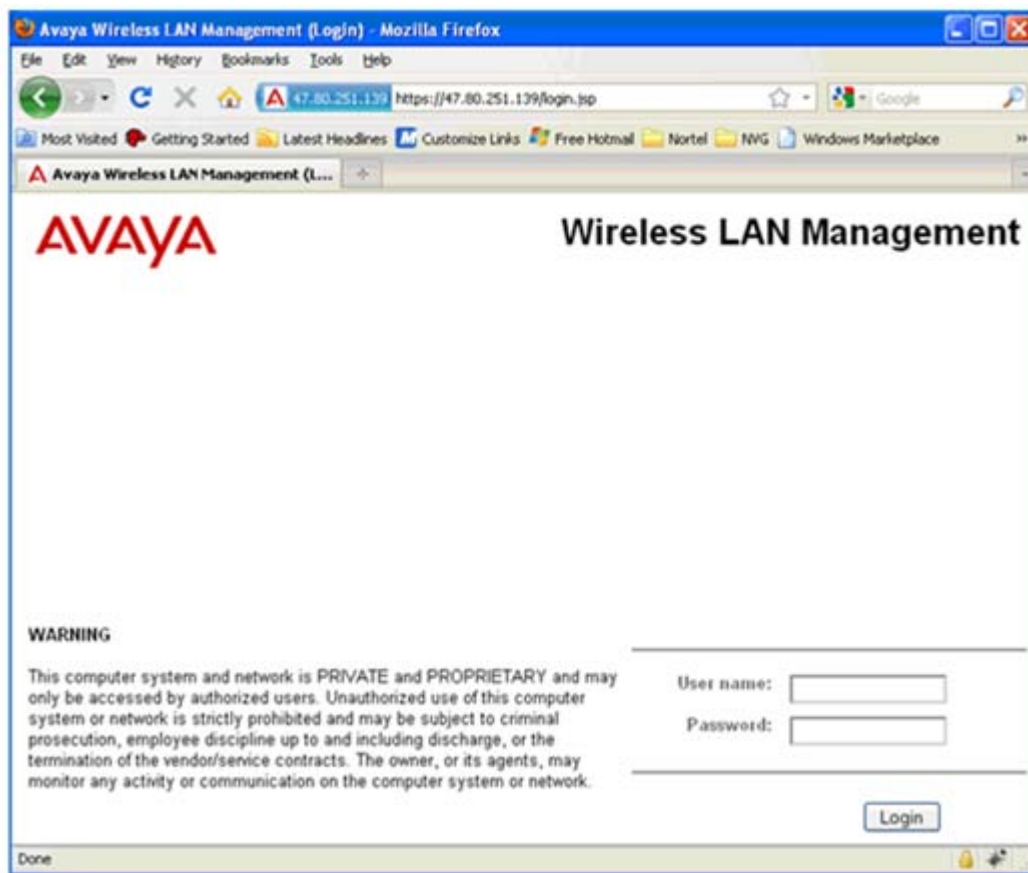
The default login credentials are **admin** (username) and **admin** (password).



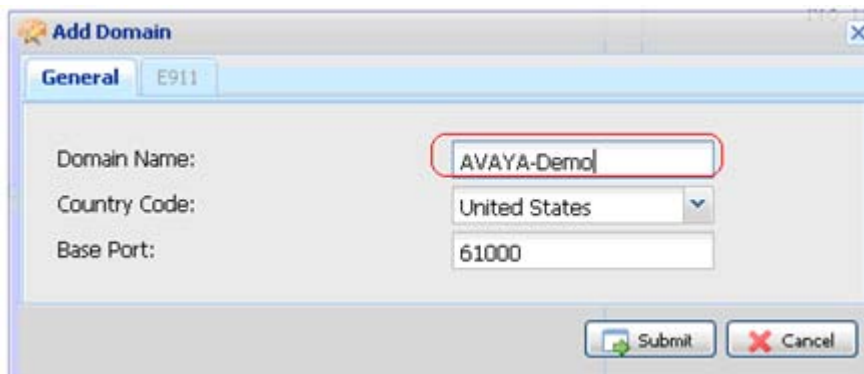
Note:

The WMS server IP address is the IP of the machine where you installed the WMS. You can also use a loopback IP address if you launch the browser from the same machine where you installed the WMS.

The following figure shows the WMS was installed on a machine with an IP address of 47.80.251.139.



2. To create a Mobility Domain, in the WMS, navigate to Configuration, Mobility Domains.
3. Right-click on the screen.
4. From the pop-up menu, select **Add Mobility Domain**.
5. In the Domain Name field, type a domain name.

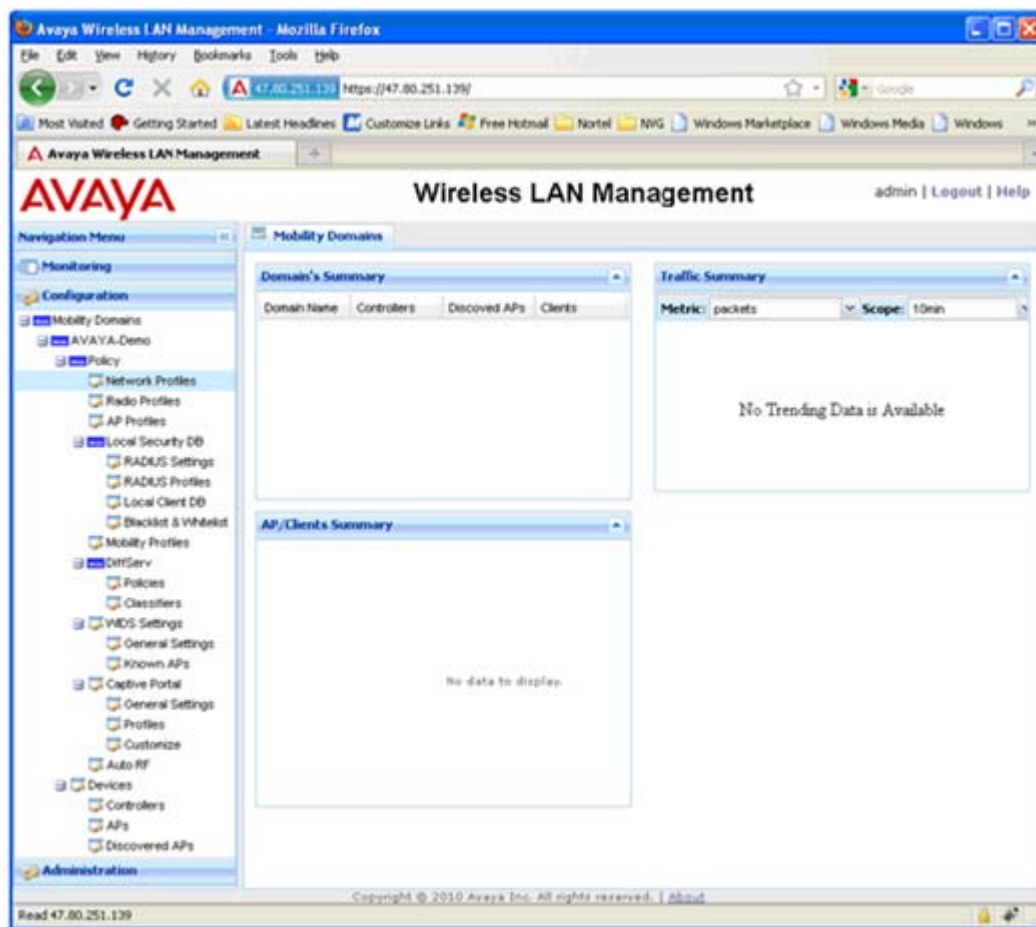


6. Leave all other fields with their default values.
7. Click **Submit**.

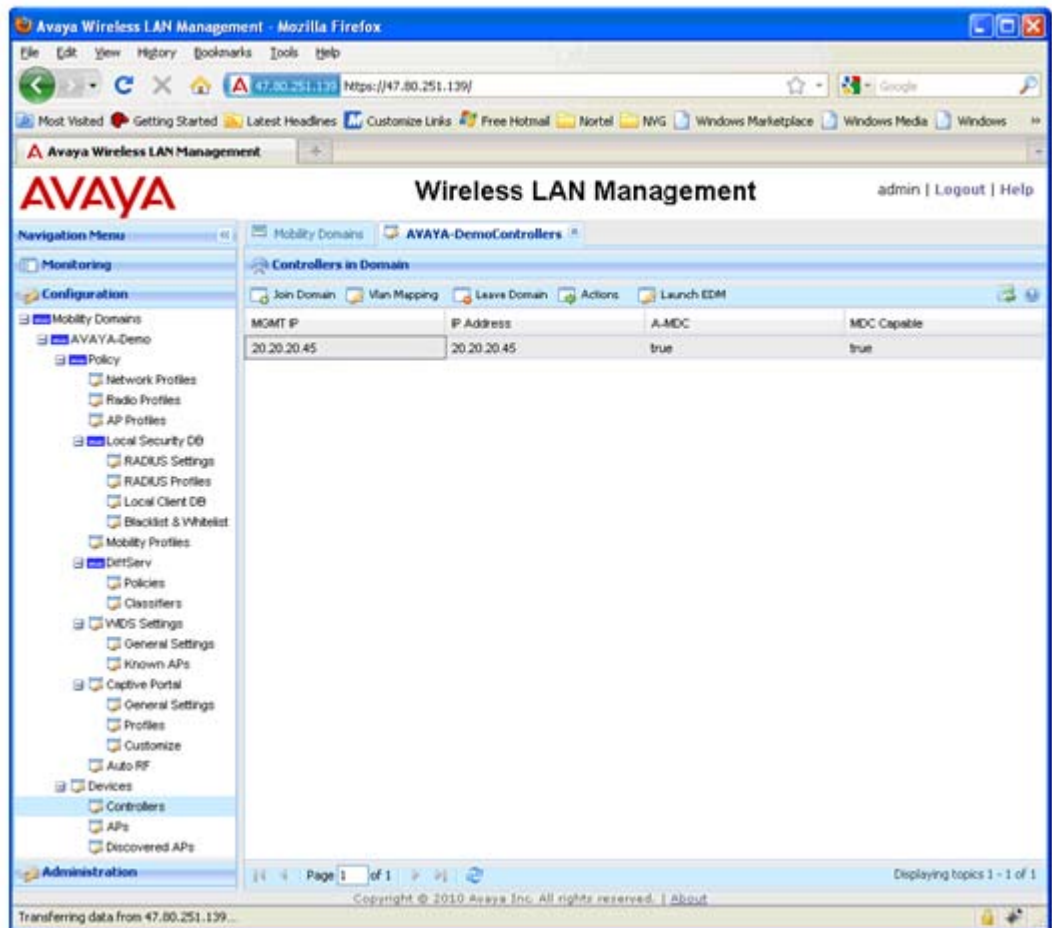
The domain is created.

8. Click **OK**.

A new wireless LAN mobility domain is created within the WMS.



9. Navigate to **Configuration, Mobility Domains, <Domain Name>, Devices, Controllers**.



10. In the <Domain Name> Controllers tab, click **Join Domain** to join the WC with the domain.
11. Provide the wireless system IP address and MDC password.



Note:

The MDC password is the same password you set when you configured the WC to be MDC capable.

12. Click **Finish**.
13. Connect Access Points (AP) to the network.



Note:

The AP 8120 is powered by Power over Ethernet (PoE through either a PoE switch or an external power injector.

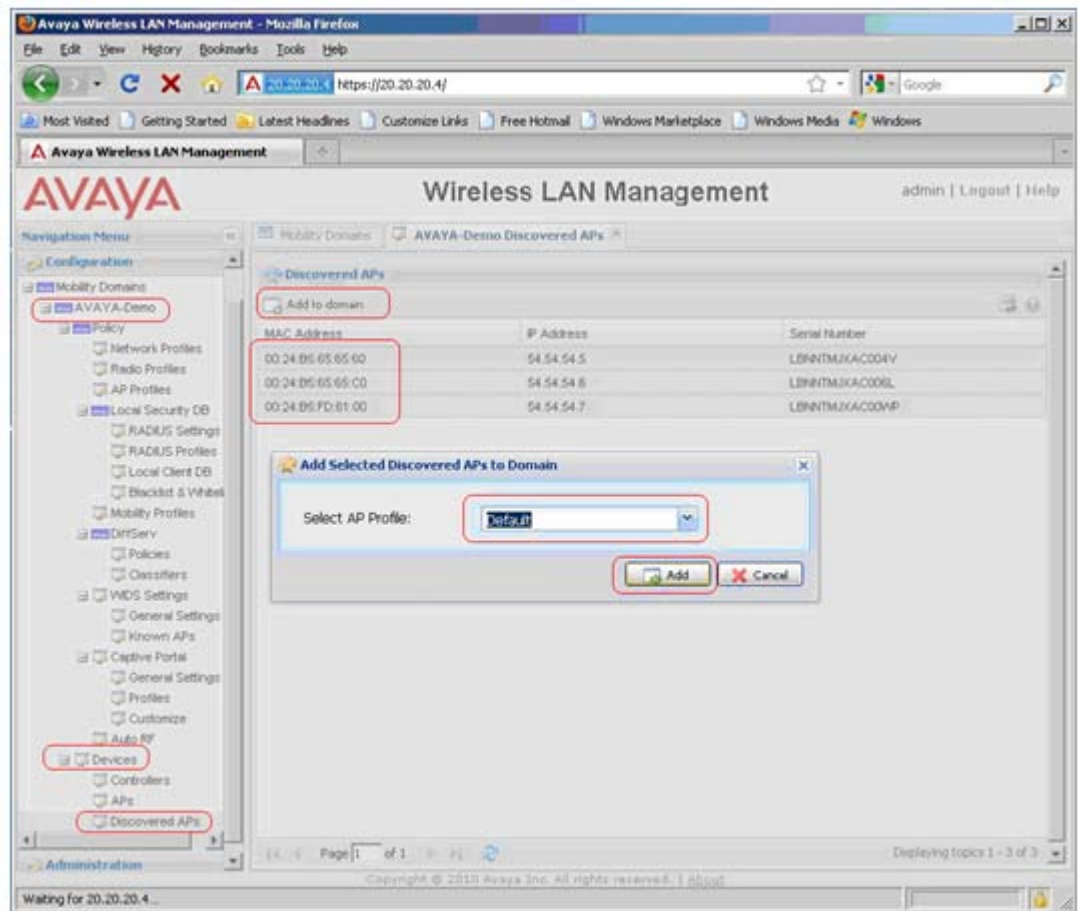
14. Configure the DHCP server for AP discovery.
The AP 8120 discovers the controller IP addresses through DHCP option 43 or DNS. This example uses the DHCP option.

The Option 43 setting should be 08 08 41 56 41 59 41 20 41 50 01 04 14 14 14 2D, where 14 14 14 2D is the HEX representation of the controller IP 20.20.20.45. For details on how to configure the DHCP option, see Appendix A.

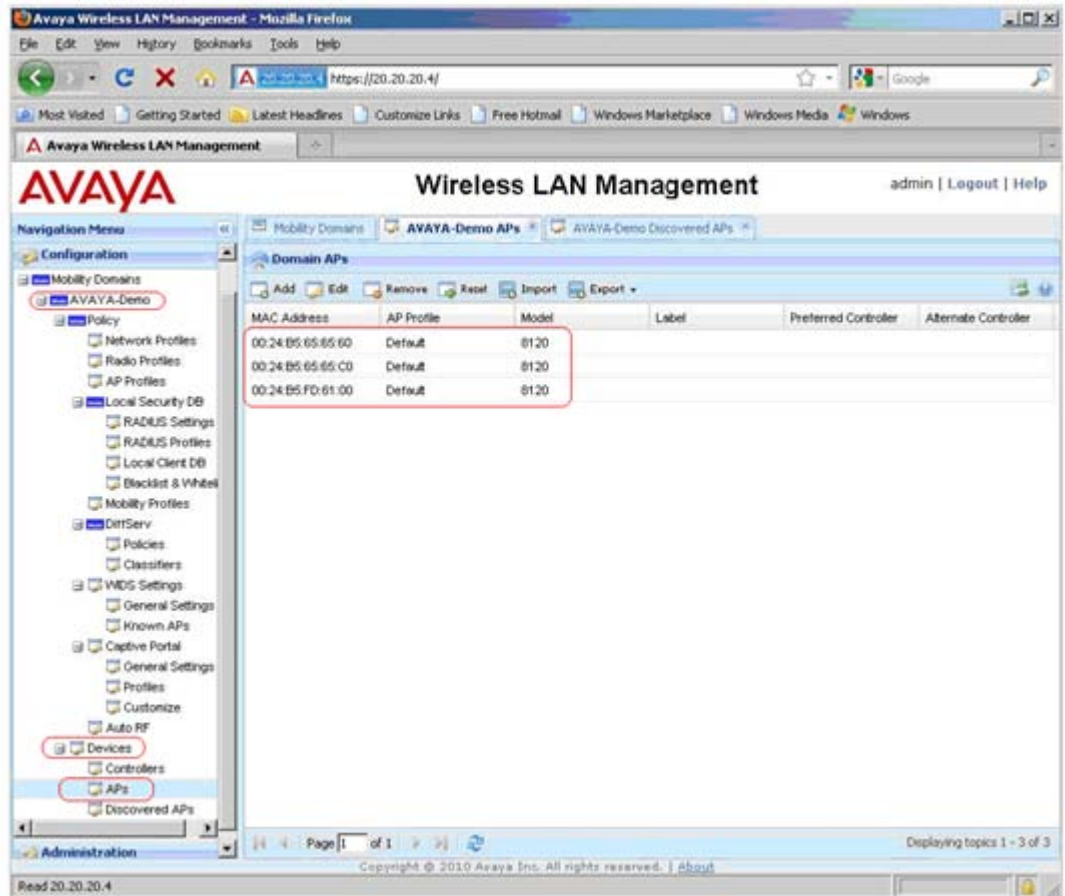
15. Discover APs and promote the discovered APs to the domain AP table.
16. Power on the APs by connecting them to the PoE switch or power injector.
17. Ensure the APs are connected to the DHCP server.

Once the AP receives the WC information from the DHCP server, the AP connects to the controller. All the discovered APs appear in the discovered AP table on the WC.

18. Verify the discovered AP database.

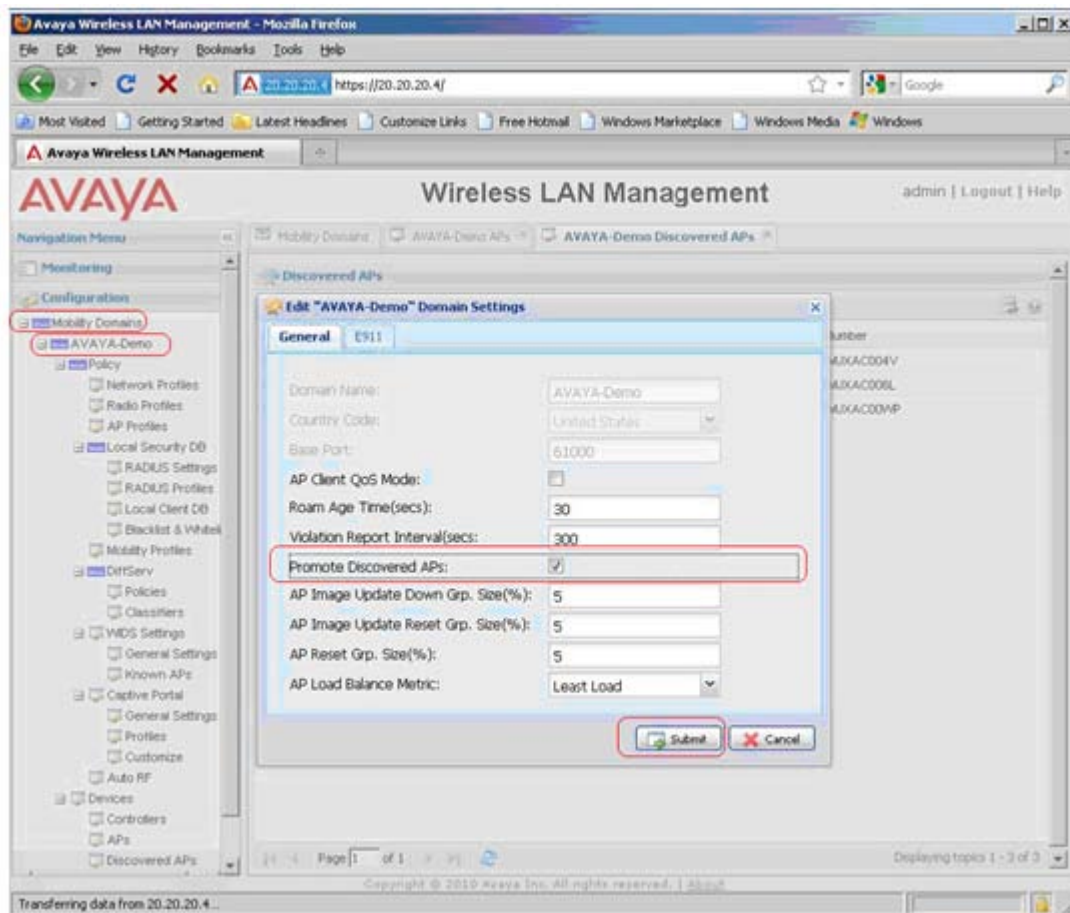


19. View the promoted APs from the domain AP database.

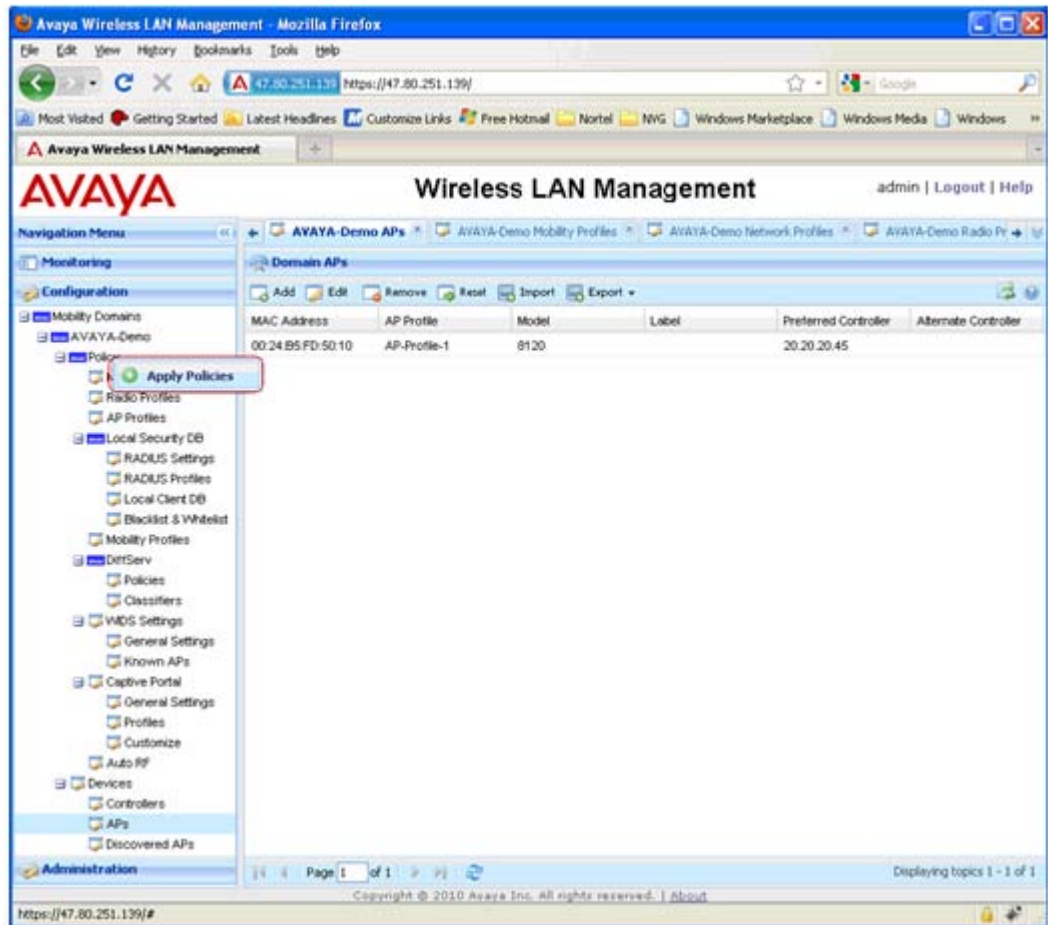


20. Configure autopromotion for the discovered APs.

Configuring the Wireless Controller using the WMS

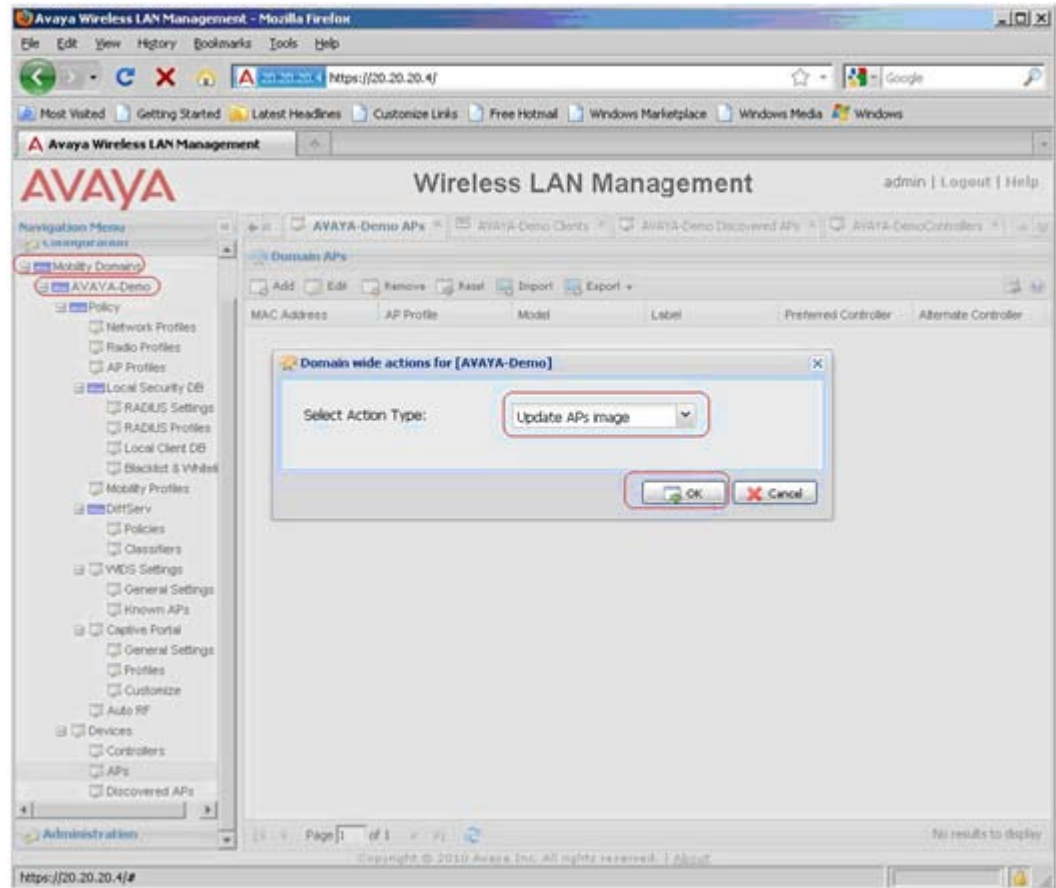


21. To apply the configuration changes in WMS to the A-MDC of the mobility domain, navigate to **Configuration, Mobility Domains, <Domain Name>, Policy**.
22. Right-click on **Policy**.
23. Click **Apply Policies**.
24. Click **Yes**.
25. Click **OK**.

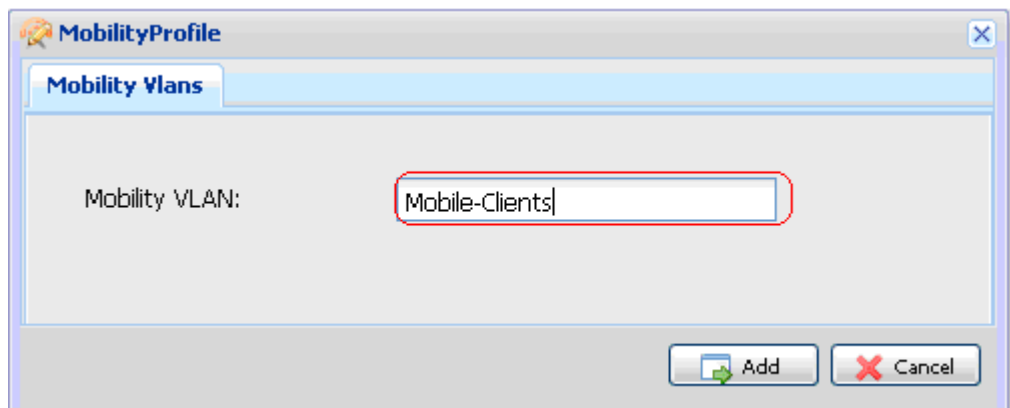


26. Apply the image upgrade. Navigate to **Configuration, Mobility Domains, <Domain Name>**.
27. Right-click on **Domain**.
28. Click **Domain Actions**.
29. From the Select Action Type drop-down list, click **Update APS Image**.
30. Click **OK**.

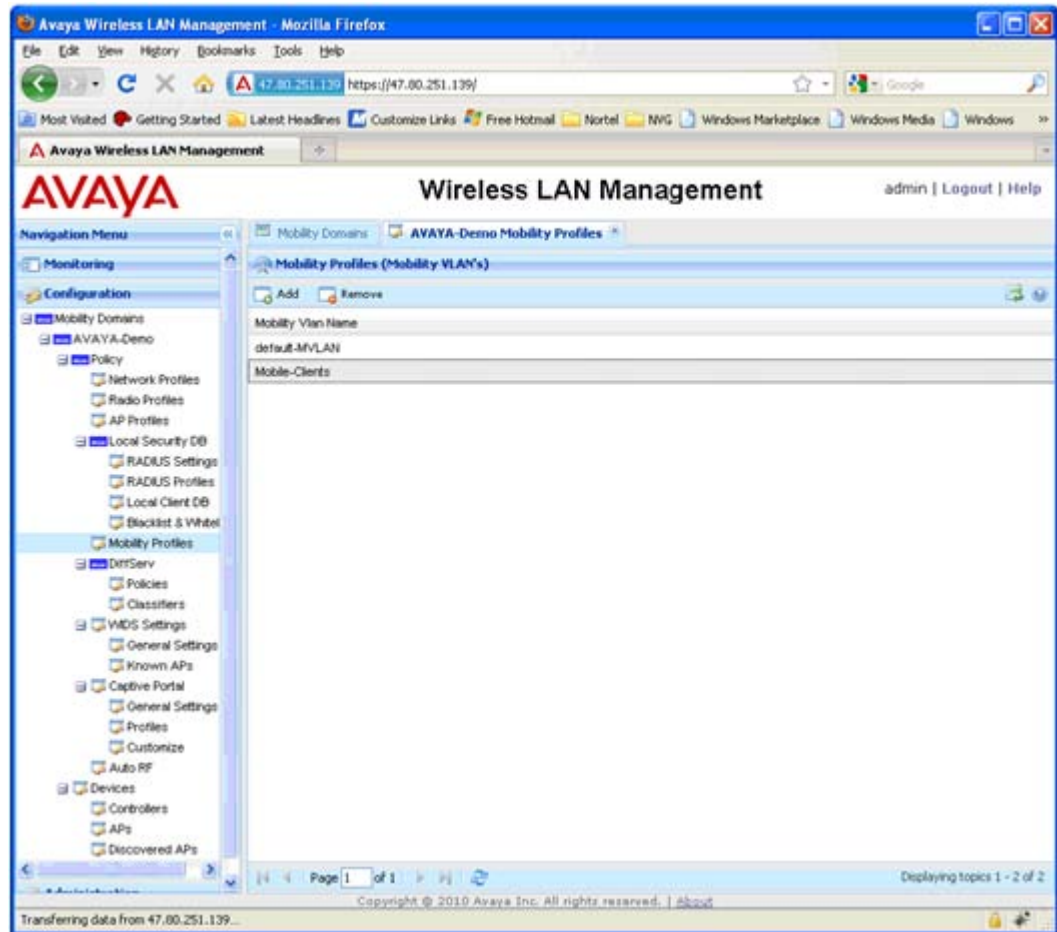
Configuring the Wireless Controller using the WMS



31. Continue with remaining profile creation.
32. Create a mobility VLAN. Navigate to **Configuration, Mobility Domains, <Domain Name>, Policy, Mobility Profiles**.
33. Add a new mobility VLAN (for example, Mobile-Clients).

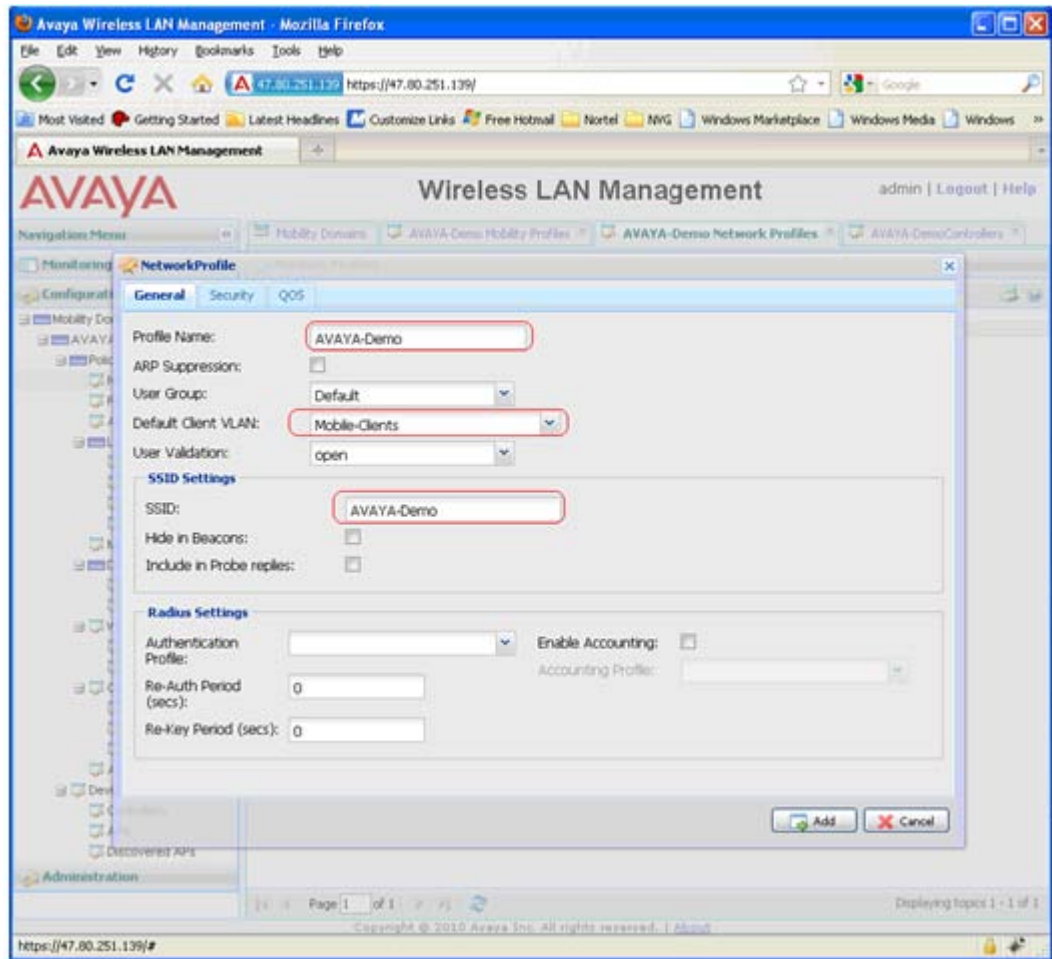


The new VLAN appears in the Mobility Profiles (Mobility VLAN's) table.

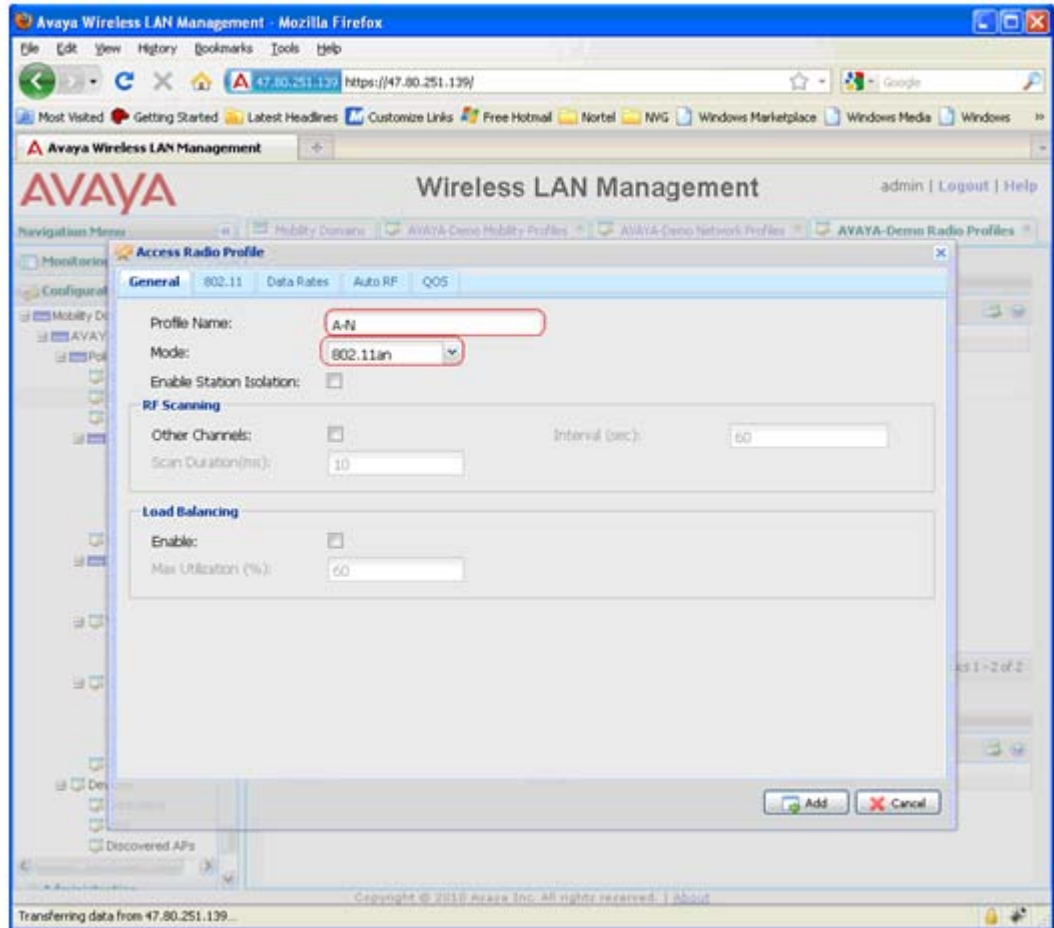


34. Create a network profile. Navigate to **Configuration, Mobility Domains, <Domain Name>, Policy, Network Profiles**.
35. Add a new network profile.

Configuring the Wireless Controller using the WMS

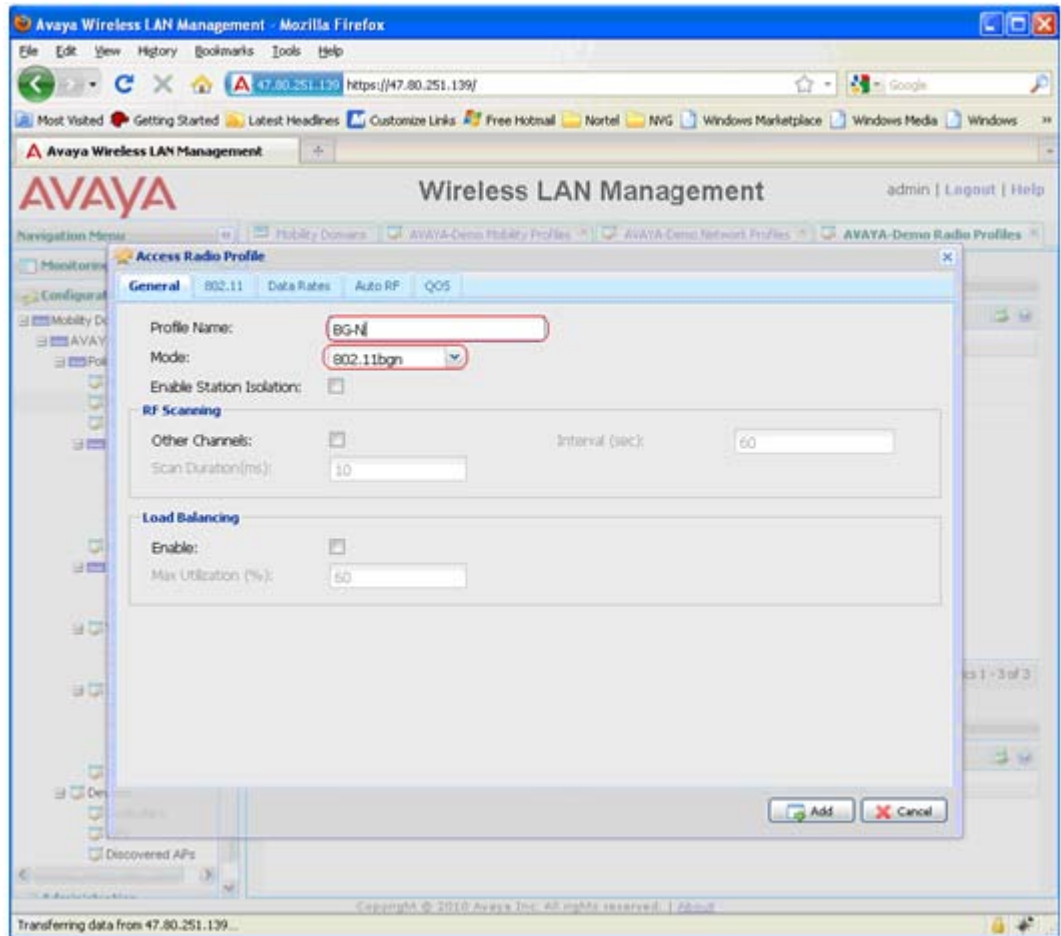


36. Create a radio profile. Navigate to **Configuration, Mobility Domains, <Domain Name>, Policy, Radio Profiles**
37. Add a new radio profile.

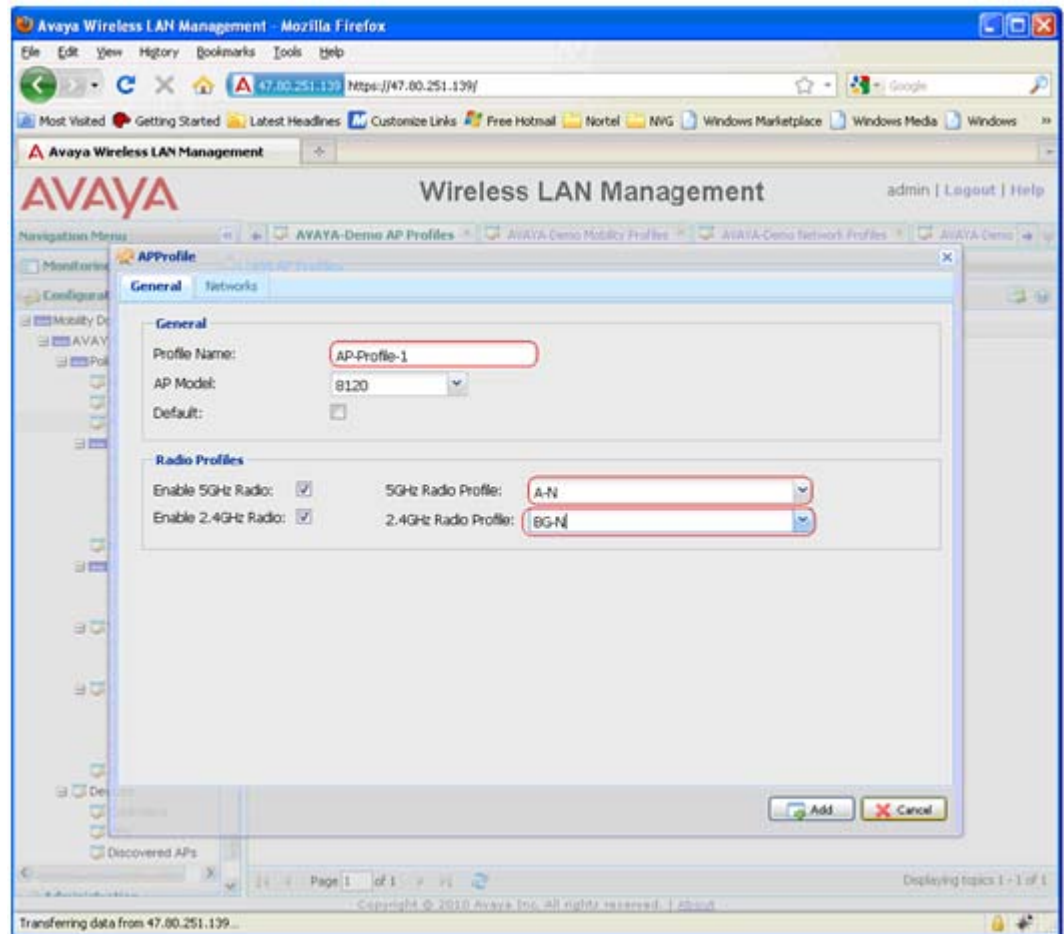


BG-N info, check notes

Configuring the Wireless Controller using the WMS

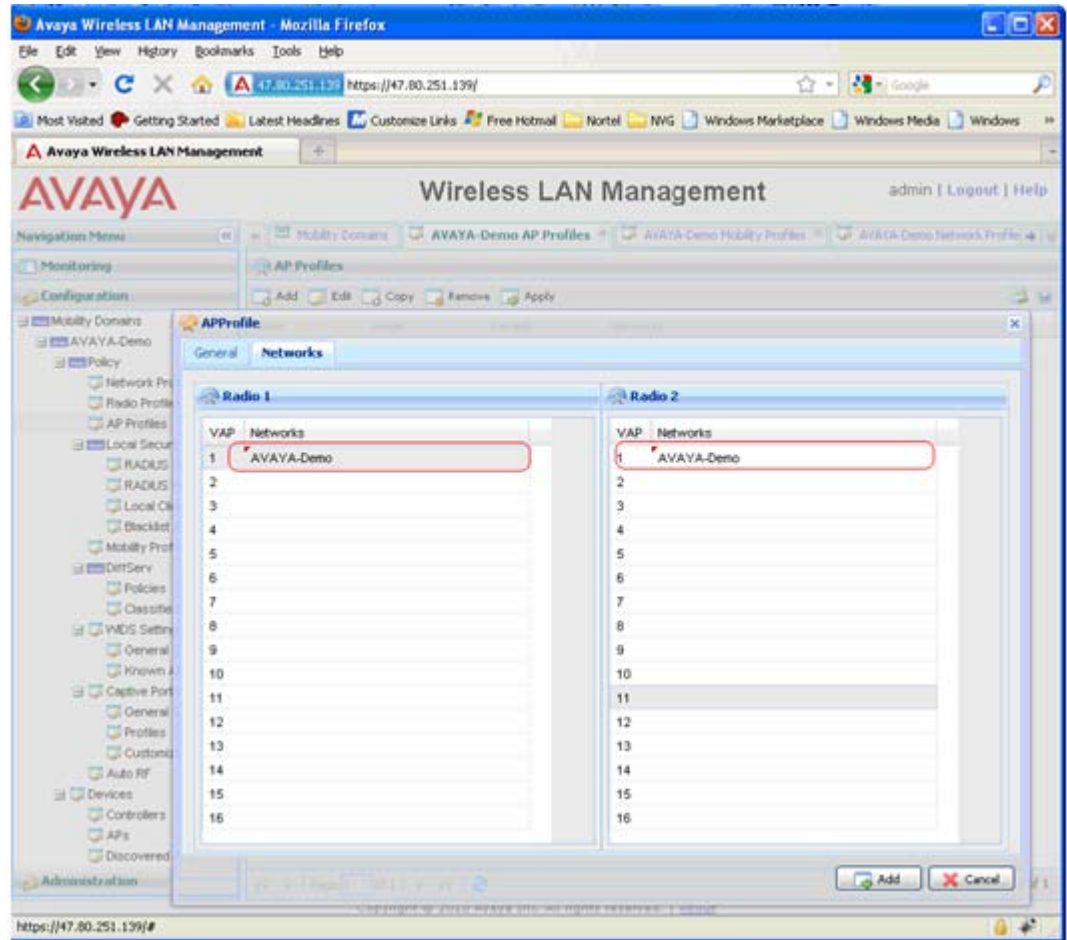


38. Create an AP profile. Navigate to **Configuration, Mobility Domains, <Domain Name>, Policy, AP Profiles**.
39. Name the AP profile.
40. From the drop-down menu, select the associated radio profiles.



41. In the AP Profile screen, click the Networks tab.
42. Select the associated Network Profile for both the radios.

Configuring the Wireless Controller using the WMS

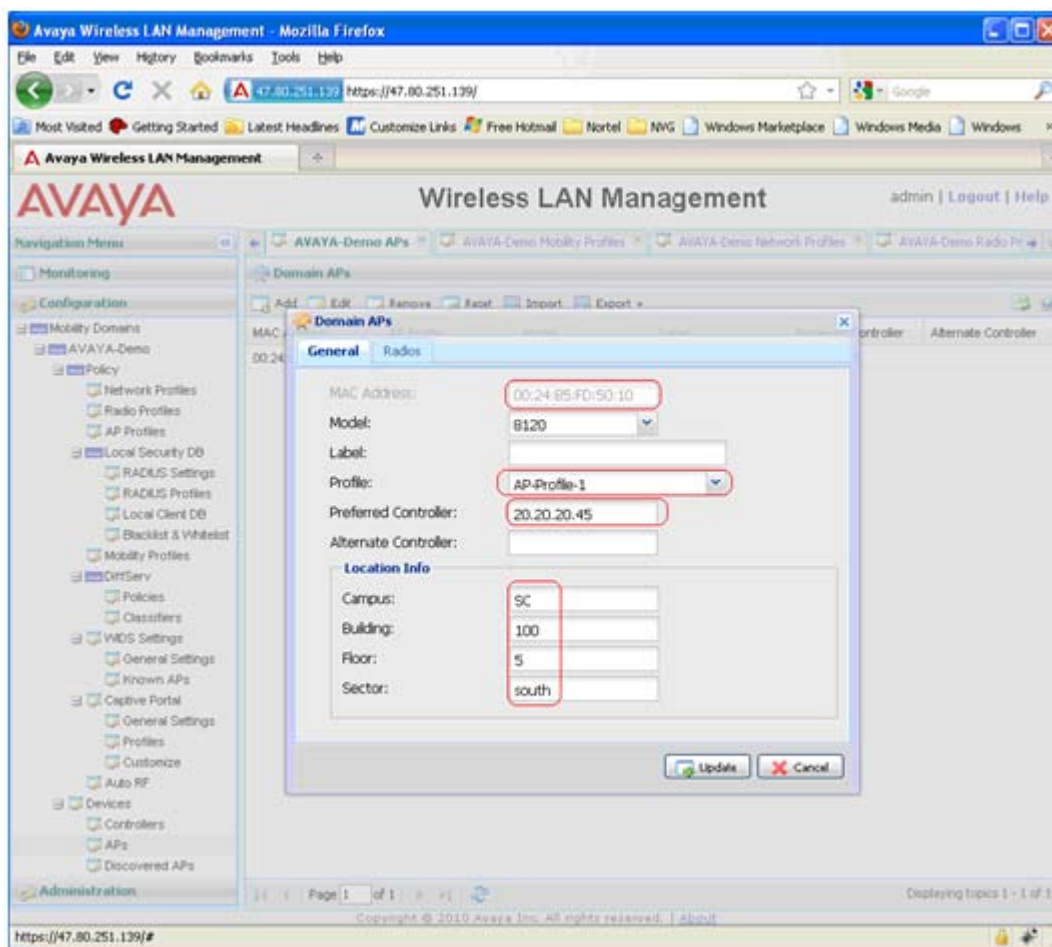


43. To add APs to the domain AP database, navigate to **Configuration, Mobility Domains, <Domain Name>, Devices, APs**.

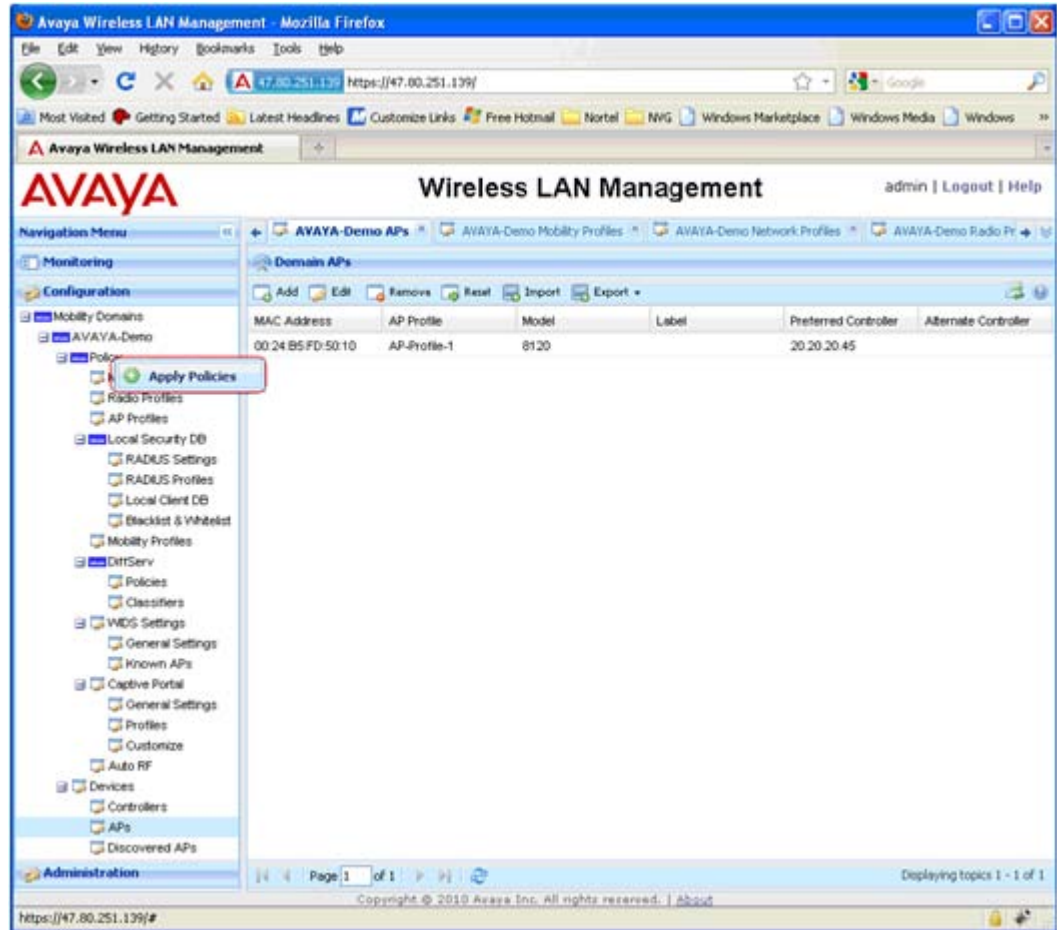
44. Add a new AP to the domain.

Note:

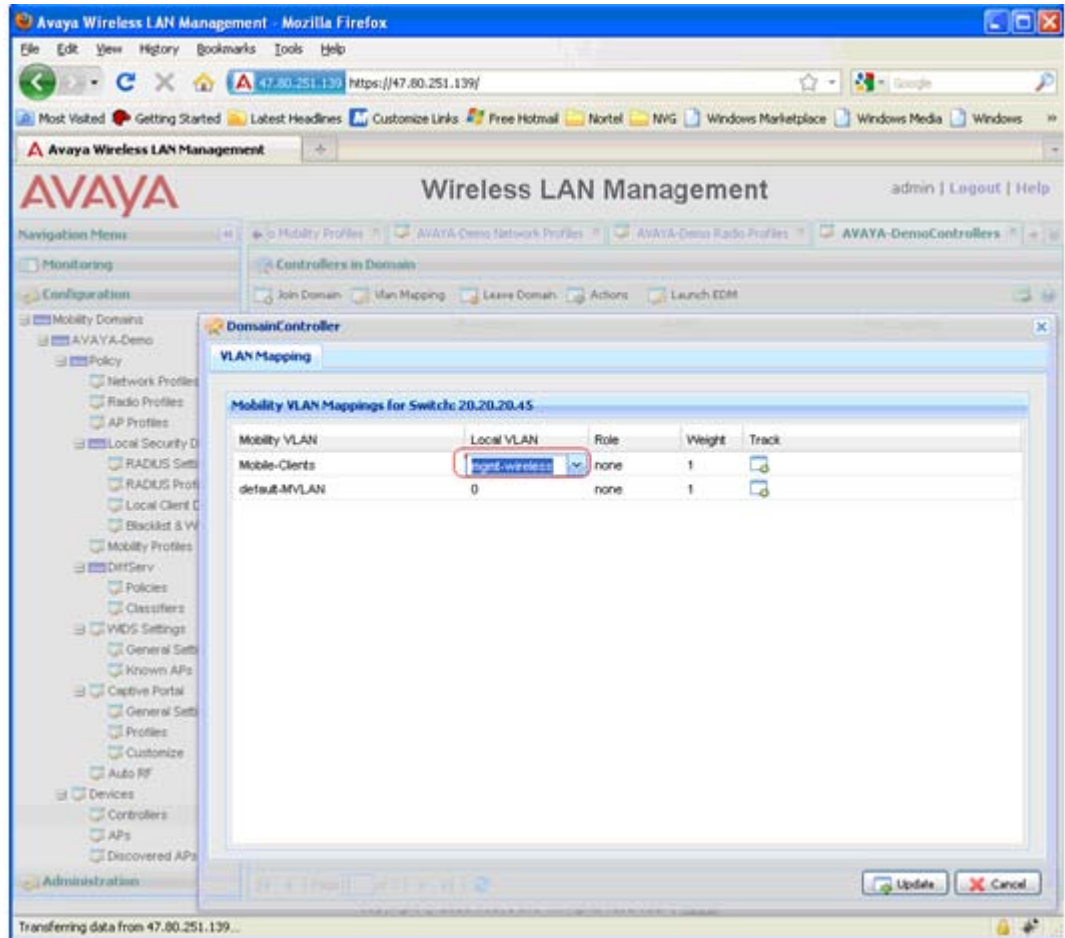
Locate the AP MAC address on the back of the physical AP.



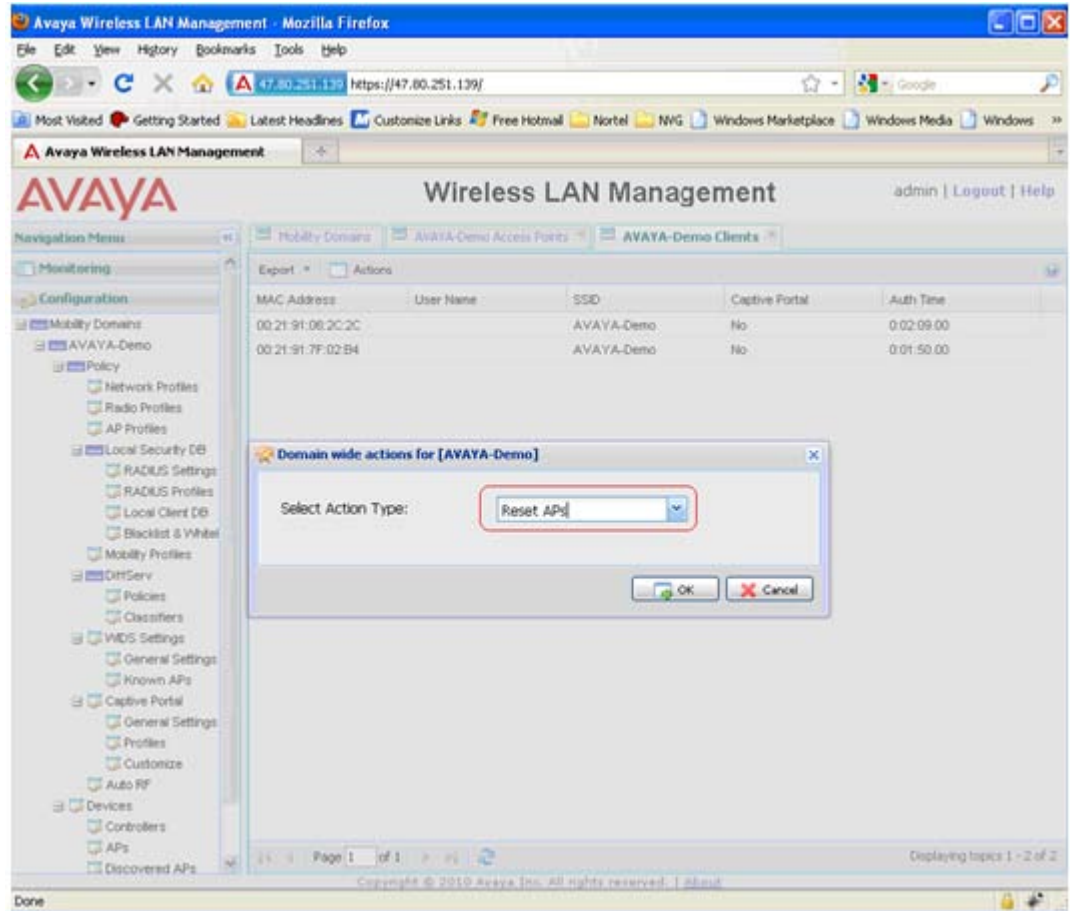
45. You must apply the configuration changes in WMS to the A-MDC of the mobility domain. Navigate to **Configuration, Mobility Domains, <Domain Name>, Policy**.
46. Right-click on **Policy**.
47. Click **Apply Policies**.
48. Click **Yes**.
49. Click **OK**.



50. Map the mobility VLAN to the local VLAN. You must apply the configuration changes in WMS to the A-MDC of the mobility domain. Navigate to **Configuration, Mobility Domains, <Domain Name>, Devices, Controllers, VLAN Mapping**.
51. Select the controller.
52. Click the VLAN Mapping tab.
53. Create the VLAN mapping.
54. Click **Update**.



55. Optionally, if you made changes to any domain AP-related parameters (for example, the AP profile), you must reset the AP to apply the changes.
56. Navigate to **Configuration, Mobility Domains, <Domain Name>**.
57. Right-click on the domain.
58. From the drop-down list, click **Domain Actions**.
59. Click **Reset APs**.
60. Click **OK**.



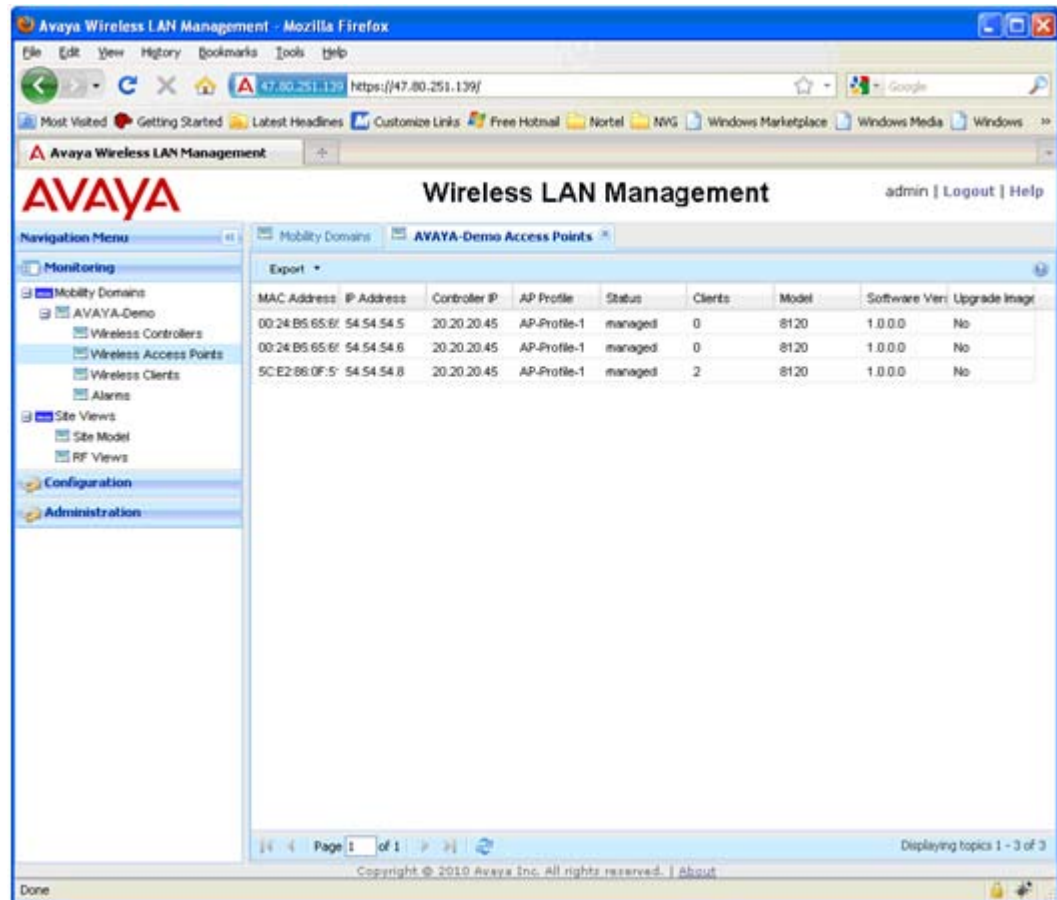
61. Verify the wireless client Connectivity. The wireless network is now ready for client connectivity.
62. Scan for wireless networks.
63. Connect a wireless client to the AVAYA-Demo network.
64. Monitor the WMS.

 Note:

You must have the WMS server license installed to be able to monitor the WMS.

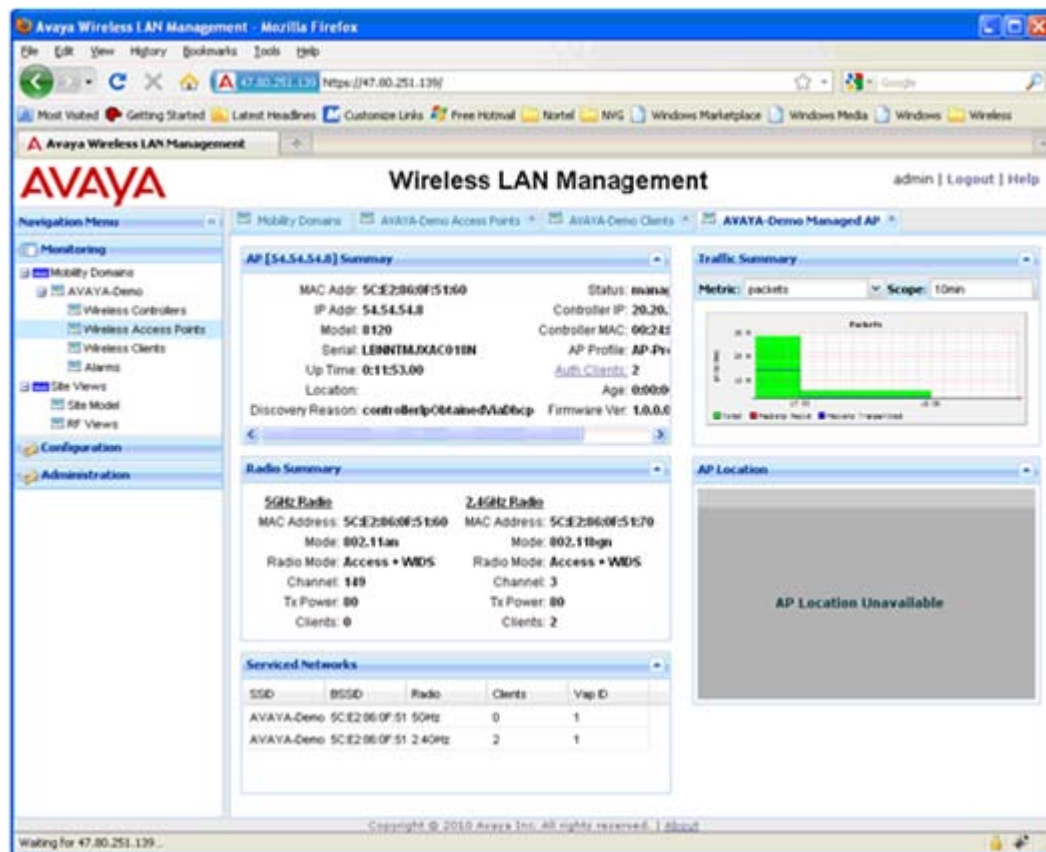
65. Monitor the wireless APs. Navigate to **Monitoring, Mobility Domains, <Domain Name>, Wireless Access Points**.

The following figure shows all the APs connected to the wireless domain and the relevant information.



66. Monitor individual APs in the dashboard.
67. Navigate to **Mobility Domains, <Domain Name>, Wireless Access Points**.
68. To view AP details, right-click on an AP.
69. From the drop-down list, click **Show Managed AP Dashboard**.

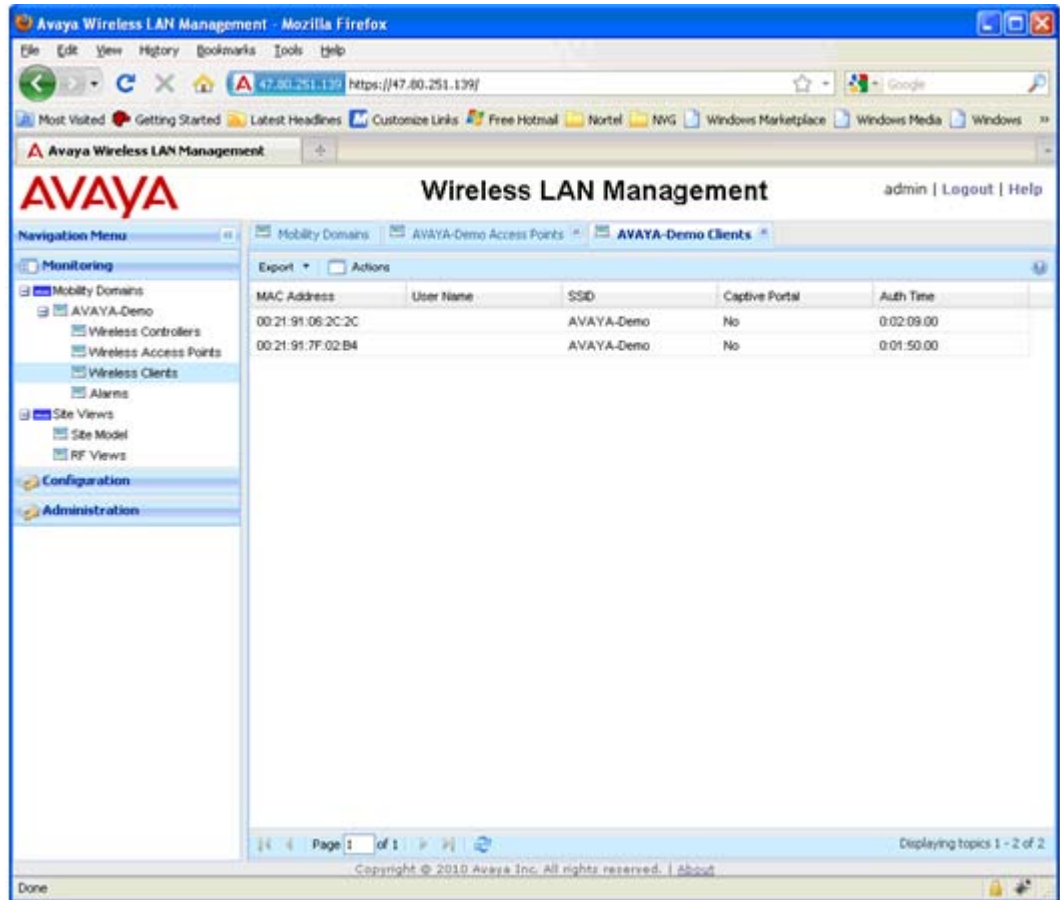
Configuring the Wireless Controller using the WMS



70. Monitor the wireless clients.

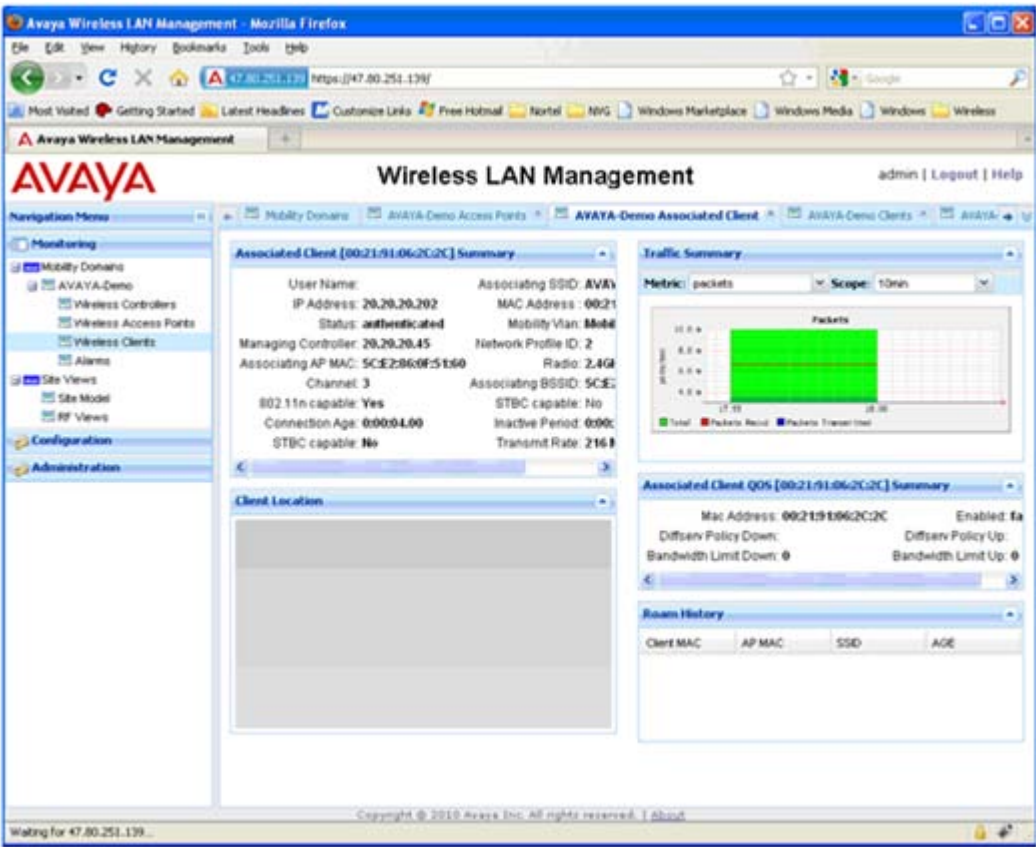
71. Navigate to **Mobility Domains**, <Domain Name>, **Wireless Clients**.

The Wireless Clients table shows all the wireless clients connected to the domain and the relevant information.



72. Monitor individual wireless clients in the dashboard.
73. Navigate to **Mobility Domains, <Domain Name>, Wireless Clients**.
74. To view client details, right-click on a wireless client .
75. From the drop-down list, click **Show Associated Client Dashboard**.

Configuring the Wireless Controller using the WMS

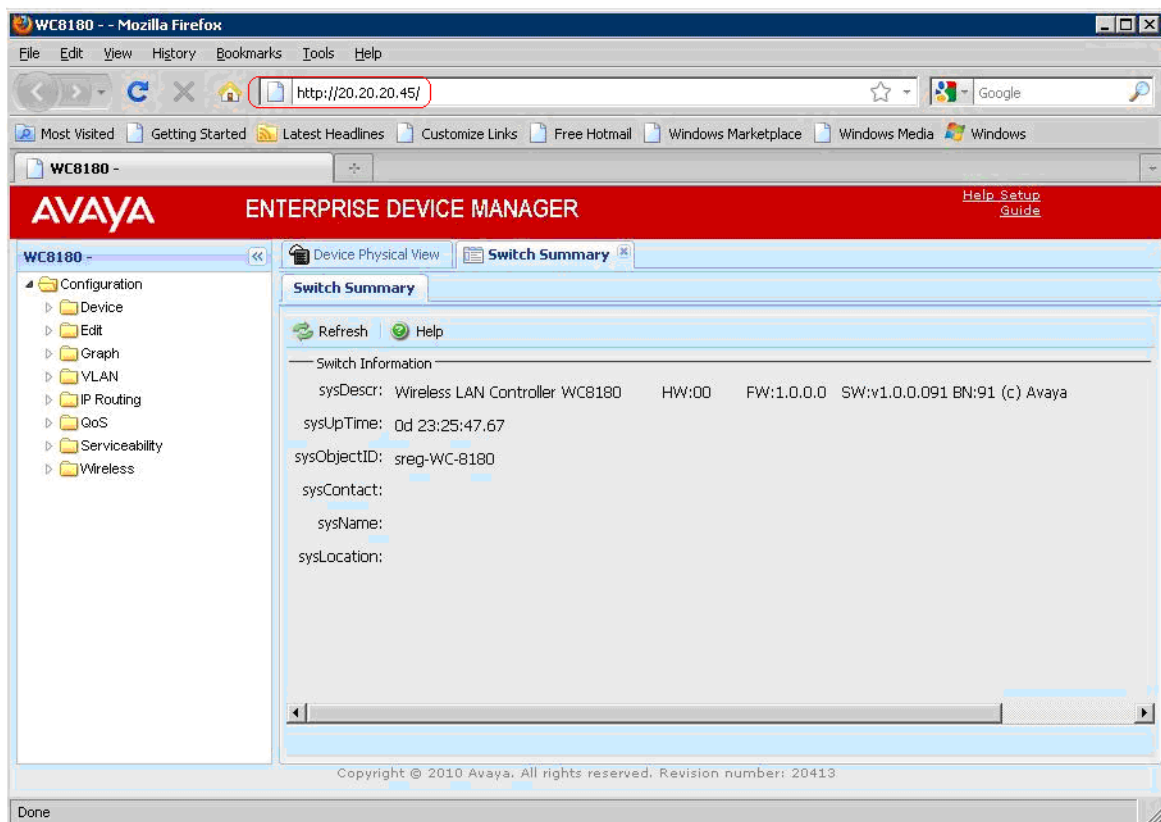


Chapter 5: Configuring the Wireless Controller using the EDM

Prerequisites

You must complete the preliminary controller configuration before you can configure the Wireless Controller (WC).

1. To launch the EDM , type the IP address of the WC in a browser.



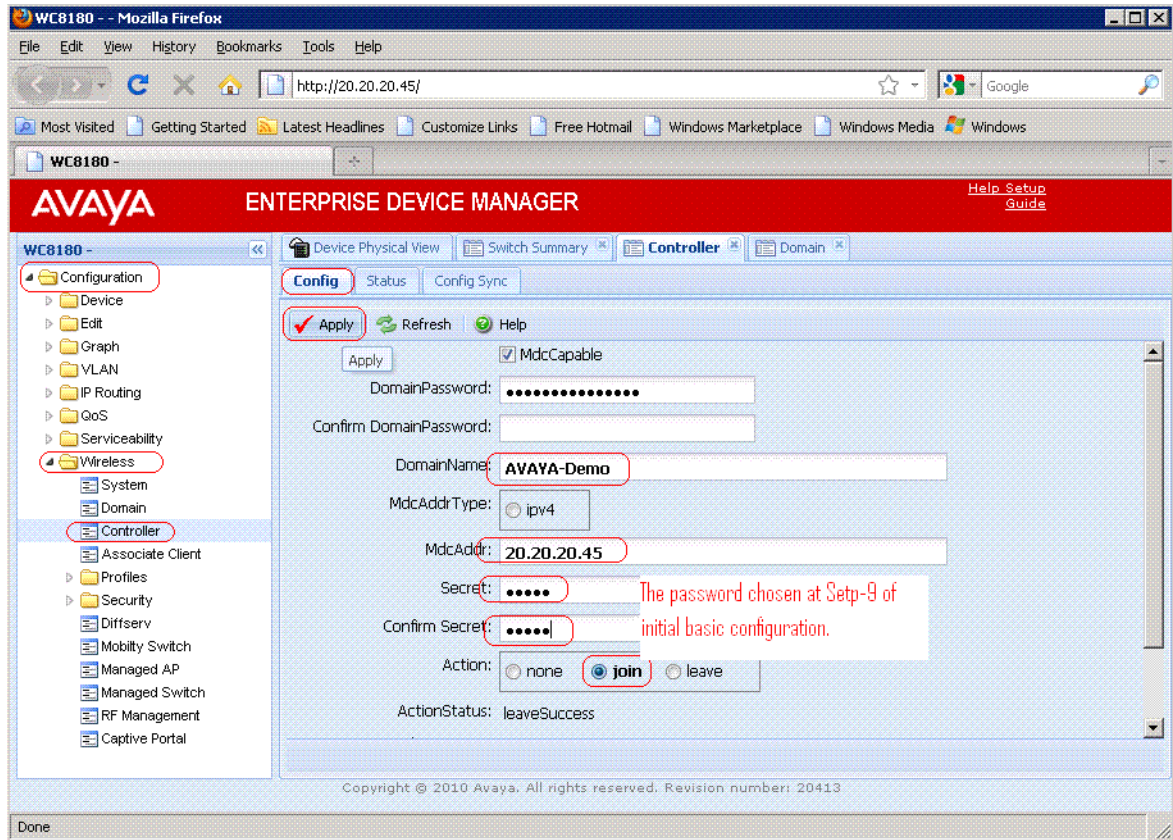
2. Join the WC with the domain.
3. Navigate to **Configuration, Wireless, Controller**.
4. In the Controller panel, click the **Config** tab.
5. In the Config panel, specify the Domain Name, Wireless System IP Address, and MDC Password.



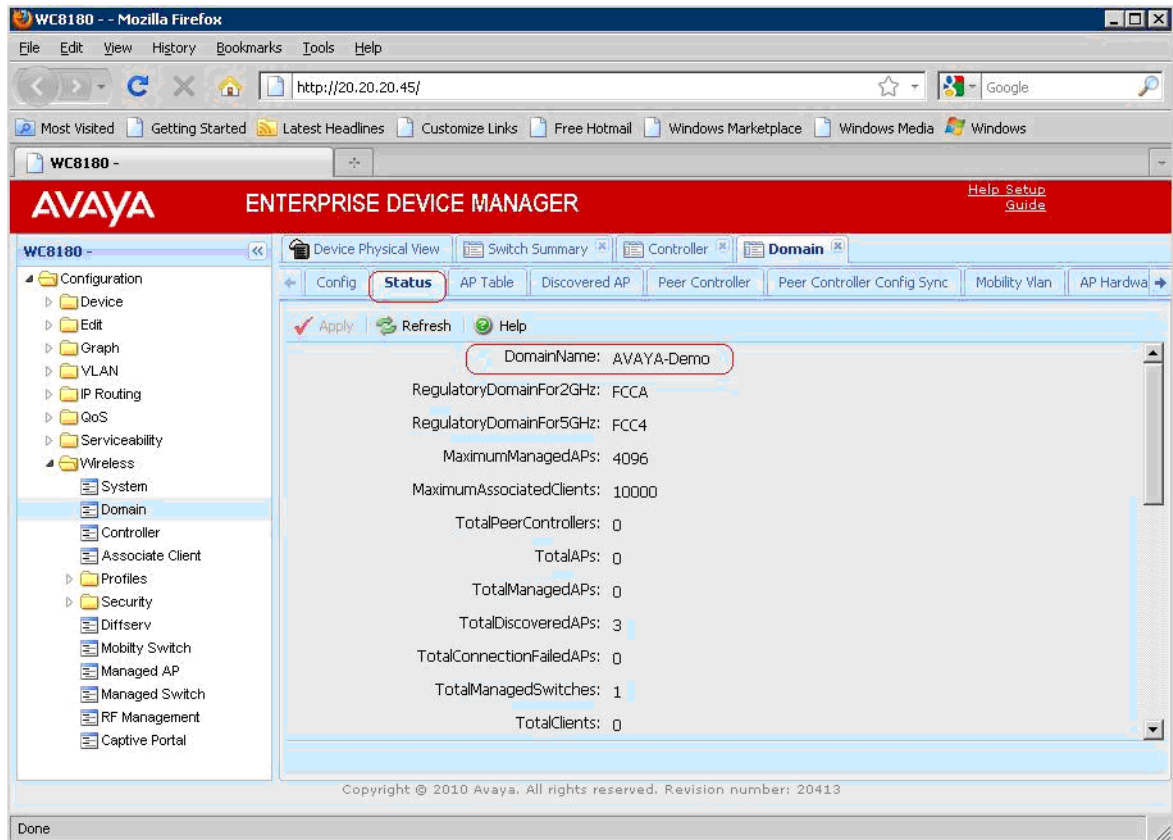
Note:

The MDC password is the same password you set when you configured the WC to be MDC capable.

6. Click **Join**.
7. Click **Apply**.



8. Verify the status of the mobility domain.
9. Navigate to **Configuration, Wireless , Domain**.
10. In the Domain panel, click the **Status** tab.
11. Verify that the details you specified in the Config tab are correct.



12. Connect Access Points (AP) to the network.



Note:

The AP 8120 is powered by Power over Ethernet (PoE) through either a PoE switch or an external power injector.

13. Configure the DHCP server for AP discovery.

The AP 8120 discovers the controller IP addresses through DHCP option 43 or DNS. This example uses the DHCP option.

The Option 43 setting should be 08 08 41 56 41 59 41 20 41 50 01 04 14 14 14 2D, where 14 14 14 2D is the HEX representation of the controller IP 20.20.20.45. For details on how to configure the DHCP option, see Appendix A.

14. Discover APs and promote the discovered APs to the domain AP table.
15. Power on the APs by connecting them to the PoE switch or power injector.
16. Once the AP receives the WC information from the DHCP server, the AP connects to the controller. All the discovered APs appear in the discovered AP table on the wireless controller.
17. Verify the discovered AP database.

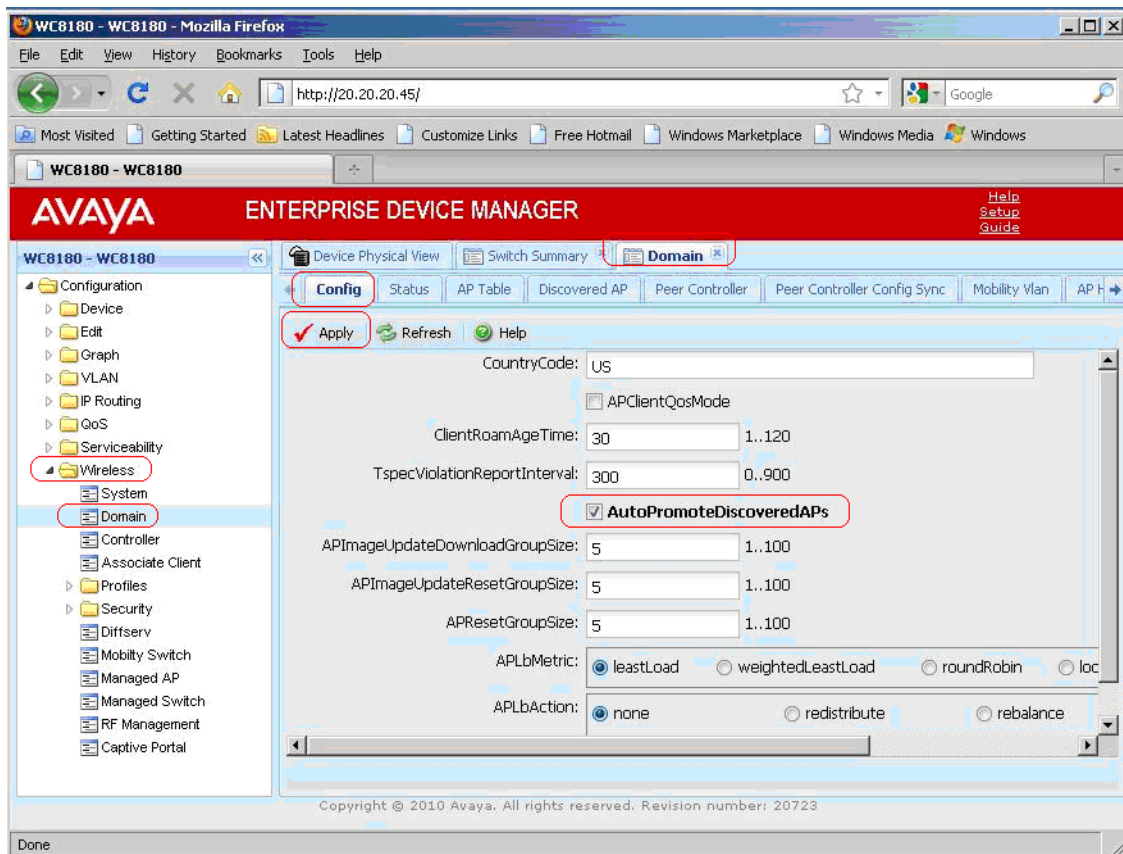
Configuring the Wireless Controller using the EDM

The screenshot shows the Avaya Enterprise Device Manager (EDM) interface in a Mozilla Firefox browser window. The browser address bar shows `http://20.20.20.45/`. The interface has a red header with the Avaya logo and 'ENTERPRISE DEVICE MANAGER'. Below the header, there's a navigation pane on the left with a tree view. The 'Wireless' folder is expanded, and the 'Domain' sub-item is selected. The main content area shows a tabbed interface with 'Discovered AP' selected. Below the tabs, there's a table with the following data:

MacAddress	AddrType	Addr	Model	Serial	ApproveAction
00:24:b5:65:65:60	ipv4	54.54.54.5	ap8120	LBNNNTMJXAC004V	none
00:24:b5:65:65:c0	ipv4	54.54.54.6	ap8120	LBNNNTMJXAC006L	none
00:24:b5:fd:61:00	ipv4	54.54.54.7	ap8120	LBNNNTMJXAC00MP	none

At the bottom of the table, it says 'Total Rows : 3 row(s) | Displaying page 1 of 1 Page(s)'. The footer of the interface shows 'Copyright © 2010 Avaya. All rights reserved. Revision number: 20723'.

18. Autopromote the discovered APs to the domain AP table.



19. In the AP Table, verify the AP status.

Configuring the Wireless Controller using the EDM

WC8180 - WC8180 - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://20.20.20.45/

Most Visited Getting Started Latest Headlines Customize Links Free Hotmail Windows Marketplace Windows Media Windows

WC8180 - WC8180

AVAYA ENTERPRISE DEVICE MANAGER [Help Setup Guide](#)

WC8180 - WC8180

Device Physical View Switch Summary **Domain**

Config Status **AP Table** Discovered AP Peer Controller Peer Controller Config Sync Mobility Vlan AP

Insert Delete Apply Refresh Export Data Help

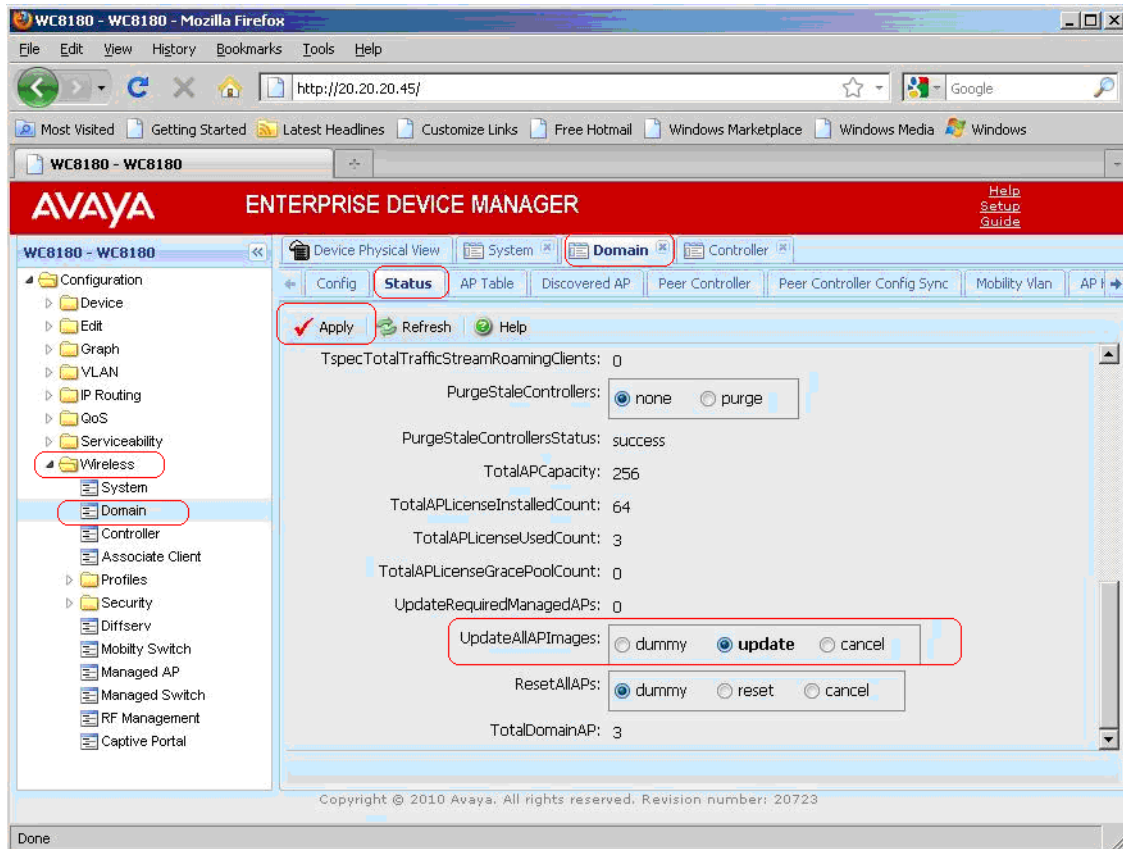
MacAddress	Label	Model	Serial	Profile	Preferred/VcAddrType	Preferred/VcAddr	All
00:24:b5:65:65:60	ap8120	LBNNTMJXAC004V	1	ipv4	0.0.0.0	0.0.0.0	ipv4
00:24:b5:65:65:c0	ap8120	LBNNTMJXAC006L	1	ipv4	0.0.0.0	0.0.0.0	ipv4
00:24:b5:fd:61:00	ap8120	LBNNTMJXAC00WP	1	ipv4	0.0.0.0	0.0.0.0	ipv4

Total Rows : 3 row(s) | Displaying page 1 of 1 Page(s) Back Next Go to page

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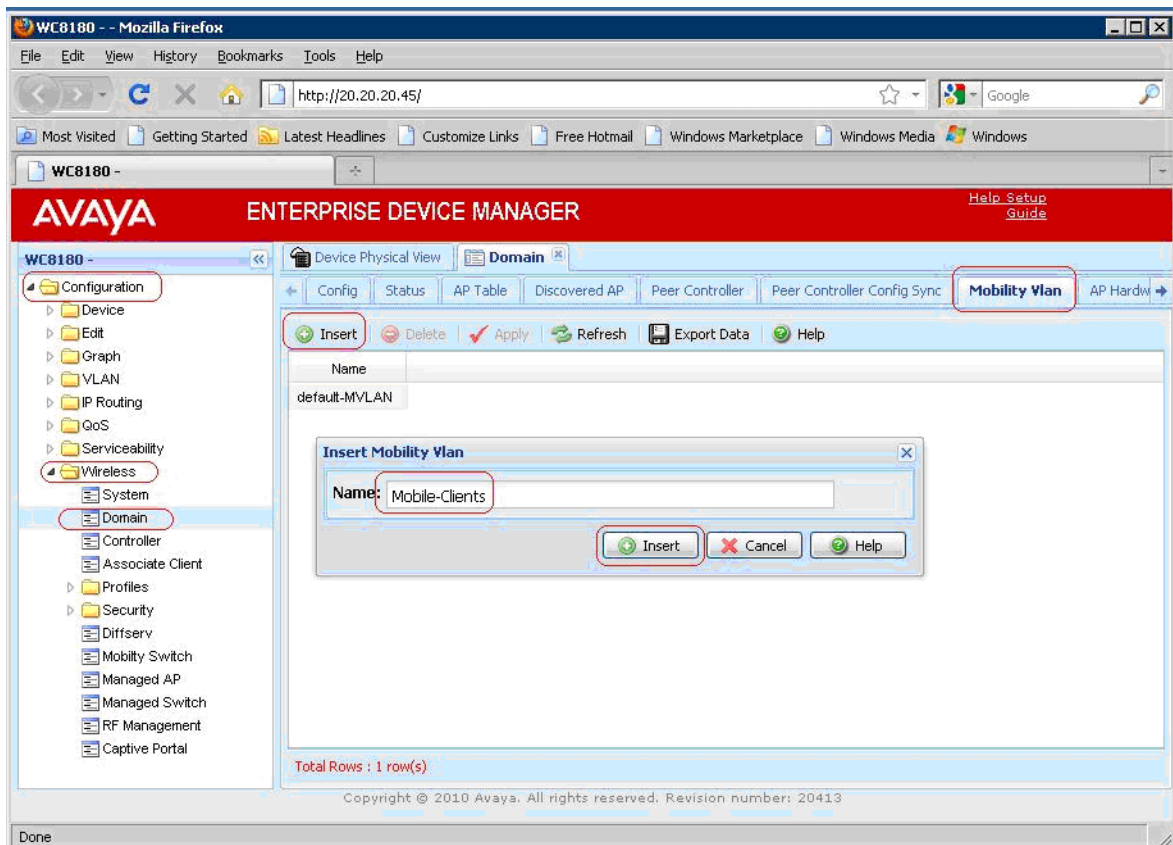
Done

20. Apply the AP image upgrade.

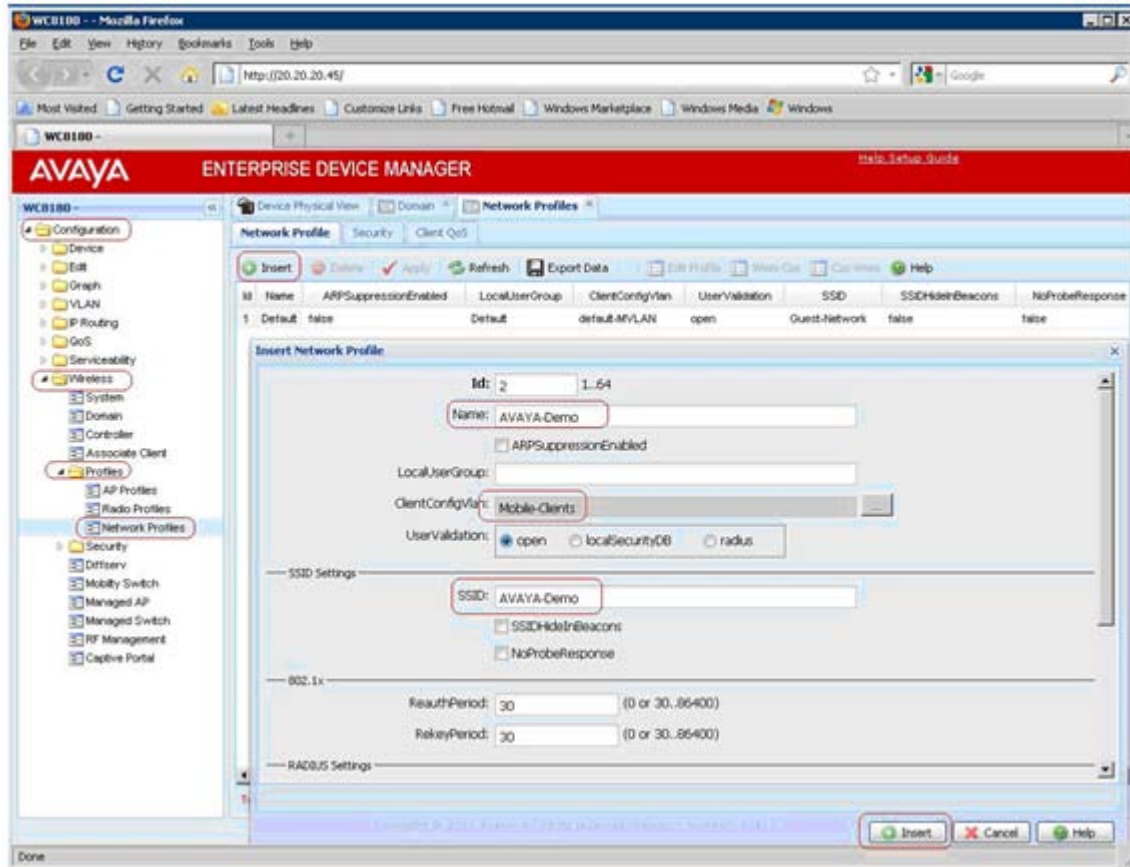


21. Continue with remaining profile creation.
22. Create a mobility VLAN.
23. Navigate to Configuration, Wireless, Domain, Mobility Vlan.
24. Add a new mobility VLAN.

Configuring the Wireless Controller using the EDM

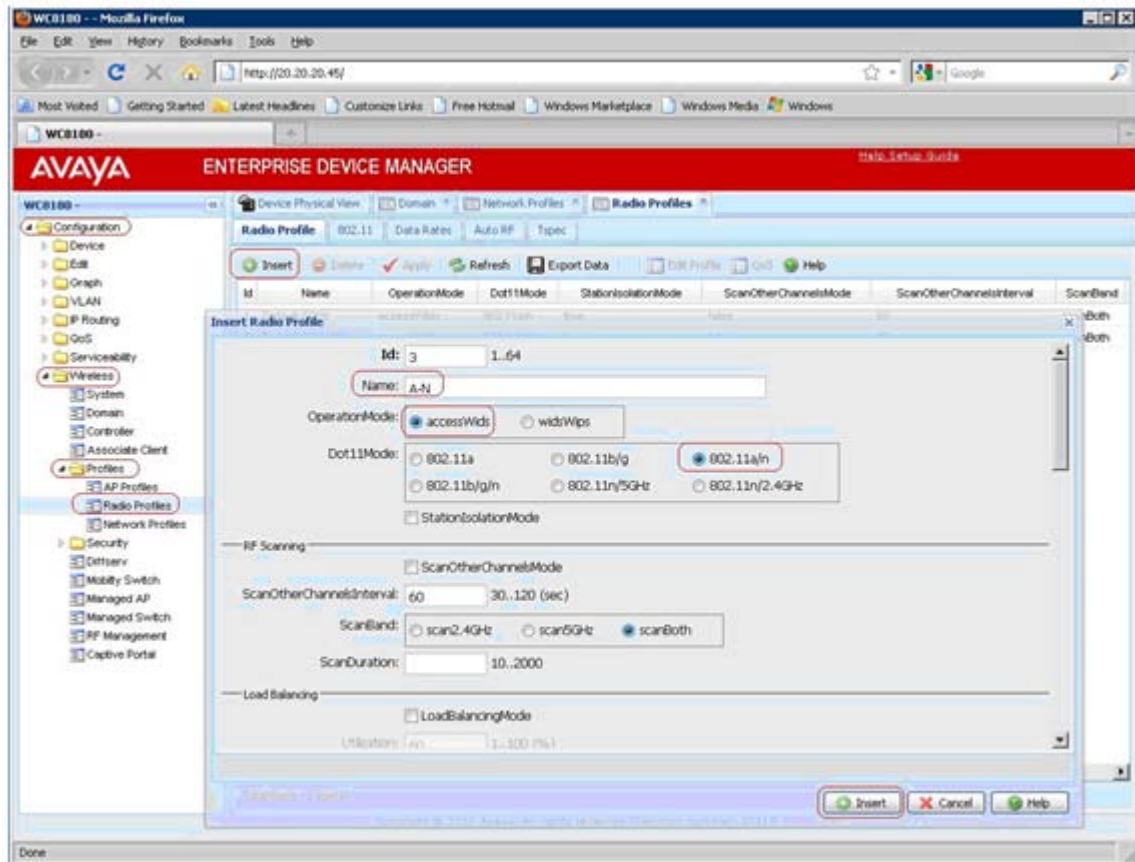


25. Create a new network profile.
26. Navigate to **Configuration, Wireless, Network Profiles**.
27. Add a new network profile.

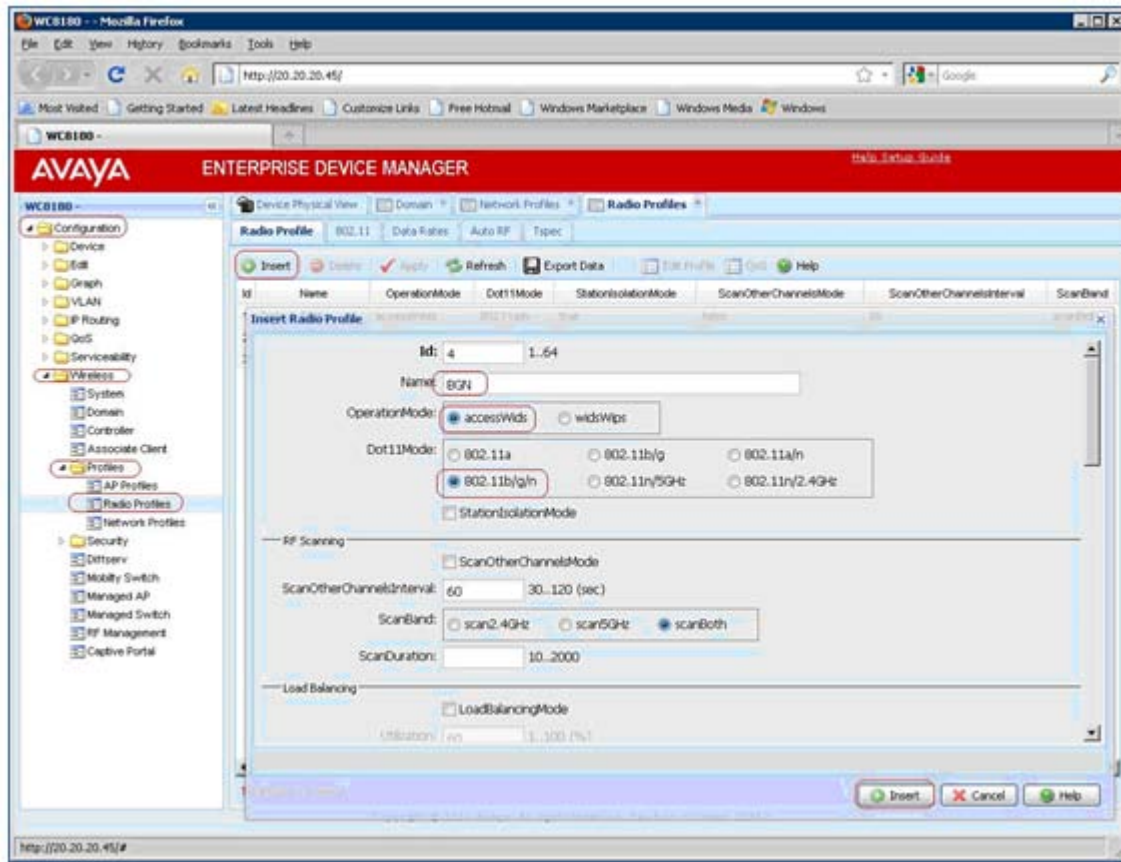


28. Create a radio profile.
29. Navigate to **Configuration, Wireless, Profiles, Radio Profiles**.
30. Add a new radio profile.

Configuring the Wireless Controller using the EDM

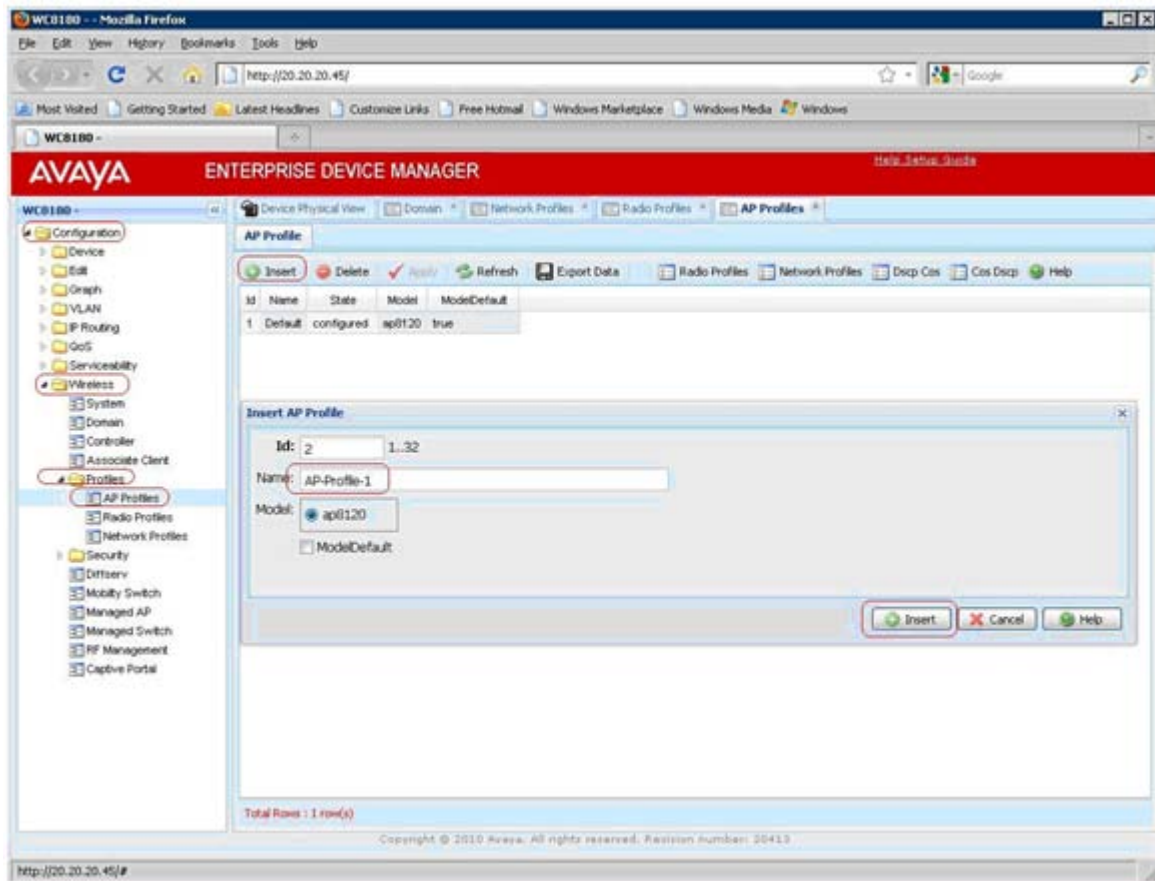


BG-N info, check notes

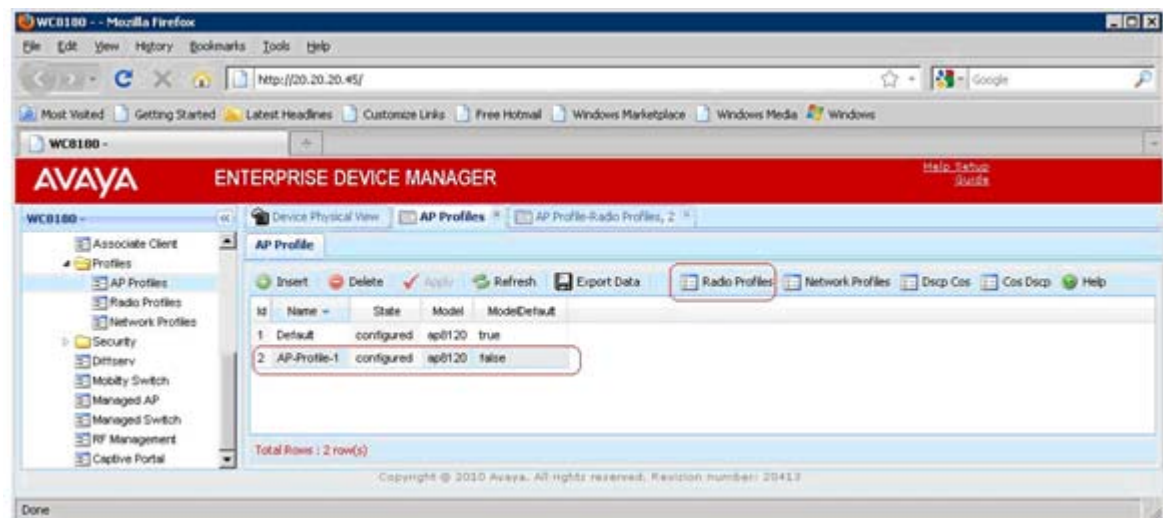


31. Create an AP profile, and assign radio profiles and network profiles to it.
32. Navigate to **Configuration, Wireless, Profiles, AP Profiles**.
33. Add a new AP profile.

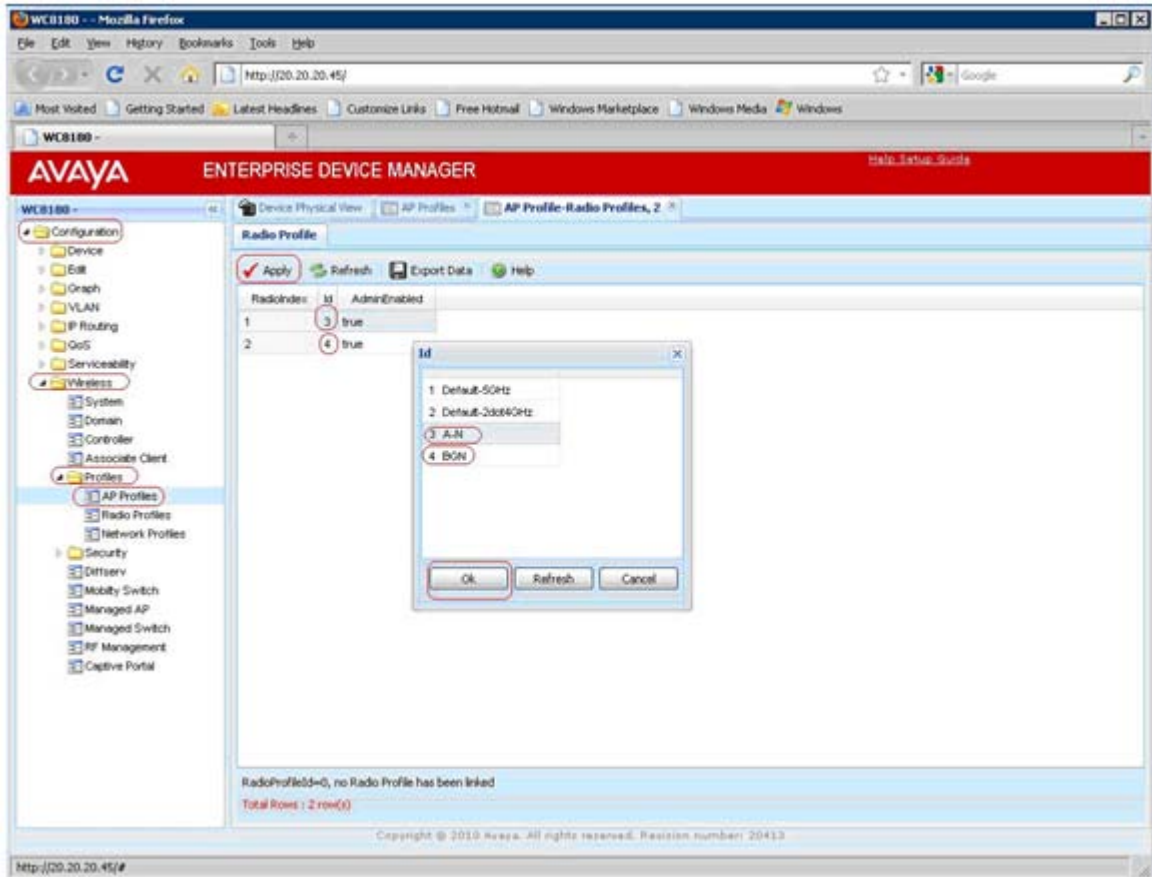
Configuring the Wireless Controller using the EDM



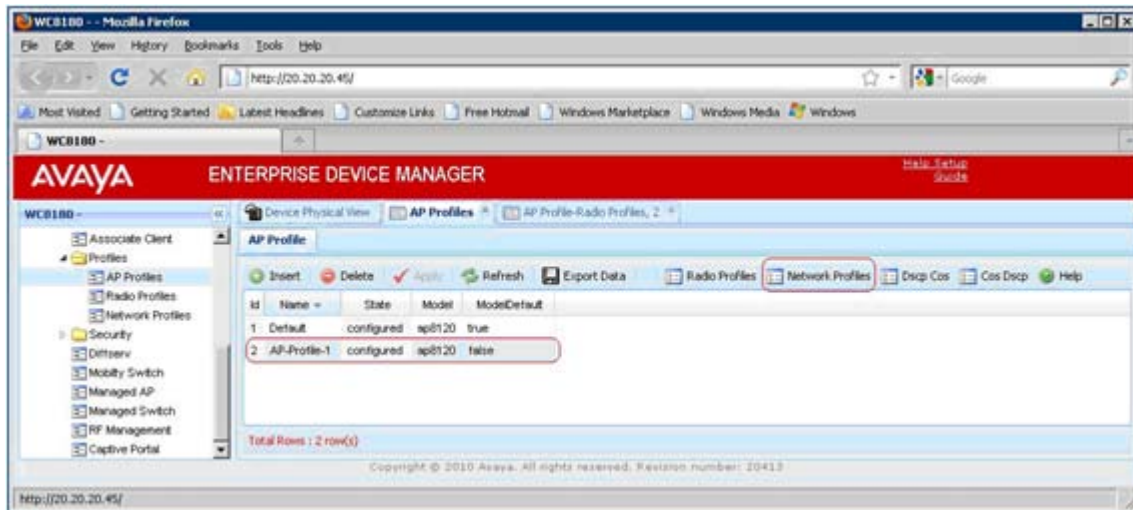
34. Assign radio profiles to the AP profile.



35. Assign radio profiles to the two radios.

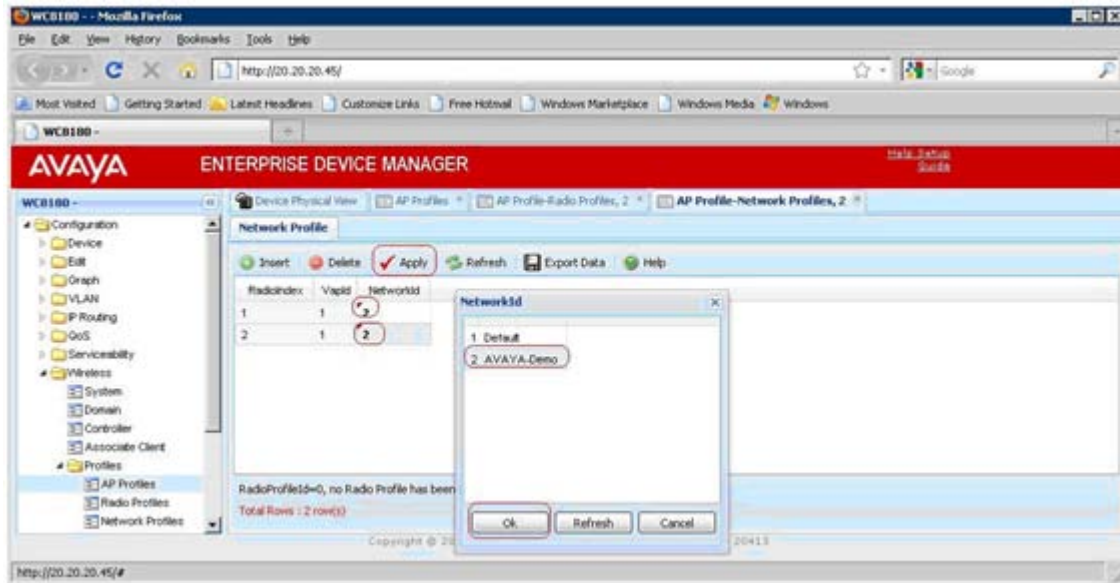


36. Assign the network profile to the AP profile.



37. Map the network profile to the two AP radios.

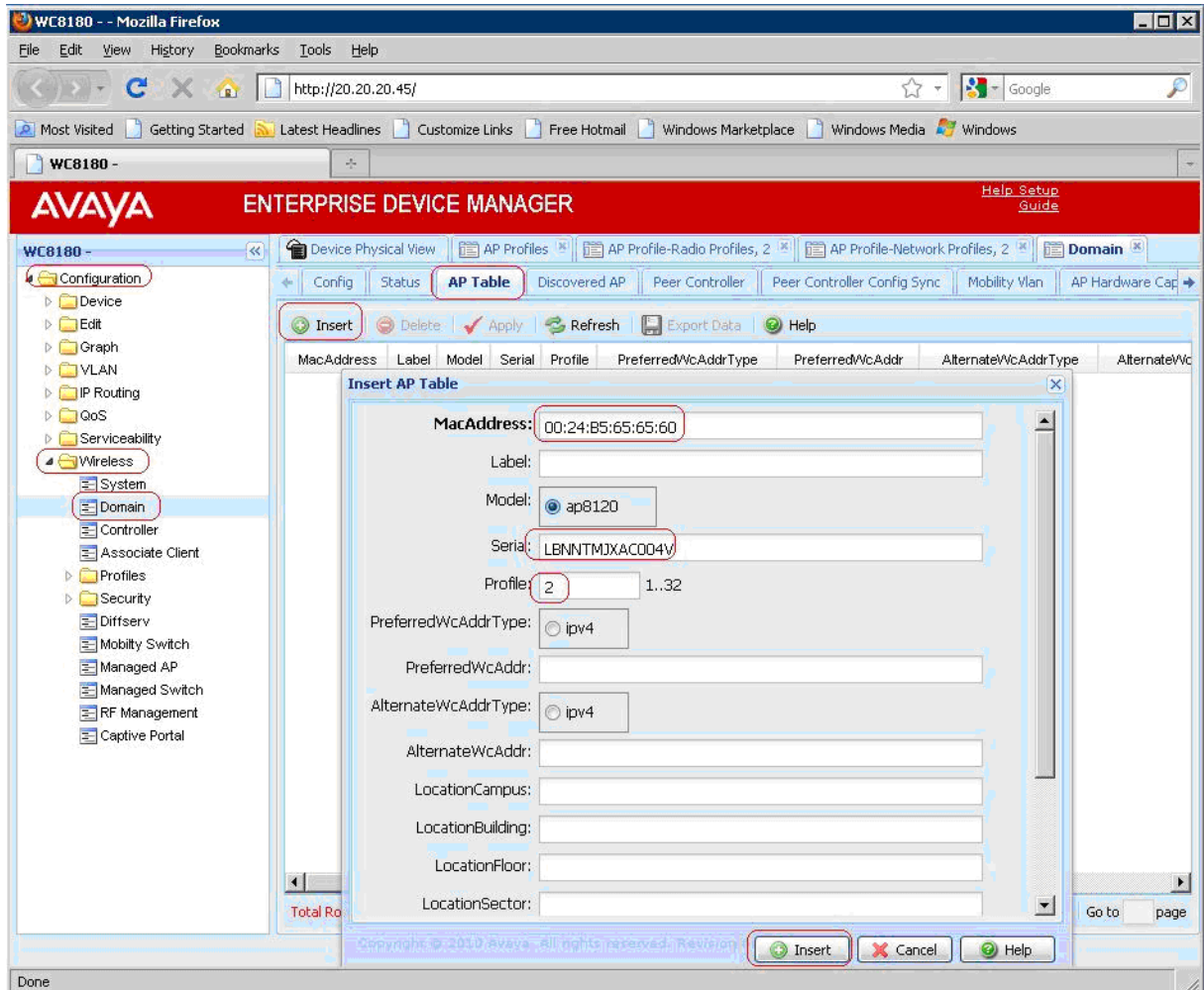
Configuring the Wireless Controller using the EDM



38. To add APs to the domain AP database, navigate to Configuration, Wireless, Domain.
39. Click the **AP Table** tab.
40. Add a new AP to the domain.

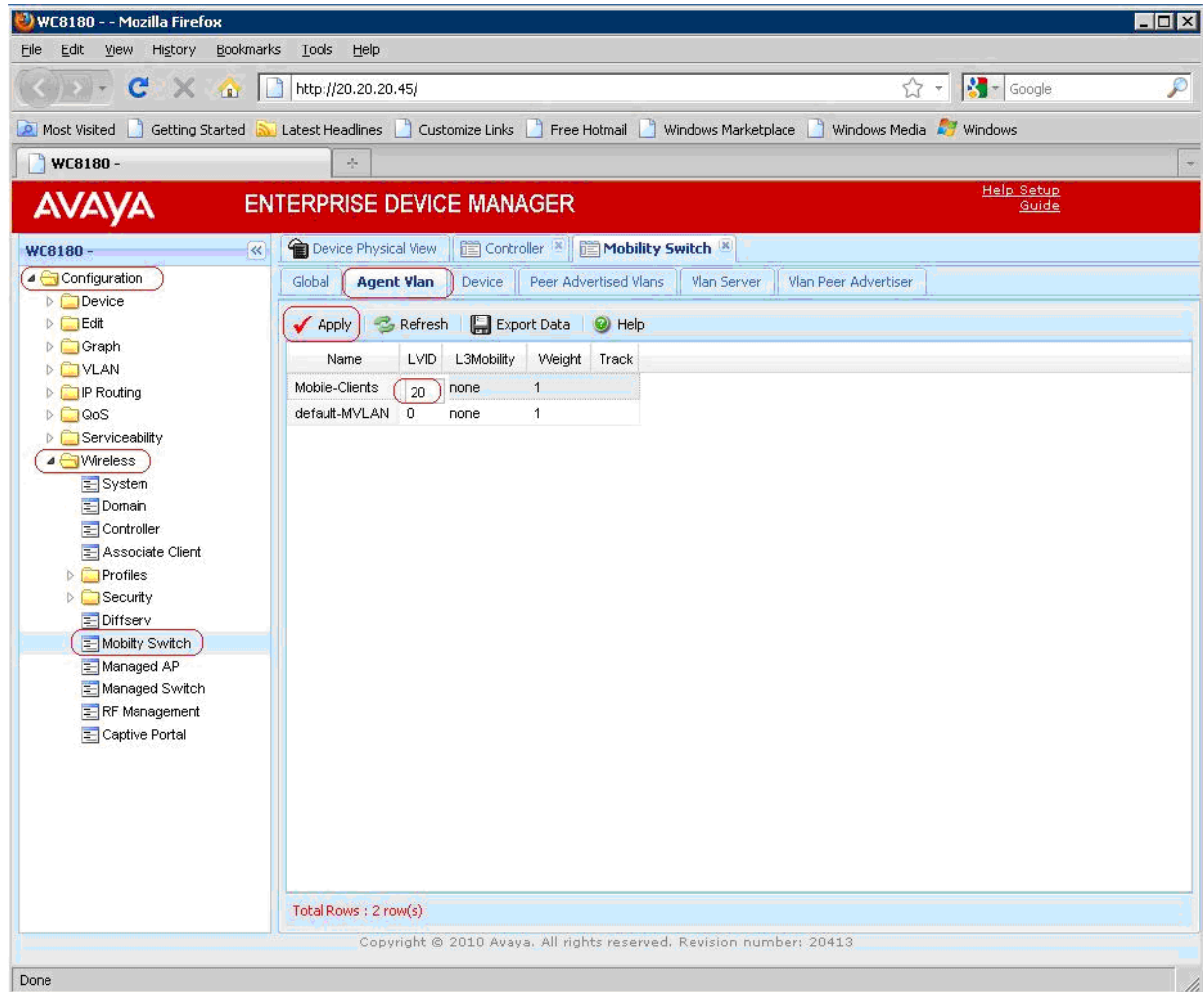
Note:

Locate the AP MAC address on the back of the physical AP.

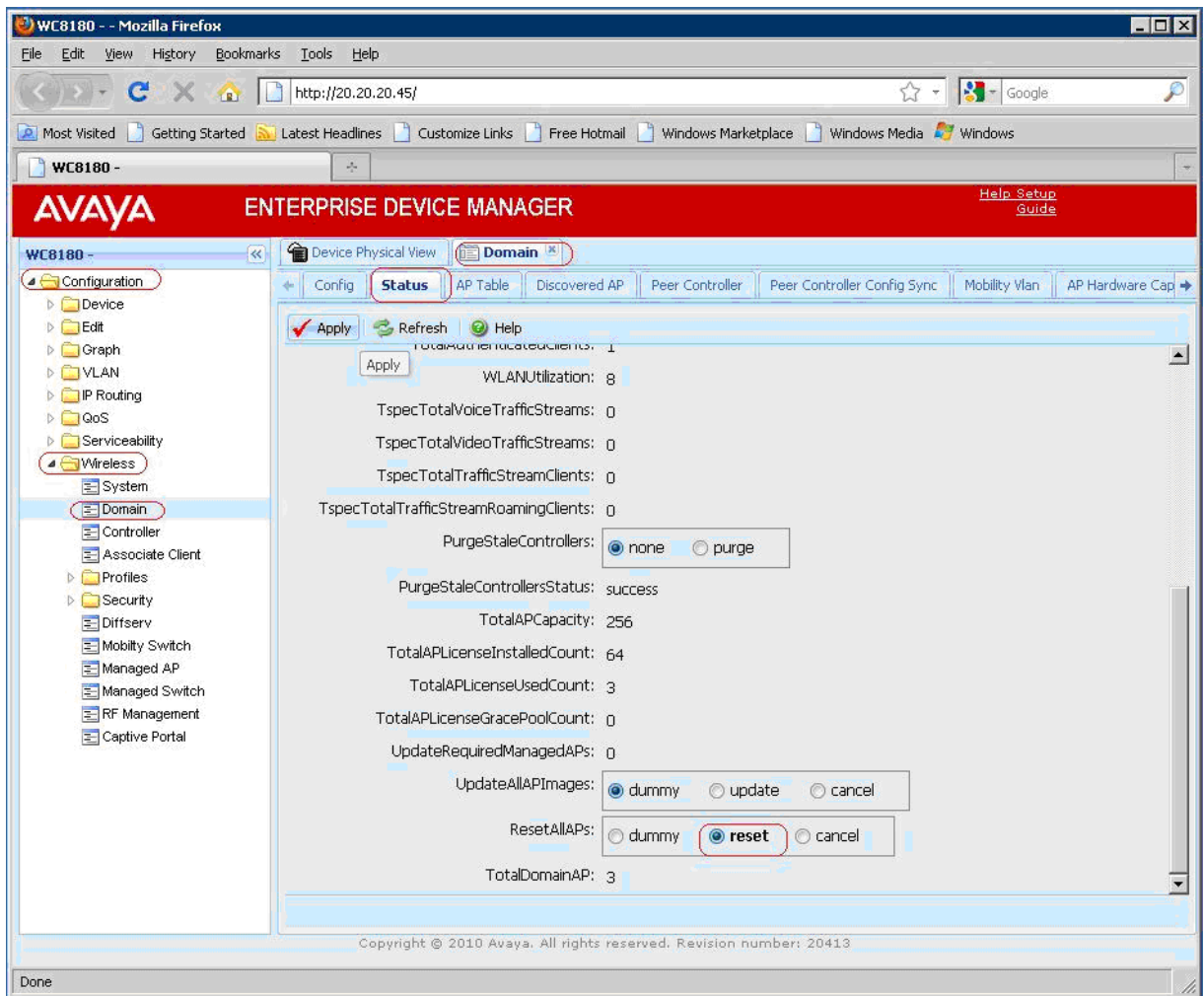


41. Map the mobility VLAN to the local VLAN.
42. Navigate to **Configuration, Wireless, Mobility Switch**.
43. Click the **Agent Vlan** tab.
44. Click **Mobility VLAN**.
45. Map the VLAN.
46. Click **Apply**.

Configuring the Wireless Controller using the EDM



47. Optionally, if you made changes to any domain AP-related parameters (for example, the AP profile), you must reset the AP to apply the changes.
48. Navigate to **Configuration, Wireless, Domain**.
49. Click the **Status** tab.
50. In the Reset All APs field, click the **reset** radio button.
51. Click **Apply**.



52. Verify the wireless client connectivity. The wireless network is now ready for client connectivity.
53. Scan for wireless networks.
54. Connect a wireless client to the AVAYA-Demo network.
55. Monitor the wireless APs.
56. Navigate to **Configuration, Wireless, Managed AP**.
57. Click the **AP Status** tab.

Configuring the Wireless Controller using the EDM

WC8180 - ENTERPRISE DEVICE MANAGER

Configuration

- Device
- Edit
- Graph
- VLAN
- IP Routing
- QoS
- Serviceability
- Wireless
 - System
 - Domain
 - Controller
 - Associate Client
 - Profiles
 - Security
 - Diffserv
 - Mobility Switch
 - Managed AP
 - Managed Switch
 - RF Management
 - Captive Portal

AP Status

MacAddress	AddrType	Addr	SoftwareVersion	HWType	SerialNumber	DiscoveryReason
00:24:b5:65:65:60	ipv4	54.54.54.5	1.0.0.0	ap8120	LBNNTMJXAC004V	controllerIpObtainedViaDhcp
00:24:b5:65:65:c0	ipv4	54.54.54.6	1.0.0.0	ap8120	LBNNTMJXAC006L	controllerIpObtainedViaDhcp
5c:e2:86:0f:51:60	ipv4	54.54.54.8	1.0.0.0	ap8120	LBNNTMJXAC018N	controllerIpObtainedViaDhcp

Total Rows : 3 row(s) | Displaying page 1 of 1 Page(s)

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58. View the client status.
59. Navigate to **Configuration, Wireless, Associated Client**.
60. Click the **Status** tab.

WC8180 - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://20.20.20.45/

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WC8180 -

AVAYA ENTERPRISE DEVICE MANAGER [Help](#) [Setup](#) [Guide](#)

WC8180 -

- Configuration
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- Security
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 - Mobility Switch
 - Managed AP
 - Managed Switch
 - RF Management
 - Captive Portal

radio Profiles, 2 x AP Profile-Network Profiles, 2 x Domain x Controller x Associate Client x Managed AP x

Status Tspec Status QoS QoS Cached Neighbor Managed AP VAP SSID Controller

✓ Apply Refresh Export Data Help

MacAddress	AddrType	Addr	UserName	SSID	MobilityVlan	Status	TxDataRate	Inactiv
00:21:91:7f:02:b4	ipv4	20.20.20.203		AVAYA-Demo	Mobile-Clients	authenticated	54	0d 00:00

Total Rows : 1 row(s)

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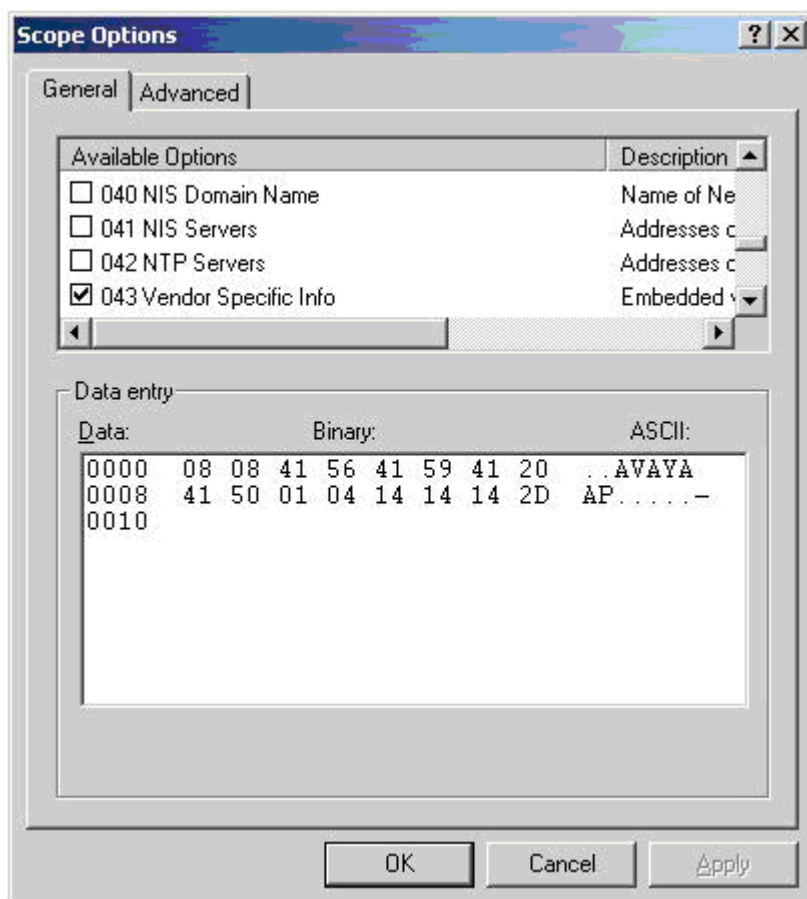
Done

Appendix A: DHCP server configuration for access points

Configuring the Windows server

Insert content for the first section.

1. Launch the DHCP Server Manager.
2. Navigate to **DHCP, <your-DHCP-server>, Scope, Scope Option, Option 043.**
3. Configure Sub-Option 8 as **AVAYA AP** with hexadecimal values for Domain Controller IP addresses.
4. Click **OK**.
5. In the following example, the Wireless Controller (WC) IP as 20.20.20.45 and its respective Hexadecimal value is 14:14:14:2D.



Configuring the Linux server

Complete the following procedure on the Linux server.

1. Edit **dhcpcd.conf** (/root/dhcp.conf).
2. Configure Sub-Option 8 as **AVAYA AP** with hexadecimal values for domain controller IP addresses.

 Note:

Optionally, you can specify a UDP port for communications.

3. Restart **dhcpcd**.

For example, a Linux entry for Option 43 with controller addresses 20.20.20.45 and using port 61000 appears as follows:

```
option vendor-encapsulated-options 08:08:41:56:41:59:41:20:41:50 =  
'AVAYA AP'  
:01:04:14:14:14:2D = '20.20.20.45'  
:03:02:EE:48 = '61000'
```

The actual Option 43 entry is

```
option vendor-encapsulated-options 08:08:41:56:41:59:41:20:41:50  
:01:04:c0:a8:0b:02  
:01:04:c0:a8:0b:03  
:03:02:EE:48
```

where

- 08:08:41:56:41:59:41:20:41:50 = Sub-option 08, length 8, "AVAYA AP"
- 01:04:c0:a8:0b:02 = option IP, length 4, "192.168.11.2"
- 01:04:c0:a8:0b:03 = option IP, length 4, "192.168.11.3"
- 03:02:EE:48 = option port, length 2, "61000"

 Note:

The access point uses UDP port 61000 by default if Option 43 does not include the UDP port number.

Appendix B: Licensing the Wireless Controller

Obtaining a license for the Wireless Controller

Complete this procedure to obtain a software license file from Avaya.

Prerequisites

You must have a valid license certificate to complete this procedure.

1. Record the MAC address of each WLAN 8100 Wireless Controller (WC) that you want to enable software features on.

 Note:

You need only a single MAC address for each controller. To find the MAC address using the console menu interface through the Avaya command line interface (CLI), use the `show sys-info` command in `privExec #` mode.

2. Go to www.avayadatalicensing.com to access Avaya's electronic licensing portal.
3. You are prompted to set up a License Bank if you have not already done so.
4. Fill out the required information and select **Deposit my licenses into a NEW License Bank** if this is your first license, otherwise, deposit your licenses into an existing License Bank.
5. Type your License Authorization Code (located in the lower right box on your license certificate sheet).
6. Click **Submit**.
Your license(s) are added to your license bank. You receive confirmation that this is done through the licensing page, and also to your designated email address.
7. Log in to your license bank using the name and password you set up in step 3.
8. Click **Generate License**.
You are redirected to the Generate License page.
9. In the Generate License page, enter the MAC address for the WC identified in step 1 and enter descriptive comments as needed



Note:

You must enter MAC addresses in upper case letters separated by colons (for example, XX:XX:XX:XX:XX:XX). Optionally, you can upload an ASCII file containing one or more MAC addresses, one MAC address per line (1000 maximum)

10. Click **Generate License File**.

On the Confirmation screen, you receive information that your license file is created and what that license file is. The license file is also be sent to your designated email address.

Applying the Wireless Controller license file

Prerequisites

You must have a valid license certificate to complete this procedure. You must complete the procedure [Obtaining a license for the Wireless Controller](#) on page 67 before you can apply a generated license file.

1. Use Telnet or the console port on the WC to connect to the WLAN 8100 Controller CLI.
For more information on using the CLI and logging in to the CLI, see *Avaya WLAN 8100 Configuration - WC 8180 (CLI)* (NN47251-500).
2. Log in as the Administrator.
3. Copy the license file to a TFTP server.
4. From the WLAN 8100 CLI, in privExec (#) mode, execute the following command:

```
[copy tftp license address <a.b.c.d> filename <word>
```

where <a.b.c.d> is the IP address of the TFTP server and <word> is the license file name.



Note:

Ensure the correct license file contains the MAC address of the controller that the license file is being copied onto.

5. Reboot the WLAN 8100 switch.
6. Read the WLAN 8100 online documentation for more detailed information and store your License Certificate in a secure place for future reference.

Appendix C: Licensing the Wireless Management System software

Obtaining a Wireless Management System software license

Complete this procedure to use your Base License Certificate to obtain a Wireless Management System (WMS) software license.

Prerequisites

You must have a valid Base License Certificate to complete this procedure.

You must have installed the WMS on your server system.

Have on hand the MAC address of the server system on which you installed the WMS.

-
1. Go to the Avaya License Fulfillment Portal at www.avayadatalicensing.com.
 2. In the appropriate fields at the top of the page, type your first name, last name, company name, and email address.
 3. You will be prompted to set up a License Bank if you have not already done so.
 4. In the License Bank area, specify the name and password for an existing license bank into which you want your licenses to be deposited. If you do not have a license bank, you must create one at this time.
 5. Specify email notifications as required.
 6. Type your WLAN 8100 Wireless Management Software License Authorization Code in the License Authorization field at the bottom of the Base License Certificate.
 7. Click **Activate License**.
A license is deposited in your License Bank and emailed to the address you specified.
 8. Log in to your License Bank using the name and password you specified in step 4.
 9. Click **Download**.
You are re-directed to the Generate License page.
 10. On the Generate License page, enter the MAC address for the server system on which you installed the WMS is installed.



Note:

You must enter the MAC address as capital letters separated by colons (for example, XX:XX:XX:XX:XX:XX).

11. Click **Create License File**.

On the confirmation screen, you are informed that your license has been created. A license (.lic) file is sent to the email address you specified when you created your License Bank.

12. Copy the license file to a location on the server system on which you have installed the WMS.

13. Store your Base License Certificate in a secure place for future reference.

Next steps

Enable the WMS.