Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Aruba 5000 and 2400 Wireless LAN Switches to Support Avaya Communication Manager, Avaya IP Wireless Telephone and Avaya IP Softphone - Issue 1.0

Abstract

These Application Notes describe the procedure for configuring the Aruba Wireless LAN Switches to support Avaya Communication Manager, Avaya IP Wireless Telephone and IP Softphone. Features and functionality were validated and performance testing was conducted in order to verify their operation under load. Information in these Application Notes has been obtained through compliance testing and additional technical discussions. Testing was conducted via the Developer*Connection* Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe a compliance-tested configuration comprising of Aruba 5000 and 2400 Wireless LAN Switches. Aruba designs the wireless LAN switches for distributive network infrastructure. The basic infrastructure consists of a master switch, Aruba 5000, and a remote switch, Aruba 2400. All wireless related configurations are done on the master switch and the configuration is then pushed to all remote switches. The Aruba Access Point (AP) supports 802.11a/b/g modes. These Application Notes cover the following areas:

- Layer 2 and Layer 3 switch configuration, including VLANs, 802.1Q Tagging and Static IP routing.
- Quality of Service, including configuration of QoS polices in 802.1p and DiffServ.
- 802.1 x authentications with WEP encryption.
- Wireless 802.11 a/b/g mode configurations.

These Application Notes do not cover the configuration for Avaya IP wireless telephones, Avaya IP Softphone or Odyssey RADIUS Server and clients. For detailed configuration of these devices, refer to the Application Notes listed in the Section 10.

Figure 1 shows the network configuration used for verification.

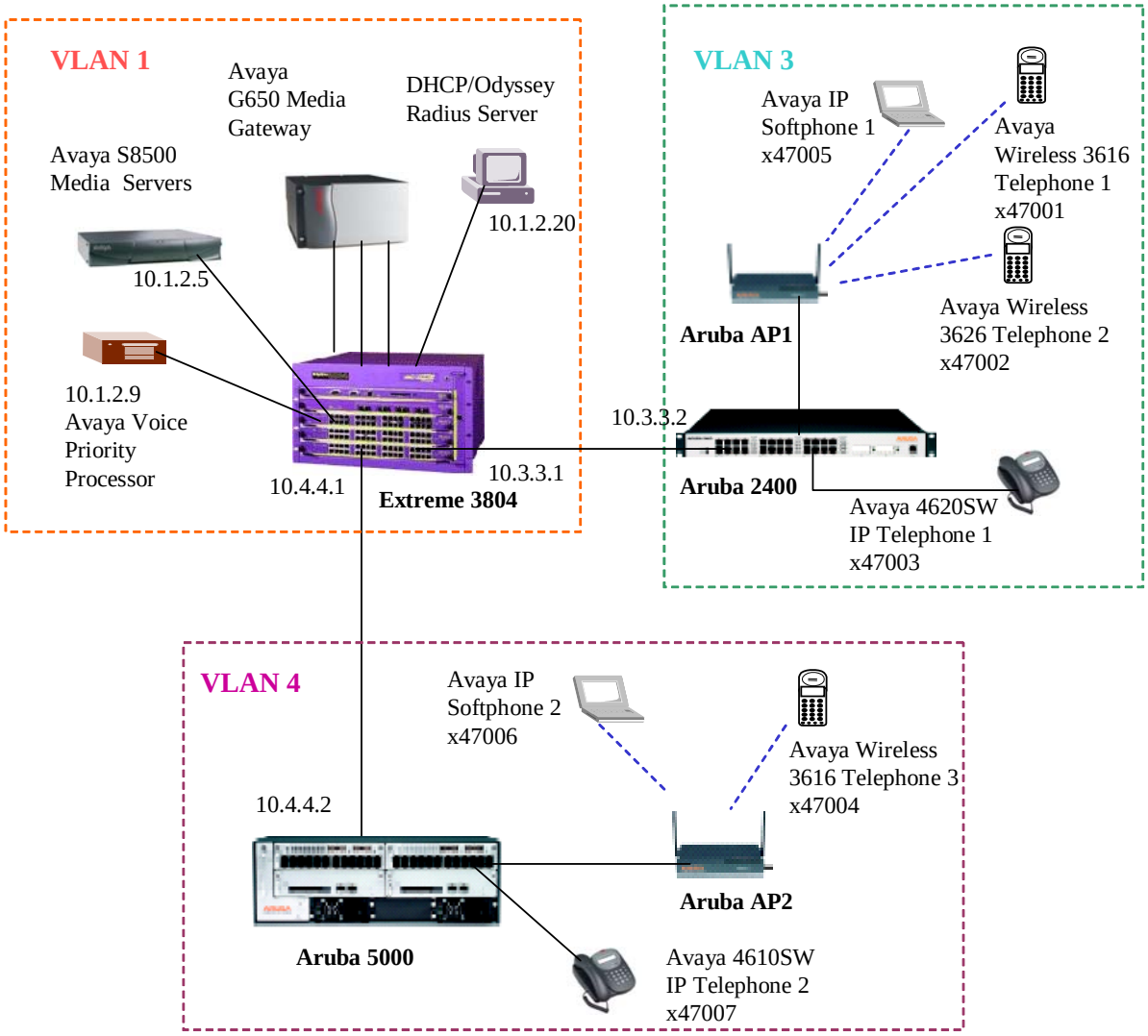


Figure 1: Network Configuration

Table 1 lists the IP addresses and subnet masks for the tested devices.

Device	VLAN	IP Address/Mask	Gateway
S8500 Media Server	VLAN 1	10.1.2.5 /24	10.1.2.1
G650 Gateway • IPSI • C-LAN • MEDPRO	VLAN 1	 10.1.2.6/24 10.1.2.7/24 10.1.2.8/24	 10.1.2.1 10.1.2.1 10.1.2.1
Avaya Voice Priority Processor	VLAN 1	10.1.2.9/24	10.1.2.1
Aruba 5000	VLAN 4 VLAN 4000 Loopback	10.4.4.2/24 172.16.2.1/24 10.4.4.3/24	10.4.4.1
Aruba 2400	VLAN 3 VLAN 4000 Loopback	10.3.3.2/24 172.16.2.2/24 10.3.3.3/24	10.3.3.1
Aruba Access Point 1 Aruba Access Point 2	VLAN 4000 VLAN 4000	172.16.2.3/24 172.16.2.4/24	172.16.2.2 172.16.2.1
Extreme Alpine 3804	VLAN1 VLAN3 (to Aruba 2400) VLAN4 (to Aruba 5000)	10.1.2.1/24 10.3.3.1/24 10.4.4.1/24	
Odyssey RADIUS Server	VLAN 1	10.1.2.20/24	10.1.2.1

2. Equipment and Software Validated

Table 2 lists the equipment and software version used for the configuration.

Equipment	Software
Avaya S8500 Media Server/G650 Media Gateway with	Communication Manager 2.0.1 (R012x.00.1.221.1)
Avaya IP Softphone	V5.0.1.2
Avaya 4620SW/4610SW IP telephones	R2.01
Avaya 3616/3626Wireless IP Phone	96.024
Avaya Voice Priority Processor	R32/21
Aruba 5000 Wireless LAN Switch	V2.0.6.0
Aruba 2400 Wireless LAN Switch	V2.0.6.1
Extreme Alpine 3804 Switch	V7.2.0b25
Dell Laptop with ▪ Windows 2000 Professional with SP4 ▪ D-Link DWL-AG650 Wireless Card	 5.00.2195 V1.2.0.1
Dell Laptop with ▪ Windows XP Professional with SP1 ▪ Intel PRO/Wireless LAN 2100 3A Mini PCI Adapter	 V2002 V7.1.0.0
Odyssey RADIUS Server	V2.01.00.653

3. Configure the Aruba 5000 and 2400 Wireless LAN Switches

The switch configuration can be done using either a web-based interface or a command line interface (CLI). The following sessions display the configuration using CLI. For web-based configuration, refer to the Aruba 5000 and 2400 switch configuration guide. The Aruba 5000 switch is configured as a master switch and the Aruba 2400 is configured as a remote switch.

3.1. Configure Aruba 5000 Wireless LAN Switch

Step	Description
1.	Enter command ***configure t*** from the switch console to get into the configuration mode. **Note:** Since there is significant system control information exchanged between the master and remote switches, it is recommended to have a separate VLAN to carry this traffic instead of sharing the VLAN with VoIP traffic. In this configuration, VLAN 4000 was created for this purpose. ▪ ***Configure VLAN, Port Tagging***
2.	▪ ***Configure VLAN interface, IP address and Default Gateway***

```
VLAN 4                                          -- create VLANs in the master switch
VLAN 4000

interface fastethernet 2/0                  -- switch port connected to the Extreme Switch
      trusted
      switchport mode trunk
      switchport trunk allowed VLAN 4
!
interface fastethernet 2/1                 -- switch port connected to the IP Telephone
      trusted
      switchport access VLAN 4
      spanning-tree portfast

interface fastethernet 2/2                 -- switch port connected to the AP
      trusted
      switchport access VLAN 4000
!
```

```
interface VLAN 4
      ip address 10.4.4.2 255.255.255.0
interface VLAN 4000
      ip address 172.16.2.1 255.255.255.0
interface loopback
      ip address 10.4.4.3 255.255.255.0

ip default-gateway 10.4.4.1
```

Step	Description
3.	▪ ***Configure QoS policy***

```
ip access-list session soft-phone
 any any udp 2048 3028 permit queue high     -- match the udp port range in
                                                 ip-network-region
 any any tcp 1719 1720 permit queue high     -- send call control traffic into high queue
 any any udp 1719 1720 permit queue high

ip access-list session hard-phone
  any any 119 permit queue high      -- protocol 119 is the SpectraLink protocol for Avaya
                                        IP wireless telephone

user-role voice
  session-acl control
  session-acl soft-phone
  session-acl hard-phone
!
aaa derivation-rules user
  set role condition essid equals AAA set-value voice
```

4. ▪ ***Configure 802.1x authentication and encryption***

```
aaa radius-server odyssey host 10.1.2.80 key xxxxxxxxx
aaa dot1x mode enable
dot1x re-authentication
dot1x multicast-keyrotation
dot1x unicast-keyrotation
aaa dot1x default-role voice
aaa dot1x auth-server odyssey
```

5. ▪ ***Configure 802.11 a/b/g radio***

```
ap location 0.0.0
essid "AAA"
max-clients 25
opmode dynamicTkip
  VLAN-id 4

ap location 2.0.0
  lms-ip 172.16.2.1
  phy-type a
    VLAN-id 3
  phy-type b
  vlan-id 3
```

3.2. Configure Aruba 2400 Wireless LAN Switch

Step	Description
1.	▪ ***Configure VLAN, Port Tagging***

```
VLAN 3
VLAN 4000

interface fastethernet 1/0
      trusted
      switchport mode trunk
      switchport trunk allowed VLAN 3

interface fastethernet 1/1
      trusted
      switchport access VLAN 4000
```

2. ▪ ***Configure VLAN interface, IP address and Default Gateway***

```
interface VLAN 3
    ip address 10.3.3.2 255.255.255.0
interface VLAN 4000
    ip address 172.16.2.2 255.255.255.0
interface loopback
    ip address 10.3.3.3 255.255.255.0

ip default-gateway 10.3.3.1

masterip 10.4.4.2          -- configure the master switch (Aruba 5000) IP address so that the remote
                              switch (Aruba 2400) knows from where to download the configuration
                              file.
```

3.3. Configure Aruba Access Points

Access Point configuration is done via the serial port. Connect a computer serial port to the AP's serial port and launch a terminal emulator with the following settings:

- Bits per second **9600**
- Data bits **8**
- Parity **None**
- Stop bits **1**
- Flow control **None**

When the AP is powered up, break the boot sequence with **<ctrl-c>** to get into the configuration mode.

Step	Description
1.	▪ ***Configure Access Point 1 (AP1)***

	`Setenv ipaddress 172.16.2.2`
	`Setenv netmask 255.255.255.0`
	`Setenv gatewayip 172.16.2.1`
	`Setenv serverip 10.3.3.3`
	`Setenv master 10.4.4.3` -- *using master switch's (5000) loopback IP Address*
	`Setenv location 2.1.1`
	`save`

2.	▪ ***Configure Aruba Access Point 2 (AP2)***

	`Setenv ipaddress 172.16.1.2`
	`Setenv netmask 255.255.255.0`
	`Setenv gatewayip 172.16.1.1`
	`Setenv serverip 10.4.4.3`
	`Setenv master 10.4.4.3` -- *using master switch's (5000) loopback IP Address*
	`Setenv location 1.1.1`
	`save`

4. Configure the Avaya Wireless Voice Priority Processor

The Avaya Wireless Voice Priority Processor (AVPP) functions as a wireless VoIP gateway and provides voice priority service for IP wireless telephones. The following steps describe the configuration. Note each IP network (sub-net) requires one AVPP.

Step	Description
1.	Using a console cable, connect the AVPP to the PC.
2.	Start a HyperTerminal session to the AVPP. • Bits per second **9600** • Data bits **8** • Parity **None** • Stop bits **1** • Flow control **None**

Step	Description
3.	Provide the **User Name** and **Password** to access the AVPP. • The **Gateway Connection Selection** window will be displayed. NetLink SVP-II System Hostname: [slnk_00d07e], Address: 0.0.0.0 System Status SVP-II Configuration **Network Configuration** Change Password Exit Enter=Select X=Exit Use Arrow Keys to Move Cursor Select **Network Configuration** and press **Enter**.
4.	The **Network Configuration** window will be displayed. • Provide the following information: o **IP Address** = 10.1.2.9 o **Subnet Mask** = 255.255.255.0 o **Default Gateway** = 10.1.2.1 Network Configuration Hostname: [slnk_00d07e], Address: 0.0.0.0 Ethernet Address (fixed): 00:90:7A:00:D0:7E **IP Address:** **10.1.2.9** Hostname: slnk_00d07e **Subnet Mask:** **255.255.255.0** **Default Gateway:** **10.1.2.1** SVP-II TFTP Download Master: NONE Primary DNS Server: NONE Secondary DNS Server: NONE DNS Domain: NONE WINS Server: NONE Workgroup: WORKGROUP Syslog Server: NONE Maintenance Lock: N Enter=Change Esc=Exit Use Arrow Keys to Move Cursor • Press **Enter**

Step	Description
5.	On the **NetLink SVP-II System** window: • Select **SVP-II Configuration**, and press **Enter**. NetLink SVP-II System Hostname: [slnk_00d07e], Address: 10.1.2.9 System Status **SVP-II Configuration** Network Configuration Change Password Exit Enter=Select X=Exit Use Arrow Keys to Move Cursor
6.	On the **SVP-II Configuration** window: • Select **Reset System**, and press **Enter**. This will reconfigure the AVPP with current settings. SVP-II Configuration Hostname: [slnk_00d07e], Address: 10.1.2.9 Phones per Access Point: 5 SVP-II Mode: Netlink IP System Locked: N Maintenance Lock: N Reset System Enter=Change Esc=Exit Use Arrow Keys to Move Cursor

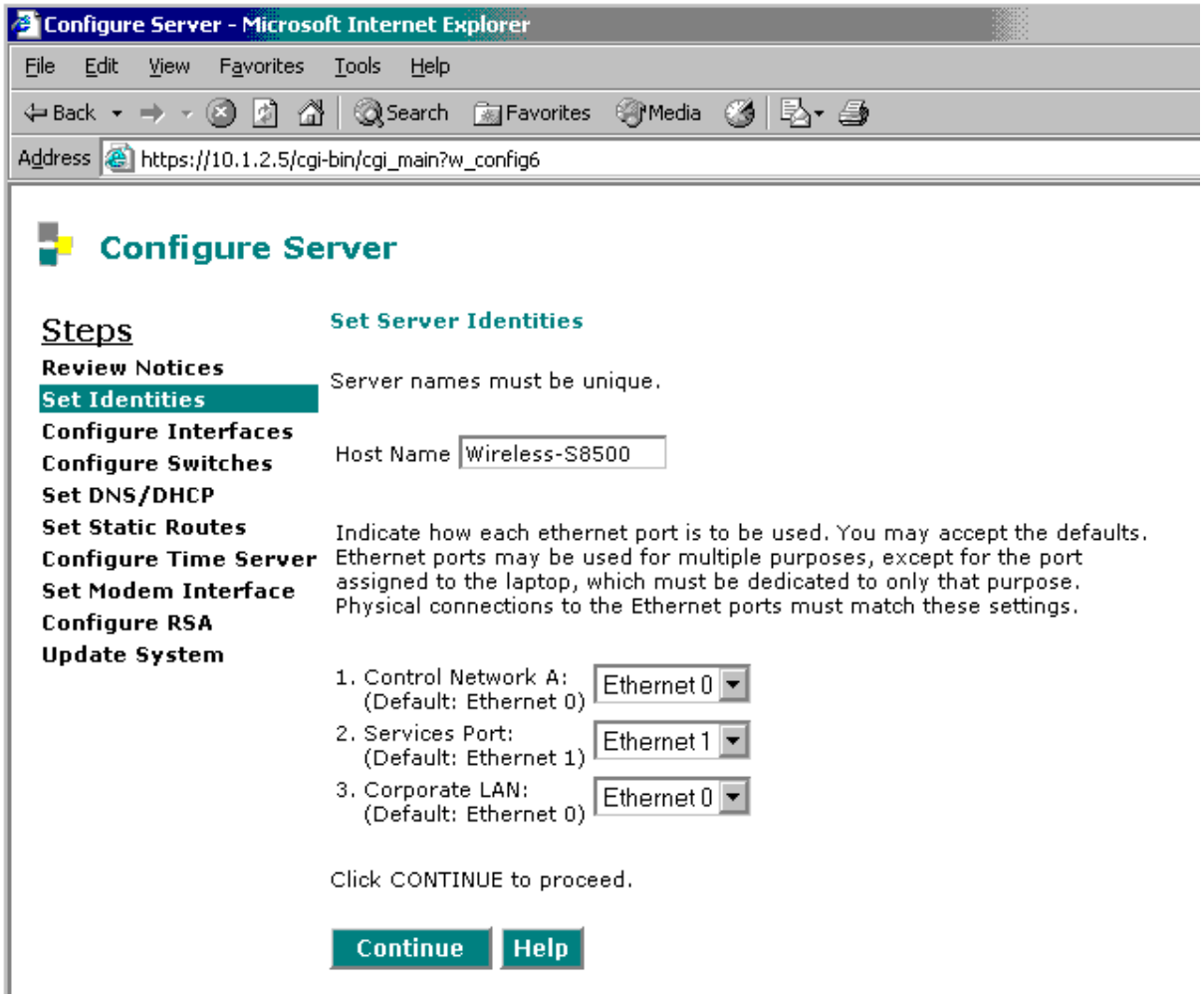
5. Configure the Avaya S8500 Media Server with the Avaya G650 Media Gateway

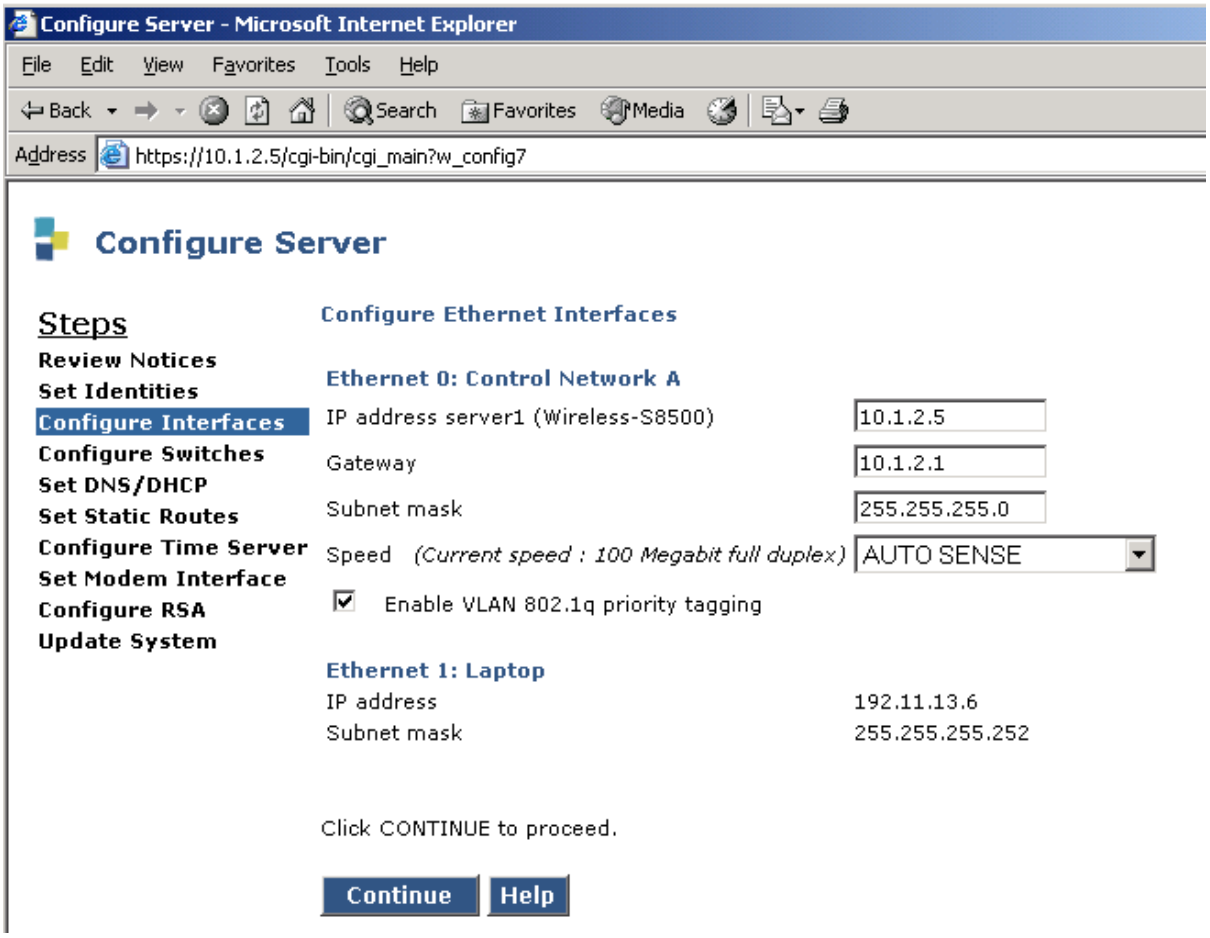
This section describes the steps necessary to configure the Avaya S8500 Media Server with a G650 Media Gateway.

5.1. Configuring the Ethernet Interfaces of the Avaya S8500 Media Servers

The Avaya S8500 Media Server is configured using a web interface. To access the web interface, connect a computer's Ethernet interface to the services port of the Avaya S8500 Media Server with a crossover Ethernet cable. The services port uses the pre-configured IP address 192.11.13.6 with mask 255.255.255.252. Configure the computer's IP address as 192.11.13.5 with mask 255.255.255.252. Connect the computer's Ethernet interface to the services port with a crossover Ethernet cable. Launch a web browser with the URL http://192.11.13.6. After logging in, click **Launch Maintenance Web Interface** to get to the main menu on the left hand side. Click **Configure Server** from the lower left of this main menu.

The Avaya S8500 Media Server has two IP interfaces. Ethernet 1 is used for the control network to communicate with the IPSI circuit pack of the Avaya G650 Media Gateway. Ethernet 2 is dedicated to the services port.

Step	Description
1.	***Configuring S8500 Media Server*** • Click **Set Identities** and enter the information shown below. • Click **Continue**. 

Step	Description
2.	***Configuring S8500 Media Server Interfaces*** • Click **Configure Interfaces** and enter the information shown below. • Click **Continue**. 

5.2. Configuring IPSI on the Avaya G650 Media Gateway

The IP address of an IPSI board has to be configured via its services port. To configure the IPSI board, connect the computer (already configured with the services IP address and mask as above) to the services port of the IPSI. Telnet to 192.11.13.6 and supply the appropriate login credentials. The following screenshot illustrates the appropriate commands. The IPSI IP address is configured to **10.1.2.6** with default gateway **10.1.2.1**.

Step	Description
1.	***Configuring IPSI***

```
TN2312 IPSI IP Admin Utility
Copyright Avaya Inc, 2000, 2001, All Rights Reserved
[IPSI]: ipsilogin
Login: craft
Password:
[IPADMIN]: set control interface 10.1.2.6 255.255.255.0
WARNING!! The control network interface will change upon exiting IPADMIN
[IPADMIN]: set control gateway 10.1.2.1
WARNING!! The control network interface will change upon exiting IPADMIN
[IPADMIN]: set VLAN tag off
[IPADMIN]: set diffserv 46

[IPADMIN]: show control interface

Control Network IP Address = 10.1.2.6
Control Network Subnetmask = 255.255.255.0
Control Network Default Gateway = 10.1.2.1
IPSI is not configured for DHCP IP address administration

[IPADMIN]: show qos

QoS values currently in use:
    VLAN tagging       :      off
    VLAN id            :      0
    VLAN user priority :      6
    Diffserv value     :      46
```

5.3. Configuring the Avaya S8500 Media Servers for the Avaya G650 Media Gateway

This section presents the relevant configuration of the Avaya Communication Manager software. The Avaya Communication Manager SAT screens can be accessed using “telnet 192.11.13.6 5023” from a computer connected to the server’s services port, or “telnet 10.1.2.5 5023” through the control network.

Step	Description
1.	***Enable IPSI*** Use the command **change system-parameters ipserver-interface** to globally enable the server to control the IPSI installed in slot A1 on the gateway. Set the field **IPSI Control of Port Networks** to **enabled** as shown below. **change system-parameters ipserver-interface** IP SERVER INTERFACE (IPSI) SYSTEM PARAMETERS SERVER INFORMATION IPSI Host Name Prefix: Primary Control Subnet Address: . . . Secondary Control Subnet Address: . . . OPTIONS Switch Identifier: **A** IPSI Control of Port Networks: **enabled**
2.	***Add Cabinet*** Use the command **add cabinet X** (X is the cabinet number) to add a cabinet for the G650 gateway. **Cabinet Layout** must be configured as **G650-rack-mount-stack** for the Avaya G650 Media Gateway. **add cabinet 1** Page 1 of 1 CABINET CABINET DESCRIPTION Cabinet: 1 Cabinet Layout: **G650-rack-mount-stack** Cabinet Type: expansion-portnetwork Location: 1 Rack: Room: Floor: Building: CARRIER DESCRIPTION Carrier Carrier Type Number E not-used D not-used C not-used B not-used A G650-port
3.	***Add G650 Media Gateway*** Use the command **add ipserver-interface X** (X is the cabinet number) to add a G650 Media Gateway. Type the IPSI IP address (10.1.2.6 in this sample configuration) in the **Host** field.

Step	Description
	The following displays the ipserver-interface configuration. Note that QoS parameters are configured for the communication from the Avaya S8500 Media Server to the IPSI of the Avaya G650 Media Gateway.

```
display ipserver-interface 1
          IP SERVER INTERFACE (IPSI) ADMINISTRATION - PORT NETWORK 1

  IP Control? y                                          Socket Encryption? y

                                                                 Enable QoS? y

 Primary IPSI                                          QoS Parameters
 ------------                                          --------------
  Location:  1A02                                        Call Control 802.1p: 6
      Host: 10.1.2.6                                   Call Control DiffServ: 46
   DHCP ID: ipsi-A01a
```

4. ***Add data-module for C-LAN***

Use the command **add data-module** to enable the C-LAN. Set the field **Type** to **ethernet** and the field **Port** to the C-LAN circuit pack (from **list configuration all**) location with port 17. The following snapshot displays the C-LAN configuration.

```
display data-module 20000
                                DATA MODULE

  Data Extension: 20000         Name: CLAN1a
            Type: ethernet
            Port: 01A0317
            Link: 1
```

5. ***Configuring C-LAN and MEDPRO***

Use the command add **ip-interface** to add and configure the C-LAN and the MEDPRO of the Avaya G650 Media Gateway. The following two screens display the configurations of the C-LAN (01A03) and the MEDPRO (01A04). Note that the C-LAN and MEDPRO are assigned to Network Region 1.

```
display ip-interface 01A03

                                  IP INTERFACES

                   Type: C-LAN                              ETHERNET OPTIONS
                   Slot: 01A03                                     Auto? y
           Code/Suffix: TN799  D
             Node Name: CLAN1A
            IP Address: 10.1.2.7
           Subnet Mask: 255.255.255.0
       Gateway Address: 10.1.2.1
  Enable Ethernet Port? y
        Network Region: 1
                   VLAN:
```

Step	Description

```
display ip-interface 01A04

                                  IP INTERFACES

                 Type: MEDPRO                            ETHERNET OPTIONS
                 Slot: 01A04                                    Auto? y
          Code/Suffix: TN2302
            Node Name: MedPro
           IP Address: 10.1.2.8
          Subnet Mask: 255.255.255.0
      Gateway Address: 10.1.2.1
  Enable Ethernet Port? y
       Network Region: 1
                 VLAN:
```

Use the command **change ip-network-region** to configure the QoS and other parameters for a network region. Note that Avaya components including C-LAN, MEDPRO, IP telephones, Softphone, and Media Gateways can be configured to a network region. These components will receive QoS and other parameters from their IP network regions' configuration upon their registration.

```
change ip-network-region 1                                   Page   1 of  19
                              IP NETWORK REGION
  Region: 1
Location: 1               Home Domain:
    Name: Location A
                               Intra-region IP-IP Direct Audio: yes
AUDIO PARAMETERS               Inter-region IP-IP Direct Audio: yes
   Codec Set: 1                          IP Audio Hairpinning? y
UDP Port Min: 2048
UDP Port Max: 3028                     RTCP Reporting Enabled? y
                             RTCP MONITOR SERVER PARAMETERS
DIFFSERV/TOS PARAMETERS       Use Default Server Parameters? y
 Call Control PHB Value: 34
        Audio PHB Value: 46
802.1P/Q PARAMETERS
 Call Control 802.1p Priority: 6
        Audio 802.1p Priority: 6      AUDIO RESOURCE RESERVATION PARAMETERS
H.323 IP ENDPOINTS                                    RSVP Enabled? n
  H.323 Link Bounce Recovery? y
 Idle Traffic Interval (sec): 20
   Keep-Alive Interval (sec): 5
            Keep-Alive Count: 5
```

Step	Description
6.	***Configure IP codec*** Use the command **change ip-codec-set** to select **G.711MU**. `change ip-codec-set 1` Page 1 of 1 IP Codec Set Codec Set: 1 Audio Codec / Silence Suppression / Frames Per Pkt / Packet Size(ms) 1: G.711MU n 2 20 2: 3: 4:
7.	***Add extensions on S8500 Media Server*** The following steps show how to add an extension on the S8500 Server. For example, extension 47005 for the IP Softphone 1, is added using the command **add station 47005** from the SAT terminal. • Enter **4620** in **Type** field • Enter password in **Security Code** field • Enter **y** in the **IP SoftPhone** field `add station 47005` Page 1 of 4 STATION Extension: 47005 Lock Messages? n BCC: 0 Type: 4620 Security Code: * TN: 1 Port: IP Coverage Path 1: COR: 1 Name: IP Softphone 1 Coverage Path 2: COS: 1 Hunt-to Station: STATION OPTIONS Loss Group: 19 Personalized Ringing Pattern: 1 Message Lamp Ext: 47005 Speakerphone: 2-way Mute Button Enabled? y Display Language: english Expansion Module? n Media Complex Ext: IP SoftPhone? y • Enter **y** in **Direct IP-IP Audio Connections** field • Enter **y** in **IP Audio Hairpinning** field • Submit the form

Step	Description

```
add station 47005                                          Page   2 of   4
                                    STATION
FEATURE OPTIONS
           LWC Reception: spe           Auto Select Any Idle Appearance? n
          LWC Activation? y                     Coverage Msg Retrieval? y
  LWC Log External Calls? n                               Auto Answer: n
            CDR Privacy? n                          Data Restriction? n
   Redirect Notification? y                 Idle Appearance Preference? n
 Per Button Ring Control? n
   Bridged Call Alerting? n                   Restrict Last Appearance? y
  Active Station Ringing: single

      H.320 Conversion? n          Per Station CPN - Send Calling Number?
      Service Link Mode: as-needed
         Multimedia Mode: enhanced
    MWI Served User Type:                    Display Client Redirection? n
              AUDIX Name:                  Select Last Used Appearance? n
    Coverage After Forwarding? s
                                                Multimedia Early Answer? n
Remote Softphone Emergency Calls: as-on-local
                                          Direct IP-IP Audio Connections? y
Emergency Location Ext: 47005                       IP Audio Hairpinning? y
```

The extension 47001 is added for IP wireless telephone 1.

```
add station 47001                                          Page   1 of   4
                                    STATION

Extension: 47001                          Lock Messages? n          BCC: 0
     Type: 4606                           Security Code: *           TN: 1
     Port: IP                          Coverage Path 1:             COR: 1
     Name: IP wireless phone 1         Coverage Path 2:             COS: 1
                                       Hunt-to Station:

STATION OPTIONS
              Loss Group: 19           Personalized Ringing Pattern: 1
                                                Message Lamp Ext: 47001
           Speakerphone: 2-way                  Mute Button Enabled? y
       Display Language: english                   Expansion Module? n

                                                 Media Complex Ext:
                                                      IP SoftPhone? n
```

- Enter **y** in **Direct IP-IP Audio Connections** field
- Enter **y** in **IP Audio Hairpinning** field
- Submit the form

Step	Description
	add station 47001 Page 2 of 4 STATION FEATURE OPTIONS LWC Reception: spe Auto Select Any Idle Appearance? n LWC Activation? y Coverage Msg Retrieval? y LWC Log External Calls? n Auto Answer: n CDR Privacy? n Data Restriction? n Redirect Notification? y Idle Appearance Preference? n Per Button Ring Control? n Bridged Call Alerting? n Restrict Last Appearance? y Active Station Ringing: single H.320 Conversion? n Per Station CPN - Send Calling Number? Service Link Mode: as-needed Multimedia Mode: **enhanced** MWI Served User Type: Display Client Redirection? n AUDIX Name: Select Last Used Appearance? n Coverage After Forwarding? s Multimedia Early Answer? n Remote Softphone Emergency Calls: as-on-local Direct IP-IP Audio Connections? **y** Emergency Location Ext: 47001 IP Audio Hairpinning? **y**
8.	The command **save translation** must be entered to save the configuration.

6. Interoperability Compliance Testing

The interoperability compliance testing included feature functionality, serviceability, and performance testing. The feature functionality testing evaluated the Aruba wireless switches' ability to support Avaya IP Wireless Telephones. The serviceability and performance testing evaluated the Aruba wireless switches' ability to manage, monitor and debug the IP wireless clients activities as well as the VoIP quality in the mixed data and voice network environment.

6.1. General Test Approach

All feature functionality tests were performed manually. For feature functionality testing, the main objectives were to verify that:

- The Aruba APs support 802.11 a/b/g.
- The Aruba 5000 and 2400 switches support the following features:
  - Layer 2 LAN switch features such as VLAN, 802.1Q Tagging and 802.1D Spanning Tree.

- Layer 2 and Layer 3 QoS (CoS and DiffServ) for Avaya IP wireless endpoints.
- 802.1x authentication, RADIUS support and WEP encryption.
- Layer 2 and Layer 3 roaming.
- Client management, monitoring and debug functionality.

The serviceability and performance tests were also performed manually. The performance tests were executed with the aid of automated data traffic load. The quantified measurements of the VoIP data were obtained via a VoIP testing script.

6.2. Test Results

All tests were completed successfully.

7. Verification Steps

The following verification steps were used in these Application Notes to verify correct system operation:

1. Verify network connectivity by launching pings between the different endpoints. Verify that all pings are successful.
2. Power cycle IP Telephones and verify that they can get an IP address and other configuration parameters from the DHCP server. Verify they can register with the S8500 Media Server.
3. Power up all Avaya IP Wireless Telephones and verify that all IP Wireless Telephones can register with the S8500 Media Server.
4. Launch IP Softphones and verify that they can register with the S8500 Media Server.
5. Make calls between the different phones and verify that the voice quality is good.
6. Enable 802.1 x authentications on both 5000 and 2400 switches. Verify that the Odyssey RADIUS Server can authenticate the IP Softphones.
7. Enable WEP on IP Wireless Telephones and verify you can place calls and that the voice quality is good.
8. Make a conference call among different types of phones and that all parties are conferenced and voice quality is good.

9. Support

For technical support on Aruba products, contact Aruba Support at:

- E-mail: support@arubanetworks.com
- Phone: 800-WiFiLan (800-943-4526)

8. Conclusion

These Application Notes illustrate the procedures necessary for configuring the Aruba wireless LAN switches to support Avaya IP Wireless Telephones and Avaya IP Softphone on the wireless PCs. The Aruba 5000 and 2400 wireless LAN switches, as well as the Aruba APs were successfully compliance-tested in the converged voice/data network configuration described in these Application Notes. These switches and APs were able to support 802.11 a/b/g radio, VLAN Tagging, QoS and 802.1x authentication as well as WEP encryption. They also support roaming at both Layer 2 and Layer 3.

9. References

Use this URL
http://www1.avaya.com/enterprise/resourcelibrary/applicationnotes/eclips_interop.html to access these Application Notes.

[1] Configuring the Avaya IP Softphone with Compatible 802.11b Access Points from Avaya and Other Vendors– Issue 1.0

[2] Configuring the Avaya 3606 Wireless Telephone with Compatible 802.11b Access Points from Avaya and Other Vendors - Issue 1.0

[3] Configuring the Funk Odyssey Software, Avaya Access Point 3 and Avaya 802.11a/b Wireless Client for User Authentication (802.1x) and Data Encryption - Issue 1.0

The Aruba product documentation can be found at
http://www.arubanetworks.com

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya Developer*Connection* Program at devconnect@avaya.com.