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Avaya Solution & Interoperability Test Lab

Application Notes for the HP Networking E-MSM317 MultiService Access Device Supporting IEEE 802.3af Power over Ethernet, Classes 0 to 3 with Avaya IP Telephones – Issue 1.0

Abstract

These Application Notes describe the procedures for configuring the HP Networking E-MSM317 MultiService Access Device to support IEEE 802.3af Power Over Ethernet, (PoE), Classes 0 to 3, to provide inline PoE to Avaya 1600/9600 Series IP Telephones.

The HP Networking E-MSM317 Access Device integrates wired and wireless connectivity into a small unit that can be installed in a standard wall outlet box. It provides four Ethernet ports, one PoE, and a 2.4 GHz wireless access point. If the Uplink port of the E-MSM317 is connected to IEEE 802.3at PoE+ switch, it will supply PoE to Class 0 to 3 devices directly connected to the unit. For compliance testing, the HP Networking E-MSM317 was connected to the HP Networking E2910-48G-PoE+ al switch that supplied IEEE 802.3at (PoE+)

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

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1 of 12
HPNE317-PoE03

1. Introduction

Power over Ethernet (PoE) allows both power and data to be simultaneously carried over standard Ethernet cables. PoE-enabled Ethernet switches can supply power directly to Ethernet devices, thereby simplifying installation and removing the need for separate power supplies for those devices. The IEEE 802.3af standard defines the mechanisms for Power Sourcing Equipment (PSE), such as PoE-enabled Ethernet switches, to detect, classify, and supply power to the Avaya IP Telephones.

1.1. Interoperability Compliance Testing

The interoperability testing focused on verifying that when the HP Networking E-MSM317 Uplink port is connected to an IEEE 802.3at PoE+ switch, it can relay inline PoE Classes 0 to 3 to the Avaya IP Telephones.

The power tests included verification of the following after each powered device was connected to the switch:

- Connecting each Avaya IP Telephone, as illustrated in **Figure 1,** to the E-MSM317, and verifying successful boot operation and registration of the telephones.

1.2. Support

For technical support on HP Networking products, consult the support pages at:
http://www.hp.com/networking/support

2. Reference Configuration

As illustrated in **Figure 1**, the Avaya IP Telephones covered in these Application Notes include the following:

- Avaya 9600 Series IP Telephones
- Avaya 1600 Series IP Telephones

2.1. Test Environment

The test environment consisted of Avaya Aura™ Communication Manager running on an Avaya S8300 Server with an Avaya G450 Media Gateway, Avaya Aura™ Session Manager running on an Avaya S8800 Server, Avaya Aura™ Communication Manager Messaging, Avaya IP Telephones, one HP Networking E-MSM760 Controller, one HP Networking E5406 zl modular switch, one HP Networking E-MSM317 MultiService Access Device and one HP Networking E2910-48G-PoE+ al switch to supply PoE+.

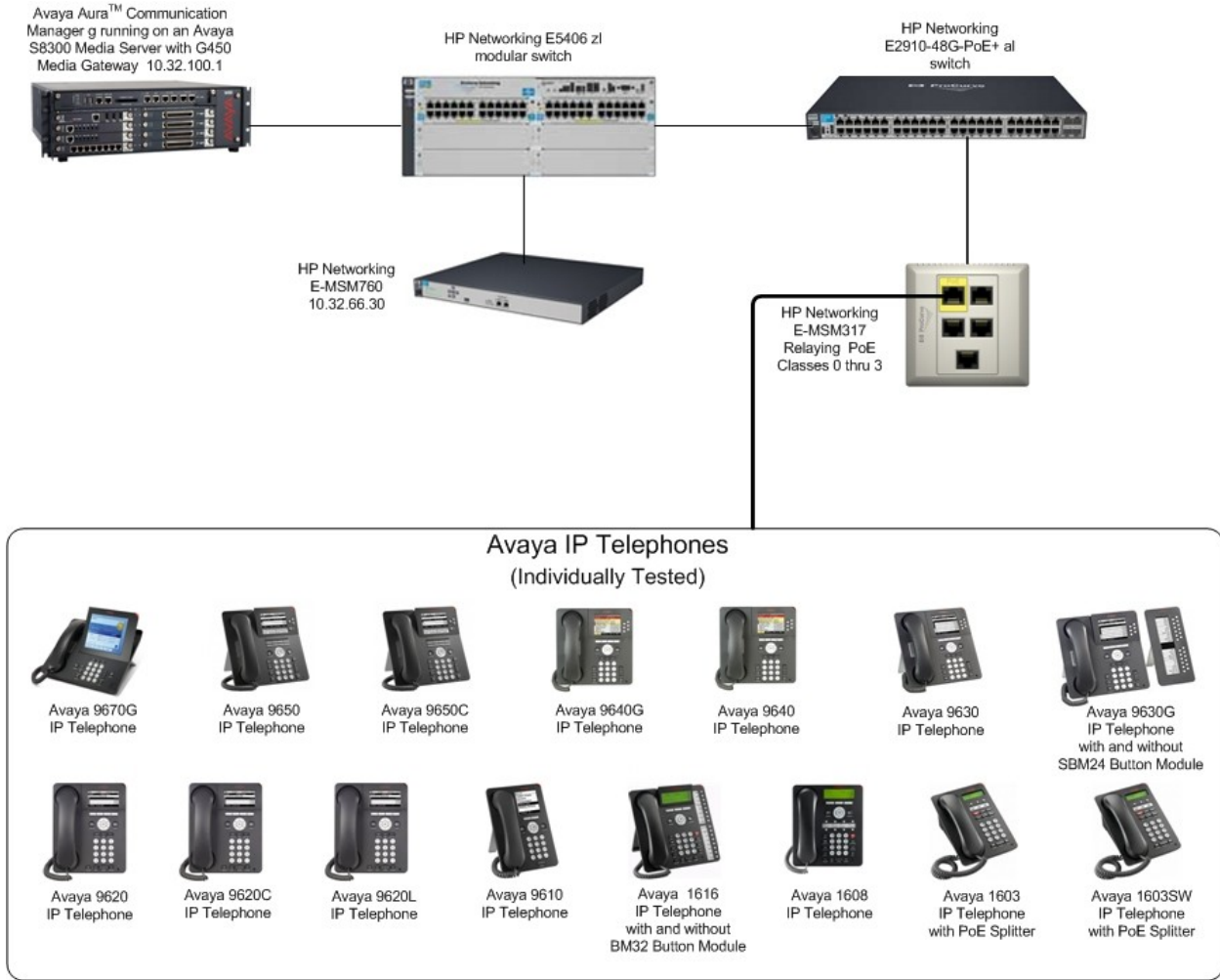See **Table 1** for a detailed list of specific models tested.

Figure 1: HP Networking E-MSM317 MultiService Access Device & Avaya IP Telephones

3. Equipment and Software Validated

The following equipment and software/firmware were used for the sample configuration provided:

Equipment	Software/Firmware
Avaya PBX Products	
Avaya S8300 Server running Avaya Aura™ Communication Manager	Avaya Aura™ Communication Manager 6.0
Avaya G450 Media Gateway (Corporate Site) MGP MM712 DCP Media Module	30.3.2 HW9
Avaya Telephone Sets	
Avaya one-X Deskphone Value Edition 1603 IP Telephone	1.2.2
Avaya one-X Deskphone Value Edition 1603SW IP Telephone	1.2.2
Avaya one-X Deskphone Value Edition 1608 IP Telephone	1.2.2
Avaya one-X Deskphone Value Edition 1616 IP Telephone with and without BM32 32-button module	1.2.2
Avaya one-X Deskphone Edition 9610 IP Telephone	3.1.1
Avaya one-X Deskphone Edition 9620L IP Telephone	3.1.1
Avaya one-X Deskphone Edition 9620 IP Telephone	3.1.1
Avaya one-X Deskphone Edition 9620C IP Telephone	3.1.1
Avaya one-X Deskphone Edition 9630 IP Telephone	3.1.1
Avaya one-X Deskphone Edition 9630G IP Telephone with and without SBM24 24-button module	3.1.1
Avaya one-X Deskphone Edition 9640 IP Telephone	3.1.1
Avaya one-X Deskphone Edition 9640G IP Telephone	3.1.1
Avaya one-X Deskphone Edition 9650 IP Telephone	3.1.1
Avaya one-X Deskphone Edition 9650C IP Telephone	3.1.1
Avaya one-X Deskphone Edition 9670G IP Telephone	3.1.1
HP Networking Products	
HP Networking E-MSM317 MultiService Access Device	5.3.6.0-01-8252
HP Networking E-MSM760 Controller	5.3.6.0-01-8252
HP Networking E2910-48G-PoE+ al switch	W14.38
HP Networking E5406 zl modular switch	K.14.60

Table 1: Equipment and Software Tested

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SPOC 9/28/2010
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4 of 12
HPNE317-PoE03

4. Configure Avaya Aura^{TM} Communication Manager

- No HP Networking E-MSM317 MultiService Access Device specific configuration is required on Avaya Aura^{TM} Communication Manager to support this solution.
- For additional configuration details, refer to Section [9].

5. Configure the HP Networking E-MSM317 MultiService Access Device

The configuration covered here is specific to PoE and does not include configuration of other features available in the HP Networking E-MSM317 MultiService Access Device. Consult the HP Networking E-MSM317 MultiService Access Device configuration manual **[7]** for additional configuration details.

The E-MSM317 has 4 Ethernet ports, one PoE. If the Uplink port of the E-MSM317 is connected to IEEE 802.3af PoE switch, Port 1 will supply PoE to Class 1 to 2 devices directly connected to the unit.

5.1. Enable PoE on the E-MSM317

Log onto the HP Networking E-MSM760 Controller, select **Service Controller** → **Controlled APs** → **Configuration** → **Switch ports** → **Switch port 1**. Select the Power over Ethernet checkbox, Use the drop-down list for Power over Ethernet and select **802.11af Class 0 to 3**. Select Save to continue.

5.2. Synchronize APs

Navigate to the **Discovered APs** configuration page by clicking **Overview → Discovered APs**. Chose "**Synchronize Configuration**" in the pull down tab and click **Apply** to synchronize the configuration.

6. General Test Approach and Test Results

6.1. Test Approach

The general test approach was to:

- Connect the Avaya IP Telephones to ports on the HP Networking E-MSM317 MultiService Access Device and verify that the Avaya IP Telephones successfully booted.

- Power cycle the HP Networking E-MSM317 MultiService Access Device and verify successful boot operation and registration of the Avaya IP Telephones.

6.2. Test Results

All Power over Ethernet test cases completed successfully. The HP Networking E-MSM317 MultiService Access Device successfully relayed inline power to all Class 0 to 3 Avaya IP Telephones listed in **Table2**. **Table 2** lists the measured power of the Avaya IP Telephones when connected to the HP Networking E-MSM317 MultiService Access Device with PoE+ being supplied from the HP Networking E2910-48G-PoE+ al switch. The power measurements by the HP Networking E2910-48G-PoE+ al switch are while the Avaya Endpoints and HP E-MSM317 are under idle conditions.

Note: Cable length and impedance affect power usage, so the measurements listed here may vary based on the cable used.

Table 2 summarizes the measured output of the Avaya IP Telephones and the E-MSM317 together and the Avaya IP Telephones alone. The **Avaya Endpoints Power Measured** column is the **Measured Power (W) (Idle) Avaya Endpoints and HP 317 AP** column minus **3.3W** for the E-MSM317 AP.

Avaya Powered Device	Measured Power (W) (Idle) Avaya Endpoints and HP E-MSM317 AP	Avaya Endpoints Power Measured
1603	8.7	5.4
1603SW	8.4	5.1
1608	8	4.7
1616	6.8	3.5
1616 with BM32	7.4	4.1
9610	8.3	5
9620L	6.3	3
9620	8.7	5.4
9620C	8.2	4.9
9630	9	5.7
9630G	7.1	3.8
9630G with SMB24 Class 3	7.6	4.3
9640	8.2	4.9
9640G	7.1	3.8
9650	9	5.7
9650C	8	4.7
9670	8.2	4.9

Table 2: Measured Power

Note: The IEEE 802.3af PoE standard provides up to 15.4W of power at the power source (PSE). But to account for power dissipated in the cables, only 12.95W is available at the powered device (PD). The IEEE 802.3at PoE+ standard provides up to 25W of power at the powered device (PD).

Table 3 summarizes the maximum output power at the PSE for the IEEE 802.3af classes.

Class	PSE Output Max. Power (W)
0	15.4
1	4.0
2	7.0
3	15.4
4	Class 4 is reserved for future use by PoE+ to provide up to 30W at the PSE

Table 3: IEEE 802.3af Classes

7. Verification Steps

The following steps may be used to verify the configuration of PoE related parameters:

- Connect the Avaya IP Telephone to a PoE enabled port on the HP Networking E-MSM317 MultiService Access Device. If the phone does not boot refer to **Section 5.1.**

- From the HP Networking E2910-48G-PoE+ al switch, verify that PoE is being delivered to the port the E-MSM317 is connected to. Enter the command **show power-over-ethernet <portlist>** where **<portlist>** is the name of the port the E-MSM317 is connected to. Verify that **Power Enable** is **Yes**.

```
Status and Counters - Port Power Status for port 10

  Power Enable       : Yes
                                     LLDP Detect       : disabled
  Priority        : low            Configured Type   :
  AllocateBy      : usage          Value             : 17 W
  Detection  Status : Delivering   Power Class       : 0

  Over Current Cnt  : 0            MPS Absent Cnt    : 1
  Power Denied Cnt  : 0            Short Cnt         : 0

  Voltage         : 55.1 V         Current           : 144 mA
  Power           : 7.9 W
```

- Verify that Avaya 1600/9600 Series IP Telephones have successfully registered to Avaya Aura^{TM} Communication Manager.

8. Conclusion

These Application Notes describe the steps for configuring the HP Networking E-MSM317 MultiService Access Device to relay inline PoE, classes 0 to 3, to Avaya IP Telephones. It was verified that PoE was delivered successfully to all Avaya IP Telephones tested.

9. Additional References

The following Avaya product documentation can be found at http://support.avaya.com.

[1] *Installing and Configuring Avaya Aura™ Session Manager,* Doc ID 03-603473 Release 6
[2] *Administering Avaya Aura™ Session Manager*, Doc ID 03-603324, Release 6.0, June 2010
[3] *Installing and Configuring Avaya Aura™ Communication Manager*, Doc ID 03-603558, Release 6.0 June, 2010
[4] *Avaya one-X Deskphone Edition for 9600 Series IP Telephones Administrator Guide Release 3.1,* Document Number 16-300698
[5] *Avaya 1600 Series IP Deskphones Administrator Guide,* Release 1.3.x

The HP product documentation can be found at: www.hp.com/networking/customercare.

[6] *Management and Configuration Guide for the HP Networking Series 2910 Switches*
[7] *HP Networking E-MSM317 Access Device Installation and Getting Started Guide*
[8] *Command Line Interface Reference Guide for the HP Networking Series 3500yl, 6200yl, 5400zl, and 8212zl Switches*
[9] *Management and Configuration Guide for the HP Networking Series 3500yl, 6200yl, 5400zl, and 8200zl Switches*

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12 of 12
HPNE317-PoE03