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Configuring the Avaya ERS 5520-48T-PWR Switch for Power Over Ethernet with Avaya 9600 Series IP Telephones with Avaya Aura™ Session Manager and Avaya Aura™ Communication Manager – Issue 1.0

Abstract

These Application Notes describe the Power over Ethernet (PoE) configuration of the Avaya ERS 5520-48T-PWR switch, to support 9600 Series IP Telephones, including the new 9608, 9611G, 9621G, and 9641G IP Telephones.

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 Powered Devices (PDs), such as PoE-enabled IP telephones. The Avaya ERS 5520-48T-PWR switch provides 48 10/100/1000 Mbps ports that are PoE capable.
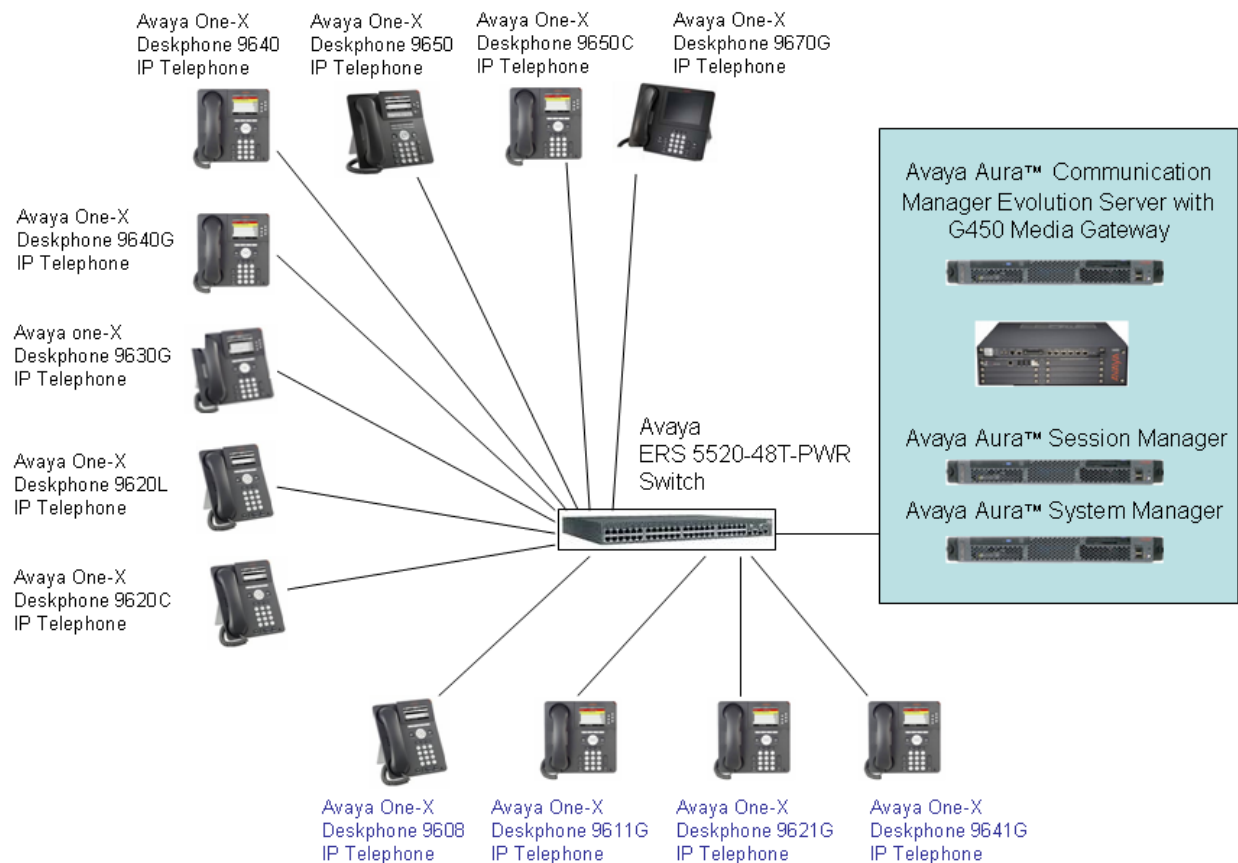
Figure 1 shows the configuration used for PoE testing.

Figure 1: PoE Configuration

2. Equipment and Software Validated

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

DEVICE DESCRIPTION	VERSION TESTED
Avaya S8800 Evolution Server running Avaya Aura™ Communication Manager with Avaya G450 Media Gateway	6.0 (R016x.00.0.345.0)
Avaya Aura™ Session Manager	6.0.0.0.600020
Avaya Aura™ System Manager	6.0.0.0.556-3.0.6.1
Avaya one-X Deskphone 9611GL IP Telephone	6.0.0 SIP (S96x1_SALBR6_0r78_V4r52B.tar)
Avaya one-X Deskphone 9621G IP Telephone	6.0.0 H.323 (S9621_41_HALBR6_0r75_V4r52B.tar)
Avaya one-X Deskphone 9641G IP Telephone	6.0.0 SIP (S96x1_SALBR6_0r78_V4r52B.tar)
Avaya one-X Deskphone 9608 IP Telephone	6.0.0 H.323 (S9608_11HALBR6_0r75_V4r52B.tar)
Avaya one-X Deskphone 9620L IP Telephone	V2.6 (SIP96xx_2_6_0_0.bin)
Avaya one-X Deskphone 9620C IP Telephone	V2.6 (SIP96xx_2_6_0_0.bin)
Avaya one-X Deskphone 9630G IP Telephone	V2.6 (SIP96xx_2_6_0_0.bin)
Avaya one-X Deskphone 9640 IP Telephone	V2.6 (SIP96xx_2_6_0_0.bin)
Avaya one-X Deskphone 9640G IP Telephone	V2.6 (SIP96xx_2_6_0_0.bin)
Avaya one-X Deskphone 9650 IP Telephone	V2.6 (SIP96xx_2_6_0_0.bin)
Avaya one-X Deskphone 9650C IP Telephone	V2.6 (SIP96xx_2_6_0_0.bin)
Avaya one-X Deskphone 9670G IP Telephone	H.323 V3.1.1(ha9670ua3_11.bin)
Avaya ERS 5520-48T-PWR Switch	V5.4.0.008

3. Configuration of the Avaya Endpoints

There is no configuration requirement on the Avaya endpoints to use PoE. For details on configuring Avaya Communication Manager Servers, Gateways, or Endpoints, consult the Administrator Guide for Avaya Communication Manager [1].

4. Configuration of the Avaya ERS 5520-48T-PWR Switch

The configuration steps below focus on the basic commands used for PoE on the 5520-48T-PWR. Additional configuration details are available in the Configuration Guide [2].

A serial port on a PC was used to connect to the serial port of the 5520-48T-PWR switch. A standard terminal emulator was running on the PC. When connected to the switch, the main screen appears and displays the switch model and software versions. The user must press "Ctrl-Y" to reach the menu screen below, then use the arrow keys to select "Command Line Interface..." and press <Return>.

```
                        Ethernet Routing Switch 5520-48T-PWR Main Menu


                        IP Configuration/Setup...
                        SNMP Configuration...
                        System Characteristics...
                        Switch Configuration...
                        Console/Comm Port Configuration...
                        Display Hardware Units...
                        Spanning Tree Configuration...
                        TELNET/SNMP/Web Access Configuration...
                        Software Download...
                        Configuration File...
                        Display System Log...
                        Reset...
                        Reset to Default Settings...
                        Shutdown Command...
                        Command Line Interface...
                        Logout...

Use arrow keys to highlight option, press <Return> or <Enter> to select
option.
```

The user must be in "enable" mode to execute the commands that follow.

```
5520-48T-PWR>enable
5520-48T-PWR#
```

The 5520-48T-PWR switch is enabled to provide PoE on a port by default. The "poe poe-shutdown" command can be used to disable PoE on a port. The commands below show an example to disable PoE on port 14.

```
5520-48T-PWR# config t
5520-48T-PWR(config)#interface FastEthernet 14
5520-48T-PWR(config-if)#poe poe-shutdown
```

To enable PoE on a port, the "no poe-shutdown" command can be used. The commands below show an example to enable PoE on port 14.

```
5520-48T-PWR# config t
5520-48T-PWR(config)#interface FastEthernet 14
5520-48T-PWR(config-if)#no poe-shutdown
```

5. Observations

Table 1 shows the detected class and power allocated from the 5520-48T-PWR switch. IP Telephones were connected directly to the switch. Cables of different lengths were used. Cable length and impedance affects power usage, so the measurements listed here may vary based on the cable used. The power measurements reported here are only for reference purposes, and reflect average consumption in an on-hook idle state.

Avaya Powered Device	802.3af Class	Measured Power While Idle (W)
Avaya one-X Deskphone 9611G IP Telephone	Class 1	2.7
Avaya one-X Deskphone 9621G IP Telephone	Class 2	2.7
Avaya one-X Deskphone 9641G IP Telephone	Class 2	2.7
Avaya one-X Deskphone 9608 IP Telephone	Class 1	1.8
Avaya one-X Deskphone 9620L IP Telephone	Class 1	2.1
Avaya one-X Deskphone 9620C IP Telephone	Class 2	4.0
Avaya one-X Deskphone 9630G IP Telephone	Class 2	4.7
Avaya one-X Deskphone 9640 IP Telephone	Class 2	4.0
Avaya one-X Deskphone 9640G IP Telephone	Class 2	3.8
Avaya one-X Deskphone 9650 IP Telephone	Class 2	4.6
Avaya one-X Deskphone 9650C IP Telephone	Class 2	4.2
Avaya one-X Deskphone 9670G IP Telephone	Class 2	5.0

6. Verification Steps

The following commands can be used with the 5520-48T-PWR to display the device class detected and power provided.

The "show poe-main-status" command can be used to show the global PoE switch status.

```
5520-48T-PWR#show poe-main-status
PoE Main Status - Stand-alone
---------------------------------------------
Available DTE Power        : 320 Watts
DTE Power Status           : Normal
DTE Power Consumption      : 29 Watts
DTE Power Usage Threshold  : 80 %
Traps Control Status       : Enable
PD Detect Type             : 802.3af and Legacy
Power Source Present       : AC Only
AC Power Status            : Present
DC Power Status            : Not Present
```

The "show poe-port-status" or "show poe-port-status *port*" commands can be used to show the port PoE status. The example below shows this information for port 14.

```
5520-48T-PWR#show poe-port-status 14
     Admin     Current                               Limit
Port Status    Status             Classification     (Watts)  Priority
---- -------   ----------------   --------------     -------  --------
14   Enable    Delivering Power        1             16       Low
```

The "show poe-power-measurement" or "show poe-power-measurement *port*" commands can be used to show the power used on a PoE port. The example below shows this information for port 14.

```
5520-48T-PWR#show poe-power-measurement 14
Port  Volt(V)  Current(mA)   Power(Watt)
----  -------  -----------   ---------------
14     48.3     55              2.656
```

7. Conclusion

These Application Notes described the configuration of the Avaya ERS 5520-48T-PWR switch to provide PoE for Avaya 9600 Series IP Telephones, including the new 9608, 9611G, 9621G and 9641G IP Telephones The Avaya ERS 5520-48T-PWR switch was able to power all devices tested.

8. Additional References

The Avaya product documentation is available at http://support.avaya.com.

[1] Administering Avaya Aura™ Communication Manager; Release 6.0.

[2] Ethernet Routing Switch 5000 Series; Configuration - System.