Avaya Solution & Interoperability Test Lab

Application Notes for configuring Phybridge PoLRE Switch with Avaya IP-DECT System and Avaya IP Office Server Edition 10.0 – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Phybridge PoLRE Switch to interoperate with Avaya IP-DECT System and Avaya IP Office Server Edition 10.0. In the compliance testing, the Phybridge PoLRE Switch leveraged Cat3 single-pair telephony wiring to provide dedicated Ethernet voice path and Power over Ethernet to Avaya IP-DECT System.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as the observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

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. Introduction

These Application Notes describe a compliance-tested configuration consisting of Phybridge PoLRE Switch, Phybridge Phylink adapters, Avaya IP Office Server Edition 10.0 and Avaya IP-DECT System. The Phybridge PoLRE Switch is a LAN appliance that leverages CAT3 single-pair telephony wiring to provide dedicated Ethernet and Power over Ethernet to Avaya IP-DECT System.

PoLRE Switch has a reach of over 1200 feet (365m) and is capable of delivering power and signalling over a single pair CAT3 cable. A Phylink Adapter is installed at each IP endpoint, carrying the power and signalling to the connected IEEE 802.3af compliant end devices. The default PoLRE Switch/Phylink Adapter configuration supports IP phones and provides a plug and play solution for replacing a legacy voice network using the existing network cabling plan. Up to 48 IP phones can be powered from a single PoLRE Switch. Other IEEE 802.3af compliant devices can be brought into the network including IP cameras, IP TVs, remote door locks, etc., in addition to IP phones.

2. General Test Approach and Test Results

The compliance testing focused on the interoperability between Phybridge PoLRE Switch and Avaya IP-DECT System to ensure that the DECT handsets work as expected. Serviceability testing was also performed.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

2.1. Interoperability Compliance Testing

Testing consisted of typical call scenarios involving Avaya IP-DECT handsets registered to Avaya IP-DECT Base Stations connected to the PoLRE Switch. The test included 1000ft of Cat3 cable to verify the extended range that the PoLRE Switch provides. External call scenarios were also tested with a simulated PSTN connection. All tests were performed manually and the focus was on verifying interoperability compliance.

The Phybridge PoLRE Switch communicates with the Avaya IP-DECT Base Station using a CAT3 unshielded pair cable. The DECT base station communicates with IP Office using a proprietary IP DECT Line that connects to the IP Office. The DECT handsets register to the DECT base station and to IP Office as IP-DECT endpoints.

The testing focuses on the following areas:
- **Register DECT Handsets** – Handsets register to Avaya DECT Base Station and IP Office.
- **Basic Calls** – Basic incoming and outgoing calls using DECT Handsets.
- **Call Hold** – Tests held calls.
- **Call Transfer** - Tests transferred calls.
- **Call Conference -** Tests conferenced calls.
- **MWI** – Leaving and retrieving messages and insuring that MWI is maintained correctly.
- **Roaming Handover –** Handset registration moves to second Base Station when out of range.
- **Serviceability tests –** The serviceability testing focused on verifying the ability of Phybridge PoLRE Switch to recover from adverse conditions, such as disconnecting and reconnecting the Ethernet cables to the Phybridge PoLRE Switch. Power cycling of Phybridge PoLRE Switch was also tested.

2.2. Test Results

All applicable test cases were executed and passed successfully.

2.3. Support

Technical support on the Phybridge PoLRE Switch can be obtained through the following:
- Technical Support Hours and Contact Information:
  http://www.nvtphybridge.com/support-ticket/
- Email: support@nvtphybridge.com
- Web: http://www.nvtphybridge.com/portfolio-item/polre/#tab-id-1

3. Reference Configuration

In the test configuration shown in **Figure 1** Avaya IP-DECT System is connected to the Phybridge PoLRE Switch leveraging CAT3 cabling. For each IP-DECT System, one end of the CAT3 cable is connected to the Phybridge PoLRE Switch. The other end of the CAT3 cable connects to a Phybridge Phylink adapter with an RJ11 connector. Each Phylink adapter is connected using a standard CAT5 Ethernet cable to an Avaya IP-DECT System. DECT handsets were registered to IP Office 500 V2 Expansion.
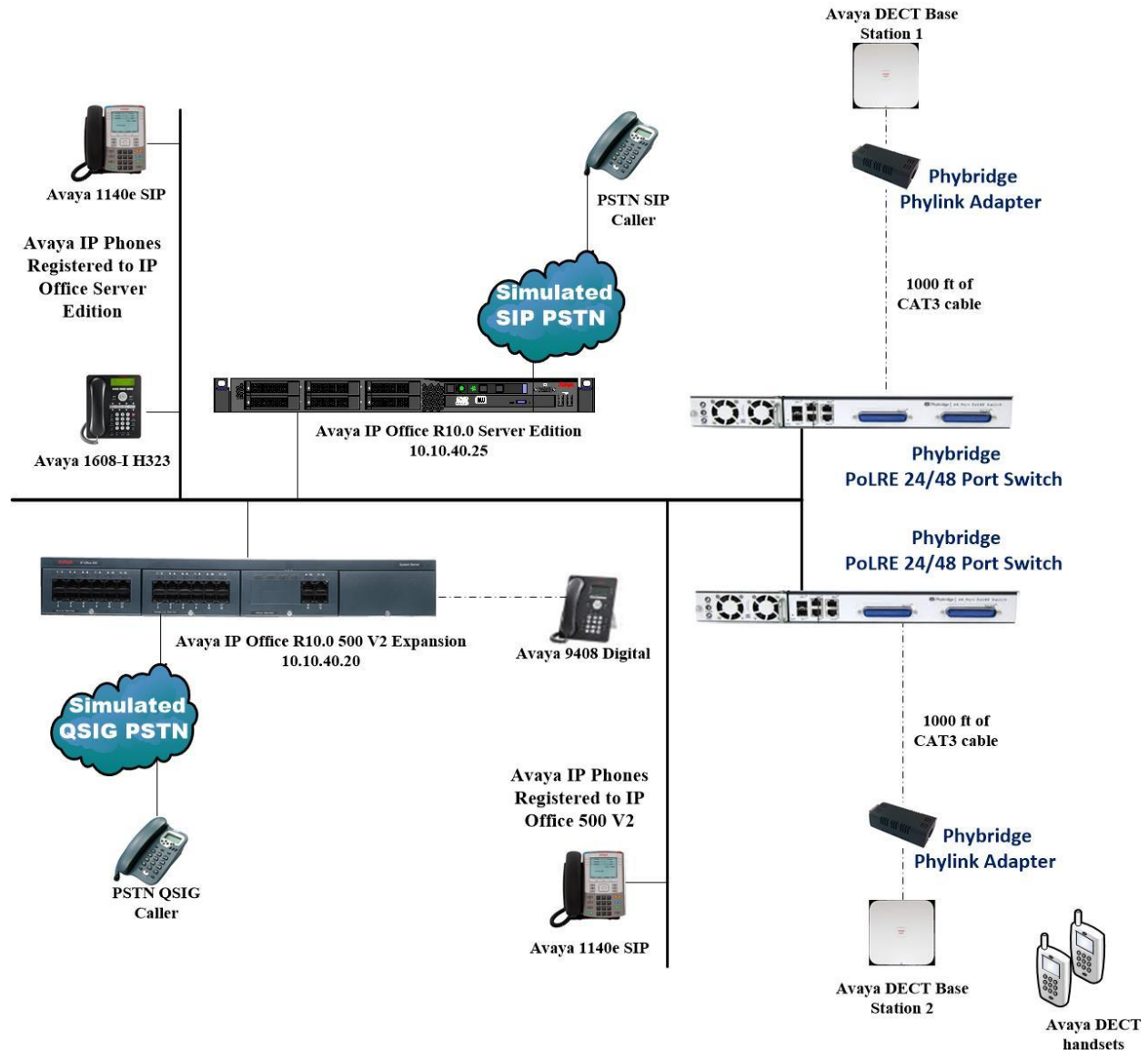

Figure 1: Phybridge PoLRE Switch with Avaya IP-DECT System and Avaya IP Office Server Edition 10.0

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4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya IP Office Server Edition running on a Virtual Platform	R10.0.0.0 Build 550
Avaya IP Office 500 V2 expansion cabinet	R10.0.0.0 Build 550
Avaya IP Office Manager for Server Edition running on a Windows 7 PC	R10.0.0.0 Build 550
Avaya 1608 I Deskphone H323	R1608UA1_350B.bin
Avaya 1140e SIP	R04.03.12.00
Avaya Digital 9408	V2.0
Avaya IP-DECT Base Station Hardware [IPBS2-C3/1B1]	IPBS [5.0.11]
Avaya DECT Handsets	3725 DH4 (R3.3.11) 3720 DH3 (R3.3.11)
AC power Adapter	POE75U-1U-AV
Phybridge Phylink	R1.4
Phybridge PoLRE 24/48 Port Switch	R3.4.0

Compliance Testing is applicable when the tested solution is deployed with a standalone IP Office 500 V2 and also when deployed with IP Office Server Edition in all configurations.

5. Configure Avaya IP DECT on Avaya IP Office

No special configuration is required for IP DECT handsets to interoperate with PoLRE Switch. It is assumed that IP Office has already been installed and is functioning. The addition of the PoLRE Switch is to an existing fully functioning site and would not require any configuration on the Avaya solution.

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6. Configure Phybridge PoLRE Switch

The Phybridge PoLRE is a managed switch therefore no additional configuration is necessary to connect to the Avaya IP-DECT System. However, to check the GBE uplink port status within the PoLRE GUI Management and to review the PoLRE GBE Uplink Port(s) see **Section 7.2**. Additional information in the setup and configuration of the PoLRE Switch can be found in **Section 9** of these Application Notes.
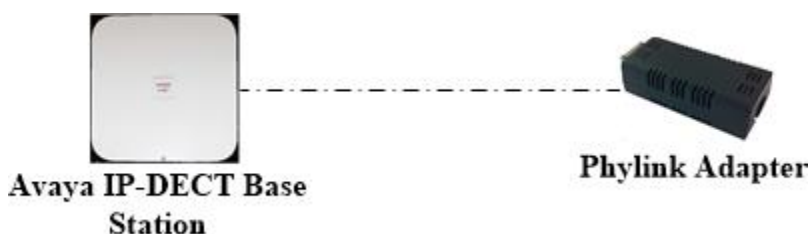
Note that additional services can be turned on / off via the PoLRE GUI Management e.g. VLANs and Services Tab e.g. HTTP, SNMP, LLDP, Telnet. STP, NTP and features such as MAC Port Locking and Turn off and on ports. The integrated command line (CL) can be used by going to the GUI Terminal Tab. Encryption services such as TACACS+ or Radius and HTTPS require PoLRE's enhanced software package. Please contact Phybridge technical support for the enhanced software package and upgrade instructions if required using, http://www.nvtphybridge.com/support-ticket/

The only manual intervention required for this solution is to physically bring the PoLRE Switch and the Phylink Adapters onto the network in order to allow each of the IP-DECT Base Stations connect to the IP Office over 1000ft of CAT3 cable.

Connect the Amphenol cable to the PoLRE Switch

Phybridge PoLRE 24/48 Port Switch

Connect the Phylink Adapter

Avaya IP-DECT Base Station

Phylink Adapter

Complete the connection to IP Office

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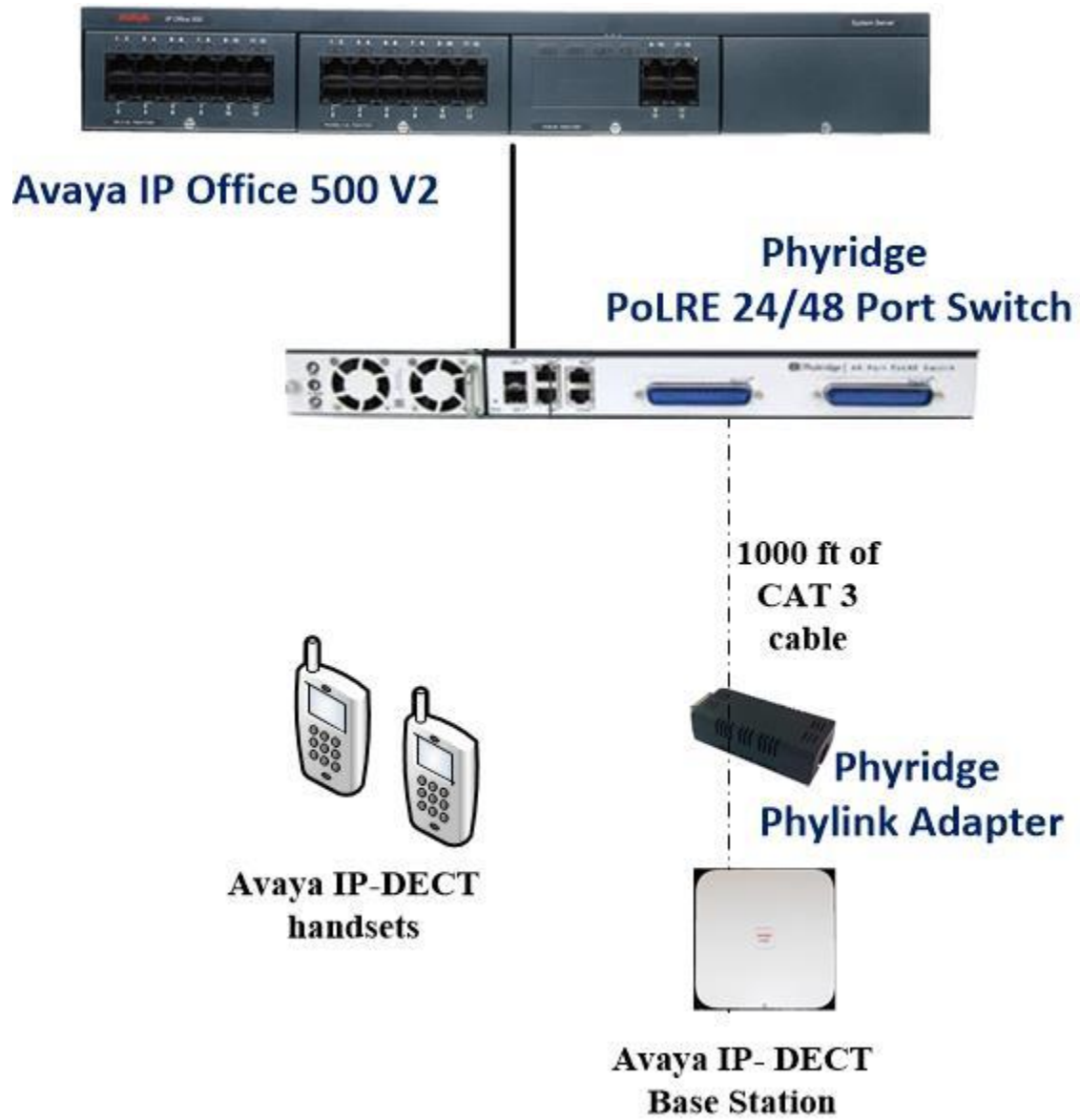
7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of IP Office and PoLRE Switch.

7.1. Verify Avaya IP-DECT System

This section describes the steps needed to verify the connectivity of the IP-DECT System to the PoLRE Switch. Browse to the IP Address of the IP-DECT System and select **System administration** as shown below, a new window will open for login (not shown) and log in using valid credentials.
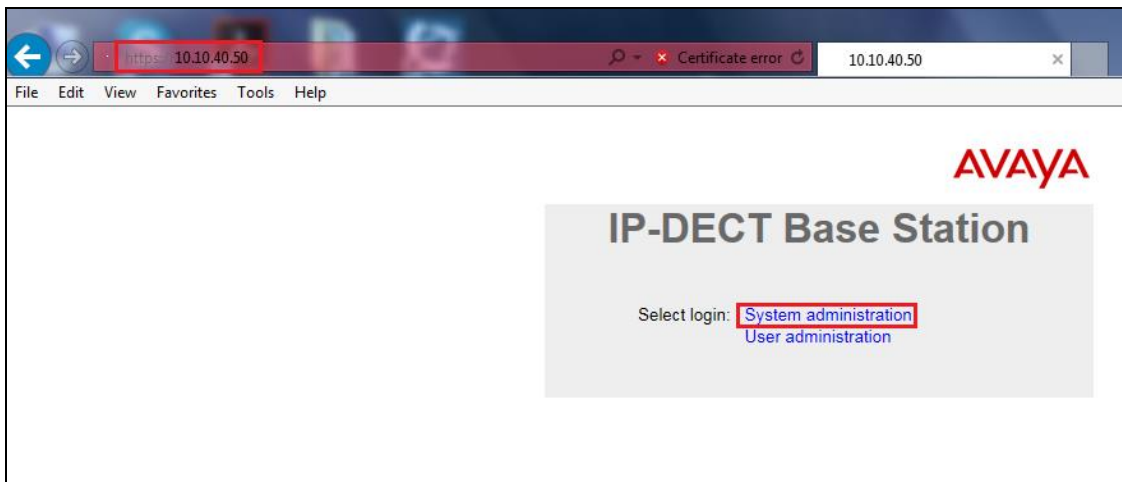
Select **Users** in the left window and the DECT handsets should show as **Subscribed** as shown below, proving that the handsets can talk to the base station.

Click on **Device Overview** in the left window and the base station radios should be displayed as shown below and showing **OK**.

7.2. Verify Phybridge PoLRE Switch

This section describes the steps needed to verify the connectivity of the PoLRE Switch to the IP-DECT System. Browse to the IP Address of the PoLRE and login using valid credentials the initial screen is an overview of the configuration as shown below.

Click on the **OVERVIEW** tab Check that **UPLINK G1** is showing as Green and that the number of IP-DECT Systems is shown under **DOWNLINK** as **UP**.

The IP Office IP Address, Net Mask, Broadcast and Default Gateway can also be reviewed here.

8. Conclusion

These Application Notes describe the configuration steps required for Phybridge PoLRE Switch to interoperate with Avaya IP-DECT System and Avaya IP Office. Applicable test cases were completed successful and passed.

9. Additional References

This section references the product documentation relevant to these Application Notes. Documentation for Avaya IP Office can be found at http://support.avaya.com.

[1] *Administering Avaya IP Office Platform with Manager* Release 10.0 September 2016
[2] *Using IP Office Platform Server Edition*
[3] *IP Office DECT R4 Installation* 15-601047 Issue 07a - (29 September 2016)

Documentation for Phybridge products may be found at http://nvtphybridge.com
[4] PoLRE Manual:
    http://www.nvtphybridge.com/wpcontent/uploads/2016/01/polre_manual_en-us.pdf
[5] Release Notes: *http://www.nvtphybridge.com/portfolio-item/polre/#tab-id-5*