

Avaya Solution & Interoperability Test Lab

Application Notes for Phybridge PoLRE LPC with Avaya IP Office Server Edition 9.1 – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Phybridge PoLRE LPC to interoperate with Avaya IP Office Server Edition 9.1. In the compliance testing, the Phybridge PoLRE LPC leveraged the existing single-pair telephony wiring to provide dedicated Ethernet voice path and Power over Ethernet to Avaya SIP and H.323 IP telephones registered to Avaya IP Office Server Edition 9.1 Linux Server and 500V2 expansion.

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.

1. Introduction

These Application Notes describe a compliance-tested configuration consisting of Phybridge PoLRE LPC, Phybridge Phylink adapters, Avaya IP Office Server Edition 9.1 and Avaya IP telephones (H.323 and SIP).

The Phybridge PoLRE LPC is a LAN appliance that leverages the existing single-pair telephony wiring to provide dedicated Ethernet and Power over Ethernet to Avaya IP telephones (H.323 and SIP).

2. General Test Approach and Test Results

The compliance testing focused on the interoperability between Phybridge PoLRE LPC and Avaya IP telephones to ensure that the phones 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 endpoints connected to PoLRE LPC. External call scenarios were also tested with a simulated PSTN connection. All tests were performed manually and the focus was on verifying interoperability compliance.

Feature testing included registration, audio codec, basic calls, hold/reconnect, conference, transfer, display, DTMF, Speaker Phone and message waiting indicator (MWI) scenarios.

The serviceability testing focused on verifying the ability of Phybridge PoLRE LPC to recover from adverse conditions, such as disconnecting and reconnecting the Ethernet cables to the Phybridge PoLRE LPC and to the Avaya IP telephones. Power cycling of Phybridge PoLRE LPC was also tested.

2.2. Test Results

All applicable test cases were executed and passed with following observation:

The Avaya B179 Conference phone needed to be powered with its local power supply, connected to the Phylink Adapter with an Ethernet cable and adapter connected to PoLRE-LPC with a 986ft RJ11 cable as per Figure 1. This configuration was used because the B179 phone required more PoE power than could be supplied by UniPhyer. Other Class 3 endpoints may also require this configuration. UniPhyer Switches can power Class 1, Class 2 and some Class 3 IEEE 802.3af compliant IP devices.

In the same scenario, using 30ft RJ11 cable, without using power cord, B179 able to start up and register to IP Office as expected.

2.3. Support

Technical support on the Phybridge PoLRE LPC can be obtained through the following:

- **Phone:** (888) 901-3633
- Email: <u>Support@Phybridge.com</u>

3. Reference Configuration

In the test configuration shown in **Figure 1**, Avaya IP telephones are connected to the network via the Phybridge PoLRE LPC leveraging the existing CAT3 cabling that was previously used for Analog and Digital phones. For each station user, one end of the CAT3 cable is changed to connect to the Phybridge PoLRE LPC instead of the Analog or Digital Line circuit pack on IP Office. 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 telephone.

In the sample configuration Avaya H.323 and SIP IP telephones register to IP Office Server Edition 9.1 which included Linux Server and 500 V2 Expansion.

The Phybridge PoLRE LPC provides power to the Avaya IP telephones, and is transparent to the telephones in terms of the telephones' network settings.

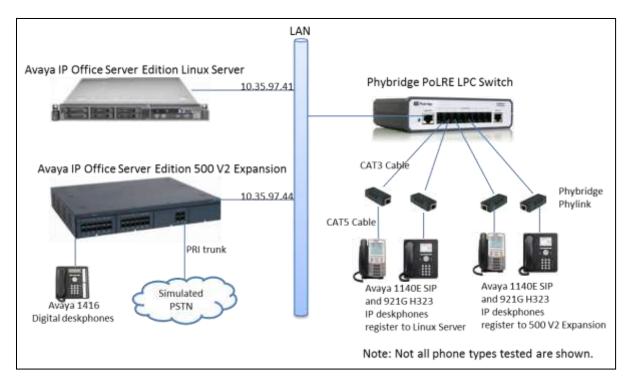


Figure 1: Phybridge PoLRE LPC Switch with Avaya IP Office Server Edition 9.1

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 9.1 Linux Server | 9.1 Build 437 |
| Avaya IP Office Server Edition 9.1 500V2 Expansion | 9.1 Build 437 |
| Avaya 9621G IP Deskphone (H.323) | 6.4014 |
| Avaya 9611G IP Deskphone (H.323) | 6.4014 |
| Avaya 1140E IP Deskphone (SIP) | 04.04.18.00 |
| Avaya 9650 IP Deskphone (H323) | 3.2.3 |
| Avaya 1608-I IP Deskphone (H323) | 1.3.7 |
| Avaya 1220 IP Deskphone (SIP) | 4.4SP2 |
| Avaya B179 Conference Phone (SIP) | 2.4 |
| Phybridge Phylink | PL-PA011 |
| Phybridge PoLRE LPC Switch | PL-08 |

Compliance Testing is applicable when the tested solution is deployed with a standalone IP Office 500 V2 and also when deployed with all configurations of IP Office Server Edition without T.38 Fax Service.

5. Configure Avaya IP Phones on Avaya IP Office

No special configuration is required for Avaya H.323 and SIP IP phones to interoperate with PoLRE LPC. For completeness this section provides the procedures for configuring Avaya H.323 and SIP IP phones on IP Office. It is assumed that IP Office has already been installed and is functioning.

In a typical installation of Phybridge PoLRE LPC, analog and digital telephones using existing CAT3 cabling would be replaced with new IP telephones as described in **Section 3**. This section shows examples of modifying an existing station and configuring a new Avaya H.323 or SIP IP telephone, and allows the user to retain the same extension number.

5.1. Verify IP Office License

This section explains the steps to verify if the license status for Avaya IP endpoints is valid. Open the IP Office Manager by navigating to **Start** \rightarrow **Programs** \rightarrow **IP Office** \rightarrow **Manager** on the server IP Office Manager is installed on. Log in with the appropriate credentials (not shown).

To verify license on Linux server, from the configuration tree in the left pane, browse to Linux Server, in this example it is **DevCon IPO Serv1**, select **License** to display the License screen in the right pane. Verify that the License **Status** is **Valid** for **Avaya IP endpoints**.

| G Operator (3) | 1 - C | | | | | | |
|--|--|---|-----------|----------|-------------|----------|--------|
| Solution User(19) | The second secon | La resulta da construcción de la co | 1000 | Lat. S | | | 2871 |
| E Group(1) | Feature | License Key | Instances | Status | Expiry Date | Source . | Add |
| E Short Code (47) | 3rd Party IP Endpoints | RQ2vTVPvAcxNVHCkFu6oH_r96o80859 | 255 | Valid | Never | ADINod | |
| Directory(0) | Advanced Edition | DdgtoButShK3bTu32uhg@kdjws@kCE3 | 255 | Obsolete | Never | ADE Nod | Remove |
| Time Profile(0) | Allow Virtualization | n/D//dB5et5qC491PJAcyHUR9Lh_OOe@c | 255 | Valid | Never | ADI Nod | |
| 🛞 🧠 Account Code(2) | AUOD: Voicemail | AyVXOW/EXG3nbmePzcdwx490kVdVVP9 | 255 | Obsolete | Never | ADI Nod | |
| 🖶 🌆 User Rights(9) | Avaya Contact Center Select | AAcGrv6zlqF0@7ng1Exb1Q40V60zDR0C | 255 | Valid | Never | ADE Nod | |
| Example 2 Contraction (1) | Avaya IP endocints | UT1sGmgetSL1tMxpknc05W4cp3@80Wicx | 255 | Valid | Never | ADI Nod | |
| 🖯 🖘 DevCon IPO Sev1 | Avaya Softphone License | ttBub@53vGsOFDbpkpe3xoq9EgOOtfNe | 255 | Obsolete | Never | ADI Nod | |
| 🛞 🔫 System (1) | CTI Link Pro | TvKrtzoHvs61v9ou5AeLHu_iEG00M0C | 255 | Valid | Never | ADE Nod | |
| ⊕ -{? { Line (3) } | DECT Integration (ports) | hy0VQg5tvKybmeClesx54djGnz0Yd5 | 255 | Obsolete | Never | ADI Nod | |
| 🛞 🖘 Control Unit (9) | Essential Edition | dtt8Vgo90UkCKm0mHeeokk6seg200e_x | 255 | Obsolete | Never | ADI Nod | |
| Extension (8) | 1P500 Universal PRI (Addition | XyyAsph/tGf0a9zfWe9L3kdsv92N8@H | 255 | Valid | Never | ADE Nod | |
| 1 User (14) | IP500 Voice Networking Chan | 2TuWKDm9vjA109xPQYcomp_srvrEKeDW | 255 | Obsolete | Never | ADI Nod | |
| 🗉 🎇 Group (1) | Mobile Worker | Xvy@sWmrAvpeD2J1iem8so9Mk_@DuSB | 255 | Obsolete | Never | ADI Nod | |
| 1 9X Short Code (7) | Office Worker | 0ADw1m6CtvGc3V0HHNxxB2x9Ov_90 | 255 | Valid | Never | ADL Nod | |
| Service (0) | Phone Manager Pro | D4ar9LuAAtxD9ReP1x0r87003 NV7dm | 255 | Obsolete | Never | ADI Nod | |
| Go Incoming Call Route If Incoming Call Route If Incoming Call Route | Phone Manager Pro (ner seat) | GWPVF6mXtv/LhFzWnrn5F_0D3xnDz9* | 755 | Obsolete | Never | ADENO | |

From the configuration tree in the left pane, browse to Expansion, in this example it is **DevCon IPOS Exp**, select **License** to display the License screen in the right pane. Verify that the License **Status** is **Valid** for **Avaya IP endpoints**.

| Configuration | | | | | | (1-1) | $\times \times \times$ |
|---|--------------------------------------|----------------------------------|-----------|--------|-------------|-----------|------------------------|
| Group(1) Short Code (47) Directory(0) | License Remote Server | | | | | | |
| Time Profile(0) | Feature | Liomse Key | Instances | Status | Expiry Date | Source | Add |
| E Liser Rights(9) | IPS00 Universal PRI (Additional chan | mycnfx55EQ4L2LM2TN_p_read_K | 255 | Valid | Never | ADI Nodal | |
| E Ha Location(1) | Avaya IP endpoints | Virtual Avaya IP Endpoints Local | 12 | Valid | Never | vetual | Renove |
| E - W DevCon IPO Sev1 | Server Edition R9.1 | Virtual Server Edition R9.1 | 1 | Vabd | Never | Virtual | |
| S - DevCon IPO5 Exp | SIP Trunk Channels | Virtual SIP Trunk Channels | 254 | Vaãd | Never | Virtual | |
| 11: 190 System (1) | Power User | Virtual Power User | 1 | Valid | Never | Virtual | |
| 田 - (F) Line (4) | | | | | | | |
| III Control Unit (4) | | | | | | | |
| E- Ap Extension (28) | | | | | | | |
| E User (7) | | | | | | | |
| 🛞 🙀 Group (1) | | | | | | | |
| Short Code (6) | | | | | | | |
| | | | | | | | |
| E Cal Route | | | | | | | |
| WAN Port (0) | | | | | | | |
| E (1) Eresal Profile (1) | | | | | | | |
| IP II IP Route (1) | | | | | | | |
| S License (5) | | | | | | | |
| - iliki Tunnel (0) | | | | | 11 | 11 | 10 |
| E 4R5 (2) | | | | | CH. | Captre | Help |
| 117 April 1 monthly (11) | 2 | | | | | | |

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5.2. Changing Existing Extension

In this section, an existing analog extension will be modified to allow the old extension number to be used for a new IP phone. This would also apply to changing an existing digital extension.

From the configuration tree in the left pane, select **Extension** followed by the specific extension that will be changed to an IP phone. Change the **Base Extension** to an available extension. In this example it was changed to "28299", so that the old extension "28232" can be reused with the new Avaya IP telephone. Click on **OK** when finished.

| IP Offices | Analogue Extension: 32 28232° | |
|---|---|----------------|
| P Offices 102 28202 103 28203 104 28204 105 28205 107 28207 108 28208 109 28209 100 28209 100 28210 111 28211 112 28212 113 28213 114 28214 115 28215 116 28216 25 28225 26 28225 26 28225 26 28225 27 28227 27 28228 29 28228 29 28228 29 28228 29 28228 29 28228 29 28228 29 28228 29 28228 29 28228 29 28228 29 28228 29 28228 29 28228 29 28228 29 28228 29 28228 29 28228 20 28228 20 28238 20 28 2838 20 28 28 20 28 28 20 28 28 20 28 28 20 28 28 20 28 28 20 28 28 20 28 28 20 28 28 20 28 28 20 28 28 20 28 28 20 28 28 20 28 28 20 28 28 20 28 | Extension Id 32 Base Extension 20299 Caller Display Type On V Device Type Soft System (None) V Module BP2 Port 8 | |
| B020 28234 | | OK Cancel Help |

5.3. Configure an Avaya H.323 Phone

In this section, a new H.323 IP telephone will be configured to replace the extension that was removed in **Section 5.2**.

From the configuration tree in the left pane, right-click on **Extension** and select New \rightarrow H323 **Extension** from the pop-up list to add a new H.323 extension (not shown). Enter the original extension "28232" from Section 5.2 into the Base Extension field, as shown below. Defaults can be used for the remaining fields. Click on OK when finished.

| IP. Offices IP H323 Extension: 8010* ● Geventor (3) ● Lexton IPO 1 ● Lexton IPO 1 ● System (1) ● DevCon IPO Sev1 ● Lexton Id ● Base Extension ● T323 Extension: 8010* ● DevCon IPO Sev1 ● Lextonsion Id ● Base Extension ● T32 Extension IPO Sev1 ● Base Extension ● Base Extension ● T32 Extension (45) ● Base Extension ● Base Extension ● 101 28201 ● 102 28202 ● Base Extension ● Base Extension ● 102 28203 ● 104 28204 ● Device Type ● Device Type ● 105 28205 ● 106 28205 ● Device Type ● Device Type | H323 Extension: 8010 * | | di · BIXIVI × I× | |
|--|--|----------------|------------------|-------------|
| | Extn VolP | | | |
| 문 색 System (1) 영 DevCon IPO Sev1 표 주역 Line (21) 문 주 Control Unit (5) | Base Extension | | | |
| 101 28201 102 28202 103 28203 104 28204 105 28205 | Reset Volume After Calls | | × | |
| 107 28207 108 28208 109 28209 110 28210 111 28211 112 28212 113 28213 114 28214 | Location Module Port Disable Speakerphone | Automatic 0 | × | |
| 115 28215 116 28216 25 28225 | | | ок | Cancel Help |

For security, H.323 IP phones can have a password assigned to register with IP Office. To add the password, navigate the configuration tree in the left pane. Click on **User** and then select the user to change. In this example "**28232**" is used. Now select the **Telephony** tab and the **Supervisor Settings** sub tab. In the **Login Code** field enter a password to be used at log in of the H.323 phone. Click on **OK** when finished.

| IP Offices | Extn28232: 28232* | 🗂 • 🔄 🗙 🖓 🗠 |
|---|--|--------------------|
| 28209 Extn28209 28210 Extn28210 28211 Extn28211 28212 Extn28212 28213 Extn28213 | Menu Programming Mobility Group Membership Announcements SDP Personal Directory User Volcenal DND Short Codes Source Numbers Telephony Porwarding Dial In Volce Recording Call Settings Supervisor Settings Multi-line Options Call Log TUI | Button Programming |
| 28215 Extn28215 28216 Extn28216 28225 Extn28225 | Login Code Porce Login Login Ide Period (secs) Porce Account Code | |
| 28226 Extn28226 28227 Extn28227 28229 Extn28229 28230 Extn28230 | Monitor Group Chore> Image: Group Chore> Image: Group Chore> Image: Group Image: Group | |
| 28231 Extn28231 28232 Extn28232 28233 Extn28232 | Status on No-Answer Logged On (No change) Cutgoing Call Bar Result Longest Idle Toxe | d/Transfer |
| 28234 Extr28234 28240 Extr28240 28242 Extr28242 28243 Extr28243 | Al Cals Can Intrude Con Intrude Control to Entruded Control to Entruded Contrace Cals | |
| - 28243 Extra8243 - 28244 Extra8244 - 28245 Extra8245 - 28245 Extra8245 | CCR Agent | |
| 28247 Extn28247 28248 Extn28248 28253 Extn28253 | | OK Cancel Help |

5.4. Configure an Avaya SIP Phone

In this section, a new SIP IP telephone will be configured to replace extension 28231 that was removed the same as extension 28232 in **Section 5.2**.

From the configuration tree in the left pane, right-click on **Extension** and select **New** \rightarrow **SIP Extension** from the pop-up list to add a new SIP extension (not shown). In the **Base Extension** field Enter extension "**28231**". Click on **OK** when finished.

| IP Offices | SIP Extension: 8010 * | 11 - 페 × < > |
|--|--|--------------------|
| - 行え 216 田 | Extr VolP T38 Fax | |
| | Extension Id 6010 Base Extension 28231 Caller Display Type 01 Reset Yolume After Calls | |
| 106 28206 107 28207 107 28207 109 28209 109 28209 10 28210 111 28211 112 28212 112 28212 | Device Type Average Elif director Location Automatic Module 0 Port 0 | |
| ▲ 13328213 ▲ 13428214 → 11528215 ▲ 11628216 → 2528225 ▲ 26225 ▲ 268226 ▲ 2728227 → 2028228 | Force Authorization | |
| 29 28229 30 28230 8027 28232 | | OK Cancel Help |

For security SIP IP phones require a password to register with IP Office. To add the password, navigate the configuration tree in the left pane. Click on **User** and then select the user to change. In this example "28231" is used. Now select the **Telephony** tab and the **Supervisor Settings** sub tab. In the **Login Code** field enter a password to be used at log in of the SIP phone. Click on **OK** when finished.

| IP Offices | Alexandree Status Alexandree Status | |
|---|---|-----|
| 28204 Extra28204 28205 Extra28205 28206 Extra28206 | User Vocemail DND Short Codes Source Numbers Telephony Forwarding Dail In Voce Recording Button Programming | |
| 28207 Extra2020 28208 Extra28208 28209 Extra28208 28210 Extra28210 28211 Extra28210 28212 Extra28212 28213 Extra28213 28213 Extra28213 | Login Code *****i Image: Porce Login Login Idle Period (secs) Image: Porce Account Code Monitor Group <none> Image: Porce Authorization Code</none> | × |
| 28216 Extn28216 28225 Extn28225 28226 Extn28226 28227 Extn28227 28229 Extn28229 28230 Extn28230 28231 Extn28231 | Status on No-Answer Logged Cri (No drange) Image: Coll Bar Reset Longest Ide Time Ishibit Off-Switch Forward/Transfer Image: All Calls Image: Can Introde | |
| 28232 Extra28232 28233 Extra28233 28234 Extra28234 | CCR Agent | × × |

6. Configure Phybridge PoLRE LPC

The Phybridge PoLRE LPC is an unmanaged switch and therefore there is no configuration.

7. Verification Steps

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

7.1. Verify Avaya IP Office

The status of the new IP phones can be verified as follows. From a PC running the IP Office Manager application, select Start \rightarrow Programs \rightarrow IP Office \rightarrow System Status to launch the application. The Avaya IP Office System Status Logon screen is displayed (not shown). Enter the appropriate credentials. From the left panel expand Extensions and then select the appropriate extension number. The status of the selected extension can now be viewed in the right panel.

| -urije. | | | AF OI | nee syste | em Status | 2. | | |
|-------------------------|--------------------------------|--|----------------------|---|------------------|--|---|---|
| p Snapshot LogOff Ex | e About | | | | | | | |
| system & Alarma (41) | | | | Extension 9 | Status | | | |
| Estensions (26) | Extension Nun | obaat | 28233 | - | 100 M 100 | | | - |
| 20201 | IP address: | inder : | 10.33.5.24 | | | | | |
| 28202 | MAC address: | | 84-80-17-95-92-A0 | | | | | |
| 28203 | Active Locatio | | None | | | | | |
| 28204 | | nc. | Primary | | | | | |
| 26205 | Gatekeeper: | 12 C | 9650 | | | | | |
| 28207 | Telephone Typ Firmware Vers | | | | | | | |
| 28208 | | State of the state | 3,200 | | | | | |
| 28209 | | Extension Number: | 28233 | | | | | |
| 28210 | Current User I | Name: | Extn28233 | | | | | |
| 26211 | Forwarding: | | Off | | | | | |
| 26212 26213 | Twinning: | | Off | | | | | |
| 28214 | Do Not Disturb: | | off | | | | | |
| 28215 | Message Waiting: | | Off | | | | | |
| 28216 | Number of Ne | w Messages: | a | | | | | |
| 28225 | Phone Manage | er Type: | None | | | | | |
| 28226 | Licensedi | | Yes | | | | | |
| 28227 | License Reserv | ved | No | | | | | |
| 26228 | Last Date and | Time License Allocated: | 12/8/2013 8:53:59 PM | 1 | | | | |
| 28229 | Packet Loss Fr | action: | | Connection Type: | | | | |
| > 28233 | Ster: | | | Codec: | | | | |
| 28234 | Round Trip Delay: | | | Remote Media Add | tress: | | | |
| 28298 | the area to g be | 5740 | internet and | The second se | NASS | - Carlo - Carl | 2010-00-00-00-00-00-00-00-00-00-00-00-00- | _ |
| 26299 | Button Number | Button Type: Call Ref. | Current State | Time in State | Caling hunder or | Direction | Other Party on Cal | |
| runikli (5) | | 7A |)de | 69,9907 | Called Number | | | |
| ethe Calls | 2 | CA | lde | 62:23:25 | | - | | |
| insieurces foicemail | | CA | Ide | | | - | | _ |

7.2. Verify Phybridge PoLRE LPC

The Phybridge PoLRE LPC is an unmanaged switch and therefore there are no CLI or Web interface tests.

8. Conclusion

These Application Notes describe the configuration steps required for Phybridge PoLRE LPC to interoperate with Avaya H.323 and SIP IP telephones registered to 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.

 Administering Avaya IP Office™ Platform with Manager Release 9.1.0, Issue 10.04 February 2015

Documentation for Phybridge products may be found at <u>http://phybridge.com</u>.

- 1) PoLRE® LPC Switch Model PL-08 Datasheet.
- 2) Install Guide PoLRE® LPC Switch Model PL-08 Document: 8008-02-01.0.

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