



## **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:

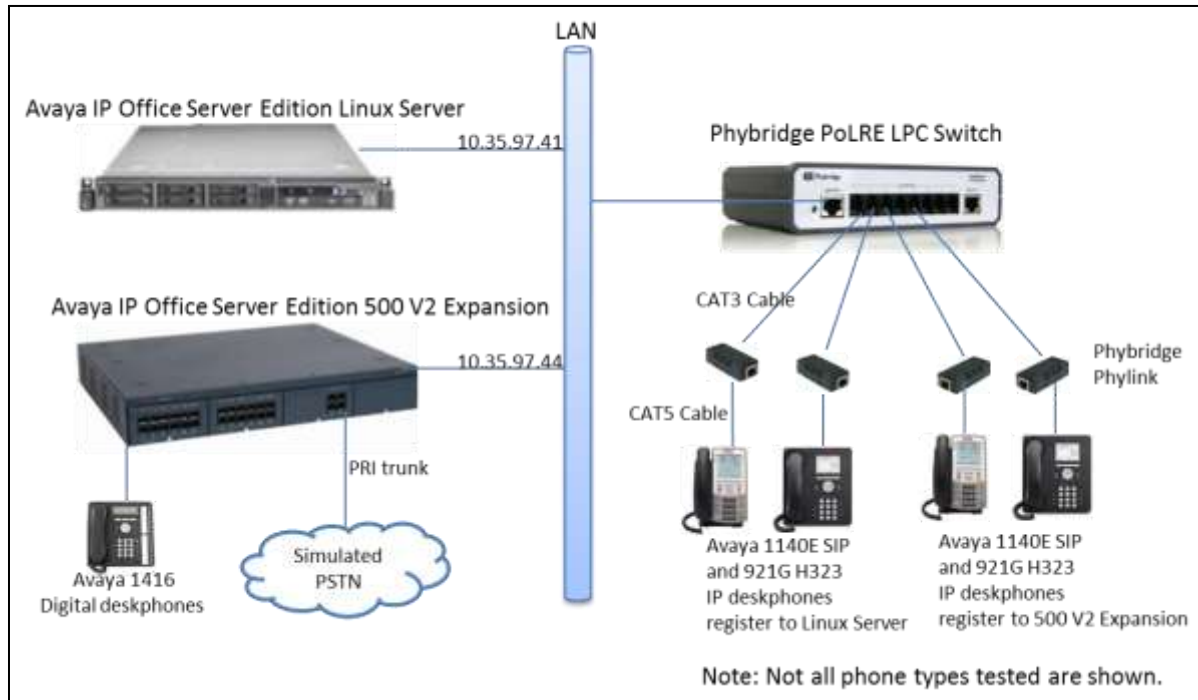
- **Phone:** (888) 901-3633
- **Email:** [Support@Phybridge.com](mailto:Support@Phybridge.com)

### 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

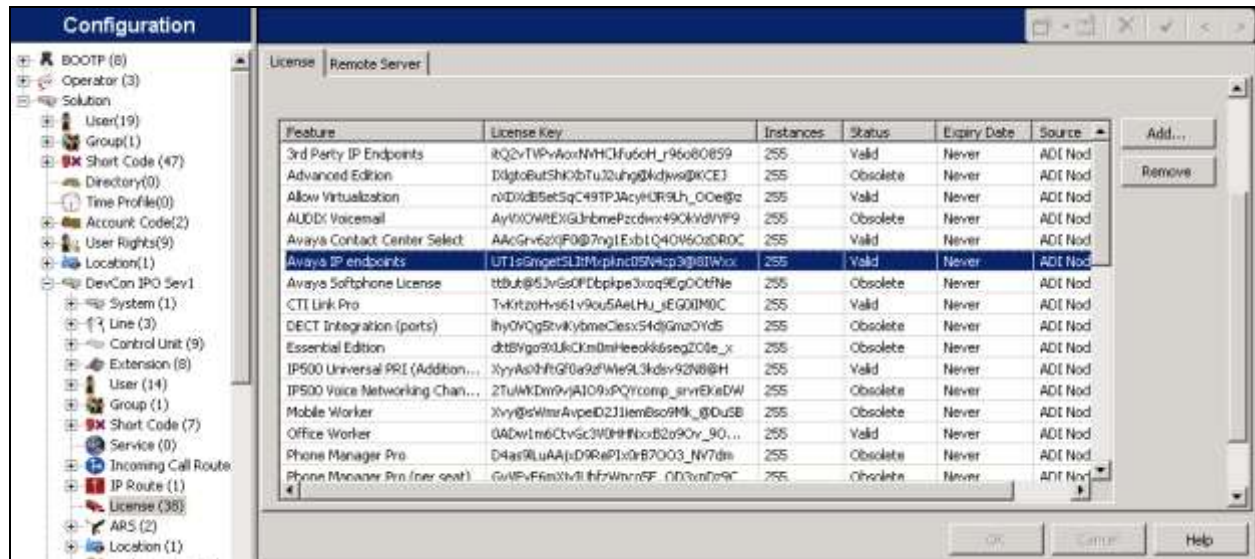
No special configuration is required for Avaya H.323 and SIP IP phones to interoperate with PoLRE LPC. For completeness this section provides the procedures for configuring Avaya H.323 and SIP IP phones on IP Office. It is assumed that IP Office has already been installed and is functioning.

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.

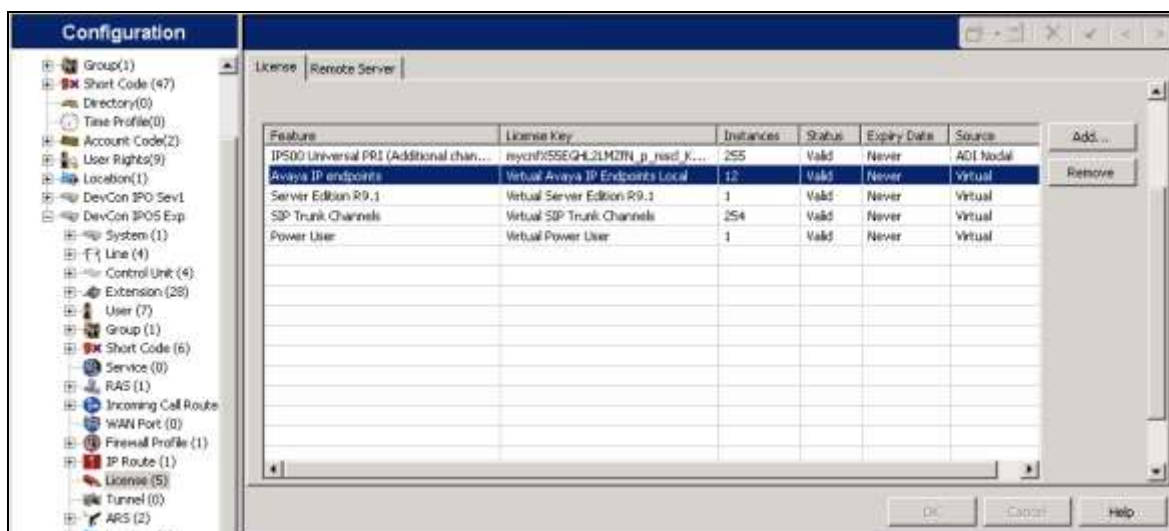
## 5.1. Verify IP Office License

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 → Programs → IP Office → 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.



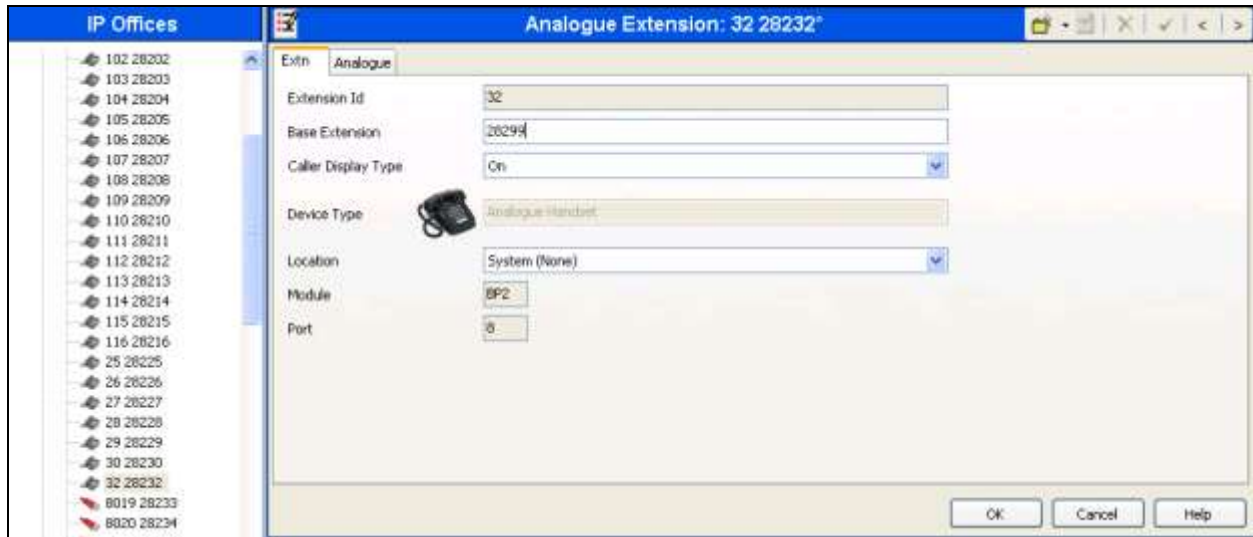
From the configuration tree in the left pane, browse to Expansion, in this example it is **DevCon IPoS Exp**, select **License** to display the License screen in the right pane. Verify that the License Status is **Valid** for Avaya IP endpoints.



## 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.

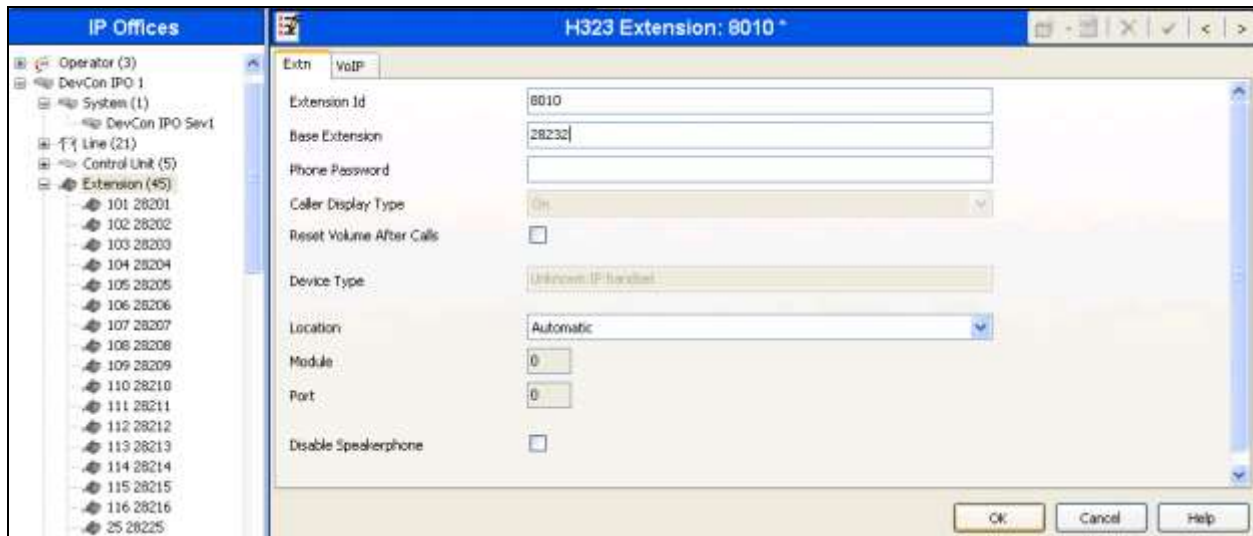
From the configuration tree in the left pane, select **Extension** followed by the specific extension that will be changed to an IP phone. Change the **Base Extension** to an available extension. In this example it was changed to “28299”, so that the old extension “28232” can be reused with the new Avaya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



### 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 → 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.



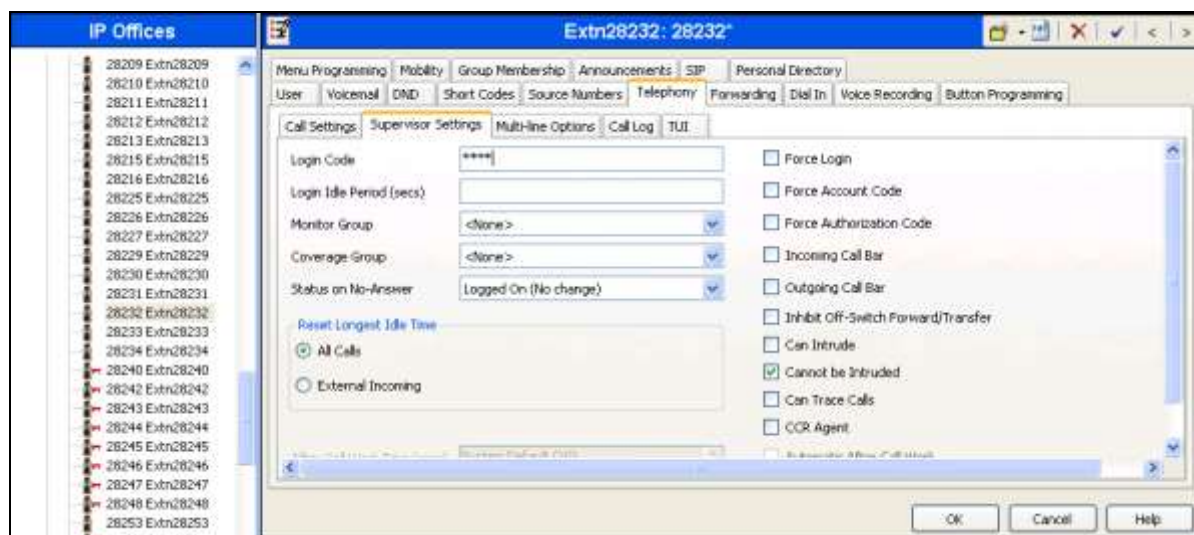
The screenshot displays the Avaya configuration interface. On the left, the 'IP Offices' tree is visible, with 'Extension (45)' selected. The right pane shows the configuration for 'H323 Extension: 8010'. The fields are as follows:

Field	Value
Extension Id	8010
Base Extension	28232
Phone Password	
Caller Display Type	On
Reset Volume After Calls	<input type="checkbox"/>
Device Type	Unknown IP Handset
Location	Automatic
Module	0
Port	0
Disable Speakerphone	<input type="checkbox"/>

At the bottom right, there are buttons for 'OK', 'Cancel', and 'Help'.



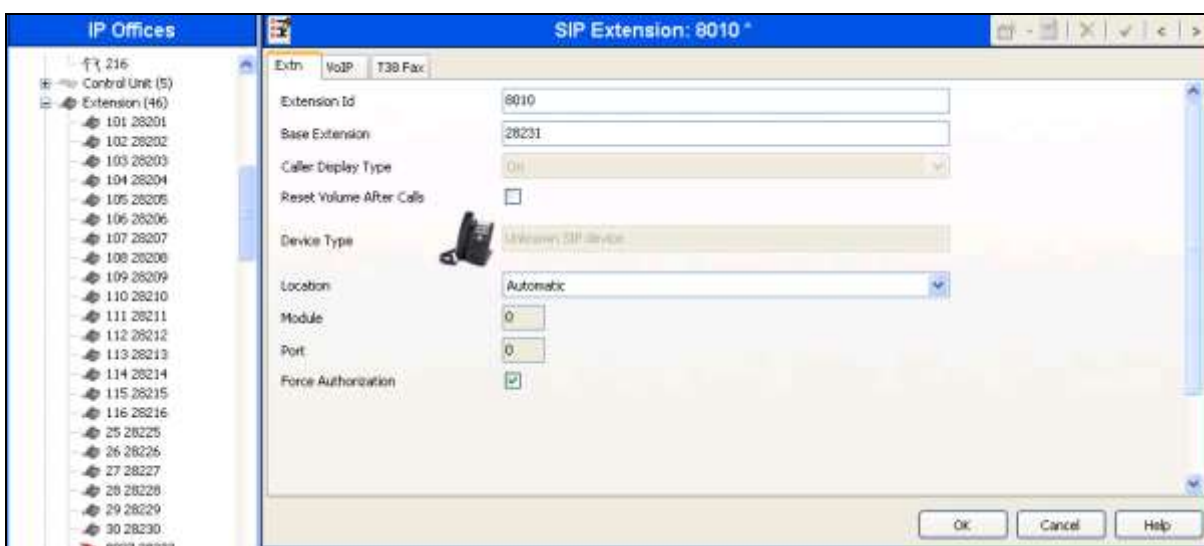
For security, H.323 IP phones can have a password assigned to register with IP Office. To add the password, navigate the configuration tree in the left pane. Click on **User** and then select the user to change. In this example “28232” is used. Now select the **Telephony** tab and the **Supervisor Settings** 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.



## 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 → 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.



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.



## 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 → Programs → IP Office → 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.

The screenshot displays the Avaya IP Office System Status application. The left sidebar shows a tree view with categories: System, Alarms (41), Extensions (26), Trunks (5), Active Calls, Resources, Voicemail, and IP Networking. The Extensions list is expanded, and extension 28233 is selected. The main panel, titled 'Extension Status', displays the following details for extension 28233:

- Extension Number: 28233
- IP address: 10.33.5.24
- MAC address: B4-80-17-95-92-A0
- Active Location: None
- Gatekeeper: Primary
- Telephone Type: 9650
- Firmware Version: 3.200
- Current User Extension Number: 28233
- Current User Name: Extn28233
- Forwarding: Off
- Twining: Off
- Do Not Disturb: Off
- Message Waiting: Off
- Number of New Messages: 0
- Phone Manager Type: None
- Licensed: Yes
- License Reserved: No
- Last Date and Time License Allocated: 12/8/2013 8:53:59 PM
- Packet Loss Fraction:
- Connection Type:
- Jitter:
- Codec:
- Round Trip Delay:
- Remote Media Address:

Below the details, there is a table showing call history:

Button Number	Button Type	Call Ref	Current State	Time in State	Calling Number or Called Number	Direction	Other Party on Call
1	CA		Idle	02:23:25			
2	CA		Idle				
3	CA		Idle				

### 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>.

- 1) *Administering Avaya IP Office™ Platform with Manager Release 9.1.0, Issue 10.04 February 2015*

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

- 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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