



Avaya Solution & Interoperability Test Lab

Application Notes for Yealink CP Series Speakerphones (CP700/CP900) and Yealink USB Connect with Avaya Workplace Client for Mac - Issue 1.0

Abstract

These Application Notes describe the configuration steps required to integrate Yealink CP Series Speakerphones (CP700/ CP900) and Yealink USB Connect with Avaya Workplace Client for Mac. The Yealink CP Series Speakerphones connects to the Mac via a USB-A cable. The Yealink USB Connect application is a program that enables remote call control with Yealink CP Series Speakerphones with Avaya Workplace Client for Mac. With Yealink Speakerphone connected to the USB interface on a Mac, users can directly answer, end, mute/unmute, hold/resume and adjust volume on the Speakerphone.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as any 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

The Yealink CP Series Speakerphones (CP700/CP900) with Yealink USB Connect allows connection and call control of Avaya Workplace Client for Mac (hereafter referred to as Avaya Workplace). In this compliance test, Yealink CP Series Speakerphones connect via USB-A cable to Mac. Users can then directly answer, end, mute/unmute, hold/resume and adjust volume on the Speakerphone.

2. General Test Approach and Test Results

The interoperability compliance test included feature and serviceability testing. The feature testing focused on placing calls with Avaya Workplace, answering and ending calls using the call control button on the Speakerphone, and verifying two-way audio. The call types include calls to voicemail, local extensions, and the PSTN. Call hold and resume, mute and un-mute, and speed dial are also tested.

The serviceability testing focused on verifying the usability of the Speakerphone solution after restarting the Avaya Workplace, restarting the Mac and reconnecting the USB cable of Speakerphone to the Mac.

Avaya recommends our customers implement Avaya solutions using appropriate security and encryption capabilities enabled by our products. The testing referenced in these DevConnect Application Notes included the enablement of supported encryption capabilities in the Avaya products. Readers should consult the appropriate Avaya product documentation for further information regarding security and encryption capabilities supported by those Avaya products.

Support for these security and encryption capabilities in any non-Avaya solution component is the responsibility of each individual vendor. Readers should consult the appropriate vendor-supplied product documentation for more information regarding those products.

For the testing associated with these Application Notes, the interface between Avaya systems and endpoints utilized enabled capabilities of TLS/SRTP.

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.

Avaya's formal testing and Declaration of Conformity is provided only on the headsets/handsets that carry the Avaya brand or logo. Avaya may conduct testing of non-Avaya headset/handset to determine interoperability with Avaya phones. However, Avaya does not conduct the testing of non-Avaya headsets/handsets for: Acoustic Pressure, Safety, Hearing Aid Compliance, EMC regulations, or any other tests to ensure conformity with safety, audio quality, long-term reliability or any regulation requirements. As a result, Avaya makes no representations whether a

particular non-Avaya headset will work with Avaya's telephones or with a different generation of the same Avaya telephone.

Since there is no industry standard for handset interfaces, different manufacturers utilize different handset/headset interfaces with their telephones. Therefore, any claim made by a headset vendor that its product is compatible with Avaya telephones does not equate to a guarantee that the headset will provide adequate safety protection or audio quality.

2.1. Interoperability Compliance Testing

All test cases were performed manually. The following features were verified:

- Placing calls to the voicemail system. Voice messages were recorded and played back to verify that the playback volume and recording level were good.
- Placing calls to internal extensions to verify two-way audio.
- Placing calls to the PSTN to verify two-way audio.
- Answering and ending calls using the call button on the Speakerphone and the soft button on Avaya Workplace.
- Using the call button on the Speakerphone and the soft button on Avaya Workplace to hold and resume the audio.
- Using the volume buttons on the Speakerphone to adjust the audio volume.
- Using the mute button on the Speakerphone and the soft button on Avaya Workplace to mute and un-mute the audio.
- Verifying incoming call notification on Speakerphone base.
- Verifying call ended notification on Speakerphone base.

The serviceability testing focused on verifying the usability of the Speakerphone solution after restarting the Avaya Workplace, restarting the Mac and reconnecting the USB cable to the Mac.

2.2. Test Results

All test cases passed successfully.

2.3. Support

For support on this Yealink Speakerphone solution, contact Yealink at:

- Phone: +86-592-5702000
- Website: <https://ticket.yealink.com/>

3. Reference Configuration

Figure 1 illustrates the test configuration used to verify the Yealink CP Series Speakerphones (CP700/CP900), Yealink USB Connect with Avaya Workplace Client for Mac. The configuration consists of an Avaya Aura® Communication Manager running on a virtualized server with an Avaya G430 Media Gateway providing connectivity to the PSTN via a simulated public trunk. Avaya Aura® Session Manager was used as the registrar/proxy for Avaya Workplace Client for Mac as SIP softphone and Avaya Aura® System Manager was used to configure Session Manager. Avaya Aura® Messaging was used as the voicemail system. Avaya Aura® Media Server provides the audio media processing. The Yealink USB Connect was installed on the Mac together with Avaya Workplace Client for Mac. The Speakerphone is connected via USB-A cable to the Mac. Depending on models, adapter maybe needed for USB-A interface.

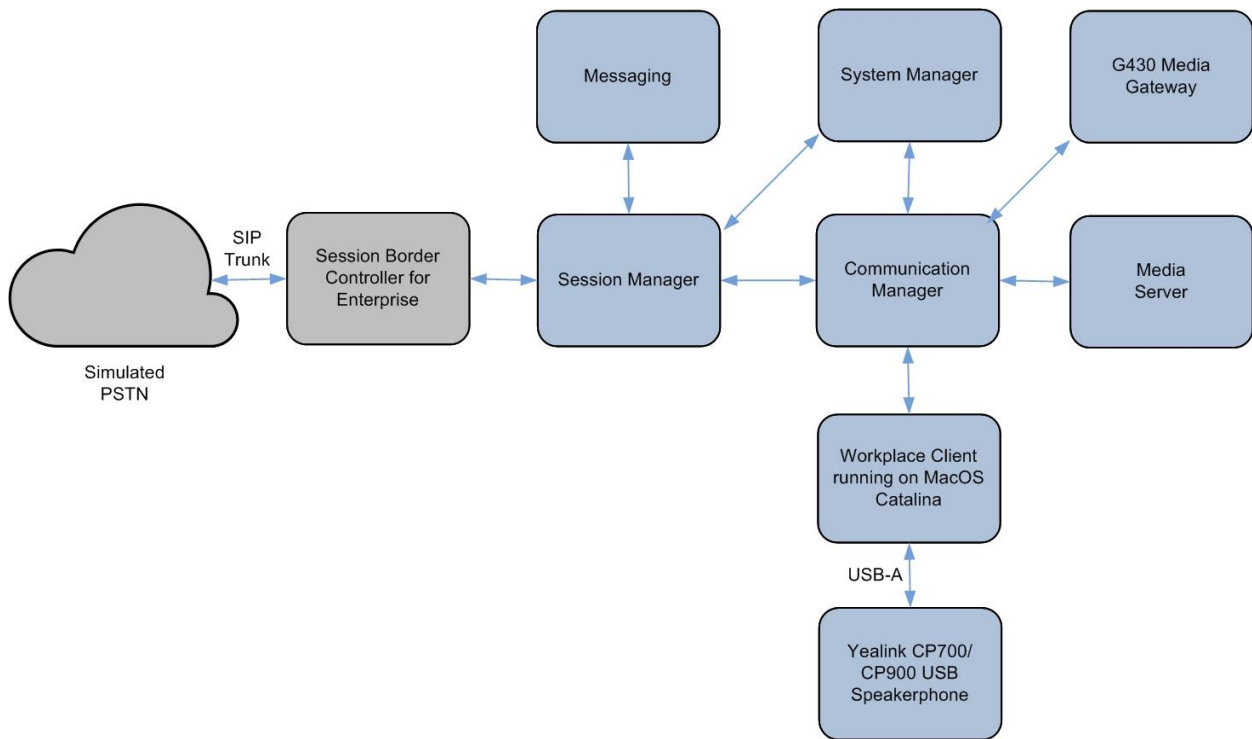


Figure 1: Test Configuration

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya Aura® Communication Manager	R018x.01.0.890.0- 26095
Avaya G430 Media Gateway <ul style="list-style-type: none">• MGP	41.16.0
Avaya Aura® System Manager	8.1.2.0.0611367
Avaya Aura® Session Manager	8.1.2.1.812101
Avaya Aura® Media Server	8.0.2.93
Avaya Aura® Messaging	7.1 SP2
Avaya Workplace Client running on macOS Catalina 10.15	3.9.0.84.8
Yealink CP700/CP900 Speakerphones using USB-A cable	FW 100.420.0.20
Yealink USB Connect for Mac	0.32.10.0

5. Configure Avaya Aura® Communication Manager

The information provided in this section describes the verification of Communication Manager System Capacity for this solution.

It is implied a working Communication Manager system is already in place, including dial plans and SIP trunks to a Session Manager. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 11**.

5.1. Verify System Capacity

Using Avaya Site Administrator Emulation Mode, use the **display system-parameters customer-options** command to determine the values of user license for **Maximum Off-PBX Telephones** allowed in the system. One OPS station is required per SIP user.

```
display system-parameters customer-options                               Page 1 of 12
                                OPTIONAL FEATURES

G3 Version: V18                                                         Software Package: Enterprise
Location: 2                                                             System ID (SID): 1
Platform: 28                                                            Module ID (MID): 1

                                USED
Platform Maximum Ports: 81000    385
Maximum Stations: 41000    186
Maximum XMOBILE Stations: 41000    0
Maximum Off-PBX Telephones - EC500: 41000    1
Maximum Off-PBX Telephones - OPS: 41000    33
Maximum Off-PBX Telephones - PBFMC: 41000    0
Maximum Off-PBX Telephones - PVFMC: 41000    0
Maximum Off-PBX Telephones - SCCAN: 0    0
Maximum Survivable Processors: 313    2

(NOTE: You must logoff & login to effect the permission changes.)
```

On **Page 2** of the **system-parameters customer-options form**, verify that the number of **Maximum Administered SIP Trunks** and **Maximum Concurrently Registered IP Stations** supported by the system is sufficient.

If there is insufficient capacity in either one of these parameters, contact an authorized Avaya sales representative.

display system-parameters customer-options		Page 2 of 12
OPTIONAL FEATURES		
IP PORT CAPACITIES		USED
Maximum Administered H.323 Trunks:	12000	90
Maximum Concurrently Registered IP Stations:	18000	17
Maximum Administered Remote Office Trunks:	12000	0
Max Concurrently Registered Remote Office Stations:	18000	0
Maximum Concurrently Registered IP eCons:	414	0
Max Concur Reg Unauthenticated H.323 Stations:	100	0
Maximum Video Capable Stations:	41000	0
Maximum Video Capable IP Softphones:	18000	2
Maximum Administered SIP Trunks:	40000	38
Max Administered Ad-hoc Video Conferencing Ports:	24000	0
Max Number of DS1 Boards with Echo Cancellation:	999	0

(NOTE: You must logoff & login to effect the permission changes.)

6. Configure Avaya Aura® Session Manager

This section describes aspects of the Session Manager configuration required for Avaya Workplace to register. It is assumed that the Domains, Locations, SIP Entities, Entity Links, Routing Policies, Dial Patterns and Application Sequences have been configured where appropriate for Communication Manager, Session Manager and Aura® Messaging.

Session Manager is managed via System Manager. Using a web browser, access **https://<ip-addr of System Manager>/SMGR**. In the **Log On** screen, enter appropriate **User ID** and **Password** and click the **Log On** button.

Recommended access to System Manager is via FQDN.

[Go to central login for Single Sign-On](#)

If IP address access is your only option, then note that authentication will fail in the following cases:

- First time login with "admin" account
- Expired/Reset passwords

Use the "Change Password" hyperlink on this page to change the password manually, and then login.

Also note that single sign-on between servers in the same security domain is not supported when accessing via IP address.

This system is restricted solely to authorized users for legitimate business purposes only. The actual or attempted unauthorized access, use, or modification of this system is strictly prohibited.

Unauthorized users are subject to company disciplinary procedures and or criminal and civil penalties under state, federal, or other applicable domestic and foreign laws.

The use of this system may be monitored and recorded for administrative and security reasons. Anyone accessing this system expressly consents to such monitoring and recording, and is advised that if it reveals possible evidence of criminal activity, the evidence of such activity may be provided to law enforcement officials.

All users must comply with all corporate instructions regarding the protection of information assets.

User ID:

Password:

[Change Password](#)

Supported Browsers: Internet Explorer 11.x or Firefox 65.0, 66.0 and 67.0.

6.1. Verify Session Manager Ports for SIP endpoint registration

Each Session Manager Entity must be configured so that the SIP Endpoint can register to it. From the home page, under **Elements**, click **Routing** → **SIP Entities** (not shown) and select the Session Manager entity used for registration. Make sure that **TCP**, **UDP** and **TLS** entries are present. During the compliance test, Avaya Workplace Client for Mac registered to the Session Manager using TLS transport.

<input type="checkbox"/>	Listen Ports	Protocol	Default Domain	Endpoint	Notes
<input type="checkbox"/>	5060	TCP	sglab.com	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	5060	UDP	sglab.com	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	5061	TLS	sglab.com	<input checked="" type="checkbox"/>	

Select : All, None

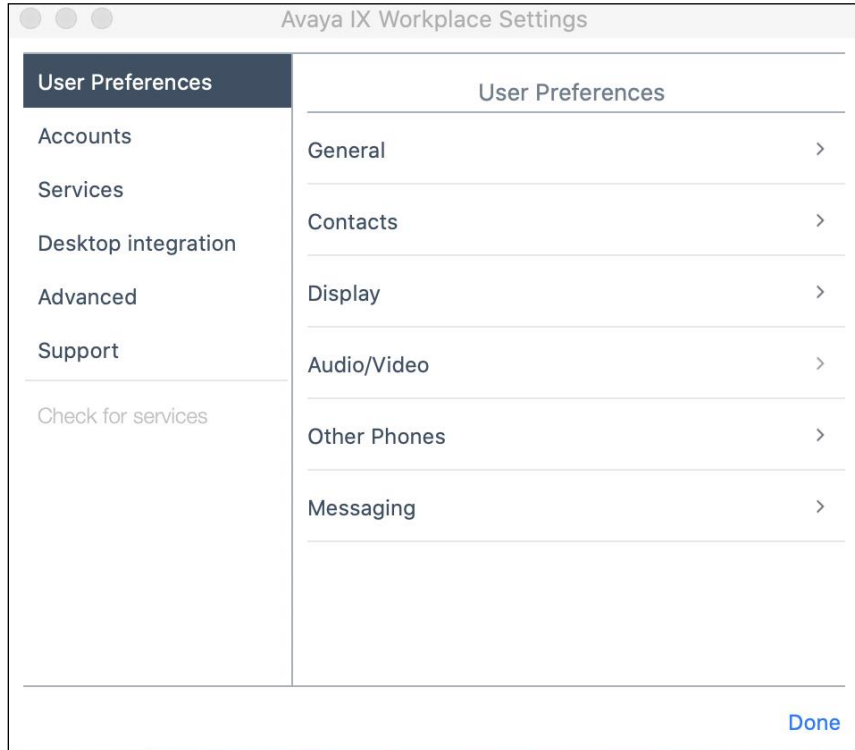
6.2. Add SIP User




The addition of SIP User will not be detailed here. Refer to details in adding user in the administration document for Avaya Aura® Session Manager in [4].

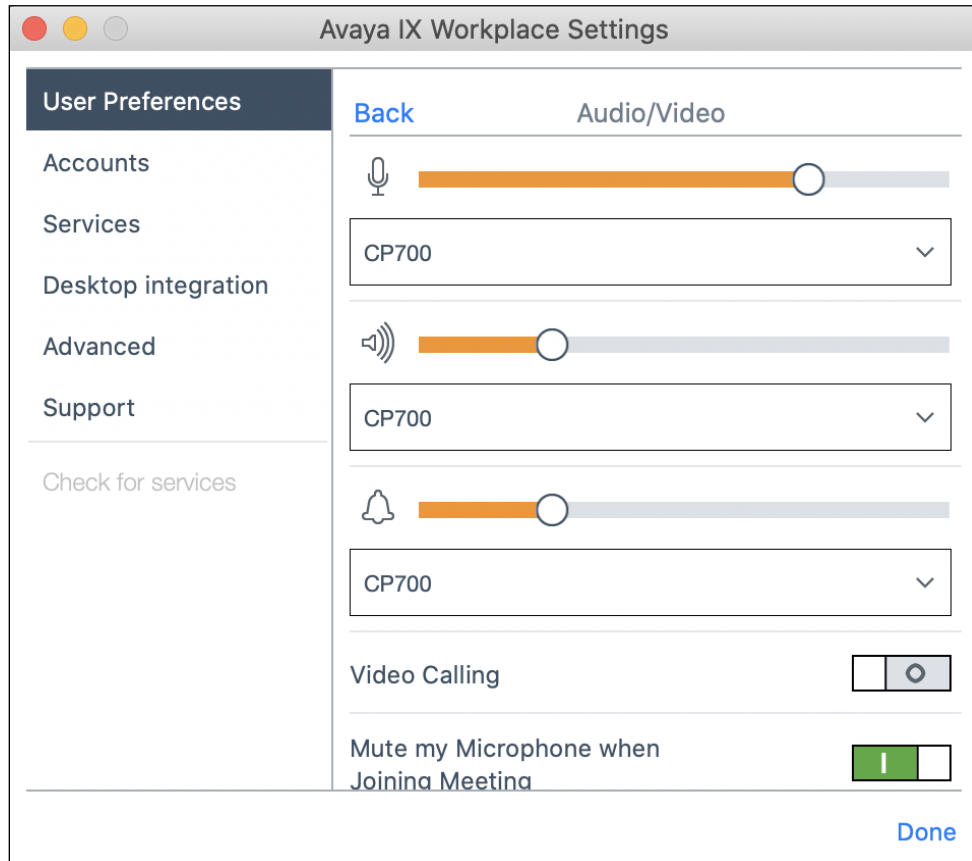
7. Configure Avaya Workplace Client for Mac

Avaya Workplace is a SIP soft phone application that provides users with access to Unified Communications (UC) services. This section shows how to configure the Yealink CP700/CP900 Speakerphone to use with Avaya Workplace.

From Avaya Workplace window, navigate to **Settings** → **User Preferences** → **Audio/Video**.



Select **CP700** for *Microphone*  and the same for *Speaker*  as shown below. It is optional for Ringing on incoming calls  to be set. For Yealink CP900 Speakerphone, select the appropriate settings for *Microphone* and *Speaker* i.e., **CP900**.



8. Configure Yealink CP700/CP900 Speakerphone Solutions

This section covers the steps to integrate Yealink CP700/CP900 Speakerphone with Avaya Workplace, including:

- Installing the Yealink USB Connect software
- Connect the Speakerphone

Note: After successfully performing this procedure, the Speakerphone will be detected in Avaya Workplace as described in **Section 7**.

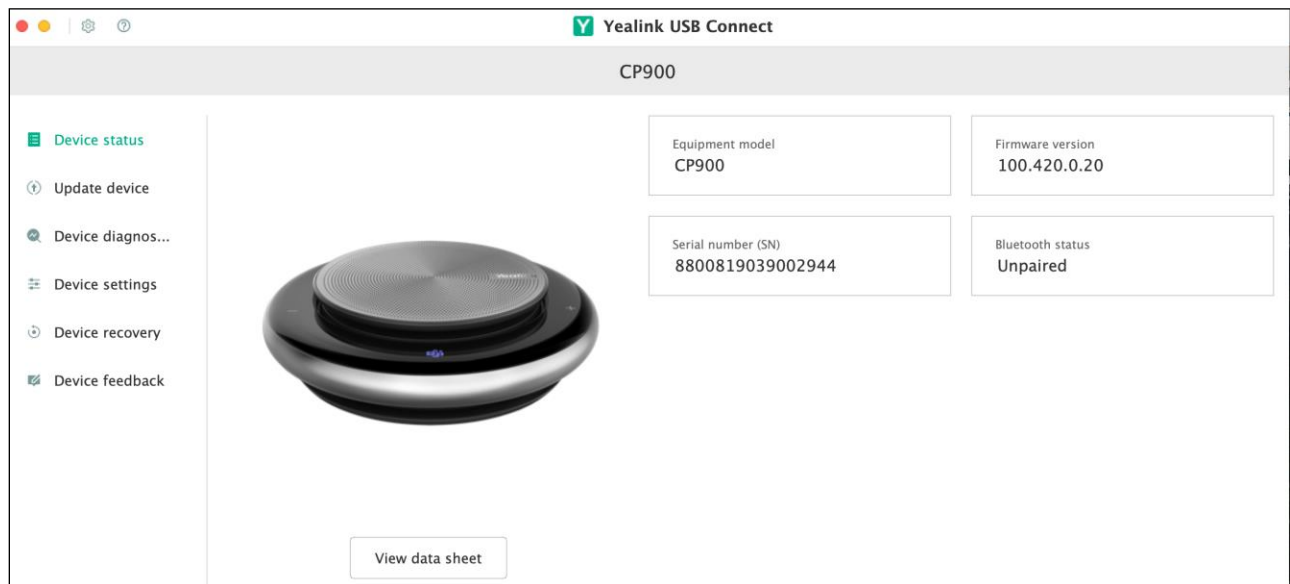
8.1. Installing the Yealink USB Connect Software

This software can be obtained from Yealink at <http://www.yealink.com/>. Installation of the software is done through executing the setup file and following the prompt.

8.2. Connect the Speakerphone

Plug the Yealink CP700/CP900 Speakerphone to the USB port of the Mac. The device drivers will automatically be installed.

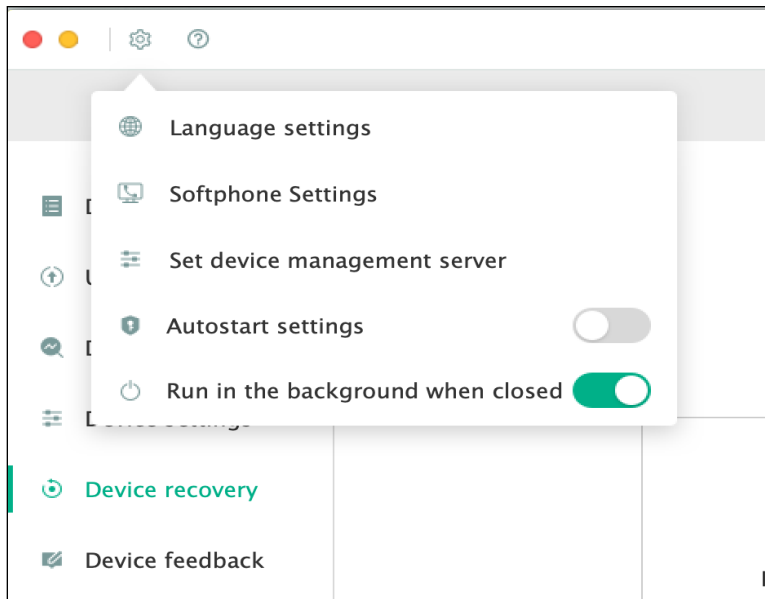
Open the Yealink USB Connect program installed on the Mac. Below shows the status of the Yealink CP900 connected.



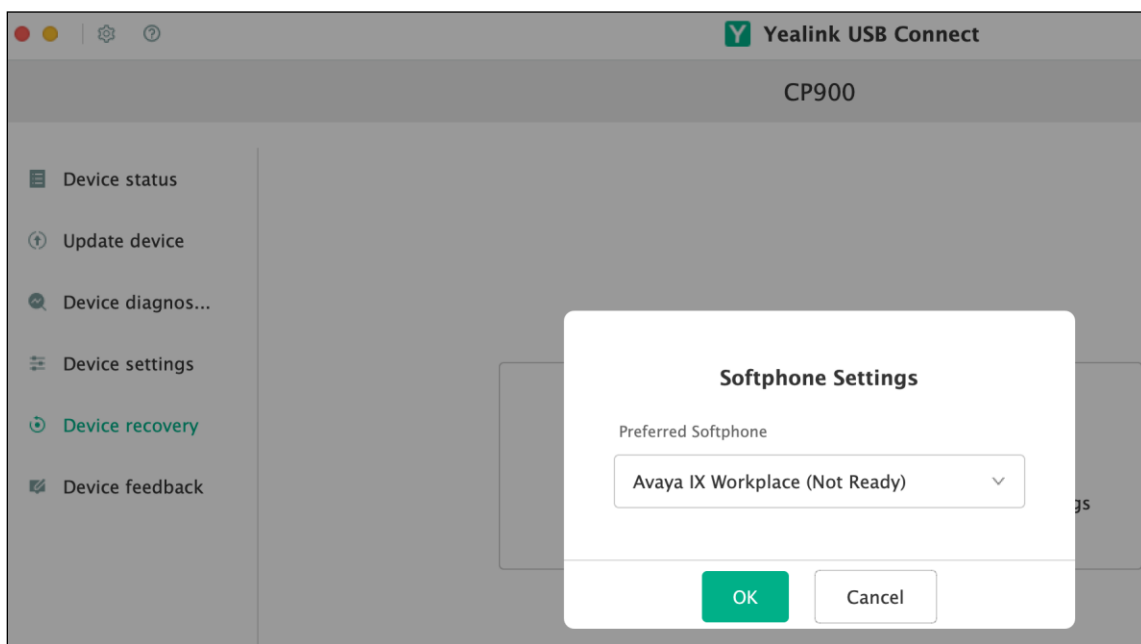
9. Verification Steps

This section verifies that the Yealink Speakerphone has been successfully integrated with Avaya Workplace.

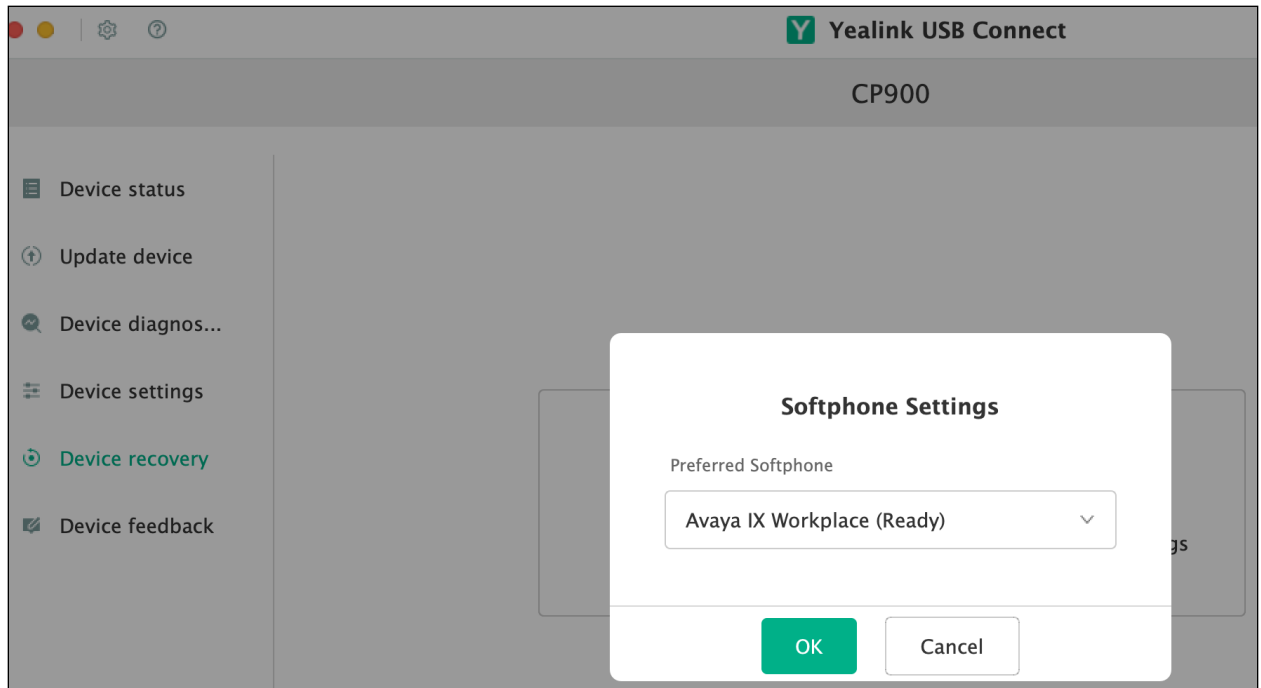
1. To verify that the Speakerphone has been successfully connected for use with Avaya Workplace, open the Yealink USB Connect program and observed that the CP700/CP900 is detected as in **Section 8.2**. From the **Yealink USB Connect** program, select the **setup icon** on the top left. Click the **Softphone Settings**.



2. Check that the **Preferred Softphone** shows **Avaya IX Workplace (Not Ready)**.



3. Run the Avaya Workplace and open the Yealink USB Connect program. Verify that the **Preferred Softphone** shows **Avaya IX Workplace (Ready)**. Make incoming and outgoing calls and verify that calls can be established with two-way audio. For incoming calls, answer the call by pressing the call button on the Speakerphone.



4. End the call by pressing the same call button on the Speakerphone.
5. Verify also that the Speakerphone is able to remotely control call functions such as answer, mute/un-mute, hold/resume and adjust the volume. Call Hold is done by pressing the call button once. Pressing the call button again will resume the call. Similarly, such call control functions could be done on the Avaya Workplace.

10. Conclusion

These Application Notes describe the configuration steps required to integrate Yealink CP Series Speakerphones (CP700 CP900), Yealink USB Connect with Avaya Workplace Client for Mac. All test cases were completed successfully.

11. Additional References

This section references the Avaya and Yealink documentation that are relevant to these Application Notes.

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

- [1] *Administering Avaya Aura® Communication Manager*, Release 8.1.x, Issue 6, Mar 2020
- [2] *Planning for and Administering Avaya IX™ Workplace Client for Android, iOS, Mac and Windows*, Sep 25, 2020.
- [3] *Using Avaya IX™ Workplace Client for Android, iOS, Mac, and Windows*, Aug 4, 2020.
- [4] *Administering Avaya Aura® Session Manager*, Release 8.1.x, Issue 6, Aug 2020.

The following Yealink documentation can be found at <http://www.yealink.com>.

- [5] *Yealink USB Speakerphone CP700 & CP900 User Guide*, Version 1.0, Mar 2020.

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