

Avaya Solution & Interoperability Test Lab

Application Notes for Teledex iPhone SIP LD4200 Series IP Telephones with Avaya IP Office – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Teledex iPhone SIP LD4200 Series IP Telephones to interoperate with Avaya IP Office. Teledex iPhone SIP LD4200 Series are SIP-based IP telephones that integrate with Avaya IP Office as SIP endpoints.

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 the configuration steps required for Teledex iPhone SIP LD4200 Series IP Telephones to interoperate with Avaya IP Office. Teledex iPhone SIP LD4200 Series are SIP-based IP telephones that integrate with Avaya IP Office as SIP endpoints.

The compliance testing used a Teledex iPhone SIP LD4210S IP Telephone.

1.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing included registration, basic call, display, hold/reconnect, conference, media shuffling, G.711, G.729, G.723, MWI, DTMF, do not disturb and call forwarding unconditional short code scenarios.

The serviceability testing focused on verifying the ability of Teledex iPhone SIP LD4210S to recover from adverse conditions, such as disconnecting/reconnecting the Ethernet cable to the device.

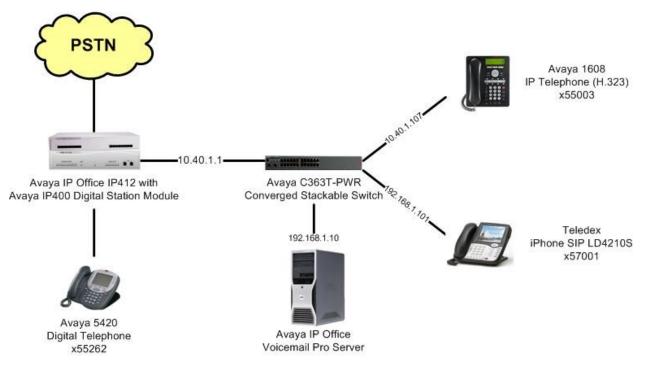
1.2. Support

Technical support on Teledex iPhone SIP LD4210S can be obtained through the following:

- **Phone:** (800) 794-8353
- Web: <u>http://www.teledex.com</u>

2. Reference Configuration

Figure 1 below shows the configuration used for the compliance testing. The Avaya IP Office Voicemail Pro was used to provide voicemail functionality.





3. Equipment and Software Validated

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

Equipment	Software
Avaya IP Office IP412	5.0 (4)
Avaya IP Office VoiceMail Pro	5.0 (18)
Avaya 1608 IP Telephone (H.323)	1.21
Avaya 5420 Digital Telephone	NA
Teledex iPhone SIP LD4210S	1.15.15

4. Configure Avaya IP Office

This section provides the procedures for configuring Avaya IP Office. The procedures include the following areas:

- Verify IP Office license
- Obtain LAN IP address
- Administer SIP registrar
- Administer SIP extensions
- Administer SIP users

4.1. Verify IP Office License

From a PC running the Avaya IP Office Manager application, select **Start > Programs > IP Office > Manager** to launch the Manager application. Select the proper IP Office system, and log in with the appropriate credentials.

The Avaya IP Office Manager screen is displayed. From the configuration tree in the left pane, select License > IP End-points to display the IP End-points screen in the right pane. Verify that the License Status is "Valid".

🕼 Avaya IP Office R5 Manage	r - 1P412-Lan1	[5.0(4)]			
File Edit View Tools He : 🎗 📸 - 📕 🛋 💽 📰 🚺		2-Lan1 🗾 Licens	e:	IP End-points	•
IP Offices	Licenses License Key License Type License Status Instances Expiry Date	2-Lan1 Licens IP End-po SXW632VbvX8pASWQRR75E IP End-points Valid 255 Never	ints	IP End-points	

4.2. Obtain LAN IP Address

From the configuration tree in the left pane, select **System** to display the **IP412-Lan1** screen in the right pane. Select the **LAN1** tab, followed by the **LAN Settings** sub-tab in the right pane. Make a note of the **IP Address**, which will be used later to configure Teledex. Note that IP Office can support SIP extensions on the LAN1 and/or LAN2 interfaces, and the compliance testing used the LAN1 interface.



4.3. Administer SIP Registrar

Select the VoIP sub-tab. Make certain that SIP Registrar Enable is checked, as shown below.

👫 Avaya IP Office R5 Manage	er - IP412-Lan1 [5.0(4)]			
File Edit View Tools He	əlp 🔰 🛹 🎰 🕴 IP412-Lan1	 System 	▼ IP412-Lan1	
IP Offices	E I	P412-Lan1	🖄 - 🛛 🗙	✔ < >
BOOTP (6) Operator (3) IP412-Lan1 System (1) IP412-Lan1 Control Unit (4) Extension (93) User (78) We for the former of	SMDR Twinning VCM CCR System LAN1 LAN2 DN5 LAN Settings VoIP Network 1 Image: Write the set of the	Voicemail Telephony Fopology SIP Registrar RTP Port Numb Port Range (M	ber Range	s SMTP
WanPort (0) Multiple Directory (0) Multiple Profile (0)	H323 Auto-create User	Port Range (M	aximum) 53246 😂	

Select the **SIP Registrar** sub-tab, and enter a valid **Domain Name** for SIP endpoints to use for registration with IP Office. In the compliance testing, the **Domain Name** was left blank, so the SIP endpoints used the LAN IP address for registration.

🜃 Avaya IP Office R5 Manage	r - IP412-Lan1 [5.0(4)]			
<u>File E</u> dit <u>V</u> iew <u>T</u> ools <u>H</u> e	lp			
	🖌 🛹 🚈 📙 IP412-Lan1	System	IP412-Lan1	•
IP Offices		IP412-Lan1	📺 - 🛛 🗙	✓ < >
BOOTP (6) Operator (3) IP412-Lan1 System (1) IP412-Lan1 System (29) Control Unit (4) Sextension (93) User (78) User (78) Short Code (75) Service (0) RAS (1) Incoming Call Route WanPort (0) Directory (0)	Twinning VCM CCR System LAN1 LAN2 DNS LAN Settings VoIP Netwo Domain Name Layer 4 Protocol TCP Port UDP Port Challenge Expiry Time (secs) Auto-create Extn/User	Voicemail Telephony rk Topology SIP Registrar Both TCP & UDP V 5060 5060 10 V		SMTP SMDR

4.4. Administer SIP Extensions

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. Enter the desired digits for **Base Extension**, and retain the default check in the **Force Authorisation** field as shown below.

🖬 Avaya IP Office R5 Mai	nager - IP412-Lan1 [5.0(4)]			
File Edit View Tools	Help			
	🚺 🗸 🥶 🕴 IP412-Lan1	Extension	8016 55003	2
IP Offices	SIP SIP	Extensions: 8017 *		📸 - X V < >
 	Extn VoIP			
😑 🖘 IP412-Lan1 😑 🖘 System (1)	Extension ID	8017		
IP412-Lan1	Base Extension	57001		
⊕ 行 Line (29) ⊕ ≪⇒ Control Unit (4)	Caller Display Type	On		×
	Reset Volume After Calls			
 W HuntGroup (4) Short Code (75) Service (0) 	Device type	Unknown SIP device		
E RAS (1)	Module	0		
⊕ Incoming Call Route ₩ WanPort (0)	Port	0		
Directory (0)	Disable Speakerphone			
→ ① Time Profile (0)	Force Authorisation			

Select the VoIP tab, and retain the default values in all fields.

Repeat this section to add a new SIP extension for each Teledex iPhone SIP LD4200 Series IP telephone. In the compliance testing, one SIP extension with base extension of "57001" was created.

🔣 Avaya IP Office R5 Ma	nager - IP412-Lan1 [5.0(4)]		
File Edit View Tools : 2 📽 - 📕 🛋 🖭 📰	Help	-Lan1 💽 Extension	8016 5500	3
IP Offices	17	SIP Extensions: 8017		📸 + X 🗸 < >
BOOTP (6) Goperator (3) For a system (1) For a system (Extn VoIP IP Address Compression Mode TDM->IP Gain IP->TDM Gain DTMF Support	0 0 0 0 0 Automatic Select Default RFC2833	V Loc	P Silence Suppression al Hold Music w Direct Media Path invite Supported r Offered Codec

4.5. Administer SIP Users

From the configuration tree in the left pane, right-click on User, and select New from the pop-up list. For Name, enter the SIP extension from Section 4.4, and prefix with "Extn". Enter a descriptive Full Name. For Extension, enter the SIP extension from Section 4.4.

🖬 Avaya IP Office R5 Man	iager -	IP412-Lar	n1 [5.(0(4)]						
File Edit View Tools	Help	🖌 🖂]. IF	P412-La	n1	• User		57002 Ex	(tn57002		
IP Offices	1			<	:User:0>: *			- 10	· × .	< < >
← ← Control Unit (4) ▲ ← ← Extension (102) ← ↓ User (83)	SIP	Personal D	Directory	/) Mobility Pho					ncements
NoUser 25004 Extn 55001 Extn 55002 Extn 55003 Extn 55201 Extn 55202 Extn	User Name Passw Confir			ShortCodes Extn57	Source Number	s Telephony	Forwarding	Dial In Voice I	Recording	
	Full N Exten			Teledex	× LD42105					-
	Locale Priorit			5					~	
		Device Type		Enal	Directory ble one-X Portal : wn IP handset	Services				

Select the **Telephony** tab, followed by the **Call Settings** sub-tab. Check the **Call Waiting On** field, as shown below.

👫 Avaya IP Office R5 Man	ager - IP412-Lan1 [5.0(4)	I		
File Edit View Tools ; 🚴 📸 - 🙀 🛋 💽 📰	Help	▼ User ▼ 55262	Extn55262	
IP Offices	12	<user:0>: *</user:0>	≝ • × ∢ < ≥	
Control Unit (4) Extension (95) User (78) NoUser	SIP Personal Directory	ogramming Mobility Phone Manager Options Hun hortCodes Source Numbers Telephony Forwardin		
25004 Extn 55001 Extn 55002 Extn	Call Settings Supervisor Set Outside Call Sequence	tings Multiline Options Call Log	Call Waiting On	
55002 Extr 55003 Extr 55201 Extr 55202 Extr	Inside Call Sequence Ringback Sequence	Default Ring	Answer Call Waiting On Hold (Analo Busy On Held	
55203 Extri 55203 Extri 55204 Extri 55205 Extri	No Answer Time (secs)	System Default (11)	Offhook Station	
	Wrap Up Time (secs) Transfer Return Time (secs)	2 🗘 Off 🗘	System Phone	
	Call Cost Mark-Up	100		

TLT; Reviewed: SPOC 10/27/2009

Solution & Interoperability Test Lab Application Notes ©2009 Avaya Inc. All Rights Reserved. 8 of 17 Teledex-LD-IPO Select the Supervisor Settings tab, and enter a desired Login Code.

Repeat this section to add a new user for each SIP extension from **Section 4.4**. In the compliance testing, one user with name of "Extn57001" was created.

🐮 Avaya IP Office R5 Man	ager - IP412-Lan1 [5.0(4)]	
File Edit View Tools E 🚴 📸 - 💭 💽 📰	Help	5262 Extn55262
IP Offices	 ✓ ✓	ĕ - × ∢ < >
Control Unit (4) Extension (95) User (78) NoUser	Button Programming Menu Programming Mobility Phone Manager Options SIP Personal Directory	Hunt Group Membership Announcements
RemoteMar 25004 Extn 55001 Extn 55002 Extn 55003 Extn 55201 Extn 55201 Extn 55202 Extn 55203 Extn 55203 Extn 55204 Extn	Call Settings Supervisor Settings Multiline Options Call Log Login Code ****** Login Idle Period (secs) Monitor Group <none> Coverage Group <none></none></none>	Force Login Force Account Code Force Authorization Code
55205 Extri 55205 Extri 55206 Extri 55207 Extri 55208 Extri 55209 Extri 55209 Extri 55210 Extri 55211 Extri 55212 Extri	Status on No-Answer Logged On (No change) Reset Longest Idle Time Ill Calls External Incoming	 Outgoing Call Bar Inhibit Off-Switch Forward/Transfe Can Intrude Cannot be Intruded Can Trace Calls CCR Agent

5. Configure Teledex iPhone SIP LD4210S

This section provides the procedures for configuring Teledex iPhone SIP LD4210S. The procedures include the following areas:

- Launch web interface
- Administer network
- Administer line
- Administer call feature
- Reboot phone

Prior to configuration, follow the procedures in [2] to manually set or obtain the IP address of iPhone SIP LD4210S.

5.1. Launch Web Interface

Access the Teledex Phone Configuration Portal by using the URL "http://ip-address:8080" in an Internet browser window, where "ip-address" is the IP address of the iPhone SIP LD4210S. Log in with the appropriate credentials.

The Teledex iPhone SIP LD4210S Web Portal screen is displayed, as shown below.

iPhone	VoIP Phone Configuration Portal
Configuration	
Basic Info Account Info	Teledex <u>iPhone SIP LD4210S</u> Web Portal
Hotel Info	
Network Info	Welcome to iPhone SIP LD4210S web portal!
Line1 Info	
Line2 Info	
Speed Dial Info	
Call Features	
Online Upgrade	
VLAN Config	
Codec Config	
Security Config	
Advance Options	
Maintenance	
<u>Reboot</u>	
Restore to Factory	

5.2. Administer Network

Select **Network Info** from the left pane to display the **Network Configuration** screen. Update the desired parameters to reflect the network configuration.

In the compliance testing, the **Phone IP Address**, **Phone Network Subnet**, and **Phone Gateway Address** parameters were updated, as shown below.

iPhone	VoIP Phone Co	onfiguration Portal
Configuration	Network Configuration	
Basic Info Account Info	Acquire IP Through:	Use Static IP 💌
Hotel Info	Phone IP Address:	192.168.1.101
Network Info Line1 Info	Phone Network Subnet:	255.255.255.0
<u>Line2 Info</u> Speed Dial Info	Phone Gateway Address:	192.168.1.2
Call Features	DNS Server Address:	0.0.0.0
Online Upgrade VLAN Config	Domain Name:	
Codec Config	SNTP Server Address	
Security Config	Time Zone	GMT-5:00) Eastern Time 🛛 🚩
Advance Options Maintenance	Submit	
Reboot		
Restore to Factory	r	

5.3. Administer Line

Select Line1 Info from the left pane to display the Line 1 Configuration screen. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **Phone Name:** The SIP user name from **Section 4.5**.
- **Phone Number:** The SIP base extension from **Section 4.4**.
- **Phone Password:** The SIP user login code from **Section 4.5**.
- **Proxy Server:** The LAN IP address from **Section 4.2**.
- **Registrar Server:** The LAN IP address from **Section 4.2**.
- Message Waiting Number: The dial string for the voicemail pilot number on IP Office.
- **MWI Server:** The LAN IP address from **Section 4.2**
- Dial Plan:PRACK:

Appropriate values to match the Avaya IP Office dial plan. "Disabled"

iPhone		onfiguration Portal	
Configuration	Line 1 Configuration		
Basic Info Account Info	Phone Name	Extn57002	
Hotel Info	Phone Number	57002	
Network Info	Phone Password	•••••	
<u>Line1 Info</u> Line2 Info	Proxy Server	10.40.1.1	
Speed Dial Info	Proxy Server Port	5060	
Call Features	Registrar Server	10.40.1.1	
Online Upgrade	Registrar Server Port	5060	
<u>VLAN Config</u> <u>Codec Config</u>	Message Waiting Number	*96	
Security Config Advance Options	MWI Server	10.40.1.1	
Maintenance	MWI Server Port	5060	
<u>Reboot</u>	Dialing Plan	5xxxx/*xx/91x+#	
Restore to Factory	SIP Transport	UDP and TCP 🛛 🔽	
	PRACK	Disabled 👻	
	Submit		

5.4. Administer Call Feature

Select **Call Features** from the left pane to display the **Local Call Feature Configuration** screen. Check **Call Transfer**, and retain the default values for the remaining fields.

iPhone	VoIP Phone Configuration Portal					
Configuration Local Call Feature Configuration						
Basic Info Account Info	Call Forward No:					
Hotel Info	Do Not Disturb					
<u>Network Info</u>	Caller ID					
Line1 Info	☑ Call Transfer					
Line2 Info	Call Forward No Answer					
Speed Dial Info	Call Forward Busy					
Call Features	Call Forward All					
Online Upgrade VLAN Config	☑ Call Waiting					
Codec Config Security Config	Submit					

5.5. Reboot Phone

Select Reboot from the left pane to display the Reboot The Phone screen. Click Reboot.

iPhone	VoIP Phone Configuration Portal
Configuration	Reboot The Phone
<u>Basic Info</u> <u>Account Info</u>	Press the <i>Reboot</i> button to reboot the phone.
<u>Hotel Info</u> <u>Network Info</u>	Reboot
Line1 Info Line2 Info	NOTICE
Speed Dial Info	Once you change settings, Reboot phone from here!!
Call Features	
Online Upgrade	Tips:
VLAN Config Codec Config	1. Reboot will not change anything on the phone
Security Config	Return to <u>Main Page</u> .
Advance Options	
Maintenance	
<u>Reboot</u>	
Restore to Factory	

6. General Test Approach and Test Results

The feature test cases were performed manually. Calls were manually established between Teledex iPhone SIP LD4210S with the Avaya H.323, Avaya Digital, or PSTN endpoints, and call controls such as hold and conference were performed from the Teledex iPhone SIP LD4210S.

The serviceability test cases were performed manually by disconnecting and reconnecting the LAN cables to the Teledex iPhone SIP LD4210S.

All test cases were executed.

The following are the observations from the compliance testing:

- The Teledex iPhone SIP LD4210S do not support re-authentication using user name, therefore the workaround is to provision the SIP user name as shown in **Section 4.5** to enable re-authentication by extension.
- Avaya IP Office can successfully activate Do Not Disturb, but sends back 503 Service Unavailable for the activation request.

7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya IP Office and Teledex iPhone SIP LD4210S.

7.1. Verify Avaya IP Office

From a PC running the Avaya IP Office Monitor application, select Start > Programs > IP Office > Monitor to launch the application. The Avaya IP Office R5 SysMonitor screen is displayed, as shown below. Select Status > SIP Phone Status from the top menu.



The **SIPPhoneStatus** screen is displayed. Verify that there is an entry for each SIP extension from **Section 4.4**, and that the **User Agent** is "Teledex-Callctrl", and the **Status** is "SIP: Registered", as shown below.

SIPPho	neStatus				
Total Config	ured: 1		Waiting 3 secs for update		
Total Regist	ered: 1		Registered Status		
Extn Num	IP Address	Transport	User Agent	SIP 0	Status
57001	192.168.1.101	UDP	Teledex-Callctrl/v1.15.15 M5T SIP-UA SAFE/v3.6.4.8	B	SIP: Registered
<					
Display Op Show a		red C UnRe	gistered Print Cancel		

8. Conclusion

These Application Notes describe the configuration steps required for Teledex iPhone SIP LD4210S IP Telephone to successfully interoperate with Avaya IP Office. All feature and serviceability test cases were completed with observations noted in **Section 6**.

9. Additional References

This section references the product documentation relevant to these Application Notes.

- 1. IP Office 5.0 Documentation CD, August 2009, available at http://support.avaya.com.
- 2. Teledex iPhone SIP LD4100/4200 Series User's Guide, available at http://teledex.com.

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