

Avaya Solution & Interoperability Test Lab

A Sample Configuration for Computer Instruments e-IVR Automated Attendant and Voicemail 3.0 with Avaya[™] IP Office System 1.4 - Issue 1.0

Abstract

These Application Notes describe the configuration steps required for the Computer Instruments e-IVR Automated Attendant and Voicemail to successfully interoperate with the AvayaTM IP Office System. Features and functionality were validated and performance testing was conducted in order to verify operation under load. Information in these Application Notes has been obtained through interoperability compliance testing and additional technical discussions. Testing was conducted via the Developer*Connection* Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe the compliance-tested configuration utilizing Avaya IP Office 1.4 and Computer Instruments e-IVR Auto Attendant and Voicemail 3.0.

Computer Instruments Enhanced Interactive Voice Response (e-IVR) is a customer premise multi-application e-business and Customer Relationship Management (CRM) solution. e-IVR is a suite of Windows 2000 applications that contain all of the necessary functionality to act as a Web server, an electronic commerce storefront server, a value-added interactive voice response (IVR) platform, a fax response platform and a messaging server.

e-IVR Auto Attendant is a flexible feature-rich Auto Attendant that offers call answering and multiple menu services. Recorded menus allow the caller to select a department, individual extension, or an operator. In addition, the Auto Attendant is integrated with all other e-IVR applications such as Form Survey and Fax Back. e-IVR Auto Attendant supports:

- Voice Menus
- Extension Transfers
- Launch of any e-IVR service (Menus, Audio Text Messages, Form Filler surveys, Data Locators, Fax-On-Demand, etc.) or custom application
- Transfer to internal extensions or external numbers
- "Hide" VIP extensions behind an admin extension
- Integrated dial-by-name directory

e-IVR Voicemail is fully integrated with the e-IVR suite. Night callers interested in additional information can leave messages in a "request" box for daytime retrieval. e-IVR supports direct access from other e-IVR applications for "phantom" message boxes. e-IVR Voicemail supports:

- Operation in integrated or simple mode
- Voicemail boxes with up to 5 greetings
- Dial-By-Name directory
- Subscriber registration wizard to train new users
- Hands-Free-Playback option
- Select playback order
- Optional shared access to voicemail boxes

In the tested configuration shown in **Figure 1**, e-IVR interfaces with the IP Office System via 4port Intel Dialogic voice cards. The Intel Dialogic cards are connected to analog station ports on the IP Office and/or IP Office Phone Expansion Modules. IP Office is configured to route all inbound calls to a hunt group that includes the analog station ports connected to e-IVR.

Upon receipt of the inbound calls, e-IVR Auto Attendant transfers the caller to the appropriate destination extension based on caller input in response to the programmed menu listed below:

- Press 1 for Sales
- Press 2 for Marketing
- Press 3 for Tech Support

• Press 8 if you know your party's extension

If the destination extension is not answered, IP Office routes the caller to the Voicemail Server, in this case, e-IVR Voicemail. e-IVR Voicemail either plays the greeting recorded for the extension or the default system greeting. The caller can either leave a message or hang-up.



Figure 1: Computer Instruments e-IVR and Avaya IP Office Configuration

1.1. Observations / Limitations / Caveats

During the course of compliance testing, the following were noted:

- MWI lamp takes 1 3 seconds following call disconnect before lighting up.
- Call Routing by DNIS (Auto Attendant functionality) did not work at the time of publication. This is under investigation by Computer Instruments.
- Call Routing by ANI (Auto Attendant functionality) and other TAPI-based features (Agent e-IVR Screen Pops) were beyond the scope of this compliance test, and were not validated.

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• e-IVR Record A Call is not available on IP Office due to functionality not available in IP Office 1.4.

2. Equipment and Software Validated

The following equipment and software were used for the configuration provided in Figure 1.

Equipment	Software
Avaya [™] IP 403 Office System	1.4(22)
Avaya [™] IP 400 Phone 16 Expansion Module	-
Avaya [™] IP Office Manager	3.4(16)
Avaya [™] 6408D+, 6416D+M Digital Telephones	-
Avaya [™] 4612 IP Telephones	1.73
Computer Instruments e-IVR	3.0.6
Windows 2000 PC for IP Office Manager	Windows 2000 Professional
Generic Analog Telephones	-

3. Configure Avaya IP Office

These Application Notes address provisioning of IP Office as it relates to the integration with e-IVR Automated Attendant and Voicemail features. For all other provisioning information such as provisioning of the trunks for outbound dialing, call coverage, extensions, etc., please refer to the IP Office Product documentation.

Step	Description
	IP Office License Key Physical Installation
1.	Physically connect or plug in the red Avaya Software Sentinel key into the parallel port of the IP Office Manager PC
	Configure License Key Server IP Address
2.	Login to the IP Office Manager PC and go to Start \rightarrow Programs \rightarrow IP Office \rightarrow
	Manager to launch the Manager application. Login to the Manager application using the
	appropriate credentials.
3.	In the Manager window that appears, select File \rightarrow Open to search for the IP Office
	system in the network.
4.	Login to the IP Office system using the appropriate login credentials to receive its
	configuration.

Step	Description					
5.	In the Manager window, go to the Configuration Tree and double-click System. In the					
	System Configuration window that appears, select the System Tab and set <i>License Server</i>					
	<i>IP Address</i> to the IP address of the machine where the red Avaya Software Sentinel key is connected, which is typically the IP Office Manager PC					
		sprearly the fire of	nee manager i e.			
	System Configuration :	00E00700441E				
	System LAN1 DNS	/oicemail Telephony Gate	keeper LDAP			
	Name	00E00700441E	Locale	enu		
	Password	*****	Confirm Password	******		
	Monitor Password		Confirm Monitor Password			
	Time Offset (hours)		Licence Server IP Address	192.45.70.40		
	TFTP Server IP Address]			
	Time Server IP Address	0.0.0.0]	DSS Status		
	File Writer IP Address			Beep on listen		
				☐ Hide auto record		
			OK	Cancel <u>H</u> elp		
6.	In the Manager wind	ow, go to the Con	figuration Tree and dou	uble-click License to open the		
7	Right click in the lice	ense list window a	nd select New. In the I	License window that appears,		
/.	enter the CTI Link Pro License Key and click OK . In this example, 00 is shown.					
	License X					
	License String (32 characters)					
		ОК	Cancel Help			
8	In the Manager wind	ow select File	Save to save the licens	se to the IP Office system and		
0.	wait for the system to	o update.	Save to save the needs	se to the fill office system and		
	Note I : Before the s	ystem reloads, the	e new licenses will be li	sted with an Unknown status.		
	Configure e-IVR ex	tensions	ses will list with a value			
9.	Login to the IP Offic	e Manager PC and	d go to Start \rightarrow Progra	ams \rightarrow IP Office \rightarrow		
	Manager to launch t	he Manager applie	cation. Login to the Ma	mager application using the		
	appropriate credentia	ls.				

Step	Description						
10.	In the Manager window that appears, select File \rightarrow Open to search for the IP Office						
	system in the network.						
11.	Login to the IP Office system using the appropriate login credentials to receive its						
	configuration.						
12.	Select an analog station port on the IP Office Phone Expansion module that will be						
	connected to the e-IVR. Record the extension number, and attach a phone to it. Verify the						
	extension by placing a call to the extension number and confirm the phone rings.						
13.	In the Manager window, go to the Configuration Tree and double-click Extension to open						
	the list of extensions on the IP Office system.						
14.	Select the extension number recorded in Step 12 from the Extension list and double-click						
	it.						
15.	In the Extension window that appears, click the <i>IVR Port</i> radio button in the Equipment						
	Classification section and click OK .						
	Extension 227						
	Extn						
	Extension ID 195						
	Eutopoint 2007						
	Caller Display Type Off						
	Equipment Classification						
	Paging Speaker Minimum Width 2 2 2 Unit - 10ms						
	O Standard Telephone Maximum Width 50 ₽ Unit - 10ms						
	IVR Port Message Waiting Lamp Indication Type						
	Disconnect Pulse Width						
	Units - 10ms 80						
16.	Repeat Steps 12 - 15 for each analog station port connected to the e-IVR. For the purposes						
	of this document, 4 ports were used.						
	Configure User settings of e-IVR extensions						
17.	In the Manager window, go to the Configuration Tree and double-click User to open the						
	list of users on the IP Office system.						

Step	Description					
18.	In the User list window that appears, find the user assigned to the e-IVR extension, e.g.,					
	Extn227. Double-click the user in the User list window. In the User window that appears,					
	set <i>Name</i> to eivr1 (or any other name that you wish to associate with the e-iVR extension)					
	and <i>Extension</i> to the extension number to be used.					
	tuser eivr1					
	User Voicemail DND ShortCodes SourceNumbers Telephony Forwarding Dial In VoiceRecording ButtonProgramming Coverage					
	Name [eivr1]					
	Password					
	Confirm Password					
	FullName					
	Extension (227)					
	Locale					
	Priority 5					
	0K Cancel Help					
19.	In the Voicemail tab of the User window, uncheck Voicemail On.					
	大User eivr1×					
	Voicemail Code					
	Confirm Voicemail Code 📃 🔽 Voicemail Help					
	Voicemail Email 🗌 🔽 Voicemail Ringback					
	Voicemail Reception					
	Voicemail neception					
	Voicemail Email					
	C Copy					
	C Alert					
	OK Cancel <u>H</u> elp					

Step	Description
20.	In the Telephony tab of the User window, set <i>Wrap-up Time</i> to 5 seconds as suggested by Computer Instruments, uncheck <i>Call Waiting On</i> , check <i>Cannot be Intruded</i> , and click OK .
	★ User eivr1 _□X
	User Voicemail DND ShortLodes SourceNumbers Feephony Forwarding Dia In VoiceRecording ButtonProgramming Coverage Outside Ring Pattern DefaultRing Call Waiting Dn
	Inside Ring Pattern DefaultRing DefaultRin
	Ring Back Pattern DefaultRing Can Intrude
	Allocated Answer Interval (secs)
	Wrap-up Time (secs)
	Login Code 🛛 🗖 Busy On Held
	Login Idle Period (secs)
	Monitor Group
	OK Cancel Help
01	
21.	four e-IVR extensions were configured
	Configure Hunt Group
22.	In the Manager window, go to the Configuration Tree and double-click HuntGroup to open
	the list of hunt groups on the IP Office system.

Step	Description
23.	Right click in the HuntGroup list window and select New . In the HuntGroup window that appears, add extensions to the Extension List that will be part of the hunt group by right clicking in the Extension List section and selecting Add. Then, set <i>Name</i> to eIVR , <i>Extension</i> to the extension number to be used for the hunt group, and <i>Hunt Type</i> to Circular .
	HuntGroup eIVR _□□×
	HuntGroup Voicemail Fallback Queuing VoiceRecording
	Name Hunt Type C Group
	Extension (771) C Linear C Circular
	Allocated Answer Interval (secs)
	Overflow Time (secs)
	Extension List Overflow Group List
	Extension User Name 227 eivr1 228 eivr2 229 eivr3 230 eivr4
	OK Cancel Help

Step	Description
24.	In the Voicemail tab of the HuntGroup window, uncheck Voicemail On.
	HuntGroup Voicemail Fallback Queuing VoiceBecording
	Voicemail Code
	Confirm Password
	Voicemail Email
	● Off □ Voicemail Help
	C Forward
	C Alert
	OK Cancel <u>H</u> elp
25.	In the Queuing tab of the HuntGroup window, uncheck Queuing On as suggested by
	Computer Instruments and click OK .
	针HuntGroup eI¥R
	HuntGroup Voicemail Fallback Queuing VoiceRecording
	Queuing Limit
	Queue Ring Time (secs) 10
	OK Cancel <u>H</u> elp

Step	Description				
26.	In the Manager window, select $File \rightarrow Save$ to save the configuration to the IP Office				
	system and wait for the unit to reboot.				
27.	Verify the hunt group is operating properly by placing calls to the hunt group extension				
	defined, e.g., 771. Confirm one of the analog phones belonging to the hunt group rings.				
	Subsequent calls to the hunt group should make the other phones ring in a circular order.				
	Select Inbound Call Route				
28.	In the Manager window, go to the Configuration Tree and double-click Incoming Call				
	Route to open the list of incoming call routes on the IP Office system. Right click in the				
	Line Group list window and select New.				
29.	In the Incoming Call Route window that appears, set Line group ID to 0 and Destination to				
	eIVR (same name as the e-IVR hunt group). Click OK.				
	Tricoming Call Route				
	Line group ID				
	(• AnyVoice				
	Incoming Number C Audio3K1				
	O AnyData				
	Incoming Sub Address O Data64K				
	C Data56K				
	Destination				
	○ Any				
	Locale				
	OK Cancel Help				
	Note 2: For the purposes of this document, all incoming calls are directed to the e-IVR, so				
	the default Line Group ID (0) is used. However, if only a specific group of trunks is to be				
	Arrier Terrele to the E-1VK, another number should be used.				
20	Assign 1 runks to the incoming Call Koute				
30.	In the Manager window, go to the Configuration Tree and double-click Line to open the				
	list of lines (trunks) available on the IP Office system. Double-click the Line (analog or				
	digital) whose incoming calls are to be routed to the e-IVR.				

Step	Descr	iption	l						
31.	In the	Line w	rindow 1	that appear	s, assigi	n the line to	the Line gr	oup ID identifie	ed in Step 29.
		PRI 24 Line 05							
		Line Ac	Ivanced						1
	1	Line Numb	er	05			Line SubType	PRI	•
		Channel All	location	23 →1			Provider	Local Telco	•
		Switch Typ	e	NI2		•			
		Chan	Groups	Direction	Bearer	Service		Admin	
		1	0 0 0 0	Both Directions Both Directions	Any Any	None None		Out of Service Out of Service	
		3	00	Both Directions Both Directions	Any Any	None		Out of Service Out of Service	
		5	0 0	Both Directions	Any	None		Out of Service	
		7	0 0	Both Directions Both Directions	Any Any	None		Out of Service	
		8	00	Both Directions Both Directions	Any Any	None None		Out of Service Out of Service	
		10	0 0	Both Directions	Any	None		Out of Service	
		11 12		Both Directions Both Directions	Any Any	None		Out of Service	_
							Prefix		
							ОК	Cancel	Help
	For ex	amnle	each cl	nannel in th	e PRI 1	ine window	must he as	signed to the Li	ne groun ID
	from S	ten 29	To do	so double	e-click f	he channel	and edit the	Incoming Grou	in field in the
	Edit C	hannel	pop up	that appea	rs. A si	milar proce	dure is used	on the analog l	ines.
32.	Repeat	Steps	30 - 31	for each li	ne (trun	(k) assigned	to the incom	ming call route.	
33	In the 1	Manag	er wind	low, select	$\overline{\text{File}} \rightarrow$	Save to pus	sh the config	guration to the I	P Office
20.	system	and w	ait for	the unit to	reboot.	I			
34.	Verify the incoming call route is properly operating by placing calls through the selected								
	inboun	d line	(trunk)	and confirm	ming on	e of the pho	ones assigne	d to the hunt gr	oup rings.
	Set e-I	VR as	the Vo	oicemail Se	erver	•			
35.	In the	Manag	er wind	low, go to t	he Con	figuration T	ree and dou	ble-click Syster	m to open the
	System	n Conf	iguratio	n window	of the II	P Office sys	stem.	2	<u>^</u>

Step	Description
36.	In the Voicemail tab of the System Configuration window, set <i>Voicemail Type</i> to Group, <i>Voicemail Destination</i> to eIVR and click OK .
	System Configuration : 00E00700441E
	System LAN1 DNS Voicemail Telephony Gatekeeper LDAP
	Voicemail Type C None C PC C Line C Integral C Group C Audix
	Voicemail Destination
	Voicemail Password
	Confirm Password
	OK Cancel Help
37.	In the Manager window, select File \rightarrow Save to push the configuration to the IP Office system and once the unit is done rebooting, the IP Office configuration is complete.

4. Configure Computer Instruments e-IVR Server

These Application Notes address provisioning of e-IVR as it relates to integration with IP Office. For all other provisioning information such as Computer Instruments e-IVR software installation, Dialogic card installation and configuration, etc., please refer to the e-IVR product documentation available on the Computer Instruments website.

4.1. Configure e-IVR Initialization File

Step	Description		
1.	Open C:\Winnt\EIVR.ini (using notepad or another text editor). In the INI file, look for		
	the [Switch] section and set IPOffice, TapiRing and TapiDrop to 1. If either the [Switch] section or the entries are missing, add them to the file.		
	[Switch]		
	IPOffice=1		
	TapiRing=1		
	TapiDrop=1		

Step	Description		
2.	In the same INI file, look for the [IPOffice] section and set up a channel entry for each		
	eIVR extension configured in the IP Office switch. For example, IP Office extensions 227		
	through 230 are set up as eIVR extensions. The IP Office port associated with each of		
	these extensions will be connected to one of the four ports on the e-IVR server's Dialogic		
	board. The INI entries depicted below provide the mapping used.		
	[IPOffice]		
	Chan1=227		
	Chan2=228		
	Chan3=229		
	Chan4=230		
	Note 3 : Failure to properly match ports to extensions will prevent the system from		
	operating properly.		

4.2. Installing and Configuring Avaya IP Office TAPI Service Provider

Please refer to the Avaya IP Office CTI Link Installation Manual, 40DHB0002UKCC – Issue 4 (05/08/2002) for additional information.

Step	Description		
1.	Install the Avaya IP Office TAPI Service Provider driver and DevLink driver from the Avaya IP Office User Applications CD on the e-IVR server. NOTE: do not install the		
	Phone Manager.		
2.	After system reboot, login to the system again as "administrator" and go to Start \rightarrow		
	Settings \rightarrow Control Panel. In the Control Panel window that appears, double-click		
	Phone and Modem Options.		
3.	In the Advanced tab of the Phone and Modern Options window, double-click Avaya IP		
	Office TAPI2 Service Provider.		
4.	In the Avaya 1 AP12 configuration window that appears, set Switch IP Address to the IP		
	Address of the IP Office System, check <i>Inita Party</i> , set <i>Switch Passwora</i> to the IP Office		
	System password, check <i>WAV Users</i> and <i>ACD Queues</i> and check UK .		
	Switch IP Address 194.45.70.226 OK		
	© Single User		
	User Name		
	User Password		
	• Third Party		
	Switch Password		
	WAV Users		
	ALD queues		
5.	Reboot the system.		

Step	Description			
	Verify Connectivity with the IP Office			
6.	ter system reboot, login to the system and go to Start \rightarrow Programs \rightarrow Accessories \rightarrow mmunications \rightarrow Phone Dialer.			
7.	In the Phone Dialer window that appears, select $Edit \rightarrow Options$.			
8.	In the Lines tab of the Options window that appears, drop-down the Phone Calls: list. If one or more "IP Office Phone: XXX" (where XXX is an extension number) entries appear, then the IP Office TAPI Driver is installed and working properly.			
	Options ?X			
	Lines Audio / Video Image: Phone and Modem Options Preferred Line For Calling Image: Phone Calls: Image: Phone: 200 Image: Phone: 201 Image: Phone: 203 Image: Phone: 204 Image: Phone: 204 Image: Phone: 204			

4.3. Configuring e-IVR

Step	Description	
	Set up Base Configuration	
1.	On the e-IVR Server, go to Start \rightarrow Programs \rightarrow Voice System \rightarrow Voice Administrator	
	(or the matching icon on the desktop) to launch the e-IVR Administrator application.	
2.	In the e-IVR Administration window that appears, select the System Config icon (wrench)	
	on the left side menu.	

Step	Description				
3.	In the Defaults tab of the Base System Configuration window that appears, verify <i>PBX</i>				
	Integration is set to Avaya IP Office, and Default Operator is set to the designated				
	operator on the system and click Save Settings.				
	System Administration				
	Base System Comguration				
	System Defaults				
	PBX Integration: Avaya IP Office Outcall Group Start End Order Call Me Back Nowl 1 4 S-E				
	Default Application 1001 - Voicemail Server Message Lamp 4 4 5-E				
	Default Operator: 251 - AGENT, SEVEN				
	Default Laguage: English				
	Default Gender: 🔿 Male 💿 Female				
	Default TTS Voice: Microsoft Mary				
	Dial Plan Digits: 3 💌 Max Mode Digits: 15 💌				
	Transfer Prefix: Transfer Suffix:				
	Outside Line Access Prefix: 9,				
	Toll Call Suffix/Code:				
	Local Call Suthx/Code:				
	Use Single-Digit Transfer. Expect DNIS Digits:				
	Save Settings Save New Delete				
	Defaults Application Channel Fax/Dialing Installed Services				
	Status: Ready				
	Note 4: On a brand new installation, the default operator would default to 100 and another				
	extension could not be set until the destination extension has been provisioned.				

Step	Description				
4.	In the Channel tab of the Base System Configuration window, verify all e-IVR ports (channels) are associated to an application in this instance. Voicemail Server This				
	determines what happens when an inbound call is received.				
	Psystem Administration				
	Base System Configuration				
	1 Voicemail Server False 2 Voicemail Server False 3 Voicemail Server False 4 Voicemail Server False				
	Application Add Delete Save				
	Auto Attendant Settings Note: If no trunk or trunk group entries are listed below the system will use the Default Application (from the Defaults tab) as the application to run for Auto Attendant calls.				
	Application:				
	Extension: Update				
	Defaults Application Channel Fax/Dialing Installed Services				
	Status: Ready				
	Figure 1 . a W/D System Configuration . Channel Tab				
	Figure 1 – e-IVR System Configuration – Channel Tab				
5.	In the e-IVR Administration window, select the Extension Manager icon (hand holding				
	phone) on the left side menu.				
6.	In the e-IVR Extension Editor window that appears, click New and enter a valid IP Office				
	User extension in the popup that appears.				

Step	Description			
7.	Returning to Extension tab of the e-IVR Extension Editor window, enter the User's First Name, Last Name, and check <i>Allow Call Transfer</i> .			
	E-IVR Extension Editor			
	Select Extension: 210 - AGENT, ONE ▶ Extension Mailbox			
	First Name Last Name ONE AGENT Email Address			
	Email Server (Name or IP) Email Server Type POP3/SMTP			
	Email Login (User Name) Email Password			
	Allow Call Transfer Administrator Re-Route Transfers To Another Extension			
	Execute An Application			
	Pager setup Save Renumber Bulk Add Exit			

Step	Description			
8.	In the Mailbox tab of the e-IVR Extension Editor window, check Voicemail Subscriber			
	and Allow Outcalling? then click Save.			
	E-IVR Extension Editor			
	Select Extension: 210 - AGENT, ONE			
	Extension Mailbox Voicemail Options Messaging			
	Voicemail Subscriber Unified Messaging Subscriber			
	Allow Outcalling?			
	Personal Operator Image: Construction of the construction of			
	Reset Password (9999) Reset (Clear) Mailbox			
	Pager setup Save Renumber Bulk Add Exit			
9.	Repeat Steps 7 and 8 for every user that needs voicemail on the IP Office system.			
	Note 5: For systems with a large number of users, the e-IVR has a Bulk Add feature.			
	Please refer to the e-IVR documentation for further information.			
10	In the e-IVR Administration window, select the Menu Manager icon (telephone) on the left			
10.	side menu			
11.	In the Menu Editor window that appears, click New and enter a new Menu Application			
	Name, for example, Test Main App, in the popup that appears and click Save.			



5. Interoperability Compliance Testing

This Interoperability Compliance Test included feature, functionality and performance load testing. Feature and functionality testing examined e-IVR Auto Attendant's ability to properly transfer inbound and internal calls to the appropriate destination extension (digital, analog, IP phone) based on caller input in response to the menu prompt played as well as e-IVR Voicemail's ability to properly record and playback voicemail messages. Performance load tests verified the configuration to continue when operating under load.

5.1. General Test Approach

Feature and functionality testing was performed manually. Inbound calls were made to the IP Office system from analog and PRI trunks as well as internal extensions. The IP Office system routed the calls to the e-IVR, which transferred the calls based on caller input. Analog loop start trunks from the central office were connected to the IP Office. A PRI trunk was provisioned between the IP Office and Avaya Communication Manager systems. Performance testing was accomplished by utilizing call generation tools for placing and receiving calls through analog

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station ports. Analog station ports on the call generation tools were connected to analog station ports on the IP Office Phone Expansion Module. Call generation tool scripts were written to place calls to the e-IVR configured hunt group on the IP Office system. Each script barged in on the Menu prompt and provided a valid and distinct user extension for the destination of the call transfer. The e-IVR then transferred the calls to the appropriate destination extension. The call generation tool script on the destination extension verified the incoming call was from the proper source.

5.2. Test Results

All feature, functionality, and performance test cases passed successfully. Overnight performance testing at a rate of approximately 250 BHCC using 3 ports^{*} was conducted on the 4-port e-IVR system provided for compliance testing. Performance statistics were captured on the e-IVR server to ensure that it was able to handle the call volume. During the course of compliance testing, the following were noted:

- MWI lamp takes 1 3 seconds following call disconnect before lighting up.
- Call Routing by DNIS (Auto Attendant functionality) did not work at the time of publication. This is under investigation by Computer Instruments.
- Call Routing by ANI (Auto Attendant functionality) and other TAPI-based features (Agent e-IVR Screen Pops) were beyond the scope of this compliance test, and were not validated.
- e-IVR Record A Call is not available on IP Office due to functionality not available in IP Office 1.4.

6. Verification Steps

The following verification Steps can be used in the field to verify correct system operation:

- To verify the e-IVR hunt group is operating properly: connect analog phones to all analog station ports assigned to the hunt group and call the hunt group. Verify that one of the phones rings.
- To verify incoming calls are properly routed to the e-IVR hunt group: connect analog phones to the ports assigned to the hunt group and place calls through the trunks assigned to the hunt group. Verify that one of the phones rings.
- To verify connectivity between e-IVR and IP Office, open Phone Dialer on the e-IVR Server and verify the IP Office extensions are listed in the Lines Used for Phone Calls pull down list.
- To verify e-IVR Auto Attendant is operating properly for internal calls: place a call to the e-IVR hunt group. Verify the e-IVR Menu prompt is played, enter '8', and then enter a valid extension number on the IP Office system. Verify the call is transferred to the correct extension. Repeat for inbound trunk calls.
- To verify e-IVR Voicemail is operating properly for internal calls: place a call from one IP Office extension to another and allow it to go to coverage. Verify e-IVR Voicemail

^{*} During load testing, one of the ports on the call generation tool failed to work properly and forced the load testing to be performed on 3 of the 4 e-IVR ports. Time constraints prevented another attempt to repeat the load test.

plays the proper welcome greeting and record a message and hang up. After a minute or two, retrieve the message (IP Office Shortcode *17) and verify it plays back properly. Repeat for inbound trunk calls.

7. Support

Customers should call Computer Instruments Technical Support when having problems related to the e-IVR. Computer Instruments will then determine the nature of the problem and recommend the best plan to the customer, whether it is to:

- Fix the problem through remote access.
- Dispatch, at Computer Instruments' discretion, on-site technical support.

For technical support on e-IVR, contact the Computer Instruments Customer Service Center at 1-888-451-0851 and press 2 for technical support.

8. Conclusion

These Application Notes describe the required configuration steps for Computer Instruments' e-IVR Auto Attendant and Voicemail to successfully interoperate with Avaya[™] IP Office System. The e-IVR and IP Office features, functionality, and performance were validated with the following limitations / caveats previously identified: e-IVR Auto Attendant - Route by ANI was beyond the scope of this testing, and e-IVR Auto Attendant - Route by DNIS did not work and is being investigated by Computer Instruments.

9. Additional References

- Avaya IP Office Installation Manual, 40DHB0002USCL, Issue 8 (03/07/2003).
- e-IVR User Manual for Interactive Voice Response Core System Features, Copyright 2003.
- Installing e-IVR on IP Office, Version 3.0, and Copyright 2003.

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