



Avaya Solution & Interoperability Test Lab

Application Notes for FCS Phoenix with Avaya Aura® Communication Manager - Issue 1.0

Abstract

These Application Notes describe the procedures for configuring FCS Phoenix with Analog Interface to interoperate with Avaya Aura® Communication Manager. FCS Phoenix interfaces with both Avaya Aura® Communication Manager and FCS Unicorn, a Property Management System. It supports both SIP and analog technology.

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 the procedures for configuring FCS Phoenix with Analog Interface to interoperate with Avaya Aura® Communication Manager. FCS Phoenix connects to Avaya Aura® Communication Manager and FCS Unicorn, a Property Management System (PMS).

FCS Phoenix is a Windows-based Voice Messaging system that supports standard Hospitality feature requests to/from a PMS (guest room check-in/check-out/move, Automatic Wake-Up (AWU), Message Waiting Lamp (MWL) control and Housekeeping/Room Status changes and Minibar usage as well as Auto Attendant function. FCS Phoenix is connected to the Avaya Aura® Communication Manager via analog phone lines. It utilizes Dual Tone Multi Frequency (DTMF) signaling (specifically mode codes) from Avaya Aura® Communication Manager which communicates the Called Party Identification (CPI) and other information, in addition to passing voice signaling and traffic.

2. General Test Approach and Test Results

Feature functionality testing was performed manually. Inbound and outbound voice calls were made to the Avaya IP Telephones (i.e., the guest telephones) over BRI trunks, as well as from other local extensions. A simulated PMS application was used to make room check in /check out /move requests and MWL On/Off for text messages.

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

Interoperability compliance testing focused on the ability of FCS Phoenix to work with Communication Manager. This includes both feature and serviceability testing.

FCS Phoenix features and capabilities that were verified included the following:

- Leave and retrieve voice messages for both guest and admin phones
- Receive and retrieve fax messages for guests
- MWL for both guest and admin phones
- Automatic Wake Up Call for guest phones
- Operator transfer

The serviceability testing focused on verifying the ability of FCS Phoenix to recover from adverse conditions such as resetting of the FCS Phoenix Server or Communication Manager.

2.2. Test Results

All executed test cases were completed successfully and the following was observed.

- The mode code prefix sent from Communication Manager is reduced to a single digit for reducing the total length of time in sending the whole DTMF string to the FCS Phoenix application especially in internal coverage type of calls. The default DTMF sending delay and duration for ON/OFF is also adjusted for this reason.

2.3. Support

For technical support on FCS Phoenix, contact FCS Computer Systems at Support Hotline at +632-857-4000.

3. Reference Configuration

The configuration used in performing compliance testing of FCS Phoenix is shown in **Figure 1**. It shows a network consisting primarily of a pair of Avaya S8800 Server running Communication Manager in duplex mode with Avaya G650 and G430 Media Gateways, System Manager and a FCS server with Phoenix software installed including PMS simulator. Each guest room has a pair of phones which are either analog or Avaya digital phone and an IP Telephone. In addition, a Fax Machine is installed in Guest Room 1 for fax testing purpose. Additional utility phones are also setup to function as Operator and Admin. 8 analog lines from FCS Phoenix are connected directly to Analog Media Modules MM716AP on Avaya G430 Media Gateway.

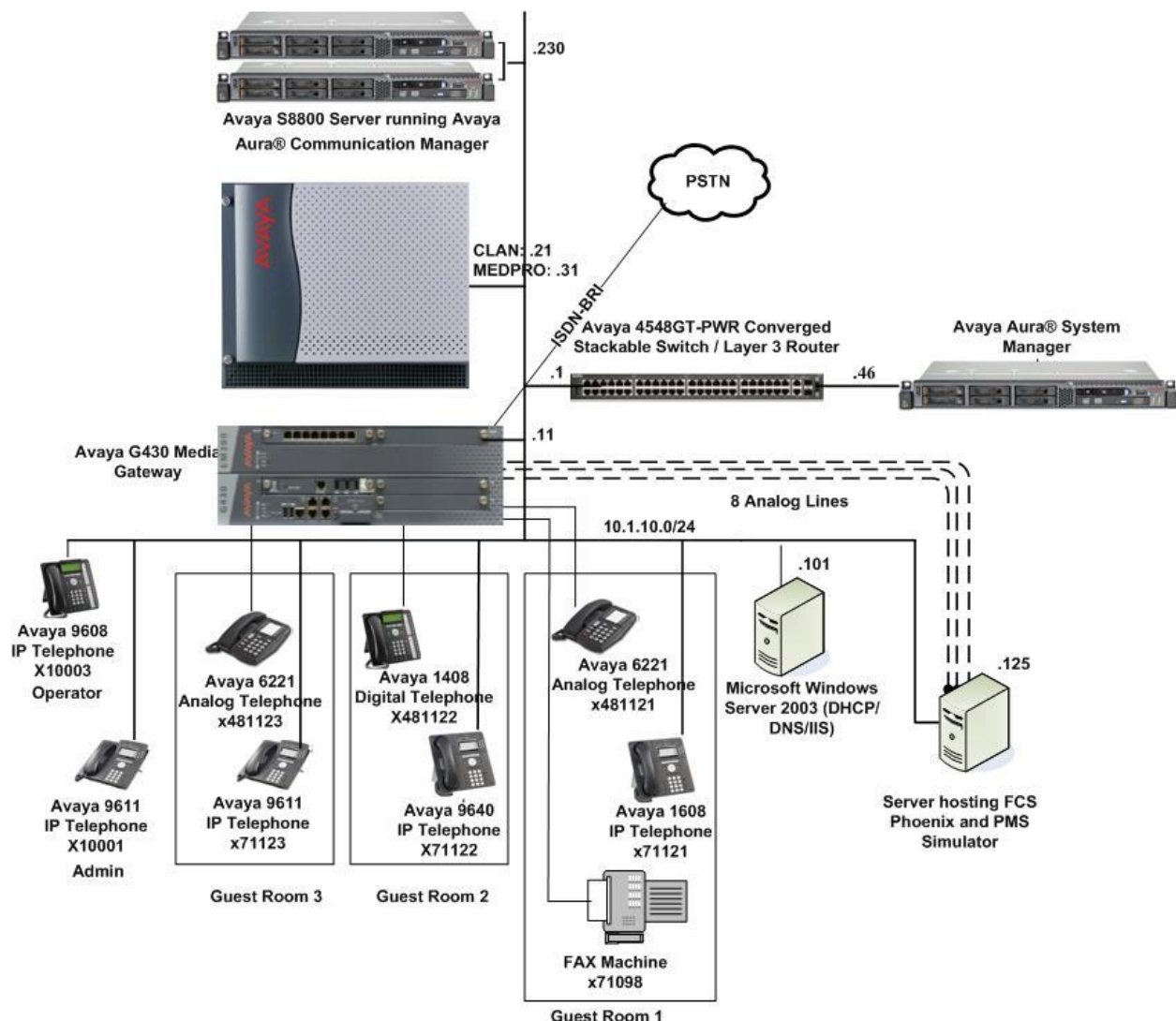


Figure 1: Sample Test Configuration

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	R016x.03.0.124.0-21591
Avaya G650 Media Gateway <ul style="list-style-type: none">TN2312BP IP Server InterfaceTN799DP C-LAN InterfaceTN2602AP IP Media Processor	- HW07, FW057 HW01, FW044 HW02, FW066
Avaya G430 Media Gateway <ul style="list-style-type: none">MM716AP	36.7.0 HW12 FW99
Avaya Aura® System Manager	6.3.8.5.2376
Avaya 4548GT-PWR Converged Stackable Switch	V5.6.1.052
Avaya 96x1 IP H323 Telephone	6.4104
Avaya 96x0 IP H323 Telephone	3.220B
Avaya 16xx IP H323 Telephone	1.350B
Avaya 6221 Analog Telephone	-
Avaya 14xx Digital Telephone	R38
FCS Phoenix on Windows Server 2008 R2 SP1	2.1
Synway Analog Voice Card SHT-8C/PC/Fax	-

5. Configure Avaya Aura® Communication Manager

This section details the steps required to configure Avaya Communication Manager to interoperate with FCS Phoenix with Analog Interface. In the case of FCS Phoenix with SIP Interface, please refer to [4]. These Application Notes assume the Avaya Media Gateway (including circuit packs) has already been administered. Please refer to [1]-[2] for additional details. Since PMS simulator was used for this compliance testing, administration for PMS is not documented here which can be referred to in the FCS Unicorn Application Notes in [3].

The commands listed in this section were issued at the System Access Terminal (SAT) screen. For all steps where data are modified, submit the completed administration form for the changes to take effect.

5.1. License

Ensure that sufficient ports (as provided for by the License) for FCS Phoenix analog lines, other than the ports for guest rooms' analog and digital stations, are turned on as below:

- **Maximum Stations:** Ensure sufficient number of ports for Voice Mail ports are allocated

```
display system-parameters customer-options                               Page 1 of 11
                                OPTIONAL FEATURES

G3 Version: V16                                     Software Package: Enterprise
Location: 2                                          System ID (SID): 1
Platform: 28                                         Module ID (MID): 1

                                                USED
Platform Maximum Ports: 65000 391
Maximum Stations: 41000 199
Maximum XMOBILE Stations: 41000 0
Maximum Off-PBX Telephones - EC500: 41000 1
Maximum Off-PBX Telephones - OPS: 41000 35
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.)
```

5.2. Mode Code Integration

Mode Code Integration is required for receiving CPI of Voice Mail subscribers where analog stations are created as type VMI. Mode Code Integration is a basic feature of Communication Manager and no license is required.

Enter **change system-parameters features**, and set the **Mode Code Interface** to **y**. Log off and log back on the SAT screen again to affect the change.

change system-parameters features	Page 6 of 20
FEATURE-RELATED SYSTEM PARAMETERS	
Public Network Trunks on Conference Call: 5	Auto Start? y
Conference Parties with Public Network Trunks: 6	Auto Hold? y
Conference Parties without Public Network Trunks: 6	Attendant Tone? y
Night Service Disconnect Timer (seconds): 180	Bridging Tone? n
Short Interdigit Timer (seconds): 3	Conference Tone? n
Unanswered DID Call Timer (seconds):	Intrusion Tone? n
Line Intercept Tone Timer (seconds): 30	Mode Code Interface? y
Long Hold Recall Timer (seconds): 120	
Reset Shift Timer (seconds): 0	
Station Call Transfer Recall Timer (seconds): 0	Recall from VDN? n
Trunk Alerting Tone Interval (seconds): 15	
DID Busy Treatment: tone	
Allow AAR/ARS Access from DID/DIOD? n	
Allow ANI Restriction on AAR/ARS? n	
Use Trunk COR for Outgoing Trunk Disconnect/Alert? n	
7405ND Numeric Terminal Display? n	7434ND? y
DTMF Tone Feedback Signal to VRU - Connection:	Disconnection:

Enter **change system-parameters mode-code** and set the appropriate code for **Direct Inside Access, Direct Dial Access – Trunk, Internal Coverage and External Coverage**. In this compliance test, single digit mode is assigned. This is because the more digits (or *, #) is set as code, the longer the duration for the whole DTMF string to be sent from switch to Voice Mail. This might cause issues to the Voice Mail's behavior when incomplete CPI is received due to limited time available on Phoenix to receive all the digits (or *, #) especially in Internal Coverage scenario where a typical string compose of the format **<Mode Code>#<Calling Number>#<Called Number>#**.

The default **DTMF Duration** for **On, Off** and **Sending Delay** of 100 msec is adjusted during this compliance testing to the values below to shorten the duration it takes to send the string across.

```
change system-parameters mode-code                                     Page 1 of 1
      MODE CODE RELATED SYSTEM PARAMETERS

      MODE CODES (FROM SWITCH TO VMS)
        Direct Inside Access: 0
      Direct Dial Access - Trunk: 1
        Internal Coverage: 2
        External Coverage: 3

      Refresh MW Lamp: #06

      System In Day Service: #11
      System In Night Service: #12

      OTHER RELATED PARAMETERS
      DTMF Duration - On (msec): 50    Off (msec): 50    Sending Delay (msec): 75

      VMS Hunt Group Extension:
      Remote VMS Extensions - First:          Second:
```

5.3. Feature Access Codes for MWL

Enter **change feature-access-codes** and advance to Page 3. Enter values for **Leave Word Calling Send A Message** and **Leave Word Calling Cancel A Message** that are consistent with the administered dial plan. These feature access codes (FACs) will be used by FCS Phoenix to activate and deactivate the MWLs on users' stations to be administered in FCS Phoenix in **Section 6.2**.

change feature-access-codes		Page 3 of 10
FEATURE ACCESS CODE (FAC)		
Leave Word Calling Send A Message: *35		
Leave Word Calling Cancel A Message: *36		
Limit Number of Concurrent Calls Activation:	*37	Deactivation: *38
Malicious Call Trace Activation:	*39	Deactivation: *40
Meet-me Conference Access Code Change:	*41	
Message Sequence Trace (MST) Disable:		
PASTE (Display PBX data on Phone) Access Code:	*42	
Personal Station Access (PSA) Associate Code:	*43	Dissociate Code: *44
Per Call CPN Blocking Code Access Code:	*45	
Per Call CPN Unblocking Code Access Code:	*46	
Posted Messages Activation:		Deactivation:
Priority Calling Access Code:	*47	
Program Access Code:		
Refresh Terminal Parameters Access Code:		
Remote Send All Calls Activation:	*48	Deactivation: *49
Self Station Display Activation:	*50	
Send All Calls Activation:	*51	Deactivation: *52
Station Firmware Download Access Code:	*53	

5.4. Add Client Room Properties to a Class of Service

Enter **change cos-group 1**, and for the Class of Service to be assigned to guest telephones, set the **Client Room** field to **y** (as shown below for Class of Service 5).

change cos-group 1											Page						1 of		2
CLASS OF SERVICE			COS Group: 1			COS Name: Default													
			0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Auto Callback			n	y	y	n	y	n	y	n	y	n	y	n	y	n	y	n	
Call Fwd-All Calls			n	y	y	y	y	y	n	y	y	n	n	y	y	n	n	y	
Data Privacy			n	y	y	n	n	n	y	y	y	n	n	n	n	y	y	y	
Priority Calling			n	y	y	n	n	n	n	n	n	y	y	y	y	y	y	y	
Console Permissions			n	n	y	n	n	n	n	n	n	n	n	n	n	n	n	n	
Off-hook Alert			n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Client Room			n	n	n	n	n	y	n	n	n	n	n	n	n	n	n	n	
Restrict Call Fwd-Off Net			y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	
Call Forwarding Busy/DA			n	y	y	n	n	y	n	n	n	n	n	n	n	n	n	n	
Personal Station Access (PSA)			n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Extended Forwarding All			n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Extended Forwarding B/DA			n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Trk-to-Trk Transfer Override			n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
QSIG Call Offer Originations			n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Contact Closure Activation			n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Automatic Exclusion			n	n	y	n	n	y	n	n	n	n	n	n	n	n	n	n	

5.5. Set Guest Room Calling Party Restrictions in a Class of Restriction (COR)

Enter **change cor n**, where **n** is the number of the Class of Restriction to be assigned to guest telephones (in this example, COR 5 is used).

change cor 5

Page 1 of 23

CLASS OF RESTRICTION

COR Number: 5

COR Description: **Guest Room**

FRL: 0

APLT? y

Can Be Service Observed? n

Calling Party Restriction: all-toll

Can Be A Service Observer? n

Called Party Restriction: none

Time of Day Chart: 1

Forced Entry of Account Codes? n

Priority Queuing? n

Direct Agent Calling? n

Restriction Override: none

Facility Access Trunk Test? n

Restricted Call List? n

Can Change Coverage? n

Unrestricted Call List:

Access to MCT? y

Fully Restricted Service? n

Group II Category For MFC: 7

Hear VDN of Origin Annc.? n

Send ANI for MFE? n

Add/Remove Agent Skills? n

MF ANI Prefix:

Automatic Charge Display? n

Hear System Music on Hold? y

PASTE (Display PBX Data on Phone)? n

Can Be Picked Up By Directed Call Pickup? n

Can Use Directed Call Pickup? n

Group Controlled Restriction: inactive

5.6. Create Service/Pilot Numbers for Phoenix

The following Service/Pilot numbers are created for FCS Phoenix which is used to invoke the services:

S/No	Pilot/Service Numbers	Description
1.	70000	Pilot Number for Voice Mail coverage which comprises of members 71001-71003
2.	70001	Pilot Number for Voice Mail retrieval which comprises of members 71004-71005
3.	71006	Service Number for Express Fax retrieval
4.	71007	Service Number for Express Leave Voice Mail message
5.	71008	Service Number for Voice Mail message retrieval

The corresponding settings on FCS Phoenix are mentioned in **Section 6.3**. The analog stations for connection to the Phoenix analog interface card have to be created first followed by the hunt groups for the Pilot Numbers in the next section.

Enter **add stations *n***, where *n* is the extension number. Enter extension **Type** as **VMI** and the free analog **port** available with the appropriate **Name**. In this compliance testing, MM716AP Media Module on G430 Media Gateway is used because it has a large number of analog ports i.e., 24. Set **Tests** to **n** to turn off the maintenance testing.

add station 71001		Page 1 of 4
STATION		
Extension: 71001	Lock Messages? n	BCC: 0
Type: VMI	Security Code:	TN: 1
Port: 003V307		COR: 1
Name: FCS VM#1		COS: 1
		Tests? n
STATION OPTIONS		
	Time of Day Lock Table:	
Loss Group: 1		
Off Premises Station? n		
Survivable COR: internal		
Survivable Trunk Dest? Y		

On Page 2, set **LWC Activation** to **y** so that Phoenix can activate LWC (Message Waiting Light) for guest rooms/admin stations with the line. Set **Adjunct Supervision** to **y**.

add station 71001		Page 2 of 4
STATION		
FEATURE OPTIONS		
LWC Activation? y	Coverage Msg Retrieval? y	
LWC Log External Calls? n	Auto Answer: none	
CDR Privacy? n	Data Restriction? n	
Redirect Notification? y		
Per Button Ring Control? n		
Bridged Call Alerting? n	Distinctive Audible Alert? y	
Switchhook Flash? y	Adjunct Supervision? y	
Ignore Rotary Digits? n		
H.320 Conversion? n	Per Station CPN - Send Calling Number?	
Service Link Mode: as-needed		
Multimedia Mode: basic	Audible Message Waiting? n	
MWI Served User Type:		
AUDIX Name:		
	Coverage After Forwarding? s	
	Multimedia Early Answer? n	
Emergency Location Ext: 71001		

Repeat the steps for creating the rest of the analog stations i.e., 71002-71008 as listed below.

list station ext 71001 count 8		Page 1							
STATIONS									
Ext/ Hunt-to	Port/ Type	Name/ Surv GK NN	Move	Room/ Data Ext	Cv1/ Cv2	COR/ COS	Cable/ TN Jack		
71001	003V307	FCS VM#1				1			
	VMI		no			1	1		
71002	003V309	FCS VM#2				1			
	VMI		no			1	1		
71003	003V310	FCS VM#3				1			
	VMI		no			1	1		
71004	003V312	FCS VM#4				1			
	VMI		no			1	1		
71005	003V313	FCS VM#5				1			
	VMI		no			1	1		
71006	003V315	FCS VM#6				1			
	VMI		no			1	1		
71007	003V316	FCS VM#7				1			
	VMI		no			1	1		
press CANCEL to quit -- press NEXT PAGE to continue									
list station ext 71001 count 8									
STATIONS									
Ext/ Hunt-to	Port/ Type	Name/ Surv GK NN	Move	Room/ Data Ext	Cv1/ Cv2	COR/ COS	Cable/ TN Jack		
71008	003V318	FCS VM#8				1			
	VMI		no			1	1		

5.7. Creating Pilot Numbers for Voice Mail Coverage and Retrieval

It is required to create 2 Pilot Numbers for Voice Mail Coverage and Voice Mail Retrieval. In this compliance testing, Hunt Group 70 and 80 were created with extension number 70000 and 70001 respectively.

5.7.1. Voice Mail Coverage Hunt Group

Enter **add hunt-group 70** and set the appropriate **Name**. Enter grp-name for **ISND/SIP Caller Display**. Enter the appropriate **Group Extension**. Leave the default **Group Type** as **ucd-mia**. On page 3, enter **71001 – 71003** as members of the hunt group.

add hunt-group 70		Page 1 of 60
HUNT GROUP		
Group Number: 70	ACD? n	
Group Name: Phoenix Leave Msg	Queue? n	
Group Extension: 70000	Vector? n	
Group Type: ucd-mia	Coverage Path:	
TN: 1	Night Service Destination:	
COR: 1	MM Early Answer? n	
Security Code:	Local Agent Preference? n	
ISDN/SIP Caller Display: grp-name		

add hunt-group 70		Page 3 of 60
HUNT GROUP		
Group Number: 70	Group Extension: 70000	Group Type: ucd-mia
Member Range Allowed: 1 - 1500	Administered Members (min/max): 1 /3	
Total Administered Members: 3		
GROUP MEMBER ASSIGNMENTS		
Ext	Name(19 characters)	Ext
1: 71001	FCS VM#1	14:
2: 71002	FCS VM#2	15:
3: 71003	FCS VM#3	16:
4:		17:
5:		18:
6:		19:
7:		20:
8:		21:
9:		22:
10:		23:
11:		24:
12:		25:
13:		26:
At End of Member List		

5.7.2. Voice Mail Retrieval Hunt Group

Enter **add hunt-group 80** and set the appropriate **Name**. Enter grp-name for **ISND/SIP Caller Display**. Enter the appropriate **Group Extension**. Leave the default **Group Type** as **ucd-mia**. On page 3, enter **71004 – 71005** as members of the hunt group.

add hunt-group 80		Page 1 of 60
HUNT GROUP		
Group Number: 80	ACD? n	
Group Name: Phoenix Retrieve Msg	Queue? n	
Group Extension: 70001	Vector? n	
Group Type: ucd-mia	Coverage Path:	
TN: 1	Night Service Destination:	
COR: 1	MM Early Answer? n	
Security Code:	Local Agent Preference? n	
ISDN/SIP Caller Display: grp-name		

add hunt-group 80		Page 3 of 60	
HUNT GROUP			
Group Number: 80	Group Extension: 70001	Group Type: ucd-mia	
Member Range Allowed: 1 - 1500	Administered Members (min/max): 1 /2		
Total Administered Members: 2			
GROUP MEMBER ASSIGNMENTS			
Ext	Name(19 characters)	Ext	Name(19 characters)
1: 71004	FCS VM#4	14:	
2: 71005	FCS VM#5	15:	
3:		16:	
4:		17:	
5:		18:	
6:		19:	
7:		20:	
8:		21:	
9:		22:	
10:		23:	
11:		24:	
12:		25:	
13:		26:	
At End of Member List			

5.8. Creating Default Coverage Path

The default coverage path is created here for Voice Mail coverage. Enter **add coverage path 70** and enter the Point1 as **h70** (coverage Hunt Group 70 created in **Section 5.7.1**). Enter the appropriate **Number of Rings** so that it is longer than the time for the automatic wake-up to consider as answered if it goes into coverage. Otherwise, reschedule Wake Up calls will fail. In this compliance test, **3** rings are set.

add coverage path 70		Page 1 of 1	
COVERAGE PATH			
Coverage Path Number: 70			
Cvg Enabled for VDN Route-To Party? n		Hunt after Coverage? n	
Next Path Number:		Linkage	
COVERAGE CRITERIA			
Station/Group Status	Inside Call	Outside Call	
Active?	n	n	
Busy?	y	y	
Don't Answer?	y	y	Number of Rings: 3
All?	n	n	
DND/SAC/Goto Cover?	y	y	
Holiday Coverage?	n	n	
COVERAGE POINTS			
Terminate to Coverage Pts. with Bridged Appearances? n			
Point1: h70	Rng:	Point2:	
Point3:		Point4:	
Point5:		Point6:	

5.9. Assign Class of Service and Class of Restriction Values to Guest Telephones

For each guest telephone extension *x*, enter **change station *x*** and enter in the **COR** and **COS** fields the values corresponding to the Class of Service and Class of Restriction administered in **Section 5.4 and 5.5**, respectively. Enter **Coverage Path 1** as **70**. In actual cases where PMS link is setup, the coverage path will be set by PMS and this is configured via the **change system hospitality** form which is not covered in this document. Refer to the application notes for FCS Unicorn in [3].

On the next page, set the **LWC Reception** as **spe** to receive LWC. Set the **LWC Activation** to **n** so that guest is not allowed to turn on and off MWL.

change station 71121		Page 1 of 4
STATION		
Extension: 71121	Lock Messages? n	BCC: 0
Type: 1608	Security Code: 111222	TN: 1
Port: S00195	Coverage Path 1: 70	COR: 5
Name: 71121	Coverage Path 2:	COS: 5
	Hunt-to Station:	Tests? y
STATION OPTIONS		
Location:	Time of Day Lock Table:	
Loss Group: 19	Personalized Ringing Pattern: 1	
	Message Lamp Ext: 71121	
Speakerphone: 2-way	Mute Button Enabled? y	
Display Language: english		
Survivable GK Node Name:		
Survivable COR: internal	Media Complex Ext:	
Survivable Trunk Dest? y	IP SoftPhone? n	
	IP Video? n	
	Short/Prefixed Registration Allowed: default	
change station 71121		Page 2 of 4
STATION		
FEATURE OPTIONS		
LWC Reception: spe	Auto Select Any Idle Appearance? n	
LWC Activation? n	Coverage Msg Retrieval? y	
LWC Log External Calls? n	Auto Answer: none	
CDR Privacy? n	Data Restriction? n	
Redirect Notification? y	Idle Appearance Preference? n	
Per Button Ring Control? n	Bridged Idle Line Preference? n	
Bridged Call Alerting? n	Restrict Last Appearance? y	
Active Station Ringing: single		
	EMU Login Allowed? n	
H.320 Conversion? n	Per Station CPN - Send Calling Number? y	
Service Link Mode: as-needed	EC500 State: enabled	
Multimedia Mode: enhanced	Audible Message Waiting? n	
MWI Served User Type:	Display Client Redirection? n	
	Select Last Used Appearance? n	
	Coverage After Forwarding? s	
	Multimedia Early Answer? n	
	Direct IP-IP Audio Connections? y	
Emergency Location Ext: 71121	Always Use? n IP Audio Hairpinning? n	

On the last page, set the **voice-mail** as **70001** which is Hunt Group 80 (created in **Section 5.7.2**) for phone quick access via the MESSAGE button and the appropriate **Room**, say **Room 101**. Repeat the setup for the rest of the guest rooms except the MESSAGE button quick access which is not available on analog stations.

change station 71121		Page 4 of 4
STATION		
SITE DATA		
Room: Room 101	Headset? n	
Jack:	Speaker? n	
Cable:	Mounting: d	
Floor:	Cord Length: 0	
Building:	Set Color:	
ABBREVIATED DIALING		
List1:	List2:	List3:
BUTTON ASSIGNMENTS		
1: call-appr	5:	
2: call-appr	6:	
3: call-appr	7:	
4:	8:	
voice-mail 70001		

5.10. Verify flash hook duration

Enter **change location-parameters** to verify the flash hook duration that can be accommodated in **Section 6.3** from the Upper/Lower Bound duration.

change location-parameters		Page 1 of 4
LOCATION PARAMETERS		
Analog Ringing Cadence: 1	Long Distance Access Code:	
Analog Line Transmission: 1	International Access Code:	
	Local E.164 Country Code:	
	Off-PBX Feature Name Extension Set:	
	Companding Mode: Mu-Law	
Replace International Access Code with '+' : no		
Convert ISDN Numbers to International for Display: no		
RECALL TIMING		
Flashhook Interval? y	Upper Bound (msec): 1000	
	Lower Bound (msec): 200	
Forward Disconnect Timer (msec): 600		
MF Interdigit Timer (sec): 10		
Outgoing Shuttle Exchange Cycle Timer (sec): 4		
End OCM After Answer (msec):		

5.11. Enable Station Tone Forward Disconnect

Enter **change system-parameter features** and select **busy** for Station Tone Forward Disconnect (on Page 10). This is to provide busy tone to the last party remaining off-hook on a call to signify disconnect.

change system-parameters features

Page 10 of 20

FEATURE-RELATED SYSTEM PARAMETERS

Pull Transfer: n

Outpulse Without Tone? y

Misoperation Alerting? n

Allow Conference via Flash? y

Vector Disconnect Timer (min):

Hear Zip Tone Following VOA? y

Update Transferred Ring Pattern? n

Wait Answer Supervision Timer? n

Repetitive Call Waiting Tone? y

Repetitive Call Waiting Interval (sec): 4

Network Feedback During Tone Detection? y

System Updates Time On Station Displays? n

Station Tone Forward Disconnect: busy

Level Of Tone Detection: precise

Charge Display Update Frequency (seconds): 30

Date Format on Terminals: mm/dd/yy

Onhook Dialing on Terminals? n

Edit Dialing on 96xx H.323 Terminals? y

Allow Crisis Alert Across Tenants? n

Send DTMF Over Telecommuter Link? y

ITALIAN DCS PROTOCOL

Italian Protocol Enabled? n

5.12. Create DID FAX number assigned to guest room

Each guest room has a DID fax number assigned. Enter **change inc-call-handling-trmt trunk-group 1** and add the DID number under **Number Digits** which routes to an internal extension which is setup on the next **Section 5.13**. This internal extension is configured as part of a guest room on FCS Phoenix as a fax extension so that it can be recognized. In the compliance test, the DID number **68731267** is routed to **70099**.

change inc-call-handling-trmt trunk-group 1					Page 1 of 30	
INCOMING CALL HANDLING TREATMENT						
Service/	Number	Number	Del Insert		Per Call	Night
Feature	Len	Digits			CPN/BN	Serv
public-ntwrk	8	68730297	71123			
public-ntwrk	8	68731034	71098			
public-ntwrk	8	68731233	10391			
public-ntwrk	8	68731267	70099			
public-ntwrk	8	68731520	8	10393		
public-ntwrk						

5.13. Create guest room virtual FAX station for DID

Enter **add station 70099** and station **Type** as 2500. Enter **Port** as X and appropriate **Name** to recognize this as an extension tied to the DID FAX number for a particular guest room. Enter **Coverage Path 1** as 70 (created in **Section 5.7.1**) which covers the fax call to the Voice Mail Pilot number.

add station 70099		Page 1 of 4
STATION		
Extension: 70099	Lock Messages? n	BCC: 0
Type: 2500	Security Code:	TN: 1
Port: X	Coverage Path 1: 70	COR: 1
Name: DID FAX ROOM 101	Coverage Path 2:	COS: 1
	Hunt-to Station:	Tests? y
STATION OPTIONS		
XOIP Endpoint type: auto	Time of Day Lock Table:	
Loss Group: 1	Message Waiting Indicator: none	
Off Premises Station? n		
Survivable COR: internal		
Survivable Trunk Dest? y	Remote Office Phone? n	
Passive Signalling Station? n		

5.14. Create physical FAX station

The fax station created here is for guest to retrieve faxes from the FCS Phoenix Server. Enter **add station 71098** and station **Type** as 2500. Enter analog ports available for the **Port** with the appropriate **Name**. Enter in the **COR** and **COS** fields the values corresponding to the Class of Service and Class of Restriction administered in **Section 5.4** and **5.5**, respectively.

add station 71098		Page 1 of 4
STATION		
Extension: 71098	Lock Messages? n	BCC: 0
Type: 2500	Security Code:	TN: 1
Port: 001V302	Coverage Path 1:	COR: 5
Name: Fax Machine Rm 101	Coverage Path 2:	COS: 5
	Hunt-to Station:	Tests? y
STATION OPTIONS		
XOIP Endpoint type: auto	Time of Day Lock Table:	
Loss Group: 1	Message Waiting Indicator: none	
Off Premises Station? n		
Survivable COR: internal		
Survivable Trunk Dest? y	Remote Office Phone? n	
Passive Signalling Station? n		

6. Configure FCS Phoenix

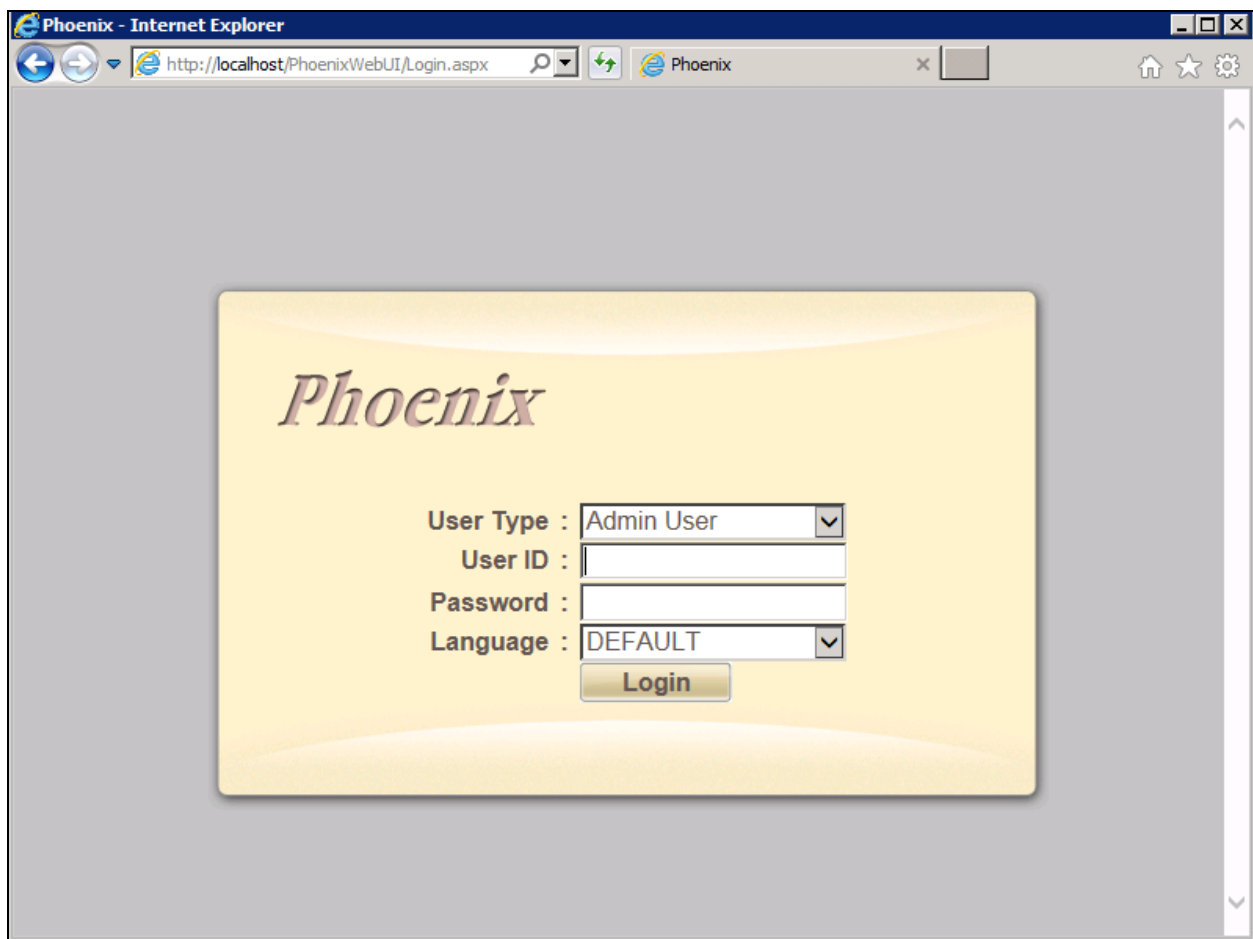
This section details the essential portion of the FCS Phoenix with Analog Interface configuration to interoperate with Communication Manager. These Application Notes assume that the FCS Phoenix application has already been properly installed and the analog ports are properly tuned by FCS professional services personnel. Further details of the FCS Phoenix setup can be found in the *FCS Phoenix v2.1.2 Installation Manual for Windows Server 2008 R2 Standard* [6].

The following settings will be verified.

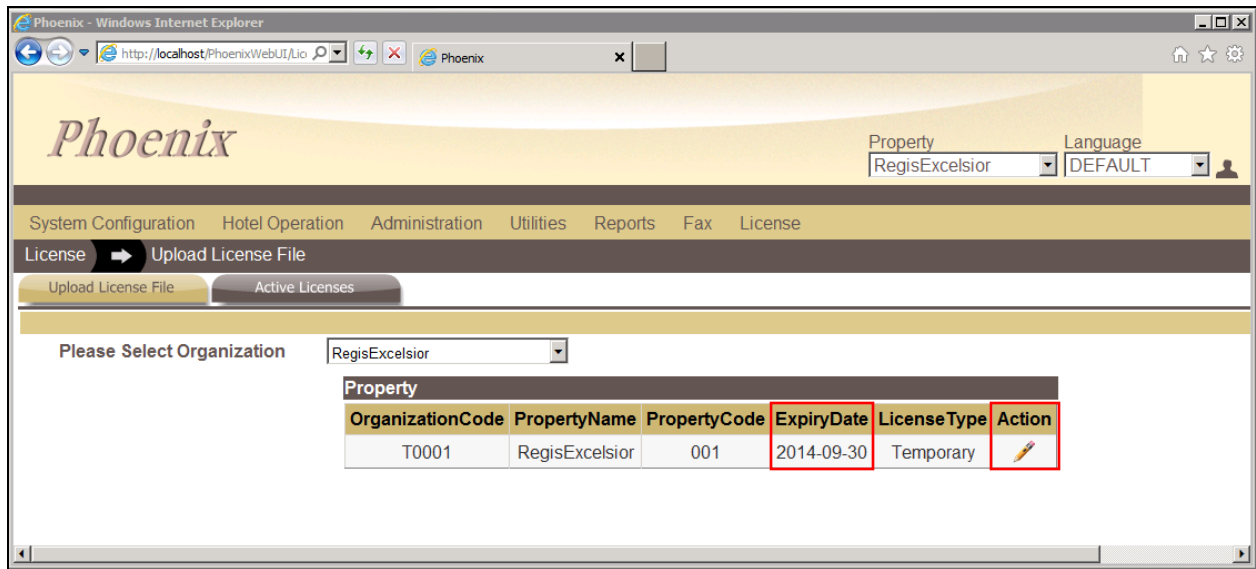
- License Verification
- PBX setting
- Service and Pilot Numbers

6.1. License Verification

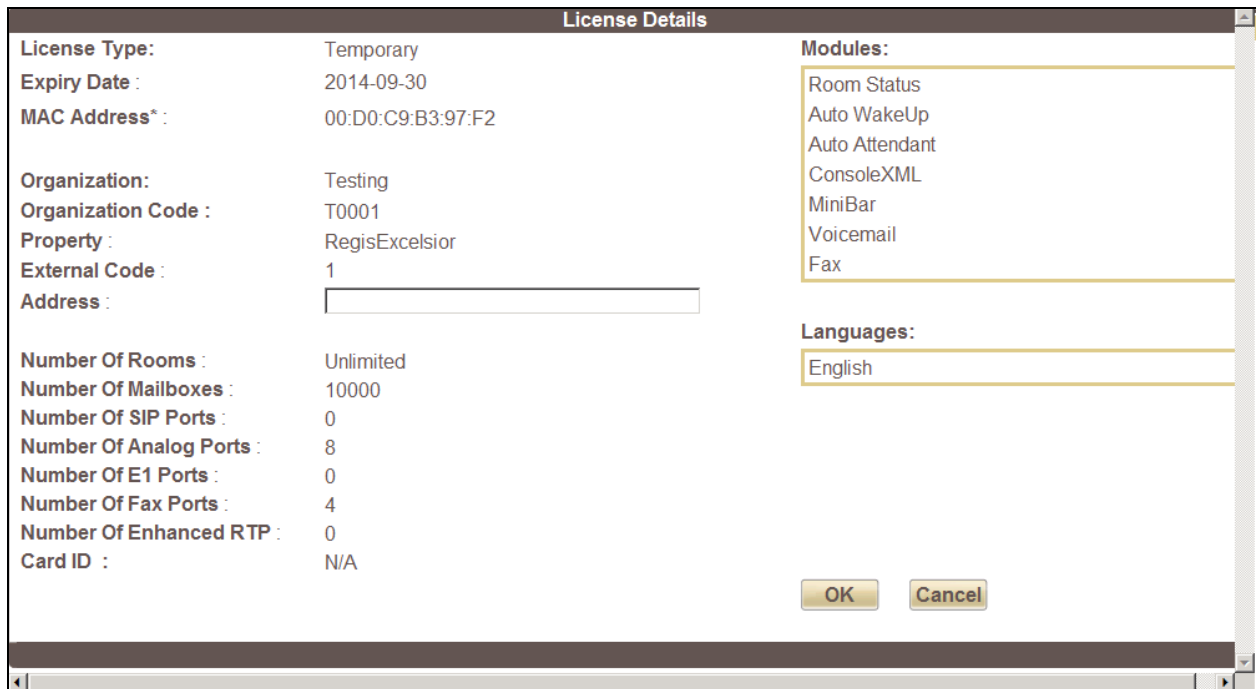
Configuration is accomplished by accessing the browser-based GUI of FCS Phoenix Server, using the URL <http://localhost/PhoenixWebUI/Login.aspx> on the server. Log in with the appropriate credentials.



Select **License** → **Active Licenses**. Ensure that the License has not expired.



Click on the pen under **Action** and view the details. Ensure that the appropriate license parameters have been enabled.



6.2. PBX Setting

From the home screen, select **System Wide Setting** from the drop down menu.



The following is the resulting screen after log in. Click on the pen and view the PBX settings. Ensure that the following settings are configured. Click **Save** to commit the changes.

- **PBX Name:** Enter the appropriate name.
- **PBX Type:** Select **Avaya_CM** from the drop down menu.
- **PBX Version:** Enter appropriate version number. In this test version **6.3** is used.
- **DTMF Type:** Select **Inband** from the drop down menu.
- **FAX Protocol:** Select **T30**.
- **Trunk Type:** Enter **Analogue**.
- **MWL ON Prefix:** Enter *35 (according to the MWL activation feature code set in **Section 5.3**)
- **MWL OFF Prefix:** Enter *36 (according to the MWL activation feature code set in **Section 5.3**)
- **Call transfer flash**
Hook length (MS): Enter flash hook length appropriate for the flashhook Upper/Lower bound values set on the Communication Manager in **Section 5.10**

A screenshot of the Phoenix web interface showing the 'System Wide Setting' page. The page has a yellow header with the 'Phoenix' logo. A navigation bar contains links: System Configuration, Hotel Operation, Administration, Utilities, Reports, Fax, License. Below this is a breadcrumb trail: System Configuration > Hardware Settings > Channels > Entry Point. A dropdown menu is open, showing 'SolaVeritas' and 'System Wide Setting'. A red arrow points to 'System Wide Setting'. In the top right, there are fields for 'Property' (SolaVeritas) and 'Language' (DEFAULT), along with a 'Sign Out' button. The main content area shows a 'PBX' tab and a 'Server' tab. Under the 'PBX' tab, there is a list of PBXes with 'Avaya CM' selected. An 'Add PBX' button is visible. A modal window titled 'Avaya CM' is open, showing the following fields: PBX Name (Avaya CM), PBX Type (Avaya_CM), PBX Version (6.3), DTMF Type (Inband), Fax Protocol (T30), Trunk Type (Analogue), MWL ON Prefix (*35), MWL OFF Prefix (*36), Call transfer flash hook length (MS) (600). There are 'Save' and 'Reset' buttons at the bottom of the modal.

From the System Wide Setting, click on the Server tab on the top left and the pen to show the following Phoenix Server details. Verify that the **Avaya CM** is checked and the right property is selected.

The screenshot shows the Phoenix System Wide Setting interface. At the top, there is a header with the Phoenix logo and navigation tabs for PBX and Server. The Server tab is selected. Below the tabs, there is a 'Server Action' section with a 'Phoenix' icon and a red arrow pointing to it. The main content area displays the 'Phoenix' configuration window. This window has a title bar and a close button. It contains the following fields and controls:

- App Server Name:** Phoenix
- IP:** 127.0.0.1
- Port:** 18888
- Channel Monitor IP 1:** 127.0.0.1
- Channel Monitor IP 2:**
- Channel Monitor IP 3:**
- System Trace:** ☒ Debug ☒ Info Log ☒ Warning
- Info Log Level:** NORMAL
- Enable SMTP:** ☐
- Interoperability:**

PBX Assigned	Interoperability	Property
<input checked="" type="checkbox"/> Avaya CM		RegisExcelsior









At the bottom of the window, there are 'Save' and 'Reset' buttons.

Click **Save** to commit the changes; click **Save** again on the next screen.

6.3. Service and Pilot Numbers

Select **System Configuration → Hardware Settings → Channels → Analog Line Type** from the home screen. Check that the Voice Mail lines created are appropriately set for the right service. The lines are grouped as follows:

1. Lines 71001-71003 are grouped into Pilot Number 70000 (Hunt Group 70) for Voice Mail/Fax coverage.
2. Lines 71004-71005 are grouped into Pilot Number 70001 (Hunt Group 80) for direct Voice Mail retrieval.
3. Line 71006 for express fax retrieval.
4. Line 71007 for express leave message.
5. Line 71008 for express message retrieval.

	Line No	Extension No	Language	Incoming	Incoming Default Service	Outgoing	Outgoing Dedicated Service	MWL
	1	71001	English	Enabled	NONE	Disabled	NONE	Disabled
	2	71002	English	Enabled	NONE	Disabled	NONE	Disabled
	3	71003	English	Enabled	NONE	Disabled	NONE	Disabled
	4	71004	English	Enabled	DIRECT	Enabled	NONE	Disabled
	5	71005	English	Enabled	DIRECT	Enabled	NONE	Disabled
	6	71006	English	Enabled	FAXRETRIEVE	Enabled	NONE	Enabled
	7	71007	English	Enabled	XPRESS MESSAGE LEAVE	Enabled	NONE	Enabled
	8	71008	English	Enabled	XPRESS MESSAGE RETRIEVE	Enabled	NONE	Enabled
1								

Lastly, map W to Busy/No Answer Call Flow.

Phoenix

System Configuration Hotel Operation Administration Utilities Reports Fax License

System Configuration ➔ Hardware Settings ➔ Channels ➔ Entry Point

Entry Point

Entry Point Format : _ ☐ Advanced Setting

Call Flow :

Normal Operation : W = This wild card represents any number of whatever lengths

Special Circumstances (Advanced Setting) : C = This character represents the Calling Party and is used for call flows that require such information. For instance, can be used with Direct & SetAWU (when setup for Guests' usage) flows

X = This character is used to specifically ignore the Calling Party information. Typically used for TUI, AA, Minibar/Room Status, Xpress Messaging, and SetAWU (when setup for Operators' usage) call flows

Note: When utilized, both C or X must correspond exactly to the number of digits of the Calling Party it represents

Entry Point	CPI Format	Description
1	W_W	BUSY/NOANSWER

6.4. Verification Steps

This section describes steps that may be used to verify the configuration.



From the FCS Phoenix Server, launch **Phoenix** from the desktop shortcut to run the main program. Verify that the VoiceEngine status shows 'Started' and the voice channels under **Status** **Since** column are **Idle**. Once the Unicorn or the PMS Simulator communication has been successfully established, the Unicorn status will show up as 'Connected'.

FCS PHOENIX (v.2.1.0)

File Settings Help

Web Config Exit

MySQL Connected ---

VoiceServer Started

Unicom Connected ---

VoiceEngine Started ---

Session	Status Since	CalledNo	CallingNo	Trunk	Media	Voice
1	Idle					
2	Idle					
3	Idle					
4	Idle					
5	Idle					
6	Idle					
7	Idle					
8	Idle					

Rsc Name Handle Status Session

General Info

Name	Info
Session	
System User	Administrator
Interactive Mode	True
IPAddress	
IP_2	10.1.10.125
IP_1	fe80::830:782:84e8f40c%10

CPU/MEM/HDD

Name	Info
CPU	
Total Processor	2
Processor	Pentium(R) Dual-Core CPU ...
CPU Stats	2%
Memory	
Total Virtual Mem	8287.82 (MB)
Free Virtual Mem	6174.41 (MB)

Voice System & Call Info

Name	Info
Voice System	
System Last Shut...	2014-08-14 17:18:30
System Startup	8/15/2014 10:01:15 AM
Last Housekeep	None
System Uptime	00:11:26
Message Storage Details	
Remaining Mess...	297097 messages

Dial a checked in guest/admin extension number and let the call go into voicemail coverage. Observe that one channel of the analog line is busy as shown below from the Phoenix server. Verify that leaving a voice mail message to either a guest or admin mailbox works. Check that the MWL is turned on.

The screenshot displays the FCS PHOENIX (v.2.1.0) web interface. The top menu includes File, Settings, and Help. Below the menu are icons for Web Config and Exit. The left sidebar shows system status: MySQL Connected, VoiceServer Started, Unicorn Connected (highlighted with a red box), and VoiceEngine Started. The main area features a session table with columns: Session, Status Since, CalledNo, CallingNo, Trunk, Media, and Voice. The table shows 8 sessions, with Session 1 being 'Busy 2014-08-19 03:...' and sessions 2-8 being 'Idle'. Below the session table is a table with columns: Rsc, Name, Handle, Status, and Session. The bottom section contains three panels: General Info (showing Session details like System User: Administrator, Interactive Mode: True, and IP Address: 10.1.10.125), CPU/MEM/HDD (showing CPU details like Total Processor: 2, Processor: Pentium(R) Dual-Core CPU, and Memory details like Total Virtual Mem: 8289.82 (MB)), and Voice System & Call Info (showing Voice System details like System Last Shut...: 2014-08-19 10:09:23, System Startup: 8/19/2014 10:09:58 AM, Last Housekeep: None, System Uptime: 00:52:07, and Message Storage Details like Remaining Mess...: 294600 messages).

Session	Status Since	CalledNo	CallingNo	Trunk	Media	Voice
1	Busy 2014-08-19 03:...					
2	Idle					
3	Idle					
4	Idle					
5	Idle					
6	Idle					
7	Idle					
8	Idle					

Rsc	Name	Handle	Status	Session

Name	Info
Session	
System User	Administrator
Interactive Mode	True
IPAddress	
IP_2	10.1.10.125
IP_1	fe80::830:7f82:84e8:f40c%10

Name	Info
CPU	
Total Processor	2
Processor	Pentium(R) Dual-Core CPU ...
CPU Stats	2%
Memory	
Total Virtual Mem	8289.82 (MB)
Free Virtual Mem	6311.94 (MB)

Name	Info
Voice System	
System Last Shut...	2014-08-19 10:09:23
System Startup	8/19/2014 10:09:58 AM
Last Housekeep	None
System Uptime	00:52:07
Message Storage Details	
Remaining Mess...	294600 messages

Enter the command **status station x** where **x** is the guest phone number to confirm the MWL is turned on. Dial the express message retrieval service number 71008 to retrieve the message and check that the MWL is off.

status station 71122		Page 1 of 7	
GENERAL STATUS			
Administered Type: 9640	Service State: in-service/on-hook		
Connected Type: 9640	TCP Signal Status: connected		
Extension: 71122	Network Region: 1		
Port: S00396	Parameter Download: complete		
Call Parked? no	SAC Activated? no		
Ring Cut Off Act? no			
Active Coverage Option: 1	one-X Server Status: N/A		
EC500 Status: N/A	Off-PBX Service State: N/A		
Message Waiting: spe			
Connected Ports:			
Limit Incoming Calls? no			
User Cntrl Restr: none	HOSPITALITY STATUS		
Group Cntrl Restr: none	Awaken at:		
	User DND: not activated		
	Group DND: not activated		
	Room Status: occupied		

To verify the Operator transfer function, call any guest room that is not checked in and let it go to coverage on the FCS Phoenix Server. Verify call is transferred to Operator.

To verify Faxmail functionality, send a fax to the guest room external DID number from the guest room fax machine. Check that the fax went through and the MWL is turned on. Check that the fax is received on the FCS Phoenix Server by viewing the image of the fax from the WebUI. Retrieve the fax from the guest room fax machine using the 71006 service number. Check that the fax image is correct and the MWL is off. Alternatively, if the fax option assigned (e.g. Option 2) will automatically route the Fax to guest room's fax machine (ensure there is one hooked up to the correct fax extension), check that the fax is received completely. In this instance, MWL will be deactivated once fax is received.

7. Conclusion

These Application Notes describe the procedures for configuring FCS Phoenix with Analog Interface to interoperate with Avaya Aura® Communication Manager. All interoperability compliance test cases executed against such a configuration were completed successfully with points mentioned in Test Results under **Section 2.2**.

8. Additional References

The following documents are available at <http://support.avaya.com>.

- [1] *Administering Network Connectivity on Avaya Aura® Communication Manager*, Oct 2013, Document ID 555-233-504 Issue 18.0
- [2] *Administering Avaya Aura® Communication Manager Release 6.3*, Jun 2014, Document ID 03-300509 Issue 10.0
- [3] *Application Notes for FCS Unicorn with Avaya Aura® Communication Manager 6.2*
- [4] *Application Notes for FCS Phoenix with Avaya Aura® Communication Manager and Avaya Aura® Session Manager*

The following documents are provided by FCS Computer Systems Sdn Bhd.

- [5] *FCS Phoenix v2.0.9 Configuration Manual*, 4 Aug 2014
- [6] *FCS Phoenix v2.1.12 Installation Manual for Windows Server 2008 R2 Standard*, 5 Aug 2014
- [7] *Synway Voice Board Programmer's Manual Version 5.3.2.5*

©2014 Avaya Inc. All Rights Reserved.

Avaya and the Avaya Logo are trademarks of Avaya Inc. All trademarks identified by ® and ™ are registered trademarks or trademarks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners. The information provided in these Application Notes is subject to change without notice. The configurations, technical data, and recommendations provided in these Application Notes are believed to be accurate and dependable, but are presented without express or implied warranty. Users are responsible for their application of any products specified in these Application Notes.

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya DeveloperConnection Program at devconnect@avaya.com.