



Avaya Solution & Interoperability Test Lab

Application Notes for ICR Evolution Software and Avaya Aura[®] Communication Manager and Avaya Aura[®] Application Enablement Services – Issue 1.0

Abstract

These application notes describe the configuration steps required for ICR Evolution to successfully interoperate with Avaya Aura[®] Communication Manager via Avaya Aura[®] Application Enablement Services.

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 compliance tested configuration used to validate the ICR Evolution solution with Avaya Aura® Communication Manager using Avaya Aura® Application Enablement Services.

ICR Evolution is a Computer Telephony Integration (CTI) platform that provides call control, predictive dialing and monitoring functionality to end users via the Telephony Service API (TSAPI) interface on Avaya Aura® Application Enablement Services. ICR Evolution utilizes a client/server model. The server component of the software will connect to the TSAPI interface on the Avaya Aura® Application Enablement Services. The integration with Avaya Aura® Communication Manager is accomplished through the Avaya Aura® Application Enablement TSAPI service. The client component of the software, iAgent, will communicate with the Evolution server components. The iAgent client allows agents to control making and receiving calls via an Avaya handset registered to Avaya Aura® Communication Manager.

1.1. Interoperability Compliance Testing

The interoperability compliance testing included feature and serviceability testing. The feature testing focused on verifying ICR Evolution handling of CTI messages in the areas of call control, event notification and routing. Various types of calls including intra-switch, PSTN, outgoing and incoming calls were tested. The following predictive dialing options were tested:

- Preview
- Progressive
- Predictive

The serviceability testing focused on verifying the ability of ICR Evolution to recover from adverse conditions, such as busying out the CTI link, disconnecting the Ethernet cable for the CTI link and the reboot of systems under test. The following issues were discovered during testing:

- [1] When receiving an incoming call on iAgent, the Contestar (Answer) and Colgar (Hangup) icons become active. If the Colgar icon is clicked before the call has been answered, an error will display. This does not stop the call from being answered when the Contestar icon is subsequently clicked.
- [2] The conferencing option although available in iAgent is not supported by ICR.
- [3] Blind Transfers are not supported by ICR.
- [4] If connectivity is lost between Avaya Aura® Communication Manager, Avaya Aura® Application Enablement Services or ICR Evolution Server, the iAgent agent must re-login to the iAgent application. Operation will then continue then as normal.

1.2. Support

For technical support on ICR products please contact ICR Evolution support team at:

www.evolutioncallcenter.com

support@icr.es

+34 93 228 9310

2. Reference Configuration

The configuration in **Figure 1** was used to compliance test the interoperability of ICR Evolution with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services. ICR Evolution is connected to the Avaya Aura® Application Enablement Services TSAPI interface over the LAN. Avaya Aura® Communication Manager serviced connections to Avaya IP telephones and Avaya 2400 Series Digital telephones.

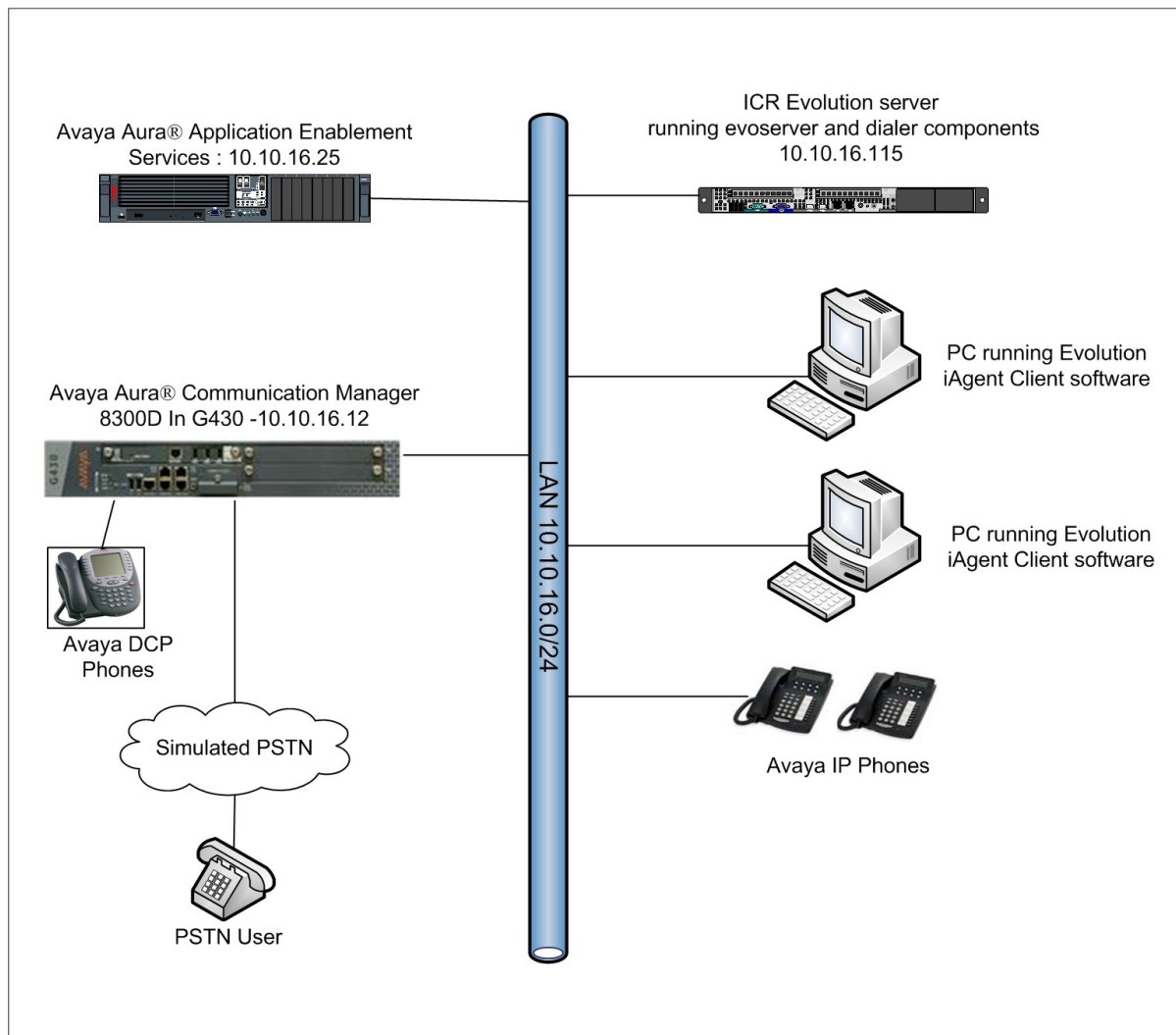


Figure 1: ICR Evolution Sample Configuration

3. Equipment and Software Validated

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

Equipment	Software
Avaya S8300D Media Server	Avaya Aura [®] Communication Manager 6.0 Service Pack 1 R016x.00.0.345.0 -18444
Avaya G430 Media Gateway	N/A
MM710AP	HW05 FW020
MM712AP	HW07 FW009
Dell 1950 Server	Avaya Aura [®] Application Enablement Services 5.2.2
Avaya 9600 Series telephones	H.323 Firmware 3.11
Avaya 2400 Series telephones	N/A
Avaya TSAPI Client For Windows32	5.2.1.474
ICR Evolution Call Center Suite <ul style="list-style-type: none">• Evolution Server• Evolution Dialer• Evolution iAgent	9.5

4. Configure Avaya Aura[®] Communication Manager

This section provides the procedures for configuring Computer Telephony Integration (CTI) links on Communication Manager. All the configuration changes in Avaya Communication Manager are performed through the System Access Terminal (SAT) interface. The highlights in the following screens indicate the values used during the compliance test. Default values were used for all the other fields.

4.1. Configure AES and CTI Links

The Application Enablement Services (AES) server forwards CTI requests, responses, and events between Evolution Server and Communication Manager. AES communicates with Communication Manager over an AES link. Within the AES link, CTI links may be configured to provide CTI services to CTI applications such as ICR Evolution. The following steps demonstrate the configuration of the Communication Manager side of the AES and CTI links. See **Section 5** for the details of configuring the AES side of the CTI links.

Enter the **display system-parameters customer-options** command. On **Page 3**, verify that **Computer Telephony Adjunct Links** is set to **y**. If not, contact an authorized Avaya account representative to obtain the license.

display system-parameters customer-options		Page 3 of 11
OPTIONAL FEATURES		
Abbreviated Dialing Enhanced List? y	Audible Message Waiting? y	
Access Security Gateway (ASG)? n	Authorization Codes? y	
Analog Trunk Incoming Call ID? y	CAS Branch? n	
A/D Grp/Sys List Dialing Start at 01? y	CAS Main? n	
Answer Supervision by Call Classifier? y	Change COR by FAC? n	
ARS? y	Computer Telephony Adjunct Links? y	
ARS/AAR Partitioning? y	Cvg Of Calls Redirected Off-net? y	
ARS/AAR Dialing without FAC? y	DCS (Basic)? y	
ASAI Link Core Capabilities? n	DCS Call Coverage? y	
ASAI Link Plus Capabilities? n	DCS with Rerouting? y	
Async. Transfer Mode (ATM) PNC? n		
Async. Transfer Mode (ATM) Trunking? n	Digital Loss Plan Modification? y	
ATM WAN Spare Processor? n	DS1 MSP? y	
ATMS? y	DS1 Echo Cancellation? y	
Attendant Vectoring? y		
(NOTE: You must logoff & login to effect the permission changes.)		

Enter the **add cti-link n** command, where **n** is a number between 1 and 64, inclusive. Enter a valid **Extension** under the provisioned dial plan in Communication Manager, set the **Type** field to **ADJ-IP**, and assign a descriptive **Name** to the CTI link. All other fields can be left at their default values.

change cti-link 1		Page 1 of 3
CTI LINK		
CTI Link: 1		
Extension: 59999		
Type: ADJ-IP		
		COR: 1
Name: AESSIM		

Enter the **change node-names ip** command. In the compliance-tested configuration, the host name of the AES server **DCAES**, was added for AES. The **procr** is utilized in **Section 5.3** during AES configuration.

change node-names ip		Page 1 of 2
IP NODE NAMES		
Name	IP Address	
DCAES	10.10.16.25	
default	0.0.0.0	
procr	10.10.16.12	
procr6	::	

Enter the **change ip-services** command. On **Page 1**, configure the **Service Type** field to **AESVCS** and the **Enabled** field to **y**. The **Local Node** field should be set to the **procr** that was described earlier in this Section. During the compliance test, the default port was utilized for the **Local Port** field.

change ip-services					Page	1 of	3
IP SERVICES							
Service	Enabled	Local	Local	Remote	Remote		
Type		Node	Port	Node	Port		
AESVCS	y	procr	8765				

On **Page 3**, enter the hostname of the AES server for the **AE Services Server** field. The server name may be obtained by logging in to the AES server using Secure Shell (SSH), and running the **uname -a** command. Enter an alphanumeric password for the **Password** field and set the **Enabled** field to **y**. The same password will be configured on the AES server in **Section 5.3**.

change ip-services				Page	3 of	3
AE Services Administration						
Server ID	AE Services Server	Password	Enabled	Status		
1:	DCAES	xxxxxxxxxxxx	y	in use		
2:						

4.2. Agent Configuration

This section provides the procedures for configuring a skill-enabled hunt group on Communication Manager. The System Access Terminal (SAT) is used to issue the commands.

4.2.1. System Parameters

On **Page 6** of the **system parameters customer-options** form, verify that **ACD**, **Vectoring (Basic)** and **Expert Agent Selection (EAS)** are set to **y**.

change system-parameters customer-options		Page 6 of 11
CALL CENTER OPTIONAL FEATURES		
Call Center Release: 6.0		
ACD? y		Reason Codes? y
BCMS (Basic)? y		Service Level Maximizer? n
BCMS/VuStats Service Level? y		Service Observing (Basic)? y
BSR Local Treatment for IP & ISDN? y	Service Observing (Remote/By FAC)? y	Service Observing (VDNs)? y
Business Advocate? n		Timed ACW? y
Call Work Codes? y		Vectoring (Basic)? y
DTMF Feedback Signals For VRU? y		Vectoring (Prompting)? y
Dynamic Advocate? n		Vectoring (G3V4 Enhanced)? y
Expert Agent Selection (EAS)? y		Vectoring (3.0 Enhanced)? y
EAS-PHD? y		Vectoring (ANI/II-Digits Routing)? y
Forced ACD Calls? n		Vectoring (G3V4 Advanced Routing)? y
Least Occupied Agent? y		Vectoring (CINFO)? y
Lookahead Interflow (LAI)? y		Vectoring (Best Service Routing)? y
Multiple Call Handling (On Request)? y		Vectoring (Holidays)? y
Multiple Call Handling (Forced)? y		Vectoring (Variables)? y
PASTE (Display PBX Data on Phone)? y		
(NOTE: You must logoff & login to effect the permission changes.)		

Enter the **change system-parameters features** command. On **Page 5** of the **system parameters features** form, verify that **Create Universal Call ID (UCID)?** is set to **y**. The **UCID Network Node ID** should be set to a unique number to identify this particular Communication Manager.

change system-parameters features		Page 5 of 19
FEATURE-RELATED SYSTEM PARAMETERS		
SYSTEM PRINTER PARAMETERS		
Endpoint:	Lines Per Page: 60	
SYSTEM-WIDE PARAMETERS		
Switch Name:		
Emergency Extension Forwarding (min): 10		
Enable Inter-Gateway Alternate Routing? n		
Enable Dial Plan Transparency in Survivable Mode? n		
COR to Use for DPT: station		
MALICIOUS CALL TRACE PARAMETERS		
Apply MCT Warning Tone? n	MCT Voice Recorder Trunk Group:	
Delay Sending RElease (seconds): 0		
SEND ALL CALLS OPTIONS		
Send All Calls Applies to: station	Auto Inspect on Send All Calls? n	
Preserve previous AUX Work button states after deactivation? n		
UNIVERSAL CALL ID		
Create Universal Call ID (UCID)? y	UCID Network Node ID: 1	

Navigate to **Page 11** and verify that **Expert Agent Selection (EAS) Enabled** is set to **y**.

```
change system-parameters features                                     Page 11 of 19
                                FEATURE-RELATED SYSTEM PARAMETERS
CALL CENTER SYSTEM PARAMETERS
  EAS
    Expert Agent Selection (EAS) Enabled? y
    Minimum Agent-LoginID Password Length:
    Direct Agent Announcement Extension:                               Delay:
    Message Waiting Lamp Indicates Status For: station

  VECTORING
    Converse First Data Delay: 0          Second Data Delay: 2
    Converse Signaling Tone (msec): 100      Pause (msec): 70
    Prompting Timeout (secs): 10
    Interflow-qpos EWT Threshold: 2
    Reverse Star/Pound Digit For Collect Step? n
    Available Agent Adjustments for BSR? n
    BSR Tie Strategy: 1st-found
    Store VDN Name in Station's Local Call Log? n
  SERVICE OBSERVING
    Service Observing: Warning Tone? y      or Conference Tone? n
    Service Observing Allowed with Exclusion? n
    Allow Two Observers in Same Call? n
```

4.2.2. Feature Access Codes

This section describes the steps for configuring Feature Access Codes (FACs) for Automatic Call Distribution (ACD). Enter the **change feature-access-codes** command. Navigate to **Page 5**, and enter FACs that are valid under the provisioned dial plan for the following bolded fields.

```
change feature-access-codes                                         Page 5 of 10
                                FEATURE ACCESS CODE (FAC)

                                Call Center Features

AGENT WORK MODES
  After Call Work Access Code: *31
  Assist Access Code: *32
  Auto-In Access Code: *33
  Aux Work Access Code: *34
  Login Access Code: *35
  Logout Access Code: *36
  Manual-in Access Code: *37

SERVICE OBSERVING
  Service Observing Listen Only Access Code: *38
  Service Observing Listen/Talk Access Code: *39
  Service Observing No Talk Access Code: *40
```


4.2.3. Administer Skills

Enter the **add hunt group n** command, where **n** is a valid unused hunt group number. Enter a descriptive name for **Group Name**. Enter an unused valid extension for **Group Extension**. Enter **ead-mia** for **Group Type**. This allows ACD calls to route to the most idle and qualified agent based on when the agent finished the most recent call. Set **ACD**, **Queue**, and **Vector** to **y**.

add hunt-group 1		Page 1 of 4	
HUNT GROUP			
Group Number: 1	ACD? y		
Group Name: one	Queue? y		
Group Extension: 53000	Vector? y		
Group Type: ead-mia			
TN: 1			
COR: 1	MM Early Answer? n		
Security Code:	Local Agent Preference? n		
ISDN/SIP Caller Display:			
Queue Limit: unlimited			
Calls Warning Threshold:	Port:		
Time Warning Threshold:	Port:		

On **Page 2**, set **Skill** to **y**.

add hunt-group 1		Page 2 of 4	
HUNT GROUP			
Skill? y	Expected Call Handling Time (sec): 180		
AAS? n			
Measured: none			
Supervisor Extension:			
Controlling Adjunct: none			
Timed ACW Interval (sec):			
Multiple Call Handling: none			

4.2.4. Administer VDN

Enter **add vector n** where **n** is an available number to create a new vector. The vector created below will place a call into a queue where the caller will hear the ringing sound. The detailed explanation of vector creation and steps 01→05 are beyond the scope of this document. Note however, in step 02, **skill 1** is used to route the call to an agent.

add vector 1		Page 1 of 6
CALL VECTOR		
Number: 1	Name: one	
Multimedia? n	Attendant Vectoring? n	Meet-me Conf? n Lock? n
Basic? y	EAS? y G3V4 Enhanced? y	ANI/II-Digits? y ASAI Routing? y
Prompting? y	LAI? y G3V4 Adv Route? y	CINFO? y BSR? y Holidays? y
Variables? y	3.0 Enhanced? y	
01 wait-time	2 secs hearing silence	
02 queue-to	skill 1 pri m	
03 wait-time	99 secs hearing ringback	
04 goto step	3 if unconditionally	
05 stop		
06		
07		
08		
09		
10		
Press 'Esc f 6' for Vector Editing		

Associate the vector with a vdn by entering **add vdn n** where **n** is a valid extension in the dial plan analysis. Add a suitable **Name** and set the **Destination:** to **Vector Number** and choose the vector created in previous step.

add vdn 55001		Page 1 of 3
VECTOR DIRECTORY NUMBER		
Extension: 55001		
Name*: one		
Destination: Vector Number		1
Attendant Vectoring? n		
Meet-me Conferencing? n		
Allow VDN Override? n		
COR: 1		
TN*: 1		
Measured: none		
VDN of Origin Annc. Extension*:		
1st Skill*:		
2nd Skill*:		
3rd Skill*:		
* Follows VDN Override Rules		

A similar vector was created for outbound calls. Evolution will route outbound campaign calls to this vector after they have been answered.

4.2.5. Administer Agents

Enter the **add agent-loginID n** command, where **n** is a valid unused extension. Enter a descriptive agent name for **Name**. In the test configuration the **Password** fields were left blank. **Auto Answer** should be set to **station** to ensure that the agents will use the setting configured by the station being used.

add agent-loginID 54001		Page 1 of 2
AGENT LOGINID		
Login ID: 54001	AAS? n	
Name: Agent1	AUDIX? n	
TN: 1	LWC Reception: spe	
COR: 1	LWC Log External Calls? n	
Coverage Path:	AUDIX Name for Messaging:	
Security Code:	LoginID for ISDN/SIP Display? n	
	Password:	
	Password (enter again):	
	Auto Answer: station	
	MIA Across Skills: system	
	ACW Agent Considered Idle: system	
	Aux Work Reason Code Type: system	
	Logout Reason Code Type: system	
	Maximum time agent in ACW before logout (sec): system	
	Forced Agent Logout Time: :	
WARNING: Agent must log in again before changes take effect		

On **Page 2**, assign the skill administered in **Section 4.2.3** for **SN**. Set skill level (**SL**) to **1**, which is the highest priority.

add agent-loginID 54001		Page 2 of 2
AGENT LOGINID		
Direct Agent Skill:	Service Objective? n	
Call Handling Preference: skill-level	Local Call Preference? n	
SN RL SL	SN RL SL	
1: 1 1	16:	
2: 2 1	17:	
3:	18:	
4:	19:	
5:	20:	
6:		
7:		
8:		
9:		
10:		
11:		
12:		
13:		
14:		
15:		

4.2.6. Station Administration

To create a new station, with Avaya IP Agent capabilities, enter the **add station n** command where n is an unused station number. Enter a phone type (in this case **9620 IP Phone**) in the **Type** field, and give a descriptive name for the station in the **Name** field. Enter an appropriate **Security Code**.

add station 51000		Page 1 of 5
STATION		
Extension: 51000	Lock Messages? n	BCC: 0
Type: 9620	Security Code: xxxx	TN: 1
Port: S00000	Coverage Path 1:	COR: 1
Name: Dev 1	Coverage Path 2:	COS: 1
	Hunt-to Station:	
STATION OPTIONS		
	Time of Day Lock Table:	
Loss Group: 19	Personalized Ringing Pattern: 1	
	Message Lamp Ext: 51000	
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? y	
	IP Video Softphone? n	
	Short/Prefixed Registration Allowed: default	
	Customizable Labels? y	

On **Page 2**, ensure that **Auto Answer** is set to **none**.

add station 51000		Page 2 of 5
STATION		
FEATURE OPTIONS		
LWC Reception: spe	Auto Select Any Idle Appearance? n	
LWC Activation? y	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	
AUDIX Name:	Select Last Used Appearance? n	
	Coverage After Forwarding? s	
	Multimedia Early Answer? n	
Remote Softphone Emergency Calls: as-on-local	Direct IP-IP Audio Connections? y	
Emergency Location Ext: 51000	Always Use? n IP Audio Hairpinning? n	

On **Page 4** and **Page 5** add the following buttons **manual-in**, **auto-in**, **aux-work**, **after-call** and **release** as shown.

add station 51000		Page 4 of 5	
STATION			
SITE DATA			
Room:		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	4: manual-in	Grp:	
2: call-appr	5: auto-in	Grp:	
3: call-appr	6: aux-work	RC: Grp:	
voice-mail			

add station 51000		Page 5 of 5	
STATION			
BUTTON ASSIGNMENTS			
7: after-call	Grp:	10:	
8: release		11:	
9:		12:	

Enter the **save translation** command to save the changes to the system. This completes the configuration of the Communication Manager.

5. Configure Avaya Aura® Application Enablement Services

This section provides the procedures for configuring Application Enablement Services. The procedures fall into the following areas:

- Administer CTI User
- Verify Avaya Aura® Application Enablement Services License
- Administer Switch Connection
- Administer TSAPI link


Note: For the purposes of these Application Notes, the Security Database Control for DMCC and TSAPI were disabled.

5.1. Administer CTI User

Launch a web browser and enter **https://<IP address of AES server>/aesvcs/** to access the AES Management Console web based interface. Log in to AES Management console using an administrative login and password (not shown), and the Management Console Home page will be displayed.

The screenshot shows the Avaya Application Enablement Services Management Console. At the top left is the Avaya logo. To its right is the title "Application Enablement Services Management Console". On the far right, a welcome message reads: "Welcome: User craft", "Last login: Thu Nov 11 17:25:32 2010 from 10.10.16.8", "HostName/IP: DCAES/10.10.16.25", "Server Offer Type: TURNKEY", and "SW Version: r5-2-2-105-0". Below the title bar is a red navigation bar with "Home" on the left and "Home | Help | Logout" on the right. A left-hand menu contains links to "AE Services", "Communication Manager Interface", "Licensing", "Maintenance", "Networking", "Security", "Status", "User Management", "Utilities", and "Help". The main content area is titled "Welcome to OAM" and contains a paragraph: "The AE Services Operations, Administration, and Management (OAM) Web provides you with tools for managing the AE Server. OAM spans the following administrative domains:". This is followed by a bulleted list: "• AE Services - Use AE Services to manage all AE Services that you are licensed to use on the AE Server.", "• Communication Manager Interface - Use Communication Manager Interface to manage switch connection and dialplan.", "• Licensing - Use Licensing to manage the license server.", "• Maintenance - Use Maintenance to manage the routine maintenance tasks.", "• Networking - Use Networking to manage the network interfaces and ports.", "• Security - Use Security to manage Linux user accounts, certificate, host authentication and authorization, configure Linux-PAM (Pluggable Authentication Modules for Linux) and so on.", "• Status - Use Status to obtain server status infomations.", "• User Management - Use User Management to manage AE Services users and AE Services user-related resources.", "• Utilities - Use Utilities to carry out basic connectivity tests.", and "• Help - Use Help to obtain a few tips for using the OAM Help system". At the bottom of the main content area, a paragraph states: "Depending on your business requirements, these administrative domains can be served by one administrator for both domains, or a separate administrator for each domain."

Click **User Management**→**User Admin**→**Add User** in the left pane. Specify a value for **User Id**, **Common Name**, **Surname**, **User Password** and **Confirm Password**. Set **CT User** to **Yes**. Use the values for **User Id** and **User Password** to configure Evolution Manager in **Section 6** to access the TSAPI Service on the AES server. Scroll down to the bottom of the page and click **Apply** (not shown).



Application Enablement Services
Management Console

Welcome: User craft
Last login: Thu Nov 11 17:25:32 2010 from 10.10.16.8
HostName/IP: DCAES/10.10.16.25
Server Offer Type: TURNKEY
SW Version: r5-2-2-105-0

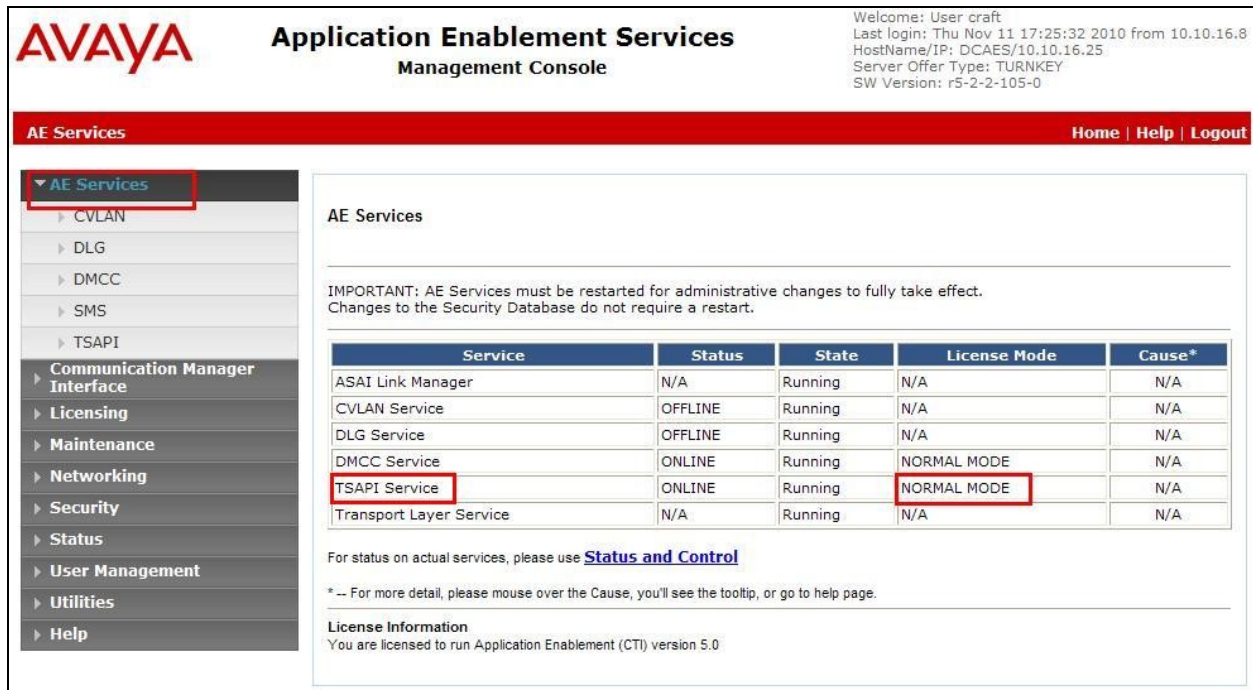
User Management | User Admin | Add User
Home | Help | Logout

AE Services
Communication Manager Interface
Licensing
Maintenance
Networking
Security
Status
User Management
Service Admin
User Admin
Add User
Change User Password
List All Users
Modify Default Users
Search Users
Utilities
Help

Add User
Fields marked with * can not be empty.
* User Id john
* Common Name john
* Surname mc
* User Password
* Confirm Password
Admin Note
Avaya Role None
Business Category
Car License
CM Home
Css Home
CT User Yes
Department Number
Display Name
Employee Number

5.2. Verify Avaya Aura® Application Enablement Services License

Select **AE Service** from the left menu and verify that the license has proper permissions for the features illustrated in these Application Notes by ensuring the **TSAPI service** is licensed. If the TSAPI service is not licensed, then contact the Avaya sales team or business partner for a proper license file.



AVAYA Application Enablement Services Management Console

Welcome: User craft
Last login: Thu Nov 11 17:25:32 2010 from 10.10.16.8
HostName/IP: DCAES/10.10.16.25
Server Offer Type: TURNKEY
SW Version: r5-2-2-105-0

AE Services Home | Help | Logout

AE Services

IMPORTANT: AE Services must be restarted for administrative changes to fully take effect. Changes to the Security Database do not require a restart.

Service	Status	State	License Mode	Cause*
ASAI Link Manager	N/A	Running	N/A	N/A
CVLAN Service	OFFLINE	Running	N/A	N/A
DLG Service	OFFLINE	Running	N/A	N/A
DMCC Service	ONLINE	Running	NORMAL MODE	N/A
TSAPI Service	ONLINE	Running	NORMAL MODE	N/A
Transport Layer Service	N/A	Running	N/A	N/A

For status on actual services, please use [Status and Control](#)

* -- For more detail, please mouse over the Cause, you'll see the tooltip, or go to help page.

License Information
You are licensed to run Application Enablement (CTI) version 5.0

5.3. Administer Switch Connection

From the Management Console menu, select **Communication Manager Interface**→**Switch Connections**. Enter a descriptive name for the switch connection and click **Add Connection**. In this configuration, **CM** is used as the name.



AVAYA Application Enablement Services Management Console

Welcome: User craft
Last login: Thu Nov 11 17:25:32 2010 from 10.10.16.8
HostName/IP: DCAES/10.10.16.25
Server Offer Type: TURNKEY
SW Version: r5-2-2-105-0

Communication Manager Interface | Switch Connections Home | Help | Logout

Switch Connections

CM

Connection Name	Processor Ethernet	Msg Period	Number of Active Connections
CM3	No	30	1

The Connection Details screen is displayed. For the **Switch Password** and **Confirm Switch Password** fields, enter the password that was administered in Communication Manager using the IP Services form in **Section 4.1**. Accept the defaults for the remaining fields. Click on **Apply**

AVAYA Application Enablement Services Management Console

Welcome: User craft
Last login: Thu Nov 11 17:25:32 2010 from 10.10.16.8
HostName/IP: DCAES/10.10.16.25
Server Offer Type: TURNKEY
SW Version: r5-2-2-105-0

Communication Manager Interface | Switch Connections Home | Help | Logout

AE Services
Communication Manager Interface
Switch Connections
Dial Plan
Licensing
Maintenance
Networking
Security
Status

Connection Details - CM

Switch Password: [Redacted]
Confirm Switch Password: [Redacted]

Msg Period: 30 Minutes (1 - 72)
SSL: ☒
Processor Ethernet: ☐

Apply Cancel

The Switch Connections screen is displayed. Select the newly added switch connection name and click **Edit PE/CLAN IPs**.

AVAYA Application Enablement Services Management Console

Welcome: User craft
Last login: Thu Nov 11 17:25:32 2010 from 10.10.16.8
HostName/IP: DCAES/10.10.16.25
Server Offer Type: TURNKEY
SW Version: r5-2-2-105-0

Communication Manager Interface | Switch Connections Home | Help | Logout

AE Services
Communication Manager Interface
Switch Connections
Dial Plan
Licensing
Maintenance
Networking
Security

Switch Connections

Add Connection

Connection Name	Processor Ethernet	Msg Period	Number of Active Connections
CM	No	30	1

Edit Connection Edit PE/CLAN IPs Edit H.323 Gatekeeper Delete Connection

In the Edit CLAN IPs screen, enter the host name or IP address of the **procr** used for AES connectivity. In this case, **10.10.16.12** is used, which corresponds to the IP address of the procr administered on the Communication Manager in **Section 4.1**. Click **Add Name or IP**.

AVAYA Application Enablement Services Management Console

Welcome: User craft
Last login: Thu Nov 11 17:25:32 2010 from 10.10.16.8
HostName/IP: DCAES/10.10.16.25
Server Offer Type: TURNKEY
SW Version: r5-2-2-105-0

Communication Manager Interface | Switch Connections Home | Help | Logout

AE Services
Communication Manager Interface
Switch Connections
Dial Plan
Licensing
Maintenance
Networking

Edit CLAN IPs - CM

10.10.16.12 Add Name or IP

Name or IP Address	Status
--------------------	--------

Delete IP Back

5.4. Administer TSAPI Link

To administer a TSAPI link on AES, select **AE Services**→ **TSAPI**→**TSAPI Links** from the Management Console menu. Click **Add Link**.

AVAYA Application Enablement Services Management Console

Welcome: User craft
Last login: Fri Nov 12 10:09:48 2010 from 10.10.16.8
HostName/IP: DCAES/10.10.16.25
Server Offer Type: TURNKEY
SW Version: r5-2-2-105-0

AE Services | TSAPI | TSAPI Link Home | Help | Logout

AE Services
CVLAN
DLG
DMCC
SMS
TSAPI
TSAPI Links
TSAPI Properties
Communication Manager Interface

TSAPI Links

Link	Switch Connection	Switch CTI Link #	ASAI Link Version	Security
1	CM	1	4	Unencrypted

Add Link Edit Link Delete Link

In the Add / Edit TSAPI Links screen, select the following values:

- **Link:** Select an available Link number from 1 to 16.
- **Switch Connection:** Administered switch connection in **Section 5.3**.
- **Switch CTI Link Number:** Corresponding CTI link number in **Section 4.1**.
- **ASAI Link Version:** Set to **4**.
- **Security:** Set to unencrypted in these Application Notes.

Note that the actual values may vary. Click **Apply Changes**.

AVAYA Application Enablement Services Management Console

Welcome: User craft
Last login: Fri Nov 12 10:09:48 2010 from 10.10.16.8
HostName/IP: DCAES/10.10.16.25
Server Offer Type: TURNKEY
SW Version: r5-2-2-105-0

AE Services | TSAPI | TSAPI Link Home | Help | Logout

▼ AE Services

- ▶ CVLAN
- ▶ DLG
- ▶ DMCC
- ▶ SMS
- ▼ TSAPI
 - TSAPI Links
 - TSAPI Properties
- ▶ Communication Manager Interface
- ▶ Licensing
- ▶ Maintenance
- ▶ Networking

Edit TSAPI Links

Link 1
Switch Connection CM
Switch CTI Link Number 1
ASAI Link Version 4
Security Unencrypted

Apply Changes Cancel Changes

Click **Apply** to confirm the changes on the subsequent screen (not shown). To restart the TSAPI Service, select **Maintenance**→**Service Controller**. Check the **TSAPI Service** checkbox and click **Restart Service**.

AVAYA Application Enablement Services Management Console

Welcome: User craft
Last login: Fri Nov 12 10:09:48 2010 from 10.10.16.8
HostName/IP: DCAES/10.10.16.25
Server Offer Type: TURNKEY
SW Version: r5-2-2-105-0

Maintenance | Service Controller Home | Help | Logout

▶ AE Services

▶ Communication Manager Interface

▶ Licensing

▼ Maintenance

- Date Time/NTP Server
- ▶ Security Database
- Service Controller**
- ▶ Server Data

▶ Networking

▶ Security

▶ Status

▶ User Management

▶ Utilities

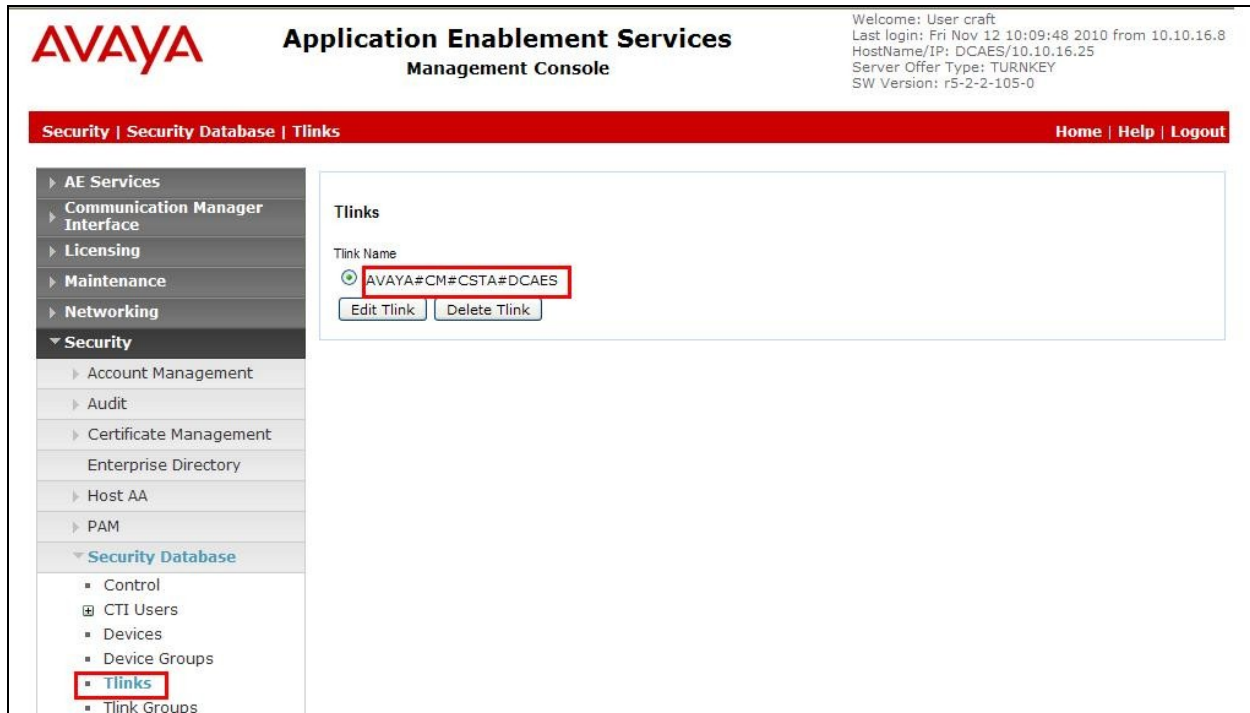
Service Controller

Service	Controller Status
<input type="checkbox"/> ASAI Link Manager	Running
<input type="checkbox"/> DMCC Service	Running
<input type="checkbox"/> CVLAN Service	Running
<input type="checkbox"/> DLG Service	Running
<input type="checkbox"/> Transport Layer Service	Running
<input checked="" type="checkbox"/> TSAPI Service	Running

For status on actual services, please use [Status and Control](#)

Start Stop **Restart Service** Restart AE Server Restart Linux Restart Web Server

Click Restart on the subsequent screen (not shown) to confirm the restart operation. Navigate to the Tlinks screen by selecting **Security→Security Database→Tlinks** from the Management Console menu. Note the value of the **Tlink Name**, as this will be needed to configure the Evolution Server in **Section 6.2**. In this configuration, the unencrypted **Tlink Name** **AVAYA#CM#CSTA#DCAES** which is automatically assigned by the AES server is used.



6. Configure ICR Evolution Server

The following sections describe the steps required to configure ICR Evolution to enable communication with Communication Manager using AES TSAPI service.

6.1. Configure TSAPI Client

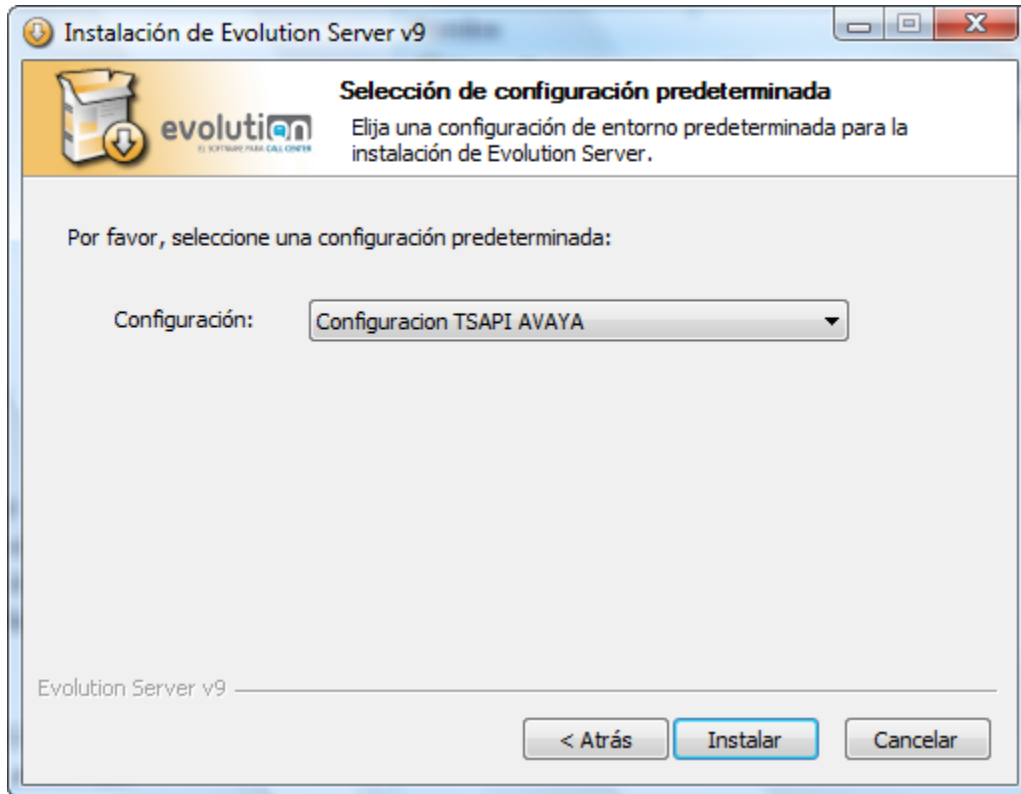
It is assumed that the Application Enablement Services TSAPI Client MS Windows has been installed on the Evolution Server. See **Section 10**, reference [3] for more details. To configure the TSAPI Client, edit the TCSLIB.INI file that is located in the installation directory of the TSAPI Client. Modify the **Telephony Servers** value to be the IP address of the AES server.



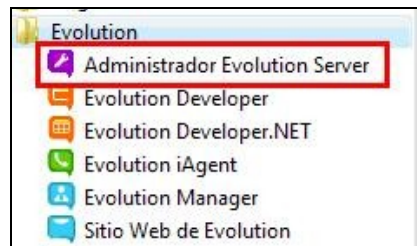
```
1  [Telephony Servers]
2  10.10.16.25=450
3
4  ; This is a list of the servers offering Telephony Services via TCP/IP.
5  ; Either domain name or IP address may be used; default port number is 450
6  ; The form is: host_name=port_number   For example:
7  ;
8  ; tserver.mydomain.com=450
9  ; 127.0.0.1=450
10 ;
11
12 [Config]
13
14 ; When accessing Telephony Services via a secure, encrypted connection, the
15 ; Application Enablement (AE) Services server sends its certificate to the
16 ; TSAPI client, and the TSAPI client verifies that the certificate is signed
17 ; by a trusted Certificate Authority (CA).
18 ;
19 ; If your organization has installed its own certificate on the AE Server,
20 ; then the TSAPI client must have access to the trusted CA certificate(s)
```

6.2. Configure Evolution

It is assumed that Evolution Software is installed in accordance with ICR documentation and that the **Configuración TSAPI Avaya** option was selected during the installation wizard as shown.



To configure that connection to AES, run the Evolution Administration Tool from the start menu on the Evolution server as shown.



The following screen will open. Select the **Telefonía** tab. **Identificador del enlace en el servidor de Telefonía** should be set to the Tlink name described in **Section 5.4** except the AES host name and associated # should be removed from the string. The **servidor de telefonía (Tserver)** is then set to the AES host name. Enter the **Usuario del servidor de telefonía** and **Contraseña del usuario** of the CTI username and password configured in **Section 5.1**. Ensure the **Proveedor CTI + Modelo centralita** are set to **TSAPI** and **AvayaAes** respectively. Click **Guardar datos** to save the changes.

Evolution / Admin - localhost:3666 - [Configuración]

Servidor Ver Ventana Ayuda

KTR (2) Administrador Coordinador BdD BdD (2) **Telefonía** Gest.Marc. Disp. Marc. Sites Gest. ◀ ▶

Nº de procesos del gestor de telefonía 10

Identificador del enlace en el servidor de telefonía AVAYA#CM#CSTA

Servidor de telefonía (TServer) DCAES

Usuario del servidor de telefonía john

Contraseña del usuario Avaya123%

Proveedor CTI + Modelo centralita TSAPI AvayaAes

Timer de 'watchdog' del gestor de telefonía 40s [Nh][Nm][Ns][Nms]

Servidores alternativos

Añadir

Eliminar

Obtener datos **Guardar datos** Generar fichero

6.3. Configure Evolution Dialer

In order to allow the predictive dialer to make calls the Dialer must also be configured to use AES. To do this run the DialerParam executable that is located in the Evolution installation directory. This will open the window shown. Click on the **DialerGlobal** tab. Ensure **Máquina de Dialer** is set to '.' to indicate the current machine is to be used. Click **Obtener Datos** to get current configured settings. Again the **MainLinkID** should be set to the Tlink name described in **Section 5.4** except the AES host name and associated # should be removed from the string. The **MainServerID** is then set to the AES host name. Enter the **MainLogin** and **MainPwd** of the CTI username and password configured in **Section 5.1**. Ensure the **Module** is set to **69**. The remaining values should remain unchanged. Click **Guardar Datos** to save any changes.

The screenshot shows the DialerParam configuration window with the following settings:

- DialerGlobal** tab selected.
- Máquina de Dialer**: .
- EventFlowTraces**: ☐
- SharingThread**: ☐
- WantedEvents**: 31
- OperTimeOut**: 60000
- AllocState**: 1
- Module**: 69
- MainLinkID**: AVAYA#CM#CSTA
- MainServerID**: DCAES
- MainLogin**: john
- MainPwd**: Avaya123&
- Obtener Datos** button highlighted.
- Guardar Datos** button highlighted.
- Valores Defecto** button.
- Generar Fichero** button.

6.4. Administer Evolution

This section describes how to configure workstations and agents that use campaigns that are created by default during installation of Evolution. Only changes required to use Avaya telephony will be discussed. Log in to the web based Evolution Manager tool by entering **http://<IP address of Evolution Server>/manager** using appropriate credentials.



6.4.1. Workstation

To create a new workstation select the **Administración** tab and click **Puestos** followed by the **Nuevo** button.



In the subsequent add/modify screen, add a descriptive name in the **Nombre** field, and the station number of a configured Avaya station in the **Telefono** and **Telefono Logico** fields. The remaining fields can be left unchanged. Select **Guardar y cerrar** to save changes.

evolution Usuario: NCADMIN System Tipo: Administrador v.9.5.1113 EE 09/11/2010 17:35

Supervisión Administración Informes Configuración

Puestos Usuarios Campañas Servicios Argumentarios Grabadores Mensajes Eventos

Administración de puestos de trabajo - Modificación

Guardar y cerrar Cerrar Modificar Clases de puesto Eliminar

Parámetros del puesto

(*) Nombre: PT51001 Id Puesto: 100000016

Telefono: 51001 Telefono lógico: 51001

(*) Clase Puesto: Puesto de Trabajo (*) Grabador:

6.4.2. ICR Evolution User

To create an Evolution User, the **Administración** tab and click **Usuarios**. Click Nuevo (not shown) and the following screen is displayed. Select **Agente** for **Tipo de usuario**. Enter the **Nombre** and **Primer apellido** for the particular agent. Enter a Login and Password for the agent in the **Login/Password** field. Enter the **Login ACD** and **Password ACD** of an Avaya agent created in **Section 4.2.5**. Note in this example no password was used. Select **Guardar y cerrar** to save changes.

evolution Usuario: NCADMIN System Tipo: Administrador v.9.5.1113 EE 09/11/2010 17:45

Supervisión Administración Informes Configuración

Puestos Usuarios Campañas Servicios Argumentarios Grabadores Mensajes Eventos

Administración de usuarios - Alta

Guardar y cerrar Cerrar

Parámetros del usuario

(*) Tipo de usuario: Agente

(*) Nombre: John

(*) Primer apellido: Avaya

(*) Login/Password: c/c

DNI:

Segundo apellido:

Parámetros de ACD

Login ACD: 54001 Password ACD:

6.4.3. Campaign

Upon installation of Evolution there are 2 campaigns created by default. Only modifications to these campaigns relating to the connection with Avaya telephony are discussed in this section. Click on the **Administración** tab followed by **Campañas**. From the list of campaigns (not shown) select as an example **TELEMARKETING**. This is an outbound campaign. Set the **Disp. de control** and **Telf. Calle (DNIS)** fields to the number of the VDN configured in **Section 4.2.4**. Enter a Trunk Access code if required. To allow this outgoing campaign to accept incoming calls set the **Permitir entrantes** to **Permitir**. Select **Guardar y cerrar** to save changes

Administración de campañas - Modificación

Datos generales

(*) Nombre: Id:
Descripción: Fecha de creación:

Detalles

Cache SMS Alarmas Opciones Avanzadas Finales Segmentos Datos Incentivos Importar Clientes Importar Clientes Sugar CRM

Parámetros de campaña

(*) Estado: <input type="text" value="Activa"/>	(*) Fecha de inicio: <input type="text" value="22/01/2008"/>	(*) Fecha de final: <input type="text" value="31/12/2050"/>
(*) Marcación: <input type="text" value="Vista Previa"/>	Supervisor: <input type="text" value="NCSUPER System"/>	(*) Aplicación: <input type="text" value="Basico.NET"/>
Disp. de control: <input type="text" value="55001"/>	Telf. Calle (DNIS): <input type="text" value="55001"/>	Trunk Access Code: <input type="text" value=""/>
(*) Tiempo admin: <input type="text" value="30"/>	Planif. diaria: <input type="text" value="Automática"/>	(*) Máx. #Intentos: <input type="text" value="50"/>
(*) Modo sig. gestión: <input type="text" value="Sistema"/>	(*) Permitir entrantes: <input type="text" value="Permitir"/>	(*) Auto-Answer: <input type="text" value="Manual"/>
Cuota máxima: <input type="text" value="0"/>	Cuota: <input type="text" value="0"/>	(*) Prioridad: <input type="text" value="100"/>
(*) ¿Presencial?: <input type="text" value="Permitir"/>	(*) Días en histórico: <input type="text" value="60"/>	(*) Canal: <input type="text" value="telefono"/>
(*) Identificar clientes: <input type="text" value="Mostrar en presencial"/>	(*) Permitir altas: <input type="text" value="No Permitir"/>	(*) Permitir anónimos: <input type="text" value="No Permitir"/>
T. Predictivo: <input type="text" value="0"/>	Factor llamadas predictivo: <input type="text" value="100"/>	Máximas llamadas simultaneas: <input type="text" value="1"/>
NoAnswer timeout: <input type="text" value="10"/>	Grabaciones: <input type="text" value="Sin grabación"/>	

Finally, to associate this campaign with the Evolution User created in **Section 6.4.2**, click the **Administración** tab and **Usuarios**, select the user from the list (not shown) and the following screen is shown. Ensure that the appropriate Campaign is selected and moved from the **Servicios disponibles** column to the **Servicios asignados al usuario** column using the arrow buttons.

evolutiON Usuario: NCADMIN System Tipo: Administrador v.9.5.1114 EE 11/11/2010 12:32

Supervisión **Administración** Informes Configuración

Puestos **Usuarios** Campañas Servicios Argumentarios Grabadores Mensajes Eventos

Administración de usuarios - Participación en servicios

[Cerrar](#)

Parámetros del usuario

Tipo de usuario: Id. usuario:

Nombre: DNI:

Primer apellido: Segundo apellido:

Login/Password:

Parámetros de ACD

Login ACD: Password ACD:

Participación en servicios

Servicios asignados al usuario						Servicios disponibles		
Servicio	Descripción	T.Inicio	T.Final	Opciones	Quitar	Activar	Servicio	Descripción
100	▶ ATENCION AL CLIENTE	<input type="text" value="14/05/2003"/>	<input type="text" value="01/01/2020"/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="button" value="▶"/>	101	▶ TELEMARKETING
						<input type="button" value="◀"/>	103	▶ Servicio 103
						<input type="button" value="◀"/>	102	▶ Recobros
						<input type="button" value="◀"/>	Test	▶ Mixto Inbound/Outbound

6.4.4. iAgent

As part of the installation of the installation wizard of the iAgent client, the following screen allows the iAgent station to be associated with an Evolution Workstation. Enter in the IP address of the Evolution server in the **Dirección del Servidor Evolution Server** and enter the Workstation Name as configured in **Section 6.4.1** into the **Nombre del Puesto de Trabajo para el Cliente** field.

Instalación de Evolution iAgent v9

Configuración de Datos iAgent
Indique las características solicitadas para la configuración de Evolution iAgent

Por favor, indique las características necesarias para Evolution iAgent:

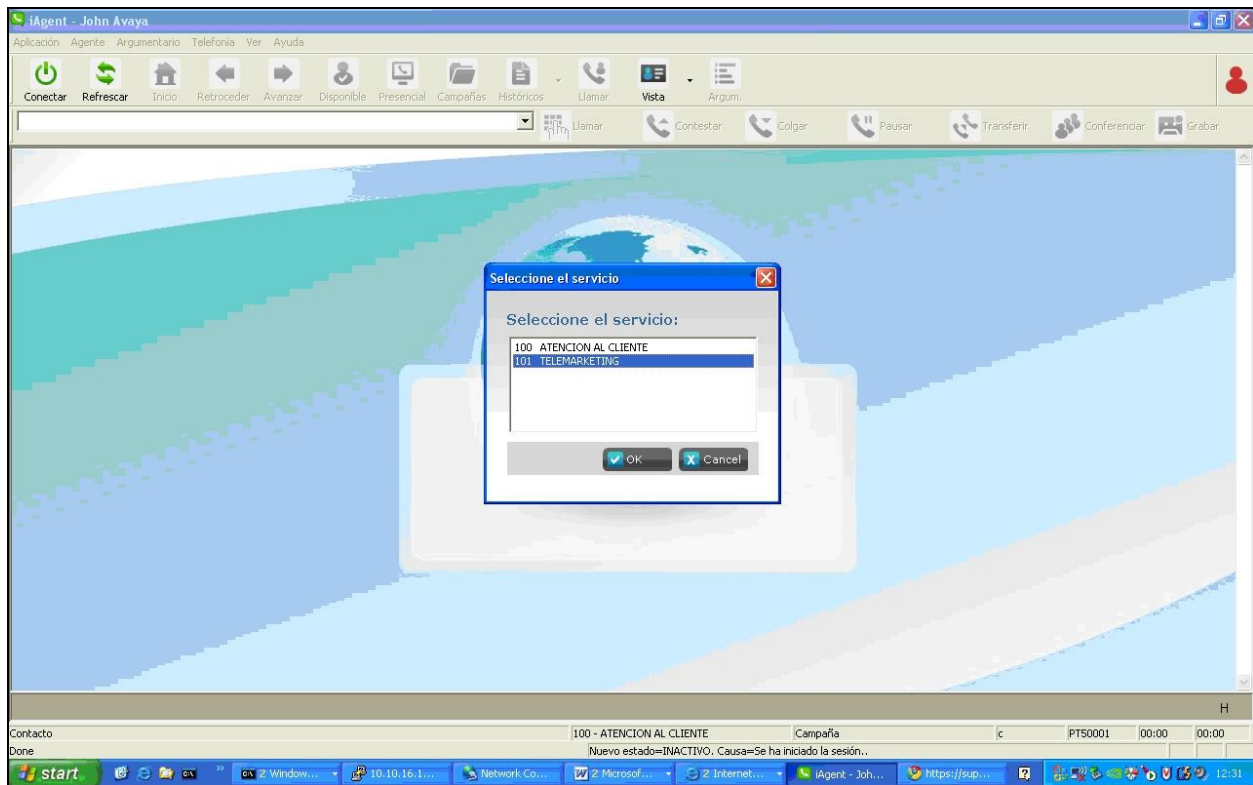
Dirección del Servidor Evolution Server (direccion TCP/IP):
ej 1: K2
ej 2: 194.0.10.199
10.10.16.115

Nombre del Puesto de Trabajo para el Cliente:
PT 51001

Evolution iAgent v9

< Atrás Instalar Cancelar

When the iAgent is run from **start→Evolution→iAgent**, the correct campaign must be selected as shown.



7. General Test Approach and Test Results

To verify interoperability of ICR Evolution Server with Communication Manager via Application Enablement Services, calls were made between Avaya Agent stations and to external endpoints via a simulated PSTN. Calls were both initiated and received on handsets that were controlled by Evolution iAgent client application. Various call scenarios were tested as were common PBX features such as hold and attended transfer. ACD functionality was also verified by making calls to VDNs and routing to skilled agents.

ICR Evolution passed compliance testing with the following observations:

- [1] When receiving an incoming call on iAgent, the Contestar (Answer) and Colgar (Hangup) icons become active. If the Colgar icon is clicked before the call has been answered, an error will display. This does not stop the call from being answered when the Contestar icon is subsequently clicked.
- [2] The conferencing option although available in iAgent is not supported by ICR.
- [3] Blind Transfers are not supported by ICR.
- [4] If connectivity is lost between Communication Manager, Application Enablement Service or Evolution Server, the iAgent agent must re-login to the iAgent application. Operation will then continue then as normal.

8. Verification Steps

This section includes steps that can be used to verify that the configuration has been done correctly.

8.1. Avaya Aura® Application Enablement Services

To confirm that the AES is communicating with Communication Manager, log in to AES as described in **Section 5.1**. Select **Status→Status and Control→TSAPI Service Summary**. This will show the TSAPI Link Details and should display the **Status** of **Talking** and **State** of **Online**.

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title "Application Enablement Services Management Console", and a welcome message for user "craft" with login details. A red navigation bar contains the breadcrumb "Status | Status and Control | TSAPI Service Summary" and links for "Home | Help | Logout".

The left sidebar shows a tree of navigation options. Under the "Status" category, the "Status and Control" sub-category is expanded, and "TSAPI Service Summary" is highlighted with a red box. Other options include "AE Services", "Communication Manager Interface", "Licensing", "Maintenance", "Networking", "Security", "Alarm Viewer", "Logs", "CVLAN Service Summary", "DLG Services Summary", "DMCC Service Summary", "Switch Conn Summary", and "User Management".

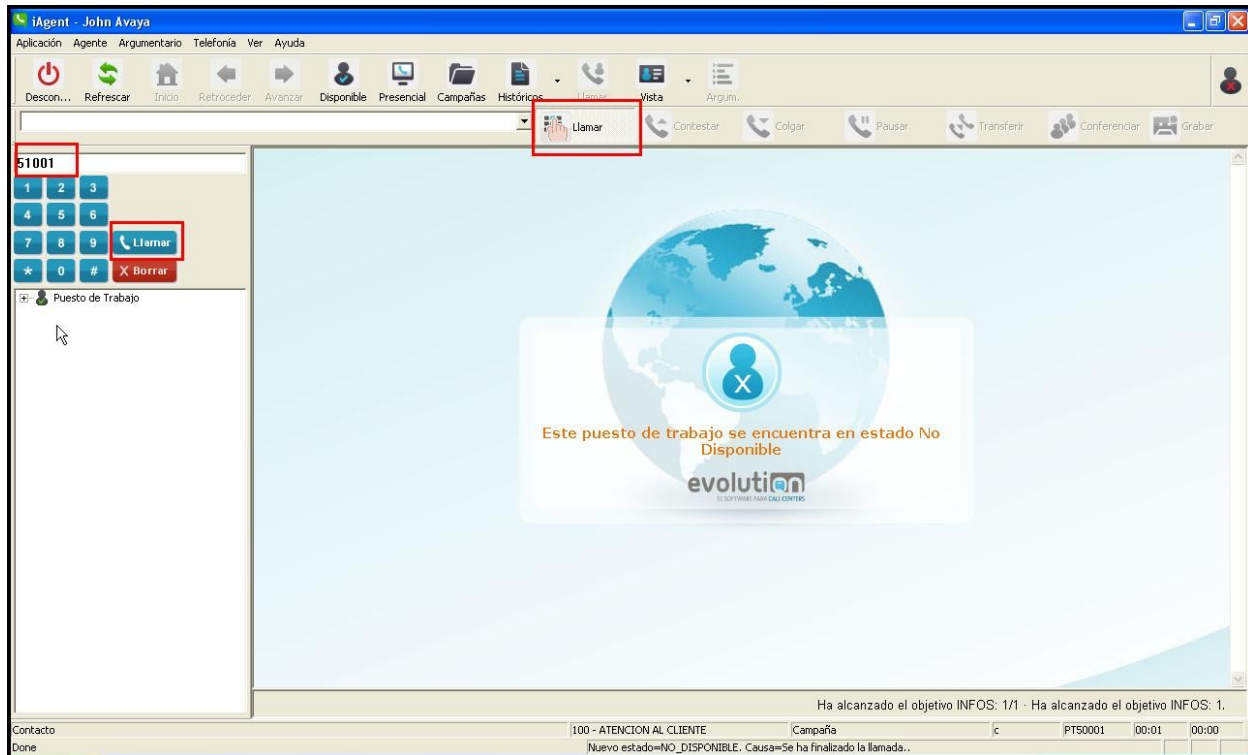
The main content area is titled "TSAPI Link Details". It features a checkbox for "Enable page refresh every 60 seconds" and a table with the following data:

	Link	Switch Name	Switch CTI Link ID	Status	Since	State	Switch Version	Associations	Msgs to Switch	Msgs from Switch	Msgs Period
	1	CM	1	Talking	Thu Nov 11 14:32:11 2010	Online	16	0	15	15	30

Below the table are "Online" and "Offline" buttons. At the bottom, a section for "For service-wide information, choose one of the following:" includes buttons for "TSAPI Service Status", "TLink Status", and "User Status".

8.2. iAgent Configuration

Run the iAgent application as discussed in Section 6.4.4. Click on **Llamar** to open the dial out window. Enter the number of a valid extension and click **Llamar**. A call should be initiated from the agent's handset to the destination number.



9. Conclusion

These Application Notes describe the procedures for configuring ICR Evolution solution to interoperate with Avaya Aura[®] Communication Manager via Avaya Aura[®] Application Enablement Services. In the configuration described in these Application Notes, various types of calls including intra-switch, PSTN, outgoing and incoming calls were tested. During compliance testing, all but one test case were completed successfully.

10. Additional References

This section references the Avaya and Data Track product documentation that is relevant to these Application Notes.

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

- [1] *Application Enablement Services Administration and Maintenance Guide*, Document No. 02-300357, November 2009.
- [2] *Administering Avaya Aura[®] Communication Manager*, Document No. 03-300509, August 2010.
- [3] *Avaya Aura[®] Application Enablement Services TSAPI Client MS Windows 5.2.2*.

The following ICR Evolution product documentation can be found at <http://www.evolutioncallcenter.com>

- [4] *Evolution Manual De Instalación* rev20100921
- [5] *Evolution Manual De Referencia*

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