



Application Notes for Using Service Observing Method to Integrate Avaya Contact Recorder with Avaya Proactive Contact with CTI and Avaya Aura™ Application Enablement Services – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Avaya Contact Recorder 10.0 to successfully integrate with Avaya Proactive Contact 4.2 using Computer Telephony Interface and Avaya Aura™ Application Enablement Services. Avaya Contact Recorder is a call recording solution capable of capturing audio from Avaya Aura™ Communication Manager using a variety of integration mechanism. The integration mechanism used in this test is Service Observing. Avaya Contact Recorder uses Avaya Proactive Contact Event Services to extract agent and call event information and DMCC interface of Avaya Aura™ Application Enablement Services to capture the media.

Information in these Application Notes has been obtained through interoperability test conducted at the Avaya Solution and Interoperability Test Lab.

1 Introduction

These Application Notes describe the configuration steps required for Avaya Contact Recorder 10.0 to successfully integrate with Avaya Proactive Contact 4.2 using Computer Telephony Interface and Avaya Aura™ Application Enablement Services. Avaya Contact Recorder is a call recording solution capable of capturing audio from Avaya Aura™ Communication Manager using a variety of integration mechanism. The integration mechanism used in this test is Service Observing.

Avaya Contact Recorder uses Avaya Proactive Contact Event Services to extract agent and call event information and DMCC interface of Avaya Aura™ Application Enablement Services to capture media associated with the target stations on Avaya Aura™ Communication Manager. Target stations are the stations Avaya Contact Recorder monitors for call recording. Any calls that occur on the stations will be recorded by Avaya Contact Recorder.

In the test configuration, agents are configured to support both outbound calls and inbound calls in a Predictive Agent Blending environment. Based upon the load of inbound calls, Avaya Proactive Contact grabs agents to handle outbound calls and releases agents for handling inbound calls on a continuous basis. Both outbound calls and inbound calls are recorded by Avaya Contact Recorder.

To implement the call recording solution, a number of DMCC virtual IP softphones are configured within Avaya Contact Recorder. At the time when Avaya Contact Recorder is launched, Avaya Contact Recorder registers the virtual IP softphones with Avaya Aura™ Communication Manager and enters Service Observing feature access code on behalf of the virtual IP softphones to service-observe the target stations. When outbound calls are received by those target stations, Avaya Contact Recorder will receive Proactive Contact events and DMCC events to trigger recording of the calls. When inbound calls are received by the target stations, Avaya Contact Recorder will use DMCC events to trigger the recordings.

1.1 Interoperability Testing and Results

The interoperability test included feature and serviceability testing.

The feature testing focused on verifying the following on Avaya Contact Recorder:

- Handling of real-time agent states and call events from Avaya Proactive Contact.
- Use of Avaya AES DMCC registration services to register and un-register the virtual IP softphones.
- Use of Communication Manager Service Observing feature to have virtual IP softphones service-observing target stations.
- Use of Avaya AES DMCC monitoring services and media control events to obtain the media from the virtual IP softphones.

- Proper recording, logging, and playback of calls for scenarios involving inbound, outbound, agent drop, customer drop, hold, reconnect, transfer, conference, simultaneous calls, agent blending, and managed jobs.
- Ability to record very long calls.

The serviceability testing focused on verifying the ability of the Avaya Contact Recorder to recover from adverse conditions, such as network outage and server reboot.

Feature and serviceability test cases were executed manually. During the test, outbound calls were placed by Avaya Proactive Contact and routed to an available agent. The agent accepted the call and the conversation between the customer and the agent was recorded. The recordings were reviewed using the Avaya Contact Recorder Replay function. Inbound calls were placed manually to an ACD queue during the test. The agent was released by Avaya Proactive Contact to handle the inbound call which was also recorded by the Avaya Contact Recorder.

An important focus of the test was to make sure that calls were recorded from the beginning to the end. In addition, for calls that have multiple segments (e.g. transfer and conference calls) attention was paid on whether all the segments were recorded. Because the Proactive Contact Agent client software did not provide hold, reconnect, transfer, and conference functions, such functions were performed on the phone.

All test cases were executed and passed. Avaya Contact Recorder successfully recorded, stored and played back the calls between the agents and the customers. For serviceability testing, Avaya Contact Recorder was able to resume call recording after network disconnect/re-connect and after reboot of Avaya Contact Recorder or Avaya Proactive Contact. For stability testing, Avaya Contact Recorder successfully recorded all the calls initiated by an outbound job as well as long calls.

The following observation was made during the testing:

- When Proactive Contact is working in a Predictive Agent Blending mode, it grabs agents and releases agents for outbound calls depending upon the inbound call load. As a part of the process, Proactive Contact initiates phantom calls and connects agents to announcements in addition to initiating outbound calls. The phantom calls and the announcement calls are very short (about 2 to 3 seconds). Those short calls are useless from recording point of view. However they have been recorded and displayed in addition to the normal outbound and inbound calls.

2 Reference Configuration

Avaya Contact Recorder is a software only solution and runs on an industry standard server. It uses a web browser for administration and recording review and playback.

The administration of basic connectivity among Avaya Aura™ Communication Manager, Avaya Proactive Contact, and Avaya Aura™ Application Enablement Services is not the focus of these Application Notes, and will not be described. In addition, it is assumed that the administration of contact center entities (e.g. agents, skills, vectors, and VDN's) is already in place.

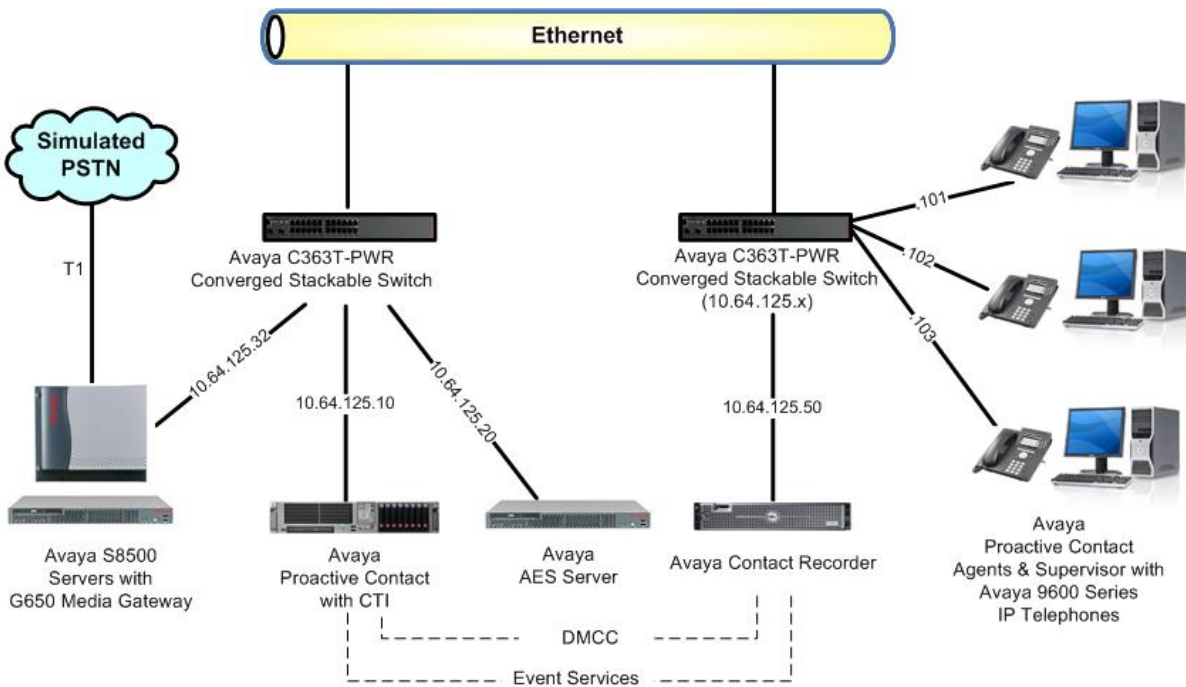


Figure 1: Avaya Contact Recorder with Avaya Proactive Contact with CTI and Avaya Aura™ Application Enablement Services

3 Equipment and Software Validated

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

| Equipment/Software | Release/Version |
|--|---|
| Avaya Aura™ Communication Manager on Avaya S8500 Server | Avaya Aura™ Communication Manager 5.2.1 (R015x.02.1.016.4) with SP3 (Patch 18250) |
| Avaya G650 Media Gateway <ul style="list-style-type: none">• TN799DP C-LAN Circuit Pack• TN2302AP IP Media Processor | HW01 FW032 HW12 FW118 |
| Avaya Aura™ Application Enablement Services | 5.2.2 |
| Avaya Proactive Contact with CTI | 4.2 |
| Avaya Proactive Contact Agent | 4.2 |
| Avaya Proactive Contact Supervisor | 4.2 |
| Avaya 9600 Series IP Telephones (H.323) | 3.1.1 |
| Avaya Contact Recorder on Red Hat Enterprise Linux <ul style="list-style-type: none">▪ Avaya Contact Recorder▪ Red Hat Enterprise Linux | 10.0 with Patch 34 5.2 |

4 Configure Avaya Aura™ Communication Manager

This section provides the procedures for configuring Avaya Aura™ Communication Manager. The procedures include the following areas:

- Verify Communication Manager License
- Administer CTI link for DMCC
- Administer System Parameters Features
- Administer Class of Restriction
- Administer Agent Stations
- Administer Codec Set
- Administer Network Region
- Administer Virtual IP Softphones
- Assign Virtual IP Softphones to Network Region
- Administer Feature Access Code

4.1 Verify Communication Manager License

Log in to the System Access Terminal (SAT) to verify that the Communication Manager license has proper permissions for features illustrated in these Application Notes. Use the “display system-parameters customer-options” command to verify that the **Computer Telephony Adjunct Links** customer option is set to “y” on **Page 3**.

```
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? y                                     DCS Call Coverage? y
ASAI Link Plus Capabilities? y                                     DCS with Rerouting? n
Async. Transfer Mode (ATM) PNC? n
Async. Transfer Mode (ATM) Trunking? n                             Digital Loss Plan Modification? n
ATM WAN Spare Processor? n                                         DS1 MSP? n
ATMS? n                                                            DS1 Echo Cancellation? n
Attendant Vectoring? n
```

Navigate to **Page 4**. Verify that the **Enhanced Conferencing** customer option is set to “y” on **Page 4**.

```
change system-parameters customer-options                               Page 4 of 11
                                OPTIONAL FEATURES

Emergency Access to Attendant? y                                   IP Stations? y
Enable 'dadmin' Login? y
Enhanced Conferencing? y                                         ISDN Feature Plus? y
Enhanced EC500? y                                                 ISDN/SIP Network Call Redirection? n
```

```

Enterprise Survivable Server? n
Enterprise Wide Licensing? n
ESS Administration? n
Extended Cvg/Fwd Admin? y
External Device Alarm Admin? n
Five Port Networks Max Per MCC? n
Flexible Billing? n
Forced Entry of Account Codes? y
Global Call Classification? y
Hospitality (Basic)? y
Hospitality (G3V3 Enhancements)? y
IP Trunks? y
IP Attendant Consoles? n
ISDN-BRI Trunks? n
ISDN-PRI? y
Local Survivable Processor? n
Malicious Call Trace? y
Media Encryption Over IP? n
Mode Code for Centralized Voice Mail? n
Multifrequency Signaling? y
Multimedia Call Handling (Basic)? y
Multimedia Call Handling (Enhanced)? y
Multimedia IP SIP Trunking? n

```

Navigate to **Page 6**. Verify that the **Service Observing (Basic)** and **Service Observing (Remote/By FAC)** customer options are set to “y”.

```

change system-parameters customer-options
CALL CENTER OPTIONAL FEATURES
Page 6 of 11

Call Center Release: 5.0

ACD? y
BCMS (Basic)? y
BCMS/VuStats Service Level? n
BSR Local Treatment for IP & ISDN? n
Business Advocate? n
Call Work Codes? n
DTMF Feedback Signals For VRU? n
Dynamic Advocate? n
Expert Agent Selection (EAS)? y
EAS-PHD? n
Forced ACD Calls? n
Least Occupied Agent? n
Lookahead Interflow (LAI)? n
Multiple Call Handling (On Request)? n
Multiple Call Handling (Forced)? n
PASTE (Display PBX Data on Phone)? n
Reason Codes? y
Service Level Maximizer? n
Service Observing (Basic)? y
Service Observing (Remote/By FAC)? y
Service Observing (VDNs)? n
Timed ACW? n
Vectoring (Basic)? y
Vectoring (Prompting)? n
Vectoring (G3V4 Enhanced)? n
Vectoring (3.0 Enhanced)? y
Vectoring (ANI/II-Digits Routing)? n
Vectoring (G3V4 Advanced Routing)? n
Vectoring (CINFO)? n
Vectoring (Best Service Routing)? n
Vectoring (Holidays)? n
Vectoring (Variables)? n

```

If any option specified in this section does not have a proper value, contact the Avaya sales team or business partner for a proper license file.

4.2 Administer CTI Link for DMCC

Add a CTI link using the “add cti-link n” command, where “n” is an available CTI link number. Enter an available extension number in the **Extension** field. Note that the CTI link number and extension number may vary. Enter “ADJ-IP” in the **Type** field, and a descriptive name in the **Name** field. Default values may be used in the remaining fields.

```

add cti-link 15
CTI LINK
Page 1 of 3

CTI Link: 15
Extension: 24998
Type: ADJ-IP
COR: 1

Name: AES DEVCON27

```

4.3 Administer System Parameters Features

Use the “change system-parameters features” command to enable **Create Universal Call ID (UCID)**, which is located on **Page 5**. For **UCID Network Node ID**, enter an available node ID.

```
change system-parameters features                               Page 5 of 18
                        FEATURE-RELATED SYSTEM PARAMETERS

SYSTEM PRINTER PARAMETERS
  Endpoint:                Lines Per Page: 60

SYSTEM-WIDE PARAMETERS
                        Switch Name: SIL-devcon27
  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: 27
```

Navigate to **Page 13**, and enable **Send UCID to ASAI**. This parameter allows for the universal call ID to be sent to Avaya Contact Recorder.

```
change system-parameters features                               Page 13 of 18
                        FEATURE-RELATED SYSTEM PARAMETERS

CALL CENTER MISCELLANEOUS
  Callr-info Display Timer (sec): 10
                        Clear Callr-info: next-call
  Allow Ringer-off with Auto-Answer? n

  Reporting for PC Non-Predictive Calls? n

  Interruptible Aux Notification Timer (sec): 3
  Interruptible Aux Deactivation Threshold (%): 95

ASAI
  Copy ASAI UII During Conference/Transfer? y
  Call Classification After Answer Supervision? y
                        Send UCID to ASAI? y
```


4.4 Administer Class of Restriction

Use the “change cor n” command, where “n” is the class of restriction (COR) number to be assigned to the target stations. Set the **Can Be Service Observed** fields to “y” and the **Calling Party Restriction** field to “none”, as shown below.

```
change cor 4                                     Page 1 of 23
                                         CLASS OF RESTRICTION

COR Number: 4
COR Description:

FRL: 0                                           APLT? y
Can Be Service Observed? y                   Calling Party Restriction: none
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

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
```

Use the “change cor n” command, where “n” is the class of restriction (COR) number to be assigned to the virtual IP softphones. Set the **Can Be A Service Observer** fields to “y” and the **Calling Party Restriction** field to “none”, as shown below.

```
change cor 5                                     Page 1 of 23
                                         CLASS OF RESTRICTION

COR Number: 5
COR Description:

FRL: 0                                           APLT? y
Can Be Service Observed? n                   Calling Party Restriction: none
Can Be A Service Observer? y                   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

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
```

4.5 Administer Agent Stations

Modify each physical station used by the Avaya Proactive Contact agents to allow the station to be service-observed and involved in outbound calls. Use the “change station n” command, where “n” is the station extension, to change the **COR** field to “4” which is defined in **Section 4.4**.

```
change station 22720                                     Page 1 of 5
                                                         STATION
Extension: 22720                                         Lock Messages? n          BCC: 0
Type: 9620                                               Security Code: 123456     TN: 1
Port: S00000                                             Coverage Path 1:         COR: 4
Name: IP-22720                                           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: 22720
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
```

Repeat this section for all agent stations. In the interoperability test, two physical agent stations “22720” and “22721” were modified.

4.6 Administer Codec Set

Enter the “change ip-codec-set n” command where “n” is the codec set to be used by the network region the virtual IP softphones will belong to. Enter “G.711MU” and “G.729A” to the **Audio Codec** field and “6” to the **Frames Per Pkt** field. Retain the values of other fields.

```
change ip-codec-set 1                                     Page 1 of 2
                                                         IP Codec Set
Codec Set: 1
Audio      Silence      Frames      Packet
Codec      Suppression  Per Pkt    Size(ms)
1: G.711MU      n           6          60
2: G.729A      n           6          60
3:
```

4.7 Administer Network Region

Enter the “change ip-network-region n” command where “n” is the network region the virtual IP softphones will belong to. Set the **Codec Set** field to the codec set value administered in **Section 4.6**.

```
change ip-network-region 1                               Page 1 of 19
                                                    IP NETWORK REGION
  Region: 1
Location:                               Authoritative Domain:
  Name:
MEDIA PARAMETERS                               Intra-region IP-IP Direct Audio: no
  Codec Set: 1                               Inter-region IP-IP Direct Audio: no
  UDP Port Min: 2048                               IP Audio Hairpinning? n
  UDP Port Max: 3329
DIFFSERV/TOS PARAMETERS                               RTCP Reporting Enabled? y
  Call Control PHB Value: 46                       RTCP MONITOR SERVER PARAMETERS
  Audio PHB Value: 46                               Use Default Server Parameters? y
  Video PHB Value: 26
802.1P/Q PARAMETERS
  Call Control 802.1p Priority: 6
  Audio 802.1p Priority: 6
  Video 802.1p Priority: 5                       AUDIO RESOURCE RESERVATION PARAMETERS
H.323 IP ENDPOINTS                               RSVP Enabled? n
  H.323 Link Bounce Recovery? y
  Idle Traffic Interval (sec): 20
  Keep-Alive Interval (sec): 5
  Keep-Alive Count: 5
```

4.8 Administer Virtual IP Softphones

Virtual IP Softphones are used by Avaya Contact Recorder to service observe target stations and capture media. Add a virtual IP softphone using the “add station n” command, where “n” is an available extension number. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **Type:** “4624”
- **Name:** A descriptive name.
- **Security Code:** A desired value.
- **COR** “5” which is defined in **Section 4.4**.
- **IP SoftPhone:** “y”

```

add station 22991                                     Page 1 of 6
                                                    STATION
Extension: 22991                                     Lock Messages? n          BCC: 0
  Type: 4624                                         Security Code: 123456    TN: 1
Port: S00026                                        Coverage Path 1:         COR: 5
  Name: ACR DMCC 22991                             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: 22991
  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
  
```

Navigate to **Page 4**. Enter button type “conf-dsp” to the **Button 4** field and “serv-obsrv” to the **Button 5** field. Empty the value in the **Button 3** field.

```

add station 22991                                     Page 4 of 6
                                                    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                                     7:
  2: call-appr                                     8:
  3:                                               9:
  4: conf-dsp                                     10:
  5: serv-obsrv                                  11:
  6:                                               12:
  
```

Repeat this section to administer the desired number of virtual IP softphones, using sequential extension numbers and the same security code for all virtual IP softphones. In the test environment, five virtual IP softphones have been administered as shown below. However, only two virtual IP softphones (22991 and 22992) are used for this test.

```
list station 22991 count 5
```

| STATIONS | | | | | | | | | | |
|-----------------|----------------|---------------------|------|-------------------|-------------|-------------|----------------|--|--|--|
| Ext/ Hunt-to | Port/ Type | Name/ Surv GK NN | Move | Room/ Data Ext | Cv1/ Cv2 | COR/ COS | Cable/ Jack | | | |
| 22991 | S00026 4624 | ACR DMCC 22991 | no | | | 5 | 1 | | | |
| 22992 | S00029 4624 | ACR DMCC 22992 | no | | | 5 | 1 | | | |
| 22993 | S00032 4624 | ACR DMCC 22993 | no | | | 5 | 1 | | | |
| 22994 | S00035 4624 | ACR DMCC 22994 | no | | | 5 | 1 | | | |
| 22995 | S00038 4624 | ACR DMCC 22995 | no | | | 5 | 1 | | | |

4.9 Assign Virtual IP Softphones to Network Region

Use the “change ip-network-map” command to add the IP address of the AES server “10.64.125.20” to network region “1” administered in **Section 4.7**. As all the virtual IP softphones register via the AES server, they will automatically be assigned to that network region.

```
change ip-network-map
```

| IP ADDRESS MAPPING | | | | | Page | 1 of | 63 |
|--------------------|----------------|-------------------|------|-----------------------|------|------|----|
| IP Address | Subnet Bits | Network Region | VLAN | Emergency Location | Ext | | |
| FROM: 10.64.125.20 | / | 1 | n | | | | |
| TO: 10.64.125.20 | | | | | | | |

4.10 Administer Feature Access Code

Use the “change feature-access-codes” command to enter an available feature access code in the **Service Observing No Talk Access Code** field. This feature access code will be used by the Avaya Contact Recording to activate Service Observing of target stations by the virtual IP softphones.

```
change feature-access-codes                                     Page 5 of 8
                                                             FEATURE ACCESS CODE (FAC)
                                                             Automatic Call Distribution Features
After Call Work Access Code: *15
  Assist Access Code: *16
  Auto-In Access Code: *17
  Aux Work Access Code: *18
  Login Access Code: *51
  Logout Access Code: *52
  Manual-in Access Code: *19
Service Observing Listen Only Access Code:
Service Observing Listen/Talk Access Code:
  Service Observing No Talk Access Code: *05
  Add Agent Skill Access Code:
  Remove Agent Skill Access Code:
  Remote Logout of Agent Access Code:
```

5 Configure Avaya Aura™ Application Enablement Services

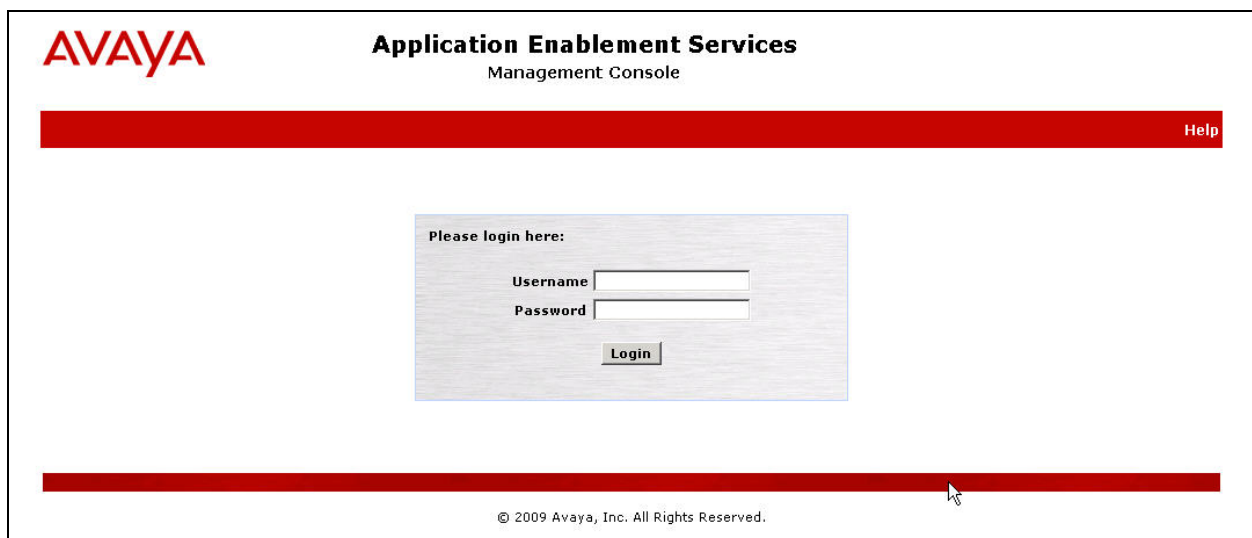
This section provides the procedures for configuring Avaya Aura™ Application Enablement Services. The procedures include the following areas:

- Launch AES
- Verify DMCC License
- Obtain H.323 gatekeeper IP Address
- Disable Security Database
- Administer Avaya Contact Recorder User

5.1 Launch AES

Access the AES web-based interface by using the URL “https://ip-address” in an Internet browser window, where “ip-address” is the IP address of the Application Enablement Services server.

The **Welcome to Avaya Application Enablement Service** screen is display (not shown). Click **Continue to Login**. The **Please login here** screen is displayed. Log in using the appropriate credentials.



The screenshot shows the Avaya Application Enablement Services Management Console. At the top left is the AVAYA logo. The title is "Application Enablement Services Management Console". A red horizontal bar spans the width of the page, with a "Help" link on the right. In the center, there is a login form titled "Please login here:" with fields for "Username" and "Password", and a "Login" button. At the bottom, another red horizontal bar is present, with a mouse cursor pointing to it. The footer text reads "© 2009 Avaya, Inc. All Rights Reserved."

The **Welcome to OAM** screen is displayed.

The screenshot shows the Avaya Application Enablement Services Management Console. At the top left is the Avaya logo. The main title is "Application Enablement Services Management Console". In the top right corner, there is a welcome message: "Welcome: User craft", "Last login: Tue Sep 14 17:17:22 2010 from 10.64.125.101", "HostName/IP: draespc/10.64.125.20", "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. On the left side, there is a vertical menu with the following items: "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 the following text: "The AE Services Operations, Administration, and Management (OAM) Web provides you with tools for managing the AE Server. OAM spans the following administrative domains:" 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 informations.", "• 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.", "• Help - Use Help to obtain a few tips for using the OAM Help system". Below the list, it 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."

5.2 Verify DMCC License

Avaya Contact Recorder has been granted unrestricted access to the DMCC interface. No additional **Device Media and Call Control** and **TSAPI Simultaneous Users** licenses are required for DMCC access.

5.3 Obtain H.323 Gatekeeper IP Address

Select **Communication Manager Interface** → **Switch Connections** from the left pane. The **Switch Connections** screen shows a listing of the existing switch connections.

Locate the Connection Name associated with the relevant Communication Manager, in this case “devcon27”, and select the corresponding radio button. Click **Edit H.323 Gatekeeper**.

AVAYA Application Enablement Services Management Console

Welcome: User craft
Last login: Tue Sep 14 17:17:22 2010 from 10.64.125.101
HostName/IP: draespc/10.64.125.20
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
- User Management
- Utilities
- Help

Switch Connections

Add Connection

| Connection Name | Processor Ethernet | Msg Period | Number of Active Connections |
|---|--------------------|------------|------------------------------|
| <input checked="" type="radio"/> devcon27 | No | 30 | 1 |

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

The **Edit H.323 Gatekeeper** screen is displayed. Note the IP address as this value will be used later to configure the Avaya Contact Recorder.

AVAYA Application Enablement Services Management Console

Welcome: User craft
Last login: Tue Sep 14 17:17:22 2010 from 10.64.125.101
HostName/IP: draespc/10.64.125.20
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
- User Management
- Utilities
- Help

Edit H.323 Gatekeeper - devcon27

Add Name or IP

Name or IP Address

10.64.125.32

Delete IP

5.4 Disable Security Database

Select **Security** → **Security Database** → **Control** from the left pane, to display the **SDB Control for DMCC and TSAPI** screen in the right pane. Uncheck **Enable SDB for DMCC Service** field and **Enable SDB TSAPI Service, JTAPI and Telephony Service** field. Click **Apply Changes**.

The screenshot displays the Avaya Application Enablement Services Management Console. The top left features the Avaya logo. The top center shows the page title "Application Enablement Services Management Console". The top right contains user information: "Welcome: User craft", "Last login: Wed Sep 15 12:04:46 2010 from 10.64.125.101", "HostName/IP: draesp/10.64.125.20", "Server Offer Type: TURNKEY", and "SW Version: r5-2-2-105-0". A red navigation bar below the header contains "Security | Security Database | Control" on the left and "Home | Help | Logout" on the right. A left-hand navigation pane lists various services, with "Security Database" expanded to show "Control" as the selected option. The main content area is titled "SDB Control for DMCC and TSAPI" and contains two unchecked checkboxes: "Enable SDB for DMCC Service" and "Enable SDB TSAPI Service, JTAPI and Telephony Service". Below these checkboxes is an "Apply Changes" button.

5.5 Administer Avaya Contact Recorder User

Select **User Management** → **User Admin** → **Add User** from the left pane, to display the **Add User** screen in the right pane.

Enter desired values for **User Id**, **Common Name**, **Surname**, **User Password**, and **Confirm Password**. For **CT User**, select “Yes” from the drop-down list. Retain the default value in the remaining fields. Click **Apply** at the bottom of the screen (not shown).

The screenshot displays the Avaya Application Enablement Services Management Console. The top navigation bar includes the Avaya logo, the title 'Application Enablement Services Management Console', and a welcome message: 'Welcome: User craft', 'Last login: Wed Sep 15 12:04:46 2010 from 10.64.125.101', 'HostName/IP: draespc/10.64.125.20', 'Server Offer Type: TURNKEY', and 'SW Version: r5-2-2-105-0'. The breadcrumb trail is 'User Management | User Admin | Add User', and there are links for 'Home | Help | Logout'.

The left sidebar contains a tree view with the following items: AE Services, Communication Manager Interface, Licensing, Maintenance, Networking, Security, Status, User Management (expanded), Service Admin, User Admin (expanded), Add User (selected), Change User Password, List All Users, Modify Default Users, Search Users, Utilities, and Help.

The main content area is titled 'Add User' and contains the following form fields:

- Fields marked with * can not be empty.
- * User Id:
- * Common Name:
- * Surname:
- * User Password:
- * Confirm Password:
- Admin Note:
- Avaya Role:
- Business Category:
- Car License:
- CM Home:
- Css Home:
- CT User:
- Department Number:
- Display Name:
- Employee Number:
- Employee Type:
- Enterprise Handle:
- Given Name:
- Home Phone:
- Home Postal Address:
- Initials:

6 Configure Avaya Proactive Contact

This section provides the procedure for obtaining the host name from Avaya Proactive Contact.

6.1 Obtain Host Name

Log in to the Linux shell of the Avaya Proactive Contact server. Use the “uname -a” command to obtain the host name, which will be used later for configuring Avaya Contact Recorder. In the interoperability testing, the host name of the Avaya Proactive Contact server is “drpc4s” as shown below.

```
$ uname -a
Linux drpc4s 2.6.9-89.0.20.ELsmp #1 SMP Mon Jan 18 12:22:21 EST 2010 i686 athlon i386
GNU/Linux
DRPC4S(admin)/opt/avaya/pds [1001]
$
```

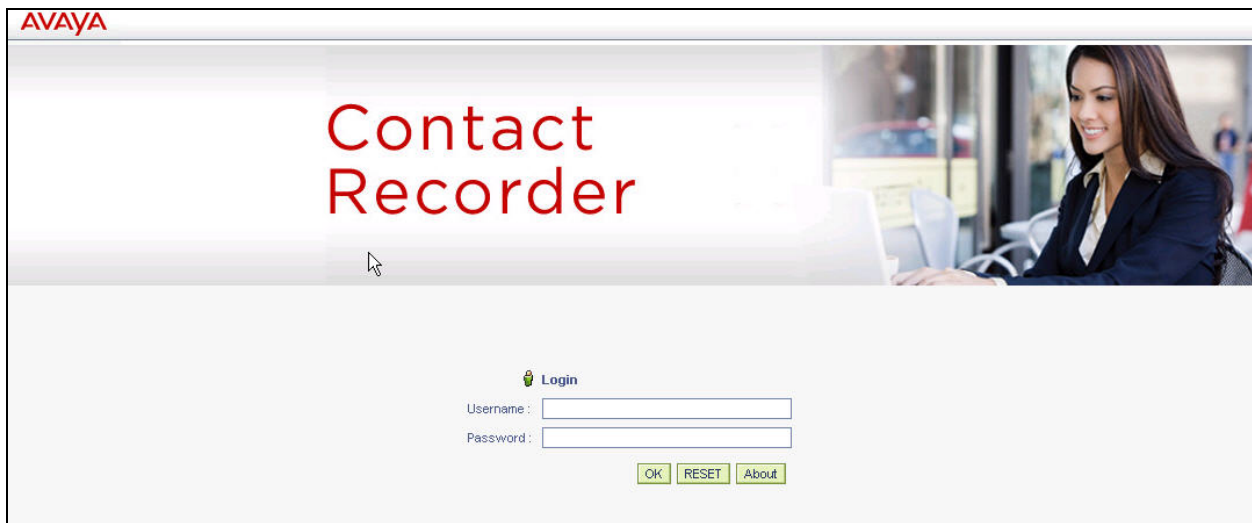
7 Configure Avaya Contact Recorder

This section provides the procedures for configuring Avaya Contact Recorder. The procedures include the following areas:

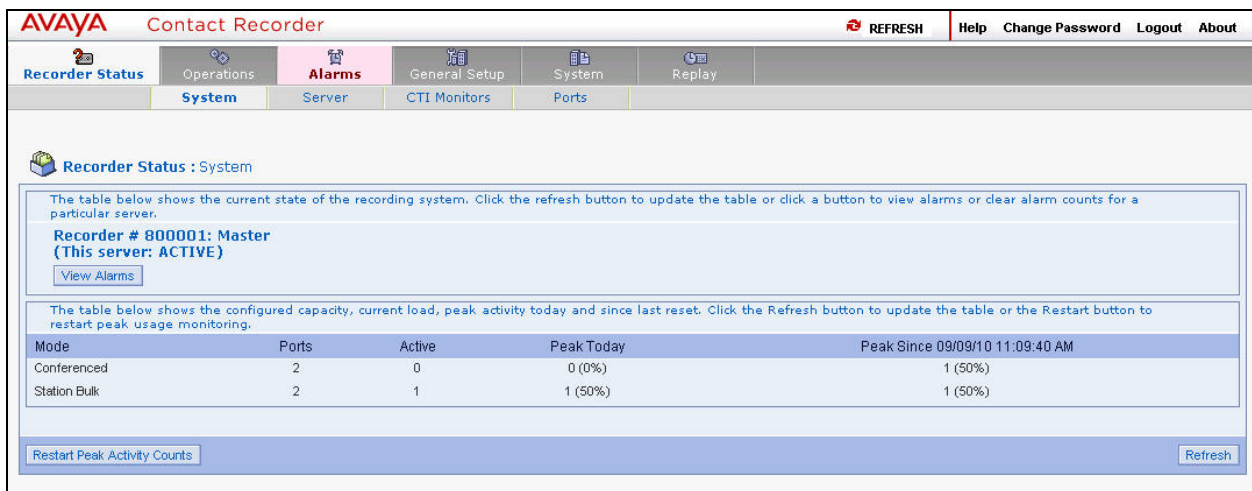
- Launch Avaya Contact Recorder
- Administer Communication Manager Information
- Administer Bulk Recording
- Administer Proactive Contact Interface

7.1 Launch Avaya Contact Recorder

Launch a web browser, enter “http://<IP address of Avaya Contact Recorder>:8080” in the URL field. Log in using proper credentials.



The following screen is displayed.



| Mode | Ports | Active | Peak Today | Peak Since |
|--------------|-------|--------|------------|------------|
| Conferenced | 2 | 0 | 0 (0%) | 1 (50%) |
| Station Bulk | 2 | 1 | 1 (50%) | 1 (50%) |

7.2 Administer Communication Manager Information

Navigate to **General Setup** → **Communication Manager Interface** tab and set the following fields:

- **Avaya Communication Manager Name:** H.323 Gatekeeper IP address obtained in **Section 5.3**
- **IP address on this server to use for RTP:** IP Address of the Avaya Contact Recorder
- **AE Server Address(es):** IP address of the Avaya AES server
- **DMCC Username:** **User Id** configured in **Section 5.5**
- **DMCC Password:** **User Password** configured in **Section 5.5**
- **IP Station Security Code:** **Security Code** configured in **Section 4.8**
- **Serve Observe Feature Access Code:** **Service Observing No Talk Access Code** configured in **Section 4.10**
- **Extensions assigned to recorder:** Use “Add Port(s)” to add the virtual IP softphone extensions configured in **Section 4.8**.

The screenshot shows the Avaya Contact Recorder web interface. The top navigation bar includes 'Recorder Status', 'Operations', 'Alarms', 'General Setup', 'System', and 'Replay'. The 'General Setup' tab is active, and the 'Communication Manager Interface' sub-tab is selected. The main content area displays a configuration table for the Communication Manager interface settings.

| These settings determine how this recorder contacts and interacts with your Communication Manager. | | |
|--|-------------------------------|------|
| Avaya Communication Manager Name | 10.64.125.32 | Edit |
| IP address on this server to use for RTP | 10.64.125.50 | Edit |
| AE Server Address(es) | 10.64.125.20 | Edit |
| DMCC Username | acr | Edit |
| DMCC Password | ***** | Edit |
| Encrypt Media Streams | No | Edit |
| IP Station Security Code | ***** | Edit |
| Service Observe Feature Access Code | *05 | Edit |
| AES TSAPI Server(s) | 10.64.125.20 | Edit |
| AES TSAPI Service Identifier(s) | AVAYA#DEVCON27#CSTA-S#DRAESPC | Edit |
| AES TSAPI Service Login ID | acr1 | Edit |
| AES TSAPI Service password | ***** | Edit |
| Agent Skill Group(s) to Observe via TSAPI | Not defined | Edit |
| Address of the Communication Manager | Not defined | Edit |
| Username for Switch Administration | Not defined | Edit |
| Password for Switch Administration | Not defined | Edit |

| Extensions assigned to recorder | | | |
|---------------------------------|-------------|-----|--------|
| Select | Port(s) | No. | Detail |
| <input type="checkbox"/> | 22991-22995 | 5 | Edit |

Buttons: Delete selected port(s) | Add port(s)

7.3 Administer Bulk Recording

Navigate to **Operations** → **Station Bulk** tab and set the following fields:

- **Audio format:** Use default value **G.729A (8kbps)**
- **Stations to be recorded:** Use “Add station range” to add the target stations specified in **Section 4.5**.

Retain the default values for other fields.

The screenshot shows the Avaya Contact Recorder web interface. The top navigation bar includes 'AVAYA Contact Recorder', 'REFRESH', and 'Help Change Password Logout About'. The main menu has tabs for 'Recorder Status', 'Operations', 'Alarms', 'General Setup', 'System', and 'Replay'. The 'Operations' tab is active, and the 'Station Bulk' sub-tab is selected. Below the navigation, there is a section titled 'Operations : Station Bulk' with a summary of settings and a table for 'Stations to be recorded'.

| Select | Station(s) | No. | Detail |
|--------------------------|-------------|-----|----------------------|
| <input type="checkbox"/> | 22720-22721 | 2 | Edit |

Buttons at the bottom: [Delete selected station range\(s\)](#) [Add station range](#)

7.4 Administer Proactive Contact Interface

Access the Avaya Contact Recorder using Secure Shell. Login in as **root**. Edit the `/opt/witness/properties/cscm.properties` file to include the following lines:

```
cs.dialerlist=PCCTI_DR
PCCTI_DR.class=com.swhh.cti.pcsccon.PCSDialer
PCCTI_DR.hostname=drpc4s
PCCTI_DR.username=
PCCTI_DR.password=
PCCTI_DR.secure=true
PCCTI_DR.replyip=10.64.125.50
```

Please note that the **hostname** field must be set to the host name of the Avaya Proactive Contact as obtained in **Section 6**. The **username** and **password** fields must be set to the user name and password that have the access permission to the Avaya Proactive Contact Event API. The **replyip** field must be set to the IP address of the Avaya Contact Recorder.

Save the changes. Start/restart the Avaya Contact Recorder by issuing the “service cscm stop” and “service cscm start” commands.

8 Verification Steps

This section provides the steps that can be performed to verify proper configuration of Avaya Aura™ Communication Manager, Avaya Proactive Contact, Avaya Contact Recorder, and Avaya Aura™ Application Enablement Services.

8.1 Verify Avaya Aura™ Communication Manager

On Communication Manager, verify the status of the administered CTI link by using the “status aesvcs cti-link” command. Verify that the **Service State** is “established” for the CTI link number administered in **Section 4.2**, as shown below.

```
status aesvcs cti-link
```

| AE SERVICES CTI LINK STATUS | | | | | | |
|-----------------------------|---------|----------|--------------------|--------------------|-----------|-----------|
| CTI Link | Version | Mnt Busy | AE Services Server | Service State | Msgs Sent | Msgs Rcvd |
| 15 | 4 | no | draespc | established | 25 | 20 |

Verify the registration status of the virtual IP softphones by using the “list registered-ip-stations” command. Verify that extensions used by this test from **Section 4.8** are displayed, as shown below.

```
list registered-ip-stations
```

Page 1

| REGISTERED IP STATIONS | | | | | | |
|------------------------|----------|-------------------|------------------|---------|---|--|
| Station or Orig | Ext Port | Set Type/ Net Rgn | Prod ID/ Release | TCP Skt | Station IP Address/ Gatekeeper IP Address | |
| 22991 | | 4624 | IP_API_A | y | 10.64.125.20 | |
| | | 1 | 3.2040 | | 10.64.125.32 | |
| 22992 | | 4624 | IP_API_A | y | 10.64.125.20 | |
| | | 1 | 3.2040 | | 10.64.125.32 | |

8.2 Verify Avaya Proactive Contact

Log in to the Linux shell of the Avaya Proactive Contact server, and issue the “netstat | grep enserver” command. Verify that there is an entry showing an **ESTABLISHED** connection between the Avaya Proactive Contact Event Server and Avaya Contact Recorder, as shown below.

```
netstat | grep enserver
```

| | | | | | |
|-----|---|---|---------------------|---------------------|-------------|
| tcp | 0 | 0 | drpc4s:enserver_ssl | drpc4s:39537 | ESTABLISHED |
| tcp | 0 | 0 | drpc4s:enserver_ssl | 10.64.125.50:54146 | ESTABLISHED |
| tcp | 0 | 0 | drpc4s:39537 | drpc4s:enserver_ssl | ESTABLISHED |

8.3 Verify Avaya Contact Recorder

From the Avaya Contact Recorder screen, navigate to **Recorder Status** → **Server**. The following screen is displayed. Verify that the **Link to DMCC at 10.64.125.20** field shows “ACTIVE” and the **Link to PCS at drpc4s** field shows “UP”.

The screenshot shows the Avaya Contact Recorder interface. The top navigation bar includes 'Recorder Status', 'Operations', 'Alarms', 'General Setup', 'System', and 'Replay'. The 'Server' sub-tab is selected. The main content area displays the following table:

| Recorder Status : Server | |
|---|----------------------|
| The table below shows the current state of this recorder. Click the refresh button to update the table. | |
| Link to DMCC at 10.64.125.20 | ACTIVE |
| Link to TSAPI at AVAYA#DEVCON27#CSTA-S#DRAESPC | UP |
| Link to PCS at drpc4s | UP |
| Total call segments recorded to date | 1,351 |
| Total call segments recorded today (or since restart if today) | 0 |
| Date of oldest call held on disk | 08/09/10 02:52:00 PM |

A 'Refresh' button is located at the bottom right of the table.

Navigate to **Recorder Status** → **Ports**. The following screen is displayed. Verify that two of the ports configured in **Section 7.2 (22991 and 22992)** are **Connected** to the two target stations configured in **Section 7.3**. **Connected** means that the port has been assigned to service-observe the target station. Two other ports (**22993 and 22994**) are assigned to **Conferenced** Mode which is used for another test and is outside the scope of this application notes.


The screenshot shows the Avaya Contact Recorder interface with the 'Ports' sub-tab selected. The main content area displays the following table:

| Port States | | | | | | |
|--------------|--------------|------------|-------------------|-----------|-----------|-------|
| Port | Mode | Controller | Recording Enabled | State | Recording | |
| 800001/22991 | Station Bulk | | Yes | Connected | 22720 | Reset |
| 800001/22992 | Station Bulk | | Yes | Connected | 22721 | Reset |
| 800001/22993 | Conferenced | | No | Idle | | Reset |
| 800001/22994 | Conferenced | | No | Idle | | Reset |

A 'Reset All' button is located at the bottom left, and a 'Refresh' button is at the bottom right.

8.4 Verify Avaya Aura™ Application Enablement Services

Verify the status of the DMCC link by selecting **Status** → **Status and Control** → **DMCC Service Summary** from the left pane. The **DMCC Service Summary – Session Summary** screen is displayed. In the lower portion of the screen, verify that the **User** column shows an active session with the user name from **Section 5.5**, and that the **# of Associated Devices** column reflects the number of virtual IP softphones being used by Avaya Contact Recorder (2 of them are for **Station Bulk** and 2 of them are for **Conferenced** mode) as shown in **Section 8.3**.



Application Enablement Services
Management Console

Welcome: User craft
Last login: Wed Sep 15 12:14:45 2010 from 10.64.125.101
HostName/IP: draespc/10.64.125.20
Server Offer Type: TURNKEY
SW Version: r5-2-2-105-0

Status | Status and Control | DMCC Service Summary
Home | Help | Logout

- ▶ AE Services
- ▶ Communication Manager Interface
- ▶ Licensing
- ▶ Maintenance
- ▶ Networking
- ▶ Security
- ▼ Status
 - Alarm Viewer
 - ▶ Logs
 - ▼ Status and Control
 - CVLAN Service Summary
 - DLG Services Summary
 - **DMCC Service Summary**
 - Switch Conn Summary

DMCC Service Summary - Session Summary

Enable page refresh every seconds

Session Summary [Device Summary](#)
Generated on Wed Sep 15 18:07:48 MDT 2010

Service Uptime: 7 days, 23 hours 28 minutes

Number of Active Sessions: 1

Number of Sessions Created Since Service Boot: 11

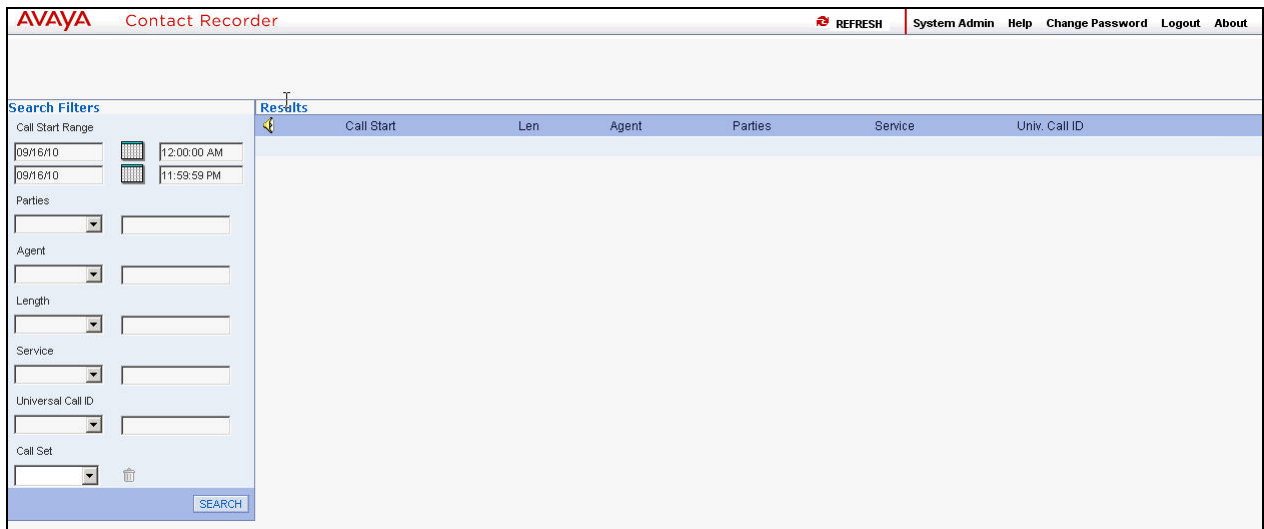
Number of Existing Devices: 4

Number of Devices Created Since Service Boot: 67

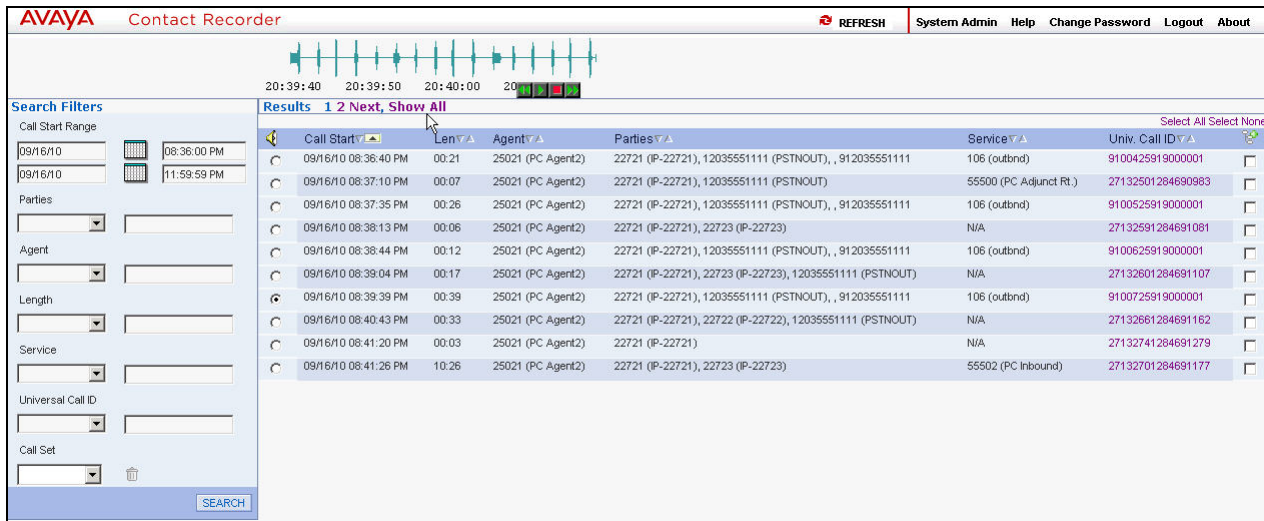
| Session ID | User | Application | Far-end Identifier | Connection Type | # of Associated Devices |
|--|------|--------------|--------------------|-----------------|-------------------------|
| <input type="checkbox"/> 1C1DFC2D757792F8B 674FB17AD7D6709-10 | acr | ContactStore | 10.64.125.50 | XML Encrypted | 4 |

8.5 Avaya Contact Recorder Recording Playback

Select **Replay** from the Avaya Contact Recorder menu bar. The following screen is displayed.



Specify the search criteria in the left pane. Click **SEARCH** to update the screen with call recordings. Verify that the recording entries reflect the calls supposed to be recorded and displayed. Click the radio button to select an entry and click the play button (green triangle) to listen to the playback. Verify that the content of the recording matches the content of the call.



9 Conclusion

These Application Notes describe the configuration steps required for Avaya Contact Recorder to successfully interoperate with Avaya Proactive Contact 4.2 and Avaya Aura™ Application Enablement Services. All feature and serviceability test cases were completed with observations noted in **Section 1.1**.

10 Additional References

This section references the product documentation relevant to these Application Notes. They are available at <http://support.avaya.com>.

1. *Administering Avaya Aura™ Communication Manager*, Document 03-300509, Issue 5.0, Release 5.2, May 2009
2. *Avaya Contact Recorder Release 10.0 Planning, Installation and Administration Guide*, Issue 4, April 2010
3. *Avaya Aura™ Application Enablement Services Administration and Maintenance Guide*, Release 5.2, Document ID 02-300357, Issue 11, November 2009
4. *Administering Avaya Proactive Contact Release 4.2*, May 2010

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