

Avaya Solution & Interoperability Test Lab

Application Notes to Integrate Avaya Aura® Communication Manager R6.0.1, Avaya Aura® Application Enablement Services R6.1 and Avaya Contact Recorder 10.1 using Service Observing – Issue 1.0

Abstract

These Application Notes describe the configuration steps required to successfully integrate Avaya Aura® Communication Manager 6.0.1, Avaya Aura® Application Enablement Services 6.1 and Avaya Contact Recorder 10.1. Avaya Contact Recorder is a call recording solution capable of capturing audio from Avaya Aura® Communication Manager using a variety of integration mechanisms. The integration mechanism used in this test is Service Observing. Avaya Contact Recorder uses the call event information and DMCC interface of Avaya Aura® Application Enablement Services Server to capture the media.

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

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1. Introduction

These Application Notes describe the configuration steps required to successfully integrate Avaya Aura® Communication Manager 6.0.1, Avaya Aura® Application Enablement Services 6.1 and Avaya Contact Recorder 10.1. Avaya Contact Recorder is a call recording solution capable of capturing audio from Avaya Aura® Communication Manager using a variety of integration mechanisms. The integration mechanism used in this test is Service Observing.

Avaya Contact Recorder uses the call event information and Device, Media and Call Control (DMCC) interface of Avaya Aura® Application Enablement Services Server to capture the 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 inbound calls as in an active call center. Agent stations are allowed to place outbound calls. Both outbound calls and inbound calls are recorded by the Avaya Contact Recorder.

To implement the call recording solution, a number of DMCC virtual IP softphones are configured within the Avaya Contact Recorder. At the time when Avaya Contact Recorder is launched, the Avaya Contact Recorder registers the virtual IP softphones with Avaya Aura® Communication Manager and enters the Service Observing feature access code on behalf of the virtual IP softphones to service-observe the target stations. When outbound calls are initiated by those target stations, Avaya Contact Recorder will receive call 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. Full Stack Testing and Results

The Full Stack Testing included feature, serviceability and reliability testing of Avaya Contact Recorder as integrated in a complex customer Intelligent Routing configuration.

The testing focused on verifying the following Avaya Contact Recorder capabilities as applicable to agent activity in a highly customized Call Center environment:

- Handling of real-time agent states and call events from complex Intelligent Routing solution.
- Use of Avaya AES DMCC registration services to register and un-register the virtual IP softphones.
- Use of the 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.

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The Full Stack Testing focused on verifying the ability of the Avaya Contact Recorder to recover from adverse conditions, such as network outage, server reboot, Enterprise Survivable Server failovers, etc.

Full Stack test cases were executed manually. During the test, inbound calls were placed by simulating customer calls into the Intelligent Routing solution and then routed to agents in varying agent/phone states. 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. Agent outbound calls were placed manually to observe direct Agent Dialing, VDN, transfer, conference, etc.

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.

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 along with Enterprise Survivable Server failovers.

1.2. Assumptions

These Application Notes do not provide any configuration details for the following list of assumptions:

- The front end, highly customized and complex customer Intelligent Routing configuration has been installed, configured and is operational
- Avaya Aura® Communication Manager has been installed and is operational. Additionally, the “procr” interface has been administered and is operational.
- The Enterprise Survivable Server has been installed and is operational. Additionally, the “procr” interface has been administered and is operational.
- Avaya Aura® Application Enablement Services has been installed and is operational
- Avaya Contact Recorder has been installed and is operational

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1.3. Acronyms

ARS	Automatic Route Selection (Routing on Avaya Aura® Communication Manager)
CM-ES	Communication Manager – Evolution Server
CM-FS	Communication Manager – Feature Server
DCP	Digital Communications Protocol
DMCC	Device, Media and Call Control
DNIS	Dialed Number Identification Service
DNS	Domain Naming System
DTMF	Dual Tone Multi Frequency
ESS	Enterprise Survivable Server
FQDN	Fully Qualified Domain Name (hostname for Domain Naming Resolution)
IP	Internet Protocol
IPSI	IP-services interface (Control Card in Communication Manager)
LAN	Local Area Network
PSTN	Public Switched Telephone Network
RTP	Real Time Protocol
SAT	System Access Terminal (Avaya Aura® Communication Manager Administration Interface)
SIL	Solution Interoperability Lab
SIP	Session Initiation Protocol
SM	Avaya Aura® Session Manager
SMGR	Avaya Aura® System Manager
SNMP	Simple Network Management Protocol
SRE	SIP Routing Element
SSH	Secure Shell
SSL	Secure Socket Layer
TAC	Trunk Access Code (Avaya Aura® Communication Manager Trunk Access)
TCP	Transmission Control Protocol
TCP/IP	Transmission Control Protocol/Internet Protocol
TLS	Transport Layer Security
URL	Uniform Resource Locator
VDN	Vector Directory Number
WAN	Wide Area Network
XML	eXtensible Markup Language

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1.4. Lab Configuration

The following is the Lab configuration used for testing.

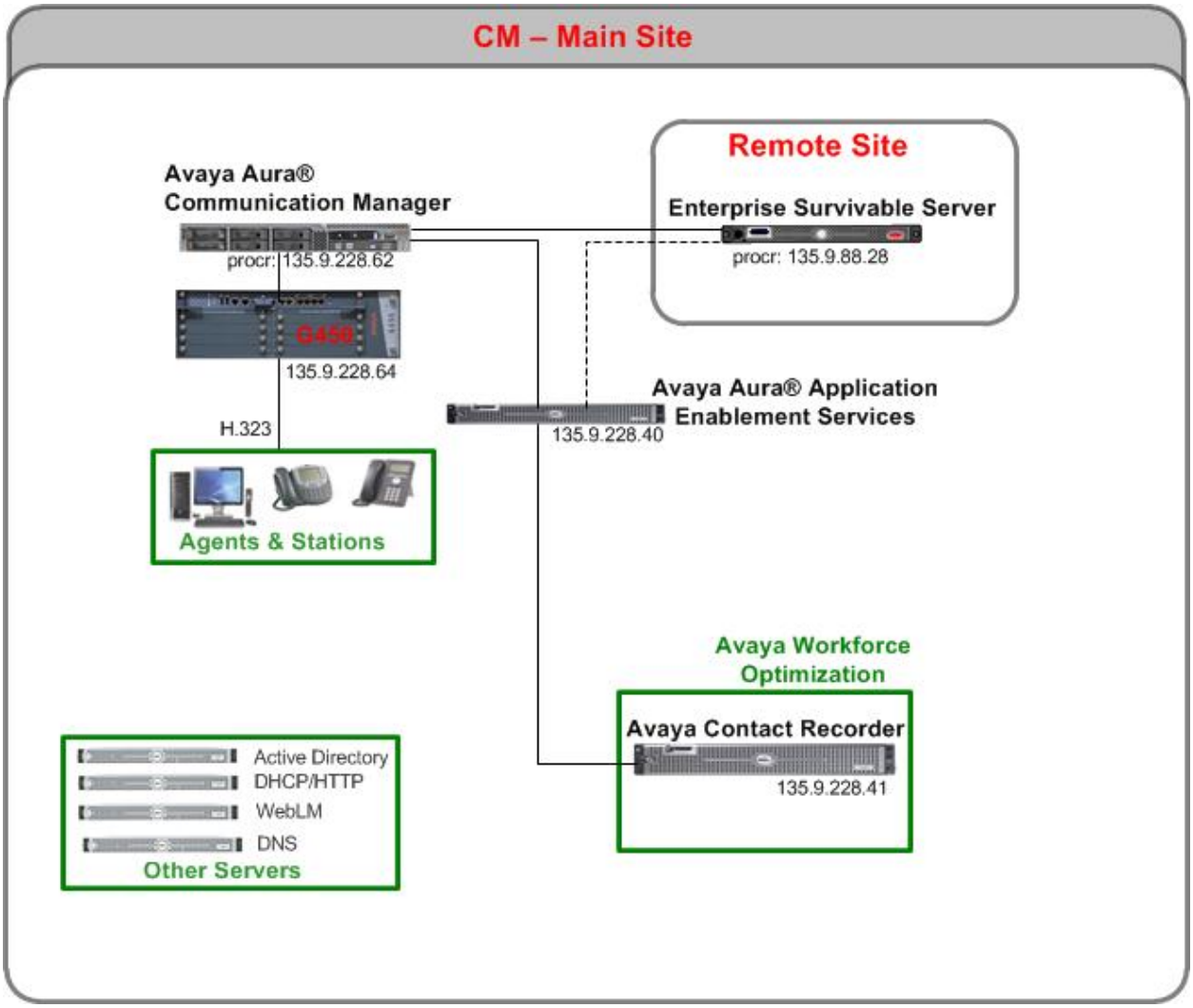


Figure 1. Avaya Contact Recorder Configuration Overview

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1.5. Equipment and Software Validated

The following equipment and software were used for the sample configuration.

Equipment/Software	Software Version
Avaya Aura® Communication Manager • Avaya S8800 Media Server	6.0.1 (R016x.00.1.510.1, patch 18777)
Avaya G450 Media gateway	FW: g450_sw_31_18_1
Avaya IP (H.323) Deskphones: • 9650 • 9630 • 9620 • 9608 • 9641	 ha96xxua3_0_02 ha96xxua3_0_02 ha96xxua3_0_02 S9608_11HALBR6_1r31_V4r52 S9608_11HALBR6_1r31_V4r52
Avaya IP-Agent	7.0.28.184
Avaya Aura® Application Enablement Services • Dell 1950	6.1 (r6-1-0-16-0)
Avaya Contact Recorder	10.1

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2. 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 System Parameters Features
- Administer Feature Access Code
- Administer Class of Restriction – Agent Stations
- Administer Class of Restriction – Virtual IP Softphones
- Administer Agent Stations
- Administer Codec Set – virtual IP Softphones
- Administer Network Region – Virtual IP Softphones
- Administer Virtual IP Softphones
- Administer AE Services
- Administer CTI link for DMCC
- Assign AES to Network Region

2.1. Verify Avaya Aura® 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
```


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Navigate to **Page 4.** Verify that the **Enhanced Conferencing** and **Media Encryption over IP** customer options are set to "**y**" on **Page 4**.

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

          IP Attendant Consoles? 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                       Page   6 of  11
                         CALL CENTER OPTIONAL FEATURES

                          Call Center Release: 5.0

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

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2.2. 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  19
                        FEATURE-RELATED SYSTEM PARAMETERS

SYSTEM PRINTER PARAMETERS
  Endpoint:               Lines Per Page: 60

SYSTEM-WIDE PARAMETERS
                                    Switch Name: silcm5
            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: 555
```

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


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2.3. 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 agent stations by the virtual IP softphones.

```
change feature-access-codes                                  Page   5 of  11
                            FEATURE ACCESS CODE (FAC)

                               Call Center Features
  AGENT WORK MODES
                    After Call Work Access Code: *75
                       Assist Access Code: *76
                      Auto-In Access Code: *71
                     Aux Work Access Code: *72
                        Login Access Code: *88
                       Logout Access Code: *89
                    Manual-in Access Code: *73
  SERVICE OBSERVING
      Service Observing Listen Only Access Code: *77
      Service Observing Listen/Talk Access Code: *78
          Service Observing No Talk Access Code: *79
```

2.4. Administer Class of Restriction – Agent Stations

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

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

               COR Number: 1
          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
```


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2.5. Administer Class of Restriction – Virtual IP Softphones

Use the "**change cor n**" command, where "**n**" is the class of restriction (COR) number to be assigned to the virtual IP softphones used for recording. 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
```

2.6. Administer Agent Stations

Modify each physical station used by agents to allow the station to be service-observed and involved in inbound calls. Use the "**change station n**" command, where "**n**" is the station extension, to change the **COR** field to "**1**" which is defined in **Section 2.4**.

```
change station 4150000                                      Page   1 of   5
                                    STATION

Extension: 415-0000                    Lock Messages? n               BCC: 0
     Type: 9650                        Security Code: 123456           TN: 1
     Port: S00000                    Coverage Path 1:                 COR: 1
     Name: stat 4150000              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: 415-0000
            Speakerphone: 2-way            Mute Button Enabled? y
        Display Language: english               Button Modules: 0
 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 this Full Stack Test effort, four physical agent stations "4150000 - 4150003" were modified.

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2.7. Administer Codec Set – Virtual IP Softphones

Enter the "**change ip-codec-set n**" command where "**n**" is the codec set to be used by the network region for the virtual IP softphones. Enter "**G.729A**" and "**G.711MU**" to the **Audio Codec** field and "**6**" to the **Frames Per Pkt** field. Retain the values of other fields. Add "**aes**" to the **Media Encryption** table in row 2.

***Note:** G.729A is an audio data compression algorithm which preserves network bandwidth.

```
change ip-codec-set 5                                          Page   1 of   2

                         IP Codec Set

    Codec Set: 5

    Audio        Silence      Frames   Packet
    Codec        Suppression  Per Pkt  Size(ms)
 1: G.729A            n         6        60
 2: G.711MU           n         6        60
 3:
 4:
 5:
 6:
 7:


     Media Encryption
 1: none
 2: aes
```

2.8. Administer Network Region – Virtual IP Softphones

Enter the "**change ip-network-region n**" command where "**n**" is the network region for the virtual IP softphones. Set the **Codec Set** field to the codec set value administered in **Section 2.7**.

```
change ip-network-region 5                                     Page   1 of  20
                            IP NETWORK REGION
  Region: 5
Location:         Authoritative Domain:
    Name: ACR CoR
MEDIA PARAMETERS               Intra-region IP-IP Direct Audio: no
      Codec Set: 5             Inter-region IP-IP Direct Audio: no
   UDP Port Min: 2048                     IP Audio Hairpinning? n
   UDP Port Max: 3329
DIFFSERV/TOS PARAMETERS
 Call Control PHB Value: 46
        Audio PHB Value: 46
        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
```


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2.9. Administer Virtual IP Softphones

Virtual IP Softphones are used by Avaya Contact Recorder to service observe agent 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 2.5**.
- **IP SoftPhone:** "y"

```
add station 4151000                                          Page   1 of   6
                                    STATION

Extension: 4151000                      Lock Messages? n               BCC: 0
     Type: 4624                         Security Code: 123456           TN: 1
     Port: S00026                     Coverage Path 1:                 COR: 5
     Name: CR 4151000                 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
```


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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.

***Note:** These button assignments are used by the Contact Recorder. The **conf-disp** button is used to retrieve information about each party of a conference call. The **serv-obsrv** button is used to initiate call recording.

```
add station 4151000                                          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, several virtual IP softphones have been administered as shown below. However, only four virtual IP softphones (4150000 through 4151003) are used for this test.

```
list station                                                      Page   1

                                  STATIONS

Ext/          Port/   Name/                        Room/       Cv1/ COR/   Cable/
 Hunt-to       Type      Surv GK NN        Move     Data Ext    Cv2  COS TN Jack

415-1000      S00009  CR 4151000                                 5
               4624                        no                    1   1
415-1001      S00012  CR 4151001                                 5
               4624                        no                    1   1
415-1002      S00015  CR 4151002                                 5
               4624                        no                    1   1
415-1003      S00018  CR 4151003                                 5
               4624                        no                    1   1
415-1004      S00021  CR 4151004                                 5
               4624                        no                    1   1
415-1005      S00029  CR 4151005                                 5
               4624                        no                    1   1
415-1006      S00032  CR 4151006                                 5
               4624                        no                    1   1
```


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2.10. Administer AE Services

Add the AES Server **Name** and **IP Address** to the **IP Node-Names** table using the "**change node-names ip name**" where "**name**" is a unique entry in the IP Node Names table.

```
change node-names ip tranio                                    Page   1 of   2
                                IP NODE NAMES
    Name                 IP Address
procr                  135.9.228.62
tranio                 135.9.228.40
```

Use the "**change ip-services**" command to add **AESVCS** to the **IP Services** table. On Page **1**, enter **AESVCS** under **Service Type**, set **Enabled** to "**y**", enter "**procr**" under **Local Node** and set **Local Port** to "**8765**".

```
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 IP Node Name previously assigned to the AES server under **AE Services Server**, set the **Password** and ensure **Enabled** is set to "**y**".

```
change ip-services                                             Page   3 of   3
                          AE Services Administration

   Server ID    AE Services       Password          Enabled    Status
                   Server
      1:        tranio            aespassword1        y        in use
```

2.11. 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 5                                                 Page   1 of   3
                                CTI LINK
Extension: 415-5000
     Type: ADJ-IP
                                                                      COR: 1
     Name: tranio
```


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2.12. Assign AES Server to Network Region

Use the "**change ip-network-map**" command to add the IP address of the AES server "**135.9.228.40**" to network region "**5**" administered in **Section 2.8**. As all the virtual IP softphones register via the AES server, they will automatically be assigned to that network region.

```
change ip-network-map                                        Page   1 of  63
                            IP ADDRESS MAPPING

                                                 Subnet Network     Emergency
 IP Address                                      Bits   Region VLAN Location Ext
 ----------------------------------------------- ------ ------ ---- -------------
FROM: 135.9.228.40                              /      5      n
  TO: 135.9.228.40
```


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3. Configure Avaya Aura® Application Enablement Services

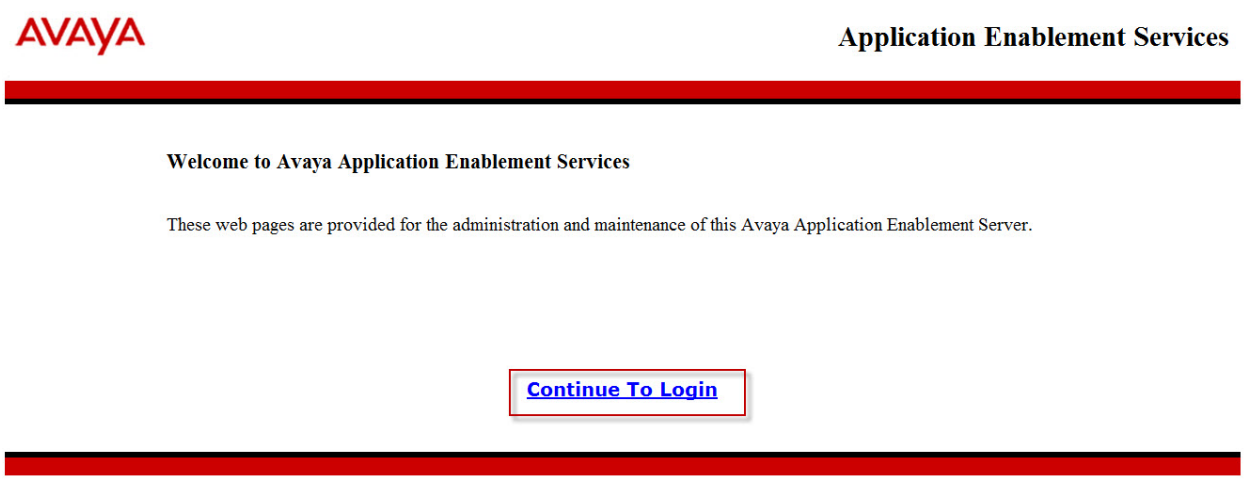
This section provides the procedures for configuring Avaya Aura® Application Enablement Services. The procedures include the following areas:

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

3.1. Launch Avaya Aura® Application Enablement Services

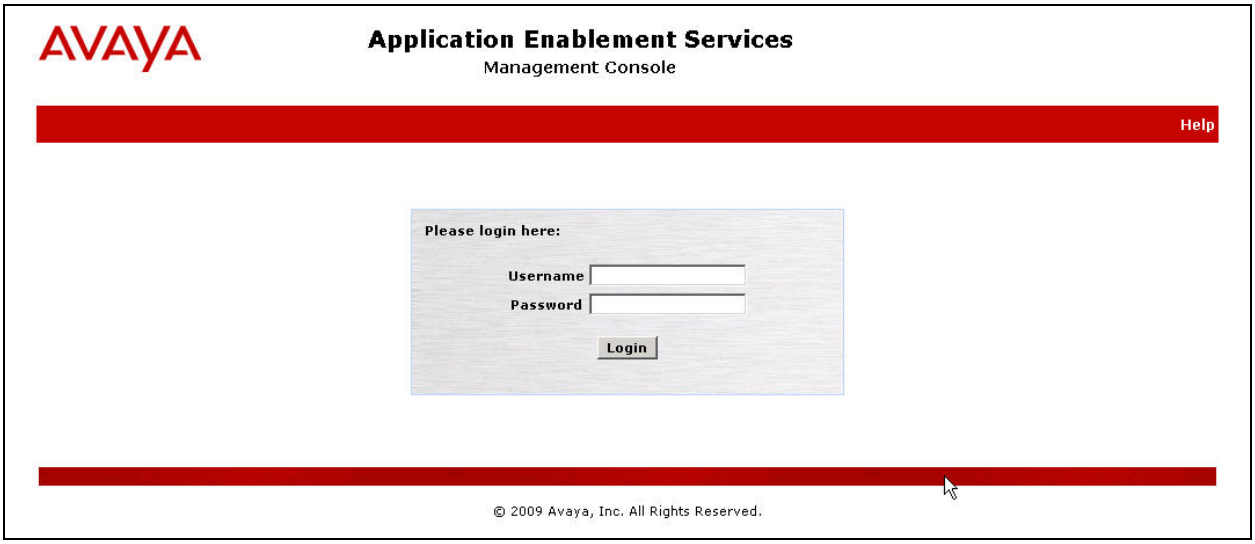
Access the Application Enablement Services (AES) web-based interface by using the URL "**https://ip-address:8443**" in an Internet browser window, where "**ip-address**" is the IP address of the AES server.

The **Welcome to Avaya Application Enablement Services** screen is displayed. Click **Continue to Login**.

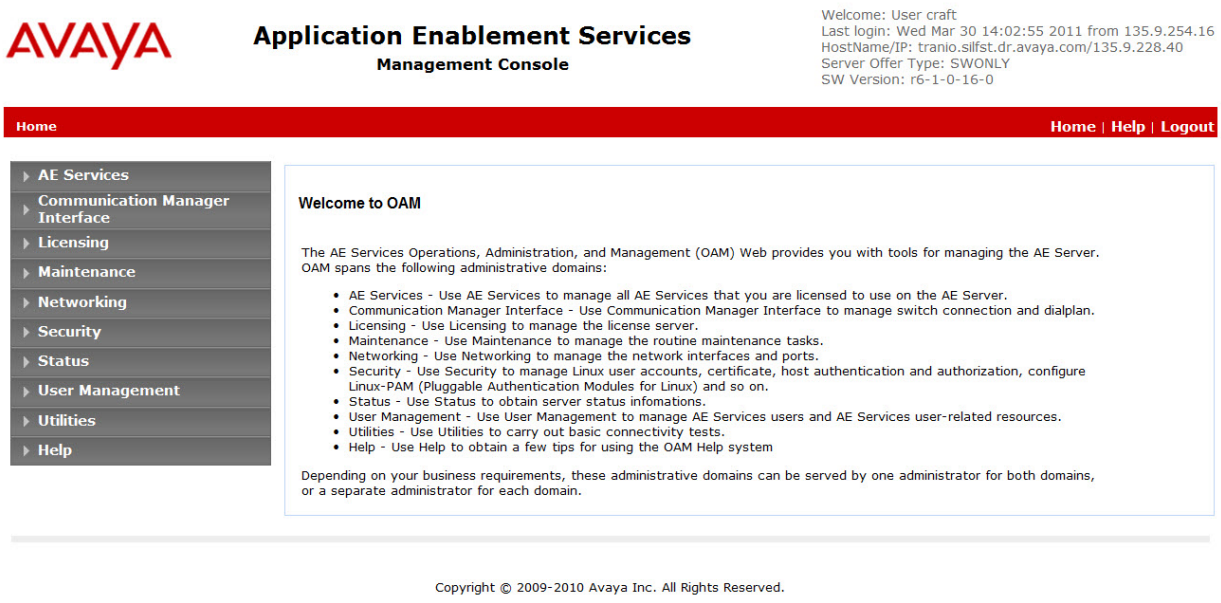


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The **Please login here** screen is displayed. Log in using the appropriate credentials.



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



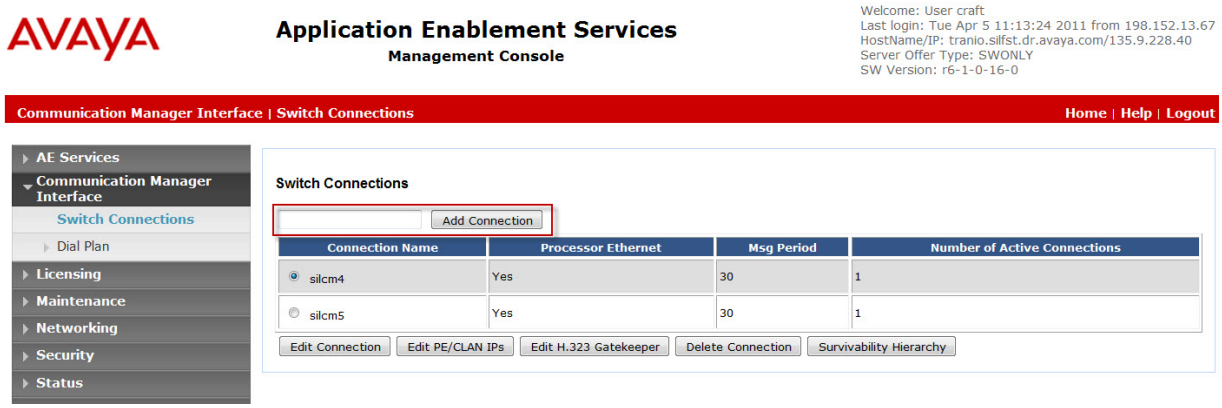
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3.2. Verify DMCC License

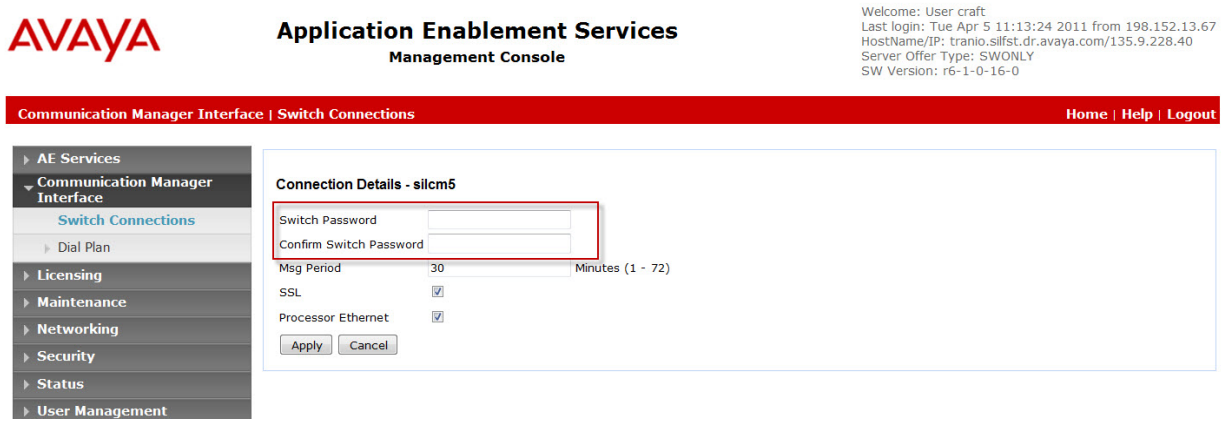
Avaya Contact Recorder has been granted unrestricted access to the DMCC interface. No additional **Device Media and Call Control** and **TSAPI Simultaneous Users** licenses are required for DMCC access.

3.3. Create Switch Connection

Select **Communication Manager Interface → Switch Connections** from the left pane. The **Switch Connections** screen shows a listing of the existing switch connections. Enter **Connection Name** and click **Add Connection**.

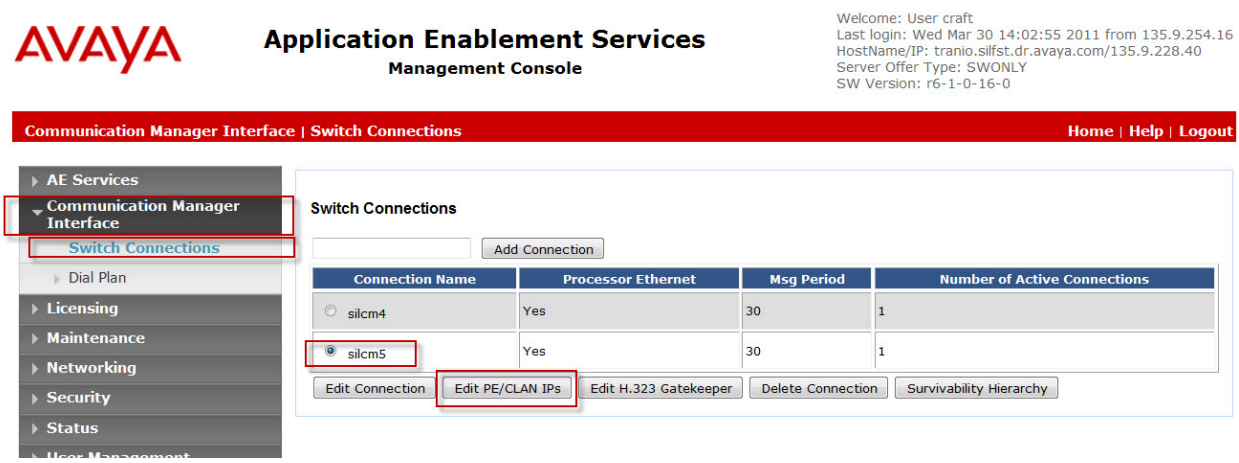


The **Connection Details – silcm5** page is displayed. Enter the AES password, defined in **Section 2.10**, for the **Switch Password** and **Confirm Switch Password** fields. Click the checkbox for both **SSL** and **Processor Ethernet**. Click **Apply**.



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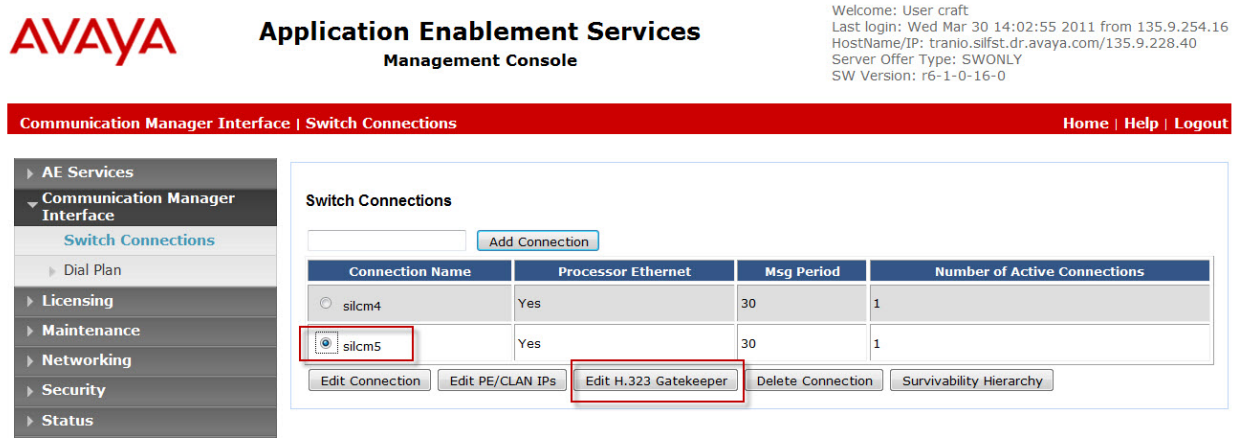
Locate the **Connection Name** that was just added, in this case "**silcm5**", and select the corresponding radio button. Click **Edit PE/CLAN IPs**.



The **Edit Processor Ethernet IP** screen is displayed. Enter the IP Address for the Communication Manager procr and click **Add/Edit Name or IP** button. Click **Back**.

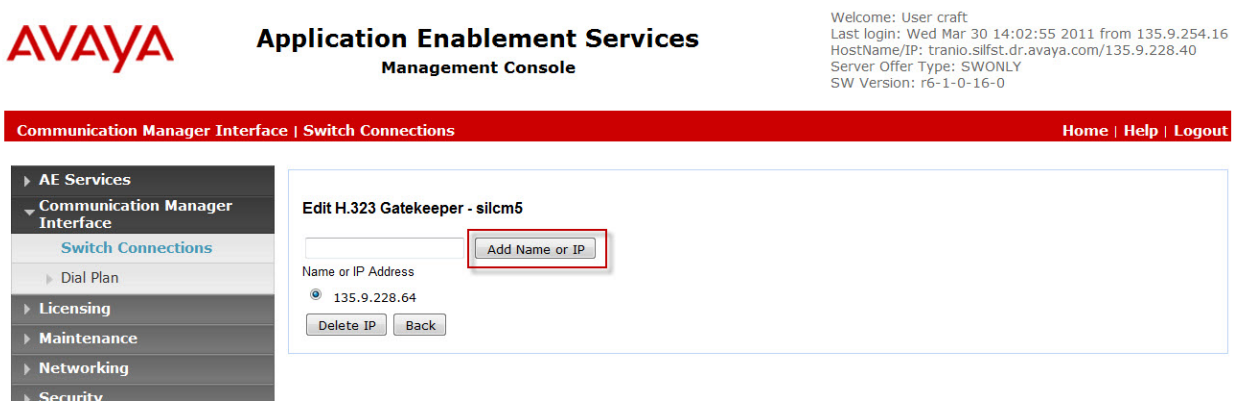


Click the **Edit H.323 Gatekeeper** button to add the IP Address for the gatekeeper.

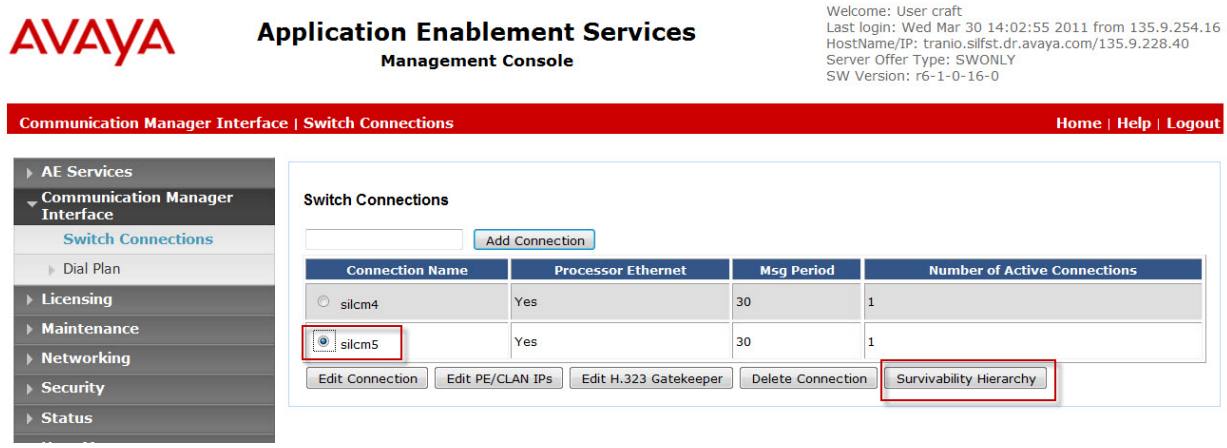


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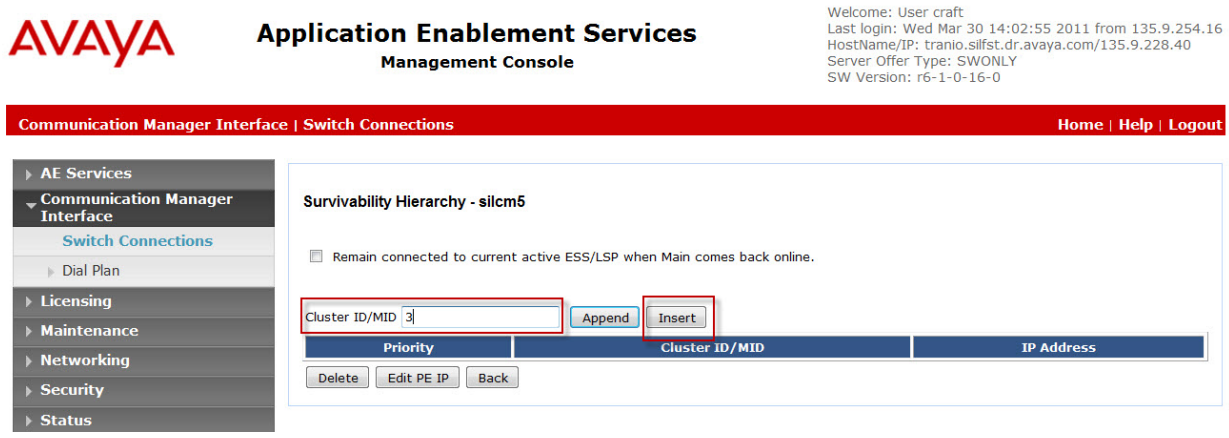
The **Edit H.323 Gatekeeper** screen is displayed. Note the IP address as this value will be used later to configure the Avaya Contact Recorder. Click **Back** when finished.



Click the **Survivability Hierarchy** button to add the IP Address for the Enterprise Survivable Server.

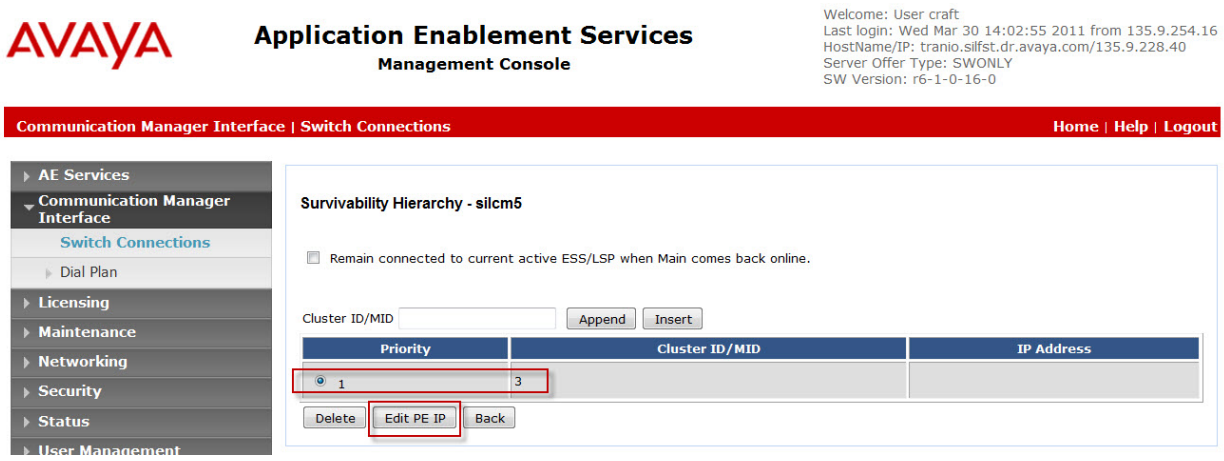


The **Survivability Hierarchy** screen is displayed. Enter the **Cluster ID/MID** for the Enterprise Survivable Server. For these Application Notes the Cluster ID is "3". Click **Insert**.

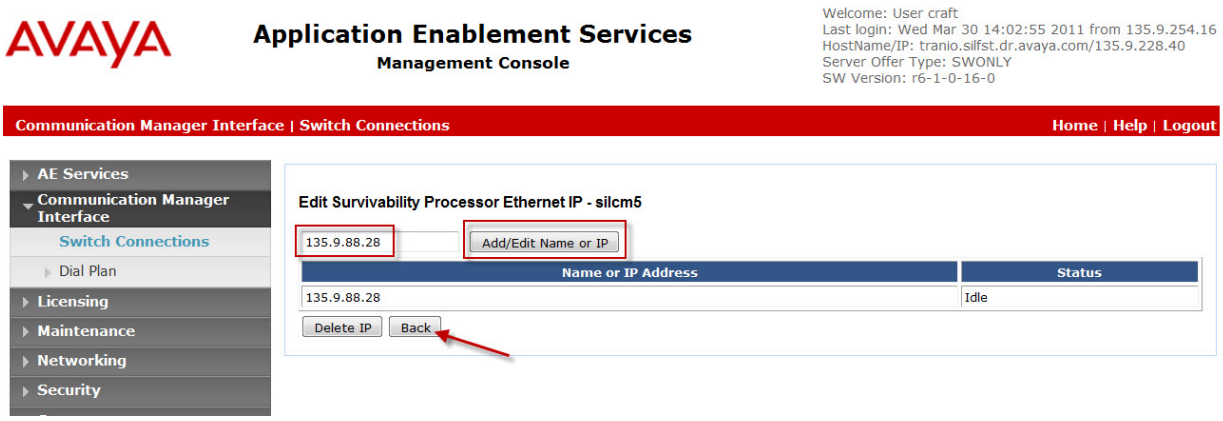


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The Cluster ID is added to the table. Select the radio button for this Cluster ID and click the **Edit PE IP** button.



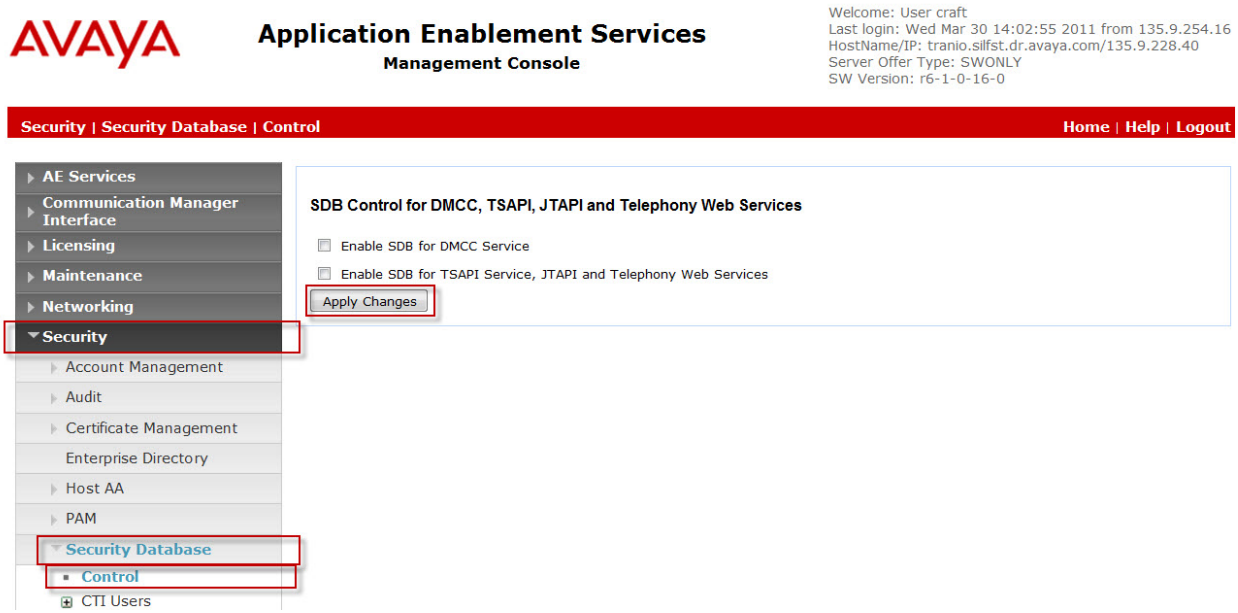
Enter the IP Address for the Processor Ethernet assigned to the ESS and click **Add/Edit Name or IP** button. The IP Address is added to the table. Click **Back**.



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3.4. Disable Security Database

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

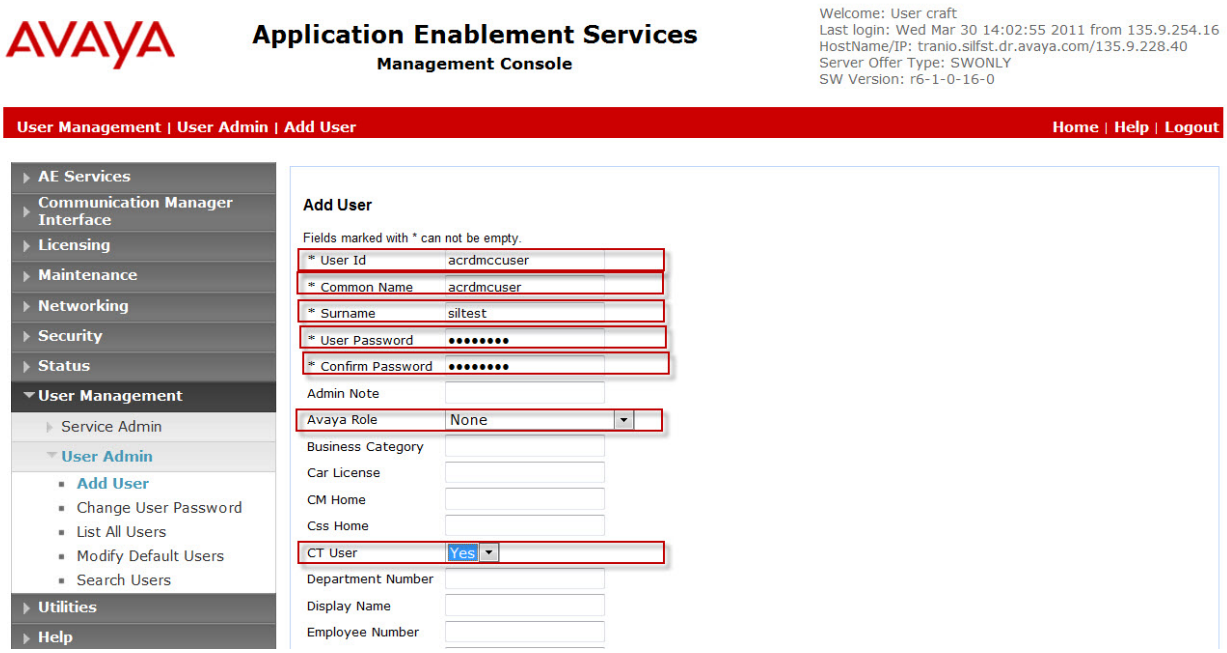


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3.5. Administer Avaya Contact Recorder User

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).



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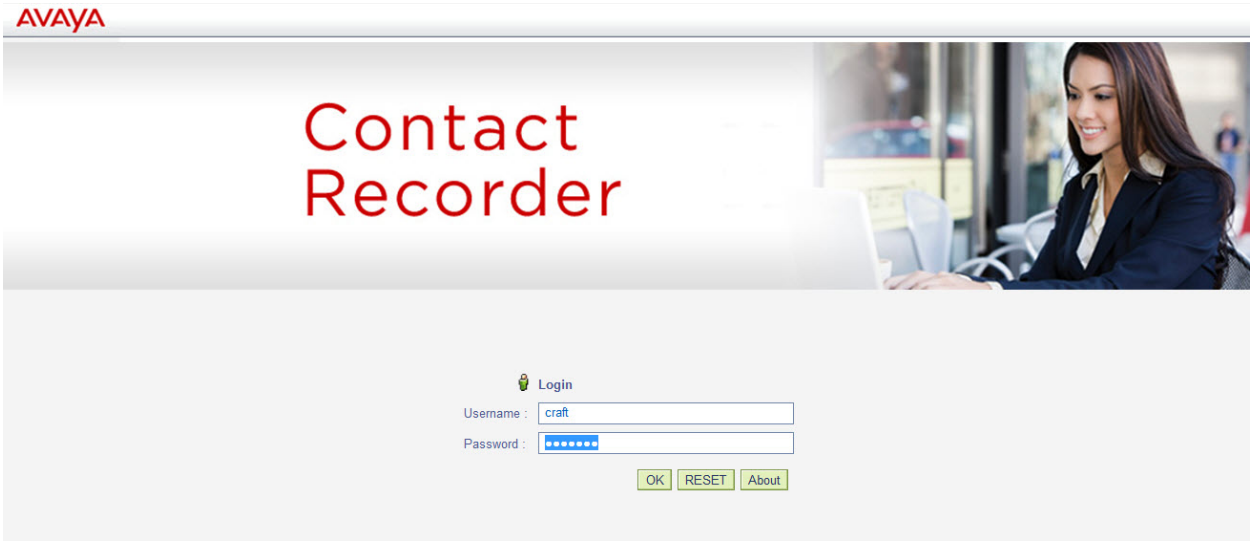
4. Configure Avaya Contact Recorder

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

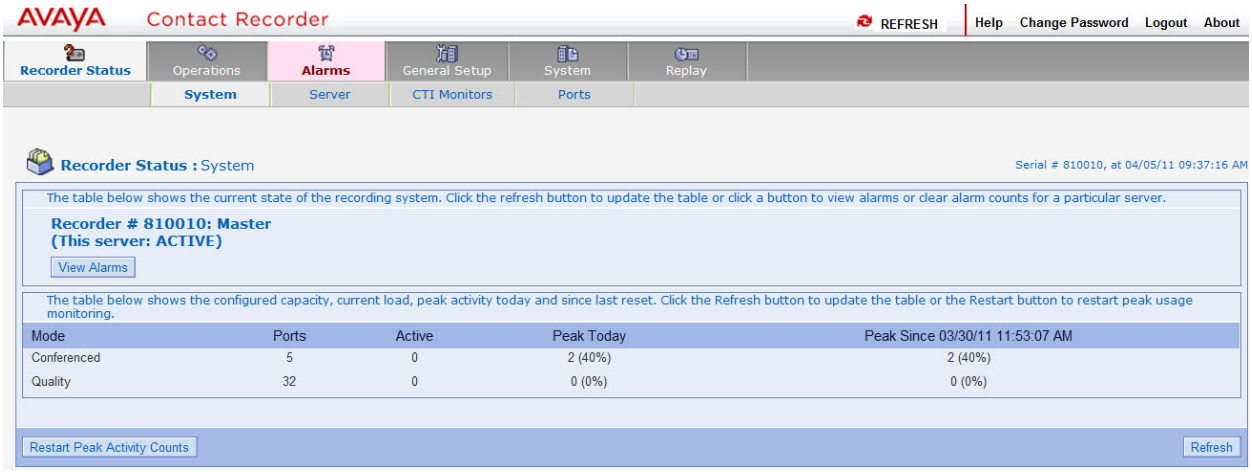
- Launch Avaya Contact Recorder
- Administer Contact Center Information
- Administer Recorder Information
- Administer Bulk Recording

4.1. Launch Avaya Contact Recorder

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



The following screen is displayed.



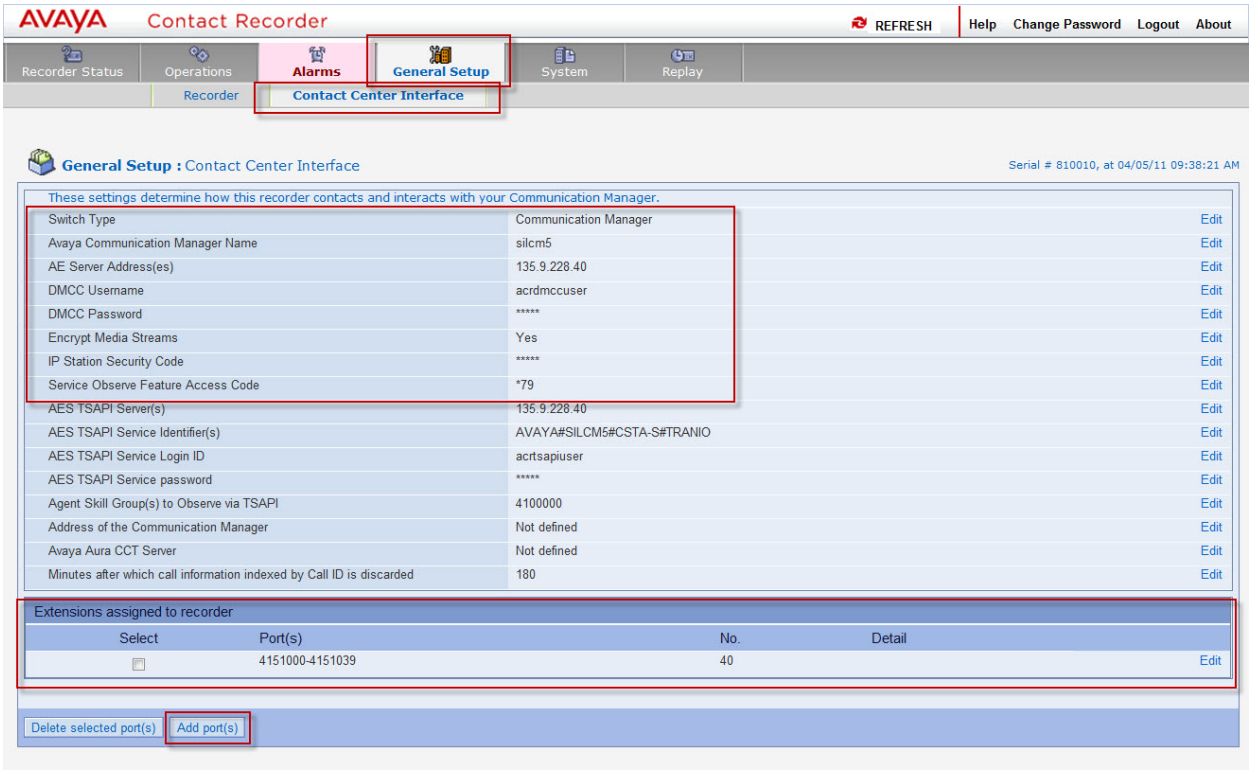
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4.2. Administer Contact Center Information

Navigate to **General Setup → Contact Center Interface** tab and set the following fields:

- **Switch Type**: Select **Communication Manager**
- **Avaya Communication Manager Name**: H.323 Gatekeeper IP address obtained in **Section 3.3**
- **AE Server Address(es):** IP address of the Avaya AES server
- **DMCC Username**: **User Id** configured in **Section 3.5**
- **DMCC Password**: **User Password** configured in **Section 3.5**
- **Encrypt Media Streams** Set to "**Yes**"
- **IP Station Security Code**: **Security Code** configured in **Section 2.9**
- **Serve Observe Feature Access Code:** **Service Observing No Talk Access Code** configured in **Section 2.3**
- **Extensions assigned to recorder**: Use "Add Port(s)" to add the virtual IP softphone extensions configured in **Section 2.9**.

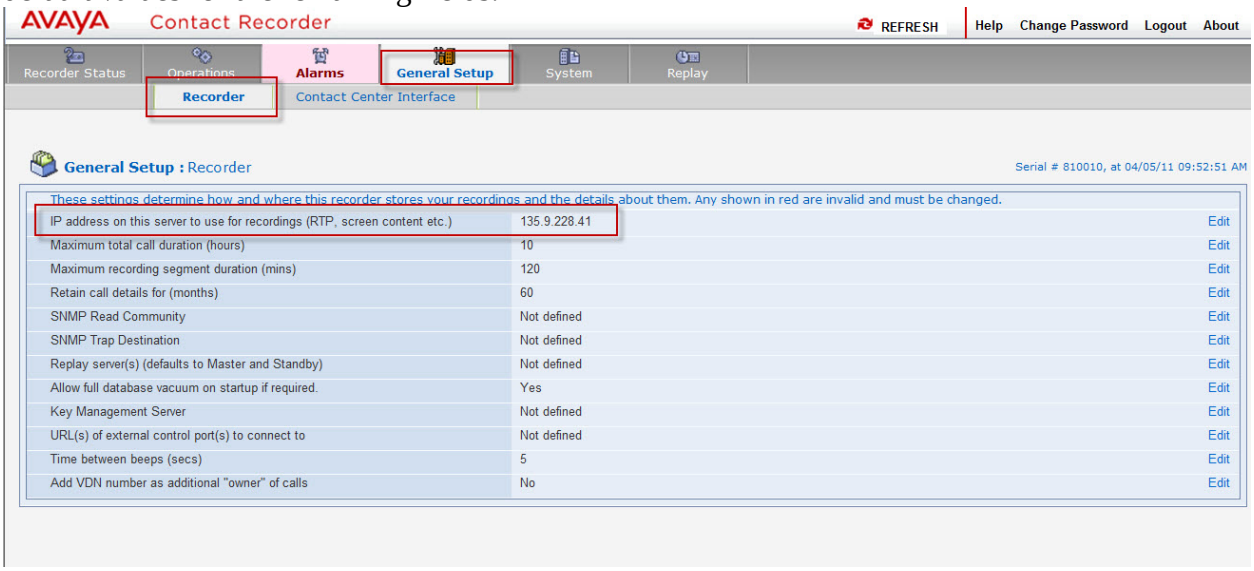
***Note:** Ports shown represent all configured **Extensions assigned to recorder**. Only extensions 4151000 through 4151003 were used for this testing.



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4.3. Administer Recorder Information

Navigate to **General Setup → Recorder** tab and set the **IP address on this server to use for recordings (RTP, screen content etc.)** field to the IP Address of the Contact Recorder. Retain default values for the remaining fields.



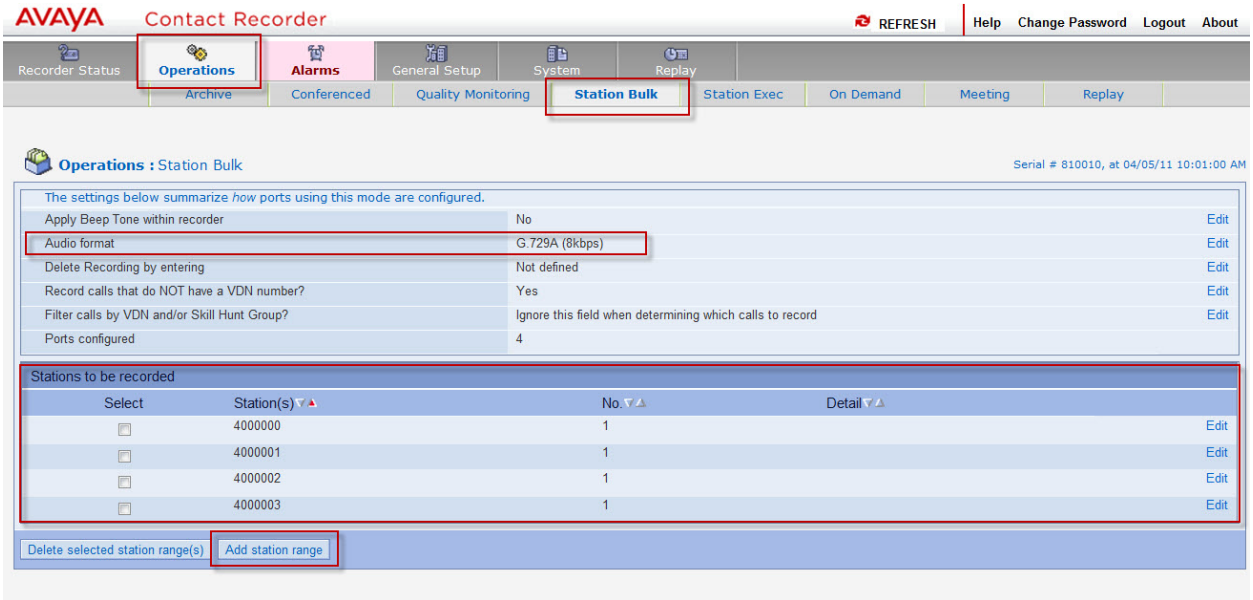
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4.4. Administer Bulk Recording

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 2.6**.

Retain the default values for other fields.



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5. Verification Steps

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

5.1. 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 2.11**, as shown below.

```
status aesvcs cti-link

                        AE SERVICES CTI LINK STATUS

CTI   Version  Mnt   AE Services      Service       Msgs     Msgs
Link           Busy  Server           State         Sent     Rcvd

5     4        no    tranio           established   15       15
```

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 2.9** are displayed, as shown below.

```
list registered-ip-stations                                          Page   1

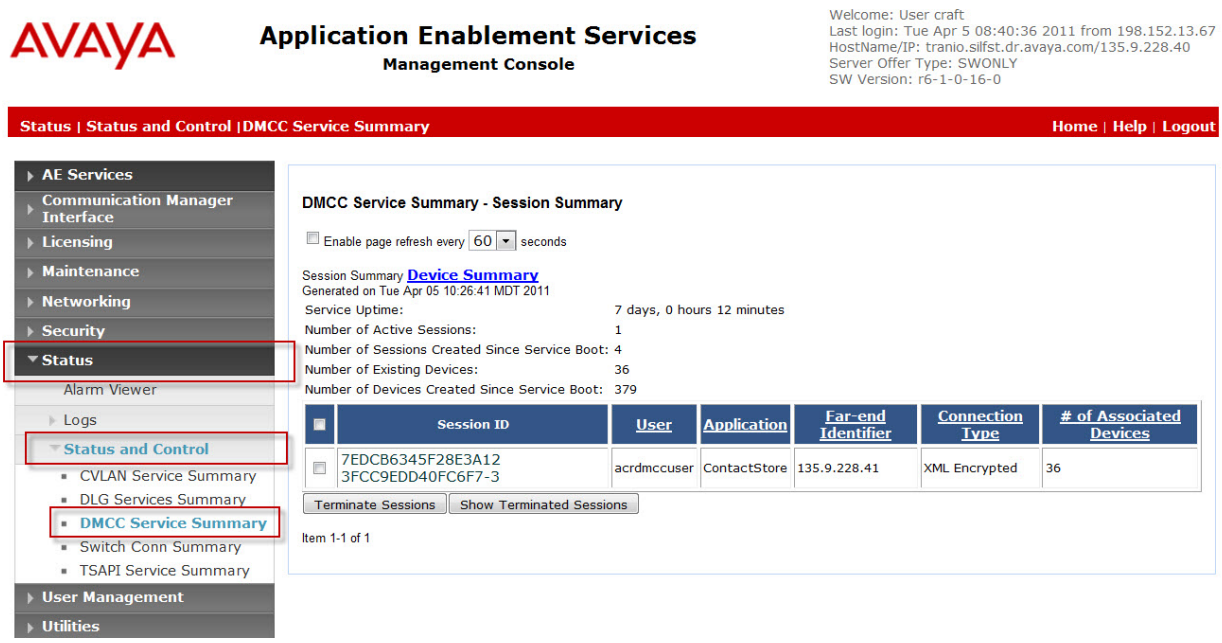
                            REGISTERED IP STATIONS

Station Ext   Set Type/ Prod ID/   TCP Station IP Address/
or Orig Port  Net Rgn   Release    Skt Gatekeeper IP Address
------------- --------- ---------- --- ---------------------------------------
415-1000      4624      IP_API_A    y  135.9.228.40
              5         3.2040         135.9.228.62
415-1001      4624      IP_API_A    y  135.9.228.40
              5         3.2040         135.9.228.62
415-1002      4624      IP_API_A    y  135.9.228.40
              5         3.2040         135.9.228.62
415-1003      4624      IP_API_A    y  135.9.228.40
              5         3.2040         135.9.228.62
```


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5.2. Verify Avaya Aura® Application Enablement Services

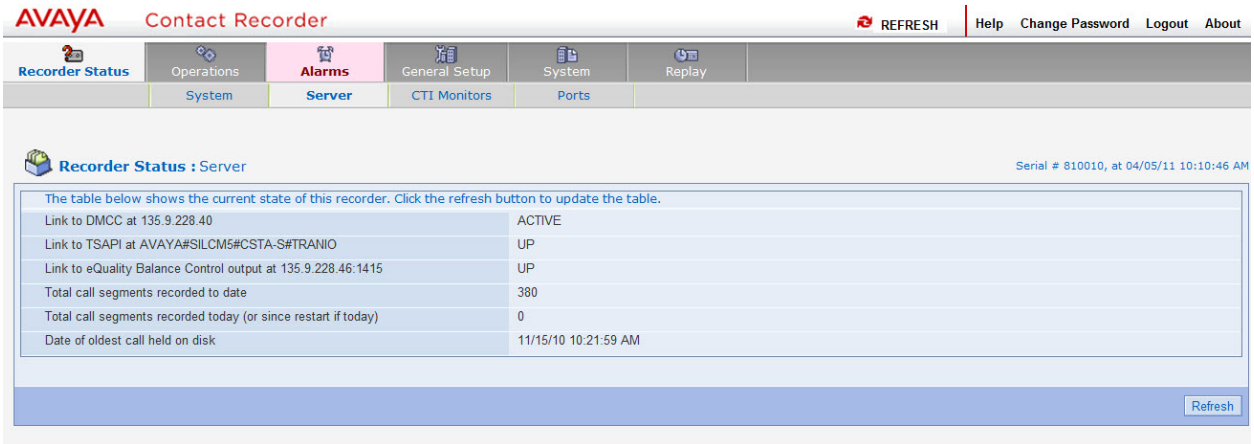
Verify the status of the DMCC link by selecting **Status → Status and Control → DMCC Service Summary** from the left pane. The **DMCC Service Summary – Session Summary** screen is displayed. In the lower portion of the screen, verify that the **User** column shows an active session with the user name from **Section 3.5**, and that the **# of Associated Devices** column reflects the number of virtual IP softphones being used by Avaya Contact Recorder (4 of them are for **Station Bulk** and 32 of them are for **Quality** mode).



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5.3. 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 135.9.228.40** field shows "ACTIVE".



Navigate to **Recorder Status → Ports**. The following screen is displayed. Verify that the ports configured in **Section 4.4** (**4151000** through **4151003**) are **Connected** to the agent stations configured in **Section 2.6**. **Connected** means that the port has been assigned to service-observe the target station.

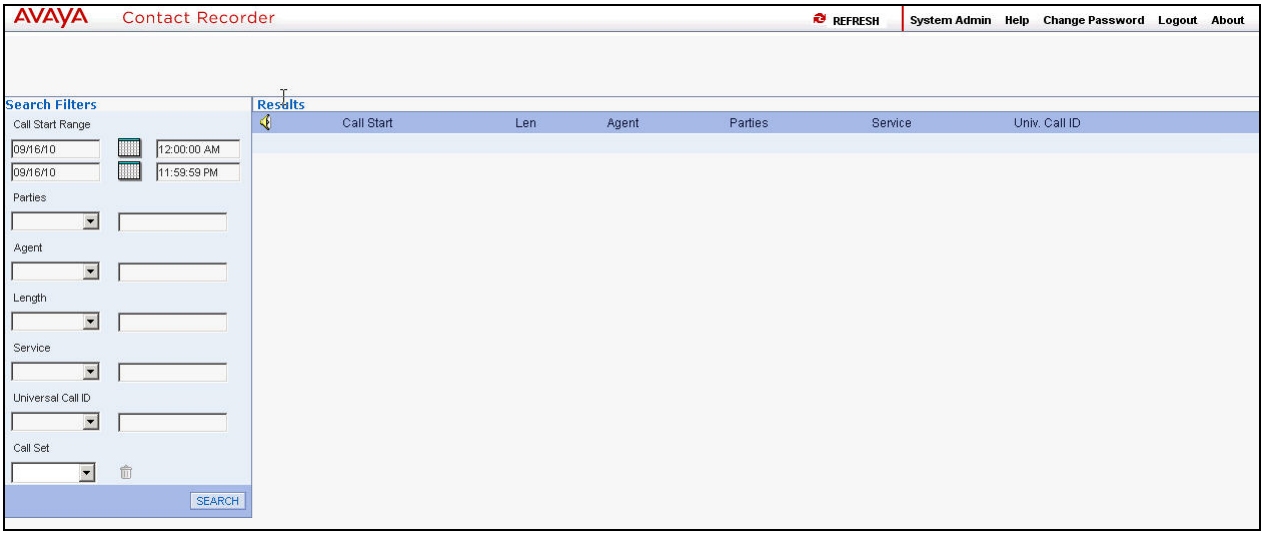
***Note:** Other ports (**4151008 through 4151011**) are assigned to **Quality** Mode which is used for another test and is outside the scope of this application notes.



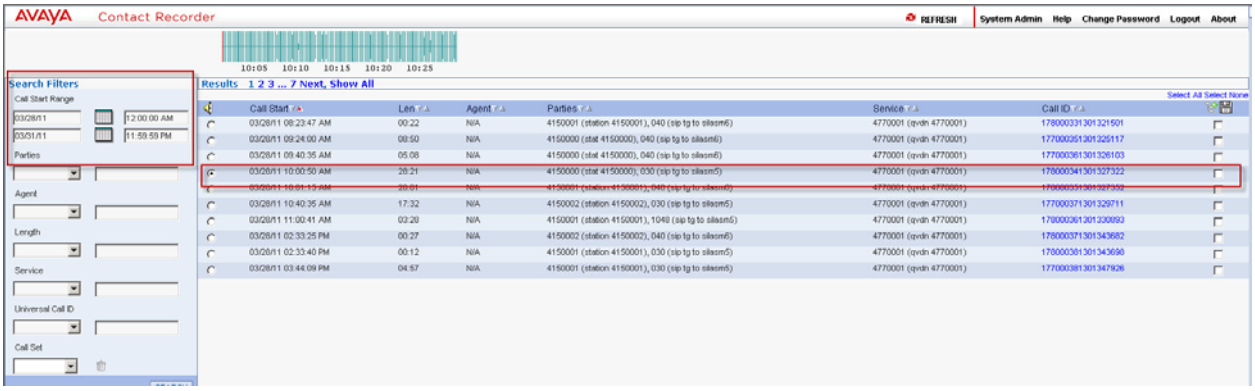
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5.4. Avaya Contact Recorder Recording Playback

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, not shown) to listen to the playback. Verify that the content of the recording matches the content of the call.



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6. Additional References

Avaya references, available at http://support.avaya.com.

1. Installing and Configuring Avaya Aura® Communication Manager document http://support.avaya.com/css/P8/documents/100089133
2. Avaya Aura® Application Enablement Services Administration and Maintenance Guide, Release 6.1, Issue 2, February 2011 http://support.avaya.com/css/P8/documents/100127029
3. Avaya Contact Recorder 10.1 Planning, Installation and Administration Guide. Available on product media.

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