



Configuring Witness ContactStore for Communication Manager with Avaya Communication Manager and Avaya Application Enablement Services for Call Recording – Issue 1.0

Abstract

Witness ContactStore for Communication Manager (CSCM) is a software-only voice recording, storage, and playback platform. These Application Notes describe how to configure CSCM with Avaya Communication Manager and Avaya Application Enablement Services (Avaya AES). CSCM uses the Device, Media, and Call Control (DMCC) services (formerly known as Communication Manager API, or CMAPI) of Avaya AES to perform the recording. These Application Notes will focus on a single server solution and describe how to configure all components for five typical recording methods. The first two methods are “On-Demand” and “Meeting” recording, which use a standard three-party conference manually triggered by the end user. The next two methods are “Station Bulk” and “Station Executive” recording, which use Avaya Communication Manager’s service observing feature to automatically record an entire call. The last method is “Conferenced” recording, which uses the single-step conferencing ability of the Telephony Services API (TSAPI) of Avaya AES to automatically record an entire call.

1. Introduction

Witness ContactStore for Communication Manager (CSCM) provides a software-only voice recording, storage, and playback platform. These Application Notes describe how to configure CSCM with Avaya Communication Manager and Avaya Application Enablement Services (Avaya AES). CSCM uses the Device, Media, and Call Control (DMCC) services (formerly known as Communication Manager API, or CMAPI) of Avaya AES to perform the recording. These Application Notes will focus on a single server solution and describe how to configure all components for five typical recording methods. The first two methods are “On-Demand” and “Meeting” recording which use a standard three-party conference manually triggered by the end user. The next two methods are “Station Bulk” and “Station Executive” recording which use Avaya Communication Manager’s service observing feature to automatically record an entire call. The last method is “Conferenced” recording which uses the single-step conferencing ability of the Telephony Services API (TSAPI) of Avaya AES to automatically record an entire call without some limitations of using service observing.

The CSCM server provides recording, storage, search, and replay functions. CSCM connects to Avaya Communication Manager via Avaya AES to control voice recordings. CSCM records calls made on Avaya Communication Manager for analog, digital, or IP stations. CSCM also includes a simple, browser-based search and replay application.

1.1. CSCM Overview & Recording Modes

Unlike traditional compliance recorders that use passive taps on either trunks or stations, the CSCM recorder uses Avaya AES services to establish a connection to the call being recorded. CSCM utilizes standard three-party conferencing, service observing, or single-step conference capabilities within Avaya Communication Manager to record the calls. This more flexible approach offers the following benefits:

- CSCM can record potentially any call on Avaya Communication Manager. Traditional trunk and station modes cannot record internal and tandem calls respectively.
- There is no additional cabling for recording to maintain as new trunks or stations are added to the switch.
- Standard servers without proprietary cards.

Call recording can be performed using either G.729A (8kbps) or G.711 (64kbps) codecs. If the G.711 (64kbps) codec is used, it will be compressed by CSCM to G.726 (16kbps) files.

The CSCM server supports various recording modes, but only these five (5) common modes below will be the focus of these Application Notes.

NOTE: All recording modes require adequate available IP softphone stations which are defined and configured in Avaya Communication Manager and in CSCM to be used as CSCM recording ports. Depending on the recording mode, these ports will either be dedicated or shared. CSCM records the audio for these DMCC-controlled IP softphones via Avaya AES. These softphones will obtain the audio by being called directly as a normal two-way call, by entering a basic three-party conference triggered manually by the user, by service observing a specific extension, or by a single-step conference using TSAPI/JTAPI.

- **On-Demand Recording** – this mode allows recording to start upon request by the user during a call. Users can start recording at any time with a single “audix-rec” button-press which dials a specified hunt group. This hunt group contains DMCC-controlled IP softphones allocated in CSCM as shared ports for On-Demand call recording. This method uses the basic three-party conference feature of Avaya Communication Manager to conference in the IP softphone recording port. For more information on the “audix-rec” feature, refer to reference [5].
- **Meeting Recording** - this mode allows any meeting room or office with a telephone that has a speakerphone to be used to record a meeting. Instead of needing an “audix-rec” feature button like On-Demand recording requires, in this case the user only needs to know a hunt group extension. Users can start recording at any time by dialing the specified hunt group extension. This hunt group contains DMCC-controlled IP softphones allocated in CSCM as shared ports for Meeting call recording. This method uses the basic three-party conference feature of Avaya Communication Manager. It is also possible for the user to just dial the hunt group directly without being on a call, in which case it is just a simple two-way call.
- **Station Bulk Recording** – this mode allows automatic recording of entire calls for all configured stations using the Avaya Communication Manager service observing feature. This recording mode requires a dedicated DMCC-controlled IP softphone port for each station to be recorded. The IP softphone station “service observes” the specified extension via Avaya AES, and its audio is then sent to CSCM for recording. This mode should only be used to record stations and should not be used for Agent-IDs, skill hunt groups, or Vector Directory Numbers (VDNs).
- **Station Executive Recording** – this mode allows the user of a station to choose, either during or immediately after a call, whether or not to retain the recorded call. Similar to the Station Bulk Recording mode, recording is performed using the Avaya Communication Manager service observing feature and the entire call is automatically recorded from the beginning. The recording will not be saved unless the user enters a code to save it. This recording mode requires a dedicated DMCC-controlled IP softphone port for each station to be recorded. The IP softphone station “service observes” the specified extension via Avaya AES, and its audio is then sent to CSCM for recording.

This mode should only be used to record stations, and should not be used for Agent-IDs, skill hunt groups, or Vector Directory Numbers (VDNs).

- **Conferenced Recording** - this mode allows automatic recording of entire calls for all configured stations. CSCM uses the Java Telephony API (JTAPI), which uses the Telephony Services API (TSAPI) of Avaya AES to observe and record the calls using single-step conferencing. This mode uses DMCC-controlled IP softphones that are automatically allocated in CSCM as shared ports for call recording. Recording is performed automatically by establishing a single-step conference between the call to be recorded and an available IP softphone port. If CSCM is configured to apply a beep-tone, then the conference uses the “listen/talk” option for single-step-conference. Otherwise, the conference uses the “listen only” option for single-step-conference. The single-step conference mode alleviates the following limitations with the Station Bulk recording mode for recording the calls:
 - o The service observing feature continues to use an additional time-slot on the Avaya Communication Manager backplane, whereas single-step conference (listen only mode) has been optimized NOT to require this additional timeslot. This has significant cost saving implications for switch design.
 - o The Station Bulk recording mode requires a dedicated port for each station being recorded. The single-step conference mode uses a shared pool of ports instead.

1.2. Reference Network Configuration

The test configuration referenced in these Application Notes is depicted in **Figure 2** below. For simplicity, this diagram depicts only the components that were configured and utilized to verify the interoperability of CSCM, Avaya AES, and Avaya Communication Manager for call recording.

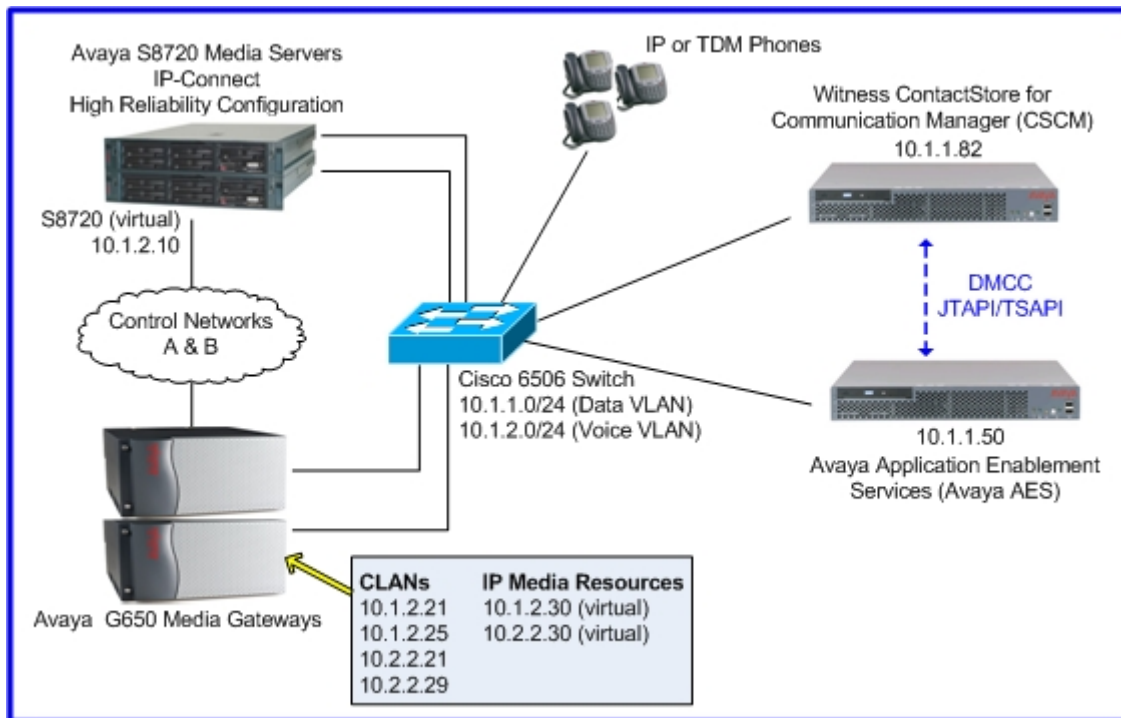


Figure 2: Key Components of Sample Configuration

2. Equipment and Software Validated

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

Equipment	Software
Avaya S8720 Media Servers	Avaya Communication Manager 4.0 (R014x.00.0.730.5, patch 13566)
Avaya G650 Media Gateway - Avaya TN2312BP IPSI Circuit Packs - Avaya TN779DP C-LAN Circuit Packs - Avaya TN2602AP IP Media Resource 320	- HW 12, FW 038 - HW 01, FW 024 - HW 02, FW 030
Avaya Application Enablement Services (AES)	3.1.2 Build 46.5
Witness ContactStore for Communication Manager (CSCM)	7.7.3
Avaya 4625sw and 4622sw Series IP Telephones	2.755b
Cisco 6506 Switch	12.2(17d)SXB8

Table 1: Equipment and Software Versions

2.1. Stations, IP Softphones, and Hunt Groups Used

The following list summarizes the physical stations recorded, DMCC-controlled IP softphone extensions used by CSCM as recording ports, and hunt groups used for each recording method tested in these Application Notes.

- DMCC-controlled IP softphone extensions used by CSCM as recording ports:
 - 4320090-4320099**
- On-Demand hunt group 20 (ext **4320520**) with IP softphone members **4320090** and **4320091**.
- Meeting hunt group 21 (ext **4320521**) with IP softphone members **4320092** and **4320093**.
- Physical stations to be recorded:
 - 4320001** – *Station Bulk* (service observable)
 - 4320002** – *Meeting, On-Demand* (audix-rec button for hunt group 20)
 - 4320003** – *Station Executive* (service observable)
 - 4320004** – *Conferenced*

NOTE: These Application Notes assume that the reference network configuration, equipment, and software validated are already in place and that all major components are installed, licensed, and working. These Application Notes will only cover the administration necessary to perform CSCM call recording using Avaya AES and Avaya Communication Manager.

3. Configure Avaya Communication Manager

These Application Notes assume the IPSI, CLAN, and IP Media Resource circuit packs in the Avaya G650 Media Gateway have been previously administered. Refer to reference [7] for additional details.

The commands listed in this section were issued using the Avaya System Access Terminal (SAT). For all steps where data is added or changed, be sure to submit the form to apply the changes.

3.1. Check the Avaya Communication Manager Licenses

Certain Avaya Communication Manager licenses must be enabled for CSCM to be able to record calls. This section describes how to verify these capabilities are activated. Contact an Avaya representative if any of the highlighted features below are not enabled.

1. Enter the **display system-parameters customer-options** command. Go to Page 4 and verify that **Enhanced Conferencing** is set to “y”.

```
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 Network Call Redirection? y
Enterprise Survivable Server? n                                     ISDN-BRI Trunks? y
  Enterprise Wide Licensing? n                                     ISDN-PRI? y
    ESS Administration? y                                           Local Survivable Processor? n
      Extended Cvg/Fwd Admin? n                                     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? n                                     Multifrequency Signaling? y
  Global Call Classification? n                                     Multimedia Call Handling (Basic)? y
    Hospitality (Basic)? y                                           Multimedia Call Handling (Enhanced)? y
Hospitality (G3V3 Enhancements)? y
  IP Trunks? y

IP Attendant Consoles? y
(NOTE: You must logoff & login to effect the permission changes.)
```

2. Go to Page 6 and verify that **Service Observing (Basic)** and **Service Observing (Remote/By FAC)** are set to “y”.

NOTE: Service observing is required for the following CSCM recording modes: Station Bulk Recording and Executive Recording.

display system-parameters customer-options		Page 6 of 11
CALL CENTER OPTIONAL FEATURES		
Call Center Release: 4.0		
ACD? y	Reason Codes? y	
BCMS (Basic)? y	Service Level Maximizer? n	
BCMS/VuStats Service Level? y	Service Observing (Basic)? y	
BSR Local Treatment for IP & ISDN? y	Service Observing (Remote/By FAC)? y	
Business Advocate? y	Service Observing (VDNs)? y	
Call Work Codes? y	Timed ACW? y	
DTMF Feedback Signals For VRU? y	Vectoring (Basic)? y	
Dynamic Advocate? y	Vectoring (Prompting)? y	
Expert Agent Selection (EAS)? y	Vectoring (G3V4 Enhanced)? y	
EAS-PHD? y	Vectoring (3.0 Enhanced)? y	
Forced ACD Calls? n	Vectoring (ANI/II-Digits Routing)? y	
	Vectoring (G3V4 Advanced Routing)? y	
Lookahead Interflow (LAI)? y	Vectoring (CINFO)? y	
Multiple Call Handling (On Request)? y	Vectoring (Best Service Routing)? y	
Multiple Call Handling (Forced)? y	Vectoring (Holidays)? y	
PASTE (Display PBX Data on Phone)? y	Vectoring (Variables)? y	
(NOTE: You must logoff & login to effect the permission changes.)		

3. Go to Page 10 and verify that Avaya Communication Manager has the appropriate number of **IP_API_A** licenses for each Device, Media, and Call Control API station used by CSCM. The **IP_API_A** value represents the number of simultaneous recordings supported by the server.

display system-parameters customer-options		Page 10 of 11
MAXIMUM IP REGISTRATIONS BY PRODUCT ID		
Product ID	Rel. Limit	Used
IP_API_A	: 1000	7
IP_API_B	: 1000	0
IP_API_C	: 1000	0
IP_Agent	: 1000	1
IP_IR_A	: 12	0
IP_Phone	: 12000	13
IP_ROMax	: 12000	0
IP_Soft	: 500	0
IP_eCons	: 0	0

3.2. Enable Avaya Communication Manager Features

The following features must be assigned for CSCM to work with Avaya Communication Manager.

1. Enter the **change system-parameters features** command. Go to Page 5 and set **Create Universal Call ID (UCID)** to “y”.

```
change system-parameters features                                     Page 5 of 17
                                FEATURE-RELATED SYSTEM PARAMETERS

SYSTEM PRINTER PARAMETERS
Endpoint:                      Lines Per Page: 60

SYSTEM-WIDE PARAMETERS
                                Switch Name:
                                Emergency Extension Forwarding (min): 10
                                Enable Inter-Gateway Alternate Routing? y
                                Enable Dial Plan Transparency in Survivable Mode? y
                                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

UNIVERSAL CALL ID
                                Create Universal Call ID (UCID)? y      UCID Network Node ID: 1
```

2. Go to Page 11 and set **Service Observing: Warning Tone** to “y”.

NOTE: Either Avaya Communication Manager or CSCM can generate the warning tone. In these Application Notes, Avaya Communication Manager generates the service observing warning tone.

```
change system-parameters features                                     Page 11 of 17
                                FEATURE-RELATED SYSTEM PARAMETERS

CALL CENTER SYSTEM PARAMETERS
EAS
    Expert Agent Selection (EAS) Enabled? y
    Minimum Agent-LoginID Password Length: 4
    Direct Agent Announcement Extension: 20722                    Delay: 1
    Message Waiting Lamp Indicates Status For: station

VECTORIZING
    Converse First Data Delay: 2      Second Data Delay: 2
    Converse Signaling Tone (msec): 100      Pause (msec): 70
    Prompting Timeout (secs): 5
    Interflow-qpos EWT Threshold: 2
    Reverse Star/Pound Digit For Collect Step? n
    Available Agent Adjustments for BSR? n
    BSR Tie Strategy: 1st-found
    Store VDN Name in Station's Local Call Log? y

SERVICE OBSERVING
    Service Observing: Warning Tone? y      or Conference Tone? n
    Service Observing Allowed with Exclusion? n
    Allow Two Observers in Same Call? y
```

3. Go to Page 13 and set **Send UCID to ASAI** to “y”.

```
change system-parameters features                               Page 13 of 17
      FEATURE-RELATED SYSTEM PARAMETERS

CALL CENTER MISCELLANEOUS
      Clear Callr-info: next-call
      Allow Ringer-off with Auto-Answer? n

      Reporting for PC Non-Predictive Calls? n

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

3.3. Administer Service Observing Access Codes

Administer Avaya Communication Manager service observing feature access codes for CSCM Station Bulk and Station Executive recording.

1. Enter the **change feature-access-codes** command. Go to Page 5 and administer the **Service Observing Listen Only Access Code** and **Service Observing Listen/Talk Access Code** to the desired 1-4 digit feature access codes if they are not already administered. (i.e., “#118” and “#119”).

```
change feature-access-codes                                     Page 5 of 8
      FEATURE ACCESS CODE (FAC)

      Automatic Call Distribution Features

      After Call Work Access Code: #123
      Assist Access Code: #122
      Auto-In Access Code: #121
      Aux Work Access Code: #120
      Login Access Code: #115
      Logout Access Code: #116
      Manual-in Access Code: #117
      Service Observing Listen Only Access Code: #118
      Service Observing Listen/Talk Access Code: #119
      Service Observing No Talk Access Code: #129
      Add Agent Skill Access Code:
      Remove Agent Skill Access Code:
      Remote Logout of Agent Access Code:
```

3.4. Tone Detection Configuration

1. Enter the **change system-parameters ip-options** command to configure intra-system tone detection. Go to Page 2. Set the **Intra-system IP DTMF Transmission Mode** parameter to “rtp-payload”.

```
change system-parameters ip-options                               Page 2 of 3
                                IP-OPTIONS SYSTEM PARAMETERS

Always use G.711 (30ms, no SS) for intra-switch Music-On-Hold? y

IP DTMF TRANSMISSION MODE
  Intra-System IP DTMF Transmission Mode: rtp-payload
  Inter-System IP DTMF: See Signaling Group Forms

HYPERACTIVE MEDIA GATEWAY REGISTRATIONS
  Enable Detection and Alarms? n
```

3.5. Configure AE Services

CSCM communicates with Avaya Communication Manager via the DMCC and JTAPI/TSAPI services running on the Avaya AES server. Administer the Avaya AES related parameters on Avaya Communication Manager using the following steps.

1. Enter the **change node-names ip** command and enter the name and IP address of the Avaya AES server. For example:

- **Name:** “aesserver”
- **IP Address:** “10.1.1.50”

```
change node-names ip                                             Page 1 of 2
                                IP NODE NAMES

  Name                IP Address
B06                   10.16.2.10
G250-BR5              10.15.2.11
Hong-G700             172.16.255.20
RDTT                  10.15.1.103
abacus-h323-trk       10.1.2.200
aesserver           10.1.1.50
br3-lsp               10.13.2.10
br4-elsp              10.14.2.9
br4-lsp               10.14.2.10
br5                   10.15.2.10
cc-ess1               10.2.2.11
cc-ess2               10.2.2.12
ccaesbr4              10.14.1.50
cf-1a03               10.1.2.15
cf-1b03               10.1.2.17
cf-1b09               10.1.2.19
( 16 of 40  administered node-names were displayed )
Use 'list node-names' command to see all the administered node-names
Use 'change node-names ip xxx' to change a node-name 'xxx' or add a node-name
```

2. Configure IP services so that AE Services can be used. Enter the **change ip-services** command and administer the following values for each CLAN board assigned to Avaya AES:

- **Service Type:** "AESVCS"
- **Enabled:** "y"
- **Local Node:** Enter CLAN node name.
- **Local Port:** "8765"

NOTE: This particular test configuration has four CLAN boards, but it is not necessary. Avaya recommends using at least two CLANs per switch connection.

change ip-services					Page	1 of	4
IP SERVICES							
Service Type	Enabled	Local Node	Local Port	Remote Node	Remote Port		
AESVCS	y	clan-1a02	8765				
AESVCS	y	clan-2a02	8765				
AESVCS	y	clan-1b02	8765				
AESVCS	y	clan-2a09	8765				
CDR1		clan-1a02	0	RDTT	9000		

3. Once the AE Services are enabled, a fourth page will appear on the IP Services form. Navigate to Page 4 and enter the following values:

- **AE Services Server:** Enter hostname of Avaya AES Server.
- **Password:** Enter alphanumeric password for the Avaya AES Server.
- **Enabled:** "y"

change ip-services				Page	4 of	4
AE Services Administration						
Server ID	AE Services Server	Password	Enabled	Status		
1:	aesserver	password123	y			
2:						
3:						
4:						
5:						

3.6. IP Codec-Set and Network Region/Map Configuration

The IP softphone stations controlled by CSCM via DMCC services must be in an IP network region that supports the G.729A or G.711MU codecs. The IP network region must also have the media encryption feature disabled and contain at least one media processor card.

1. Enter the **change ip-codec-set *n*** command (where *n* is the number of an available IP codec set), and match the highlighted values shown below.

NOTE: Make sure to use this codec set number in the next step as the Codec Set configured for the IP network region assigned to CSCM IP softphone stations.

change ip-codec-set 1 Page 1 of 2

IP Codec Set

Codec Set: 1

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

Media Encryption

1: **none**
2:
3:

2. Enter the **change ip-network-region *n*** command (where *n* is the number of an available IP network region), and match the highlighted values shown below.

NOTE:

- Make sure to use the Codec Set number from the previous step.
- Administrators may need to use different network regions depending on the configuration used. Make sure the parameters for both the CSCM IP softphone network region and the Avaya AES server network region are configured as follows to allow each system the ability to establish media paths.
- Avaya recommends disabling **Intra-region IP-IP Direct Audio**, **Inter-region IP-IP Direct Audio**, and **IP Audio Hairpinning**.

```
change ip-network-region 1                                     Page 1 of 19
                                                                IP NETWORK REGION
Region: 1
Location: 1           Authoritative Domain:
Name: Main Office
MEDIA PARAMETERS
    Codec Set: 1
    UDP Port Min: 49152
    UDP Port Max: 65535
    Intra-region IP-IP Direct Audio: no
    Inter-region IP-IP Direct Audio: no
    IP Audio Hairpinning? n
DIFFSERV/TOS PARAMETERS
    Call Control PHB Value: 34
    Audio PHB Value: 46
    Video PHB Value: 26
    RTCP Reporting Enabled? y
    RTCP MONITOR SERVER PARAMETERS
    Use Default Server Parameters? y
802.1P/Q PARAMETERS
    Call Control 802.1p Priority: 7
    Audio 802.1p Priority: 6
    Video 802.1p Priority: 5
    AUDIO RESOURCE RESERVATION PARAMETERS
    RSVP Enabled? n
H.323 IP ENDPOINTS
    H.323 Link Bounce Recovery? y
    Idle Traffic Interval (sec): 20
    Keep-Alive Interval (sec): 5
    Keep-Alive Count: 5
```

3. Enter the **change ip-network-map** command to add the IP address used by the CSCM IP softphone stations to the network region administered in **Step 2**. Note that the IP address assigned to these stations is the IP address of the Avaya AES server since the stations register with Avaya Communication Manager via the Avaya AES server.

change ip-network-map

Page 1 of 32

IP ADDRESS MAPPING

From IP Address	(To IP Address	Subnet	Region	VLAN	Emergency Location Extension
10 .1 .1 .21	10 .1 .1 .21	32	10	1	
10 .1 .1 .50	10 .1 .1 .50	32	1	2	
10 .1 .1 .53	10 .1 .1 .53	32	10	1	
10 .1 .1 .150	10 .1 .1 .159		7	n	
10 .1 .2 .0	10 .1 .2 .255	24	1	2	
10 .2 .2 .0	10 .2 .2 .255	24	2	2	
10 .13 .2 .0	10 .13 .2 .255	24	3	2	
10 .14 .2 .0	10 .14 .2 .255	24	4	2	
10 .15 .2 .0	10 .15 .2 .255	24	5	2	
10 .16 .2 .0	10 .16 .2 .255	24	6	2	
102.1 .1 .0	102.1 .1 .255	24	7	n	

3.7. IP Station Configuration

Each CSCM recording port must have a corresponding IP softphone station configured on Avaya Communication Manager. All stations should be administered identically since CSCM uses the same administration page for all stations.

1. Enter the **change cor n** command (where *n* is the Class of Restriction (COR) for the IP softphone stations assigned to CSCM for call recording). Set **Can Be A Service Observer** to “y” and set **Can Be Service Observed** to “n”.

change cor 6

Page 1 of 22

CLASS OF RESTRICTION

COR Number: 6

COR Description: Witness

FRL: 0

APLT? y

Can Be Service Observed? n

Calling Party Restriction: outward

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. Enter the **change cor *n*** command (where *n* is the Class of Restriction (COR) for the actual stations to be recorded). Set **Can Be Service Observed** to “y”.

```
change cor 1                                     Page 1 of 22
                                     CLASS OF RESTRICTION

COR Number: 1
COR Description:

FRL: 7                                           APLT? y
Can Be Service Observed? y                     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? y                             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.? y
Send ANI for MFE? n                           Add/Remove Agent Skills? y
MF ANI Prefix:                               Automatic Charge Display? n
Hear System Music on Hold? y PASTE (Display PBX Data on Phone)? y
Can Be Picked Up By Directed Call Pickup? y
Can Use Directed Call Pickup? y
Group Controlled Restriction: inactive
```

3. Enter the **add station *n*** command (where *n* is an available extension) to add an IP softphone station for CSCM. Enter “4624” for the station **Type**, set **IP SoftPhone** to “y”, enter a numeric **Security Code**, and enter the **COR** configured in **Step 1** above to enable this station for call recording using service observing.

NOTE: The same security code must be used for all stations used by CSCM for call recording.

```
add station 4320090                             Page 1 of 6
                                     STATION

Extension: 432-0090                           Lock Messages? n           BCC: 0
Type: 4624                                     Security Code: 1234        TN: 1
Port: IP                                       Coverage Path 1:          COR: 6
Name: CMAPI Phone Witness                   Coverage Path 2:          COS: 1
Hunt-to Station:

STATION OPTIONS

Loss Group: 19                               Time of Day Lock Table:
Personalized Ringing Pattern: 1
Message Lamp Ext: 432-0090
Mute Button Enabled? y

Speakerphone: 2-way
Display Language: english
Survivable GK Node Name:
Survivable COR: internal                     Media Complex Ext:
Survivable Trunk Dest? y                     IP SoftPhone? y

IP Video Softphone? n
```

4. Go to Page 2 and set both **Direct IP-IP Audio Connections** and **IP Audio Hairpinning** to “n”.

add station 4320090		Page 2 of 6
STATION		
FEATURE OPTIONS		
LWC Reception: spe	Auto Select Any Idle Appearance? n	
LWC Activation? y	Coverage Msg Retrieval? y	
LWC Log External Calls? n	Auto Answer: none	
CDR Privacy? n	Data Restriction? n	
Redirect Notification? y	Idle Appearance Preference? n	
Per Button Ring Control? n	Bridged Idle Line Preference? n	
Bridged Call Alerting? n	Restrict Last Appearance? y	
Active Station Ringing: single		
H.320 Conversion? n	Per Station CPN - Send Calling Number?	
Service Link Mode: as-needed	Audible Message Waiting? n	
Multimedia Mode: enhanced	Display Client Redirection? n	
MWI Served User Type:	Select Last Used Appearance? n	
AUDIX Name:	Coverage After Forwarding? s	
	Multimedia Early Answer? n	
Remote Softphone Emergency Calls: as-on-local	Direct IP-IP Audio Connections? n	
Emergency Location Ext: 432-0090	Always Use? n IP Audio Hairpinning? n	

5. Go to Page 4 and assign “conf-dsp” to button 4 and “serv-obsrv” to button 5 under **BUTTON ASSIGNMENTS**. Clear the default “call-appr” on button 3.

add station 4320090		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:	

6. Repeat **Steps 3-5** to add as many necessary IP softphone stations for CSCM to use for call recording. Stations **4320090-4320099** were configured for these Application Notes.

7. Make sure all of the stations being recorded using service observing are assigned a COR with **Can Be Service Observed** set to “y” (such as the COR administered in **Step 2**). Stations **4320001** and **4320003** were configured for these Application Notes. The **change station 4320001** screen is shown here.

change station 4320001		Page 1 of 5
STATION		
Extension: 432-0001	Lock Messages? n	BCC: 0
Type: 4625	Security Code: 1234	TN: 1
Port: S00392	Coverage Path 1:	COR: 1
Name: MO AGENT 1	Coverage Path 2:	COS: 1
	Hunt-to Station:	
STATION OPTIONS		
Loss Group: 19	Time of Day Lock Table:	
	Personalized Ringing Pattern: 1	
Speakerphone: 2-way	Message Lamp Ext: 432-0001	
Display Language: english	Mute Button Enabled? y	
Survivable GK Node Name:	Expansion Module? n	
Survivable COR: internal	Media Complex Ext:	
Survivable Trunk Dest? y	IP SoftPhone? y	
	IP Video Softphone? n	
	Customizable Labels? y	

3.8. Configure Hunt Group for On Demand Recording

Refer to **Section 1.1** for an explanation of how IP softphone ports are allocated and shared by CSCM as On Demand hunt group members used for On Demand recording.

1. Enter the **add hunt-group** command to administer a hunt group for CSCM On Demand Recording. Enter the **Group Name** and **Group Extension**.

add hunt-group 20		Page 1 of 60
HUNT GROUP		
Group Number: 20	ACD? n	
Group Name: Witness On-Demand Recording	Queue? y	
Group Extension: 432-0520	Vector? n	
Group Type: ucd-mia	Coverage Path:	
TN: 1	Night Service Destination:	
COR: 1	MM Early Answer? n	
Security Code:	Local Agent Preference? n	
ISDN/SIP Caller Display:		
Queue Limit: unlimited		
Calls Warning Threshold:	Port:	
Time Warning Threshold:	Port:	

2. Go to Page 3 and enter the hunt group extensions from the pool of IP softphone stations previously administered in **Section 3.7, Steps 3-6.**

```

add hunt-group 20                                     Page 3 of 60
                                     HUNT GROUP
      Group Number: 20   Group Extension: 432-0520   Group Type: ucd-mia
Member Range Allowed: 1 - 1500   Administered Members (min/max): 1 /2
                                     Total Administered Members: 2
GROUP MEMBER ASSIGNMENTS
      Ext      Name(19 characters)      Ext      Name(19 characters)
1: 432-0090    CMAPI Phone Witnes    14:
2: 432-0091    CMAPI Phone Witnes    15:
3:             16:
4:             17:
5:             18:
6:             19:
7:             20:
8:             21:
9:             22:
10:            23:
11:            24:
12:            25:
13:            26:

At End of Member List

```

3. Enter the **change station *n*** command (where *n* is any extension where On Demand recording will be invoked by a user). Go to Page 4 and assign an “audix-rec” feature button with the On Demand hunt group extension created in **Step 1-2**. For these Application Notes, station **4320002** was assigned the “audix-rec” feature button.

```

change station 4320002                               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: call-appr          9:
4:                   10:
5: audix-rec Ext: 432-0520 11:
6:                   12:

```

3.9. Configure Hunt Group for Meeting Recording

Refer to **Section 1.1** for an explanation of how IP softphone ports are allocated and shared by CSCM as Meeting hunt group members used for Meeting recording.

1. Enter the **add hunt-group** command to administer a hunt group for the CSCM Meeting Recording mode. Enter the **Group Name** and **Group Extension**.

```
add hunt-group 21                                     Page 1 of 60
                                     HUNT GROUP
      Group Number: 21                               ACD? n
      Group Name: Witness Meeting Recording          Queue? y
      Group Extension: 432-0521                      Vector? n
      Group Type: ucd-mia                            Coverage Path:
      TN: 1                                           Night Service Destination:
      COR: 1                                           MM Early Answer? n
      Security Code:                                Local Agent Preference? n
      ISDN/SIP Caller Display:
      Queue Limit: unlimited
      Calls Warning Threshold:      Port:
      Time Warning Threshold:      Port:
```

2. Go to Page 3 and enter the hunt group extensions from the pool of IP softphone stations previously administered in **Section 3.7, Steps 3-6**.

```
add hunt-group 21                                     Page 3 of 60
                                     HUNT GROUP
      Group Number: 21   Group Extension: 432-0521   Group Type: ucd-mia
      Member Range Allowed: 1 - 1500   Administered Members (min/max): 1 /2
                                     Total Administered Members: 2
GROUP MEMBER ASSIGNMENTS
      Ext      Name(19 characters)      Ext      Name(19 characters)
1: 432-0092    CMAPI Phone Witnes    14:
2: 432-0093    CMAPI Phone Witnes    15:
3:                                     16:
4:                                     17:
5:                                     18:
6:                                     19:
7:                                     20:
8:                                     21:
9:                                     22:
10:                                    23:
11:                                    24:
12:                                    25:
13:                                    26:
      At End of Member List
```

3.10. Configure the CTI Link

For the single-step conference mode, CSCM communicates with Avaya Communication Manager via the TSAPI service running on the Avaya AES Server. The TSAPI service requires a CTI link. Administer the CTI link on Avaya Communication Manager as follows.

1. Enter the **add cti-link *n*** command (where *n* is the cti link number) and administer the following parameters:

- **Extension:** Enter an unassigned extension.
- **Type:** “ADJ-IP”
- **Name:** Enter a name for the cti link.

add cti-link 7	CTI LINK	Page 1 of 3
CTI Link: 7		
Extension: 432-0807		
Type: ADJ-IP		
Name: TSAPI-CSCM		COR: 1

4. Configure Avaya Application Enablement Services

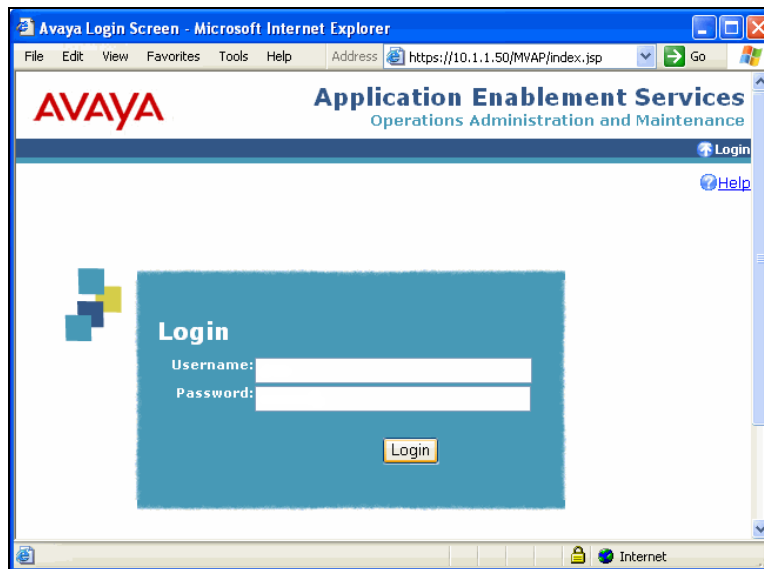
This section details the administration of the Avaya Application Enablement Services. CSCM uses the DMCC and TSAPI services running on Avaya AES to record the customer calls.

The Avaya AES server is configured using the AE Services Operation, Administration, and Maintenance (OAM) web pages. The OAM is accessed via:

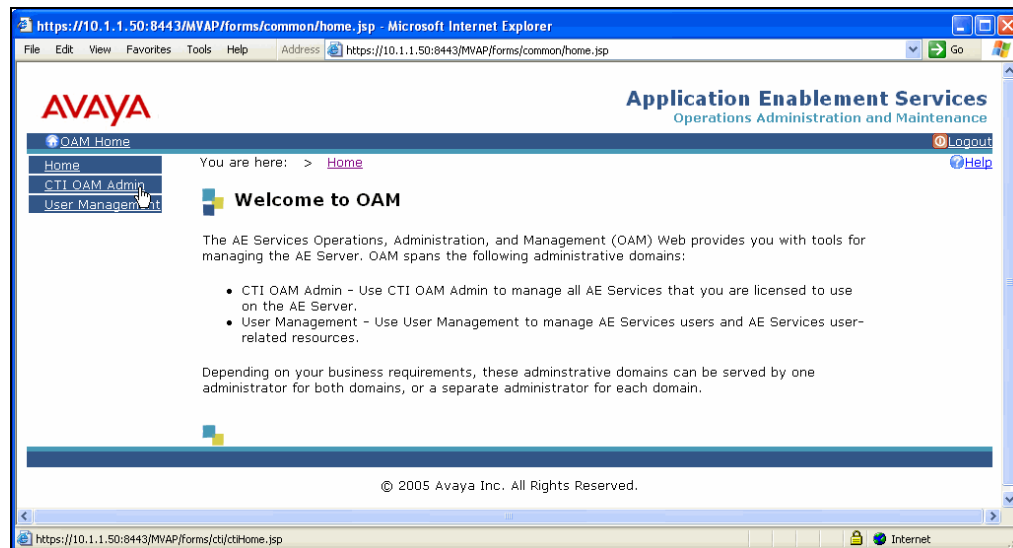
<https://<hostname or IP address>/MVAP/index.jsp>

4.1. Basic Avaya AES Administration- Local IP and Switch Connections

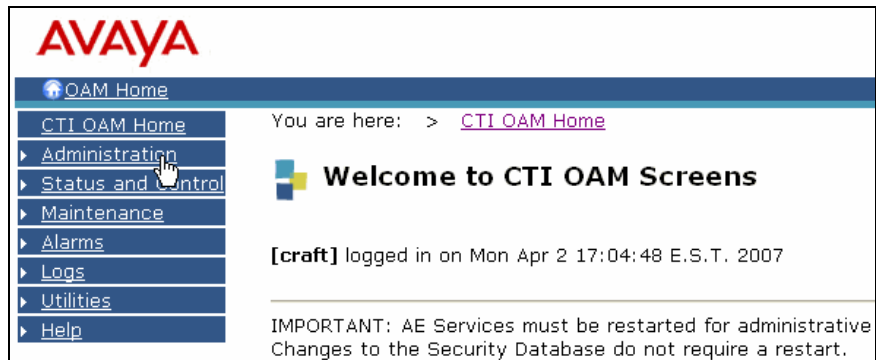
1. Log in to the Avaya AES OAM using the appropriate login and password.



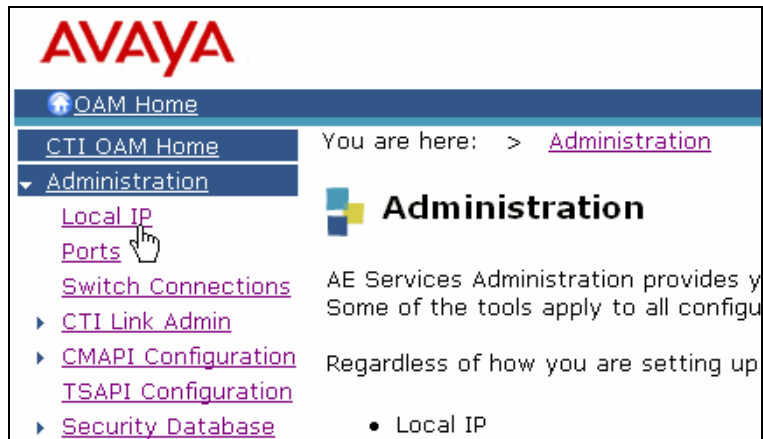
2. The **Welcome to OAM** screen appears. Click on **CTI OAM Admin**.



3. The **Welcome to CTI OAM Screens** screen appears. Click on **Administration**.



4. The **Administration** screen appears. Click on **Local IP**.



5. The **Local IP** screen appears. Administer the following values and click **Apply Changes**:

- **Client Connectivity:** Select the local IP address that the client application (in this case, CSCM) will use to connect to the Avaya AES server.
- **Switch Connectivity:** Select the local IP address that Avaya Communication Manager will use to connect to the Avaya AES server.
- **Media Connectivity:** Select the local IP address that the Device, Media, and Call Control API services will use for Media Connectivity.

NOTE: This particular test configuration used the same network interface (eth0) for **Client**, **Switch**, and **Media Connectivity**. However, Avaya recommends using eth1 for **Switch Connectivity** on a private, isolated LAN. For more details on administering the **Local IP** for AE Services, refer to reference [4].

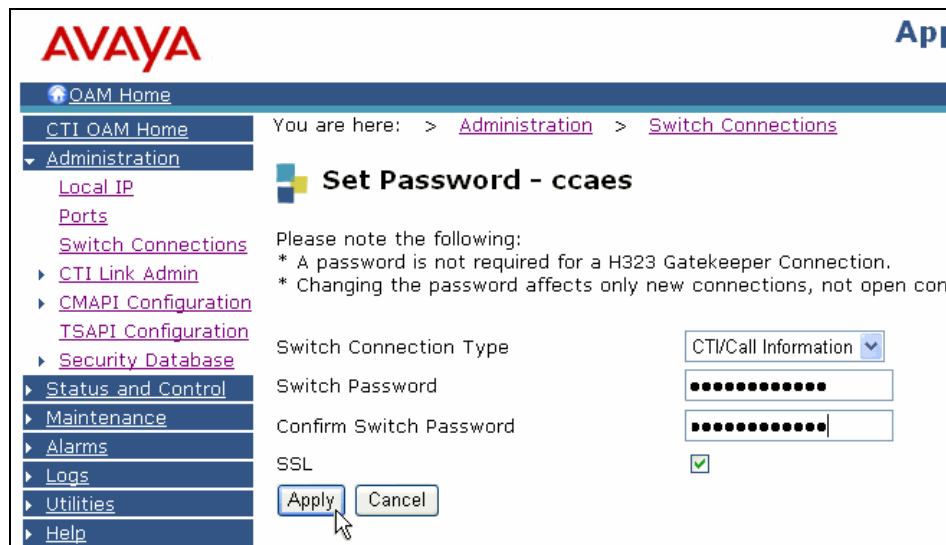
The screenshot shows the Avaya OAM Home interface. The left navigation pane includes links for Local IP, Ports, Switch Connections, CTI Link Admin, CMAPI Configuration, TSAPI Configuration, Security Database, Status and Control, and Maintenance. The main content area is titled 'Local IP' and shows three dropdown menus for Client Connectivity, Switch Connectivity, and Media Connectivity, all set to 'eth0:10.1.1.50'. An 'Apply Changes' button is at the bottom, with a mouse cursor pointing to it. The breadcrumb trail indicates the path: Administration > Local IP.

6. In the left navigation panel, click on **Switch Connections**. The **Switch Connections** screen appears. Enter a name for the Avaya Communication Manager Switch Connection and then click the **Add Connection** button. For example, “ccaes”.

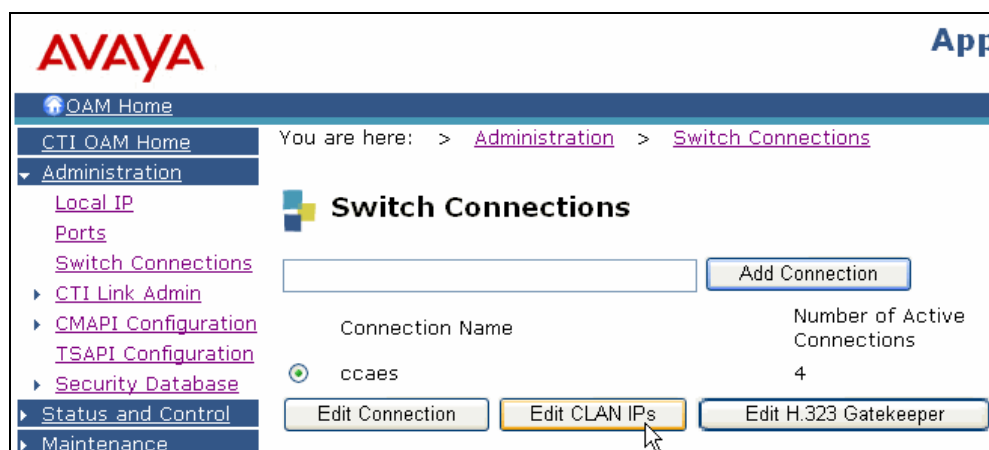
The screenshot shows the Avaya OAM Home interface with the 'Switch Connections' screen. The left navigation pane highlights 'Switch Connections'. The main content area has a text input field containing 'ccaes' and an 'Add Connection' button, with a mouse cursor pointing to it. Below the input field, there are labels for 'Connection Name' and 'Number of Active Connections'. The breadcrumb trail indicates the path: Administration > Switch Connections.

7. Clicking on the **Add Connection** button in the previous step opens the **Set Password** screen. Enter the following values and then click **Apply**.

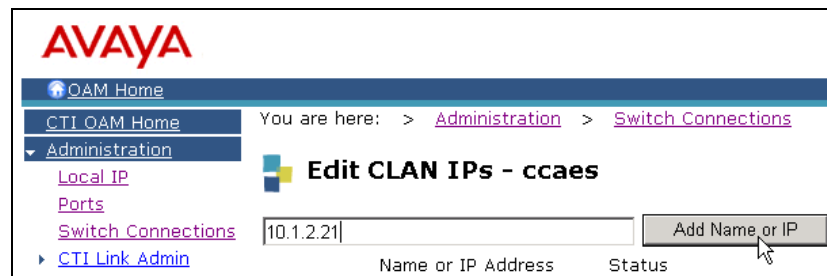
- **Switch Connection Type:** Select “CTI/Call Information”.
- **Switch Password:** The password entered must be same password entered in the **AE Services Administration** page in the **change ip-services** form shown in **Section 3.5, Step 3**.
- **Confirm Switch Password:** Re-enter the Switch Password.
- **SSL (Secure Socket Layer):** Check this box.



8. After clicking **Apply** in the previous step, the **Switch Connections** screen returns with the newly created connection listed. Select the radio button for this switch connection (i.e., “ccaes”) and then click **Edit CLAN IPs**.

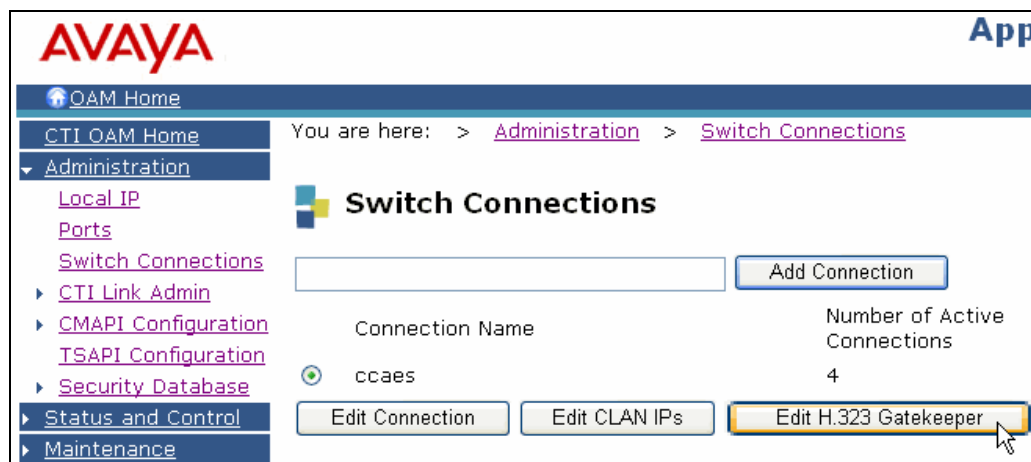


9. After clicking **Edit CLAN IPs** in the previous step, the **Edit CLAN IPs** screen appears. Enter the name or IP address of the CLAN module and then click on **Add Name or IP**.

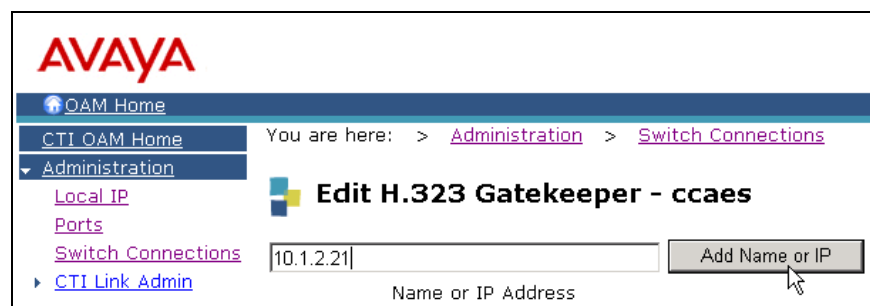


10. Repeat **Steps 8-9** for as many CLANs as necessary. The newly added CLANs will appear in a list (*not shown*). **NOTE:** This particular test configuration has four CLAN boards. Avaya recommends using at least two CLANs per switch connection.

11. In the left navigation panel, click on **Switch Connections**. The **Switch Connections** screen appears again. Select the radio button for the switch connection created in **Step 6** and 7 (i.e., “ccaes”) and then click **Edit H.323 Gatekeeper**.



12. After clicking **Edit H.323 Gatekeeper** in the previous step, the **Edit H.323 Gatekeeper** screen appears. Enter the name or IP address of the H.323 Gatekeeper and then click on **Add Name or IP**. **NOTE:** The gatekeeper is used by DMCC to register the IP softphones.

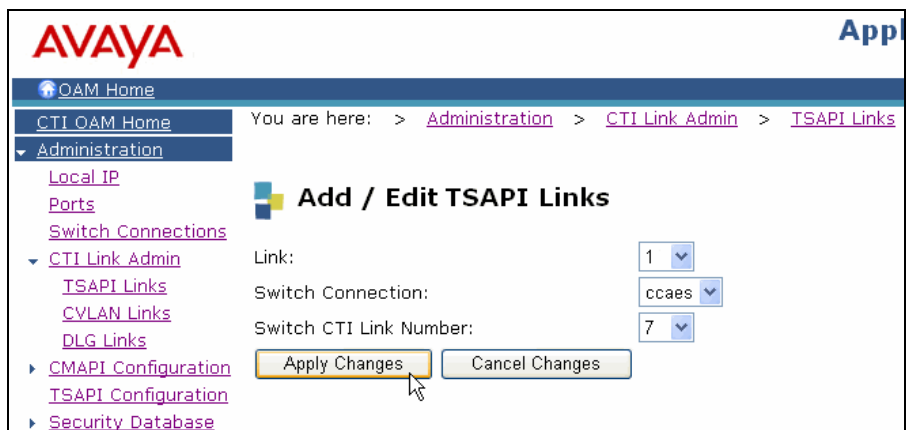


13. Repeat **Steps 11-12** for as many H.323 Gatekeepers as necessary. The newly added H.323 Gatekeepers will appear in a list (*not shown*).

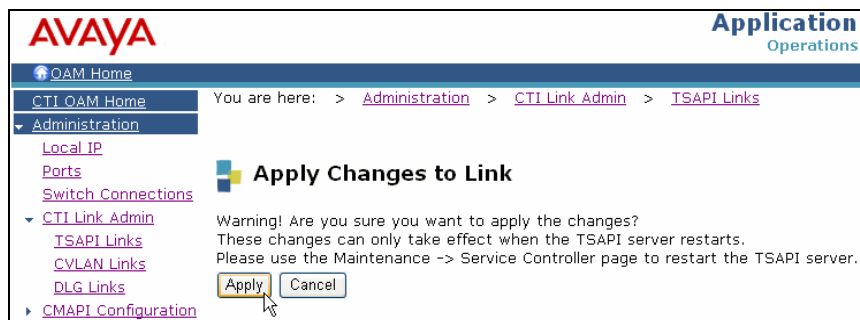
4.2. Configure the TSAPI Link

1. From the **CTI OAM Home** screen, click on **Administration > CTI Link Admin > TSAPI Links > Add Link**. The **Add / Edit TSAPI Links** screen appears. Enter the following values and then click **Apply Changes**:

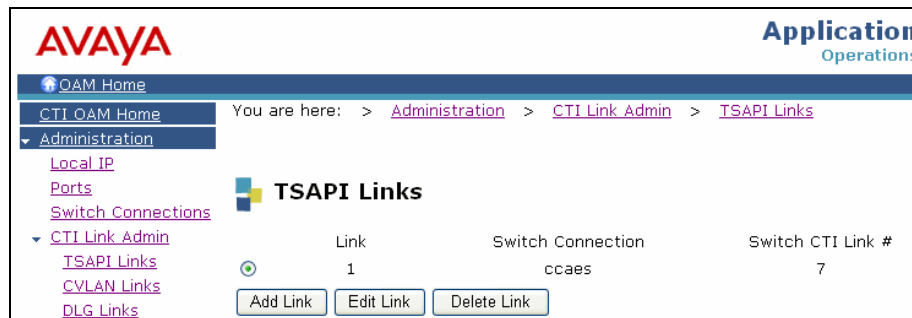
- **Link:** Select a link number from the drop down menu.
- **Switch Connection:** Select the name of the switch connection created in **Section 4.1, Steps 6-7** (i.e., “ccaes”).
- **Switch CTI Link Number:** Select the CTI link number that was previously administered in **Section 3.10, Step 1** (i.e., “7”).



2. The **Apply Changes to Link** warning screen appears. Click **Apply**.

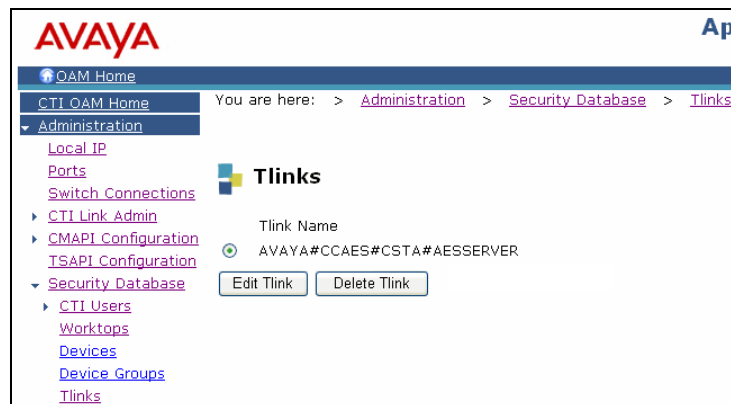


3. The **TSAPI Links** screen appears showing the TSAPI link administered in **Step 1**.



4. Click **Administration > Security Database > Tlinks**. The **Tlinks** screen appears showing the Tlink name that identifies the TSAPI link. Tlinks are service identifiers dynamically created by the TSAPI Service. For more details on Tlinks, refer to reference [4]. This Tlink name will be used by CSCM once it is configured in **Section 5, Step 3**.

NOTE: The second section of the Tlink name (after “AVAYA#”) should match the switch connection name created in **Section 4.1, Steps 6-7** (i.e., “CCAES”).



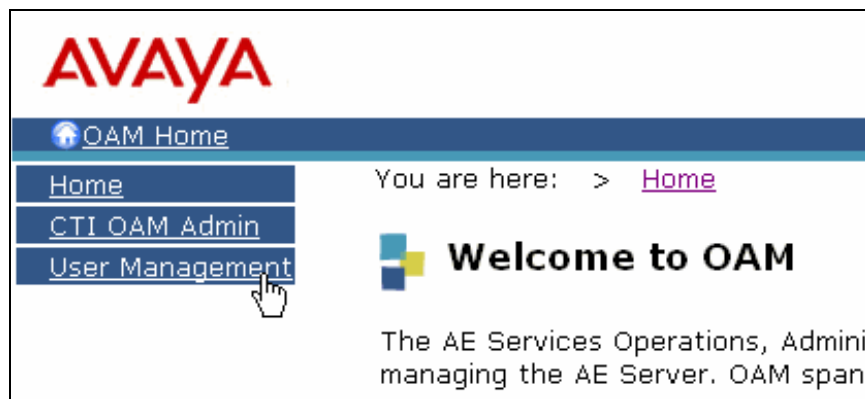
5. Click **Maintenance > Service Controller**. The **Service Controller** screen appears. Select the **TSAPI Service** checkbox and click **Restart Service** to restart the TSAPI service.



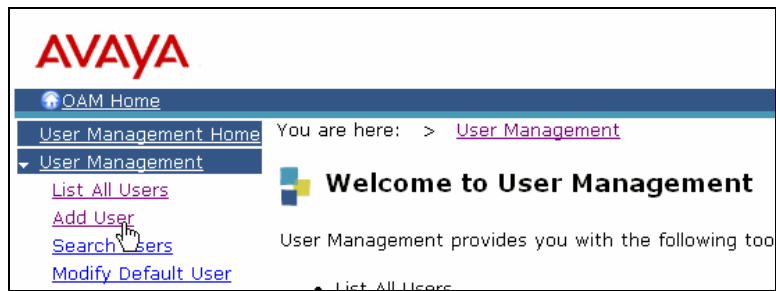
4.3. Configure the CTI User

CSCM requires a CTI user ID and password to connect to the Avaya AES server for TSAPI/DMCC services. Use the following steps to configure a CTI user.

1. Log in to AE Services OAM using the appropriate login and password for User Management administrative permissions (refer to reference [4] for more information). After logging in, select **User Management**.



2. Select **User Management > Add User**.



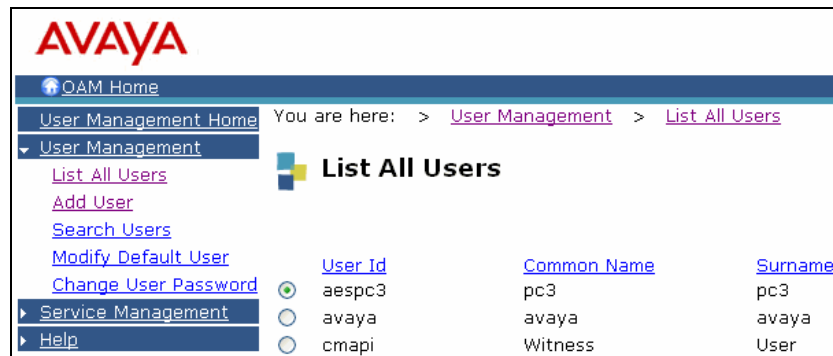
3. The **Add User** screen appears. Enter the following values and then scroll down and click **Apply** (*not shown*) when finished:

- **User Id, Common Name, Surname:** Enter a valid string for each.
- **User Password, Confirm Password:** Enter the same password for each field.
- **Avaya Role:** Select “userservice.useradmin”.
- **CT User:** Select “Yes”.

NOTE: The user ID and password created in this step will be used by CSCM to set the Avaya CT Service Login/Password and CMAPI Username/Password. (see **Section 5, Step 3**).

A screenshot of the 'Add User' form in the Avaya QAM Home interface. The breadcrumb trail now includes 'Add User'. The form contains several input fields: '* User Id' (containing 'cmapi'), '* Common Name' (containing 'Witness'), '* Surname' (containing 'User'), '* User Password' (masked with dots), '* Confirm Password' (masked with dots), 'Admin Note' (empty), 'Avaya Role' (a dropdown menu set to 'userservice.useradmin'), 'Business Category' (empty), 'Car License' (empty), 'CM Home' (empty), 'Css Home' (empty), and 'CT User' (a dropdown menu set to 'Yes'). A note above the form states: 'Fields marked with * can not be empty.'

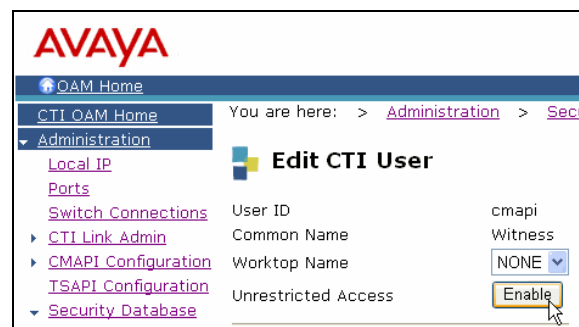
4. Select **User Management > List All Users** to see the newly created user (i.e., “cmapi”).



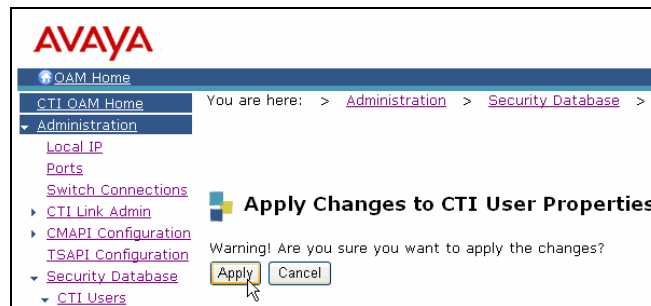
5. Log out and then log back into AE Services OAM as the administrative user. Select **Administration > Security Database > CTI Users > List All Users**. Select the user that was created in **Step 3** and then click **Edit**.



6. Next to **Unrestricted Access**, click **Enable** and then click **Apply Changes** (not shown).



7. A warning message will appear. Click **Apply**.



5. CSCM Configuration

Like Avaya AES, CSCM configuration is also done through a web browser.

1. Open a web browser and navigate to <http://cscm-server:8080/servlet/cscm> (where *cscm-server* is the host name or IP address of the CSCM server). Log in using a user name and password with administrator credentials.



2. The **Administration** window is displayed. Click on **Server** under **System Settings**. The **Server Settings** window is displayed (*not shown here*). These settings determine how the CSCM recorder operates and how to forward alarms and events via e-mail. If necessary, make any changes to the default Recorder Settings and Alarm Notification configuration. For more information on this, refer to references [3].

3. Click on **Communication Manager** under **System Settings**. The **Communication Manager Settings** window is displayed. Use this page to configure how CSCM interacts with Avaya Communication Manager and Avaya AES. Configure the following parameters using the **Edit** link for each item.

- **Default Avaya Communication Manager Name:** Enter the IP address of the CLAN. This IP address is used for the IP softphone registrations.
- **Communication Manager Version:** Enter “3.x”. **NOTE:** There is no option for 4.x in CSCM 7.7.3, so 3.x was selected for this test configuration.
- **AE Server Address(es):** Enter the IP address of the Avaya AES server.
- **CMAPI Username:** Enter the username of the CTI user from **Section 4.3, Step 3**.
- **CMAPI Password:** Enter the password of the CTI user from **Section 4.3, Step 3**.
- **Encrypt Media Streams:** Enter “No”.
- **IP Station Security Code:** Enter the password of the IP softphone stations created in **Section 3.7, Steps 3-6**.
- **Avaya CT Server(s):** Enter the IP address of the Avaya AES server for TSAPI service.
- **Avaya CT Service Identifier(s):** Enter the Tlink name from **Section 4.2, Step 4**.
- **Avaya CT Service Login ID:** Enter the username of the CTI user from **Section 4.3, Step 3**.
- **Avaya CT Service password:** Enter the password of the CTI user from **Section 4.3, Step 3**.

At the bottom of the **Communication Manager Settings** window, select the **Add Port(s)** link to add the IP softphone stations created in **Section 3.7, Steps 3-6** to be used as CSCM recorder ports.



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Communication Manager Settings

These settings determine how the recorder contacts and interacts with your Avaya Communication Manager

Item	Setting	
Default Avaya Communication Manager Name	10.1.2.21	Edit
Communication Manager Version	3.x	Edit
AE Server Address(es)	10.1.1.50	Edit
CMAPI Username	cmapi	Edit
CMAPI Password	*****	Edit
Encrypt Media Streams	No	Edit
IP Station Security Code	*****	Edit
Avaya CT Server(s)	10.1.1.50	Edit
Avaya CT Service Identifier(s)	AVAYA#CCAES#CSTA#AESSEVER	Edit
Avaya CT Service Login ID	cmapi	Edit
Avaya CT Service password	*****	Edit
Extensions assigned to recorder	0	
Unassigned Capacity	115	

The table below lists the range(s) of station numbers that the recorder will register its ports as. These must match the station numbers you have configured as softphones on your Avaya Communication Manager.

Select	Port(s)	No.	Detail
No stations allocated.			
Add port(s) , Delete selected port(s)			

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4. The following window opens. Enter the port(s) and then click **Enter and Close**.

The ports will now be listed at the bottom of the **Communication Manager Settings** window like this:

Select	Port(s)	No.	Detail	
☐	4320090-4320099	10	IP Softphones for CSCM	Edit
Add port(s), Delete selected port(s)				< Previous Next >

5. Click on **Users** under **Security**. The **User Security** page is displayed to add and edit CSCM users with specific administrative and/or replay permissions. The configuration below shows that the example **admin** user is allowed to replay recordings owned by all stations from **00-9999999**. This can be restricted to more specific stations if necessary. Note that this user is also an administrative user (**ADMIN**) because the **User is an Administrator** checkbox was selected during user creation or editing. When this is not selected, the user will only have replay permissions.

6. Click on **On Demand** under **Port Allocations**. The **On Demand Recording** page is displayed. Use the default recording parameters. The **Apply Beep Tone within recorder** setting was left as “No” since Avaya Communication Manager was previously configured in **Section 3.2, Step 2** to generate the service observing warning tone.

Click on **Add port(s)** on the bottom of the page to add the range of IP softphone station ports to be shared for On Demand recording. Configure the IP softphone members from the “On Demand” hunt-group (**4320520**) as the station range (for example, **4320090-4320091**). Refer to **Section 3.8** for **hunt-group 20** configuration details. When the user dials the hunt-group extension, it is one of these IP softphone ports that is used by CSCM for recording.

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On Demand Recording

The settings below summarize how ports using this mode are configured.

Recording Mode Setup	Setting	
Apply Beep Tone within recorder	No	Edit
Audio format	G.729A (8kbps)	Edit
Stop recording if the call drops to just one other party	Yes	Edit
Ports Configured	2	
Unassigned Capacity	73	

Users of any station can START recording their current call by using the Audix-Rec button (if configured to this hunt group) or conferencing any of the extensions listed below - or, preferably, a hunt group into which some or all of these extensions have been placed.

Select	Port(s)	No.	Detail	
☐	4320090-4320091	2	Huntgroup 20- On Demand	Edit

[Add port\(s\)](#), [Delete selected port\(s\)](#) [< Previous](#) [Next >](#)

7. Click on **Meeting** under **Port Allocations**. The **Meeting Recording** page is displayed. Use the default recording parameters.

Click on **Add port(s)** on the bottom of the page to add the range of IP softphone station ports to be shared for Meeting recording. Configure the IP softphone members from the “Meeting” hunt-group (**4320521**) as the station range (for example, **4320092-4320093**). Refer to **Section 3.9** for **hunt-group 21** configuration details. When the user dials the hunt-group extension, it is one of these IP softphone ports that is used by CSCM for recording.

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Meeting Recording

The settings below summarize how ports using this mode are configured.

Recording Mode Setup	Setting	
Apply Beep Tone within recorder	No	Edit
Stop recording if the call drops to just one other party	Yes	Edit
Ports Configured	2	
Unassigned Capacity	71	

Users of any station with speakerphone capability can record a meeting by calling any of the extensions listed below - or, preferably, a hunt group into which some or all of these extensions have been placed.

Select	Port(s)	No.	Detail	
☐	4320092-4320093	2	Huntgroup 21 - Meeting Prompt users in English	Edit

[Add port\(s\)](#), [Delete selected port\(s\)](#) [< Previous](#) [Next >](#)

8. Click on **Station Bulk** under **Port Allocations**. The **Station Bulk Recording** page is displayed. Use the default recording parameters.

Click on **Add station range** on the bottom of the page to add the station range or the individual stations for which the calls will be recorded automatically using the service observing feature. Add a station(s) specified in **Section 3.7, Step 7** (for example, **4320001**). **NOTE:** This is the actual station to be recorded. CSCM will automatically dedicate an available IP softphone port for this extension.

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Station Bulk Recording

The settings below summarize how ports using this mode are configured.

Recording Mode Setup	Setting	
Apply Beep Tone within recorder	No	Edit
Audio format	G.729A (8kbps)	Edit
Delete Recording by entering	Not defined	Edit
Record calls that do NOT have a VDN number?	Yes	Edit
Filter calls by VDN and/or Skill Hunt Group?	ALL Calls with a VDN	Edit
Ports Configured	1	
Unassigned Capacity	70	

The stations listed below will have their calls recorded automatically in accordance with the VDN/Skill rules set above. **DO NOT ENTER VDN, SKILL HUNT GROUP OR AGENT NUMBERS** only station numbers.

Select	Station(s)	No.	Detail
☐	4320001	1	Edit

[Add station range,](#) [Delete selected station range\(s\)](#)< Previous Next >

9. Click on **Station Executive** under **Port Allocations**. The **Station Executive Recording** page is displayed. Use the default recording parameters.

Click on **Add station range** on the bottom of the page to add the station range or the individual stations for which the calls will be recorded automatically using the service observing feature. Add a station(s) specified in **Section 3.7, Step 7** (for example, **4320003**). **NOTE:** This is the actual station to be recorded. CSCM will automatically dedicate an available IP softphone port for this extension.

Set **Retain Recording by entering** to a sequence of digits which if dialed during the call results in the entire call being retained. This sequence must not conflict with any feature access code on Avaya Communication Manager and should be easy to remember.

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Station Executive Recording

The settings below summarize how ports using this mode are configured.

Recording Mode Setup	Setting	
Apply Beep Tone within recorder	No	Edit
Audio format	G.729A (8kbps)	Edit
Retain Recording by entering	**7	Edit
Ports Configured	1	
Unassigned Capacity	79	

Users of the stations listed below can enter the retain code shown above to have their current call recorded. **DO NOT ENTER VDN, SKILL HUNT GROUP OR AGENT NUMBERS** only station numbers.

Select	Station(s)	No.	Detail
☐	4320003	1	Edit

Add station range, [Delete selected station range\(s\)](#)< Previous Next >

10. Click on **Conferenced** under **Port Allocations**. The **Conferenced Recording** page is displayed. Use the default recording parameters.

Set **Maximum Concurrent Recordings (on this recorder)** to the number of IP softphone ports to be allocated and shared for single-step conference mode. This number will also be reflected as the value for **Ports Configured**. CSCM will automatically take these from the available ports that were created in **Step 4**. Two ports were configured in this example.

Click on **Add address(es)** on the bottom of the page to add the range of stations, agents, skill hunt groups, and/or VDNs for which the calls will be recorded using single-step conference mode. For example, **4320004**. **NOTE:** Station **4320004** did not need any special configuration (i.e., “audix-rec” button, service observable, etc.) so it is not shown in these Application Notes.

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Conferenced Recording

The settings below summarize how ports using this mode are configured.

Recording Mode Setup	Setting	
Apply Beep Tone within recorder	No	Edit
Audio format	G.729A (8kbps)	Edit
Allow multiple recordings	No	Edit
Record calls that do NOT have a VDN number?	Yes	Edit
Filter calls by VDN and/or Skill Hunt Group?	ALL Calls with a VDN	Edit
Maximum Concurrent Recordings (on this recorder)	2	Edit
Warn when free port count falls BELOW	1	Edit
Agent Skill Group(s) to Observe	Not defined	Edit
VDN(s) to Observe	Not defined	Edit
Ports Configured	2	
Unassigned Capacity	68	

Calls involving the addresses (stations, agents, skill hunt groups and/or VDNs) below will be recorded via single-step conference(Requires Avaya CT interface)

Select	Address(es)	No.	Detail
☐	4320004	1	Edit

[Add address\(es\).](#) [Delete selected address\(es\)](#) [< Previous](#) [Next >](#)

6. Verification Steps

6.1. Verify Avaya Communication Manager

1. Enter the **status aesvcs interface** command from the Avaya Communication Manager System Access Terminal (SAT) to verify the status of the interface(s) between Avaya Communication Manager and Avaya AES.

```
status aesvcs interface
```

AE SERVICES INTERFACE STATUS

Local Node	Enabled?	Number of Connections	Status
clan-1a02	yes	2	listening
clan-2a02	yes	2	listening
clan-1b02	yes	2	listening
clan-2a09	yes	2	listening

2. Enter the **status aesvcs link** command to verify the status of the link(s) between Avaya Communication Manager and Avaya AES.

```
status aesvcs link
```

AE SERVICES LINK STATUS

Srvr/ Link	AE Services Server	Remote IP	Remote Port	Local Node	Msgs Sent	Msgs Rcvd
01/01	aesserver	10. 1. 1. 50	41405	clan-2a02	705	1178
02/02	ccaesbr4	10. 14. 1. 50	45000	clan-2a02	224	210
01/03	aesserver	10. 1. 1. 50	41484	clan-2a09	180	180
02/04	ccaesbr4	10. 14. 1. 50	45023	clan-2a09	180	180
02/05	ccaesbr4	10. 14. 1. 50	45065	clan-1a02	179	179
01/06	aesserver	10. 1. 1. 50	41517	clan-1a02	181	181
01/07	aesserver	10. 1. 1. 50	41585	clan-1b02	181	181
02/08	ccaesbr4	10. 14. 1. 50	45090	clan-1b02	180	181

3. Enter the **status aesvcs cti-link** command to verify the status of the cti-link(s) between Avaya Communication Manager and Avaya AES.

```
status aesvcs cti-link
```

AE SERVICES CTI LINK STATUS

CTI Link	Version	Mnt Busy	AE Services Server	Service State	Msgs Sent	Msgs Rcvd
6		no		down	0	0
7	4	no	aesserver	established	591	591
8	4	no	ccaesbr4	established	15	15

- Enter the **list registered-ip-stations** command to verify that IP softphone extensions are registered for each of the configured ports in CSCM (compare to **Section 6.3, Step 2**). The **Station IP Address** should be the IP Address of the Avaya AES server. (i.e., "10.1.1.50").

list registered-ip-stations								Page	1
REGISTERED IP STATIONS									
Station Ext/ Orig Port	Set Type	Product ID	Prod Rel	Station IP Address	Net Rgn	Gatekeeper IP Address	TCP Skt		
432-0001	4625	IP_Phone	2.800	10.1.2.101	1	10.1.2.29	y		
432-0003	4622	IP_Phone	2.800	10.1.2.102	1	10.1.2.29	y		
432-0012	4620	IP_Phone	1.500	10.1.2.103	1	10.1.2.29	y		
432-0090	4624	IP_API_A	3.204	10.1.1.50	1	10.1.2.21	y		
432-0091	4624	IP_API_A	3.204	10.1.1.50	1	10.1.2.21	y		
432-0092	4624	IP_API_A	3.204	10.1.1.50	1	10.1.2.21	y		
432-0093	4624	IP_API_A	3.204	10.1.1.50	1	10.1.2.21	y		
432-0094	4624	IP_API_A	3.204	10.1.1.50	1	10.1.2.21	y		
432-0095	4624	IP_API_A	3.204	10.1.1.50	1	10.1.2.21	y		
432-0096	4624	IP_API_A	3.204	10.1.1.50	1	10.1.2.21	y		
432-0097	4624	IP_API_A	3.204	10.1.1.50	1	10.1.2.21	y		

6.2. Verify Avaya AES

- Log into the Avaya AES server following the instructions in **Section 4.1, Step 1**. In the left panel of **CTI OAM Home**, click on **Status and Control > Switch Conn Summary** to check the status of the switch connections.


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Switch Connections Summary

Switch Conn	Conn State	Since	Online/ Offline	Active CLANs/ Admin'd CLANs	# of TCI Conns	Msgs To Switch	Msgs From Switch	Msg Period
ccaes	Talking	2007-03-29 20:51:44.0	Online	4 / 4	4	1751	1264	30

2. To check the switch connection details, from the **Switch Connections Summary** screen above, click on the **Switch Connection Details** button for a selected switch connection. The **Switch Connection Details** screen below is displayed for the selected switch connection.

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Switch Connection Details - ccaes

Hostname or IP Address	Connection State	Online/Offline	Since	Msgs To Switch	Msgs From Switch	Msg Period
10.1.2.21	Talking	Online	2007-03-29 20:52:26.0	180	180	30
10.1.2.25	Talking	Online	2007-03-29 20:53:28.0	180	180	30
10.2.2.21	Talking	Online	2007-03-29 20:51:44.0	1198	720	30
10.2.2.29	Talking	Online	2007-03-29 20:52:01.0	180	180	30

Online Offline Message Period

3. Click on **Services Summary** in the left panel under **Status and Control**. The **Services Summary** screen appears below. Select the **TSAPI Service** and click **Details**.

AVAYA App

You are here: > [Status and Control](#) > [Services Summary](#)

Services Summary

Service	Status	Since	Cause
CVLAN Service	ONLINE	2007-01-16 14:31:45	NORMAL
DLG Service	ONLINE	2007-01-16 14:31:42	NORMAL
TSAPI Service	ONLINE	2007-01-16 16:09:40	NORMAL

Details

4. Verify that **Conn Status** for the TSAPI link is "Talking".

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TSAPI Link Details

Link	Switch Conn Name	Switch CTI Link Number	Conn Status	Since	Service State	Switch Version	Number of Associations	ASA: Messa Rate
1	ccaes	7	Talking	2007-03-29 20:51:44.0	Online	14	11	599

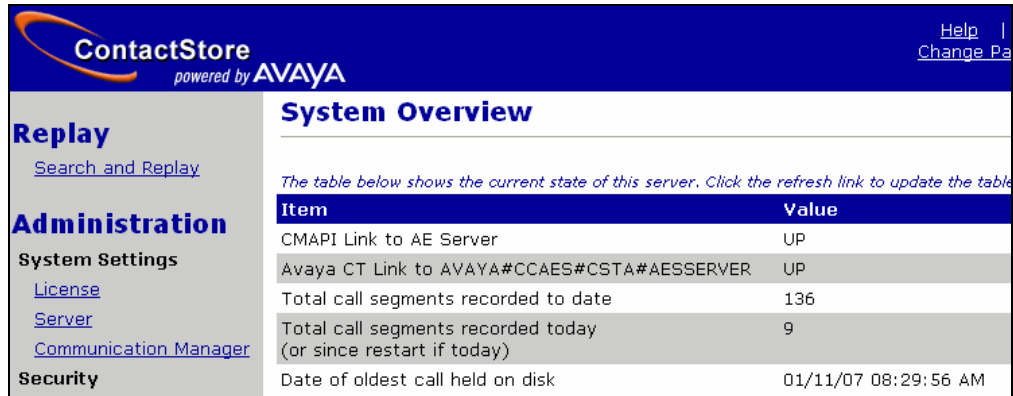
Online Offline

For service-wide information, choose one of the following:

TSAPI Service Status TLink Status User Status

6.3. Verify CSCM Call Recording

1. Log into CSCM following the instructions in **Section 5, Step 1**. Click on **System Overview** in the left panel under **Status** (*not shown*). The **System Overview** screen appears below. Verify that the **Avaya CT Link** is “UP”.



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System Overview

The table below shows the current state of this server. Click the refresh link to update the table.

Item	Value
CMAPI Link to AE Server	UP
Avaya CT Link to AVAYA#CCAES#CSTA#AESESERVER	UP
Total call segments recorded to date	136
Total call segments recorded today (or since restart if today)	9
Date of oldest call held on disk	01/11/07 08:29:56 AM

2. Navigate to **Administration > Status > Port States** and verify the state of the ports connected to Avaya Communication Manager. The figure below shows the states of the **Station Bulk**, **Station Executive**, **Meeting**, **On Demand**, and **Conferenced** recording mode ports.

For **Station Bulk** and **Station Executive** modes, the **Recording** column shows the station being recorded by each dedicated CSCM port. The **State** will be “Connected” when a service observing connection is established but the port being observed is still idle. It will change to “Active” once a call begins recording.

For **On Demand** and **Meeting** recording modes, the **Recording** column will show the station number that invokes the On Demand recording or the owner of the Meeting recording. These station numbers are only displayed once the ports are “Active” when the recording begins. Before that, the **State** will be “Idle”.

For **Conferenced** recording mode, the **Recording** column will show the number being recorded but will only be displayed once the port becomes “Active” during recording. Before that, the **State** will be “Idle”.

For a more detailed description of port states, refer to **Page 151** of reference [3].



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Port States

The table below shows the state of all ports at the time the page was requested. Click the refresh link above or below the table to update it.

[Refresh](#)

Port▼▲	Mode▼▲	Controller▼▲	Media▼▲	Recording Enabled▼▲	State▼▲	Recording▼▲	Comment▼▲
4320090	On Demand	No	Yes	Idle		Huntgroup 20-On Demand	Reset
4320091	On Demand	No	Yes	Idle		Huntgroup 20-On Demand	Reset
4320092	Meeting	No	No	Idle		Huntgroup 21 - Meeting	Reset
4320093	Meeting	No	No	Idle		Huntgroup 21 - Meeting	Reset
4320094	Station Bulk	No	Yes	Connected	4320001		Reset
4320095	Station Executive	No	Yes	Connected	4320003		Reset
4320096	Conferenced	No	Yes	Idle		IP Softphones for CSCM	Reset
4320097	Conferenced	No	Yes	Idle		IP Softphones for CSCM	Reset

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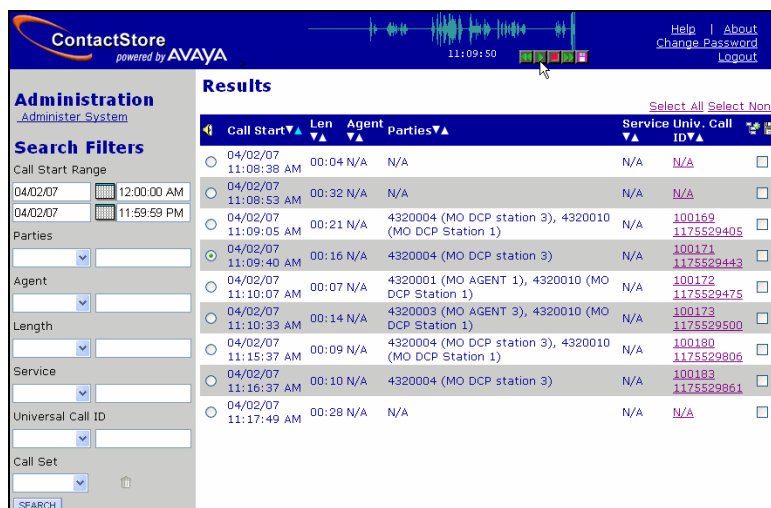
3. Verify the following call recording operations:

NOTE: Station **4320002** was used to test both the Meeting and On-Demand recording modes below.

- Make a call from a station configured for **Station Bulk** recording (for example, **4320001**) to any other station.
- Make a call from a station configured for **Station Executive** recording (for example, **4320003**) to any other station. Press the configured retention code to retain the entire call recording. Repeat also without pressing the configured retention code to verify that the call recording does not get saved.
- Make a call directly to the **Meeting** recording mode hunt group extension (for example, hunt group extension **4320521**) from any speakerphone (for example, station **4320002**). Follow the meeting recording prompts. **NOTE:** This step could also be performed by conferencing in the hunt group extension during an existing call.
- Make a call from a station assigned the **audix-rec** feature button for the On Demand hunt group (for example, station **4320002**) to any other station. Press the **audix-rec** button to begin **On Demand** recording (for example, On Demand hunt group extension **4320520**).
- Make a call from a station configured for **Conferenced** recording (for example, **4320004**) to any other station. Verify that call can also be service observed from a supervisor station.

Verify that the service observing warning tone was heard for all of these calls.

From the CSCM administration page, navigate to **Replay > Search and Replay** (on the top left). Click on the **Search** button (on the bottom left) to quickly return a list of all call recordings for the day (shown below). The **Search Filters** can also be used to narrow the search. Verify that all of the calls were successfully recorded by selecting each call and then clicking the Play button  on the top of the screen. **NOTE:** For these Application Notes, headphones were used.



The screenshot displays the ContactStore administration interface. At the top, there is a header with the ContactStore logo and a navigation bar. Below the header, the left sidebar contains 'Administration' and 'Search Filters' sections. The 'Search Filters' section includes fields for 'Call Start Range', 'Parties', 'Agent', 'Length', 'Service', and 'Universal Call ID'. The main area shows a 'Results' table with columns for 'Call Start', 'Len', 'Agent', 'Parties', 'Service', 'Univ. ID', and 'Call ID'. The table lists several call recordings, including one selected (highlighted in green). At the top of the results table, there are buttons for 'Select All', 'Select None', and a 'Play' button (represented by a green square icon).

Call Start	Len	Agent	Parties	Service	Univ. ID	Call ID
04/02/07 11:08:39 AM	00:04	N/A	N/A	N/A	N/A	N/A
04/02/07 11:08:53 AM	00:32	N/A	N/A	N/A	N/A	N/A
04/02/07 11:09:05 AM	00:21	N/A	4320004 (MO DCP station 3), 4320010 (MO DCP Station 1)	N/A	100169 1175529405	
04/02/07 11:09:40 AM	00:16	N/A	4320004 (MO DCP station 3)	N/A	100171 1175529443	
04/02/07 11:10:07 AM	00:07	N/A	4320001 (MO AGENT 1), 4320010 (MO DCP Station 1)	N/A	100172 1175529475	
04/02/07 11:10:33 AM	00:14	N/A	4320003 (MO AGENT 3), 4320010 (MO DCP Station 1)	N/A	100173 1175529500	
04/02/07 11:15:37 AM	00:09	N/A	4320004 (MO DCP station 3), 4320010 (MO DCP Station 1)	N/A	100180 1175529806	
04/02/07 11:16:37 AM	00:10	N/A	4320004 (MO DCP station 3)	N/A	100183 1175529861	
04/02/07 11:17:49 AM	00:28	N/A	N/A	N/A	N/A	N/A

7. Conclusion

These Application Notes illustrate the basic steps necessary to administer Witness ContactStore for Communication Manager 7.7.3 (CSCM), Avaya Communication Manager 4.0, and Avaya Application Enablement Services (Avaya AES) 3.1.2 for call recording and playback. In addition, detailed steps are provided to test and verify successful configuration and functionality for five example recording methods.

8. References

Product documentation for Avaya products may be found at <http://support.avaya.com>.

1. “*Administrator Guide for Avaya Communication Manager*”, Document ID: 03-300509, Issue 3, February 2007.
2. “*Avaya MultiVantage Application Enablement Services Installation Guide Software-Only Offer R3.1.2*”, Document ID: 02-300355, Issue 2.3, September 2006.
3. “*Witness ContactStore for Communication Manager Release 7.7 Planning, Installation, and Administration Guide*”, Issue 2, November 2006.
4. “*Avaya MultiVantage Application Enablement Services Administration and Maintenance Guide Release 3.1.2*”, Document ID: 02-300357, Issue 4, September 2006.
5. “*Feature Description and Implementation for Avaya Communication Manager*”, Document ID: 555-245-205, Issue 5, February 2007.
6. “*Avaya Call Center Release 4.0 Automatic Call Distribution (ACD) Guide*”, Document ID: 07-600779, Release 4.0, February 2007.
7. “*Administration for Network Connectivity for Avaya Communication Manager*” Document ID: 555-233-504, Issue 12, February 2007.

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