



Configuring a Call Recording Service for the Avaya Interaction Center using the MERCOM Audiolog Recording Server - Issue 1.0

Abstract

MERCOM Audiolog Recording Server performs real-time call events at selected extensions and skill sets, analyzes the event data, makes recording control decisions, and collects call-specific data for a call center. The MERCOM Audiolog Recording Server integrated with the Avaya Interaction Center to provide call recording control. Information in these notes has been obtained through compliance testing and additional technical discussions. Testing was conducted via the DeveloperConnection Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

MERCOM Audiolog is a call recording system that is designed for use both as a stand-alone recorder/playback unit. The MERCOM Audiolog Recording Server utilized Avaya Interaction Center to provide events associated with the recorded calls. Recorded voice is stored on the hard drive(s) in the MERCOM server. MERCOM search and replay applications can play back recorded calls on the MERCOM server or at networked user workstation.

Audiolog performs the following recording functions:

- Recording audio via direct connection (stations or trunks), Service Observe, or VoIP.
- Monitoring on audio channels during recording
- Storing/Archiving recordings for playback
- Creation/maintenance of Catalog Database of recordings
- Search, Selection, and Playback of selected recordings
- Prevention of unauthorized access, modification, monitoring and playback

Audiolog software utilizes several co-resident modules to perform all CTI, recording, Database, and playback functions:

- Recorder Module provides telephony interface, signaling, compression, and recording functions.
- CTI Link Module provides the direct interface to Avaya Interaction Center for recording control and call-associated data collection.
- Call Manager Module provides automated update of Audiolog's onboard SQL Catalog database as each call is recorded.
- Player Module provides user-friendly GUI for call search, selection, and playback

2. Test Configuration

Figure 1 illustrates a configuration used during the compliance test process.

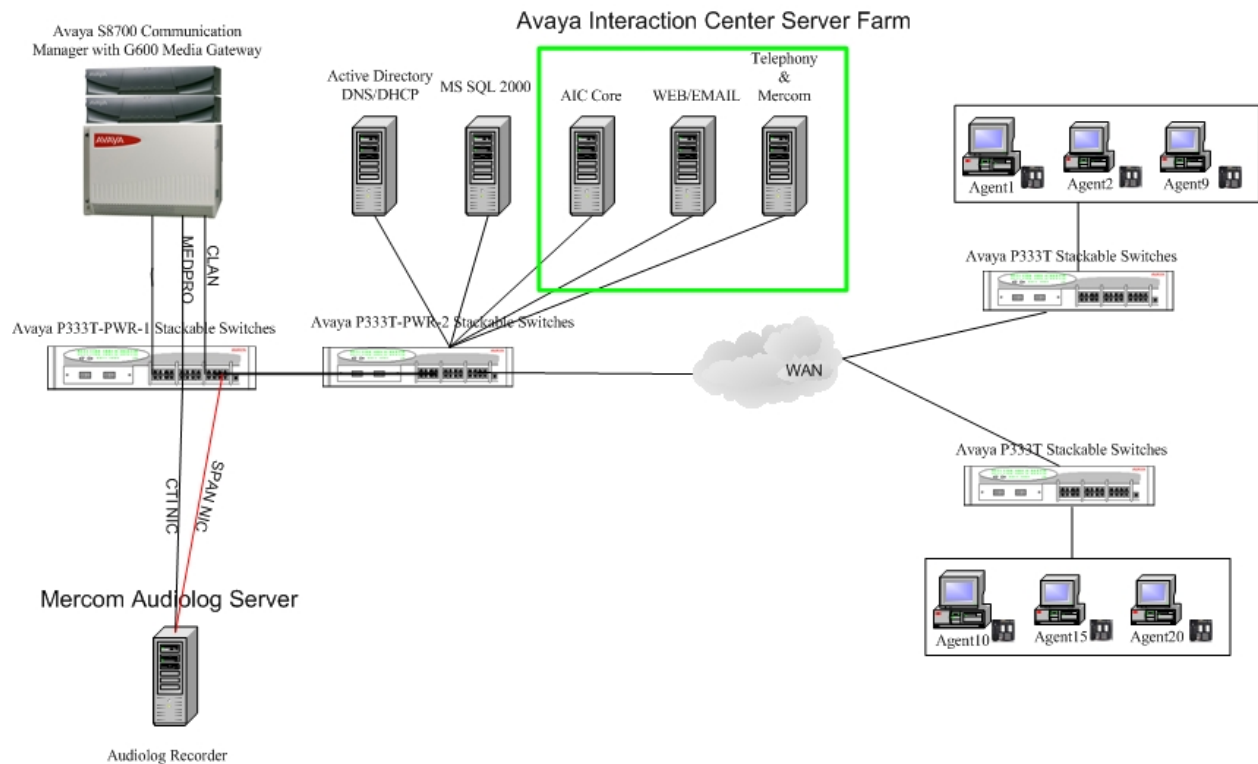


Figure 1: Avaya DeveloperConnection Compliance Test Configuration

3. Equipment and Software Validated

The following equipment and software were used for the tested configuration:

Equipment	Software
Avaya S8700 Media Server with G600 Media Gateway	Avaya Communication Manager 2.1
Avaya Interaction Center	v6.1.3
MERCOM Audilog Recording Server	v3.30

4. Configure the Avaya Interaction Center

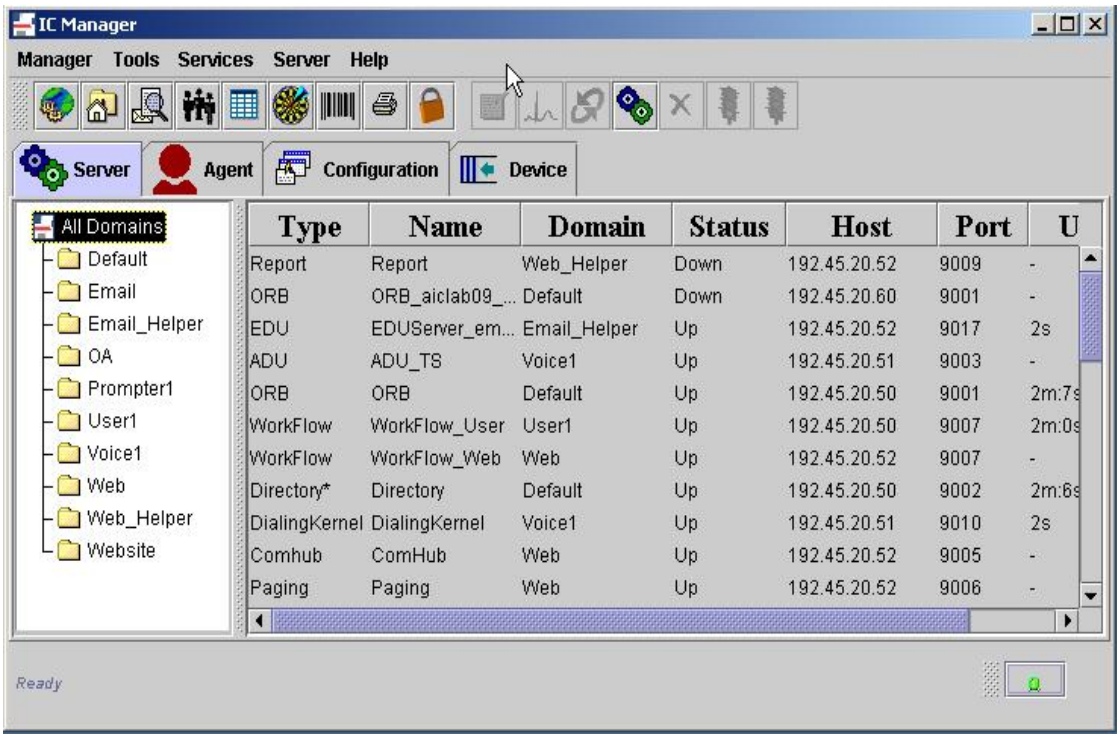
This section explains the file modifications and configuration necessary to support the Audiolog recording server.

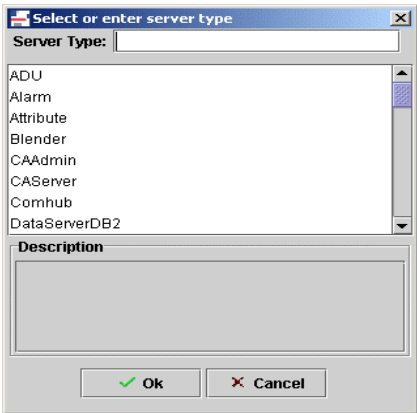
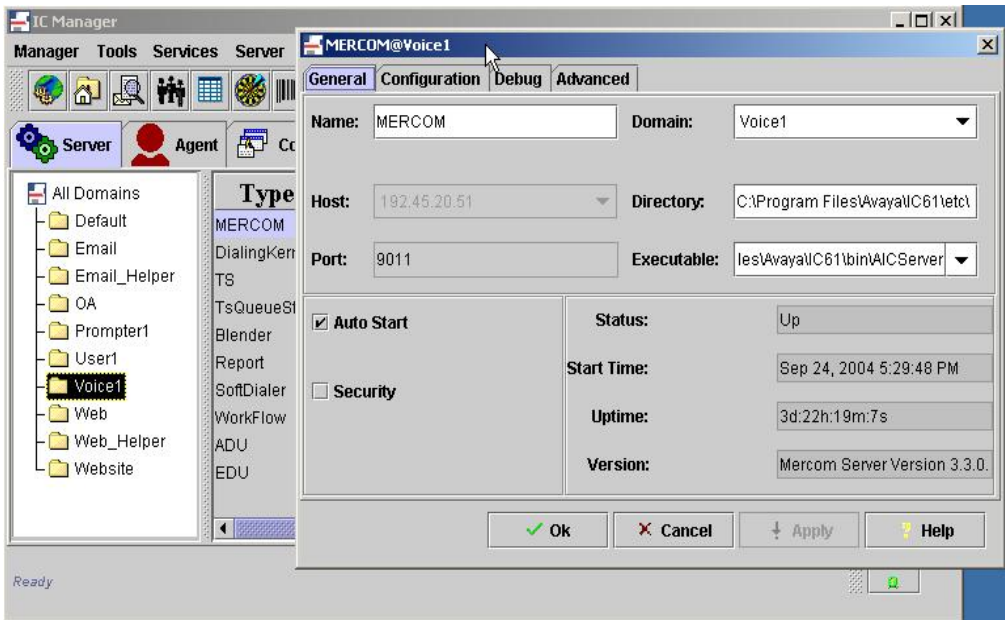
4.1. Copy MERCOM's AICServer File to Avaya Interaction Center Telephony Server

Copy MERCOM's **AICServer.exe** file from the distribution media to the **C:\Program Files\Avaya\IC61\bin** folder of the Avaya Interaction Center (AIC) server where the AIC Telephony server configured.

4.2. Add MERCOM AICServer to IC

The following steps add the Audiolog server to the Avaya Interaction Center Manager.

Step	Description																																																																																				
1.	Launch the Avaya Interaction Center Manager.  <table><tr><th>Type</th><th>Name</th><th>Domain</th><th>Status</th><th>Host</th><th>Port</th><th>U</th></tr><tr><td>Report</td><td>Report</td><td>Web_Helper</td><td>Down</td><td>192.45.20.52</td><td>9009</td><td>-</td></tr><tr><td>ORB</td><td>ORB_aiclab09_...</td><td>Default</td><td>Down</td><td>192.45.20.60</td><td>9001</td><td>-</td></tr><tr><td>EDU</td><td>EDUserver_em...</td><td>Email_Helper</td><td>Up</td><td>192.45.20.52</td><td>9017</td><td>2s</td></tr><tr><td>ADU</td><td>ADU_TS</td><td>Voice1</td><td>Up</td><td>192.45.20.51</td><td>9003</td><td>-</td></tr><tr><td>ORB</td><td>ORB</td><td>Default</td><td>Up</td><td>192.45.20.50</td><td>9001</td><td>2m:7s</td></tr><tr><td>WorkFlow</td><td>WorkFlow_User</td><td>User1</td><td>Up</td><td>192.45.20.50</td><td>9007</td><td>2m:0s</td></tr><tr><td>WorkFlow</td><td>WorkFlow_Web</td><td>Web</td><td>Up</td><td>192.45.20.52</td><td>9007</td><td>-</td></tr><tr><td>Directory*</td><td>Directory</td><td>Default</td><td>Up</td><td>192.45.20.50</td><td>9002</td><td>2m:6s</td></tr><tr><td>DialingKernel</td><td>DialingKernel</td><td>Voice1</td><td>Up</td><td>192.45.20.51</td><td>9010</td><td>2s</td></tr><tr><td>Comhub</td><td>ComHub</td><td>Web</td><td>Up</td><td>192.45.20.52</td><td>9005</td><td>-</td></tr><tr><td>Paging</td><td>Paging</td><td>Web</td><td>Up</td><td>192.45.20.52</td><td>9006</td><td>-</td></tr></table>	Type	Name	Domain	Status	Host	Port	U	Report	Report	Web_Helper	Down	192.45.20.52	9009	-	ORB	ORB_aiclab09_...	Default	Down	192.45.20.60	9001	-	EDU	EDUserver_em...	Email_Helper	Up	192.45.20.52	9017	2s	ADU	ADU_TS	Voice1	Up	192.45.20.51	9003	-	ORB	ORB	Default	Up	192.45.20.50	9001	2m:7s	WorkFlow	WorkFlow_User	User1	Up	192.45.20.50	9007	2m:0s	WorkFlow	WorkFlow_Web	Web	Up	192.45.20.52	9007	-	Directory*	Directory	Default	Up	192.45.20.50	9002	2m:6s	DialingKernel	DialingKernel	Voice1	Up	192.45.20.51	9010	2s	Comhub	ComHub	Web	Up	192.45.20.52	9005	-	Paging	Paging	Web	Up	192.45.20.52	9006	-
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2.	Select the Server tab.																																																																																				

Step	Description
3.	<p>From the Server menu select New. The Select or enter server type dialog box appears.</p> 
4.	<p>In the Server Type field, enter MERCOM. This is the interface name of the MERCOM service. It is possible to create more than one MERCOM service in another domain for redundancy, or to support multiple Telephony Services pointing to different PBXs.</p>
5.	<p>Click the Ok button. The server configuration dialog box appears.</p> 
6.	<p>On the General tab, enter MERCOM in the Name field.</p>

Step	Description
7.	In the Domain field, select the domain that the MERCOM service is installed in.
8.	Enter the IP address of the AIC server (the server where the MERCOM AICServer.exe file is installed) in the Host field.
9.	In the Port field, enter an available port number.
10.	In the Executable field, enter: C:\Program Files\Avaya\IC61\bin\AICServer
11.	Check the Auto Start checkbox.
12.	Click the Ok button.

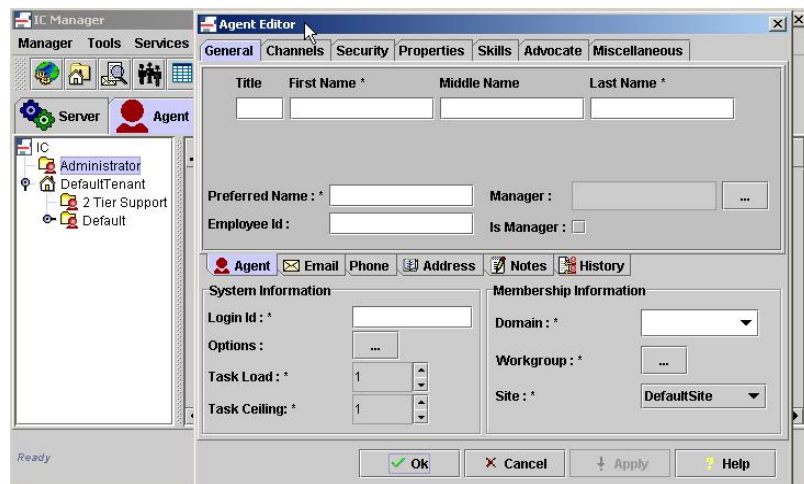
4.3. Update ORB Server in IC Manager

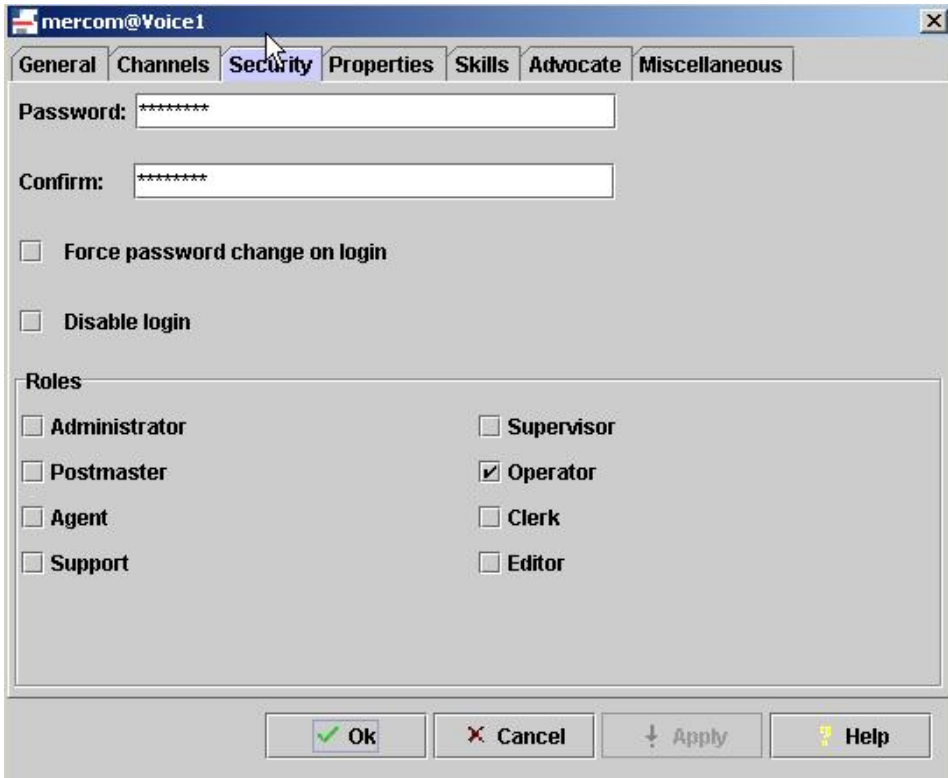
From the **Manager** menu of IC Manager, select **Update ORB Servers**. This will create updated implementation files that will be copied to the Audiolog recording server.

4.4. Add an Agent for MERCOM CTILink

An agent configured as an operator must be created in order for Audiolog CTILink to login to Avaya Interaction Center.

Step	Description
1.	Click the Agent tab.
2.	Right-click Administrator in the list on the left and select New .



Step	Description
3.	Enter MERCOM in the First Name and Last Name fields. The Preferred Name field should fill in automatically (if not, enter MERCOM).
4.	Enter MERCOM in the Login Id field.
5.	Set the Domain field to Default .
6.	Click the Security tab. 
7.	Enter a password for MERCOM in both the Password and Confirm fields. Make note of this password for use in configuring Audiolog CTILink.
8.	Uncheck the Force password change on login checkbox.
9.	Check the Operator checkbox.
10.	Click the Ok button.

4.5. Start up the MERCOM AICServer

Verify that the Avaya Interaction Center Telephony server is started. From the **Server** tab of Avaya Interaction Center Manager, right-click the MERCOM server and select **Start**.

5. Configure the Audiolog Recorder

5.1. Copy Files from AIC Server

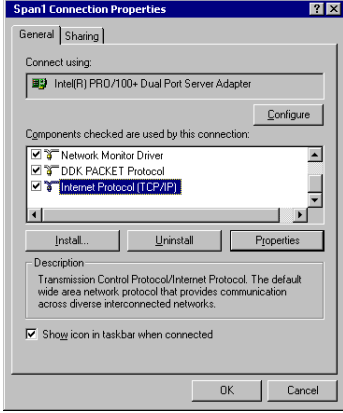
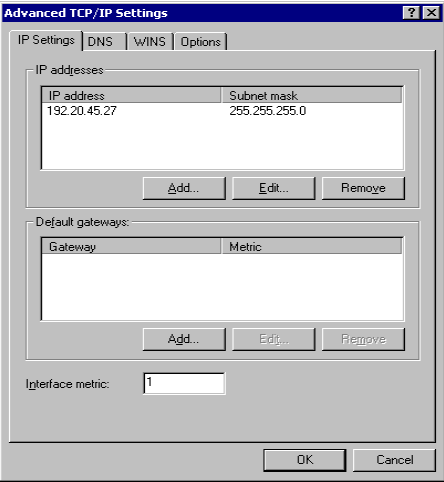
Step	Description
1.	On the Audiolog server, create a directory on the C: drive called "Avaya".
2.	Under the Avaya directory, create a subdirectory called "IC61".
3.	Under the IC61 directory, create a directory called "etc". The following path should now exist: C:\Avaya\IC61\etc
4.	Copy files "vesp.imp" and "vespidl.pk" from the AIC Core server in the C:\Program Files\Avaya\IC61\etc directory to the folder C:\Avaya\IC61\etc of the Audiolog server. These files tell the Audiolog server where to find the IC server and define the interface between the Avaya IC server and Audiolog server.

5.2. Set Environment Variable

Step	Description
1.	On the Audiolog server, right-click on the My Computer icon and select Properties .
2.	Click the Advanced tab.
3.	Click the Environment Variables button.
4.	Under System Variables , click New .
5.	Enter AVAYA_IC61_HOME in the Variable Name box.
6.	Enter C:\Avaya\IC61 in the Variable Value box.
7.	Click OK twice.

5.3. Change Network Interface Card Metric

Since there are multiple Network Interface Cards (NIC) in an Audiolog recorder configured for VoIP, set the Interface Metric on all NIC cards that are connected to SPAN ports to a value of 2.

Step	Description
1.	Right-click on the My Network Places icon and select Properties . For each NIC connected to a SPAN port, perform the following:
2.	Right-click on the connection (NIC) and select Properties . The Connection Properties dialog box opens. 
3.	Select Internet Protocol (TCP/IP) and click the Properties button. The Internet Protocol (TCP/IP) Properties dialog box opens.
4.	Click the Advanced button. The Advanced TCP/IP Settings dialog box opens. 

Step	Description
5.	Change the Interface Metric to 2 and click the OK button.
6.	Click the OK button to close the remaining dialog boxes.

5.4. Packet Sniffing Driver

Audiolog recorders shipped from the factory configured for Voice over IP will have the Packet Sniffing Driver already installed. However, OEM server may need to install this driver (packet.sys). This configuration explains how to install Packet Sniffing on Windows 2000.

Step	Description
1.	On the desktop, right-click the My Network Places icon, and then choose Properties .
2.	Select the Local Area Connection of the NIC interface that connect to the SPAN port on the LAN switch, and then choose Properties .
3.	Click on Install , select Protocol and click on Add button.
4.	Click on Have Disk...
5.	Insert the Audiolog CD in the DVD-RAM drive and browse to the Telephony Drivers\NPS directory. Select the packet.inf file.
6.	Follow the directions in the setup wizard and finish the installation.

5.5. Modify the Recorder.ini file

The Audiolog **recorder.ini** file must be configured for Voice over IP integration.

- If there is a **recorder_voip.ini** file in the **C:\Winnt** folder on the Audiolog recorder, rename the existing **recorder.ini** to **recorder_bak.ini**. Make a copy of the **recorder_voip.ini** file and rename it to **recorder.ini**.
- If there is no **recorder_voip.ini** file in the **C:\Winnt** folder on the Audiolog recorder, edit the **recorder.ini** file. The **recorder.ini** file is located in the **C:\Winnt** folder on the Audiolog recorder. Make a backup of the recorder.ini file before making any changes. Add the following to the bottom of the file:

```

[ChannelMap]
Line001=RTPX0
Line002=RTPX1
Line003=RTPX2
Line004=RTPX3
Line005=RTPX4
Line006=RTPX5
Line007=RTPX6
Line008=RTPX7
.
.
.
(up to the number of channels in the recorder)

[VMap]
VP001=RTP0
VP002=RTP1
VP003=RTP2
VP004=RTP3
VP005=RTP4
VP006=RTP5
VP007=RTP6
VP008=RTP7
.
.
.
(up to the number of channels in the recorder)

[UDPPParameters]
BasePort=60000 ; this value can be changed if necessary

```

Verify that there is only one **[ChannelMap]** section and **[VMap]** section in the file. All other Channel Map and VMap sections should be named **[ChannelMapX]** and **[VMapX]**.

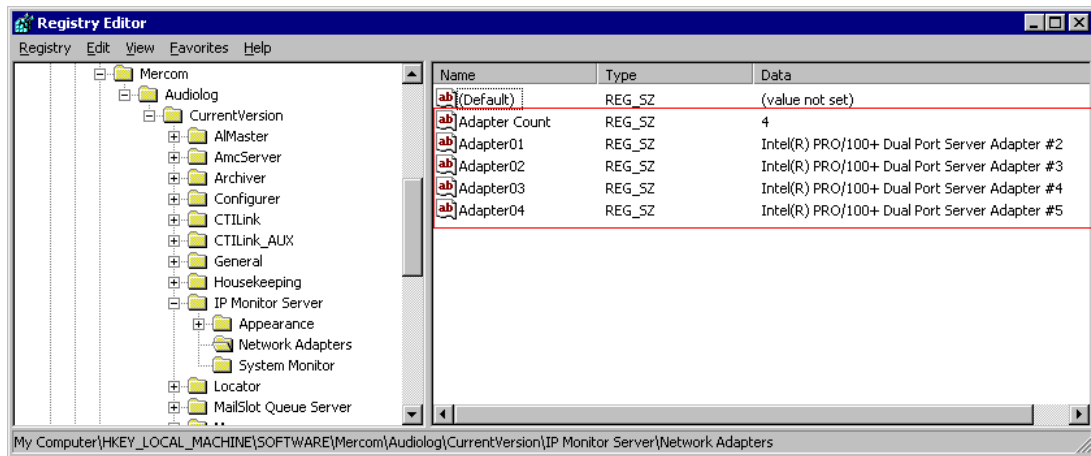
The default base UDP port address for the 1st VoIP recorder channel is 60000. This value can be changed by setting an alternate value in the Recorder.ini file.

5.6. Verify MERCOM Registry

Verify the following system registry settings. All settings are located under the HKEY_LOCAL_MACHINE\Software\ MERCOM\Audiolog\CurrentVersion\ key.		
Key	Value	Data
CTILink\Communications\AvayaIC	Enable System Status	Yes
CTILink\Devices	Enable Log2Phys Translation	Yes

Verify the following system registry settings. All settings are located under the **HKEY_LOCAL_MACHINE\Software\ MERCOM\Audiolog\CurrentVersion** key.

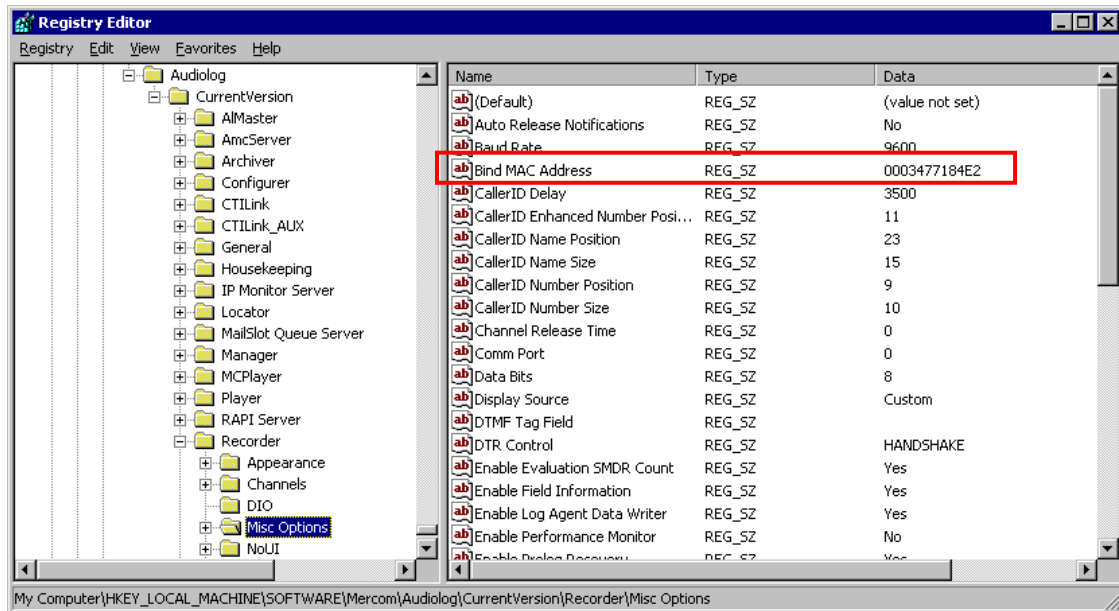
Key	Value	Data
CTILink\Devices	Enable Query Device Info	No
CTILink\Devices	Enable Snapshot Device Info	No
CTILink\Misc Options	Enable CTI Housekeeping	No
CTILink\Misc Options	Enable Enhanced Call Tracking	No
CTILink\Misc Options	Enable Free Seating	Yes
CTILink\Misc Options	Enable Service Observe	Yes
IP Monitor Server\Network Adapters	Adapter Count	{number of NIC cards used to “sniff” RTP packets}
IP Monitor Server\Network Adapters	Adapter01 {add consecutive adapters up to Adapter Count}	{name of NIC cards used to “sniff” RTP packets}



Locator\NoUI	Server	MCPLAYER
Recorder\Misc Options	Multi-Channel Monitor	Yes
Recorder\Misc Options	SSC Init Time	0
Recorder\Misc Options	SSC OffHook Delay	0
Recorder\Misc Options (*Only needed if Audiolog Client Software is	Bind MAC Address	{MAC Address of NIC card on LAN with Audiolog Clients}

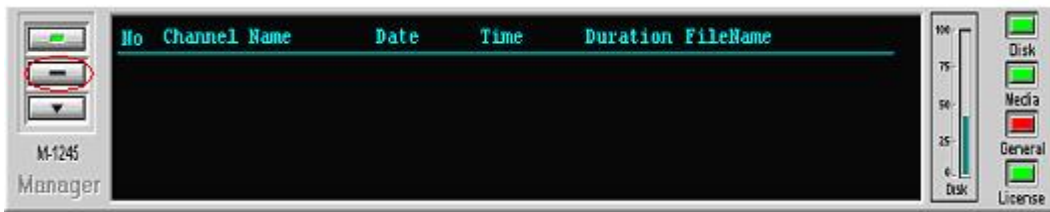
Verify the following system registry settings. All settings are located under the HKEY_LOCAL_MACHINE\Software\ MERCOM\Audiolog\CurrentVersion\ key.

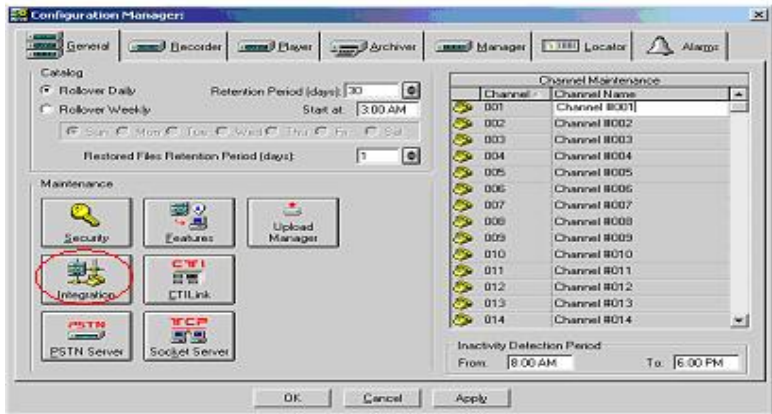

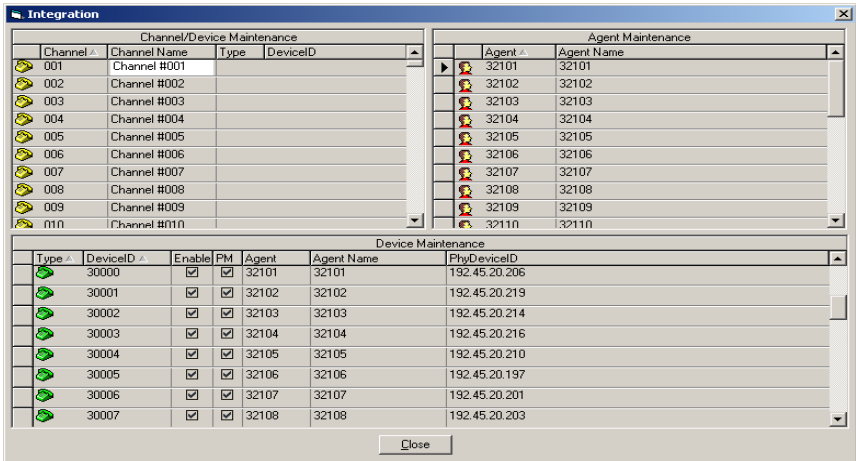
Key	Value	Data
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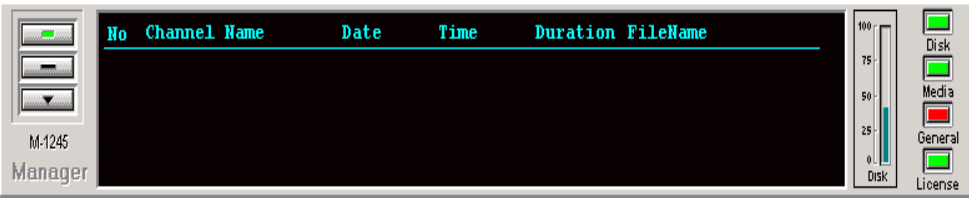
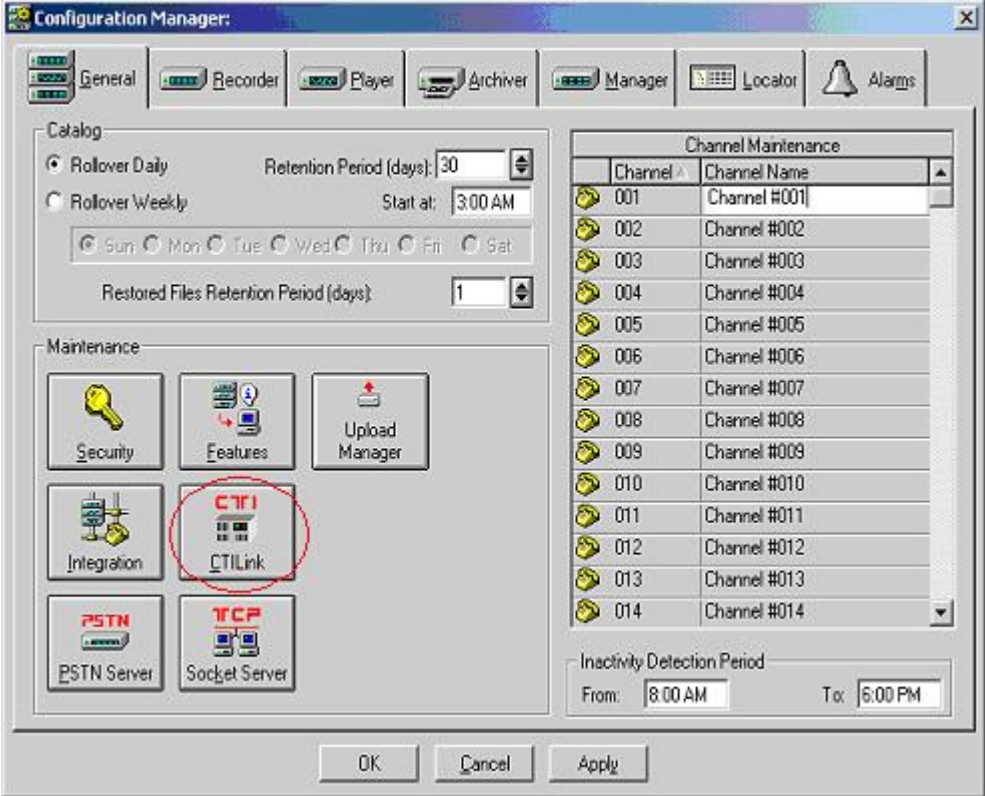
5.7. Integration Tables

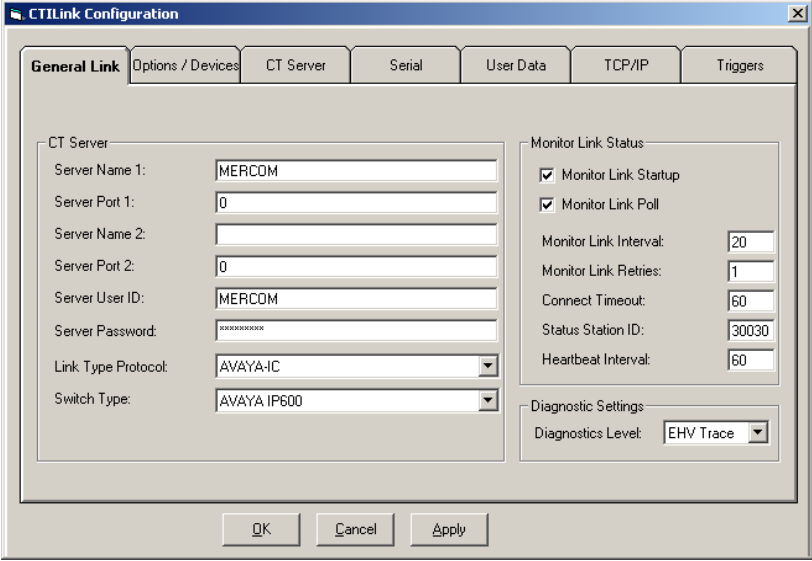
For each phone to be recorded, program the **Device Maintenance** table as follows:

Step	Description
1.	Click the center button (highlighted in red) on the Manager module to access Configuration Manager . 

Step	Description
2.	<p>On the General tab of Configuration Manager, click the Integration button.</p> 
3.	Click in the Type field until the  (telephone) icon appears.
4.	Program the Device Maintenance table with extension numbers to be recorded and program the IP addresses of the telephones in the PhyDeviceID column. (The PhyDeviceID column is only visible in the Device Maintenance table if enabled in the Registry.)
5.	<p>Check both the Enable and PM check boxes for each extension.</p> 

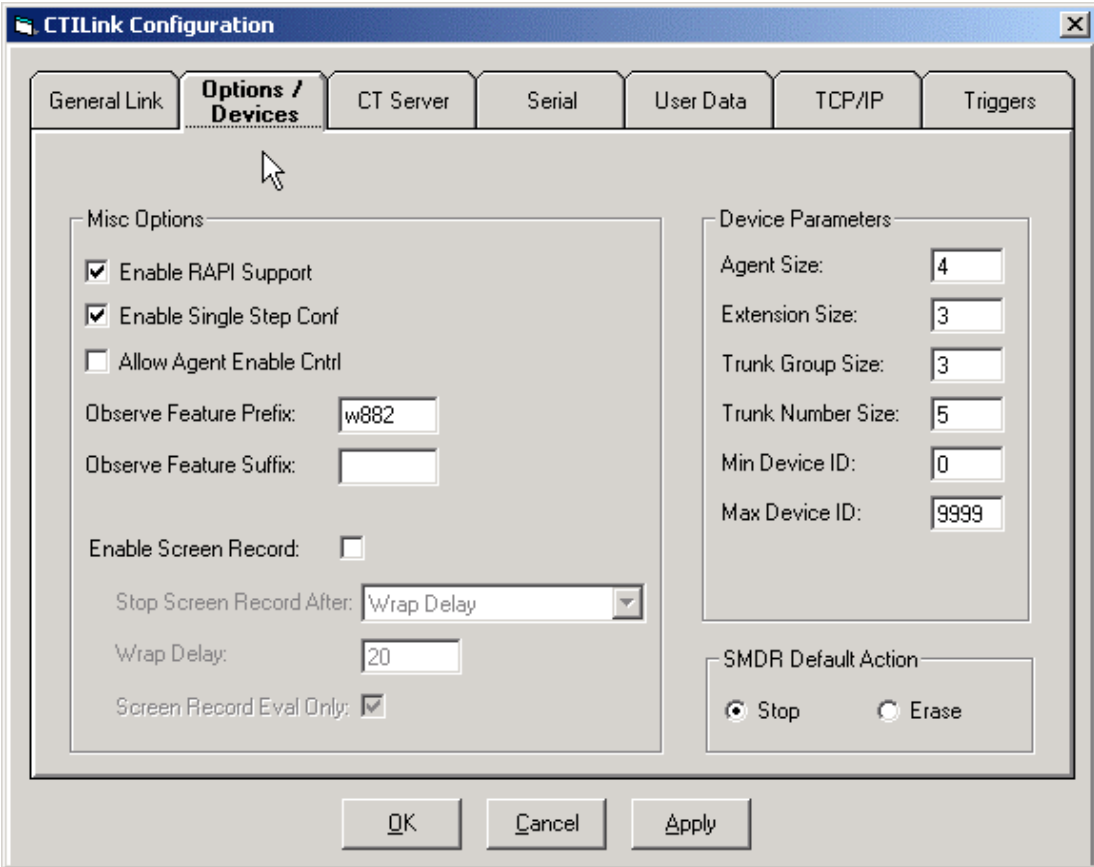
5.8. CTILink Configuration

Step	Description
1.	<p>If Configuration Manager is not already open, click the center button on the Manager module to access Configuration Manager.</p> 
2.	<p>On the General tab of Configuration Manager, click the CTILink button.</p> 

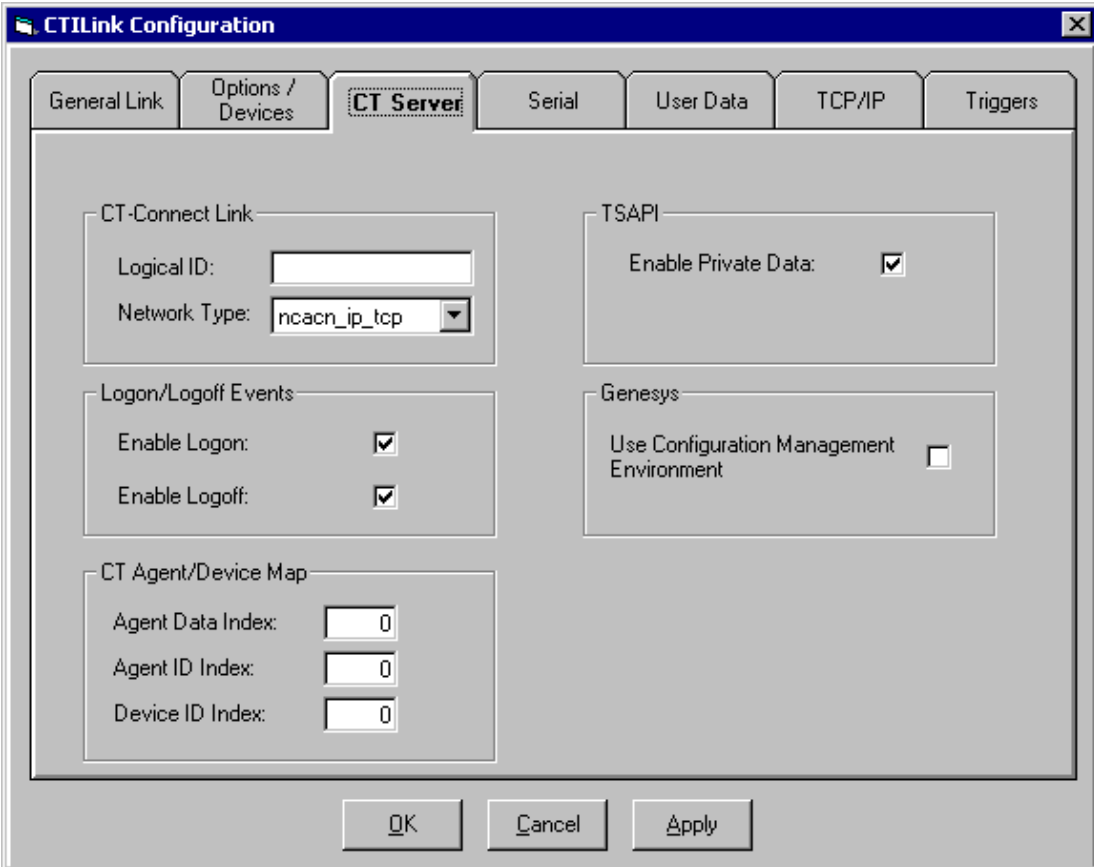
Step	Description
3.	<p>In the Server Name 1 field, enter MERCOM. This is the name of the MERCOM AICServer service entered in IC Manager (see Section 4.2).</p> 
4.	Leave the Server Port 1 field set to 0.
5.	When multiple MERCOM services are installed in different IC domains for redundancy, enter the Alias Name in the Server Name 2 field to distinguish from the other MERCOM service.
6.	Leave the Server Port 2 field set to 0.
7.	Set the Server User ID to MERCOM (the agent name “MERCOM” was created in the IC Manager).
8.	Set the Server Password to the password created for the agent “MERCOM”.
9.	Select AVAYA-IC from the Link Type Protocol drop-down list.
10.	Select AVAYA IP600 from the Switch Type drop-down list.
11.	Check the Monitor Link Startup checkbox.
12.	Check the Monitor Link Poll checkbox.
13.	Set Monitor Link Interval to 30 .

Step	Description
14.	Set Monitor Link Retries to 1.
15.	Set Heartbeat Interval to 90. (In general, the Heartbeat Interval should be set to 3 times the Monitor Link Interval .)
16.	Set the Station ID field to an extension number in the PBX that is not being monitored in the Device Maintenance table.

5.8.1. Options/Devices Tab

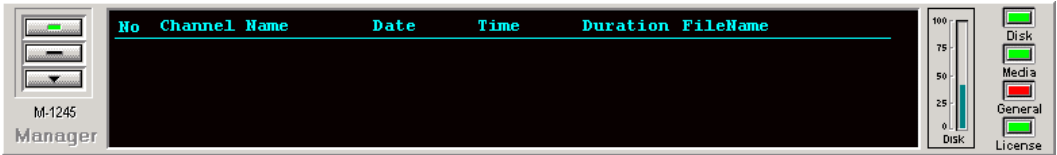
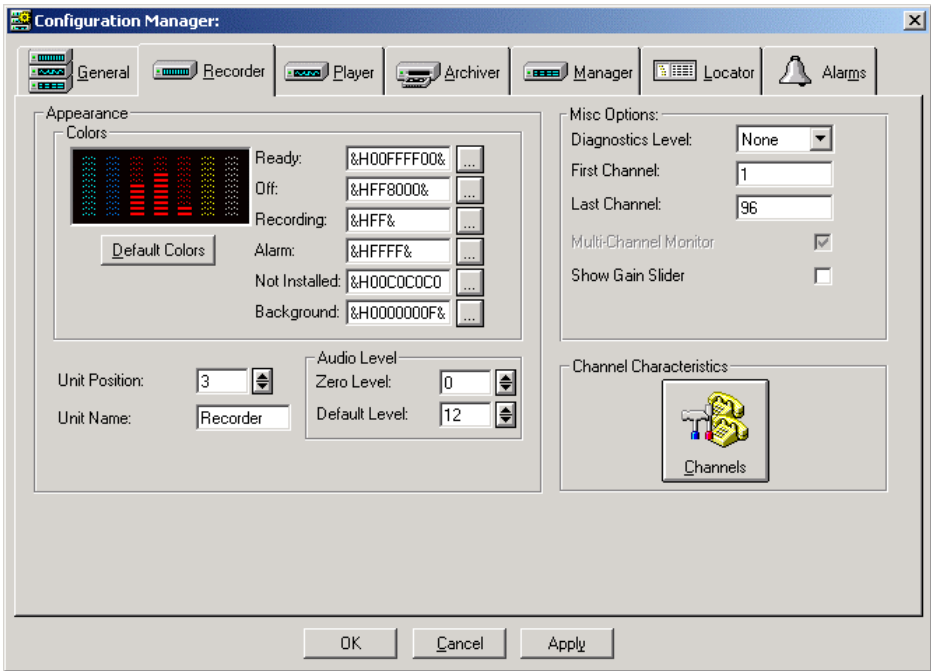
Step	Description
1.	<p>On the Options/Devices tab, check both the Enable RAPI Support and Enable Single Step Conf boxes.</p> 

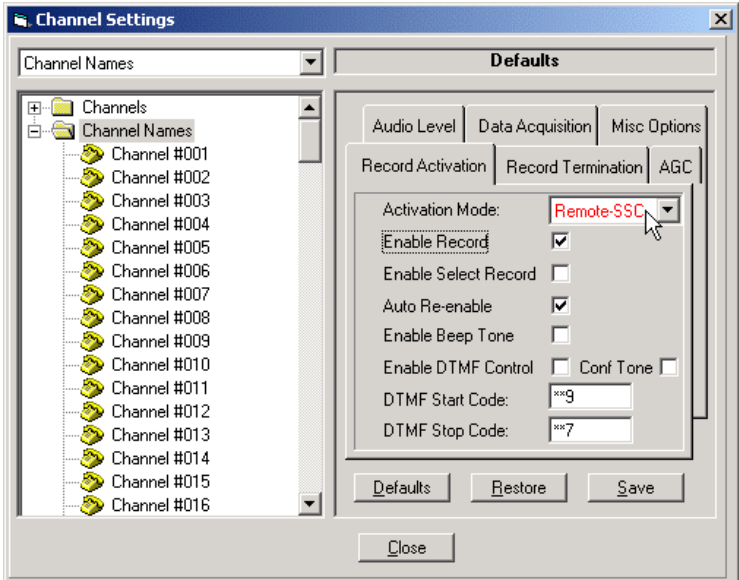
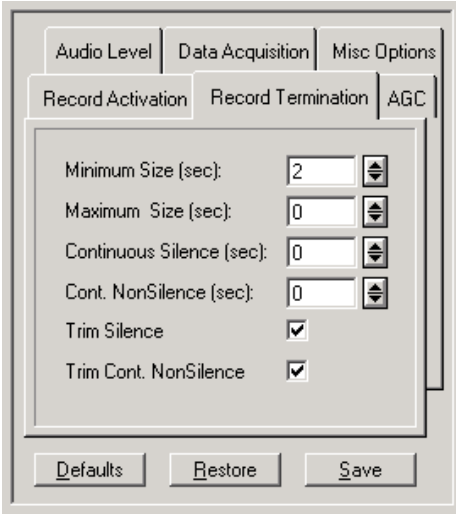
5.9. CT Server Tab

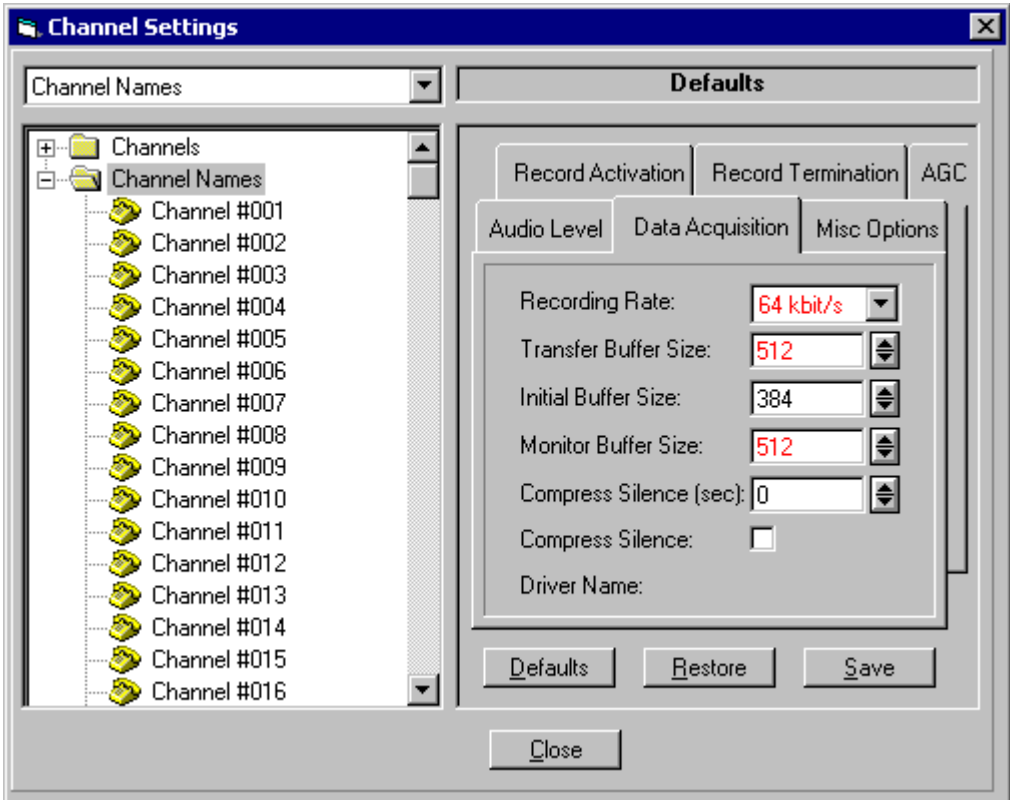
Step	Description
1.	<p>On the CT Server tab, check both the Enable Logon and Enable Logoff boxes.</p>  <p>The screenshot shows the 'CTILink Configuration' dialog box with the 'CT Server' tab selected. The 'Logon/Logoff Events' section has 'Enable Logon' and 'Enable Logoff' both checked. The 'CT Agent/Device Map' section has 'Agent Data Index', 'Agent ID Index', and 'Device ID Index' all set to 0. The 'TSAPI' section has 'Enable Private Data' checked. The 'Genesys' section has 'Use Configuration Management Environment' unchecked. The 'CT-Connect Link' section has 'Logical ID' empty and 'Network Type' set to 'ncacn_ip_tcp'. The 'General Link', 'Options / Devices', 'Serial', 'User Data', 'TCP/IP', and 'Triggers' tabs are also visible.</p>

5.10. Channel Settings

Perform the following steps for each channel:

Step	Description
1.	<p>If Configuration Manager is not already open, click the center button on the Manager module to access Configuration Manager.</p> 
2.	<p>Click the Recorder tab of Configuration Manager.</p> 
3.	<p>Click the Channels button.</p>

Step	Description
4.	<p>On the Record Activation tab, set the Activation Mode to Remote-SSC.</p> 
5.	<p>On the Record Termination tab, set Continuous Silence to 0.</p> 
6.	<p>On the Data Acquisition tab, set the Recording Rate to 64kbts/s. Audiolog detects the compression rate at the beginning of a call and automatically sets the recording rate per call.</p>

Step	Description
7.	<p>On the Data Acquisition tab, set the Transfer Buffer Size and the Monitor Buffer Size to 512.</p> 

6. Interoperability Compliance Testing

6.1. General Test Approach

The interoperability compliance test verified the ability of Audiolog to record calls. Basic call scenarios include call answer, transfer, consult transfer, conference, conference transfer, and blind transfer. The compliance test also encompassed a load test where a call generator made calls to the queue to verify MERCOM Audiolog successfully operate under load stress.

6.2. Test Results

MERCOM Audiolog passed all the test cases outlined in Avaya DevConnect Test Plans for Avaya™ Interaction Center and the additional Avaya test cases with no open issues.

7. Verification Steps

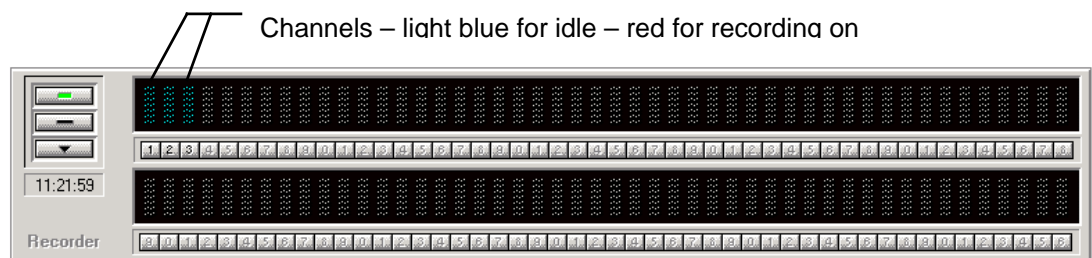
Since Audiolog is based on both hardware and software components, there are several steps involved to verify that both have been installed correctly:

- Ensure that channels can be monitored and recordings can be created
- Ensure that recordings can be accessed and played back from the Catalog
- Ensure that there is network communication between the server and client

7.1. Ensure Channels Can Be Monitored and Recorded

Unless changes are made to the **Appearance** of the **Recorder** module, the idle channels available for recording appear with light blue bars.

Make certain the number of available channels matches the number of channels ordered.






For each channel,

Step	Description
1.	Place or receive a call on the channel. Verify the channel indicator turns red when the channel is active. NOTE: If the addresses of the IP telephones are dynamically allocated, there may be a several second record activation delay the first time that an IP phone is used after re-starting CTILink. This delay can be avoided if the addresses of the IP telephones are static and the IP addresses have been programmed in the PhyDeviceID column of the Device Maintenance Table.
2.	Verify the correct channel is being recorded.
3.	Click the channel number below the active channel to monitor the call.
4.	Disconnect the call. The channel indicator should return to idle (light blue). The channel should stop recording immediately upon disconnection. When the channel stops recording, a message should appear in the Manager module.

7.2. Ensure that Recordings Can Be Accessed from the Catalog

After created several recordings, verify that the recorded calls can be found in the catalog and then played back.

Play back the records call.

Step	Description
1.	<p>On the server, to start the Call Locator, simply click on the Find button. This is the middle button at the left side of the Player module (Find button is located on the top of the Player's menu).</p> <p>If the Audiolog server has been recording channel audio, then there will be an  icon adjacent to the Catalog folder. The  icon indicates that there are entries (recordings) in the Catalog folder.</p>
2.	<p>Click on the  icon to view the next level of the search tree.</p>
3.	<p>Find the recordings using the Date/Channel view.</p> <p>Verify that all of the appropriate channel names appear under the date. If a recording session created for all of the recording channels, all of the channel names should appear under the date on which they were created.</p>
4.	<p>Click to select a channel name.</p> <p>At least one recording should appear in the right side of the Call Locator.</p>
5.	<p>Right-click the <i>recording</i> and click to select Playback.</p> <p>The recording plays back on the server.</p>

8. Support

MERCOM Audiolog Support

- Technical Support: 201-507-8800 (Dial 5)
Tech.support@MERCOM.com
- Joe Flynn
Director Support Operations
201-507-8800 x134
joe.flynn@MERCOM.com

9. Conclusion

This compliance test verified that MERCOM Audiolog Recording server successfully integrated with Avaya Interaction Center.

10. Additional References

For information on MERCOM's Audiolog Recording products refer to the following manuals, a web site, or directly contact MERCOM Pre-Sales:

- Audiolog Pro, Max-Pro and Ultra-Pro Installation Manual
- Audiolog User's Guide
- www.MERCOM.com
- MERCOM Pre-Sales Department (presales@MERCOM.com)

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