



Avaya Solution & Interoperability Test Lab

Application Notes for the Verint ULTRA 9.3 using Service Observation with Avaya Communication Manager 3.0 - Issue 1.0

Abstract

These Application Notes describe the configuration steps required for the Verint ULTRA 9.3 to successfully interoperate with Avaya Communication Manager 3.0. Functionality and failover tests were validated and performance testing was conducted in order to verify operation under load.

Verint ULTRA 9.3 is a call recording solution capable of capturing audio from Avaya Communication Manager 3.0 using a variety of integration mechanisms. ULTRA uses Avaya Telephony Service API (TSAPI) to extract call event information and the Device and Media Control API (also known as Communication Manager API) of Avaya Application Enablement Services (AES) to obtain the audio. The test configuration consisted of an Avaya S8500 Media Server with an Avaya G650 Media Gateway running Avaya Communication Manager 3.0, and an Avaya AES Server.

Information in these Application Notes has been obtained through interoperability compliance testing and additional technical discussions. Testing was conducted via the *DeveloperConnection* Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe a compliance-tested configuration utilizing Avaya Communication Manager 3.0 and Verint ULTRA 9.3 recording solution. ULTRA used Avaya Telephony Service API (TSAPI) to extract call event information and the Device and Media Control API (also known as Communication Manager API) of Avaya Application Enablement Services (AES) to obtain the audio.

Communication Manager API stations are administered as virtual stations, or softphones, in Avaya Communication Manager and are used by ULTRA as recording ports. When a monitored telephone is on an active call, ULTRA uses a Communication Manager API station to service observe the monitored telephone and capture the audio from the call. Since softphones require IP connectivity, C-LAN and MEDPRO boards are required in the Avaya Media Gateway to support signaling and RTP audio streaming, respectively.

The ULTRA recording application includes three software components:

The **CMAPI Manager** interfaces between the CMAPI Controller and the Media Handler components.

The **CMAPI Controller** is responsible for communicating with the CMAPI Connector (AES server).

The **Media Handler** designates ports for receiving audio, and handles the audio that it receives.

All three components are installed on the VoIP Acquisition Module.

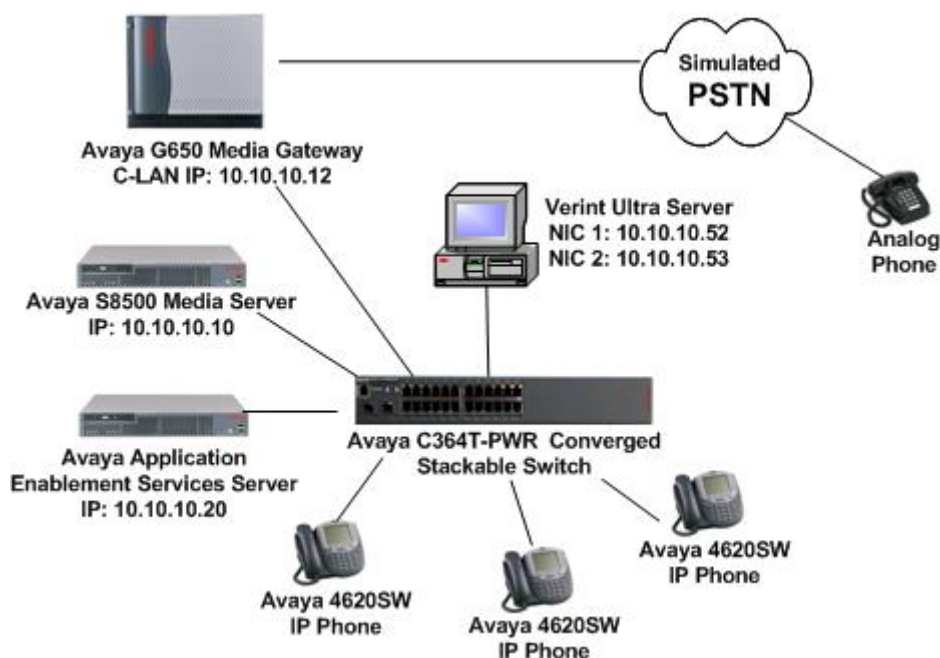


Figure 1: Avaya Communication Manager, Avaya Application Enablement Services Server and Verint ULTRA Compliance Test Configuration

2. Equipment and Software Validated

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

Equipment	Software
Avaya S8500 Media Server with Avaya G650 Media Gateway	Avaya Communication Manager 3.0 (340.3)
Avaya 4620 IP Telephones	1.9.1
Avaya C364T-PWR Converged Stackable Switch	4.3.12
Application Enablement Services Server	3.0
Verint ULTRA	9.3

3. Configure Avaya Application Enablement Services Server

Log into the Avaya Application Enablement Services (AES) Server OAM pages. The Avaya AES server summary page indicates the number of available licenses; ensure that the relevant licenses are installed.

AVAYA [OAM](#)

OAM Home

You are here: > [CTI OAM Home](#)

Welcome to CTI OAM Screens

[craft] logged in on Tue Aug 13 12:24:43 E.S.T. 2005

Service	Controller Status
ASAI Link Manager	Running
CMAPI Service	Running
CVLAN Service	Running
DLG Service	Running
Transport Layer Service	Running
TSAPI Service	Running

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

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

License Information

You are licensed to run Application Enablement (CTI) version 3.0.

You are licensed for the following services

- DLG
- CVLAN
- TSAPI

Ensure that all the services are running under the Maintenance → Service Controller option. At a minimum, the CMAPI, TSAPI and Transport Layer services should be running.

AVAYA [OAM](#)

OAM Home

CTI OAM Home

Administration

Status and Control

Maintenance

Service Controller

Backup Database

Restore Database

Import SDB

Logs

Utilities

Help

Logout

You are here: > [Maintenance](#) > [Service Controller](#)

Service Controller

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

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

[Start](#) [Stop](#) [Restart Service](#) [Restart AE Server](#) [Restart Linux](#)

Add a switch connection name by clicking on Switch Connections under Administration. A password of at least 12 alphanumeric characters needs to be entered; this is the exact password that will be used when configuring Avaya Communication Manager.

AVAYA [OAM](#)

OAM Home

CTI OAM Home

Administration

Local IP

Ports

Switch Connections

CTI Link Admin

CMAPI Configuration

TSAPI Configuration

Security Database

Status and Control

Maintenance

Logs

You are here: > [Administration](#) > [Switch Connections](#)

Switch Connections

[Add Connection](#)

Connection Name	Number of Active Connections
8500	1

[Edit Connection](#) [Edit CLAN IPs](#) [Edit H.323 Gatekeeper](#)

[Delete Connection](#)

Click on Edit CLAN IPs in the Switch Connections page. Enter the IP address of a C-LAN and then click on Add Name or IP.

AVAYA OAM

OAM Home

CTI OAM Home

You are here: > [Administration](#) > [Switch Connections](#)

Edit CLAN IPs - 8500

Name or IP Address	Status
10.10.10.12	In Use

Return to the Switch Connections page, select the Switch Connection configured above, and click on Edit H.323 Gatekeeper. Enter the IP address of a C-LAN and then click on Add Name or IP.

AVAYA OAM

OAM Home

CTI OAM Home

You are here: > [Administration](#) > [Switch Connections](#)

Edit H.323 Gatekeeper - 8500

Name or IP Address	Status
10.10.10.12	In Use

Click on Administration → CTI Link Admin → TSAPI Links. Click on Add Link and enter the Link, Switch Connection, Switch CTI Link Number (must match CTI link number configured on the Avaya Communication Manager in Section 4.1). Click on Apply Changes.

AVAYA OAM

OAM Home

CTI OAM Home

Administration

Local IP

Ports

Switch Connections

CTI Link Admin

TSAPI Links

CVLAN Links

DLG Links

CMAPI Configuration

TSAPI Configuration

Security Database

Status and Control

Maintenance

Logs

Utilities

Help

Logout

You are here: > Administration > CTI Link Admin > TSAPI Links

Add / Edit TSAPI Links

Link: 3

Switch Connection: 8500

Switch CTI Link Number: 3

Apply Changes Cancel Changes

Help

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AVAYA OAM

OAM Home

CTI OAM Home

Administration

Local IP

Ports

Switch Connections

CTI Link Admin

TSAPI Links

CVLAN Links

DLG Links

CMAPI Configuration

TSAPI Configuration

Security Database

Status and Control

Maintenance

You are here: > Administration > CTI Link Admin > TSAPI Links

TSAPI Links

Link	Switch Connection	Switch CTI Link #	ASAI Link Version
3	8500	3	4

Add Link Edit Link Delete Link

During compliance testing, the TSAPI Security Database (SDB) was not used for testing convenience. The relevant configuration screen is shown below.

Note: In environments where the TSAPI SDB is enabled, the devices to be monitored must be configured in the TSAPI SDB.

A User Id and password needs to be configured for the Verint ULTRA server to communicate as a TSAPI Client with the AES server. Click on OAM Home → User Management and log into the User Management pages. Click on User Management and then Add User. The CT User field needs to be set to “Yes”.

4. Configure Avaya Communication Manager

Different features of Avaya Communication Manager need to be configured for the recording modes to be tested. Refer to the Administration Guide for Avaya Communication Manager for further details – Avaya Document 555-233-506 [1]. The specific options are detailed below.

4.1. Configure the CTI Link

Regardless of the mode of audio recording, a CTI link is required to provide call details for each recording. ULTRA supports a TSAPI link to Avaya Communication Manager.

Although both ASAI Link Core and Plus Capabilities were enabled in Avaya Communication Manager, only the Core Capabilities are required by the ULTRA solution.

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

A CTI Link needs to be configured to provide the logical connection between Avaya Communication Manager and the ULTRA Server. The type must be set to “ADJ-IP”. The extension number must be valid in the dial plan of Avaya Communication Manager.

display cti-link 3	Page 1 of 2
CTI LINK	
CTI Link: 3	
Extension: 13000	
Type: ADJ-IP	
COR: 1	
Name: TSAPI link 3	

The Node-Names form must be modified to include the IP addresses of the C-LAN board and the Avaya Application Enablement Services Server, as shown below:

display node-names ip		Page	1 of	1
IP NODE NAMES				
Name	IP Address	Name	IP Address	
AEserver	10 .10 .10 .20		.	.
CDR_Server	10 .10 .30 .20		.	.
G350	10 .10 .30 .10		.	.
VAL	10 .10 .10 .14		.	.
clan	10 .10 .10 .12		.	.
default	0 .0 .0 .0		.	.
medpro	10 .10 .10 .13		.	.
procr	10 .10 .10 .10		.	.
	.		.	.
	.		.	.
(8 of 8 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				

The IP Services form needs to be configured to define a link to the Avaya Application Enablement Services server as shown below.

display ip-services					Page	1 of	4
IP SERVICES							
Service	Enabled	Local	Local	Remote	Remote		
Type		Node	Port	Node	Port		
SAT	y	clan	5023	any	0		
AESVCS	y	clan	8765				
CDR1		clan	0	CDR Server	9000		

On the AE Services Administration page of the ip-services form, enter the hostname of the AES server and the password (which must match the password configured on the AES in Section 3), set Enabled to “y”.

change ip-services			Page	4 of	4
AE Services Administration					
Server ID	AE Services Server	Password	Enabled	Status	
1:	AEServer	aeserver123456	y	in use	
2:					
3:					

4.2. Configure Service Observation

Avaya Communication Manager must be configured to allow monitoring devices to Service Observe and to allow monitored devices to be Service Observable. These permissions are configured by Class of Restriction (COR). COR 1 was assigned to both types of devices. The configuration for COR 1 is shown in the following screen.

change cor 1	Page 1 of 4
CLASS OF RESTRICTION	
COR Number: 1	
COR Description: Main COR	
FRL: 0	APLT? y
Can Be Service Observed? y	Calling Party Restriction: none
Can Be A Service Observer? y	Called Party Restriction: none
Partitioned Group Number: 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	
Send ANI for MFE? 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

In addition, a Feature Access Code to perform Service Observation must be configured. The Service Observation access code must also be entered in the configuration of the Verint ULTRA Server (see Section 5.1). The appropriate page of the Feature Access Code configuration is shown below.

display feature-access-codes	Page 5 of 6
FEATURE ACCESS CODE (FAC)	
 Service Observing Listen Only Access Code: *86 Service Observing Listen/Talk Access Code: *87	
 Remote Logout of Agent Access Code:	
Enter 1-4 digit number; * and # may be used as first digit	

If necessary and allowed in an environment, the Service Observing Warning Tone may be disabled from the feature-related system parameters form.

change system-parameters features	Page 11 of 16
FEATURE-RELATED SYSTEM PARAMETERS	
CALL CENTER SYSTEM PARAMETERS	
EAS	
Direct Agent Announcement Extension:	Delay:
VECTURING	
Converse First Data Delay: 0	Second Data Delay: 2
Converse Signaling Tone (msec): 100	Pause (msec): 70
Reverse Star/Pound Digit For Collect Step? n	
SERVICE OBSERVING	
Service Observing: Warning Tone? n	or Conference Tone? n
Service Observing Allowed with Exclusion? n	

4.3. Configure the Active Station-side Avaya Communication Manager API Station

Station-side monitoring is provided using the service observation feature and Avaya Communication Manager API stations. The Communication Manager API station is configured as an extension in Avaya Communication Manager with “IP Softphone” enabled so that an Avaya Communication Manager API application is able to take control of the device. ULTRA records the conversations of monitored telephones by bridging (using Service Observation) Communication Manager API stations onto calls that the monitored telephones are participating in. When a Communication Manager API station is bridged onto an active call, the RTP stream of the call is directed to the IP addresses of the Communication Manager API stations, which reside on the ULTRA server. An example configuration of a Communication Manager API station is shown below.

display station 14000	Page 1 of 4
STATION	
Extension: 14000	Lock Messages? n BCC: 0
Type: 4620	Security Code: 12345 TN: 1
Port: S00000	Coverage Path 1: COR: 1
Name: IP10000	Coverage Path 2: COS: 1
	Hunt-to Station:
STATION OPTIONS	
Loss Group: 19	Personalized Ringing Pattern: 1
	Message Lamp Ext: 14000
Speakerphone: 2-way	Mute Button Enabled? y
Display Language: english	Expansion Module? n
Survivable GK Node Name:	
Survivable COR: internal	Media Complex Ext:
Survivable Trunk Dest? y	IP SoftPhone? y
	IP Video Softphone? n

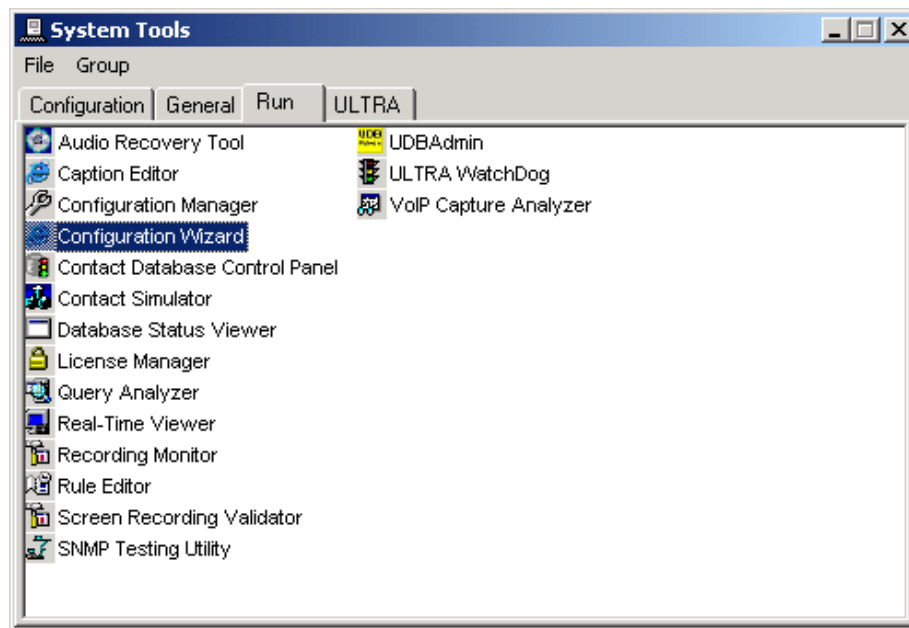
ULTRA requires that the Communication Manager API station extensions be consecutive and all have the same security code (password).

5. Configure the Verint ULTRA Server

The following describes the installation and configuration of Verint ULTRA.

5.1. Configuring Station Side Recording

Configuration of Station side recording is achieved by running the ULTRA Configuration Wizard. To activate the Wizard, open the System Tools (a shortcut on the server desktop) and in the Run tab, double-click the Configuration Wizard link.



The Configuration Wizard is a web browser application that can be accessed from any connected machine, but the ULTRA server was used for convenience.

Note the following parameters in the Voice Acquisition page of the wizard:

1. Set Tapping Mode to "VoIP Delivery – CMAPI".
2. Set CMAPI Connector Server IP to the Avaya Application Enablement Services IP address.
3. Set Switch IP Address or DNS Name to the C-LAN IP address.
4. Set Virtual Extension Start From to the first Communication Manager API station extension (configured in Section 4.3).
5. Set the CMAPI Login Password to the Communication Manager API station password.
6. Set the CMAPI Silent Observe Code to the Avaya Communication Manager Service Observing Listen Only Access Code (see above Section 4.2).
7. The rest of the parameters should be left with the default values.

ULTRA Express Configuration Wizard - Microsoft Internet Explorer

Address: http://localhost/UCW/

ULTRA EXPRESS

Navigation: Welcome, Time Setup, **Voice Acquisition**, Application Setup, Data Fields, Backup, Apply Configuration

Recording Environment: CTI-enabled

☐ Enable SNMP alarming

SNMP Manager (IP address or DNS name):

SNMP Community: Public

Tapping Mode: VoIP Delivery - CMAP1

Number of Simultaneous Contacts: 100

CMapi Connector Server IP: 10.10.10.20

Switch IP Address or DNS Name: 10.10.10.12

SoftPhone Preferred Codec: G729

Virtual Extension Start From: 14000

CMapi Login Password: *****

Confirm Password: *****

CMapi Silent Observe Code: *86

< Previous Next >

Done Local intranet

The final step is to apply the configuration changes.

ULTRA Express Configuration Wizard - Microsoft Internet Explorer

Address: http://localhost/UCW/

ULTRA EXPRESS

Navigation: Welcome, Time Setup, Voice Acquisition, Application Setup, Data Fields, Backup, **Apply Configuration**

Step 1: General System Configuration Apply Configuration

Step 2: IntelliLink Configuration Run Utility

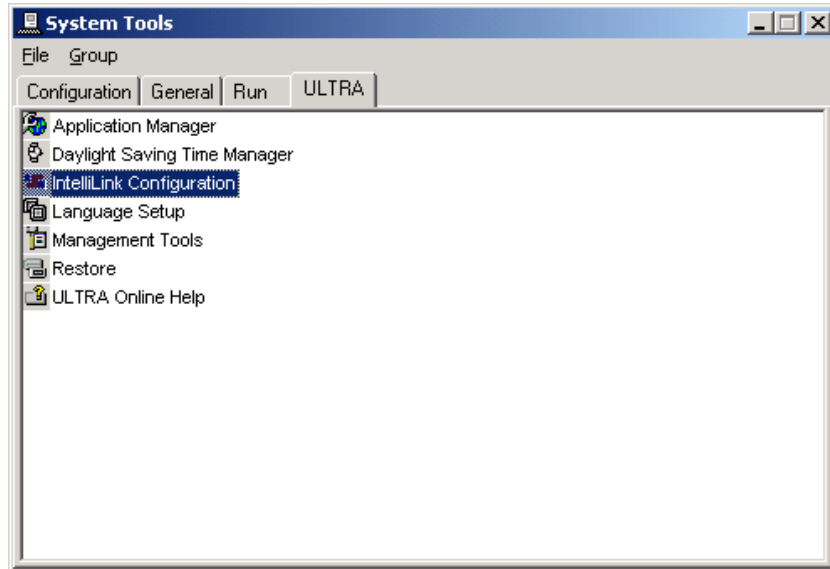
Step 3: VoIP Configuration Run Utility

< Previous Finish

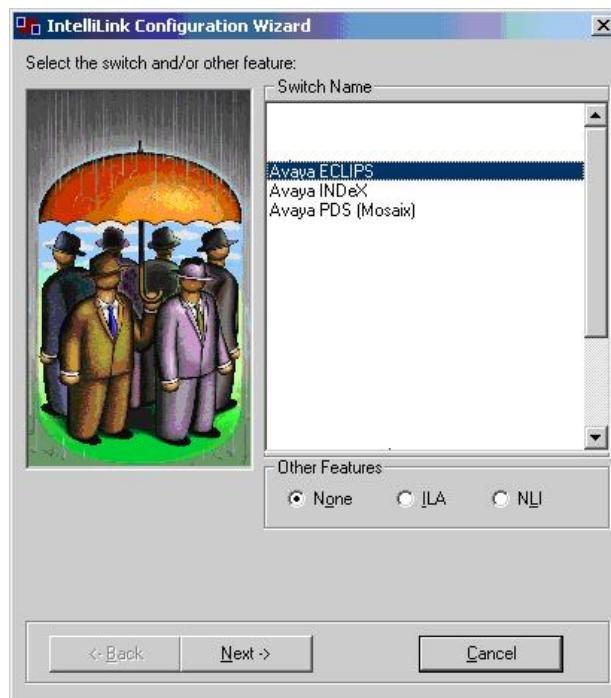
Done Local intranet

5.2. Configuring the CTI Link

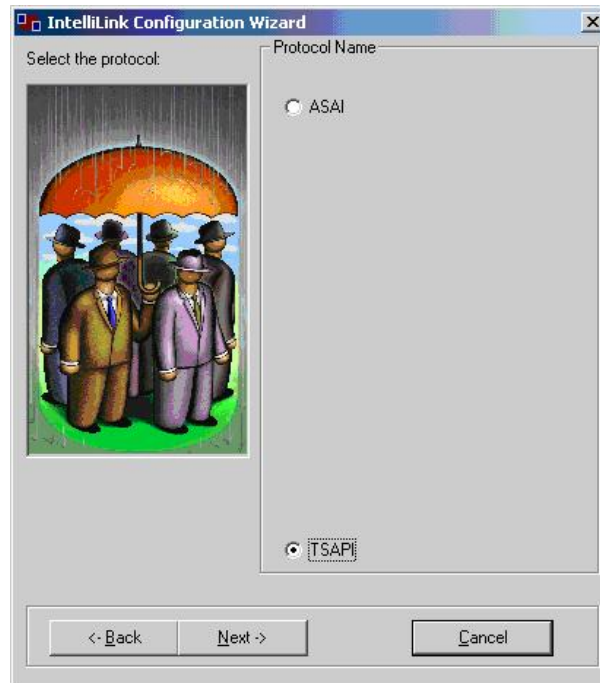
Configuring the CTI link starts by running the IntelliLink Configuration Wizard (launched from the ULTRA tab in System Tools).



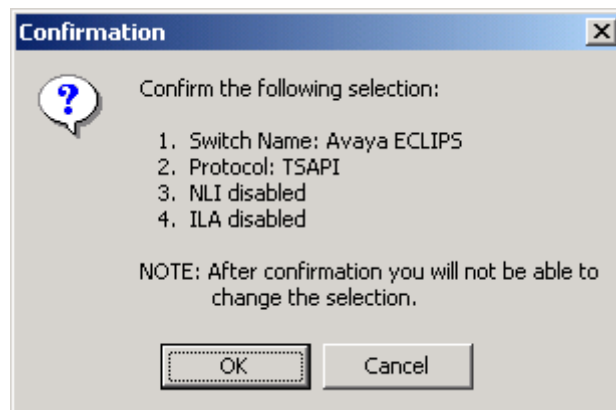
ULTRA uses the generic switch name of “Avaya ECLIPS” to cover Avaya Communication Manager. Right-click and select the Avaya ECLIPS option, and click Next.



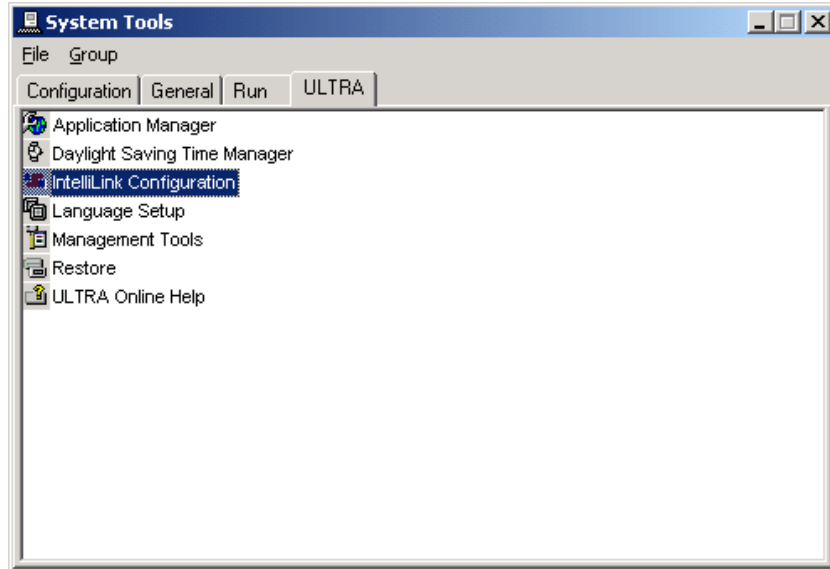
The following dialog box appears to select the API to communicate with Avaya Communication Manager. Select TSAPI and click on Next.



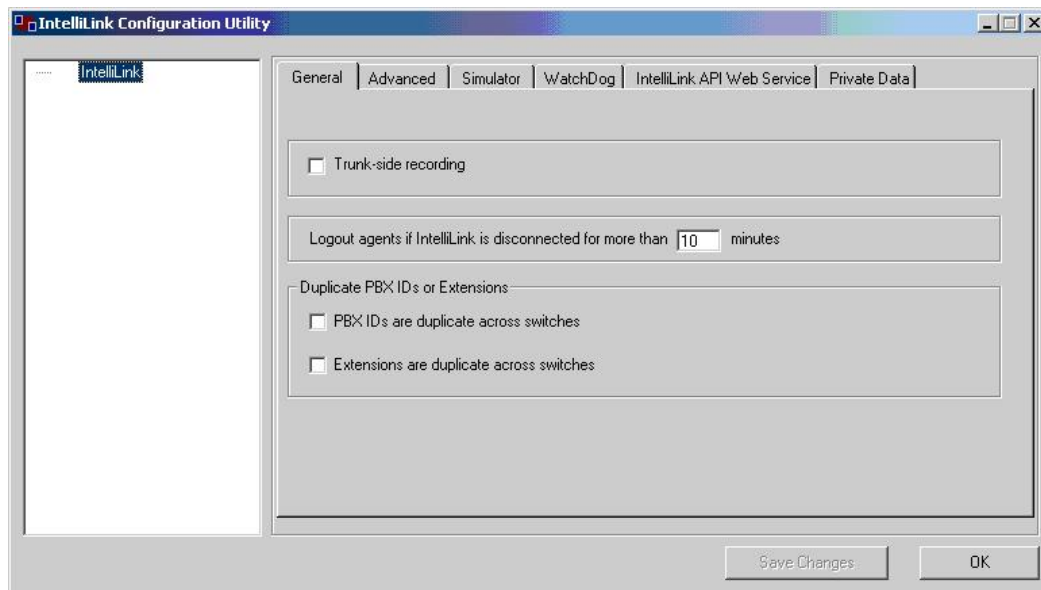
Since much of the major configuration options are not changeable after this stage has been reached, a warning dialogue box appears confirming the Switch Name and CTI Protocol have been correctly selected. Click OK.



From the ULTRA tab in System Tools, double-click on IntelliLink Configuration.

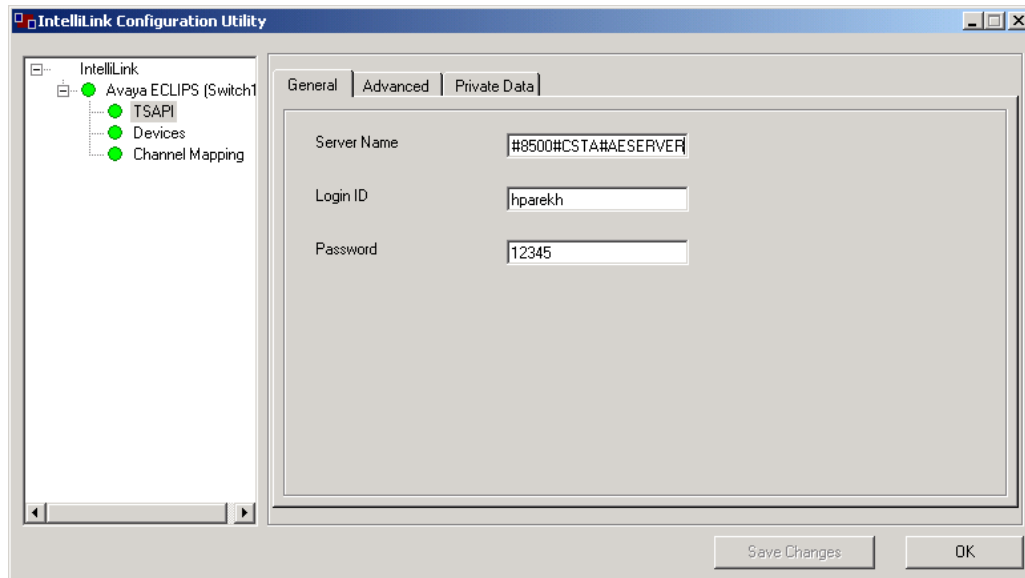


Select the General tab, verify that the Trunk-side recording box is unchecked and click OK.



Click on IntelliLink → Avaya ECLIPS → TSAPI. In the General tab, configure the following:

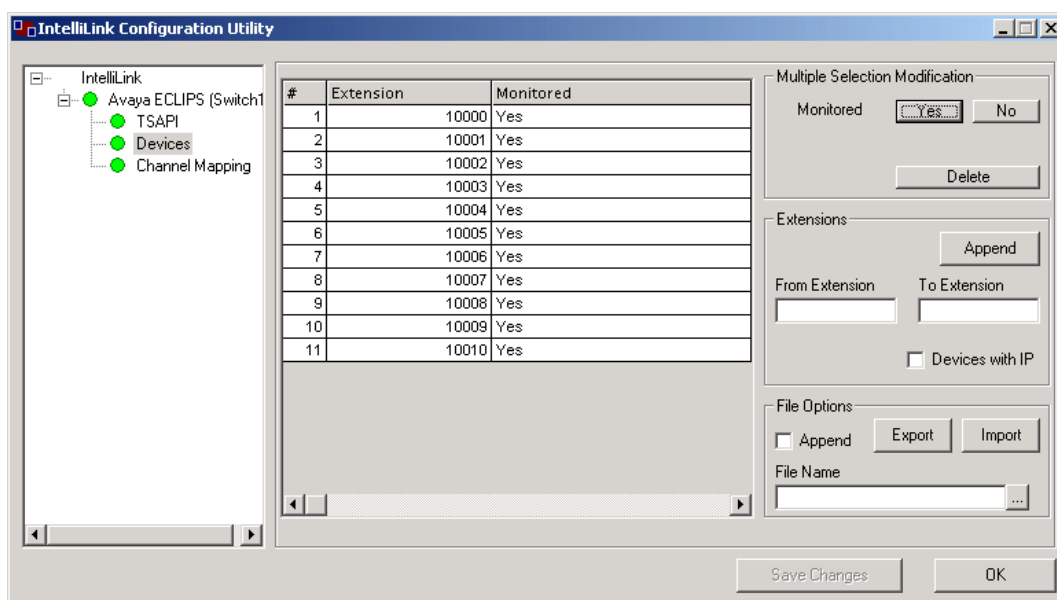
- Server Name – enter “AVAYA#<Switch Connection Name>#CSTA#<AES server hostname>. The Switch Connection Name should match the Switch Connection configured in Section 3.
- Login ID and Password – enter the login information for the user created in Section 3.



The screenshot shows the 'IntelliLink Configuration Utility' window with the 'General' tab selected. The left sidebar shows a tree view with 'IntelliLink' expanded, containing 'Avaya ECLIPS (Switch1)', 'TSAPI', 'Devices', and 'Channel Mapping'. The main area has three input fields: 'Server Name' with the value '#8500#CSTA#AESERVER', 'Login ID' with 'hparekh', and 'Password' with '12345'. At the bottom right are 'Save Changes' and 'OK' buttons.

Click on IntelliLink → Avaya ECLIPS → Devices.

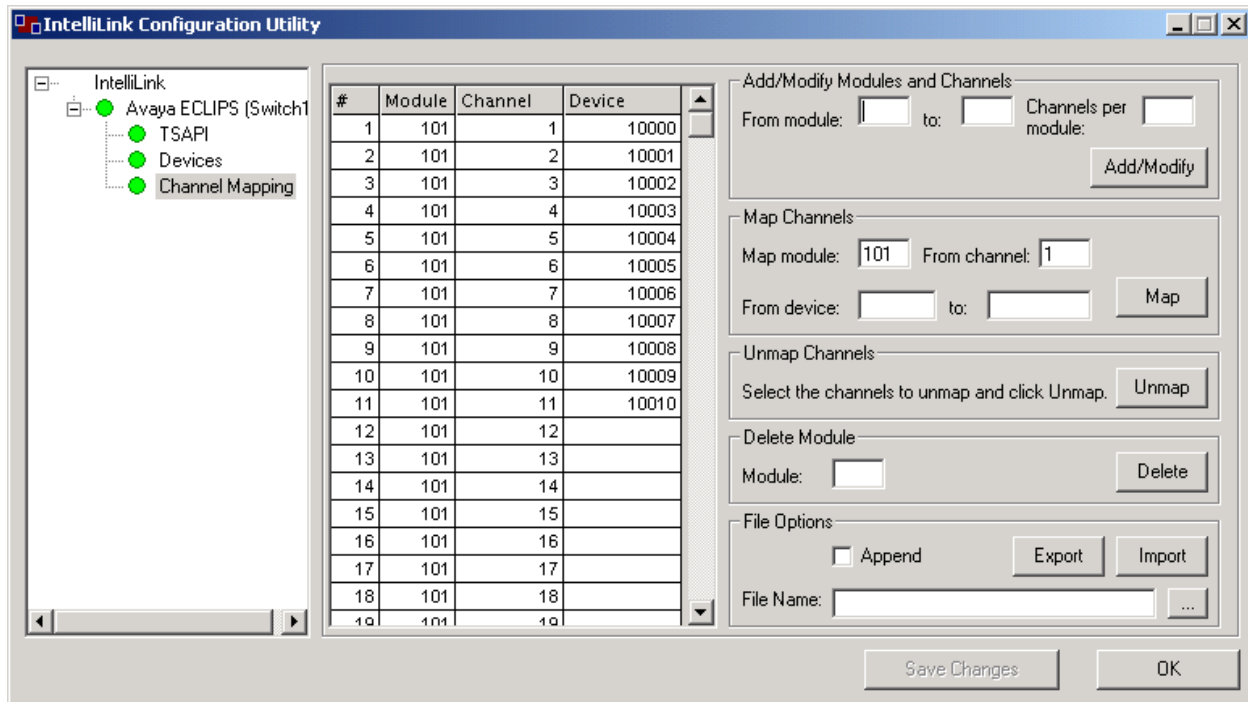
In the section labeled Extensions, enter the range of station extensions to be monitored by the CTI link. Note that this does NOT imply that these stations (devices) will be recorded – that is the subject of additional configuration and is based on recording mode. This configuration simply allows the CTI link to monitor these devices for activity.



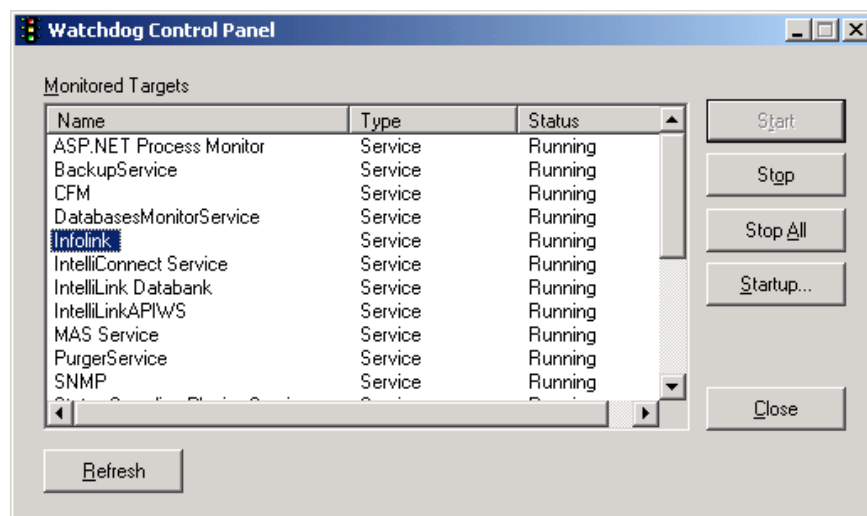
The screenshot shows the 'IntelliLink Configuration Utility' window with the 'Devices' tab selected. The left sidebar is the same as the previous image. The main area contains a table with 11 rows of extension data. To the right of the table are sections for 'Multiple Selection Modification' (with 'Monitored' set to 'Yes'), 'Extensions' (with 'Append' button and range input fields), and 'File Options' (with 'Append', 'Export', and 'Import' buttons, and a 'File Name' field). At the bottom right are 'Save Changes' and 'OK' buttons.

#	Extension	Monitored
1	10000	Yes
2	10001	Yes
3	10002	Yes
4	10003	Yes
5	10004	Yes
6	10005	Yes
7	10006	Yes
8	10007	Yes
9	10008	Yes
10	10009	Yes
11	10010	Yes

ULTRA uses a technique called Channel Mapping to allow a recording channel to be associated with a monitored telephone. The mapping defined allows station 10000 to be recorded by channel 1 and station 10001 by channel 2, and so on.

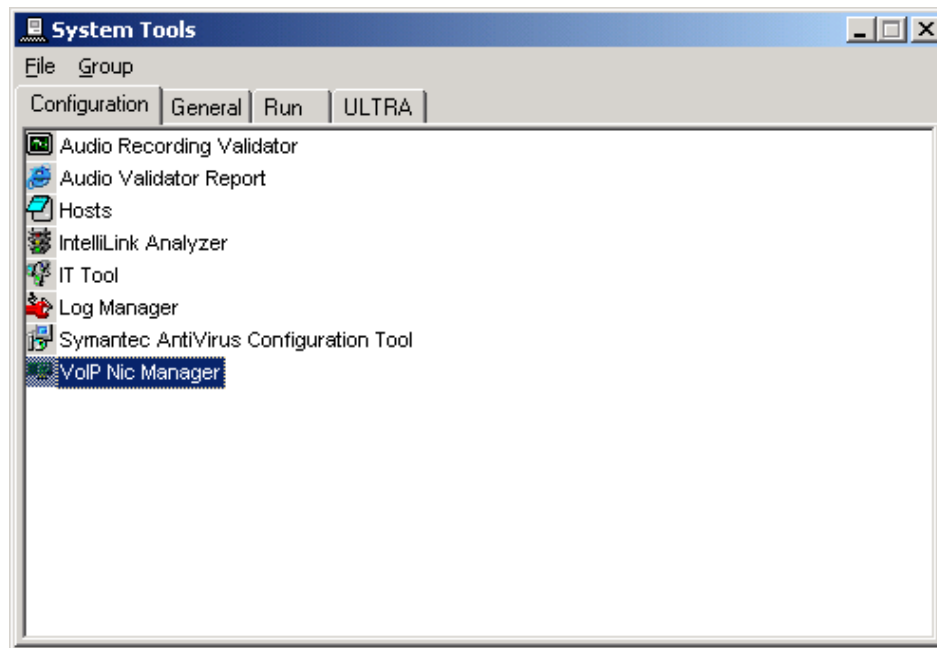


The last step is to restart the IntelliLink and VAM services using the watchdog application (also can be found in the system tools).

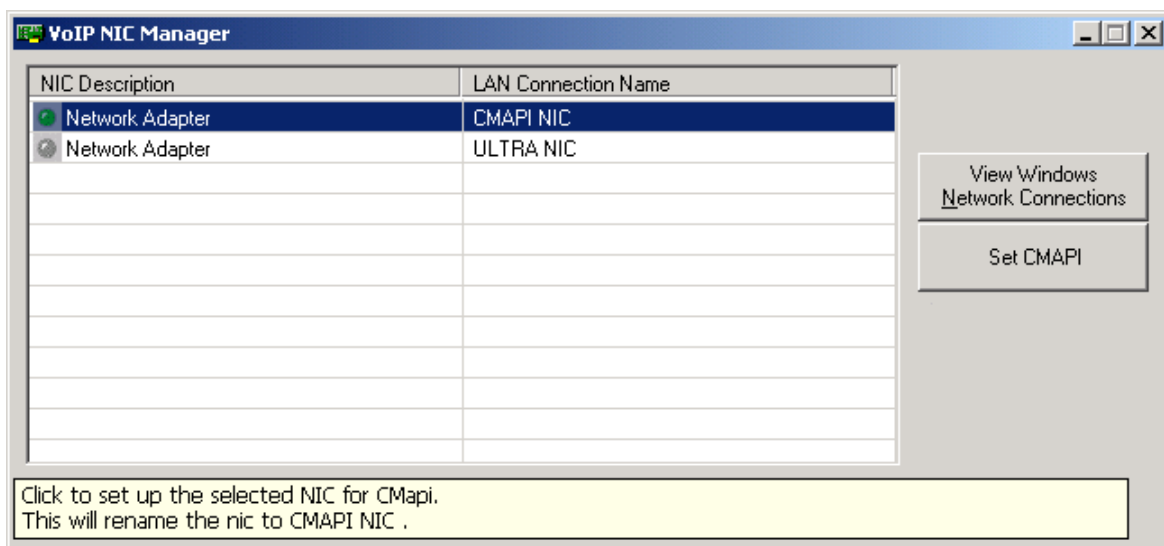


5.3. Configuring Verint Server Network Cards

During compliance testing, ULTRA used a single Network Interface Card (NIC) for exchanging control messages with the AES server and for receiving RTP streams from MEDPRO boards. ULTRA may also be configured to use a dedicated NIC for receiving the RTP streams. To configure the dedicated NIC, double-click on VOIP Nic Manager under the Configuration tab in System Tools.

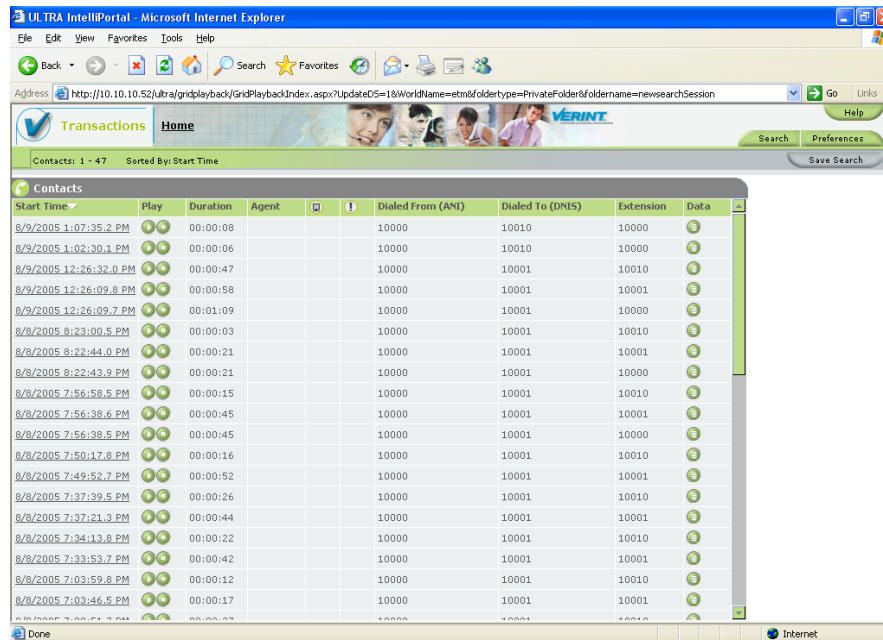


Select the dedicated NIC from the list and click on Set CMAPI.



5.4. Replaying the Voice Recordings

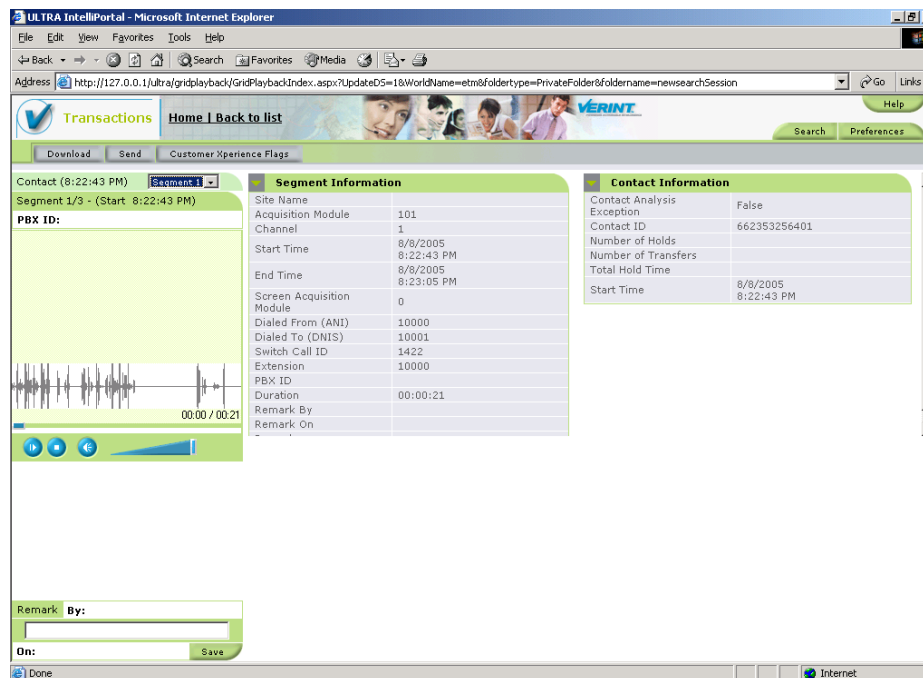
The IntelliPortal is a browser-based application allowing the actual recordings that have taken place to be both inspected for data and voice content. This utility was used throughout testing to validate successful recording of the various tested call scenarios.



The screenshot shows the ULTRA IntelliPortal interface in a Microsoft Internet Explorer browser. The address bar displays a URL starting with http://10.10.10.52/ultra/gridplayback/GridPlaybackIndex.aspx. The page features a navigation bar with 'Transactions' and 'Home' tabs. Below the navigation bar, there is a table titled 'Contacts' with columns: Start Time, Play, Duration, Agent, Dialed From (ANI), Dialed To (DNIS), Extension, and Data. The table lists multiple call records with timestamps ranging from 8/9/2005 1:07:35.2 PM to 8/8/2005 7:03:46.5 PM. Each record includes a 'Play' button and a 'Data' button. The interface also includes a search bar, a 'Save Search' button, and a 'Done' button at the bottom.

Start Time	Play	Duration	Agent	Dialed From (ANI)	Dialed To (DNIS)	Extension	Data
8/9/2005 1:07:35.2 PM		00:00:08		10000	10010	10000	
8/9/2005 1:02:30.1 PM		00:00:06		10000	10010	10000	
8/9/2005 12:26:32.0 PM		00:00:47		10000	10001	10010	
8/9/2005 12:26:09.8 PM		00:00:58		10000	10001	10001	
8/9/2005 12:26:09.7 PM		00:01:09		10000	10001	10000	
8/8/2005 8:23:00.5 PM		00:00:03		10000	10001	10010	
8/8/2005 8:22:44.0 PM		00:00:21		10000	10001	10001	
8/8/2005 8:22:43.9 PM		00:00:21		10000	10001	10000	
8/8/2005 7:56:58.5 PM		00:00:15		10000	10001	10010	
8/8/2005 7:56:38.6 PM		00:00:45		10000	10001	10001	
8/8/2005 7:56:38.5 PM		00:00:45		10000	10001	10000	
8/8/2005 7:50:17.8 PM		00:00:16		10000	10001	10010	
8/8/2005 7:49:52.7 PM		00:00:52		10000	10001	10001	
8/8/2005 7:37:39.5 PM		00:00:26		10000	10001	10010	
8/8/2005 7:37:21.3 PM		00:00:44		10000	10001	10001	
8/8/2005 7:34:13.8 PM		00:00:22		10000	10001	10010	
8/8/2005 7:33:53.7 PM		00:00:42		10000	10001	10001	
8/8/2005 7:03:59.8 PM		00:00:12		10000	10001	10010	
8/8/2005 7:03:46.5 PM		00:00:17		10000	10001	10001	

A dedicated workspace page provides the ability to see a whole call with its different segments (sessions).



The screenshot shows the ULTRA IntelliPortal workspace page in a Microsoft Internet Explorer browser. The address bar displays a URL starting with http://127.0.0.1/ultra/gridplayback/GridPlaybackIndex.aspx. The page features a navigation bar with 'Transactions' and 'Home | Back to list' tabs. Below the navigation bar, there is a section titled 'Contact (8:22:43 PM)' with a 'Segment 1/3 - (Start 8:22:43 PM)' dropdown. The 'PBX ID' field is visible. A waveform is displayed with a duration of 00:00 / 00:21. To the right, there is a 'Segment Information' table and a 'Contact Information' table. The 'Segment Information' table lists details such as Site Name, Acquisition Module, Channel, Start Time, End Time, Screen Acquisition Module, Dialed From (ANI), Dialed To (DNIS), Switch Call ID, Extension, PBX ID, Duration, Remark By, and Remark On. The 'Contact Information' table lists details such as Contact Analysis, Exception, Contact ID, Number of Holds, Number of Transfers, Total Hold Time, and Start Time. The interface also includes a search bar, a 'Save Search' button, and a 'Done' button at the bottom.

Segment Information	
Site Name	
Acquisition Module	101
Channel	1
Start Time	8/8/2005 8:22:43 PM
End Time	8/8/2005 8:23:05 PM
Screen Acquisition Module	0
Dialed From (ANI)	10000
Dialed To (DNIS)	10001
Switch Call ID	1422
Extension	10000
PBX ID	
Duration	00:00:21
Remark By	
Remark On	

Contact Information	
Contact Analysis	False
Exception	
Contact ID	662353256401
Number of Holds	
Number of Transfers	
Total Hold Time	
Start Time	8/8/2005 8:22:43 PM

6. Interoperability Compliance Testing

A generic voice recording test plan was used and customized to include the specific features of the Verint ULTRA 9.3.

The interoperability compliance test included functionality and performance load testing. The testing examined the Verint ULTRA 9.3 interoperability with Avaya Communication Manager 3.0. The majority of the testing focused on the ability of the Verint ULTRA application to record calls originated and terminated by monitored telephones and replay the voice recordings correctly. The source and destination of each call recording was verified.

6.1. General Test Approach

The general approach was to place inbound and outbound calls to and from monitored telephones, and verify the recordings. For functionality testing, basic telephony operations such as answer, hold/retrieve, transfer, and conference were exercised on the inbound and outbound calls. For performance testing, a call generator placed inbound calls to monitored telephones over an extended period of time.

6.2. Test Results

All feature and performance tests passed. The Verint ULTRA successfully recorded, displayed and replayed the recordings.

There can be at most one service observer on an active call, and a station can be service observed by at most one service observer. This means that when two or more service observed stations (parties) are on the same call, only one of the parties is service observed and therefore recorded. ULTRA will produce call recording records for each monitored party, but only the recording record for the service observed party will contain audio.

When there is a TSAPI or network failure, no call information will be displayed on any active calls or new calls during the failure. During a network failure, it can take up to four minutes before the TSAPI link is re-established. Recording of active calls continues uninterrupted.

Ensure that sufficient MEDPRO resources are available to support the number of Communication Manager API stations, and monitored IP telephones and softphones. Consult the Avaya product documentation for further details.

7. Verification Steps

7.1. Avaya

The following steps can ensure that the communication between Avaya Communication Manager and the Avaya Application Enablement Services server is working.

Click on Status and Control → Switch Conn Summary in the AES OAM pages. This summary gives the status of the connection between Avaya Communication Manager and the Avaya Application Enablement Services server. Verify that the Conn State indicates Talking.

AVAYA OAM

OAM Home

CTI OAM Home

Administration

Status and Control

Switch Conn Summary

Services Summary

Maintenance

Logs

Utilities

Help

Logout

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

Switch Connections Summary

Switch Conn	Conn State	Since	Online/Offline	Active CLANs/Admin'd CLANs	# of MCI Conns	Msgs To Switch	Msgs From Switch	Msg Period
8500	Talking	2005-08-11 06:54:50.0	Online	1 / 1	3	210	210	30

Click on Status and Control → Services Summary in the AES OAM pages. This summary gives the status of each service.

AVAYA OAM

OAM Home

CTI OAM Home

Administration

Status and Control

Switch Conn Summary

Services Summary

Maintenance

Logs

Utilities

Help

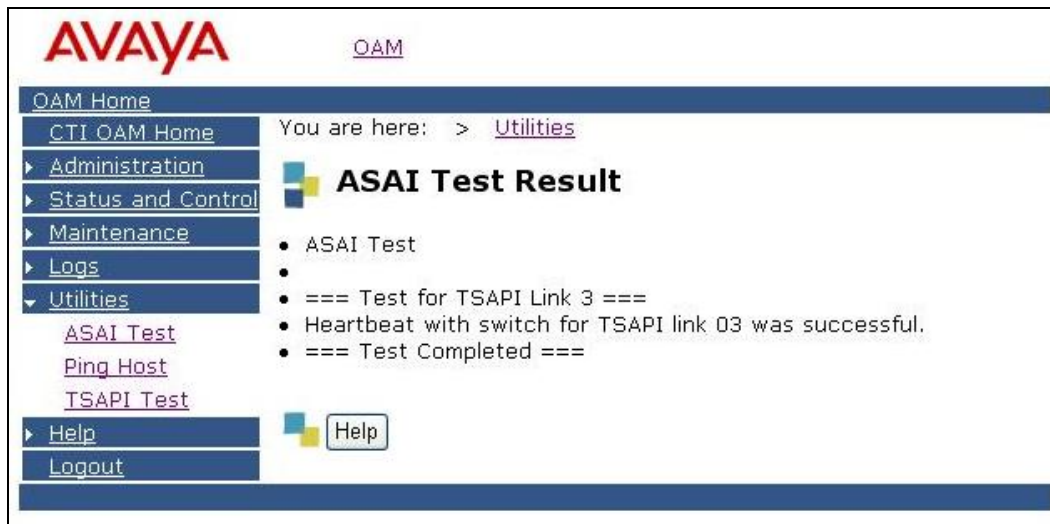
Logout

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

Services Summary

Service	Status	Since	Cause
CVLAN Service	ONLINE	2005-08-10 17:05:51	NORMAL
DLG Service	ONLINE	2005-07-11 16:07:43	NORMAL
TSAPI Service	ONLINE	2005-08-10 13:20:37	NORMAL

To test the TSAPI link, click on Utilities → ASAI Test. Select the TSAPI link and execute the test.



Equivalent steps can be taken to check the status of the link on Avaya Communication Manager as follows.

Verify that the Avaya Application Enablement Services server is communicating with the C-LAN on Avaya Communication Manager by using the status aesvcs interface command.

```
status aesvcs interface
```

AE SERVICES INTERFACE STATUS			
Local Node	Enabled?	Number of Connections	Status
clan	yes	1	listening

Verify that the Service State of the TSAPI link is established.

```
status aesvcs cti-link
```

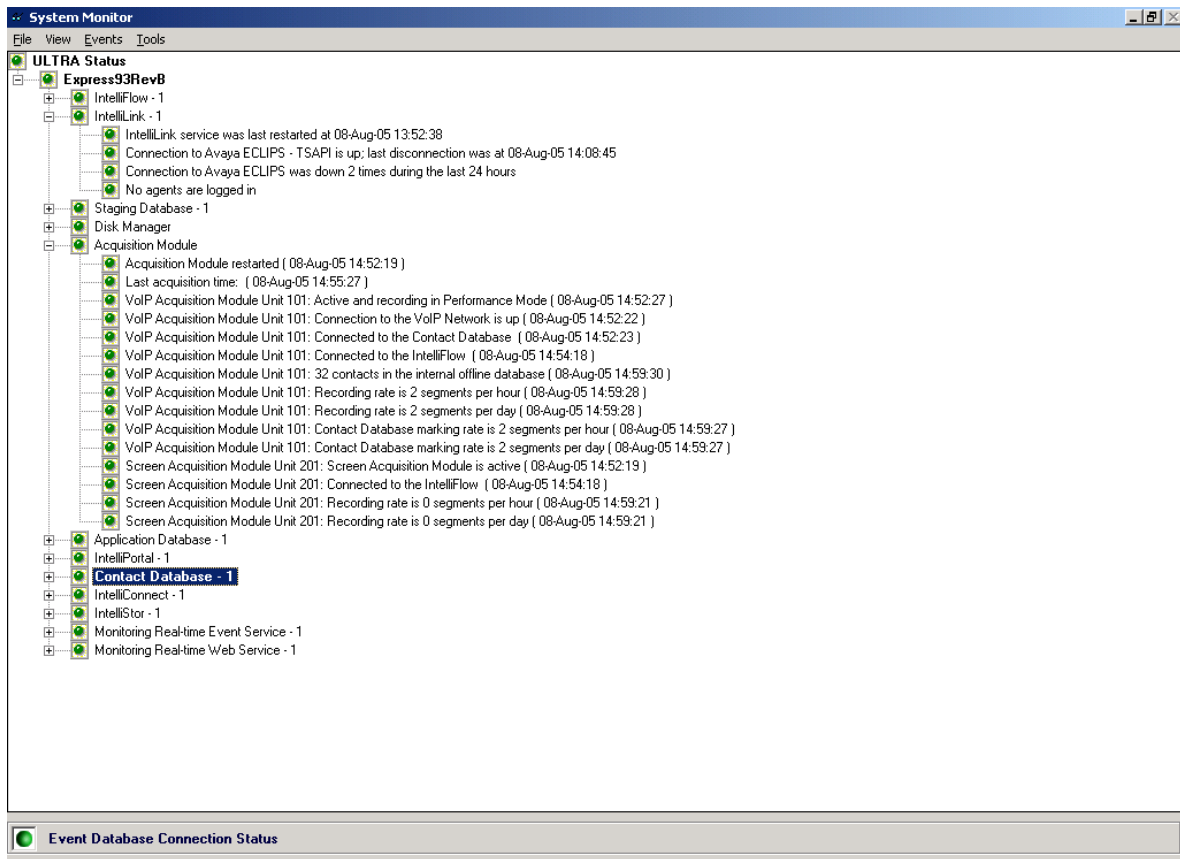
AE SERVICES CTI LINK STATUS						
CTI Link	Version	Mnt Busy	AE Services Server	Service State	Msgs Sent	Msgs Rcvd
1	4	no	AEServer	established	15	15
3	4	no	AEServer	established	15	15

7.2. Verint

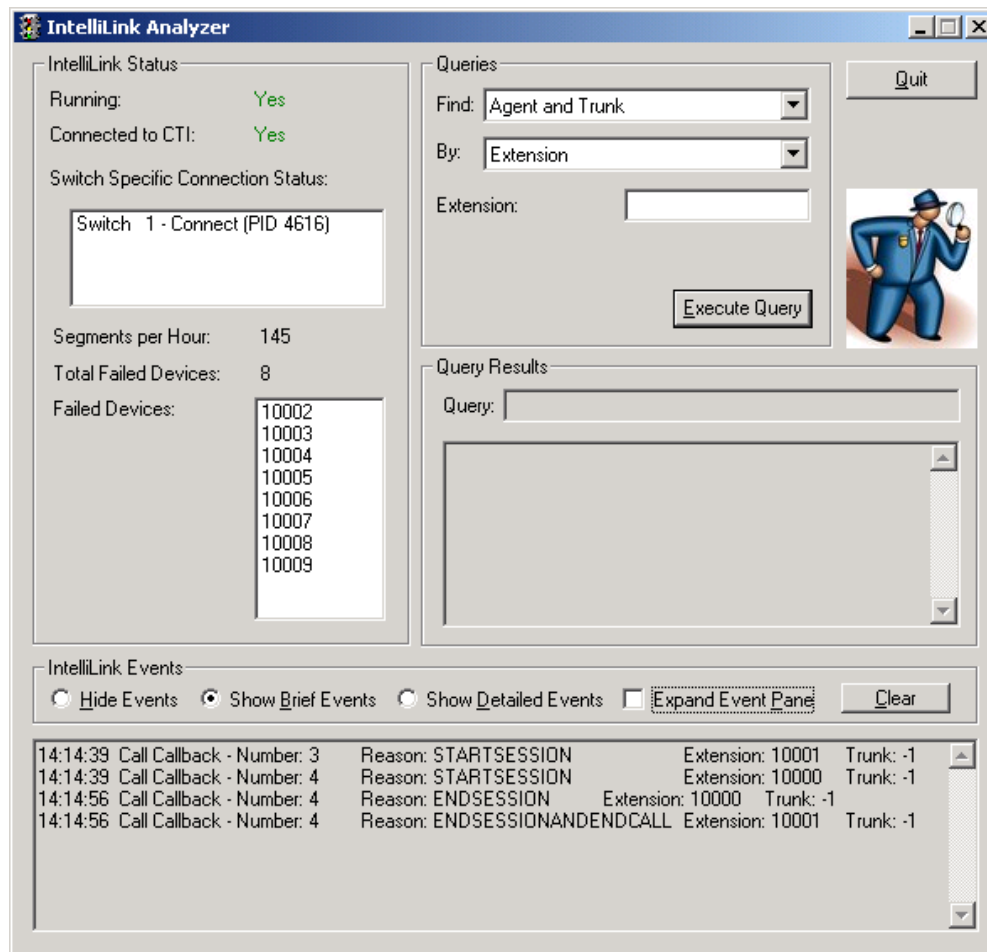
Verint has supplied a variety of tools with the ULTRA solution to provide a means of both monitoring and diagnosing potential issues.

The System Monitor provides a hierarchical view of the status of various systems within the recording solution. This is color-coded at both the node and branch levels – green for OK and red for a problem.

A screenshot of the system monitor is shown below.



The IntelliLink Analyzer provides a view of the CTI link. The attached screenshot shows typical activity for a monitored call.



8. Support

If technical support is required for the Verint ULTRA solution, then contact Verint Technical Support. Full details are available at <http://www.verint.com>.

9. Conclusion

These Application Notes describe the required configuration steps for the Verint ULTRA to successfully interoperate with Avaya Communication Manager. Functionality and performance were successfully validated. The configuration described in these Application Notes has been successfully compliance tested.

10. Additional References

This section references the Avaya and Verint ULTRA product documentation that are relevant to these Application Notes.

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

Verint product documentation is available on request from Verint <http://www.verint.com>.

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