



Avaya Solution and Interoperability Test Lab

Application Notes for VPI Empower with Avaya Aura® Contact Center Release and Avaya Communication Server 1000 Release via Meridian Link Services – Issue 1.0

Abstract

These Application Notes describe a solution comprised of Avaya Aura® Contact Center Release 6.4 and VPI Empower R5.6. During the compliant testing, the VPI Empower R5.6 was able to connect to Contact Center Manager Server using Meridian Link Services, acquire and monitor keys of IP Phone, and record Voice over IP calls made from/to IP Phone of Avaya Communication Server 1000.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as the observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

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

1. Introduction

The objective of this interoperability compliance testing is to verify that the VPI Empower R5.6 (hereafter referred as Empower) can successfully connect to the Avaya Aura® Contact Center Release 6.4 (hereafter referred as Contact Center) using Meridian Link Services (MLS) and record Voice over IP calls for the IP Phones of Avaya Communication Server 1000 Release 7.6 (hereafter referred as Communication Server 1000).

2. General Test Approach and Test Results

The general test approach was to verify that Empower is able to acquire and monitor keys of IP Phones of Communication Server 1000 by communicating with the MLS server of Contact Center system, duplicate the media stream of monitored IP Phone and save recorded calls.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

2.1. Interoperability Compliance Testing

The focus of this compliance testing was to prove and verify that Empower was able to interoperate with Contact Center and Communication Server 1000 system. The following areas were tested:

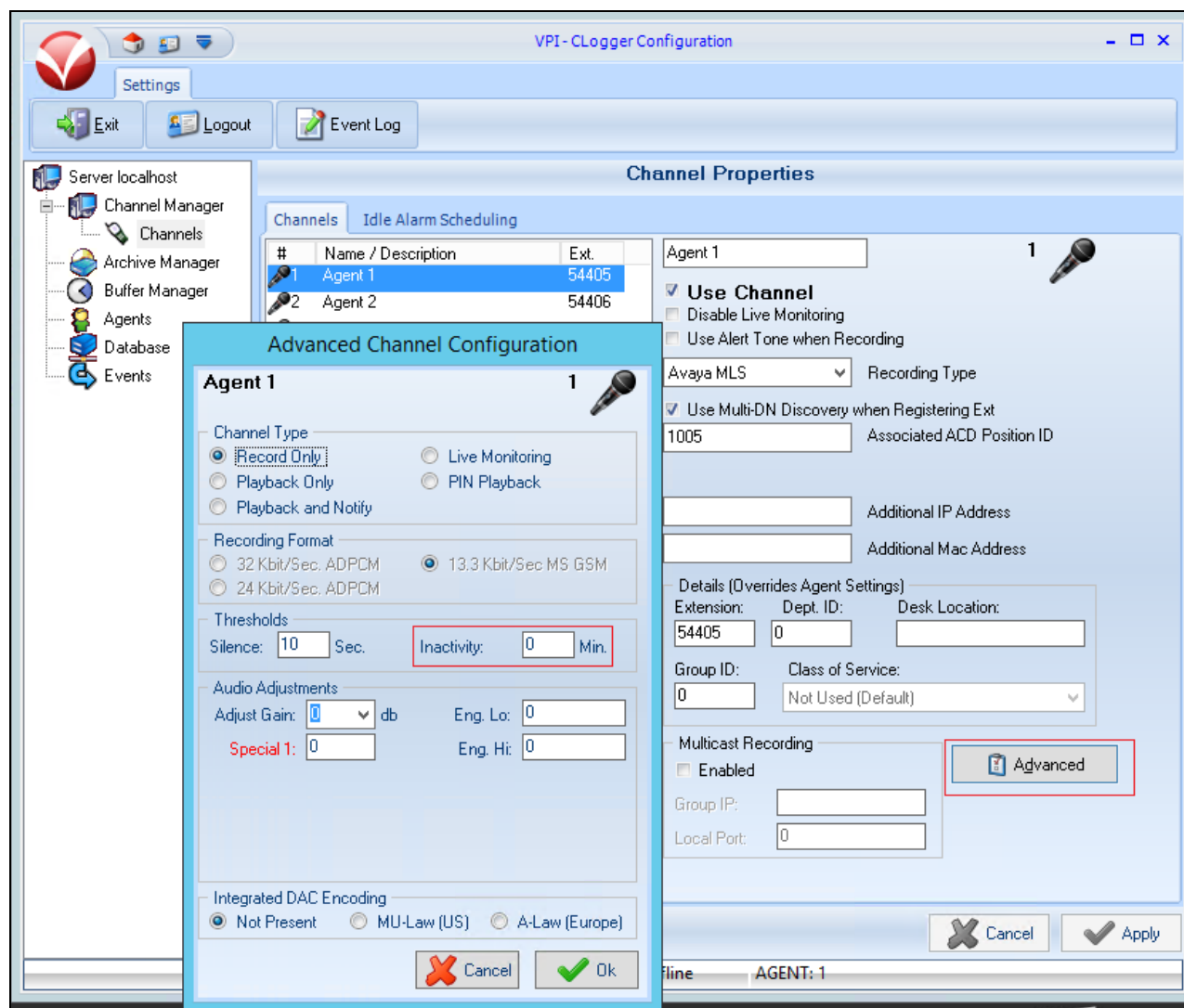
- Empower successfully utilizes MLS to access the functionality of the Contact Center Manager Server (CCMS) and Communication Server 1000 to record all calls.
- Recording provides information of the Automated Call Distribution (ACD) Agent, Dialed Number Identification Service (DNIS), Calling Line Identification (CLID), Directory Number (DN), Day/Time, Days of week, and Call Duration.
- Agent Resiliency Information.
- Multiple DN Call Recording.

2.2. Test Results

The objectives outlined in the **Section 2.1** were verified and met. All test cases were executed and they all passed with the following observation,

There is error in recording when the channel status is **Warning! Last Activity: <Date and Time stamp>** (not shown).

The channel is in this status based on the timer set in the channel's **Inactivity** field found in the **Advanced Channel Configuration** window. VPI is aware of the issue and the workaround is to enter "0" in the **Inactivity** field as shown in the screen below,



2.3. Support

Technical support for VPI Empower can be obtained by contacting VPI via

Web: <http://www.vpi-corp.com/> or

Phone: 1-800-200-5430.

3. Reference Configuration

Figure 1 illustrates the network diagram configuration used during the compliant testing event between the Empower and Contact Center.

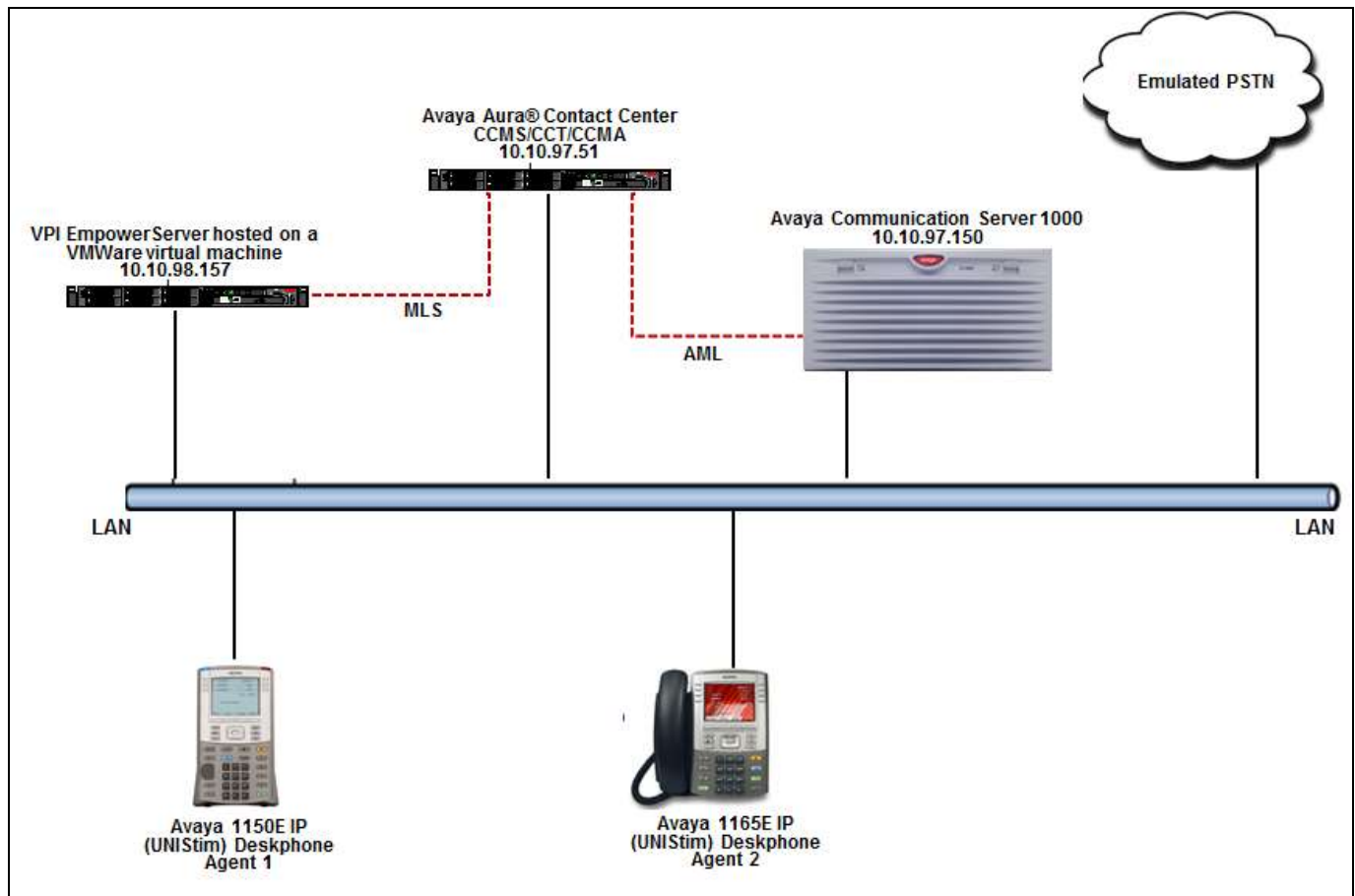


Figure 1: Empower Solution Test Configuration

4. Equipment and Software Validated

The following equipment and software were used during the lab testing:

Equipment/Software	Release/Version
Avaya Communication Server 1000	7.65.16 SP7
Avaya Aura® Contact Center	6.4 SP15
Avaya IP (UNISTim) Deskphones: 1150E 1165E	0x27C8Q 0x25C8Q
VPI Empower Server OS	Windows Server 2012 R2 Standard 64-bit
VPI Empower	5.6

5. Configure Avaya Communication Server 1000

This document assumes that Communication Server 1000 is properly installed and configured. These Application Notes provide the necessary configuration that has to be done on Communication Server 1000 to work with Contact Center and Empower. For more information about how to install and configure Avaya Communication Server 1000, refer to **Section 10**.

5.1. Create ELAN for Contact Center application on the Call Server

Log in to the command line interface of Call Server with the appropriate credentials and issue overlay **LD 17** to access the **ADAN** gate opener to create a new ELAN for the Contact Center application. During compliance testing **ELAN 19** was created as shown below.

```
REQ  chg
TYPE  adan
ADAN  new elan 19
CTYP  elan
DES   AACC62
LCTL
```

5.2. Create VAS for the ELAN of Contact Center on the Call Server

Log in to the command line interface of Call Server with the appropriate credentials and issue overlay **LD 17** to access the **VAS** gate opener to create a value added server (VAS) for the ELAN 19 created above for the Contact Center application. During compliance testing **VSID 19** was created as shown below.

```
REQ  chg
VAS  new
VSID 19
ELAN 19
SECU
INTL
MCNT
VSID
```

5.3. Enable IPIE feature for IP call recording on the Call Server

Log in to the command line interface of Call Server with the appropriate credentials and issue overlay **LD 17** to access the **PARM** gate opener to enable the **Enhanced Unsolicited Status Message (USM) IE (IPIE)** as shown in the screen below.

```
PARM
  LPIB 3500
  HPIB 3500
  .
  .
  .
  MARP YES
  IPIE YES
  FRPT NEFR
  .
  .
```

5.4. Enable class of service RECA for IP Phone

Log in to the command line interface of Call server with the appropriate credentials and issue overlay **LD 11** to add or change the configuration of a Deskphone. Screen below shows that the **Recording Allowed (RECA)** has been added to the class of service for the deskphone.

```
DES AGENT6
TN 096 0 02 05 VIRTUAL
TYPE 1150
.
.
.CAC_MFC 0
CLS CTD FBA WTA LPR MTD FNA HTA TDD HFA CRPD
  MWA LMPN RMMD SMWD AAD IMD XHD IRD NID OLD VCE DRG1
  POD SLKD CCSD SWD LND CNDA
  CFTD SFD MRD DDV CNID CDCA MSID DAPA BFED RCBF
  ICDA CDMD LLCN MCTD CLBD AUTU
  GPUD DPUD DNDA CFXA ARHD CNTD CLTD ASCD
  CPFA CPTA ABDD CFHD FICD NAID BUZZ AGRD MOAD
  UDI RCC HBTB AHA IPND DDGA NAMA MIND PRSD NRWD NRCD NROD
  DRDD EXR0
  USMD USRD ULAD CCBF RTDD RBDD RBHD PGND OCBF FLXD FTTC DNDY DNO3
MCBN
  FDSD NOVD VOLA VOUD CDMR PRED RECA MCDD T87D SBMD
  KEM3 MSNV FRA PKCH MUTA MWTD DVLD CROD ELCD VMSA
CPND_LANG ENG
.
.
```

5.5. Configure the Associated Set Assignment (AST) for IP phone

Log in to the command line interface of Call Server with the appropriate credentials and issue overlay **LD 11** to add or change the configuration of a Deskphone. To define which key/s of IP Phone needs to be recorded, assign them at the **AST** prompt. During compliance testing, calls coming to keys **00** and **03** were recorded as shown in the screen below.

```
DES AGENT6
TN 096 0 02 05 VIRTUAL
TYPE 1150
.
.
.
SPID NONE
AST 00 03
IAPG 0
.
.
```

6. Configure Avaya Aura® Contact Center

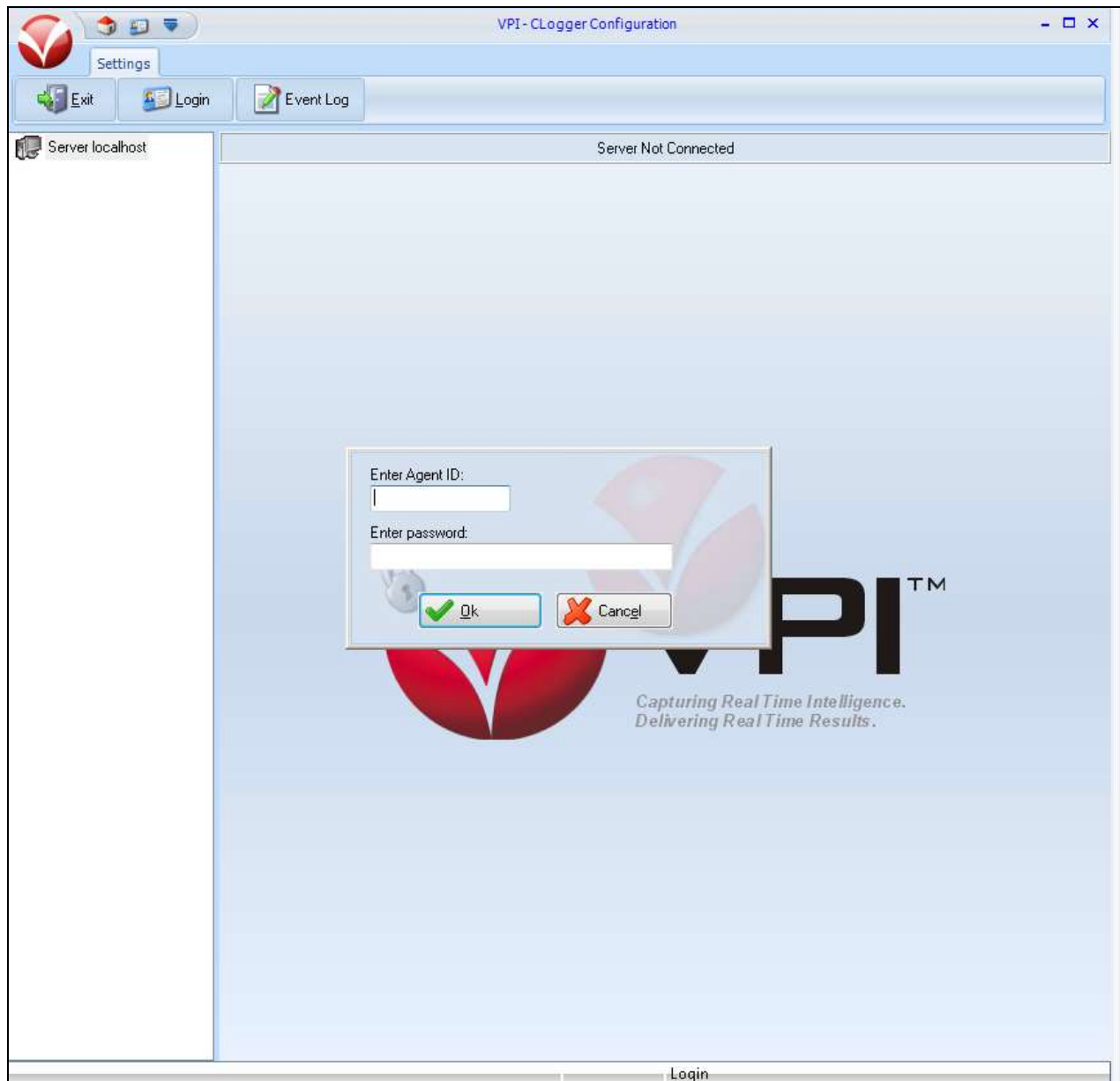
This document assumes that the Contact Center system with all its modules including CCMS and MLS are installed and configured correctly and it communicates to the Communication Server 1000. For more information how to install and configure the Contact Center please refer to **Section 10**.

7. Configure VPI Empower Server

This section provides the detailed configuration on the Empower server for recording VoIP calls of agent's deskphones residing on Communication Server 1000.

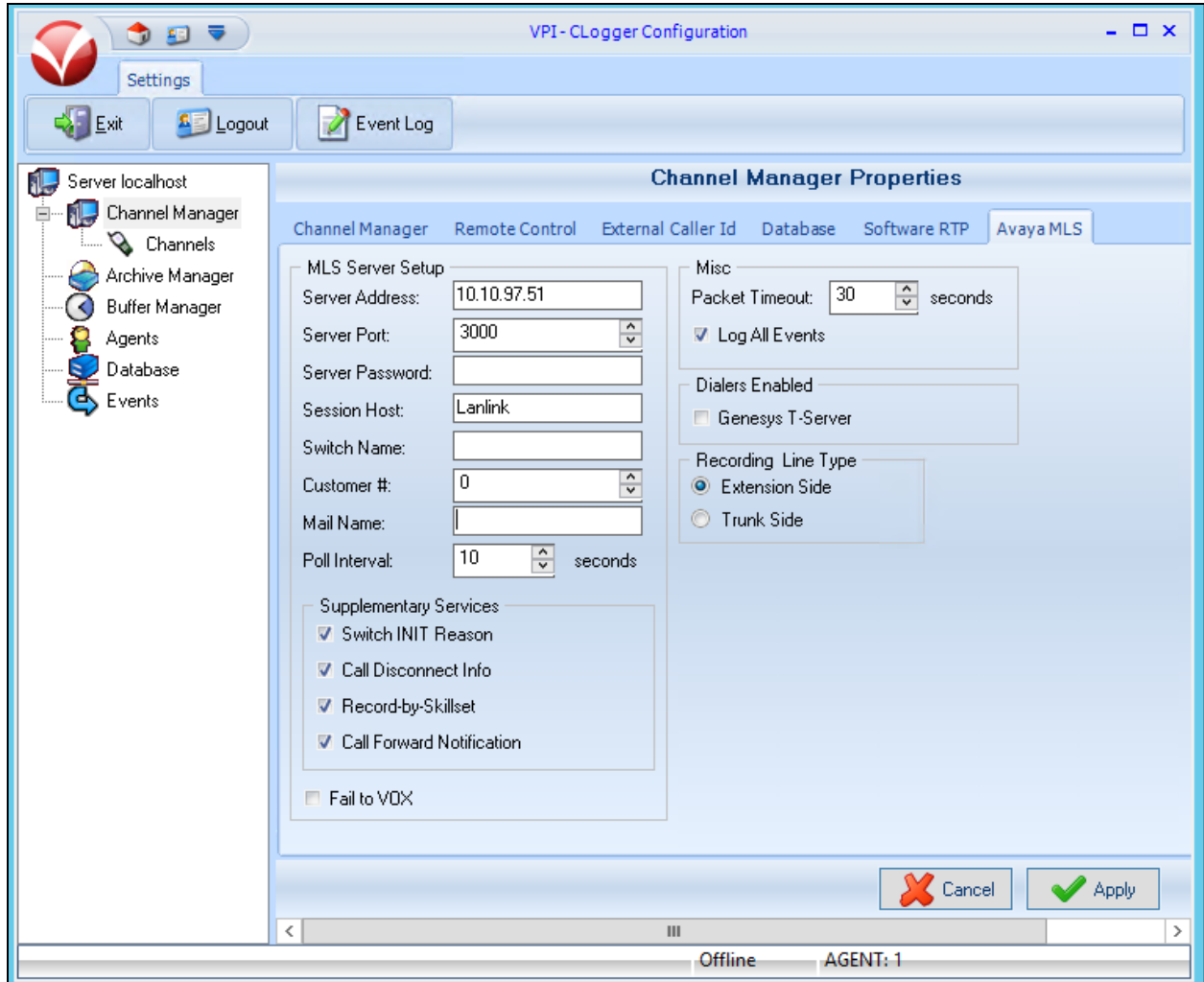
7.1. Login to Empower CLogger Configuration

Access the Login screen for Empower CLogger configuration by navigating to **Start → All Programs → VPI → Activ! Voice → VPI Configuration**. Enter the required credentials and click on the **OK** button as shown below.

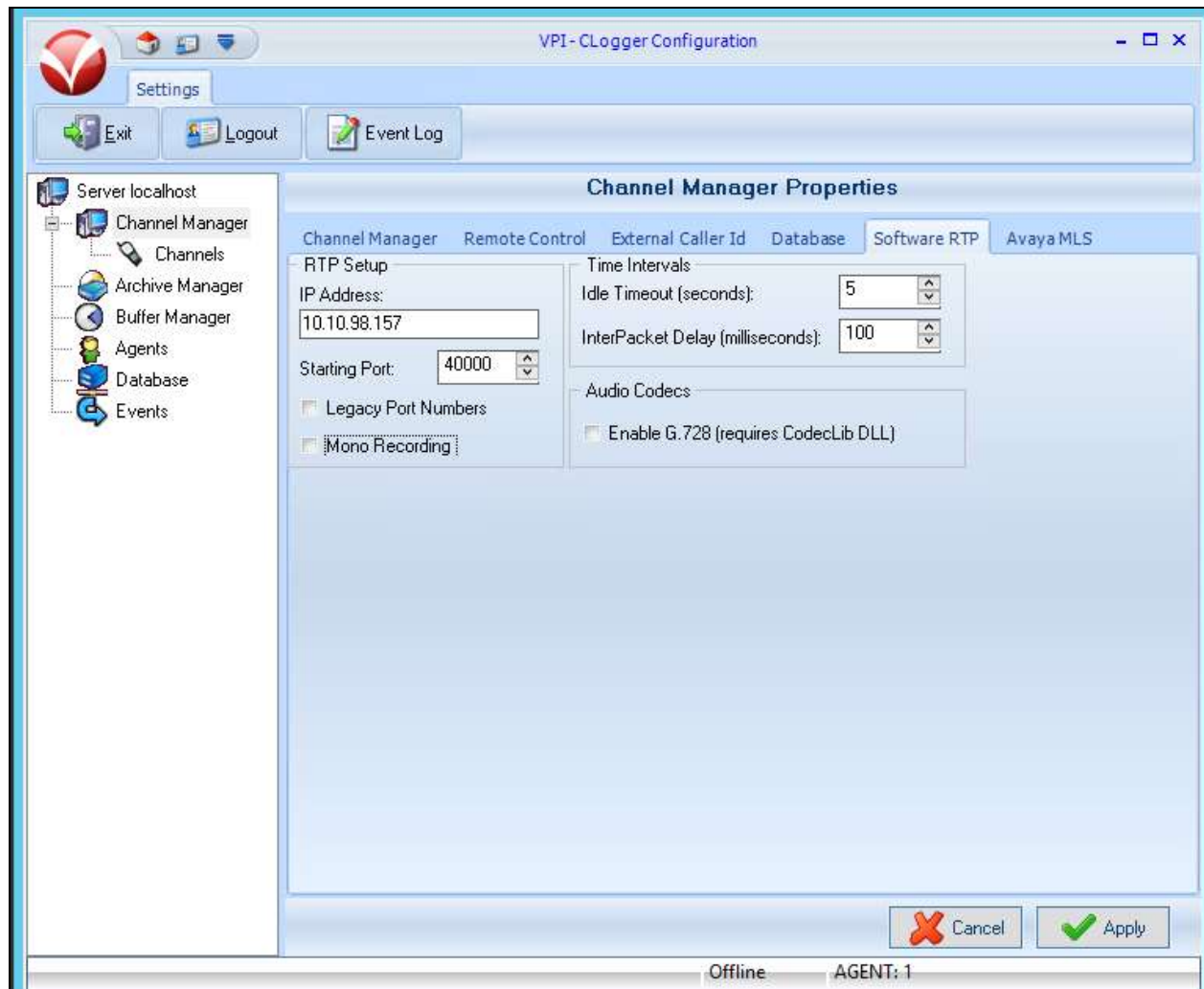


7.2. Configuring Channel Manager Properties

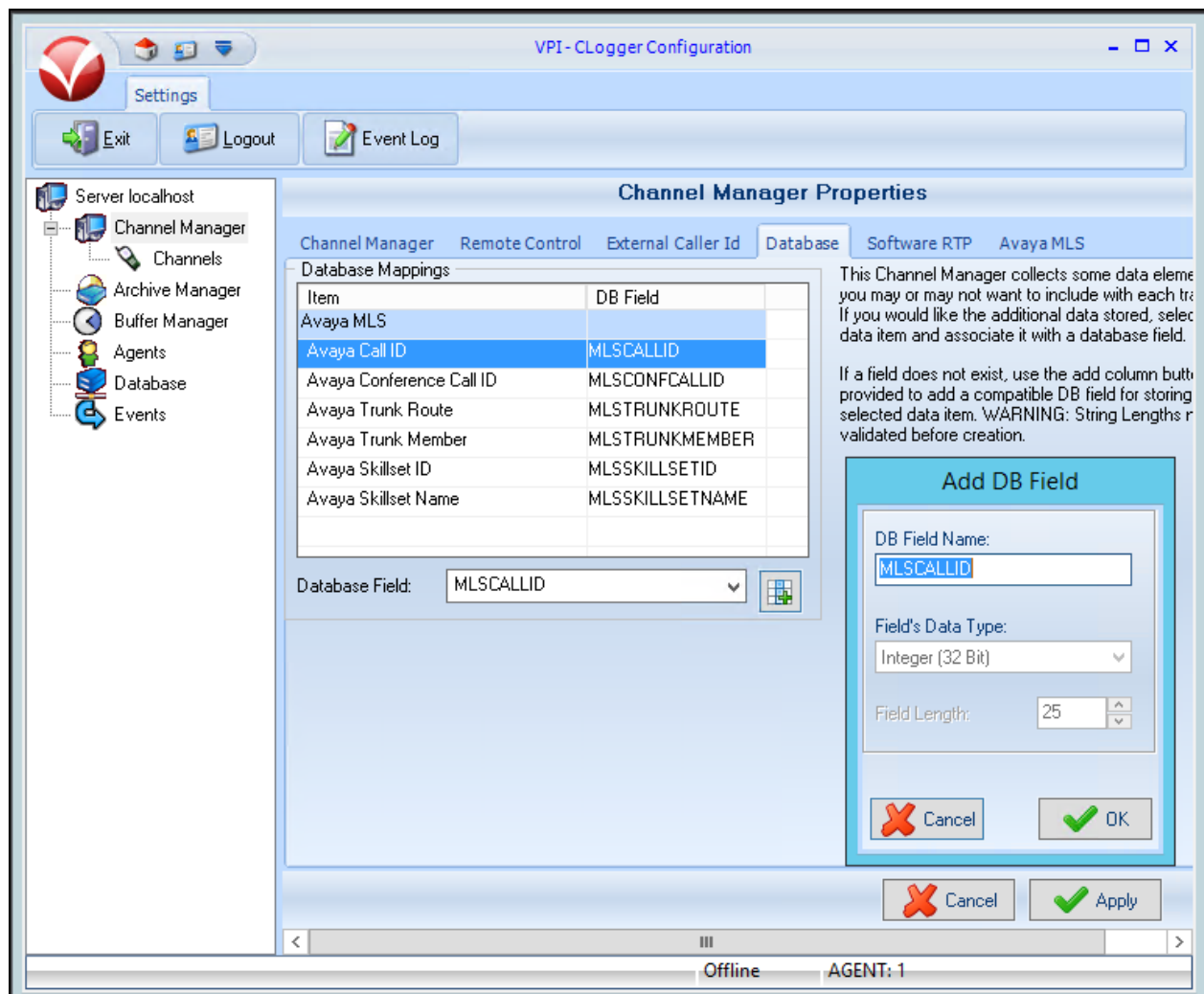
From the main screen of CLogger Configuration as shown below, navigate to **Channel Manager** → **AvayaMLS** and enter the **Server Address** of the Contact Center. During compliance testing that value was *10.10.97.51*. Retain default values for other fields.



From the same CLogger Configuration page as shown below, navigate to **Channel Manager** → **Software RTP** and enter the **IP Address** of the Empower server. During compliance testing that value was *10.10.98.157*. Uncheck the box for **Mono Recording** option. Retain default values for other fields.



From the same CLogger Configuration page as shown below, navigate to **Channel Manager** → **Database** and add the required **Database Field**. During compliance testing *MLSCALLID*, *MLSCONFCALLID*, *MLSTRUNKROUTE*, *MLSTRUNKMEMBER*, *MLSSKILLSETID* AND *MLSSKILLSETNAME* were added.



7.3. Configuring Channel Properties

To configure channels used for recording, from the CLogger Configuration page shown below, navigate to **Channel Manager** → **Channels**. During compliance testing Channels **1, 2** and **3** were used to record Agents **1, 2** and a tertiary DN of Agent **1** respectively. Example shows the **Associated ACD Position ID** and **Extension** values of **1005** and **54405** for Agent **1** respectively. Ensure that the boxes **Use Channel** and **Use Multi-DN Discovery when Registering Ext** is checked. Retain default values for other fields.

The screenshot shows the VPI-CLogger Configuration window. The 'Channel Properties' dialog is open for 'Agent 1'. The 'Channels' tab is selected, showing a list of channels with their names, descriptions, and extensions. The 'Agent 1' channel is highlighted. The 'Details (Overrides Agent Settings)' section shows the 'Extension' set to 54405 and the 'Associated ACD Position ID' set to 1005. The 'Use Channel' and 'Use Multi-DN Discovery when Registering Ext' checkboxes are checked. The 'Multicast Recording' section is also visible.

#	Name / Description	Ext.
1	Agent 1	54405
2	Agent 2	54406
3	Agent 1	54042
4	Channel 4	0
5	Channel 5	0
6	Channel 6	0
7	Channel 7	0
8	Channel 8	0
9	Channel 9	0
10	Channel 10	0
11	Channel 11	0
12	Channel 12	0

Agent 1

☒ Use Channel

☐ Disable Live Monitoring

☐ Use Alert Tone when Recording

Avaya MLS Recording Type

☒ Use Multi-DN Discovery when Registering Ext

1005 Associated ACD Position ID

Additional IP Address

Additional Mac Address

Details (Overrides Agent Settings)

Extension: 54405 Dept. ID: 0 Desk Location:

Group ID: 0 Class of Service: Not Used (Default)

Multicast Recording

☐ Enabled

Group IP: Local Port: 0

Cancel Apply

Note: The Multi-DN Call Recording feature of Empower benefits from a new feature of Contact Center called Multiple DN Registration that enables CTI third party application to control as many keys of IP Phone as they want via MLS without assigning AST for IP Phone. The Multiple DN Registration feature needs to be enabled in the license of Contact Center.

Screen below shows the tertiary DN of Agent 1 that is also configured to be part of the recording. The configuration of this DN is similar to the one shown above except for the **Associated ACD Position ID** field is configured as 0.

The screenshot shows the 'VPI-CLogger Configuration' window. On the left is a tree view with 'Server localhost' expanded, showing 'Channel Manager', 'Channels', 'Archive Manager', 'Buffer Manager', 'Agents', 'Database', and 'Events'. The 'Channels' tab is selected in the 'Channel Properties' dialog. A table lists channels 1 through 12. Channel 3, 'Agent 1' with extension 54042, is selected. The right pane shows configuration for 'Agent 1'. The 'Associated ACD Position ID' field is highlighted with a red box and contains the value '0'. Other fields include 'Use Channel' (checked), 'Recording Type' (Avaya MLS), 'Use Multi-DN Discovery when Registering Ext' (checked), 'Additional IP Address', 'Additional Mac Address', 'Details (Overrides Agent Settings)' with fields for Extension (54042), Dept. ID (0), and Desk Location, 'Group ID' (0), 'Class of Service' (Not Used (Default)), and 'Multicast Recording' (Enabled) with fields for Group IP and Local Port (0). At the bottom are 'Cancel' and 'Apply' buttons. The status bar at the very bottom shows 'Offline' and 'AGENT: 1'.

#	Name / Description	Ext.
1	Agent 1	54405
2	Agent 2	54406
3	Agent 1	54042
4	Channel 4	0
5	Channel 5	0
6	Channel 6	0
7	Channel 7	0
8	Channel 8	0
9	Channel 9	0
10	Channel 10	0
11	Channel 11	0
12	Channel 12	0

Channel Properties

Channels | Idle Alarm Scheduling

Agent 1 3

☒ **Use Channel**
☐ Disable Live Monitoring
☐ Use Alert Tone when Recording

Avaya MLS Recording Type

☒ Use Multi-DN Discovery when Registering Ext
0 Associated ACD Position ID

Additional IP Address
Additional Mac Address

Details (Overrides Agent Settings)
Extension: 54042 Dept. ID: 0 Desk Location:
Group ID: 0 Class of Service: Not Used (Default)

Multicast Recording
☒ Enabled
Group IP: Local Port: 0

Advanced

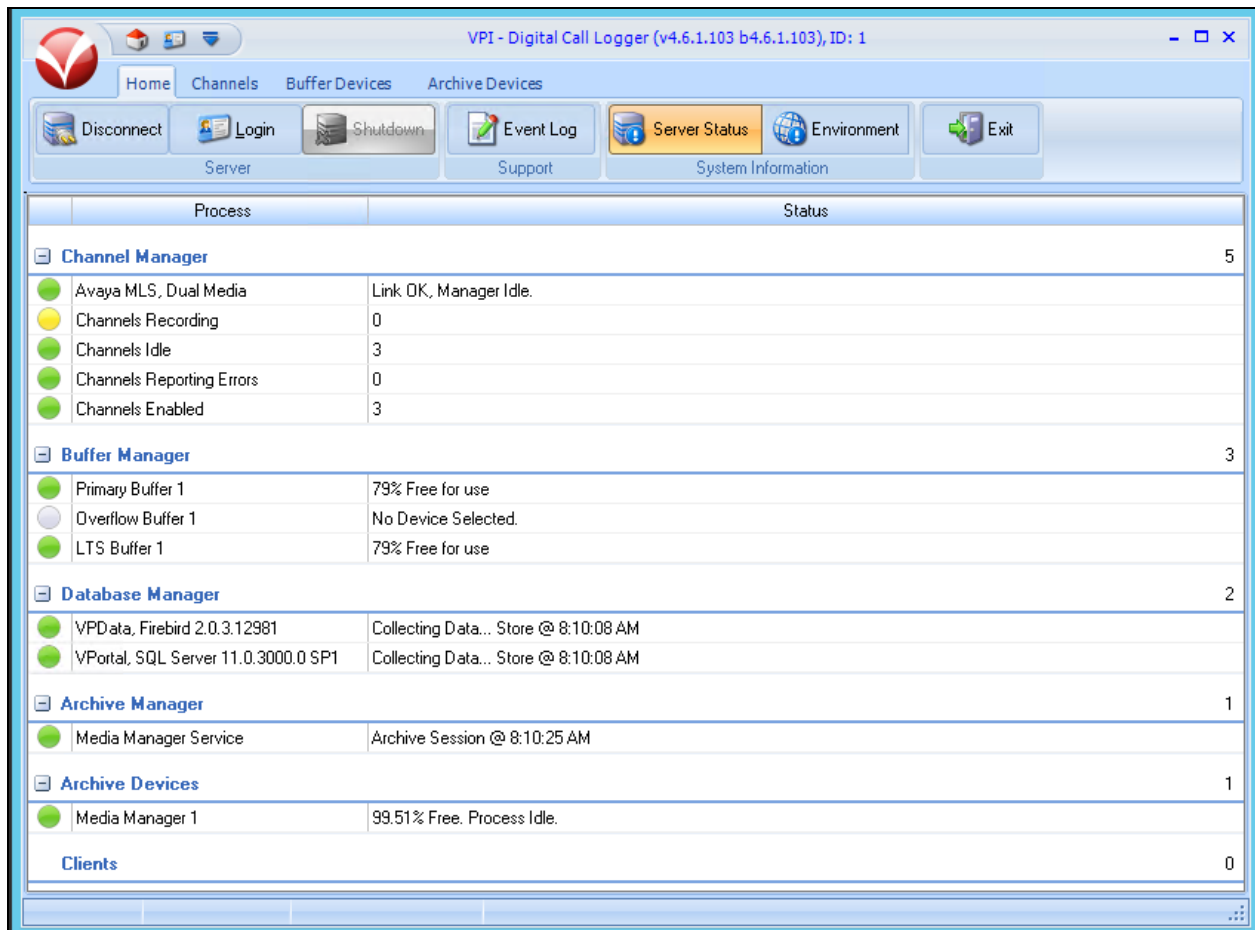
Cancel Apply

Offline AGENT: 1


8. Verification Steps

The following are typical steps to verify the interoperability between the Empower and Contact Center and Avaya Communication Server 1000.

- Ensure that the Empower can connect to the Contact Center and acquire the required information from CCMS via the MLS. The first screens below shows **Avaya MLS, Dual Media** with the **Link OK, Manager Idle** and the second screen shows the status of the channels where two are idle and waiting for a call while one is actively recording.



Process	Status
Channel Manager 5	
Avaya MLS, Dual Media	Link OK, Manager Idle.
Channels Recording	0
Channels Idle	3
Channels Reporting Errors	0
Channels Enabled	3
Buffer Manager 3	
Primary Buffer 1	79% Free for use
Overflow Buffer 1	No Device Selected.
LTS Buffer 1	79% Free for use
Database Manager 2	
VPData, Firebird 2.0.3.12981	Collecting Data... Store @ 8:10:08 AM
VPortal, SQL Server 11.0.3000.0 SP1	Collecting Data... Store @ 8:10:08 AM
Archive Manager 1	
Media Manager Service	Archive Session @ 8:10:25 AM
Archive Devices 1	
Media Manager 1	99.51% Free. Process Idle.
Clients 0	



Home

Channels

Buffer Devices

Archive Devices

Disconnect

User


Login

User

Event Log

Support






Channel Manager



Channel Manager: **Avaya MLS, Dual Media**

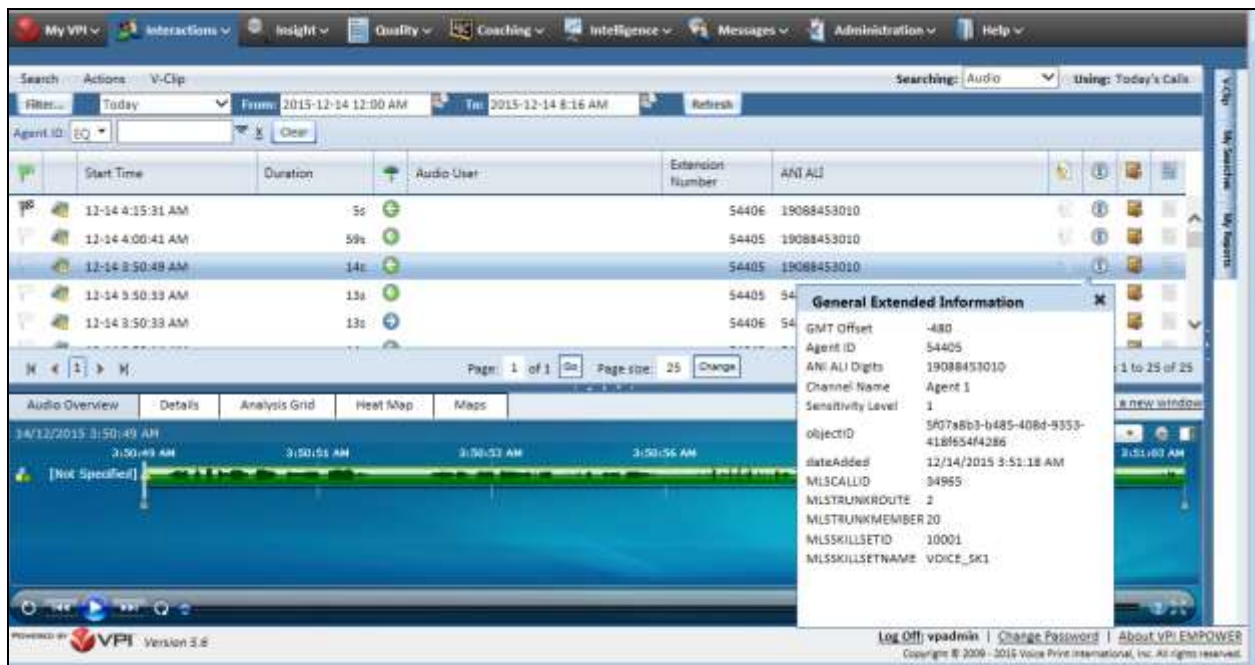
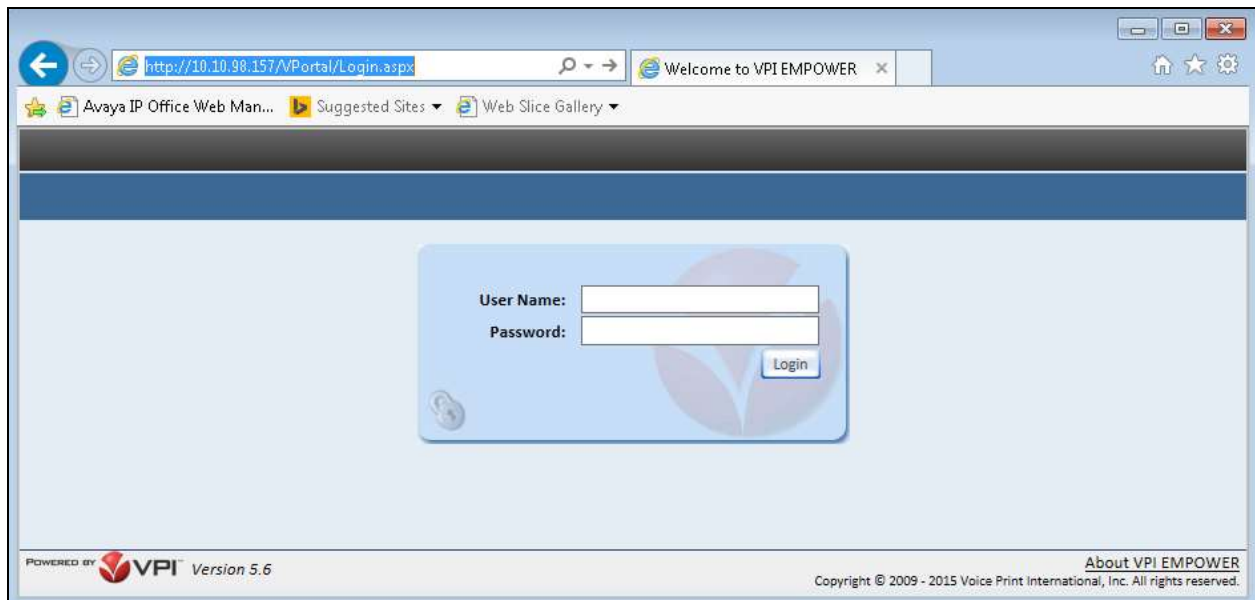
Status: **Link OK, Manager Idle.**

Total Call Count: **2** since 12/14/2015 09:28:37a

	Process	Status
<div>Channels</div> <div>12</div>		
	Agent 1	Recording, Ext: 54405, Agent: 54405...
	Agent 2	Idle, Waiting for Call... (Agent: 54406)
	Agent 1	Idle, Waiting for Call...
	Channel 4	Channel Unused.
	Channel 5	Channel Unused.

Login

- Process a call and record the same. The first screen shows the Login screen for the user to access the recordings. This can be launched by entering the IP Address of the Empower Server on a browser's URL. The second screen shows an example of a recorded call with all the required information.



9. Conclusion

All of the executed test cases have passed and met the objectives outlined in **Section 2** with any observations or exceptions noted in **Section 2.2**. The VPI Empower R5.6 is considered compliant with Avaya Aura® Contact Center Release 6.4 and Avaya Communication Server 1000 Release 7.6.

10. Additional References

Product documentation for Avaya Communication Server 1000 products may be found at:

<https://support.avaya.com/css/Products/>

Avaya Communication Server 1000 7.6 Documents:

1. *Communication Server 1000E Installation and Commissioning*, Release 7.6, NN43041-310
2. *Element Manager System Reference – Administration - Avaya Communication Server 1000*, Release 7.6, NN43001-632.
3. *Avaya Communication Server 1000 Co-resident Call Server and Signaling Server Fundamentals* Release 7.6, NN43001-509.
4. *Avaya Communication Server 1000 Unified Communications Management Common Services Fundamentals -*, Release 7.6, NN43001-116.
5. *Avaya Communication Server 1000 - Software Input Output Reference — Administration* Release 7.6, NN43001-611.
6. *Avaya Communication Server 1000 - ISDN Primary Rate Interface Installation and Commissioning*, Release 7.6, NN43001-301.

Avaya Aura® Contact Center R6.4 Documents:

1. *Avaya Aura® Contact Center Installation*, Release 6.4, 44400-311.
2. *Avaya Aura® Contact Center Server Administration*, Release 6.4, 44400-610.
3. *Avaya Aura® Contact Center Manager Administration – Client Administration*, Release 6.4, 44400-611.
4. *Avaya Aura® Contact Center Fundamentals and Planning*, Release 6.4, 44400-211.
5. *Avaya Aura® Contact Center Configuration — Avaya Communication Server 1000 Integration*, Release 6.4, 44400-512.
6. *Avaya Aura® Contact Center Commissioning*, Release 6.4, 44400-312.

Product documentation for VPI Empower may be found at:

<http://www.vpi-corp.com/>

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