



## Avaya Solution & Interoperability Test Lab

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# Application Notes for Configuring DGVoX with Avaya Communication Server 1000 using Meridian Link Services - Issue 1.0

### Abstract

These Application Notes describe the steps required to integrate DGVoX with Avaya Communication Server 1000 using Meridian Link Services. DGVoX is a server based application that captures and records voice communication.

In the compliance test, the DGVoX application successfully registers with the Avaya Communication Server 1000 using the Meridian Link Services. The application is now capable to record all voice communication that is carried out within the Avaya Communication Server 1000.

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

These Application Notes describe the steps required to integrate the DGVox application with Avaya Communication Server 1000 using Meridian Link Services (MLS). The DGVox application is a server based application that captures and records all voice communication.

In the compliance test, DGVox application successfully registered with Communication Server 1000 using MLS and was then able to capture and record all voice communications within the Communication Server 1000.

MLS is exported as part of Avaya Aura® Contact Center and Avaya NES Contact Center, and is used by DGVox to access the functionality of the Communication Server 1000.

## 2. General Test Approach and Test Results

To verify interoperability of the DGVox application with Communication Server 1000, calls were made to and from the Communication Server 1000 and verified if voice recording for monitored extensions is captured in the DGVox server. Only Avaya IP phone extensions were used during the compliance test as per Vox Spectrum partner's request.

The MLS protocol used in the integration is an Avaya proprietary protocol that enables third-party application developers to extend the functionality of applications, particularly in the call center arena. MLS is the primary interface for implementation of complex contact center and call routing applications, as well as a required interface for Voice Recording applications on Communication Server 1000.

### 2.1. Interoperability Compliance Testing

Interoperability compliance testing covered the following features and functionality:

- Successful registration of the DGVox application with Communication Server 1000.
- Recording of calls to/from internal extensions.
- Recording of calls with Hold, Blind transfer, Consulted transfer and Conference feature activated.
- Recording of calls to/from Avaya Desktop Agent.
- Recording of calls to/from PSTN.
- Network failure.

### 2.2. Test Results

Basic test cases were executed and found to be passed with the following observations:

- The DGVox application displays 3 call records when call involves Hold, Transfer or Conference feature.
- If the network connection is lost when 2 calls are active, the channel display shows that they are active even after network is restored. The display is cleared only when a new call is displayed to the extensions after the network is restored. Also the recordings of new calls are appended to the call that was active prior to the disruption of the network.

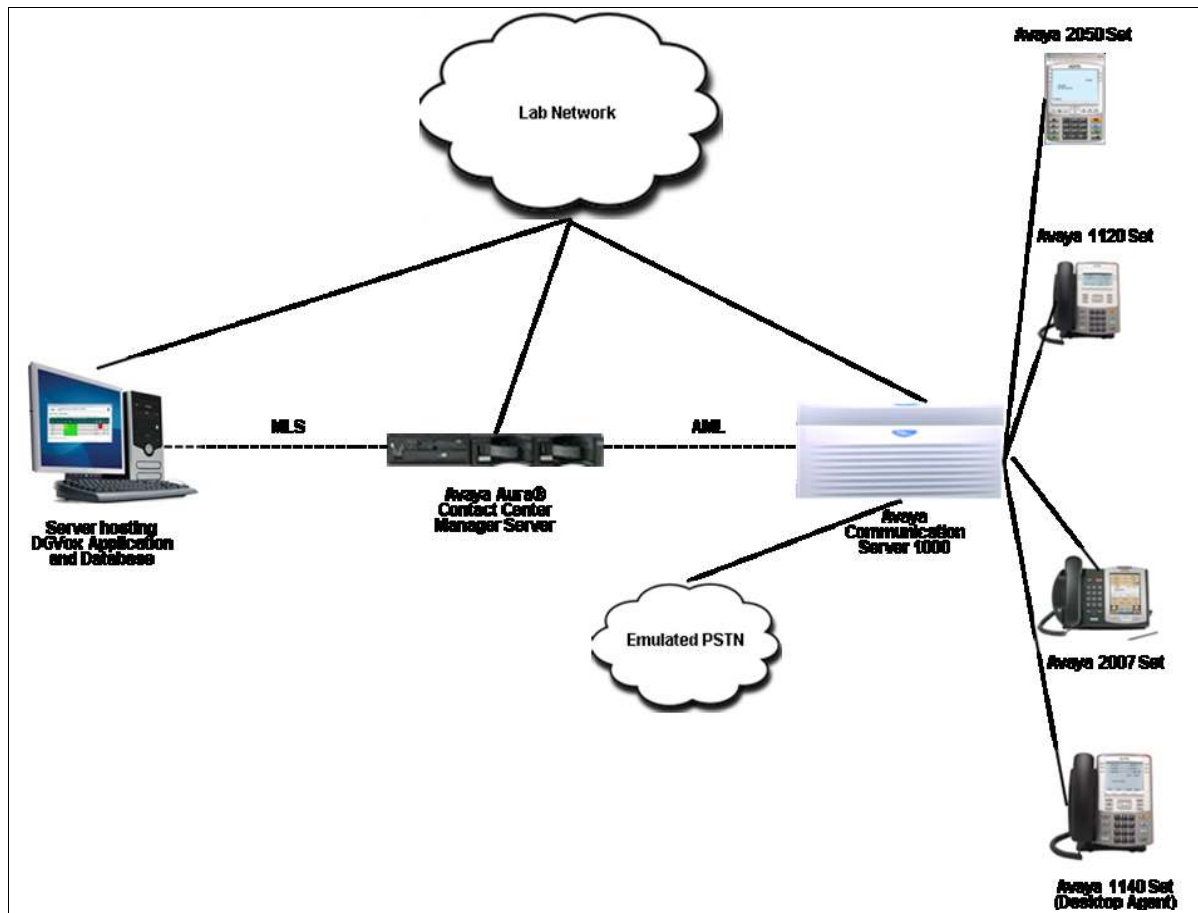
## 2.3. Support

For technical support on DGVox, contact Vox Spectrum support via phone, email, or website.

- **Phone:** +971 6 557 2682/+91 80 4047 5822
- **Email:** [support@voxspectrum.com](mailto:support@voxspectrum.com)
- **Web:** <http://www.voxspectrum.com/support>

## 3. Reference Configuration

The figure below illustrates the lab configuration that was used for compliance testing.



## 4. Equipment and Software

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

<b>Hardware Component</b>	<b>Version</b>
Avaya Communication Server 1000	7.5
Avaya Aura® Contact Center Manager Server	6.2
Avaya 1140 SIP Set	0625C8A
Avaya 1120 IP Set	0624C8A
Avaya 2007 IP Set	0621C8A
Avaya 2050 Softphone	3.02.0045
DGVox Server OS	Win XP Pro SP3
DGVox Application	7.1.0.9

## 5. Configure Avaya IP Phone

This section provides the procedures for configuring an Avaya IP Phone in the Communication Server 1000 which will be used during the compliance testing to make and receive calls. During compliance testing a total of four Avaya IP phones were used.

The assumption is made that Communication Server 1000 and Avaya Aura® Contact Center Manager Server are installed and configured successfully. Also note that the MLS protocol being used in the integration is granted only through license agreement and payment of an annual license fee.

For detailed information on installation and configuration for Communication Server 1000 and Avaya Aura® Contact Center Manager Server, refer to **Section 9 [1]**.

To configure an Avaya IP Phone, connect to the Communication Server 1000 using PuTTY and access the command line interface (CLI) by entering the proper credentials (not shown).

Overlay 11 (**LD 11**) in CLI will allow the user to configure an IP phone. Prompts in red shown in **Figures 1** and **2** have to be configured by the user. The rest of the values can remain at their default setting. In the example below, configuration is shown for an Avaya 1120 phone with directory number (DN) 58006.

In **Figure 1**, note the value of the Terminal Number (TN) since this will be used in **Section 6.2** when configuring the phone that needs to be recorded. Also Class of Service (CLS) is set to **RECA** which is “recording allowed”.

```
REQ: prt
TYPE: tn

TN 96 1 0 6
DATE
PAGE
DES

DES CORE7
TN 096 1 00 06 VIRTUAL
TYPE 1120
CDEN 8D
CTYP XDLC
CUST 0
WUID
NHTM
CFG_ZONE 00001
CUR_ZONE 00001
MRT
ERL 0
ECL 0
FDN 58007
TGAR 1
LDN NO
WCOS 1
SGRP 0
RMPG 3
SCI 0
SSU
LNRS 16
XLST
SCPW 1234
SFLT NO
CAC_MFC 0
CLS UNR FBA WTA LPR PUA MTD FNA HTA TDD HFA CRPD
MWA LMPN RMMD SMWD AAD IMD XHD IRD NID OLD VCE DRG1
POD SLKD CCSD SWD LNA CNDA
CFTD SFA MRD DDV CNID CDCA MSID DAPA BFED RCBD
ICDA CDMA LLCN MCTD CLBD AUTU
GPUD DPUD DNDA CFXA ARHD CLTD ASCD
CPFA CPTA ABDA CFHD FICD NAID BUZZ AGRD MOAD
UDI RCC HBTD AHD IPND DDGA NAMA MIND PRSD NRWD NRCD NROD
DRDD EXRO
USMD USRD ULAD CCBD RTDD RBDD RBHD PGND OCBD FLXD FTTC DNDY DNO3 MCBN
FDSD NOVD VOLA VOUD CDMR PRED RECA MCDD T87A SBMD
```

**Figure 1: Configuring an Avaya IP Phone**

In **Figure 2**, note the value of the **Key** since the DN associated with the Key will be used in **Section 6.2** when configuring the phone that needs to be recorded.

```
DGRP
MLWU_LANG 0
MLNG ENG
DNDR 0
KEY 00 SCR 58006 0      MARP
      CPND
          CPND_LANG ROMAN
          NAME 1120 IP
          XPLN 13
          DISPLAY_FMT FIRST, LAST
01
02
03
```

**Figure 2: Configuring an Avaya IP Phone Cont'd**

## 6. Configuree DGVoX Application

This section provides the procedures for configuring the DGVoX application. The procedures include the following areas:

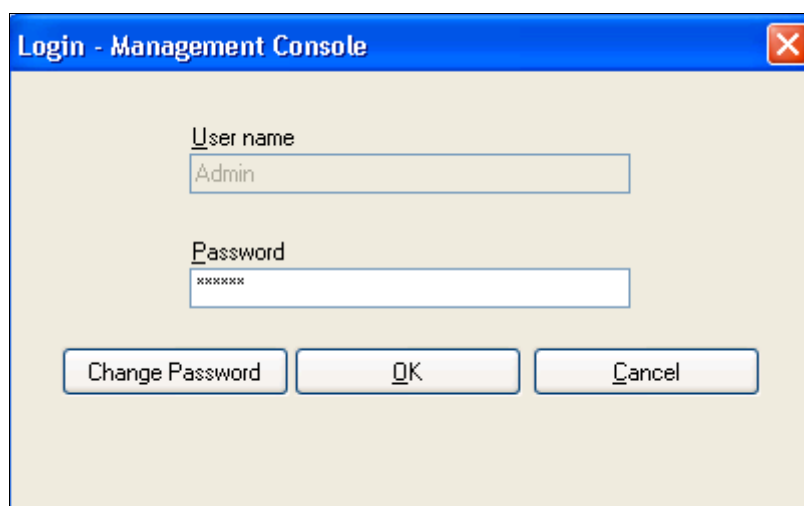
- Configure the General Settings.
- Configure the Nortel IP MLS CTI Settings.

### 6.1. Configure the General Settings

This section explains the settings to be configured in the General section from the DGVoX Management Console.

Assumption is made here that the DGVoX application and the required database is installed successfully on the server hosting the DGVoX application. For detailed information on installation and configuration of the DGVoX application, refer to **Section 9 [2]**.

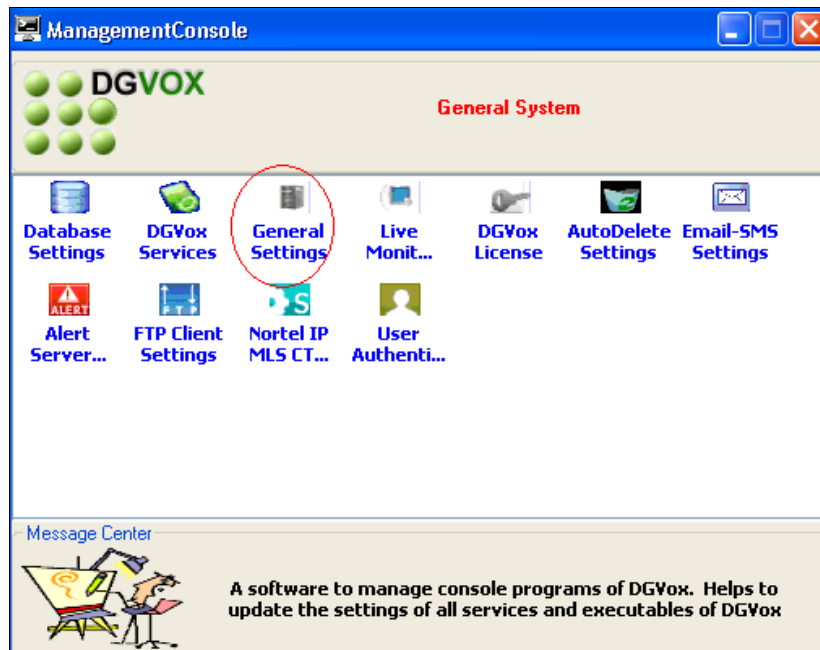
To configure the General Settings, login to the Management console by double-clicking on **ManagementConsole.exe** (not shown). During a typical installation, this .exe file is installed under the **C:\Voxspectrum\DGVOX** folder. The figure below shows the login screen to the Management Console. Enter the required credentials and click on **OK** to continue.



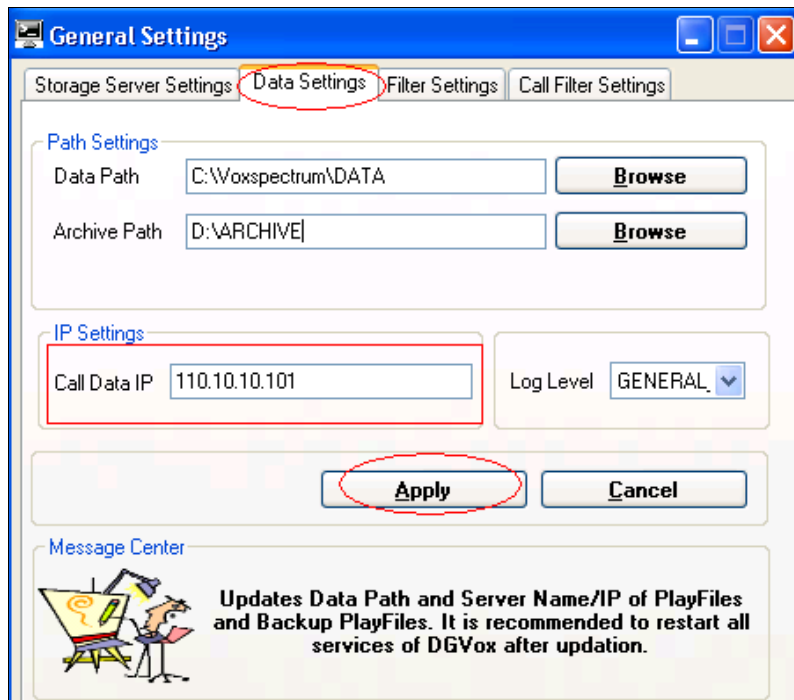
The image shows a Windows-style dialog box titled "Login - Management Console". It features a blue title bar with a close button (red X) on the right. The main area has a light beige background. There are two text input fields: the first is labeled "User name" and contains the text "Admin"; the second is labeled "Password" and contains seven asterisks "\*\*\*\*\*". Below these fields are three buttons: "Change Password", "OK", and "Cancel".



The figure below shows the main screen of the Management Console. Click on **General Settings** to proceed to the next step.



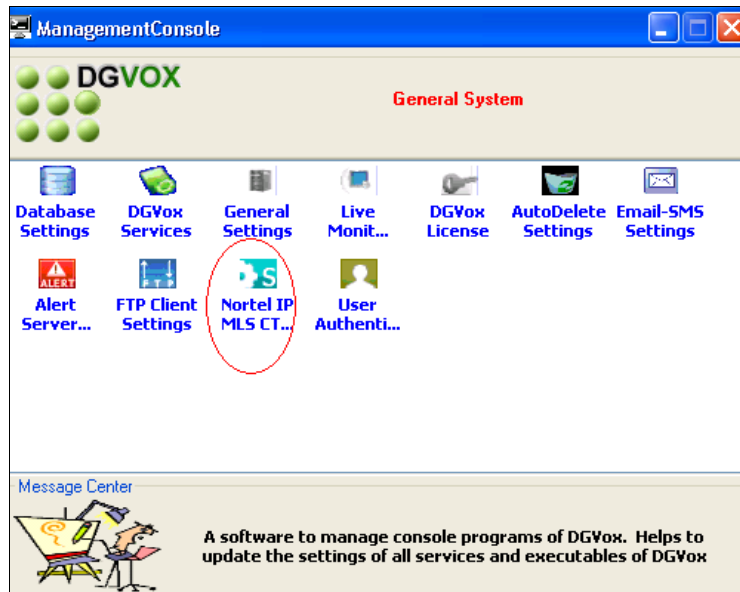
In the **Data Settings** tab shown in the figure below, enter the IP address of the Server on which the DGVoX application is installed in the **Call Data IP** field. The rest of the values are left at their default setting. Click on **Apply** to complete the configuration.



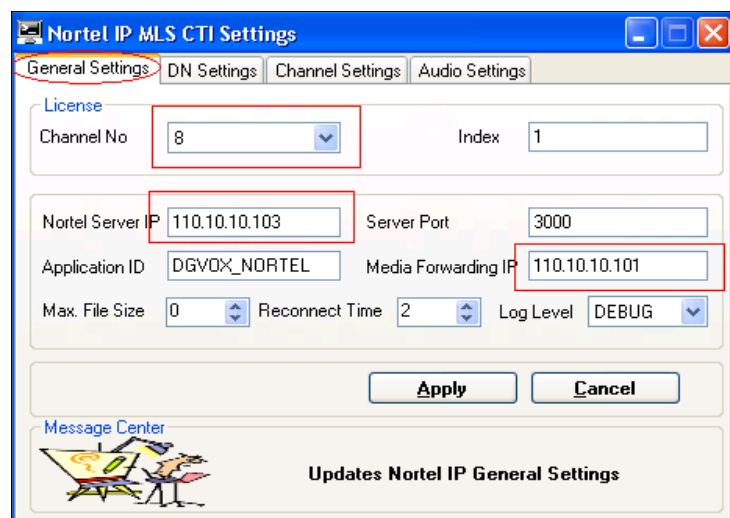
## 6.2. Configure the Nortel IP MLS CTI Settings

This section explains the settings to be configured on the Nortel IP MLS CTI from the DGVoX Management Console.

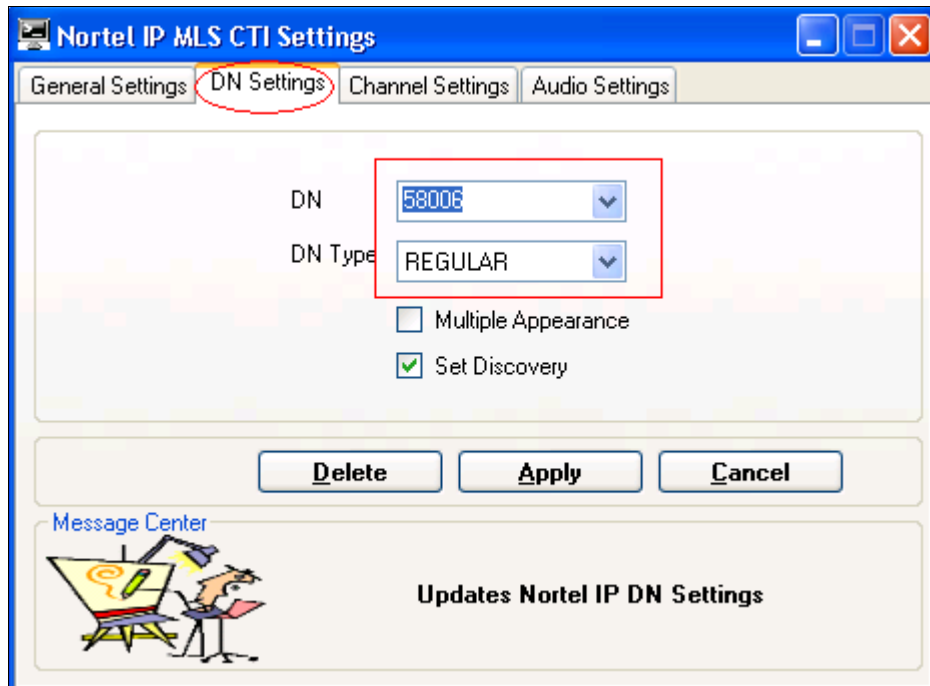
The figure below shows the main screen of the Management Console. Click on **Nortel IP MLS CTI Settings** to proceed to next step.



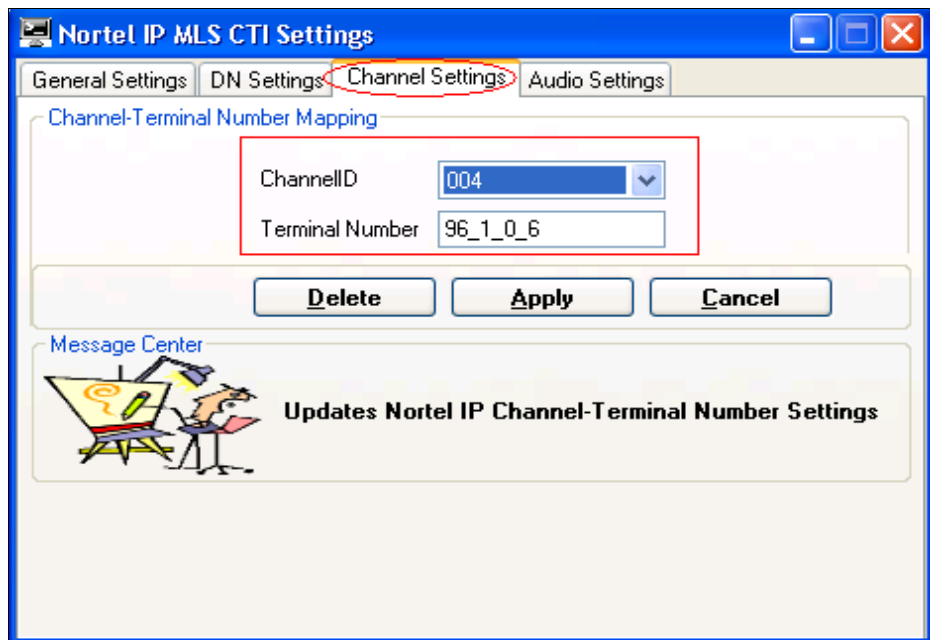
In the **General Settings** tab as shown in Figure below, enter the IP address of the Avaya Aura® Contact Center Manager Server in the **Nortel Server IP** field. Enter the IP address of the Server on which the DGVoX application is installed in the **Media Forwarding IP** field. During compliance testing the DGVoX application was licensed to record up to 8 channels and therefore **8** was selected under the **Channel No** field. The rest of the values are left at their default setting.



In the **DN Settings** tab, enter the **DN** and the **DN Type** that needs to be recorded. The figure below shows the DN **58006** being one of the DNs that will be recorded during compliance testing.



In the **Channel Settings** tab, select a free channel that needs to be recorded and assign a TN to that same channel. The figure below shows **ChannelID** as **004** and **Terminal Number** as **96\_1\_0\_6** that was configured during compliance testing. Click on **Apply** to complete the configuration.



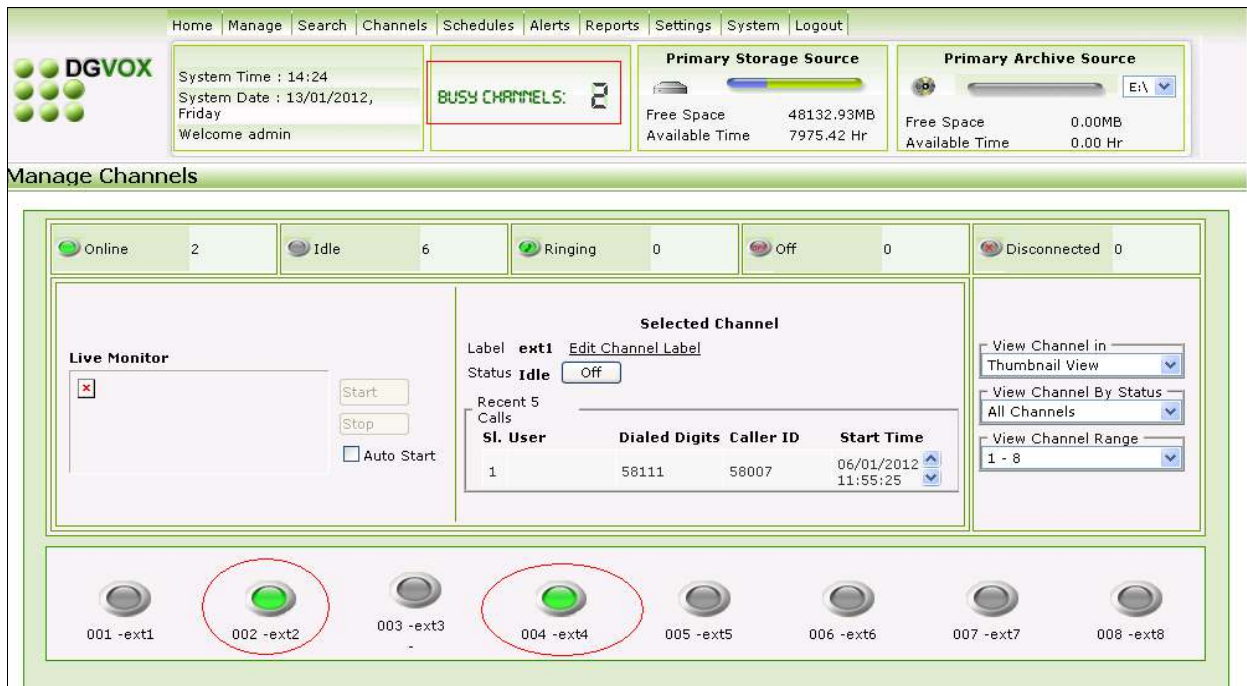
## 7. Verification Steps

This section provides the tests that can be performed to verify that the DGVOX application can register to the Communication Server 1000 and capture and record voice communication for the extensions selected.

The figure below shows the DGVOX logs which show the application registering the extensions and unpacking the TN information required for recording. The application log file can typically be found under the path **C:\Voxspectrum\DATALOG\NortelIPSignaling**.

```
Time:11_54_22_218,Message:GetExecutablePath [exeFilePath] C:\voxpectrum\DGVOX\,
Time:11_54_22_218,Message:INFORMATION:DN_Registrati5on response-- DN ->[58007]
Time:11_54_22_218,Message:INFORMATION:DN_Registrati5on response-- UNPacked TN ->[96][1][0][7]
Time:11_54_22_218,Message:INFORMATION:DN_Registrati5on response-- Packed TN ->[25155]
Time:11_54_22_218,Message:INFORMATION:Result SUCCESSFUL
Time:11_54_22_218,Message:INFORMATION:DN REGISTRATI5ON-- SUCCESS
Time:11_54_22_312,Message:INFORMATION:DN_Registrati5on response-- ACD_DEVICE_DN ->[1001]
Time:11_54_22_312,Message:INFORMATION:DN_Registrati5on response-- UNPacked TN ->[96][0][0][0]
Time:11_54_22_312,Message:INFORMATION:DN_Registrati5on response-- Packed TN ->[24576]
Time:11_54_22_312,Message:INFORMATION:Result SUCCESSFUL
Time:11_54_22_312,Message:INFORMATION:DN REGISTRATI5ON-- SUCCESS
Time:11_54_22_421,Message:INFORMATION:DN_Registrati5on response-- DN ->[58006]
Time:11_54_22_421,Message:INFORMATION:DN_Registrati5on response-- UNPacked TN ->[96][1][0][6]
Time:11_54_22_421,Message:INFORMATION:DN_Registrati5on response-- Packed TN ->[25154]
Time:11_54_22_421,Message:INFORMATION:Result SUCCESSFUL
```

The figure below shows voice communication between two extensions being recorded. Also note that 2 channels are in a busy state. The following can be accessed via an IE browser by typing **http://<ip address>/DGVOX** in the browser URL where **ip address** is the DGVOX server IP address.



The figure below is call records showing the extensions, duration of call, direction of the calls etc. Also, a recorded call can be played back by selecting the required extension and clicking on the **Play** button.

The screenshot displays the DGVoX application interface. The main window shows a list of call records with columns for Select, Play, Color Code, Extension, Start Time, Call Duration, In/Out, Dialed Digits, Caller ID, Agent ID, Total Grade, and Lock. The records are filtered to show 31-40 of 42 records. The right-hand panel provides detailed information for a selected call, including Start Time (1/6/2012 10:54:29 AM), End Time (1/6/2012 10:54:37 AM), Duration (00:00:08), Hold Time (00:00:00), Call Direction (Outgoing), Channel (004), Extension (ext4), Caller ID (58006), Dial Digits (58007), Call Type (Audio), Grade (0), and Notes. Below the call list, there are control buttons for Select All, Save, Play Selected, Delete, Merge, Lock or Unlock, and Call Tags. A playback control bar is visible at the bottom right of the interface.

Select	Play	Color Code	Extension	Start Time	Call Duration	In/Out	Dialed Digits	Caller ID	Agent ID	Total Grade	Lock
<input type="checkbox"/>		■	004 - ext4	1/6/2012 10:49:19 AM	00:00:15	Outgoing	58007	58006		0	
<input type="checkbox"/>		■	004 - ext4	1/6/2012 10:48:50 AM	00:00:11	Outgoing	58007	58006		0	
<input type="checkbox"/>		■	002 - ext2	1/6/2012 10:48:50 AM	00:00:28	Incoming	58007	58006		0	
<input type="checkbox"/>		■	004 - ext4	1/6/2012 10:41:48 AM	00:00:32	Outgoing	58007	58006		0	
<input type="checkbox"/>		■	002 - ext2	1/6/2012 10:41:48 AM	00:00:32	Incoming	58007	58006		0	
<input type="checkbox"/>		■	002 - ext2	1/5/2012 12:02:08 PM	00:00:05	Incoming	58007	6139655570		0	

Recording was also done when features like Hold, Transfer (blind and assisted) and Conference were activated. Recording was also done on Avaya desktop agent extensions.

## 8. Conclusion

These Application Notes have described the configuration steps necessary for the DGVoX application to successfully connect to a Communication Server 1000 and record the voice communication. All basic test cases passed.

## 9. References

This section references the product documentation relevant to these Application Notes.

[1] Product documentation for Avaya Aura® Contact Center and Avaya Communication Server 1000 may be found at:

<https://support.avaya.com/css/Products/P0793>

Avaya Communication Server 1000 Documents:

Avaya Communication Server 1000E Installation and Commissioning (NN43041-310)

Avaya CS 1000 Co-resident Call Server and Signaling Server Fundamentals (NN43001-509, 03.01)

Avaya CS 1000 Element Manager System Reference - Administration (NN43001-632, 05.04)

Avaya Aura® Contact Center 6.2 Documents:

Avaya Aura® Contact Center Planning and Engineering (NN44400-210)

Avaya Aura® Contact Center Installation (NN44400-311)

Avaya Aura® Contact Center Server Administration (NN44400-610)

Avaya Aura® Contact Center Overview (NN44400-111)

Avaya Aura® Contact Center Fundamentals (NN44400-110)

Avaya Aura™ Contact Center Manager Administration – Client Administration (NN44400-611)

[2] DGVoX User Guide v7.1 and DGVoX Installation Guide v7.1, available at Voxspectrum per request.

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