Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Interalia iProMOH with Avaya Aura™ Communication Manager – Issue 1.0

Abstract

These Application Notes describe the configuration steps for provisioning Interalia's iProMOH system to successfully interoperate with Avaya Aura™ Communication Manager. IProMOH is a music-on-hold system or an audio player application that plays music and messages.

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 compliance tested configuration using Interalia's Music-on-Hold solution iProMOH and Avaya Aura^{TM} Communication Manager.

IProMOH is an audio player system that can play music and messaging to on-hold callers and broadcast announcements to in-store patrons. The product is designed to operate as a Single Site device for deployment at a single site or can also operate in multiple locations while centrally managed via the customers LAN/WAN.

The iProMOH can be utilized as both music/messaging device for on-hold applications typically associated with a key system or PBX but also as an information/entertainment source in overhead paging applications. It allows the customer to manage and manipulate locally stored content as well as accepting streamed music sources from licensed providers.

The iProMOH has two modes of operation; 'Single Site' and 'Multi Site' managed. In Single Site mode the iProMOH content can be managed over the local LAN using the iProMOH built in user interface. In Multi Site managed mode the iProMOH automatically downloads content over the Internet.

Link Failure\Recovery was also tested to ensure successful reconnection on link failure.

1.1 Interoperability Compliance Testing

The interoperability compliance test included both feature functionality and serviceability testing. The feature functionality testing focused on verifying that music is played in various scenarios including:

- Verification of connectivity between iProMOH and Communication Manager
- Verification that music is played when call is on hold, transfer, conference, call park etc
- Verification that both music channels can be used simultaneously
- Verification that the same music source can be heard at same time on different handsets
- Failover testing of the iProMOH system and the Communication Manager

The serviceability testing focused on verifying the ability of the iProMOH system to recover from disconnection such as power supply failure.

1.2 Support

Technical support can be obtained for Interalia's iProMOH as follows:

- Email: support@interalia.com
- Website: www.interalia.com
- Phone: +1 800 661 9406

2 Reference Configuration

Figure 1 shows the network topology during compliance testing. An Avaya S8500B Server running Communication Manager with an Avaya G650 Media Gateway was used as the hosting PBX. Interalia's iProMOH is connected via the analog board on the G650. Note that for this compliance test, connectivity to the analog card was through the tip and ring 4 and 5 on the RJ45. A loop current disconnect was used in this Compliance test.
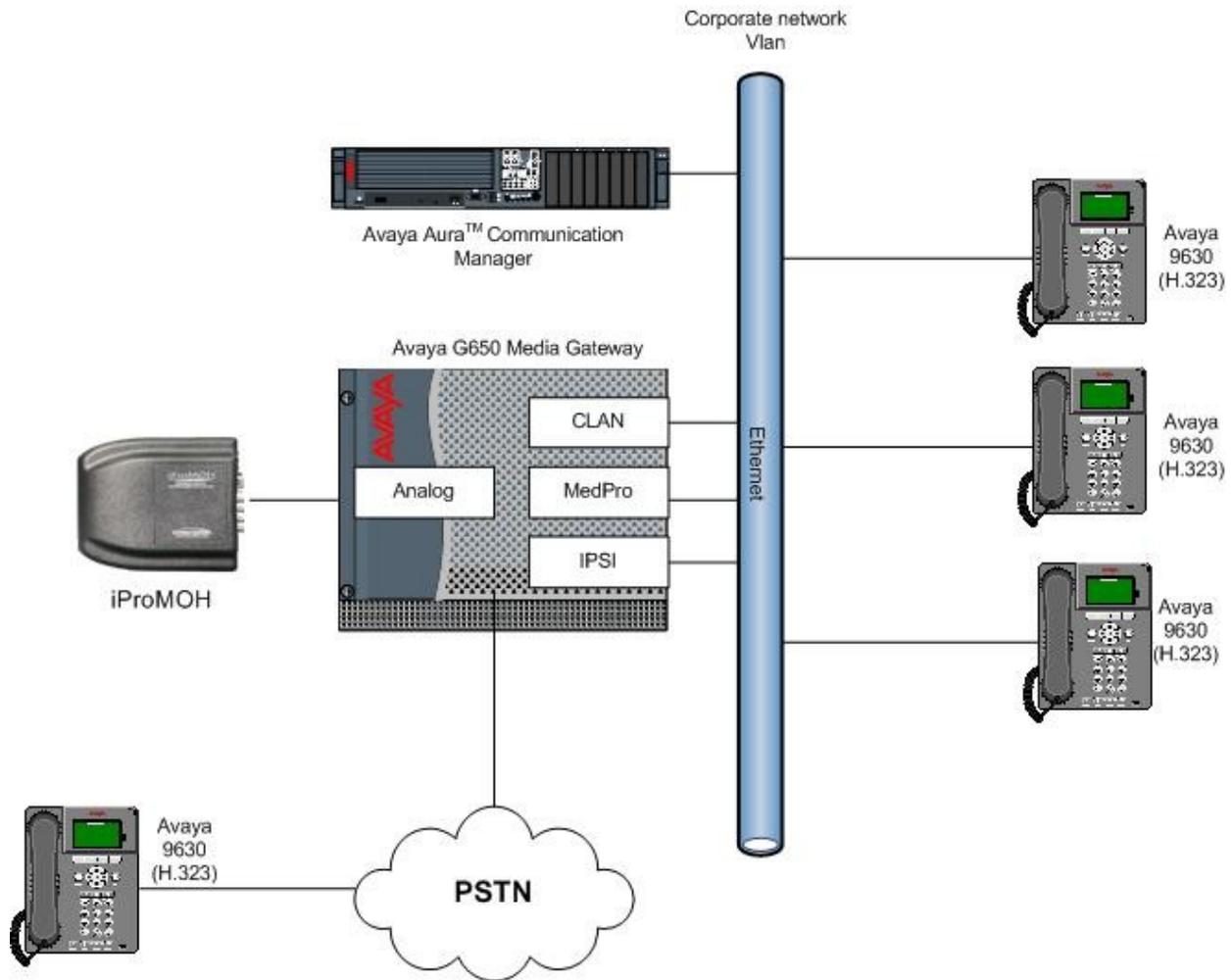

Figure 1: Network Topology

Note that just one iProMOH was used for this compliance testing. However, the analog card on the G650 Media Gateway, as specified in **Table 1**, **Section 3,** can support 24 ports.

3 Equipment and Software Validated

All the hardware and associated software used in the compliance testing is listed below.

Equipment	Software Version
Avaya S8500B Server	Avaya Aura™ Communication Manager 5.2.1 (R015x.02.1.016.4)
Avaya G650 Media Gateway - IPSI TN2312BP - CLAN TN799DP - IP Media Processor TN2602AP - DS1 Interface TN246CP - Analog Line TN793CP	 HW15, FM49 HW01, FM34 HW02, FM49 HW02, FM024 HW09, FW10
Avaya 96xx Telephones (H.323) - 9630	 3.0
Interalia iProMOH	Firmware version: V.3.53(2373) Software: iCAS V3.224

Table 1: Hardware and Software Version Numbers

4 Configure Avaya Aura™ Communication Manager

The configuration and verification operations illustrated in this section were all performed using Communication Manager System Access Terminal (SAT). The information provided in this section describes the configuration of Communication Manager for this solution. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 9**. The configuration operations described in this section can be summarized as follows:

- Verify System Parameters Customer Options
- Add Tenants
- Add Music Sources
- Configure Class of Restriction
- Administer Stations
- Administer Hunt Group, Vector and VDN
- Administer Agent Logins
- Add Feature Access Codes

The configuration of the PRI interface to the PSTN is outside the scope of these Application Notes.

4.1 Verify System Parameters Customer Options

Use the **display system-parameters customer-options** command to verify that tenant partitioning has been set. On **Page 5**, ensure that **Tenant Partitioning** is set to **y** as shown below.

```
display system-parameters customer-options                    Page   5 of  11
                              OPTIONAL FEATURES

              Multinational Locations? n            Station and Trunk MSP? n
  Multiple Level Precedence & Preemption? n      Station as Virtual Extension? n
                    Multiple Locations? n
                                              System Management Data Transfer? n
          Personal Station Access (PSA)? n              Tenant Partitioning? y
                      PNC Duplication? n          Terminal Trans. Init. (TTI)? n
                  Port Network Support? y              Time of Day Routing? n
                     Posted Messages? n          TN2501 VAL Maximum Capacity? y
                                                      Uniform Dialing Plan? n
                   Private Networking? y      Usage Allocation Enhancements? y
            Processor and System MSP? n
                   Processor Ethernet? y              Wideband Switching? n
                                                                Wireless? n
                       Remote Office? n
          Restrict Call Forward Off Net? y
                 Secondary Data Module? y
```

On **Page 6**, verify the following customer options are set to **y** as shown below.
- **ACD?** to **y**
- **Vectoring (Basic)?** to **y**
- **Expert Agent Selection (EAS)?** to **y**

These options are used in the compliance test but are not required for the operation of music-on-hold.

```
display system-parameters customer-options                    Page   6 of 11
                        CALL CENTER OPTIONAL FEATURES

                        Call Center Release: 5.0

                                 ACD? y                       Reason Codes? n
                       BCMS (Basic)? y              Service Level Maximizer? n
          BCMS/VuStats Service Level? n           Service Observing (Basic)? y
  BSR Local Treatment for IP & ISDN? n      Service Observing (Remote/By FAC)? n
                    Business Advocate? n            Service Observing (VDNs)? n
                     Call Work Codes? n                         Timed ACW? n
        DTMF Feedback Signals For VRU? n                 Vectoring (Basic)? y
                    Dynamic Advocate? n               Vectoring (Prompting)? n
      Expert Agent Selection (EAS)? y              Vectoring (G3V4 Enhanced)? n
                            EAS-PHD? n                Vectoring (3.0 Enhanced)? n
                   Forced ACD Calls? n       Vectoring (ANI/II-Digits Routing)? n
               Least Occupied Agent? n      Vectoring (G3V4 Advanced Routing)? n
            Lookahead Interflow (LAI)? n                 Vectoring (CINFO)? n
  Multiple Call Handling (On Request)? n     Vectoring (Best Service Routing)? n
       Multiple Call Handling (Forced)? n           Vectoring (Holidays)? n
     PASTE (Display PBX Data on Phone)? n          Vectoring (Variables)? n
```

Use the command **display system-parameters features** for verification of feature parameters. On **Page 11**, verify that the **Expert Agent Selection (EAS) Enabled?** option is set to **y** as shown below.

```
display system-parameters features                           Page 11 of 17
                      FEATURE-RELATED SYSTEM PARAMETERS
CALL CENTER SYSTEM PARAMETERS
  EAS
         Expert Agent Selection (EAS) Enabled? y
       Minimum Agent-LoginID Password Length:
          Direct Agent Announcement Extension:                 Delay:
    Message Waiting Lamp Indicates Status For: station
```

4.2 Add Tenants

Use the **change tenant 1** command to add a new tenant. Enter in a name in the **Tenant Description** field and a music source number in the **Music Source** field. The number set is **1**. This will correspond to the Music Source set in **Section 4.3**.

```
change tenant 1                                              Page   1 of   2

                          TENANT 1

       Tenant Description: MOH1

           Attendant Group: 1

     Ext Alert Port (TAAS):

         Night Destination:

             Music Source: 1



  DISTINCTIVE AUDIBLE ALERTING
            Internal: 1   External: 2   Priority: 3
                    Attendant Originated Calls: external

            COS Group: 1
```

Repeat the above process to add a tenant for each music source required.

4.3 Add Music Source

Use the command **change music-sources** to add two music sources to analog ports. On **Page 1**, set the **Type** to music, the **Source** to **port** and enter in the Port Number. Add a **Description**.

```
change music-sources                                         Page   1 of   7
                         MUSIC SOURCES

     Source No.   Type   Source                       Description

         1:       music  Type: port  01A0516          Physical Port 3
         2:       music  Type: port  01A0513          Physical Port 4
```

4.4 Configure Class of Restriction

Set the Class of Restriction (COR) for the stations to be used in compliance testing to enable music on hold for these stations. Use the command **change cor 1** where **1** is the COR assigned to the stations in **Section 4.5**. On **Page 1**, set the parameter **Hear System Music on Hold** to **y**.

```
change cor 1                                                   Page   1 of  23
                            CLASS OF RESTRICTION

              COR Number: 1
          COR Description:

                     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? y
     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            Add/Remove Agent Skills? y
           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? y
                                 Can Use Directed Call Pickup? y
                                Group Controlled Restriction: inactive
```

4.5 Administer Stations

A number of stations were set up and used as agent phones during the compliance testing. Use the command; **add station n** where **n** is a free extension according to the dial plan. On **Page 1**, set the **Type** to **9630** and enter in a name in the **Name:** field. Set the **TN:** field to the tenant which is associated with the music source expected as in **Section 4.3**. Set the **COR** to **1** to correspond with **Section 4.4**.

```
add station 3000                                               Page   1 of   5
                                  STATION

Extension: 3000                      Lock Messages? n              BCC: 0
    Type: 9630                        Security Code: 3000           TN: 1
    Port: S00002                      Coverage Path 1:             COR: 1
    Name: S1                          Coverage Path 2:             COS: 1
                                      Hunt-to Station:
STATION OPTIONS
                                        Time of Day Lock Table:
            Loss Group: 19         Personalized Ringing Pattern: 1
                                           Message Lamp Ext: 3000
          Speakerphone: 2-way          Mute Button Enabled? y
      Display Language: english            Button Modules: 0
 Survivable GK Node Name:
         Survivable COR: internal       Media Complex Ext:
   Survivable Trunk Dest? y                     IP SoftPhone? n
```

4.6 Administer Hunt Group, Vector and VDN

Administer a hunt group, vector and Vector Directory Number (VDN). The VDN and vector were created to route the iProMOH for the purpose of the compliance testing.

4.6.1 Hunt Group

Enter the **add hunt-group n** command where **n** is an unused hunt group number. On **Page 1** of the **hunt group** form, assign a **Group Name** and **Group Extension** valid under the provisioned dial plan. Set the following options to **y** as shown below.

- **ACD** to **y**
- **Queue** to **y**
- **Vector** to **y**

```
add hunt-group 1                                           Page   1 of   3
                            HUNT GROUP

            Group Number: 1                                ACD? y
              Group Name: MOH                            Queue? y
         Group Extension: 3090                          Vector? y
              Group Type: ucd-mia
                      TN: 1
                     COR: 1                  MM Early Answer? n
           Security Code:              Local Agent Preference? n
 ISDN/SIP Caller Display:

             Queue Limit: unlimited
 Calls Warning Threshold:       Port:
  Time Warning Threshold:       Port:
```

On **Page 2**, set the **Skill** field to **y** as shown below.

```
add hunt-group 1                                           Page   2 of   3
                            HUNT GROUP

                  Skill? y
                    AAS? n
                Measured: internal
      Supervisor Extension:

      Controlling Adjunct: none

                            Redirect on No Answer (rings):
                                       Redirect to VDN:
               Forced Entry of Stroke Counts or Call Work Codes? N
```

4.6.2 Vector

Enter the **change vector n** command, where **n** is set to **1**. Enter the vector steps to queue to the **Skill 1** as shown below.

```
change vector 1                                               Page   1 of   6
                              CALL VECTOR

    Number: 1                     Name: MOH
Meet-me Conf? n           Lock? n
    Basic? y   EAS? y   G3V4 Enhanced? n   ANI/II-Digits? n   ASAI Routing? y
 Prompting? n   LAI? n  G3V4 Adv Route? n   CINFO? n   BSR? n   Holidays? n
 Variables? n   3.0 Enhanced? n
01 queue-to     skill 1  pri m
02 wait-time    5   secs hearing music
03 disconnect   after announcement none
04 stop
05
```

4.6.3 Vector Directory Number (VDN)

Enter the **add vdn n** command; where **n** is an unused VDN number. The VDN chosen is **1800**. On **Page 1** assign a **Name** for the VDN, set the **Destination** to **Vector Number 1** and the **1st Skill** to **1**.

```
add vdn 1800                                                  Page   1 of   3
                        VECTOR DIRECTORY NUMBER

                          Extension: 1800
                              Name*: 1800
                        Destination: Vector Number         1

                  Allow VDN Override? n
                                COR: 1
                                TN*: 1
                           Measured: none

                          1st Skill*: 1
                          2nd Skill*:
                          3rd Skill*:

* Follows VDN Override Rules
```

4.7 Administer Agent Logins

Enter the **add agent-loginID n** command; where **n** is a valid extension under the provisioned dial plan. The agent-loginID chosen is **6001** and the **Password** is set to **6001**. Enter a descriptive name for the agent in the **Name** field. Ensure the **COR** field is set to **1** which relates to the COR configured in **Section 4.4**.

```
add agent-loginID 6001                                      Page   1 of   2
                              AGENT LOGINID

               Login ID: 6001                                    AAS? n
                   Name: IVR Agent 1                            AUDIX? n
                     TN: 1                            LWC Reception: spe
                    COR: 1                    LWC Log External Calls? n
          Coverage Path:                     AUDIX Name for Messaging:
          Security Code:

                                             LoginID for ISDN/SIP Display? n
                                                          Password: 6001
                                          Password (enter again): 6001
                                                       Auto Answer: station
                                                  MIA Across Skills: system
                                  ACW Agent Considered Idle: system
                                  Aux Work Reason Code Type: system
                                     Logout Reason Code Type: system
                   Maximum time agent in ACW before logout (sec): system
                                         Forced Agent Logout Time:   :


       WARNING:  Agent must log in again before changes take effect
```

On **Page 2**, specify the list of skills assigned to the login and the skill level for each of them in the **SN/SL** field as shown below. In this case set the Skill Number, **SN** to **1** and the Skill Level, **SL** to **1**.

```
add agent-loginID 6001                                      Page   2 of   2
                              AGENT LOGINID
       Direct Agent Skill:                           Service Objective? n
Call Handling Preference: skill-level            Local Call Preference? n

    SN   RL SL          SN   RL SL          SN   RL SL          SN   RL SL
 1: 1       1        16:               31:               46:
 2:                  17:               32:               47:
```

4.8 Add Feature Access Codes

Feature Access Codes are added on the Communication Manager for logging in agents. Enter the command **change feature-access-codes** and on **Page 5** add the values to the following codes to the Automatic Call Distribution Features:

- **After Call Work Access Code   #8**
- **Auto-In Access Code   #2**
- **Aux Work Access Code   #4**
- **Login Access Code   #6**
- **Logout Access Code   #5**
- **Manual-in Access Code   #7**

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

                    Automatic Call Distribution Features

                 After Call Work Access Code: #8
                          Assist Access Code:
                        Auto-In Access Code: #2
                        Aux Work Access Code: #4
                          Login Access Code: #6
                         Logout Access Code: #5
                        Manual-in Access Code: #7
       Service Observing Listen Only Access Code:
       Service Observing Listen/Talk Access Code:
          Service Observing No Talk Access Code:
                  Add Agent Skill Access Code:
               Remove Agent Skill Access Code:
          Remote Logout of Agent Access Code:
```

5 Configure the iProMOH

The iProMOH can be configured in either of two ways:
   a) Hyper-Terminal
   b) Windows Browser
Both methods are detailed below.

5.1 Configuring the iProMOH using HyperTerminal

Connect the serial port of the iProMOH to the PC. On the **COM1 Properties** screen set the **Port Settings** as follows:

- **Bits per second:**   **9600**
- **Data bits:**   **8**
- **Parity:**   **None**
- **Stop Bits:**   **1**
- **Flow Control:**   **None**

Click **Apply** and **OK.**
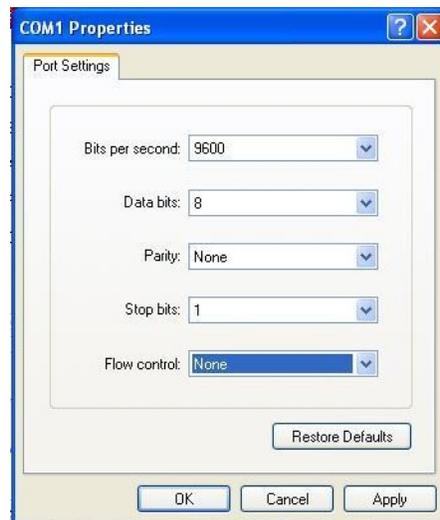
The HyperTerminal screen appears (not shown).

Press Enter and the following **Network Configuration** screen is displayed. For this compliance test a static IP address is set by changing the parameter **iProMOH Address Type** to **static** and the **iProMOH IP-Address** to **10.10.4.71.** The remaining values are left at default values. Use the Ctrl + R to save any changes made via HyperTerminal session i.e. IP addresses.

On reboot ping the iProMOH to confirm the successful configuration.

5.2 Configuring the iProMOH using Windows Browser

Navigate to **My Network Places\Entire Network\Microsoft Windows Network**. The **iProMOH** icon should appear.
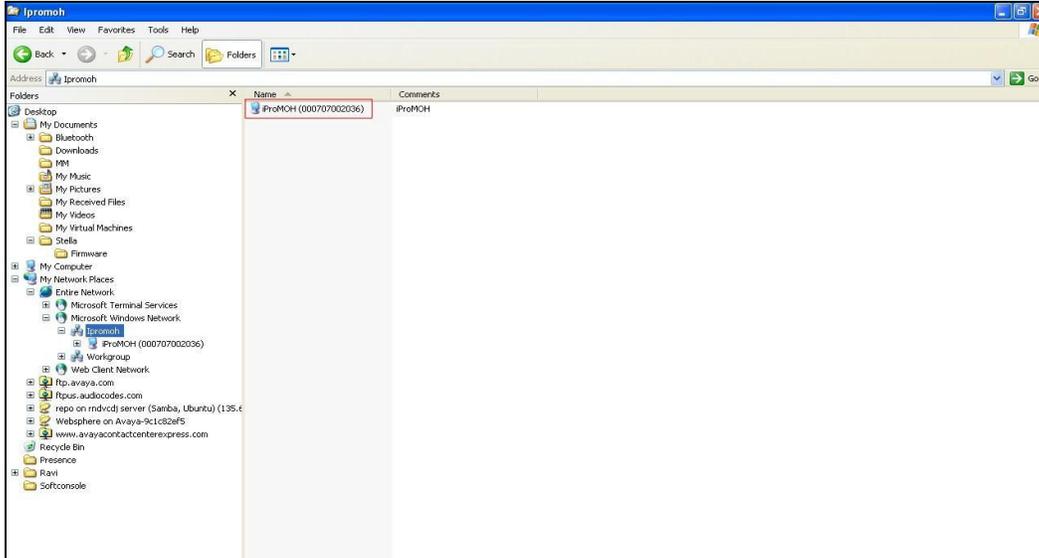
Double-click the icon and a **Config Tool** directory is displayed. Double-click to bring up the password screen and enter in the relevant password. The default password is 'admin'.
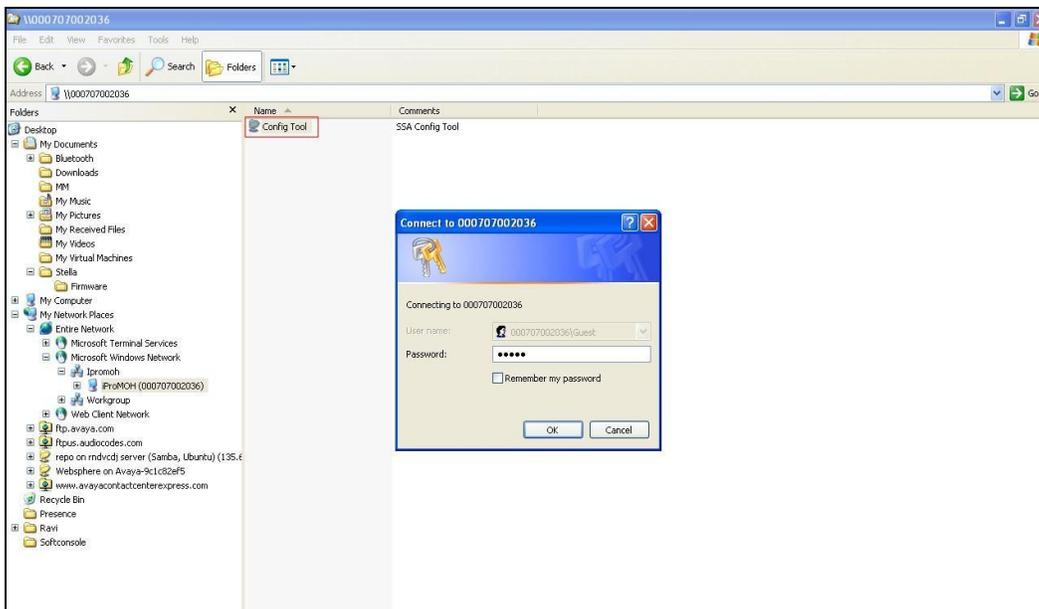
A list of files appears. Double-click the **iProMOH.exe** file and chose **Run.**
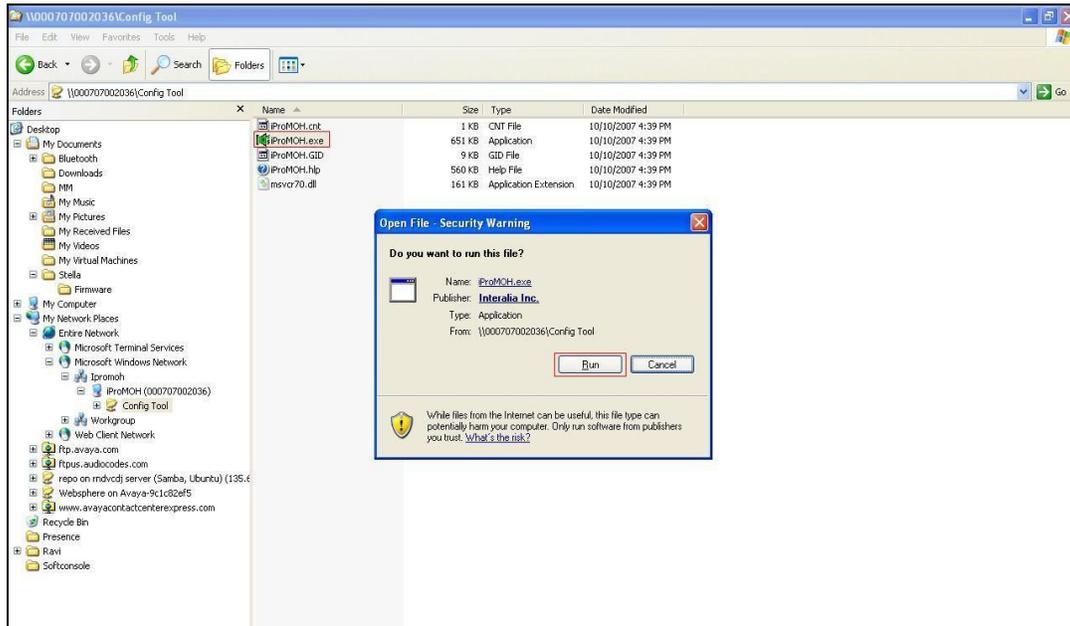
The iProMOH screen appears as follows indicating successful configuration.
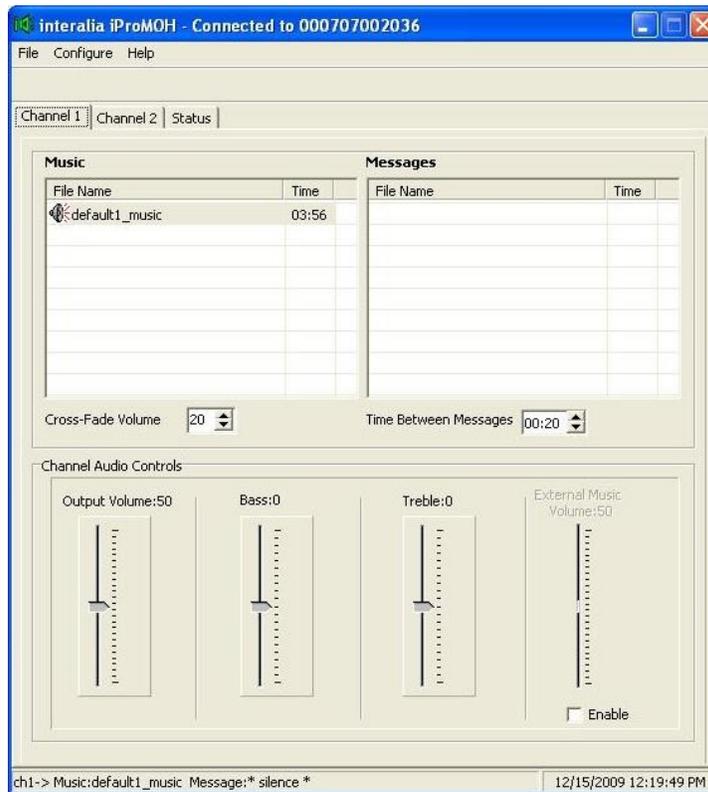
The following screen shows the iProMOH application once music and messages have been added.
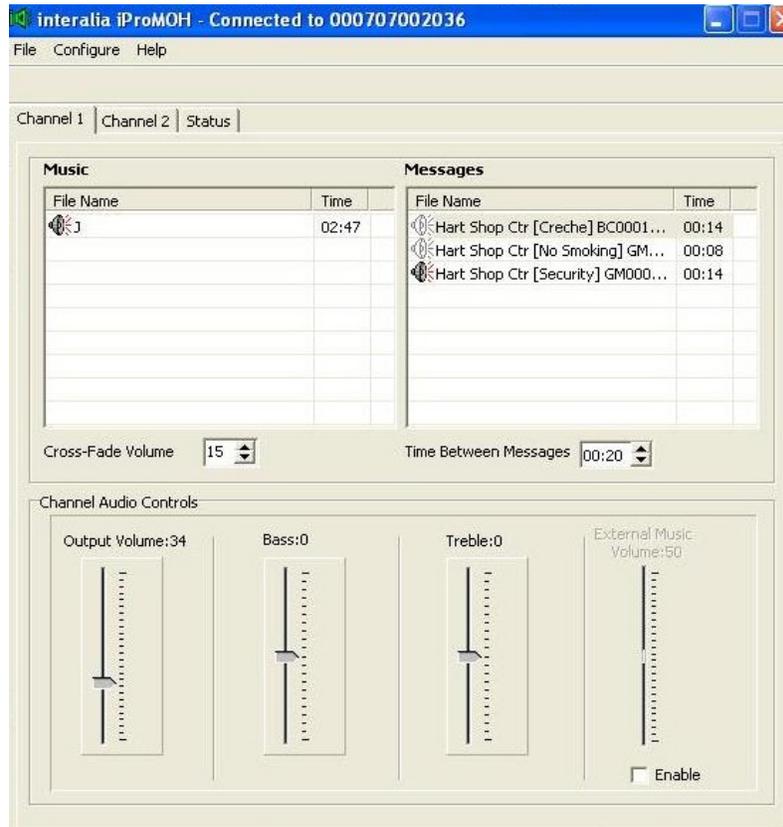
6 General Test Approach and Test Results

The test approach was to facilitate the playing of music and messages by the iProMOH solution in various telephony scenarios. The tests were to verify that the music and messages were being played correctly with good audio received. Functionality testing included basic telephony operations such as answer, hold/retrieve, transfer, conference and call park. The tests were all functional in nature and performance testing was not included. All test cases passed successfully.

The serviceability tests were performed by disconnecting the iProMOH system from the Communication Manager and ensuring successful audio on re-connection. All the test cases passed successfully.

7 Verification Steps

This section provides the tests that can be performed to verify correct configuration of Communication Manager and iProMOH.

7.1 Verify Communication Manager

The following steps can ensure that the communication between Communication Manager and the iProMOH is functioning correctly. Ensure that the IP address of the iProMOH can be pinged successfully.

7.2 Verify iProMOH

The following steps can be performed to verify the basic operation of the system components:

- Perform hold, transfer and conferencing operations to verify that music\messages are played as expected.
- Make calls from external telephones to a VDN to verify that music and messages on hold are played.
- Make calls using different music channels and verify that different music sources are used.

8 Conclusion

These Application Notes describe the configuration steps required for iProMOH to successfully interoperate with Avaya Aura™ Communication Manager 5.2. All functionality and serviceability test cases were completed successfully.

9 Additional References

This section references the Avaya and Interalia iProMOH product documentation that are relevant to these Application Notes. Product documentation for Avaya products may be found at http://support.avaya.com

1. *Administering Avaya Aura™ Communication Manager, Release 5.2; Document No. 03-300509, May 2009*

Product documentation for Interalia iProMOH can be found at http://www.interalia.com/Products/ipromoh