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Avaya Solution & Interoperability Test Lab

Application Notes for DuVoice DV2000 with Avaya Communication Manager Using Digital Station Interface – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for the DuVoice 2000 hospitality messaging system to interoperate with Avaya Communication Manager. In the compliance testing, the DuVoice DV2000 used the digital station interface from Avaya Communication Manager to provide automated attendant, voicemail, and wake-up call features.

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.

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Solution & Interoperability Test Lab Application Notes
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DuVoice-Digital

1. Introduction

The DuVoice DV2000 is a hospitality messaging system that provides automated attendant, voicemail, and wake-up call features. The compliance testing focused on integrating DuVoice DV2000 with Avaya Communication Manager using the digital station interface.

In the test configuration shown in **Figure 1**, the TN2224 Digital Line card in Avaya Communication Manager was connected to the Dialogic D/82JCT-U PBX Integration Board in DuVoice DV2000. The digital ports were configured as digital stations with type "7434ND" and members of a hunt group on Avaya Communication Manager. Incoming calls to the hunt group were delivered over an unavailable digital station to DuVoice DV2000. DuVoice DV2000 used the digital station display information from Avaya Communication Manager to determine the type of call and hence the service to provide - such as automated attendant for incoming trunk calls, voicemail and wake-up call scheduling for internal calls, and voicemail coverage for redirected calls.

For voicemail coverage scenarios, the voicemail messages were recorded and saved on DuVoice DV2000. The Leave Word Calling feature on Avaya Communication Manager was used by DuVoice DV2000 to turn on/off the message waiting lamp for internal user stations such as the guests and the hotel staff.

DuVoice DV2000 also has a Property Management System (PMS) interface, and a PMS simulator was used in the compliance testing to initiate the room check-in, check-out, and move requests to DuVoice DV2000. In addition, the InnDesk web interface of DuVoice DV2000 was used in the compliance testing to monitor the guest check-in, check-out, and wake-up call status.
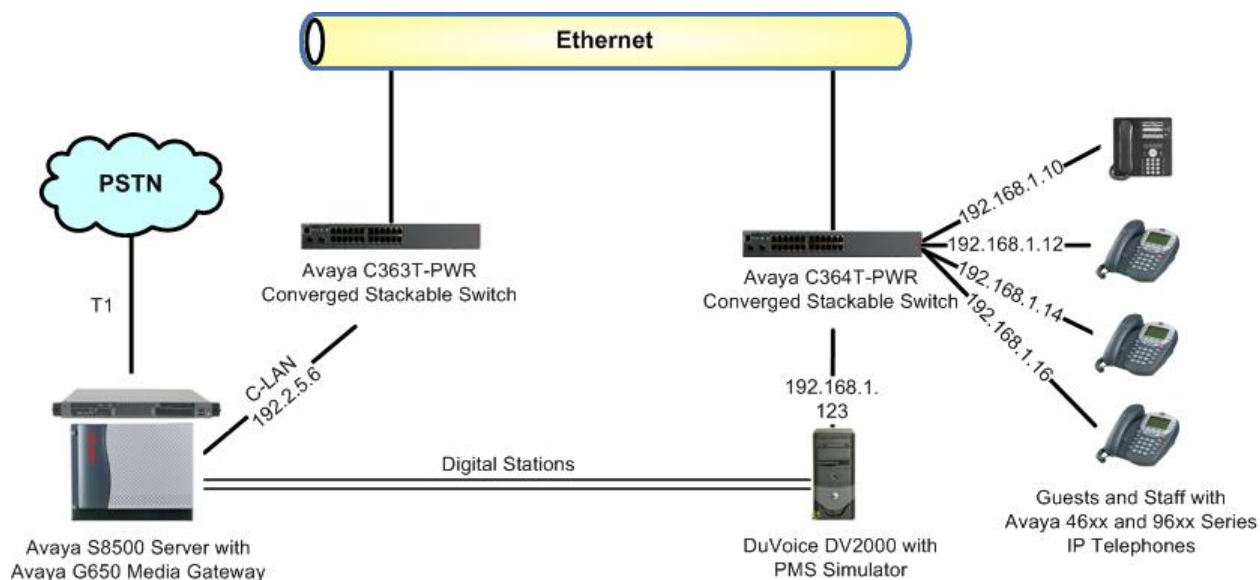
Figure 1: DuVoice DV2000 with Avaya Communication Manager

2. Equipment and Software Validated

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

Equipment	Software
Avaya S8500 Server	Avaya Communication Manager 5.0, R015x.00.0.825.4
Avaya G650 Media Gateway • TN799DP C-LAN • TN2224CP Digital Line	HW01 FW024 HW08 FW015
Avaya 4600 Series IP Telephones (H.323)	2.9
Avaya 9600 Series IP Telephones (H.323)	2.0
DuVoice DV2000 • Dialogic D/82JCT-U PBX Integration Board	4.00.067 SR 6.0

3. Configure Avaya Communication Manager

This section provides the procedures for configuring Avaya Communication Manager. The procedures fall into the following areas:

- Administer system parameters features
- Administer feature access codes
- Administer digital stations
- Administer hunt group
- Administer class of service
- Administer system parameters coverage forwarding
- Administer coverage path
- Administer user stations

3.1. Administer System Parameters Features

Use the "change system-parameters features" command to disable **Temporary Bridged Appearance on Call Pickup**, which is located on **Page 4**.

```
change system-parameters features                          Page   4 of  17
                    FEATURE-RELATED SYSTEM PARAMETERS
         Reserved Slots for Attendant Priority Queue: 5
                          Time before Off-hook Alert: 10
            Emergency Access Redirection Extension:
 Number of Emergency Calls Allowed in Attendant Queue: 5
 Maximum Number of Digits for Directed Group Call Pickup:4
           Call Pickup on Intercom Calls? y        Call Pickup Alerting? y
 Temporary Bridged Appearance on Call Pickup? n       Directed Call Pickup? y
               Extended Group Call Pickup: simple
```

Navigate to **Page 6**, and enable **7434ND**. This parameter allows for the use of "7434ND" as a station type.

```
change system-parameters features                          Page   6 of  17
                    FEATURE-RELATED SYSTEM PARAMETERS
         Public Network Trunks on Conference Call: 5            Auto Start? n
   Conference Parties with Public Network Trunks: 6             Auto Hold? n
Conference Parties without Public Network Trunks: 6         Attendant Tone? y
        Night Service Disconnect Timer (seconds): 180         Bridging Tone? n
               Short Interdigit Timer (seconds): 3         Conference Tone? n
           Unanswered DID Call Timer (seconds):            Intrusion Tone? n
           Line Intercept Tone Timer (seconds): 30    Mode Code Interface? n
             Long Hold Recall Timer (seconds): 0
                     Reset Shift Timer (seconds): 0
   Station Call Transfer Recall Timer (seconds): 0        Recall from VDN? n
                           DID Busy Treatment: tone


            Allow AAR/ARS Access from DID/DIOD? n
               Allow ANI Restriction on AAR/ARS? n
     Use Trunk COR for Outgoing Trunk Disconnect? n
               7405ND Numeric Terminal Display? n              7434ND? y
```

3.2. Administer Feature Access Codes

Use the "change feature-access-codes" command, navigate to **Page 3** and enter available access code values for **Leave Word Calling Send A Message** and **Leave Word Calling Cancel A Message**, as shown below.

```
change feature-access-codes                                   Page   3 of   9
                         FEATURE ACCESS CODE (FAC)
            Leave Word Calling Send A Message: *28
          Leave Word Calling Cancel A Message: #28
   Limit Number of Concurrent Calls Activation:        Deactivation:
               Malicious Call Trace Activation:        Deactivation:
         Meet-me Conference Access Code Change: *30

 PASTE (Display PBX data on Phone) Access Code: *31
  Personal Station Access (PSA) Associate Code: *32    Dissociate Code: #32
         Per Call CPN Blocking Code Access Code: *33
       Per Call CPN Unblocking Code Access Code: #33
                     Posted Messages Activation: *34    Deactivation: #34
                  Priority Calling Access Code: *35
                          Program Access Code: #35
```

3.3. Administer Digital Stations

Add a station for each connected digital port to DuVoice DV2000 using the "add station n" command, where "n" is an available extension number. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **Type:** "7434ND"
- **Port:** The digital port connected to DuVoice DV2000, in this case "01A0801".
- **Name:** A descriptive name.

```
add station 62501                                             Page   1 of   6
                                  STATION

Extension: 62501                       Lock Messages? n              BCC: 0
    Type: 7434ND                       Security Code:                 TN: 1
    Port: 01A0801                    Coverage Path 1:                COR: 1
    Name: DuVoice Digital #1         Coverage Path 2:                COS: 1
                                     Hunt-to Station:
STATION OPTIONS
                                      Time of Day Lock Table:
            Loss Group: 2       Personalized Ringing Pattern: 1
           Data Module? n                   Message Lamp Ext: 62501
        Display Module? y
       Display Language: english            Coverage Module? n

         Survivable COR: internal         Media Complex Ext:
  Survivable Trunk Dest? y                    IP SoftPhone? n
                                       Remote Office Phone? N
```

Navigate to **Page 2**. Enter "none" for **LWC Reception**. Enter "y" for **LWC Activation**, **Restrict Last Appearance**, and **Display Client Redirection**. Retain the default values in the remaining fields.

```
add station 62501                                               Page   2 of   6
                                  STATION
FEATURE OPTIONS
            LWC Reception: none           Auto Select Any Idle Appearance? n
            LWC Activation? y                   Coverage Msg Retrieval? y
  LWC Log External Calls? n                              Auto Answer: none
              CDR Privacy? n                          Data Restriction? n
      Redirect Notification? y            Idle Appearance Preference? n
  Per Button Ring Control? n              Bridged Idle Line Preference? n
     Bridged Call Alerting? n                Restrict Last Appearance? y
   Active Station Ringing: single

         H.320 Conversion? n      Per Station CPN - Send Calling Number?
        Service Link Mode: as-needed
          Multimedia Mode: basic
      MWI Served User Type:                  Display Client Redirection? y
               AUDIX Name:                  Select Last Used Appearance? n
                                            Coverage After Forwarding? s
```

Navigate to **Page 4**, and remove the default "call-appr" assignment for **BUTTON ASSIGNMENTS 3**. Retain the default values in the remaining fields.

```
add station 62501                                               Page   4 of   6
                                  STATION
 SITE DATA
       Room:                                        Headset? n
       Jack:                                        Speaker? n
      Cable:                                        Mounting: d
      Floor:                                     Cord Length: 0
   Building:                                       Set Color:

ABBREVIATED DIALING
    List1:                  List2:                      List3:

BUTTON ASSIGNMENTS
 1: call-appr                      6:
 2: call-appr                      7:
 3:                                8:
```

Repeat this section to administer a station for every connected digital port to DuVoice DV2000. For the compliance testing, two stations were administered as shown below.

```
list station 62501 count 2


                            STATIONS

Ext/           Port/   Name/                    Room/        Cv1/ COR/ Cable/
 Hunt-to        Type       Surv GK NN        Move    Data Ext   Cv2  COS  Jack

62501          01A0801 DuVoice Digital #1                          1
               7434ND                        no                    1
62502          01A0804 DuVoice Digital #2                          1
               7434ND                        no                    1
```

3.4. Administer Hunt Group

Add a hunt group using the "add hunt n" command, where "n" is an available hunt group number. For **Group Name**, enter a descriptive name. For **Group Extension**, enter an available extension number.

```
add hunt-group 62                                        Page   1 of  60
                            HUNT GROUP

          Group Number: 62                            ACD? n
            Group Name: DuVoice Digital Hunt         Queue? n
       Group Extension: 62500                        Vector? n
            Group Type: ucd-mia               Coverage Path:
                    TN: 1        Night Service Destination:
                   COR: 1                 MM Early Answer? n
         Security Code:            Local Agent Preference? n
 ISDN/SIP Caller Display:
```

Navigate to **Page 3**, and enter the digital station extensions from **Section 3.3** as members.

```
add hunt-group 62                                        Page   3 of  60
                            HUNT GROUP
        Group Number: 62   Group Extension: 62500      Group Type: ucd-mia
  Member Range Allowed: 1 - 1500      Administered Members (min/max): 0   /0
                                       Total Administered Members: 0
GROUP MEMBER ASSIGNMENTS
     Ext          Name(19 characters)      Ext          Name(19 characters)
   1: 62501         DuVoice Digital #1   14:
   2: 62502         DuVoice Digital #2   15:
   3:                                    16:
```

3.5. Administer Class of Service

Use the "change cos" command to enable **Client Room** for the class of service designated for the guest users. In the compliance testing, class of service "6" was used for all guest users.

```
change cos                                               Page   1 of   2
CLASS OF SERVICE


                              0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15
 Auto Callback                n  y  y  n  y  n  y  n  y  n  y  n  y  n  y  n
 Call Fwd-All Calls           n  y  n  y  y  n  n  y  y  n  n  y  y  n  n  y
 Data Privacy                 n  n  n  n  n  y  y  y  y  n  n  n  n  y  y  y
 Priority Calling             n  y  n  n  n  n  n  n  y  y  y  y  y  y  y  y
 Console Permissions          n  n  n  n  n  n  n  n  n  n  n  n  n  n  n  n
 Off-hook Alert               n  n  n  n  n  n  n  n  n  n  n  n  n  n  n  n
 Client Room                  n  n  n  n  n  n  y  n  n  n  n  n  n  n  n  n
 Restrict Call Fwd-Off Net    y  y  y  y  y  y  y  y  y  y  y  y  y  y  y  y
 Call Forwarding Busy/DA      n  n  n  n  n  n  n  n  n  n  n  n  n  n  n  n
 Personal Station Access (PSA) n n  n  n  n  n  n  n  n  n  n  n  n  n  n  n
 Extended Forwarding All      n  n  n  n  n  n  n  n  n  n  n  n  n  n  n  n
 Extended Forwarding B/DA     n  n  n  n  n  n  n  n  n  n  n  n  n  n  n  n
 Trk-to-Trk Transfer Override n  n  n  n  n  n  n  n  n  n  n  n  n  n  n  n
 QSIG Call Offer Originations n  n  n  n  n  n  n  n  n  n  n  n  n  n  n  n
 Contact Closure Activation   n  n  n  n  n  n  n  n  n  n  n  n  n  n  n  n
```

3.6. Administer System Parameters Coverage Forwarding

Use the "change system-parameters coverage-forwarding" command to disable **Keep Held SBA at Coverage Point**, as shown below.

```
change system-parameters coverage-forwarding                    Page   1 of   2
                 SYSTEM PARAMETERS CALL COVERAGE / CALL FORWARDING

CALL COVERAGE/FORWARDING PARAMETERS

           Local Cvg Subsequent Redirection/CFWD No Ans Interval (rings): 2
        Off-Net Cvg Subsequent Redirection/CFWD No Ans Interval (rings): 2
                        Coverage - Caller Response Interval (seconds): 4
    Threshold for Blocking Off-Net Redirection of Incoming Trunk Calls: 1
                        Location for Covered and Forwarded Calls: called
COVERAGE
                                    Keep Held SBA at Coverage Point? n
        External Coverage Treatment for Transferred Incoming Trunk Calls? n
        Immediate Redirection on Receipt of PROGRESS Inband Information? n
                                            Maintain SBA At Principal? y

                                        Station Hunt Before Coverage? n
```

3.7. Administer Coverage Path

Add a coverage path using the "add coverage path n" command, where "n" is an available coverage path number. For the **Point1** field, enter "h62" to designate the hunt group from **Section 3.4** as the first coverage point. This coverage path will be assigned to all user stations that use the DuVoice DV2000 for voicemail, including guests and staff.

```
add coverage path 6                                             Page   1 of   1
                              COVERAGE PATH

                  Coverage Path Number: 6
                                              Hunt after Coverage? n
                     Next Path Number:        Linkage

COVERAGE CRITERIA

    Station/Group Status    Inside Call     Outside Call
            Active?              n               n
             Busy?               y               y
       Don't Answer?             y               y          Number of Rings: 2
             All?                n               n
 DND/SAC/Goto Cover?             y               y
  Holiday Coverage?              n               n

COVERAGE POINTS
    Terminate to Coverage Pts. with Bridged Appearances? n
  Point1: h62           Rng:    Point2:
  Point3:                       Point4:
  Point5:                       Point6:
```

3.8. Administer User Stations

Set the coverage path for each guest and staff user by using the "change station n" command, where "n" is the existing user's extension. For the **Coverage Path 1** field, enter the coverage path number from **Section 3.7**.

If the user is a guest, then enter the class of service number from **Section 3.5** for the **COS** field.

```
change station 60201                                            Page   1 of   5
                                STATION

Extension: 60201                       Lock Messages? n              BCC: 0
    Type: 4620                         Security Code: *              TN: 1
    Port: S00000                    Coverage Path 1: 6              COR: 1
    Name: DuVoice Basic Guest       Coverage Path 2:               COS: 6
                                    Hunt-to Station:
STATION OPTIONS
                                       Time of Day Lock Table:
             Loss Group: 19       Personalized Ringing Pattern: 1
                                         Message Lamp Ext: 60201
           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


                                       Customizable Labels? y
```

Repeat this section to set the coverage path for every guest and staff user that will use the DuVoice DV2000 for voicemail, and set the class of service for every guest user. In the compliance testing, two guest users and two staff users were configured, as shown below.

```
list station 60201 count 5

                         STATIONS

Ext/          Port/   Name/                     Room/        Cv1/ COR/ Cable/
 Hunt-to       Type      Surv GK NN      Move    Data Ext     Cv2  COS  Jack

60201         S00000  DuVoice Basic Guest                     6    1
              4620                        no                       6
60202         S00166  DuVoice Extended Guest                  6    1
              4625                        no                       6
64201         S00002  Duvoice Front Desk                      6    1
              9630                        no                       1
64202         S00001  DuVoice Staff                           6    1
              4620                        no                       1
```

4. Configure DuVoice DV2000

This section provides the procedures for configuring DuVoice DV2000. The procedures fall into the following areas:

- Shutdown server
- Administer integration template
- Administer voice ports
- Administer mailboxes
- Startup server

4.1. Shutdown Server

From the DuVoice DV2000 server, select **Start > Programs > DuVoice > Server Control**. The **Server Control** screen is displayed. Select **Shutdown** to stop the server, in order to make all subsequent configuration changes.
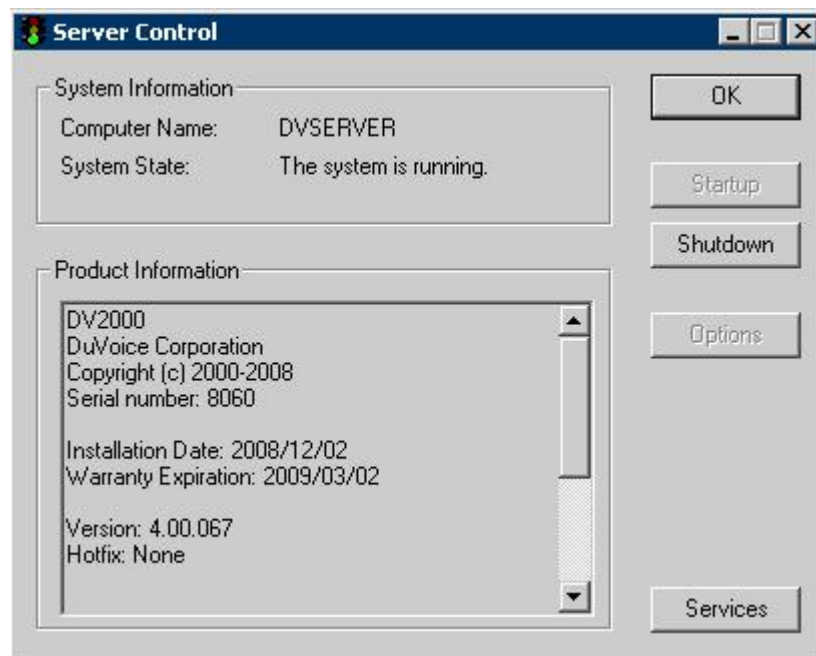
4.2. Administer Integration Template

This configuration section is only needed when the values used for the Leave Word Call feature access codes and number of extension digits on Avaya Communication Manager, are other than the default values below that are assumed by DuVoice DV2000:

Parameter	DuVoice DV2000 Defaults
Leave Word Calling Send A Message	*4
Leave Word Calling Cancel A Message	#4
Number of Extension Digits	4

From the DuVoice DV2000 server, select **Start > Programs > DuVoice > System Configuration**. The **Enter Password** screen is displayed. Log in with the appropriate credentials.

The **System Configuration** screen is displayed. Select **Integrations > Templates** from the top menu.
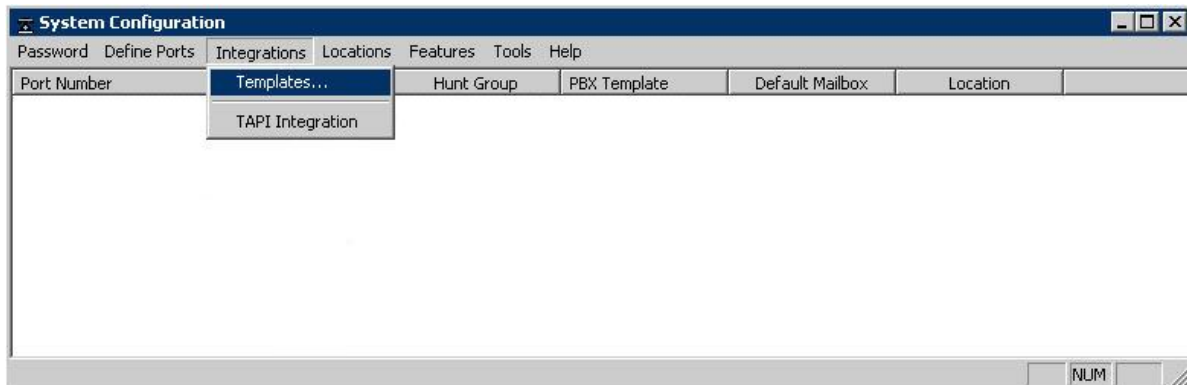
The **Manage Integration Templates** screen is displayed next. Select the existing **Avaya Digital** template and click **Edit**.
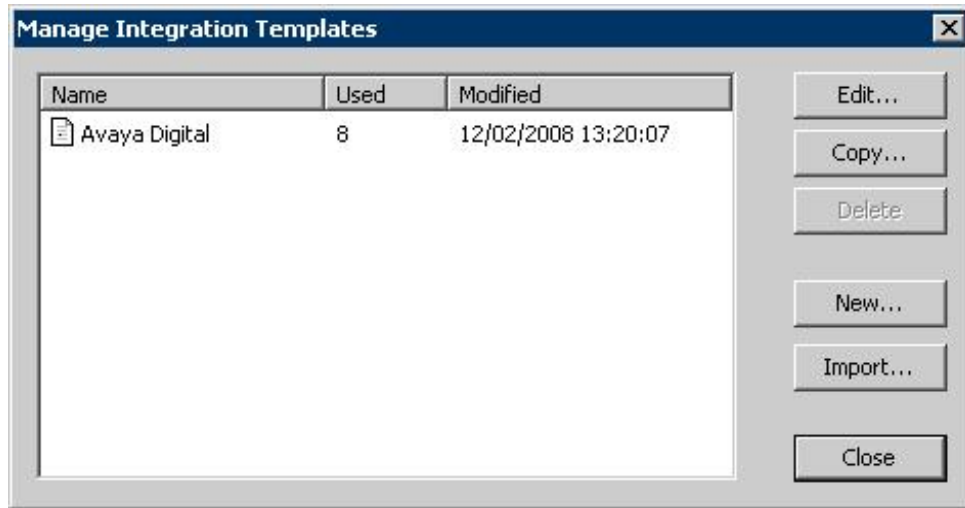
The **Avaya Digital Properties** screen is displayed. Select the **General** tab, and click **On code** in the **MWI Dial Codes** section.
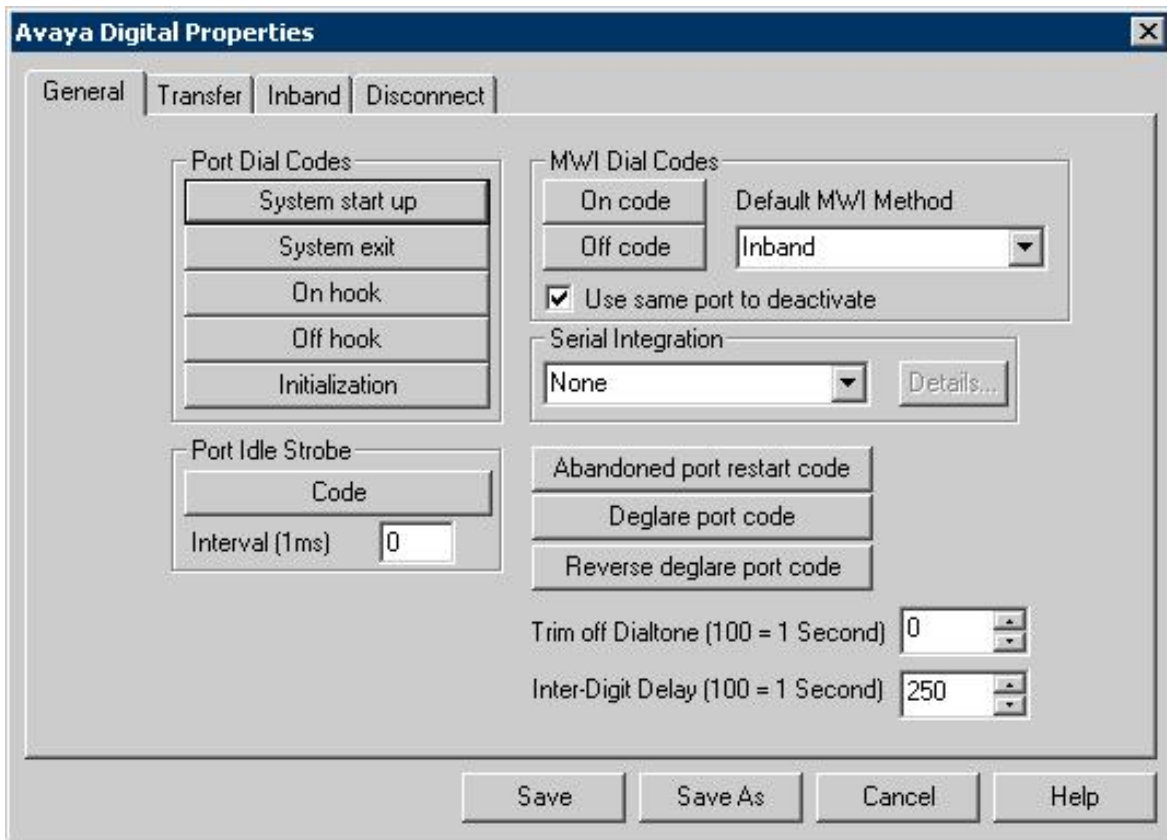
The **PBX Code Editor** pop-up window is displayed. Select the **Build dial string** field, and click **Edit** to set the field value to the **Leave Word Calling Send A Message** feature access code from **Section 3.2**.
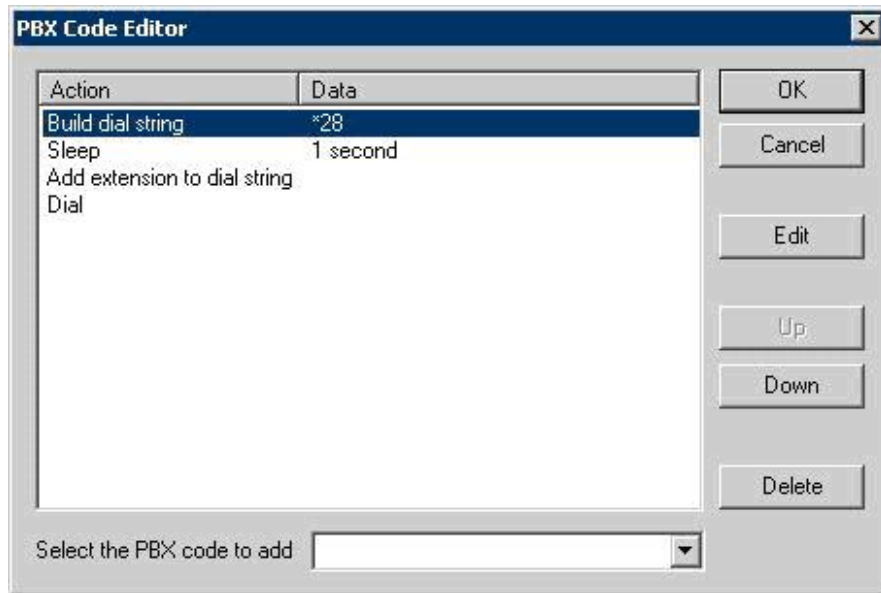
The **Avaya Digital Properties** screen is displayed again. Click **Off code** in the **MWI Dial Codes** section.
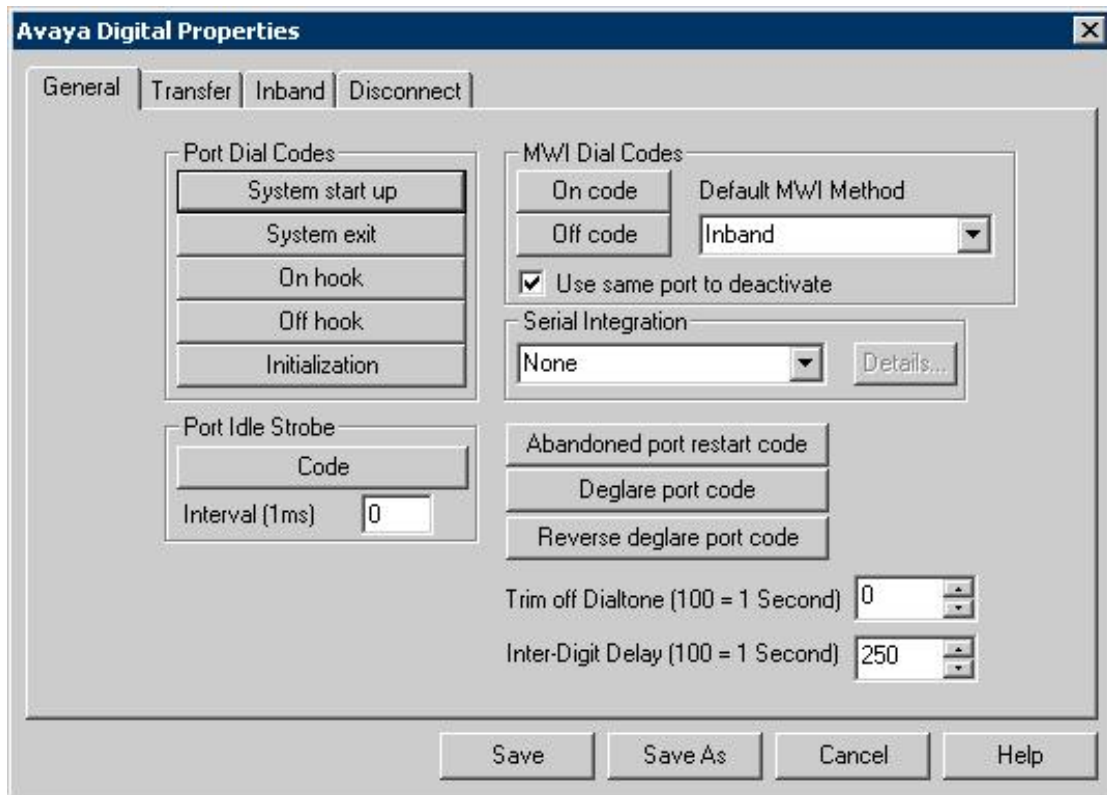
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The **PBX Code Editor** pop-up window is displayed. Select the **Build dial string** field, and click **Edit** to set the field value to the **Leave Word Calling Cancel A Message** feature access code from **Section 3.2**.
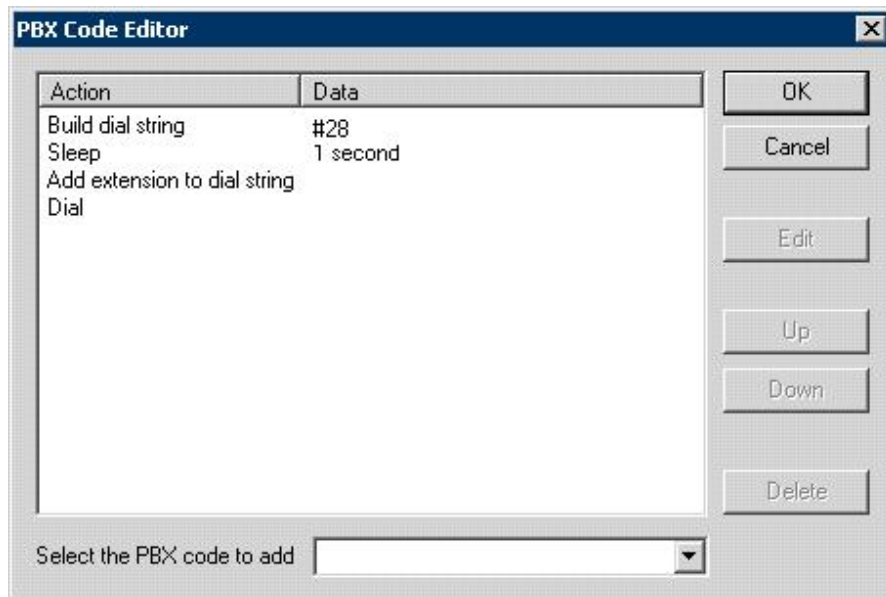
The **Avaya Digital Properties** screen is displayed again. Select the **Inband** tab. Click on **Edit RNA code**, and add a new code of "rrrrr_sssss" to accept five digits extensions, as shown below.

Click on **Edit subscriber login code**, and add a new code of "_eeeee" to accept five digits extensions, as shown below.
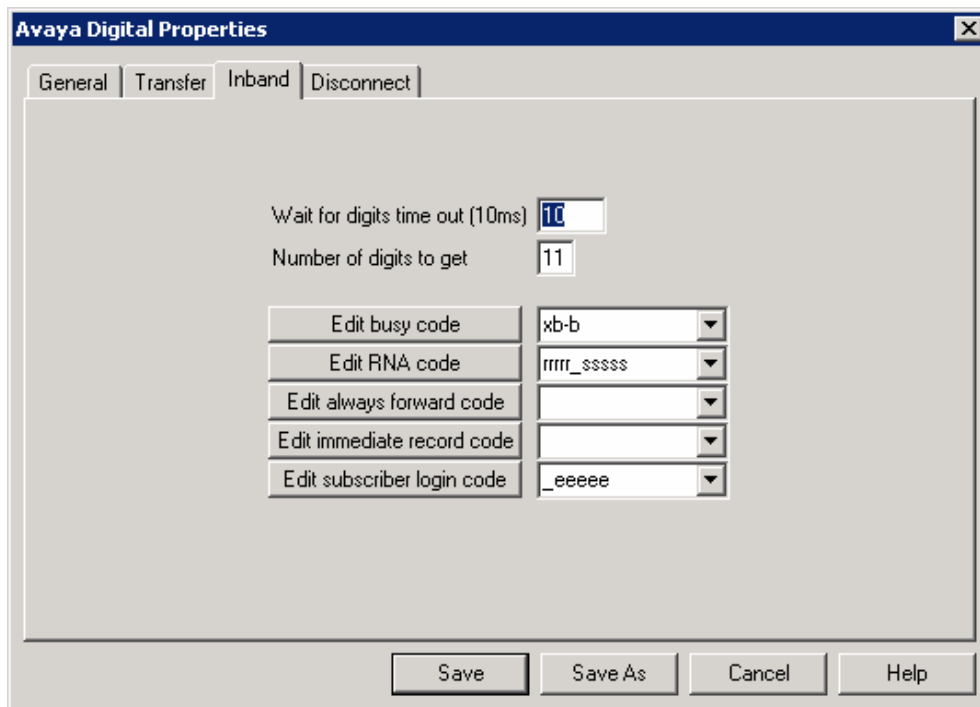
4.3. Administer Voice Ports

From the **System Configuration** screen, select **Define Ports > Voice Ports > Define a Range of Voice Ports** from the top menu.
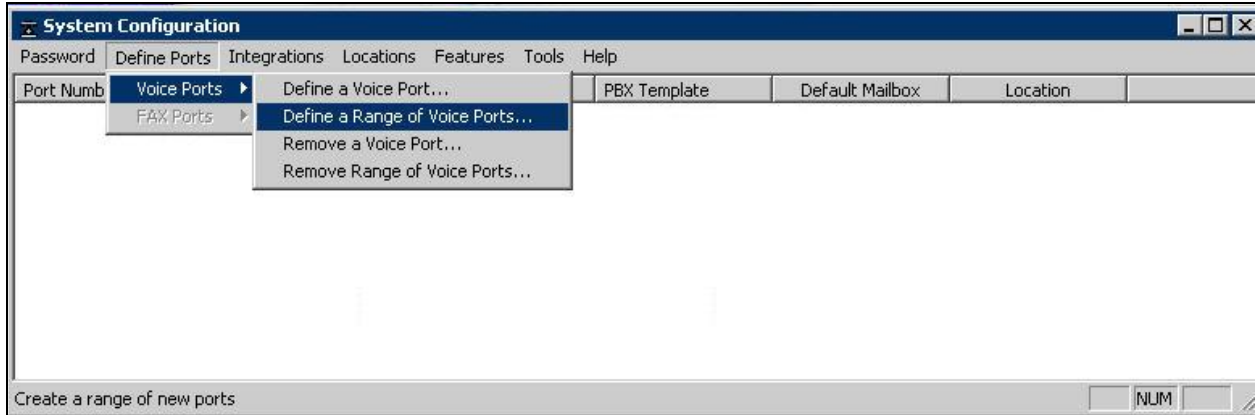
The **Port Creation Wizard** is displayed. Follow the **Port Creation Wizard** to create the appropriate number of voice ports, and assign the default **Avaya Digital** integration template from **Section 4.2** to the new voice ports.
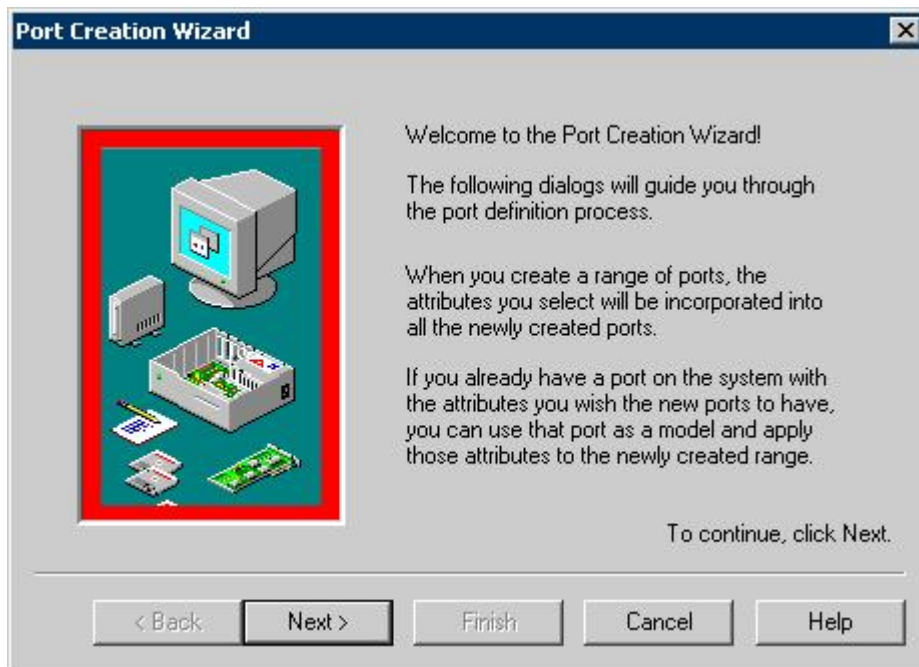
At the completion of the **Port Creation Wizard**, the newly created voice ports will appear in the **System Configuration** screen, as shown below. Right click on the first voice port entry, and select **Open** from the drop-down list.

The **Voice Port Number 1** screen is displayed. For **Extension number**, enter the corresponding digital station extension from **Section 3.3** that is physically connected to the voice port, in this case "62501". For **Hunt group extension is a member of**, enter the hunt group extension from **Section 3.4**.
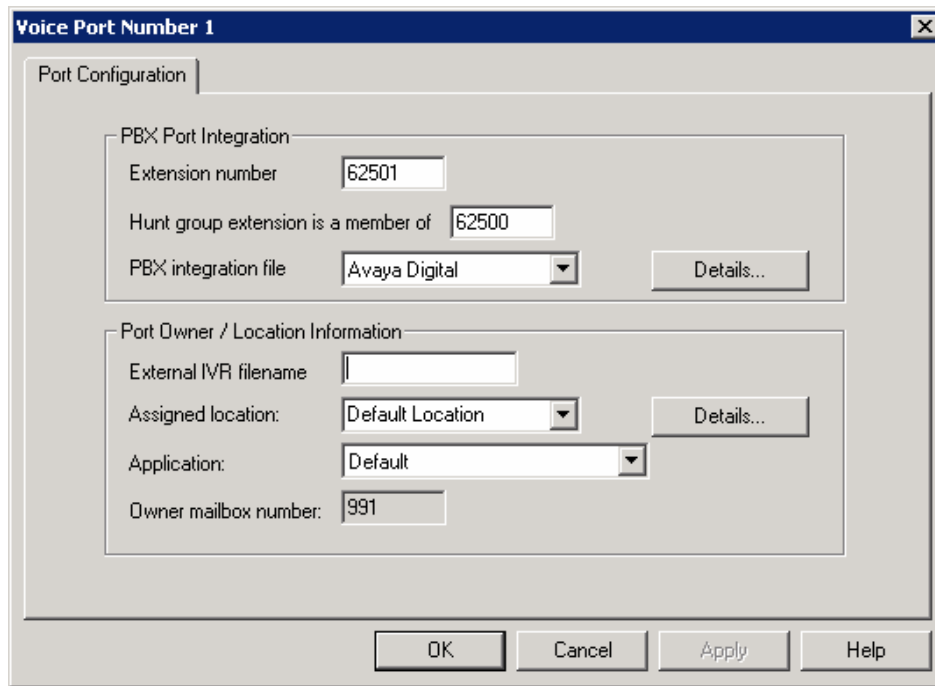
Repeat this procedure for every voice port. For the compliance testing, two voice ports were administered as shown below.
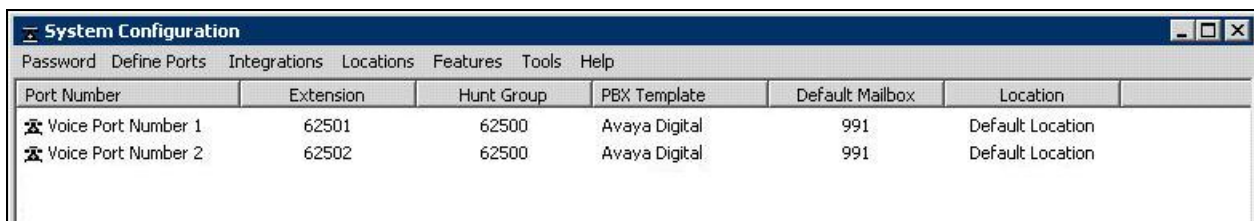
4.4. Administer Mailboxes

From the DuVoice DV2000 server, select **Start > Programs > DuVoice > Mailbox Administration**. The **Enter Password** screen is displayed. Log in with the appropriate credentials.

The **Mailbox Administration** screen is displayed next. Select **Mailbox > Create** from the top menu.
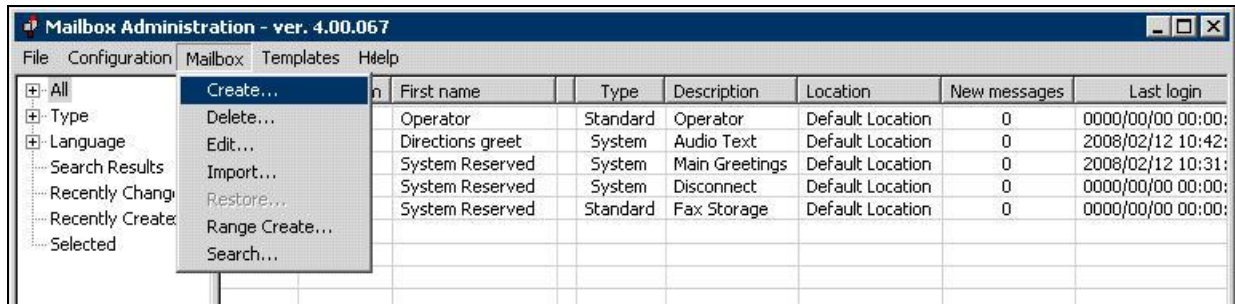
The **Create Mailbox** screen is displayed next. For **Mailbox Number**, enter the first guest user extension from **Section 3.8**, in this case "60201". For **Mailbox Type**, select "Guest" from the drop-down list. Retain the default values in the subsequent screen.
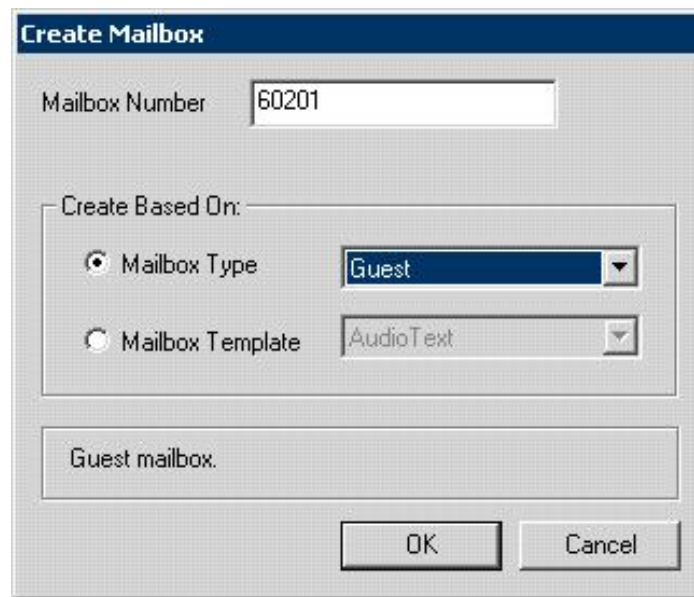
Repeat this procedure to add a mailbox for every user extension from **Section 3.8**. For the compliance testing, two mailboxes were administered for the two guest users with mailbox type "Guest", and two mailboxes were administered for the two staff users with mailbox type "Standard", as shown below.

4.5. Startup Server

From the DuVoice DV2000 server, select **Start > Programs > DuVoice > Server Control**. The **Server Control** screen is displayed. Select **Startup** to start the server.
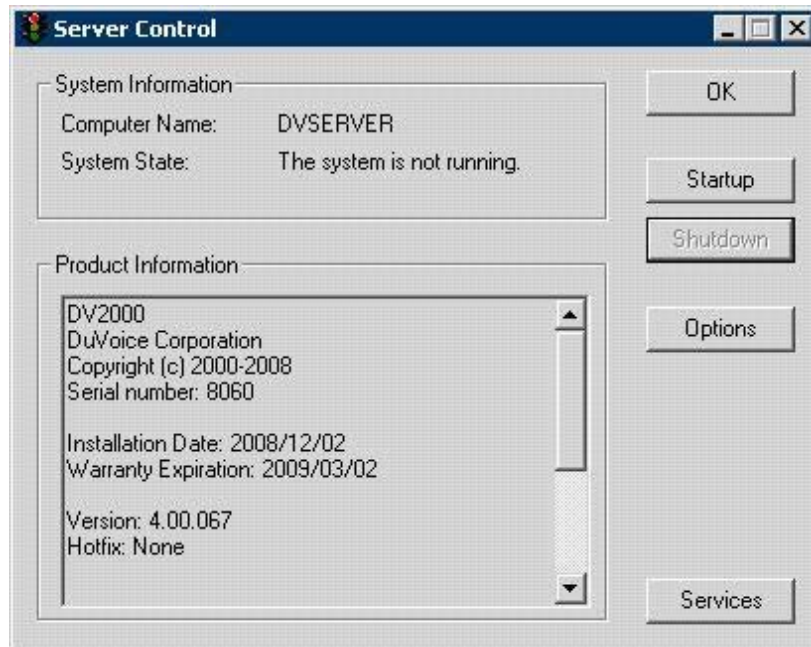
5. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying the following on DuVoice DV2000:

- Automated attendant navigation for incoming trunk calls, such as transfer to guests and staff, direction playback, and collection of calling party name for staff transfer with call screening.

- Handling of voicemail messages and message waiting lamps for check-in, check-out, and move requests initiated via the PMS simulator.

- Voicemail recording, logging, and retrieval, with proper message waiting lamp activation/deactivation.

- Scheduling and delivering of wake-up call requests, including retried attempts and escalation to staff.

The serviceability testing focused on verifying the ability of DuVoice DV2000 to recover from adverse conditions, such as disconnecting and reconnecting the digital line cables to DuVoice DV2000.

5.1. General Test Approach

All tests were performed manually. The verification included the use of the DuVoice DV2000 InnDesk web interface to monitor the guest check-in, check-out, and wake-up call status.

## 5.2. Test Results

All tests were executed and passed.

6. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya Communication Manager and DuVoice DV2000.

From the DuVoice DV2000 server, select **Start > Programs > DuVoice > Port Activity**. The **Port Activity View** screen is displayed. Verify that all voice ports are in the **IDLE** state, as shown below.
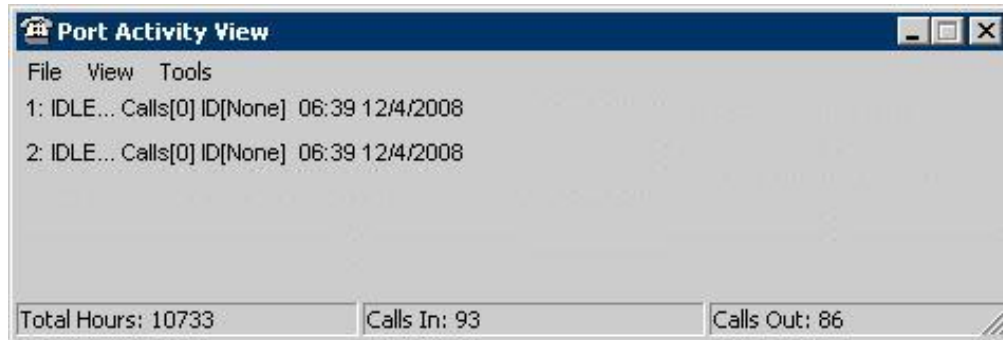
Make an incoming trunk call to the hunt group. Verify that the calling party hears the greeting announcement from DuVoice DV2000, and that the **Port Activity View** screen indicates an active connection to one of the voice ports, as shown below.
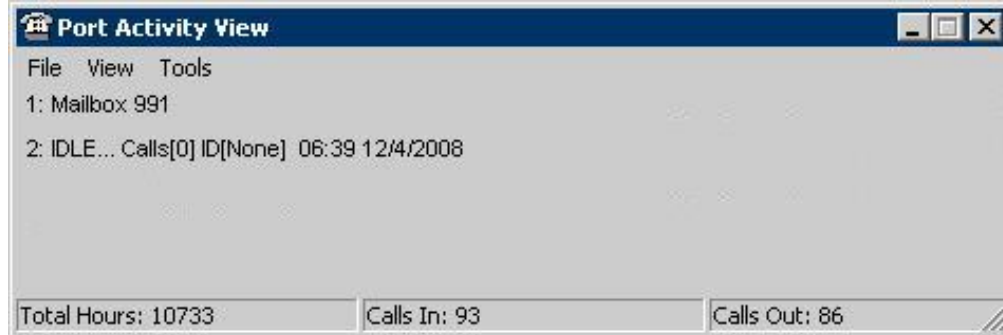
Check in some guests, create voice messages, and schedule wake-up calls. Access the DuVoice DV2000 web interface by using the URL "http://ip-address" in an Internet browser window, where "ip-address" is the IP address of the DuVoice DV2000 server. Verify that the screen below shows the correct status of the guest check-in, voice messages, and wake-up calls requests.

7. Support

Technical support on DuVoice DV2000 can be obtained through the following:

- **Phone:** (425) 250-2393
- **Email:** support@duvoice.com

8. Conclusion

These Application Notes describe the configuration steps required for DuVoice DV2000 to interoperate with Avaya Communication Manager. All feature and serviceability test cases were completed successfully.

9. Additional References

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

- *Administrator Guide for Avaya Communication Manager*, Document 03-300509, Issue 4.0, Release 5.0, January 2008, available at http://support.avaya.com.

- *System Reference Guide*, 3rd Edition, Version 4.00.065, October 2008, available on the DuVoice DV2000 server as part of the installation.