Avaya Solution & Interoperability Test Lab

Application Notes for the SDC *Intelli*SPEECH with Avaya Communication Manager - Issue 1.0

Abstract

These Application Notes describe the configuration steps required for the SDC *Intelli*SPEECH speech enabled auto-attendant to successfully interoperate with Avaya Communication Manager. Features and functionality were validated with the analog port as well as T1 connectivity between a 2-port *Intelli*SPEECH system and Avaya Communication Manager. Information in these Application Notes has been obtained through interoperability compliance testing and additional technical discussions. Testing was conducted via the Developer*Connection* Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe the configuration steps required for the SDC *Intelli*SPEECH to successfully interoperate with Avaya Communication Manager.

*Intelli*SPEECH is a speech enabled auto-attendant, providing a comprehensive telephone directory database accessible via the spoken word. Inbound callers may connect their call via speech. *Intelli*SPEECH leverages the enterprise directory utilized by SDC *Intelli*DESK IPSERVICES and *Intelli*DESK Console, creating additional access points for directory information retrieval, access to additional endpoints of contact and access to information from anywhere anytime.

The compliance testing was performed with an analog port as well as T1 connectivity between a 2-port *Intelli*SPEECH system and Avaya Communication Manager.

1.1. Sample Configuration

The tested configurations are shown in **Figure 1** and **Figure 2**. An Avaya S8700 Media Server running Avaya Communication Manager is connected to an Avaya G650 Media Gateway. Two analog ports from a TN793 analog circuit pack in the Avaya G650 Media Gateway are connected to two analog ports on the SDC *Intelli*SPEECH server. A mix of Avaya digital, analog and Avaya IP telephones are supported by Avaya Communication Manager. A loop start Central Office trunk is connected to the G650 Media Gateway to make analog trunk calls. A T1/PRI tie trunk to an Avaya S8300 Media Server and Avaya G700 Media Gateway running Avaya Communication Manager enables T1 or PRI calls to the *Intelli*SPEECH server connected to the Avaya S8700 Media Server and Avaya G650 Media Gateway. The P333T-PWR stackable switch in this configuration is used to support connectivity of S8700 Media Server with the G650 Media Gateway and the Avaya IP telephones.

In **Figure 2**, a T1 connects the Avaya G650 Media Gateway and the SDC *Intelli*SPEECH server, and two off-premises analog stations with T1 ports are administered on Avaya Communication Manager to support the 2-port *Intelli*SPEECH server.

Note that these configurations are also applicable to other Avaya Media Servers and Media Gateways.

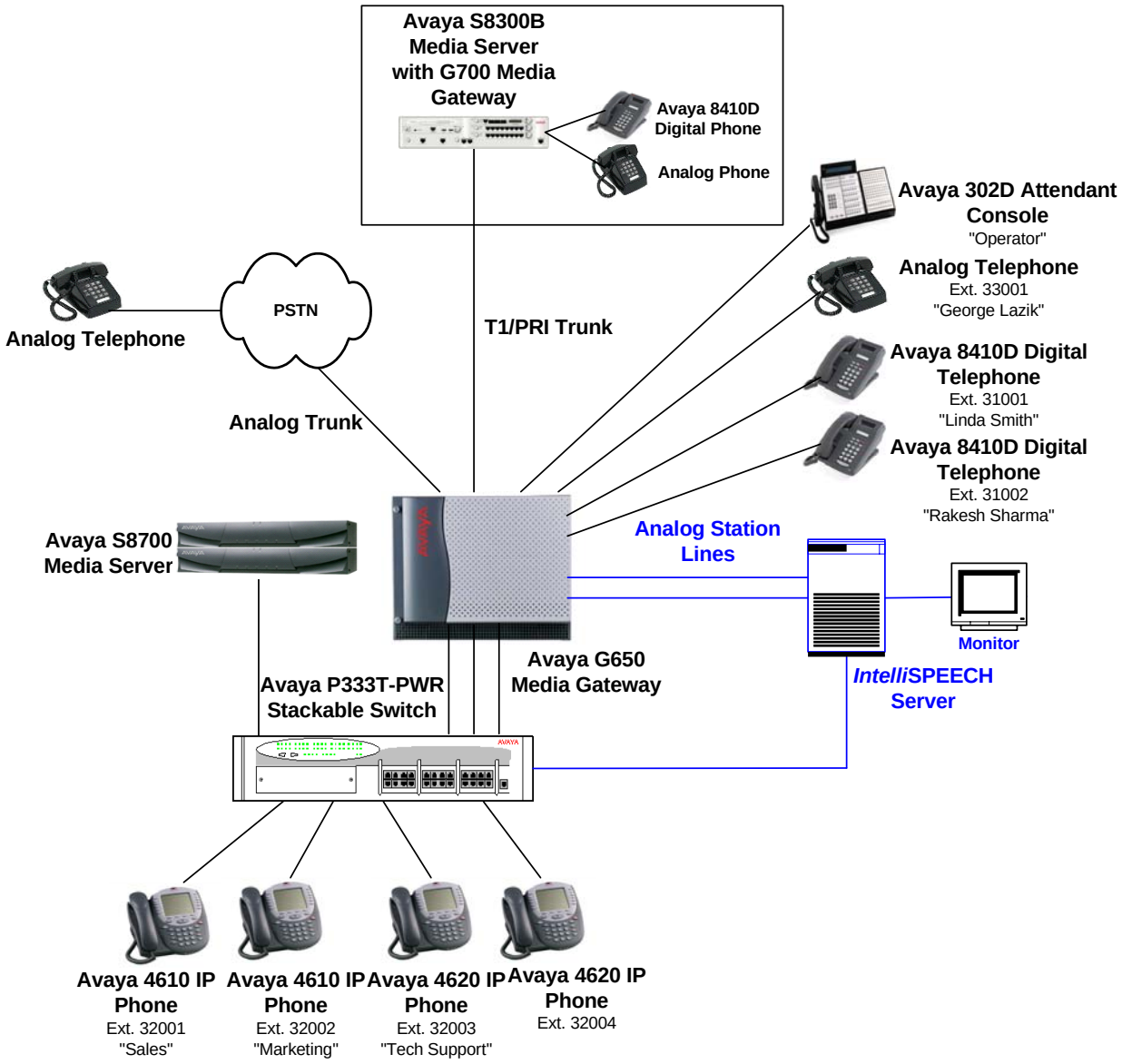


Figure 1: Network Configuration with Analog Station Connectivity

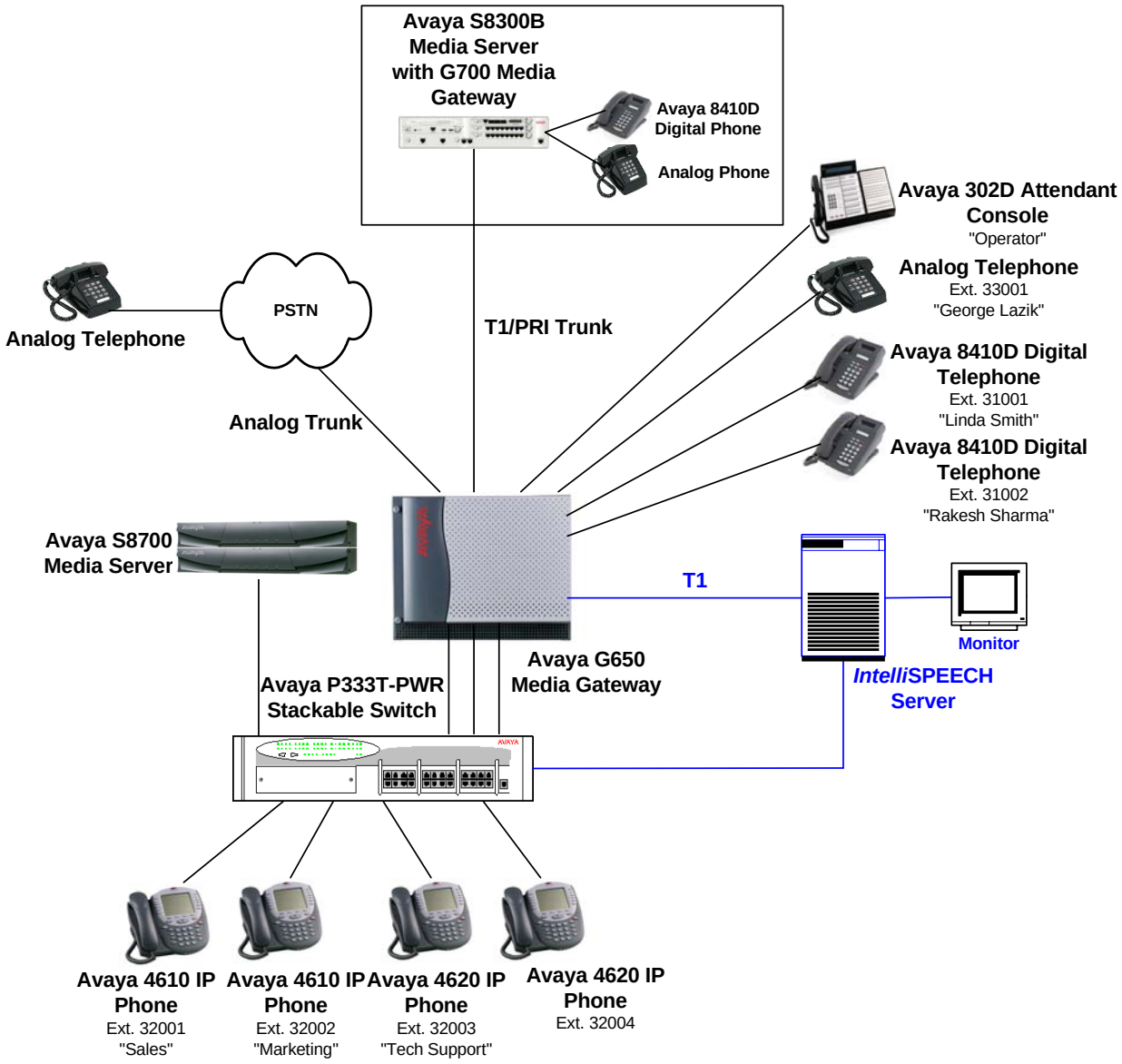


Figure 2: Network Configuration with T1 Connectivity

2. Equipment and Software Validated

The following equipment and software/firmware were used for the sample configurations provided:

Equipment	Software/Firmware
Avaya S8700 Media Server	Avaya Communication Manager 2.2 (R012x.02.0.111.4)
Avaya G650 Media Gateway • TN799DP C-LAN • TN2312AP IPSI • TN2302AP MedPro • TN464F DS1 • TN2224BDigital Line • TN793 Analog Line	 HW11 FW12 HW01 FW12 HW20 FW95 FW20 FW10 FW06
Avaya S8300B Media Server	Avaya Communication Manager 2.2 (R012x.02.0.111.4)
Avaya G700 Media Gateway	22.10.0
Avaya 4610 IP Telephones	2.130
Avaya 4620 IP Telephones	2.130
Avaya 8410D Digital Telephones	-
Analog Telephones	-
Avaya P333T-PWR Power Over Ethernet Stackable Switch	4.0.17
SDC *Intelli*SPEECH	4.2
SDC *Intelli*DESK Administration	5.4.132

3. Configure *Intelli*SPEECH

These Application Notes address configuration of *Intelli*SPEECH as it relates to interoperability with Avaya Communication Manager. For all other configuration information, such as the speech recognition engine and voice line termination hardware/software, please contact SDC Support (see Section 7).

*Intelli*SPEECH can be connected to Avaya Communication Manager either via analog station lines or via a T1. Configuration of the parameters for both follows the same procedures. This section covers the procedures to configure the

- main system level preferences for the *Intelli*SPEECH system, and
- association of names for speech recognition and extensions for transfer.

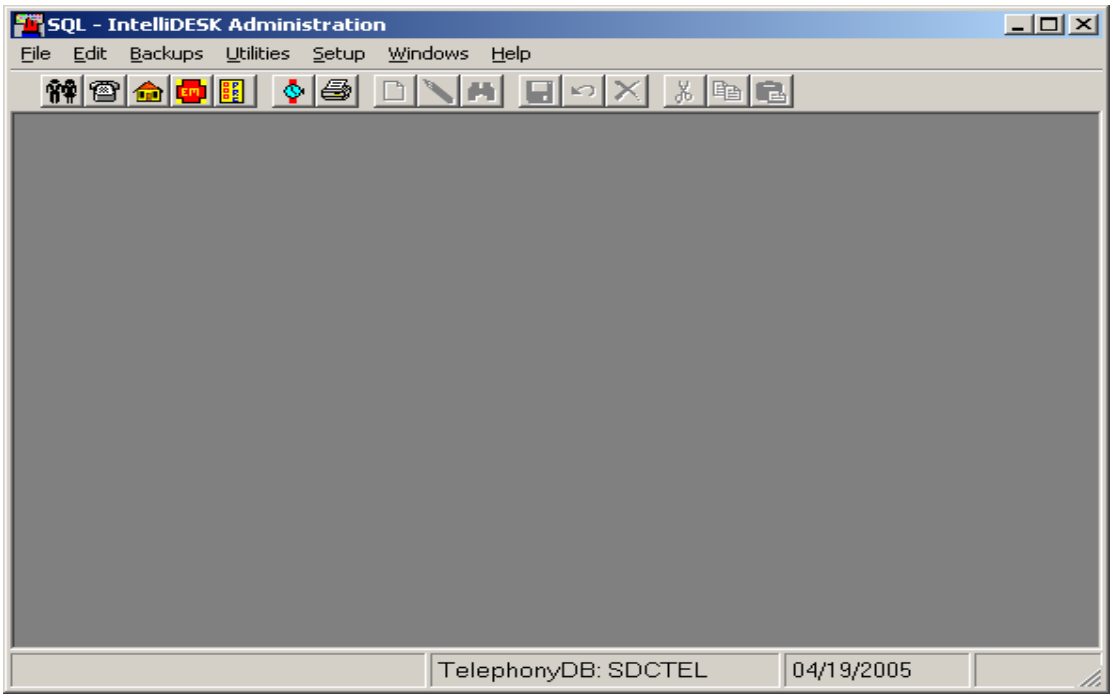
*Intelli*SPEECH configuration is performed using SDC *Intelli*SPEECH Administration software.

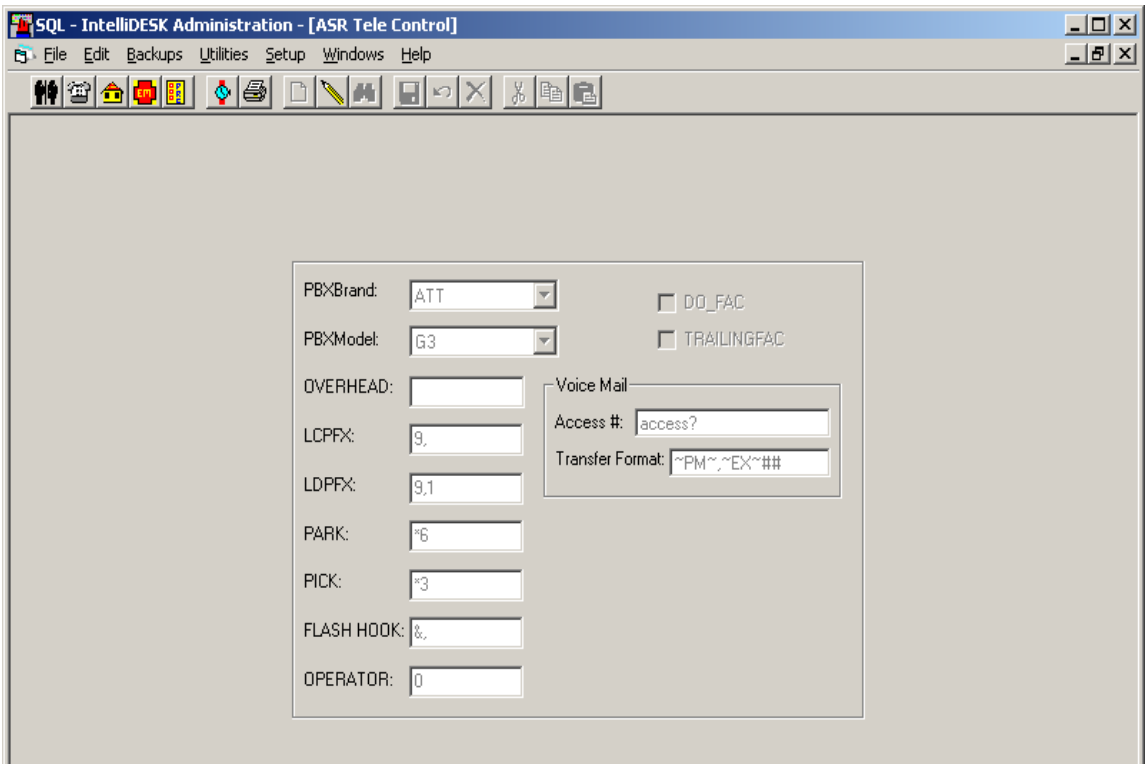
3.1. Configure Voice Channels

*Intelli*SPEECH systems is a Windows 2000 Server based system and utilizes a T1 or analog card in a Windows 2000 Server to support voice channels that connect to Avaya Communication Manager. The number of channels and their attributes are configured in the T1 and analog card related initialization script files. In addition, the number of ports for speech recognition are configured and licensed in the *Intelli*SPEECH speech recognition software. SDC pre-configures the number of channels for the T1 or analog card and the speech recognition software. For the compliance-tested configuration, the number of voice channels was pre-configured to two channels. The description of the procedures to configure the T1 card and channels, the analog card and ports, and the related configuration in the speech recognition software are beyond the scope of this document.

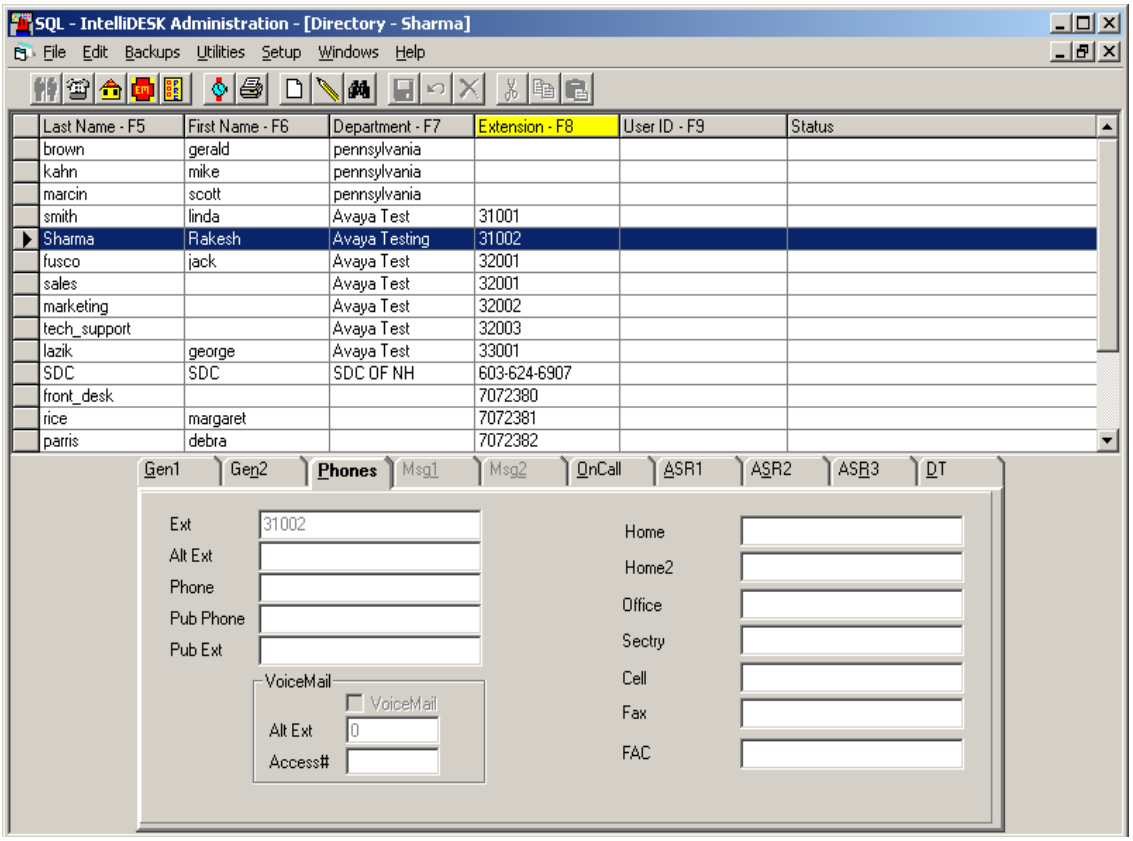
3.2. Configure System Level Preferences

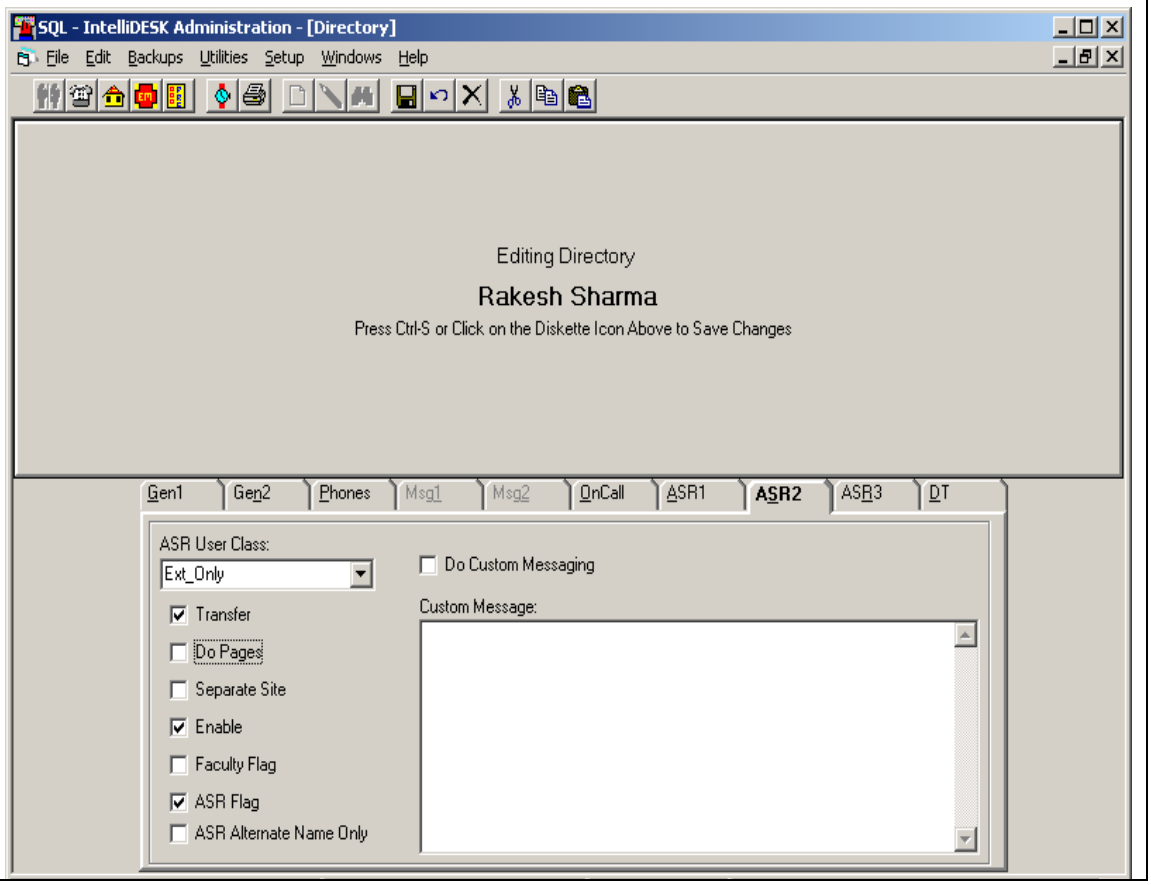
Step	Description
1.	On a monitor connected to the *Intelli*SPEECH server, click on **Start > Programs > *Intelli*DESK Group > *Intelli*DESK Administration**. The following screen appears.  Enter the Operator User Name and Password. Click **OK** (or press **ENTER**).

Step	Description
2.	The ***Intelli*DESK Administration** screen appears as follows:  Click on **Setup > Speech Recognition > Telephone Control**.

Step	Description
3.	The **ASR Tele Control** screen appears. Set the following parameters (the other parameters are optional). • **PBXBrand**: Select **ATT** from the pull-down text box. • **PBXModel**: Select **G3** from the pull-down text box. • **FLASH HOOK**: Enter "**&,**". This enables the *Intelli*SPEECH voice channels to flash hook and dial the digits towards Avaya Communication Manager to transfer a call. • **OPERATOR**: Enter **0**. This enables the calls to be redirected to an Avaya Communication Manager attendant when the speech cannot be recognized by *Intelli*SPEECH.  Click on the **Save**  icon.

3.3. Enable Names for Speech Recognition and Extensions for transfer

Step	Description
1.	On the ***Intelli*DESK Administration** screen, shown in Section 3.2 Step 2, click on **File > Open > Directory**.
2.	The **Directory** screen appears, as follows.  Select a Directory entry by highlighting the associated row. In the example, the entry for the name **Rakesh Sharma** is selected, showing the details such as **Extension** set to **31002**. Click on the **ASR2** tab in the middle of the screen.

Step	Description
3.	The following screen appears. Select the parameters to associate this directory entry with the *Intelli*SPEECH capabilities as follows: • **Transfer**: Allows callers to be transferred to numbers in the Phone Tab via *Intelli*SPEECH. • **Enable**: Must be checked to enable this entry to be recognized in *Intelli*SPEECH. • **ASR Flag**: Must be checked to enable this entry to be recognized in *Intelli*SPEECH. 

4. Configure Avaya Communication Manager

The IntelliSpeech voice channels can be connected to the Avaya G650 Media Gateway voice channels either using the analog station lines or using the T1 channels. The *Intelli*SPEECH T1 channels connectivity utilizes DS1 off-premises stations in Avaya Communication Manager. This section covers the procedure to configure the analog stations for analog connectivity and the DS1 off-premises stations for the T1 connectivity, and the system level feature(s) via the System Access Terminal (SAT) for Avaya Communication Manager.

4.1. Analog Stations for *Intelli*SPEECH with Analog Ports

4.1.1. Analog Circuit Pack

Install an analog circuit pack in the Avaya G650 Media Gateway. Using the SAT, verify that the digital analog pack is administered by issuing the "display circuit-packs" command. In the following example, a **TN793 Analog Line** circuit pack is administered for the analog telephones.

```
 display circuit-packs                                          Page   1 of  1
                            CIRCUIT PACKS

       Cabinet: 1                            Carrier: A
Cabinet Layout: rack-mount-stack        Carrier Type: rmc-port

Slot Code  Sf Mode   Name

 01: TN744  D       CALL CLASSIFIER
 02: TN2312         IP SERVER INTFC
 03: TN799  D       CONTROL-LAN
 04: TN2302         IP MEDIA PROCESSOR
 05: TN2224 B       DIGITAL LINE
 06: TN793          ANALOG LINE
 07: TN747  B       CO TRUNK
 08: TN464  F       DS1 INTERFACE
 09: TN2224 B       DIGITAL LINE
 10: TN464  F       DS1 INTERFACE

 '#' indicates circuit pack conflict.
```

4.1.2. Configure Analog Station

Using the SAT, add two analog stations by using the **add station x** command, where x is the extension to be assigned to each station.

- **Type**: Enter the type of the station to **2500**.
- **Port**: Enter the port on the circuit pack that the analog station is connected to, such as **1A0601**, where the station is connected to port 1 of the circuit pack in slot 1A06.
- **Name**: Enter any name, such as ***Intelli*SPEECH**.

```
 display station 33004                                          Page   1 of   3
                                    STATION

Extension: 33004                          Lock Messages? n          BCC: 0
     Type: 2500                           Security Code:             TN: 1
     Port: 01A0610                     Coverage Path 1:             COR: 1
     Name: IntelliSPEECH               Coverage Path 2:             COS: 1
                                       Hunt-to Station:          Tests? y

STATION OPTIONS
             Loss Group: 1                Message Waiting Indicator: none
    Off Premises Station? N
```

Page forward to Page 2 and enable **Switchhook Flash?** by setting it to **y**. *Intelli*SPEECH analog ports use switchhook flash to transfer the calls.

```
display station 33004                                          Page   2 of   3
                                    STATION
FEATURE OPTIONS
           LWC Reception: spe
          LWC Activation? y                      Coverage Msg Retrieval? y
  LWC Log External Calls? n                                Auto Answer: none
             CDR Privacy? n                           Data Restriction? n
   Redirect Notification? y                     Call Waiting Indication? y
 Per Button Ring Control? n                  Att. Call Waiting Indication? y
   Bridged Call Alerting? n                     Distinctive Audible Alert? y
        Switchhook Flash? y                           Adjunct Supervision? y
    Ignore Rotary Digits? n
        H.320 Conversion? n          Per Station CPN - Send Calling Number?
       Service Link Mode: as-needed
         Multimedia Mode: basic                Audible Message Waiting? n
    MWI Served User Type:

             AUDIX Name:
                                             Coverage After Forwarding? s

                                          Direct IP-IP Audio Connections? y
 Emergency Location Ext: 33004                   IP Audio Hairpinning? y
```

4.2. Off-Premises Stations for *Intelli*SPEECH with T1 Ports

4.2.1. Configure DS1 Circuit Pack

Using the SAT, add DS1 circuit pack by using the **add ds1 x** command, where x is the location of DS1 circuit pack in Avaya G650 Media Gateway.

- **Location**: Enter location of DS1 circuit pack, such as **01A10**.
- **Name**: Enter any name, such as ***Intelli*SPEECH**.
- **Bit Rate**: Enter **1.544** to administer the circuit pack as T1.

- **Line Coding**: Enter **ami-basic**.
- **Framing Mode**: Enter **d4**.
- **Signaling Mode**: Enter **robbed-bit** signaling.

```
 add ds1 a10                                                  Page   1 of   1
                              DS1 CIRCUIT PACK

           Location: 01A10                          Name: IntelliSPEECH
           Bit Rate: 1.544                   Line Coding: ami-basic
  Line Compensation: 1                       Framing Mode: d4
     Signaling Mode: robbed-bit



Interface Companding: mulaw
           Idle Code: 11111111




     Slip Detection? n                Near-end CSU Type: other
```

4.2.2. Configure Off-Premises Station

Follow the instructions in Section 4.1.2 to configure the analog stations. In addition, set each station for off-premises by entering **y** for **Off Premises Station?** on Page 1.

```
change station 33006                                          Page   1 of   3
                                    STATION

Extension: 33006                        Lock Messages? n          BCC: 0
     Type: 2500                         Security Code:             TN: 1
     Port: 01A1001                   Coverage Path 1:             COR: 1
     Name: IntelliSPEECH             Coverage Path 2:             COS: 1
                                     Hunt-to Station:          Tests? y

STATION OPTIONS
              Loss Group: 4               Message Waiting Indicator: none
    Off Premises Station? y
       R Balance Network? n
```

4.3. Forward Disconnect Tone

During a speech dialog with *Intelli*SPEECH over an analog port, when the caller disconnects, *Intelli*SPEECH does not hang up the analog port for about 10 seconds. In order to reduce the hang up time, on Page 10 of **system-parameters features**, set the **Station Tone Forward Disconnect** to **busy**, as shown in the following screen snapshot. During the testing it was observed that using this setting the hang up time was reduced to 2-3 seconds.

```
  change system-parameters features                              Page  10 of  14
                        FEATURE-RELATED SYSTEM PARAMETERS

                 Pull Transfer: n            Update Transferred Ring Pattern? n
         Outpulse Without Tone? y              Wait Answer Supervision Timer? n
         Misoperation Alerting? n               Repetitive Call Waiting Tone? n
    Allow Conference via Flash? y
 Vector Disconnect Timer (min):       Network Feedback During Tone Detection? y
                                    System Updates Time On Station Displays? n
      Intercept Treatment On Failed Trunk Transfers? n
                    Station Tone Forward Disconnect: busy
                              Level Of Tone Detection: precise
          Charge Display Update Frequency (seconds): 30
        Date Format on 607/2400/4600/6400 Terminals: mm/dd/yy
Onhook Dialing on 607/2400/4600/6400/8400 Terminals? n




ITALIAN DCS PROTOCOL
  Italian Protocol Enabled? n
```

For *Intelli*SPEECH with T1 ports, keep the default **silence** value for the field **Station Tone Forward Disconnect**.

5. Interoperability Compliance Testing

The interoperability compliance testing focused on the call transfer capability of the 2-port SDC *Intelli*SPEECH, based on the spoken names, to the telephones on Avaya Communication Manager. The compliance testing was performed with the analog ports as well as T1 channels on *Intelli*SPEECH.

5.1. General Test Approach

The general approach was to make calls to *Intelli*SPEECH connected to Avaya Communication Manager, speak the user's name when prompted by the *Intelli*SPEECH welcome greeting, and verify that the call is transferred to the correct user. A variety of spoken names were utilized, associated with the telephones in Avaya Communication Manager, as shown in the **Figure 1**. The main objectives were to verify that:

- Using the spoken names, the internal calls from a mix of Avaya digital telephones, Avaya IP telephones and analog telephones were transferred to the telephones associated with the spoken names.
- Using the spoken names, the external calls from loop start CO trunk, T1 trunk and ISDN PRI trunk were transferred to the Avaya Communication Manager telephones associated with the spoken names.
- For internal and external calls, barging in with the spoken names interrupted the *Intelli*SPEECH welcome greeting and the call was transferred to telephone associated with the spoken names.

- For internal and external calls, if the caller hung up before *Intelli*SPEECH transferred the call, verified that the associated analog port or the off-premises T1 port in Avaya Communication Manager was released and available for the next call.
- Calls were redirected to an Avaya Communication Manager attendant when the speech cannot be recognized by *Intelli*SPEECH.
- When the power was restored on *Intelli*SPEECH after a power failure, *Intelli*SPEECH was able transfer the call using spoken names.

5.2. Test Results

All test cases completed successfully. With the appropriate configuration and enabling of the *Intelli*DESK directory entries for *Intelli*SPEECH speech recognition and transfer, the speech-enabled auto attendant transferred the calls successfully.

6. Verification Steps

The following steps may be used to verify the configuration and connectivity:

- Make a call to *Intelli*SPEECH from an internal station. During the welcome greeting playback or after the completion of the welcome greeting playback, speak the name of a user, for example ”Linda Smith”. Verify that the call is transferred to a telephone extension associated with Linda Smith, for example extension 31001 as shown in **Figure 1**.
- Repeat the above-mentioned test for an external T1 or analog CO trunk call.
- Verify the objectives described in Section 5.1 using Figure 1 as an example for associating extensions and the spoken names.
- Verify that the ports associated with the analog or off-premises stations are released after a call is transferred, or when the caller hangs up before the call is transferred. Use the SAT command **status station x**, where x is the extension of the station. The following is an example of the results of the ‘status station’ command, showing that the **Service State** is **in-srv/on-hook or disc**, implying that this station and the associated port have been released and available for the next call.

```
  status station 33004                                          Page   1 of   3
                            GENERAL STATUS
     Administered Type: 2500               Service State: in-srv/on-hook or disc
        Connected Type: N/A             Parameter Download: not-applicable
              Extension: 33004               SAC Activated? no
                   Port: 01A0610           User Cntrl Restr: none
           Call Parked? no               Group Cntrl Restr: none
      Ring Cut Off Act? no              CF Destination Ext:
Active Coverage Option: 1

          EC500 Status: N/A          Off-PBX Service State: N/A
       Message Waiting:
   Connected Ports:
```

7. Support

SDC Technical Support can be reached by calling 603-624-6907 or via email at support@sdc-nh.com.

8. Conclusion

These Application Notes illustrate the procedure for configuring the SDC *Intelli*SPEECH connected to an Avaya Media Gateway and an Avaya Media Server running Avaya Communication Manager via analog ports or T1 channels. With the appropriate configuration, the *Intelli*SPEECH speech-enabled auto attendant transferred the calls successfully.

9. Additional References

The following documents are relevant to these Application Notes:

1) *Administrator's Guide for Avaya Communication Manager*, Jan 2005, Document Number 555-233-506.
2) *SDC IntelliSPEECH Administration, version 4.*
3) *SDC IntelliDESK Enterprise Edition Administration, version 5.4.132.*
4) *Intelli*SPEECH 4 Signature Pages, Revised 1/27/05.
5) *Intelli*SPEECH Site Preparation Guide, Revised 2/3/05.

Additional product documentation for Avaya products may be found at http://support.avaya.com.

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya Developer*Connection* Program at devconnect@avaya.com.