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Avaya Solution & Interoperability Test Lab

Application Notes for Spescom DataVoice Orion Recording Solution with Avaya Communication Manager – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Spescom DataVoice Orion Recording Solution to successfully interoperate with Avaya Communication Manager 2.1.

The Orion call recording solution is able to capture audio from Avaya Communication Manager using a variety of integration mechanisms.

The Orion call recording solution uses Computer Telephony Integration (CTI) to extract call event information and supports passive trunk tapping, passive analogue station tapping, and active station side recording.

An Avaya S8700 Media Server pair with an Avaya G600 Media Gateway running Avaya Communication Manager 2.1 was used as the hosting PBX. Features and functionality were validated and performance testing was conducted in order to verify operation under light load.

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

RF; Reviewed:
SPOC 5/26/2005

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1. Introduction

These Application Notes describe the compliance-tested configuration using a DataVoice Orion Recorder, a DataVoice Definity Recording Controller, and an Avaya Communication Manager system. The solution provides a call recording capability, using CTI to provide call detail information.

The current release of the Orion Recording Solution supports passive trunk tapping, passive analogue station tapping, and active station side recording.
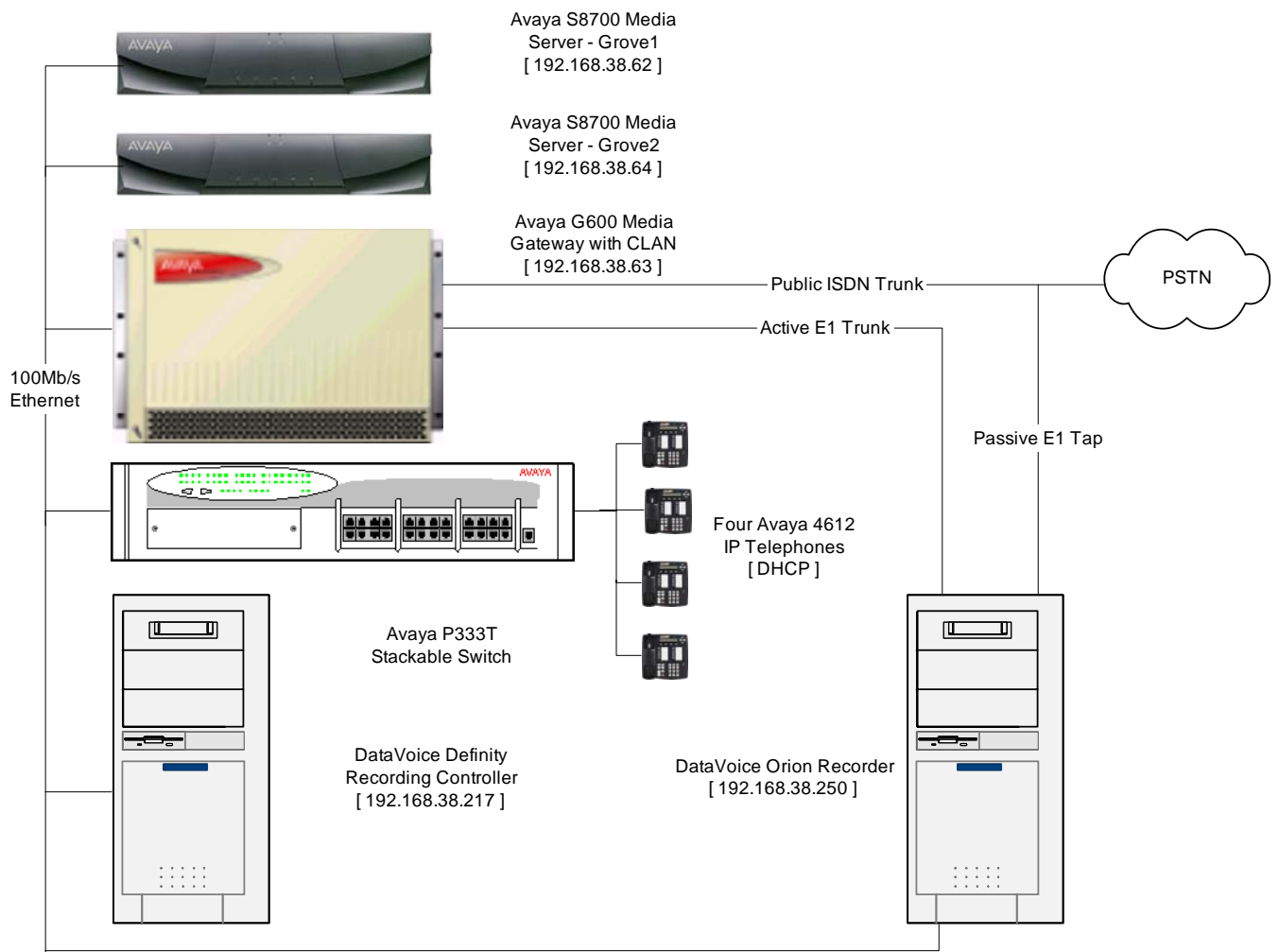
The solution as tested is shown below.

Figure 1: Tested Avaya Communication Manager System with DataVoice Orion Recorder and DataVoice Definity Recording Controller

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2. Equipment and Software Validated

The tested configuration is detailed below.

Equipment	Software
Avaya S8700 Media Server running Communication Manager 2.1	R012x.01.0.410.0
Avaya G600 Media Gateway	N/A
Avaya DS1 Card TN2464 Vintage 0018	N/A
Avaya P333T Stackable Switch	V4.0.17
DataVoice Orion Recorder	9.5
DataVoice Definity Recording Controller	3.3

3. Configure Avaya Communication Manager

Different features of Communication Manager need to be configured for the three recording modes to be tested. Please refer to the Administration Guide for Communication Manager for further details – Avaya Document 555-233-506 [1]. The specific options are detailed below.

3.1. Configure the CTI Link

Regardless of the mode of audio recording, a Computer Telephony Integration (CTI) link is required to provide call details for each recording. DataVoice supports a variety of CTI link options including native ASAI, CT-Connect and Genesys Middleware. Only the native ASAI link is appropriate to these Application Notes.

Although both ASAI Link Core and Plus Capabilities were enabled in the hosting PBX, only the Core Capabilities are required by the DataVoice solution.

Display System-Parameters Customer-Options (only the relevant page is shown)

```
                                OPTIONAL FEATURES

    Abbreviated Dialing Enhanced List? y          Audible Message Waiting? y
         Access Security Gateway (ASG)? n              Authorization Codes? n
        Analog Trunk Incoming Call ID? n Backup Cluster Automatic Takeover? n
 A/D Grp/Sys List Dialing Start at 01? n                        CAS Branch? n
Answer Supervision by Call Classifier? n                          CAS Main? n
                                  ARS? y                  Change COR by FAC? y
                  ARS/AAR Partitioning? y  Computer Telephony Adjunct Links? y
            ARS/AAR Dialing without FAC? y       Co-Res DEFINITY LAN Gateway? y
           ASAI Link Core Capabilities? y   Cvg Of Calls Redirected Off-net? y
           ASAI Link Plus Capabilities? y                        DCS (Basic)? n
        Async. Transfer Mode (ATM) PNC? n                  DCS Call Coverage? n
    Async. Transfer Mode (ATM) Trunking? n              DCS with Rerouting? n
             ATM WAN Spare Processor? n
                                 ATMS? n    Digital Loss Plan Modification? y
                   Attendant Vectoring? n                           DS1 MSP? n
                                              DS1 Echo Cancellation? n
```

A CTI Link must be configured to provide the logical connection between Communication Manager and the external Recording Controller. The type must be set to "ASAI-IP" to allow for a co-resident DLG link to a non-Avaya supplied adjunct. The extension number must be valid in the dialplan of the PBX.

Display CTI-Link 4

```
                        Voice System name: Grove - CTI LINK
 CTI Link: 4
Extension: 19104
     Type: ASAI-IP
                                                              COR: 1
     Name: Spescom ASAI Link

FEATURE OPTIONS

     Event Minimization? n        Special Character for Restricted Number? n
```

The Node-Names form must be configured with the name and IP Address of the Recording Controller as shown below:

Display Node-Names

```
           Switch name: ASC_Avaya - NODE NAMES

Type      Name             IP Address
IP        SPESCOM          192.168.38 .217
IP        default          0  .0  .0  .0
IP        MEL_CLAN         192.168.38 .63
```

The IP Services must be configured to enable the co-resident DLG option and to define a link to the Recording Controller as shown below:

Display IP Services

```
                   Switch name: ASC_Avaya - IP SERVICES
  Service      Enabled    Local        Local      Remote       Remote
   Type                   Node         Port       Node         Port
DLG            y          MEL_CLAN     5678

   CTI Link    Enabled    Client Name      Client Link   Client Status

      4          y        SPESCOM              1            in use
```

3.2. Configure a Trunk to be Used With Passive Monitoring

No special configuration of the E1 trunk to allow passive monitoring is required. The details of the DS1, Signaling Group, and Trunk Group configuration are provided for information only and will vary based on customer needs. The tapped trunk was connected to a Euro-ISDN 30 service from British Telecom.

```
Display DS1 2A07
                 Voice System name: Grove - DS1 CIRCUIT PACK

            Location: 02A07                        Name: BT 01483 5474xx
            Bit Rate: 2.048                  Line Coding: hdb3

       Signaling Mode: isdn-pri
             Connect: network
   TN-C7 Long Timers? n                 Country Protocol: etsi
Interworking Message: PROGress           Protocol Version: b
Interface Companding: alaw                            CRC? y
          Idle Code: 01010100
                                DCP/Analog Bearer Capability: 3.1kHz


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

Display Signaling Group 91

```
                  Voice System name: Grove - SIGNALING GROUP

 Group Number: 91              Group Type: isdn-pri
                     Associated Signaling? y        Max number of NCA TSC: 0
                        Primary D-Channel: 02A0716    Max number of CA TSC: 0
                                                   Trunk Group for NCA TSC: 91
        Trunk Group for Channel Selection: 91     X-Mobility/Wireless Type: NONE
            Supplementary Service Protocol: a
```

Display Trunk Group 91

```
                  Voice System name: Grove - TRUNK GROUP

Group Number: 91                 Group Type: isdn          CDR Reports: y
  Group Name: BT 01483 5474xx/5476xx    COR: 1       TN: 1       TAC: 791
   Direction: two-way        Outgoing Display? n        Carrier Medium: PRI/BRI
 Dial Access? y                 Busy Threshold: 255      Night Service:
Queue Length: 0
Service Type: public-ntwrk          Auth Code? n          TestCall ITC: rest
                        Far End Test Line No:
TestCall BCC: 4
TRUNK PARAMETERS
        Codeset to Send Display: 6     Codeset to Send National IEs: 6
       Max Message Size to Send: 260   Charge Advice: none
  Supplementary Service Protocol: a    Digit Handling (in/out): enbloc/overlap


          Trunk Hunt: cyclical

                                              Digital Loss Group: 13
Incoming Calling Number - Delete:     Insert:                Format:
            Bit Rate: 1200        Synchronization: async    Duplex: full
 Disconnect Supervision - In? y  Out? n
 Answer Supervision Timeout: 0


TRUNK FEATURES
        ACA Assignment? n            Measured: both      Wideband Support? n
                                                       Maintenance Tests? y
                        Data Restriction? n     NCA-TSC Trunk Member: 1
```

```
                                    Send Name: y      Send Calling Number: y
               Used for DCS? n
  Suppress # Outpulsing? n    Format: public
Outgoing Channel ID Encoding: preferred    UUI IE Treatment: service-provider

                                             Replace Restricted Numbers? n
                                           Replace Unavailable Numbers? n
                                                 Send Connected Number: y
                                           Modify Tandem Calling Number? n
            Send UUI IE? y
             Send UCID? n
Send Codeset 6/7 LAI IE? y                          Ds1 Echo Cancellation? n

                                        US NI Delayed Calling Name Update? n

                   SBS? n  Network (Japan) Needs Connect Before Disconnect? n


                    INCOMING CALL HANDLING TREATMENT
Service/        Called   Called      Del  Insert         Per Call  Night
Feature         Len      Number                          CPN/BN    Serv
public-ntwrk    6   547400          6    17001
public-ntwrk    6   547499          6    30004
public-ntwrk    6   547411          6    18011
public-ntwrk    6   547402          6    15002
public-ntwrk    6   547401          6    15001
public-ntwrk    6   547420          6    14999
public-ntwrk    6   547421          6    10018
public-ntwrk    6   547429          6    14970
public-ntwrk    6   547428          6    14971
public-ntwrk    6   54740           5    1001
public-ntwrk    6   5475            4    500
public-ntwrk    6   5476            6    30000


                                 Administered Members (min/max):   1/15
GROUP MEMBER ASSIGNMENTS              Total Administered Members:  15


        Port    Code Sfx Name         Night           Sig Grp
 1: 02A0701   TN2464                                   91
 2: 02A0702   TN2464                                   91
 3: 02A0703   TN2464                                   91
 4: 02A0704   TN2464                                   91
 5: 02A0705   TN2464                                   91
 6: 02A0706   TN2464                                   91
 7: 02A0707   TN2464                                   91
 8: 02A0708   TN2464                                   91
 9: 02A0709   TN2464                                   91
10: 02A0710   TN2464                                   91
11: 02A0711   TN2464                                   91
12: 02A0712   TN2464                                   91
13: 02A0713   TN2464                                   91
14: 02A0714   TN2464                                   91
15: 02A0715   TN2464                                   91
```

3.3. Configure the Active Station-Side E1 Trunk

Station-Side monitoring is provided using service observing over an E1 trunk configured as an ISDN-PRI tie trunk. The configuration below is as specified by Spescom DataVoice.

Display DS1 2B06

```
                    Voice System name: Grove - DS1 CIRCUIT PACK


            Location: 02B06                          Name: Spescom Orion
            Bit Rate: 2.048                   Line Coding: hdb3

      Signaling Mode: isdn-pri
             Connect: pbx                        Interface: network
  TN-C7 Long Timers? n              Country Protocol: etsi
Interworking Message: PROGress       Protocol Version: b
Interface Companding: alaw                               CRC? y
           Idle Code: 01010100
                              DCP/Analog Bearer Capability: 3.1kHz


                                    T303 Timer(sec): 4

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

Display Signaling Group 6

```
                    Voice System name: Grove - SIGNALING GROUP

  Group Number: 6                 Group Type: isdn-pri
                     Associated Signaling? y        Max number of NCA TSC: 0
                       Primary D-Channel: 02B0616    Max number of CA TSC: 0
                                              Trunk Group for NCA TSC:
       Trunk Group for Channel Selection: 6      X-Mobility/Wireless Type: NONE
           Supplementary Service Protocol: a
```

Display Trunk Group 6

```
                    Voice System name: Grove - TRUNK GROUP

Group Number: 6                    Group Type: isdn         CDR Reports: y
  Group Name: Spescom Orion Link        COR: 1       TN: 1        TAC: 706
   Direction: two-way        Outgoing Display? n      Carrier Medium: PRI/BRI
 Dial Access? y                 Busy Threshold: 255     Night Service:
Queue Length: 0
Service Type: tie                    Auth Code? n        TestCall ITC: rest
                    Far End Test Line No:
TestCall BCC: 4
TRUNK PARAMETERS
        Codeset to Send Display: 6     Codeset to Send National IEs: 6
      Max Message Size to Send: 260    Charge Advice: none
  Supplementary Service Protocol: c    Digit Handling (in/out): enbloc/enbloc


          Trunk Hunt: cyclical

                                        Digital Loss Group: 13
Incoming Calling Number - Delete:     Insert:            Format:
            Bit Rate: 1200        Synchronization: async    Duplex: full
 Disconnect Supervision - In? y  Out? n
 Answer Supervision Timeout: 0

TRUNK FEATURES
        ACA Assignment? n            Measured: none     Wideband Support? n
                              Internal Alert? n      Maintenance Tests? y
                              Data Restriction? n    NCA-TSC Trunk Member:
```

```
                                          Send Name: n      Send Calling Number: y
                  Used for DCS? n
    Suppress # Outpulsing? n     Format: public
Outgoing Channel ID Encoding: preferred     UUI IE Treatment: service-provider

                                              Replace Restricted Numbers? n
                                            Replace Unavailable Numbers? n
                                                  Send Connected Number: n
                                             Modify Tandem Calling Number? n
              Send UUI IE? y
               Send UCID? n
  Send Codeset 6/7 LAI IE? y                      Ds1 Echo Cancellation? n



                      SBS? n   Network (Japan) Needs Connect Before Disconnect? n


                                          Administered Members (min/max):   1/30
GROUP MEMBER ASSIGNMENTS                     Total Administered Members:   30

        Port    Code Sfx Name      Night          Sig Grp
   1: 02B0601   TN2464                              6
   2: 02B0602   TN2464                              6
   3: 02B0603   TN2464                              6
   4: 02B0604   TN2464                              6
   5: 02B0605   TN2464                              6
   6: 02B0606   TN2464                              6
   7: 02B0607   TN2464                              6
   8: 02B0608   TN2464                              6
   9: 02B0609   TN2464                              6
  10: 02B0610   TN2464                              6
  11: 02B0611   TN2464                              6
  12: 02B0612   TN2464                              6
  13: 02B0613   TN2464                              6
  14: 02B0614   TN2464                              6
  15: 02B0615   TN2464                              6


                                          Administered Members (min/max):   1/30
GROUP MEMBER ASSIGNMENTS                     Total Administered Members:   30

        Port    Code Sfx Name      Night          Sig Grp
  16: 02B0617   TN2464                              6
  17: 02B0618   TN2464                              6
  18: 02B0619   TN2464                              6
  19: 02B0620   TN2464                              6
  20: 02B0621   TN2464                              6
  21: 02B0622   TN2464                              6
  22: 02B0623   TN2464                              6
  23: 02B0624   TN2464                              6
  24: 02B0625   TN2464                              6
  25: 02B0626   TN2464                              6
  26: 02B0627   TN2464                              6
  27: 02B0628   TN2464                              6
  28: 02B0629   TN2464                              6
  29: 02B0630   TN2464                              6
  30: 02B0631   TN2464                              6
```

3.4. Configure Service Observing

Avaya Communication Manager must be configured to allow monitoring devices to Service Observe and to allow devices to be monitored to be Service Observable. These permissions are configured by Class of Restriction (COR). COR 1 was assigned to both types of device. The configuration for COR 1 is shown in the following screen:

Display COR 1

```
                    Voice System name: Grove - CLASS OF RESTRICTION

              COR Number: 1
         COR Description: Lab User

                     FRL: 7                                    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? n
      Restriction Override: none     Facility Access Trunk Test? n
      Restricted Call List? n             Can Change Coverage? y

           Access to MCT? y          Fully Restricted Service? n
 Group II Category For MFC: 7         Hear VDN of Origin Annc.? y
        Send ANI for MFE? n           Add/Remove Agent Skills? n
           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? n
                           Can Use Directed Call Pickup? n
                           Group Controlled Restriction: inactive
```

In addition, a Feature Access Code to perform Service Observing must be configured. The configurable access code must match the code used in the configuration of the Spescom Datavoice Recording Controller. The appropriate page of the Feature Access Code configuration is shown below:

Display Feature-access-codes

```
                    Voice System name: Grove - FEATURE ACCESS CODE (FAC)
                       Automatic Call Distribution Features

              After Call Work Access Code: *81
                    Assist Access Code: *82
                   Auto-In Access Code: *83
                  Aux Work Access Code: *84
                     Login Access Code: *80
                    Logout Access Code: #80
                 Manual-in Access Code: *85
   Service Observing Listen Only Access Code: *86
   Service Observing Listen/Talk Access Code: *87
             Add Agent Skill Access Code:
          Remove Agent Skill Access Code:
       Remote Logout of Agent Access Code: *90
```

4. Configure the Avaya P333T Ethernet Switch

No configuration of the P333T Ethernet Switch was required.

5. Configure the DataVoice Orion Recorder

The DataVoice Orion Recorder is normally supplied pre-configured for the required application and only a limited amount of additional configuration, such as specifying an IP Address, is necessary. Its related Recording Controller will pass some additional configuration details to the recorder after a connection has been successfully established. This mechanism allows for a more complex scenario to be constructed in which a single Recording Controller can control multiple recorders. Should any additional configuration be required, the technical documentation supplied with the equipment should be consulted for details.

6. Configure the DataVoice Definity Recording Controller

The DataVoice Definity Recording Controller is supplied pre-installed with a copy of the Recording Controller software, which executes as soon as the operating system starts, and a configuration application.

There are several aspects of configuration, including configuration of the Recorder, definition of devices to be recorded, passive E1, active E1, and passive analogue lines.

These elements are detailed in the following sections.

Please refer to Spescom's Avaya Technical Manual [2] and Recording Controller Technical Manual [3] for additional information on the following configuration processes.

6.1. Configure the Recording Controller

The first setup screen allows some of the global settings for a connected switch to be configured.

The default options were chosen, other than the name of the switch, which included selecting the recorded information to be based on extension rather than agent identifier.
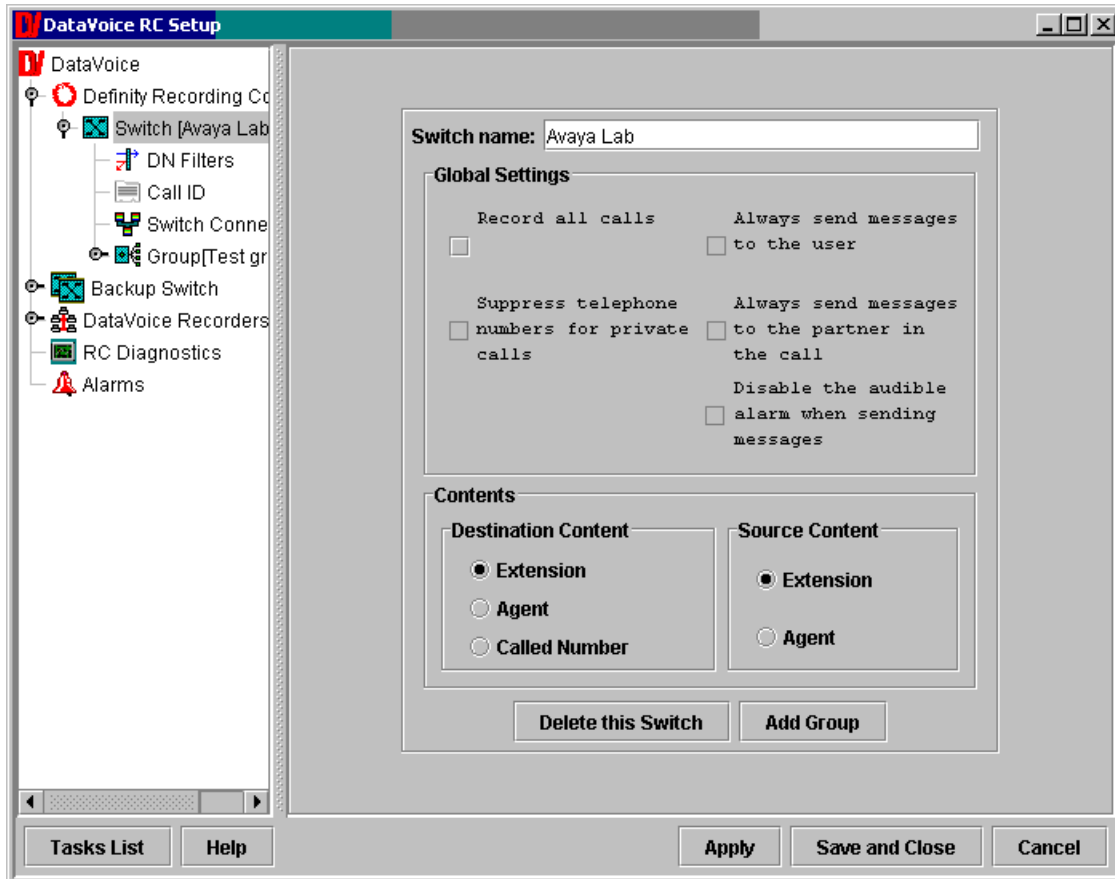
Figure 2: Configuring the Connected Switch

Having defined a Connected Switch, it is necessary to add some additional global information about this PBX.

This includes the ASAI details such as the IP Address of the CLAN supporting the ASAI link, the port number used on the ASAI link, link number, and link version.

The Feature Access Code for service observe is also defined on this page.

The Service Observe Deactivation number is actually a "dummy" number that can be dialed to stop service observing – without this feature, service observing would continue after the call ended.
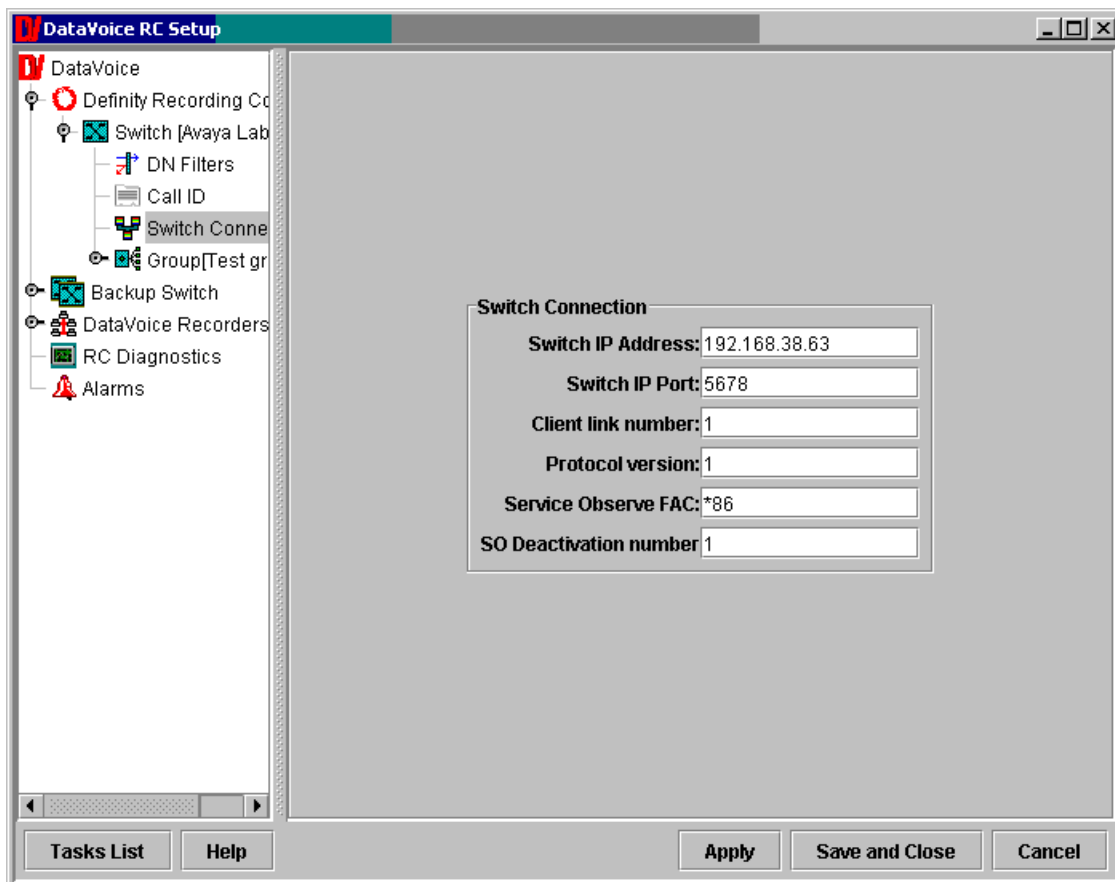
Figure 3: Configuring the Switch Connection Details

Having configured the PBX, the next step requires that the DataVoice Orion Recorder be configured.

The configuration details required include the name and IP Address of the recorder as well as suitable access credentials.
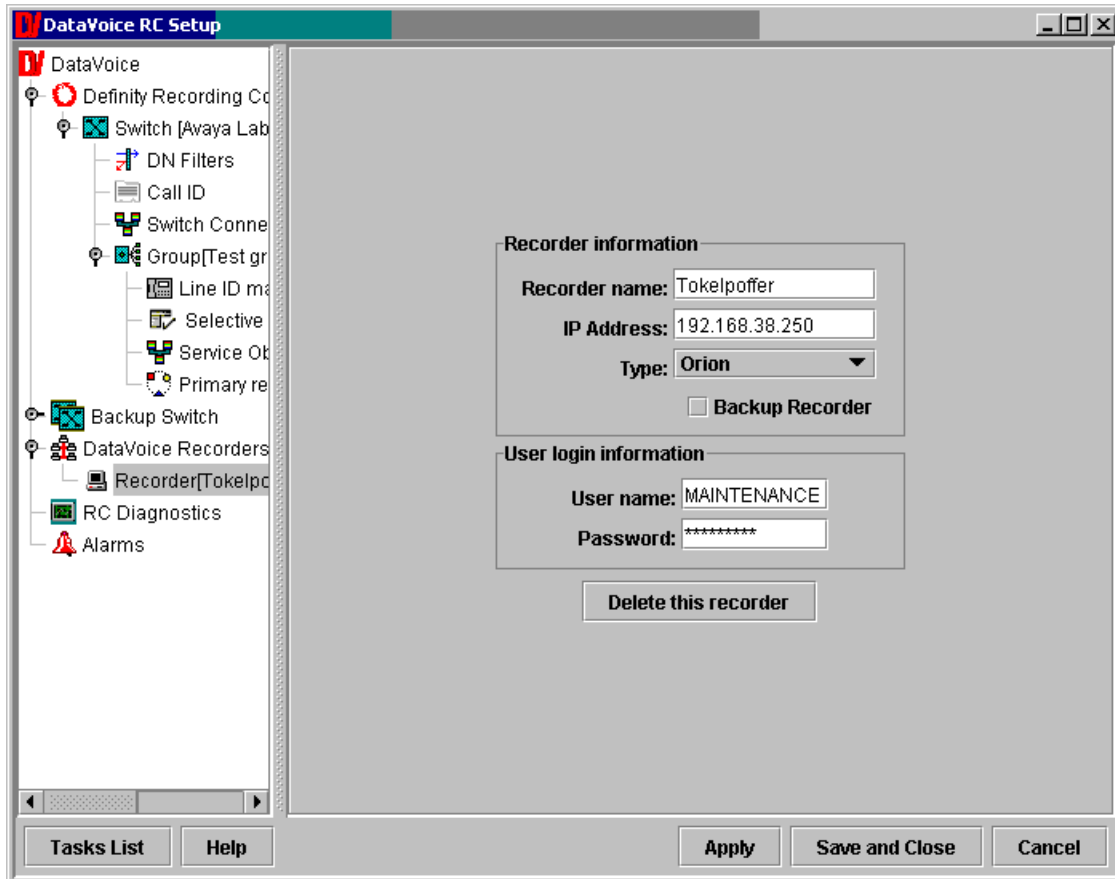
Figure 4: Configuring the DataVoice Orion Recorder

The format of the Universal Call ID (UCID) field now needs to be configured.

"Hexadecimal" allows the full UCID to be attached to a recording, whereas "Decimal" provides for an abbreviated form of the standard Avaya UCID format to be attached.
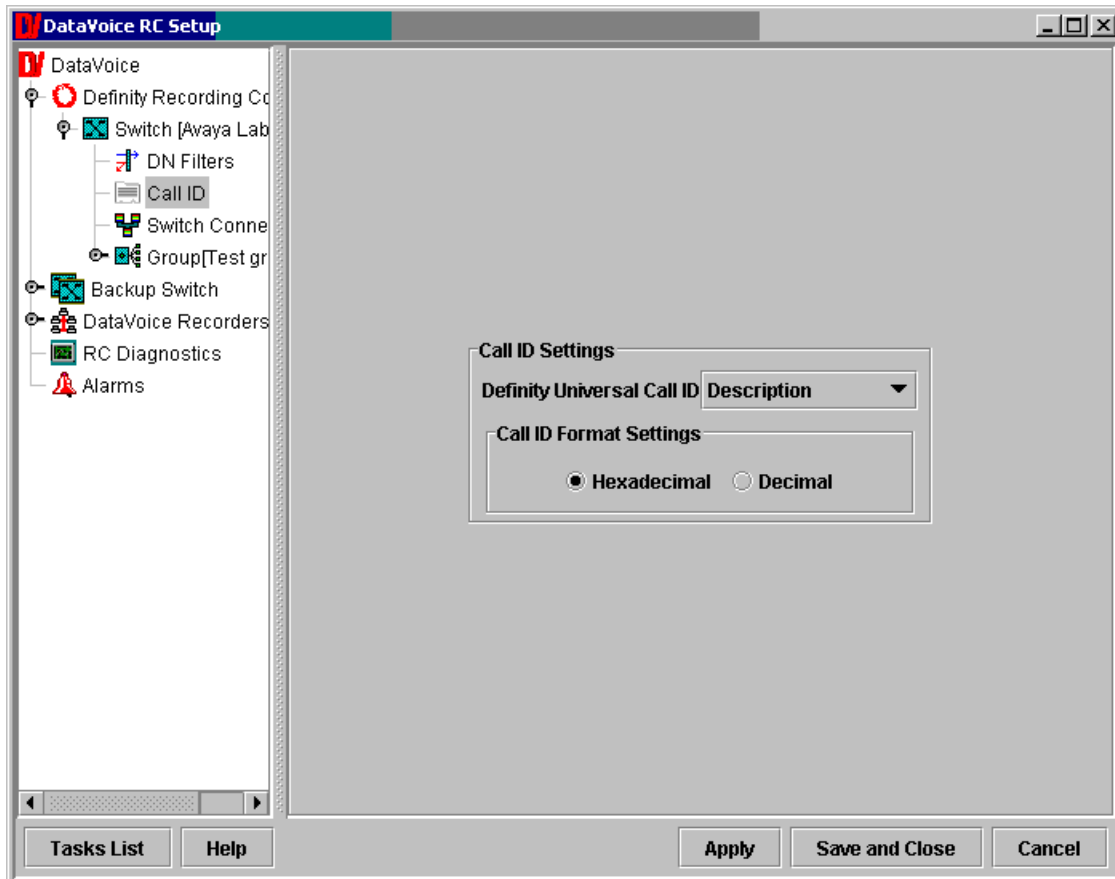
Figure 5: Configuring the UCID Format

The Orion Recorder has a variety of diagnostic settings that can be configured.

For the purposes of testing, all of these values were left at their default values, but are included for reference purposes.
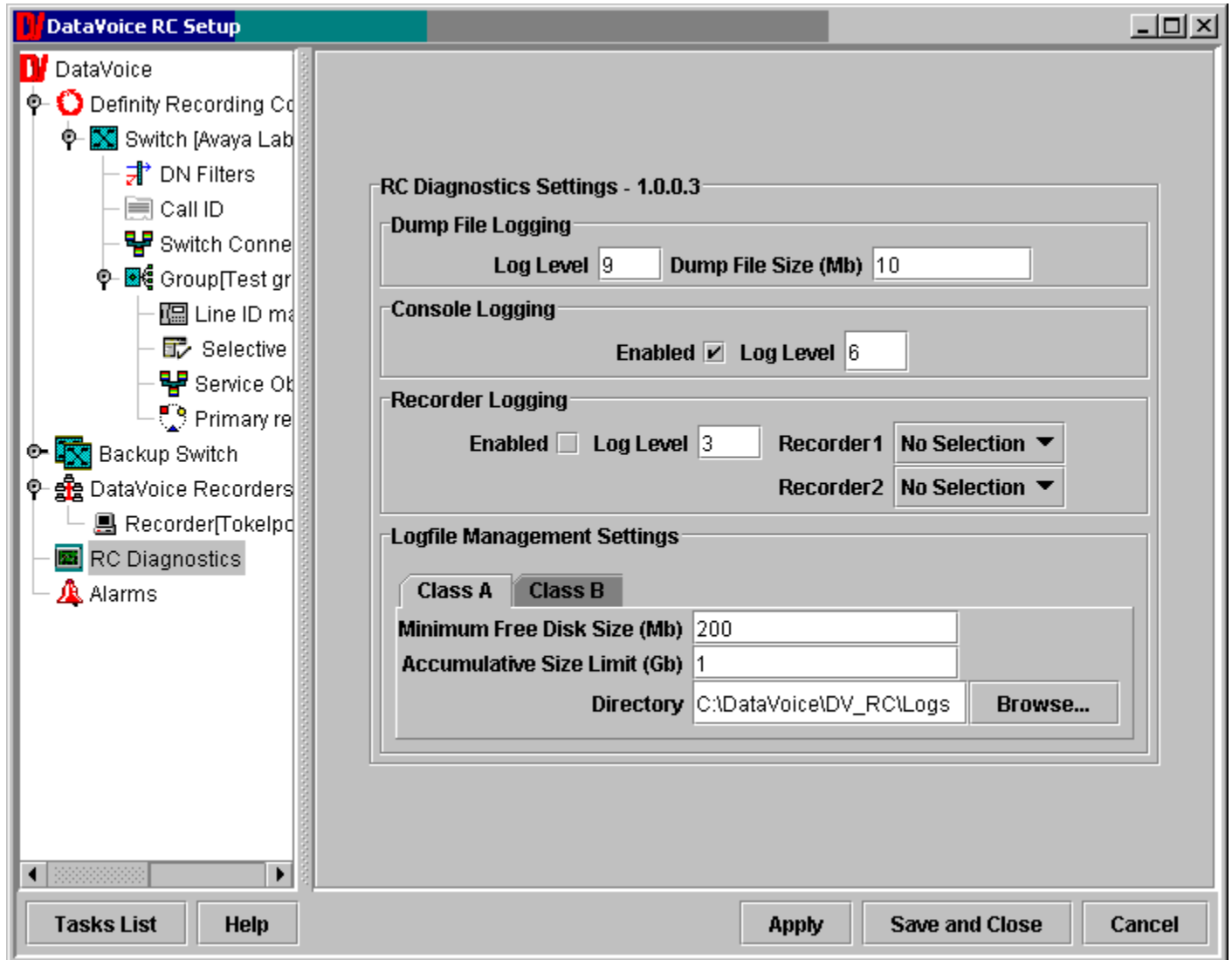
Figure 6: Configuring the DataVoice Diagnostics: Class A Tab
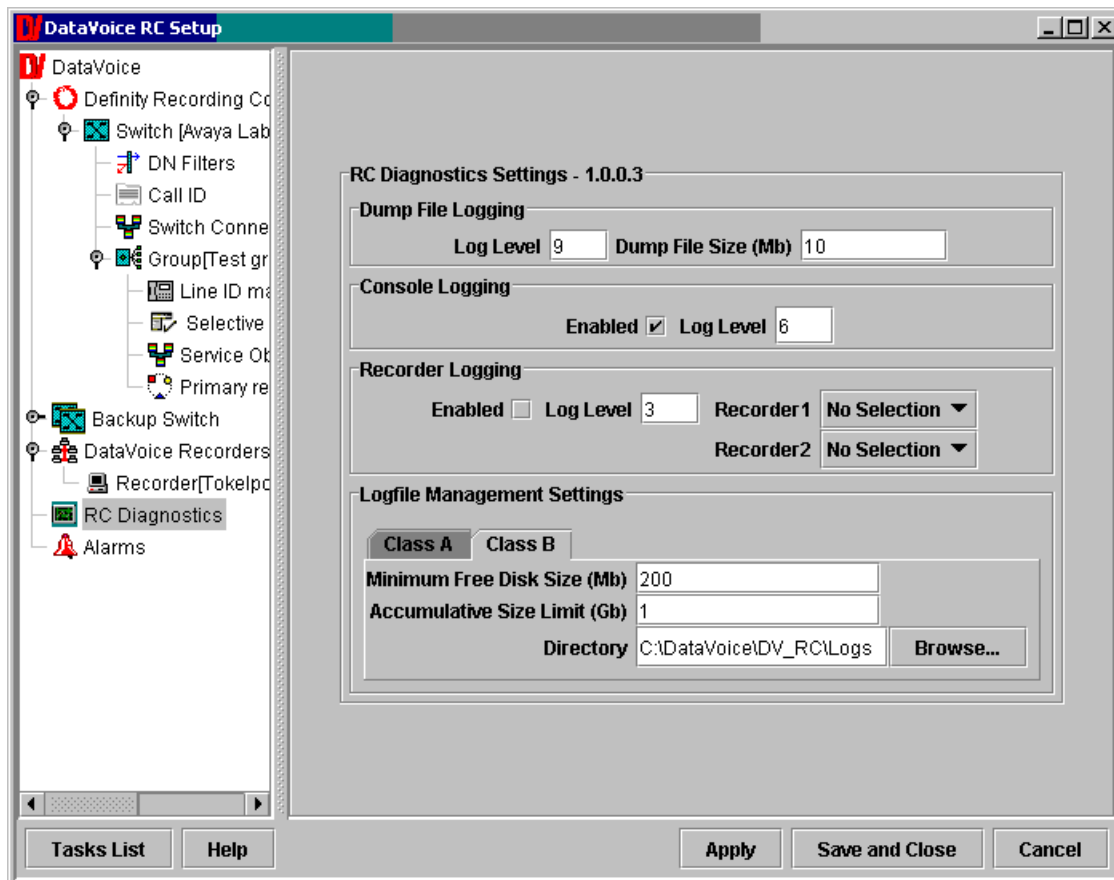
Figure 7: Configuring the DataVoice Diagnostics: Class B Tab

6.2. Configure the Passive Trunk Tapping Recording Channels

A Group must be created as a "holder" for any calls to be recorded.

A group has several options that apply to each member of the group.

For passive trunk tapping, the type of group must be set to "Indirect Recording".

The remaining options are at default values, except that the number of lines in the group has been set to 30 (since this group was associated with a single E1 trunk of 30 channels).
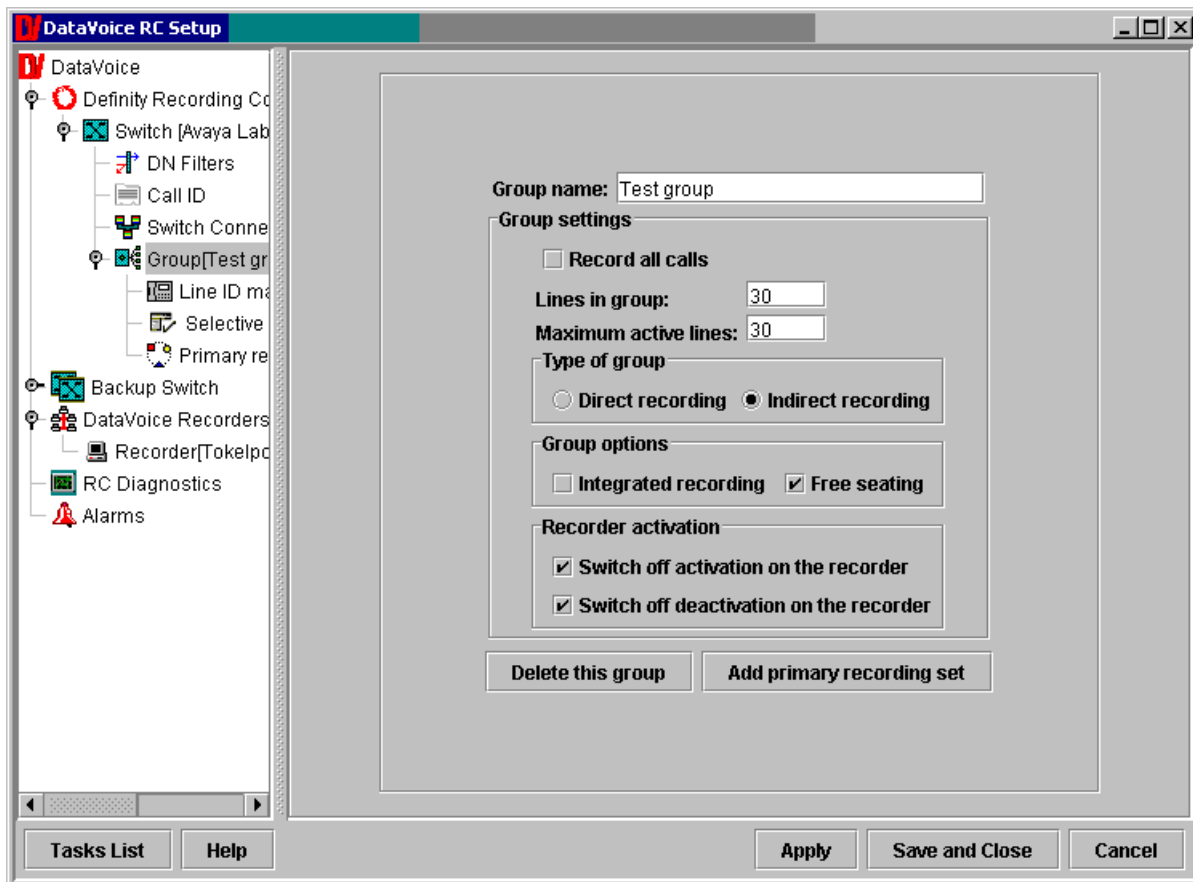
Figure 8: Configuring a Passive E1 Recording Group

Since CTI is used to supply triggers to start and stop recording, it is essential to define a table that relates a channel in the passive E1 trunk with its related trunk details within Avaya Communication Manager. Since Trunk Group 91 was used as the passively monitored trunk, the Line ID for each group member needs to be suitably administered as shown below.
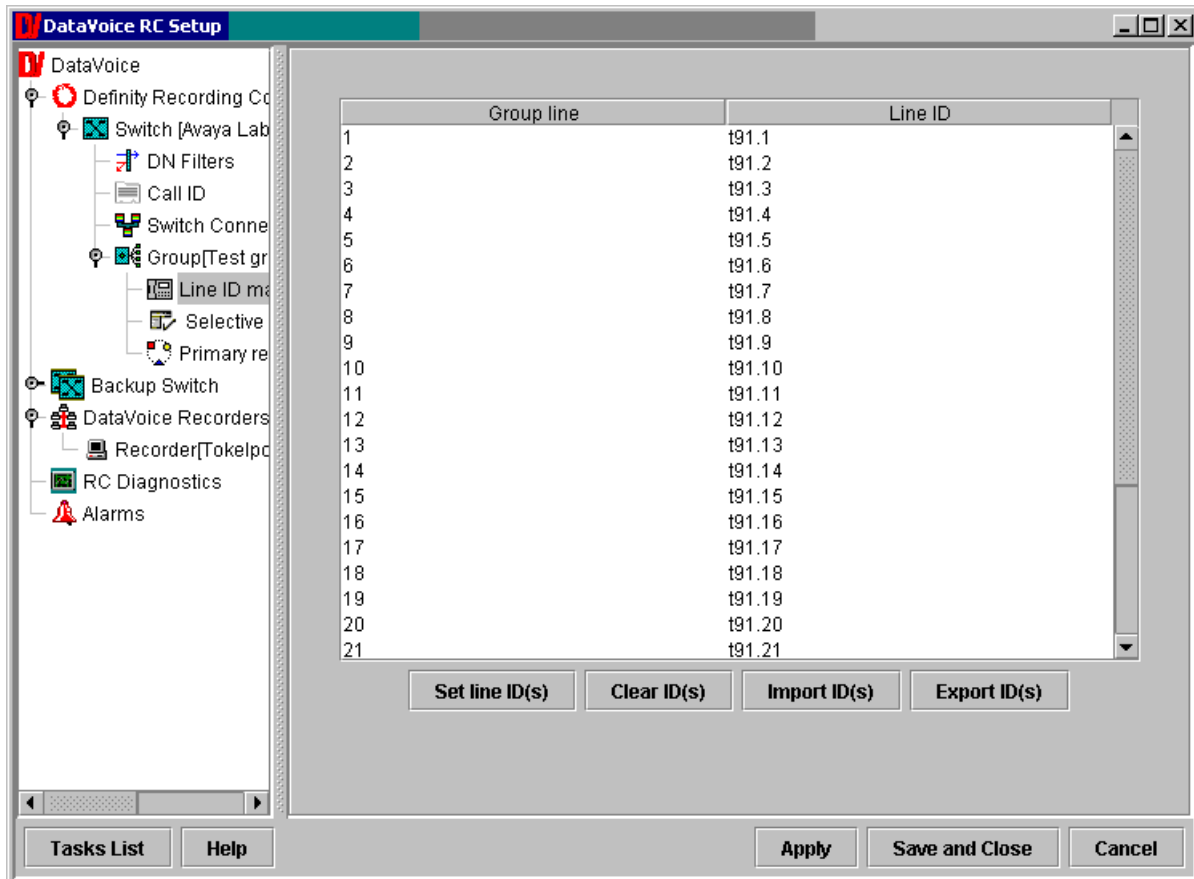
Figure 9: Configuring a Passive E1 Line Identification Table

DataVoice is able to support multiple groups but needs to relate each group member to a global recorder line number. The global recorder line number is used with recorder allocation and diagnostics.

Since a group of recorder lines had already been used for the analogue tapping, the passive E1 group starts at recorder line 17 as shown below.
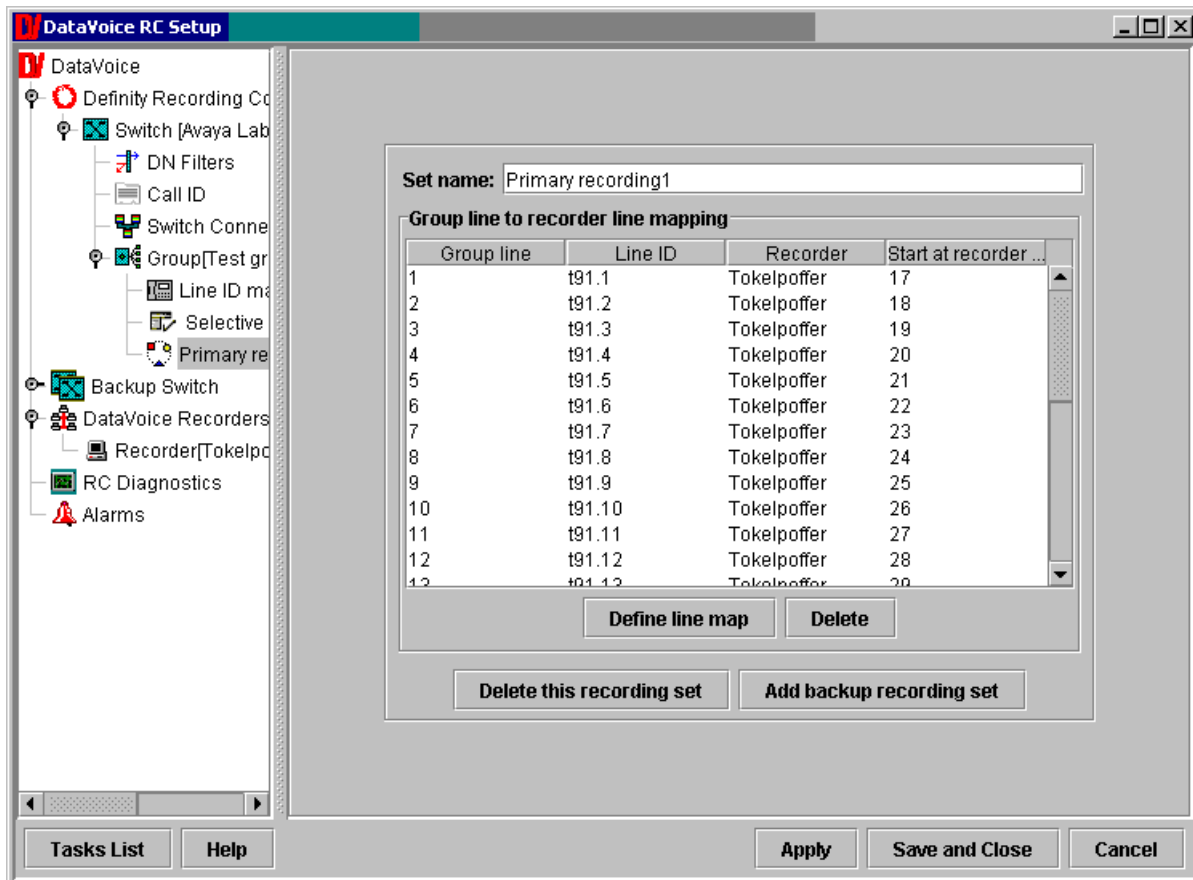
Figure 10: Configuring a Passive Group Line to Recorder Line Table

6.3. Configure the Active Trunk Recording Channels

This configuration is very similar to the passive trunk configuration described earlier.

For active trunks, the type of group option must be set to "Integrated Recording". This will disable the type of group options and allow service observing to be used.

The remaining options are at default values, except that the number of lines in the group has been set to 30 (since there are 30 channels in an E1 trunk).
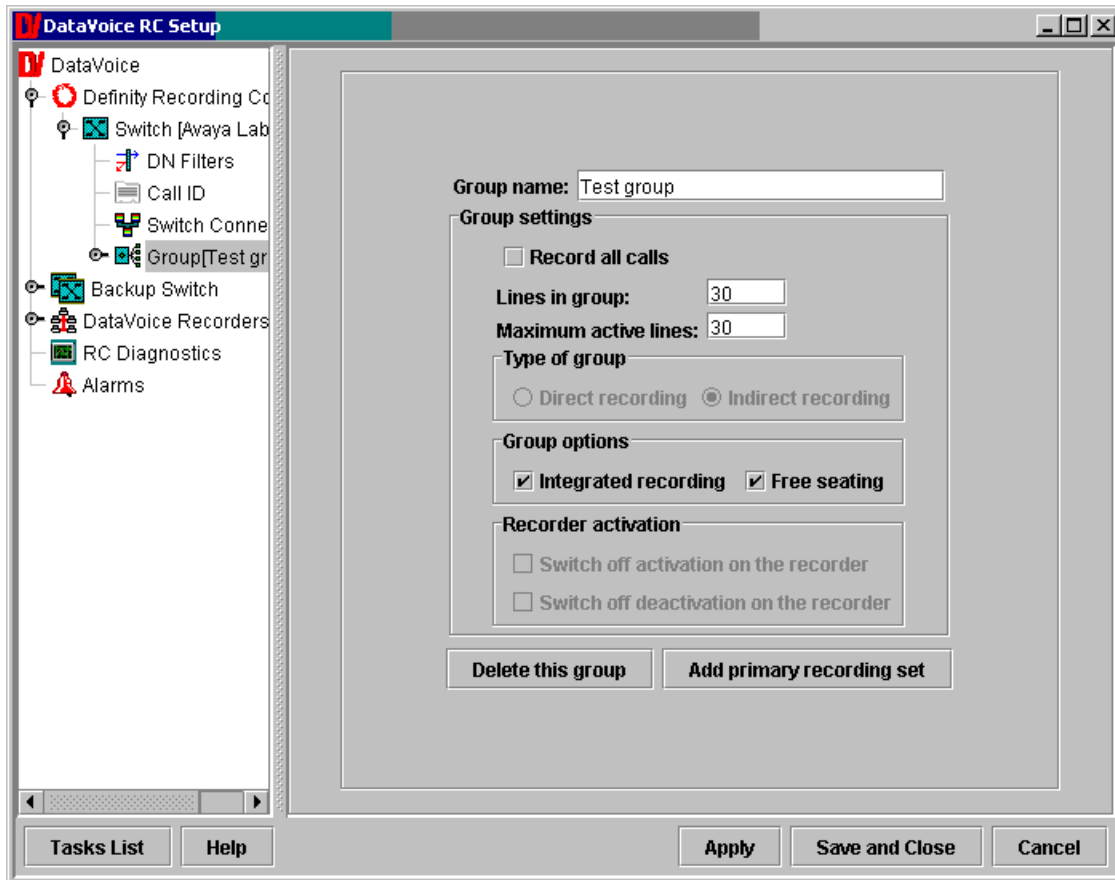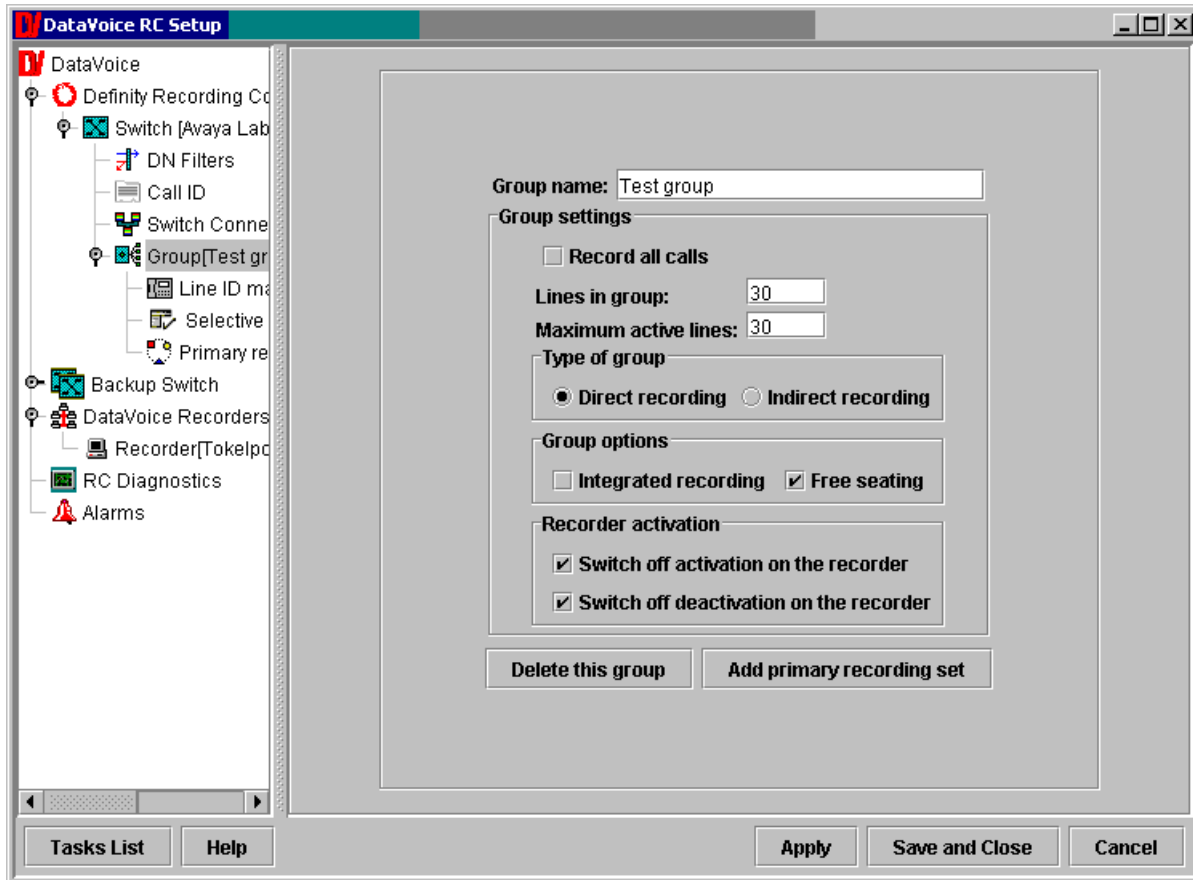

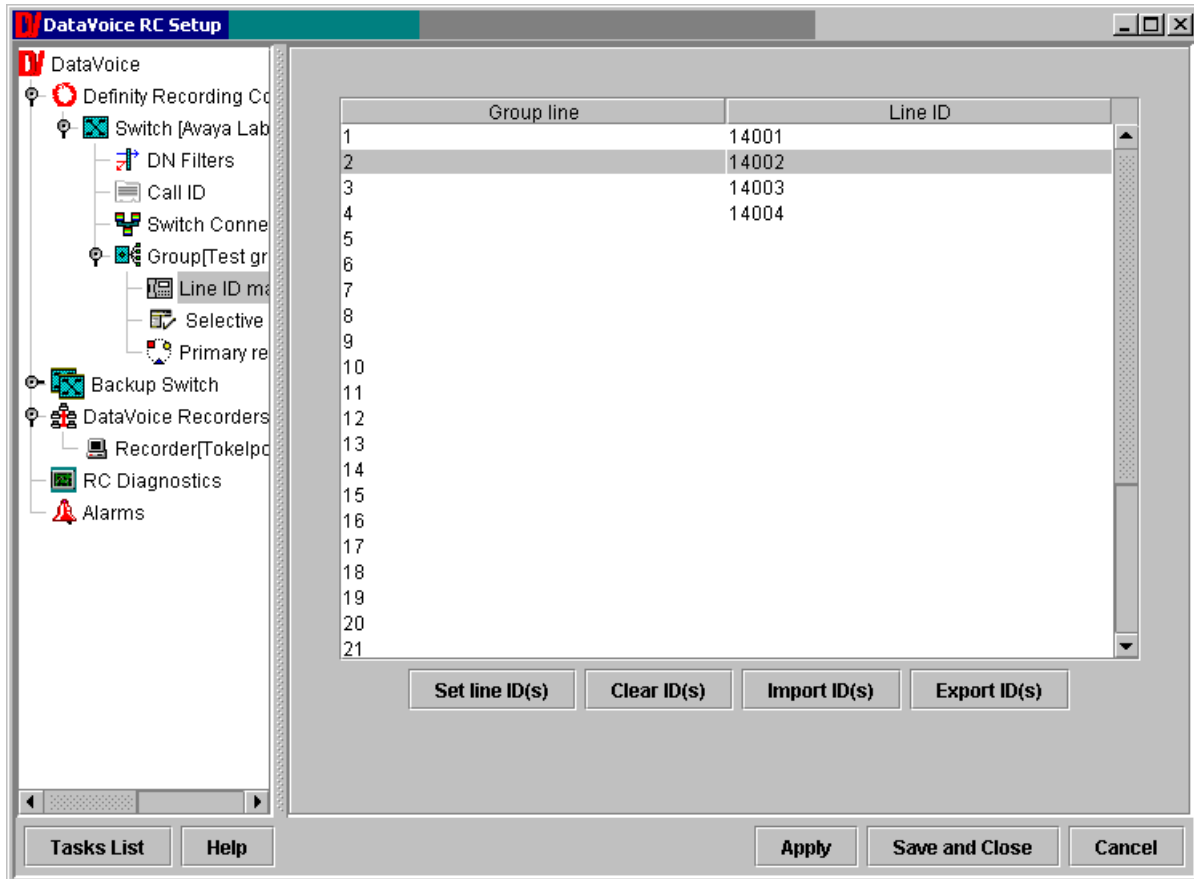**Figure 11: Configuring an Active E1 Group**

DataVoice is able to support multiple groups but needs to relate each group member to a global recorder line number. The global recorder line number is used with recorder allocation and diagnostics.

Since a group of recorder lines had already been used for the analogue tapping, the active E1 group starts at recorder line 17 as shown below.

Please note that this is very similar to the previous Passive Group configuration and uses the same Recorder Line Number for convenience. However, unlike the previous configuration, there is no longer a need for any form of LineID in the table.
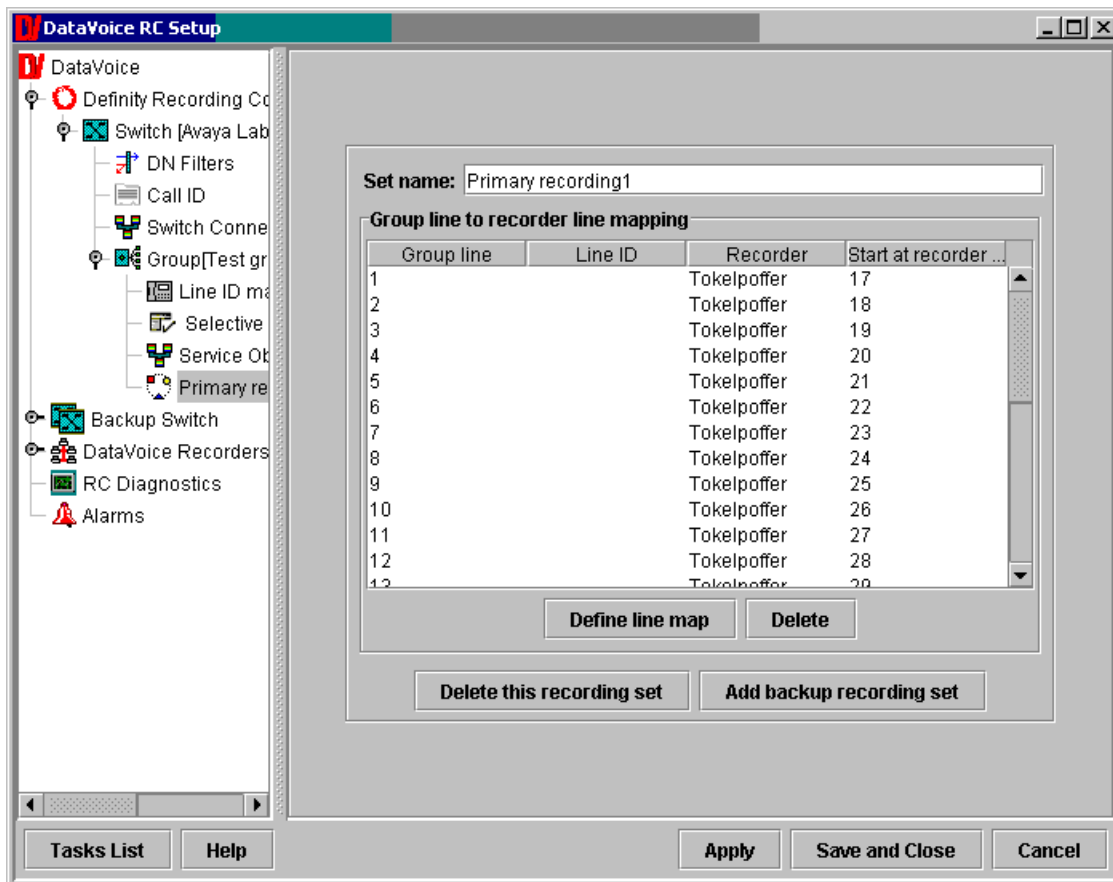
Figure 12: Configuring an Active Group Line to Recorder Line Table

6.4. Configure the Passive Analogue Recording Channels

This configuration is very similar to the passive trunk configuration described earlier.

For passive analogue tapping, the type of group must be set to "Direct Recording".

The remaining options are at default values, except that the number of lines in the group has been set to 30.

Figure 13: Configuring a Passive Analogue Recording Group

Since CTI is used to supply triggers to start and stop recording, it is essential to define a table that relates an analogue tap with its related extension number within Avaya Communication Manager. As can be seen below, the analogue extensions used started at extension 14001. Only four extensions were actually configured, although the group can support any number of lines up to the total capacity of the installed interface cards.

Figure 14: Configuring a Passive E1 Line Identification Table

DataVoice is able to support multiple groups but needs to relate each group member to a global recorder line number. The global recorder line number is used with recorder allocation and diagnostics.

The first group of recorder lines was used for analogue tapping and so the group starts at recorder line 1 as shown below.
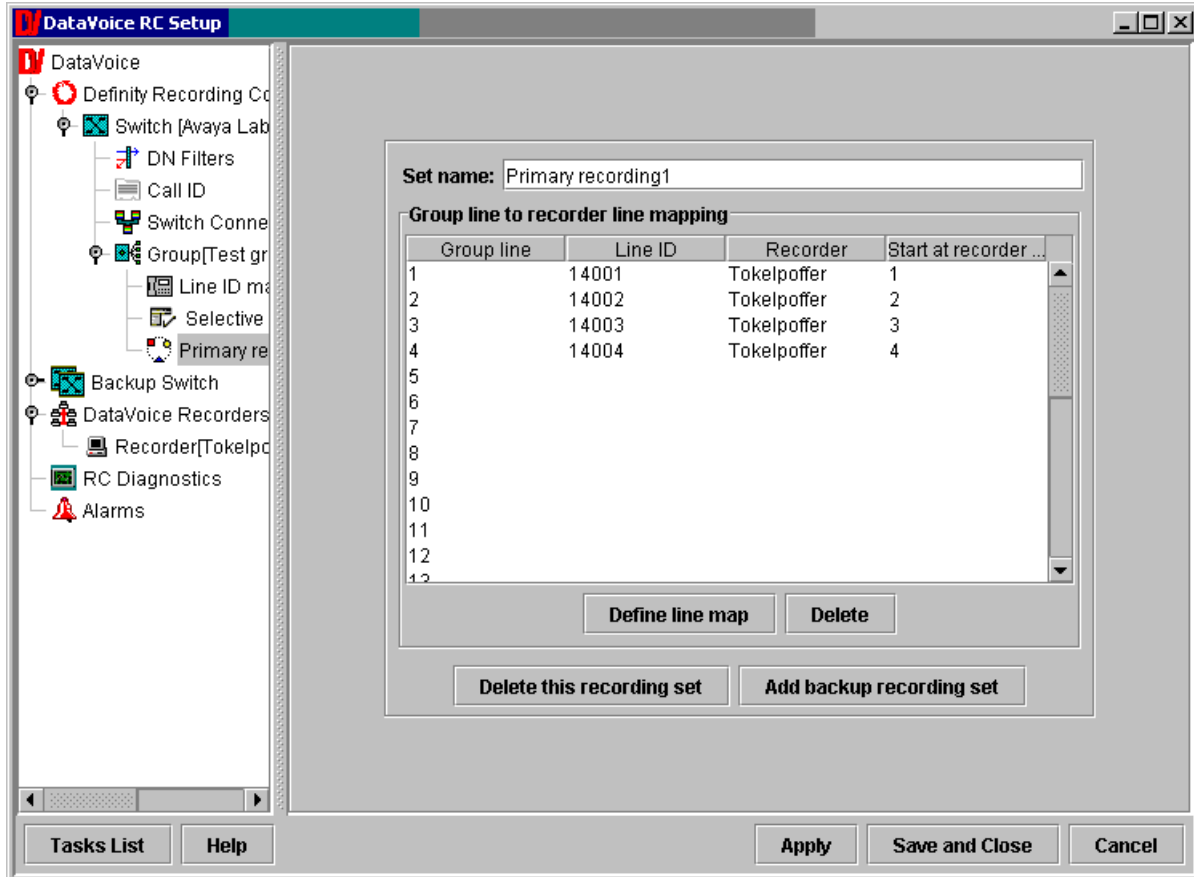
Figure 15: Configuring a Passive Group Line to Recorder Line Table

7. Interoperability Compliance Testing

7.1. General Test Approach

Testing included validation of correct operation of typical Voice Recording functions including Inbound, Outbound, Blind Transfer, Attended Transfer, and Conference calls. These tests were repeated for both tested recording modes. Light load testing and link integrity testing was also carried out.

7.2. Test Results

All tests passed.

8. Verification Steps

The DataVoice Definity Recording Controller has a sophisticated interface offering display of activity logs, errors, as well as real-time current activity.

The DataVoice Orion Recorder has a more limited display offering an activity display of its recording interfaces.

Combining the above allows both confidence in correct operation as well as diagnostics and troubleshooting.

The documentation available for the DataVoice Orion solution includes diagnostic materials. These are distributed with the solution and can also be obtained from support@datavoice.spescom.com.

9. Support

If technical support is required for the Spescom DataVoice solution, then please contact their Technical Support Department:

Email: support@datavoice.spescom.com

Phone: +27 11 266-1801

10. Conclusion

These Application Notes describe the configuration steps required for the Spescom DataVoice Orion Recording Solution to successfully interoperate with Avaya Communication Manager 2.1. An Avaya S8700 Media Server pair with an Avaya G600 Media Gateway running Avaya Communication Manager 2.1 was used as the hosting PBX. Features and functionality were validated and performance testing was conducted in order to verify operation under light load. The configuration described in these Application Notes has been successfully compliance tested.

11. Additional References

[1] Administrators Guide for Communication Manager (Doc ID: 555-233-506) can be found at http://support.avaya.com.
[2] Spescom's Avaya Technical Manual (RCL-DEF-HBT-03 Definity PI cV3.1 Technical Manual v1.0.doc) can be acquired from Spescom's Technical Support Department.
[3] Spescom's Recording Controller Technical Manual (RCL-RC0-HBT-06 RC Server cV10.2 Tech Manual v1.1.doc) can be acquired from Spescom's Technical Support Department.