



Avaya Solution & Interoperability Test Lab

Application Notes for Spescom DataVoice Orion Recording Solution with Avaya Predictive Dialer System – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Spescom DataVoice Orion Recording Solution to successfully interoperate with Avaya Predictive Dialer System 12.0

The DataVoice Mosaix Centauri Client (CC) provides connectivity between the DataVoice Orion voice recorder and the Avaya Predictive Dialer System (PDS). The Mosaix CC interfaces with the Avaya Predictive Dialer System to obtain call events (such as device ringing, call connected, device idle, etc.), while the Recording Controller server interfaces with the voice recorders and provides common services such as diagnostic, licensing and Toolkit services.

The Orion call recording solution uses the Event Services API from the Avaya Predictive Dialer System to extract call event information and supports passive trunk tapping and passive analogue station tapping.

An Avaya Predictive Dialer System 12.0 along with an Avaya S8500 Media Server running Avaya Communication Manager 3.0 and an Avaya G650 Media Gateway 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 DeveloperConnection Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

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

The DataVoice Mosaix Centauri Client (CC) is used by the Recording Controller as middleware. The Mosaix CC is used to monitor the Avaya Predictive Dialer System's (Avaya PDS) Computer Telephony Interface (CTI) for telephony events in order to start and stop voice recordings on the Orion voice recorder(s). The extensions/agents to be monitored are configured in the RC Config utility, while the recording line maps are defined with the DV Setup utility. The Mosaix CC is a client of the Centauri OCX (ActiveX control) which in turn, interfaces with the Centauri Recording Controller plug-in. The Mosaix CC has been developed with the Centauri Software Development Kit (SDK).

Call events as well as agent sign-on/off actions are reported to the Mosaix CC via the Avaya Predictive Dialer System's CTI port. The Mosaix CC uses this information to start and stop recording via the Centauri Recording Controller for monitored extensions. Call recording is initiated with the Connected event, and terminated either when the Disconnected event is received or when the Agent Ready event is received depending on the configuration of the Mosaix CC.

The solution as tested is shown below.

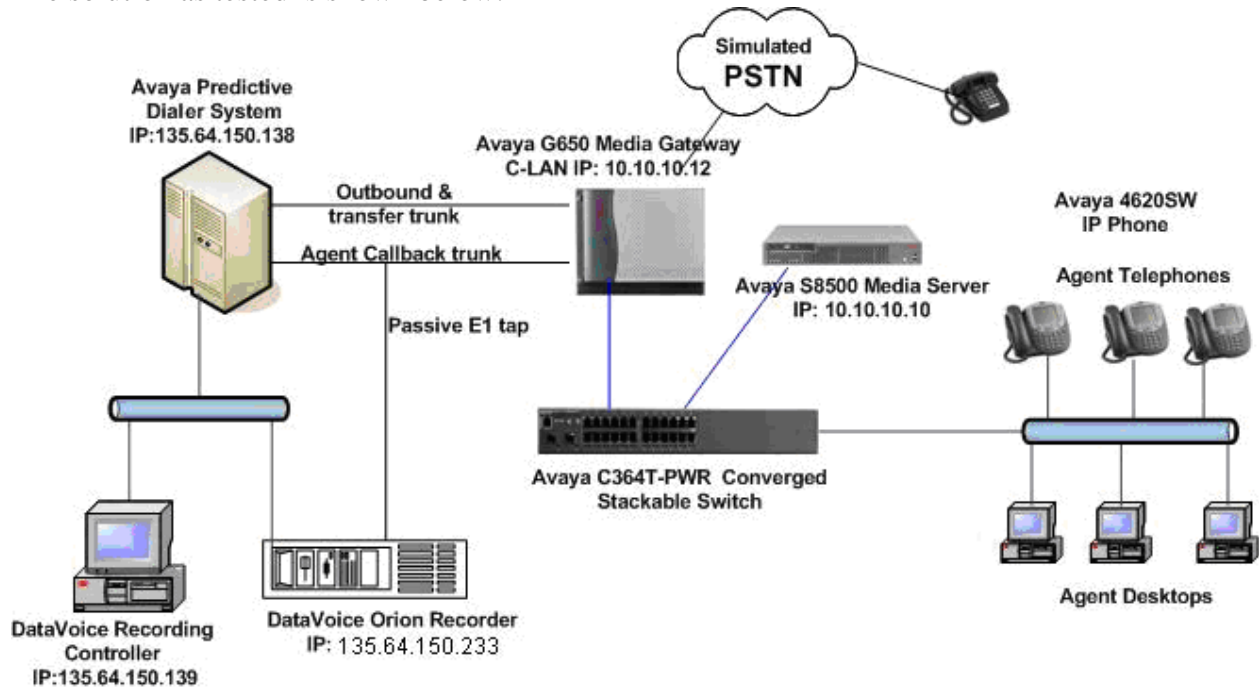


Figure 1: Tested Avaya Communication Manager with DataVoice Orion Recorder and DataVoice Recording Controller

2. Equipment and Software Validated

The tested configuration is detailed below.

Equipment	Software
Avaya S8500 Media Server running Communication Manager	R 3.0 (340.3)
Avaya G650 Media Gateway	N/A
Avaya DS1 Card TN2464 Vintage 0018	N/A
Avaya C364T-PWR Converged Stackable Switch	V4.12
Avaya PDS	12.0SP4
Avaya PDS Event Service API	2.0
DataVoice Orion Recorder	9.6
DataVoice Mosaix CC	1.0.0.3

3. Configure Avaya Predictive Dialer System

Customer PDS systems are configured from a specific set of baseline software. The baseline used for the testing consisted of the following software versions:

- HP-UX 11.00
- PDS version 12.0
- Service Pack 4
- Patches: PDS12_583, PDS12_593, PDS12_618, PDS12_648, PDS12_649, PDS12_650 & PDS12_671
- PDS Digital Switch: Generic 15.1, ISDN 15.1 & International 15.1

Digital switch cards included the ENBC, DSP2- 41, LPVC2, and the Quad E1 ISDN PRI card running Q.SIG and Q.931 protocols.

4. Configure Avaya Communication Manager

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

4.1. Illustration of the Passive Agent Call Back E1 Trunk

The following screens illustrate the trunk that is tapped by the DataVoice application.

display ds1 01A04	
DS1 CIRCUIT PACK	
Location: 01A04	Name: PRI 4 8300
Bit Rate: 2.048	Line Coding: hdb3
Signaling Mode: isdn-pri	
Connect: pbx	Interface: peer-master
TN-C7 Long Timers? n	Peer Protocol: Q-SIG
Interworking Message: PROgress	Side: a
Interface Companding: alaw	CRC? n
Idle Code: 01010100	Channel Numbering: timeslot
DCP/Analog Bearer Capability: 3.1kHz	
T303 Timer(sec): 4	
Slip Detection? y	
Near-end CSU Type: other	

display signaling-group 25	Page 1 of 5
SIGNALING GROUP	
Group Number: 25	Group Type: isdn-pri
Associated Signaling? y	Max number of NCA TSC: 0
Primary D-Channel: 01A0416	Max number of CA TSC: 0
Trunk Group for NCA TSC:	
Trunk Group for Channel Selection: 25	X-Mobility/Wireless Type: NONE
Supplementary Service Protocol: a	

display trunk-group 25	Page 1 of 19
TRUNK GROUP	
Group Number: 25	Group Type: isdn CDR Reports: y
Group Name: QSIG to PDS-Agent DB	COR: 1 TN: 1 TAC: *25
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: b	Digit Handling (in/out):
enbloc/enbloc	
Trunk Hunt: ascend QSIG Value-Added? n	
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	

display trunk-group 25	Page 2 of 19
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: 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: n
	Hold/Unhold Notifications? y
Send UUI IE? y	Modify Tandem Calling Number? n
Send UCID? n	
Send Codeset 6/7 LAI IE? y	Dsl Echo Cancellation? n
	US NI Delayed Calling Name Update? n
SBS? n	Network (Japan) Needs Connect Before Disconnect? n

display trunk-group 25					Page 3 of 19	
TRUNK GROUP						
Administered Members (min/max):						1/7
GROUP MEMBER ASSIGNMENTS					Total Administered Members:	
7						
Port	Code	Sfx	Name	Night	Sig	Grp
1: 01A0401	TN2464	B			25	
2: 01A0402	TN2464	B			25	
3: 01A0403	TN2464	B			25	
4: 01A0404	TN2464	B			25	
5: 01A0405	TN2464	B			25	
6: 01A0406	TN2464	B			25	
7: 01A0407	TN2464	B			25	
8:						
9:						
10:						

4.2. Illustration of the Outbound, Inbound & Transfer E1 Trunk

The following screens illustrate the configuration of the outbound/inbound/transfer trunks to the Avaya PDS.

display ds1 01A05	
DS1 CIRCUIT PACK	
Location: 01A05	Name: Outbnd,Inbnd&trans
Bit Rate: 2.048	Line Coding: hdb3
Signaling Mode: isdn-pri	
Connect: pbx	Interface: peer-master
TN-C7 Long Timers? n	Peer Protocol: Q-SIG
Interworking Message: PROGRESS	Side: a
Interface Companding: alaw	CRC? n
Idle Code: 01010100	Channel Numbering: timeslot
DCP/Analog Bearer Capability: 3.1kHz	
T303 Timer(sec): 4	
Slip Detection? n	
Near-end CSU Type: other	

display signaling-group 76		Page 1 of 5	
SIGNALING GROUP			
Group Number: 76		Group Type: isdn-pri	
Associated Signaling? y		Max number of NCA TSC: 0	
Primary D-Channel: 01A0516		Max number of CA TSC: 0	
Trunk Group for NCA TSC:			
Trunk Group for Channel Selection: 76		X-Mobility/Wireless Type: NONE	
Supplementary Service Protocol: a			

display trunk-group 76	Page 1 of 19
TRUNK GROUP	
Group Number: 76	Group Type: isdn CDR Reports: y
Group Name: Outbnd,Inbnd&trans	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: b	Digit Handling (in/out): enbloc/enbloc
Trunk Hunt: cyclical	QSIG Value-Added? n
	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	

display trunk-group 76	Page 3 of 19
TRUNK GROUP	
	Administered Members (min/max): 1/30
GROUP MEMBER ASSIGNMENTS	Total Administered Members: 30
Port	Code Sfx Name Night Sig Grp
1: 01A0501	TN2464 B 76
2: 01A0502	TN2464 B 76
3: 01A0503	TN2464 B 76
4: 01A0504	TN2464 B 76
5: 01A0505	TN2464 B 76
6: 01A0506	TN2464 B 76
7: 01A0507	TN2464 B 76
8: 01A0508	TN2464 B 76
9: 01A0509	TN2464 B 76
10: 01A0510	TN2464 B 76
11: 01A0511	TN2464 B 76
12: 01A0512	TN2464 B 76
13: 01A0513	TN2464 B 76
14: 01A0514	TN2464 B 76
15: 01A0515	TN2464 B 76

5. Configure the Avaya C364T-PWR Converged Stackable Switch

No configuration of the Avaya C364T-PWR Switch was required.

6. 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. The related Recording Controller will pass 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.

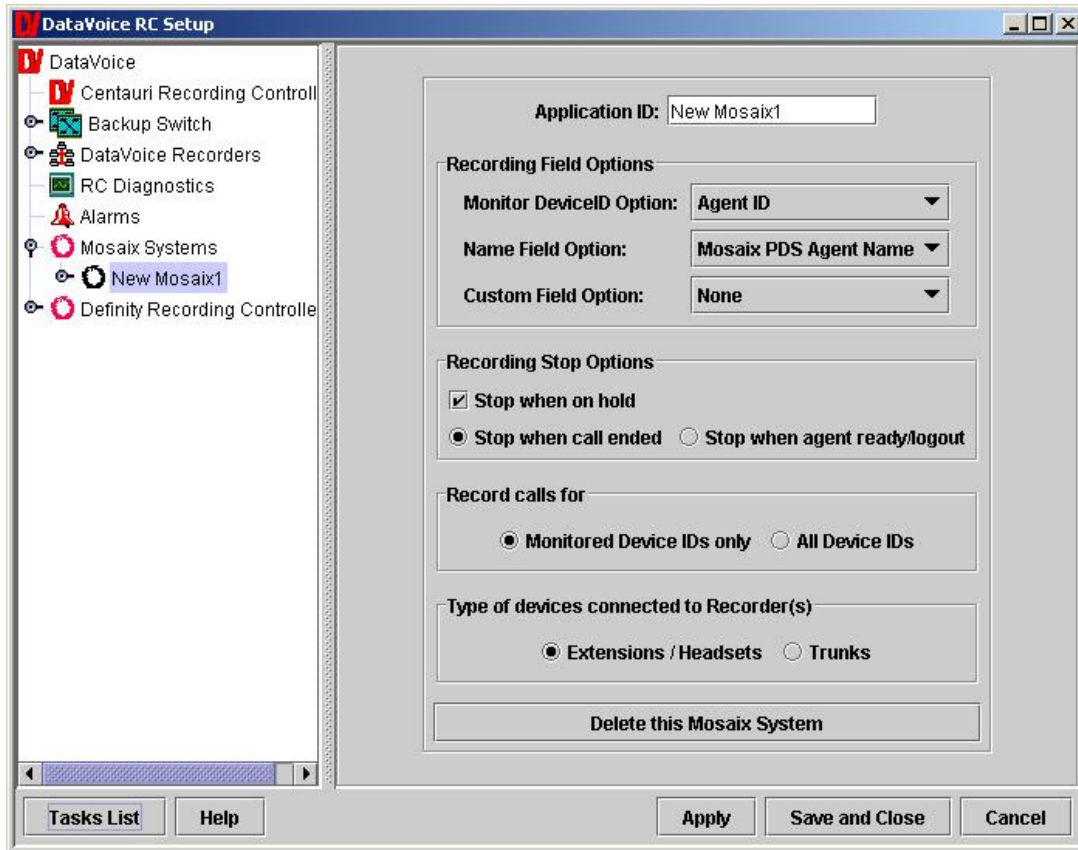
6.1. Configure the DataVoice Recording Controller

The DataVoice Mosaix Recording Controller has a sophisticated interface offering display of activity logs, errors, as well as real-time current activity. Its main function is to receive CTI events from the Avaya PDS and use the events to activate recordings on the Orion Recorder. The CTI from the PDS is processed by a middleware application called the Mosaix Centauri Client (Mosaix CC) and then passed on the Centauri Recording Controller.

Note: The combination of the Mosaix CC and Centauri Recording Controller together is known as the Mosaix Recording Controller.

6.1.1. Setting up the Recording Controller (Static Configuration)

Static setup parameters are setup with the RC Setup utility. Multiple Avaya PDS systems can be set up in the Recording Controller. Below is an example of how one system is setup in the Mosaix CC middleware.



The parameters are described below:

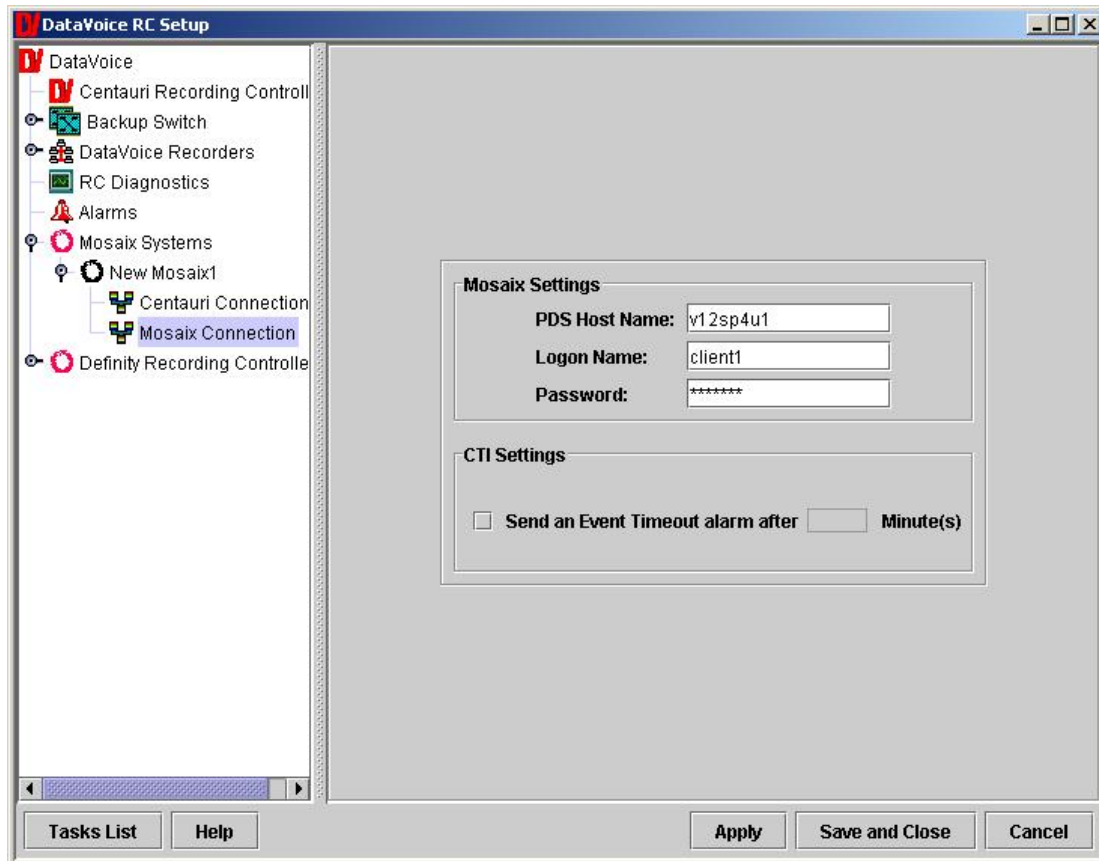
Option	Description
Application ID	This is a symbolic application ID for the Mosaix System. The application ID must be unique. The application ID is used to identify the Mosaix CC when opening a connection with the Centauri Recording Controller. It is also used to differentiate between Mosaix CCs in the log files.
Recording Field Options	
Monitor DeviceID Option	This is the monitored Device ID configured in the Centauri RC that must be monitored on the Mosaix System. The Mosaix CC will start and stop recordings for this Device ID. Use this parameter to specify the Device ID that must be used as the monitored device ID. The Orion Called Number field will contain entries of this type (note that alphabetical characters are not shown in Orion WS) The device ID options are: 0.) Agent ID 1.) Headset Number (extension number that the agent is connected to)

Option	Description
Name Field Option	<p>This is the value that will be placed in the Name Field of the Orion DB Entry.</p> <p>The options are:</p> <ul style="list-style-type: none"> 0.) RC Config Agent Name 1.) Agent ID 2.) Mosaix PDS Agent Name 3.) Job Name 4.) Job Number
Custom Field Options	<p>Specify one of the Custom Field Options to be placed into the Description field of an Orion DB Entry.</p> <p>The options are:</p> <ul style="list-style-type: none"> 0.) None 1.) Agent ID 2.) Agent Name 3.) Headset Number 4.) Headset Extension 5.) Job Name 6.) Job Number 7.) Account Number
Recording Stop Options	
Stop when on hold	<p>If selected, this will force the recording to stop when the call goes on hold. The recording will be started again once the call is retrieved.</p>
Call end	<p>Select when the recording must end once the call is completed.</p> <ul style="list-style-type: none"> • Stop when call ended Select this option if the recording must end when the call does. • Stop when agent ready/logout Select this option if the recording must end when the agent is ready to receive another call or logs out. <p>Note: These options are necessary when Screen recording is involved.</p>
Record calls for	<p>Specify whether the Mosaix CC must record calls for the devices configured on the Centauri RC only, or for all the devices reported by the Mosaix System.</p> <ul style="list-style-type: none"> • Monitored Device IDs only Select this option to record calls for Devices configured on the Centauri RC only. • All Device IDs Select this option to record calls for all Devices reported by the Mosaix System. <p>Note: For Record calls for all Device IDs, the Centauri RC must be setup to Record all calls and the Extension Number and/or Agent trunk numbers of the monitored device must be setup in at least one</p>

Option	Description
	Recording Group.
Type of Devices connected to the Recorder(s)	Specify the type of devices connected to the Orion Recorder(s). The options are: <ul style="list-style-type: none"> • Extensions/Headsets: select this option if extensions or analogue lines, are being recorded on the Mosaix System. • Trunks: select this option if Agent trunks, E1 or T1, are being recorded on the Mosaix System.

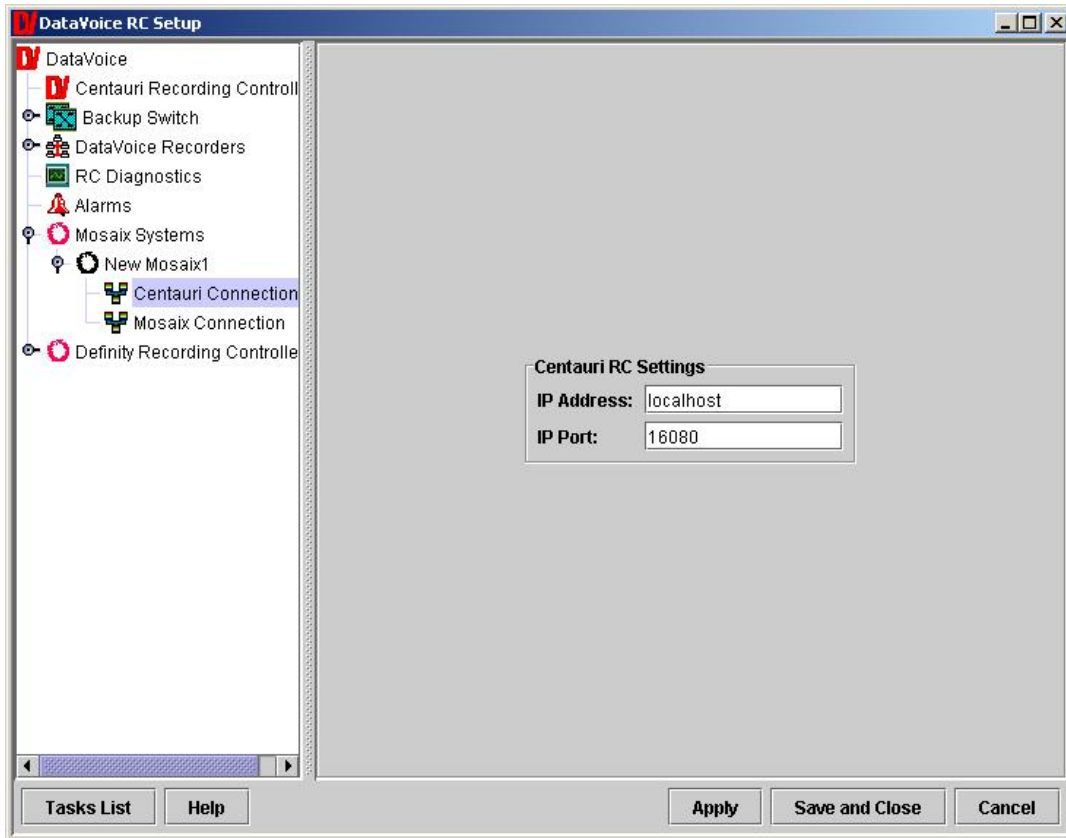
6.1.2. Setting up the connection to the PDS

The figure below displays the parameters needed to connect to the PDS. To successfully connect to the PDS, enter the PDS Host Name, Logon Name (User name to connect to the PDS) and the associated password.



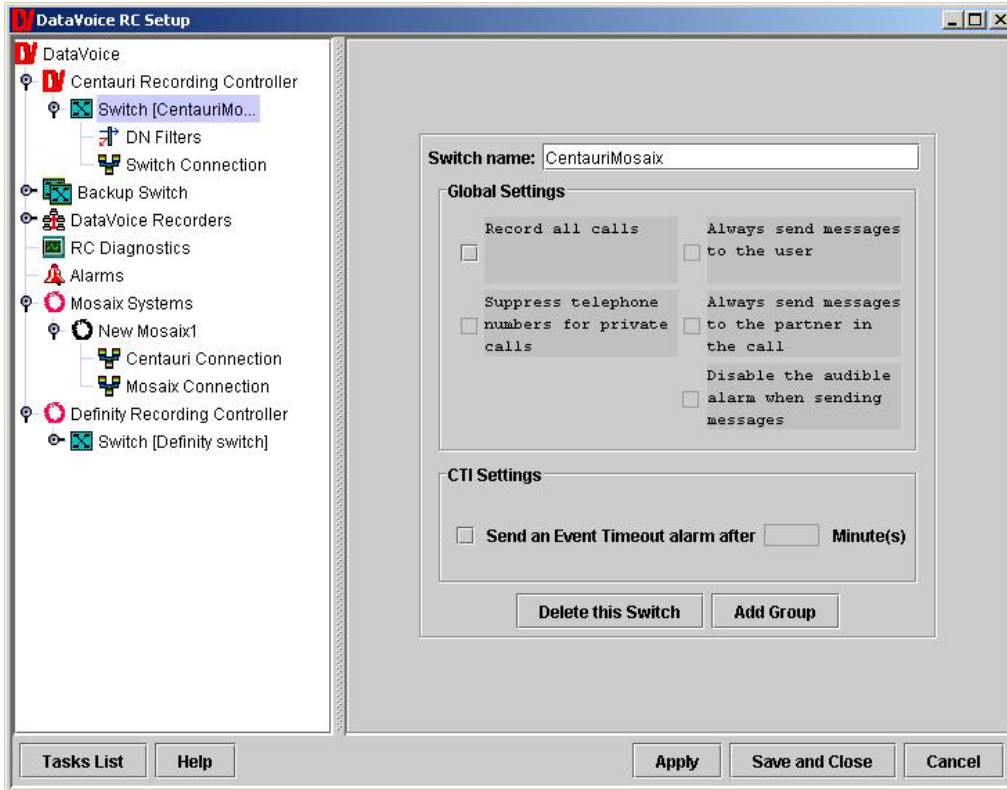
6.1.3. Setting up the connection to the Centauri Recording Controller

The figure below displays the parameters needed to connect to the Centauri RC. To successfully connect to the Centauri Recording Controller, enter the name or IP Address of the RC as well as the IP Port.

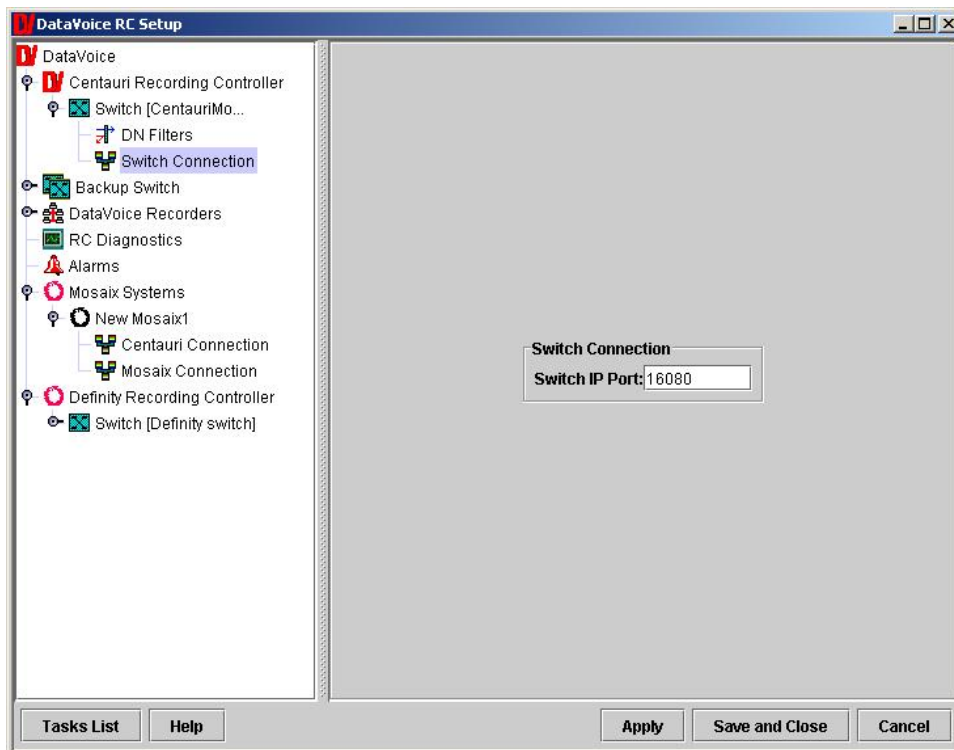


6.1.4. Setting up the Centauri Recording Controller

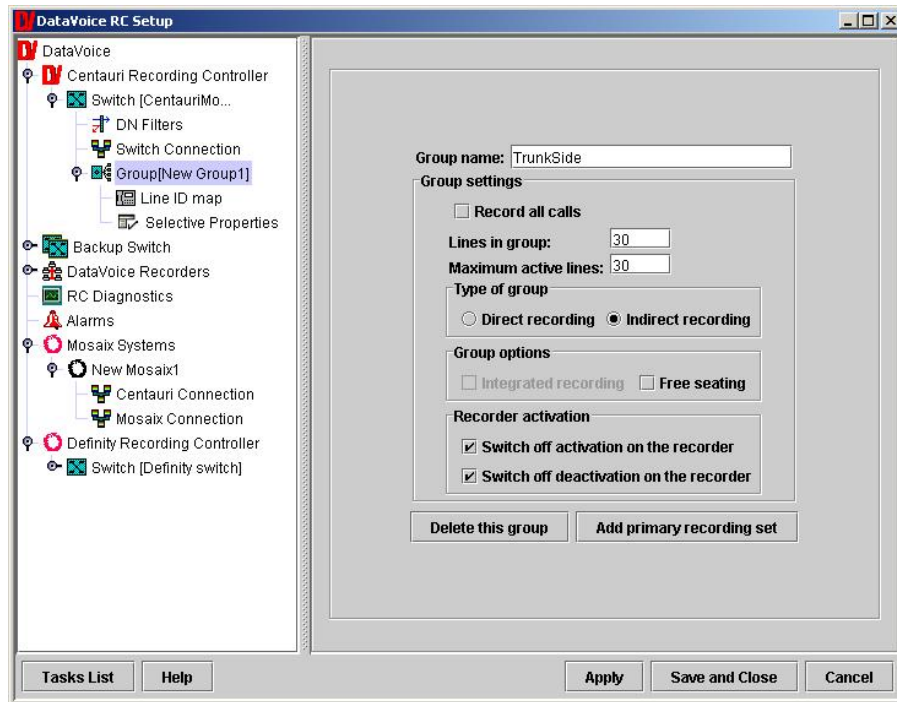
The Centauri RC contains the core recording control logic that drives the recordings on the Orion recorder. An instance of a "Switch" is created to coincide with the instance of the Mosaix PDS system created previously.



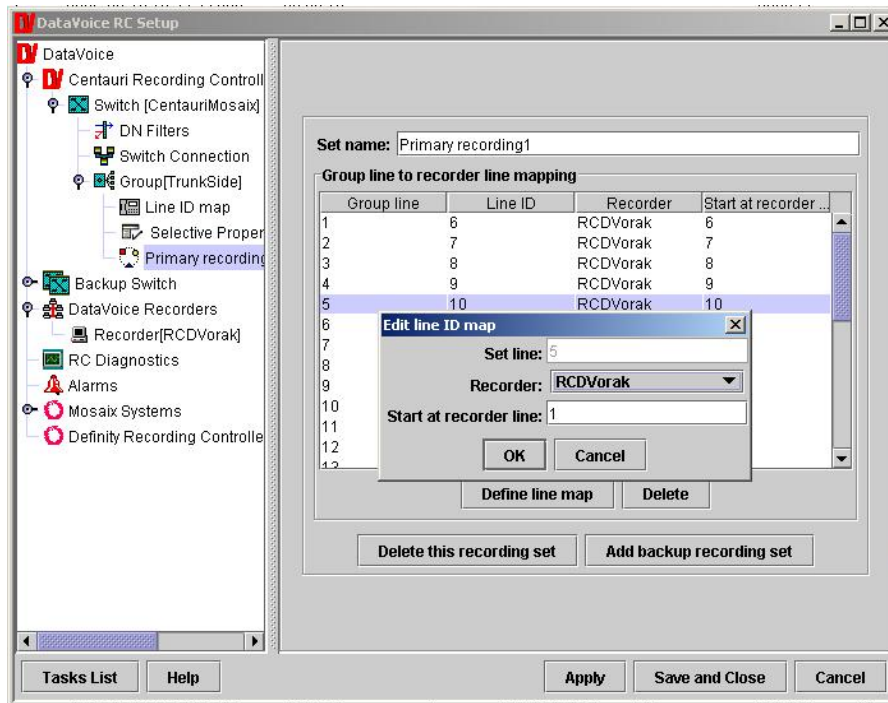
The connection parameters for the connection to the Mosaix CC middleware are shown below. The IP Port must be the same as the value in the Mosaix CC connection.



Different recording group types can be added and define the manner in which the recordings are made. In the figure below, an Indirect (trunk side) group has been created which represents the agent call back trunks that were used in the recording environment. Each agent call back trunk is added to the Group Lines.



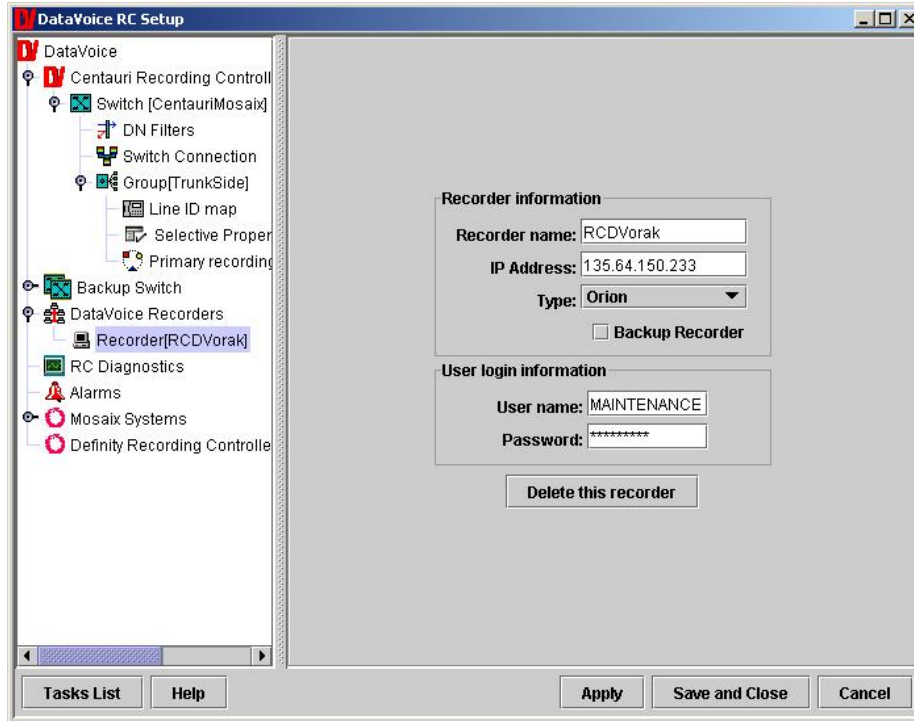
The group line/ agent call back trunk is then mapped to a specific line on the recorder as shown below.



6.1.5. Setting up the Connection to the Orion Recorder

The connection parameters to the Orion Recorder are shown below. The following needs to be entered:

- Recorder Name
- The Recorder's IP address
- The type of recorder
- User name & password



6.1.6. Configuring Agents/Devices on the Recording Controller (Dynamic Configuration)

Dynamic setup parameters are configured with the Configuration utility. These settings are specifically used to setup devices/agents that should be recorded. To receive events for a specific agent/device, enter the ID at the switch level as shown below:



The agent/device then needs to be added at the group level to ensure that it is successfully recorded.



7. Interoperability Compliance Testing

7.1. General Test Approach

Serviceability and basic functionality test cases were performed manually. During the manual tests, outbound calls were made by the PDS to a simulated Public Switched Telephone Network and answered calls were delivered to agent telephones. Audio of recorded calls was verified.

7.2. Test Results

All feature and performance tests passed. The DataVoice Orion Recorder and DataVoice Recording Controller successfully recorded, displayed and replayed the recordings.

During the testing it was noted that if the network cable was disconnected more than three times between the Avaya PDS and the DataVoice Recording Controller, the Event Service process “enserver” on the Avaya PDS would need to be restarted. By default, the Event Service process is restarted every night as part of the maintenance schedule.

8. Verification Steps

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

8.1. Verifying that the Mosaix CC has a connection to the PDS

To verify that the Mosaix CC has a valid connection to the PDS, run the “netstat” command line utility with the “-n” option. There should be three separate connections to the PDS IP address. In the example below, the IP address of the PDS is 135.64.150.138 and the Mosaix CC is 135.64.150.218.

```

C:\WINDOWS\system32\cmd.exe

C:\Brad>netstat -n

Active Connections

Proto Local Address           Foreign Address         State
TCP   127.0.0.1:1036          127.0.0.1:6139        ESTABLISHED
TCP   127.0.0.1:1125          127.0.0.1:1126        ESTABLISHED
TCP   127.0.0.1:1126          127.0.0.1:1125        ESTABLISHED
TCP   127.0.0.1:6139          127.0.0.1:1036        ESTABLISHED
TCP   127.0.124.3:1130       127.0.124.3:16080     ESTABLISHED
TCP   127.0.124.3:16080      127.0.124.3:1130     ESTABLISHED
TCP   135.64.150.218:1057    135.64.150.233:17478  ESTABLISHED
TCP   135.64.150.218:1123    135.64.150.233:17478  ESTABLISHED
TCP   135.64.150.218:1127    135.64.150.138:23200  ESTABLISHED
TCP   135.64.150.218:1128    135.64.150.138:23120  ESTABLISHED
TCP   135.64.150.218:1129    135.64.150.138:58486  ESTABLISHED
TCP   135.64.150.218:1153    172.168.176.52:2555   SYN_SENT

C:\Brad>netstat -n

```

8.2. Verifying that recordings are taking place with the correct audio

The audio captured is stored in the Orion Recorder's hard disk and is referenced with a database. The recordings in the database can be viewed and played back using the Orion Workstation. The following is a typical playback session of a recording that has been made on the PDS.

The screenshot shows the Orion Workstation interface. At the top, there is a menu bar (File, Workstation, Disk, Network, Unit, View, Window, Help) and a toolbar. Below that is a 'Player' window showing a playback session for 'Channel 1 : agent1'. The playback controls include a volume slider set to 72%, a 'mute' button, and a timeline from 0m0s to 50m52s. The current playback position is 2005-08-24 11:35:55. Below the player is a table of recordings with columns for LogL, Attributes, Type, Start, Duration, Name, CallerNo, DestNo, Reference, and Description.

LogL	Attributes	Type	Start	Duration	Name	CallerNo	DestNo	Reference	Description
0	O	Text	2005-08-23 20:47:57.000		Recorder			299891	Info log
0	OL	Log	2005-08-24 02:00:00.001		2005-08-24			299922	Log file
0	O	Text	2005-08-24 02:00:25.000		Recorder			299923	Info log
0	O	Text	2005-08-24 02:00:26.000		ConSvr			299924	Info log
0	O	Text	2005-08-24 11:12:49.000		ConSvr			299924	Info log
7	O	Speech	2005-08-24 11:25:42.000	00:00:24	agent1	01483309087	106	299925	403
7	O	Speech	2005-08-24 11:26:26.000	00:00:06	agent1	01483309087	106	299926	403
7	O	Speech	2005-08-24 11:27:17.000	00:00:39	agent1	01483309087	106	299927	403
7	O	Speech	2005-08-24 11:27:57.000	00:00:14	agent1	01483309087	106	299928	403
7	O	Speech	2005-08-24 11:31:37.000	00:00:26	agent1	01483309087	106	299929	403
7	O	Speech	2005-08-24 11:32:03.000	00:00:22	agent1	01483309087	106	299930	403
7	O	Speech	2005-08-24 11:35:55.000	00:00:52	agent1	01483309087	106	299931	403
7	O	Speech	2005-08-24 11:36:48.000	00:00:18	agent1	01483309087	106	299932	403
7	O	Speech	2005-08-24 11:37:06.000	00:01:45	agent1	01483309087	106	299933	403
0	O	Text	2005-08-24 11:47:54.000		Recorder			299923	Info log

9. Support

If technical support is required for the Spescom DataVoice solution, then please contact the DataVoice 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 Predictive Dialer System 12.0 SP4 and Avaya Communication Manager 3.0. 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. References

[1] Administrators Guide for Communication Manager (Doc ID: 555-233-506) can be found at <http://support.avaya.com>.

11.1. Documentation

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.

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