



Avaya Solution & Interoperability Test Lab

Application Notes for the SyncVoice Communications VXTracker with Avaya Communication Manager - Issue 1.0

Abstract

These Application Notes describe the configuration steps required for the SyncVoice Communications VXTracker call accounting software (Version 4.1.3) to successfully interoperate with Avaya Communication Manager 3.1.

VXTracker is call accounting software that interoperates with Avaya Communication Manager over a Call Detail Recording (CDR) link running on a TCP/IP port. Call records can then be generated for various types of calls. The SyncVoice Communications VXTracker collects, and processes the call records. Serviceability and performance tests were conducted to assess the reliability of the solution.

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.

1. Introduction

The overall objective of this interoperability compliance testing is to verify the SyncVoice Communications VXTracker call accounting software can interoperate with Avaya Communication Manager 3.1. VXTracker connects to Avaya Communication Manager over the local or wide area network using a TCP/IP connection and runs in a passive server mode. Avaya Communication Manager is configured to send Call Detail Recording (CDR) data to VXTracker using a TCP/IP port. Serviceability and performance tests were conducted to assess the reliability of the solution.

For additional information on SyncVoice Communications, please refer to VXTracker documentation [3].

Figure 1 illustrates the network configuration used to verify the SyncVoice Communications solution. The configuration details provided in these Application Notes focus on the interfaces between Avaya Communication Manager and the SyncVoice Communications VXTracker. **Figure 1** shows two separate communication systems each running Avaya Communication Manager on separate media servers. Site A is comprised of an Avaya S8700 Media Server Pair and a G650 Media Gateway, and has connections to the following: Avaya 4600 Series IP Telephones, Avaya 6400 Series Digital Telephones and a PRI trunk to the PSTN. Site B is comprised of an Avaya S8300 Media Server with a G350 Media Gateway, and has connections to Avaya 4600 Series IP Telephones. Site A and B are networked via an IP trunk.

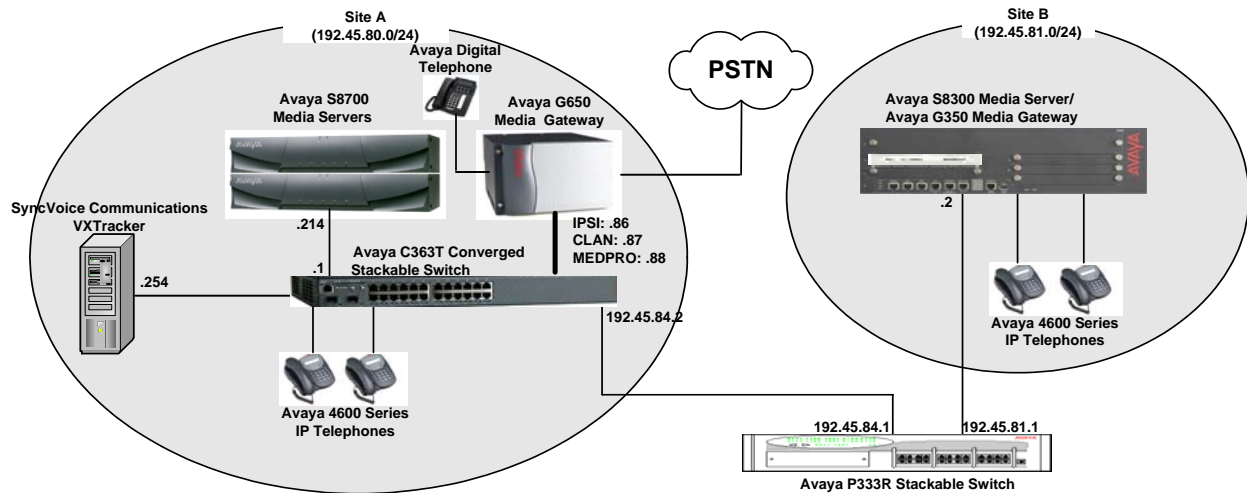


Figure 1. Test configuration of VXTracker with Avaya Communication Manager

2. Equipment and Software Validated

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

Equipment		Software
Avaya S8700 Media Server		Communication Manager 3.1 (R013x.01.0.628.6)
Avaya G650 Media Gateway		
	TN2312BP IPSI TN799DP CLAN TN2302AP MEDPRO	HW11 FW030 HW20 FW017 HW01 FW108
Avaya S8300 Media Server		Communication Manager 3.1 (R013x.01.0.628.6)
Avaya G350 Media Gateway		25.23.0
Avaya 4600 Series IP Telephone		
	4620	2.3
	4625	2.5
Avaya Digital Telephones		-
Avaya C363T Converged Stackable Switch (Layer 3)		4.5.14
Avaya P333R Stackable Switch (Layer 3)		4.0.8
SyncVoice Communications VXTracker Call Accounting Software with <ul style="list-style-type: none"> • Windows 2000 Professional • IE 6.0 		4.1.3-1133

3. Configure Avaya Communication Manager

This section provides the procedures for configuring Call Detail Recording (CDR) in Avaya Communication Manager. All the configuration changes in Avaya Communication Manager are performed through the System Access Terminal (SAT). These steps describe the procedure used for the Avaya S8700 Media Server. All steps are the same for the other media servers unless otherwise noted. Avaya Communication Manager will be configured to generate CDR records and send CDR records to VXTracker, using a TCP/IP connection on port 9000 (CDR link). For the Avaya S8700 Media Server, the CDR link originates at the IP address of the C-LAN board, and terminates at VXTracker. For the Avaya S8300 Media Server, the CDR link originates at the IP address of the local media server (with node-name – “procr”).

The highlights in the following screens indicate the value used during the compliance test.

Use the **change node-names ip** command to create a new node name, **vxtracker**. This node name is associated with the IP Address of VXTracker.

```
change node-names ip
```

Page 1 of 1

IP NODE NAMES			
Name	IP Address	Name	IP Address
vxtracker	192.45 .80 .254	.	.
CLAN	192.45 .80 .87	.	.
MEDPRO	192.45 .80 .88	.	.
S8300	192.45 .81 .11	.	.
default	0 .0 .0 .0	.	.
procr	192.45 .80 .214	.	.

Use the **change ip-services** command to define the CDR link to use TCP/IP. To define a primary CDR link, the following information should be provided:

- Service Type: **CDR1** [If needed, a secondary link can be defined by setting Service Type to CDR2.]
- Local Node: **CLAN** [For the Avaya S8700 Media Server, the Local Node is set to the node name of the C-LAN board. If the Avaya S8300 Media Server was utilized, set the Local Node to “procr”.]
- Local Port: **0** [The Local Port is fixed to 0, because Avaya Communication Manager initiates the CDR link.]
- Remote Node: **vxtracker** [The Remote Node is set to the node name defined previously.]
- Remote Port: **9000** [The Remote Port may be set to a value between 5000 and 64500 inclusive and must match the port configured in VXTracker.]

```
change ip-services
```

Page 1 of 4

IP SERVICES					
Service Type	Enabled	Local Node	Local Port	Remote Node	Remote Port
CDR1		CLAN	0	vxtracker	9000

On Page 3 of the ip-services form, disable the Reliable Session Protocol (RSP) for the CDR link by setting the Reliable Protocol field to **n**.

```
change ip-services
```

Page 3 of 4

SESSION LAYER TIMERS							
Service Type	Reliable Protocol	Packet Timer	Resp	Session Message	Connect Cntr	SPDU Cntr	Connectivity Timer
CDR1	n	30			3	3	60

Enter the **change system-parameters cdr** command from the SAT to set the parameters for the type of calls to track and the format of the CDR data. The example below shows the settings used during the compliance test. Provide the following information:

- CDR Date Format: **month/day**
- Primary Output Format: **customized**
- Primary Output Endpoint: **CDR1**

The remaining parameters define the type of calls that will be recorded and what data will be included in the record. See reference [2] for a full explanation of each field. The test configuration used some of the more common fields described below.

- Intra-switch CDR: **y** [Allows call records for internal calls involving specific stations. Those stations must be specified in the inter-switch-cdr form.]
- Record Outgoing Calls Only?: **n** [Allows incoming trunk calls to appear in the CDR records along with the outgoing trunk calls.]
- Outg Trk Call Splitting?: **y** [Allows a separate call record for any portion of an outgoing call that is transferred or conferenced.]
- Inc Trk Call Splitting?: **y** [Allows a separate call record for any portion of an incoming call that is transferred or conferenced.]

When the customized format is selected for the Primary Output Format field, the CDR SYSTEM PARAMETERS form adds a page to customize the specific Data Item(s) and length of the data item(s).

```

change system-parameters cdr                                     Page 1 of 1
                                CDR SYSTEM PARAMETERS

Node Number (Local PBX ID): 1                                CDR Date Format: month/day
Primary Output Format: customized                            Primary Output Endpoint: CDR1
Secondary Output Format:
  Use ISDN Layouts? n
  Use Enhanced Formats? n      Condition Code 'T' For Redirected Calls? n
Modified Circuit ID Display? n      Remove # From Called Number? n
Record Outgoing Calls Only? n      Intra-switch CDR? y
Suppress CDR for Ineffective Call Attempts? y      Outg Trk Call Splitting? y
  Disconnect Information in Place of FRL? n      Outg Attd Call Record? y
                                                Interworking Feat-flag? n
Force Entry of Acct Code for Calls Marked on Toll Analysis Form? n
                                                Calls to Hunt Group - Record: member-ext
Record Called Vector Directory Number Instead of Group or Member? n

Inc Trk Call Splitting? y      Inc Attd Call Record? y
Record Non-Call-Assoc TSC? n      Call Record Handling Option: warning
  Record Call-Assoc TSC? n      Digits to Record for Outgoing Calls: dialed
Privacy - Digits to Hide: 0      CDR Account Code Length: 6
  
```

On Page 2 of the CDR SYSTEM PARAMETERS form, add specific Data Item(s) and length of the Data Items(s). The following screen shows a sample customized format.

change system-parameters cdr			Page 2 of 2		
CDR SYSTEM PARAMETERS					
Data Item - Length		Data Item - Length		Data Item - Length	
1: time	- 4	17: node-num	- 2	33:	-
2: duration	- 4	18: ins	- 3	34:	-
3: cond-code	- 1	19: ixc-code	- 3	35:	-
4: code-dial	- 4	20: bcc	- 1	36:	-
5: code-used	- 4	21: ma-uui	- 1	37:	-
6: dialed-num	- 15	22: res_flag	- 1	38:	-
7: calling-num	- 10	23: tsc_ct	- 4	39:	-
8: acct-code	- 15	24: tsc_flag	- 1	40:	-
9: auth-code	- 7	25: space	- 1	41:	-
10: space	- 2	26: date	- 6	42:	-
11: frl	- 1	27: space	- 1	43:	-
12: in-crt-id	- 3	28: vdn	- 5	44:	-
13: out-crt-id	- 3	29: return	- 1	45:	-
14: feat-flag	- 1	30: line-feed	- 1	46:	-
15: attd-console	- 2	31:	-	47:	-
16: in-trk-code	- 4	32:	-	48:	-

Record length = 111

If the Intra-switch CDR field is set to **y** on Page 1 of the CDR SYSTEM PARAMETERS form, use the **change intra-switch-cdr** command to define the extensions that will be subject to call detail records. In the Assigned Members field, enter a specific extension whose usage will be tracked with a CDR record. Add an entry for each additional extension of interest.

change intra-switch-cdr			Page 1 of 2		
INTRA-SWITCH CDR					
Assigned Members:	2	of 5000	administered		
1: 50001	19:	37:	55:	73:	91:
2: 50002	20:	38:	56:	74:	92:
3:	21:	39:	57:	75:	93:
4:	22:	40:	58:	76:	94:
5:	23:	41:	59:	77:	95:
6:	24:	42:	60:	78:	96:
7:	25:	43:	61:	79:	97:

For each trunk group for which CDR records are desired, verify that CDR reporting is enabled. Use the **change trunk-group *n*** command, where *n* is the trunk group number, to verify that the CDR Reports field is set to **y**. This applies to all types of trunk groups.

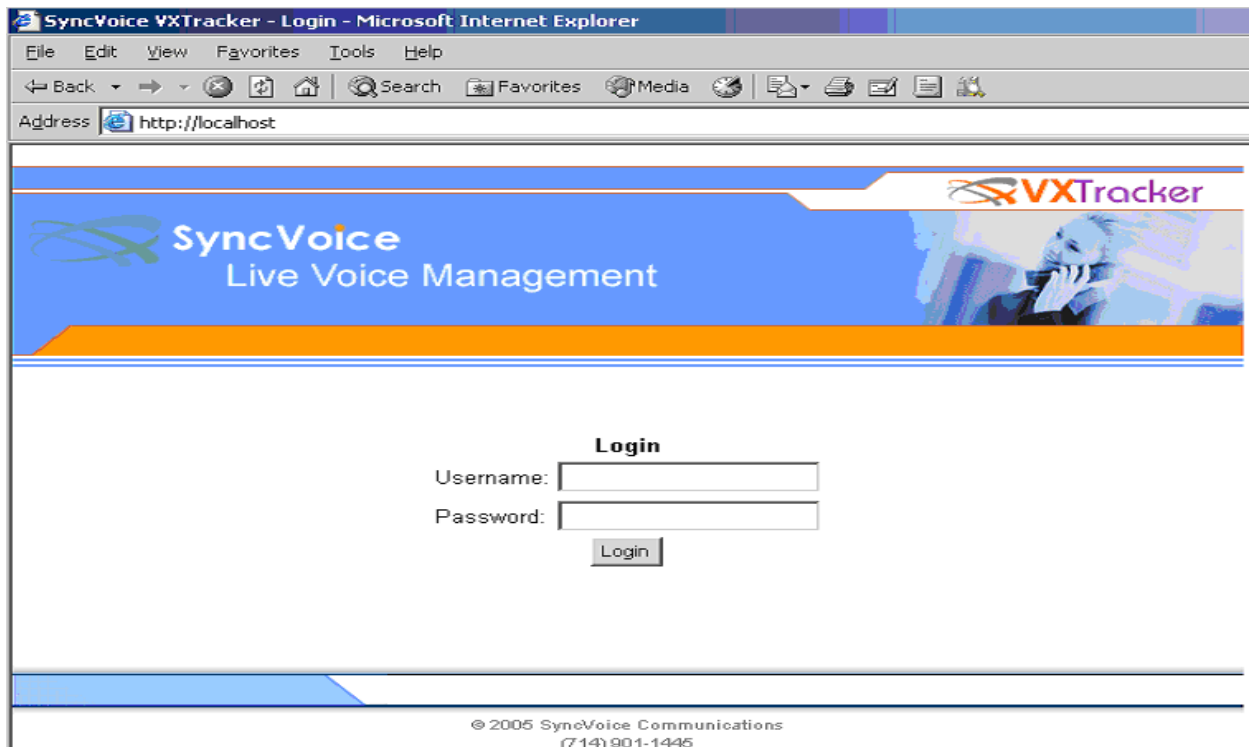
```
change trunk-group 80                                     Page 1 of 20
                                     TRUNK GROUP
Group Number: 80                Group Type: isdn                CDR Reports: y
  Group Name: OUTSIDE CALL          COR: 1                TN: 1                TAC: 103
  Direction: two-way                Outgoing Display? y          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: a  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? y
Answer Supervision Timeout: 0
```

4. Configure VXTracker

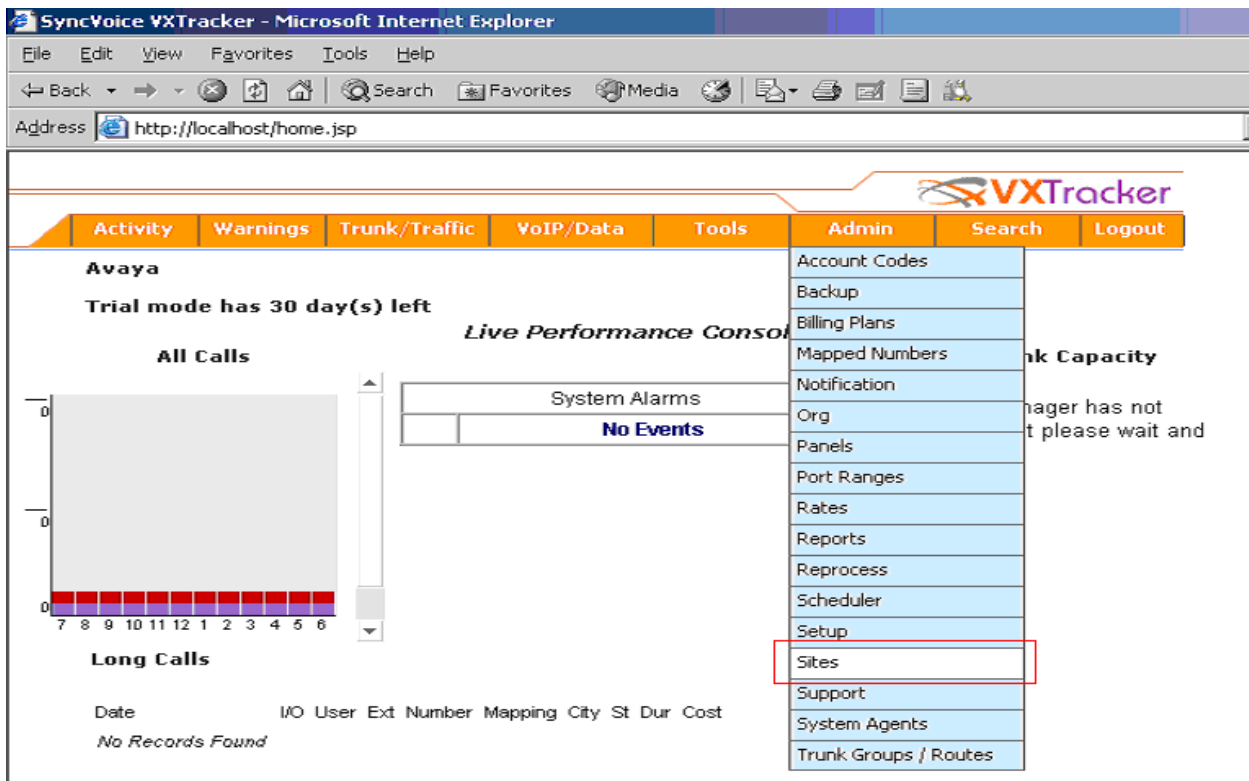
This section describes the configuration of the SyncVoice Communications VXTracker. VXTracker connects to Avaya Communication Manager via a TCP/IP port. CDR data is sent from Avaya Communication Manager into VXTracker where the raw data is transformed into call records, which are then immediately available for reporting.

For installation procedures for VXTracker Call Accounting Software, please refer to the VXTracker Installation Guide.

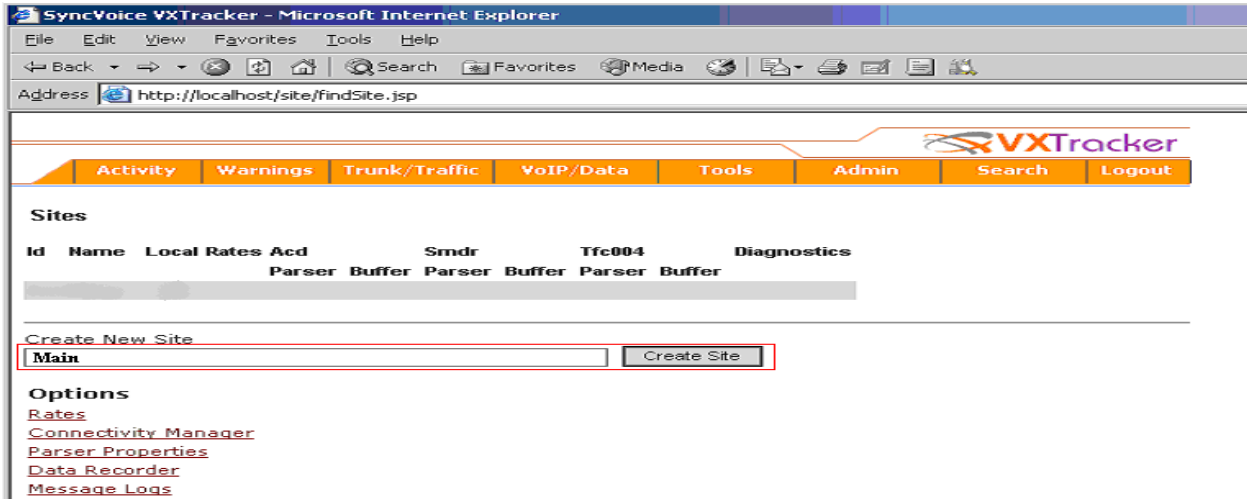
Launch the VXTracker main application from the Windows Start Menu by navigating to **Start → Programs → SyncVoice VXTracker 4.1.3-1133 → VXTracker Login**. From the Login page, shown below, provide appropriate credentials to access the Live Performance Console page.



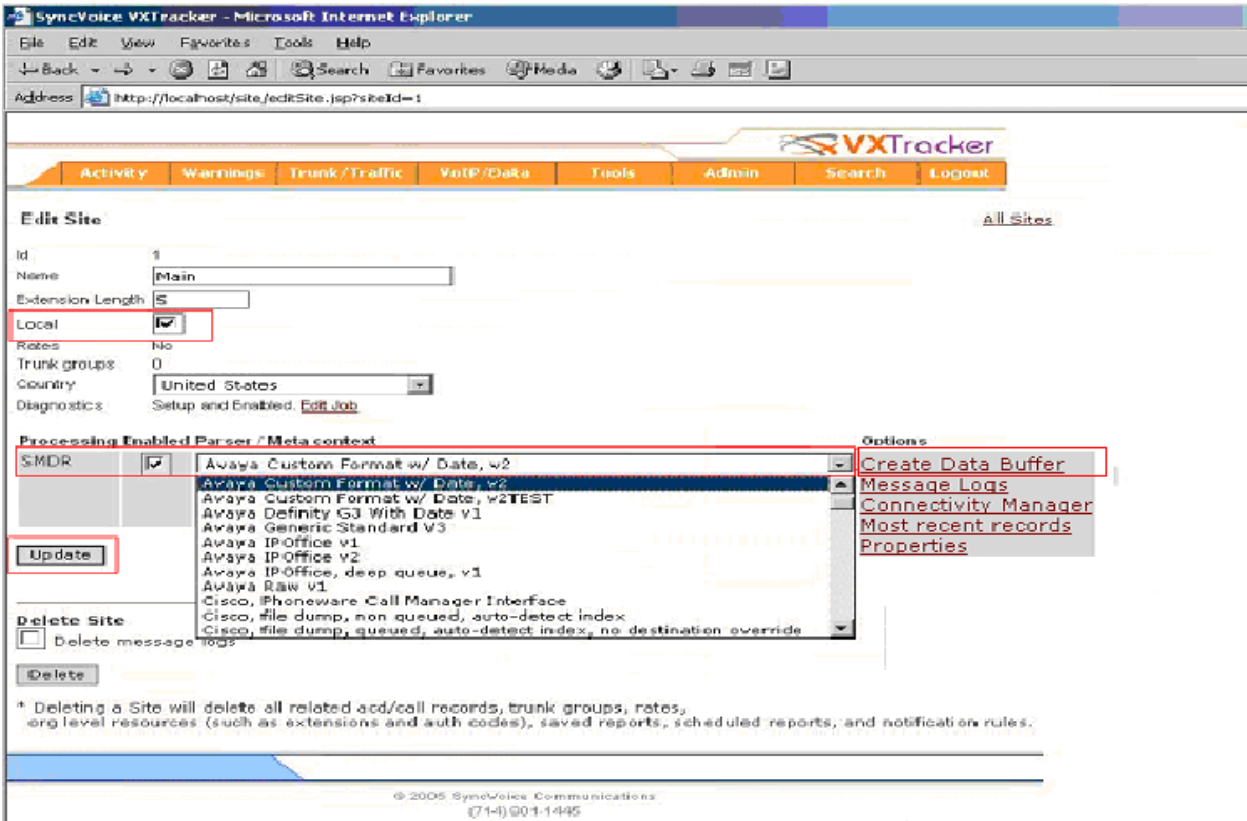
To begin configuration of a particular site, navigate to **Admin → Sites**.



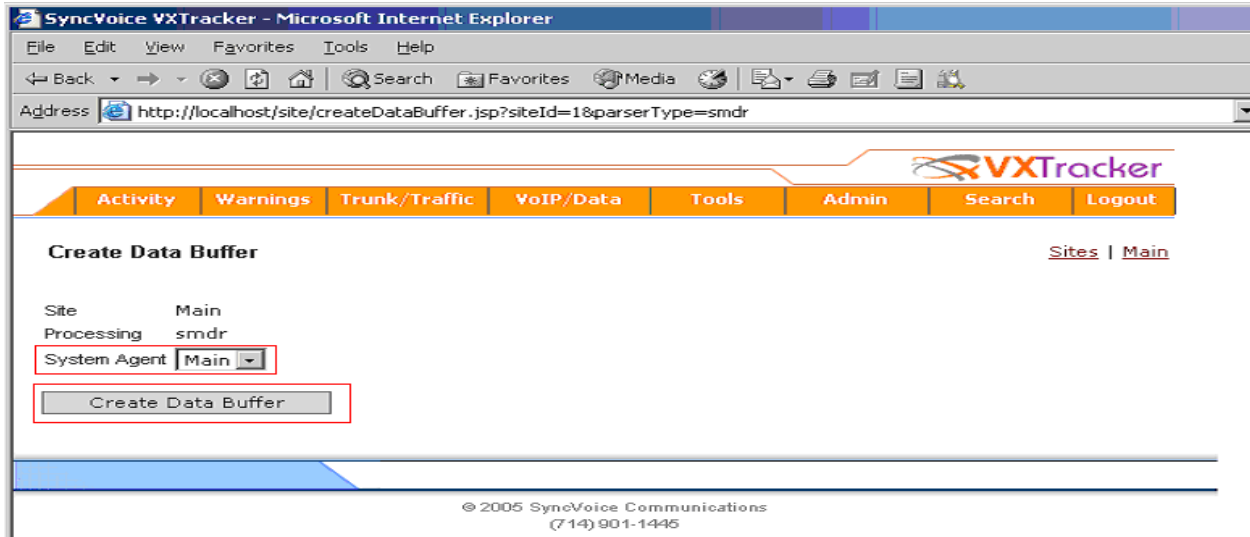
From the Sites page, create a site by providing a site name. After providing the name of the site, click the **Create Site** button. (A second site, called Remote, was also created using same procedures)



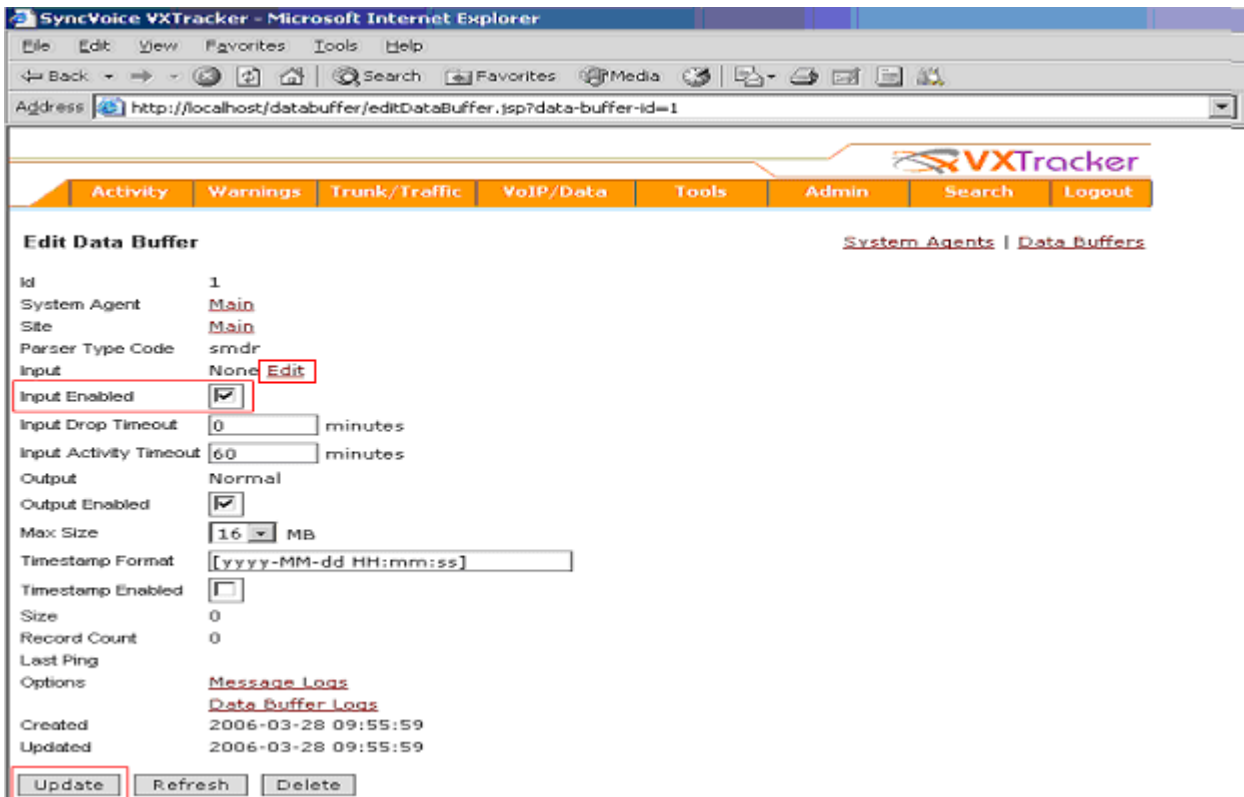
From the Edit Site page, check the **Local** check box, and select the Parser type. The selected Parser type must be associated with the CDR format used in Avaya Communication Manager. Click the **Update** button at the bottom of the page to create a site. After the update, select the **Create Data Buffer** option under the Options menu.



The following screen shows the Create Data Buffer page. Select **System Agent**, using the drop-down menu, and click the **Create Data Buffer** button.



From the Edit Data Buffer page, check the **Input Enabled** check box. Click the **Update** button to update the change. After the update is completed, select **Edit** on the Input field.



On the Data Buffer Input page, configure the port that VXTracker will listen for traffic. This port must match with the CDR remote port on Page 1 of the IP SERVICES form in Avaya Communication Manager. Select **Telnet Server** and specify the port. After completion, click the **Update** button.

VXTracker

Activity | Warnings | Trunk/Traffic | VoIP/Data | Tools | Admin | Search | Logout

Data Buffer Input [System Agents](#) | [Data Buffers](#) | [Edit Data Buffer](#)

None

Telnet

Telnet Server

Port **9000**

IP Filter

Socket Read Timeout **60** seconds

Serial

Port **COM1**

Baud Rate **110**

Data Bits **8**

Parity **even**

Stop Bits **1**

Flow Control **none**

Defaults

Serial Auto-Detect

Port **COM1**

Test Count **0**

Read Bytes **0**

Read Timeout **0** sec

Tail Directory

Directory

File Pattern

Poll Period **0** sec

Buffer Size **0** bytes

Delete Files

Tail File

Directory

File Name

Poll Period **0** sec

Recycle File

Directory

File Name

Poll Period **0** sec

Retry Count **0**

Retry Sleep **0** msec

Delete File

Update

Done

5. Generating Reports

The following screens show the steps to view CDR raw data.

Navigate to **Admin** → **Sites** and select the **Message Logs** option under the Options Menu.

SyncVoice VXTracker - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print

Address <http://localhost/site/editSite.jsp?siteId=1> Go Links >>

VXTracker

Activity Warnings Trunk/Traffic VoIP/Data Tools Admin Search Logout

Edit Site [All Sites](#)

Id: 1
Name:
Extension Length:
Local:
Rates: No
Trunk groups: 0
Country:
Diagnostics: Setup and Enabled. [Edit Job](#)

Processing Enabled Parser / Meta context

SMDR Avaya Custom Format w/ Date, v2
Avaya Custom Format w/ Date, v2
Avaya Custom Format w/ Date, v2TEST
Avaya Definity G3 With Date v1
Avaya Generic Standard V3
Avaya IPOffice v1
Avaya IPOffice v2
Avaya IPOffice, deep queue, v1
Avaya Raw v1
Cisco, Phoneware Call Manager Interface
Cisco, file dump, non queued, auto-detect index
Cisco, file dump, queued, auto-detect index, no destination override

Options

- Edit Data Buffer
- Message Logs**
- Connectivity Manager
- Most recent records
- Properties

Delete Site

Delete message logs

* Deleting a Site will delete all related acd/call records, trunk groups, rates, org level resources (such as extensions and auth codes), saved reports, scheduled reports, and notification rules.

© 2005 SyncVoice Communications
(714) 901-1445

From the Message Log Management page, provide the following information:

- **Site**
- **Parser Type**
- **Number of Days**

Check the **Show record count** check box, and click the **Refresh** button.

SyncVoice VXTracker - Microsoft Internet Explorer

Address: <http://localhost/dataRecorder/findMessageLog.jsp?site-id=1&parser-type-code=smdr>

Message Log Management [All Sites](#) | [Main](#)

Site: 1 - Main (Local)
Parser Type: smdr
Number of Days: 15
Show record count:

Options: [Message Log Import](#)

Refresh

Month	Date	Options
2006 - March	2006-03-28	View
	2006-03-27	View
	2006-03-26	View
	2006-03-25	View
	2006-03-24	View
	2006-03-23	View
	2006-03-22	View

Export Set to PEN Set All to PEN

* Click on a message log link to see more details.
* Before reprocessing records make sure to delete the matching session/meta-row records.

© 2005 SyncVoice Communications
(714) 901-1445

The following screen displays the 15 days raw CDR data.

SyncVoice VxTracker - Microsoft Internet Explorer

Address: <http://localhost/dataRecorder/findMessageLog.jsp?site-id=1&parser-type-code=smdr&number-of-days=15&checkbox-show-record-cou>

VXTracker

Activity | Warnings | Trunk/Traffic | VoIP/Data | Tools | Admin | Search | Logout

Message Log Management [All Sites](#) | [Main](#)

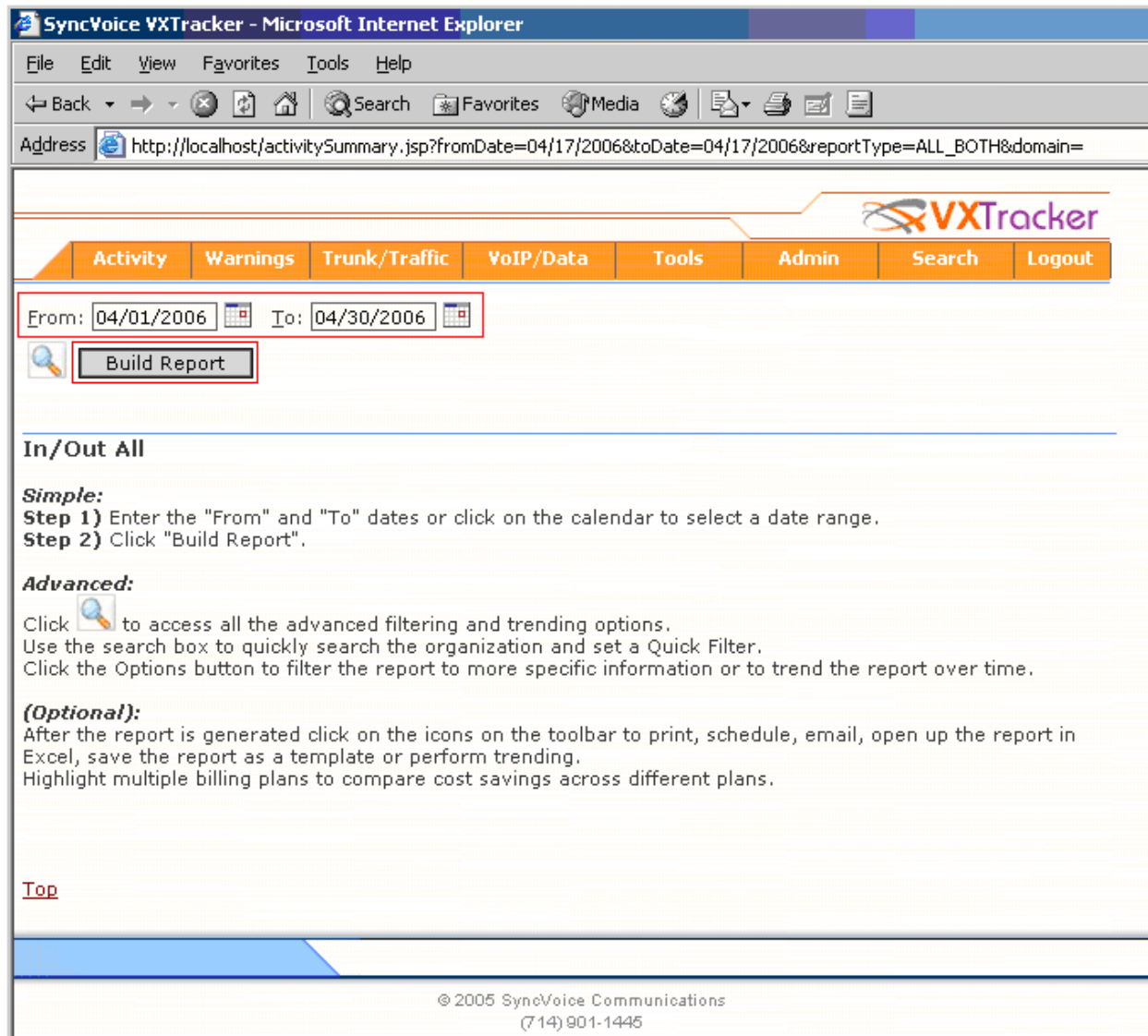
Site: 1 - Main
 Parser Type: smdr
 Number of Days: 15
 Show record count:
 Options: [Message Log Import](#)

Month	Date	IMP	PAU	PEN	QUE	CPL	FLD	Total	Options
2006 - April	<input type="checkbox"/> 2006-04-17	0	0	0	0	0	0	0	View
	<input type="checkbox"/> 2006-04-16	0	0	0	0	0	0	0	View
	<input type="checkbox"/> 2006-04-15	0	0	0	0	0	0	0	View
	<input type="checkbox"/> 2006-04-14	0	0	0	0	0	0	0	View
	<input type="checkbox"/> 2006-04-13	0	0	0	0	0	0	0	View
	<input type="checkbox"/> 2006-04-12	0	0	0	0	0	0	0	View
	<input type="checkbox"/> 2006-04-11	0	0	0	0	0	0	0	View
	<input type="checkbox"/> 2006-04-10	0	0	0	0	1	0	1	View
	<input type="checkbox"/> 2006-04-09	0	0	0	0	1	0	1	View
	<input type="checkbox"/> 2006-04-08	0	0	0	0	1	0	1	View
	<input type="checkbox"/> 2006-04-07	0	0	0	0	1	0	1	View
	<input type="checkbox"/> 2006-04-06	0	0	0	0	1	0	1	View
	<input type="checkbox"/> 2006-04-05	0	0	0	0	9	0	9	View
	<input type="checkbox"/> 2006-04-04	0	0	0	0	1	0	1	View
	<input type="checkbox"/> 2006-04-03	0	0	0	0	30	0	30	View
		0	0	0	0	45	0	45	

* Click on a message log link to see more details.
 * Before reprocessing records make sure to delete the matching session/meta-row records.

© 2005 SyncVoice Communications
 (714) 901-1446

To create a report using the received raw data, navigate to **Activity** → **All**. Provide the report duration (From, To), and click the **Build Report** button.



The following screen shows the summary of the calls made during the report duration. In this sample report, the duration was from 04/01/06 to 04/30/2006. The number of calls that the CDR report generated was 13 calls. By clicking the **All Records**, an administrator can view all calls.

The report shown in the following procedure does not display the call charges. To calculate the call charge, significantly more configuration is required including defining subscribers, carriers, local dialing areas, mapping extensions to DID numbers, rate plans, etc. These items are out of the scope of these Application Notes. For a detailed description of how to set-up the rating structure for an enterprise, please contact SyncVoice Communications.

SyncVoice VXTracker - Microsoft Internet Explorer

File Edit View Favorites Tools Help


Back Forward Stop Home Search Favorites Media Print Mail







Address http://localhost/activitySummary.jsp?reportType=ALL_BOTH&domain=&showOps=false&showTb=false&fromDate=04%2F01

VXTracker

Activity Warnings Trunk/Traffic VoIP/Data Tools Admin Search Logout

From: 04/01/2006 To: 04/30/2006



Tools:      





Avaya #2

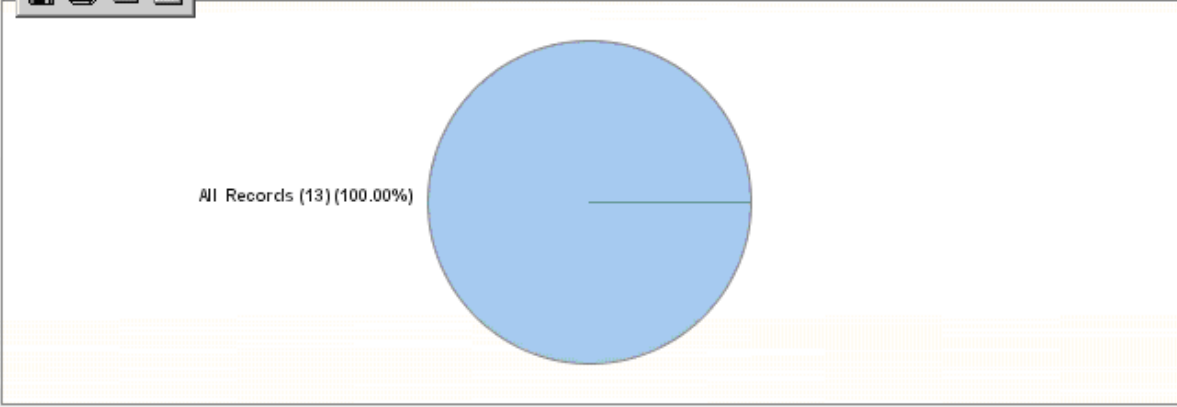
In/Out All 04/01/2006-04/30/2006 [Customize](#)

	Total Calls	% of total Calls	Total Duration	Avg. Duration	Total Cost	% of total Cost	Avg. Cost per Call	Avg. Cost per minute
All Records	13	100.00	4:12	0:19	0.00	0.00	0.00	0.00
Totals (1 item)	13		4:12	0:19	\$0.00		\$0.00	0.00

Generated: Mon Apr 17 14:33:47 EDT 2006 at site "Remote" by:system admin

Call Distribution by



All Records (13) (100.00%)

[Top](#)

© 2005 SyncVoice Communications
(714) 901-1445

The following shows a sample report from VXTracker.

Avaya #2
In/Out All 04/01/2006-04/30/2006 [Customize](#) [Return To Summary](#)

All Records

Total Calls	Total Dur.	Avg. Dur.	Usage Amount
13	4:12	0:19	\$0.00

Date/Time	I/O	Ext.	Name	CallerId/Dialed	City	St	Auth	Site	Acc.	Ln	Type	Rate	Dur.	Amt.
04/01/06 10:36AM	o	9088560001	Default Extension 9088560001	17329204400				Main		113-009	Other	0.000	0:30	0.00
04/01/06 10:38AM	o	60001	Default Extension 60001	917329204400				Remote		101-005	Other	0.000	0:30	0.00
04/03/06 03:41PM	o	22001	Default Extension 22001	22003				Main		Int	Other	0.000	0:06	0.00
04/03/06 04:06PM	o	22003	Default Extension 22003	22001				Main		Int	Other	0.000	0:06	0.00
04/03/06 04:06PM	o	22001	Default Extension 22001	22003				Main		Int	Other	0.000	0:06	0.00
04/03/06 04:12PM	o	22001	Default Extension 22001	22003				Main		Int	Other	0.000	0:06	0.00
04/03/06 04:28PM	o	22003	Default Extension 22003	22001				Main		Int	Other	0.000	0:06	0.00

6. Interoperability Compliance Testing

Interoperability compliance testing included feature, serviceability and performance testing. The feature testing evaluated the ability of VXTracker to collect and process CDR records for various types of calls. A customized format, which SyncVoice Communications provided, was utilized during the compliance test. The serviceability testing introduced failure scenarios to see if

VXTracker can resume CDR collection after failure recovery. The performance testing produced bulk call volumes to generate a substantial amount of CDR records.

Important Note: The SyncVoice Communications VXTracker Call Accounting Software (Version 4.1.3) uses the CDR link without RSP to communicate with Avaya Communication Manager. This means that ten minutes worth of calls will be lost before Avaya Communication Manager starts buffering the calls when the network cable is unplugged from VXTracker. This ten minute interval was observed during the compliance test. To eliminate the impact of this failure, a secondary CDR link on Avaya Communication Manager may be configured to output CDR records to another VXTracker to collect CDR records in parallel with the primary link.

6.1. General Test Approach

The general test approach was to manually place intra-switch calls, inter-switch calls, inbound and outbound PSTN trunk calls to and from telephones controlled by the Avaya Media Servers, and verify that VXTracker collects the CDR records and reports the correct attributes of the call. For serviceability testing, logical links were disabled/re-enabled, and media servers were reset. For performance testing, a call generator was used to place calls over an extended period of time.

6.2. Test Results

All feature, serviceability and performance tests passed. VXTracker successfully captured and processed call records from Avaya Communication Manager. VXTracker also successfully processed the CDR data, and produced call accounting reports. Types of calls generated during the compliance test include: intra-switch calls, inbound / outbound PSTN trunk calls, inbound/outbound inter-switch IP trunk calls, transferred calls, and conferenced calls. Performance tests verified that VXTracker could collect call records during a sustained, high volume of calls.

7. Verification Steps

The following steps may be used to verify the configuration:

- On the SAT of each Avaya Media Server, enter the **status cdr-link** command and verify that the CDR link state is up.
- Place a call and verify that VXTracker received the CDR record for the call. Compare the values of data fields in the CDR record with the expected values and verify that they match.
- Place internal, inbound trunk, and outbound trunk calls to and from various telephones, generate an appropriate report in VXTracker, and verify the report's accuracy.

8. Support

Technical support for VXTracker can be obtained by contacting SyncVoice Communications via the support link at <http://www.voicemanagement.com>.

9. Conclusion

These Application Notes describe the procedures for configuring the SyncVoice Communications VXTracker to collect call detail records from Avaya Communication Manager running on Avaya Media Servers. VXTracker successfully passed all compliance testing.

10. References

This section references the Avaya and SyncVoice Communications documentation that are relevant to these Application Notes.

The following Avaya product documentation can be found at <http://support.avaya.com>.

[1] *Feature Description and Implementation For Avaya Communication Manager*, Release 3.1, Issue 4, February 2006, Document Number 555-245-205.

[2] *Administrator Guide for Avaya Communication Manager*, Release 3.1, Issue 2, February 2006, Document Number 03-300509

The following VXTracker documentation is provided by SyncVoice Communications.

[3] VXTracker Installation Guide, Version 4.1.3-1133

[4] VXTracker User's Guide, Version 4.1.3-1133

[5] VXTracker Administrator's Guide, Version 4.1.3-1133

©2006 Avaya Inc. All Rights Reserved.

Avaya and the Avaya Logo are trademarks of Avaya Inc. All trademarks identified by ® and ™ are registered trademarks or trademarks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners. The information provided in these Application Notes is subject to change without notice. The configurations, technical data, and recommendations provided in these Application Notes are believed to be accurate and dependable, but are presented without express or implied warranty. Users are responsible for their application of any products specified in these Application Notes.

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.