Avaya Solution & Interoperability Test Lab

Application Notes for the SAI Sierra Gold Virtual Telemanagement System with Avaya Communication Manager - Issue 1.0

Abstract

These Application Notes describe the configuration steps required for the SAI Sierra Gold Virtual Telemanagement System (VTS) to successfully interoperate with Avaya Communication Manager.

Sierra Gold VTS is a call accounting software that interoperates with Avaya Communication Manager over a Call Detail Recording link running the Avaya Reliable Session Protocol. Call records can be generated for various types of calls. The Sierra Gold VTS 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 that the SAI Sierra Gold VTS can interoperate with Avaya Communication Manager 3.1. Sierra Gold VTS collects CDR data from Avaya Communication Managers to provide customers all types of management information reports via the web. The interface to Avaya Communication Manager is through the Reliable Session Protocol (RSP). For this compliance test, Data Buffers (Data-Link DL75 and DL150) from Omnitronix are utilized to receive CDR data from Avaya Communication Managers. Each Data Buffer encrypts the received data from Avaya Communication Manager, and sends the encrypted data to Sierra Gold VTS via FTP protocol. Since the compliance test is performed remotely, an ISP line is utilized to connect between the Data Buffers and Sierra Gold VTS. SAI Sierra Gold VTS can collect CDR records from multiple Avaya Communication Managers. The CDR collection was verified for two Avaya Communication Managers during the compliance testing.

Figure 1 illustrates the network configuration used to verify the Sierra Gold VTS solution. The configuration details, provided in these Application Notes, focus on the interfaces between Avaya Communication Manager and the SAI Sierra Gold VTS. **Figure 1** shows two separate communication systems each running Avaya Communication Manager on separate media servers. Site A is comprised of Avaya S8700 Media Servers and a G650 Media Gateway, and has connections to the following: Avaya 4600 Series IP Telephones, Avaya 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 and an Avaya Digital Telephone. Site A and B are networked via an IP trunk.

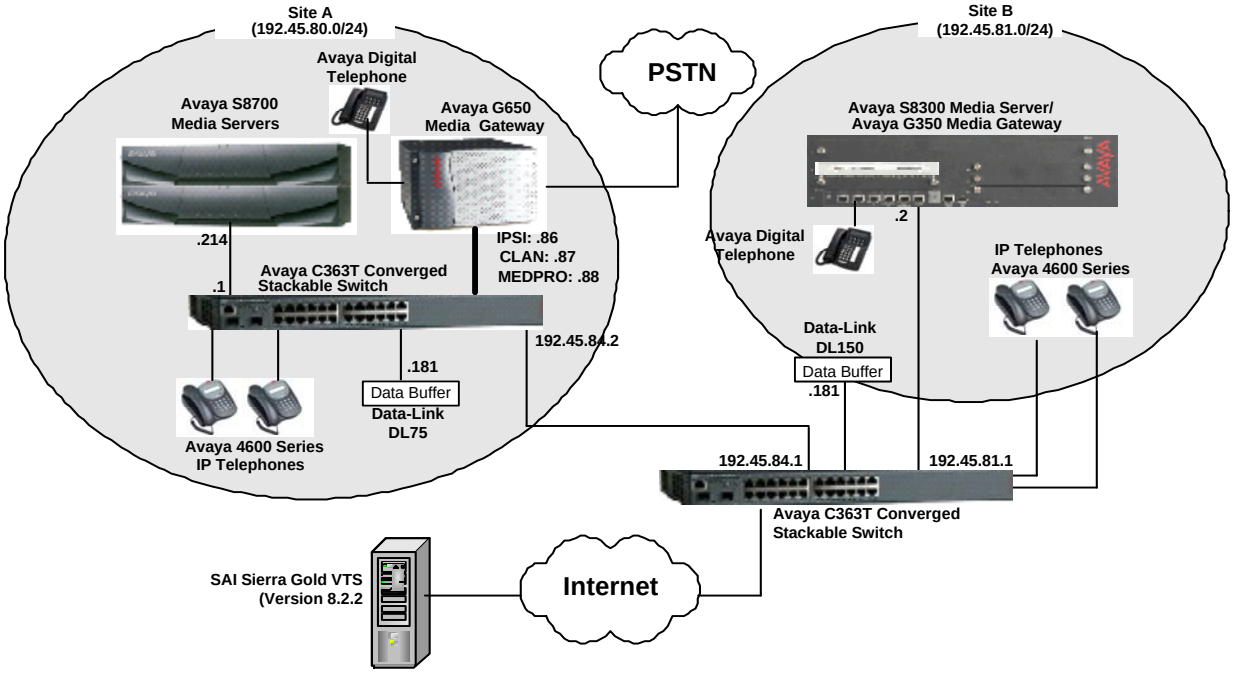


Figure 1. Test configuration of Sierra Gold VTS with Avaya Communication Managers

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 4625	2.3 2.5
Avaya Digital Telephones		-
Avaya C363T Converged Stackable Switch (Layer 3)		4.5.14
SAI Sierra Gold VTS call accounting software OS – Red Hat Enterprise Linux ES release 4		8.2.2
Omnitronix Data-Link DL75 Data Buffer Omnitronix Data-Link DL150 Data Buffer		1.09 1.09

3. Configure Avaya Communication Manager

This section provides the procedures for configuring Call Detail Recording (CDR) in Avaya Communication Manager. All 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. An Avaya Communication Manager is configured to generate CDR records and sends CDR records to the IP address of the Data Buffer, using RSP over TCP/IP. For the Avaya S8700 Media Server, the CDR link originates at the IP address of the C-LAN board, and terminates at the Data Buffer. For the Avaya S8300 Media Server, the CDR link originates at the IP address of the local media server (with node-name – "procr") and terminates at the Data Buffer.

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

Use the **change node-names ip** command to create a new node name, for example, **buffer**. This node name is associated with the IP Address of Data-Link DL75. The CLAN entry on this form was previously administered.

```
change node-names ip                                          Page   1 of   1
                                  IP NODE NAMES
    Name                IP Address          Name             IP Address
buffer                192.45 .80 .181                          .   .   .
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 RSP over 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: **buffer** [The Remote Node is set to the node name previously defined.]
- Remote Port: **9000** [The Remote Port may be set to a value between 5000 and 64500 inclusive, and must match the port configured in the Data Buffer.]

```
change ip-services                                            Page   1 of   4

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

On Page 3 of the IP SERVICES form, enable the Reliable Session Protocol (RSP) for the CDR link by setting the Reliable Protocol field to **y**.

```
change ip-services                                            Page   3 of   4

                              SESSION LAYER TIMERS
  Service      Reliable  Packet Resp   Session Connect  SPDU  Connectivity
   Type        Protocol     Timer        Message Cntr    Cntr     Timer

 CDR1             y         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 INTRA-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.

```
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 and Length of the data item. 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, then 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 the specific extensions whose usage will be tracked with the CDR records.

```
change intra-switch-cdr                                         Page   1 of   2
                            INTRA-SWITCH CDR

Assigned Members:   4    of 5000   administered
  1: 22001     19:          37:          55:          73:          91:
  2: 22002     20:          38:          56:          74:          92:
  3: 22005     21:          39:          57:          75:          93:
  4: 22007     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 the Data-Link DL75 Data Buffer

This section describes the configuration of the Data Buffer: setting up an IP address, setting up the RSP port, and setting up the FTP configuration. During the compliance test, the Data Buffers are utilized to receive CDR data from Avaya Communication Managers. Each Data Buffer then encrypts the received CDR data from Avaya Communication Manager, and sends the encrypted CDR data to Sierra Gold VTS via FTP protocol.

Utilizing the modem port, connect to the Data Buffer. Provide a credential to enter the Main Menu. Type **setup** to access the Main Setup Menu page.

```
Data-Link

READY

setup
```

From the Main Setup Menu page, select **A** to configure the Network Settings.

```
Data-Link DL75 - Main Setup Menu
A) Network Settings
B) Serial Settings
C) Modem Settings
D) User Profile Settings
E) Alarm/Filter Definitions
F) Action Definitions
G) General Settings
H) Alarm Log Settings
I) Audit Log Settings

Enter your Selection:A
```

The following shows the Network Settings page. The fields below are changed for the compliance test:

- IP Address
- Subnet Mask
- Router Address
- IP Record Collection Settings
- FTP Settings

```
Data-Link DL75 - Network Settings
A) IP Address                          [0.0.0.0]
B) Subnet Mask                         [255.255.255.0]
C) Router Address                      [0.0.0.0]
D) Telnet Duplex                       [FULL]
E) Inactivity Timeout                  [0]
F) IP Record Collection Settings       []
G) SNMP Settings
H) FTP Settings
I) PPP Settings
J) E-mail Settings
K) Real-Time Socket Settings
L) SNMP Trap Capture Settings
M) IP Address Restrictions

 Note: Changes to IP Address, Subnet Mask, or Router
         Address will not take effect until any open
         Telnet command processor sessions are ended.
Enter your Selection:
```

To configure an individual field from the Network Settings page, select a specific field that needs to be configured. For example, select **A** to change the IP address of the Data Buffer. Provide the new IP address of the Data Buffer and click the **<Enter>** key. Repeat this procedure to configure the IP Address, Subnet Mask, and Router Address fields.

```
Data-Link DL75 - Network Settings
A) IP Address                          [0.0.0.0]
B) Subnet Mask                         [255.255.255.0]
C) Router Address                      [0.0.0.0]
D) Telnet Duplex                       [FULL]
E) Inactivity Timeout                  [0]
F) IP Record Collection Settings       []
G) SNMP Settings
H) FTP Settings
I) PPP Settings
J) E-mail Settings
K) Real-Time Socket Settings
L) SNMP Trap Capture Settings
M) IP Address Restrictions

 Note: Changes to IP Address, Subnet Mask, or Router
         Address will not take effect until any open
         Telnet command processor sessions are ended.
Enter your Selection:A
Enter new IP address: 192.45.80.181
```

To configure the IP Record Collection Settings field, select **F** from the Network Settings page.

```
Data-Link DL75 - Network Settings
A) IP Address                              [192.45.80.181]
B) Subnet Mask                             [255.255.255.0]
C) Router Address                          [192.45.80.1]
D) Telnet Duplex                           [FULL]
E) Inactivity Timeout                      [0]
F) IP Record Collection Settings           []
G) SNMP Settings
H) FTP Settings
I) PPP Settings
J) E-mail Settings
K) Real-Time Socket Settings
L) SNMP Trap Capture Settings
M) IP Address Restrictions

Note: Changes to IP Address, Subnet Mask, or Router
         Address will not take effect until any open
         Telnet command processor sessions are ended.
Enter your Selection:F
```

The following displays the IP Record Collection (IPRC) Setup page. The important parameters are the following:

- IP Record Collection – **AVAYA DEFINITY RELIABLE PROTOCOL** [To select this value, type **A** in the Enter your Selection field. As the value **A** is being typed, the IP Record Collection field toggles to a different value. Repeat typing **A** until the **AVAYA DEFINITY RELIABLE PROTOCOL** value appears.]
- Port – **9000** [When **AVAYA DEFINITY RELIABLE PROTOCOL** is selected for IP Record Collection field, the Port field displays a default value, which is 9000. This port number must match with the Remote Port number configured on Page 1 of the IP SERVICE form in Avaya Communication manager.]

```
Data-Link DL75 - IP Record Collection (IPRC) Setup
A) IP Record Collection              [AVAYA DEFINITY RELIABLE PROTOCOL]
B) Store Collected Data In           [FILE1]
C) Data Alarm/Filter Enable          [OFF]
D) Target Name                       []
E) Port                              [9000]
F) Time Stamping                     [OFF]

Enter your Selection:A
```

To configure the FTP Settings field, select **H** from the Network Settings page.

```
Data-Link DL75 - Network Settings
A) IP Address                        [192.45.80.181]
B) Subnet Mask                       [255.255.255.0]
C) Router Address                    [192.45.80.1]
D) Telnet Duplex                     [FULL]
E) Inactivity Timeout                [0]
F) IP Record Collection Settings     [AVAYA DEFINITY RELIABLE PROTOCOL]
G) SNMP Settings
H) FTP Settings
I) PPP Settings
J) E-mail Settings
K) Real-Time Socket Settings
L) SNMP Trap Capture Settings
M) IP Address Restrictions

Note: Changes to IP Address, Subnet Mask, or Router
         Address will not take effect until any open
         Telnet command processor sessions are ended.
Enter your Selection:H
```

The following shows the FTP Settings page. The fields below are changed for the compliance test:

- FTP Push Enable – **ON** [As the value **A** is being typed in the Enter your Selection field, the value for the FTP Push Enable field toggles between ON and OFF. Select **ON** to enable FTP Push.]

- FTP Server Address – This is the IP address of Sierra Gold VTS
- Username – User name used to access the FTP server (Sierra Gold VTS)
- Password – Password used to access the FTP server (Sierra Gold VTS)
- Minutes Between Push Attempts – The Data Buffer will automatically push the encrypted raw data to Sierra Gold VTS in the specified interval of time.
- Encrypted FTP Setup – **ON** [As the value **A** is being typed in the Enter your Selection field, the value for the Encrypted FTP Setup field toggles between ON and OFF. Select **ON**. By selecting **ON**, the buffer encrypts the raw data received from Avaya Communication Manager.]

```
Data-Link DL75 - FTP Settings
A) FTP AutoDelete for GETs                [OFF]
B) FTP Push Enable                        [ON]
C) FTP Server Address                     [10.1.1.1]
D) Username                               [username]
E) Password                               [password]
F) Account                                []
G) Directory                              []
H) Minutes Between Push Attempts          [60]
I) Select Files to Push
J) Remote File Names
K) Allow FTP User Bump by New User        [OFF]
L) Encrypted FTP Setup                    [ON]

Enter your Selection:
```

The following shows the sample Network Settings page after the configuration is completed.

```
Data-Link DL75 - Network Settings
A) IP Address                          [192.45.80.181]
B) Subnet Mask                         [255.255.255.0]
C) Router Address                      [192.45.80.1]
D) Telnet Duplex                       [FULL]
E) Inactivity Timeout                  [0]
F) IP Record Collection Settings       [AVAYA DEFINITY RELIABLE PROTOCOL]
G) SNMP Settings
H) FTP Settings
I) PPP Settings
J) E-mail Settings
K) Real-Time Socket Settings
L) SNMP Trap Capture Settings
M) IP Address Restrictions

 Note: Changes to IP Address, Subnet Mask, or Router
         Address will not take effect until any open
         Telnet command processor sessions are ended.
Enter your Selection:
```

5. Query Reports from Sierra Gold VTS

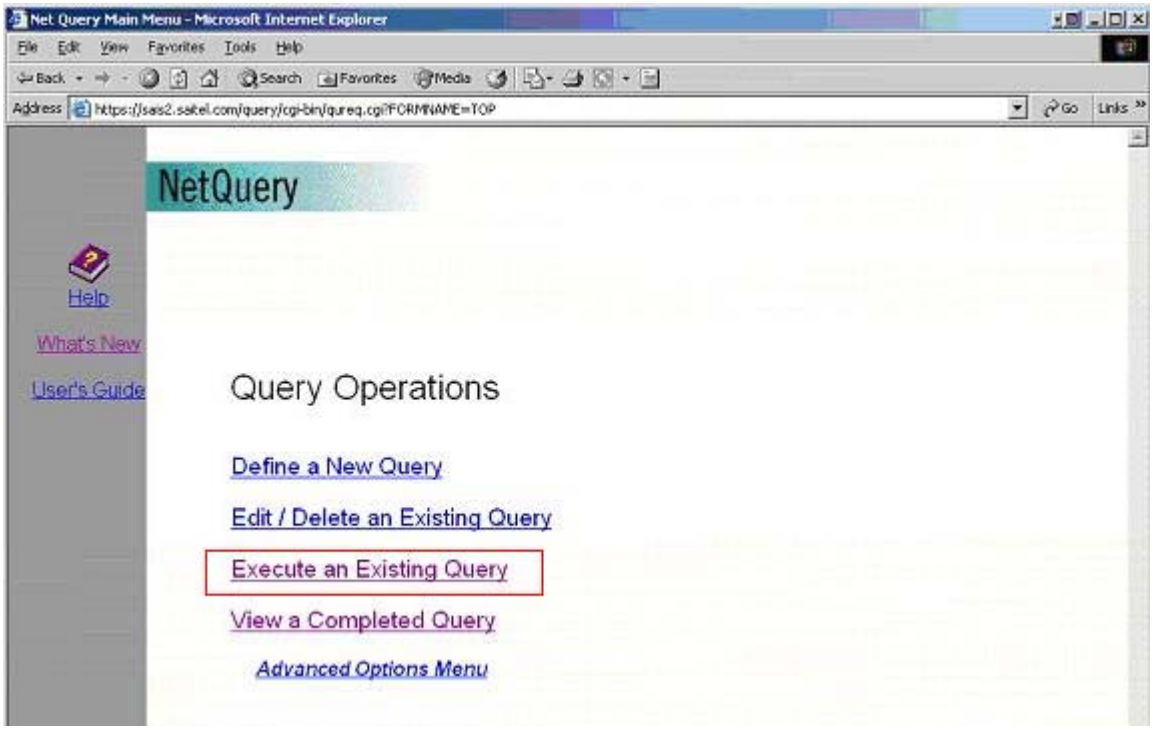
This section describes how to query the different types of CDR reports from Sierra Gold VTS.

Since the production Sierra Gold VTS at SAI facility was utilized for the compliance test, a SAI engineer, prior to the actual test, performed the configuration. One of the points SAI stresses in selling an outsourced solution is that their customers do not have to do the site configuration. Besides assisting with connecting the Data Buffers, customers provide SAI with all of their call charge rates and trunk information. SAI applies the provided information along with standard CCMI rate tables. Over the course of time as their trunk and/or rate information changes, the customer calls up SAI HotLine and provides SAI with new information to enter. The setup parameters and configuration screens are text based or completed at the Linux level.

In addition to the NetQuery Reports displayed below, SAI offers a full range of reports that include rating, corporate hierarchy, and station information. Creating solutions to meet customer requirements is a major part of SAI development

To configure a site, enter http://<IP address of the Sierra Gold VTS server>/query in the URL to access the Enter Network Password page. This can be performed from any PC that has the Internet Explorer. However, the user should have obtained appropriate credentials from SAI. From the Enter Network Password page shown below, provide appropriate credentials and click the **OK** button to access the Query Operations page.

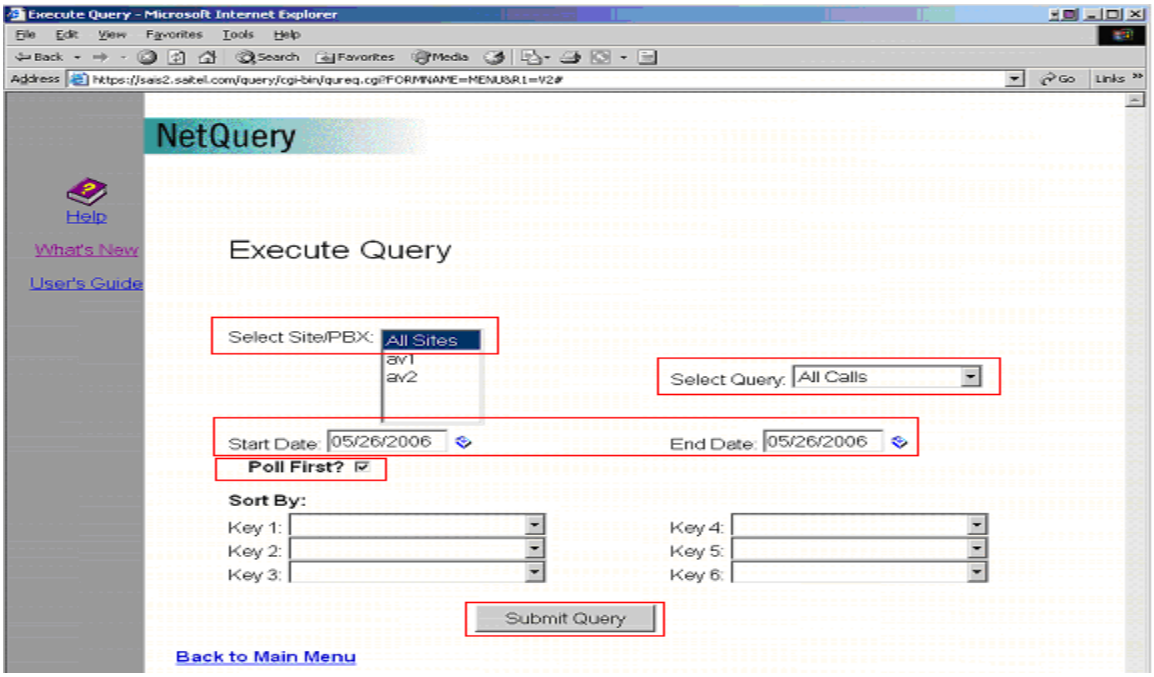
From the Query Operations page, click **Execute an Existing Query** to start the query process.



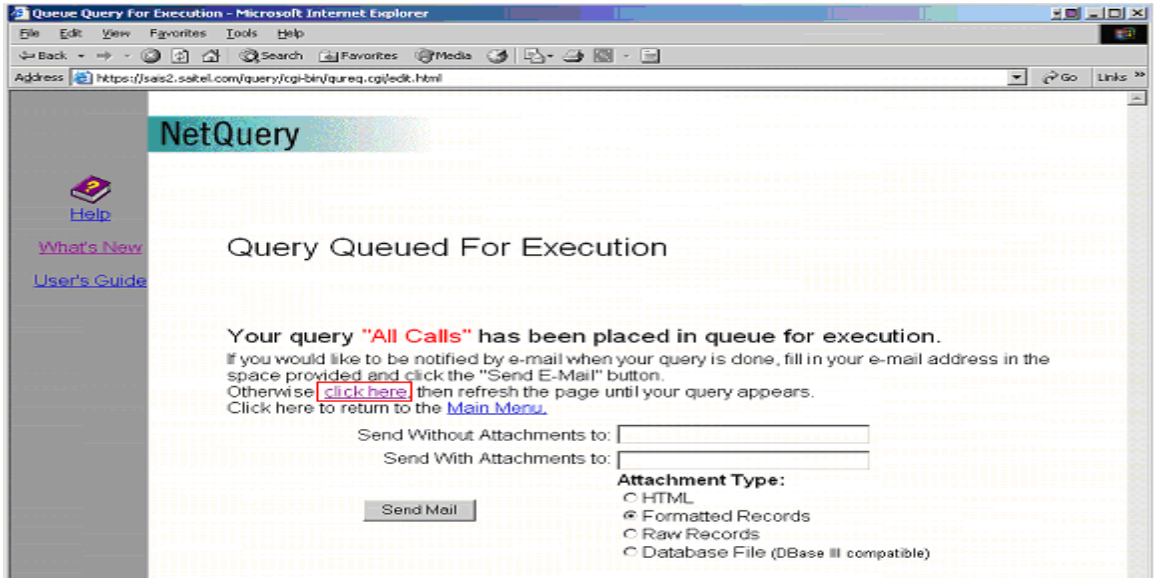
The next screen shows the Execute Query page. In this page, the following information should be provided:

- Select Site/PBX - Select **All Sites** using the drop-down menu [Options were All Sites, av1or av2. SAI created two sites (av1 and av2) during the configuration, using the information that Avaya DevConnect test team provided on S8700 Media Server with G650 Media Gateway (CLAN IP address and the RSP port) and S8300 Media Server with G350 Media Gateway (procr IP address and RSP port)]
    - All Sites – when selected, Sierra Gold VTS provides CDR report from both sites (av1 and av2).
    - av1 – when selected, Sierra Gold VTS provides CDR report only from the site av1 (S8700 Media Server with G650 Media Gateway)
    - av2 – when selected, Sierra Gold VTS provides CDR report only from the site av2 (S8300 Media Server with G350 Media Gateway)
- Select Query - Select **All Calls** using the drop-down menu.
- Start Date – This is the start query date for generating the CDR report.
- End Date – This is the end query date for generating the CDR report.
- Check **Poll First?** [Checking this field insures that the most recent records FTP'd are included in the query. Normally, CDR records are polled automatically on a customer-defined schedule.

After completion of the query, click the **Submit Query** button.



The following displays the Query Queued For Execution page. Click the **click here** link to view the query.

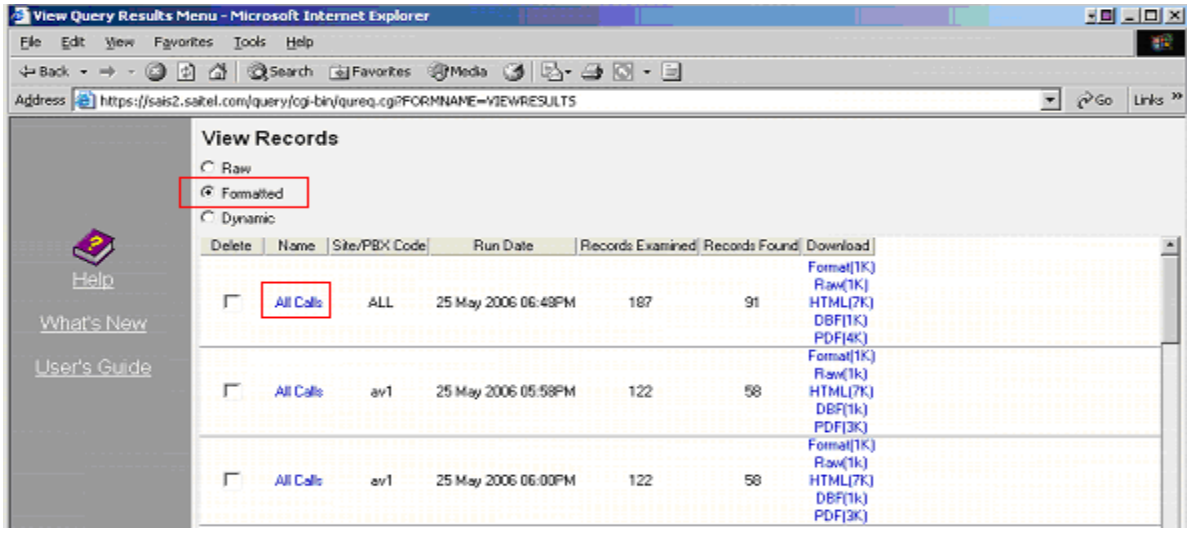


The following shows the **View Records** page. The types of records that a user can view are Raw, Formatted and Dynamic.

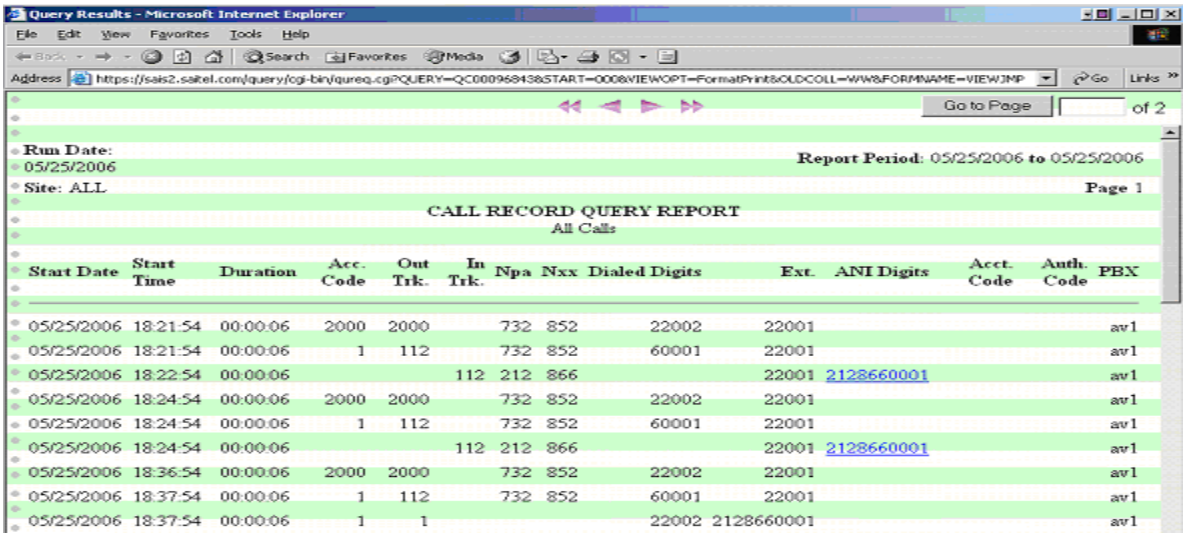
- Raw – Displays records as they appear on output from Avaya Communication Managers.
- Formatted – Displays records in report format with a header section and column headings. Each record is displayed in a standard format regardless of the original Avaya Communication CDR output format.
- Dynamic – Displays records in many different ways, according to the user's preference. A user can decide what information they want to see and how best to organize that information. Reports can be customized quickly and easily as the user browses them.

See reference [3] for a full explanation of each type of the records.

To view formatted records, select the **Formatted** option from the View Records page. Click on the name of the query. The Query Results page opens in a separate browser window.



The following displays a sample formatted CDR report.



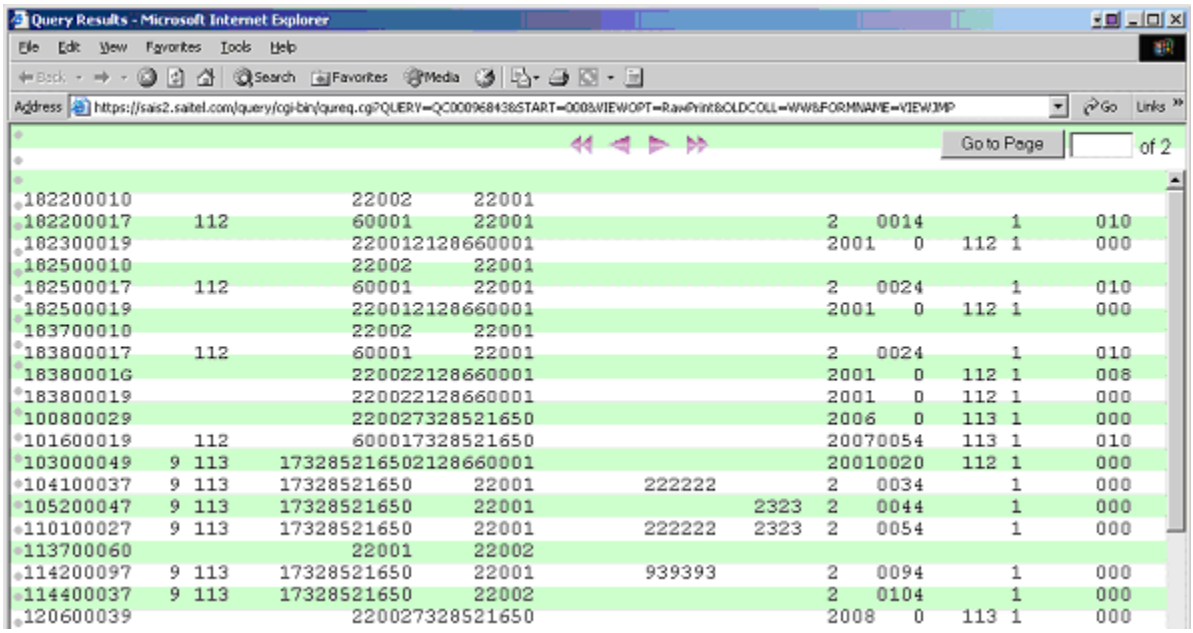
Query Results - Microsoft Internet Explorer

Run Date: 05/25/2006 — Report Period: 05/25/2006 to 05/25/2006 — Site: ALL — Page 1

CALL RECORD QUERY REPORT
All Calls

Start Date	Start Time	Duration	Acc. Code	Out Trk.	In Trk.	Npa	Nxx	Dialed Digits	Ext.	ANI Digits	Acct. Code	Auth. Code	PBX
05/25/2006	18:21:54	00:00:06	2000	2000		732	852	22002	22001				av1
05/25/2006	18:21:54	00:00:06	1	112		732	852	60001	22001				av1
05/25/2006	18:22:54	00:00:06			112	212	866		22001	2128660001			av1
05/25/2006	18:24:54	00:00:06	2000	2000		732	852	22002	22001				av1
05/25/2006	18:24:54	00:00:06	1	112		732	852	60001	22001				av1
05/25/2006	18:24:54	00:00:06			112	212	866		22001	2128660001			av1
05/25/2006	18:36:54	00:00:06	2000	2000		732	852	22002	22001				av1
05/25/2006	18:37:54	00:00:06	1	112		732	852	60001	22001				av1
05/25/2006	18:37:54	00:00:06	1	1				22002	2128660001				av1

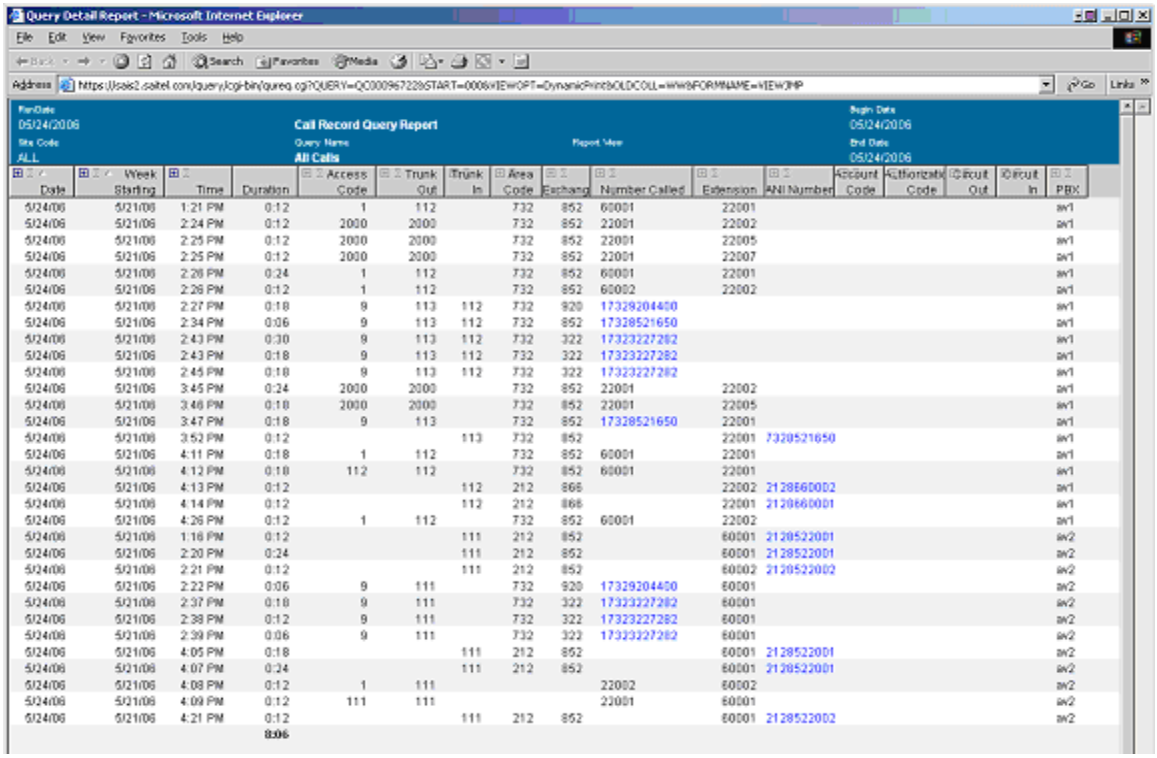
To view raw data, select the **Raw** option from the View Records page. The following displays a sample raw CDR data. The raw data is useful when there is a discrepancy that requires one to look at the record that was originally outputted by Avaya Communication Manager.



Query Results - Microsoft Internet Explorer

```
182200010                    22002      22001
182200017      112           60001      22001                          2    0014        1       010
182300019                    220012128660001                           2001    0    112 1       000
182500010                    22002      22001
182500017      112           60001      22001                          2    0024        1       010
182500019                    220012128660001                           2001    0    112 1       000
183700010                    22002      22001
183800017      112           60001      22001                          2    0024        1       010
18380001G                    220022128660001                           2001    0    112 1       008
183800019                    220022128660001                           2001    0    112 1       000
100800029                    220027328521650                           2006    0    113 1       000
101600019      112           600017328521650                           20070054    113 1       010
103000049    9 113     17328521650128660001                            20010020    112 1       000
104100037    9 113     17328521650      22001      222222              2    0034        1       000
105200047    9 113     17328521650      22001                 2323     2    0044        1       000
110100027    9 113     17328521650      22001      222222     2323     2    0054        1       000
113700060                    22001      22002
114200097    9 113     17328521650      22001      939393              2    0094        1       000
114400037    9 113     17328521650      22002                          2    0104        1       000
120600039                    220027328521650                           2008    0    113 1       000
```

To view dynamic records, select the **Dynamic** option from the View Records page. The following displays a sample dynamic CDR report.



Query Detail Report - Microsoft Internet Explorer

Call Record Query Report

All Calls

Date	Week Starting	Time	Duration	Access Code	Trunk Out	Trunk In	Area Code	Exchang	Number Called	Extension	ANI Number	Account Code	Authorizatio Code	Circuit Out	Circuit In	PBX
5/24/06	5/21/06	1:21 PM	0:12	1	112		732	852	60001	22001						av1
5/24/06	5/21/06	2:24 PM	0:12	2000	2000		732	852	22001	22002						av1
5/24/06	5/21/06	2:25 PM	0:12	2000	2000		732	852	22001	22005						av1
5/24/06	5/21/06	2:25 PM	0:12	2000	2000		732	852	22001	22007						av1
5/24/06	5/21/06	2:26 PM	0:24	1	112		732	852	60001	22001						av1
5/24/06	5/21/06	2:26 PM	0:12	1	112		732	852	60002	22002						av1
5/24/06	5/21/06	2:27 PM	0:18	9	113	112	732	920	17329204400							av1
5/24/06	5/21/06	2:34 PM	0:06	9	113	112	732	852	17328521650							av1
5/24/06	5/21/06	2:43 PM	0:30	9	113	112	732	322	17323227282							av1
5/24/06	5/21/06	2:43 PM	0:18	9	113	112	732	322	17323227282							av1
5/24/06	5/21/06	2:45 PM	0:18	9	113	112	732	322	17323227282							av1
5/24/06	5/21/06	3:45 PM	0:24	2000	2000		732	852	22001	22002						av1
5/24/06	5/21/06	3:46 PM	0:18	2000	2000		732	852	22001	22005						av1
5/24/06	5/21/06	3:47 PM	0:18	9	113		732	852	17328521650	22001						av1
5/24/06	5/21/06	3:52 PM	0:12			113	732	852		22001	7328521650					av1
5/24/06	5/21/06	4:11 PM	0:18	1	112		732	852	60001	22001						av1
5/24/06	5/21/06	4:12 PM	0:18	112	112		732	852	60001	22001						av1
5/24/06	5/21/06	4:13 PM	0:12			112	212	868		22002	2128660002					av1
5/24/06	5/21/06	4:14 PM	0:12			112	212	868		22001	2128660001					av1
5/24/06	5/21/06	4:26 PM	0:12	1	112		732	852	60001	22002						av1
5/24/06	5/21/06	1:16 PM	0:12			111	212	852		60001	2128522001					av2
5/24/06	5/21/06	2:20 PM	0:24			111	212	852		60001	2128522001					av2
5/24/06	5/21/06	2:21 PM	0:12			111	212	852		60002	2128522002					av2
5/24/06	5/21/06	2:22 PM	0:06	9	111		732	920	17329204400	60001						av2
5/24/06	5/21/06	2:37 PM	0:18	9	111		732	322	17323227282	60001						av2
5/24/06	5/21/06	2:38 PM	0:12	9	111		732	322	17323227282	60001						av2
5/24/06	5/21/06	2:39 PM	0:06	9	111		732	322	17323227282	60001						av2
5/24/06	5/21/06	4:05 PM	0:18			111	212	852		60001	2128522001					av2
5/24/06	5/21/06	4:07 PM	0:24			111	212	852		60001	2128522001					av2
5/24/06	5/21/06	4:08 PM	0:12	1	111				22002	60002						av2
5/24/06	5/21/06	4:09 PM	0:12	111	111				22001	60001						av2
5/24/06	5/21/06	4:21 PM	0:12			111	212	852		60001	2128522002					av2
			8:06													

6. Interoperability Compliance Testing

Interoperability compliance testing included feature, serviceability and performance. The feature testing evaluated the ability of Sierra Gold VTS to collect and process CDR records for various types of calls. The serviceability test introduced failure scenarios to see if Sierra Gold VTS can resume CDR collection after failure recovery. The performance testing produced bulk call volumes to generate a substantial amount of CDR records.

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 Sierra Gold VTS collects the CDR records and reports the correct attributes of the call. For serviceability testing, logical links were disabled/re-enabled in the different sections of the network, 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. Sierra Gold VTS successfully captured and processed call records from Avaya Communication Manager. Sierra Gold VTS 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 Sierra Gold VTS 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 Sierra Gold VTS receives 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 Sierra Gold VTS, and verify the report's accuracy.

8. Support

Technical support for Sierra Gold VTS can be obtained by contacting SAI's Hotline Support at 800-949-5432, or send an e-mail to support@saitel.com to request user names and passwords.

9. Conclusion

These Application Notes describe the procedures for configuring the SAI Sierra Gold VTS to collect call detail records from Avaya Communication Manager. Sierra Gold VTS successfully passed all compliance testing.

10. References

This section references the Avaya and SAI 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 Sierra Gold VTS documentation is provided by SAI.

[3] *NetQuery Users Guide*, Version 7.1.

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.