



Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Genesis Systems Corporation Professional Call Accounting Solution to Interoperate with Avaya IP Office Server Edition –Issue 1.0

Abstract

These Application Notes describe a compliance-tested configuration consisting of Genesis Systems Corporation Professional Call Accounting solution and Avaya IP Office Server Edition.

Genesis offers a unified management and reporting solution for Avaya IP Office. This compliance test focused on the interoperability of Genesis Systems Corporation Professional Call Accounting with Avaya IP Office Server Edition.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as the observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

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

1. Introduction

These Application Notes describe a compliance-tested configuration consisting of Genesis Systems Corporation Professional Call Accounting solution (hereafter referred to as Genesis Professional Call Accounting) and Avaya IP Office Server Edition.

Genesis offers a unified management and reporting solution for a variety of communication systems, including Avaya IP Office. This compliance test focused on the interoperability of Genesis Professional Call Accounting with Avaya IP Office Server Edition.

Genesis Professional Call Accounting solution captures call records from Avaya IP Office using a Station Message Detail Recording (SMDR) link. In turn, Genesis Professional Call Accounting processes the call records and generates detailed reports.

Avaya IP Office Server Edition solution consists of a primary Linux Server Edition and an IP500V2 expansion. Both systems are linked by IP Office Line IP trunks that can enable voice networking across these trunks to form a multi-site network.

2. General Test Approach and Test Results

This section describes the compliance testing used to verify interoperability of Genesis Professional Call Accounting solution with Avaya IP Office Server Edition. This section covers the general test approach and the test results. The testing covered feature and serviceability test cases. The feature testing covered the ability of Genesis Professional Call Accounting to capture and processes call records and generate various user friendly reports.

The call records captured and displayed by Genesis Professional Call Accounting were compared for accuracy to the call records displayed by Avaya IP Office Monitor. Call records for various call types were generated, including internal calls, inbound and outbound trunk calls, PSTN calls, transferred calls, hold/resume, call park, account codes, authorizations and conference calls.

The serviceability testing focused on the ability of Genesis Professional Call Accounting solution to recover from adverse conditions such as loss of network connectivity. It was also verified that call records that were generated while Genesis Professional Call Accounting was disconnected from the network were not lost.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

2.1. Interoperability Compliance Testing

Interoperability compliance testing covered the following features and functionality:

- Sending call records from IP Office (Server and Expansion) to Genesis Professional Call Accounting for various call types, including internal calls, inbound and outbound trunks, including PSTN calls, transferred calls, and conference calls.
- Call records were captured and displayed on Genesis Professional Call Accounting.
- Call records were processed by Genesis Professional Call Accounting, which generated detailed reports.
- Proper system recovery after loss of network connectivity and power loss.

2.2. Test Results

The objectives described in **Section 2.1** were verified. All test cases were executed and verified with an observation as explained below:

Avaya IP Office introduced changes in the SMDR logger related to IP Office Small Community Network (SCN). Four fields 31, 32, 33, and 34 in the SMDR log identify calls made through the IP Office Line IP trunks in SCN solution. Therefore, Genesis Professional Call Accounting generates report on calls across a SCN solution by reporting on each SCN node individually. As IP Office delivers individual SMDR for each leg of the call, Genesis Professional Call Accounting reports it as two individual calls: one call record in the IP Office Server Edition Linux server and another call record in the IP500V2 expansion.

As an example consider the case of an outbound PSTN call initiated from a user in the IP Office Server Edition Linux server going through the IP Office Line and exiting through the PRI trunk in the IP500V2 expansion to PSTN. This is one outbound external call. During compliance testing, Genesis Professional Call Accounting reports it as two outbound external calls due to the reason as explained above. This is the default configuration for Genesis Professional Call Accounting and can be changed based on customer requirements.

2.3. Support

Information, Documentation and Technical support for Genesis products can be obtained at:

- Phone: 1 (888) 993-2288 or 1 (604) 530-9348
- Web: <http://www.buygenesis.com>
- Email: support@buygenesis.com

3. Reference Configuration

Figure 1 illustrates the setup used to verify the Genesis Professional Call Accounting with Avaya IP Office Server Edition solution. Genesis Professional Call Accounting is installed and deployed on a Windows Server 2008R2 SP1 running on Virtual Environment. Avaya IP Office Server Edition solution consists of a primary Linux Server Edition and an IP500V2 expansion. Simulated PSTN was connected to IP500V2 expansion via ISDN/T1 trunk and another one was connected to the primary Linux Server Edition via SIP trunk.

Avaya IP Office also consisted of Avaya IP (H323 and SIP) and Digital Deskphones. Genesis Professional Call Accounting solution connects via the LAN and establishes a SMDR link to IP Office primary Linux Server Edition and IP500V2 expansion individually.

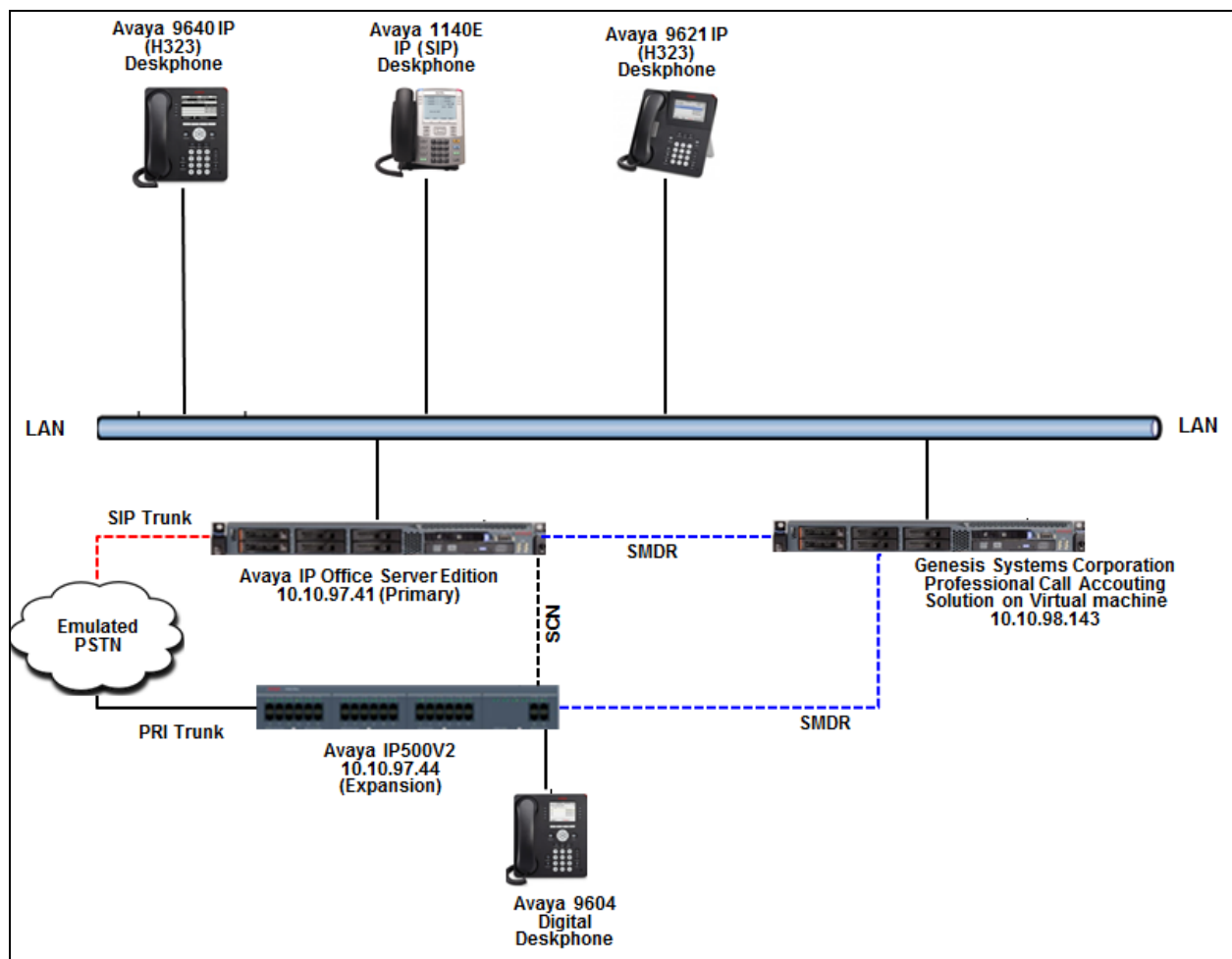


Figure 1: Genesis Systems Corporation Professional Call Accounting solution with Avaya IP Office

4. Equipment and Software Validated

The following equipment and version were used in the reference configuration described above:

Equipment	Release/Version
Avaya IP Office Server Edition running on HP ProLiant DL360 G7	10.0.0.1.0 build 53
Avaya IP Office IP500V2 Expansion	10.0.0.1.0 build 53
Avaya Telephones: <ul style="list-style-type: none">• 9640 IP (H323) Deskphone• 1140E IP (SIP) Deskphone• 9621 IP (H323) Deskphone• 9604 Digital Deskphone	3.250A 4.04.26 6.6302 0.55
Genesis Systems Corporation Professional Call Accounting solution running on Windows Server 2008R2 SP1 running on Virtual Environment	4.16

Note: Compliance Testing is applicable when the tested solution is deployed with a standalone IP Office 500 V2 and also when deployed with IP Office Server Edition in all configurations.

5. Configure Avaya IP Office

The document assumes that Avaya IP Office Server Edition has been installed and configured to work with an IP500V2 expansion. This section only describes the details on how to configure the IP Office Server Edition solution to work with Genesis Professional Call Accounting solution.

From a PC running the IP Office Manager application, select **Start → Programs → IP Office → Manager** to launch the Manager application. Select the proper IP Office system, and log in using the appropriate credentials. The **Avaya IP Office Manager for Server Edition** screen is displayed as shown below.

Avaya IP Office Manager for Server Edition DevCon IPO Sev1 [10.0.0.1.0 build 53]

File Edit View Tools Help

Configuration

- BOOTP (7)
- Operator (3)
- Solution
- User(40)
- Group(4)
- Short Code(55)
- Directory(0)
- Time Profile(0)
- Account Code(1)
- User Rights(13)
- Location(1)
- DevCon IPO Sev1
- DevCon IPOS Exp

Server Edition

Summary

Server Edition Primary

Hardware Installed

Control Unit: IPO-Linux-PC
Secondary Server: NONE
Expansion Systems: 1 44
System Identification: 858b6d69e18abf9f4755e57c276072a18ad0aa40
Serial Number: ac162db2b1b8

System Settings

IP Address: 1 41
Sub-Net Mask: 255.255.255.240
System Locale: United States (US English)
System Location: 2: Belleville Primary
Device ID: 1
Number of Extensions on System: 17

Open...

- Configuration
- System Status
- Voicemail Administration
- Resiliency Administration
- On-boarding
- IP Office Web Manager
- Help
- Set All Nodes to Select
- Set All Nodes License Source

Description	Name	Address	Primary Link	Users Configured	Extensions Configured
Solution				40	54
Primary Server	DevCon IPO Sev1	1 41		22	17
Expansion System	DevCon IPOS Exp	1 44	Bothway	18	37

Error List

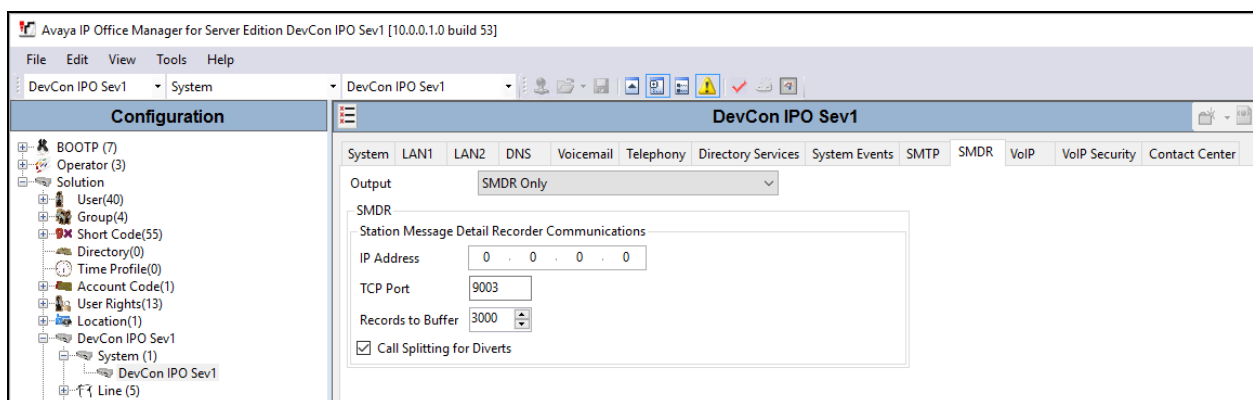
Solution

Configuration Item Type Record Description

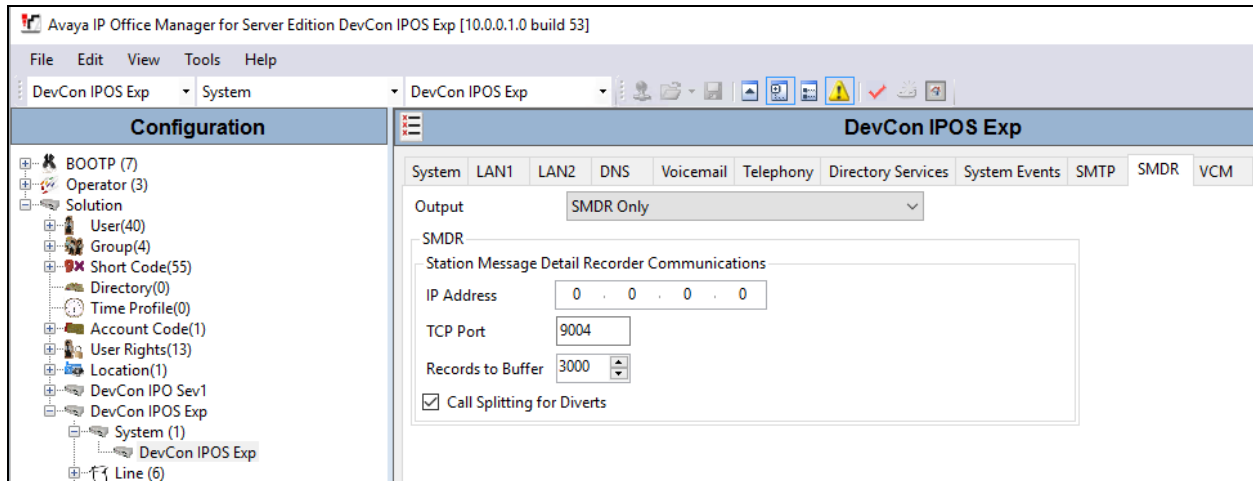
From the configuration tree in the left pane, navigate to **DevCon IPO Sev1 → System (1) → DevCon IPO Sev1** to display the screen in the right pane. **DevCon IPO Sev1** is the name given to the primary Linux Server during compliance testing. Select the **SMDR** tab. Select “SMDR Only” from the **Output** drop-down list, to display the SMDR sub-section.

For **TCP Port**, enter a desired port, in this case “9003”. Make a note of the port number, to be used later for configuring Genesis Professional Call Accounting. The **IP Address** field does not need to be configured since Genesis Professional Call Accounting initiates the SMDR connection to IP Office.

Modify **Records to Buffer** to the desired value, and check **Call Splitting for Diverts**. The record buffer is used by IP Office to cache SMDR records in case of communication failure with Genesis Professional Call Accounting. Click **OK** button to save the configuration (not shown).



Navigate to **DevCon IPOS Exp** → **System (1)** → **DevCon IPOS Exp** to display the screen in the right pane. **DevCon IPOS Exp** is the name given to IP500V2 during compliance testing. Select the **SMDR** tab. Use the same information as above to configure SMDR in the IP500V2 expansion, except for the **TCP Port**, in the **TCP Port** field enter the port “9004”. Click **OK** button to save the configuration (not shown).



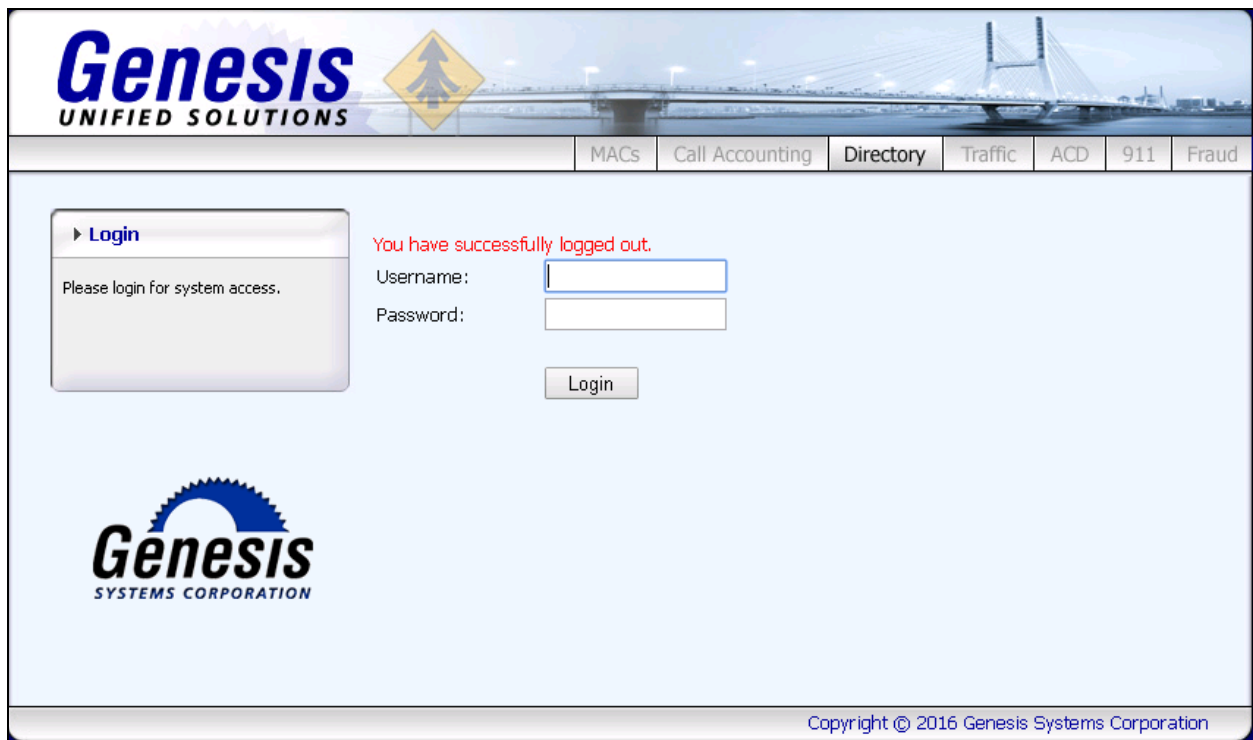
6. Configure Genesis Professional Call Accounting

Genesis engineer or an approved installer will install and initially configure all server components including Site information. Details of the steps are beyond the scope of this document. Please refer to **Section 9** for detailed configuration of Genesis server.

6.1. Genesis Configuration Details

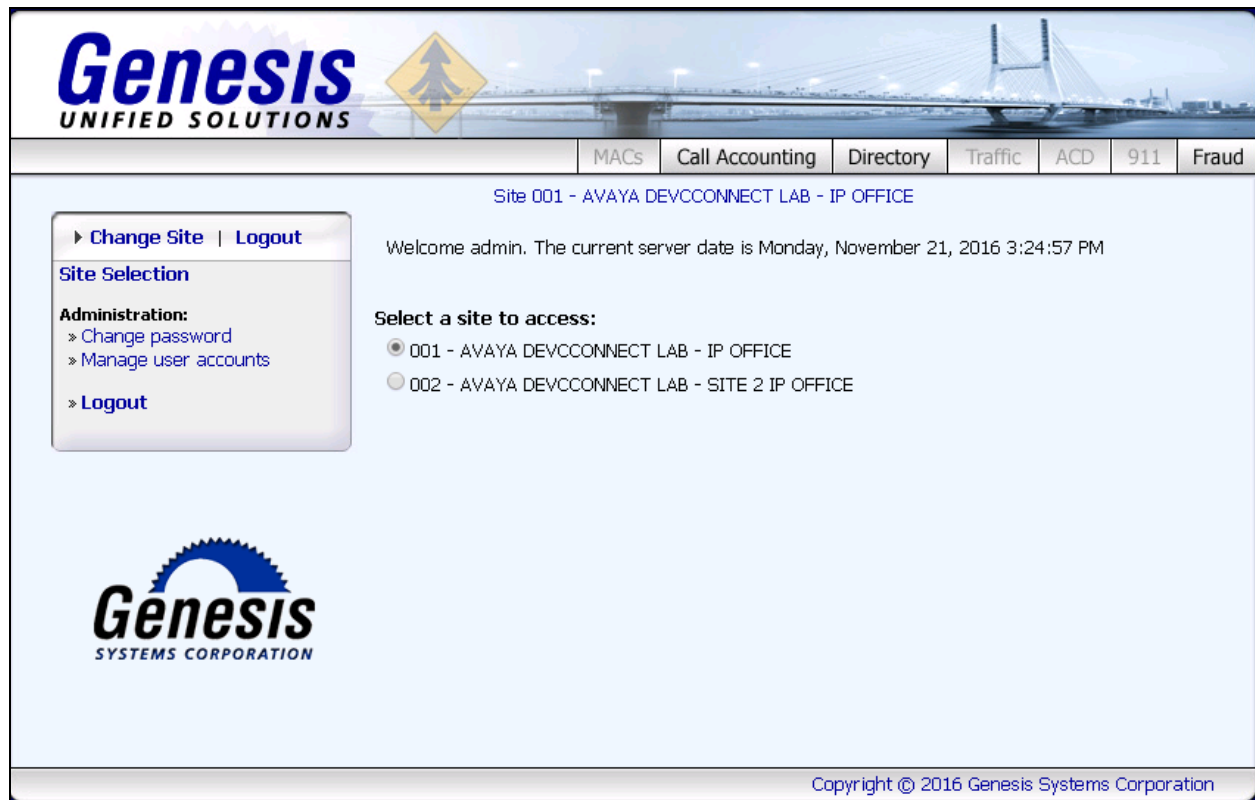
The Genesis Professional Call Accounting application is accessed via web browser. Enter <http://<hostname>/GenWeb/> where <hostname> is the IP address or qualified domain name of the Genesis server.

Login to the system using the credentials supplied by the installer as shown in the screen below.






The screenshot shows the Genesis Professional Call Accounting web application interface. At the top, there is a banner with the Genesis logo (UNIFIED SOLUTIONS) and a yellow diamond-shaped warning sign. Below the banner is a navigation bar with tabs: MACs, Call Accounting, Directory, Traffic, ACD, 911, and Fraud. The main content area has a light blue background. On the left, there is a 'Login' button and a message box that says 'Please login for system access.' On the right, there is a message that says 'You have successfully logged out.' Below this message are input fields for 'Username:' and 'Password:', and a 'Login' button. At the bottom left, there is the Genesis Systems Corporation logo. At the bottom right, there is a copyright notice: 'Copyright © 2016 Genesis Systems Corporation'.

If the system is configured for more than one site, select the site to interact with and choose the tab for the **Call Accounting** application as shown in the screen below. During compliance testing two sites (Primary and Expansion) were pre-configured on the Genesis system.



The initial **Call Accounting** screen provides a list of recent call records in both a raw data format as received from IP Office using the SMDR link, as well as a processed format. Clicking on the objects in the diagram or the links in the navigation panel on the left side of the screen will navigate to the respective task screens.

[MACs](#)
[Call Accounting](#)
[Directory](#)
[Traffic](#)
[ACD](#)
[911](#)
[Fraud](#)

Site 001 - AVAYA DEVCONNECT LAB - IP OFFICE

[Change Site](#) | [Logout](#)

Call Accounting

Reports:

- » Manual reports
- » Automatic reports
- » Distribution lists
- » Email settings

View:

- » System Help
- » Rate table information

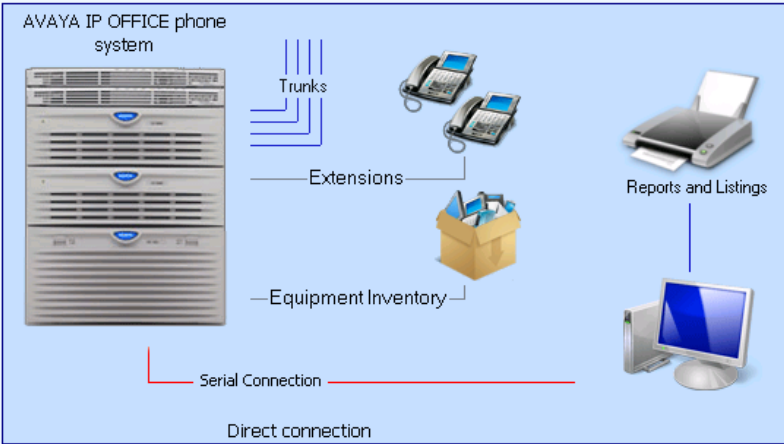
System Maintenance:

- » Update extension file
- » Update hierarchy file
- » Update equipment file
- » Update trunk file
- » Call capture settings
- » Adjust dialed digits
- » Adjust account codes

System Configuration:

- » Call processing settings
- » Data collection settings
- » Set access codes
- » Set call timers
- » PMS settings
- » Surcharges and taxes
- » Set traffic study period
- » Month-end settings

AVAYA IP OFFICE phone system



Trunks

Extensions

Equipment Inventory

Reports and Listings

Serial Connection

Direct connection

Processed call records:

Date	Time	Ext.	Trunk	Number dialed	Location	Length	Cost
2016/11/17	15:23	26014	T9012	621967561041351		00:00:10	\$0.00
2016/11/17	15:42	26014	T9012	IN>56104		00:00:11	\$0.00
2016/11/17	15:44	26600	T9001	IN>5139656105	Littlmiarni OH	00:00:15	\$0.00
2016/11/17	15:49	26114	T9012	IN>56104		00:00:00	\$0.00
2016/11/17	15:49	26114	T9012	621967561031351		00:00:01	\$0.00
2016/11/17	15:53	26114	T9012	IN>6149754336	Columbus OH	00:00:00	\$0.00
2016/11/17	16:32	26009	26003	Internal		00:00:07	\$0.00
2016/11/17	16:32	26003	26009	IN> Internal		00:00:07	\$0.00
2016/11/17	16:35	26000	T9012	621967561031351		00:00:08	\$0.00

To configure data collection settings, on the navigation panel, click **System Configuration** → **Data collection settings** to define the way Genesis Professional Call Accounting will connect to the SMDR interface with Avaya IP Office. Select **TCP/IP connection (serial to IP, Avaya IP, etc.)** for the **Connection method**. In the **TCP/IP Connection Settings**, provide the **IP address/host** of the IP Office Primary server and enter the **TCP port** value as configured in **Section 5**. Retain default values for all other fields.

Click **Save** to complete the task.


Repeat the above configuration for the Expansion site and configure the IP address of the Expansion system and the port configured on it for SMDR.

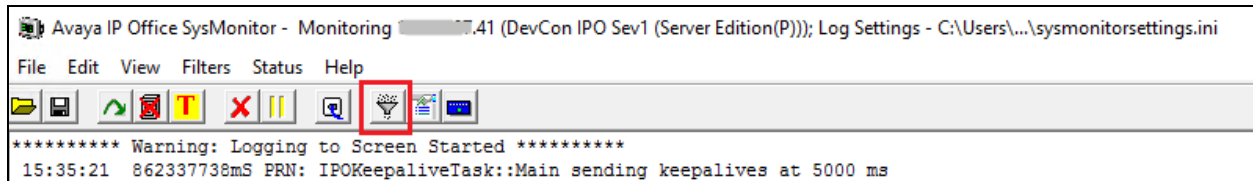
The screenshot displays the Genesis Unified Solutions web interface. The top navigation bar includes tabs for MACs, Call Accounting, Directory, Traffic, ACD, 911, and Fraud. The main content area is titled "Site 001 - AVAYA DEVCCONNECT LAB - IP OFFICE". On the left, a sidebar menu shows "Call Accounting" with sub-items: Reports (Manual reports, Automatic reports, Distribution lists, Email settings), View (System Help, Rate table information), System Maintenance (Update extension file, Update hierarchy file, Update equipment file, Update trunk file, Call capture settings, Adjust dialed digits, Adjust account codes), and System Configuration (Call processing settings, Data collection settings, Set access codes, Set call timers, PMS settings). The "Data collection settings" option is highlighted. The main panel shows the "Connection method:" section with radio buttons for: Serial port / direct connection, Modem / dial-up buffer box connection, TCP/IP connection (serial to IP, Avaya IP, etc.) (selected), Remote GCOM IP connection, Custom program, File or folder (IPO, DBA, Asterisk, etc.), Cisco Call Manager, and Nortel BCM. Below this is the "TCP/IP Connection Settings:" section with fields for "IP address / host" (10.10.97.41), "TCP port" (9003), and "Protocol used" (none). There are also checkboxes for "Add date stamps to incoming records" and "Buffer box installed". At the bottom, there are "Cancel", "Help", and "Save" buttons.

7. Verification Steps

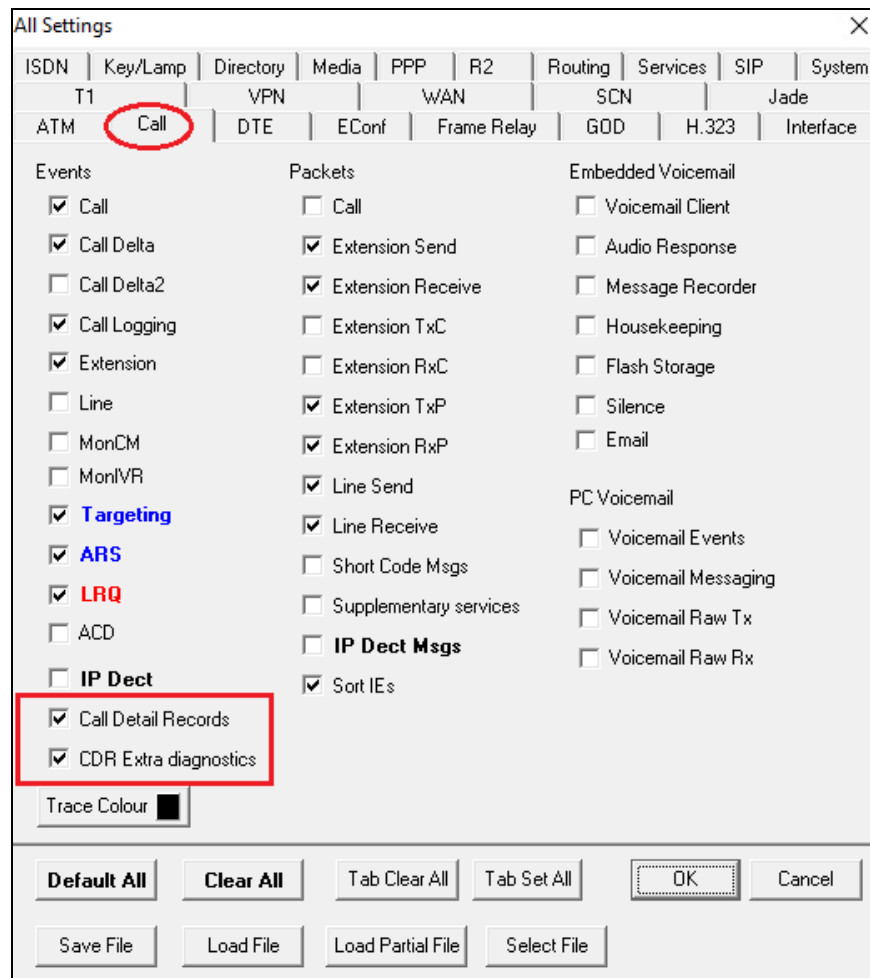
This section provides the tests that can be performed to verify proper configuration of Avaya IP Office and Genesis Professional Call Accounting.

7.1. Verify Avaya IP Office

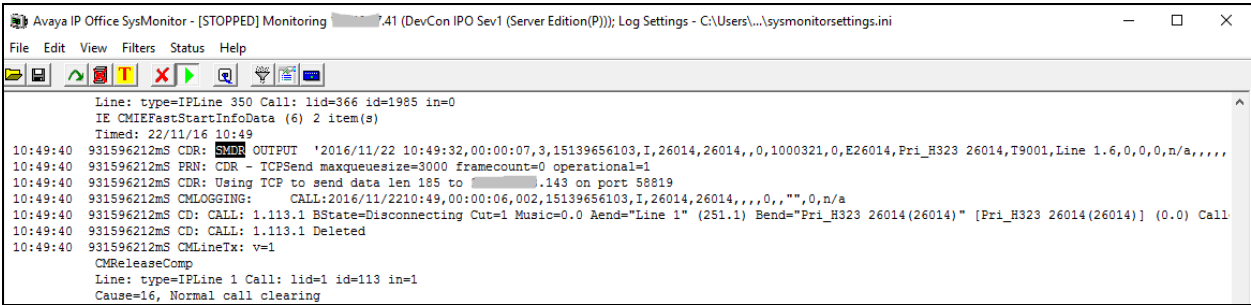
Launch the Avaya IP Office Monitor application to display the **Avaya IP Office SysMonitor** screen as shown below. Click on the **Filter**  icon.



The **All Settings** screen is displayed. Under the **Call** tab, check **Call Detail Records** and **CDR Extra diagnostics** as shown below.

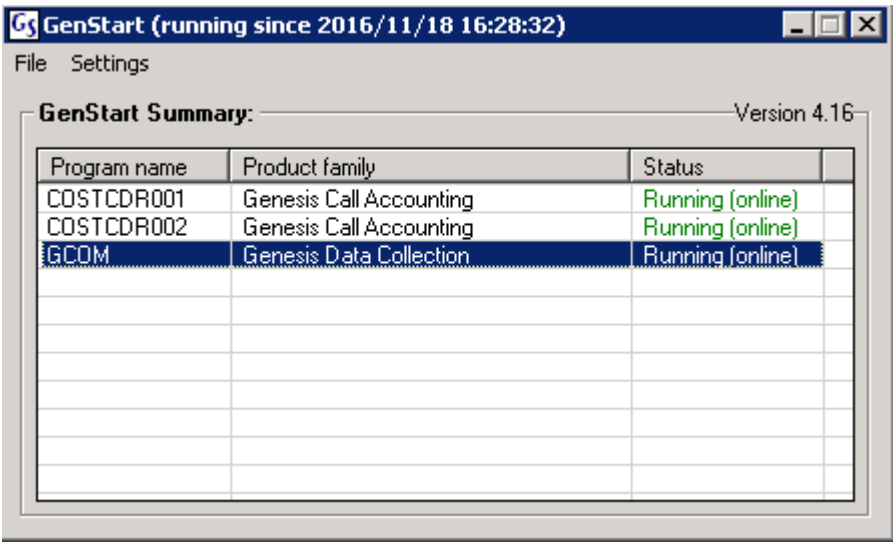


Make and complete a few phone calls, including internal, inbound from the PSTN, and outbound to the PSTN. Verify that raw SMDR data is displayed on the **Avaya IP Office SysMonitor** screen as shown below. Example shows the SMDR output for a call generated on the primary Linux Server. Similarly an SMDR output will be generated on the IP500V2 expansion also.



7.2. Verify Genesis Professional Call Accounting Solution

Verify that the Genesis Professional Call Accounting services for both sites (COSTCDR001 and COSTCDR002), and Genesis Data Collection (GCOM) service are online by selecting **show** from the **GenStart** icon (not shown) in the Windows System Tray on the Genesis server.



Each service can be started, shutdown or restarted by right clicking and choosing the appropriate option from the popup menu (not shown).

Calls were made to and from IP Office endpoints and call details were verified by comparing the data that was generated by the IP Office SMDR to the raw data collected by the Genesis Professional Call Accounting application.

- » Surcharges and taxes
- » Set traffic study period
- » Month-end settings

2016/11/17	15:49	26114	T9012	621967561031351		00:00:01	\$0.00
2016/11/17	15:53	26114	T9012	IN>6149754336	Columbus OH	00:00:00	\$0.00
2016/11/17	16:32	26009	26003	Internal		00:00:07	\$0.00
2016/11/17	16:32	26003	26009	IN> Internal		00:00:07	\$0.00
2016/11/17	16:35	26009	T9012	621967561031351		00:00:08	\$0.00
2016/11/18	08:41	26006	T9012	621967560011251		00:01:11	\$0.00
2016/11/18	08:43	26006	T9012	621967560101251		00:01:32	\$0.00
2016/11/18	08:52	26006	T9012	621967560101251		00:20:17	\$0.00
2016/11/18	09:14	26006	T9012	621967560101251		00:00:44	\$0.00
2016/11/18	09:17	26006	T9012	621967560101251		00:01:02	\$0.00
2016/11/18	10:23	26003	26014	Internal		00:00:19	\$0.00

Raw call records:

2016/11/21 10:46:28,00:00:08,2,26014,0,26108,26108,,1,1000306,0,E26014,Pr	26108,0,0,0,n/a,,,,,,,,,,,,,41,1937,,44,1491,2016/11/21
2016/11/21 10:47:23,00:00:06,3,26114,I,26003,26003,,1,1000308,0,E26114,EX	26003,0,0,0,n/a,,,,,,,,,,,,,44,1492,,41,1945,2016/11/21
2016/11/21 10:51:11,00:00:06,2,26003,0,26108,26108,,1,1000309,0,E26003,Pr	26108,8,0,0,n/a,,,,,,,,,,,,,41,1946,,44,1497,2016/11/21
2016/11/21 10:59:08,00:00:08,0,26003,0,*38*26003#,*,38*26003#,0,1000311,0	1.4,0,0,0,n/a,,,,,,,,,,,,,41,1951,,44,1519,2016/11/21 1
2016/11/21 11:05:19,00:00:00,2,26014,0,26108,26108,,1,1000314,1,E26014,Pr	26108,0,0,0,n/a,,,,,,,,,,,,,41,1960,,44,1530,2016/11/21
2016/11/21 11:05:09,00:00:05,2,26014,0,26003,26003,,1,1000312,1,E26014,Pr	26003,5,0,0,n/a,,,,,,,,,,,,,41,1954,,41,1956,2016/11/21
2016/11/21 11:05:19,00:00:11,2,,0,26108,26108,,1,1000314,0,E26108,Exp_H32	8388612.1,0,0,0,n/a,,,,,,,,,,,,,41,1963,,44,1530,2016/1
2016/11/21 11:05:24,00:00:12,0,26014,0,26108,26108,,1,1000315,0,E26014,Pr	8388612.2,0,0,0,n/a,,,,,,,,,,,,,41,1960,,41,1966,2016/1
2016/11/21 11:05:09,00:00:00,0,,0,,,1,1000312,0,E26003,Pri_H323 26003,v8	8388612.3,0,0,0,n/a,,,,,,,,,,,,,41,1967,,41,1956,2016/1
2016/11/21 11:29:52,00:00:08,2,15139656103,I,26014,26014,,0,1000316,0,E26	1.5,0,0,0,n/a,,,,,,,,,,,,,44,1531,,41,1970,2016/11/21 1

Additionally, reports were run from the Genesis Professional Call Accounting application as shown below. The Genesis Professional Call Accounting solution is capable of running reports Ad-hoc (Manual Reports) as well as configuring reports to be automatically run on regular intervals and being emailed to a single user, or to a distribution list. The full details of reports are beyond the scope of these Application Notes.

AVAYA DEVCCONNECT LAB - IP
OFFICE

Today's date:
2016/11/21 15:53:59

+ Genesis Plus +

Period starting 2016/08/31
ending 2016/11/21

EXTENSION DETAIL REPORT

Unassigned extensions

Extension 26006

Date	Time	Ans	Ext.	Orig.	Trunk	Type	Number dialed	City name	Account code	Duration	Tax	Cost
2016/10/19	10:25:00	0	26006	26006	T9001	C2WAY IN>	5139656301	LITTLMIAMI OH		0:00:13	0.00	0.00
2016/10/19	10:27:00	0	26006	26006	T9001	C2WAY IN>	56203			0:00:58	0.00	0.00
2016/10/20	09:28:00	0	26006	26006	T9001	C2WAY IN>	56203			1:01:11	0.00	0.00
2016/10/20	12:31:00	0	26006	26006	T9012	C2WAY	62196756302			0:00:43	0.00	0.00
2016/10/20	13:31:00	0	26006	26006	T9001	C2WAY IN>	5139656301	LITTLMIAMI OH		0:02:12	0.00	0.00
2016/10/20	13:59:00	0	26006	26006	T9001	C2WAY IN>	5139656301	LITTLMIAMI OH		0:00:23	0.00	0.00

8. Conclusion

These Application Notes describe the steps required to configure Genesis Systems Corporation Professional Call Accounting solution to interoperate with Avaya IP Office Server Edition 10. All feature and serviceability tests were completed successfully with observation/s noted in **Section** Error! Reference source not found..

9. Additional References

This section references the Avaya documentation relevant to these Application Notes. The Avaya product documentation is available at <http://support.avaya.com>.

- [1] *Deploying IP Office™ Platform Server Edition Solution*, Release 10.0.
- [2] *Administering Avaya IP Office™ Platform with Manager*, Release 10.0.
- [3] *Deploying Avaya IP Office™ Platform IP500 V2*, 15-601042 Issue 31I.

Product documentation for Genesis Professional Call Accounting Solution can be found at <http://www.buygenesis.com/software/call-accounting/versions.htm>.

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