



Avaya Solution & Interoperability Test Lab

Application Notes for Hansen Software CASH+ Call Accounting with Avaya IP Office – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Hansen Software Corporation Call Accounting application (CASH+) to work with Avaya IP Office. CASH+ is a call accounting solution that provides detail and summary reports over a full range of business needs. Call Detail Records (CDR) from Avaya IP Office are sent over a WEB infrastructure to the CASH+ server where records are captured and saved.

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 the configuration steps required for Hansen Software Corporation Call Accounting System (CASH+) to operate with Avaya IP Office. CASH+ provides a comprehensive call accounting solution that may be customized in many ways to fit nearly all business needs.

CASH+ collects and stores all Call Record Detail (CDR) records generated from Avaya IP Office. CASH+ typically processes CDR records with date and time, call duration, calling and destination parties, call authorization, call account code, and line and trunk information. However, integrating the CDR records with the local customization and the numerous search functions makes the formatted reports very informative to businesses.

The configuration in **Figure 1** shows a network consisting of an Avaya IP412 Office, Avaya IP406 Office V2, Avaya Communication Manager, Avaya IP Office Manager/Voicemail PRO Personal Computer (PC), Hansen Software Corporation CASH+ Server PC, and various Avaya telephones connected to an Avaya C363T-PWR Converged Stackable Switch. The Avaya IP412 Office has PRI and Analog trunks to the Central Office (CO). The Avaya IP406 Office V2 can also access the CO facilities over the Small Community Network (SCN) network, but first must pass through the Avaya IP412 Office system. Consequently, this creates a CDR record of the outgoing transaction.

Avaya IP412 Office is configured to generate CDR data for all inbound, outbound, and internal calls, and for calls made to and from other Avaya IP Office systems over SCN or from an Avaya Communication Manager over H.323. Avaya IP412 Office is configured to send CDR records to a user configured IP address and port. The CASH+ server is remotely located and is connected to Avaya IP412 Office through the Internet Service Provider (ISP) network. CASH+ is configured to listen for CDR data on the same port as Avaya IP412 Office. Once CASH+ receives the raw CDR data, it is stored in the CASH+ database for later retrieval and report generation.

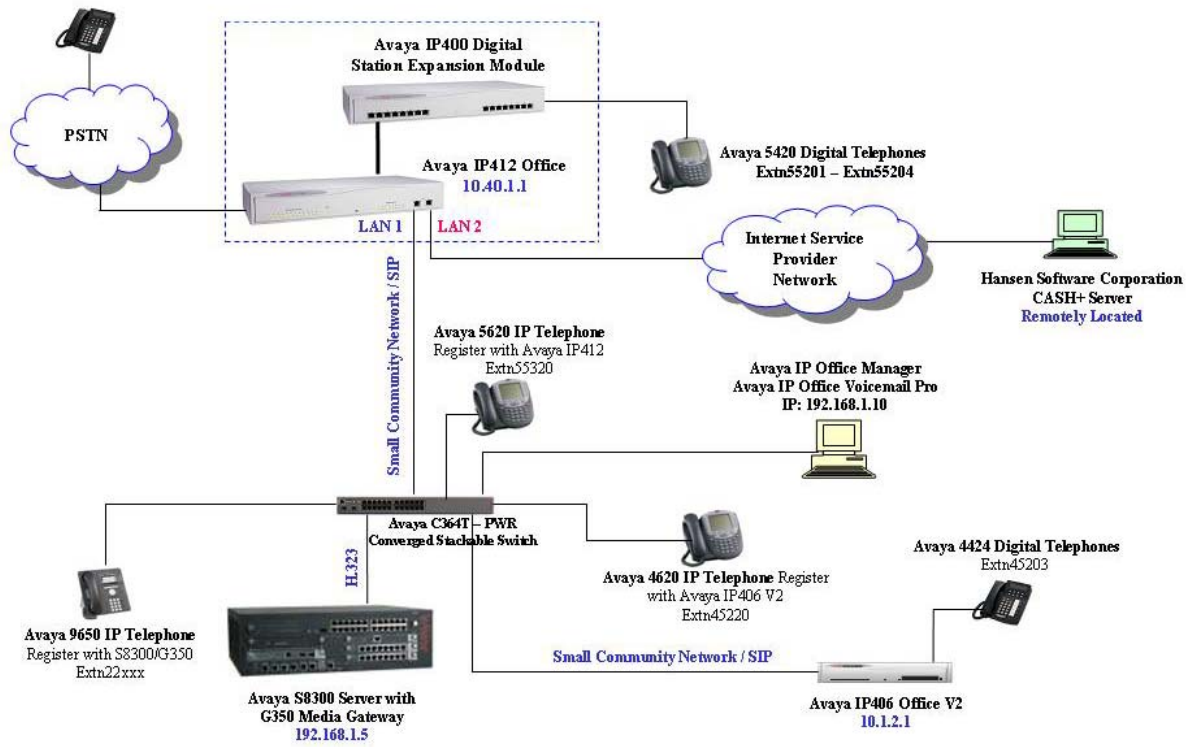


Figure 1 – Network Configuration Diagram

2. Equipment and Software Validated

- The following products and software were used for the configuration in

Figure 1:

Product	Software/Version
Avaya IP412 Office	4.1.9
Avaya IP406 Office V2	4. 1.9
Avaya IP400 Digital Station Module	6. 1.9
Avaya S8300 Server with G350 Media Server	4.0 (Load 730.5)
Avaya IP Office Manager	6. 1.9
Avaya IP Office Voicemail Pro	4.1.27
Avaya 4620 IP Telephones	2.8.24
Avaya 5620 IP Telephones	2.8.24
Avaya 2420 Digital Telephones	5.0
Avaya 5420 Digital Telephones	5.0
Avaya 9650 IP Telephone	
Avaya 4424 Digital Telephone	
Avaya C363T-PWR Converged Stackable Switch	4.3.12
Hansen Software Corporation CASH+ Call Accounting System	3.5
PCs for Avaya IP Office Manager, Avaya Voicemail Pro	Windows XP Professional Service Pack 2

Table 1 – Product and Software Version

3. Configure Avaya IP412 Office

The configuration information provided in this section describes the steps required to set up Avaya IP412 Office to generate CDR data to a user-defined destination IP address and port.

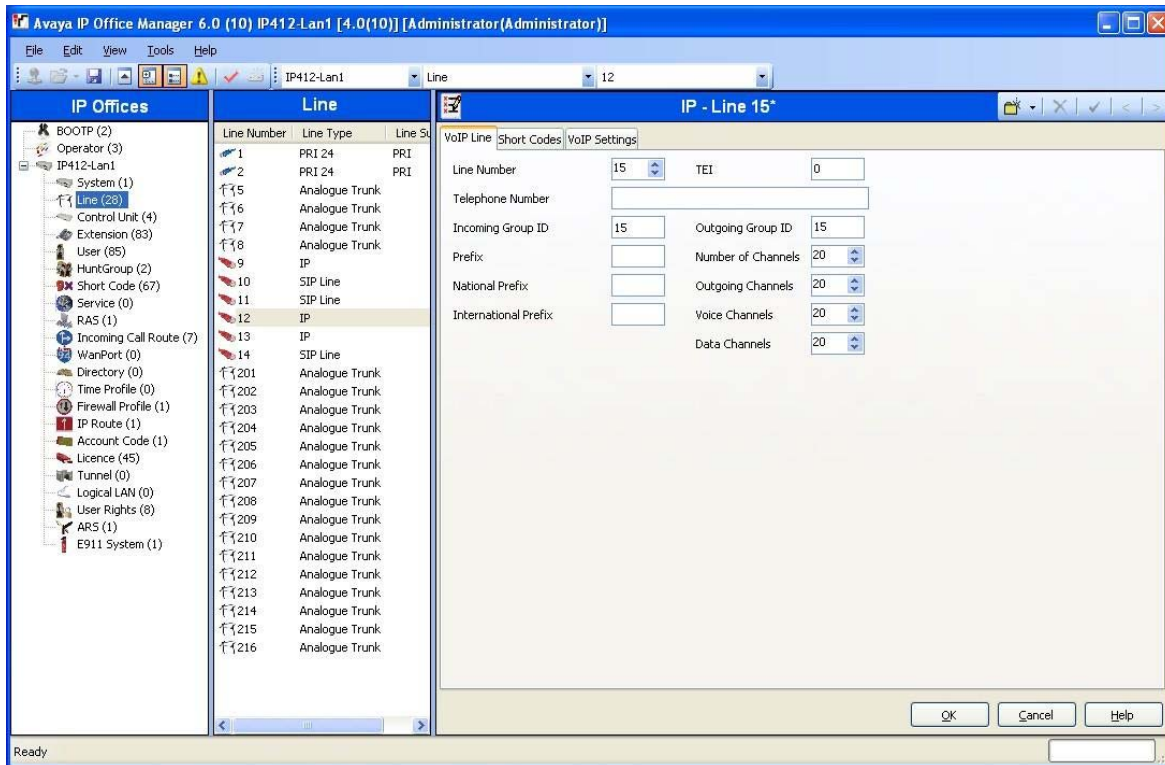
Note: Steps 4, 5 and 7 are also performed on the Avaya IP406 Office V2 and are not necessary on either the Avaya IP412 Office or Avaya IP406 Office V2 if SCN trunks are not used.

For all other provisioning information, such as Avaya IP Office installation and configuration, etc., please refer to the Avaya IP Office product documentation in **Reference [1]**.

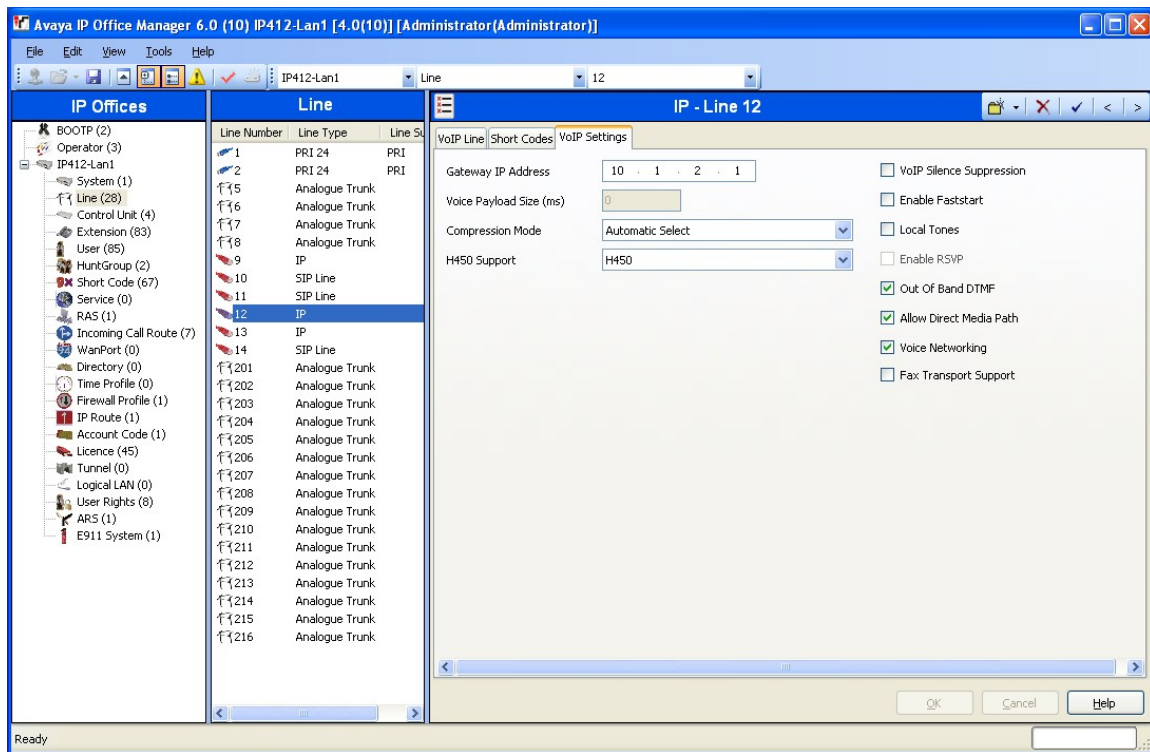
1. From the Avaya IP Office Manager PC, go to **Start** → **Programs** → **IP Office** → **Manager** to launch the Manager Application and log into the Manager application using the appropriate credentials.
2. On the Manager window that is displayed, select **File** → **Open** to search for the IP Office system in the network.

- Log into the Avaya IP412 Office system using the appropriate login credentials to receive its configuration.
- In the **Avaya IP Office Manager** window, go to the configuration tree in the left-hand panel and right-click **Line** and select **New** → **IP Line** (not shown). The screen below should display.

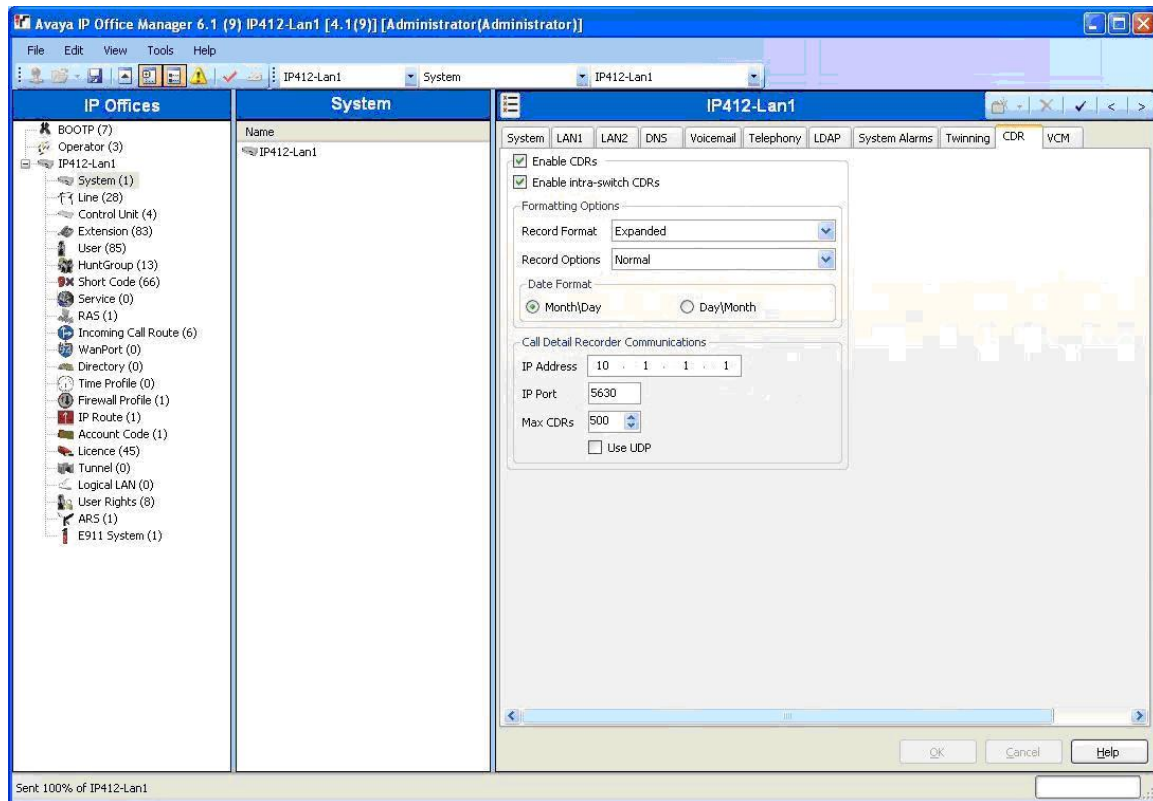
In this case, the system automatically assigns **15** as the **Line Number** (and will vary). Place the value **15** in the **Incoming Group ID** and **Outgoing Group ID**. Click the **VoIP Settings** tab.



5. Set the **Gateway IP Address** to the IP address of the other Avaya IP Office System. See **Figure 1**. Check **Voice Networking**. The **Voice Networking** parameter turns on SCN capabilities. Click **OK**.



6. On the **Avaya IP Office Manager** window, double-click on **System** from the left panel configuration tree. On the right panel, select the **CDR** tab. In the **CDR** window set the following; **Enable CDRs** is checked, **Enable intra-switch CDRs** is checked, **Record Format** select **Expanded**, **Record Options** select **Normal**, **Date Format** select **Month\Day**, **IP Address** to **10.1.1.1** the IP address of the Hansen Software Corporation CASH+ Server and **IP Port** to **5630** the port that CASH+ will listen on. Click **OK**.



7. In the **Avaya IP Office Manager** window, select **File** → **Save** to push the configuration to the Avaya IP412 Office system and wait for the system to update.
8. Log into the Avaya IP406 Office V2 system and perform **Steps 4, 5** and **7**. Note the IP address is different.
9. This completes configuration of Avaya IP Office CDR

4. Configure Hansen Software Corporation CASH+

The configuration information provided in this section describes the steps required to configure CASH+ to listen for CDR records from Avaya IP Office.

For all other provisioning information, such as software installation, configuration of CASH+ for call accounting, report generation, etc., please refer to the CASH+ product documentation in **References [2]** and **[3]**.

The information provided in this section assumes the server has already been successfully installed and licensed on the Hansen Software Corporation CASH+ server. However, **Step 1** below is an exception because it is part of the installation process.

1. As part of the installation process, the **Setup** screen below is displayed. Select **Lucent Definity Expanded** for the **Phone System**, add **Name** and **Address** information as appropriate, select **Enable 10 Digit North American Calls**, and place a telephone number in the **Area Code**, **Exchange**, and **Number** fields. Click **OK** and complete the installation process.

The Setup window is titled "Setup" and contains the following fields and options:

- Phone System:** Lucent Definity Expanded (selected from a dropdown)
- Name:** Avaya
- Address:** 307 Middletown Lincroft Road, Lincroft, New Jersey 07738
- Fax:** (empty field)
- E-Mail:** (empty field)
- Area Code:** 732, **Exchange:** 852, **Number:** 3043
- Number of trailing account code digits:** 0
- Auto Purge Calls After:** 45 days (Use 0 to disable)
- Enable Security:** ☐
- Use Hotel Features:** ☐
- Record Incoming Calls:** ☒
- Record Local Calls:** ☒
- Record Long Distance Calls:** ☒
- Record Extension Calls:** ☐
- Account Code is Pin Number:** ☐
- Enable 10 Digit North American Calls:** ☒
- Cost 10 Digit North American Calls:** ☐
- Enable overriding international rate band:** ☐
- Use MultiSite:** ☒
- MultiSite Mode:**
 - ☒ All Records in one database
 - ☐ Records in more than one database
- Tax Table:**

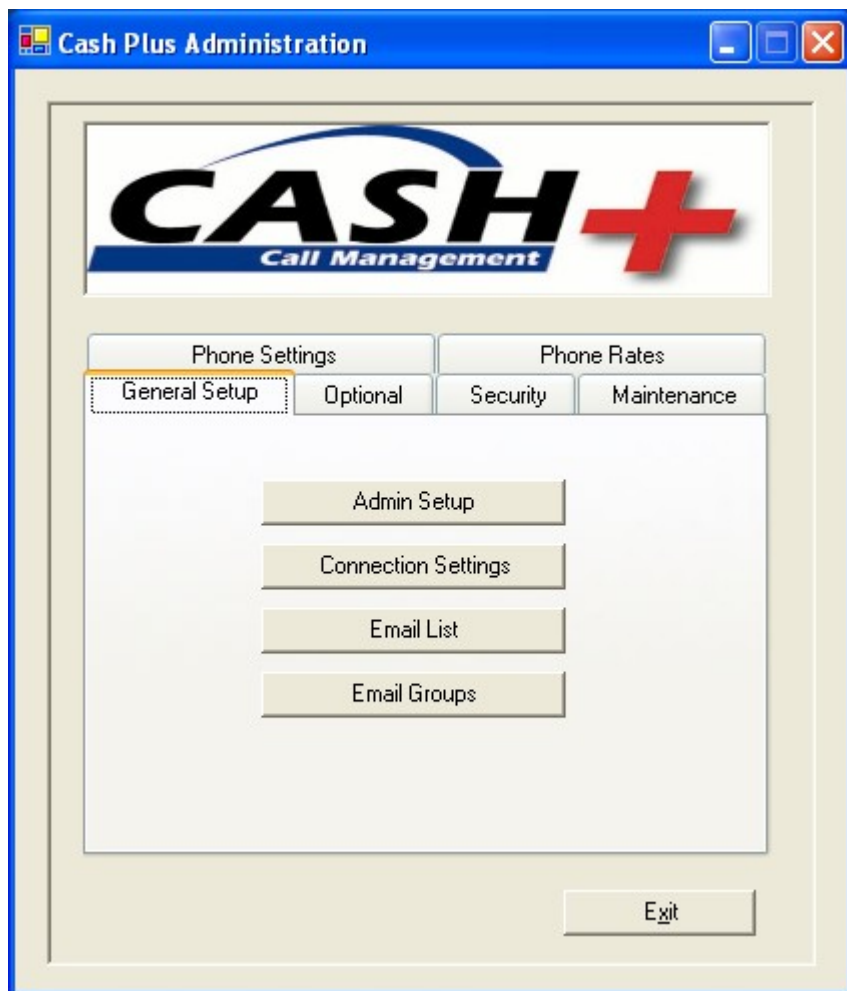
Description	Rate
Tax 1	0.000%
Tax 2	0.000%
Tax 3	0.000%

Buttons: Cancel, OK

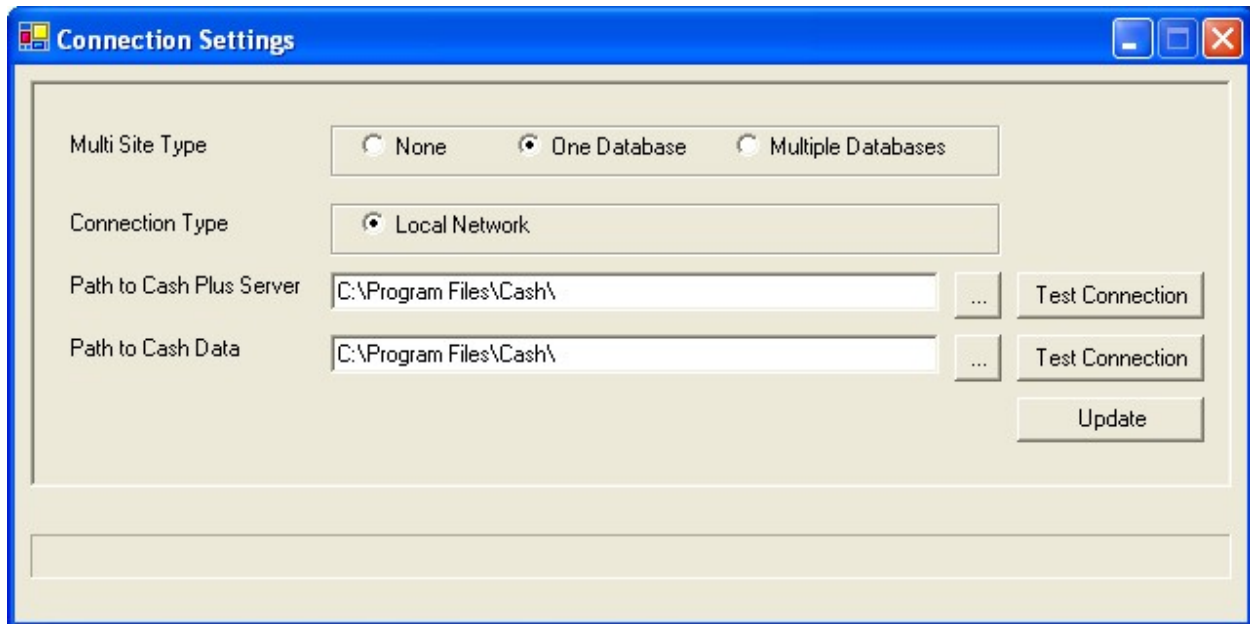
2. To accommodate additional information required by Avaya IP Office, the following fields need to be added to the proper categories in the **CASH.ini** file located at **C:\Program Files\Cash** (this is the default directory path).

```
[COSTER32]
AllowInvalidExtensions=True
[CashLog32]
UseIPListen=True
IPListenMode=Avaya
```


3. Navigate to **Start → Programs → CASH Call Accounting → Cash Plus Admin**. The **Cash Plus Administration** screen should display as illustrated below. The **Admin Setup** is the same information illustrated in **Step 1**, and the **Connection Settings** is illustrated in **Step 4** below.

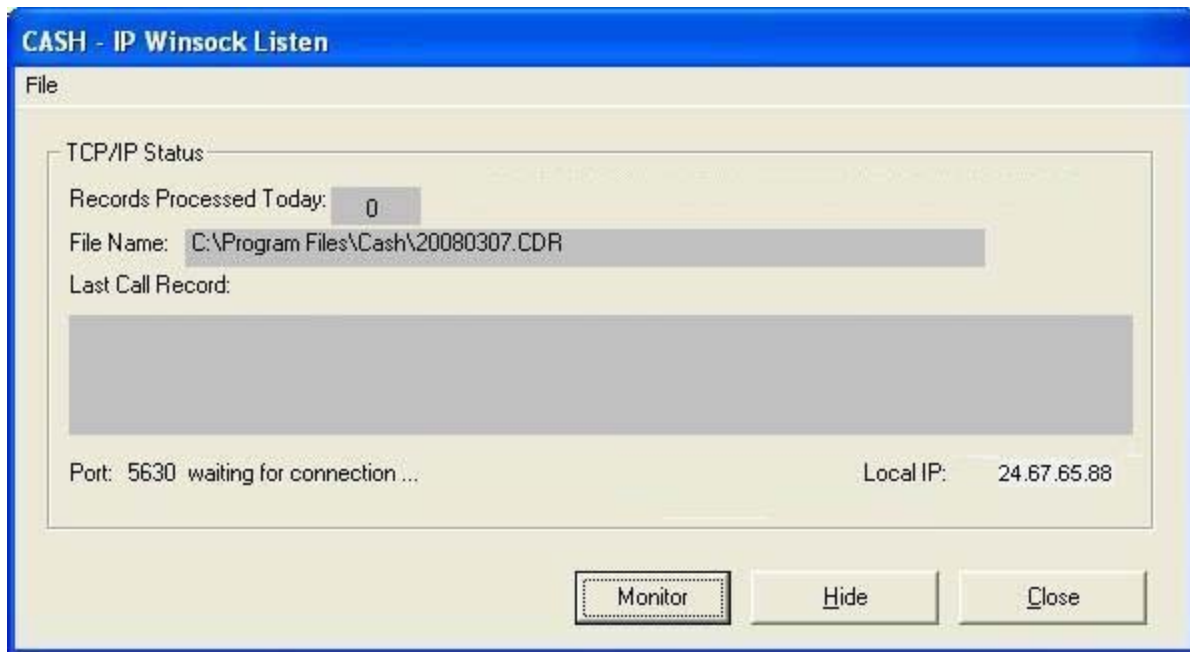


4. The **Connection Settings** screen illustrated below turns-on and tests the server and database functionality. For the compliance test, only one database was used and both the **Path to Cash Plus Server** and **Path to Cash Data** were located on the Hansen Software Corporation CASH+ server over the ISP network.

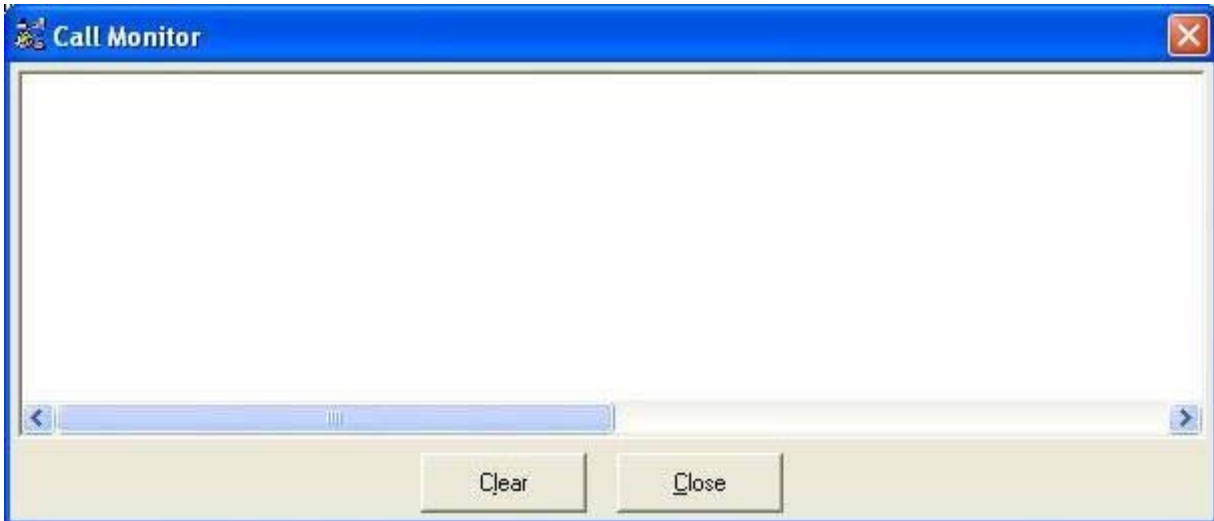


5. The other tabs associated within **CASH+ Administration** in **Step 3** deal with customization for business office needs. See Reference [3] for more information.

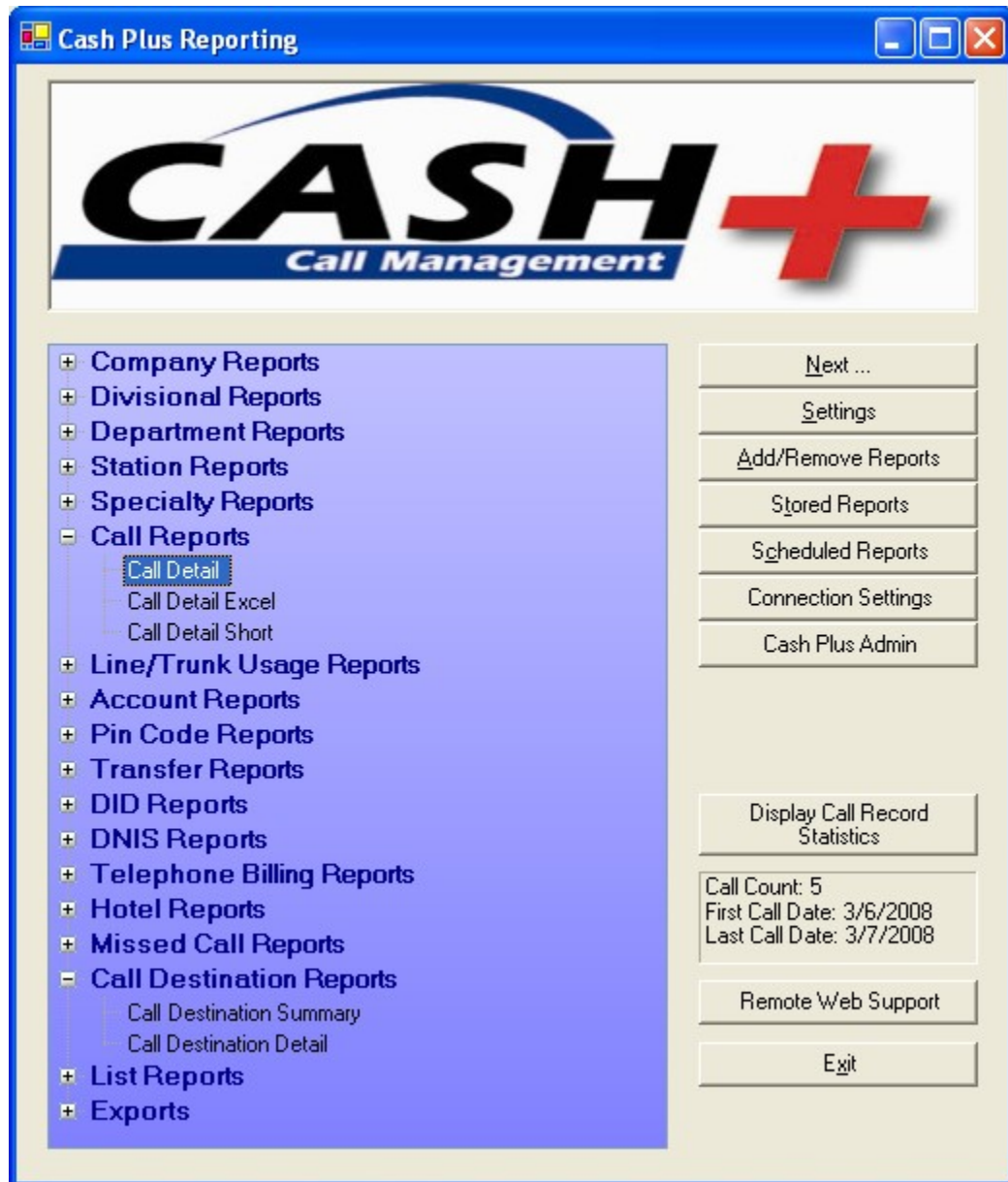
6. Navigate to **Start → Programs → CASH Call Accounting → Cash Log**. Initially, the **CASH –IP Winsock Listen** is placed within the system tray as an  icon. Click on the icon and the **CASH –IP Winsock Listen** screen should display as illustrated below. The **Local IP** address should be the IP address of the CASH+ server, as in this case, the CASH+ server is located over the ISP network. Click **Monitor**.



7. The **Call Monitor** screen is displayed as below. Raw CDR records are displayed in near real-time as they occur. Initially, since no CDR records have been processed, the Monitor should be clear of CDR records as below. Click **Close** below, then click **Hide** in **Step 6**.



8. Navigate to **Start → Programs → CASH Call Accounting → Cash Plus Reports**. The **Cash Plus Reporting** screen should display as illustrated below. The Cash Plus Reporting screen is illustrated with all the report modules enabled, however modification within the **Add/Remove Reports** button, can stream line the report details to fit business needs. For compliance testing, the **Call Reports → Call Detail** was selected and click **Next...**



9. The **Call Detail – Select Report Criteria** screen should display as illustrated below. Select the criteria from the **Select Field** column and click the **Add Rule** button. Click the **Add Rule** button for each criterion selected. Once the business criterion is selected, click **Preview Report** to view the immediate report results on screen.

Call Detail - Select Report Criteria

Record Selection | Sort Orders

☐ And ☒ Or Is

Date Between ... and

Start Date: 3/7/2008
Start Time: 12:00:00 AM
End Date: 3/10/2008
End Time: 11:59:59 PM

Select Field

- Account
- Account List
- Area Code
- City
- Country
- Date Advanced Options
- Date Range
- Date/Time Range**
- Department Number
- Departments List
- Duration (in seconds)

Add Rule Delete Rule

Date = @@Today
AND Date/Time Range Between 03/07/2008 12:00:00 AM AND 03/10/2008 11:59:59 PM

Print Report Preview Report
Email Report ... Save Definition
Save Scheduled Save As...
Close

10. This completes configuration of CASH+.

5. Interoperability Compliance Testing

Interoperability compliance testing evaluated the ability of CASH+ to collect and process CDR records for various types of calls (inbound, outbound, internal, transfer, conference, etc.).

5.1. General Test Approach

The general test approach was to enable CASH+ to collect CDR records and:

- Manually place calls:
 1. Between Avaya IP Office extensions.
 2. Inbound and outbound trunk over PRI and Analog trunks.
 3. To and from telephones attached to a remote Avaya IP Office over SCN trunks.
- Verify that CASH+ properly classified the CDR records.
- Verify that CASH+ properly displayed the CDR records in a formatted report.
- Verify that CASH+ properly resumed operation after resetting the Avaya IP412 Office, removing the network connection on Avaya IP412 Office, removing the network connection on CASH+ Call Accounting PC, and power down/up the CASH+ Call Accounting PC.

5.2. Test Results

All feature test cases passed. CASH+ successfully captured and processed call records from Avaya IP412 Office system. For serviceability testing, CASH+ was able to resume CDR record collection after the Avaya IP Office system was reset or lost its network link, without requiring manual intervention. In cases where the CASH+ computer lost power or its network link, CASH+ was able to successfully resume collecting CDR records once the computer was back online but not CDR records for calls that were placed during the outage.

The following observations were made during testing:

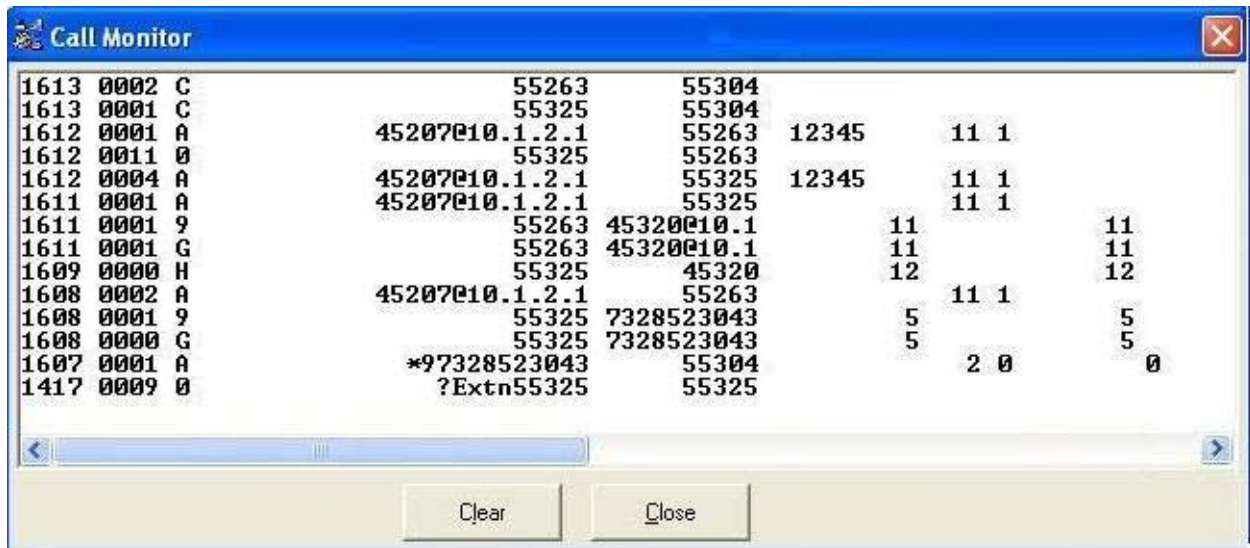
- The actual times delivered in a CDR record by Avaya IP Office for call conferencing or call transfer, were not accurate.
- Initially, transferred calls over the SCN did not specify the Trunk information in the CASH+ report. This problem was rectified.
- Initially, out bound SIP calls from Avaya IP412 Office to Avaya IP406 Office V2 did not product a CASH+ record. This problem was rectified.
- Initially, an incoming trunk call being transferred to an outgoing trunk did not produce a CASH+ report. This problem was rectified.
- Calls that result in a message left for voice mail or extensions retrieving existing voice mail messages are not included in the CASH+ report.

6. Verification Steps

The following steps may be used to verify the configuration:

1. Place telephone calls between local extensions or to an off-site telephone number from the Avaya IP412 Office. Place inbound and outbound telephone calls over various types of trunks to and from the Avaya IP412 Office. In all cases, allow calls to remain active for at least a six second period or more.

- On the CASH+ **Call Monitor**, view raw CDR records as inbound or outbound calls are carry out and completed as well as calls between local extensions. The **Call Monitor** screen below illustrates how CDR records are displayed as they are being completed along with their call attribute.



- On the CASH+ Cash Plus Reporting interface, create a Call Detail formatted report for a period of time or for a selected group of attribute. In this case, the raw CDR records from **Step 2** have been formatted into a simple Call Detail Report.

Call Detail Report													Rod's Grand Hotel	
All Records Selected														
Date	Time	Duration	T-A(s)	Stn	I/O	Phone Number	Location	Line	Trunk	Dept	Pin	Account	Cost	
03/10/2008	9:52:42 AM	00:00:18	0	55325	I	(732)-852-3118	RED BANK, NJ	2	2	0001		12345	\$0.00	
03/10/2008	9:55:42 AM	00:00:18	0	55325	O	(732)-852-3043	RED BANK, NJ	2		0001		12345	\$0.00	
03/10/2008	10:02:48 AM	00:00:12	0	55304	E	55325				0001			\$0.00	
03/10/2008	10:14:54 AM	00:00:06	0	55325	I	(732)-852-3043	RED BANK, NJ	5	5	0001			\$0.00	
03/10/2008	11:23:08 AM	00:00:54	0	55325	O	(?Ex)-tn5-5325				0001			\$0.00	
03/10/2008	2:18:08 PM	00:00:54	0	55325	O	(?Ex)-tn5-5325				0001			\$0.00	
03/10/2008	4:08:54 PM	00:00:06	0	55304	O	(732)-852-3043	RED BANK, NJ	2		0001			\$0.00	
03/10/2008	4:07:48 PM	00:00:12	0	55263	E	45207		11		0001			\$0.00	
03/10/2008	4:07:54 PM	00:00:06	0	55325	I	(732)-852-3043	RED BANK, NJ	5	5	0001			\$0.00	
03/10/2008	4:10:54 PM	00:00:06	0	55263	I			11	11	0001			\$0.00	
						45320@10.1								
03/10/2008	4:10:54 PM	00:00:06	0	55325	E	45207		11		0001			\$0.00	
03/10/2008	4:10:54 PM	00:01:06	0	55263	E	55325				0001			\$0.00	
03/10/2008	4:11:38 PM	00:00:24	0	55325	E	45207		11		0001		12345	\$0.00	
03/10/2008	4:11:54 PM	00:00:06	0	55263	E	45207		11		0001		12345	\$0.00	
03/10/2008	4:12:48 PM	00:00:12	0	55263	E	55304				0001			\$0.00	
03/10/2008	4:12:54 PM	00:00:06	0	55325	E	55304				0001			\$0.00	
Number of calls: 16 000:05:12 Average Duration: 00:00:20													Cost: \$0.00	
													Total \$0.00	

7. Support

Technical support for CASH+ can be obtained by contacting Hansen Software Corporation at:

- Phone: 1-877-795-2274
- E-mail: info@hansensoftware.com
- Web: <http://www.hansensoftware.com/>

8. Conclusion

These Application Notes describe the steps for configuring Hansen Software Corporation CASH+ to retrieve CDR data from the Avaya IP Office. All test cases were completed successfully.

9. References

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

[1] Avaya IP Office 4.1 Installation Manual, Issue17d (30th October 2007), 15-601042.

Documentation for Hansen Software Corporation CASH+ product can be found at:

[2] http://www.hansensoftware.com/pdf/reports/install_guide.pdf

[3] http://www.hansensoftware.com/pdf/reports/user_guide.pdf

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