



Avaya Solution & Interoperability Test Lab

Application Notes for the Metropolis ProfitWatch Hotel Call Accounting System Integrating with Avaya IP Office - Issue 1.1

Abstract

These Application Notes describe the configuration steps required for Metropolis ProfitWatch Hotel Call Accounting System to successfully interoperate with Avaya IP Office.

Metropolis ProfitWatch is a call accounting system that interoperates with Avaya IP Office connected over an IP connection. Call Detail Records (CDR) are generated by Avaya IP Office and sent to the Metropolis ProfitWatch call accounting system where the CDR records are processed for various purposes; including tracking incoming, outgoing, and internal calls for alarm, billing and reporting purposes.

Serviceability and performance tests were conducted to assess the reliability of the solution.

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

1 Introduction

The overall objective of this interoperability compliance testing is to verify that Metropolis ProfitWatch (Version 2007.05.08) can interoperate with Avaya IP Office (Version 4.0.5). The Metropolis ProfitWatch application receives raw CDR data from Avaya IP Office, where the data is processed in real-time giving Metropolis' customers an instant look at how call traffic is being utilized. The Metropolis ProfitWatch application uses CDR records for alarm notification, a variety of billing options, and an assortment of reporting details on call resources usage. Metropolis ProfitWatch allows hotels to bill guests for telephone usage and includes a reporting mechanism that allows hotels to track their telephone profits and administrative calls, as well as a universal interface to property management systems.

The interface between Avaya IP Office and Metropolis ProfitWatch is connected over the TCP/IP protocol.

Figure 1 illustrates the network configuration used to verify Metropolis ProfitWatch with Avaya IP Office. The figure shows two Avaya IP Office systems. Site A is an Avaya IP Office 412 and Site B is an Avaya IP Office 406V2. The two Avaya IP Office systems are networked together through SIP and Small Community Networking (SCN) trunks and are accessed via different dialplan access codes.

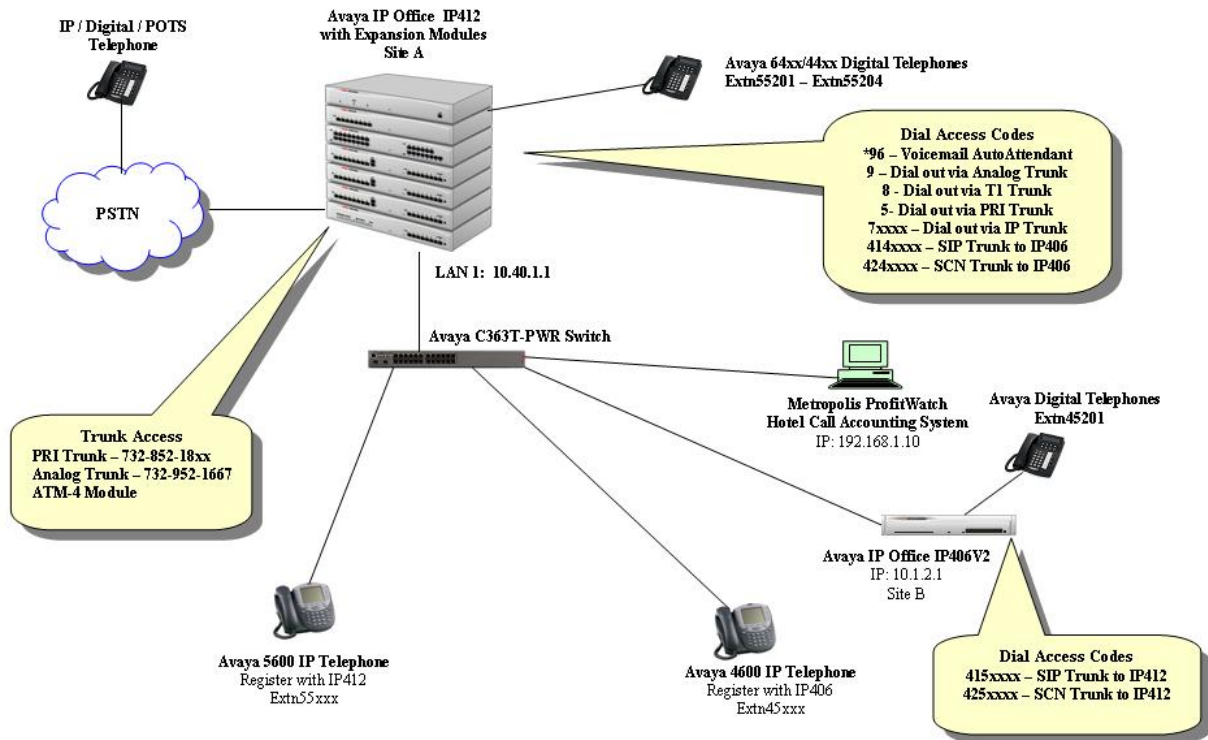


Figure 1. Test configuration of ProfitWatch with Avaya IP Office

2 Equipment and Software Validated

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

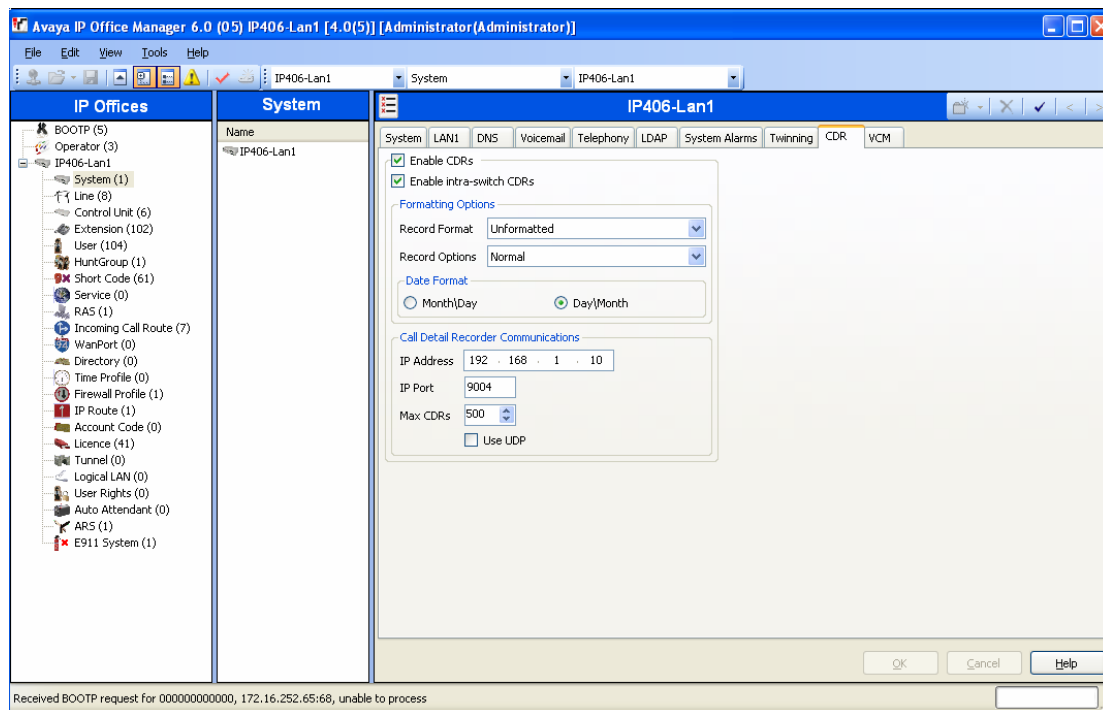
Equipment	Software
Avaya IP Office 412	4.0.5
Avaya IP Office 406-V2	4.0.5
Avaya 5420 Digital Telephone	5.0
Avaya 4610SW IP Telephone	2.3
Analog Telephone	
Avaya C363T-PWR Converged Stackable Switch	4.5.14
Metropolis ProfitWatch Call Accounting software	2007.05.08
OS – Windows XP Profession Workstation	

3 Configure Avaya IP Office

This section provides the procedures for configuring Call Detail Records (CDR) in Avaya IP Office. All configuration changes in Avaya IP Office are performed through the Avaya IP Office Manager.

In addition to a standard configuration for Avaya IP Office Release 4.0.5, Metropolis ProfitWatch required additional administration using the Avaya IP Office Manager.

With the Avaya IP Office Manager activated, click the **System** tab on the left navigation menu. Click the **CDR** tab on the right panel as illustrated below. Click the check boxes for **Enable CDRs** and **Enable intra-switch CDRs**. For Formatting Options, select **Unformatted** for the Record Format and **Normal** for Record Options. In the Call Detail Recorder Communications details, the **IP Address** is the Windows XP Workstation (or Server) running the Metropolis ProfitWatch software application. The **IP Port** and the **Max CDRs** entries are predetermined for both Avaya IP Office and Metropolis ProfitWatch. With **Use UDP** unchecked, TCP is used to deliver CDRs with reliability to the Metropolis ProfitWatch application.



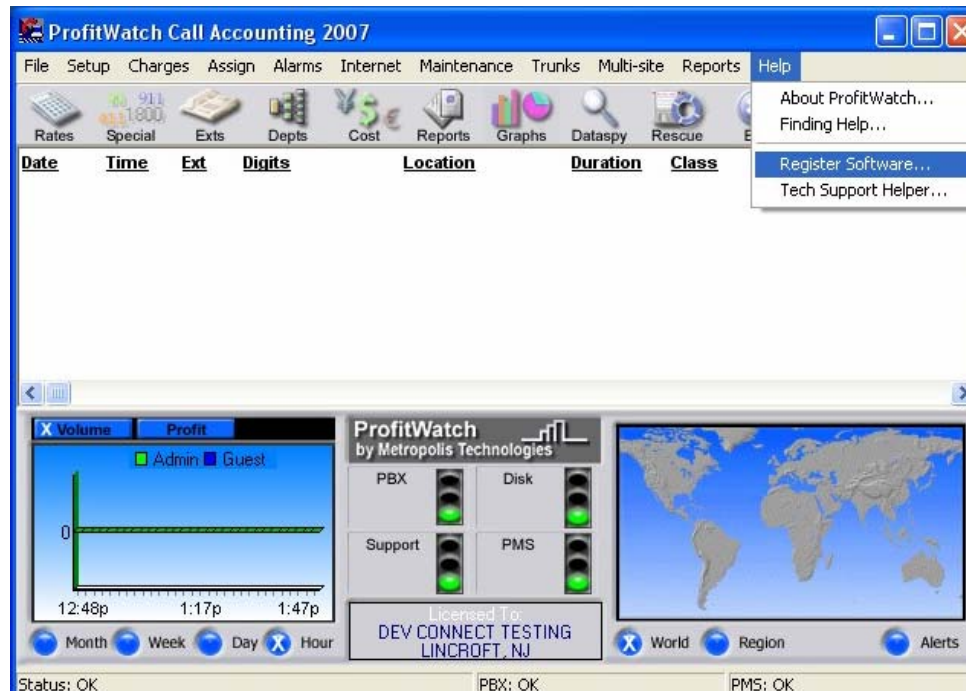
Other than normal Avaya IP Office administration, no additional configuration of Avaya IP Office is required to activate CDR for the Metropolis ProfitWatch application.

4 Configure Metropolis ProfitWatch

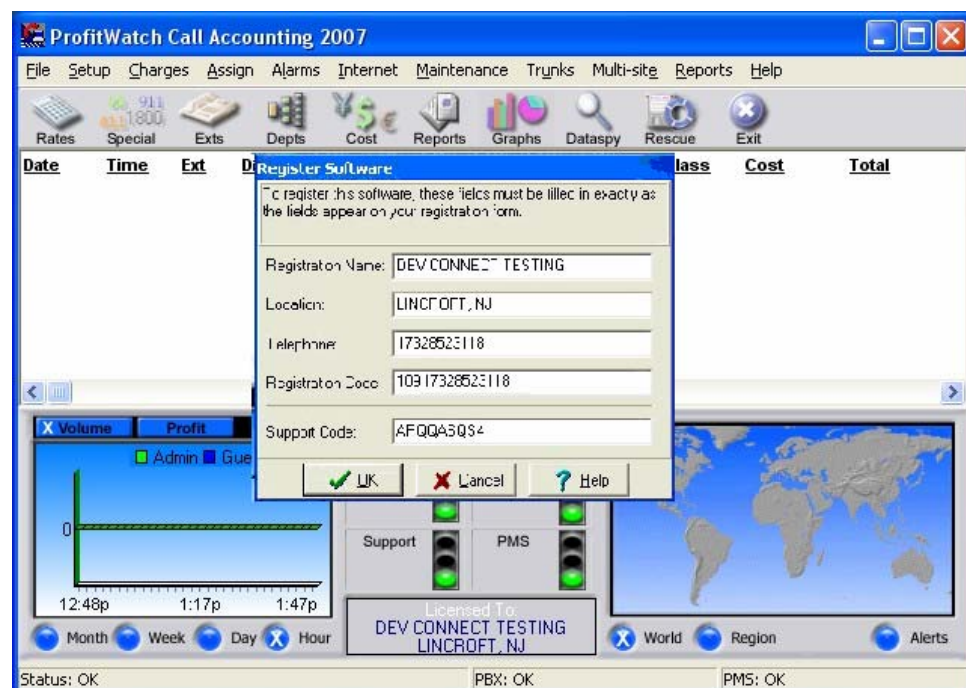
Metropolis ProfitWatch is loaded directly from the <http://metropolis.com/> WEB site. The installation format was straight forward and the procedure was intuitive.

4.1 ProfitWatch Opening Screen and Software Registration

The installation leads directly to the opening screen below where the first thing that must be performed is the Registration Software assignment. The following illustration shows how to **Register Software...** under the Help pull-down menu.

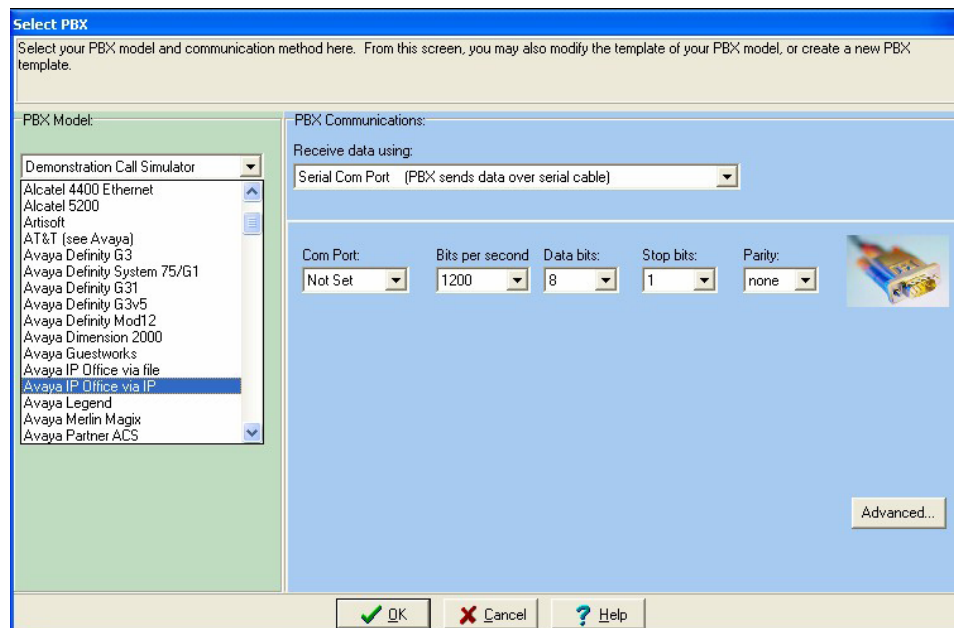


A temporary registration license was used for the compliance test.

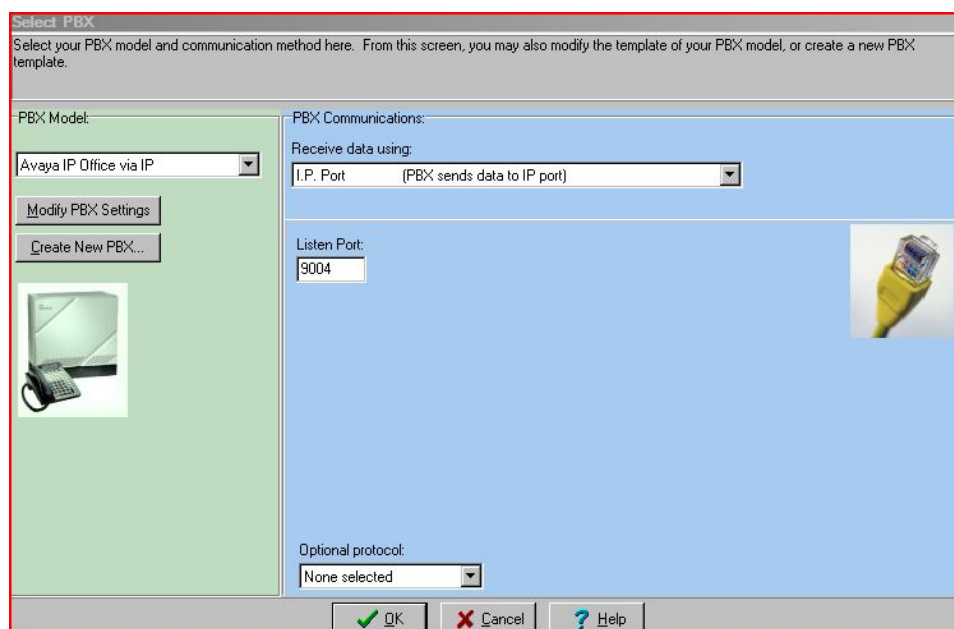


4.2 Setup Metropolis ProfitWatch using Avaya IP Office

The following illustrations show how to setup the Metropolis ProfitWatch Call Accounting system with IP Office. Under the Setup pull-down menu, select **PBX....** The **Select PBX** screen is displayed. Select **Avaya IP Office via IP** from the left panel list box, and then click **OK**.



Once **Avaya IP Office via IP** is selected, set the **Listen Port** to coincide with the Avaya IP Office setting (in this case 9004), and set **Optional Protocol** to **None selected**, then click **OK**.



4.3 Customizing Outgoing, Incoming and Internal CDR Records Format

Click on **Modify PBX Settings** on the Select PBX screen (see previous screen display). The **Outgoing Calls**, **Incoming Calls** and **Internal Calls** tabs allow the Metropolis ProfitWatch administrator to customize the CDR records based on how the CDR data is positioned in the record. Flexibility to fine-tune meaningful data is performed within these tabs. When the values are added or changed, click **OK**.

Modify PBX - Avaya IP Office via IP

Data Received from PBX Position = 55

1234567890123456789012345678901234567890123456789012345678901234567890				
143400019	552387325551007	1	1	0
143400019	552397325551008	1	1	0
143400019	552336095551002	1	1	0
143400019	552343105551003	1	1	0
143400019	552359085551004	1	1	0
143400019	552362015551005	1	1	0
143400019	552377185551006	1	1	0

Outgoing Calls | Incoming Calls | Internal Calls | Model | Filters | Translations | T-1 | Misc.

	Pos	Format		Pos	Length
Time:	1	3) hhmm	Extension:	38	5
Date:	1	26) Use Today's Da	Digits:	19	15
Duration:	5	15) mmm	Trunk:	70	1
			Account:	0	0
			PIN Code:	0	0

OK Cancel Help

Incoming Calls tab displayed below. When completed click **OK**.

Modify PBX - Avaya IP Office via IP

Data Received from PBX

1234567890123456789012345678901234567890123456789012345678901234567890				
143400019	552387325551007	1	1	0
143400019	552397325551008	1	1	0
143400019	552336095551002	1	1	0
143400019	552343105551003	1	1	0
143400019	552359085551004	1	1	0
143400019	552362015551005	1	1	0
143400019	552377185551006	1	1	0

Outgoing Calls | **Incoming Calls** | Internal Calls | Model | Filters | Translations | T-1 | Misc.

Time: Pos 1 Format 3) hhmm Extension: Pos 28 Length 5
 Date: 1 26) Use Today's Da Digits: 33 15
 Duration: 5 15) mmmt Trunk: 70 1
 Account: 0 0
 PIN Code: 0 0
 Call ID Name: 0 0

Incoming Call Identifiers:
 Pos 9
 Ascii Codes: 57 or 67 or 0 Ascii Chart...

Duplicate Outgoing Format

OK Cancel Help

Internal Calls tab displayed below. When completed click **OK**.

Modify PBX - Avaya IP Office via IP

Data Received from PBX

1234567890123456789012345678901234567890123456789012345678901234567890				
143400019	552387325551007	1	1	0
143400019	552397325551008	1	1	0
143400019	552336095551002	1	1	0
143400019	552343105551003	1	1	0
143400019	552359085551004	1	1	0
143400019	552362015551005	1	1	0
143400019	552377185551006	1	1	0

Outgoing Calls | Incoming Calls | **Internal Calls** | Model | Filters | Translations | T-1 | Misc.

Time: Pos 1 Format 3) hhmm Extension: Pos 28 Length 5
 Date: 1 26) Use Today's Da Digits: 38 5
 Duration: 5 15) mmmt Trunk: 70 1
 Account: 0 0
 PIN Code: 0 0
 Call ID Name: 0 0

Internal Call Identifiers:
 Pos 9
 Ascii Codes: 71 or 0 or 0 Ascii Chart...

Duplicate Outgoing Format

OK Cancel Help

5 Interoperability Compliance Testing

Interoperability compliance testing included feature, serviceability, and performance. The feature tests evaluated the ability of Metropolis ProfitWatch to collect and process CDR records

for various types of calls. The serviceability test introduced failure scenarios to verify if ProfitWatch could resume CDR collection after failure recovery. The performance test utilized bulk call volumes to generate a moderate amount of CDR records.

5.1 General Test Approach

The general test approach was to manually place various types of calls (intra-switch calls, inter-switch calls, inbound and outbound PSTN trunk calls) to and from the telephones controlled by the Avaya IP Office, and verify that Metropolis ProfitWatch collected the CDR records and report information was correct. For serviceability testing, logical links were disabled/re-enabled in 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.

5.2 Test Results

All feature, serviceability and performance tests passed. Metropolis ProfitWatch successfully captured and processed call records from Avaya IP Office. ProfitWatch also successfully processed the CDR data and produced call accounting reports. The 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, bridged calls, and conferenced calls.

Performance tests were conducted using the Hammer Bulk Call Generation. The Hammer was programmed to make twenty outgoing PRI calls to the Avaya IP Office, where the calls were answered and terminated at an Avaya IP Office POTS endpoint. The Hammer test ran for one hour yielding 180 calls per channel per minute for a total of 3600 calls. Metropolis ProfitWatch collected and processed CDR records during the sustained performance test period.

6 Verification Steps

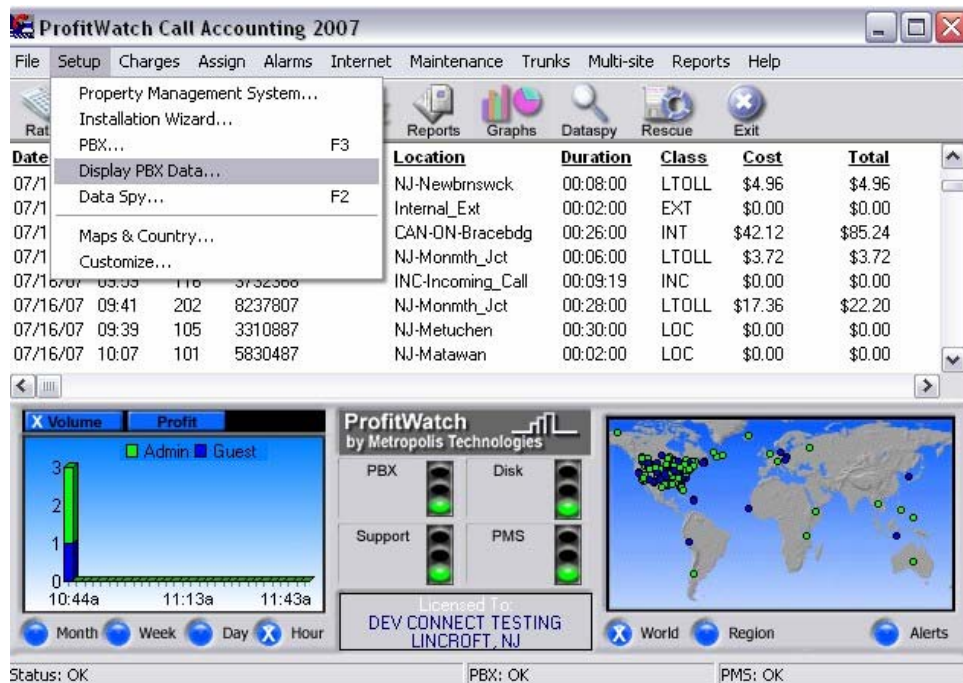
The following steps were used to verify the CDR records by Avaya:

6.1 System Monitor

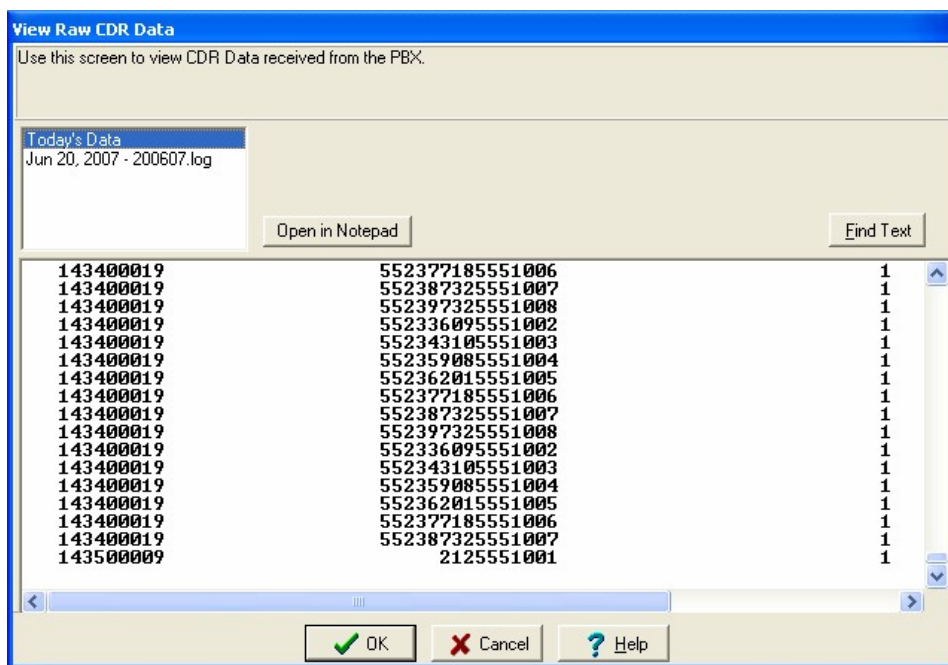
Using the System Monitor provided by Avaya IP Office, Call Detail Records were captured and viewed in real time as they are being sent to Metropolis ProfitWatch.

6.2 Raw Data

This mode of operation helps the administration to immediately determine if the Metropolis ProfitWatch application is receiving CDR records in an unformatted fashion. Select **Setup → Display PBX Data...** from the Setup Menu as shown below.



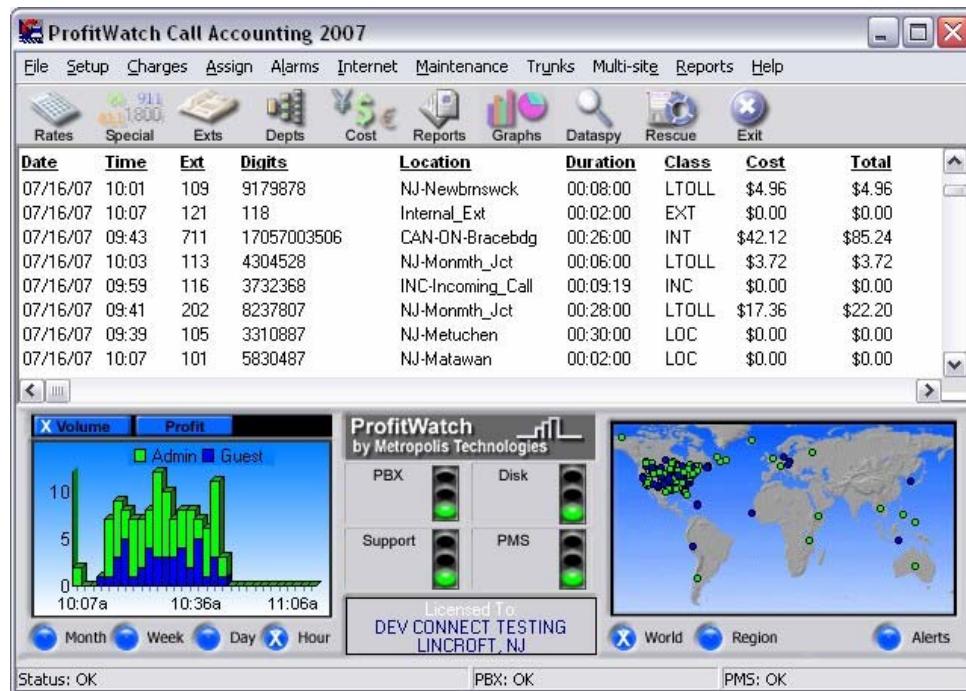
This option displays the following dialog, allowing the administrator to quickly see transactions or select which day's CDR data activity to view using Notepad.



6.3 Generating a Report

The Metropolis ProfitWatch application allows reporting CDR information with different configurable parameter. Reports generated with parameters such as **Extension Range** or **Date**

and Time Range are among a few report variations that may be used. Select the Report Menu from the Metropolis ProfitWatch application as shown below.



From the **Report Generator** window displayed below, provide the **Date and Time Range** to be viewed. Click the **Report** button at the bottom.

The screenshot shows the 'Reports Generator' window with the 'Extension Details Report' selected. The window has a menu bar with 'Extension', 'Dept', 'Account', 'Directories', 'Profit', 'Trunk', 'Time', 'Caller', 'Other', 'Custom', and 'Options'. Below the menu bar is a description: 'This report provides details on all outgoing calls for the extensions specified during the date and time range specified.' The configuration area includes: 'Extension Range' with input fields '0' and '999999'; 'Date and Time Range' with '17-Jul-07' and '00:00'; 'To:' with '17-Jul-07' and '23:59'; 'Sort entries by:' with a dropdown set to 'Extension'; and a checkbox 'Start each extension on a new page' which is unchecked. To the right is a 'Departments:' list with a 'Clear All' button, containing checked items: Default Staff, Reception, Office, Customer Service, Accounting, Marketing, Shipping, GeoGlobal Inc. Offices, Transworld Inc. Offices, Board Rooms, and Leased Offices. Below this is an 'Include Calls of Type:' button. At the bottom left is a 'Send output to' section with checkboxes for 'Screen' (checked), 'Printer', 'File', and 'Email' (unchecked). At the bottom right are three buttons: 'Report!' (with a document icon), 'Close' (with a green checkmark icon), and 'Help' (with a question mark icon).

The following screen displays a sample CDR report.

Extension Details Report
Outgoing + Incoming calls
Extension Range: 0 to 999999
Date Range: 16-Jul-07 to 16-Jul-07

DEV CONNECT TESTING
LINCROFT, NJ

Report Date: 16-Jul-07 11:00:52

Dept: Front Office
Ext: 101 Front Desk West

Date	Time	Number Dialed	Location	Account	Duration	Charge	Tax	Total
07/16/07	09:47	05082182310	OperatorAsst	733	00:22:00	0.00	0.00	0.00
07/16/07	09:48	9062277	NJ-Metuchen	753	00:21:00	0.00	0.00	0.00
07/16/07	10:00	2904333	NJ-Matawan	933	00:09:00	0.00	0.00	0.00
07/16/07	10:07	5830487	NJ-Matawan	453	00:02:00	0.00	0.00	0.00
07/16/07	10:19	0112854753360	Djibouti	183	00:27:00	378.27	0.00	378.27
07/16/07	10:22	4762217	NJ-Metuchen	353	00:23:00	0.00	0.00	0.00
Calls: 6			Average Dur: 17:20		01:44:00	378.27	0.00	378.27

Dept: Front Office
Ext: 102 Front Desk East

Date	Time	Number Dialed	Location	Account	Duration	Charge	Tax	Total
07/16/07	10:00	18043028451	VA-Midlothian	283	00:09:00	5.58	0.00	5.58
07/16/07	10:00	2151743	NJ-Rahway	413	00:09:00	5.58	0.00	5.58
07/16/07	10:02	7262461	NJ-Woodbridge	323	00:07:00	0.00	0.00	0.00
07/16/07	10:24	3334109	NJ-Freehold	153	00:22:00	0.00	0.00	0.00
07/16/07	10:31	2610194	INC-Incoming_Call	233	00:14:12	0.00	0.00	0.00
07/16/07	10:43	6931589	NJ-Eatontown	183	00:03:00	0.00	0.00	0.00
07/16/07	10:43	9128800	NJ-Woodbridge	533	00:02:00	0.00	0.00	0.00
Calls: 7			Average Dur: 09:27		01:06:12	11.16	0.00	11.16

Dept: Front Office
Ext: 103 Front Desk Middle

Date	Time	Number Dialed	Location	Account	Duration	Charge	Tax	Total
07/16/07	09:54	4617096	NJ-Red_Bank	333	00:15:00	0.00	0.00	0.00
07/16/07	09:57	13142928083	MO-Bridgeton	573	00:12:00	7.44	0.00	7.44
07/16/07	10:02	5275979	NJ-Woodbridge	443	00:07:00	0.00	0.00	0.00
07/16/07	10:07	02058840473	OperatorAsst	223	00:02:00	0.00	0.00	0.00
07/16/07	10:16	0115207702115	Mex_Cancun	753	00:30:00	172.80	0.00	172.80
07/16/07	10:26	8513043	NJ-Englishtn	873	00:19:00	0.00	0.00	0.00
07/16/07	10:29	5438583	NJ-Newbrmswck	913	00:17:00	10.54	0.00	10.54
07/16/07	10:29	12037111916	CT-Cheshire	223	00:16:00	9.92	0.00	9.92
07/16/07	10:31	2411504	NJ-Middletown	143	00:14:00	0.00	0.00	0.00
07/16/07	10:41	3755824	INC-Incoming_Call	373	00:04:29	0.00	0.00	0.00
Calls: 10			Average Dur: 13:38		02:16:29	200.70	0.00	200.70

7 Support

Technical support for Metropolis ProfitWatch can be obtained by contacting Metropolis Support at 954-941-1010 or by sending e-mail to support@Metropolis.com.

8 Conclusion

These Application Notes describe the procedures for configuring Metropolis ProfitWatch to collect Call Detail Records from Avaya IP Office. Metropolis ProfitWatch successfully passed all compliance testing.

9 References

This section references the Avaya and Metropolis documentation that are relevant to these Application Notes. The Avaya product documentation can be found at <http://support.avaya.com>, and the ProfitWatch documentation can be obtained at <http://www.metropolis.com>.

- [1] *Avaya IP Office* Release 4.0, Manager: 02, Configuration Guide - Issue 19(k), January 2007.
- [2] *ProfitWatch Users Guide*, Version 2007.05.08.

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