AVAYA

Avaya Solution & Interoperability Test Lab

Application Notes for the Metropolis OfficeWatch Call Accounting System Integrating with Avaya Communication Manager - Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Metropolis OfficeWatch to successfully interoperate with Avaya Communication Manager.

Metropolis OfficeWatch is a call accounting system 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. Metropolis OfficeWatch 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.

CRK; Reviewed:
SPOC 10/24/2006
Solution & Interoperability Test Lab Application Notes
©2006 Avaya Inc. All Rights Reserved.
1 of 15
OfficeWatch-ACM.doc

1 Introduction

The overall objective of this interoperability compliance testing is to verify that Metropolis OfficeWatch (Version 2006.10.05) can interoperate with Avaya Communication Manager (Version 3.1.2). Metropolis OfficeWatch receives raw CDR data from Avaya Communication Managers to provide customers all types of management information reports. The interface to Avaya Communication Manager is through the Reliable Session Protocol (RSP) over the TCP/IP protocol.

Metropolis OfficeWatch is a Web-based call accounting solution that manages capital investments in telecommunications for any business size. By monitoring and reporting on call records, OfficeWatch facilitates budgeting, allocation of phone expenses, client and resident billing. Since Metropolis OfficeWatch can receive CDR records from multiple Avaya Communication Managers, the CDR collection was verified for two Avaya Communication Managers during the compliance test.

Figure 1 illustrates the network configuration used to verify Metropolis OfficeWatch with Avaya Communication Manager. The figure shows two separate sites each running Avaya Communication Manager on separate media servers. Site A is comprised of Avaya S8700 Media Servers and an AvayaG650 Media Gateway, and has connections to 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 an Avaya G350 Media Gateway, and has connections to Avaya 4600 Series IP Telephones and an Avaya Digital Telephone. Site C is comprised of an Avaya S8300 Media Server with an Avaya G250 Media Gateway, which has connections to an Avaya 4600 Series IP Telephone and Avaya Analog Telephone. Site C is setup as local survivable Processor (LSP) to Site A. An IP trunk connects the two Avaya Communication Manager systems between Site A and Site B.
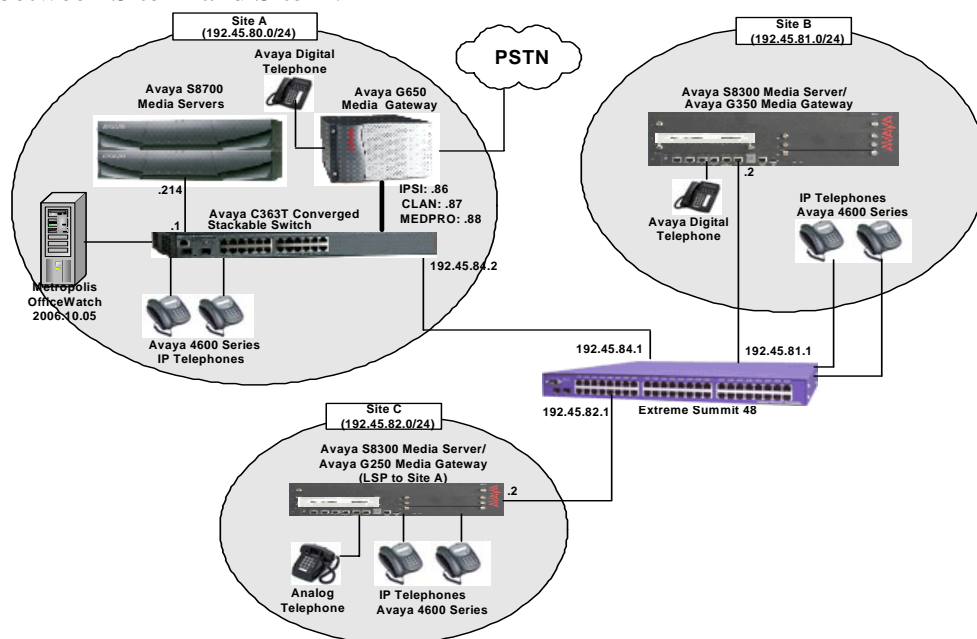

Figure 1. Test configuration of OfficeWatch with Avaya Communication Manager

2 Equipment and Software Validated

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

Equipment	Software
Avaya S8700 Media Server	Communication Manager 3.1.2 (R013x.01.2.632.1)
Avaya G650 Media Gateway	

TN2312BP IP Server Interface
      TN799DP C-LAN Interface
      TN2302AP IP Media Processor
      TN2602AP IP Media Processor
	HW11 FW030
	HW20 FW017
	HW01 FW108
	HW02 FW007

Avaya S8300 Media Server with Avaya G350 Media Gateway	Communication Manager 3.1.2 (R013x.01.2.632.1)
Avaya S8300 Media Server with Avaya G250 Media Gateway (LSP Mode)	Communication Manager 3.1.2 (R013x.01.2.632.1)
Avaya 4600 Series IP Telephones	

4620
      4621
      4625
	2.6
	2.6
	2.5

Avaya 6400 Series Digital Telephones	-
Analog Telephones	-
Avaya C363T-PWR Converged Stackable Switch	4.5.14
Extreme Summit 48	4.1.21
Metropolis OfficeWatch call accounting software OS – Windows Server 2003	2006.10.05

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 OfficeWatch, using the 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 OfficeWatch. 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 OfficeWatch.

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, **CDR-Metropolis**. This node name is associated with the IP Address of Metropolis OfficeWatch. 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
CDR-Metropolis       192.45 .80 .15                          .   .   .
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 the 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: **CDR-Metropolis** [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 Metropolis OfficeWatch.]

```
change ip-services                                             Page   1 of   4

                              IP SERVICES
  Service       Enabled       Local        Local       Remote        Remote
   Type                       Node         Port        Node          Port
CDR1                      CLAN             0         CDR-Metropolis      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: **unformatted**
- 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.]

```
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: unformatted    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
```

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. To simplify the process of adding multiple extensions in the Assigned Members field, the **Intra-switch CDR by COS** feature may be utilized in the SPECIAL APPLICATIONS form under the system-parameters section. To utilize this feature, contact an authorized Avaya account representative to obtain the license.

```
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:
```

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 Metropolis OfficeWatch

OfficeWatch connects to Avaya Communication Manager via the RSP over the TCP/IP port. CDR data is sent from Avaya Communication Manager into OfficeWatch, where the raw data is transformed into call records, which are then immediately available for reporting. This section only covers the basic configuration to interoperate with Avaya Communication Manager. For additional information on configuring Metropolis OfficeWatch, refer to [3].

4.1 RSP Port Configuration

This section describes steps to configure a listening port for RSP. From the Metropolis OfficeWatch server, navigate to **Start → All Programs → OfficeWatch Call Accounting**, and the OfficeWatch Call Accounting system will start, as shown below. To configure the listening port, navigate to **Setup → PBX…** from the top menu.
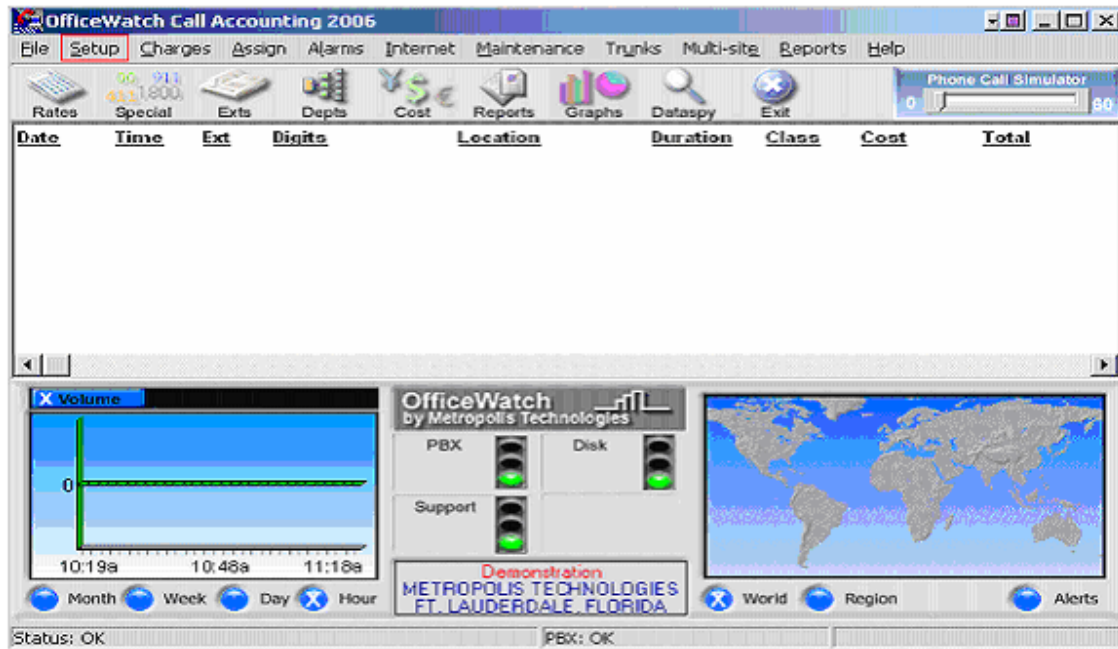
In the following Select PBX screen, select a **PBX type** using the drop down menu. For test configuration, the PBX model "Avaya S8500 Media Server" had previously been created with appropriate fields.
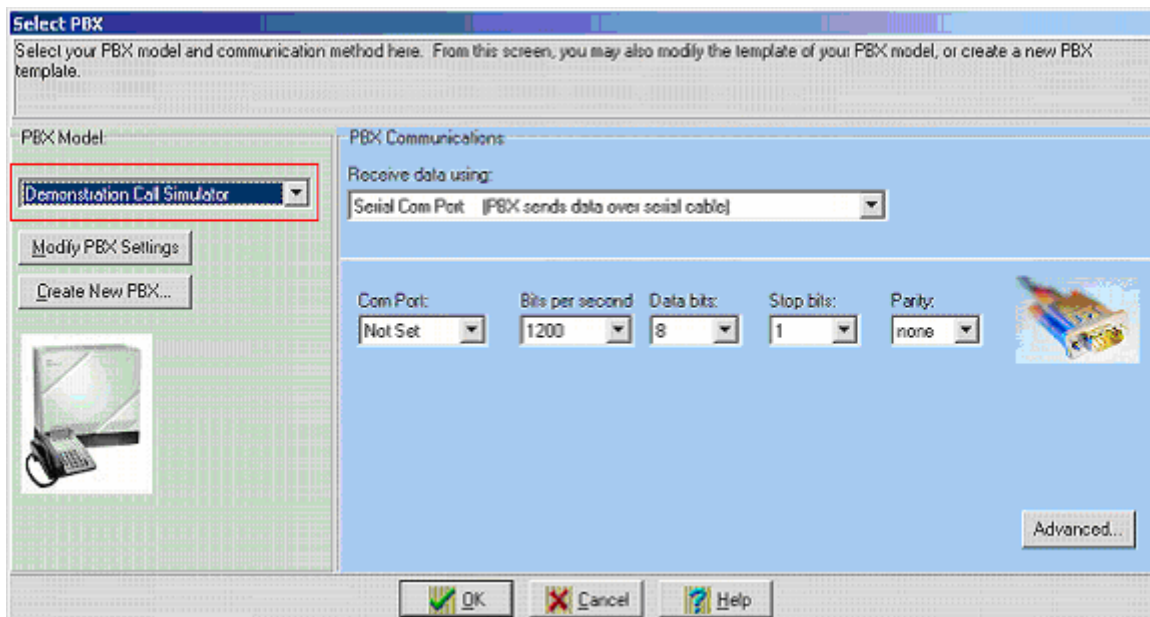
After the PBX type is selected, provide the following information:

- Receive Data Using field – Select **IP As Client** using the drop down menu.
- PBX IP Address field – **IP address of the CLAN** [If the Avaya S8300 Media Server was utilized, set the PBX IP Address field to "procr".]
- Listening Port field – **9000** [This listening port number must match with the Remote Port number configured on Page 1 of the IP SERVICE form in Avaya Communication Manager.]
- Optional Protocol field – Select **Avaya RSP** using the drop down menu.

After the information is provided, select the **Modify PBX Settings** button.

Select the **Outgoing Calls** tab to provision the outgoing calls report data. The Extension field consists of 10 digits starting with the 33rd position of the raw CDR data. The Digits field will collect 15 digits starting 18th position of the raw data. The Trunk field will collect 4 digits starting 14th position of the raw data received. The Account field will collect 15 digits start 43rd position of the raw data received. The length of the field and starting position must match with the CDR format used for receiving the raw data.

Select the **Incoming Calls** tab to provision the incoming calls report data. One added field for incoming calls is for specifying the condition code. The condition code is set to the 9th position. The Ascii Codes field indicates the condition codes that are considered as incoming calls. The length of the field and starting position must match with the CDR format used for receiving the raw data.

Select the **Internal Calls** tab to provision the internal (Intra-Switch) calls report data. The Internal Call Identifiers indicates the condition code. The Pos field, 9, indicates the 9th position of the raw CDR records. The Ascii Codes indicates the type of condition codes. The Ascii code, 48, is translated into 0 in the OfficeWatch Ascii table. In the "unformatted" format in Avaya Communication Manager, the condition code 0 indicates the internal call.
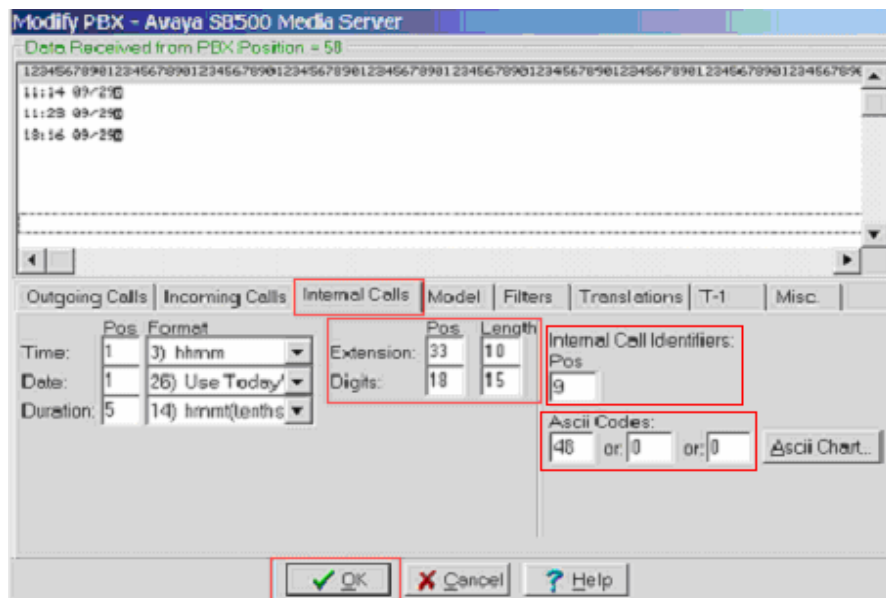
4.2 Raw Data Collection Configuration

This section describes how to retrieve the raw data. Navigate to **Start → All Programs → OfficeWatch Call Accounting**, and the OfficeWatch Call Accounting system will start, as shown below. Navigate to **Setup → Display PBX Data…** from the top menu.

From the View Raw CDR Data window, select a log file to view the raw CDR data.
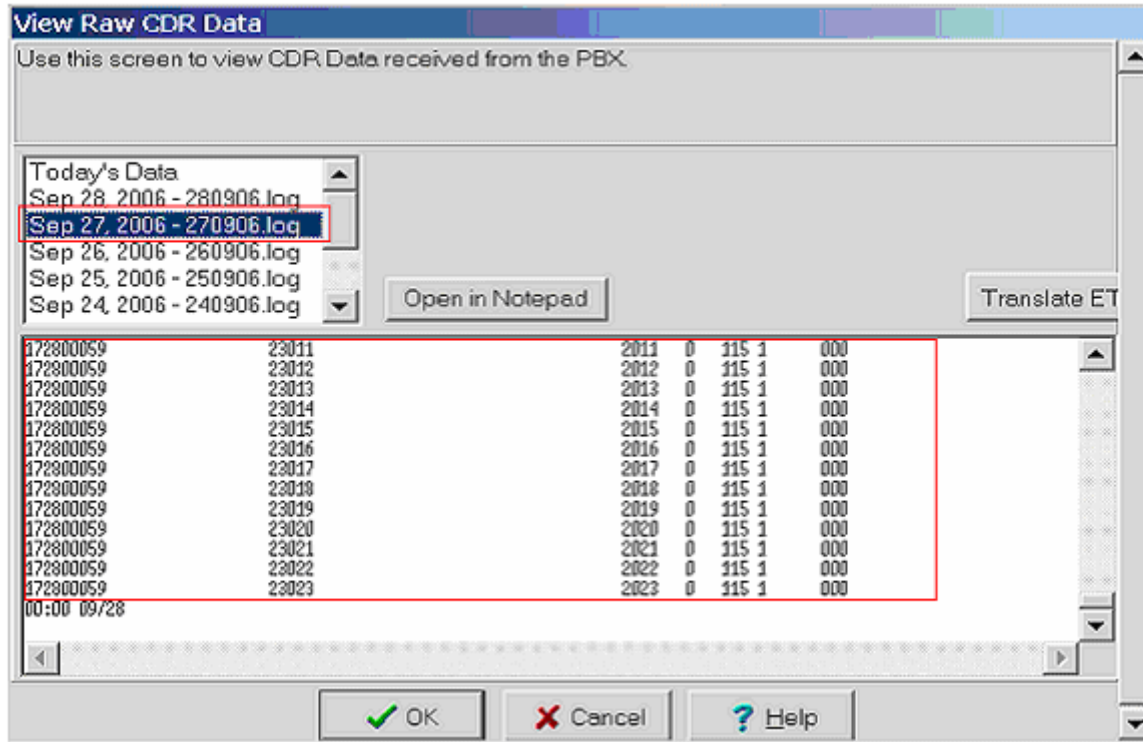
4.3 Generating a Report

This section describes steps for generating a CDR report. Navigate to **Start → All Programs → OfficeWatch Call Accounting**, and the OfficeWatch Call Accounting system will start, as shown below. Navigate to **Reports → Report Generator …** from the top menu.

From the Report Generator window, provide the **Date and Time Range** (Starting Date and Time) and **To** (Ending Date and time) field. Click the **Report** button at the bottom.

The following screen displays a sample CDR report.

5 Interoperability Compliance Testing

Interoperability compliance testing included feature, serviceability, and performance. The feature test evaluated the ability of Metropolis OfficeWatch to collect and process CDR records for various types of calls. The serviceability test introduced failure scenarios to verify if OfficeWatch could resume CDR collection after failure recovery. The performance test utilized bulk call volumes to generate a substantial amount of CDR records.

5.1 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 the telephones controlled by the Avaya Media Servers, and verify that OfficeWatch collected the CDR records and reports the correct attributes of the call. 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 OfficeWatch successfully captured and processed call records from Avaya Communication Manager. OfficeWatch 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 verified that OfficeWatch could collect call records during a sustained, high volume of calls.

6 Verification Steps

The following steps may be used to verify the configuration:
- On the SAT of each Avaya Communication Manager, enter the **status cdr-link** command and verify that the CDR link state is up.
- Place a call and verify that OfficeWatch 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 OfficeWatch, and verify the report's accuracy.

7 Support

Technical support for OfficeWatch 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 OfficeWatch to collect call detail records from Avaya Communication Manager. OfficeWatch 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 OfficeWatch documentation can be obtained at http://www.metropolis.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.
[3] *OfficeWatch Users Guide,* Version 2006.10.05.