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:

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avaya IP Office 412</td>
<td>4.0.5</td>
</tr>
<tr>
<td>Avaya IP Office 406-V2</td>
<td>4.0.5</td>
</tr>
<tr>
<td>Avaya 5420 Digital Telephone</td>
<td>5.0</td>
</tr>
<tr>
<td>Avaya 4610SW IP Telephone</td>
<td>2.3</td>
</tr>
<tr>
<td>Analog Telephone</td>
<td></td>
</tr>
<tr>
<td>Avaya C363T-PWR Converged Stackable Switch</td>
<td>4.5.14</td>
</tr>
<tr>
<td>Metropolis ProfitWatch Call Accounting software</td>
<td></td>
</tr>
<tr>
<td>OS – Windows XP Profession Workstation</td>
<td>2007.05.08</td>
</tr>
</tbody>
</table>
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 straightforward 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**.

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

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.

![Report Generator window](image)

<table>
<thead>
<tr>
<th>Extension Range</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>17 Jul 07</td>
<td>00:00</td>
</tr>
<tr>
<td>999800</td>
<td></td>
<td>17 Jul 07</td>
</tr>
</tbody>
</table>

**Sort by:**
- Extension

**Include Calls of Types:**
- Default Skill
- Reception
- Office
- Customer Service
- Accounting
- Marketing
- Shipping
- ExpGlobal Inc. Offices
- Foreworld Inc. Offices
- Board Rooms
- Leased Offices

**Send output to:**
- Screen
- Email
- Printer
- File

![Report button](image)
The following screen displays a sample CDR report.

### Ext: 101 Front Desk West

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Number Dialed</th>
<th>Location</th>
<th>Account</th>
<th>Duration</th>
<th>Charge</th>
<th>Tax</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>07/07/07</td>
<td>09:47</td>
<td>003-215-22110</td>
<td>Operator Assist.</td>
<td>733</td>
<td>00:22:00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>07/07/07</td>
<td>09:48</td>
<td>952-2377</td>
<td>NJ-Matawan</td>
<td>733</td>
<td>00:21:00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>07/07/07</td>
<td>10:10</td>
<td>250-4333</td>
<td>NJ-Matawan</td>
<td>923</td>
<td>00:08:00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>07/07/07</td>
<td>10:27</td>
<td>334-5267</td>
<td>NJ-Matawan</td>
<td>453</td>
<td>00:06:00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>07/07/07</td>
<td>10:19</td>
<td>011-23473380</td>
<td>Dykota</td>
<td>183</td>
<td>00:27:00</td>
<td>378.27</td>
<td>0.00</td>
<td>378.27</td>
</tr>
<tr>
<td>07/07/07</td>
<td>10:22</td>
<td>492-2171</td>
<td>NJ-Matawan</td>
<td>333</td>
<td>00:23:00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Calls:** 6  **Average Dur.:** 01:44:00  **378.27**  **0.00**  **378.27**

### Ext: 102 Front Desk East

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Number Dialed</th>
<th>Location</th>
<th>Account</th>
<th>Duration</th>
<th>Charge</th>
<th>Tax</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>07/07/07</td>
<td>10:09</td>
<td>130-432-2451</td>
<td>WA-Bellevue</td>
<td>283</td>
<td>00:06:00</td>
<td>5.53</td>
<td>0.00</td>
<td>5.53</td>
</tr>
<tr>
<td>07/07/07</td>
<td>10:19</td>
<td>211-7457</td>
<td>NJ-Blackstone</td>
<td>413</td>
<td>00:06:00</td>
<td>5.53</td>
<td>0.00</td>
<td>5.53</td>
</tr>
<tr>
<td>07/07/07</td>
<td>10:27</td>
<td>782-2601</td>
<td>NJ-Woodbridge</td>
<td>333</td>
<td>00:27:00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>07/07/07</td>
<td>10:24</td>
<td>355-4009</td>
<td>NJ-Prehold</td>
<td>153</td>
<td>00:22:00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>07/07/07</td>
<td>10:31</td>
<td>261-0941</td>
<td>INC-Incoming Call</td>
<td>233</td>
<td>00:15:27</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>07/07/07</td>
<td>10:43</td>
<td>691-5899</td>
<td>NJ-Baltimore</td>
<td>183</td>
<td>00:09:00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>07/07/07</td>
<td>10:43</td>
<td>912-8380</td>
<td>NJ-Woodbridge</td>
<td>533</td>
<td>00:02:00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Calls:** 7  **Average Dur.:** 09:27  **11.16**  **0.00**  **11.16**

### Ext: 103 Front Desk Middle

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Number Dialed</th>
<th>Location</th>
<th>Account</th>
<th>Duration</th>
<th>Charge</th>
<th>Tax</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>07/07/07</td>
<td>09:54</td>
<td>461-5266</td>
<td>NJ-Rhode Bank</td>
<td>333</td>
<td>00:15:00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>07/07/07</td>
<td>09:57</td>
<td>131-438-8343</td>
<td>MO-Bridgeport</td>
<td>573</td>
<td>00:12:00</td>
<td>7.44</td>
<td>0.00</td>
<td>7.44</td>
</tr>
<tr>
<td>07/07/07</td>
<td>10:02</td>
<td>327-5799</td>
<td>NJ-Woodbridge</td>
<td>443</td>
<td>00:07:00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>07/07/07</td>
<td>10:07</td>
<td>203-9830-4070</td>
<td>Operator Assist.</td>
<td>223</td>
<td>00:02:00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>07/07/07</td>
<td>10:16</td>
<td>011-32770-2115</td>
<td>Misc-Contact</td>
<td>723</td>
<td>00:30:00</td>
<td>172.80</td>
<td>0.00</td>
<td>172.80</td>
</tr>
<tr>
<td>07/07/07</td>
<td>10:26</td>
<td>355-3043</td>
<td>NJ-Asheboro</td>
<td>873</td>
<td>00:15:00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>07/07/07</td>
<td>10:29</td>
<td>543-2323</td>
<td>NJ-Newark</td>
<td>913</td>
<td>00:17:00</td>
<td>10.54</td>
<td>0.00</td>
<td>10.54</td>
</tr>
<tr>
<td>07/07/07</td>
<td>10:29</td>
<td>120-311-916</td>
<td>CT-Corunna</td>
<td>223</td>
<td>00:16:00</td>
<td>9.92</td>
<td>0.00</td>
<td>9.92</td>
</tr>
<tr>
<td>07/07/07</td>
<td>10:31</td>
<td>241-1504</td>
<td>NJ-Middletown</td>
<td>143</td>
<td>00:14:00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>07/07/07</td>
<td>10:41</td>
<td>375-8254</td>
<td>INC-Incoming Call</td>
<td>373</td>
<td>00:04:29</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Calls:** 10  **Average Dur.:** 13:38  **208.70**  **0.00**  **208.70**

### 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.
