



Avaya Solution & Interoperability Test Lab

Application Notes for Metropolis ProfitWatch Call Accounting System with Avaya IP Office 8.1 – Issue 1.1

Abstract

These Application Notes describe the steps required to integrate the Metropolis ProfitWatch Call Accounting System with Avaya IP Office 8.1. Metropolis ProfitWatch Call Accounting System captures call records from Avaya IP Office using a Station Message Detail Recording (SMDR) link. In turn, ProfitWatch processes the call records and generates detailed reports.

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 steps required to integrate the Metropolis ProfitWatch Call Accounting System with Avaya IP Office 8.1. Metropolis ProfitWatch Call Accounting System captures call records from Avaya IP Office using a Station Message Detail Recording (SMDR) link. In turn, ProfitWatch processes the call records and generates detailed reports.

2. General Test Approach and Test Results

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.

This section describes the compliance testing used to verify interoperability of Metropolis ProfitWatch Call Accounting System with Avaya IP Office 8.1. 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 ProfitWatch to capture and process call records.

The call records captured and displayed by ProfitWatch 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, including PSTN calls, transferred calls, and conference calls.

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

2.1. Interoperability Compliance Testing

Interoperability compliance testing covered the following features and functionality:

- Sending call records from IP Office to ProfitWatch 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 ProfitWatch
- Call records were processed by ProfitWatch, which generated detailed reports
- Proper system recovery after loss of network connectivity and power loss

2.2. Test Results

ProfitWatch passed compliance testing with Avaya IP Office 8.1.

2.3. Support

For technical support on Metropolis ProfitWatch Call Accounting System, contact Metropolis Customer Service by phone, through their website, or email.

Phone: (954) 414-2900 x32

Web: <http://www.metropolis.com/support.html>

Email: support2012@metropolis.com

3. Reference Configuration

Figure 1 illustrates the configuration used for the compliance test. In the sample configuration, two sites, Sites A and B, are connected via an ISDN-PRI trunk. ProfitWatch only monitors the calls at Site B. Site A is primarily used to generate inter-site calls and PSTN calls.

Site A has an Avaya S8800 Servers running Avaya Aura® Communication Manager with an Avaya G650 Media Gateway. Site B consists of Avaya IP Office and Avaya IP and Digital Telephones. ProfitWatch connects via the LAN and establishes a SMDR link to IP Office at Site B.

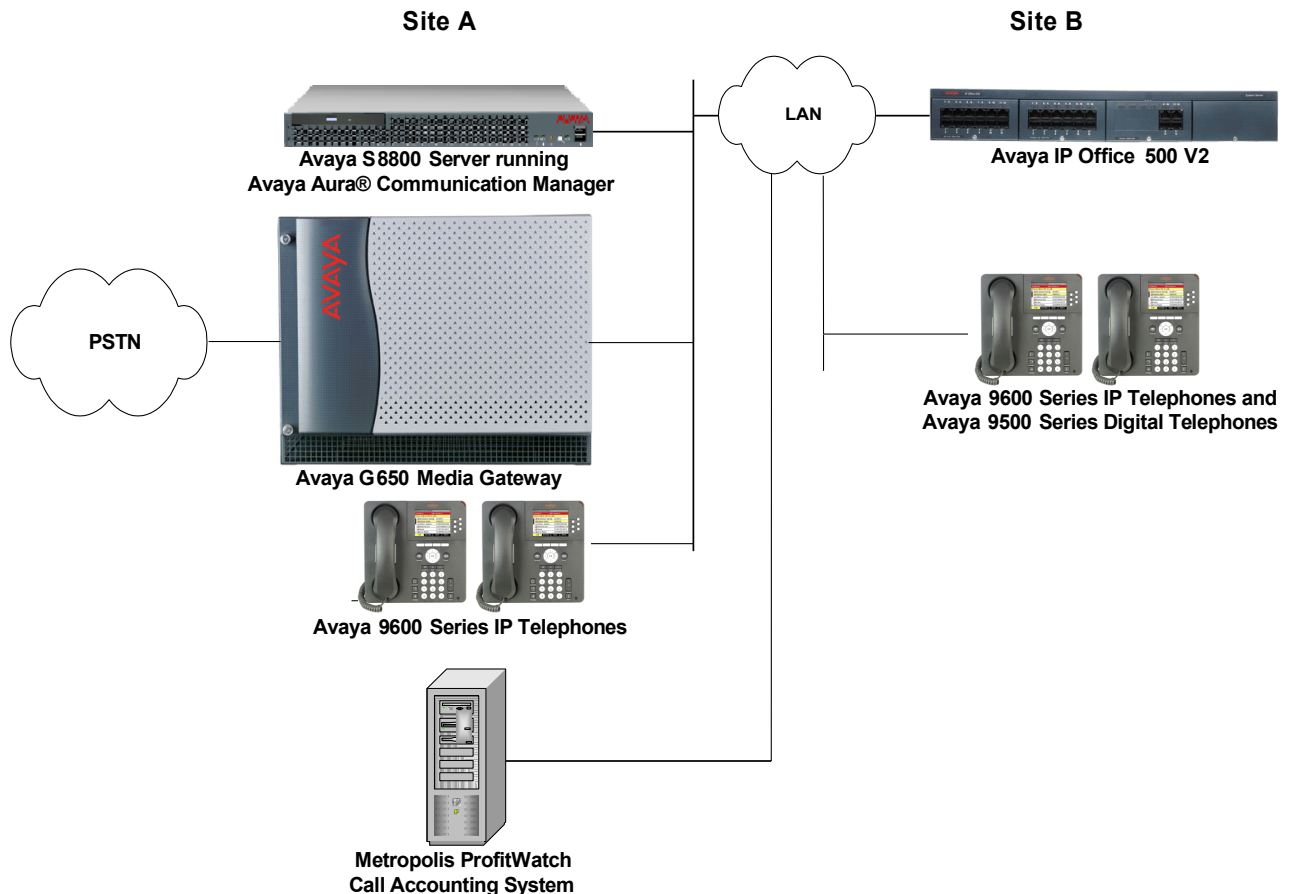


Figure 1: Metropolis ProfitWatch Call Accounting System with Avaya IP Office

4. Equipment and Software Validated

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

Equipment	Software/Firmware
Avaya IP Office**	8.1(43)
Avaya Aura® Communication Manager running on Avaya S8800 Server with Avaya G650 Media Gateway.	6.0.1 (R016x.00.1.510.1) with Service Pack 5.01 (Patch 19303)
Avaya 9600 Series IP Telephones	3.1 SP 4 (H.323)
Avaya 9500 Series Digital Telephones	--
Metropolis ProfitWatch Call Accounting System	2012.07.20

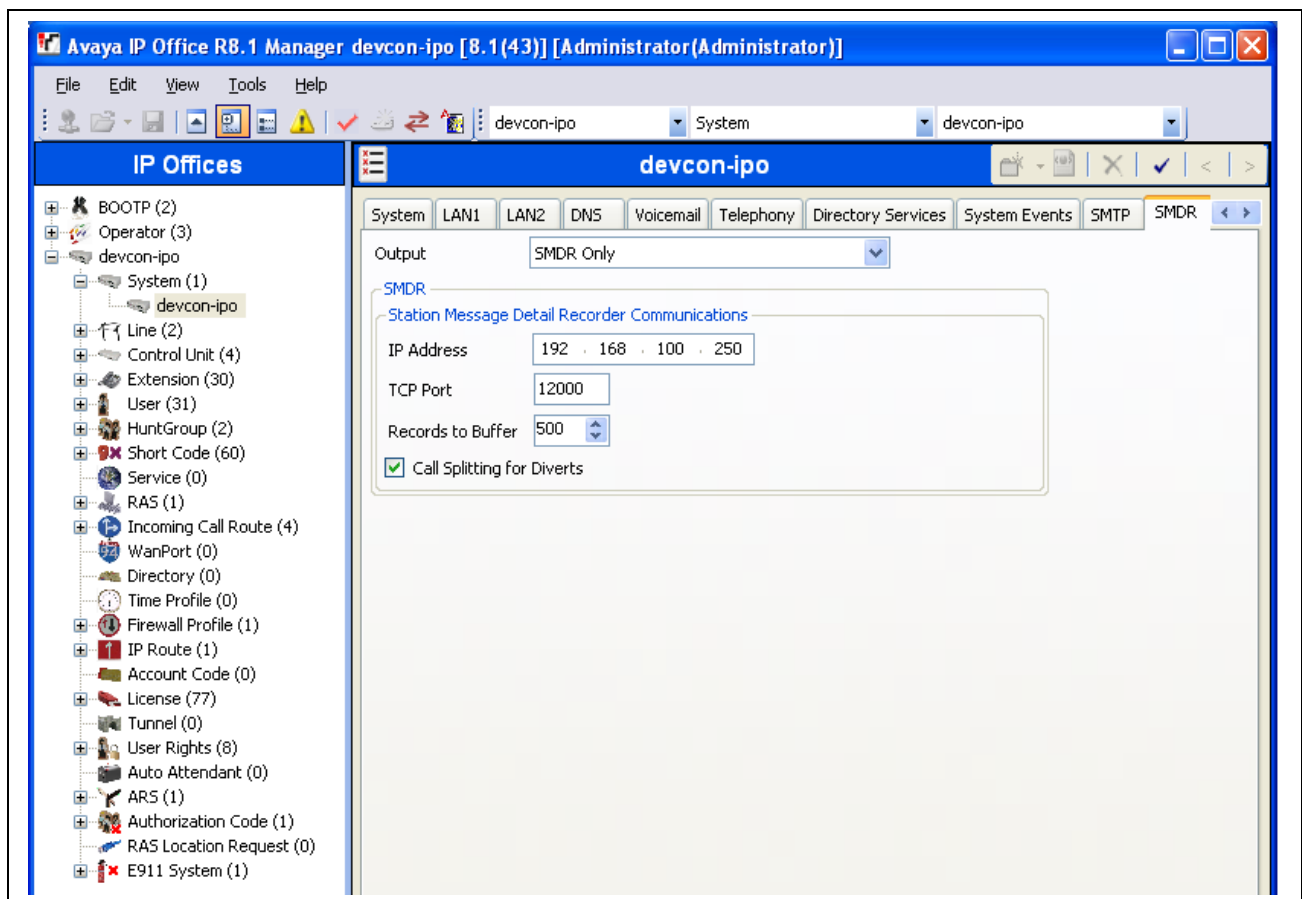
** Testing was performed with IP Office 500 v2 R8.1, but it also applies to IP Office Server Edition R8.1 (single site configuration only).

5. Configure Avaya IP Office

This section describes the IP Office configuration at Site B that is required to interoperate with ProfitWatch. In the test configuration, ProfitWatch did not monitor Site A so only the configuration for Site B is shown. This section covers the configuration of the SMDR link.

Launch the Avaya IP Office Manager application, select the proper IP Office system, and log in with the appropriate credentials. From the configuration tree in the left pane, select **System** to display the **devcon-ipo** screen in the right pane. Select the **SMDR** tab. Select *SMDR Only* from the **Output** field drop-down list to display the **SMDR** section.

For **IP Address**, enter the IP address of the Metropolis ProfitWatch server. For **TCP Port**, enter *12000*. Modify the **Records to Buffer** field if desired, and check **Call Splitting for Diverts**. The record buffer is used by IP Office to cache SMDR records in the case of a communication failure with Metropolis ProfitWatch.



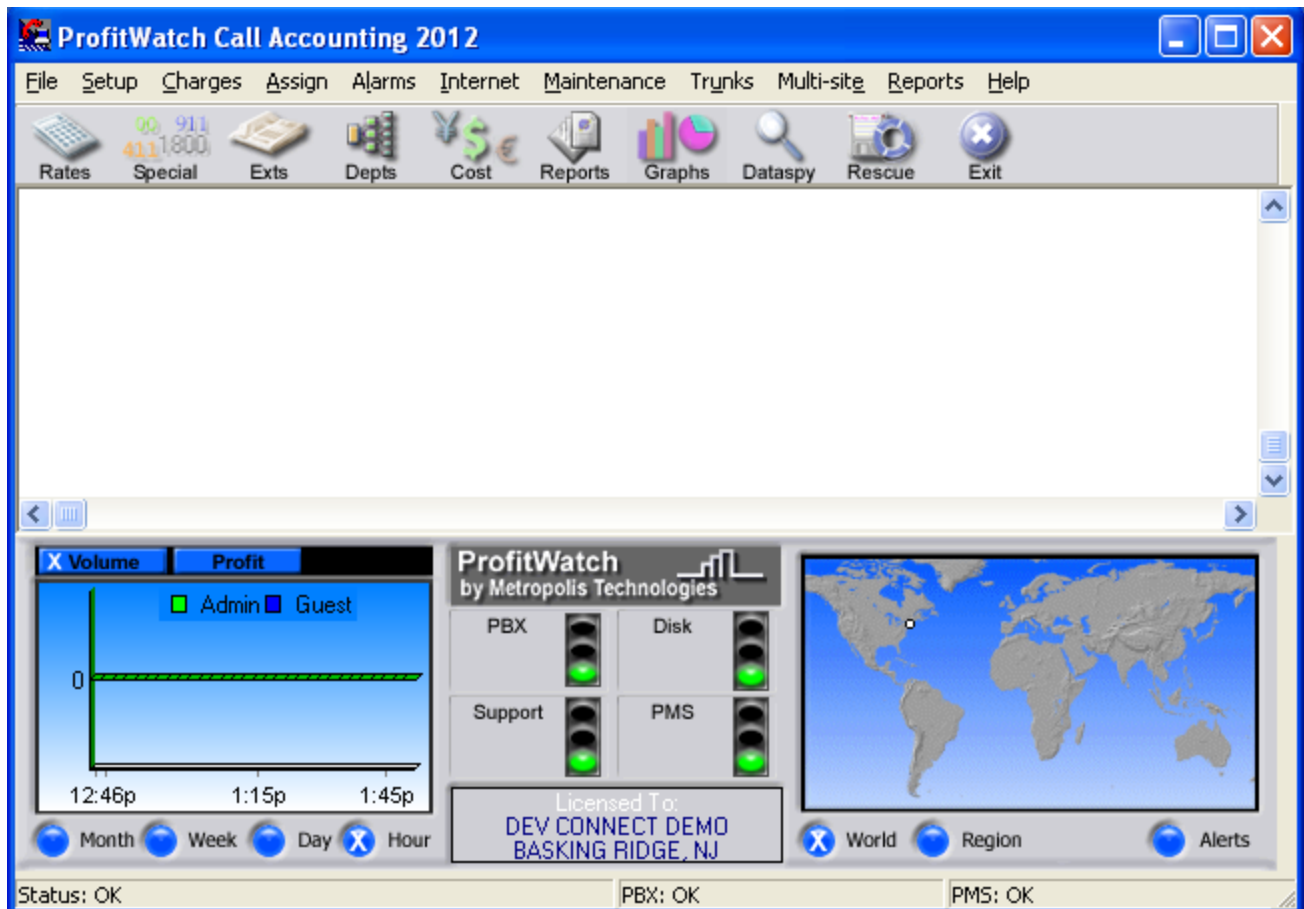
6. Configure Metropolis ProfitWatch Call Accounting System

This section provides the procedures for configuring Metropolis ProfitWatch Call Accounting System. The procedures include the following areas:

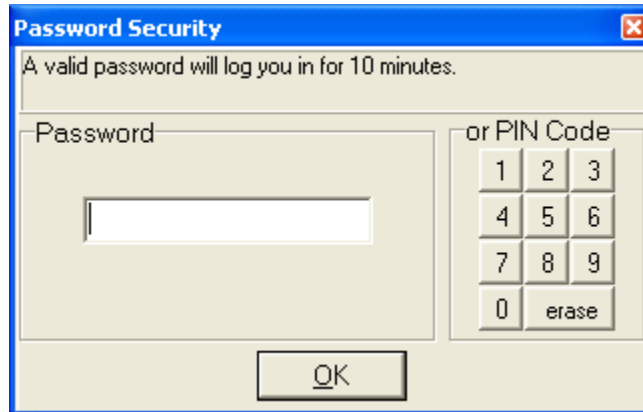
- Administer PBX
- Administer Customize
- Administer Grace Periods

6.1. Administer PBX

From the Metropolis ProfitWatch Call Accounting System server, launch **ProfitWatch** to display the **ProfitWatch Call Accounting 2012** screen as shown below. Select **Setup** → **PBX** from the top menu.



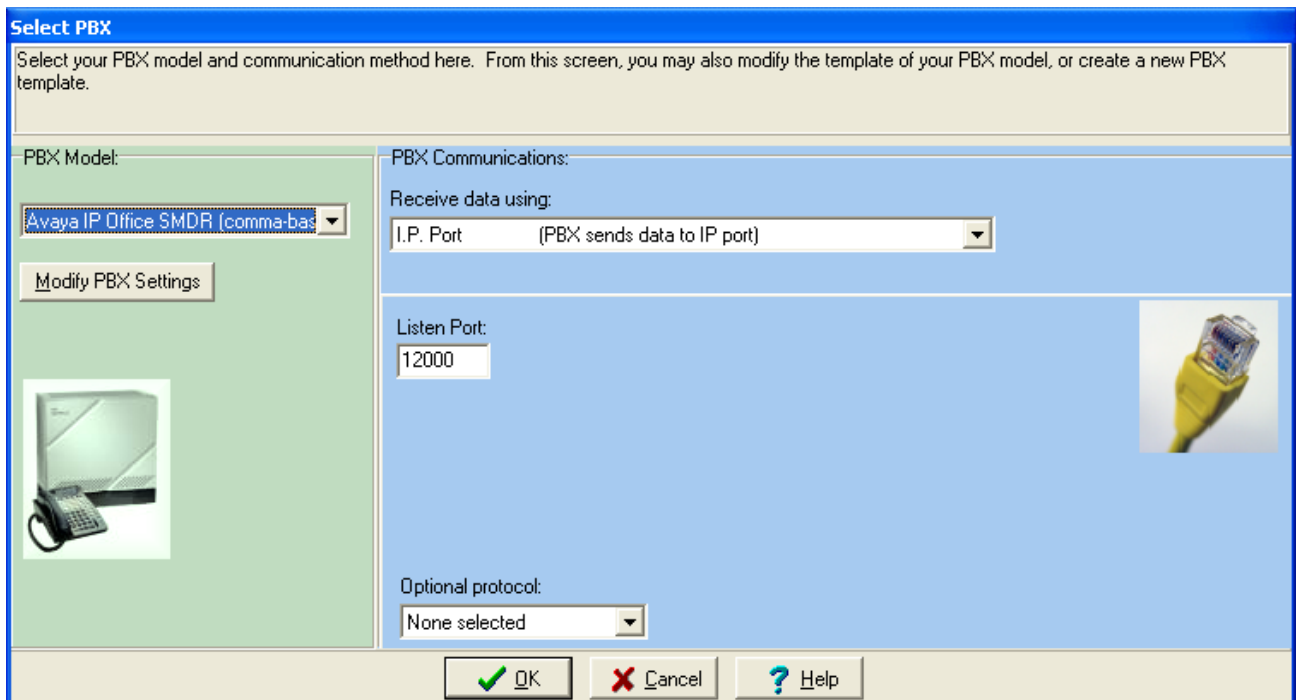
The **Password Security** screen is displayed. Enter the appropriate credentials.

A dialog box titled "Password Security" with a close button in the top right corner. It contains a message: "A valid password will log you in for 10 minutes." Below this, there are two input options: "Password" with a text field, and "or PIN Code" with a numeric keypad (1-9, 0, and an "erase" button). At the bottom is an "OK" button.

The **Select PBX** screen is displayed next. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **PBX Model:** Select an applicable type, in this case *Avaya IP Office SMDR (comma-based)*.
- **Receive data using:** *I.P. Port (PBX sends data to IP port)*
- **Listen Port:** The remote port number from **Section 5**.
- **Optional protocol:** *None selected*

Click **Modify PBX Settings** in the left pane.

A dialog box titled "Select PBX" with a close button in the top right corner. It contains a message: "Select your PBX model and communication method here. From this screen, you may also modify the template of your PBX model, or create a new PBX template." The dialog is divided into two main sections. The left section, titled "PBX Model:", contains a dropdown menu with "Avaya IP Office SMDR (comma-based)" selected, a "Modify PBX Settings" button, and an image of a computer monitor and a telephone. The right section, titled "PBX Communications:", contains three fields: "Receive data using:" with a dropdown menu showing "I.P. Port (PBX sends data to IP port)", "Listen Port:" with a text field containing "12000", and "Optional protocol:" with a dropdown menu showing "None selected". There is also an image of a yellow Ethernet cable. At the bottom are three buttons: "OK" (with a green checkmark), "Cancel" (with a red X), and "Help" (with a question mark).

The **Modify PBX** screen is displayed. Note that in a live customer environment, SMDR data may start appearing in the top portion of the screen. Select the **Outgoing Calls** tab. For **Extension Length**, enter the maximum number of digits used for internal extensions on Avaya IP Office, in this case “5”. Retain the default values in the remaining fields.

Modify PBX - Avaya IP Office SMDR (comma-based)

Data Received from PBX

No data has been received from the PBX.

Outgoing Calls | Incoming Calls | Model | Filters | Translations | Wakeup calls | Trunks | Misc.

	Col	Format		Col	Length
Time:	1	2) hh:mm:ss	Extension:	12	5
Date:	1	24) yyyy/mm/dd	Digits:	6	15
Duration:	2	1) hh:mm:ss	Trunk:	0	0
			Account:	0	0
			PIN Code:	0	0

OK Cancel Help

Select the **Incoming Calls** tab. For **Extension Length**, enter the maximum number of digits used for internal extensions on Avaya IP Office. Retain the default values in the remaining fields.

Modify PBX - Avaya IP Office SMDR (comma-based)

Data Received from PBX

No data has been received from the PBX.

Outgoing Calls | **Incoming Calls** | Model | Filters | Translations | Wakeup calls | Trunks | Misc.

	Col	Format		Col	Length
Time:	1	6) Use current time	Extension:	12	5
Date:	1	24) yyyy/mm/dd	Digits:	4	15
Duration:	2	1) hh:mm:ss	Trunk:	0	0
			Account:	0	0
			PIN Code:	0	0
			Call ID Name:	0	0

Incoming Call Identifiers:

Col

5

Ascii Codes:

73 or 0 or 0 [Ascii Chart...](#)

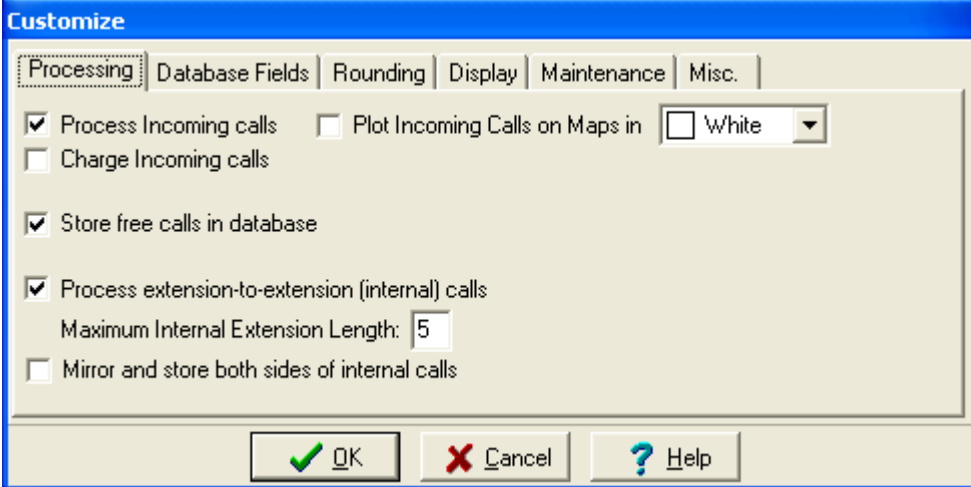
[Duplicate Outgoing Format](#)

OK Cancel ? Help

6.2. Administer Customize

From the **ProfitWatch Call Accounting 2012** screen shown in **Section 6.1** select **Setup → Customize** from the top menu to display the **Customize** screen.

Check **Process Incoming calls** and **Process extension-to-extension (internal) calls**, if desired. Set the appropriate value for **Maximum Internal Extension Length**, and retain the default values in the remaining fields. The screenshot below shows the settings used for the compliance testing.



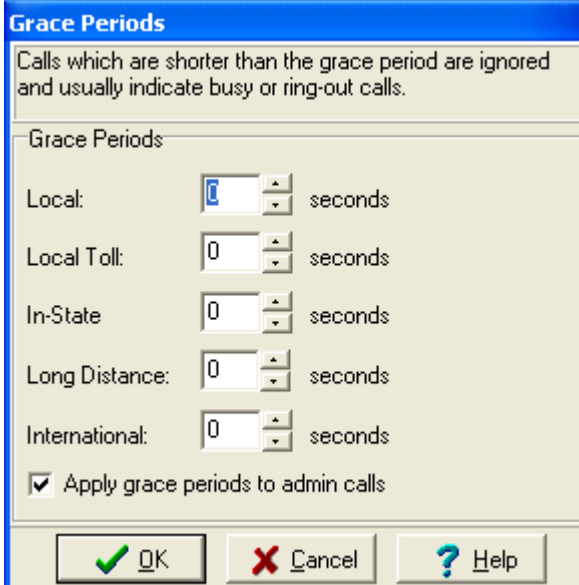
The screenshot shows the 'Customize' dialog box with the 'Processing' tab selected. The 'Database Fields' tab is also visible. The 'Processing' tab contains the following settings:

- ☒ Process Incoming calls
- ☐ Charge Incoming calls
- ☒ Store free calls in database
- ☒ Process extension-to-extension (internal) calls
 - Maximum Internal Extension Length: 5
- ☐ Mirror and store both sides of internal calls
- ☐ Plot Incoming Calls on Maps in: White

At the bottom are buttons for OK, Cancel, and Help.

6.3. Administer Grace Periods

From the **ProfitWatch Call Accounting 2012** screen shown in **Section 6.1** select **Charges → Grace Periods** from the top menu to display the **Grace Periods** screen. Modify the grace period value for each type of call if desired. Note that calls with duration shorter than the grace period will not be logged. The screenshot below shows the settings used for the compliance testing.



The screenshot shows the 'Grace Periods' dialog box. It contains the following settings:

- Local: 0 seconds
- Local Toll: 0 seconds
- In-State: 0 seconds
- Long Distance: 0 seconds
- International: 0 seconds
- ☒ Apply grace periods to admin calls

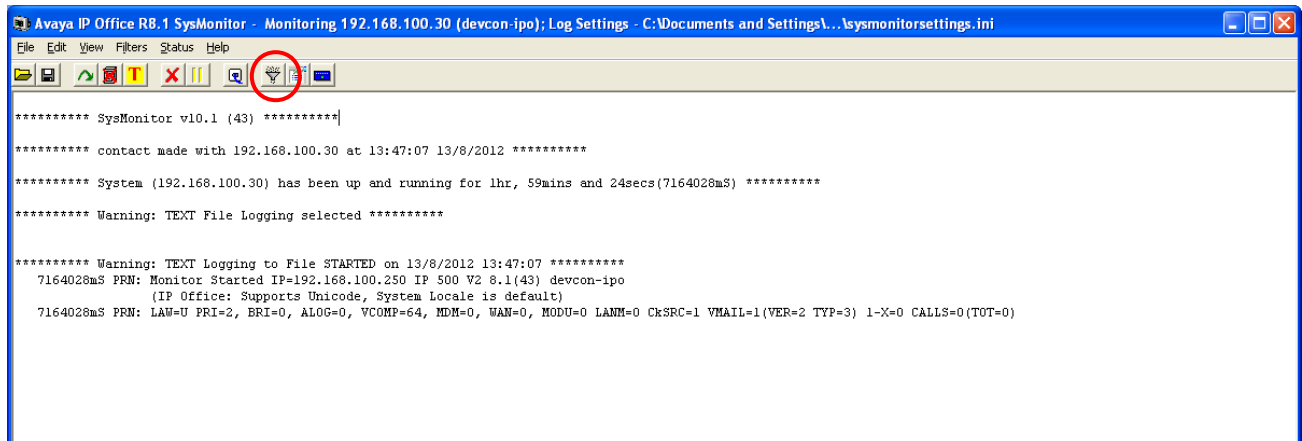
At the bottom are buttons for OK, Cancel, and Help.

7. Verification Steps

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

7.1. Verify Avaya IP Office

Launch the Avaya IP Office Monitor application to display the **Avaya IP Office R8.1 SysMonitor** screen as shown below. Click on the **Filter** icon.



The **All Settings** screen is displayed. Check **Call Detail Records** and **CDR Extra diagnostics** as shown below.

The screenshot shows the 'All Settings' window with the following structure:

- Top Tabs:** ISDN, Key/Lamp, Directory, Media, PPP, R2, Routing, Services, SIP, System.
- Second Row Tabs:** T1, VPN, WAN, SCN, Jade.
- Third Row Tabs:** ATM, Call (selected), DTE, EConf, Frame Relay, GOD, H.323, Interface.
- Main Content Area:**
 - Events:**
 - ☐ Call
 - ☐ Call Delta
 - ☐ Call Delta2
 - ☐ Call Logging
 - ☐ Extension
 - ☐ Line
 - ☐ MonCM
 - ☐ MonIVR
 - ☐ Targeting
 - ☐ ARS
 - ☐ LRQ
 - ☐ ACD
 - ☐ IP Dect
 - ☒ Call Detail Records
 - ☒ CDR Extra diagnostics
 - Packets:**
 - ☐ Call
 - ☐ Extension Send
 - ☐ Extension Receive
 - ☐ Extension Tx C
 - ☐ Extension Rx C
 - ☐ Extension Tx P
 - ☐ Extension Rx P
 - ☐ Line Send
 - ☐ Line Receive
 - ☐ Short Code Msgs
 - ☐ Supplementary services
 - ☐ IP Dect Msgs
 - Embedded Voicemail:**
 - ☐ Voicemail Client
 - ☐ Audio Response
 - ☐ Message Recorder
 - ☐ Housekeeping
 - ☐ Flash Storage
 - ☐ Silence
 - ☐ Email
 - PC Voicemail:**
 - ☐ Voicemail Events
 - ☐ Voicemail Messaging
- Trace Colour:** A color selection button.
- Bottom Buttons:**
 - Default All, Clear All, Tab Clear All, Tab Set All, OK, Cancel
 - Save File, Load File, Select File

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 R8.1 SysMonitor** screen as shown below.

```

***** SysMonitor v10.1 (43) *****
***** contact made with 192.168.100.30 at 13:47:07 13/8/2012 *****
***** System (192.168.100.30) has been up and running for 1hr, 59mins and 24secs(7164028ms) *****
***** Warning: TEXT File Logging selected *****

***** Warning: TEXT Logging to File STARTED on 13/8/2012 13:47:07 *****
7164028ms PRN: Monitor Started IP=192.168.100.250 IP 500 V2 8.1(43) devcon-ipo
(IP Office: Supports Unicode, System Locale is default)
7164028ms PRN: LAN=U PRI=2, BRI=0, ALOG=0, VCOMP=64, MDM=0, WAN=0, MODU=0 CkSRC=1 VMAIL=1(VER=2 TYP=3) 1-X=0 CALLS=0(TOT=0)

***** SysMonitor v10.1 (43) [connected to 192.168.100.30 (devcon-ipo)] *****

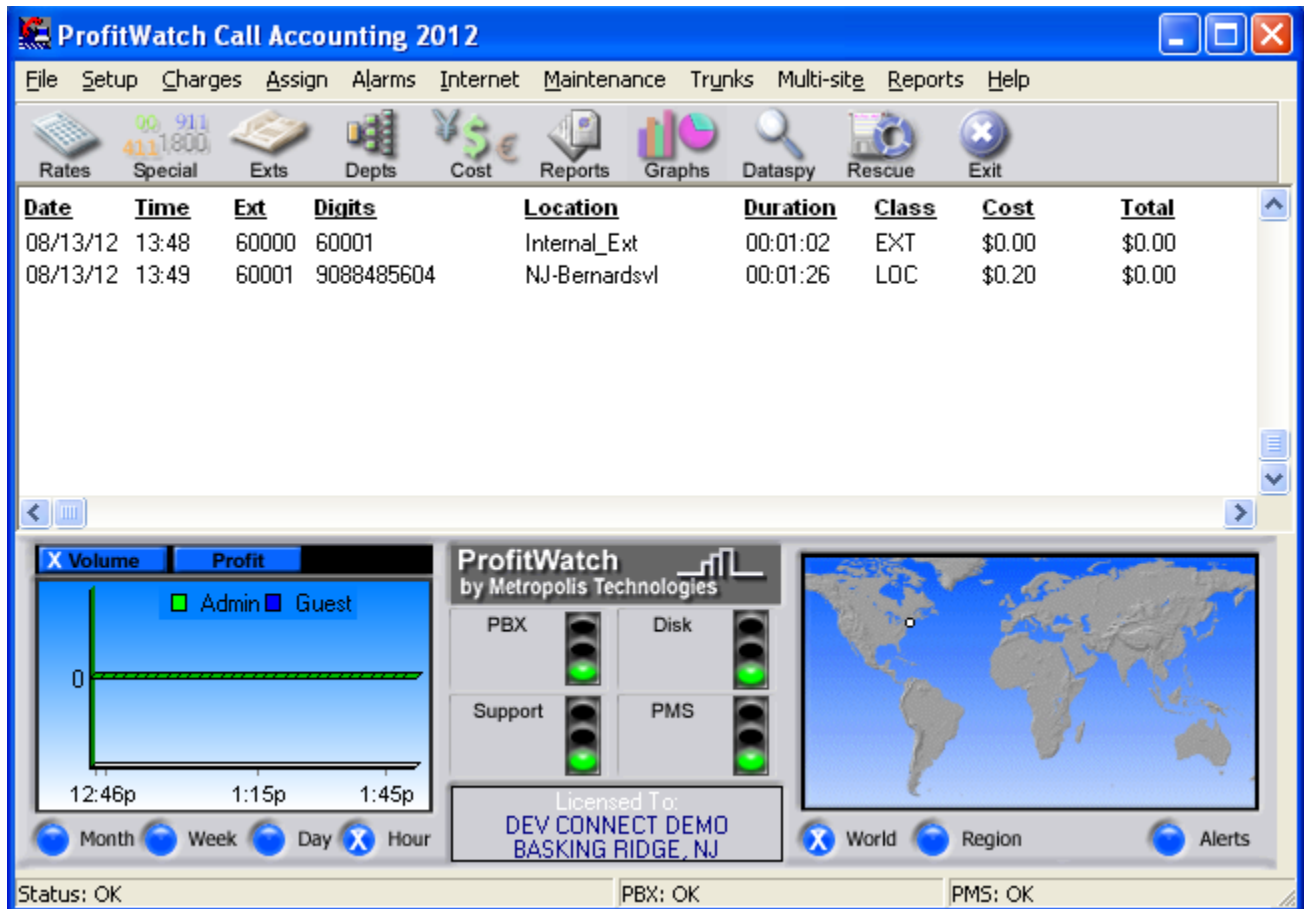
***** SysMonitor v10.1 (43) [connected to 192.168.100.30 (devcon-ipo)] *****
7299695ms CDR: Initialising communications [IP Address = 192.168.100.250, port 12000 [TCP]]
7299696ms CDR: SMDR OUTPUT '2012/08/13 13:48:22,00:01:02,2,60000,0,60001,60001,,1,1000000,0,E60000,Extn60000,E60001,Extn60001,0,0,n/a,0,,,,,,,,,,,,
,
7299708ms CDR: TCP Session is operational
7299708ms CDR: Established TCP communications - framecount=1
7299708ms CDR: Using TCP to send data to 192.168.100.250 on port 12000

***** SysMonitor v10.1 (43) [connected to 192.168.100.30 (devcon-ipo)] *****
7357911ms CDR: SMDRInfo Trigger bck to file, c_time=13:50:21, nxt_save_time=00:00:00, nxt_save_point=0, last_saved_point=-1, last_bck_day=13
7357927ms CDR: SMDRErr Failed to seek CDRServer SMDR backup file (16)
7358092ms CDR: SMDRInfo Saved to file, c_time=13:50:21, nxt_save_time=12:00:00, nxt_save_point=1, last_saved_point=0, last_bck_day=13
7358092ms CDR: SMDRInfo Successfully SMDR backed up to file (size=3, smdr saved count=0) in 165ms
7403420ms CDR: SMDR OUTPUT '2012/08/13 13:49:31,00:01:26,2,60001,0,919088485604,919088485604,,0,1000001,0,E60001,Extn60001,T9001,Line 1.23,0,0,n/a,0,,,,,,,,,,,,U,Extn600
,
7403420ms CDR: Using TCP to send data to 192.168.100.250 on port 12000

```

7.2. Verify Metropolis ProfitWatch Call Accounting System

From the Metropolis ProfitWatch server, follow the navigation in **Section 6.1** to display the **ProfitWatch Call Accounting 2012** screen. Verify that an entry is displayed for each SMDR record output from **Section 7.1**. Note that the **Cost** data shown below is estimated by ProfitWatch based on call destination and duration.



Follow the navigation in **Section 6.1** to display the **Modify PBX** screen. In the top portion of the screen, verify that an entry is displayed for each SMDR record output from **Section 7.1** with matching values.

Modify PBX - Avaya IP Office SMDR (comma-based)

Data Received from PBX

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Co
2012/08/13 13:48:22	00:01:02	2	60000	0	60001	60001	
2012/08/13 13:49:31	00:01:26	2	60001	0	919088485604	919088485604	

Outgoing Calls | Incoming Calls | Model | Filters | Translations | Wakeup calls | Trunks | Misc.

Time: Col 1 Format 2) hh:mm:ss Extension: Col 12 Length 5

Date: Col 1 Format 24) yyyy/mm/dd Digits: Col 6 Length 15

Duration: Col 2 Format 1) hh:mm:ss Trunk: Col 0 Length 0

Account: Col 0 Length 0

PIN Code: Col 0 Length 0

OK Cancel Help

From the **ProfitWatch Call Accounting 2012** screen (not shown below), select **Reports → Report Generator** from the top menu. The **Reports Generator** screen is displayed. Select **Extension → Extension Details Report** from the top menu, and click **Report**.

Reports Generator

Extension Dept Account Directories Profit Trunk Time Caller Other Custom Options

Extension Details Report

This report provides details on all outgoing calls for the extensions specified during the date and time range specified.

Extension Range: 0 to: 999999

Date and Time Range: 13-Aug-12 00:00 To: 13-Aug-12 23:59

Sort entries by: Extension

☐ Start each extension on a new page

Departments:

- ☒ Guest
- ☒ Back Office
- ☒ Computer Room
- ☒ Front Office
- ☒ Operators

Include Calls of Type: Outgoing + Incoming

Send output to:

- ☒ Screen
- ☐ Printer
- ☐ File
- ☐ Email

The **Extension Details Report** automatically pops up in a browser window. Verify that the report entries match to the entries on the **ProfitWatch Call Accounting 2012** screen.

ProfitWatch - Extension Details Report

DEV CONNECT DEMO
BASKING RIDGE, NJ

Report Date: 13-Aug-12 13:53:02

Extension Details Report
Outgoing + Incoming calls
Extension Range: 0 to 999999
Date Range: 13-Aug-12 to 13-Aug-12

Dept: Default Staff
Ext: 60000

Date	Time	Number Dialed	Location	Duration	Charge	Tax	Total
08/13/12	13:48	60001	Internal_Ext	00:01:02	0.00	0.00	0.00
Calls: 1			Average Dur: 01:02	00:01:02	0.00	0.00	0.00

Dept: Default Staff
Ext: 60001

Date	Time	Number Dialed	Location	Duration	Charge	Tax	Total
08/13/12	13:49	9088485604	NJ-Bernardsvl	00:01:26	0.00	0.00	0.00
Calls: 1			Average Dur: 01:26	00:01:26	0.00	0.00	0.00

Totals

Total Calls: 2				00:02:28	0.00	0.00	0.00
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8. Conclusion

These Application Notes describe the steps required to configure Metropolis ProfitWatch Call Accounting System to interoperate with Avaya IP Office 8.1. All feature and serviceability tests were completed successfully.

9. Additional References

This section references the product documentation relevant to these Application Notes.

- [1] *Avaya IP Office R8.1 Manager 10.1*, August 3rd 2012, Issue 29o, Document Number 15-601011, available at <http://support.avaya.com>.
- [2] *Metropolis ProfitWatch Call Accounting User Guide*, available at <http://www.metropolis.com>.

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