Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Tri-Line TIM Plus with Avaya IP Office - Issue 1.0

Abstract

These Application Notes describe the procedures for configuring Avaya IP Office to work with Tri-Line's TIM Plus. TIM Plus is a Windows-based call analysis software program that collects and reports on the Station Message Detail Reporting (SMDR) information generated by Avaya IP Office.

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.

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1. Introduction

The objective of this compliance test is to verify that Tri-Line's TIM Plus 3.0.0.52 call accounting software can interoperate with Avaya IP Office 5.0. TIM Plus listens for connection from Avaya IP Office for the collection of Station Message Detail Reporting (SMDR) information. TIM Plus processes the collected SMDR data and accurately bills them. It provides querying and reporting functionality on the billed data. The data can also be exported to various formats for processing. During this compliance test, the SMDR collection was verified for two Avaya IP Offices, i.e. the records were parsed from the Avaya IP500 Office and Avaya IP412 Office respectively.

1.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing. The feature testing evaluated the ability of the Tri-Line's TIM Plus to collect and process SMDR records for various types of calls: intra-switch calls (calls between phones on the same site), outbound/ inbound calls to/from the PSTN and outbound/inbound calls to/from the phones between the two sites via the IP trunk. The serviceability testing introduced failure scenarios to see if the TIM Plus can resume SMDR collection after failure recovery.

1.2. Support

Technical support from the Tri-Line can be obtained through the following:

Phone: +44 20 7265 2626
E-mail: support@tri-line.com.
Web: http://www.tri-line.com/
Address: 9-10 Telfords Yard
The Highway
LONDON
E1W 2BS
England

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2. Reference Configuration

Figure 1 illustrates the network configuration used to verify the Tri-Line's TIM Plus solution. Site A was comprised of an Avaya IP500 Office, Avaya 1616 and 1603SW IP Telephones, Avaya 2420 Digital Telephone, a server running Avaya IP Office Manager and Avaya Voicemail Pro, a server running Tri-Line TIM Plus, a H.323 IP trunk to Site B and an E1 ISDN-PRI trunk to simulated PSTN. Site B was comprised of an Avaya IP412 Office with Avaya IP400 Digital Station, and it had connections to the following: Avaya 1616 and 1608 IP Telephones, Avaya 2420 Digital Telephone, and a H.323 IP trunk to Site A. The network configuration at branch Site B was used to generate IP trunk call records. Avaya IP Office Manager and Voicemail Pro were installed on a server running Microsoft Windows XP with Service Pack 3. Tri-Line TIM Plus was installed on a server running Microsoft Windows Vista Business. The Extreme Network Summit X250e-24p Switch provided ethernet connectivity to the servers and IP telephones and Layer 3 IP routing between the two sites.

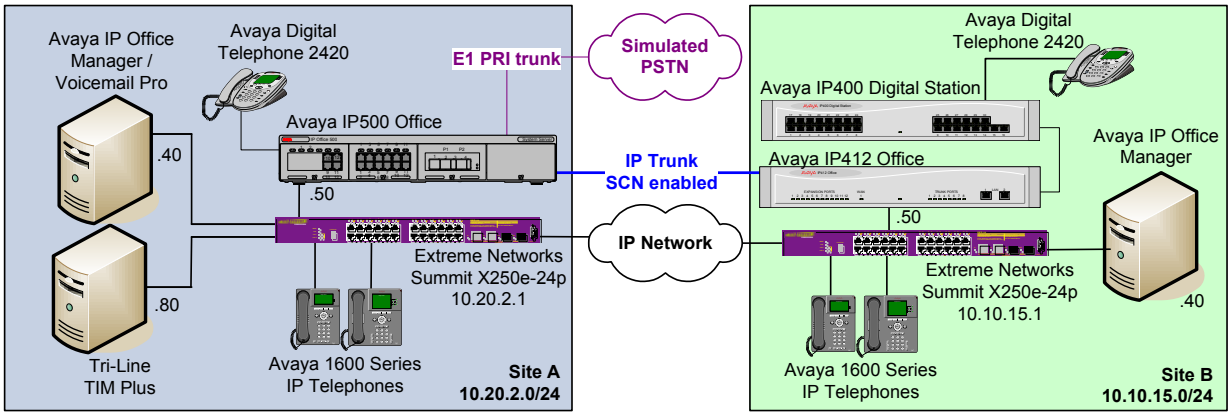

Figure 1: Tri-Line TIM Plus with Avaya IP Office

Each Avaya IP Office was configured to output SMDR records to a specified IP address and Port number on TIM Plus server. On Site A, IP Office was configured to send data on IP address 10.20.2.80, and on TCP port 9000 and on Site B IP Office was configured to send the data on the same IP address and on TCP Port 9001. TIM Plus opens a connection to each Avaya IP Office and keeps this connection open for collecting SMDR records. Upon SMDR record retrieval, the TIM Plus parses and processes the SMDR data and then stores the parsed SMDR data into a database for later record retrieval and/or reporting by the end user.

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3. Equipment and Software Validated

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

Equipment	Software
Avaya IP500 Office	5.0
Avaya IP412 Office	5.0
Avaya IP400 Digital Station	7.0 (8)
Avaya IP Office Manager on Windows PC	7.0 (8)
Avaya IP Office Voicemail Pro on Windows PC	5.0 (21)
Avaya 1616, 1603SW, 1608 IP Telephones	1.2 (H.323)
Avaya 2420 Digital Telephones	-
Extreme Network Summit X250e-24p Switch	12.0.3.16
TIM Plus running on Windows Vista Business	3.0.0.52
AvayaIPOffice.tdt file (Tri-Line Avaya IP Office Interface)	1.11

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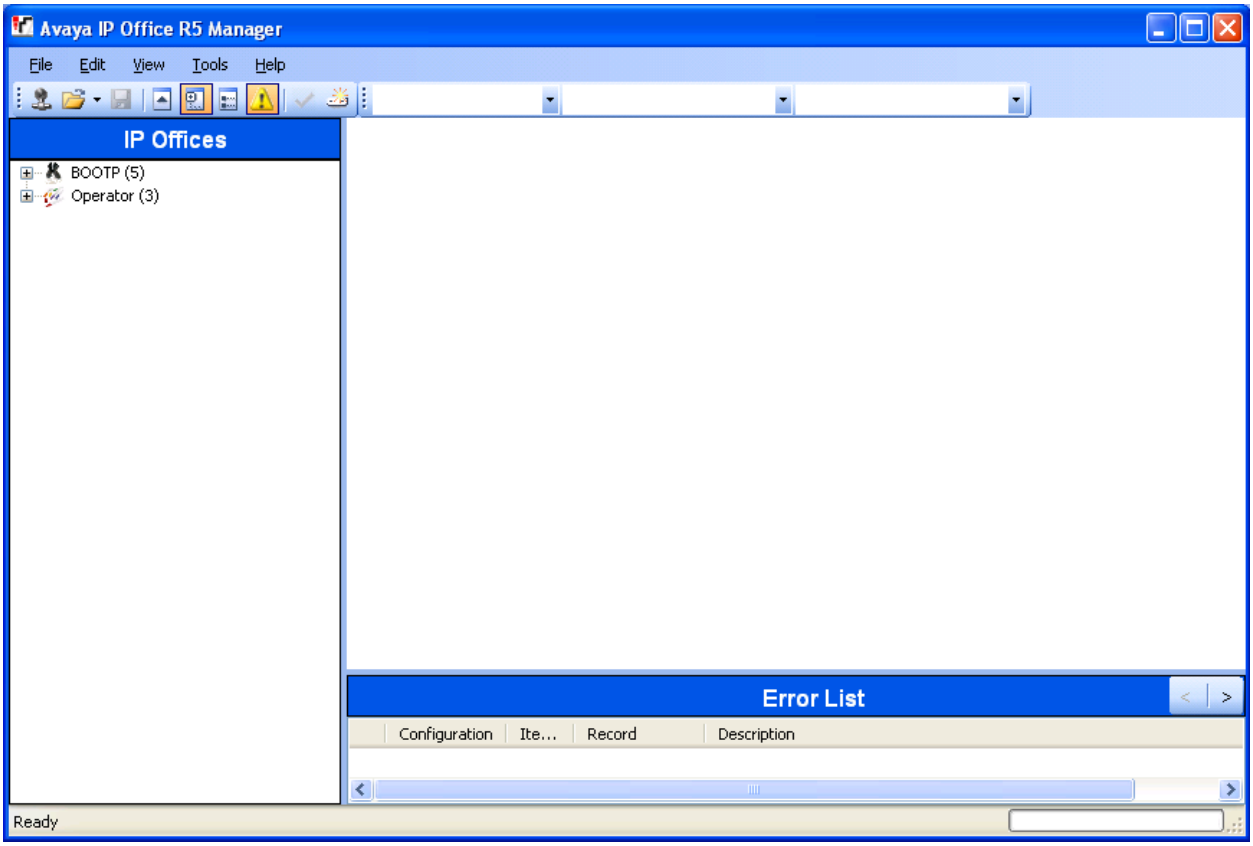
4. Configure Avaya IP Office

The configuration information provided in this section describes the steps required to set up Avaya IP Office for this solution. For all other provisioning information, such as Avaya IP Office installation and configuration please refer to Avaya IP Office product documentation in reference **[1]**.

Log into the Avaya IP Office Manager PC in Site A and go to **Start → Programs → IP Office → Manager** to launch the Avaya IP Office Manager application which starts as shown below.



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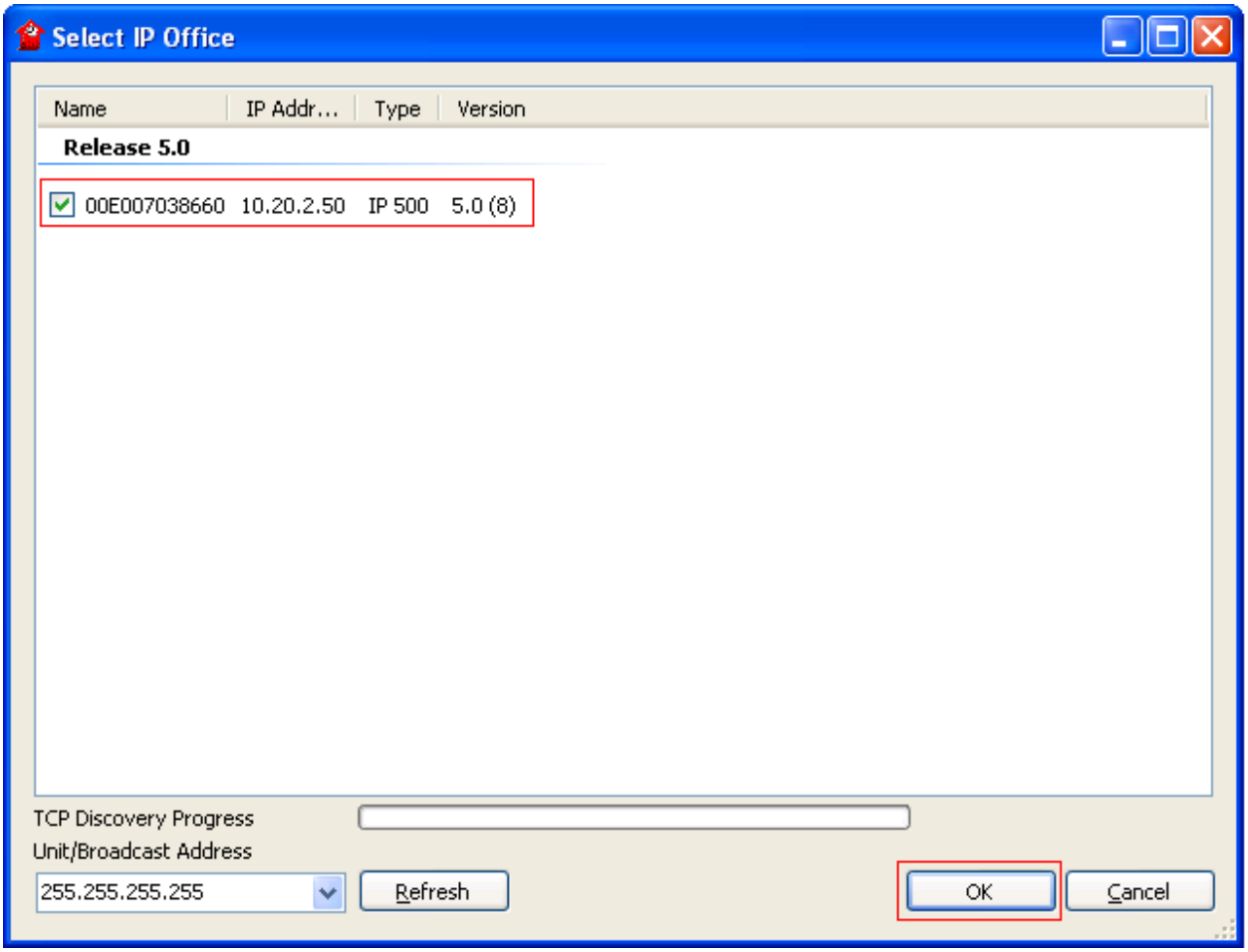
In the Avaya IP Office Manager window, select **File → Open Configuration** (not shown) to search for IP Office in the network. In the **Select IP Office** window that appears, check the checkbox for the IP Office displayed and click **OK**.



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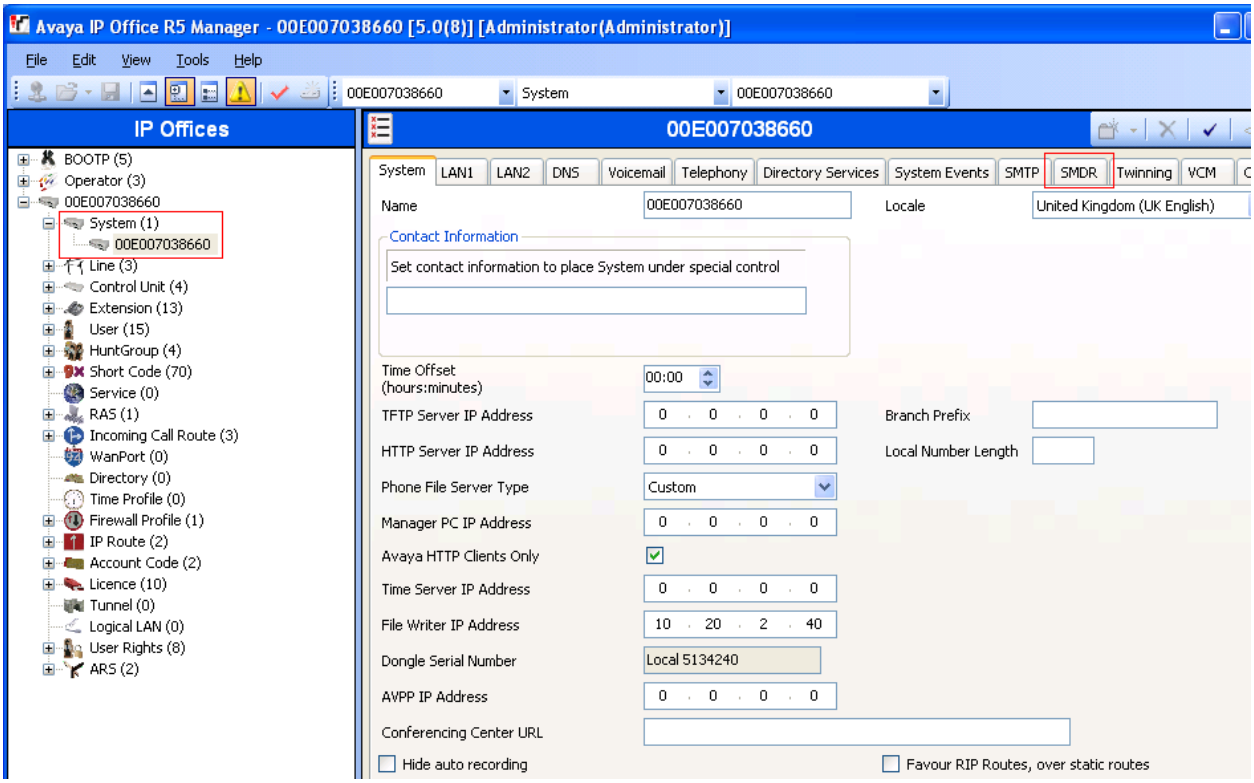
Log into Avaya IP Office using the appropriate login credentials to receive its configuration (not shown). In the Avaya IP Office Manager window, expand the configuration tree and double-click **System**. In the System configuration that is displayed, click on the **SMDR** tab.



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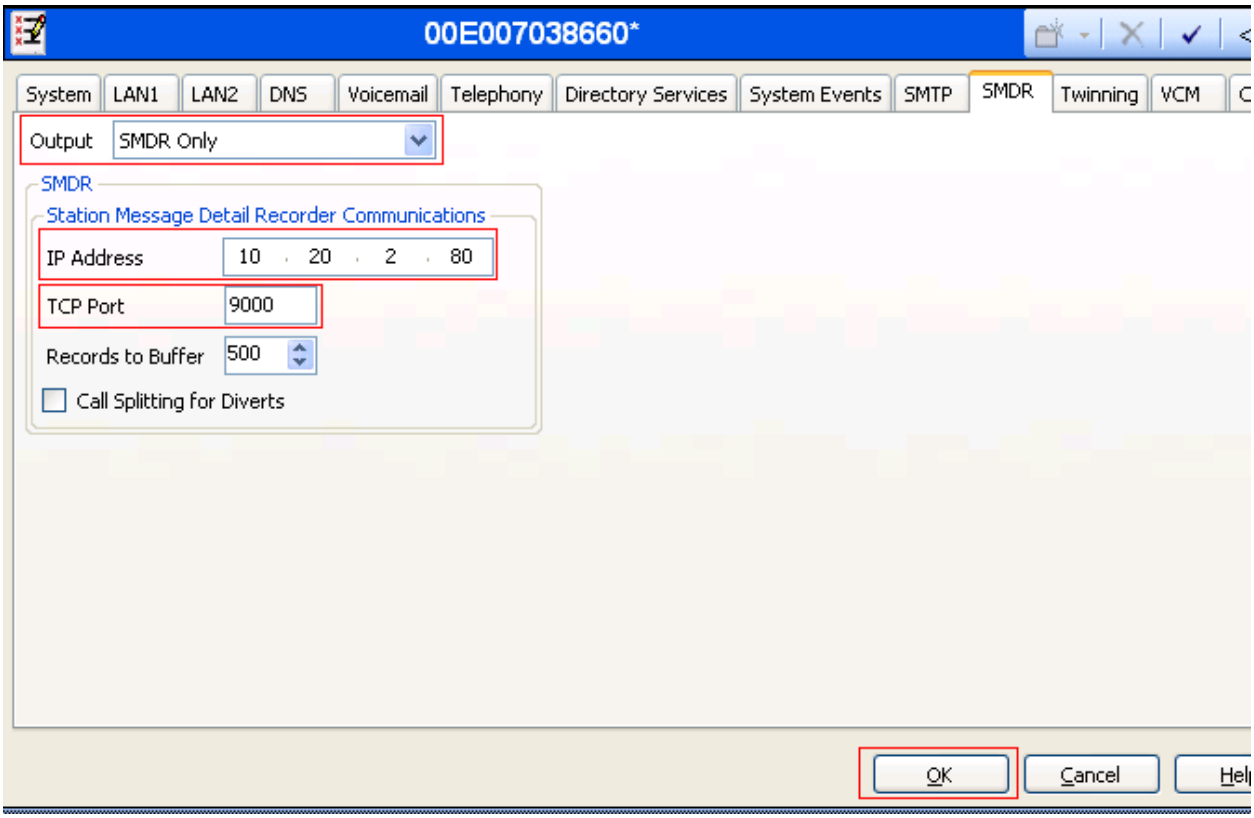
In the SMDR tab that appears, select **SMDR only** from the **Output** dropdown list. In the **Station Message Detail Recorder Communications** area configure **IP Address** with the IP Address of the TIM Plus server, **10.20.2.80** and configure **TCP Port** as **9000**, which is the port number configured on TIM Plus server in **Section 5**. Leave the default configuration for other parameters and click **OK**.



In the Manager window, select **File → Save** to push the configuration to Avaya IP Office and wait for the system to update. This completes configuration of Avaya IP Office.

Repeat the above steps for the Avaya IP Office in Site B and configure the **TCP Port** as **9001**.

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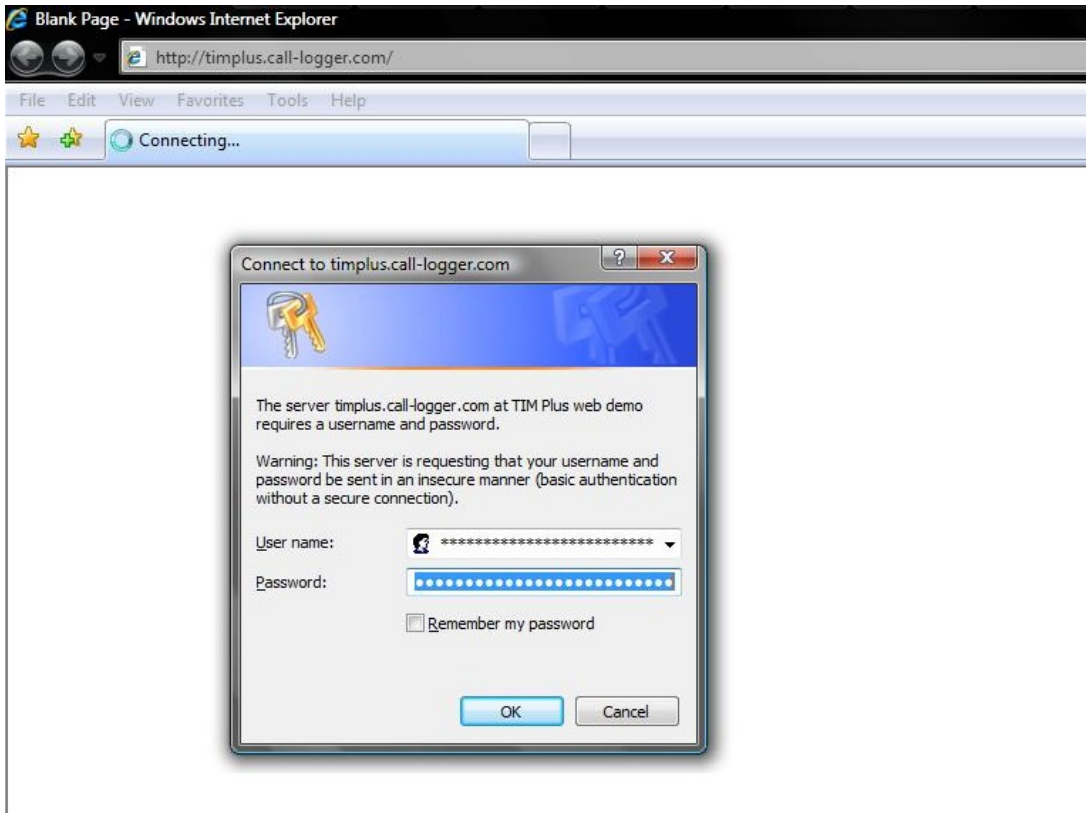
5. Configure the TIM Plus

This section provides the procedures for configuring the TIM Plus to receive SMDR for various call types output by the Avaya IP Office. To access TIM Plus, open a web browser and enter the IP address of the TIM enterprise server e.g. http://x.x.x.x/ where x.x.x.x is the IP address of the machine running the TIM Plus. Enter proper username and a password in the authentication window and select **OK**.



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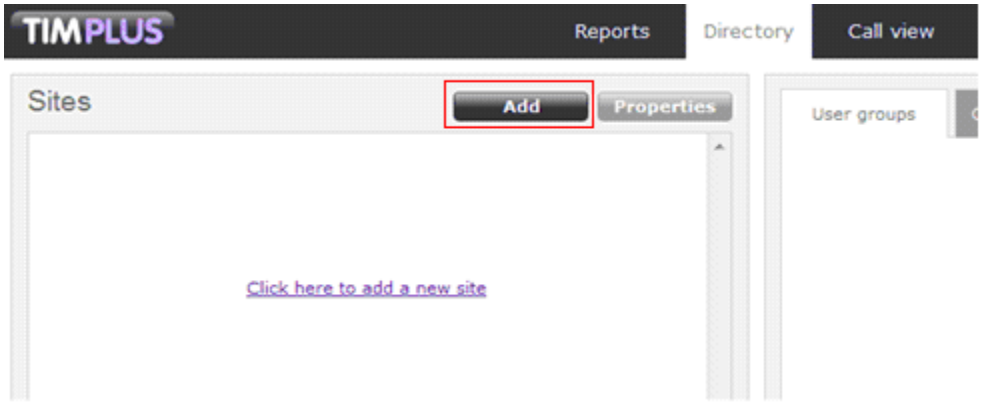
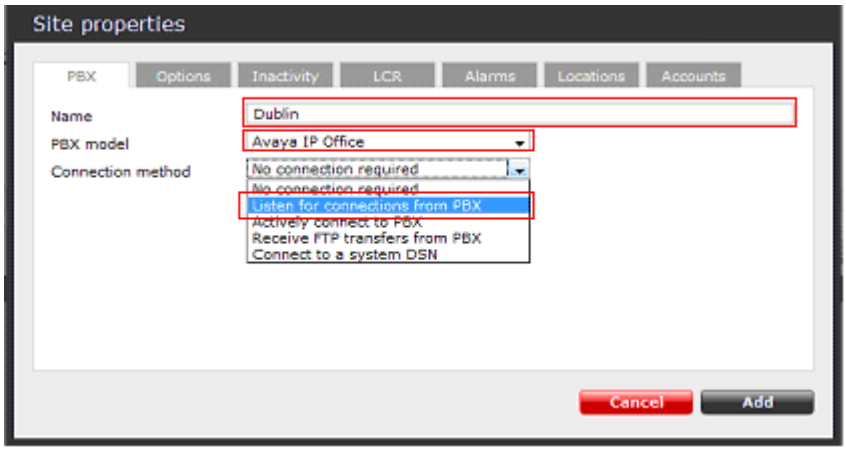
After successful login, click on the **Directory** tab in the TIM Plus menu (not shown) and Directory tab content will be displayed as shown below. On the default Directory screen, click the **Add** button to add a new site.



On the new **Site properties** window that appears, the default **PBX** tab is displayed. Enter the **Name** of the site; in this case **Dublin** was specified. From the drop down list select **Avaya IP Office** as the **PBX model** and **Listen for connections from PBX** for the **Connection method**.



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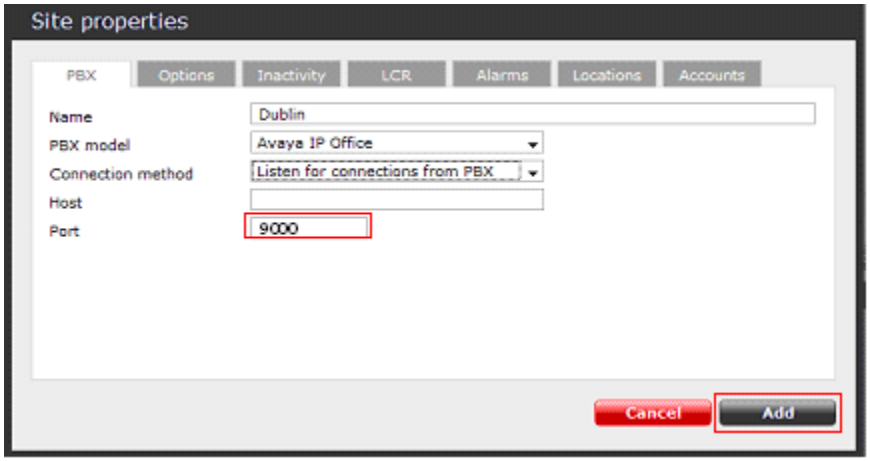
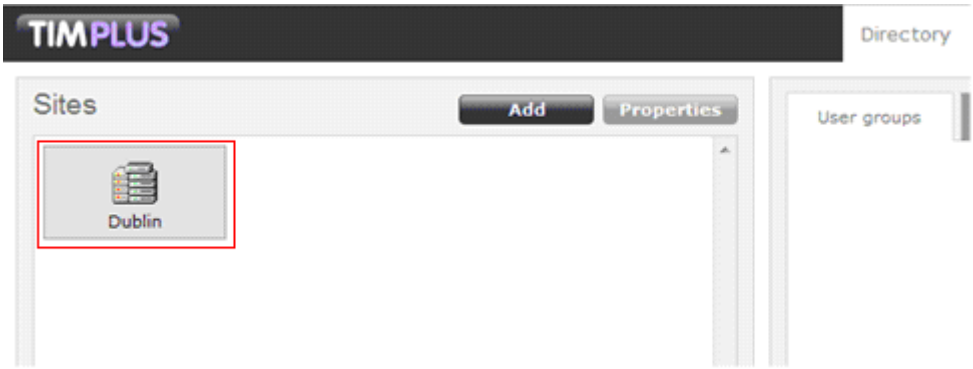
After selecting **Listen for connections from PBX** as the connection method, new parameters that need to be configured appear on the PBX tab as shown below. Configure **Port** parameter as **9000,** which is SMDR TCP port configured Avaya IP Office in **Section 4**, and press **Add**.



Configured **Dublin** site will appear on Directory screen as shown below.



Repeat the above steps to add a new Directory for the Avaya IP Office in Site B. In this case **Port** was configured as **9001**.

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6. General Test Approach and Test Results

The general test approach was to manually place intra-switch calls, inter-switch calls, inbound and outbound PSTN trunk calls to and from telephones attached to the Avaya IP Office, and to verify that TIM Plus collects the SMDR records from the Avaya IP Office and properly classifies and reports the attributes of the call. For serviceability testing, logical links were disabled/re-enabled, and IP Office and TIM Plus servers were rebooted.

The TIM Plus successfully collected and processed the SMDR records from Avaya IP Office for all types of calls generated including intra-switch calls, inbound/outbound PSTN trunk calls, inbound/outbound inter-switch IP trunk calls, transferred calls, and conference calls. For serviceability testing, the TIM Plus was able to resume collecting SMDR records after failure recovery including buffered SMDR records for calls that were placed during the outages.

The following discrepancies were observed with the direct IP Office output. They are being investigated by the Avaya IP Office team:

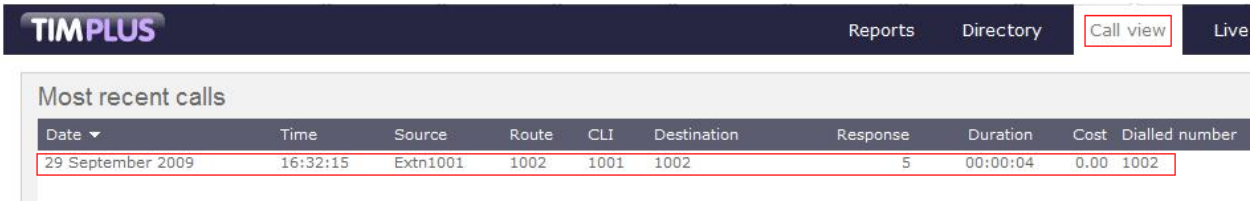
- An incoming call which is abandoned after a transfer appears as answered call.
- First leg of the call record is missing in scenario where the call is abandoned after it was transferred to the Hunt Group.

7. Verification Steps

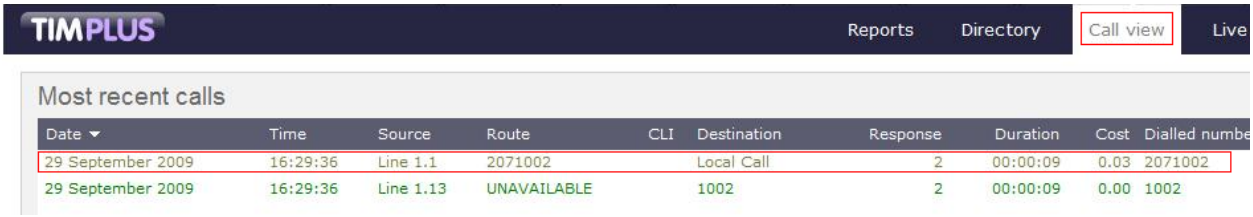
The following steps may be used to verify the configuration:

- Use the **ping** utility on the Tri-Line's TIM Plus server to verify the IP connectivity to the Avaya IP Office.
- Verify that TIM Plus receives the raw SMDR record for the call. Compare the values of data fields in the SMDR record with the expected values and verify that they match.
- Place internal, inbound trunk, outbound trunk and abandoned calls to and from various telephones. Select **Call view** tab on the TIM Plus menu and verify accuracy of the call details in the Call view. The screens shots below represent examples of the internal, inbound trunk, outbound trunk and abandoned calls respectively.

The following is an example of the Internal Call.



The following is an example of the Inbound Call.



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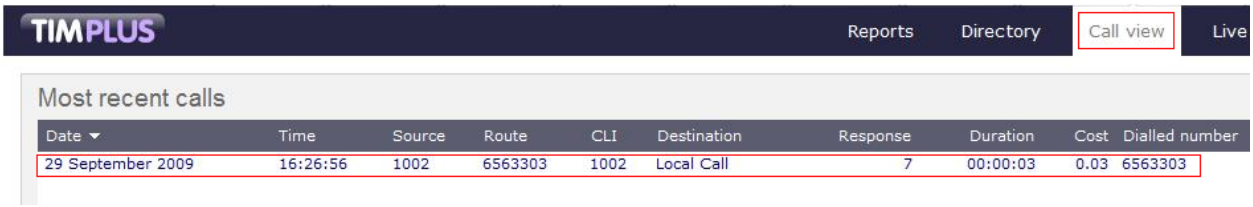
The following is an example of the Outbound Call.



The following is an example of the Abandoned Call.

8. Conclusion

These Application Notes describe the procedures for configuring the Tri-Line's TIM Plus to collect SMDR records from Avaya IP Office. The TIM Plus successfully passed all compliance testing.

9. Additional References

Product documentation for Avaya products may be found at http://support.avaya.com and on http://marketingtools.avaya.com/knowledgebase/ipoffice/

[1] *Avaya IP Office 5.0 Manager 7.0*, Issue 23h - 16 July 2009

The Tri-Line TIM Plus documentation can be provided by Tri-Line on request.

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