



## **Avaya Solution & Interoperability Test Lab**

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# **Application Notes for Configuring Tri-Line TIM Professional 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 Professional. TIM Professional 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.

# 1. Introduction

The objective of this compliance test is to verify that Tri-Line's TIM Professional 2.181.0.22 call accounting software can interoperate with Avaya IP Office 5.0. TIM Professional listens for connection from Avaya IP Office for the collection of Station Message Detail Reporting (SMDR) information. TIM Professional 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 one Avaya IP Office, which was parsing records from the Avaya IP500 Office, because TIM Professional only supports a single PBX.

## 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 Professional 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 Professional can resume SMDR collection after failure recovery.

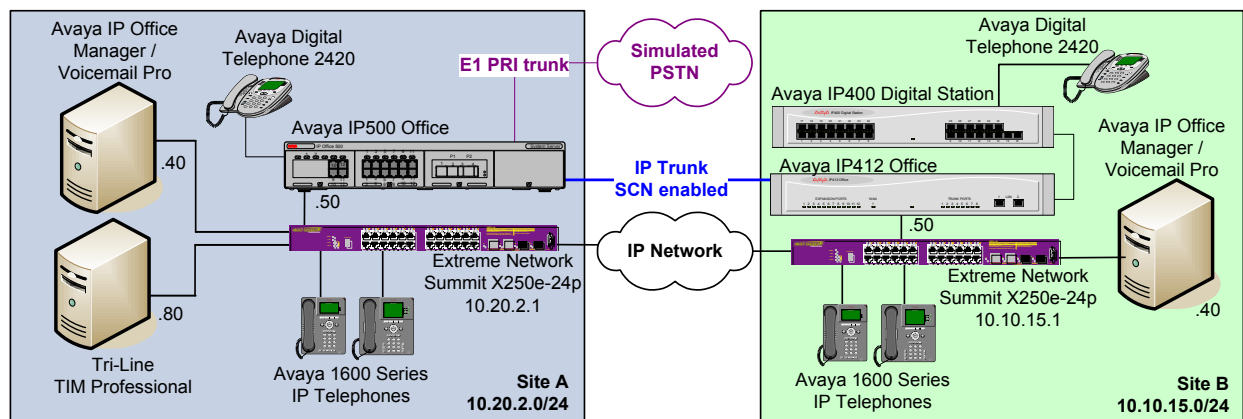
## 1.2. Support

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

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

## 2. Reference Configuration

**Figure 1** illustrates the network configuration used to verify the Tri-Line's TIM Professional 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 Professional 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 Professional 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 Professional with Avaya IP Office**

On Site A, Avaya IP Office was configured to output SMDR records to IP address and Port number on TIM Professional server which are 10.20.2.80 and 9000 respectively. TIM Professional opens a connection to Avaya IP Office and keeps this connection open for collecting SMDR records. Upon SMDR record retrieval, the TIM Professional 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.

### 3. Equipment and Software Validated

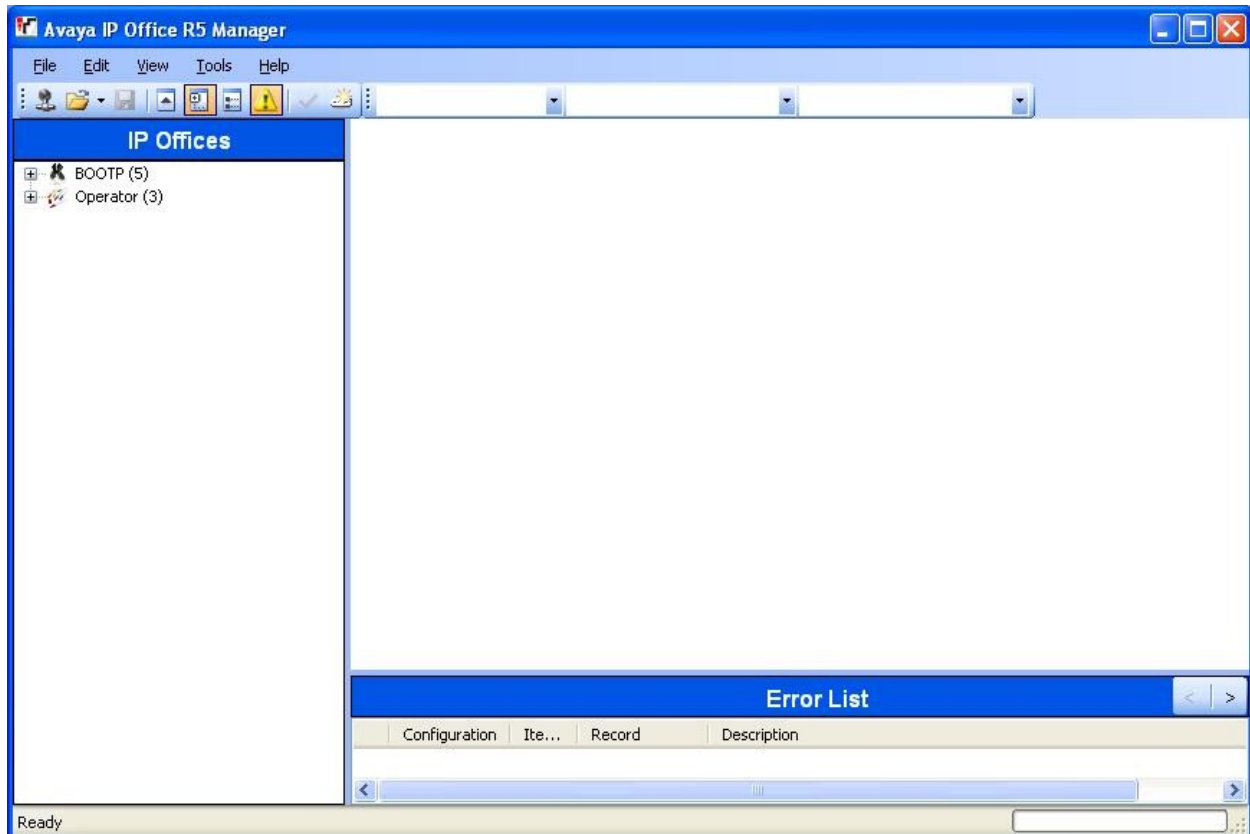
The following equipment and software were used for the sample configuration provided:

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 Professional running on Windows Vista Business	2.181.0.22
AvayaIPOffice.tdt file (Tri-Line Avaya IP Office Interface)	1.11

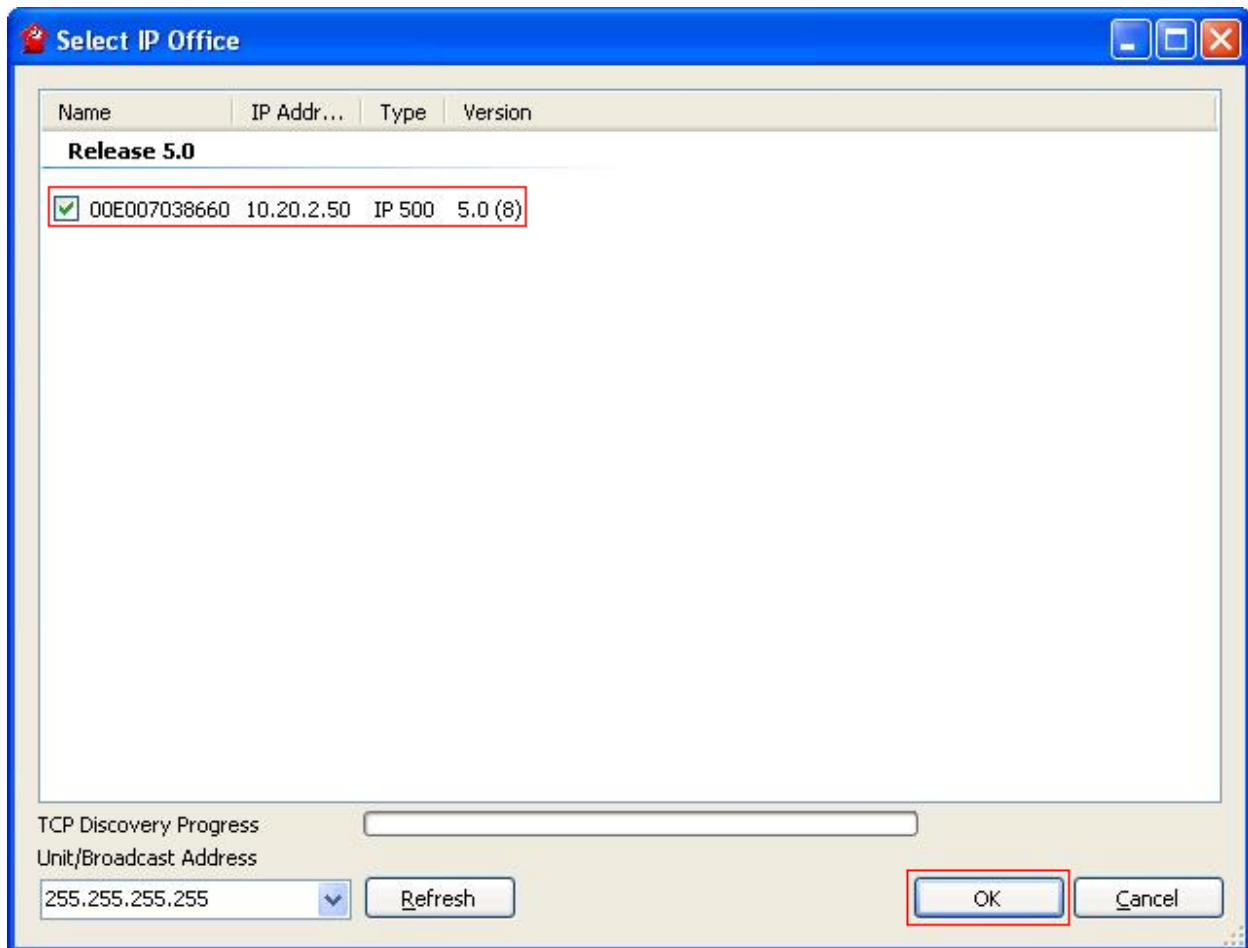
## 4. Configure Avaya IP Office

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].

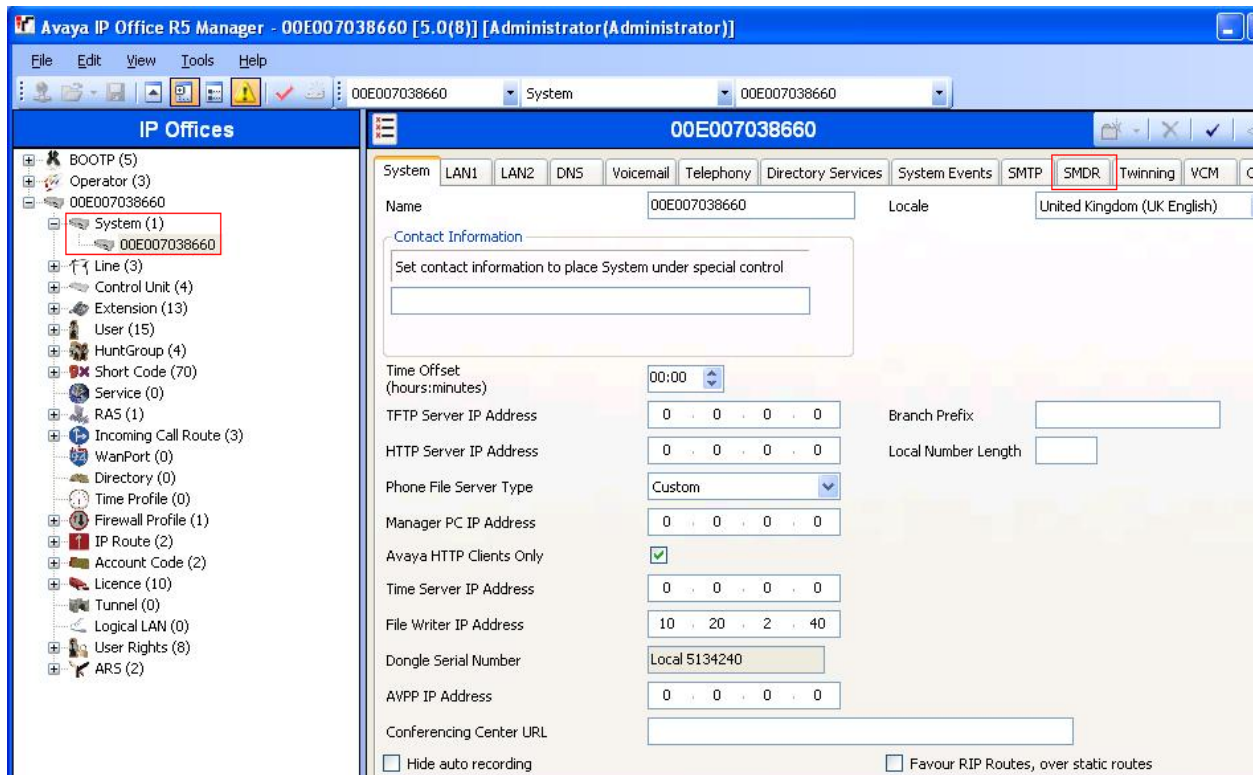
Log into Avaya IP Office Manager PC in Site A and go to **Start → Programs → IP Office → Manager** to launch the Avaya IP Office Manager application which starts as shown below.



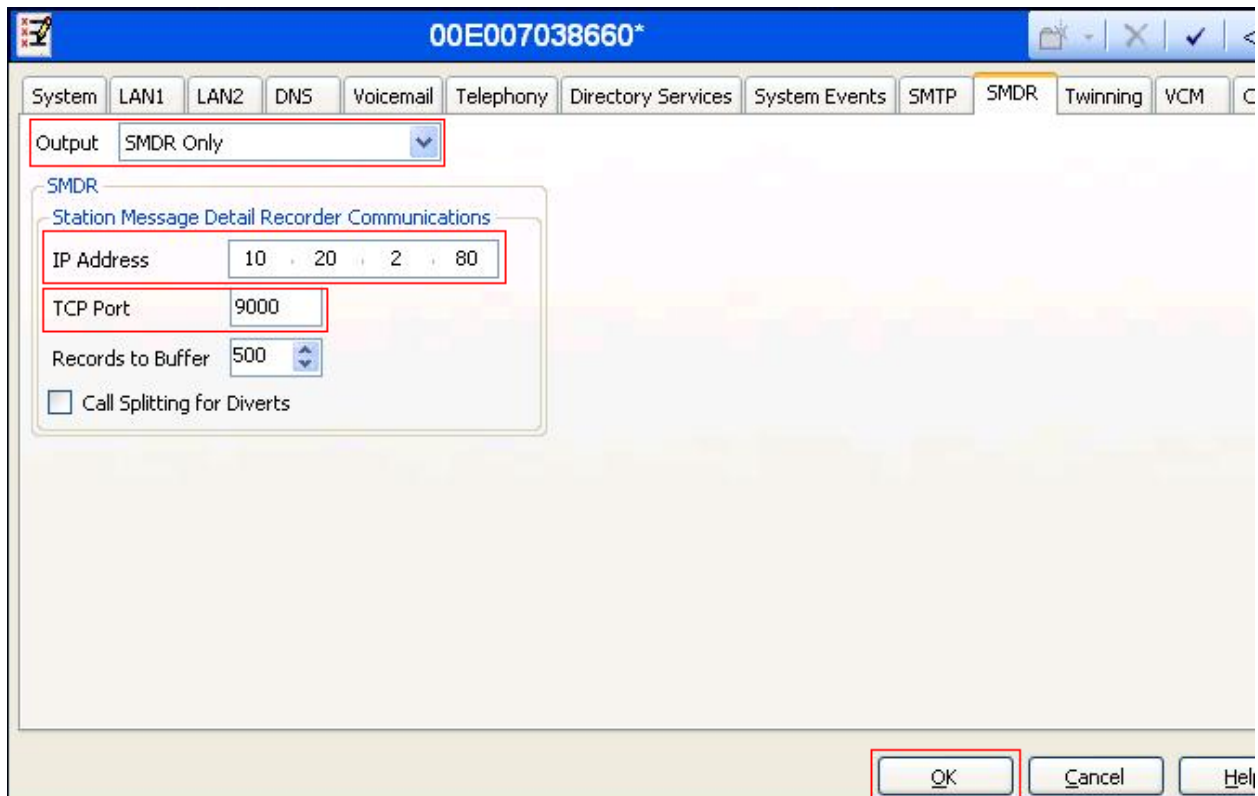
In the Avaya IP Office Manager window, select **File → Open Configuration** (not shown) to search for IP Office in the network. In the **Select IP Office** window that appears, check the checkbox for the IP Office displayed and click **OK**.



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.



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 Professional server, **10.20.2.80** and configure **TCP Port** as **9000**, which is the port number configured on TIM Professional server in **Section 5**. Leave the default configuration for other parameters and click **OK**.



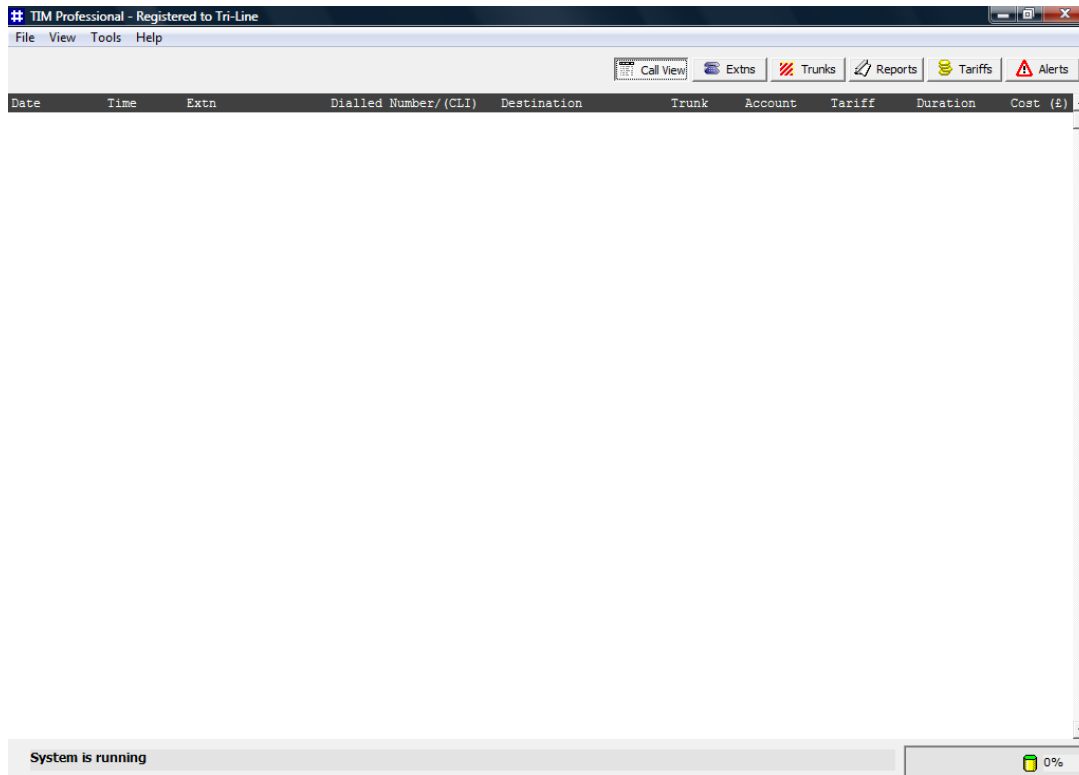
In the Manager window, select **File → Save** to push the configuration to Avaya IP Office and wait for the system to update. This completes configuration of Avaya IP Office.

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

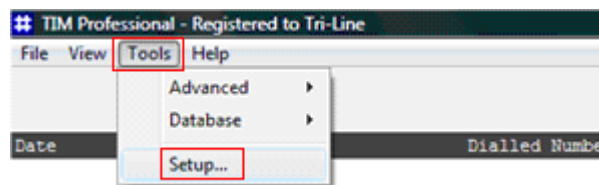


## 5. Configure the TIM Professional

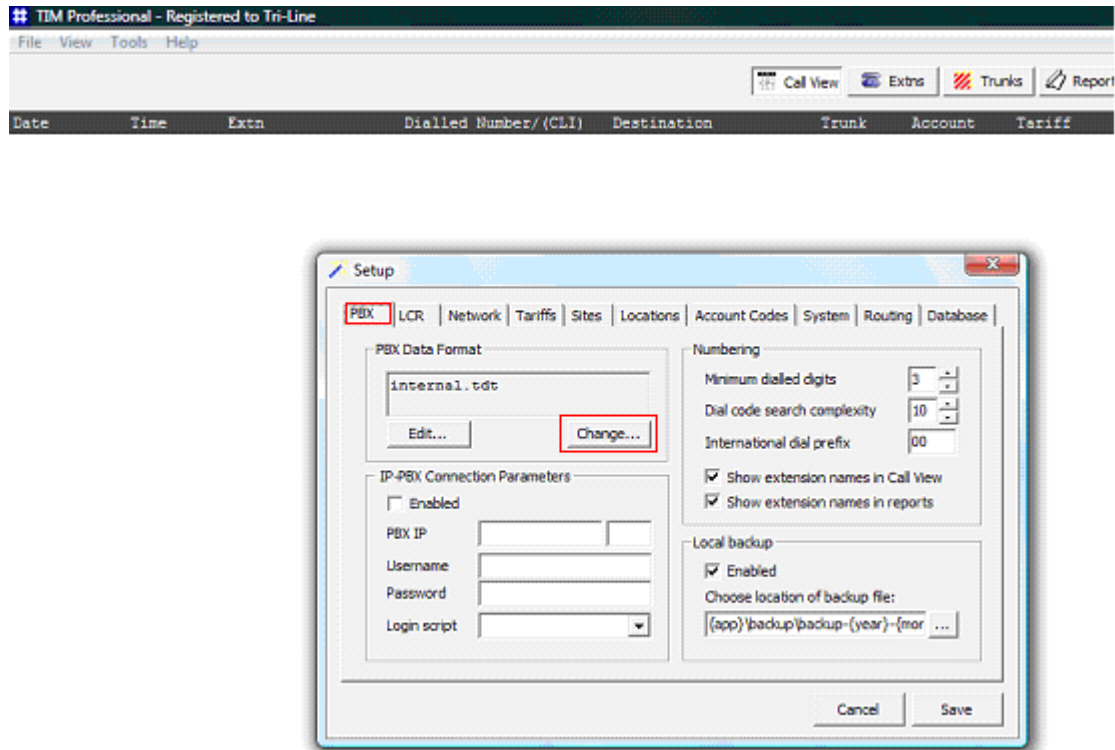
This section provides the procedures for configuring the TIM Professional to receive SMDR for various call types output by the Avaya IP Office. To access TIM Professional, double-click on the TIM Professional icon on the desktop. Once the application has started the following screen appears.



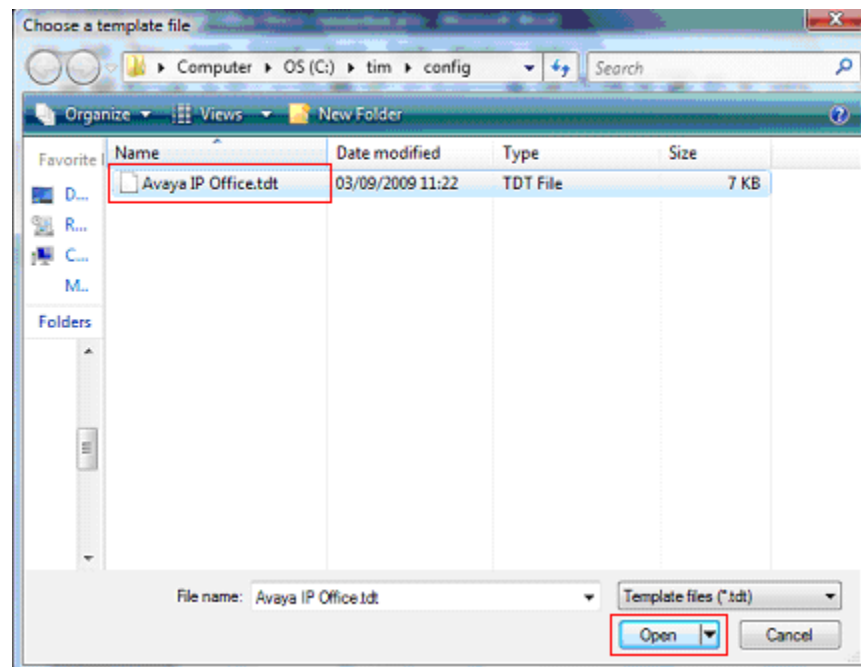
Click on the **Tools** and select **Setup** as shown below.



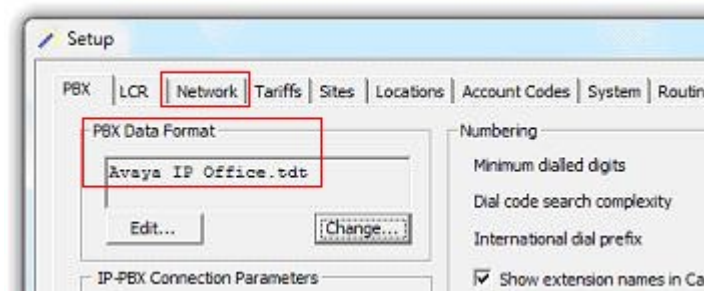
On the Setup window that appears, click the **Change** button on default **PBX** tab.



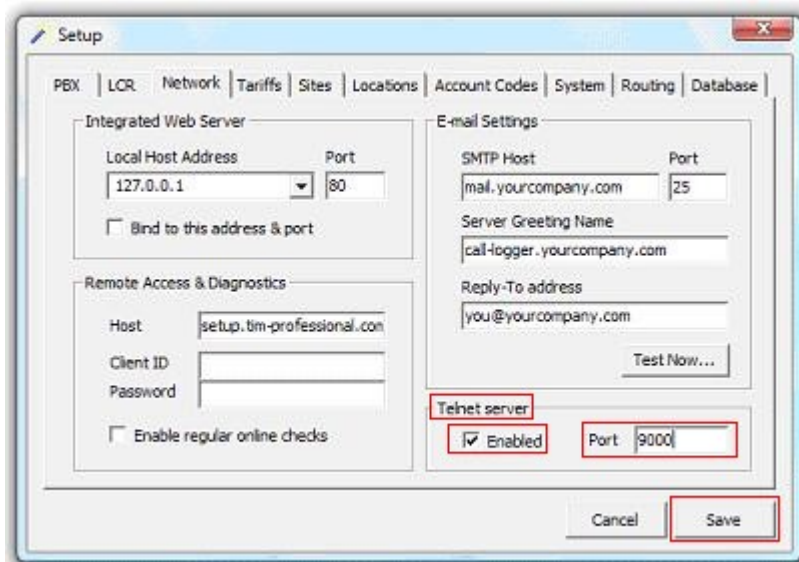
In the **Choose a template file** window that appears, select **Avaya IP Office.tdt** template file and click **Open** button.



The **Avaya IP Office.tdt** appears in the **PBX Data Format** area as shown below. Click on the **Network** tab.



In the **Telnet server** area of the Network tab that appears, check **Enabled** checkbox. Configure **Port** as **9000**, which is the SMDR TCP port configured on Avaya IP Office in **Section 4** and click **Save** button.



This completes configuration of the TIM Professional.

## 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 Professional 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 Professional servers were rebooted. The TIM Professional 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 Professional 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, and are being investigated by the Avaya IP Office team:

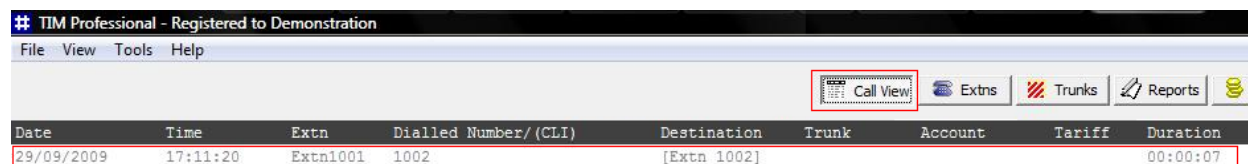
- An incoming call which is abandoned after a transfer appears as answered call.
- First leg of the call record is missing in scenario where the call is abandoned after it was transferred to the Hunt Group.

## 7. Verification Steps

The following steps may be used to verify the configuration:

- Use the **ping** utility on the Tri-Line's TIM Professional server to verify the IP connectivity to the Avaya IP Office.
- Verify that TIM Professional 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 Professional 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.

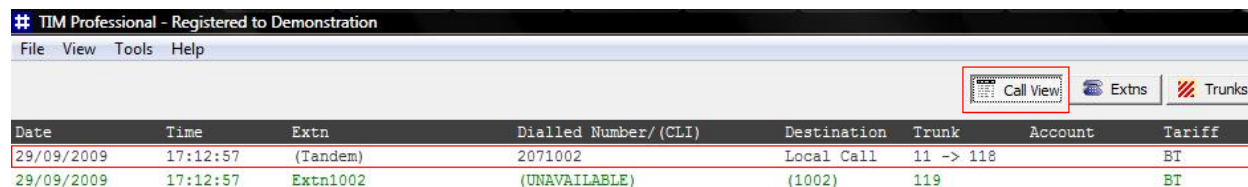
The following is an example of the Internal Call.



The screenshot shows the TIM Professional interface with the 'Call View' tab selected. A table displays a single call record for an internal call.

Date	Time	Extn	Dialled Number/ (CLI)	Destination	Trunk	Account	Tariff	Duration
29/09/2009	17:11:20	Extn1001	1002	[Extn 1002]				00:00:07

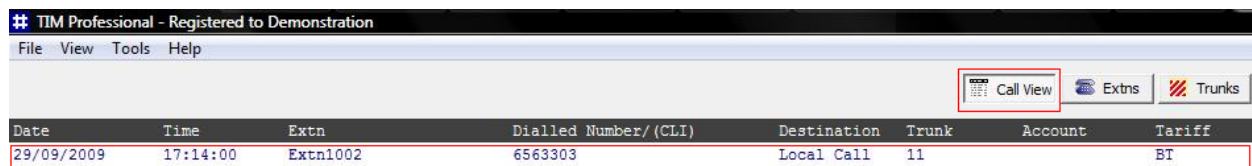
The following is an example of the Inbound Call.



The screenshot shows the TIM Professional interface with the 'Call View' tab selected. A table displays two call records for an inbound call.

Date	Time	Extn	Dialled Number/ (CLI)	Destination	Trunk	Account	Tariff
29/09/2009	17:12:57	(Tandem)	2071002	Local Call	11 -> 118		BT
29/09/2009	17:12:57	Extn1002	(UNAVAILABLE)	(1002)	119		BT

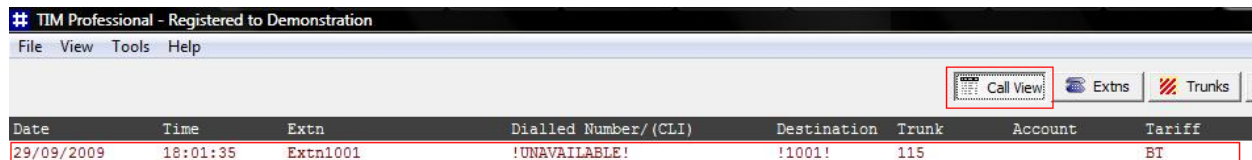
The following is an example of the Outbound Call.



The screenshot shows the TIM Professional interface with a menu bar (File, View, Tools, Help) and a toolbar with buttons for Call View, Extns, and Trunks. A table displays a single call record for 29/09/2009 at 17:14:00, originating from Extn1002 and dialed to 6563303. The destination is a Local Call on Trunk 11, with Account and Tariff details.

Date	Time	Extn	Dialled Number/(CLI)	Destination	Trunk	Account	Tariff
29/09/2009	17:14:00	Extn1002	6563303	Local Call	11		BT

The following is an example of the Abandoned Call.



The screenshot shows the TIM Professional interface with a menu bar (File, View, Tools, Help) and a toolbar with buttons for Call View, Extns, and Trunks. A table displays a single call record for 29/09/2009 at 18:01:35, originating from Extn1001 and dialed to !UNAVAILABLE!. The destination is !1001! on Trunk 115, with Account and Tariff details.

Date	Time	Extn	Dialled Number/(CLI)	Destination	Trunk	Account	Tariff
29/09/2009	18:01:35	Extn1001	!UNAVAILABLE!	!1001!	115		BT

## 8. Conclusion

These Application Notes describe the procedures for configuring the Tri-Line's TIM Professional to collect SMDR records from Avaya IP Office. The TIM Professional 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 Professional documentation can be provided by Tri-Line on request.

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