Avaya Solution & Interoperability Test Lab

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

Abstract

These Application Notes describe the procedures for configuring Avaya IP Office Delta Server 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 Delta Server.

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 Delta Server 5.2.30. TIM Plus connects to the Avaya IP Office Delta Server using a Transmission Control Protocol (TCP) socket connection 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 Office Delta Servers, which were parsing records 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

2. Reference Configuration

Figure 1 illustrates the network configuration used to verify the Tri-Line's TIM Plus solution. The main Site A was comprised of an Avaya IP500 Office, and had connections to the following: Avaya 1616 and 1603SW IP Telephones, Avaya 2420 Digital Telephone, simulated PSTN over the E1 ISDN-PRI trunk and to Site B over the H.323 IP trunk. The branch 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 to main Site A over the H.323 IP trunk. The network configuration at branch Site B was used to generate IP trunk call records. Avaya IP Office Manager, Voicemail Pro and Delta Server 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.
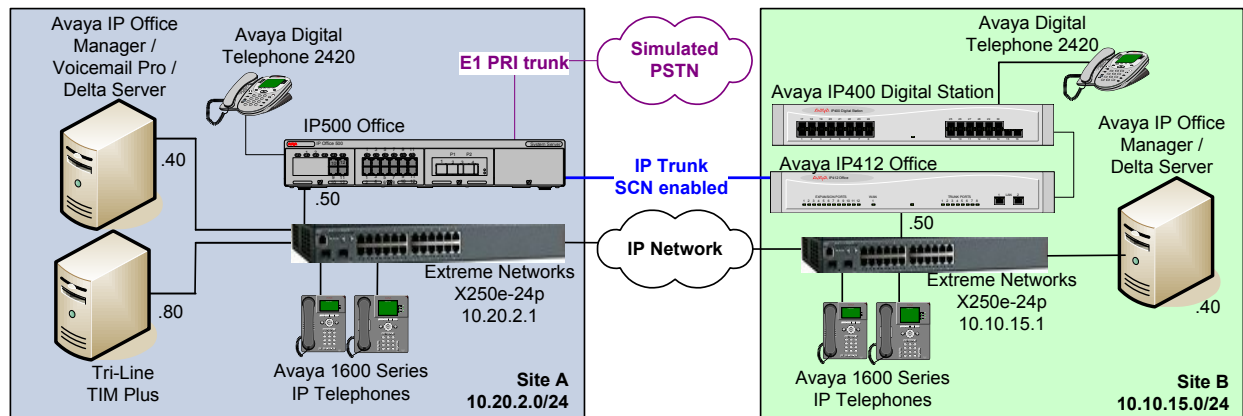
Figure 1: Tri-Line TIM Plus with Avaya IP Office Delta Server

Avaya IP Office Delta Server may only be used to report SMDR data from a single Avaya IP Office at a time, therefore for each site there was an Avaya IP Office Delta Server installed. Each Avaya IP Office Delta Server was configured to connect to respective Avaya IP Office, in order to receive the SMDR data from the Avaya IP Office and to send them to a third-party call accounting application. The Avaya IP Office Delta Server can be configured to send the SMDR data to a third-party call accounting application using different methods: SMDR log file, IP polling, sending to a specified IP address and port or sending to a serial (COM) port. The required method depends on the method of data transfer that is supported by the third-party call accounting application being used. For this solution, the Avaya IP Office Delta Server was configured for IP polling, meaning that IP port number was specified on which Avaya IP Office Delta Server PC was listening. TIM Plus was polling that IP port, and requesting the most recent SMDR records. On Site A, Delta Server was configured to listen on IP port 9000 and on Site B Delta Server was listening on IP Port 9001. TIM Plus opens a connection to each Avaya IP Office Delta Server, 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 Delta Server	5.2.30
Avaya IP Office Voicemail Pro	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

4. Configure Avaya IP Office

No configuration is required. For all other provisioning information such as Avaya IP Office installation and configuration, please refer to Avaya IP Office product documentation in reference [1].

5. Configure Avaya IP Office Delta Server

The configuration information provided in this section describes the steps used to configure Avaya IP Office Delta Server for this solution. For all other provisioning information, such as Avaya IP Office Delta Server installation, please refer to the product documentation in reference **[2]**.

5.1. Start Avaya IP Office Delta Server service

Log into the Avaya IP Office Delta Server PC on Site A with the appropriate administrative credentials and navigate to **Start → Control Panel**. In the Control Panel window that appears, double-click **Administrative Tools**. In the Administrative Tools window that appears, double-click **Services** (not shown). In the **Services** window that appears, verify **CCC Delta Server** is already started as shown below. If it is not started, start it manually.
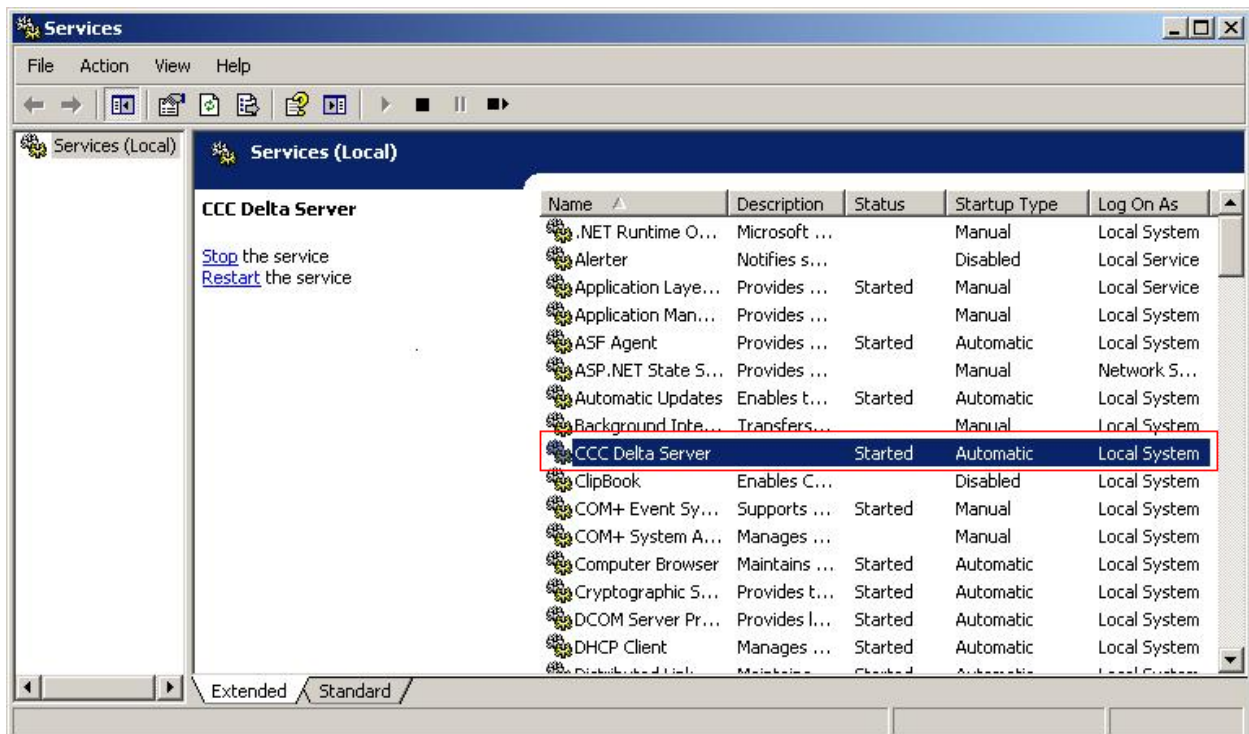
NOTE: Following initial installation, the CCC Delta Server service is not started until either the PC is restarted or the service is started manually.

Repeat the above step on Avaya IP Office Delta Server on Site B.

5.2. Configure connection between Avaya IP Office and Delta Server

Navigate to **Start → All Programs → CCC → Delta Server** to launch the Avaya IP Office Delta Server. In the Avaya IP Office Delta Server window that appears, click **Comms** in the left pane.

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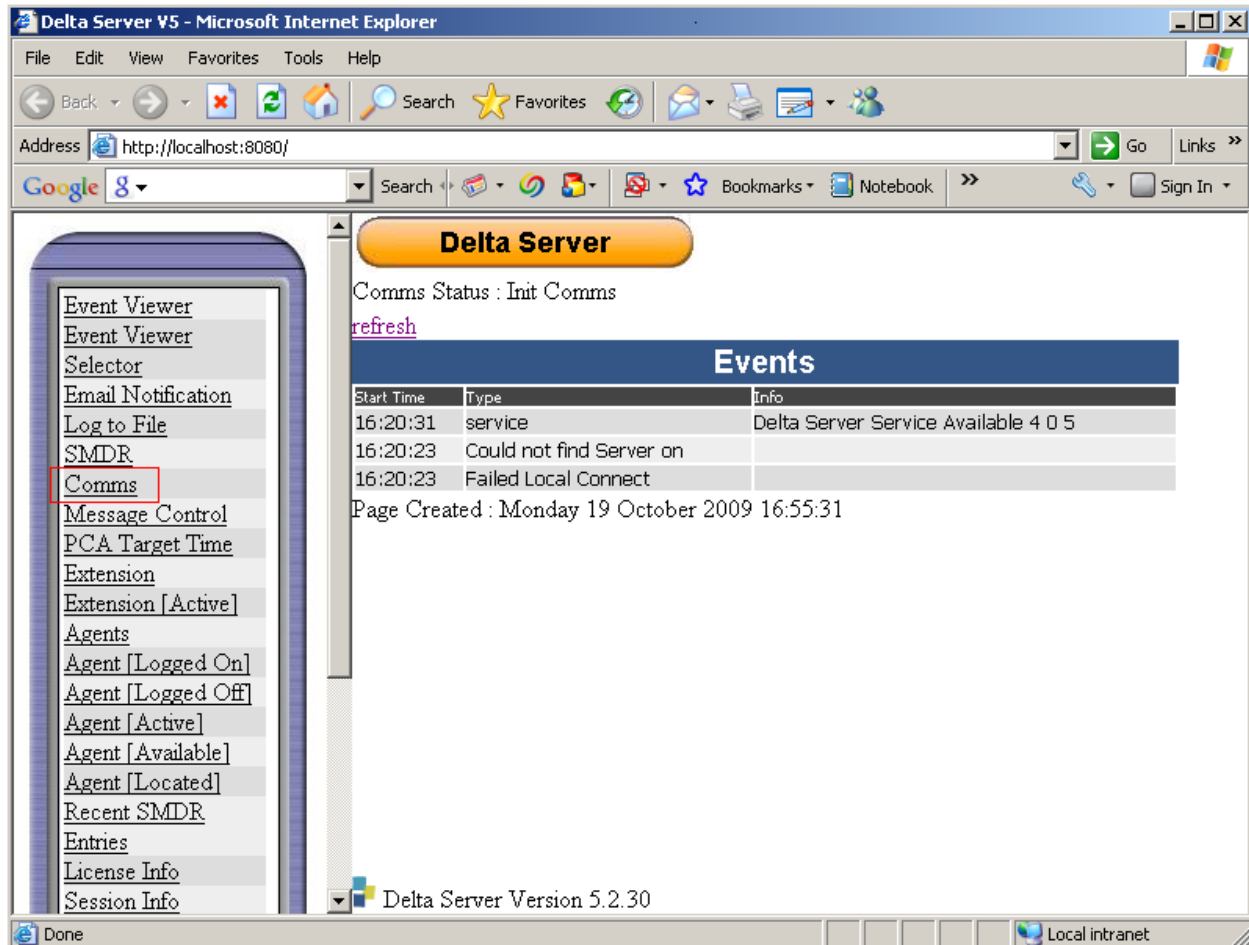
In the **Connection Information** page that appears, the following message is displayed: **There is Currently no data available for this request**. At this stage the **Comms Status** should be set to **Init Comms**. Select the required IP Office system from the **Connection** drop-down list. If the required IP Office system is not listed, enter its IP address in the **Search** field, and click the Search button (not shown). Once the IP Office is listed, click **apply** button.
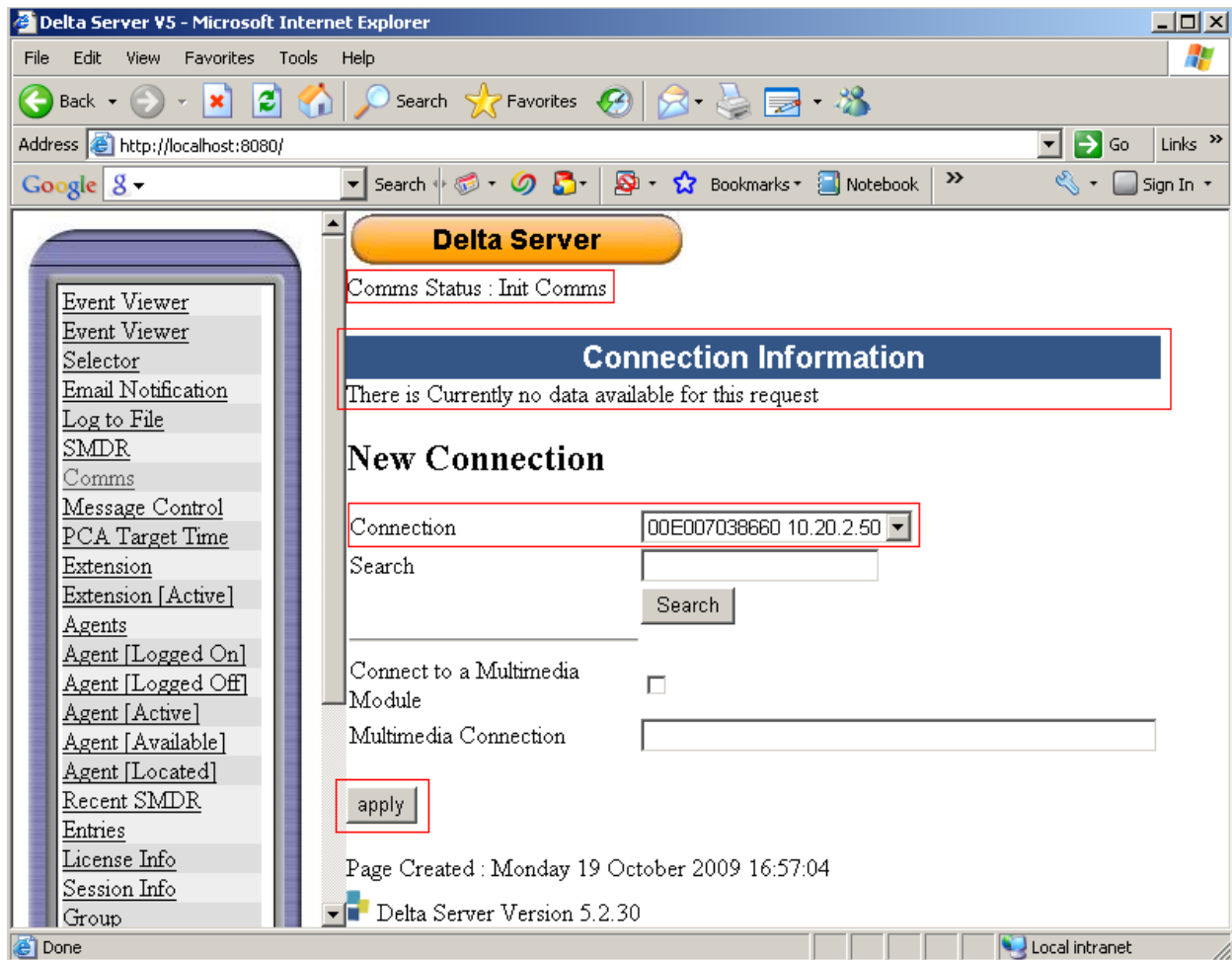
After the apply button is clicked, the **Connection Information** should be updated with details of the selected Avaya IP Office. Also the **Comms Status** should change from **Init Comms** to **Comms Restored**. This may take a few minutes.
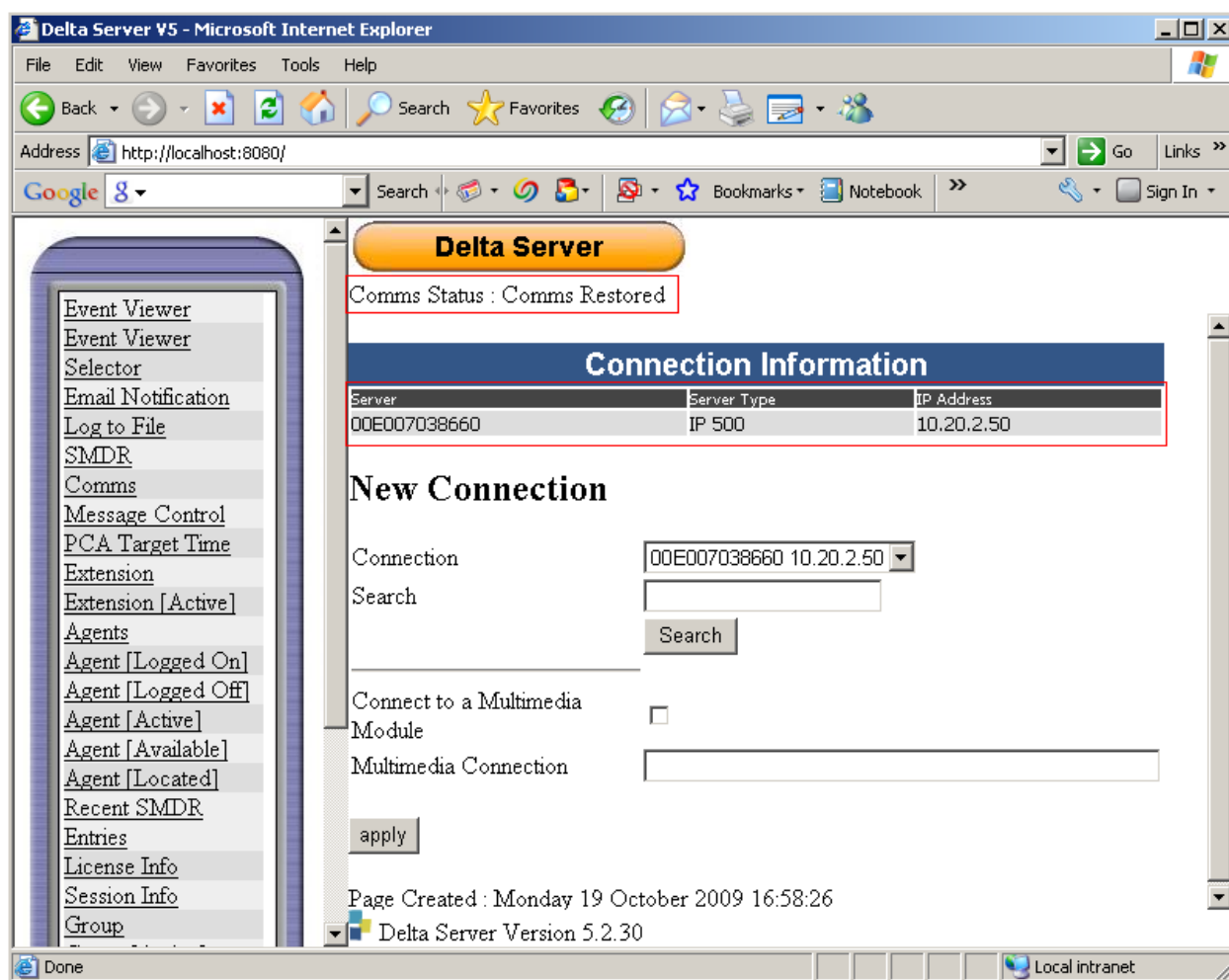
This completes configuration of the connection between the Avaya IP Office Delta Server and Avaya IP500 Office on Site A. This connection will enable Avaya IP Office Delta Server to receive the SMDR data from the Avaya IP Office.

Repeat the above steps to establish connection between the Avaya IP Office Delta Server and Avaya IP412 Office on Site B.

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5.3. Configure Delta Server's SMDR Port for IP Polling

Click **SMDR** in the left-hand panel. In the SMDR page that appears, check **SMDR Port Enabled** and set **SMDR Port** to **9000**. Click **apply**.
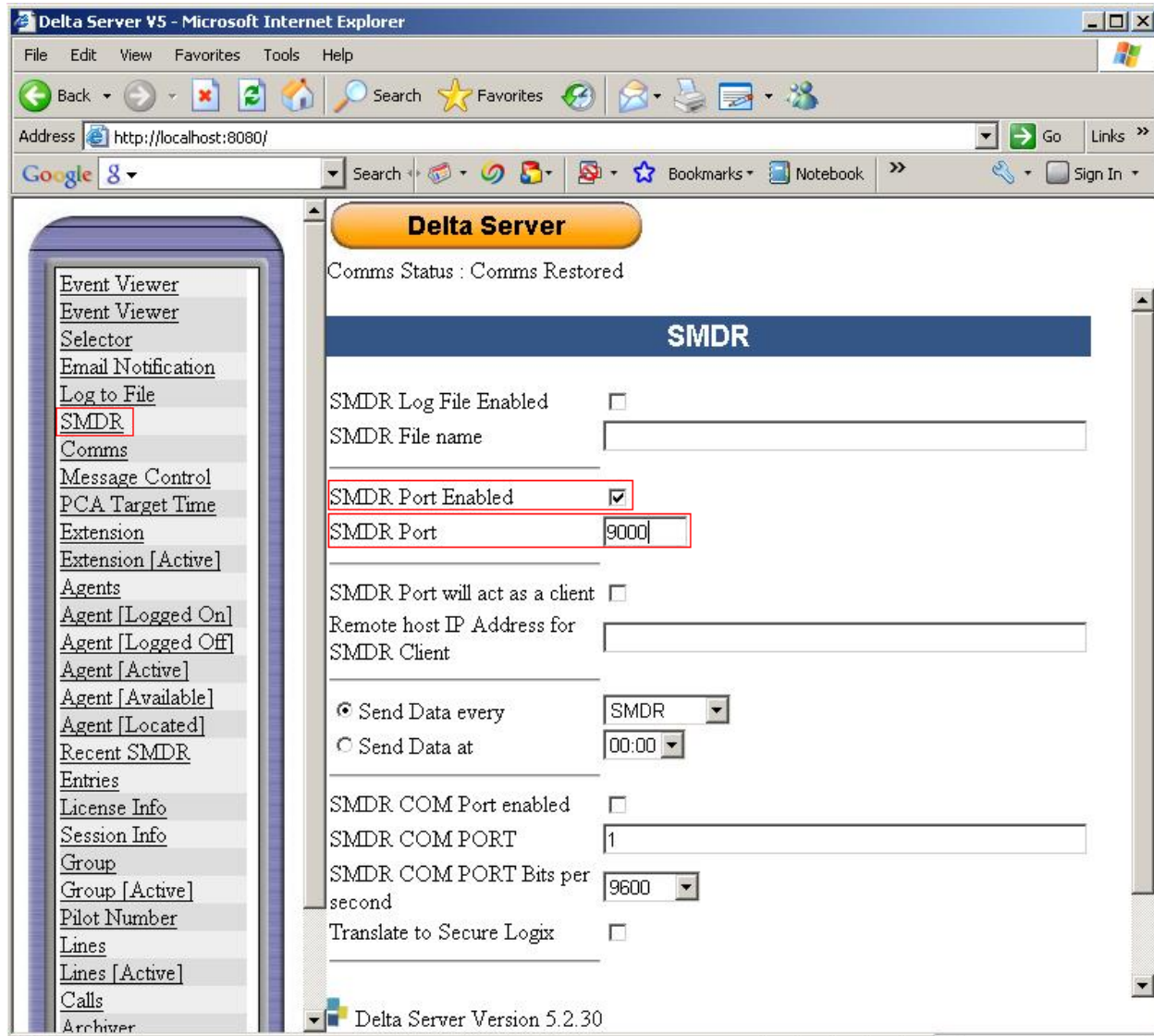
Repeat the above step on Site B and configure the **SMDR Port** as **9001**. This completes configuration of the Avaya IP Office Delta Server.

6. 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 Delta Server application. 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**.
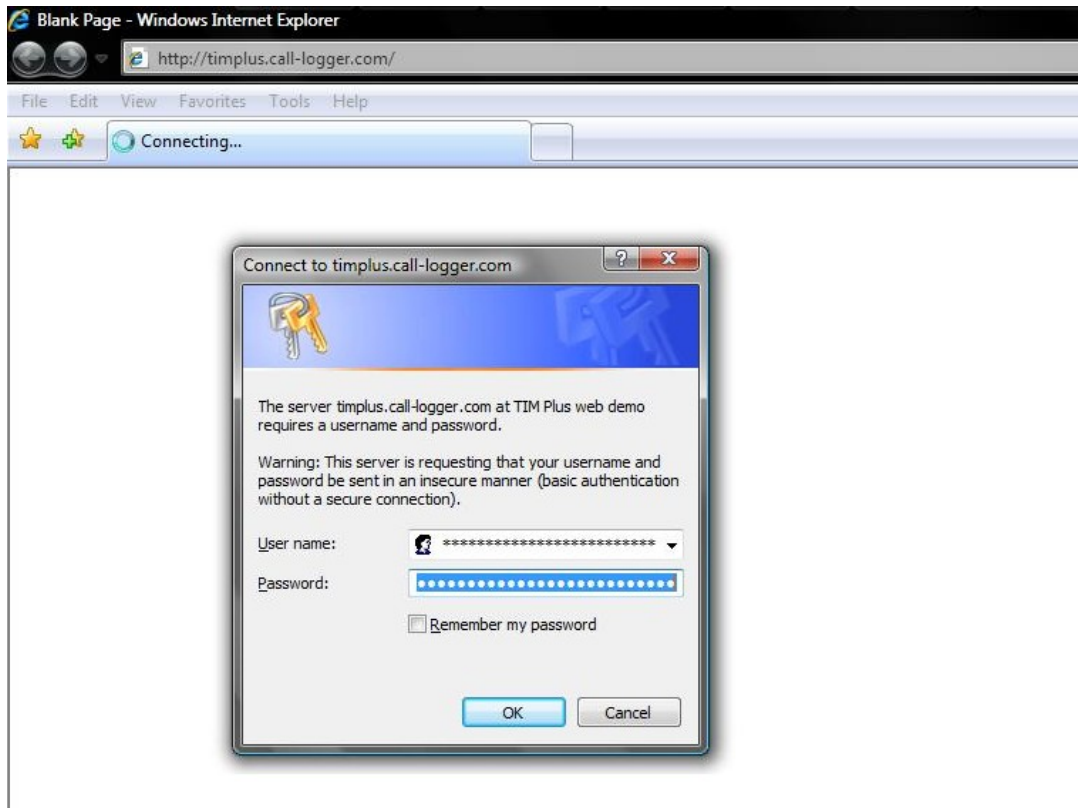
After successful login, click on the **Directory** tab in the TIM Plus menu (not shown) and Directory tab content will be displayed as shown below. On the default Directory screen, click the **Add** button to add a new site, and a new window will open.
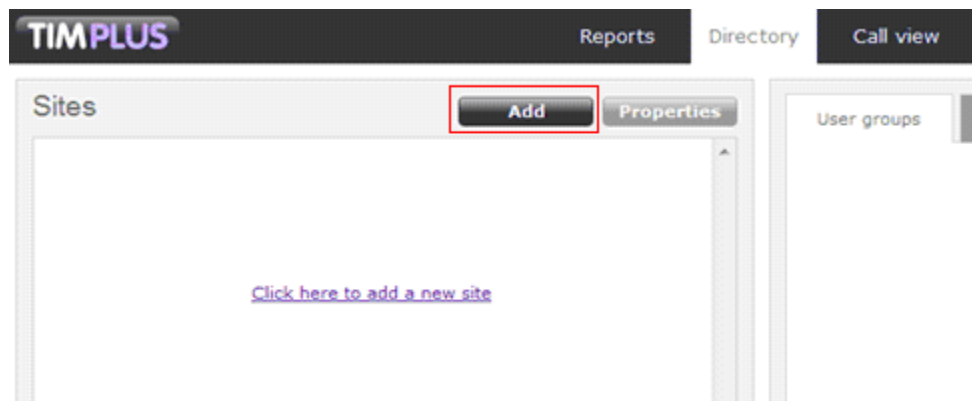
On the new **Site properties** window that appears, the default **PBX** tab is displayed. Enter the **Name** of the site; in this case **Dublin** was specified. From the drop down list select **Avaya IP Office** as the **PBX model** and for the **Connection method** select **Actively connect to PBX**.
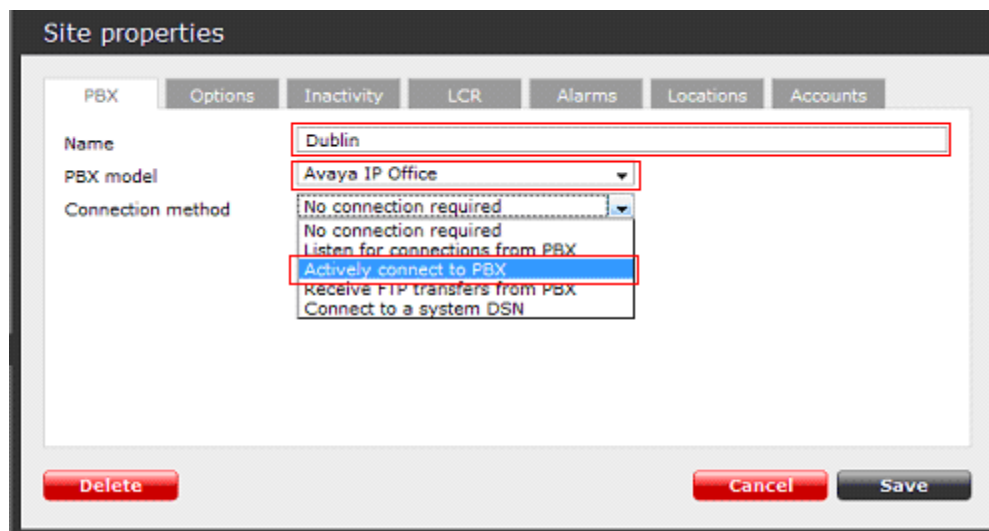
After selecting **Actively connect to PBX** as the connection method, new parameters that need to be configured appear on the PBX tab, as shown below. Configure **Host** parameter with the IP address of the Avaya IP Office Delta Server on the Site A; in this case that was **10.20.2.40**. Configure **Port** parameter with the SMDR port that is configured in **Section 5.3**; in this case that was **9000**. Select **ipoffice** as the **Connection script** from the drop-down list, and click **Save**.

Configured **Dublin** site will appear on Directory screen as shown below.
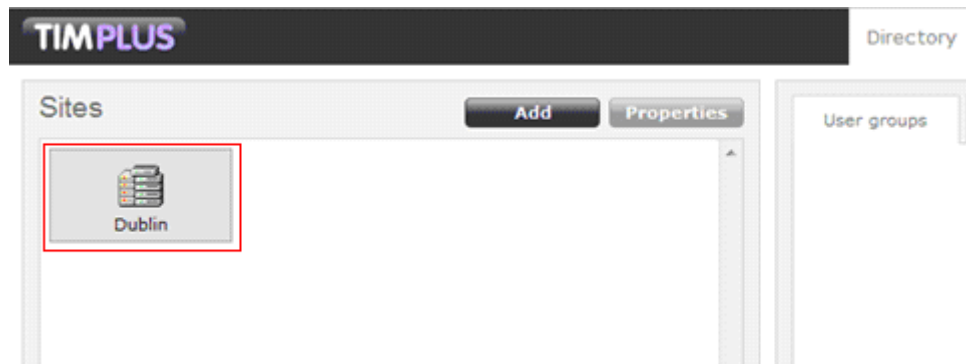
Repeat the above steps to add a new Directory for the Avaya IP Office on Site B. In this case **Host** was configured as **10.10.15.40** and **Port** as **9001**.

7. 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 Delta Server and properly classifies and reports the attributes of the call. For serviceability testing, logical links were disabled/re-enabled, and Delta Server and TIM Plus servers were rebooted.

The TIM Plus successfully collected and processed the SMDR records from Avaya IP Office Delta Server 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 Delta Server output. They are being investigated by the Avaya IP Office team:

- An incoming call which is abandoned after a transfer appears as an outbound call.
- An incoming call which is abandoned at a Hunt Group appears as abandoned at the User's Extension.

8. 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 Delta Server.
- Verify that the Avaya IP Office Delta Server properly generates SMDR records by placing internal, inbound and outbound calls on the Avaya IP Office. Then click **Recent SMDR Entries** and confirm the call activity is properly reflected.
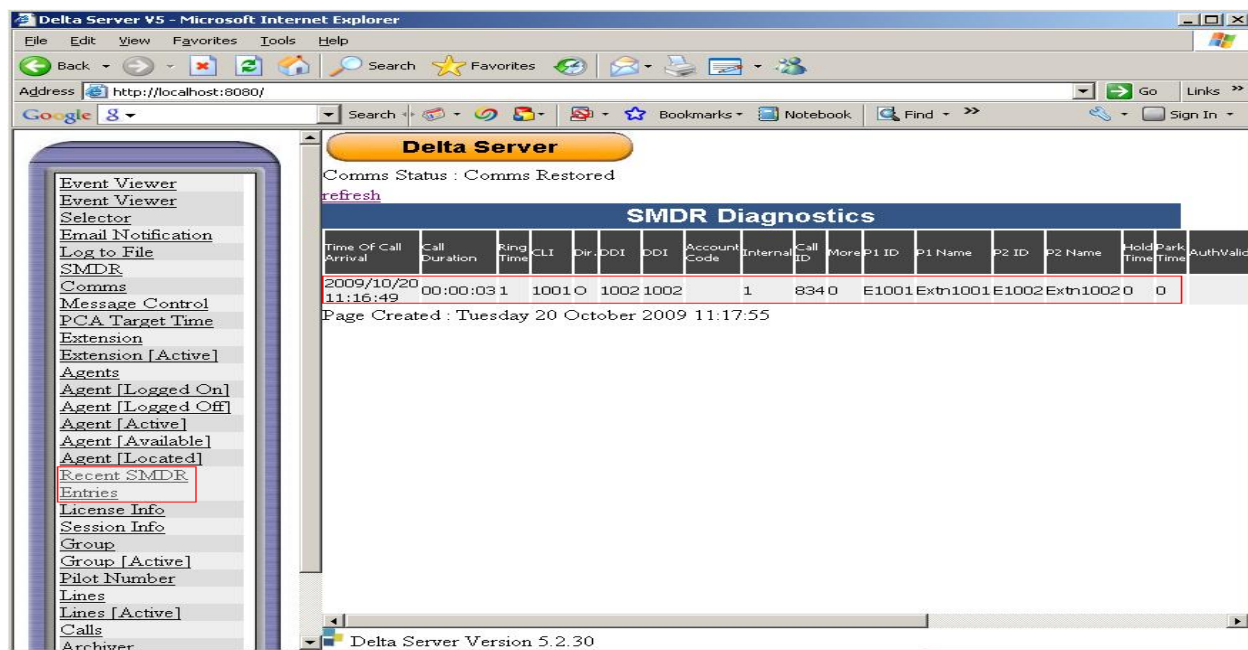
- Verify that TIM Plus receives the raw SMDR record for the call. Compare the values of data fields in the SMDR record with the expected values and verify that they match.
- Place internal, inbound trunk, outbound trunk and abandoned calls to and from various telephones. Select **Call view** tab on the 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.

The following is an example of the Outbound Call.

The following is an example of the Abandoned Call.

9. Conclusion

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

10. 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
      [2] *Avaya IP Office Delta Server SMDR*, Issue 08c - 03 October 2008

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