



## Avaya Solution & Interoperability Test Lab

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# Application Notes for Trisys TAPIT EX with Avaya IP Office Delta Server - Issue 1.0

### Abstract

These Application Notes describe the configuration steps required for the Trisys TAPIT EX Call Accounting for Business software to work with Avaya IP Office Delta Server. TAPIT EX is a call management and accounting software package designed to report on the phone activity of a business. TAPIT EX works with the Call Detail Record (CDR) / Station Message Detail Reporting (SMDR) information output by Avaya IP Office Delta Server. Information in these Application Notes was obtained through compliance testing and additional technical discussions. Testing was conducted via the Developer *Connection* Program at the Avaya Solution and Interoperability Test Lab.

# 1. Introduction

These Application Notes describe the configuration steps required for the Trisys TAPIT EX Call Accounting for Business software to work with Avaya IP Office Delta Server. TAPIT EX is a call management and accounting software package designed to report on the phone activity of a business. TAPIT EX collects call information from a telephone system and stores it for call costing and reporting at a later time. It is a tool to help identify and control expenses, provide statistical information, and assist in the overall management of the business. TAPIT EX works with the Call Detail Record (CDR) / SMDR (Station Message Detail Reporting) information output by Avaya IP Office Delta Server. TAPIT EX offers:

- Automatic data collection
- Automatic report scheduling
- ANI / Caller ID deluxe reporting
- Ability to e-mail reports
- SMDR failure alarm
- Fraud alert detection
- Web enabled reports with permission-based access
- Export to time and billing packages, spreadsheet, or text file
- Graphical reports

TAPIT EX is made up of the following components:

- **CDR Loader** – the program used to read the Avaya IP Office CDR file.
- **SMDR Monitor** – the program used to process CDR data received from the CDR Loader into a format used by Trisys TAPIT EX.
- **TAPIT EX** – the main call accounting program. It loads CDR data processed by SMDR Monitor into the database for report generation. The program is also used to define users and clients, and to generate reports for call accounting.

The configuration in **Figure 1** shows a network consisting of an Avaya IP412 Office, an Avaya IP Office Manager/Voicemail Pro PC, an Avaya IP Office Delta Server PC, a Trisys TAPIT EX Server, and Avaya 4600 Series IP Telephones connected to an Ethernet switch. The Avaya IP412 Office LAN2 port is connected to an Extreme Summit X450-24T.

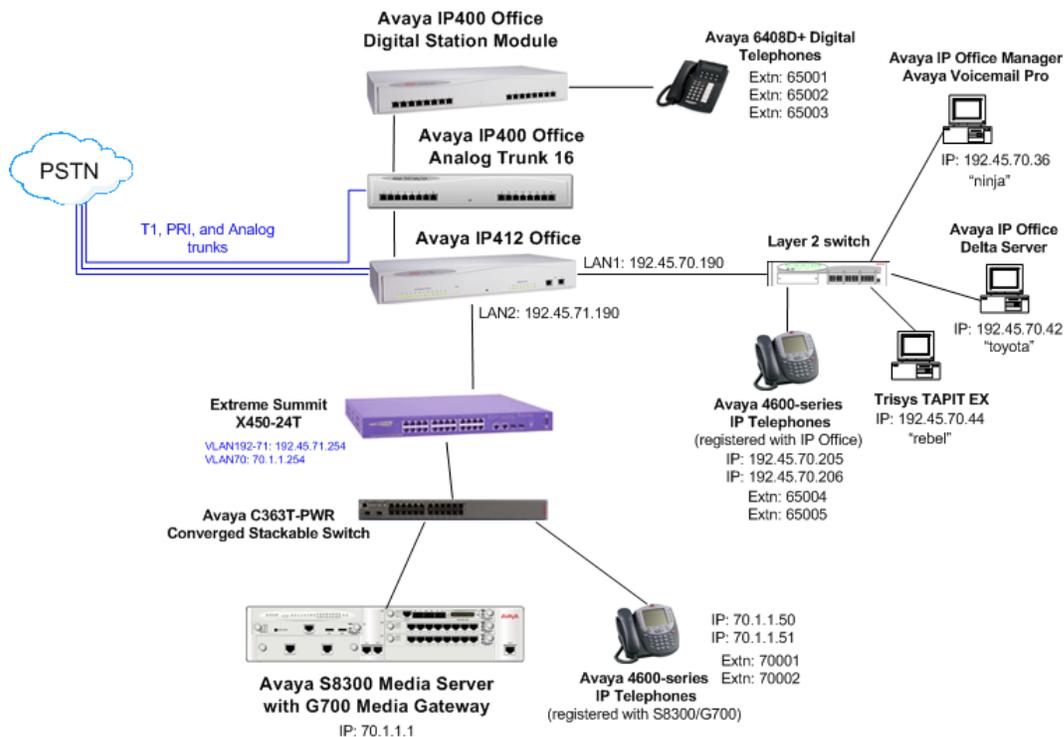
The Avaya S8300 Media Server with Avaya G700 Media Gateway and Avaya 4600 Series IP Telephones, used to generate IP trunk calls to and from the Avaya IP412 Office, are connected to the Avaya C363-PWR Converged Stackable Switch, which in turn is connected to the Extreme Summit X450-24T. The Avaya C363-PWR Converged Stackable Switch is used in this configuration as a Layer 2 switch.

The Avaya IP412 Office has T1, PRI and Analog trunks to the central office. The Avaya IP Office Delta Server is configured to connect to the Avaya IP412 Office in order to generate CDR data for all inbound and outbound calls as well as internal calls.

The Avaya IP Office Delta Server can be configured to send the CDR records it receives from the Avaya IP Office to a number of destinations via CDR log file, IP polling or sending to a specified IP address and port. The required destination depends on which methods of data transfer are supported by the third-party call accounting application being used. In the case of this solution, the Delta Server is configured to write CDR records to a CDR log file.

In order for the Trisys TAPIT EX software to be able to access the CDR files generated by the Avaya IP Office Delta Server, the CDR folder is shared to the network. Trisys TAPIT EX is configured to look for the CDR file(s) on the share drive of the Avaya IP Office Delta Server PC. It can be configured to automatically retrieve new<sup>1</sup> CDR records every few minutes. Upon CDR record retrieval, the TAPIT EX software parses and processes the CDR data<sup>2</sup>, then stores the parsed CDR data into a TAPIT EX Microsoft Access database for later record retrieval and/or reporting by the end user.

The tested configuration is shown in **Figure 1**.



**Figure 1 – Network Configuration Diagram**

<sup>1</sup> When automatic record retrieval is initiated, TAPIT EX maintains a timestamp of the last record retrieval performed. All CDR data with timestamps after the last record retrieval is considered new and will be retrieved and processed.

<sup>2</sup> CDR Loader and SMDR Monitor retrieve, parse and process CDR data from the Delta Server. TAPIT EX parses and processes the CDR data retrieved based on requirements provided by customers. For more detailed information, contact Trisys technical support.

## 2. Equipment and Software Validated

The following products and software were used for the configuration in **Figure 1**:

Product	Software/Version
Avaya IP412 Office	3.0(44)
Avaya IP400 Office Analog Trunk 16	5.0(44)
Avaya IP400 Office Digital Station Module	5.0(44)
Avaya IP Office Delta Server	5.0(14)
Avaya Voicemail Pro	3.0(15)
Avaya 4602SW IP Telephones	1.8.2
Avaya 4620SW IP Telephones	2.2
Avaya 6408D+ Digital Telephones	-
Avaya C363T-PWR Converged Stackable Switch	4.3.12
Avaya S8300 Media Server with Avaya G700 Media Gateway	Avaya Communication Manager 2.2
Extreme Summit X450-24T	11.2.4.2
Trisys TAPIT EX - CDR Loader - SMDR Monitor	4.1.8 Build Date: 05/18/2005 - 1.3.55 Build Date: 05/18/2005 - 4.0.7.4 Build Date: 08/16/2005
PCs for Avaya IP Office Manager, Avaya Voicemail Pro, Avaya IP Office Delta Server, and Trisys TAPIT EX	Windows 2000 Professional Service Pack 4

**Table 1 – Product and Software Version**

## 3. Configure Avaya IP Office

No additional configuration is required.

## 4. Configure Avaya IP Office Delta Server

The configuration information provided in this section describes the steps required to set up Avaya IP Office Delta Server to generate CDR records to a CDR log file and to share the CDR folder on the network.

For all other provisioning information, such as Avaya IP Office Delta Server installation, etc., refer to the Avaya IP Office Delta Server product documentation in reference [2].

Step	Description
1.	Navigate to <b>Start</b> → <b>Programs</b> → <b>Administrative Tools</b> → <b>Services</b> on the Avaya IP Office Delta Server PC.
2.	In the Services window that appears, verify <b>CCC Delta Server</b> is already started. If it is not, then start it manually.

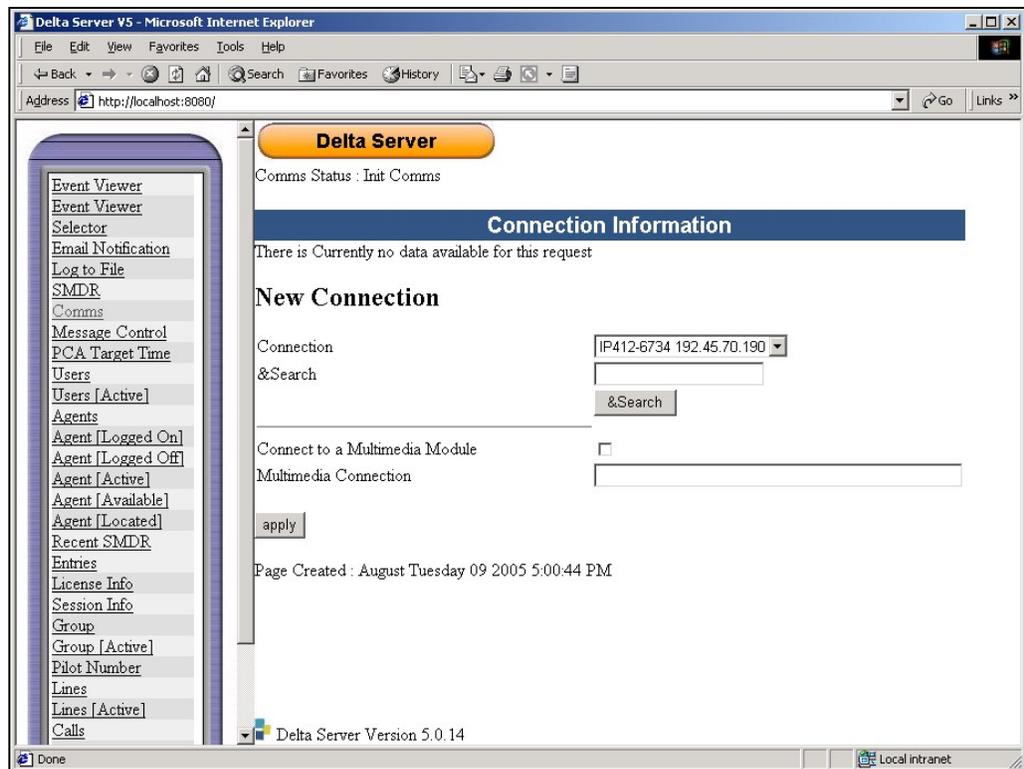
Name	Description	Status	Startup Type	Log On As
Alerter	Notifies sel...		Manual	LocalSystem
Application Manage...	Provides s...		Manual	LocalSystem
ASP.NET State Serv...	Provides s...		Manual	.\ASPNET
Automatic Updates	Enables th...	Started	Automatic	LocalSystem
Background Intellig...	Transfers f...		Manual	LocalSystem
<b>CCC Delta Server</b>		Started	Automatic	LocalSystem
ClipBook	Supports C...		Manual	LocalSystem
COM+ Event System	Provides a...	Started	Manual	LocalSystem
Computer Browser	Maintains a...	Started	Automatic	LocalSystem
DHCP Client	Manages n...	Started	Automatic	LocalSystem
Distributed Link Tra...	Sends notif...	Started	Automatic	LocalSystem
Distributed Transac...	Coordinate...		Manual	LocalSystem
DNS Client	Resolves a...	Started	Automatic	LocalSystem
Event Log	Logs event...	Started	Automatic	LocalSystem
Fax Service	Helps you ...		Manual	LocalSystem
iClarityQoSService			Automatic	LocalSystem
Indexing Service			Manual	LocalSystem
Internet Connectio...	Provides n...		Manual	LocalSystem
IPSEC Policy Agent	Manages I...	Started	Automatic	LocalSystem
Key Server		Started	Automatic	LocalSystem
Logical Disk Manaqer	Logical Disk...	Started	Automatic	LocalSystem

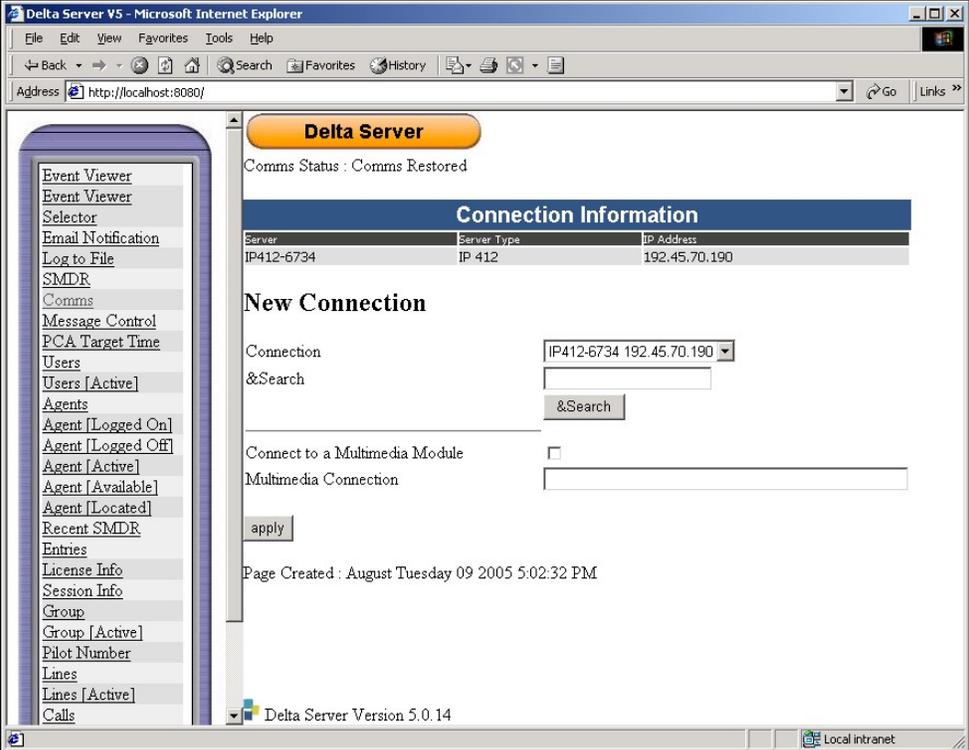
**NOTE:** Following initial installation, the CCC Delta Server service is not started until either the PC is restarted or the service is started manually.

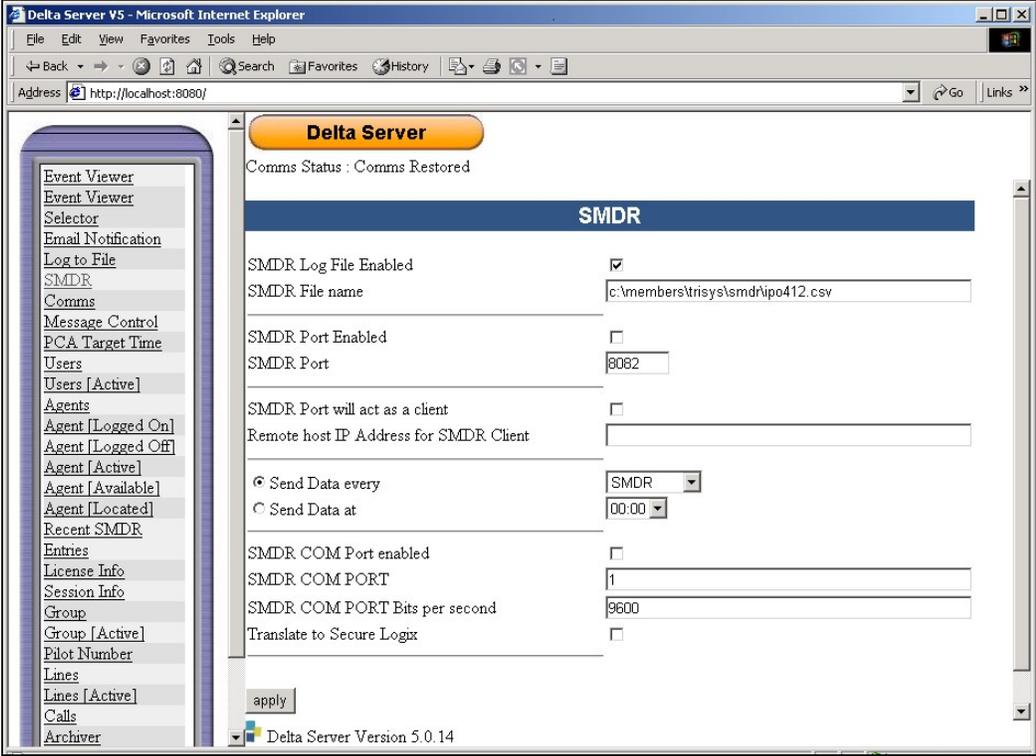
- | Step | Description   |
|------|---|
| 3.   | Navigate to <b>Start</b> → <b>Programs</b> → <b>CCC</b> → <b>Delta Server</b> to launch the Delta Server. In the Delta Server window that appears, click <b>Comms</b> in the left-hand panel. |



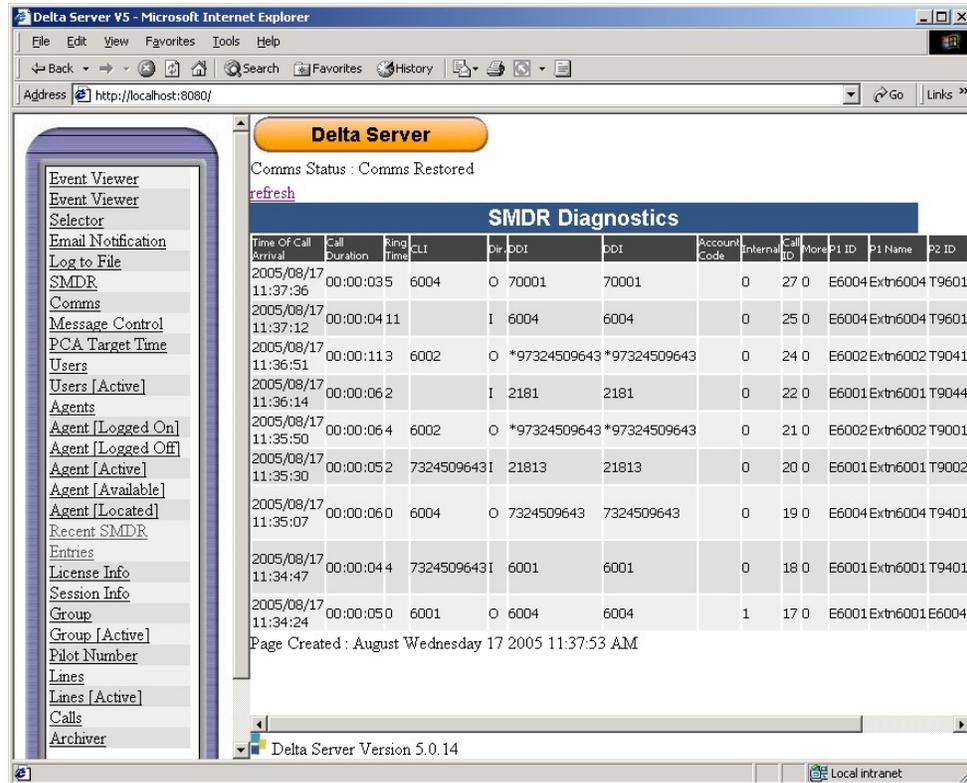
- |    |   |
|----|---|
| 4. | In the Connection Information page that appears, select the required IP Office system from the <b>Connection</b> drop-down. If the required IP Office system is not listed, enter its IP address in the <b>&amp;Search</b> field and click <b>&amp;Search</b> . |
|----|---|

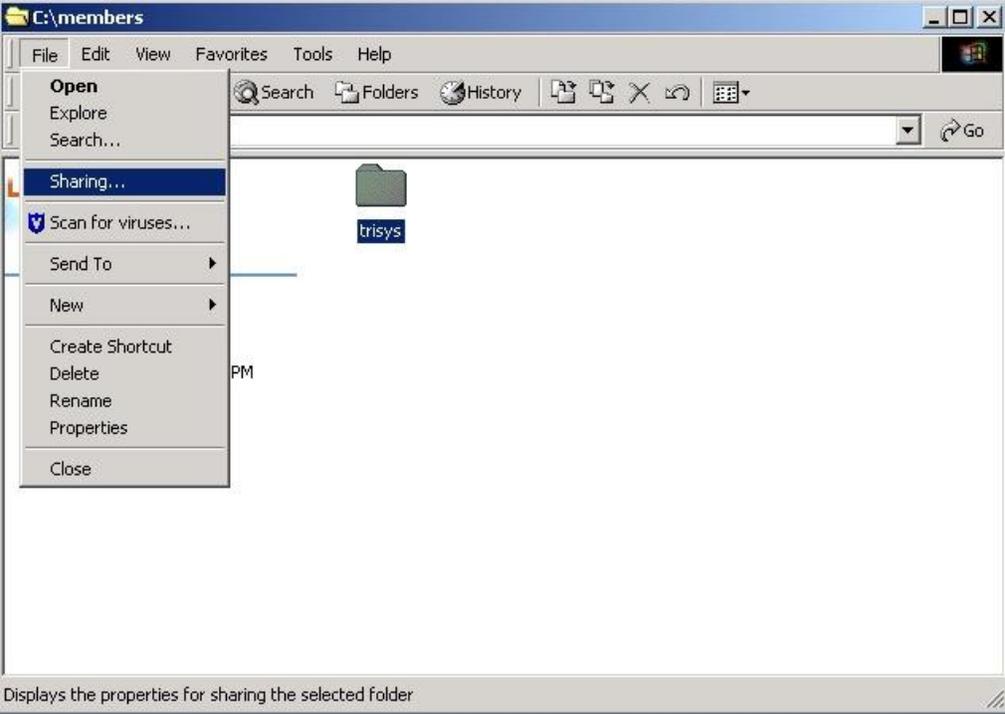


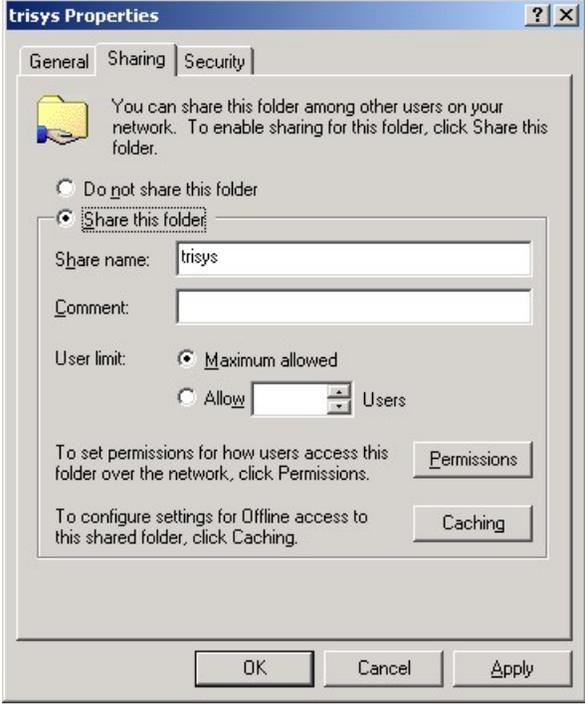
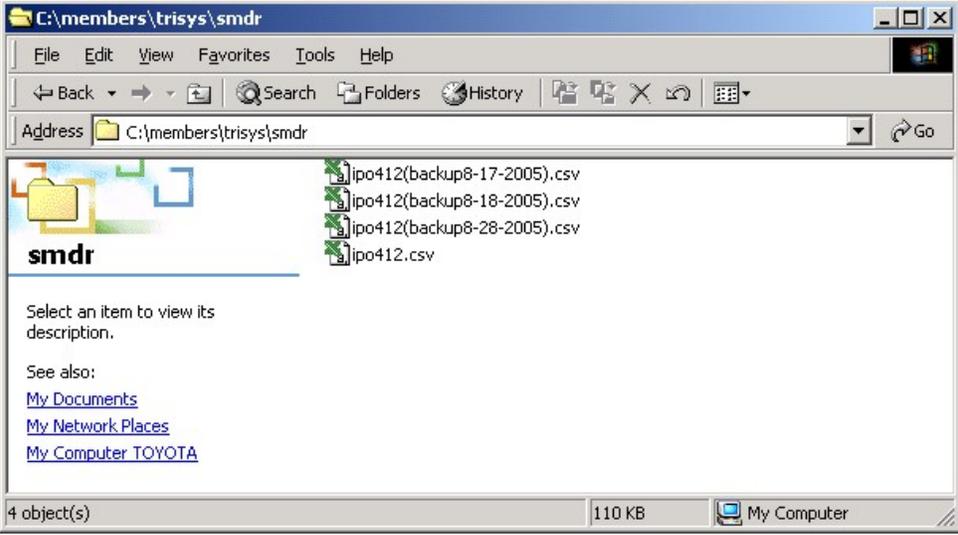
Step	Description
5.	<p>Once the correct system is selected, click <b>apply</b>. Ensure that <i>Comms Status</i> changes to <b>Comms Restored</b>. This may take a few minutes. Once this connection is established with the IP Office, the Delta Server will generate CDR data for all calls that occur on the IP Office.</p> 
	<p><b>NOTE:</b> If the IP Office name or IP address is changed, this step must be repeated in order to re-establish the connection to the IP Office.</p>

Step	Description
6.	<p>Click <b>SMDR</b> in the left-hand panel. In the SMDR page that appears, check <b>SMDR Log File Enabled</b> and set <b>SMDR File name</b> to the absolute path name of the file the Delta Server will log the SMDR data to (default: C:\Program Files\AVAYA\IP Office\SMDR.CSV) and click <b>apply</b>.</p>  <p><b>NOTE:</b> Since Trisyss TAPIT EX requires read-access to the share directory where the SMDR files are located; a separate directory <i>C:\members\trisyss\smdr</i> was created for this purpose in the test configuration (not shown).</p>

Step	Description
7.	Verify the Delta Server properly generates SMDR records by placing inbound and outbound calls on the Avaya IP Office. Then click <b>Recent SMDR Entries</b> and confirm the call activity is properly reflected.



Step	Description
	<b>Share the CDR folder on the network</b>
8.	<p>As mentioned in Step 6, a folder <code>C:\members\trisys\smdr</code> was created in the test configuration (not shown). Navigate to <code>C:\members\trisys</code> on the Avaya IP Office Delta Server PC. Click the <b>trisys</b> folder and select <b>File</b> → <b>Sharing...</b></p> 

Step	Description
9.	<p>In the trisys Properties popup that appears, select <b>Share this folder</b> and click <b>OK</b>.</p>  <p><b>NOTE:</b> The network share created was not limited to specific users or permissions in the lab-tested configuration. However, limiting access to this share to specific network users and permissions (read-only) should be considered for security purposes.</p>
10.	<p>The path to the SMDR file from the TAPIT EX PC to the Delta Server PC, called <i>toyota</i> in <b>Figure 1</b>, is <a href="\\toyota\trisys\smdr\ipo412.csv">\\toyota\trisys\smdr\ipo412.csv</a>. Note this directory for use during the TAPIT EX CDR Loader configuration in Section 5.</p> 

Step	Description
11.	This completes configuration of the Avaya IP Office Delta Server.

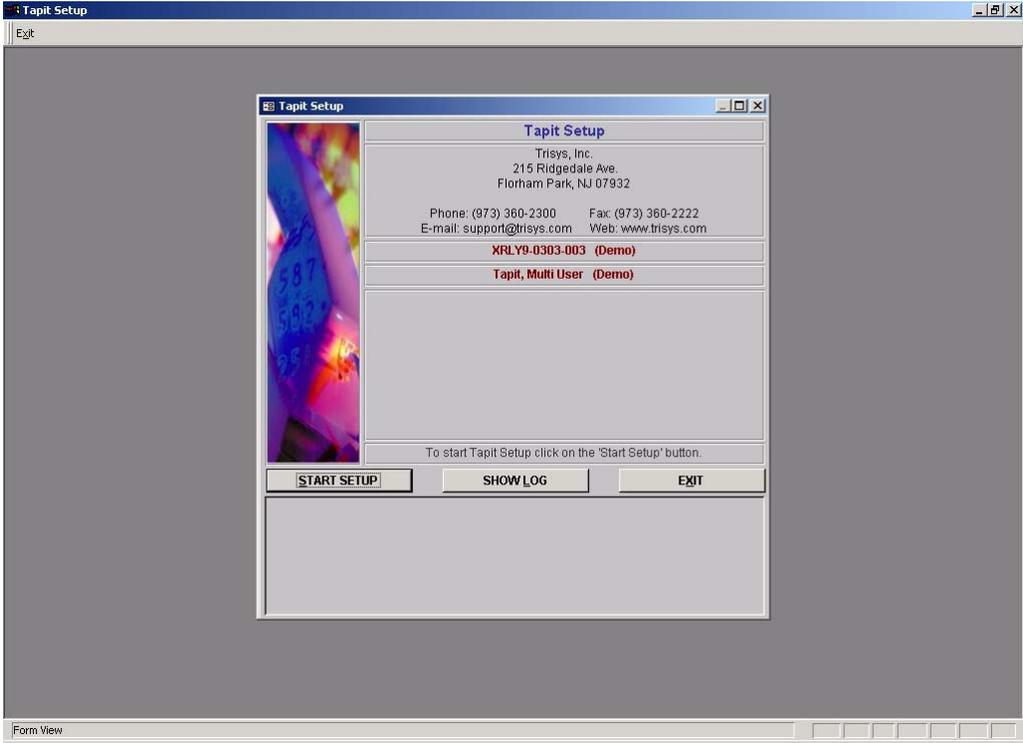
## 5. Configure Trisys TAPIT EX

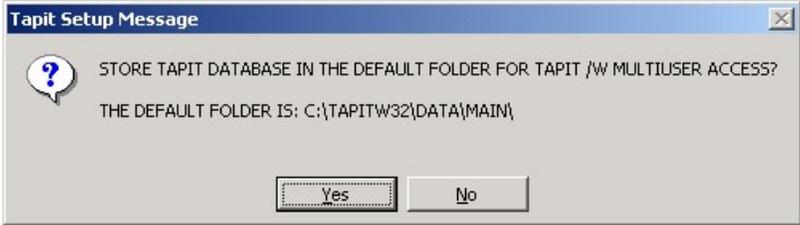
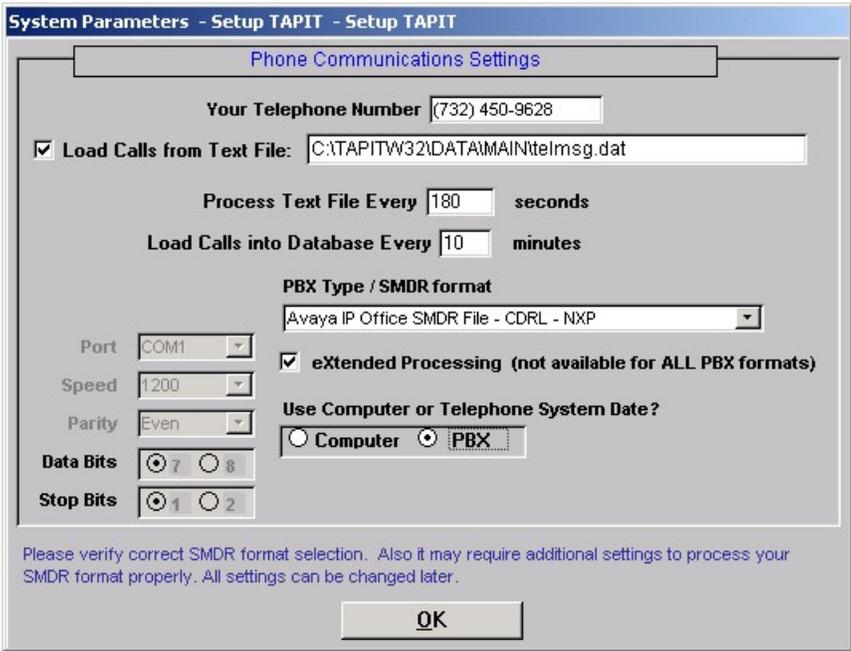
The configuration information provided in this section describes the steps required to set up Trisys TAPIT EX to read and import CDR records generated to a file by the Avaya IP Office Delta Server.

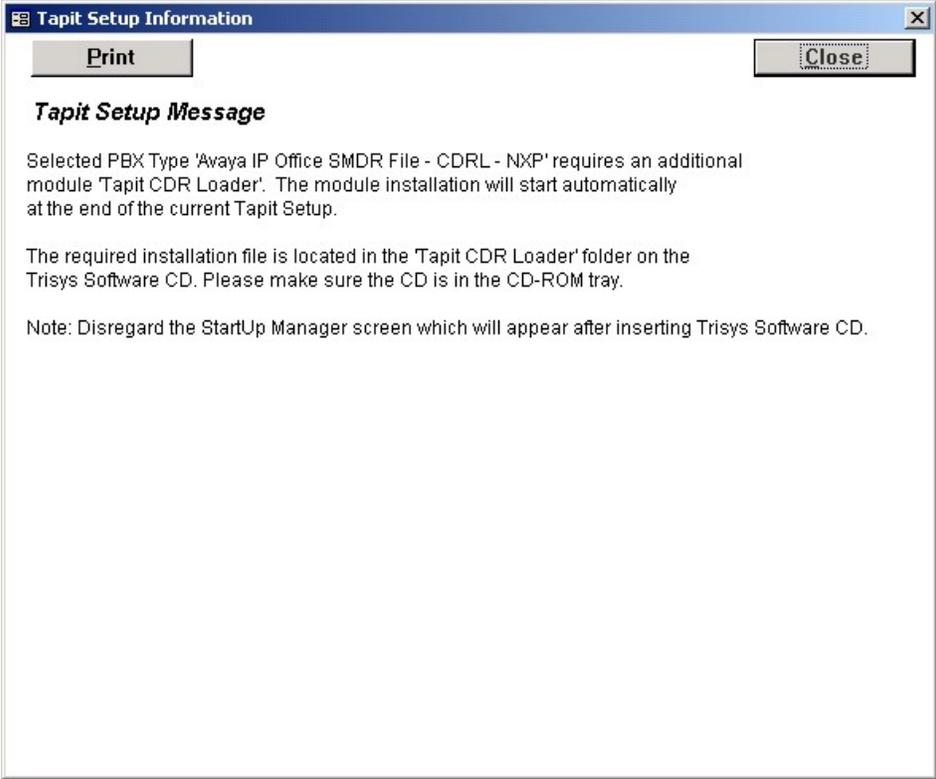
For all other provisioning information, such as TAPIT EX software installation, installation of optional components, configuration of TAPIT EX for call accounting, report generation, etc., refer to the Trisys TAPIT EX product documentation in reference [3].

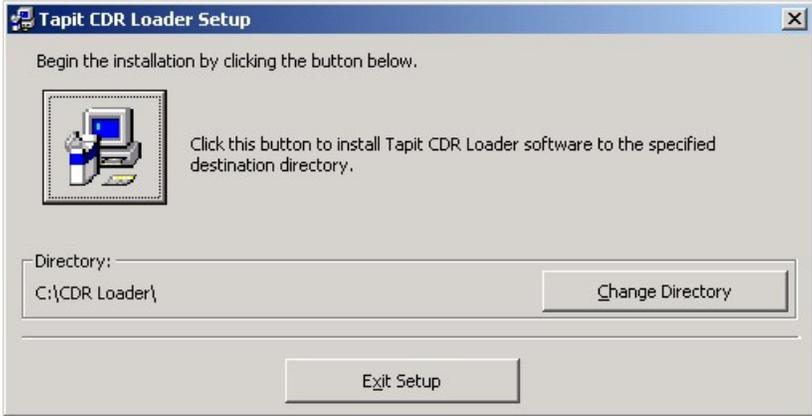
### 5.1. Initial Configuration

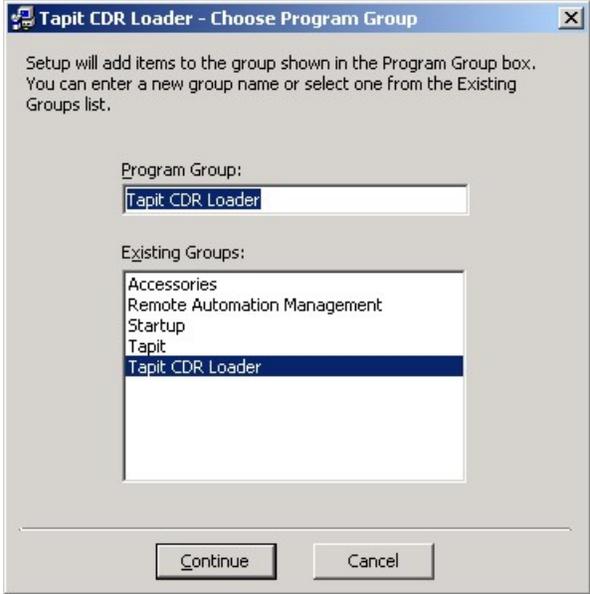
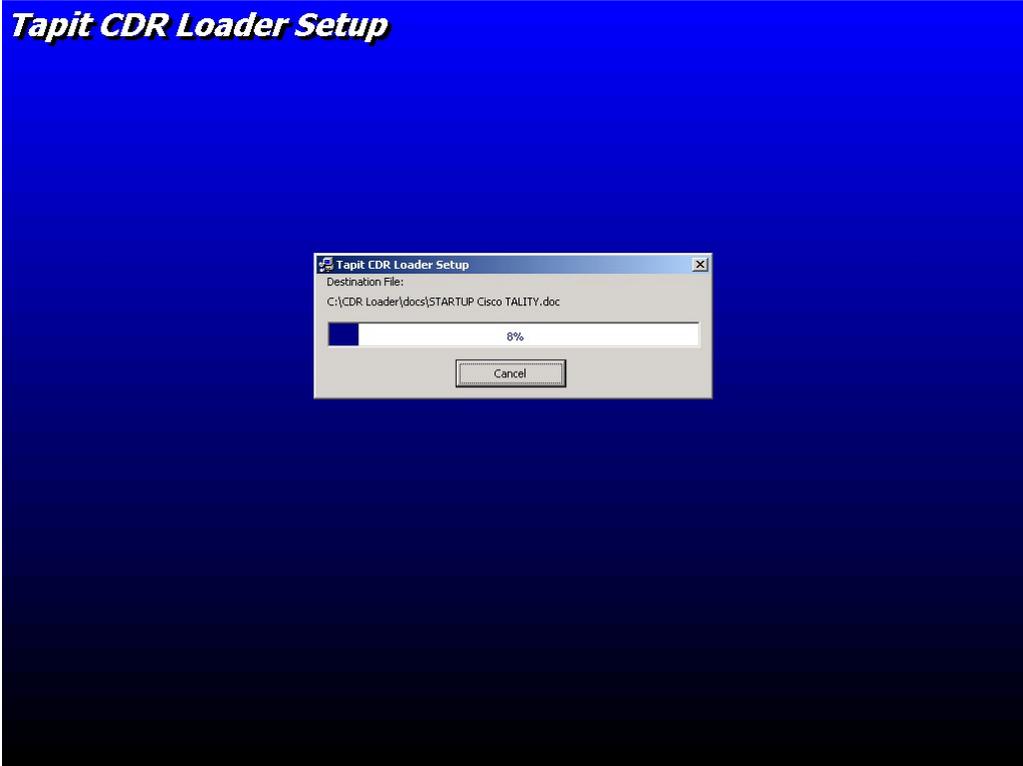
Step	Description
1.	Log into the Trisys TAPIT EX PC with the appropriate administrative credentials.
2.	Navigate to <b>Start</b> → <b>Programs</b> → <b>Tapit</b> → <b>Tapit Setup</b> . In the Tapit Setup Message popup window that appears, click <b>Yes</b> .

Step	Description
<p>3.</p>	<p>In the Tapit Setup window that appears, click <b>START SETUP</b>.</p> 
<p>4.</p>	<p>In the Tapit Setup Message popup that appears, click <b>Yes</b>.</p> 

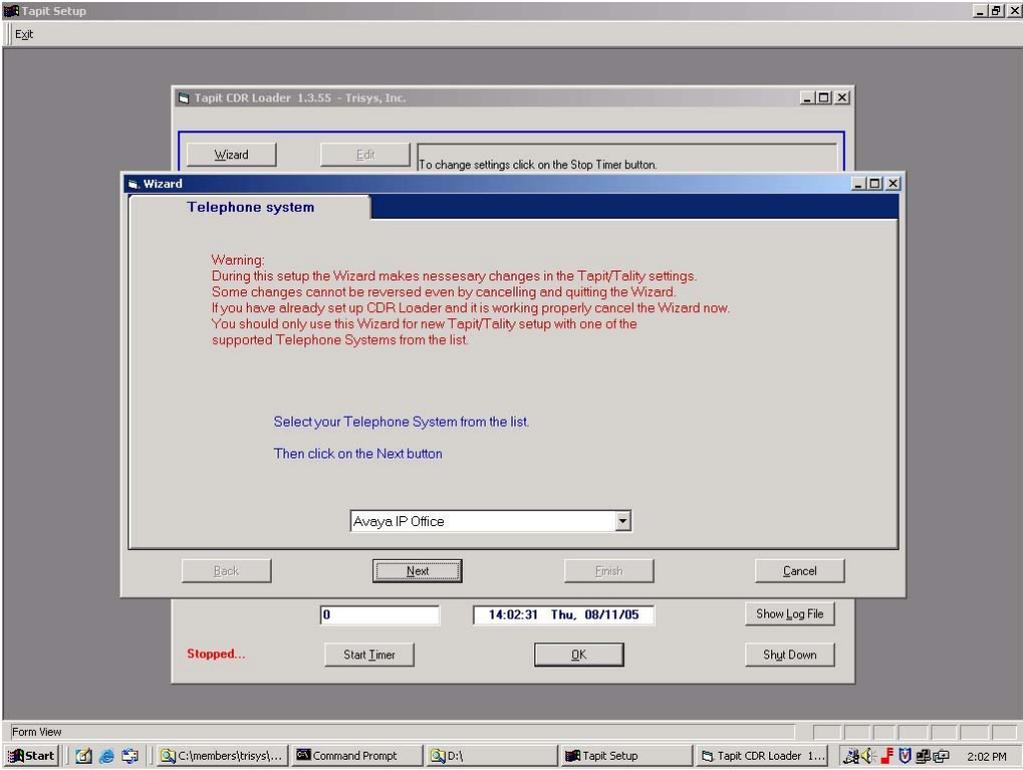
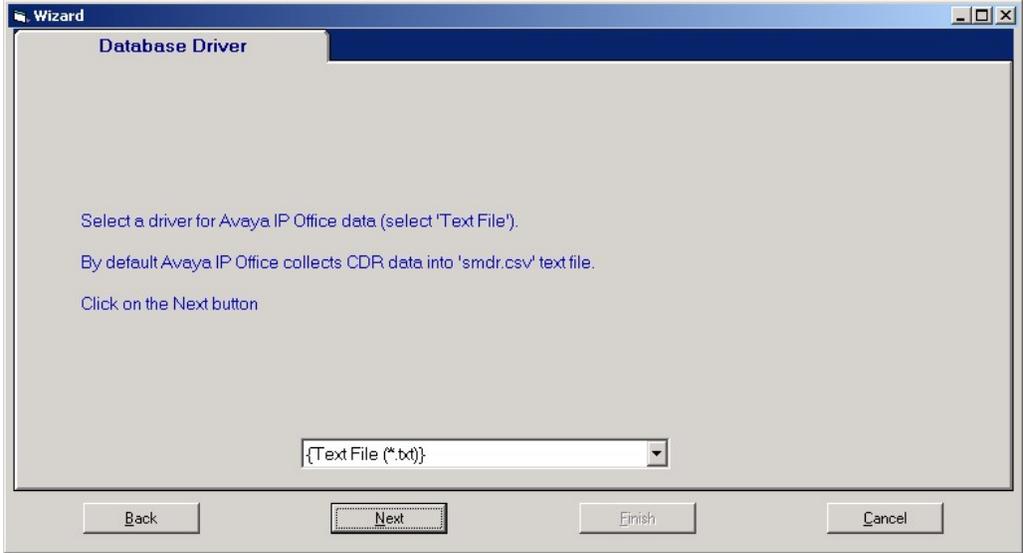
Step	Description
5.	<p>In the next Tapit Setup Message popup that appears, click <b>No</b>.</p> 
6.	<p>In the next Tapit Setup Message popup that appears, click <b>Yes</b>.</p> 
7.	<p>In the System Parameters – Setup TAPIT window that appears, set <i>Your Telephone Number</i> to the phone number for the business, set the <i>PBX Type / SMDR format</i> pull-down field to <b>Avaya IP Office SMDR File – CDRL – NXP</b> and click <b>OK</b>.</p> 

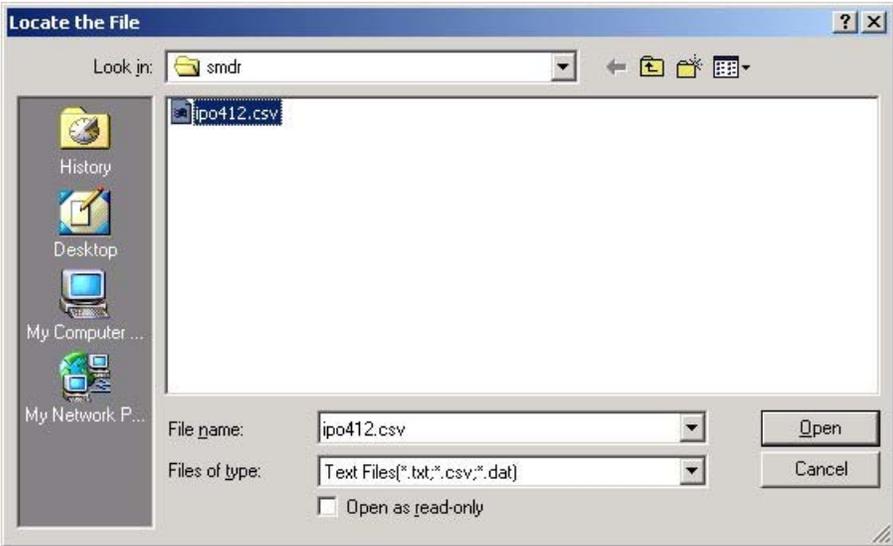
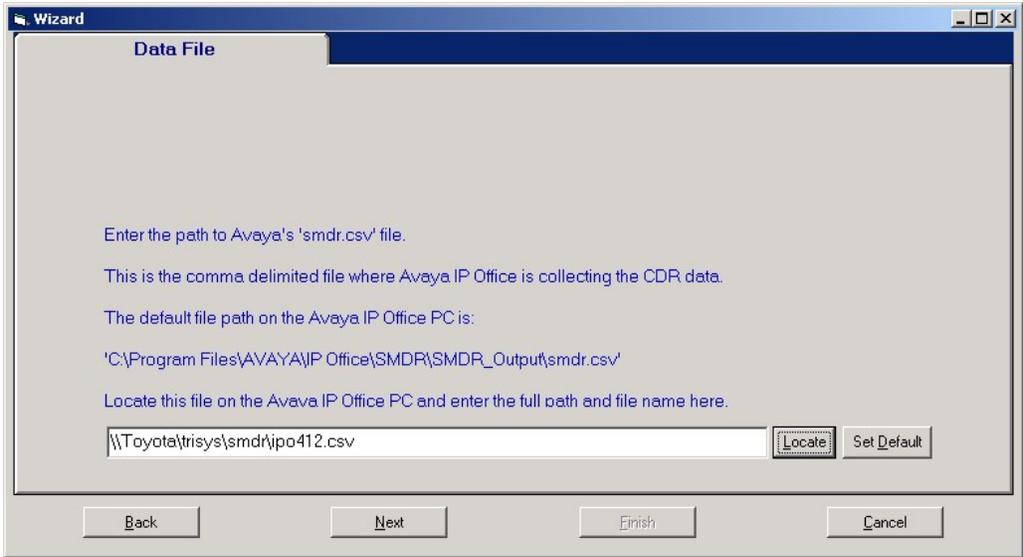
Step	Description
8.	<p>In the Tapit Setup Information window that appears, click <b>Close</b>.</p> 
9.	<p>In the Tapit Setup Message popup that appears, click <b>No</b>. The V&amp;H Data Package is an optional package containing rate information. No V&amp;H Data Package was used for compliance testing.</p> 
10.	<p>In the next Tapit Setup message popup that appears, click <b>OK</b>.</p> 

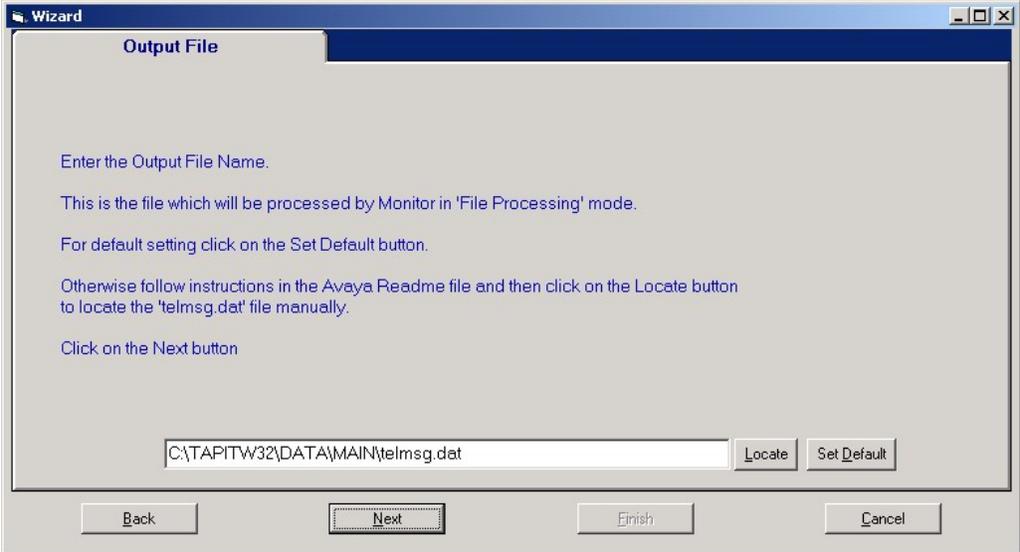
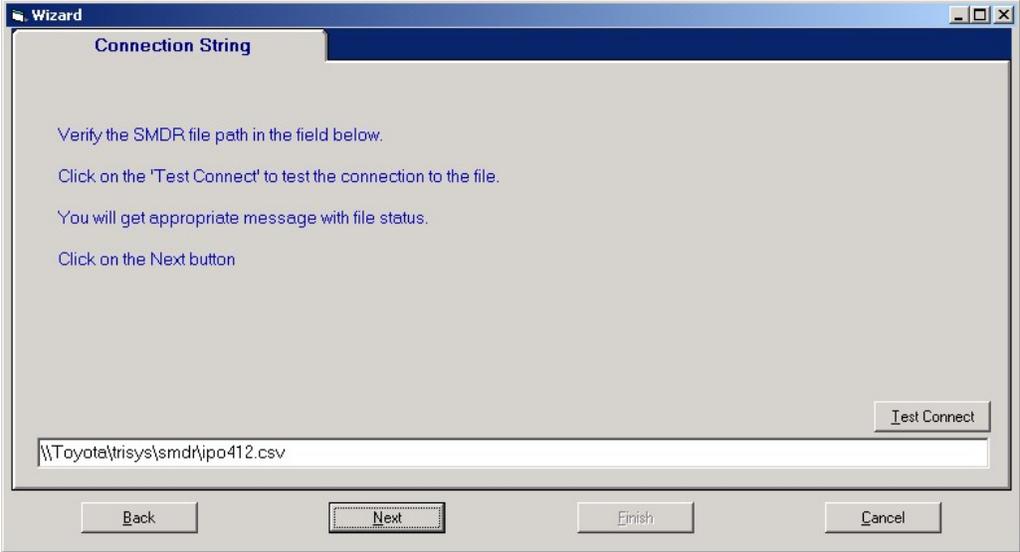
Step	Description
11.	<p>In the TAPIT CDR Loader Setup popup that appears, click <b>OK</b>.</p> 
12.	<p>In the next TAPIT CDR Loader Setup popup that appears, click  to install Tapit CDR Loader.</p> 

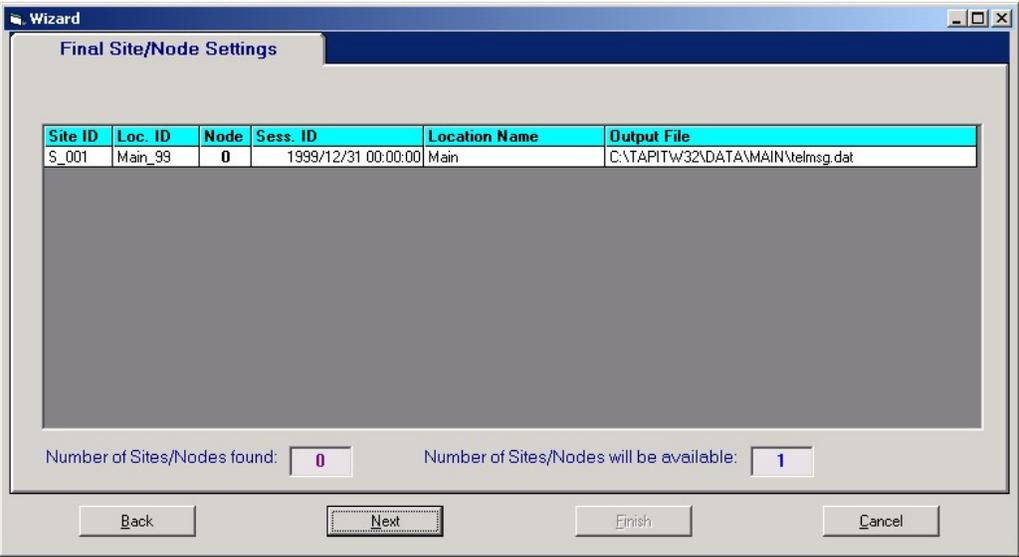
Step	Description
13.	<p>In the Tapit CDR Loader – Choose Program Group popup that appears, click <b>Continue</b>.</p> 
14.	<p>Allow the Tapit CDR Loader Setup progress window to proceed without interruption.</p> 

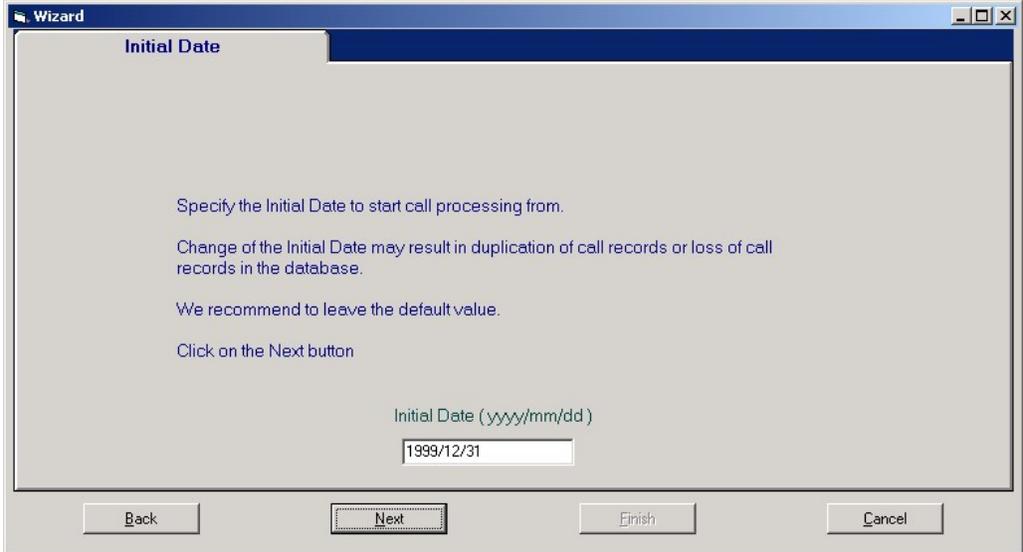
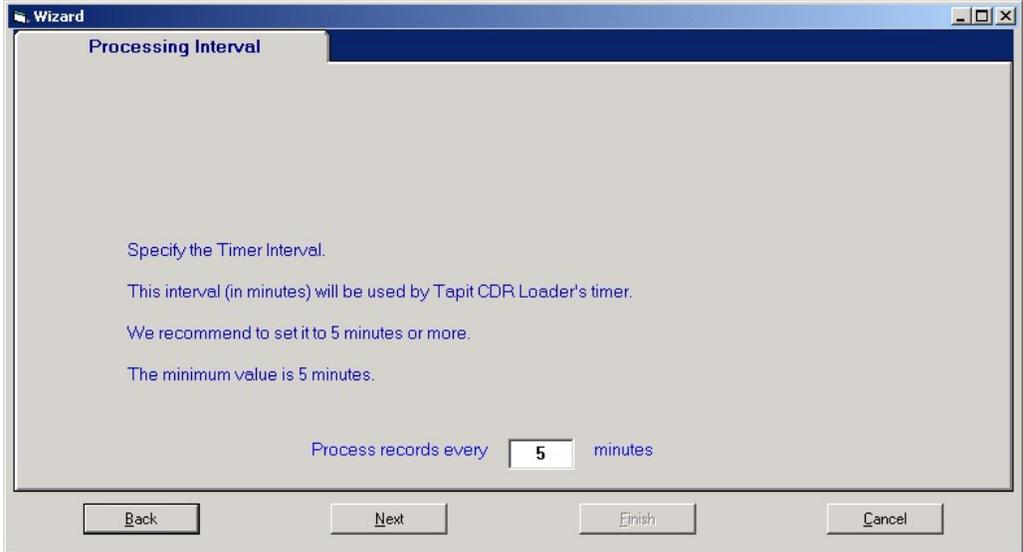
Step	Description
15.	<p>In the Tapit CDR Loader Setup popup that appears, click <b>OK</b>.</p>  <p>The screenshot shows a dialog box titled "Tapit CDR Loader Setup" with a close button (X) in the top right corner. The text inside the dialog reads "Tapit CDR Loader Setup was completed successfully." Below the text is a single button labeled "OK".</p>
16.	<p>In the Tapit Setup Message popup that appears, click <b>OK</b>.</p>  <p>The screenshot shows a dialog box titled "Tapit Setup Message" with a close button (X) in the top right corner. On the left side, there is a yellow warning triangle icon. To the right of the icon, the text reads "Please wait until Tapit CDR Loader installation will be completed. If it is already completed click on the OK button." Below the text is a single button labeled "OK".</p>
17.	<p>In the Tapit CDR Loader Message popup that appears, click <b>OK</b>.</p>  <p>The screenshot shows a dialog box titled "Tapit CDR Loader Message" with a close button (X) in the top right corner. On the left side, there is an information icon (a lowercase 'i' inside a circle). To the right of the icon, the text reads "TAPIT CDR LOADER HAS DETECTED AVAYA IP OFFICE SYSTEM SELECTION. TO PROCEED USE THE WIZARD TO CONFIGURE TAPIT CDR LOADER." Below the text is a single button labeled "OK".</p>

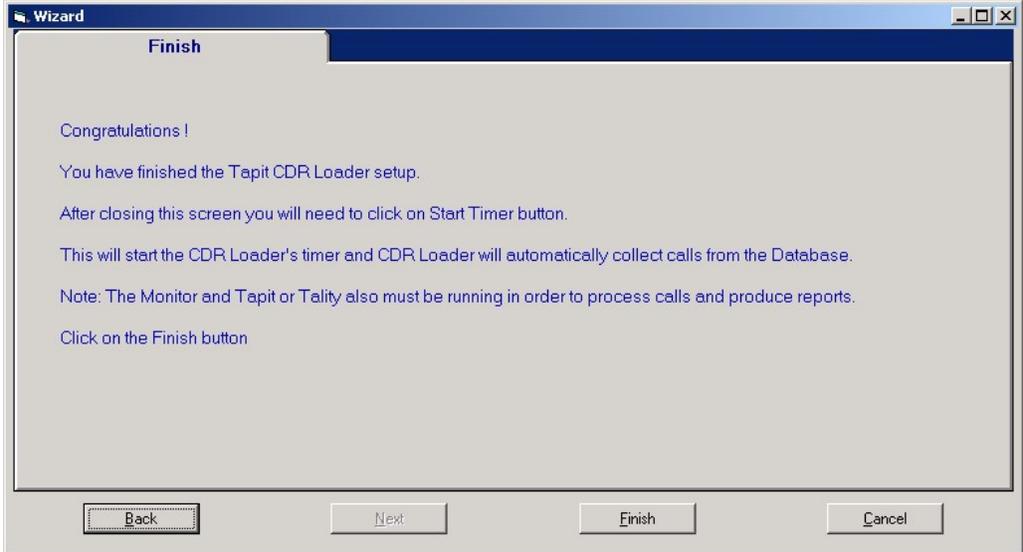
Step	Description
18.	<p>In the Telephone system Wizard window that appears, select <b>Avaya IP Office</b> from the pull-down list and click <b>Next</b>.</p> 
19.	<p>In the Database Driver Wizard window that appears, select <b>{Text File (*.txt)}</b> from the pull-down list and click <b>Next</b>.</p> 

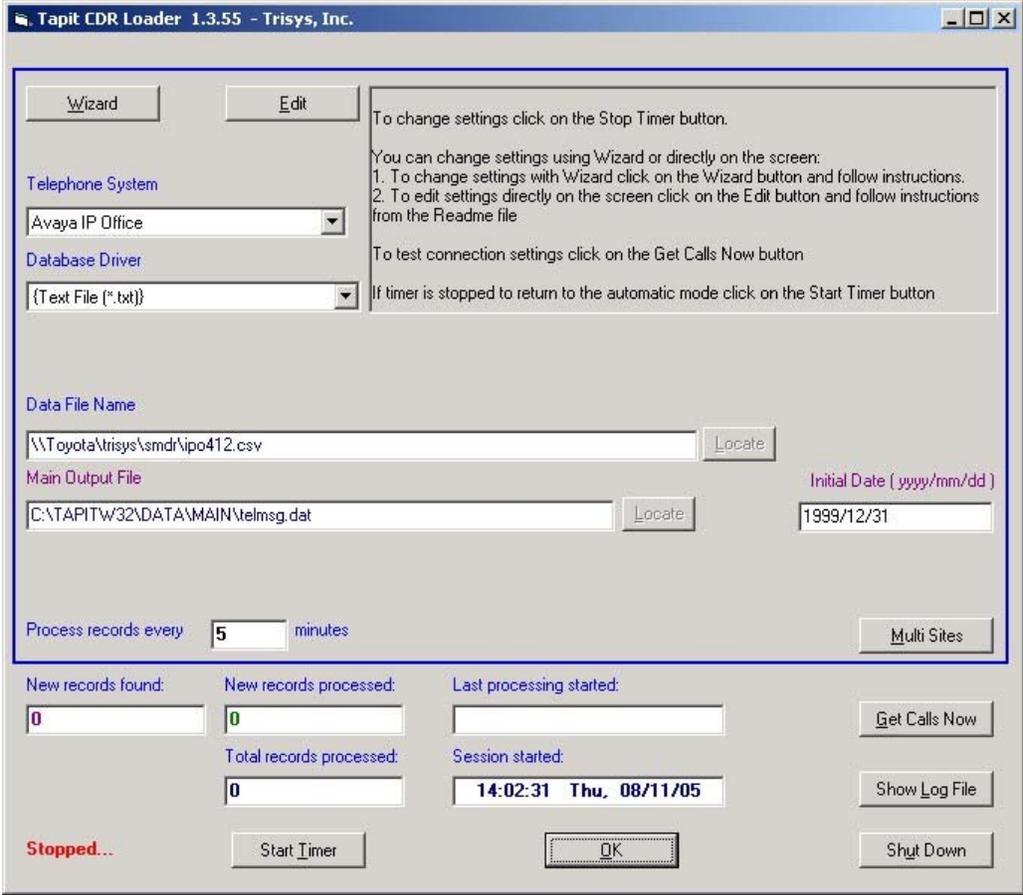
Step	Description
20.	<p>In the Data File Wizard window that appears, click <b>Locate</b> and browse to the CDR file on the Avaya IP Office Delta Server PC shared folder and click <b>Open</b>. The path to the CDR file defined in this configuration is <a href="#">\\toyota\trisys\smdr\ipo412.csv</a> as mentioned in Section 4, Step 10.</p>  <p><b>NOTE:</b> The default Avaya IP Office Delta Server CDR file name is SMDR.csv, and it is placed in C:\Program Files\AVAYA\IP Office. However, since the folder where the CDR records were stored was being shared, an alternate folder was created and defined for the test configuration.</p>
21.	<p>In the Data File Wizard window that appears, confirm the path to the CDR file on the Delta Server PC and click <b>Next</b>.</p> 

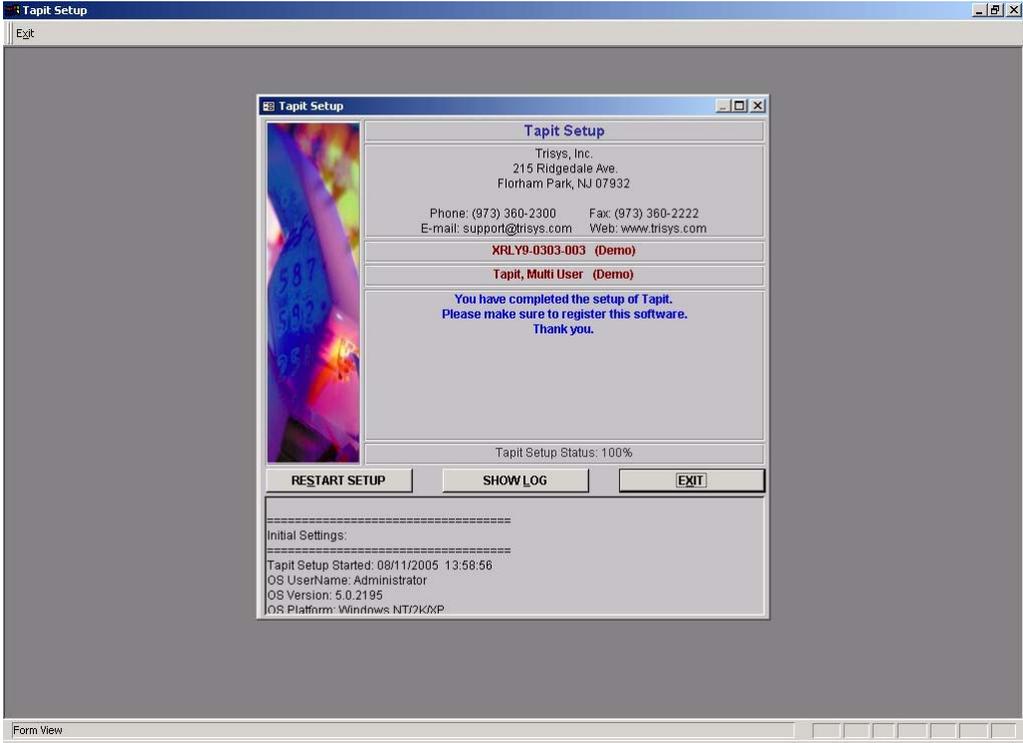
Step	Description
22.	In the Output File Wizard window that appears, click <b>Set Default</b> and then click <b>Next</b> .
	
23.	In the Connection String Wizard window that appears, click <b>Test Connect</b> to test the connection to the CDR file.
	

Step	Description												
24.	<p>In the Tapit CDR Loader Message popup that appears, verify the connection is ok and click <b>OK</b>.</p>  <p>The screenshot shows a dialog box titled "Tapit CDR Loader Message" with a close button (X). It contains an information icon (i) and the following text: "THIS CONNECTION IS OK.", "SMDR FILE STATUS :", "CURRENT FILE : IPO412.CSV", and "OLDEST FILE :". There is an "OK" button at the bottom.</p>												
25.	<p>In the Connection String Wizard window, click <b>Next</b>.</p>												
26.	<p>In the Final Site/Node Settings Wizard window that appears, click <b>Next</b>.</p>  <p>The screenshot shows the "Final Site/Node Settings" window of a wizard. It features a table with the following data:</p> <table border="1" data-bbox="451 877 1385 926"> <thead> <tr> <th>Site ID</th> <th>Loc. ID</th> <th>Node</th> <th>Sess. ID</th> <th>Location Name</th> <th>Output File</th> </tr> </thead> <tbody> <tr> <td>S_001</td> <td>Main_99</td> <td>0</td> <td>1999/12/31 00:00:00</td> <td>Main</td> <td>C:\TAPITW32\DATA\MAIN\Telmsg.dat</td> </tr> </tbody> </table> <p>Below the table, there are two input fields: "Number of Sites/Nodes found:" with a value of 0, and "Number of Sites/Nodes will be available:" with a value of 1. At the bottom, there are four buttons: "Back", "Next", "Finish", and "Cancel".</p>	Site ID	Loc. ID	Node	Sess. ID	Location Name	Output File	S_001	Main_99	0	1999/12/31 00:00:00	Main	C:\TAPITW32\DATA\MAIN\Telmsg.dat
Site ID	Loc. ID	Node	Sess. ID	Location Name	Output File								
S_001	Main_99	0	1999/12/31 00:00:00	Main	C:\TAPITW32\DATA\MAIN\Telmsg.dat								

Step	Description
27.	<p>In the Initial Date Wizard window that appears, click <b>Next</b>.</p> 
28.	<p>In the Processing Interval Wizard window that appears, click <b>Next</b>.</p> 

Step	Description
29.	<p>In the Finish Wizard window that appears, click <b>Finish</b>.</p> 

Step	Description
30.	<p>In the Tapit CDR Loader 1.3.55 window that appears, click <b>Shutdown</b> to exit the application.</p> 
31.	<p>In the Tapit CDR Loader Message popup that appears, click <b>No</b>.</p> 

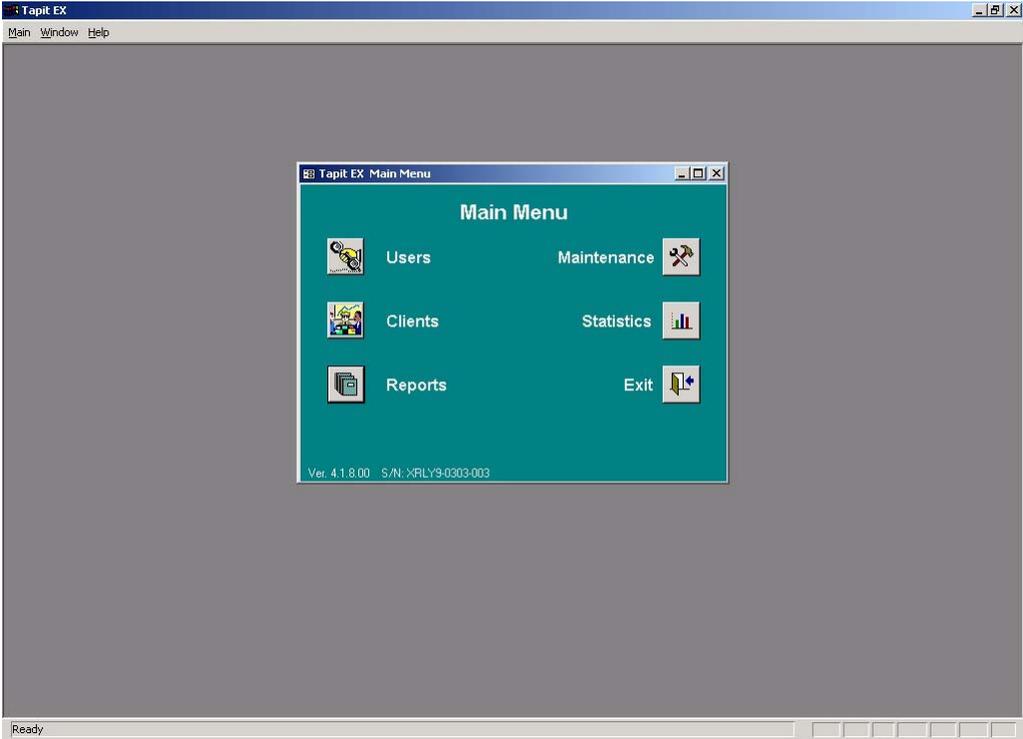
Step	Description
<p><b>32.</b></p>	<p>In the Tapit Setup window, click <b>EXIT</b>.</p> 
<p><b>33.</b></p>	<p>This completes initial configuration of the Trisys TAPIT EX software for retrieval of Avaya IP Office CDR information.</p>

## 5.2. How (and when) to run TAPIT EX

The TAPIT EX components, CDR Loader, SMDR Monitor and TAPIT EX must all be running in order to retrieve the CDR data from the Delta Server then process it and load it into the TAPIT EX database.

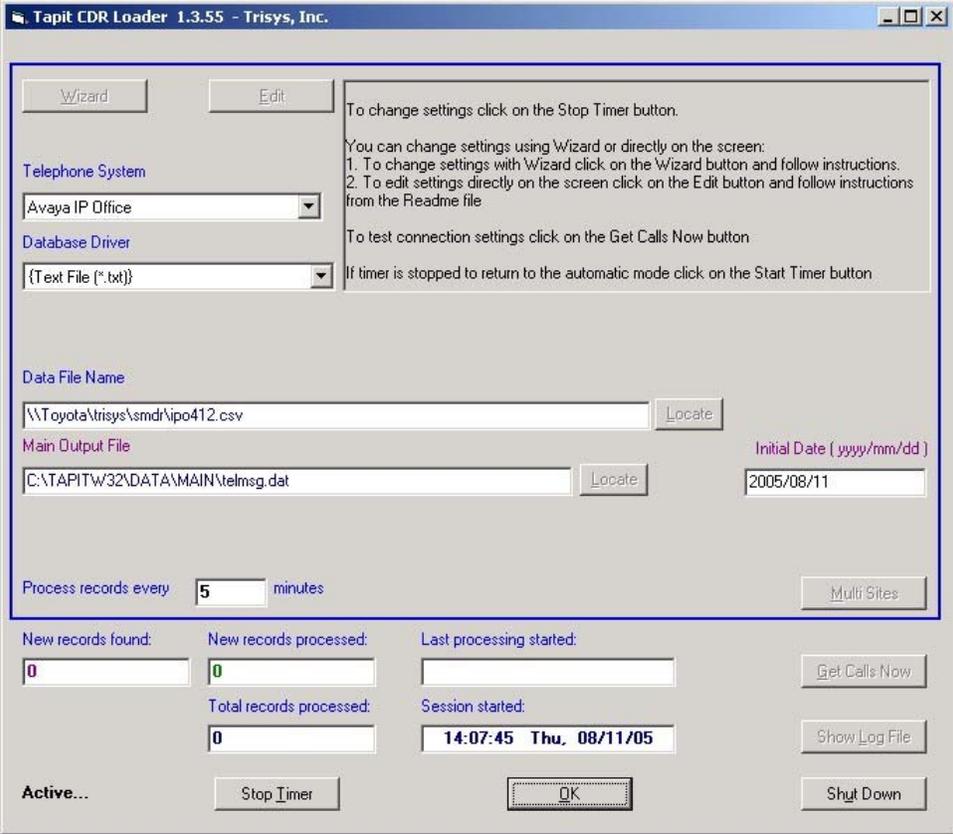
Step	Description
1.	<p>Navigate to <b>Start</b> → <b>Programs</b> → <b>Tapit CDR Loader</b> → <b>CDR Loader</b> on the Trisys TAPIT EX PC. If the status on the bottom left hand side of the CDR Loader window is <b>Active...</b>, then it means that the CDR Loader is running and will process CDR records every <b>5</b> minutes (configurable), after the time displayed in the Session started field. If it is not, then click <b>Start Timer</b> to start it.</p> <div data-bbox="430 716 1385 1551" data-label="Image"> </div> <p><b>NOTE:</b> The <b>CDR Loader</b> must be invoked from an actively logged in account that stays logged in on the Trisys TAPIT EX PC. Trisys recommends against running the <b>CDR Loader</b> as a service. Trisys, however, does suggest the CDR Loader be placed in the account <i>Startup</i> folder for automatic execution when the account is logged in. The user installing the software must do this, as the TAPIT EX installation wizard does not do it.</p>

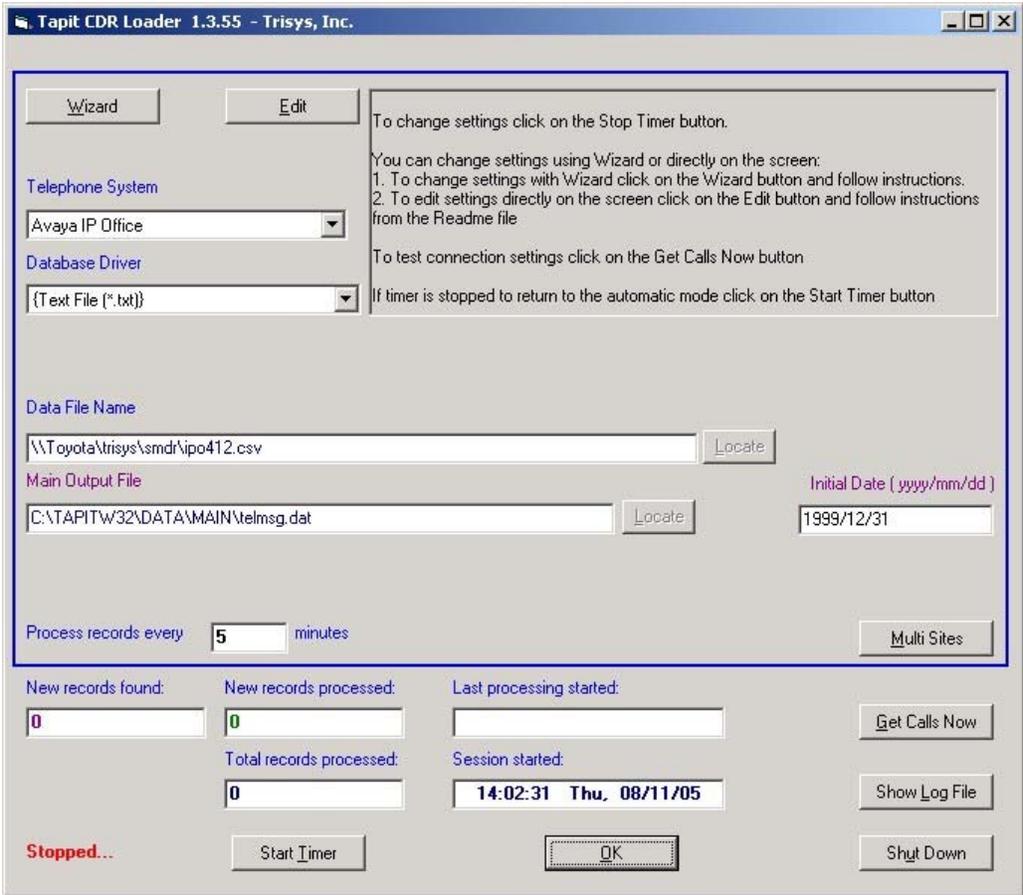
Step	Description
2.	<p>Navigate to <b>Start</b> → <b>Programs</b> → <b>Tapit</b> → <b>Tapit Monitor</b> on the Trisys TAPIT EX PC. In the Tapit Register popup that appears, click <b>OK</b>.</p> <div data-bbox="553 331 1081 590" data-label="Image"> </div> <p><b>NOTE:</b> The TAPIT EX installation wizard updates the registry so that the <b>SMDR Monitor</b> will start automatically following system reboot. Trisys has optional installation wizards and instructions for setting up the <b>SMDR Monitor</b> to run as a service. Refer to the Trisys TAPIT EX product documentation in reference [3] for more information.</p>
3.	<p>The Trisys TAPIT EX software components required for reading and processing CDR data from the Avaya IP Office Delta Server are now up and running.</p> <div data-bbox="399 863 1425 1633" data-label="Image"> </div>

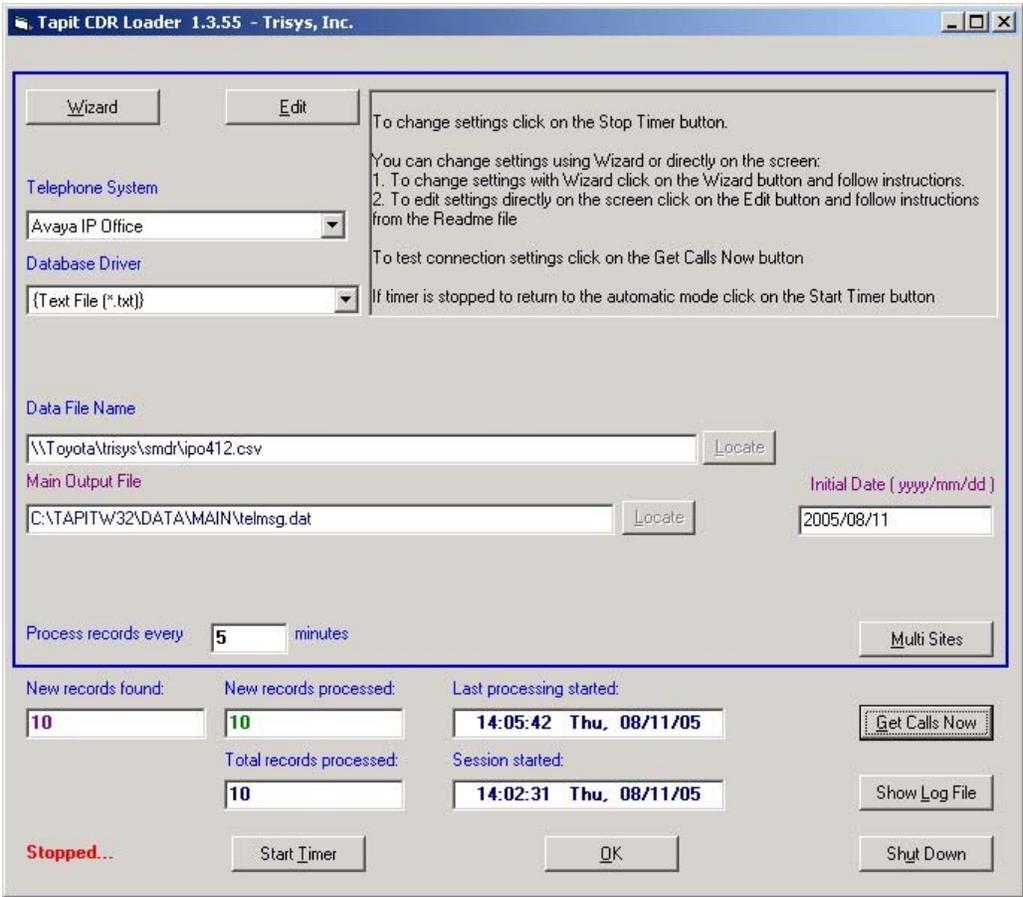
Step	Description
4.	<p>Navigate to <b>Start</b> → <b>Programs</b> → <b>Tapit</b> → <b>Tapit</b> on the Trisys TAPIT EX PC.</p>  <p><b>NOTE:</b> The TAPIT EX user launches TAPIT EX to generate reports; however, Trisys suggests leaving TAPIT EX running on the TAPIT EX PC so that all data retrieved and processed by the CDR Loader and SMDR Monitor is automatically imported to the TAPIT EX database. Refer to the Trisys TAPIT EX product documentation in reference [3] for more information.</p>

### 5.3. Verify TAPIT EX connection to Delta Server CDR data

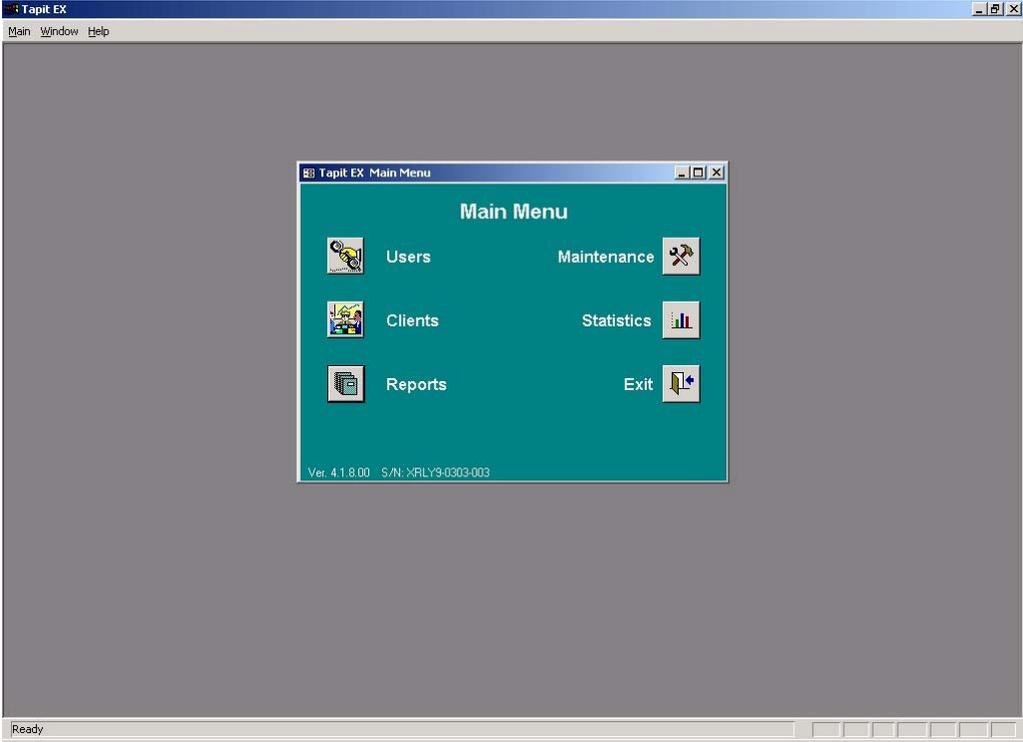
Step	Description
1.	Place inbound and/or outbound calls on the Avaya IP412 Office. After the calls are complete, verify CDR data for the calls has been generated on the Delta Server as instructed in Section 4, step 7.

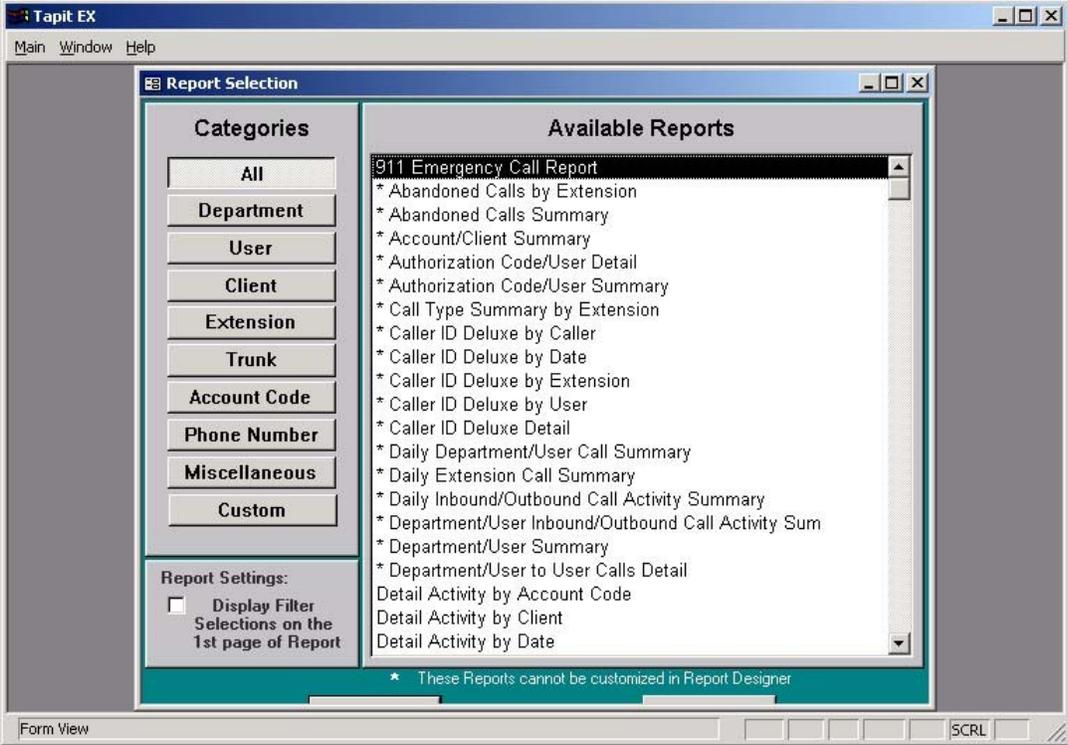
Step	Description
2.	<p>Navigate to <b>Start</b> → <b>Programs</b> → <b>Tapit CDR Loader</b> → <b>CDR Loader</b> on the Trisys TAPIT EX PC. If the status on the bottom left hand side of the CDR Loader window is <b>Active...</b> then it means that the CDR Loader is running and will process CDR records every <b>5</b> minutes after the time displayed in the Session started field. Click <b>Stop Timer</b>.</p> 

Step	Description
3.	<p>In the Tapit CDR Loader 1.3.55 window, click <b>Get Calls Now</b> to load existing CDR records from the Delta Server into TAPIT EX. This also tests the connection settings.</p>
	 <p><b>NOTE:</b> The status on the bottom left-hand side of the window shows <b>Stopped...</b> and the <b>Stop Timer</b> button has toggled to <b>Start Timer</b> because the CDR Loader automatic timer was stopped. The CDR Loader must be in this state in order to click the <b>Get Calls Now</b> button. In daily use, the automatic timer would be running instead.</p>

Step	Description
4.	<p>In the Tapit CDR Loader window, if CDR records were successfully found, the <b>New records found</b>, <b>New records processed</b>, <b>Total records processed</b>, <b>Last processing started</b>, and <b>Initial Date</b> fields will update accordingly.</p> 
5.	<p>In the Tapit CDR Loader window, click <b>Start Timer</b> to restart the automatic timer so that CDR records will be retrieved and loaded every 5 minutes as administered going forward.</p>

## 5.4. Generating a TAPIT EX Report

Step	Description
1.	<p>Navigate to <b>Start</b> → <b>Programs</b> → <b>Tapit</b> → <b>Tapit</b> on the Trisys TAPIT EX PC. In the TAPIT EX Main Menu window that appears, click <b>Reports icon</b>.</p> 

Step	Description
2.	<p>In the Report Selection window that appears, click <b>Detail Activity by Date</b> report in the Available Reports pane.</p> 

Step	Description																																																																																																																																																																																																																																																																								
3.	<p>The following is a sample Detail Activity by Date Report.</p> <p><b>Expanded Detail Activity by Date</b>        17-Aug-05 11:40 From 08/17/2005 To 08/17/2005        Location: Main</p> <table border="1"> <thead> <tr> <th>Time</th> <th>Dir/Type &amp; Status</th> <th>Curr. Trunk</th> <th>Re-Dir. Trunk</th> <th>X-fer From Extension</th> <th>Current Extension</th> <th>X-fer To Extension</th> <th>Call Len</th> <th>Ring Time</th> <th>Hold Time</th> <th>Number Dialed</th> <th>DNIS</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td colspan="13"><b>8/17/05 Wednesday</b></td> </tr> <tr> <td>11:34:24</td> <td>In</td> <td></td> <td></td> <td></td> <td>6001</td> <td>6004</td> <td>00:00:05</td> <td>00:00:00</td> <td>00:00:00</td> <td></td> <td></td> <td>\$0.000</td> </tr> <tr> <td>11:34:47</td> <td>In</td> <td>9401</td> <td></td> <td></td> <td>6001</td> <td></td> <td>00:00:04</td> <td>00:00:04</td> <td>00:00:00</td> <td>7324509643</td> <td>6001</td> <td>\$0.000</td> </tr> <tr> <td>11:35:07</td> <td>Out</td> <td>9401</td> <td></td> <td></td> <td>6004</td> <td></td> <td>00:00:06</td> <td>00:00:00</td> <td>00:00:00</td> <td>(732)450-9643</td> <td></td> <td>\$0.000</td> </tr> <tr> <td>11:35:30</td> <td>In</td> <td>9002</td> <td></td> <td>21813</td> <td>6001</td> <td></td> <td>00:00:05</td> <td>00:00:02</td> <td>00:00:00</td> <td>7324509643</td> <td>21813</td> <td>\$0.000</td> </tr> <tr> <td>11:35:50</td> <td>Out</td> <td>9001</td> <td></td> <td></td> <td>6002</td> <td></td> <td>00:00:06</td> <td>00:00:04</td> <td>00:00:00</td> <td>(732)450-9643</td> <td></td> <td>\$0.000</td> </tr> <tr> <td>11:36:14</td> <td>In</td> <td>9044</td> <td></td> <td>2181</td> <td>6001</td> <td></td> <td>00:00:06</td> <td>00:00:02</td> <td>00:00:00</td> <td></td> <td>2181</td> <td>\$0.000</td> </tr> <tr> <td>11:36:51</td> <td>Out</td> <td>9041</td> <td></td> <td></td> <td>6002</td> <td></td> <td>00:00:11</td> <td>00:00:03</td> <td>00:00:00</td> <td>(732)450-9643</td> <td></td> <td>\$0.000</td> </tr> <tr> <td>11:37:12</td> <td>In</td> <td>9601</td> <td></td> <td></td> <td>6004</td> <td></td> <td>00:00:04</td> <td>00:00:11</td> <td>00:00:00</td> <td></td> <td>6004</td> <td>\$0.000</td> </tr> <tr> <td>11:37:36</td> <td>Out</td> <td>9601</td> <td></td> <td></td> <td>6004</td> <td></td> <td>00:00:03</td> <td>00:00:05</td> <td>00:00:00</td> <td>70001</td> <td></td> <td>\$0.000</td> </tr> <tr> <td colspan="13"><b>Totals for 8/17/05 Wednesday</b></td> </tr> <tr> <td colspan="3">Calls : 9</td> <td colspan="3">Call Len : 0:00:50</td> <td colspan="3">Ring Time : 0:00:31</td> <td colspan="3">Hold Time : 0:00:00</td> <td colspan="2"></td> </tr> <tr> <td colspan="3">Cost : \$0.000</td> <td colspan="3">Avr. 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**NOTE:** Refer to the Trisys product documentation in reference [3] for information about reports available and other configuration necessary for proper call accounting.

## 6. Interoperability Compliance Testing

The interoperability compliance testing included feature and performance testing. The feature testing evaluated the ability of TAPIT EX to collect and process CDR records for various types of calls. The performance testing involved generating bulk call volumes for a one to two hour period to generate a large number of CDR records.

### 6.1. General Test Approach

The general test approach was to manually place intra-switch calls, inbound trunk and outbound trunk calls to and from telephones attached to the Avaya IP Office and verify the TAPIT EX collects the CDR records and properly classifies and reports the attributes of the call. For performance testing, a call generator was used to place calls over a one to two hour period of time.

## 6.2. Test Results

All test cases performed passed. TAPIT EX successfully collected the CDR records from the Avaya IP Office Delta Server CDR file for all types of calls generated including intra-switch calls, inbound/outbound PSTN trunk calls, inbound/outbound private IP trunk calls, transferred calls and conference calls. Performance testing verified that TAPIT EX could collect call records during a sustained high volume of calls in a one to two hour duration.

The following observations were made on the way that TAPIT EX reports certain types of calls:

- TAPIT EX reports all calls, including conference and transfer, as one of the following types: internal, inbound or outbound. In other words, TAPIT EX does not report calls as being part of a conference or transfer. Users wishing to know if a transfer or conference call occurred must manually verify this information.
- TAPIT EX does not load CDR records with call duration equal to 0 seconds – some of these records are generated by the Delta Server for conference calls; however, as stated earlier, TAPIT EX focuses on call accounting of calls so it will ignore 0 second duration CDR records.
- Since not all components of TAPIT EX can run as a service and the TAPIT EX integration with the Delta Server is through reading a CDR log file, serviceability testing was limited. Trisys recommends that customers place the Avaya IP Office Delta Server PC and Trisys TAPIT EX PCs on UPS systems to prevent outages due to power failure. The current release of TAPIT EX does not detect loss of connectivity to the Delta Server; however, there is an optional SMDR Alarm package available with the TAPIT EX software, which will generate alarms if a configurable amount of time has elapsed without CDR records being loaded into the TAPIT EX database. Refer to the TAPIT EX product documentation in reference [3] for more information.

## 7. Verification Steps

The following steps may be used to verify the configuration:

- Use the **ping** command to verify IP communication between the TAPIT EX PC, the Avaya IP Office Delta Server PC, and the Avaya IP412 Office.
- Verify the Avaya IP Office Delta Server is connected to the Avaya IP Office (Section 4, steps 4 – 5).
- Place an inbound or outbound call. After completing the call, verify the CDR record for the call appears in the SMDR Diagnostics page on the Delta Server (Section 4, step 7).
- Verify the Avaya IP Office CDR records folder is accessible from the TAPIT EX PC (Section 4, steps 8 – 10).
- Verify TAPIT EX connection to Delta Server CDR data (Section 5.3).

- Verify information appears correctly in a report (Section 5.4).

## 8. Support

Technical support for TAPIT EX can be obtained by contacting Trisys, Inc. at:

- Phone: (973) 360-2300 option 3
- E-mail: [tech@trisys.com](mailto:tech@trisys.com)
- Web: <http://www.trisys.com/TechSupp.htm>

## 9. Conclusion

These Application Notes describe the procedures required for configuring the Trisys TAPIT EX Call Accounting Software to collect CDR data from Avaya IP Office Delta Server CDR log files. TAPIT EX was successfully compliance tested with an Avaya IP412 Office and Avaya IP Office Delta Server.

## 10. References

The following Avaya product documentation can be found at <http://support.avaya.com>:

- [1] *Avaya IP Office Manager 3.0 Manual*, Issue 16p, 20<sup>th</sup> July 2005
- [2] *Avaya IP Office 3.0 Delta Server (V5) and SMDR*, Issue 6b, 26<sup>th</sup> January 2005

The following Trisys product documentation can be found at <http://www.trisys.com>:

- [3] *Trisys TAPIT EX Manual ver 4.1.8*, Issue 1.2, 7<sup>th</sup> June 2005

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