



Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Tri-Line TIM Plus 3.0.0.92 with Avaya Aura® Communication Manager R6.3 to collect Call Detail Records - Issue 1.0

Abstract

These Application Notes describe the configuration steps for provisioning Avaya Aura® Communication Manager R6.3 with Tri-Line TIM Plus 3.0.0.92. Tri-Line TIM Plus will collect Call Detailed Records by listening to a TCP port configured on Avaya Aura® Communication Manager

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as any observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

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

Tri-Line TIM Plus is a call logger which runs as a Windows service and all of its functions, configuration, and call reports are accessible through any standard web browser. Tri-Line TIM Plus collects Call Detailed Record (CDR) data from Avaya Aura® Communication Manager by listening for connections on a specific TCP port. Tri-Line TIM Plus provides a web interface which can be used to configure the connection with Avaya Aura® Communication Manager. The web interface also allows the system to be updated for additional Avaya Aura® Communication Managers and for general maintenance. Users can use this web interface for reporting purposes and access can be restricted by username and password and directory position.

2. General Test Approach and Test Results

The interoperability compliance test included both feature and functionality testing. The feature and functionality testing focused on verifying that Call Detailed Records (CDR) are collected by TIM Plus and received in the format as generated by Communication Manager. The TIM Plus Call Logger collects CDR data by listening on a TCP port configured on Communication Manager.

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.

2.1. Interoperability Compliance Testing

The interoperability compliance testing included feature and serviceability testing. The feature testing evaluated processing of CDR data obtained from Communication Manager. The serviceability testing introduced failure scenarios to see if Tri-Line's TIM Plus could resume after a link failure with Communication Manager.

The testing included:

- Local internal call handling
- Handling of External Calls
- Call Forwarding
- Transfers – Blind and Supervised
- Conference Calls
- Call Pick Up
- Calls to hunt Groups
- Hold/Release
- Calls to unobtainable numbers
- Handling of calls to and from Avaya Digital, H323 and SIP phones

2.2. Test Results

Tests were performed to verify interoperability between TIM Plus and Communication Manager. The tests were all functional in nature and performance testing was not included. All test cases passed successfully. The following observation was observed.

There are some differences in Communication Manager in the call records generated by SIP endpoints compared to Analog, Digital, and H.323 endpoints. As a result in certain scenarios involving SIP endpoints (e.g., two-party call, transfer, or conference), a CDR application may see more or less records, or records with condition codes/calling party other than expected. Avaya is investigating the differences and code changes may be made available in a future release pending the outcome of that investigation.

2.3. Support

Technical support can be obtained for TRI-Line products as follows:

- Web Portal <http://www.tri-line.com/en/support/>
- E-mail: support@tri-line.com
- Telephone +44 (0)20 7265 2626

3. Reference Configuration

Figure 1 illustrates the network diagram of the configuration used during compliance testing. Communication Manager is configured to output CDR data using a non-Reliable Session Protocol (RSP) CDR link. CDR data is sent via IP to the Tri-Line TIM Plus server on a designated TCP port. The CDR format is customized. The Tri-Line TIM Plus Call Logger is connected on the same LAN as Communication Manager and will collect CDR records.

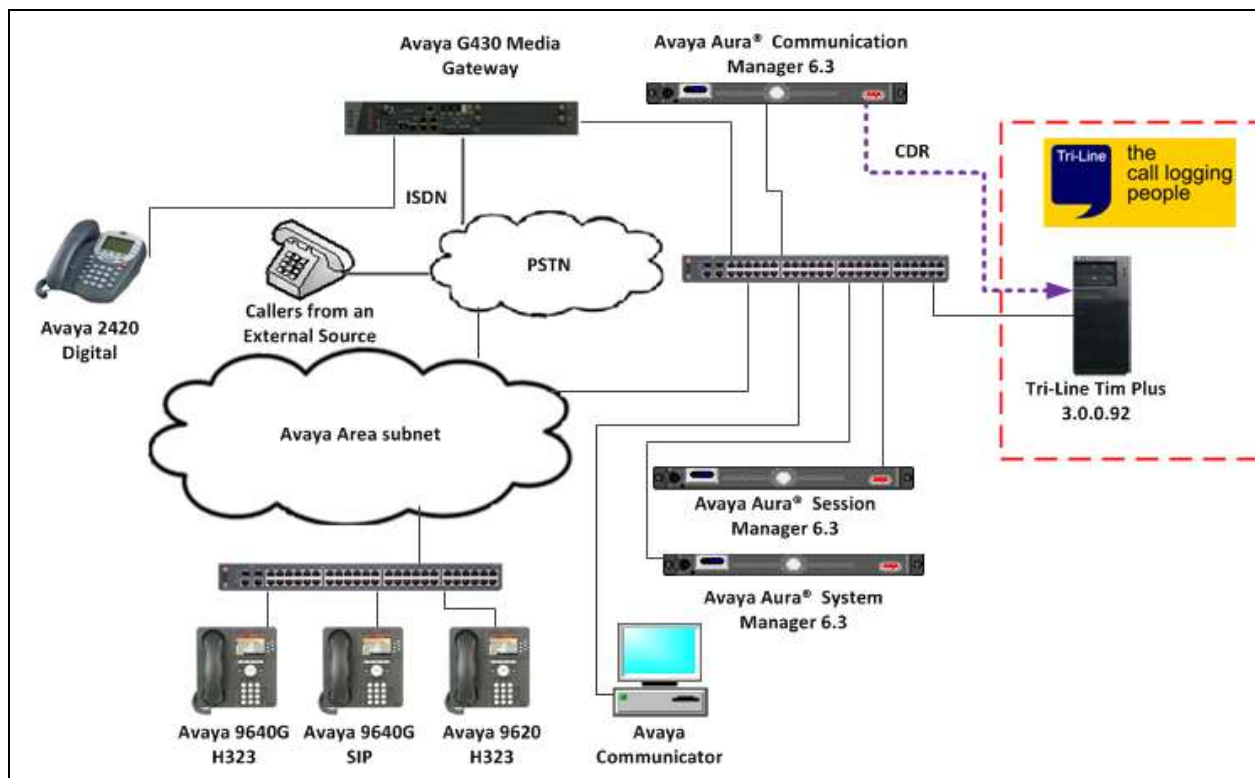


Figure 1: Avaya Aura® Communication Manager and Tri-Line TIM Plus Reference Configuration

4. Equipment and Software Validated

The hardware and associated software used in the compliance testing is listed below.

Avaya Equipment/Software	Release/Version
Avaya Aura® Communication Manager running on VMware	R6.3.9 Build R016x.03.0.124.0 S/W Update 03.0.124.0-21971
Avaya Aura® System Manager running on VMware	R6.3.11 Build No. 6.3.0.8.5682-6.3.8.4711 S/W update 6.3.11.8.2871
Avaya Aura® Session Manager running on VMware	R6.3.11.0.631103 S/W Update 6.3.11.0.631103
Avaya G430 Media Gateway Module MM710 (DSP MP20) Media Gateway DSP module	Version 36.7.0/1 Version HW04 FW021 MP20 FW 132
<ul style="list-style-type: none">- Avaya one-X® Deskphone Edition for 9600 Series IP TelephonesH323 9620D- H323 9640G- SIP 9640D	3.101S 3.105S 2.6.10.1
Avaya Communicator	2.0.3.30
Avaya Digital 2420	F/W 6
Tri-Line Equipment/Software	Release/Version
TIM Plus running on a Dell PowerEdge R610 with Windows 2008 R2 (64 Bit)	Version 3.0.0.92

5. Avaya Aura® Communication Manager Configuration

Configuration and verification operations on Communication Manager illustrated in this section were all performed using Avaya Site Administrator Emulation Mode. The information provided in this section describes the configuration of Communication Manager for this solution. It is implied a working system is already in place. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 9**. The configuration described in this section can be summarized as follows:

- Create Node Name for TIM Plus Call Logger
- Define the CDR link
- Change system-parameters cdr
- Change Intra-Switch-CDR
- Change Trunk Group

Note: Any settings not in **Bold** in the following screen shots may be left as default.

5.1. Create Node Name for Tri-Line TIM Plus Call Logger

A Node Name needs to be created to associate the TIM Plus Call Logger with Communication Manager. Use the **change node-names ip** command to configure the following:

- **Name** Enter an informative name i.e. **TIMPlus**
- **IP address** Enter the IP address of the **TIM Plus Call Logger**

change node-names ip		Page 1 of 2	
		IP NODE NAMES	
Name	IP Address		
TIMPlus	10.10.16.223		

5.2. Define the CDR link

A CDR link needs to be defined between Communication Manager and TIM Plus. Use the **change ip-services** command to configure the following:

- **Service Type** Enter **CDR1**
- **Local Node** Enter **procr**
- **Remote Node** Enter **TIMPlus**
- **Remote Port** Enter **9000**

change ip-services		Page 1 of 3	
		IP SERVICES	
Service Type	Enabled	Local Node	Remote Node
CDR1		CLAN	TIMPlus
		Local Port	Remote Port
		0	9000

Navigate to **Page 3** and set the **Reliable Protocol** field to **n**. This will disable Reliable Session Protocol (RSP) for CDR transmission. In this case, the CDR link will use TCP without RSP.

- **Reliable Protocol** Enter **n**

change ip-services					Page	3 of 3
SESSION LAYER TIMERS						
Service	Reliable	Packet Resp	Session Connect	SPDU	Connectivity	
Type	Protocol	Timer	Message Cntr	Cntr	Timer	
CDR1	n	30	3	3	60	

5.3. Change system-parameters cdr

Certain parameter changes are required for Communication Manager to interoperate with TIM Plus. The screen shots below show the settings used during compliance testing. Use the **change system-parameters cdr** command to configure the following:

- **CDR Date Format** Enter **day/month**
- **Primary Output Format** Enter **customized**
- **Primary Output Endpoint** Enter **CDR1**
- **Record Outgoing Calls Only** Enter **n**
- **Intra-Switch CDR** Enter **y**
- **Outg Trk Call Splitting** Enter **y**
- **Inc Trk Call Splitting** Enter **y**

change system-parameters cdr		Page 1 of 2	
CDR SYSTEM PARAMETERS			
Node Number (Local PBX ID):		CDR Date Format: day/month	
Primary Output Format: customized		Primary Output Endpoint: CDR1	
Secondary Output Format:			
Use ISDN Layouts? n		Enable CDR Storage on Disk? n	
Use Enhanced Formats? n		Condition Code 'T' For Redirected Calls? n	
Use Legacy CDR Formats? y		Remove # From Called Number? n	
Modified Circuit ID Display? n		Intra-switch CDR? y	
Record Outgoing Calls Only? n		Outg Trk Call Splitting? y	
Suppress CDR for Ineffective Call Attempts? y		Outg Attd Call Record? y	
Disconnect Information in Place of FRL? n		Interworking Feat-flag? n	
Force Entry of Acct Code for Calls Marked on Toll Analysis Form? n			
Calls to Hunt Group - Record: member-ext			
Record Called Vector Directory Number Instead of Group or Member? n			
Record Agent ID on Incoming? n		Record Agent ID on Outgoing? y	
Inc Trk Call Splitting? y		Inc Attd Call Record? n	
Record Non-Call-Assoc TSC? n		Call Record Handling Option: warning	
Record Call-Assoc TSC? n		Digits to Record for Outgoing Calls: dialed	
Privacy - Digits to Hide: 0		CDR Account Code Length: 4	

Navigate to **Page 2** and enter the following information.

- Enter **Data Item** and **Length** as shown in the screen below

change system-parameters cdr			Page 2 of 2		
CDR SYSTEM PARAMETERS					
Data Item	Length		Data Item	Length	
1: date	- 6		17: dialed-num	- 18	33: auth-code
2: space	- 1		18: space	- 1	34: return
3: time	- 4		19: in-trk-code	- 4	35: line-feed
4: space	- 1		20: space	- 1	36:
5: sec-dur	- 5		21: in-crt-id	- 3	37:
6: space	- 1		22: space	- 1	38:
7: cond-code	- 1		23: calling-numbe	- 15	39:
8: space	- 1		24: space	- 1	40:
9: atttd-console	- 2		25: vdn	- 5	41:
10: space	- 1		26: space	- 1	42:
11: code-used	- 4		27: bcc	- 1	43:
12: space	- 1		28: space	- 1	44:
13: out-crt-id	- 3		29: ppm	- 5	45:
14: space	- 1		30: space	- 1	46:
15: code-dial	- 4		31: acct-code	- 15	47:
16: space	- 1		32: space	- 1	48:

Record length = 126

5.4. Set Intra-Switch Extensions

If the Intra-switch CDR field is set to **y** in the CDR SYSTEM PARAMETERS form in **Section 5.3**, use the **change intra-switch-cdr** command to define the extensions that will be subject to CDR. On **Page 1** of the **INTRA-SWITCH CDR** form, enter a specific extension whose usage will be tracked with a CDR. Add an entry for each additional **Extension**.

change intra-switch-cdr		Page 1 of 3	
INTRA-SWITCH CDR			
Extension	Assigned Members:	0	of 5000 administered
Extension	Extension	Extension	Extension
1000			
1001			
1002			
1004			
1008			
1009			
...1015			
1016			
1026			

5.5. Change Trunk Group

For each trunk group for which CDR records are desired, use the `change trunkgroup n` command, where `n` is the trunk group number, and set CDR Reports to `r`. CDR Reports, field valid entries are `y`, `n`, and `r`. Default is `y`.

- `y` - All outgoing calls on this trunk group will generate call detail records.
- `n` - Calls over this trunk group will not generate call detail records.
- `r` - (ring-intvl) CDR records will be generated for both incoming and outgoing calls.

In addition, the following ringing interval CDR records are generated:

- Abandoned calls: The system creates a record with a condition code of "H," indicating the time until the call was abandoned.
- Answered calls: The system creates a record with a condition code of "G," indicating the interval from start of ring to answer.
- Calls to busy stations: The system creates a record with a condition code of "I," indicating a recorded interval of 0.

The example below shows the trunk group connected to the PSTN in the sample configuration.

change trunk-group 10			Page 1 of 21	
TRUNK GROUP				
Group Number: 10		Group Type: isdn		CDR Reports: r
Group Name: OUTSIDE CALL		COR: 1	TN: 1	TAC: 710
Direction: two-way		Outgoing Display? y		Carrier Medium: PRI/BRI
Dial Access? n		Busy Threshold: 255		Night Service:
Queue Length: 0				
Service Type: tie		Auth Code? n		TestCall ITC: rest
		Far End Test Line No:		
TestCall BCC: 4				

6. Configuring Tri-Line TIM Plus

A number of steps are required to configure TIM Plus to interoperate with Communication Manager. The TIM Plus Call Logger uses a TCP port to collect CDR data from Communication Manager. The TIM Plus application requires a template file which matches the PBX type during configuration. Both TIM Plus application and template file can be downloaded from the Tri-Line Web Site once the end customer has a registered account.

The configuration of the TIM Plus Call Logger is achieved during the initial installation. An installation wizard is used whereby certain steps require specific information relating to the TIM Plus configuration. The configuration described in this section can be summarized as follows:

- Downloading the Communication Manager template.
- Configure Site information
- Create an administrator account
- Logging into TIM Plus Call logger
- Access to TIM Plus

6.1. Downloading Avaya Aura® Communication Manager Template

As part of configuration an Avaya Communication Manager template is required. This template is provided as standard with the installation package. During compliance testing the template used was called **Avaya Communication Manager.tdt**.

6.2. Configure Site information

Start the installation wizard after the TIM Plus application has been downloaded. Follow the wizard steps until step 5. The **PBX model** used is a template which was downloaded as described in **Section 6.1**. The following information is required for the initial site setup:

- **Site name** Enter an informative name, i.e. **Test Site**
- **PBX model** Choose **Avaya Communication Manager** from the dropdown box
- **Method** Choose **Listen for connection from PBX** from the dropdown box.
- **Port** Enter **9000** (Note this is the Remote Port as configured in **Section 5.1**)

Click on the **Next** button to continue.

Site Progress 1 2 3 4 5 6 7 8

In order to collect call data from your telephone system, an initial site needs to be setup.
First, give the site a name:

Site name: Test Site

Choose the make and model of the telephone system from the drop-down list below.
If the list is empty, you'll need to obtain the correct **interface file** from your vendor, copy this file to the C:\Program Files\Tri-Line\TIM Plus\config\ folder, then refresh this page.

PBX model: Avaya Communications Manager

Specify the type of connection that the telephone system requires, as well as any further information, such as login details and connection script:

Method: Listen for connection from PBX

Host:

Port: 9000

Some telephone systems require further options in order to successfully capture call information. You may need to check with your vendor if these options apply to your installation:

☐ Enable timestamp on received data
☐ The data is in binary format

If no data is received from your telephone system for a user-definable time period, an inactivity alarm can be sent by email to one or more people.
To use this feature, tick the box below:

☐ Enable inactivity timer

Back Next

6.3. Create an administrator account

Once the wizard has progressed to step 8, an administrator account must be created. This account allows web users to log into the TIM Plus Call Logger. The following information is required to create the administrator account:

- **Display name** Enter an informative name, i.e. **Tri-Line Support**
- **UserName** Enter a User name, i.e. **admin**
- **Password** Enter a password

Click on the **Finish** button to continue.

The screenshot shows a web-based wizard titled "Create an administrator account". At the top right, a progress bar shows steps 1 through 8, with step 8 being the current step. The main content area contains instructions: "To administer TIM Plus further, as well as to perform the additional site-specific tasks required to complete the installation, you need to create an administrator's web user account." and "As with all web users, a display name is important because it is used as a signature when you create reports, in addition to other duties you may perform as a user of the system." Below this, it says "Enter a display name for the administrator user now," followed by a text input field with "Tri-Line Support" entered. Then, it says "Specify a username and password to associate with this administrator account." followed by two input fields: "Username" with "admin" and "Password" with masked characters. A red box highlights the "Finish" button at the bottom right. A red warning message at the bottom states: "Henceforth, these login details should be used to log in to TIM Plus as the system administrator including right now, after clicking the Finish button below to complete this wizard."

Create an administrator account Progress 1 2 3 4 5 6 7 8

To administer TIM Plus further, as well as to perform the additional site-specific tasks required to complete the installation, you need to create an administrator's web user account.

As with all web users, a display name is important because it is used as a signature when you create reports, in addition to other duties you may perform as a user of the system.

Enter a display name for the administrator user now.

Display name Tri-Line Support

Specify a username and password to associate with this administrator account.

Username admin

Password

Henceforth, these login details should be used to log in to TIM Plus as the system administrator **including right now, after clicking the Finish button below to complete this wizard.**

Back Finish

6.4. Logging into the Tri-Line TIM Plus Call Logger

Once the administrator account is created, the user is prompted to log in. Log into the TIM Plus Call logger by entering the **User name** and **Password** as created in **Section 6.3**.

Click the **OK** button to log in.

The screenshot shows a web-based wizard titled "Create an administrator account". At the top right, a progress bar indicates steps 1 through 8, with step 1 being the current step. The main content area contains instructions: "To administer TIM Plus further, as well as to perform the additional site-specific tasks required to complete the installation, you need to create an administrator's web user account." and "As with all web users, a display name is important because it is used as a signature when you create reports, in addition to other duties you may perform as a user of the system." Below this, it says "Enter a display name for the administrator user now." and "Specify a user name and password for the administrator user now." There are input fields for "Display name", "User name", and "Password". An "Authentication Required" dialog box is overlaid on the form. The dialog box has a blue header with a question mark icon and the text "Authentication Required". The main text in the dialog box says "A username and password are being requested by http://localhost. The site says: 'TIM Plus HTTP Service'". Below this text are two input fields: "User Name:" and "Password:". At the bottom of the dialog box are "OK" and "Cancel" buttons. The "OK" button is highlighted with a red rectangle. Below the dialog box, the text "Henceforth, you will be prompted to log in to the TIM Plus Call Logger. To log in, enter the user name and password you created in the previous step. Now, after clicking the Finish button below to complete this wizard." is visible. At the bottom right of the wizard are "Back" and "Finish" buttons.

6.5. Access to Tri-Line TIM Plus

A web browser is required to view the call record. During compliance testing, the web browser and TIM Plus service were installed on the same PC. The loopback address **http://127.0.0.1** was used.

Note: The **User name** and **Password** as created in **Section 6.3** is required for log in.



7. Verification Steps

This section provides a set of tests that can be performed to verify correct configuration of Communication Manager and TIM Plus.

7.1. Verify the Avaya Aura® Communication Manager CDR Link

Use the **status cdr-link** command to verify that the **Link State** is **up** and the **Reason Code** is **OK**.

status cdr-link		CDR LINK STATUS	
	Primary		Secondary
Link State:	up		CDR administered
Number of Retries:	999		
Date & Time:	2015/02/16 13:32:12		0000/00/00 00:00:00
Forward Seq. No:	0		0
Backward Seq. No:	0		0
CDR Buffer % Full:	0.03		0.00
Reason Code:	OK		

To ensure that TIM Plus Call Logger is retrieving CDR data, make some calls on Communication Manager. Log in using the procedure in **Section 6.5** and click on the **Call View** tab to verify that something similar to the following is presented.

TIM Plus 3.0.0.92 - Intel® P/C - 4...

127.0.0.2

Search

TIMPLUS

Reports

Directory

Call view

Live stats

Tariff editor

Settings

Alerts

Most recent calls

Clear

Columns

Save

Date ↓	Time	Source	Route	Destination	Response	Duration	Cost	Account code	Dialed number
2015-02-17	11:52:59	Ecm3005	4082	BNDZDCA	-	00:00:05	0.00		4080
2015-02-17	11:25:32	Cross-site	2016	Extn 3002 H323	-	00:00:05	0.00		3002
2015-02-17	11:20:10	Extn3005	3007	EXT3007	-	00:00:23	0.00		3007
2015-02-17	11:19:37	Extn 3002 H323	81016#	Cross-site	-	00:00:06	0.00		81016#
2015-02-17	11:19:29	BNDZDCA	3005	Extn3005	-	00:00:05	0.00		3005
2015-02-17	10:54:58	Cross-site	2016	Extn3005	-	00:00:28	0.00		3005
2015-02-17	10:53:35	Extn 3002 H323	81003#	Line 8.15	-	00:00:38	0.00		81003#
2015-02-17	10:52:40	Cross-site	2016	Extn 3002 H323	-	00:00:06	0.00		3002
2015-02-17	10:50:25	Cross-site	2016	Extn 3002 H323	-	00:00:08	0.00		3005
2015-02-17	10:50:14	Cross-site	2016	Extn3005	34	00:00:00	0.00		3005
2015-02-17	10:49:04	Cross-site	2016	Extn 3002 H323	-	00:00:30	0.00		3002
2015-02-17	10:47:57	Extn 3002 H323	81003#	Cross-site	4	00:00:27	0.00		81003#
2015-02-17	10:47:03	Ecm3005	3002	Extn 3002 H323	-	00:00:23	0.00		3002
2015-02-17	10:46:43	Ecm 3002 H323	3005	Extn3005	-	00:00:14	0.00		3005
2015-02-17	10:46:42	Extn 3002 H323	81015#	Line 8.15	-	00:00:00	0.00		81015#
2015-02-17	10:46:34	Extn 3002 H323	3005	Extn3005	-	00:00:02	0.00		3005
2015-02-17	10:45:24	Extn 3002 H323	81015#	Cross-site	-	00:00:15	0.00		81015#
2015-02-17	10:44:21	Ecm3005	3007	EXT3007	-	00:00:34	0.00		3007
2015-02-17	10:44:21	Extn3005	3007	EXT3007	-	00:00:23	0.00		3007
2015-02-17	10:44:15	Extn3005	4082	BNDZDCA	-	00:00:12	0.00		4080
2015-02-17	10:42:28	Cross-site	2016	Extn3005	-	00:00:21	0.00		3005
2015-02-17	10:42:24	Ecm3005	4082	BNDZDCA	-	00:00:21	0.00		4080
2015-02-17	10:42:14	Ecm3005	4080	BNDZDCA	-	00:00:02	0.00		4080
2015-02-17	10:42:15	Cross-site	2016	Extn3005	-	00:00:10	0.00		3005
2015-02-17	10:39:48	Extn3005	9511	VM Channel 11	16	00:00:07	0.00		9511
2015-02-17	10:37:59	Cross-site	2016	VM Channel 11	-	00:00:14	0.00		3005
2015-02-17	10:37:44	Cross-site	2016	Extn3005	-	00:00:00	0.00		3005
2015-02-17	10:36:49	Extn 3002 H323	3005	EXT3007	16	00:00:00	0.00		3005
2015-02-17	10:34:14	Extn 3002 H323	81016#	Cross-site	9	00:00:18	0.00	133456	81016#
2015-02-17	10:32:21	Extn3005	4082	BNDZDCA	10	00:00:29	0.00		4080
2015-02-17	10:32:14	Extn 3002 H323	3002	BNDZDCA	-	00:00:10	0.00		3002
2015-02-17	10:32:14	Extn3005	3002	Extn 3002 H323	-	00:00:25	0.00		3002
2015-02-17	10:31:38	Cross-site	2016	EXT3007	0	00:00:37	0.00		3002
2015-02-17	10:31:34	Extn 3002 H323	3007	EXT3007	-	00:00:03	0.00		3007
2015-02-17	10:31:29	Cross-site	2016	Extn 3002 H323	-	00:00:11	0.00		3002
2015-02-17	10:29:57	Ecm3005	81016#	Cross-site	4	00:00:10	0.00		81016#
2015-02-17	10:29:51	Extn 3002 H323	3005	Extn3005	-	00:00:05	0.00		3005
2015-02-17	10:29:38	Extn 3002 H323	81016#	Cross-site	-	00:00:16	0.00		81016#
2015-02-17	10:29:31	Ecm 3002 H323	3005	Extn3005	-	00:00:02	0.00		3005

Start

127.0.0.2

11:58 17/02/2015

8. Conclusion

These Application Notes describe the configuration steps required for Tri-Line TIM Plus 3.0.0.92 to successfully interoperate with Avaya Aura® Communication Manager R6.3 using a TCP connection. Tri-Line TIM Plus 3.0.0.92 is considered compliant with Avaya Aura® Communication Manager R6.3. All test cases have passed and met all objectives ,with some observations as mentioned in **Section 2.2**.

9. Additional References

These documents form part of the Avaya official technical reference documentation suite. Further information may be had from <http://support.avaya.com> or from your Avaya representative.

- [1] *Administering Avaya Aura® Communication Manager, Release 6.3, October 2013, Document Number 03-300509, Issue 9.0.*
- [2] *Avaya Aura® Communication Manager Feature Description and Implementation, Release 6.3, May 2013, Document Number 555-245-205, Issue 10.0.*
- [3] *Administering Avaya Aura® Session Manager, Release 6.3, Issue 7 September 2014.*
- [4] *Administering Avaya Aura® System Manager, Release 6.3, Issue 5, October, 2014.*
- [5] *Administration for the Avaya G430, 03-603228, Issue 1, May, 2009.*

Product Documentation for Tri-Line can be obtained at <http://gateway.tri-line.com/>. Login required.

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