



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

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# **Application Notes for Configuring Trio Enterprise R4.0 with Avaya Communication Server 1000E R7.5 and Avaya Network Routing Server using a SIP Connection – Issue 1.0**

### **Abstract**

These Application Notes describe how to configure an Avaya Communication Server 1000E R7.5 to interface with Trio Enterprise R4.0, which is operating as an attendant answering position. Trio Enterprise is a software application installed on a Windows server that interfaces with Avaya Communication Server 1000E using a SIP connection via Avaya Network Routing Server and provides users with the call functions of an attendant console without having to install a hardware attendant position.

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

These Application Notes describe the compliance tested configuration for Avaya Communication Server 1000E R7.5 with Trio Enterprise R4.0. Trio Enterprise is a client/server based application running on Microsoft Windows 2008 Server operating systems. Trio Enterprise provides users with an attendant answering position for Avaya Communication Server 1000E that does not need attendant telephony hardware e.g., Avaya 2250 attendant console. Trio Enterprise connects to the Avaya Communication Server 1000E using a SIP connection via Avaya Network Routing Server. If a call is made from the Trio Enterprise attendant console to the PSTN the call will route from the Trio console via a SIP trunk to the CS1000E and then to the PSTN using the CS1000E PSTN connection. During compliance testing a QSig ISDN trunk to PSTN destinations was used. Trio Enterprise can perform the usual range of attendant call functions, i.e., centralized answering position; extend PSTN calls to users, place PSTN calls on behalf of internal users, perform internal telephone directory lookups.

## 2. General Test Approach and Test Results

The general test approach was to configure a simulated enterprise voice network using an Avaya Communication Server 1000E (CS1000E). The Trio Enterprise server connects to the CS1000E via SIP trunks configured on an Avaya Network Routing Server (NRS); see **Figure 1** for a network diagram. A basic Distance Steering Code configuration (DSC) was configured on the CS1000E to route all calls to the Trio attendant position.

During tests, calls are placed to a number associated with the Trio attendant position. The CS1000E routes all calls destined for the Trio Enterprise server over the SIP connection. The Trio Enterprise server then automatically places a call to the telephone the attendant is using for answering purposes. When the attendant answers the call, the Trio server bridges the two calls. When the attendant extends the call to another phone, Trio Enterprise server performs a SIP path replacement and the caller and the called user are now directly connected. It is possible to have multiple Trio attendant positions on a CS1000E system.

A variety of Avaya telephones were installed and configured on the CS1000E. The Trio attendant client provides a view of contacts, schedules, and communication tasks and was installed on the same server as the Trio Server, but can be installed on a separate platform if required. **Note:** The Trio Enterprise server places a call to the attendant's deskphone, for compliance testing an Avaya 1140E was used. When the attendant is called the Trio Enterprise server calls the 1140E and bridges the call.

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 compatibility tests included the following.

- Attendant answers direct call
- Supervised and unsupervised transfer with answer
- Directing calls to busy extensions
- Call queuing and retrieval
- Loop detection for busy and unanswered extensions

## **2.2. Test Results**

Tests were performed to insure full interoperability between the Trio Enterprise and the CS1000E. The tests were all functional in nature and performance testing was not included. All the test cases passed successfully.

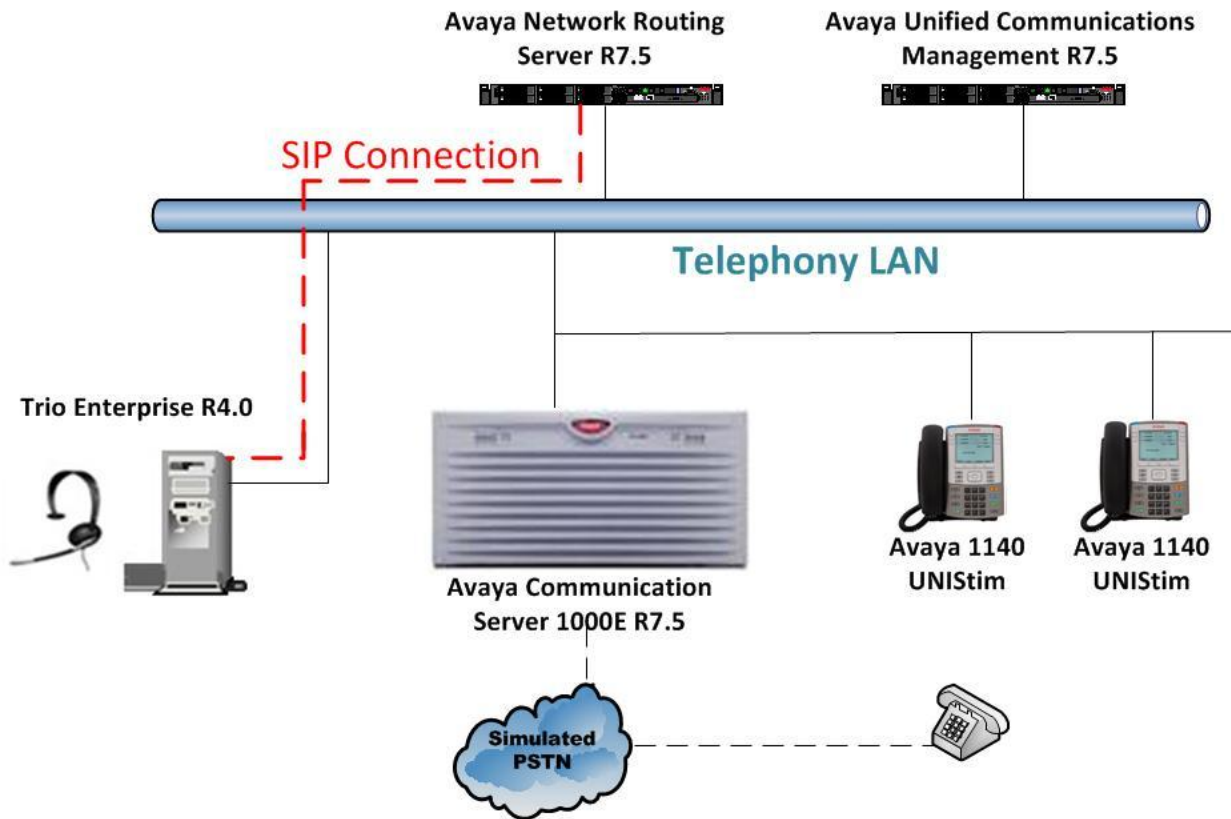
## **2.3. Support**

For technical support on Trio products, please use the following web link.

<http://www.trio.com/web/Support.aspx>

### 3. Reference Configuration

**Figure 1** shows the network topology during compliance testing. Trio Enterprise is connected to the CS1000E using a SIP connection via the NRS. The Trio Enterprise Server is configured as a SIP Endpoint. Avaya Unified Communications Management is used to configure the NRS.



**Figure 1: Configuration for Avaya Communication Server 1000E R7.5, Avaya Network Routing Server R7.5 and Trio Enterprise R4.0**

## 4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya Communication Server 1000E running on CPPM	R7.5 (See Appendix A for list of patches)
Avaya Unified Communications Management running on Avaya S8800 Server	R7.5
Avaya Network Routing Server running on Avaya S8800 Server	R7.5(See Appendix B for list of patches)
Avaya 1140 UNISTim Deskphone	UNISTim V0625C8D
Trio Enterprise Running on Desktop PC (Minimum Specification Pentium IV, 3 GHz, 1 GB Ram, 1 USB Hand/Headset)	Version 4.0

## 5. Configure Avaya Communication Server 1000E

The configuration operations illustrated in this section were performed using terminal access to the CS1000E over a telnet session. The information provided in this section describes the configuration of the CS1000E for this solution. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 11**.

**Note:** The configuration of the PRI interface to the PSTN is outside the scope of these Application Notes.

**Note:** Not all prompts need an answer. The prompts outlined below are mandatory for a basic configuration. Accept the default responses for all other prompts by pressing the return key.

### 5.1. Verify Licences

Both SIP CTI Licences and AST licenses are required to allow Trio observe TR87 events. To ensure the CS1000E is licensed for SIP CTI use **LD 22** and type **SLT** at the **REQ** prompt. Check for **SIP CTI TR87** and **AST** (in bold below). If there are no Licences please contact your Avaya representative.

Prompt	Response	Description
>	<b>LD 22</b>	Enter Overlay 22
<b>REQ</b>	<b>SLT</b>	
System type is - Communication Server 1000E/CPPM Linux		
CPPM - Pentium M 1.4 GHz		
IPMGs Registered:	1	
IPMGs Unregistered:	0	
IPMGs Configured/unregistered:	0	
TRADITIONAL TELEPHONES	2000 LEFT 1992 USED	8
DECT USERS	2000 LEFT 2000 USED	0
IP USERS	4000 LEFT 3978 USED	22
BASIC IP USERS	2000 LEFT 1998 USED	2
TEMPORARY IP USERS	2000 LEFT 2000 USED	0
DECT VISITOR USER	2000 LEFT 2000 USED	0
ACD AGENTS	2000 LEFT 1995 USED	5
MOBILE EXTENSIONS	2000 LEFT 2000 USED	0
TELEPHONY SERVICES	2000 LEFT 2000 USED	0
CONVERGED MOBILE USERS	2000 LEFT 2000 USED	0
AVAYA SIP LINES	2000 LEFT 1997 USED	3
THIRD PARTY SIP LINES	2000 LEFT 1998 USED	2
PCA	2000 LEFT 2000 USED	0
ITG ISDN TRUNKS	2000 LEFT 2000 USED	0
H.323 ACCESS PORTS	2000 LEFT 1990 USED	10
<b>AST</b>	<b>2000 LEFT 1981 USED</b>	<b>19</b>
SIP CONVERGED DESKTOPS	2000 LEFT 2000 USED	0
<b>SIP CTI TR87</b>	<b>2000 LEFT 1992 USED</b>	<b>8</b>
SIP ACCESS PORTS	2000 LEFT 1970 USED	30
RAN CON	2000 LEFT 2000 USED	0
MUS CON	2000 LEFT 2000 USED	0
IP RAN CON	2000 LEFT 2000 USED	0

IP MUS CON	2000	LEFT	2000	USED	0
IP MEDIA SESSIONS	2000	LEFT	1997	USED	3
TNS	10000	LEFT	9805	USED	195
ACDN	24000	LEFT	23979	USED	21
AML	16	LEFT	12	USED	4
IDLE_SET_DISPLAY Cores3 Rls 7.5					
LTID	2000	LEFT	2000	USED	0
RAN RTE	512	LEFT	510	USED	2
ATTENDANT CONSOLES	100	LEFT	99	USED	1
IP ATTENDANT CONSOLES	2000	LEFT	1999	USED	1
BRI DSL	10000	LEFT	10000	USED	0
MPH DSL	100	LEFT	100	USED	0
DATA PORTS	2000	LEFT	2000	USED	0
PHANTOM PORTS	2000	LEFT	1995	USED	5
TRADITIONAL TRUNKS	2000	LEFT	1962	USED	38
ELC ACCESS PORTS	2000	LEFT	2000	USED	0
DCH	255	LEFT	252	USED	3

## 5.2. Configuring a SIP Connection on CS1000E

To configure the SIP connection there are a number of steps.

- Create a D-channel for the SIP trunk
- Create Route Data Block
- Add TIE Trunks

### 5.2.1. Create a D-Channel

Use the **CHG** command in **LD 17** to create a D-channel for the SIP connection. In the example below, D-Channel 66 (i.e. **DCH 66**) was created. At the **CTYP** prompt, enter **DCIP**. This signifies the SIP D-Channel.

#### LD 17

Prompt	Response	Description
>	<b>LD 17</b>	Enter Overlay 17
REQ	<b>CHG</b>	Change
TYPE	ADAN	Change the Action Device and Number
ADAN	NEW	Create New Action Device and Number
TYPE	<b>DCH 66</b>	Create new D-Channel 66
<b>CTYP</b>	<b>DCIP</b>	Card type is IP D-Channel
USR	ISDL	Integrated Services Digital Line
IFC	SL1	D-Channel interface type

### 5.2.2. Create Route Data Block

Use the **NEW** command in **LD 16** to create a Route Data Block. The route created is a **TIE** route in order to connect to the Trio system. Ensure **VTRK** is set to **YES** and **PCID** is **SIP**.

#### LD 16

Prompt	Response	Description
>	<b>LD 16</b>	Enter Overlay 16
REQ	<b>NEW</b>	Create new
TYPE	RDB	Route Data block
CUST	0	Customer Number as defined in LD15
ROUT	<b>20</b>	Route Number
TKTP	<b>TIE</b>	Route Type
<b>VTRK</b>	<b>YES</b>	Virtual Route
<b>PCID</b>	<b>SIP</b>	Protocol ID for route
DTRK	NO	Digital Trunk Route
ISDN	YES	Integrated Services Digital Network
MODE	ISDL	mode of operation
IFC	SL1	Interface type
ACOD	8020	Access Code for trunk route

### 5.2.3. Adding TIE Trunks

Use the **NEW** command in **LD 14** to add (**IPTI**) **TIE** trunks to the new route created in **Section 5.2.2**. If adding multiple trunks for each route, use **NEW XX**, where **XX** is the number of trunks. In the example below **10** trunks were added.

#### LD 14

Prompt	Response	Description
>	<b>LD 14</b>	Enter Overlay 14
REQ	<b>NEW 10</b>	Create 10 New Trunks
TYPE	<b>IPTI</b>	IP TIE trunk
TN	96 0 3 0	Loop Shelf Card Unit
CUST	0	Customer Number as defined in LD15
RTMB	20 1	Route number and Member number



## 5.3. Configure a Coordinated Dialing Plan

In order to setup a Coordinated Dialing Plan (CDP) both a route list index and a CDP are added.

### 5.3.1. Create a Route List Index

Use the **NEW** command in **LD 86** to create a **RLI**. Enter the route (**ROUT**) that was created in **Section 5.2.2**.

#### LD 86

Prompt	Response	Description
>LD 86	Enter Overlay 86	
REQ	NEW	Create New
CUST	0	Customer Number as defined in LD15
FEAT	RLB	Route list Block
TYPE	RLI	Route list Index
RLI	36	Route list Index number
ENTR	0	First entry for the RLI
ROUT	20	Enter the route number

### 5.3.2. Create CDP

Use the **NEW** command in **LD 87** to create a **CDP** entry for the Trio Enterprise. For each extension, a CDP entry needs to be created. In the example below, the **DSC** is **4000**, **FLEN** is **4** and the **RLI** is **36**.

**Note:** The RLI number used is the one created in **Section 5.3.1**.

#### LD 87

Prompt	Response	Description
>	LD 87	Enter Overlay 87
REQ	NEW	Create new
CUST	0	Customer Number as defined in LD15
FEAT	CDP	Coordinated dialing plan
TYPE	DSC	Distance Steering code
DSC	4000	Distant Steering code
FLEN	4	Flexible Length number of digits
RLI	36	Route list index Number

## 5.4. Configure TR87 on CS1000E

To allow Trio observe TR87 events from a specific phoneset TR87, AST and IAPG must be set on a per phoneset basis. Enter overlay 20 to make all of these changes by typing **LD20** at the > prompt. Set the Class of Service (**CLS**) to **TR87A** and set the **AST** to **00** (Key 0) and **IAPG** to **1** to allow TR87 events get passed from the phoneset to the Trio application.

Prompt	Response	Description
>	LD 20	Enter Overlay 20
REQ	CHG	Change
TYPE	1140	Change phoneset type 1140
TN	L S C U	Terminal Number Loop Shelf Card Unit
CLS	TR87A	Change TR87 to "Allowed"
AST	00	Set AST for key 00
IAPG	1	Set CTI messaging to "Yes"

## 5.5. Configure Intercept Computer Update on CS1000E

Trio uses Intercept Computer Update (ICP) on the CS1000E to change the presence state of the phoneset. A physical port on the CS1000E must be configured for ICP along with the ICP configuration in the Customer Data Block.

### 5.5.1. Configuration of ICP Port

Enter overlay 17 to add a new terminal to connect to the Trio for ICP use. Follow the instructions below to configure a physical connection on port 2 connected to MGC card 4 0. Type **LD 17** at the > prompt to enter overlay 17.

Prompt	Response	Description
>	<b>LD 17</b>	Enter Overlay 17
REQ	<b>CHG</b>	Change
TYPE	<b>ADAN</b>	Change the Action Device and Number
ADAN	New TTY x	New tty port x
CTYP	MGC	Nedia Gateway Controller
IPMG	4 0	Loop and Shelf
DNUM	14	Data number
PORT	2	Port number
DES	ICP2	Description
BPS	1200	Bits per Second
BITL	7	Bit Length
STOP	1	Stop bit
PARY	EVEN	Parity
FLOW	NO	Flow
USER	ICP	User type is set to ICP

### 5.5.2. Configuration of ICP in the Customer Data Block

Enter Overlay 15 to change the Intercept Computer Update (ICP) data block by typing **LD 15** at the > prompt and follow the instructions as shown below to configure ICP for Trio.

Prompt	Response	Description
>	<b>LD 15</b>	Enter Overlay 17
REQ	<b>CHG</b>	Change
TYPE	<b>icp</b>	Change the Intercept Computer Update
CUST	0	Customer Number
APL	14	Auxiliary Processor Link used
NIPN	9	Number of Intercept positions
ICCR	NO	Intercept Position Cancelling Reply
ICDN	4002	Internal Call DN
ECDN	4002	External Call DN
ICDL	4	CP DN Length
ICPD	0	ICP Padding Digit
ICTD	YES	Intercept Terminal Dail from Directory

## 6. Configure Avaya Communication Server 1000E Signalling Server for TR87 events

SIP CTI (TR/87) services must be enabled and configured on the CS 1000 IP Telephony Node to allow applications obtain presence information or invoke a make call operation. Navigate to the Unified Communications Management webpage and enter the proper login credentials to gain access to Element Manager on the CS1000E.



The image shows the Avaya login page. It has a red header with the Avaya logo. Below the header, there is a login form with fields for 'User ID' and 'Password'. A 'Log In' button is located below the password field. There is also a 'Change Password' link. A note at the bottom left states: 'Use this page to access the server by IP address. You will need to log in again when switching to another server, even if it is in the same security domain. Important: Only accounts which have been previously created in the primary security server are allowed. Expired or reset passwords that normally must be changed during login will fail authentication in this mode (use the link to manual password change instead). Local OS-authenticated User IDs cannot be used.' A link 'Go to central login for Single Sign-On' is also present.

Once logged in correctly click on the Element Manager link highlighted below.



The image shows the Avaya Unified Communications Management interface. The top header is red with the Avaya logo and the title 'Avaya Unified Communications Management'. Below the header, there is a navigation menu on the left with categories: Network, Elements, CS 1000 Services, IPsec, Patches, SNMP Profiles, Secure FTP Token, Software Deployment, User Services, Administrative Users, External Authentication, Password, Security, Roles, Policies, Certificates, Active Sessions, Tools, Logs, and Data. The main content area shows the 'Elements' section. It includes a search bar with 'Search' and 'Reset' buttons. Below the search bar are 'Add...', 'Edit...', and 'Delete' buttons. A table lists elements with columns for 'Element Name', 'Element Type', and 'Release'. The first row is highlighted with a red box and contains the text '1 [ ] EM on cs1kpg', 'CS1000', and '7.5'. The second row contains '2 [ ] cs1kpg.devcon.avaya (primary)', 'Linux Base', and '7.5'. The third row contains '3 [ ] 192.168.0.12', 'Media Gateway Controller', and '7.5'.

	Element Name	Element Type	Release
1	EM on cs1kpg	CS1000	7.5
2	cs1kpg.devcon.avaya (primary)	Linux Base	7.5
3	192.168.0.12	Media Gateway Controller	7.5

Click on **IP Network** → **Nodes, Servers, Media Cards** in the left window. Click on the **Node ID** displayed in the right window.

**AVAYA CS1000 Element Manager**

Managing: 192.168.0.10 Username: paul  
System » IP Network » IP Telephony Nodes

**IP Telephony Nodes**  
Click the Node ID to view or edit its properties.

Buttons: Add... Import... Export... Delete Print | Refresh

Node ID	Components	Enabled Applications	ELAN IP	Node/TLAN IPv4	Node/TLAN IPv6	Status
100	1	SIP Line, LTPS, Gateway (SIPGw)	-	192.168.10.90		Synchronized

Show: ☒ Nodes ☐ Component servers and cards ☒ IPv6 address

Select **Gateway (SIPGw)** highlighted below.

**AVAYA CS1000 Element Manager**

Managing: 192.168.0.10 Username: paul  
System » IP Network » IP Telephony Nodes » Node Details

**Node Details (ID: 100 - SIP Line, LTPS, Gateway (SIPGw))**

Subnet mask: 255.255.255.0 \*      Subnet mask: 255.255.255.0 \*  
Node IPv6 address:

**IP Telephony Node Properties**

- Voice Gateway (VGW) and Codecs
- Quality of Service (QoS)
- LAN
- SNTP
- Numbering Zones
- MCDN Alternative Routing Treatment (MALT) Causes

**Applications (click to edit configuration)**

- SIP Line
- Terminal Proxy Server (TPS)
- Gateway (SIPGw)**
- Personal Directories (PD)
- Presence Publisher
- IP Media Services

\* Required Value.      Save Cancel

Ensure that **SIP CTI Service** is ticked as shown below and untick the **TLS endpoints only** if this is ticked, everything else can be left as default. Click on **Save** once finished.

**AVAYA CS1000 Element Manager**

Managing: 192.168.0.10 Username: paul  
System » IP Network » IP Telephony Nodes » Node Details » Virtual Trunk Gateway Configuration

**Node ID: 100 - Virtual Trunk Gateway Configuration Details**

General | SIP Gateway Settings | SIP Gateway Services

**SIP CTI Service:** ☒ Enable CTI service ☐ TLS endpoints only

**CTI settings**  
 Customer number: 0  
 Maximum associations per DN: 3  
 International calls: ☐ Place as national  
 For calls within this country.

**Dial plan prefixes**  
 National:   
 International:   
 Location code call:   
 Special number:   
 Subscriber:

**CTI CLID presentation**  
 Dialing plan: CDP  
 Calling device URI format: phone-context=dialstring  
 Home location code:   
 Country code (CCC):

\* Required Value. Note: Changes made on this page will NOT be transmitted until the Node is also saved.

**Save** Cancel

Once Save above is clicked then the following screen appears, click on **Save** as shown below.

**AVAYA CS1000 Element Manager**

Managing: 192.168.0.10 Username: paul  
System » IP Network » IP Telephony Nodes » Node Details

**Node Details (ID: 100 - SIP Line, LTPS, Gateway ( SIPGw ))**

Node ID: 100 \* (0-9999)  
 Call server IP address: 192.168.0.10 \*  
 TLAN address type: ☒ IPv4 only ☐ IPv4 and IPv6

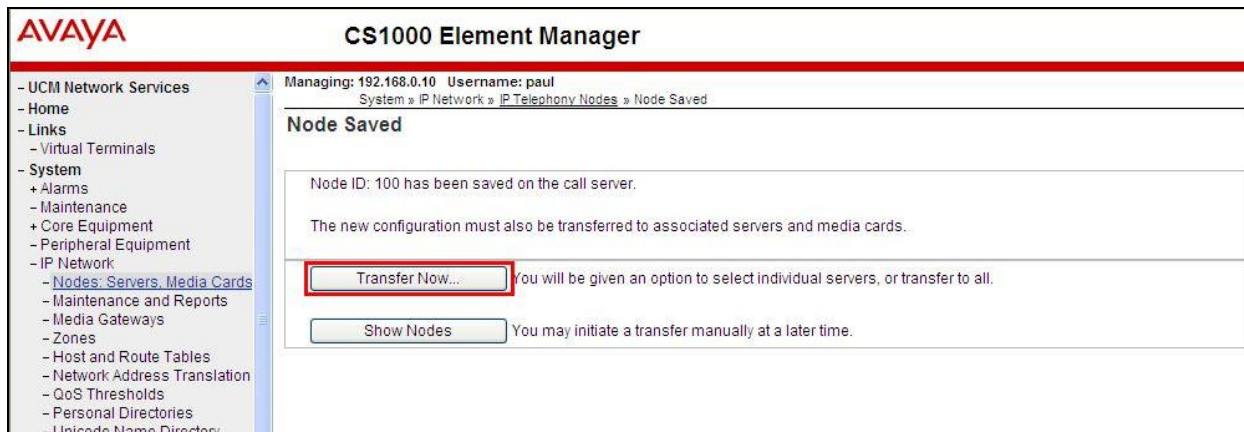
**Embedded LAN (ELAN)**  
 Gateway IP address: 192.168.0.1 \*  
 Subnet mask: 255.255.255.0 \*

**Telephony LAN (TLAN)**  
 Node IPv4 address: 192.168.10.90 \*  
 Subnet mask: 255.255.255.0 \*  
 Node IPv6 address:

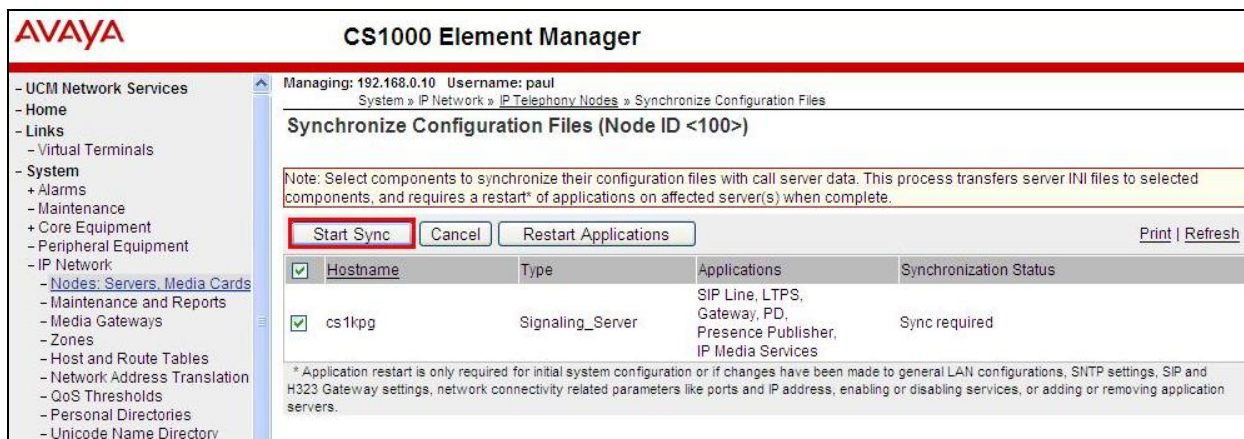
\* Required Value.

**Save** Cancel

Once Save above is clicked the following screen appears. Select **Transfer Now** as highlighted below.



Once the information is transferred over then the components need to synchronise their configuration files with the CS1000E call server. Select the **Hostname** as shown below and click on **Start Sync**.





Once the components are synchronised the application will require a restart, select the **Hostname** and click on **Restart Applications** as highlighted below.

**AVAYA CS1000 Element Manager**

Managing: 192.168.0.10 Username: paul  
System » IP Network » IP Telephony Nodes » Synchronize Configuration Files

### Synchronize Configuration Files (Node ID <100>)

Note: Select components to synchronize their configuration files with call server data. This process transfers server INI files to selected components, and requires a restart\* of applications on affected server(s) when complete.

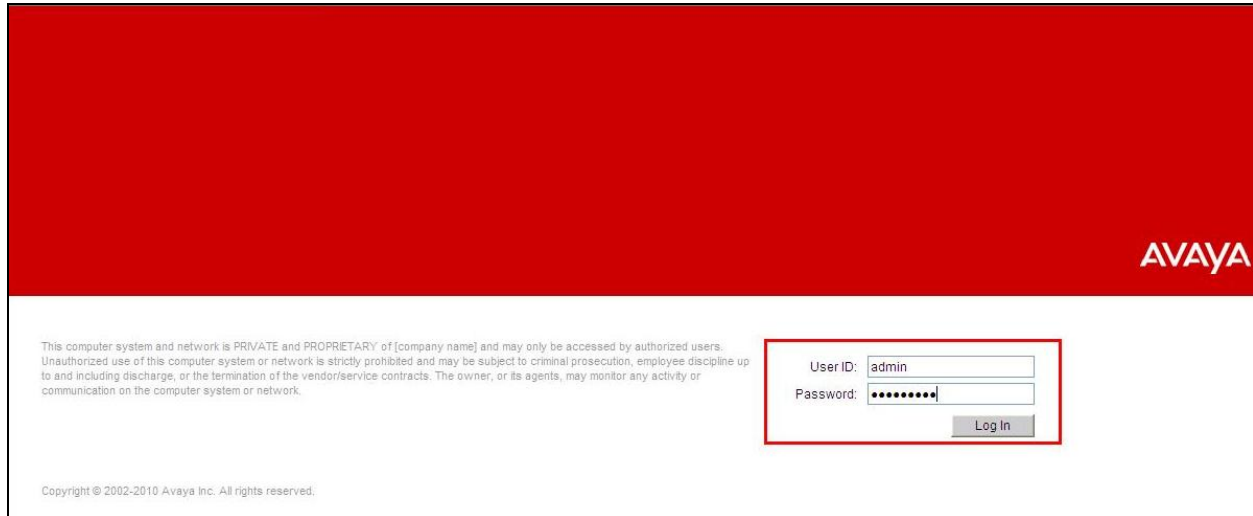
Start Sync Cancel **Restart Applications** [Print](#) | [Refresh](#)

<input checked="" type="checkbox"/>	Hostname	Type	Applications	Synchronization Status
<input checked="" type="checkbox"/>	cs1kpg	Signaling_Server	SIP Line, LTPS, Gateway, PD, Presence Publisher, IP Media Services	Sync required

\* Application restart is only required for initial system configuration or if changes have been made to general LAN configurations, SNTP settings, SIP and H323 Gateway settings, network connectivity related parameters like ports and IP address, enabling or disabling services, or adding or removing application servers.

## 7. Configure Avaya Network Routing Server

Navigate to the Unified Communications Management webpage on the NRS and enter the proper login credentials and click on **Log In**.



The login page features a red header with the AVAYA logo. Below the header, a disclaimer states: "This computer system and network is PRIVATE and PROPRIETARY of [company name] and may only be accessed by authorized users. Unauthorized use of this computer system or network is strictly prohibited and may be subject to criminal prosecution, employee discipline up to and including discharge, or the termination of the vendor/service contracts. The owner, or its agents, may monitor any activity or communication on the computer system or network." To the right of the disclaimer is a login form with fields for "User ID:" (containing "admin") and "Password:" (containing "\*\*\*\*\*"), and a "Log In" button. A red box highlights the login form. At the bottom left, the copyright notice "Copyright © 2002-2010 Avaya Inc. All rights reserved." is visible.

Click on the NRS element as highlighted below.



The screenshot shows the "Avaya Unified Communications Management" interface. The left sidebar contains a navigation menu with categories: Network, CS 1000 Services, User Services, Security, and Tools. The main content area is titled "Elements" and displays a table of registered elements. A red box highlights the third element, "NRSIM on nortelucm".

	Element Name	Element Type	Release	Address
1	<input type="checkbox"/> masserv.qalctlab.com (member)	Linux Base	7.5	47.166.92.220
2	<input type="checkbox"/> nortelucm.qalctlab.com (primary)	Linux Base	7.5	47.166.92.204
3	<input type="checkbox"/> NRSIM on nortelucm	Network Routing Service	7.5	172.18.20.19



The Trio Enterprise is configured as a Dynamic Endpoint on the NRS. From the NRS Manager Page, navigate to **Numbering Plans → Endpoints**, enter **End point name** Trio.

The screenshot displays the Avaya Network Routing Service Manager (NRS) web interface. The left sidebar shows the navigation menu with 'Numbering Plans' and 'Endpoints' highlighted. The main content area is titled 'Edit Gateway Endpoint dpp.nortel / udp / cdp'. The configuration fields are as follows:

- Managing:** Active database (selected), 172.18.20.19
- Standby database:** (unselected), [Numbering Plans > Endpoints > Gateway Endpoint](#)
- End point name:** Trio
- Description:** Trio Enterprise 3.1
- Trust Node:** ☒
- Tandem gateway endpoint name:** Not Applicable
- Endpoint authentication enabled:** Authentication off
- Authentication password:** (empty field)
- E.164 country code:** (empty field)
- E.164 area code:** (empty field)
- E.164 international dialing access code:** (empty field)
- E.164 international dialing code length:** (empty field) (0-99)
- E.164 national dialing access code:** (empty field)
- E.164 national dialing code length:** (empty field) (0-99)
- E.164 local (subscriber) dialing access code:** (empty field)

At the bottom left, there is a note: '\* Required value'. At the bottom right, there is a 'Cancel' button.

Scroll down **SIP Support** and select **Dynamic SIP Endpoint** and for **SIP Mode** select the **Proxy Mode** radio button. Enable **SIP UDP Transport** and enter **5060** for **SIP UDP Port**.

Select **Routes** in the left Window. In the **Search for Routing Entries** window select the correct **Domain**, **L0** and **L1**, then select **Trio** for the **Endpoint Name** that was created above. Click on **Add** to add and new Routing Entry for Trio.

**Note:** It is assumed that the **Domain**, the **L0** and **L1** entries have already been configured for this NRS and are therefore outside the scope of these Application Notes. Please refer to **Section 11** of for information regarding the configuration of the Avaya Network Routing Server.

Select **Private level 0 regional (CDP steering code)** for **DN type** and enter the correct **DN prefix** with **Route cost** set to **1**. Note that **40** was entered during compliance testing so that numbers 40xx were routed to the Trio endpoint.

AVAYA Network Routing Service Manager

Managing: ☐ Active database 172.18.20.19  
☒ Standby database [Numbering Plans > Routes > Routing Entry](#)

Add Routing Entry ( dpp.nortel / udp / cdp / Trio )

DN type: Private level 0 regional (CDP steering code) ▼  
 DN prefix: 40 \*  
 Route cost: 1 \* (1-255)

\* Required value. Save

Note the new routing entry added for Trio highlighted below.

AVAYA Network Routing Service Manager

Managing: ☐ Active database 172.18.20.19  
☒ Standby database [Numbering Plans > Routes](#)

Search for Routing Entries

Enter a DnPrefix and Dn Type (use \* for all) and click Search. You may narrow the search by specifying a particular domain.

DN Prefix: \* DN Type: All DN Types ▼  
 Limit results to Domain: dpp.nortel / udp / cdp  
 Endpoint Name: Trio

Results per page: 50

Routing Entries (1)		Default Routes (0)		Emergency Fallback Routes (0)	
DN Prefix	DN Type	Route Cost	SIP URI Phone Context	Context	
40	Private level 0 regional (CDP steering code)	1	cdp.udp	dpp.nortel / udp / cdp / Trio	

To save the new entries to the database on the NRS the database must be cut over and committed. Select **Database** under **System** in the left window and click on **Cut over** in the right window.

AVAYA Network Routing Service Manager

Managing: 172.18.20.19  
 System > Database

Database

NRS uses a redundant database with Active and Standby copies. Normally changes are made to the standby database, tested, then cut over into active status.

Database status: Changed Cut over Revert Commit

Once the Database is cut over, click on **Commit** in the same window, as shown below.

**AVAYA** Network Routing Service Manager

«UCM Network Services

- System
  - NRS Server
  - Database**
  - System Wide Settings
- Numbering Plans
  - Domains
  - Endpoints
  - Routes
  - Network Post-Translation
  - Collaborative Servers

Managing: 172.18.20.19

System » Database

**Database**

NRS uses a redundant database with Active and Standby copies. Normally changes are made to the standby database, tested, then cut over into active status.

Database status: Switched over

Cut over Revert **Commit**

Once the database is Committed as shown below the NRS has been properly configured.

**AVAYA** Network Routing Service Manager

«UCM Network Services

- System
  - NRS Server
  - Database
  - System Wide Settings
- Numbering Plans
  - Domains
  - Endpoints
  - Routes
  - Network Post-Translation
  - Collaborative Servers

Managing: 172.18.20.19

System » Database

**Database**

NRS uses a redundant database with Active and Standby copies. Normally changes are made to the standby database, tested, then cut over into active status.

Database status: Committed

Cut over Revert Commit

## 8. Configure TRIO Enterprise

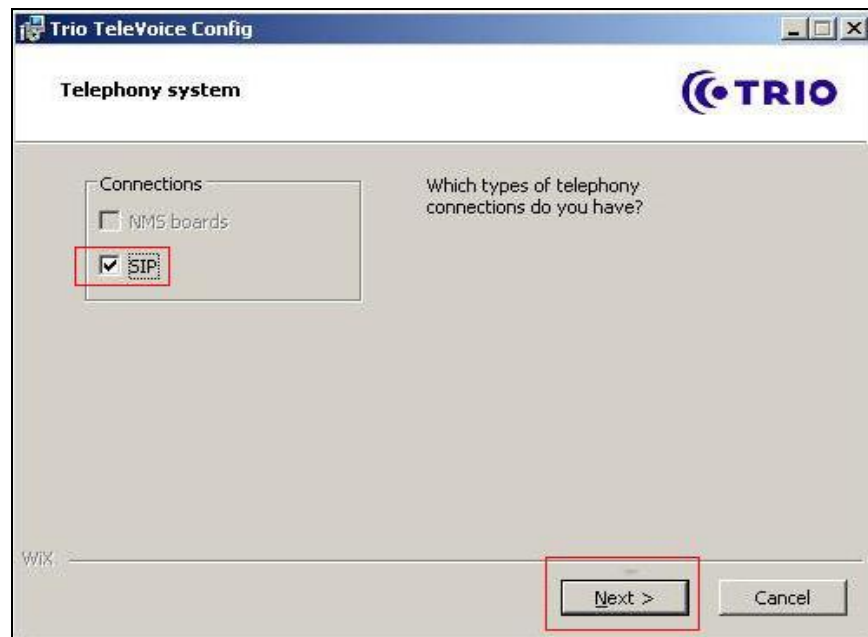
This section describes how to integrate Trio Enterprise with the Communication Server 1000E using dynamic SIP. Trio Enterprise is added to the NRS as a Dynamic SIP endpoint and calls are routed to the Trio Enterprise server according to the dial Plan setup in **Section 5.3**. This section shows how to configure Trio Enterprise to successfully connect to the CS1000E using SIP trunks. The installation of the Trio Enterprise software is assumed to be completed and the Trio services are up and running.

**Note:** During the configuration of Trio Enterprise some windows mention **Nortel CS1000/Meridian**, this relates to the **Avaya Communication Server 1000E**.

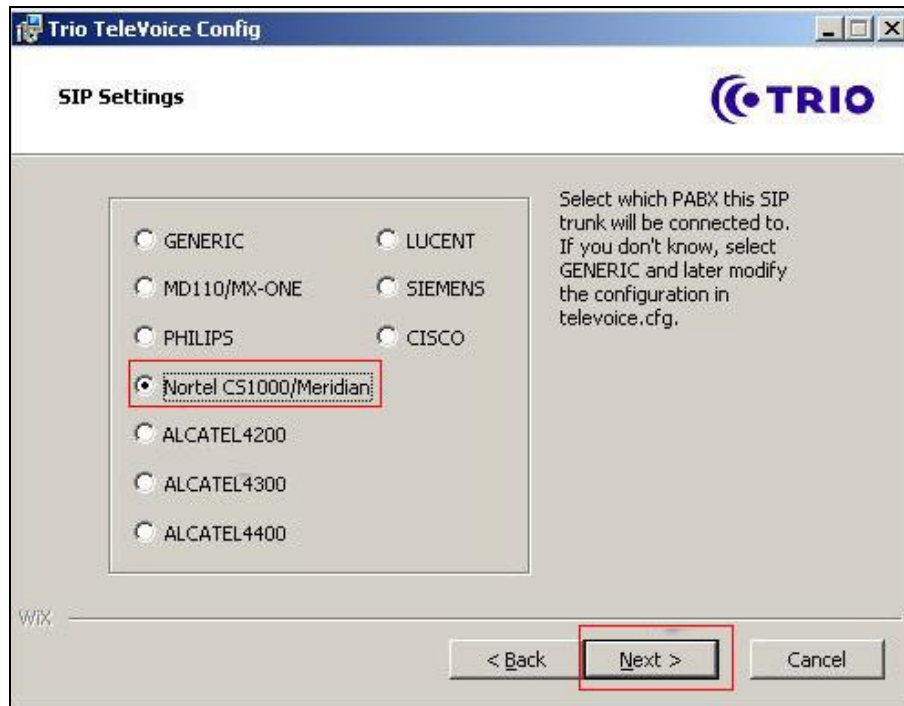
### 8.1. Configure Trio Enterprise to use SIP Trunks

Trio Enterprise must be connected to Communication Server 1000E before it can process calls. This section shows how to configure Trio Enterprise SIP trunks with the Communication Server 1000E. The steps to configure SIP trunks are as follows.

1. Access Windows services. Select **Start → Run**, then type **services.msc** into the command line. Press return (not shown)
2. When the standard services window opens, locate the Trio Televoice service and stop the service (not shown)
3. Launch the Trio configuration application. Select **Start → Programs → Trio Enterprise → Line Interface** and click on the **Config** entry (not shown). The configuration application starts up and presents the screenshot below
4. Ensure the **SIP** entry in the **Connections** area is checked
5. Click **Next** to continue



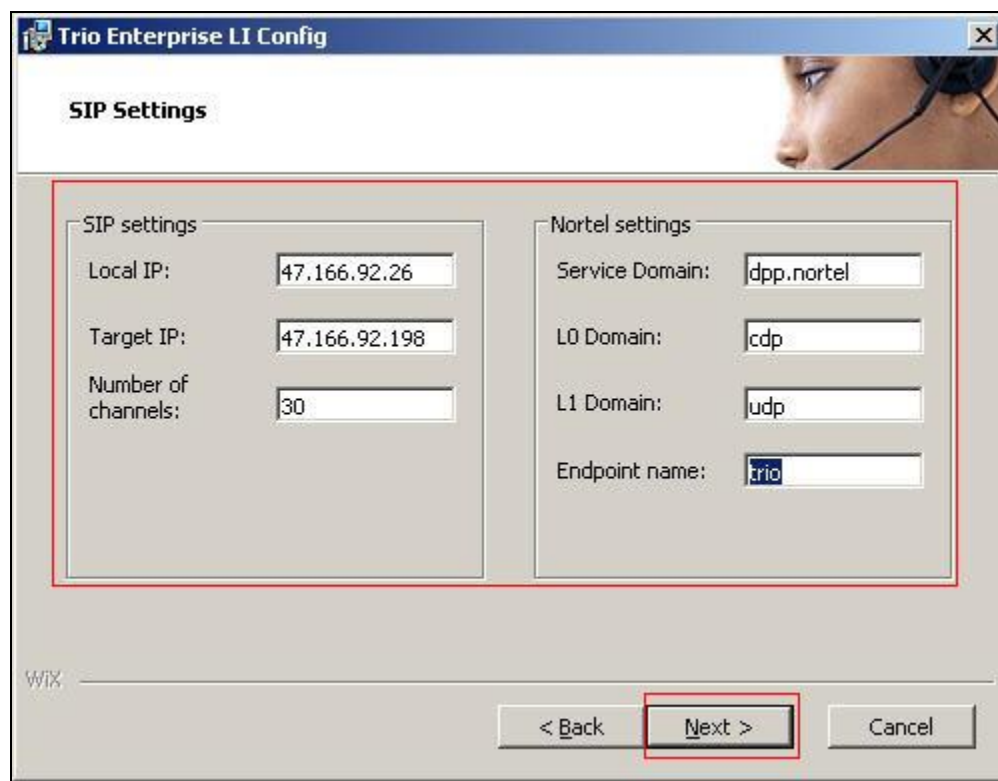
Select **Nortel CS1000/Meridian** under **SIP Settings**. Click **Next** to continue.



On the next **SIP settings** page, enter the following SIP settings.

- |                              |  |
|------------------------------|--|
| 1. <b>Local IP</b>           | The local IP address of the Trio Enterprise server   |
| 2. <b>Target IP</b>          | The IP address of the Network Routing Server (NRS)   |
| 3. <b>Number of channels</b> | The number of channels   |
| 4. <b>Service Domain</b>     | The Service domain configured in Network Routing Server (NRS)                                    |
| 5. <b>L0 Domain</b>          | The L0 Domain configured in Network Routing Server (NRS)   |
| 6. <b>L1 Domain</b>          | The L1 Domain configured in Network Routing Server (NRS)   |
| 7. <b>Endpoint name</b>      | TRIO endpoint name configured in Network Routing Server (NRS), as configured in <b>Section 6</b> |

Click **Next** to continue.



The screenshot shows the 'Trio Enterprise LI Config' window with the 'SIP Settings' tab selected. The window is divided into two main sections: 'SIP settings' and 'Nortel settings'. The 'SIP settings' section includes fields for 'Local IP' (47.166.92.26), 'Target IP' (47.166.92.198), and 'Number of channels' (30). The 'Nortel settings' section includes fields for 'Service Domain' (dpp.nortel), 'L0 Domain' (cdp), 'L1 Domain' (udp), and 'Endpoint name' (trio). A red box highlights the entire settings area. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a red box.

Setting	Value
Local IP	47.166.92.26
Target IP	47.166.92.198
Number of channels	30
Service Domain	dpp.nortel
L0 Domain	cdp
L1 Domain	udp
Endpoint name	trio



In the **General** tab on the **TeleVoice Product Configuration** page, enter the following:

- **Ext. length** Ext length is **4**
- **Operator Open hours** Example **0800-1800**
- **Number of operator** Example **4000** (as was configured in **Section 5.3.2**)

Click on **Apply** button followed by the **OK** button.

The screenshot shows the 'TeleVoice Product Configuration' dialog box with the 'General' tab selected. The 'PBX' section has 'Ext. length' set to 4. The 'Operator' section has 'Open hours' set to 0800-1800. The 'Customer group data' section has 'Number to operator' set to 4000. The 'Outgoing calls' section has 'Prefix for outgoing calls' set to 0. The 'Attendant extensions' section has 'Attendant' set to 0. The 'Voice Assistant' section has 'Service' set to 0. The 'A4400 - VPS Signaling' section has 'Extended VPS Signaling' unchecked. The 'OK', 'Cancel', and 'Apply' buttons are at the bottom right.

Section	Field	Value
PBX	Ext. length	4
	Operator	
Operator	Open hours	0800-1800
	Extension for open hours	
Customer group data	Group	0
	Number to operator	4000
Outgoing calls	Beginning digits in extensions	
	Prefix for outgoing calls	0
Attendant extensions	Attendant	0
	Extension	
Voice Assistant	Service	0
	Number	
A4400 - VPS Signaling	Extended VPS Signaling	<input type="checkbox"/>
	Televoice Server IP address	
Option in int. calls	Option in int. calls	<input checked="" type="checkbox"/>
	Option in ext. calls	<input type="checkbox"/>



## 8.2. InteractionStudio Configuration

The InteractionStudio is used to configure many features for Trio Enterprise. For compliance testing, the following were configured.

- Configure Call routing table
- Configure Attendant Service
- Configure Loop Detection via DTMF for Busy signal
- Configure Loop Detection via DTMF for No Answer signal

### 8.2.1. Configure Call routing table

On the Trio Enterprise server, click the **Start** button → **Programs** → **Trio Enterprise** → **Contact Center** → **CC1** → **Interaction Studio** (not shown). When the InteractionStudio window opens, navigate to **Routing**. A **Call routing table** will open. In the example below:

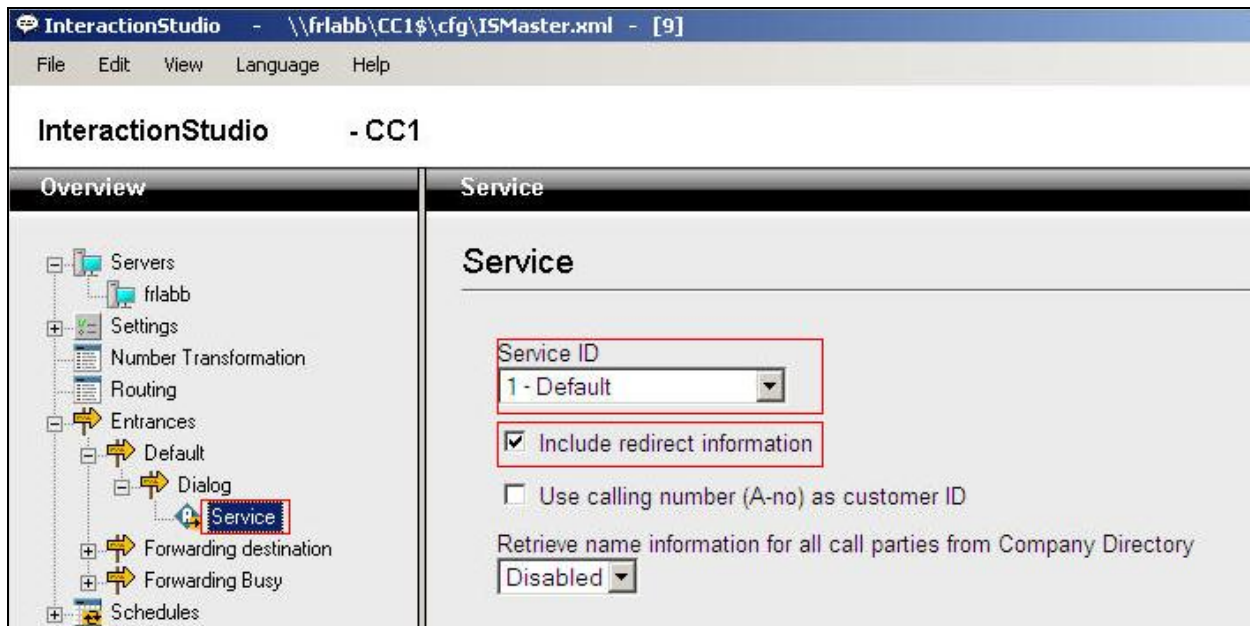
- Extension **4000** is the main queue number.
- Extension **4001** is the number that calls go to when Call forward No Answer is activated.
- Extension **4002** is the number that calls go to when Call forward Busy is activated.

The screenshot shows the InteractionStudio application window with the title bar indicating the file path \\frlab\CC1\$\cfg\ISMater.xml. The interface has a menu bar (File, Edit, View, Language, Help) and a toolbar. The main area is divided into two panes: Overview and Routing. The Overview pane on the left contains a tree view with nodes for Servers, Settings, Number Transformation, Routing (highlighted with a red box), Entrances, Default, Forwarding destination, Forwarding Busy, and Schedules. The Routing pane on the right displays the 'Call routing table' with the following data:

Field	Value	CC/Entrance	Language	Comment
C.No.	4000	Entrance - Default	English	Default range
C.No.	4001	Entrance - Forwarding destination	English	
C.No.	4002	Entrance - Forwarding Busy	English	
*				

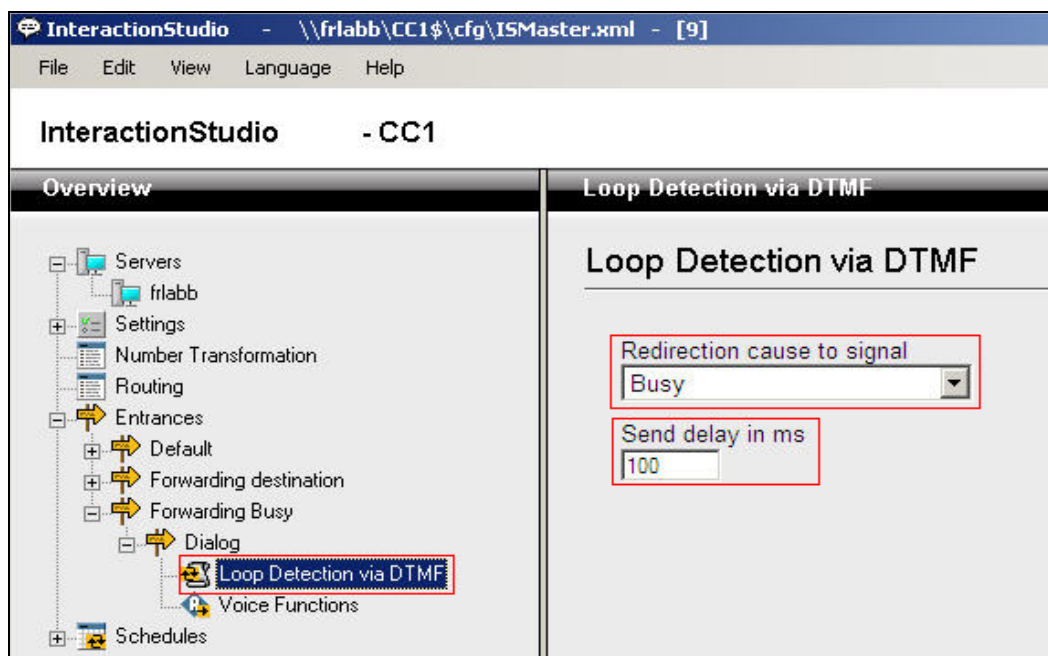
### 8.2.2. Configure Attendant Service

Navigate to **Entrances** → **Default** → **Dialog** → **Service**. Choose **Default** from the **Service ID** drop down box, and check the **Include redirect information** check box.



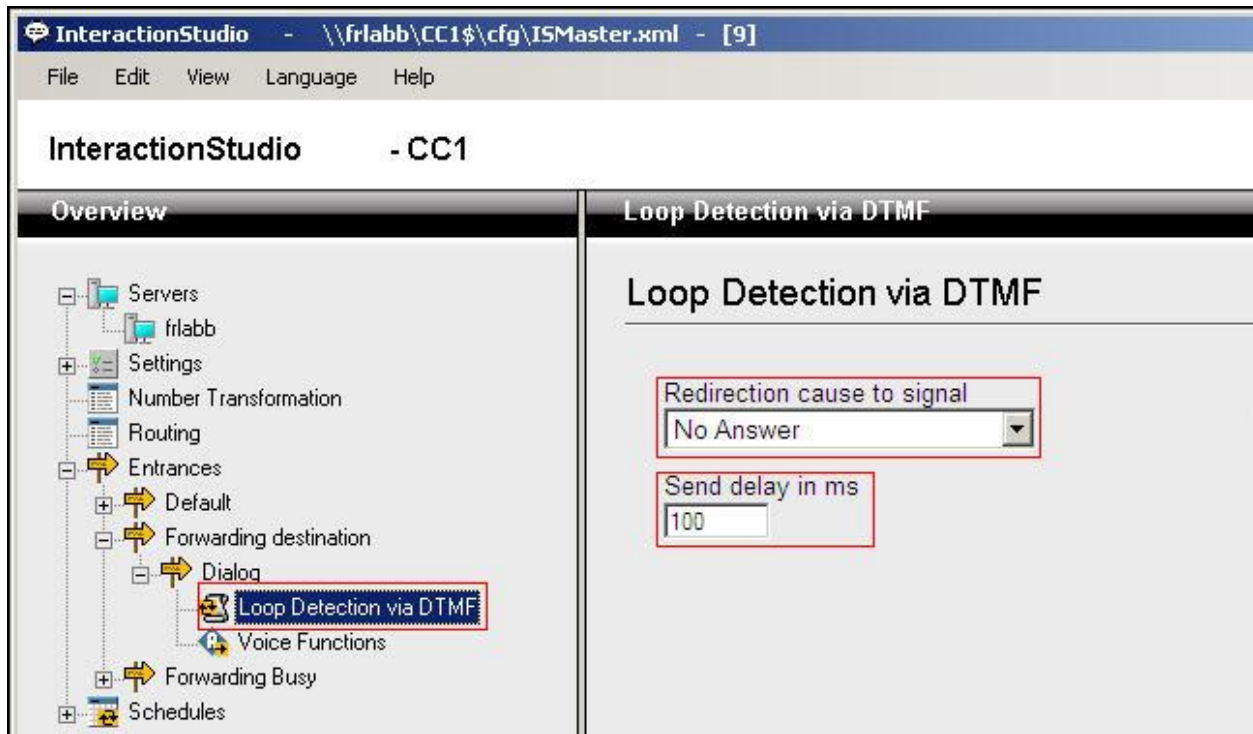
### 8.2.3. Configure Loop Detection via DTMF for Busy signal

Navigate to **Entrances** → **Forwarding Busy** → **Dialog** → **Loop Detection via DTMF**. Choose **Busy** from the **Redirection cause to signal** drop down box, and enter **100** in the **Send delay in ms** box.



#### 8.2.4. Configure Loop Detection via DTMF for No Answer signal


Navigate to **Entrances** → **Forwarding destination** → **Dialog** → **Loop Detection via DTMF**. Choose **No Answer** from the **Redirection cause to signal** drop down box, and enter **100** in the **Send delay in ms** box.



### 8.3. Configuring Trio Attendant

Trio attendant is a separate application to Trio Enterprise server and can run concurrently on the same platform. The attendant uses a regular Communication Server 1000E telephone to make and receive calls, which are directed to the phone by Trio Enterprise server. The steps to configure Trio Attendant are as follows. Click on **Start → Programs → Trio Enterprise → Contact Centre → Agent Client** (not shown).

The window below opens. Enter a valid **User ID** and **Password**. For **Extension**, select the Communication Server 1000E telephone number that will be used as the agent's audio device (number **3032** in this example). Ensure the correct Trio Enterprise server is selected if there is more than one on the network (default is the current Trio server). Confirm **Phone type** is set to **Standard phone**. Click on the **OK** button when finished.



Trio Agent - Login

Trio Enterprise®

User ID: default

Password:

Extension: 3032

Server: trioserver.galctlab.com

Phone type: Standard phone

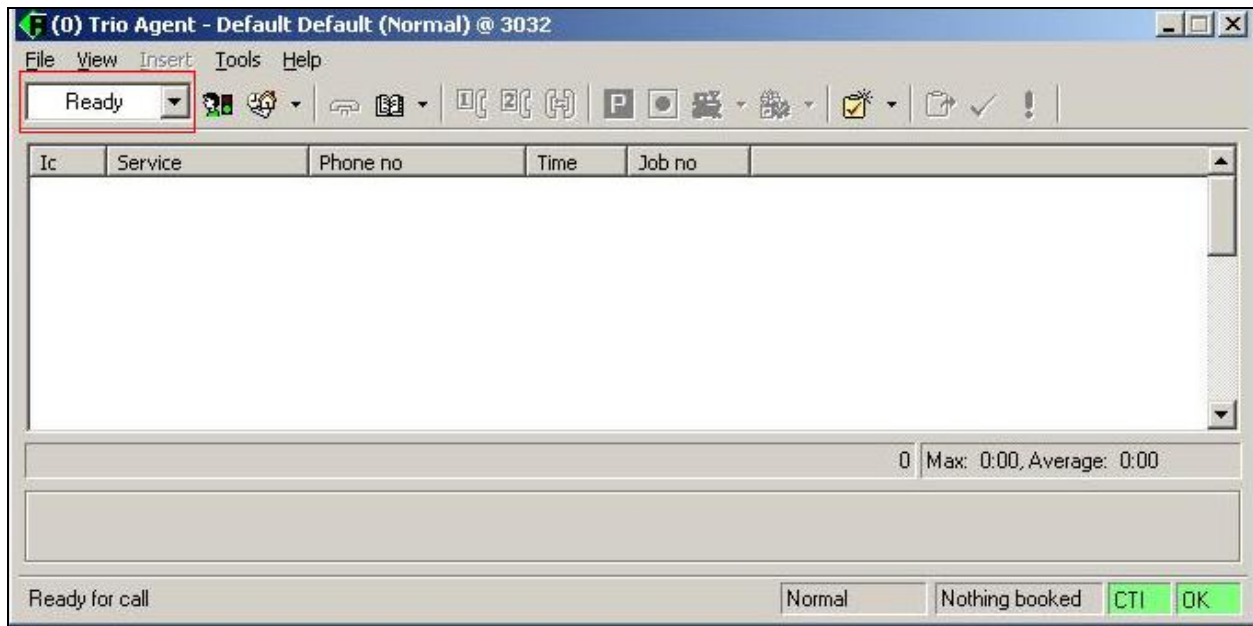
☐ Attach with Contact Center privileges

☐ Attach with Attendant privileges

OK Guest Cancel

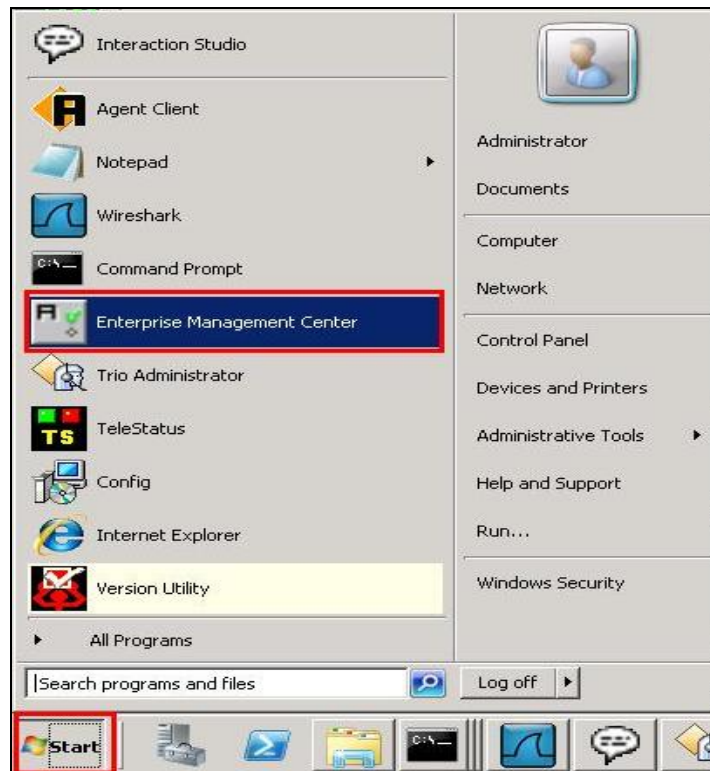
TRIO

The Trio Agent window appears. Select **Ready** from the drop down box (confirm the traffic light goes green in the small icon to the right of the drop down box).



## 8.4. Configure TR87 on Trio Enterprise

Click on **Start**→**Programs**→**Enterprise Management Center**.

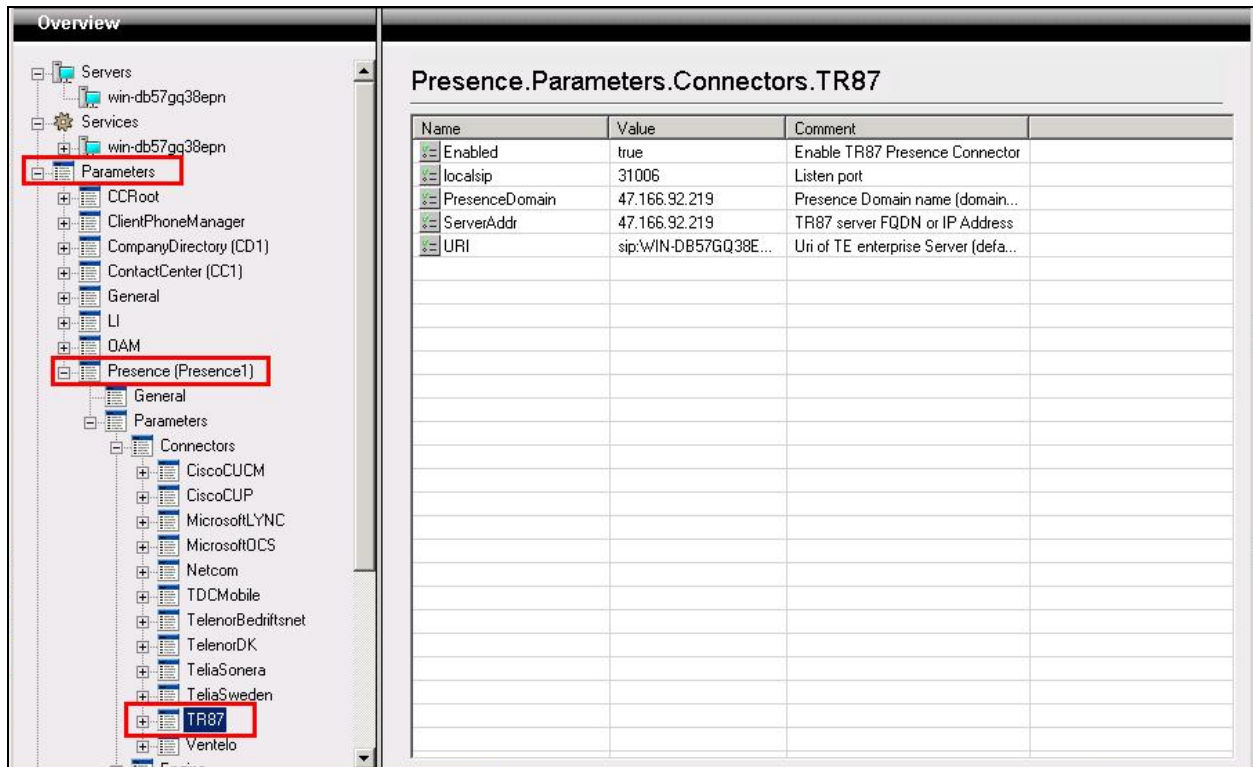


Enter the proper credentials and click on **OK**.

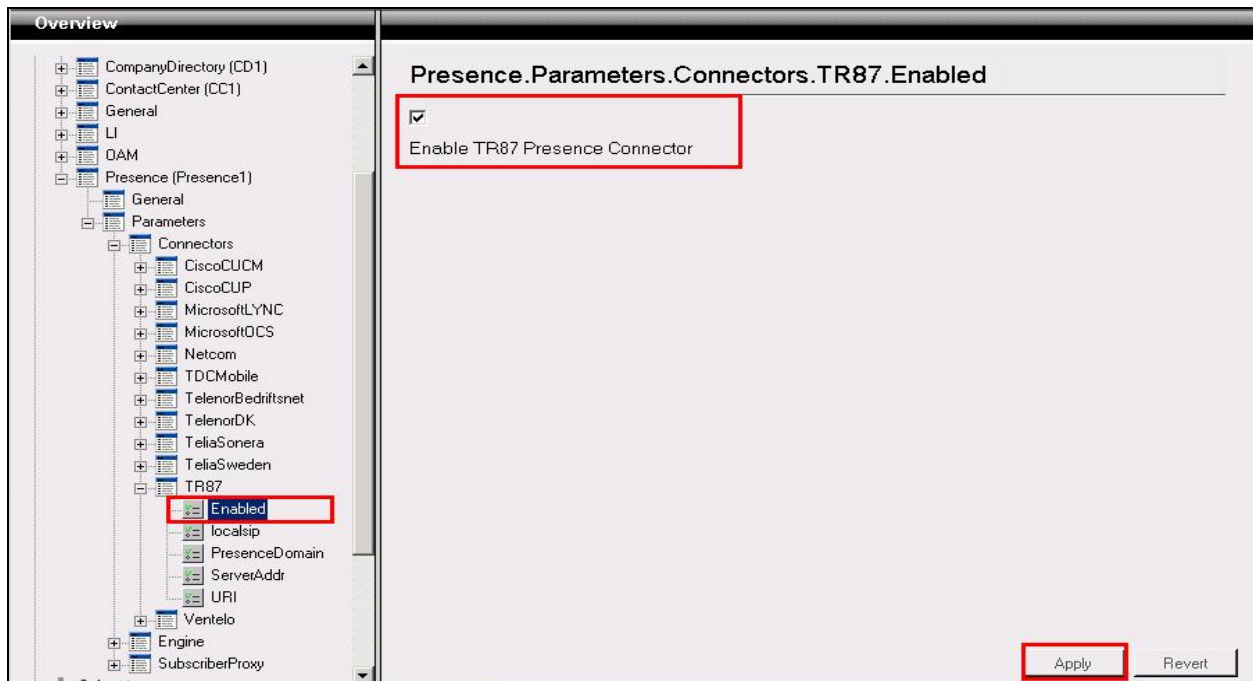




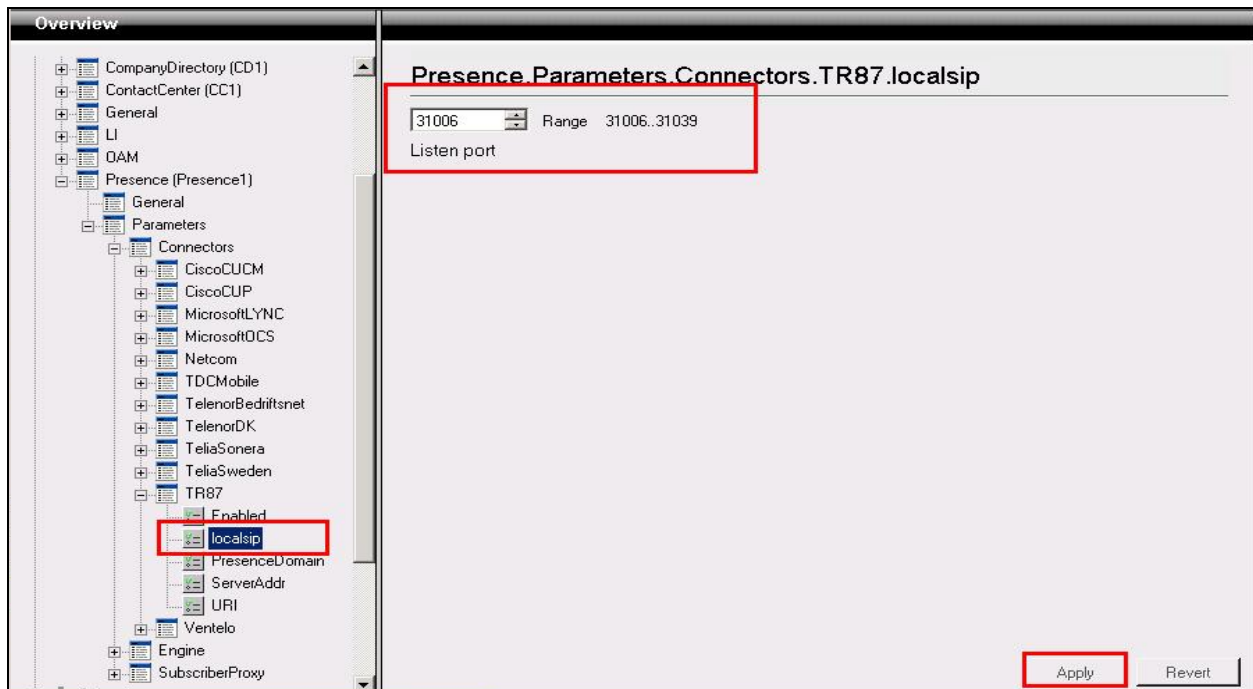
Click on **Parameters**→**Presence**→**Parameters**→**Connectors**→**TR87** in the left window.



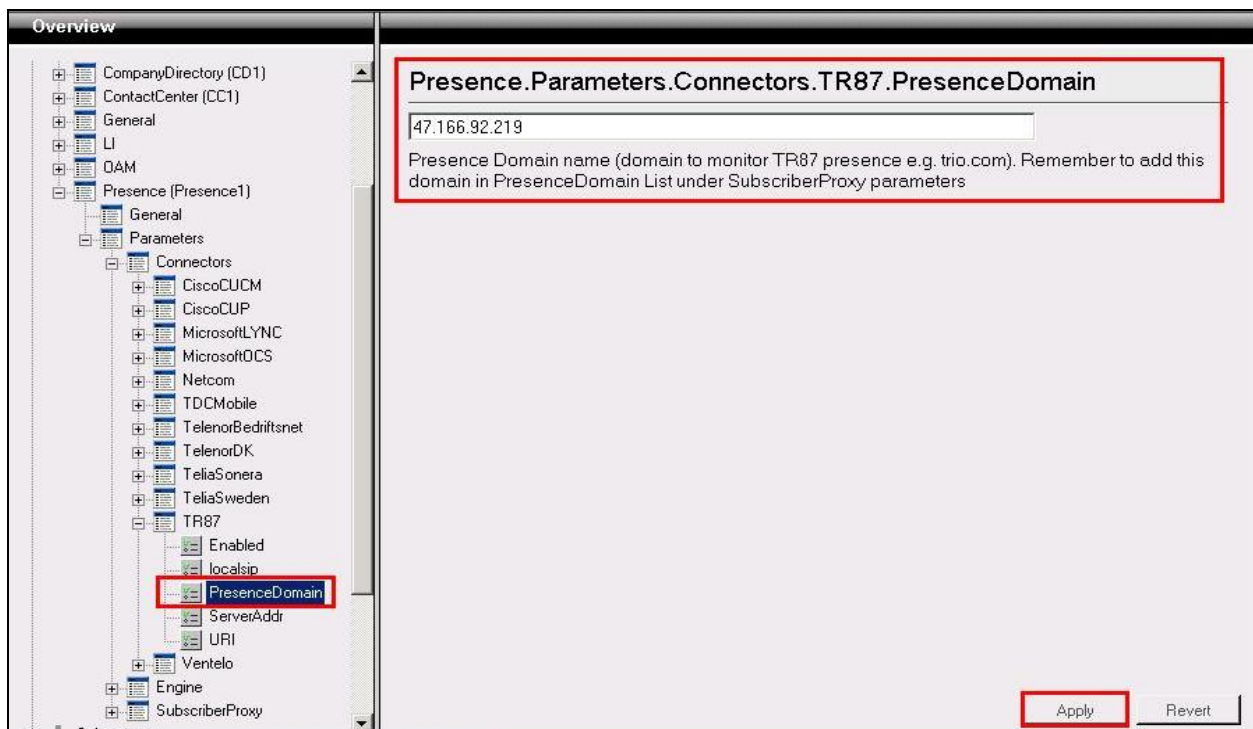
Under **TR87** select **Enabled** in the left window. Ensure that **Enable TR87 Presence Connector** is ticked as shown below. Click **Apply** to continue.



Select **localsip** under **TR87** in the left window and select the **Listen port** for TR87, for compliance testing this was left as default **31006** as shown below. Click **Apply** to continue.

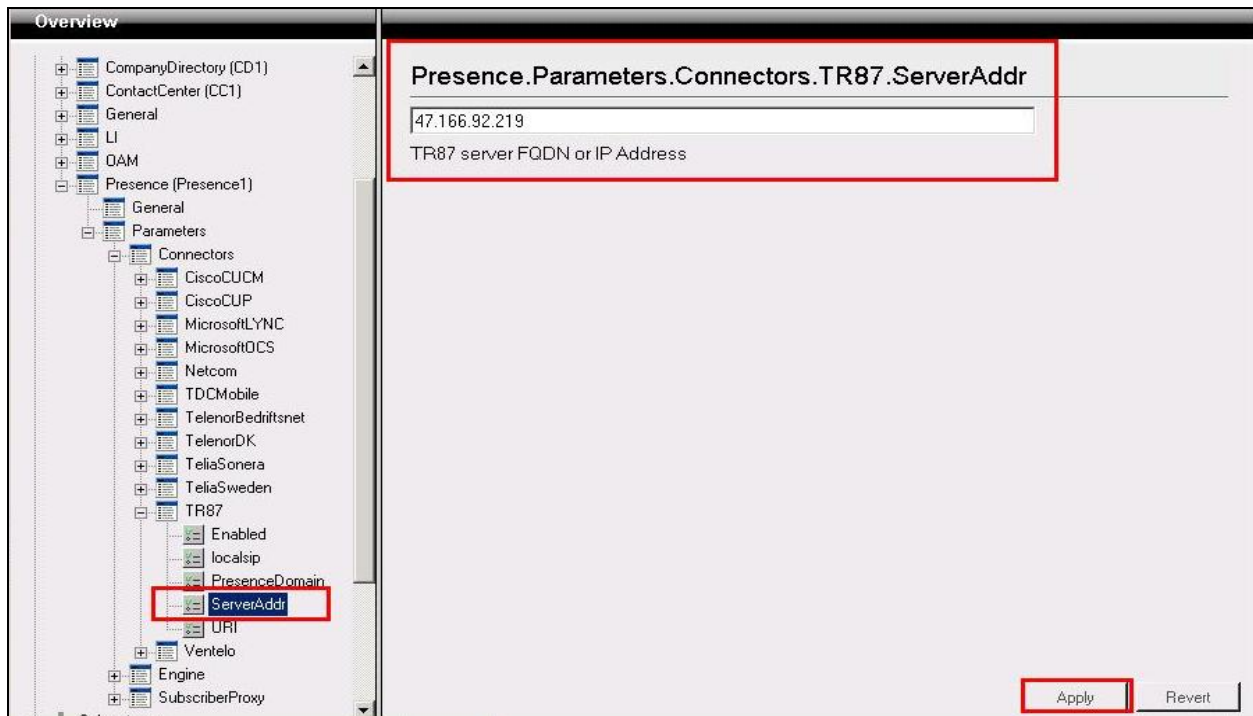


Select **PresenceDomain** under **TR87** in the left window. Enter the Node IP address of the CS1000E. Click **Apply** to continue.

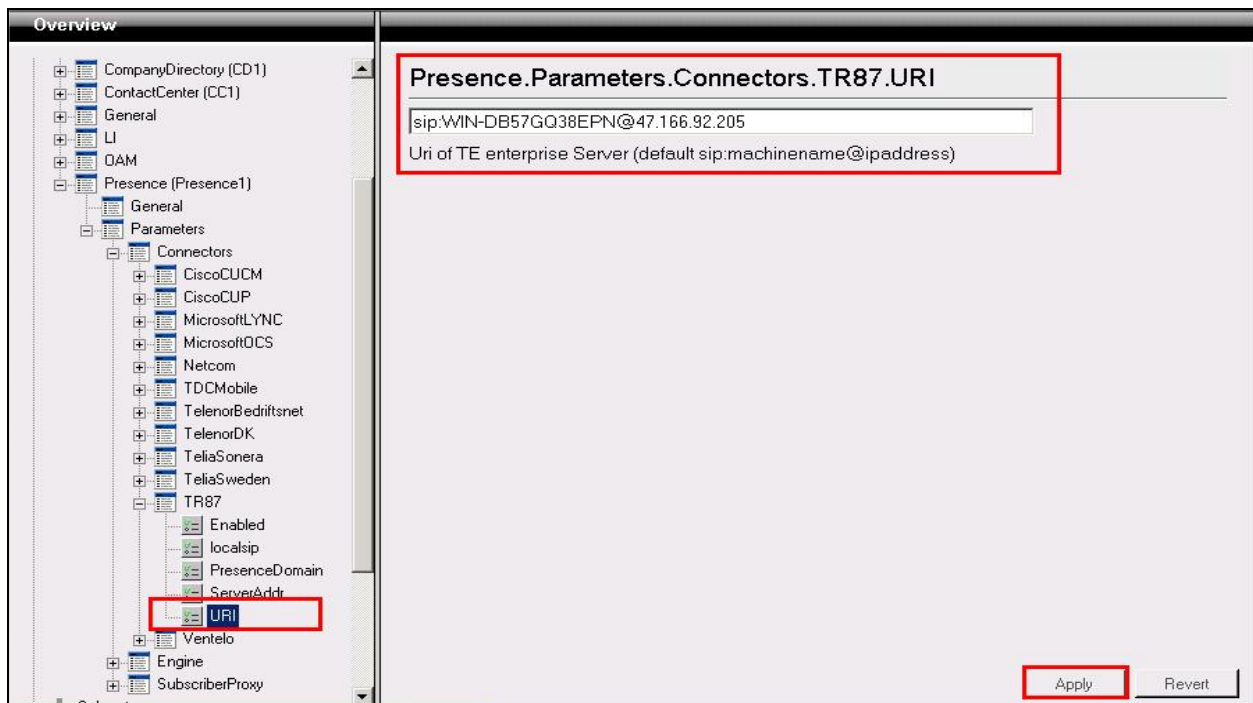




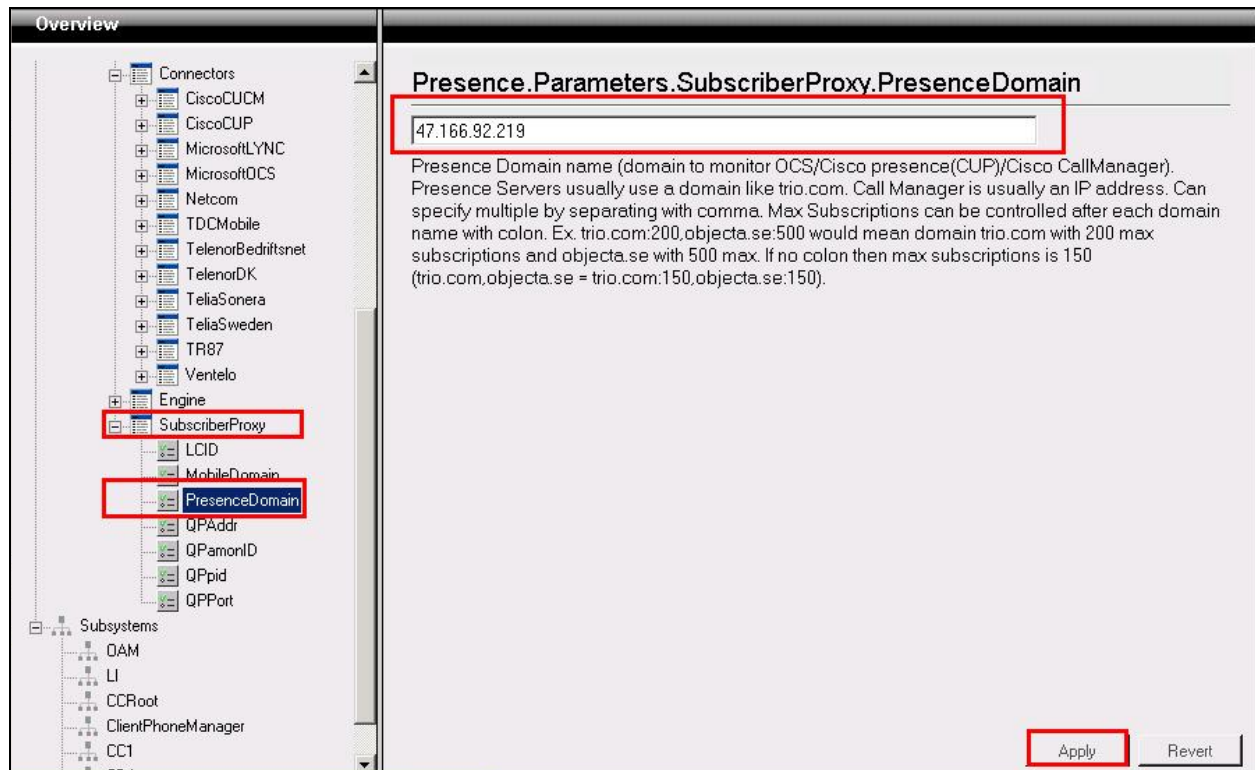
Select **ServerAddr** under **TR87** in the left window and again enter the Node IP address of the CS1000E. Click **Apply** to continue.



Select **URI** under **TR87** in the left window and enter the **machinename@ipaddress** preceded with **sip:** as shown below. Click Apply to continue.

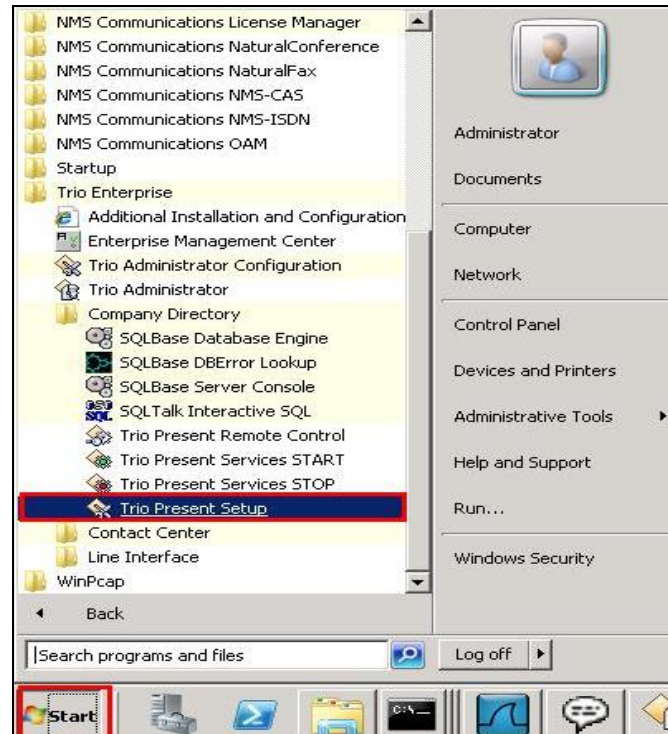


Select **PresenceDomain** under **SubscriberProxy** in the left window. Enter the Node IP address of the CS1000E in the right window. Click **Apply** to continue.

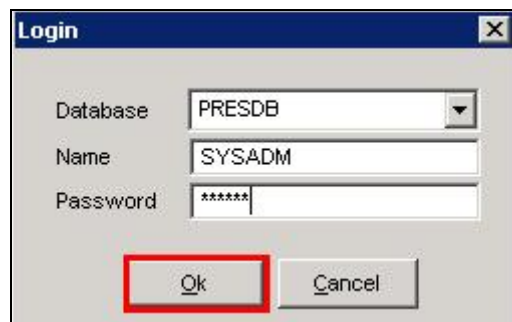


## 8.5. Configure ICP on TRIO

Select **Start**→**Programs**→**Trio Enterprise**→**Company Directory**→**Trio Present Setup** as shown below.



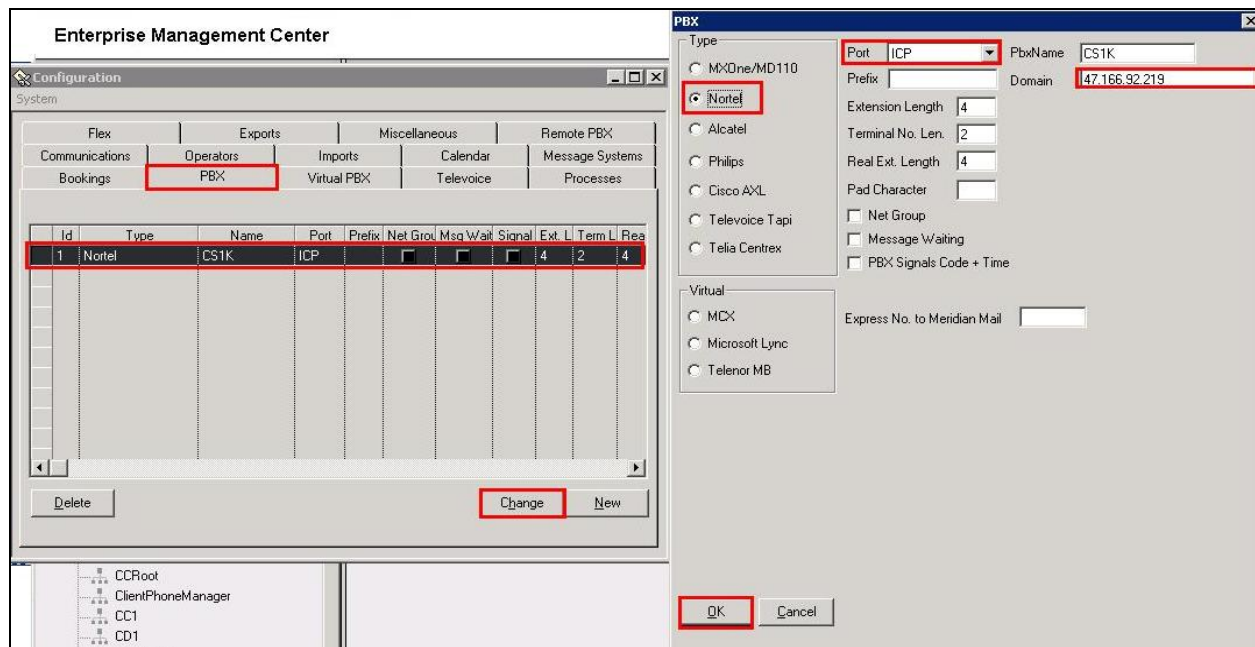
Enter the proper credentials and click **Ok**.



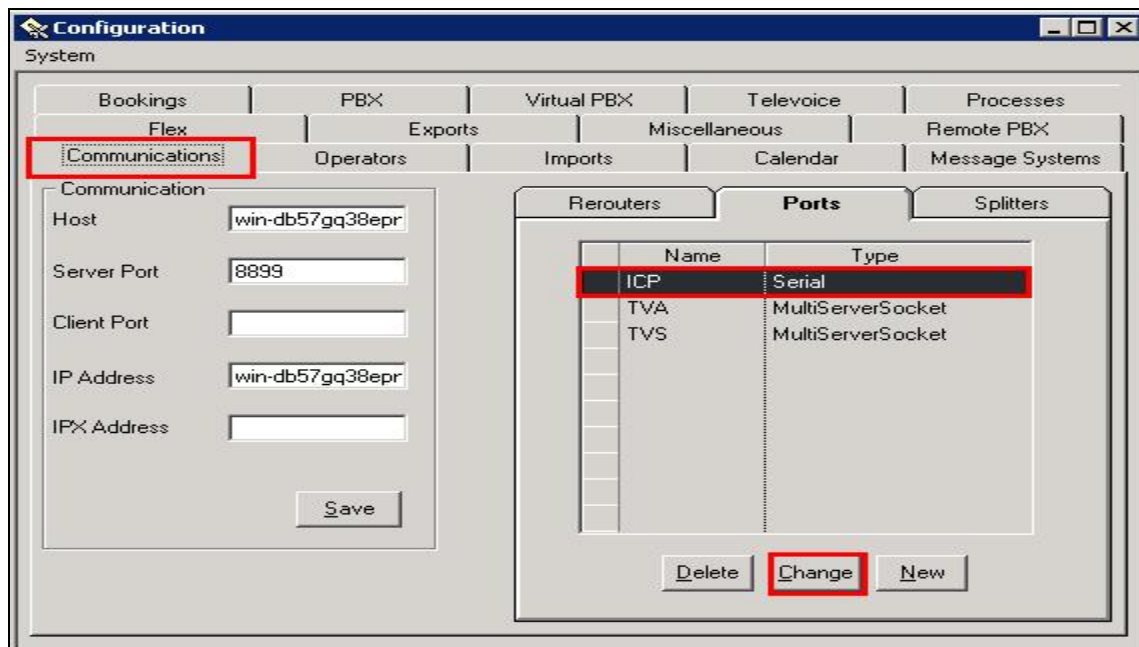
Highlight the selected PBX under the PBX tab and click on change. This opens the window displayed on the right. Ensure the following are selected.

- **Type** Nortel
- **Port** ICP
- **Domain** Node IP address of CS1000E

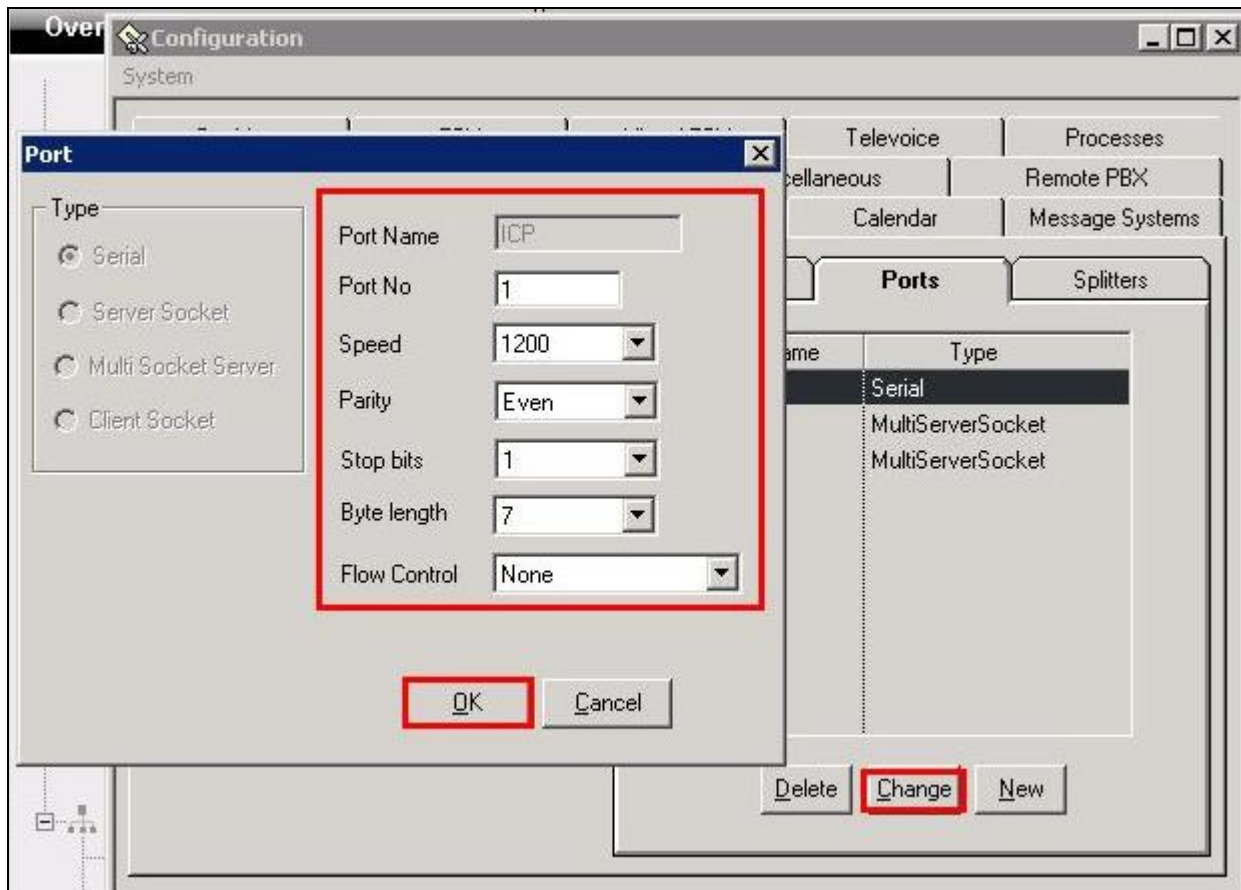
Select **OK** once the correct information is entered.



Under the **Communications** tab select **ICP** as highlighted below and click **Change**.



Enter the information that was entered in **Section 5.5.1** previous, click **OK** once all correct information is added.



## 9. Verification Steps

This section provides the tests that can be performed to verify correct configuration of CS1000E system with TRIO Enterprise.

### 9.1. Status of D-Channel on Avaya Communication Server 1000E

Check the status of the D-channel setup in **Section 5.2.1** by running the command **STAT DCH** in overlay 96 as shown below. The example below shows that D-Channel **66** is operational and established.

#### LD 96

Prompt	Response	Description
>	LD 96	Enter Overlay 96
.	STAT DCH	Check status of all D-Channels
DCH 066	OPER EST	DES :to Trio

### 9.2. Status of D-Channel on Trio Enterprise

To confirm a successful Trio Enterprise connection with the CS1000E, click on **Start → Programs → Trio Enterprise → Line Interface** and then select the **Telestatus** entry (not shown). A new window opens, showing the SIP trunk channel status as a series of green squares with the first and sixteenth squares greyed out (these are the D-Channel and resync timeslots). Confirm the trunks are all in the idle state (unfilled green squares).



## 10. Conclusion

These Application Notes describe the configuration steps required for Trio Enterprise R4.0 to successfully interoperate with Avaya Communication Server 1000E R7.5 and Avaya Network Routing Server R7.5 using SIP trunks. Trio Enterprise passed all compliance testing successfully; please see **Section 2.2** of these Application Notes for results and observations.

## 11. Additional References

This section references documentation relevant to these Application Notes. The Avaya product documentation is available at <http://support.avaya.com> where the following documents can be obtained.

- [1] *Software Input Reference Administration Avaya Communication Server 1000, Release 7.5*; Doc # NN43001-611\_05.02
- [2] *Network Routing Service Fundamentals Avaya Communication Server 1000, Release 7.5*; Doc # NN43001-130 03.10
- [3] *Unified Communications Management Common Services Fundamentals Avaya Communication Server 1000*; Doc # NN43001-116 05.17
- [4] *Element Manager System Reference –Administration Avaya Communication Server 1000*; Doc # NN43001-632, 05.04

All information on the product installation and configuration TRIO Enterprise Server can be found at <http://www.trio.com>



## Appendix A

### Installed CS1000E dependency list

```

VERSION 4121
RELEASE 7
ISSUE 50 Q +
DepList 1: core Issue: 01 (created: 2012-07-04 12:32:45 (est))

IN-SERVICE PEPS
PAT# CR #          PATCH REF #    NAME          DATE          FILENAME          SPECINS
000 wi00960809      ISS1:1OF1      p31564_1  08/11/2012  p31564_1.cpl  NO
001 wi00931028      ISS1:1OF1      p31354_1  08/11/2012  p31354_1.cpl  YES
002 wi00896394      ISS1:1OF1      p30807_1  08/11/2012  p30807_1.cpl  NO
003 wi00894443      ISS1:1OF1      p31093_1  08/11/2012  p31093_1.cpl  NO
004 wi00938555      ISS1:1OF1      p30881_1  08/11/2012  p30881_1.cpl  YES
005 wi00865477      ISS1:1OF1      p30894_1  08/11/2012  p30894_1.cpl  YES
006 wi00905600      ISS1:1OF1      p31201_1  08/11/2012  p31201_1.cpl  NO
007 wi00841980      ISS1:1OF1      p30618_1  08/11/2012  p30618_1.cpl  NO
008 wi00980476      ISS1:1OF1      p31387_1  08/11/2012  p31387_1.cpl  NO
009 WI00839794      ISS1:1OF1      p28647_1  08/11/2012  p28647_1.cpl  NO
010 wi00879322      ISS1:1OF1      p30954_1  08/11/2012  p30954_1.cpl  NO
011 wi00909476      ISS1:1OF1      p31340_1  08/11/2012  p31340_1.cpl  NO
012 wi00958776      ISS1:1OF1      p31542_1  08/11/2012  p31542_1.cpl  YES
013 wi00906350      ISS1:1OF1      p31219_1  08/11/2012  p31219_1.cpl  NO
014 wi00937114      ISS1:1OF1      p31310_1  08/11/2012  p31310_1.cpl  NO
015 wi00897082      ISS1:1OF1      p31124_1  08/11/2012  p31124_1.cpl  NO
016 wi00979414      ISS1:1OF1      p31748_1  08/11/2012  p31748_1.cpl  YES
017 wi00839255      ISS1:1OF1      p30591_1  08/11/2012  p30591_1.cpl  NO
018 wi00973241      ISS1:1OF1      p31715_1  08/11/2012  p31715_1.cpl  NO
019 wi00907707      ISS1:1OF1      p31228_1  08/11/2012  p31228_1.cpl  NO
020 wi00891626      ISS1:1OF1      p31051_1  08/11/2012  p31051_1.cpl  YES
021 wi00852365      ISS1:1OF1      p30707_1  08/11/2012  p30707_1.cpl  NO
022 wi00932204      ISS2:1OF1      p31305_2  08/11/2012  p31305_2.cpl  NO
023 wi00962211      ISS1:1OF1      p31580_1  08/11/2012  p31580_1.cpl  NO
024 wi00921295      ISS1:1OF1      p31265_1  08/11/2012  p31265_1.cpl  NO
025 wi00984652      ISS1:1OF1      p31792_1  08/11/2012  p31792_1.cpl  NO
026 wi00936714      ISS1:1OF1      p31379_1  08/11/2012  p31379_1.cpl  NO
027 wi00907697      ISS1:1OF1      p31227_1  08/11/2012  p31227_1.cpl  NO
028 wi00968353      ISS1:1OF1      p31412_1  08/11/2012  p31412_1.cpl  NO
029 wi00903437      ISS1:1OF1      p31167_1  08/11/2012  p31167_1.cpl  NO
030 wi00993377      ISS1:1OF1      p31860_1  08/11/2012  p31860_1.cpl  NO
031 WI00889786      ISS1:1OF1      p30750_1  08/11/2012  p30750_1.cpl  NO
032 wi00985760      ISS1:1OF1      p31913_1  08/11/2012  p31913_1.cpl  NO
033 wi00840590      ISS1:1OF1      p30767_1  08/11/2012  p30767_1.cpl  NO
034 wi00900668      ISS1:1OF1      p30456_1  08/11/2012  p30456_1.cpl  NO
035 wi00956788      ISS1:1OF1      p31638_1  08/11/2012  p31638_1.cpl  NO
036 wi00906163      ISS1:1OF1      p31205_1  08/11/2012  p31205_1.cpl  NO
037 WI00854150      ISS1:1OF1      p30468_1  08/11/2012  p30468_1.cpl  NO
038 wi00858335      ISS1:1OF1      p30819_1  08/11/2012  p30819_1.cpl  NO
039 wi00948931      ISS1:1OF1      p31407_1  08/11/2012  p31407_1.cpl  NO
040 wi00836182      ISS1:1OF1      p30450_1  08/11/2012  p30450_1.cpl  NO
041 wi00945997      ISS1:1OF1      p31641_1  08/11/2012  p31641_1.cpl  NO
042 wi00949273      ISS1:1OF1      p31411_1  08/11/2012  p31411_1.cpl  NO
043 wi00856702      ISS1:1OF1      p30573_1  08/11/2012  p30573_1.cpl  NO
044 wi00857566      ISS1:1OF1      p30766_1  08/11/2012  p30766_1.cpl  NO
045 wi00881777      ISS1:1OF1      p25747_1  08/11/2012  p25747_1.cpl  NO
046 wi00983007      ISS1:1OF1      p31778_1  08/11/2012  p31778_1.cpl  YES
047 wi00969208      ISS1:1OF1      p31656_1  08/11/2012  p31656_1.cpl  NO
048 WI00836292      ISS1:1OF1      p30554_1  08/11/2012  p30554_1.cpl  NO
049 wi00967509      ISS1:1OF1      p31294_1  08/11/2012  p31294_1.cpl  NO
050 wi00908598      ISS1:1OF1      p31235_1  08/11/2012  p31235_1.cpl  NO

```



051	wi00895181	ISS1:1OF1	p31106_1	08/11/2012	p31106_1.cpl	NO
052	wi00951427	ISS1:1OF1	p31478_1	08/11/2012	p31478_1.cpl	NO
053	wi00960133	ISS2:1OF1	p31557_2	08/11/2012	p31557_2.cpl	NO
054	wi00894243	ISS1:1OF1	p31087_1	08/11/2012	p31087_1.cpl	NO
055	wi00869243	ISS1:1OF1	p30848_1	08/11/2012	p30848_1.cpl	NO
056	wi00865477	ISS1:1OF1	p30893_1	08/11/2012	p30893_1.cpl	YES
057	wi00856991	ISS1:1OF1	p17588_1	08/11/2012	p17588_1.cpl	NO
058	wi00968157	ISS1:1OF1	p31637_1	08/11/2012	p31637_1.cpl	NO
059	WI00928455	ISS1:1OF1	p31297_1	08/11/2012	p31297_1.cpl	NO
060	wi00860279	ISS1:1OF1	p30789_1	08/11/2012	p30789_1.cpl	NO
061	wi00975659	ISS1:1OF1	p31707_1	08/11/2012	p31707_1.cpl	NO
062	wi00977436	ISS1:1OF1	p31834_1	08/11/2012	p31834_1.cpl	NO
063	wi00959463	ISS1:1OF1	p31528_1	08/11/2012	p31528_1.cpl	NO
064	wi00865477	ISS1:1OF1	p30892_1	08/11/2012	p30892_1.cpl	YES
065	wi00997559	ISS1:1OF1	p31898_1	08/11/2012	p31898_1.cpl	NO
066	wi00859123	ISS1:1OF1	p30648_1	08/11/2012	p30648_1.cpl	NO
067	wi00998121	ISS1:1OF1	p31897_1	08/11/2012	p31897_1.cpl	NO
068	wi00965838	ISS1:1OF1	p31623_1	08/11/2012	p31623_1.cpl	NO
069	wi00978883	ISS1:1OF1	p31770_1	08/11/2012	p31770_1.cpl	NO
070	wi00850521	ISS1:1OF1	p30709_1	08/11/2012	p30709_1.cpl	YES
071	wi00886321	ISS1:1OF1	p31009_1	08/11/2012	p31009_1.cpl	NO
072	wi00862574	iss1:1of1	p30870_1	08/11/2012	p30870_1.cpl	NO
073	wi00835294	ISS1:1OF1	p30565_1	08/11/2012	p30565_1.cpl	NO
074	wi00983505	ISS1:1OF1	p31758_1	08/11/2012	p31758_1.cpl	NO
075	wi00969581	ISS1:1OF1	p31661_1	08/11/2012	p31661_1.cpl	YES
076	wi00969890	ISS1:1OF1	p31664_1	08/11/2012	p31664_1.cpl	YES
077	wi00968531	ISS1:1OF1	p31645_1	08/11/2012	p31645_1.cpl	NO
078	wi00991523	ISS1:1OF1	p31603_1	08/11/2012	p31603_1.cpl	NO
079	wi00841273	ISS1:1OF1	p30713_1	08/11/2012	p30713_1.cpl	NO
080	wi00880836	ISS1:1OF1	p30976_1	08/11/2012	p30976_1.cpl	NO
081	wi00882293	ISS1:1OF1	p31010_1	08/11/2012	p31010_1.cpl	NO
082	wi00981711	ISS1:1OF1	p31766_1	08/11/2012	p31766_1.cpl	NO
083	wi00950575	ISS1:1OF1	p31724_1	08/11/2012	p31724_1.cpl	NO
084	wi00961267	ISS1:1OF1	p30288_1	08/11/2012	p30288_1.cpl	NO
085	wi00890475	p30952	p31048_1	08/11/2012	p31048_1.cpl	NO
086	wi00884699	ISS1:1OF1	p31000_1	08/11/2012	p31000_1.cpl	YES
087	wi00959284	ISS1:1OF1	p31531_1	08/11/2012	p31531_1.cpl	NO
088	wi00865477	ISS1:1OF1	p30896_1	08/11/2012	p30896_1.cpl	YES
089	wi00925208	ISS1:1OF1	p30986_1	08/11/2012	p30986_1.cpl	NO
090	wi00927321	ISS1:1OF1	p31286_1	08/11/2012	p31286_1.cpl	YES
091	wi00982566	ISS1:1OF1	p31774_1	08/11/2012	p31774_1.cpl	NO
092	wi01003999	ISS1:1OF1	p31946_1	08/11/2012	p31946_1.cpl	YES
093	wi00964006	ISS1:1OF1	p31595_1	08/11/2012	p31595_1.cpl	YES
094	wi00930649	ISS1:1OF1	p31570_1	08/11/2012	p31570_1.cpl	NO
095	wi00877367	ISS1:1OF1	p30534_1	08/11/2012	p30534_1.cpl	NO
096	wi00946558	ISS1:1OF1	p31358_1	08/11/2012	p31358_1.cpl	NO
097	wi00905297	ISS1:1OF1	p31195_1	08/11/2012	p31195_1.cpl	NO
098	wi00946477	ISS1:1OF1	p31426_1	08/11/2012	p31426_1.cpl	NO
099	wi00852389	ISS1:1OF1	p30641_1	08/11/2012	p30641_1.cpl	NO
100	wi00942734	ISS1:1OF1	p31409_1	08/11/2012	p31409_1.cpl	NO
101	wi00877592	ISS1:1OF1	p30880_1	08/11/2012	p30880_1.cpl	NO
102	wi00986337	ISS1:1OF1	p31803_1	08/11/2012	p31803_1.cpl	NO
103	wi00854415	ISS1:1OF1	p30593_1	08/11/2012	p30593_1.cpl	NO
104	wi00924886	ISS1:1OF1	p31062_1	08/11/2012	p31062_1.cpl	YES
105	wi00827950	ISS2:1OF1	p30471_2	08/11/2012	p30471_2.cpl	NO
106	wi00898327	ISS1:1OF1	p31136_1	08/11/2012	p31136_1.cpl	NO
107	wi00895090	ISS1:1OF1	p31105_1	08/11/2012	p31105_1.cpl	NO
108	wi00868729	ISS1:1OF1	p31163_1	08/11/2012	p31163_1.cpl	NO
109	wi00905660	ISS1:1OF1	p27968_1	08/11/2012	p27968_1.cpl	NO
110	wi00900766	ISS1:1OF1	p31159_1	08/11/2012	p31159_1.cpl	NO
111	wi00925218	ISS1:1OF1	p30675_1	08/11/2012	p30675_1.cpl	NO
112	wi00897176	ISS1:1OF1	p30418_1	08/11/2012	p30418_1.cpl	NO
113	wi00898200	ISS1:1of1	p31274_1	08/11/2012	p31274_1.cpl	NO

114	wi00824257	ISS1:1OF1	p30447_1	08/11/2012	p30447_1.cpl	NO
115	wi00979591	ISS1:1OF1	p31746_1	08/11/2012	p31746_1.cpl	NO
116	wi00976209	ISS1:1OF1	p31717_1	08/11/2012	p31717_1.cpl	YES
117	wi00955753	ISS1:1OF1	p31733_1	08/11/2012	p31733_1.cpl	NO
118	wi00974635	ISS1:1OF1	p31695_1	08/11/2012	p31695_1.cpl	YES
119	wi00993648	ISS1:1OF1	p31867_1	08/11/2012	p31867_1.cpl	NO
120	wi00896420	ISS1:1OF1	p30867_1	08/11/2012	p30867_1.cpl	NO
121	wi00937672	ISS1:1OF1	p31276_1	08/11/2012	p31276_1.cpl	NO
122	WI00836334	ISS1:1OF1	p30481_1	08/11/2012	p30481_1.cpl	NO
123	wi00880386	ISS1:1OF1	p30977_1	08/11/2012	p30977_1.cpl	NO
124	wi00965285	ISS1:1OF1	p31476_1	08/11/2012	p31476_1.cpl	NO
125	wi00875701	ISS1:1OF1	p30942_1	08/11/2012	p30942_1.cpl	NO
126	wi00949410	ISS1:1OF1	p31248_1	08/11/2012	p31248_1.cpl	NO
127	wi00856410	ISS1:1OF1	p30749_1	08/11/2012	p30749_1.cpl	NO
128	wi00959820	ISS1:1OF1	p31562_1	08/11/2012	p31562_1.cpl	NO
129	wi00943748	ISS1:1OF1	p31516_1	08/11/2012	p31516_1.cpl	NO
130	wi00936935	ISS1:1OF1	p31362_1	08/11/2012	p31362_1.cpl	NO
131	wi00969039	ISS1:1OF1	p31643_1	08/11/2012	p31643_1.cpl	NO
132	wi00944019	ISS1:1OF1	p31874_1	08/11/2012	p31874_1.cpl	NO
133	wi00987424	ISS1:1OF1	p31815_1	08/11/2012	p31815_1.cpl	NO
134	wi00990993	ISS1:1OF1	p31825_1	08/11/2012	p31825_1.cpl	NO
135	wi00957252	ISS1:1OF1	p31530_1	08/11/2012	p31530_1.cpl	NO
136	wi00975133	ISS1:1OF1	p31731_1	08/11/2012	p31731_1.cpl	NO
137	wi00871739	ISS1:1OF1	p30856_1	08/11/2012	p30856_1.cpl	NO
138	wi00883604	ISS1:1OF1	p30973_1	08/11/2012	p30973_1.cpl	NO
139	wi00929140	ISS1:1OF1	p31284_1	08/11/2012	p31284_1.cpl	NO
140	wi00854130	ISS1:1OF1	p30443_1	08/11/2012	p30443_1.cpl	NO
141	wi00956885	ISS1:1OF1	p31489_1	08/11/2012	p31489_1.cpl	NO
142	wi00859499	ISS1:1OF1	p30694_1	08/11/2012	p30694_1.cpl	NO
143	wi00925141	ISS1:1OF1	p30802_1	08/11/2012	p30802_1.cpl	NO
144	wi00932948	ISS1:1OF1	p31077_1	08/11/2012	p31077_1.cpl	NO
145	wi00973270	ISS1:1OF1	p31751_1	08/11/2012	p31751_1.cpl	NO
146	wi00991892	ISS1:1OF1	p31853_1	08/11/2012	p31853_1.cpl	NO
147	wi00984888	ISS1:1OF1	p31795_1	08/11/2012	p31795_1.cpl	NO
148	wi00873382	ISS1:1OF1	p30832_1	08/11/2012	p30832_1.cpl	NO
149	wi00967510	ISS1:1OF1	p31147_1	08/11/2012	p31147_1.cpl	NO
150	wi00903381	ISS1:1OF1	p30421_1	08/11/2012	p30421_1.cpl	NO
151	wi00996630	ISS1:1OF1	p31789_1	08/11/2012	p31789_1.cpl	NO
152	wi00863876	ISS1:1OF1	p30787_1	08/11/2012	p30787_1.cpl	NO
153	wi00832106	ISS1:1OF1	p30550_1	08/11/2012	p30550_1.cpl	NO
154	WI00853473	ISS1:1OF1	p30625_1	08/11/2012	p30625_1.cpl	NO
155	wi00865477	ISS1:1OF1	p30898_1	08/11/2012	p30898_1.cpl	YES
156	wi00971209	ISS1:1OF1	p31750_1	08/11/2012	p31750_1.cpl	NO
157	wi00842409	ISS1:1OF1	p30621_1	08/11/2012	p30621_1.cpl	NO
158	wi00974272	ISS1:1OF1	p31690_1	08/11/2012	p31690_1.cpl	YES
159	wi00971029	ISS1:1OF1	p31794_1	08/11/2012	p31794_1.cpl	NO
160	wi00974856	ISS1:1OF1	p31823_1	08/11/2012	p31823_1.cpl	NO
161	wi00853178	ISS1:1OF1	p30719_1	08/11/2012	p30719_1.cpl	NO
162	wi00977978	ISS1:1OF1	p31831_1	08/11/2012	p31831_1.cpl	NO
163	wi00887744	ISS2:1OF1	p31026_2	08/11/2012	p31026_2.cpl	NO
164	wi00903369	ISS1:1OF1	p31165_1	08/11/2012	p31165_1.cpl	NO
165	wi00984178	ISS1:1OF1	p31786_1	08/11/2012	p31786_1.cpl	NO
166	wi00953900	ISS1:1OF1	p31494_1	08/11/2012	p31494_1.cpl	NO
167	wi00981928	ISS1:1OF1	p31869_1	08/11/2012	p31869_1.cpl	NO
168	wi00908933	ISS1:1OF1	p31239_1	08/11/2012	p31239_1.cpl	NO
169	wi00906022	ISS1:1OF1	p31202_1	08/11/2012	p31202_1.cpl	NO
170	wi00896680	ISS1:1OF1	p30357_1	08/11/2012	p30357_1.cpl	NO
171	wi00968448	ISS1:1OF1	p31648_1	08/11/2012	p31648_1.cpl	YES
172	wi00897096	ISS1:1OF1	p30676_1	08/11/2012	p30676_1.cpl	NO
173	wi00891621	ISS1:1OF1	p31037_1	08/11/2012	p31037_1.cpl	NO
174	wi00930864	ISS1:1OF1	p31325_1	08/11/2012	p31325_1.cpl	NO
175	wi00996639	ISS1:1OF1	p31886_1	08/11/2012	p31886_1.cpl	NO
176	wi00985153	ISS1:1OF1	p31859_1	08/11/2012	p31859_1.cpl	NO

177	WI00927300	ISS1:1OF1	p30999_1	08/11/2012	p30999_1.cpl	NO
178	wi00951837	ISS1:1OF1	p31485_1	08/11/2012	p31485_1.cpl	NO
179	wi00962955	ISS1:1OF1	p31585_1	08/11/2012	p31585_1.cpl	NO
180	wi00923899	ISS1:1OF1	p31270_1	08/11/2012	p31270_1.cpl	NO
181	wi00948274	ISS1:1OF1	p31365_1	08/11/2012	p31365_1.cpl	NO
182	wi00977393	ISS1:1OF1	p31744_1	08/11/2012	p31744_1.cpl	YES
183	wi00967512	ISS1:1OF1	p31384_1	08/11/2012	p31384_1.cpl	NO
184	wi00989828	ISS1:1OF1	p31836_1	08/11/2012	p31836_1.cpl	NO
185	wi00834382	ISS1:1OF1	p30548_1	08/11/2012	p30548_1.cpl	NO
186	wi00839821	ISS1:1OF1	p30619_1	08/11/2012	p30619_1.cpl	NO
187	wi00857362	ISS1:1OF1	p30782_1	08/11/2012	p30782_1.cpl	NO
188	wi00875425	ISS1:1OF1	p30943_1	08/11/2012	p30943_1.cpl	NO
189	wi00838073	ISS1:1OF1	p30588_1	08/11/2012	p30588_1.cpl	NO
190	wi00943172	ISS1:1OF1	p31402_1	08/11/2012	p31402_1.cpl	NO
191	wi00946876	ISS1:1OF1	p31430_1	08/11/2012	p31430_1.cpl	NO
192	wi00839134	ISS1:1OF1	p30698_1	08/11/2012	p30698_1.cpl	YES
193	wi00843623	ISS1:1OF1	p30731_1	08/11/2012	p30731_1.cpl	YES
194	wi00946282	ISS1:1OF1	p31204_1	08/11/2012	p31204_1.cpl	NO
195	wi00932958	ISS1:1OF1	p31115_1	08/11/2012	p31115_1.cpl	NO
196	wi00949627	ISS1:1OF1	p31462_1	08/11/2012	p31462_1.cpl	NO
197	wi00871969	ISS1:1OF1	p30768_1	08/11/2012	p30768_1.cpl	NO
198	wi00987089	ISS1:1OF1	p31809_1	08/11/2012	p31809_1.cpl	NO
199	wi00826075	ISS1:1OF1	p30452_1	08/11/2012	p30452_1.cpl	NO
200	wi00879526	ISS1:1OF1	p31007_1	08/11/2012	p31007_1.cpl	NO
201	wi00978064	ISS1:1OF1	p31760_1	08/11/2012	p31760_1.cpl	NO
202	wi00982243	ISS1:1OF1	p31797_1	08/11/2012	p31797_1.cpl	YES
203	wi00992921	ISS1:1OF1	p31878_1	08/11/2012	p31878_1.cpl	NO
204	wi00994044	ISS1:1OF1	p31871_1	08/11/2012	p31871_1.cpl	NO
205	wi00855423	ISS1:1OF1	p31328_1	08/11/2012	p31328_1.cpl	YES
206	wi00869695	ISS1:1OF1	p30654_1	08/11/2012	p30654_1.cpl	NO
207	wi00959457	ISS1:1OF1	p31551_1	08/11/2012	p31551_1.cpl	NO
208	wi00900096	ISS1:1OF1	p31006_1	08/11/2012	p31006_1.cpl	NO
209	wi00992974	ISS1:1OF1	p31889_1	08/11/2012	p31889_1.cpl	NO
210	WI00843571	ISS1:1OF1	p30627_1	08/11/2012	p30627_1.cpl	NO
211	wi00688381	ISS1:1OF1	p30104_1	08/11/2012	p30104_1.cpl	NO
212	wi00988285	ISS1:1OF1	p31824_1	08/11/2012	p31824_1.cpl	NO
213	wi00899584	ISS1:1OF1	p30809_1	08/11/2012	p30809_1.cpl	NO
214	wi00957235	ISS1:1OF1	p31798_1	08/11/2012	p31798_1.cpl	NO
MDP>LAST SUCCESSFUL MDP REFRESH :2012-07-04 18:11:59(Local Time)						

## Appendix B

### Installed Network Routing Service Services Pack

Service\_Pack\_Linux\_7.50\_17\_20110301.ntl

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