



Application Notes for Configuring Trio Enterprise R4.1 from Enghouse Interactive AB with Avaya Communication Server 1000E R7.6 and Avaya Network Routing Server R7.6 using a SIP Connection – Issue 1.0

Abstract

These Application Notes describe how to configure an Avaya Communication Server 1000E R7.6 to interface with Trio Enterprise R4.1, 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 R7.6 and Avaya Network Routing Server R7.6 with Trio Enterprise R4.1. 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 require 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.

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 and calls are routed based upon a dial plan 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 using the NRS to route the call. 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 three different simulated PSTN trunks were used which included a QSIG ISDN trunk, a H.323 trunk and a SIP trunk. 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.

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 as the attendant's deskphone. 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>

Enghouse Interactive AB can also be contacted as follows.

Phone: +46 (0)8 457 30 00

Fax: +46 (0)8 31 87 00

E-mail: infosweden@enghouse.com

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. System Manager is used to configure the NRS.

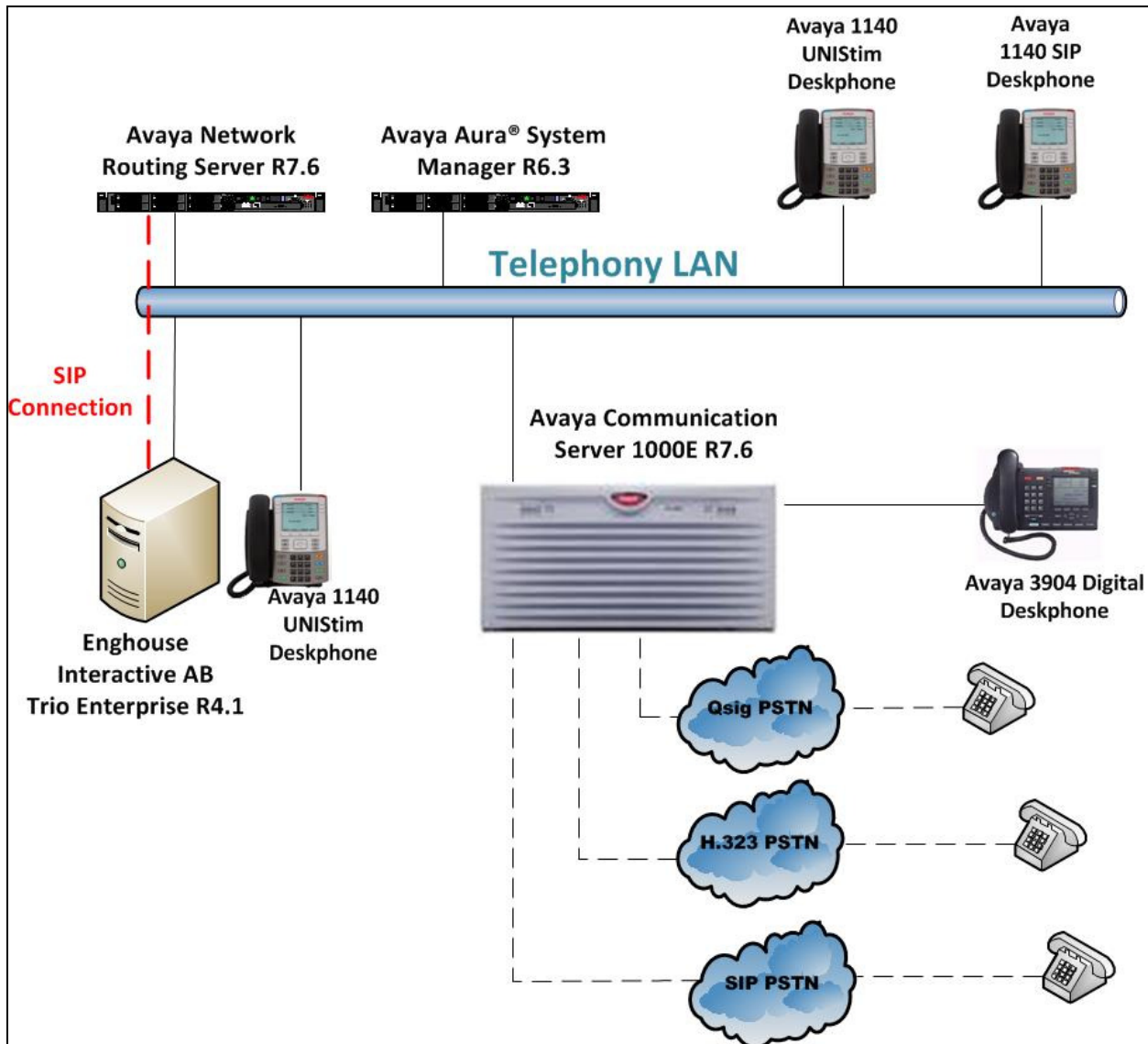


Figure 1: Configuration for Avaya Communication Server 1000E R7.6, Avaya Network Routing Server R7.6 and Trio Enterprise R4.1

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 on CPPM	R7.6 SP2 (See Appendix A for list of patches)
Avaya Network Routing Server on CPPM	R7.6 SP2 (See Appendix A for list of patches)
Avaya Aura® System Manager	System Manager 6.3.0 - FP2 Build No. - 6.3.0.8.5682-6.3.8.1814 Software Update Revision No: 6.3.3.5.1719
Avaya 1140 UNISlim Deskphone	UNISlim V0625C8D
Avaya 1140 SIP Deskphone	SIP 04.03.12
Avaya 3904 Digital Deskphone	Core V2.4 Flash V9.4
Trio Enterprise Running on a Windows 2008 R2 64-bit server.	Version 4.1

Note: The Avaya Aura® System Manager is a virtual instances running on VMware ESXi 5.0.

5. Configure Avaya Communication Server 1000E

The configuration operations illustrated in this section were performed using terminal access to the CS1000E over an “SSH” session using “PUTTY”. 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).

Prompt	Response	Description
>	LD 22	Enter Overlay 22
REQ	SLT	
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
AST	2000 LEFT 1981 USED	19
SIP CONVERGED DESKTOPS	2000 LEFT 2000 USED	0
SIP CTI TR87	2000 LEFT 1992 USED	8
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
>	LD 17	Enter Overlay 17
REQ	CHG	Change
TYPE	ADAN	Change the Action Device and Number
ADAN	NEW	Create New Action Device and Number
TYPE	DCH 66	Create new D-Channel 66
CTYP	DCIP	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
>	LD 16	Enter Overlay 16
REQ	NEW	Create new
TYPE	RDB	Route Data block
CUST	0	Customer Number as defined in LD15
ROUT	20	Route Number
TKTP	TIE	Route Type
VTRK	YES	Virtual Route
PCID	SIP	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
>	LD 14	Enter Overlay 14
REQ	NEW 10	Create 10 New Trunks
TYPE	IPTI	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 **LD 20** 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
>	LD 17	Enter Overlay 17
REQ	CHG	Change
TYPE	ADAN	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

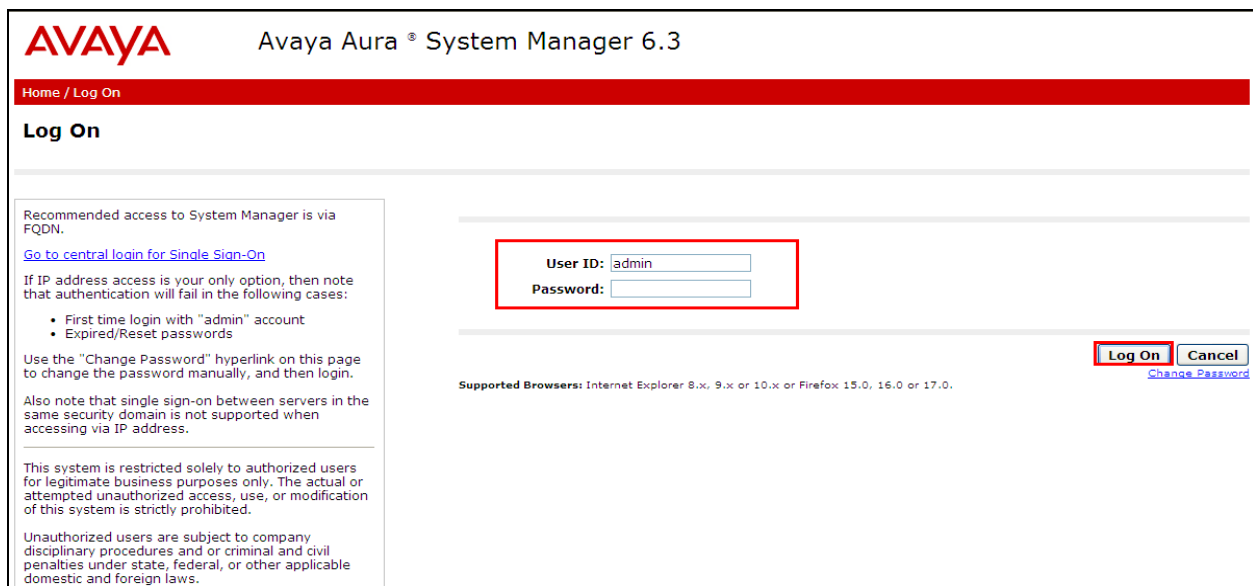
5.5.2. Configuration of ICP in the Customer Data Block

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
>	LD 15	Enter Overlay 15
REQ	CHG	Change
TYPE	icp	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

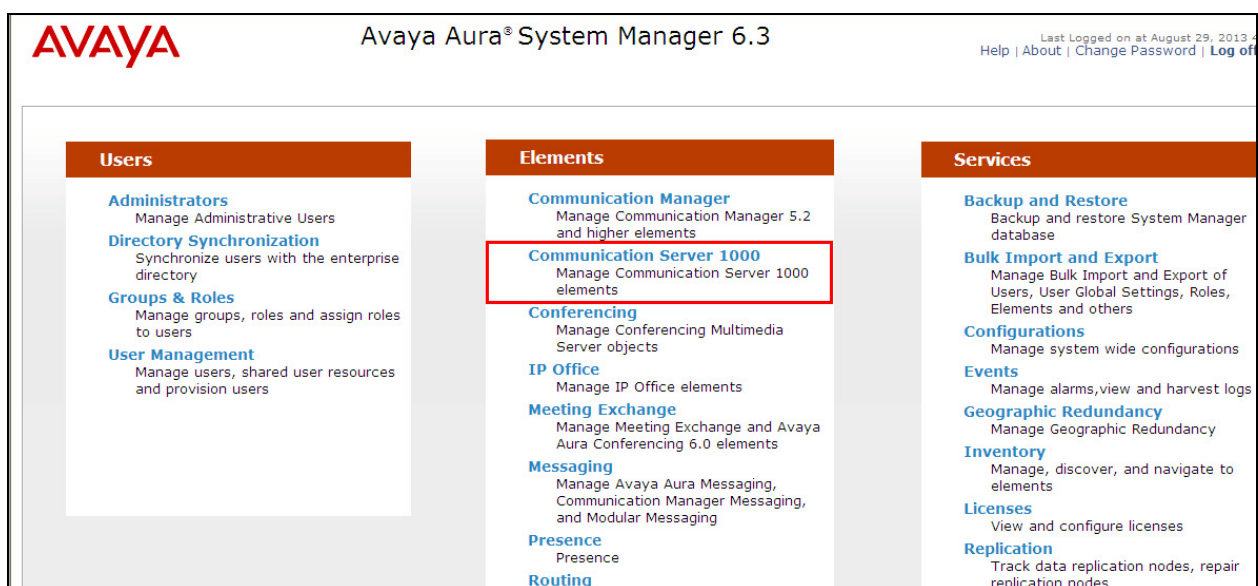
6. Configure Avaya Communication Server 1000E Signalling Server for TR87 events

SIP CTI (TR/87) services must be enabled and configured on the CS1000E IP Telephony Node to allow applications obtain presence information or invoke a make call operation. Changes on the CS1000E Node are performed using Element Manager which is only accessible through the System Manager. To make changes in Element Manager log in to System Manager using the URL <https://<fqdn>/SMGR> or <https://<ip-address>/SMGR>. Log in with the appropriate credentials and click **Log On** highlighted below.



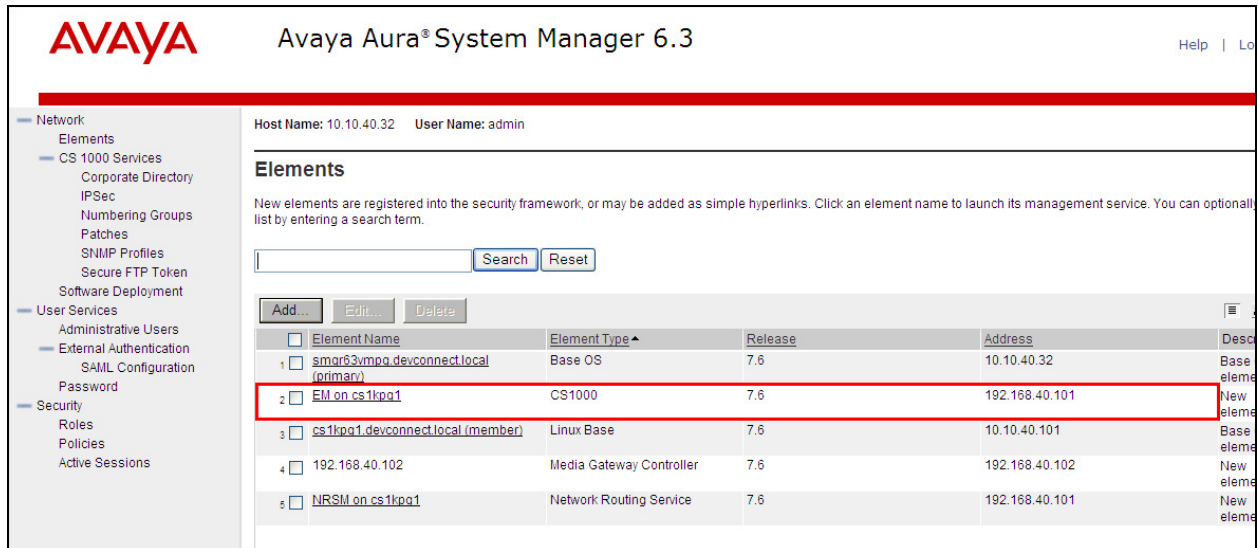
The screenshot shows the Avaya Aura System Manager 6.3 login page. The header includes the Avaya logo and the text "Avaya Aura® System Manager 6.3". Below the header is a red bar with "Home / Log On". The main content area has a "Log On" section with a "User ID" field containing "admin" and a "Password" field. A red box highlights the "Log On" button. To the left of the login fields, there is a section with text about recommended access via FQDN and a list of cases where authentication might fail: "First time login with 'admin' account" and "Expired/Reset passwords". Below this, there is a note about the "Change Password" hyperlink. At the bottom, there is a "Supported Browsers" list: Internet Explorer 8.x, 9.x or 10.x or Firefox 15.0, 16.0 or 17.0. A "Log On" button is also present in the bottom right corner, highlighted with a red box.

Click on **Communication Server 1000** as shown.



The screenshot shows the Avaya Aura System Manager 6.3 main menu. The header includes the Avaya logo and the text "Avaya Aura® System Manager 6.3". Below the header is a red bar with "Help | About | Change Password | Log off". The main content area is divided into three columns: "Users", "Elements", and "Services". The "Elements" column contains a list of items, with "Communication Server 1000" highlighted by a red box. The "Users" column contains "Administrators", "Directory Synchronization", "Groups & Roles", and "User Management". The "Services" column contains "Backup and Restore", "Bulk Import and Export", "Configurations", "Events", "Geographic Redundancy", "Inventory", "Licenses", and "Replication".

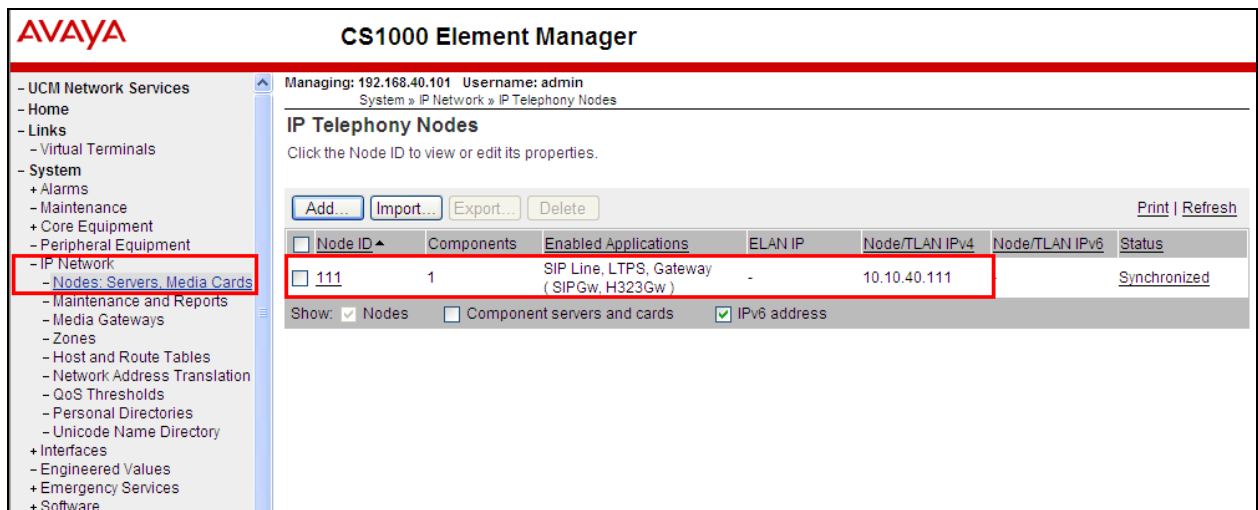
Once **Communication Server 1000** is selected the following screen appears, click on the Element Manager link highlighted below.



The screenshot shows the Avaya Aura System Manager 6.3 interface. The left sidebar contains a navigation tree with categories like Network, CS 1000 Services, User Services, External Authentication, Password, Security, Roles, Policies, and Active Sessions. The main content area is titled 'Elements' and displays a table of system elements. A red box highlights the element 'EM on cs1kpg1' in the table.

Element Name	Element Type	Release	Address	Description
smar63ympg.devconnect.local (primary)	Base OS	7.6	10.10.40.32	Base element
EM on cs1kpg1	CS1000	7.6	192.168.40.101	New element
cs1kpg1.devconnect.local (member)	Linux Base	7.6	10.10.40.101	Base element
192.168.40.102	Media Gateway Controller	7.6	192.168.40.102	New element
NRSM on cs1kpg1	Network Routing Service	7.6	192.168.40.101	New element

Click on **IP Network → Nodes: Servers, Media Cards** in the left window. Click on the **Node ID** displayed in the right window. Note the IP address of this node as it will be required in **Section 7.7** and throughout **Section 8**.



The screenshot shows the CS1000 Element Manager interface. The left sidebar contains a navigation tree with categories like UCM Network Services, Home, Links, Virtual Terminals, System, Alarms, Maintenance, Core Equipment, Peripheral Equipment, IP Network, Nodes: Servers, Media Cards, Maintenance and Reports, Media Gateways, Zones, Host and Route Tables, Network Address Translation, QoS Thresholds, Personal Directories, Unicode Name Directory, Interfaces, Engineered Values, Emergency Services, and Software. The main content area is titled 'IP Telephony Nodes' and displays a table of IP telephony nodes. A red box highlights the node '111' in the table.

Node ID	Components	Enabled Applications	ELAN IP	Node/TLAN IPv4	Node/TLAN IPv6	Status
111	1	SIP Line, LTPS, Gateway (SIPGw, H323Gw)	-	10.10.40.111		Synchronized

Select **Gateway (SIPGw&H323Gw)** highlighted below.

AVAYA CS1000 Element Manager

Managing: 192.168.40.101 Username: admin
System » IP Network » IP Telephony Nodes » Node Details

Node Details (ID: 111 - SIP Line, LTPS, Gateway (SIPGw, H323Gw))

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 & H323Gw)**
- Personal Directories (PLD)
- 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: 192.168.40.101 Username: admin
System » IP Network » IP Telephony Nodes » Node Details » Virtual Trunk Gateway Configuration

Node ID: 111 - Virtual Trunk Gateway Configuration Details

General | SIP Gateway Settings | SIP Gateway Services | H.323 Gateway Settings

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

CTI settings

Customer number:
Maximum associations per DN:
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:
Calling device URI format:
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** is clicked the following screen appears. Click on **Save** as shown below.

The screenshot shows the AVAYA CS1000 Element Manager interface. The left sidebar contains a navigation menu with categories like UCM Network Services, Home, Links, System, and Interfaces. The main content area is titled 'Node Details (ID: 100 - SIP Line, LTPS, Gateway (SIPGw))'. It contains several input fields for configuration: Node ID (100), Call server IP address (192.168.0.10), Embedded LAN (ELAN) Gateway IP address (192.168.0.1) and Subnet mask (255.255.255.0), and Telephony LAN (TLAN) Node IPv4 address (192.168.10.90) and Subnet mask (255.255.255.0). There are also radio buttons for 'TLAN address type' (IPv4 only selected, IPv4 and IPv6 unselected). A 'Node IPv6 address' field is empty. At the bottom right, there are 'Save' and 'Cancel' buttons, with the 'Save' button highlighted by a red rectangle. A status bar at the top indicates 'Managing: 192.168.0.10 Username: paul' and the breadcrumb 'System » IP Network » IP Telephony Nodes » Node Details'.

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

The screenshot shows the AVAYA CS1000 Element Manager interface after saving. The left sidebar is the same as the previous screen. The main content area is titled 'Node Saved'. It displays a message: 'Node ID: 100 has been saved on the call server. The new configuration must also be transferred to associated servers and media cards.' Below this message, there are two buttons: 'Transfer Now...' and 'Show Nodes'. The 'Transfer Now...' button is highlighted by a red rectangle. To the right of the 'Transfer Now...' button, there is a text box that says 'You will be given an option to select individual servers, or transfer to all.' To the right of the 'Show Nodes' button, there is a text box that says 'You may initiate a transfer manually at a later time.' The status bar at the top indicates 'Managing: 192.168.0.10 Username: paul' and the breadcrumb 'System » IP Network » IP Telephony Nodes » Node Saved'.

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

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.

Once the components are synchronized 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.

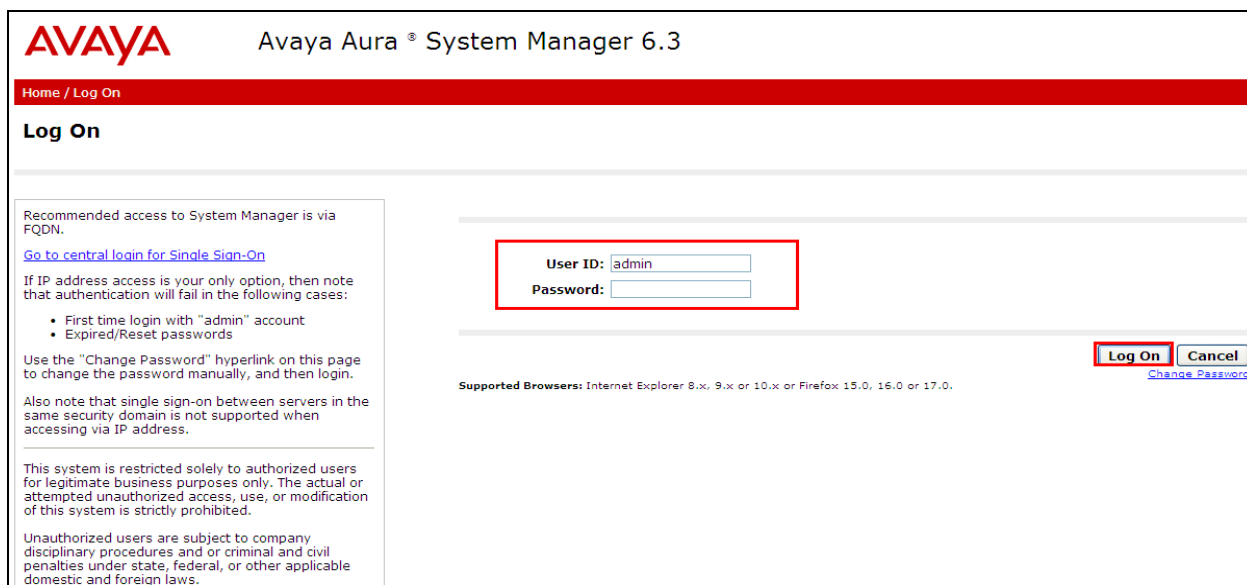
Start Sync Cancel **Restart Applications** [Print](#) [Refresh](#)

<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.

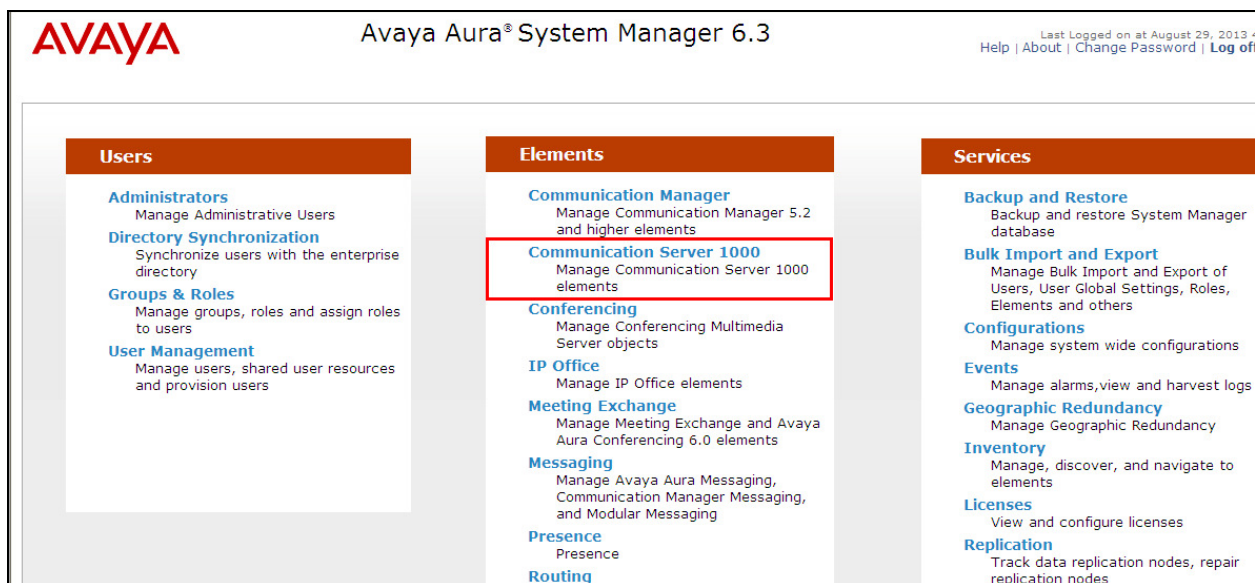
7. Configure Avaya Network Routing Server

To make changes on the NRS log in to System Manager using the URL <https://<fqdn>/SMGR> or <https://<ip-address>/SMGR>. Log in with the appropriate credentials and click **Log On** highlighted below.



The screenshot shows the Avaya Aura System Manager 6.3 login page. The header includes the Avaya logo and the text 'Avaya Aura® System Manager 6.3'. Below the header is a red bar with 'Home / Log On'. The main content area is titled 'Log On'. On the left, there is a text box with instructions: 'Recommended access to System Manager is via FQDN. Go to central login for Single Sign-On. If IP address access is your only option, then note that authentication will fail in the following cases: • First time login with "admin" account • Expired/Reset passwords. Use the "Change Password" hyperlink on this page to change the password manually, and then login. Also note that single sign-on between servers in the same security domain is not supported when accessing via IP address. This system is restricted solely to authorized users for legitimate business purposes only. The actual or attempted unauthorized access, use, or modification of this system is strictly prohibited. Unauthorized users are subject to company disciplinary procedures and or criminal and civil penalties under state, federal, or other applicable domestic and foreign laws.' In the center, there is a login form with 'User ID: admin' and a password field. To the right of the password field is a red box containing the 'Log On' button. Below the login form, it says 'Supported Browsers: Internet Explorer 8.x, 9.x or 10.x or Firefox 15.0, 16.0 or 17.0.' There is also a 'Cancel' button and a 'Change Password' link.

Click on **Communication Server 1000** as shown.



The screenshot shows the Avaya Aura System Manager 6.3 main menu. The header includes the Avaya logo and the text 'Avaya Aura® System Manager 6.3'. On the right, it says 'Last Logged on at August 29, 2013' and 'Help | About | Change Password | Log off'. The main content area is divided into three columns: 'Users', 'Elements', and 'Services'. The 'Elements' column is highlighted with a red box around the 'Communication Server 1000' link. The 'Users' column contains links for 'Administrators', 'Directory Synchronization', 'Groups & Roles', and 'User Management'. The 'Elements' column contains links for 'Communication Manager', 'Communication Server 1000', 'Conferencing', 'IP Office', 'Meeting Exchange', 'Messaging', 'Presence', and 'Routing'. The 'Services' column contains links for 'Backup and Restore', 'Bulk Import and Export', 'Configurations', 'Events', 'Geographic Redundancy', 'Inventory', 'Licenses', and 'Replication'.

Click on the NRS **Element Name** or **NRSM on cs1kpg1** as shown in the example below.

AVAYA Avaya Aura® System Manager 6.3 Help | Logout

Host Name: 10.10.40.32 User Name: admin

Elements

New elements are registered into the security framework, or may be added as simple hyperlinks. Click an element name to launch its management service. You can optionally filter list by entering a search term.

	Element Name	Element Type	Release	Address	Description
1	smar63vmpg.devconnect.local (primary)	Base OS	7.6	10.10.40.32	Base OS element.
2	EM on cs1kpg1	CS1000	7.6	192.168.40.101	New element.
3	cs1kpg1.devconnect.local (member)	Linux Base	7.6	10.10.40.101	Base OS element.
4	192.168.40.102	Media Gateway Controller	7.6	192.168.40.102	New element.
5	NRSM on cs1kpg1	Network Routing Service	7.6	192.168.40.101	New element.

7.1. Add a new Domain

In the event there is no domain present a new one must be added as follows. Note that there are three separate entries for this domain and all three must be added.

- Service Domain
- L1 Domain (UDP)
- L0 Domain (CDP)

In order to make any change the **Standby database** must be first selected as shown below. Click on **Numbering Plans** → **Domains** from the left window and under the tab **Service Domains** in the main window click on **Add**.

AVAYA Network Routing Service Manager

Managing: ☐ Active database 192.168.40.101
☒ Standby database [Numbering Plans > Domains](#)

Domains

Domains establish the basic structure of your converged network, defined by Service domains, L1 (UDP) and L0 (CDP) domains.

Service Domains (1) **L1 Domains (UDP) (1)** **L0 Domains (CDP) (1)**

	Domain Name	Description	# of L1 Domains	# of L0 Domains
1 - 1 of 1 Service Domain(s)				

Page 1 of 1

Enter a suitable name for the domain. In the example below **devconnect.local** is chosen. Click on **Save** once the name is entered.

AVAYA Network Routing Service Manager

Managing: ☐ Active database 192.168.40.101
☒ Standby database [Numbering Plans » Domains » Service Domains](#)

Edit Service Domain

Domain name: *

Domain description:

* Required value. Save Cancel

Under the **L1 Domains (UDP)** tab select the domain created above from the drop-down box and click on **Add**.

AVAYA Network Routing Service Manager

Managing: ☐ Active database 192.168.40.101
☒ Standby database [Numbering Plans » Domains](#)

Domains
 Domains establish the basic structure of your converged network, defined by Service domains, L1 (UDP) and L0 (CDP) domains.

Service Domains (1) L1 Domains (UDP) (1) L0 Domains (CDP) (1)

Filter by Domain: ▼

Add... Delete

<input type="checkbox"/>	ID ▲	Description	# of L0 Domains	# of Gateway Endpoints
1 - 1 of 1 L1 Domain(s)				

Page 1 of 1

Enter the name **UDP** and click on **Save** at the bottom right of the screen.

AVAYA Network Routing Service Manager

Managing: ☐ Active database 192.168.40.101
☒ Standby database [Numbering Plans » Domains » L1 Domain](#)

Edit L1 Domain (devconnect.local)

Domain name: *

Domain description:

Endpoint authentication enabled:

Authentication password:

E.164 country code:

E.164 area code:

E.164 international dialing access code:

E.164 international dialing code length:

E.164 national dialing access code:

E.164 national dialing code length:

E.164 local (subscriber) dialing access code:

E.164 local (subscriber) dialing code length:

Private L1 domain (UDP location) dialing access code:

* Required value

Save **Cancel**

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Under the **L0 Domains (CDP)** tab select the domains created above from the drop-down boxes and click on **Add**.

AVAYA Network Routing Service Manager

Managing: ☐ Active database 192.168.40.101
☒ Standby database [Numbering Plans » Domains](#)

Domains

Domains establish the basic structure of your converged network, defined by Service domains, L1 (UDP) and L0 (CDP) domains.

Service Domains (1) | L1 Domains (UDP) (1) | L0 Domains (CDP) (1)

Filter by Domain: /

Add... **Delete**

	ID	Description	# of Gateway Endpoints	# of Routing Entries
<input type="checkbox"/>				

1 - 1 of 1 L0 Domain(s)

Page 1 of 1

Enter the name **CDP** and click on **Save** at the bottom right of the screen.

The screenshot displays the Avaya Network Routing Service Manager interface. On the left is a navigation tree with categories like «UCM Network Services», System, Numbering Plans, and Tools. The main area is titled 'Edit L0 Domain (devconnect.local / udp)'. It contains several configuration fields: 'Domain name' (set to 'cdp'), 'Domain description', 'Endpoint authentication enabled' (set to 'Not configured'), 'Authentication password', 'E.164 country code', 'E.164 area code', 'Private unqualified number label' (set to 'PrivateUnknown'), and several 'E.164' dialing access code and length fields. A red box highlights the 'Domain name' field. At the bottom right, there are 'Save' and 'Cancel' buttons, with the 'Save' button also highlighted by a red box. A status bar at the bottom left indicates '* Required value'.

7.2. Add Trio as an Endpoint

Select **Numbering Plans** → **Endpoints** in the left window. In the main window choose the newly created domain from **Section 7.1** for the drop-down boxes as highlighted below and under the **Gateway Endpoints** Tab click on **Add**.

The screenshot shows the Avaya Network Routing Service Manager interface. On the left, the 'Numbering Plans' menu is expanded, and 'Endpoints' is selected. The main window displays the 'Search for Endpoints' section. The 'Limit results to Domain' dropdown is set to 'devconnect.local', and the 'Supported Protocols' dropdown is set to 'udp'. The 'Gateway Endpoints (4)' tab is active, and the 'Add...' button is highlighted. Below the tabs, there is a table with columns: ID, Supported Protocols, SIP mode, Call Signaling IP, and Description.

Enter a suitable name for the endpoint and scroll down the page.

The screenshot shows the 'Edit Gateway Endpoint' form for the domain 'devconnect.local / udp / cdp'. The 'End point name' field is set to 'Trio'. The 'Description' field is empty. The 'Trust Node' checkbox is checked. The 'Tandem gateway endpoint name' dropdown is set to 'Not Applicable'. The 'Endpoint authentication enabled' dropdown is set to 'Authentication off'. The 'Authentication password' field is empty. The 'E.164 country code', 'E.164 area code', 'E.164 international dialing access code', 'E.164 international dialing code length', 'E.164 national dialing access code', 'E.164 national dialing code length', and 'E.164 local (subscriber) dialing access code' fields are all empty.

This is a SIP endpoint therefore H.323 is not supported and choose **Dynamic SIP endpoint** from the **SIP Support** drop-down box. Ensure that **Proxy Mode** is selected and in the example below both UDP and TCP are selected to allow either transport be used. For TRIO ensure that at least **TCP** is chosen. The port number for each is **5060**. Everything else can be left as default and click on **Save** once ready.

The screenshot displays the Avaya Network Routing Service Manager (NRS) configuration page for a Gateway Endpoint. The page title is "AVAYA Network Routing Service Manager". The left sidebar shows the navigation menu with categories like "System", "Numbering Plans", and "Tools". The main content area is titled "Edit Gateway Endpoint devconnect.local / udp / cdp".

Key configuration details visible in the main area include:

- Static endpoint address type:** IP version 4
- Static endpoint address:** (empty text field)
- H.323 support:** H.323 not supported (dropdown menu)
- SIP support:** Dynamic SIP endpoint (dropdown menu)
- SIP mode:** Proxy Mode (radio button selected, Redirect Mode unselected)
- SIP TCP transport enabled:** ☒ (checkbox)
- SIP TCP port:** 5060 (text field)
- SIP UDP transport enabled:** ☒ (checkbox)
- SIP UDP port:** 5060 (text field)
- SIP TLS transport enabled:** ☐ (checkbox)
- SIP TLS port:** 5061 (text field)
- Persistent TCP support enabled:** ☐ (checkbox)
- End to end security support:** ☐ (checkbox)
- Network Connection Server enabled:** ☒ (checkbox)

At the bottom right, there are "Save" and "Cancel" buttons. A footer note states "Copyright 2002-2013 Avaya Inc. All rights reserved."

7.3. Add a Routing Entry for Trio

Select **Numbering Plans** → **Routes** in the left window and choose the domain and Trio endpoint created in **Sections 7.1** and **7.2** for the drop-down choices. Under the **Routing Entries** tab click on **Add**.

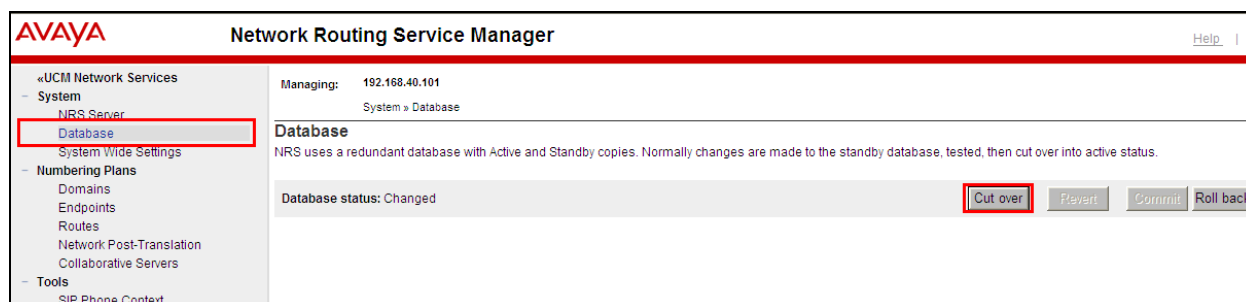
The screenshot shows the Avaya Network Routing Service Manager interface. On the left, the 'Numbering Plans' menu is expanded, and 'Routes' is selected. The main area displays the 'Search for Routing Entries' section. The 'DN Prefix' is set to '*' and 'DN Type' is set to 'All DN Types'. The 'Limit results to Domain' is set to 'devconnect.local', and the 'Endpoint Name' is set to 'Trio'. The 'Routing Entries (0)' tab is selected, and the 'Add...' button is highlighted.

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.

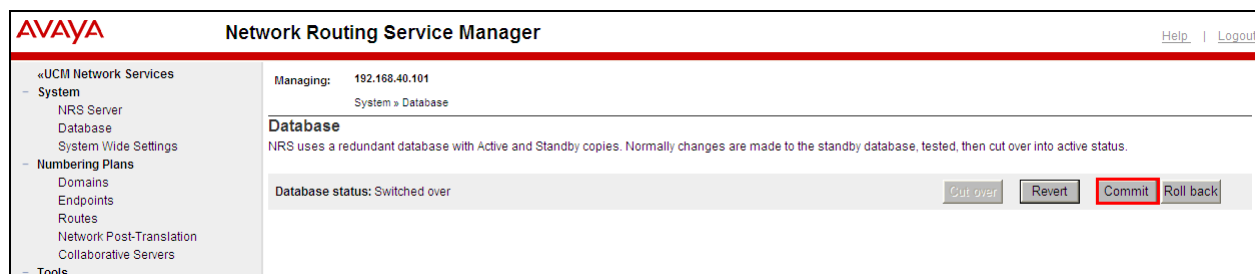
The screenshot shows the 'Add Routing Entry' form in the Avaya Network Routing Service Manager. The form is titled 'Add Routing Entry (devconnect.local / udp / cdp / Trio)'. The 'DN type' is set to 'Private level 0 regional (CDP steering code)', the 'DN prefix' is set to '40', and the 'Route cost' is set to '1'. The 'Save' button is highlighted.

7.4. Save the new changes on the NRS

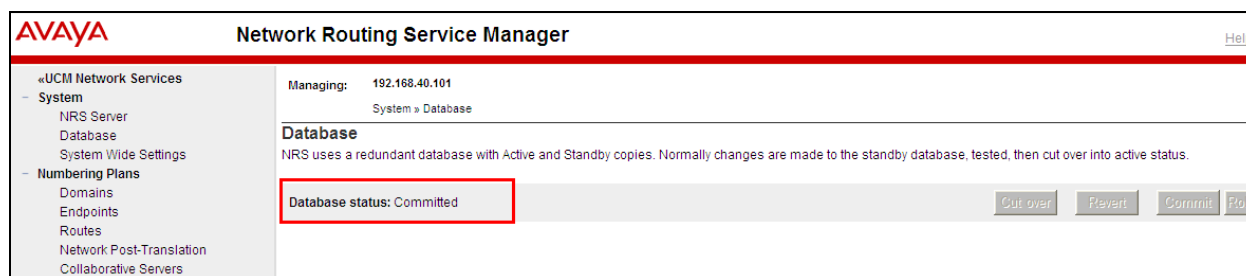
To save the new entries to the database on the NRS the database must be cut over and committed. Select **Database** under **System** in the left window and click on **Cut over** in the right window.



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



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



8. Configure TRIO Enterprise

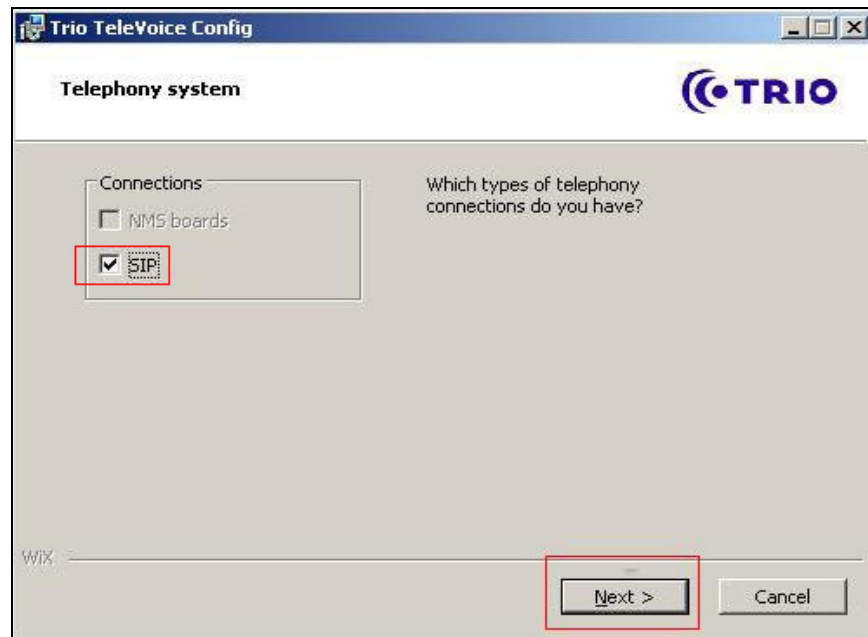
This section describes how to integrate Trio Enterprise with the Communication Server 1000E using dynamic SIP. Trio Enterprise is added to the NRS as a Dynamic SIP endpoint and calls are routed to the Trio Enterprise server according to the dial Plan setup in **Section 5.3**. This section shows how to 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**.

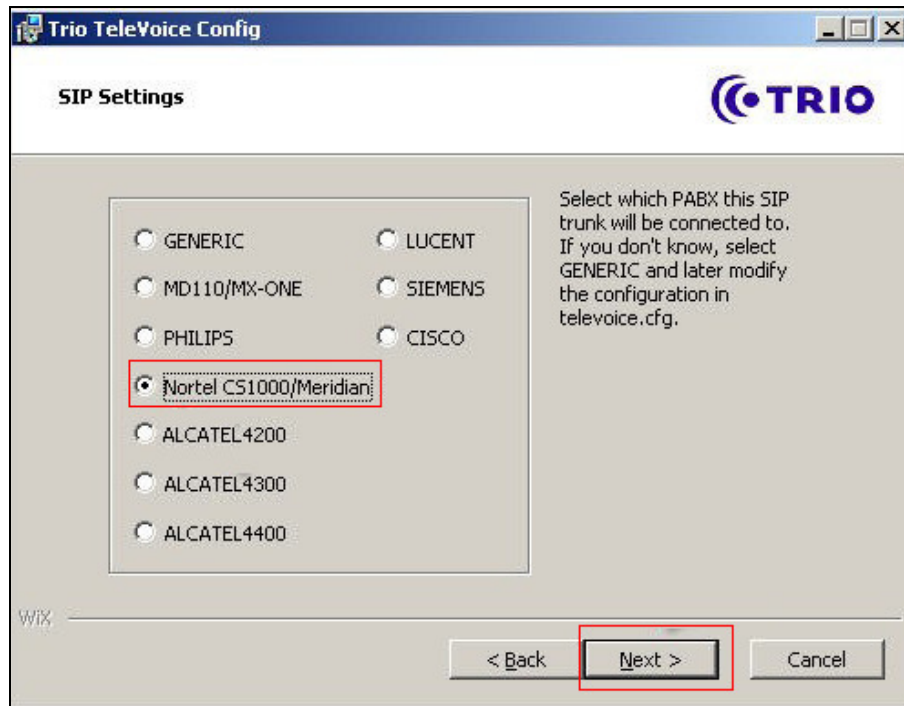
8.1. Configure Trio Enterprise to use SIP Trunks

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.



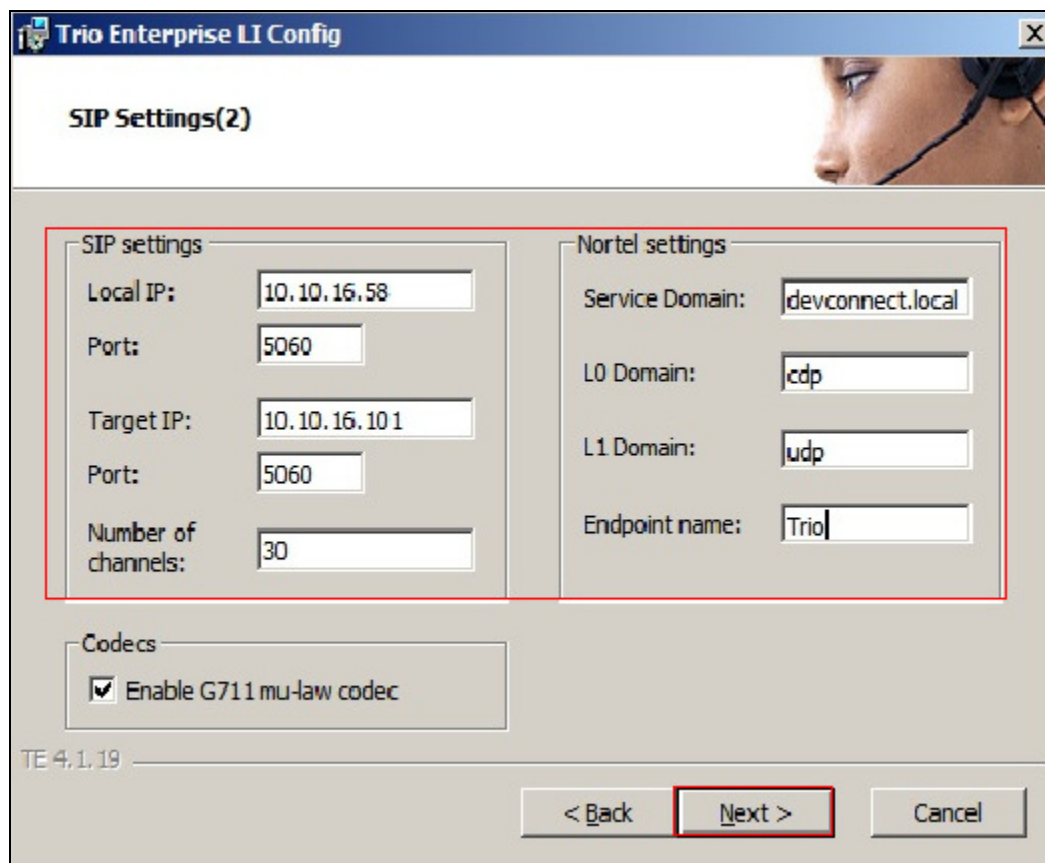
Select **Nortel CS1000/Meridian** under **SIP Settings**. Click **Next** to continue.



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

- **Local IP** The local IP address of the Trio Enterprise server
- **Target IP** The IP address of the Network Routing Server (NRS)
- **Number of channels** The number of channels
- **Service Domain** The Service domain configured in Network Routing Server (Section 7.1)
- **L0 Domain** The L0 Domain configured in Network Routing Server (Section 7.1)
- **L1 Domain** The L1 Domain configured in Network Routing Server (Section 7.1)
- **Endpoint name** TRIO endpoint name configured in Network Routing Server (NRS), as configured in Section 7.2

Click **Next** to continue.



The screenshot shows the 'Trio Enterprise LI Config' window with the 'SIP Settings(2)' tab selected. The window is divided into two main sections: 'SIP settings' and 'Nortel settings'. The 'SIP settings' section includes fields for 'Local IP' (10.10.16.58), 'Port' (5060), 'Target IP' (10.10.16.101), 'Port' (5060), and 'Number of channels' (30). The 'Nortel settings' section includes fields for 'Service Domain' (devconnect.local), 'L0 Domain' (cdp), 'L1 Domain' (udp), and 'Endpoint name' (Trio). Below these sections is a 'Codecs' section with a checkbox for 'Enable G711 mu-law codec' which is checked. At the bottom of the window, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a red border.

Section	Field	Value
SIP settings	Local IP:	10.10.16.58
	Port:	5060
	Target IP:	10.10.16.101
	Port:	5060
	Number of channels:	30
Nortel settings	Service Domain:	devconnect.local
	L0 Domain:	cdp
	L1 Domain:	udp
	Endpoint name:	Trio

Codecs

☒ Enable G711 mu-law codec

TE 4.1.19

< Back **Next >** Cancel

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 to 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-addr.	
	Option in int. calls	<input checked="" type="checkbox"/>
	Option in ext. calls	<input type="checkbox"/>

Please ensure that the Trio Televoice service is running and if not please follow these instructions to get this started.

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 start the service (not shown).

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:

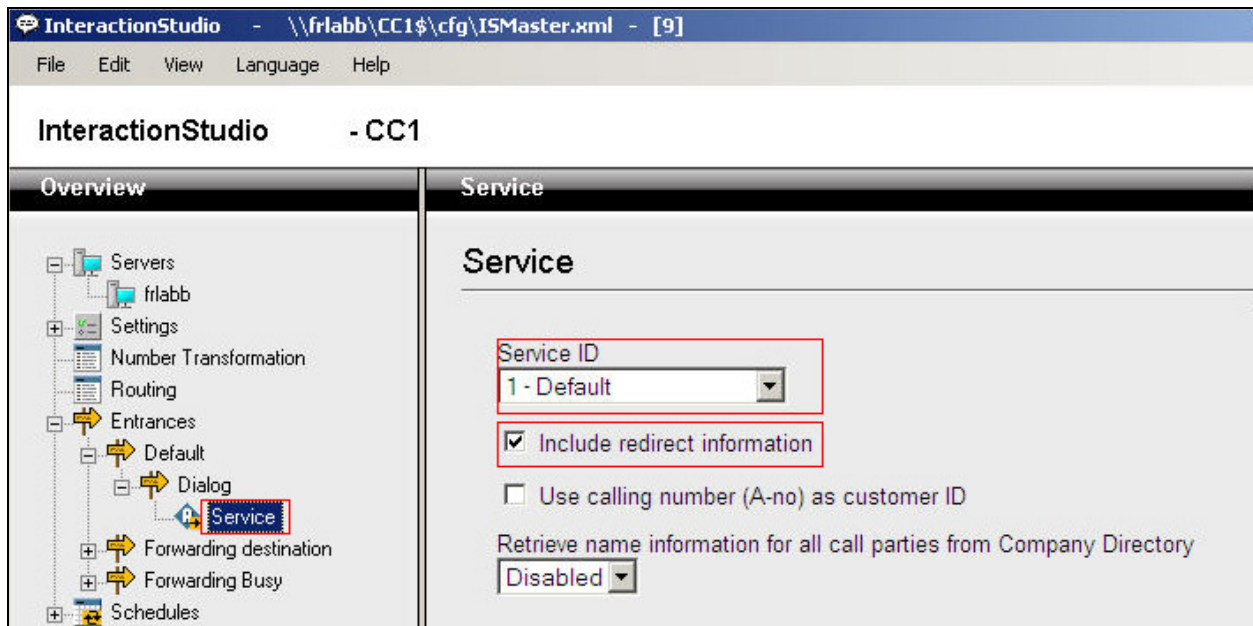
- Extension **4000** is the main queue number.
- Extension **4001** is the number that calls go to when Call forward No Answer is activated.
- Extension **4002** is the number that calls go to when Call forward Busy is activated.

The screenshot shows the InteractionStudio application window. The title bar indicates the file path: \\frlabbb\CC1\$\cfg\ISM\Master.xml. The menu bar includes File, Edit, View, Language, and Help. The main window is titled "InteractionStudio - CC1" and features the TRIO logo. On the left, a tree view shows the configuration hierarchy: Servers (frlabbb), Settings, Number Transformation, Routing (highlighted), Entrances (Default, Forwarding destination, Forwarding Busy), and Schedules. The main pane 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	
*				

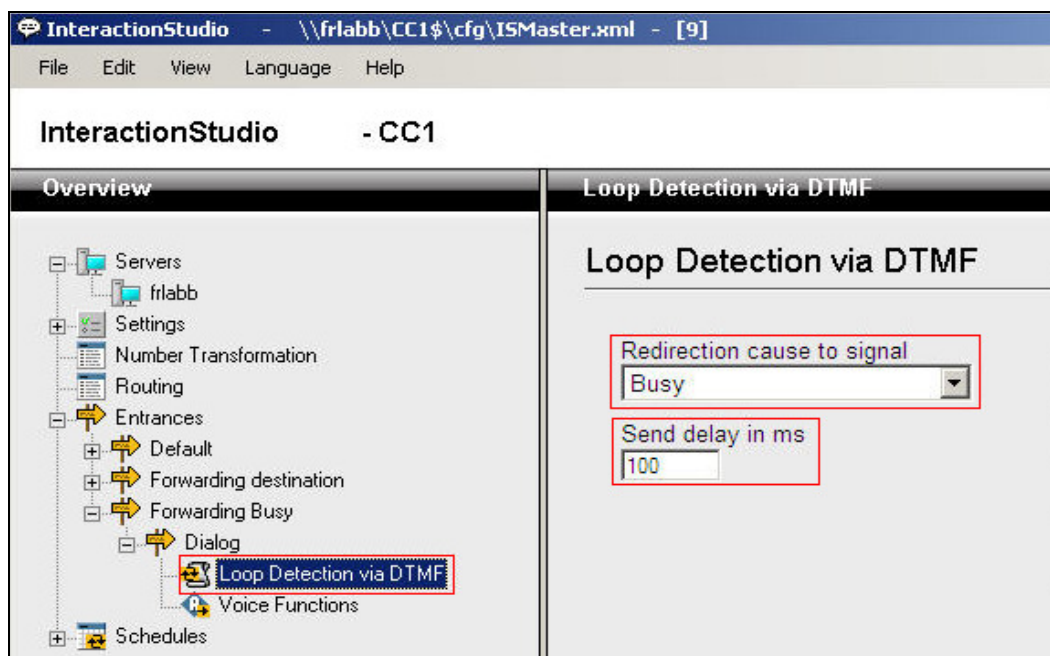
8.2.2. Configure Attendant Service

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



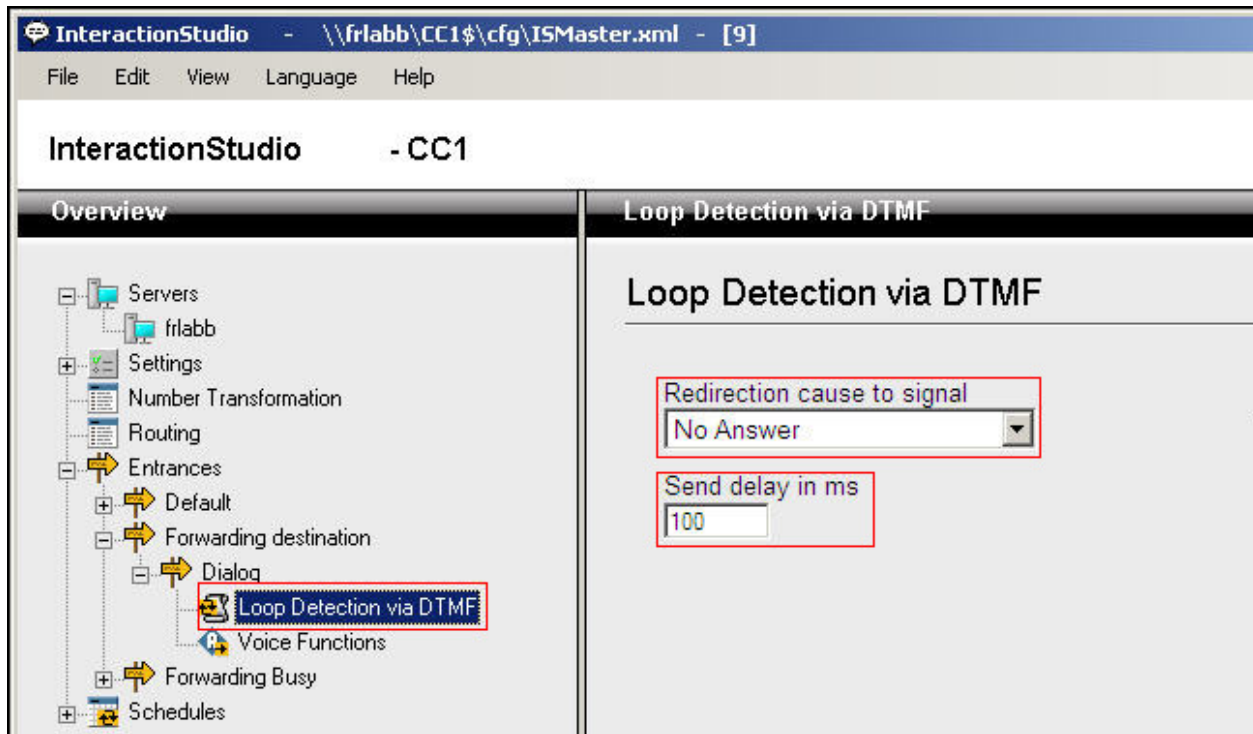
8.2.3. Configure Loop Detection via DTMF for Busy signal

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 CS1000E 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**. Note this user ID and password is created during the installation of TRIO Enterprise Server. For **Extension**, select the CS1000E 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

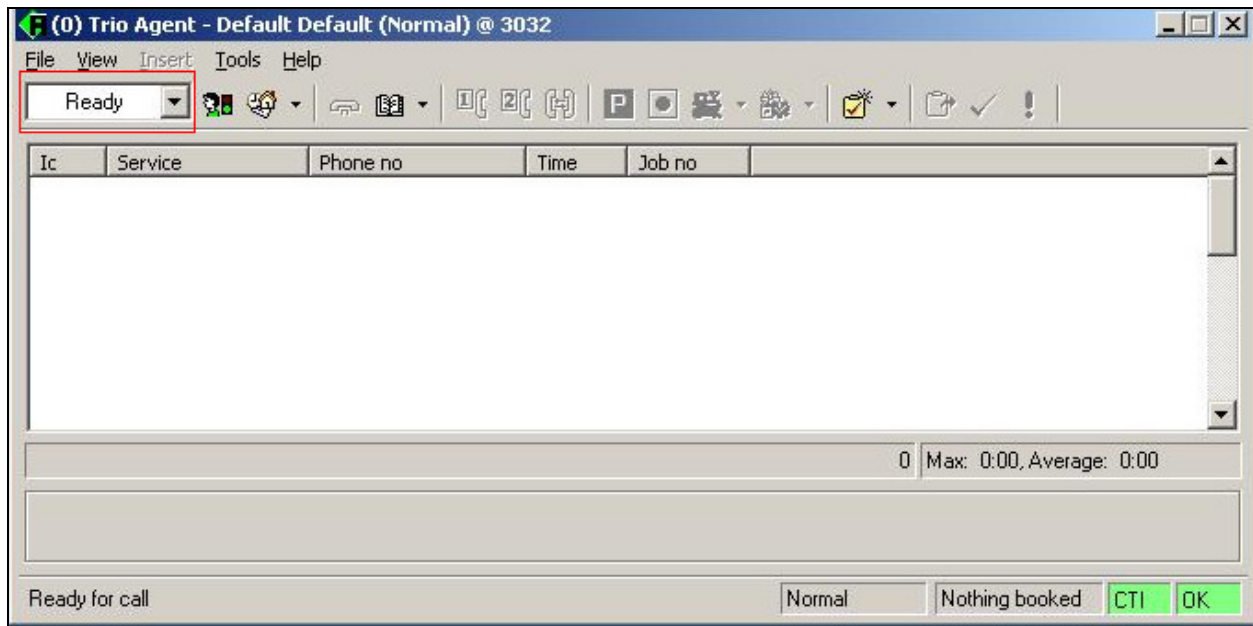
☐ Attach with Contact Center privileges

☐ Attach with Attendant privileges

OK Guest Cancel

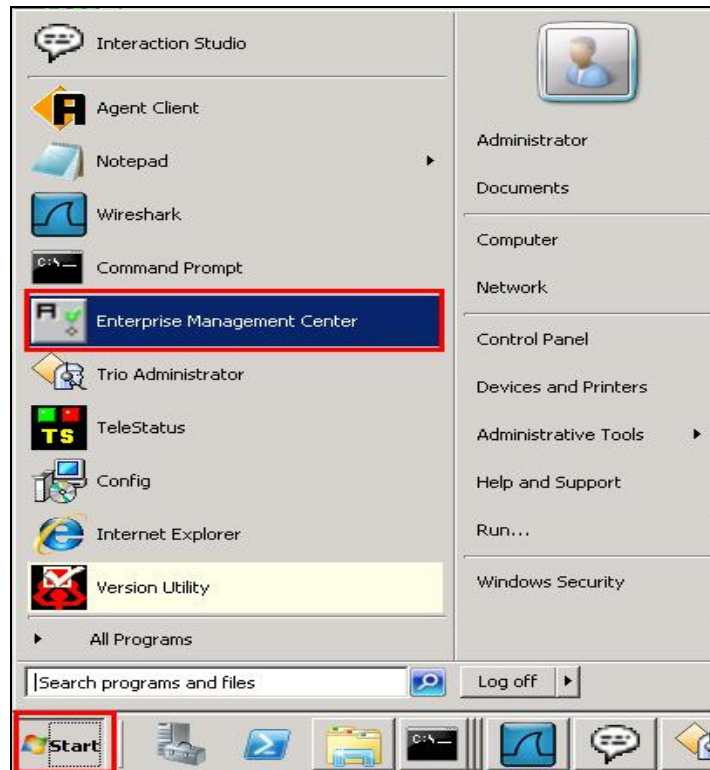
TRIO

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.

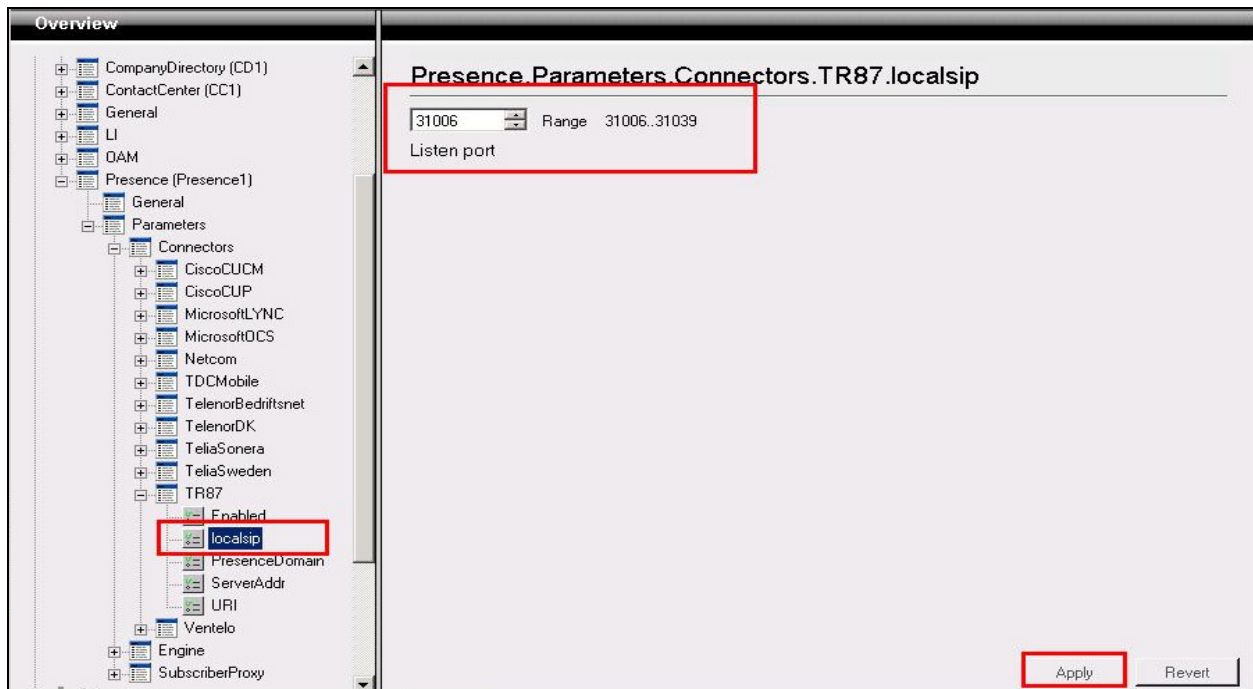
The screenshot shows the 'Overview' pane on the left with a tree view. The path 'Parameters' → 'Presence (Presence1)' → 'Parameters' → 'Connectors' → 'TR87' is highlighted with red boxes. The main pane on the right is titled 'Presence.Parameters.Connectors.TR87' and contains a table with the following data:

Name	Value	Comment
Enabled	true	Enable TR87 Presence Connector
localsip	31006	Listen port
PresenceDomain	10.10.40.111	Presence Domain name (domain...)
ServerAddr	10.10.40.111	TR87 server FQDN or IP Address
URI	sip.tetr87@10.10.16.58	Uri of TE enterprise Server (defa...)

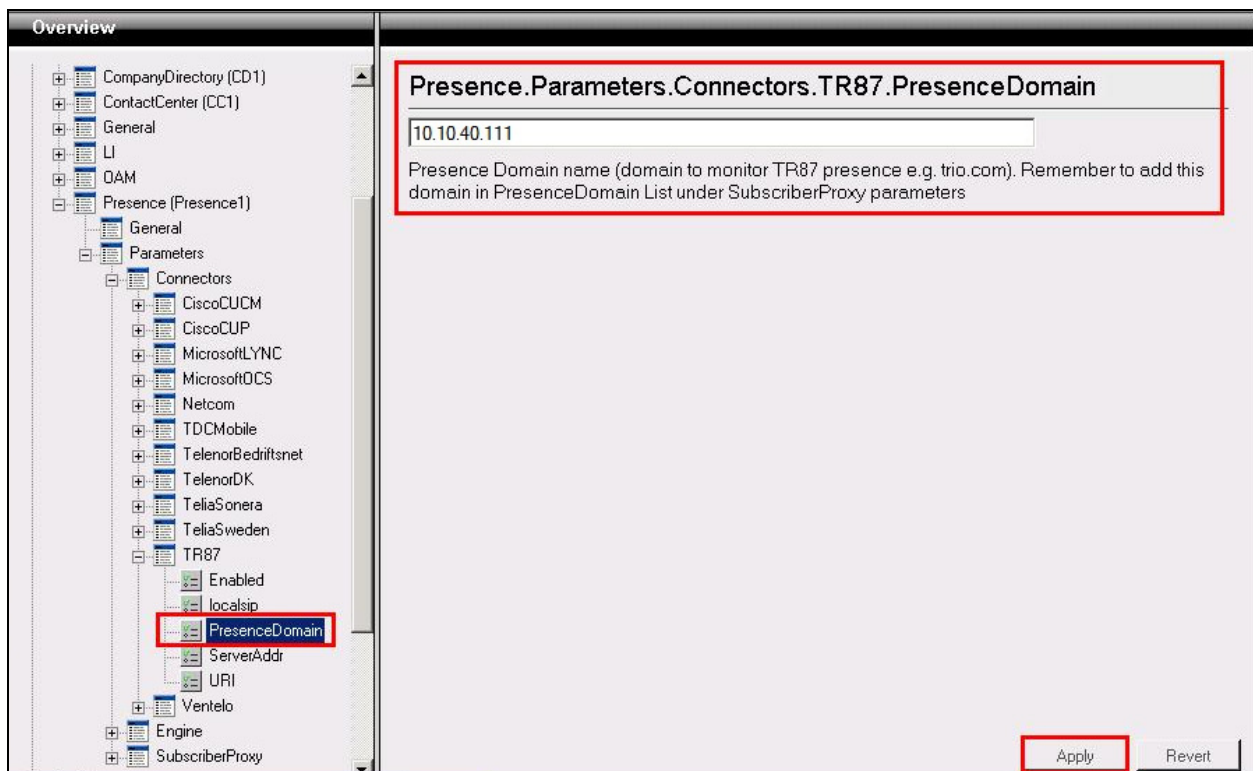
Under **TR87** select **Enabled** in the left window. Ensure that **Enable TR87 Presence Connector** is ticked as shown below. Click **Apply** to continue.

The screenshot shows the 'Overview' pane on the left with the tree view expanded to 'Parameters' → 'Connectors' → 'TR87'. The 'Enabled' checkbox is highlighted with a red box. The main pane on the right is titled 'Presence.Parameters.Connectors.TR87.Enabled' and contains a single checkbox labeled 'Enable TR87 Presence Connector', which is also highlighted with a red box. At the bottom right, the 'Apply' button is highlighted with a red box.

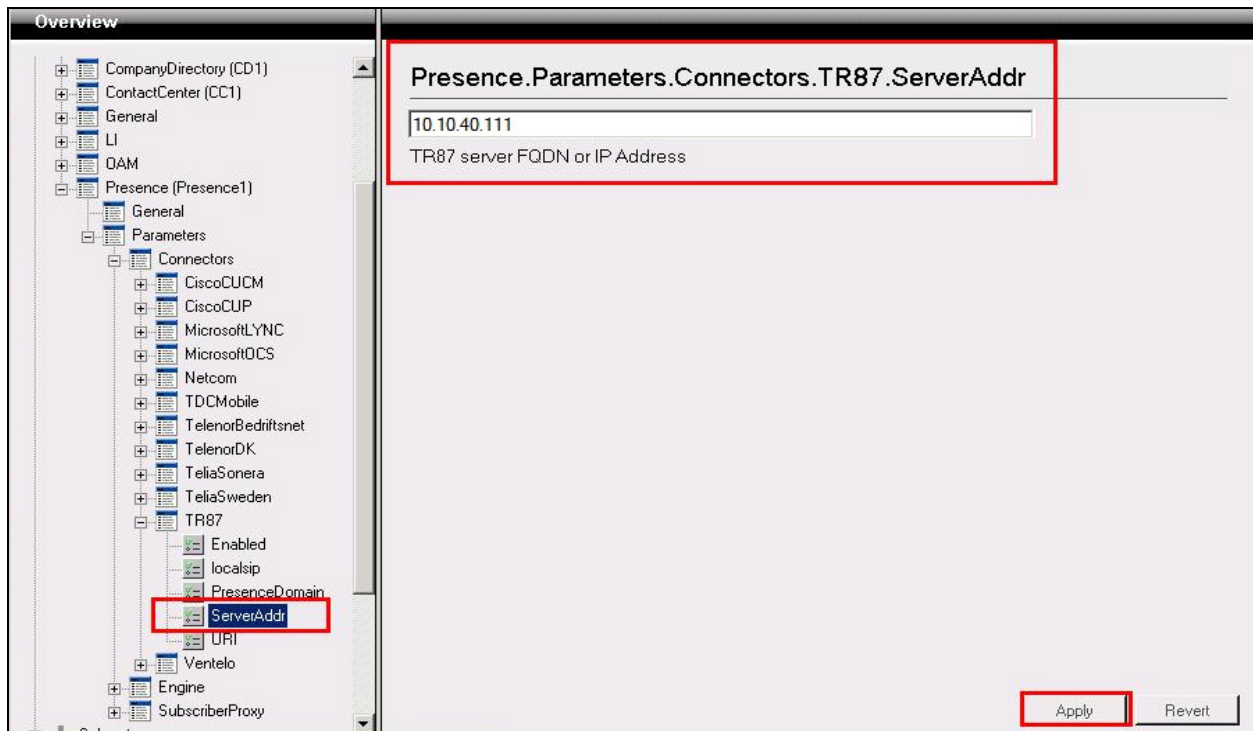
Select **localsip** under **TR87** in the left window and select the **Listen port** for TR87, for compliance testing this was left as default **31006** as shown below. Click **Apply** to continue.



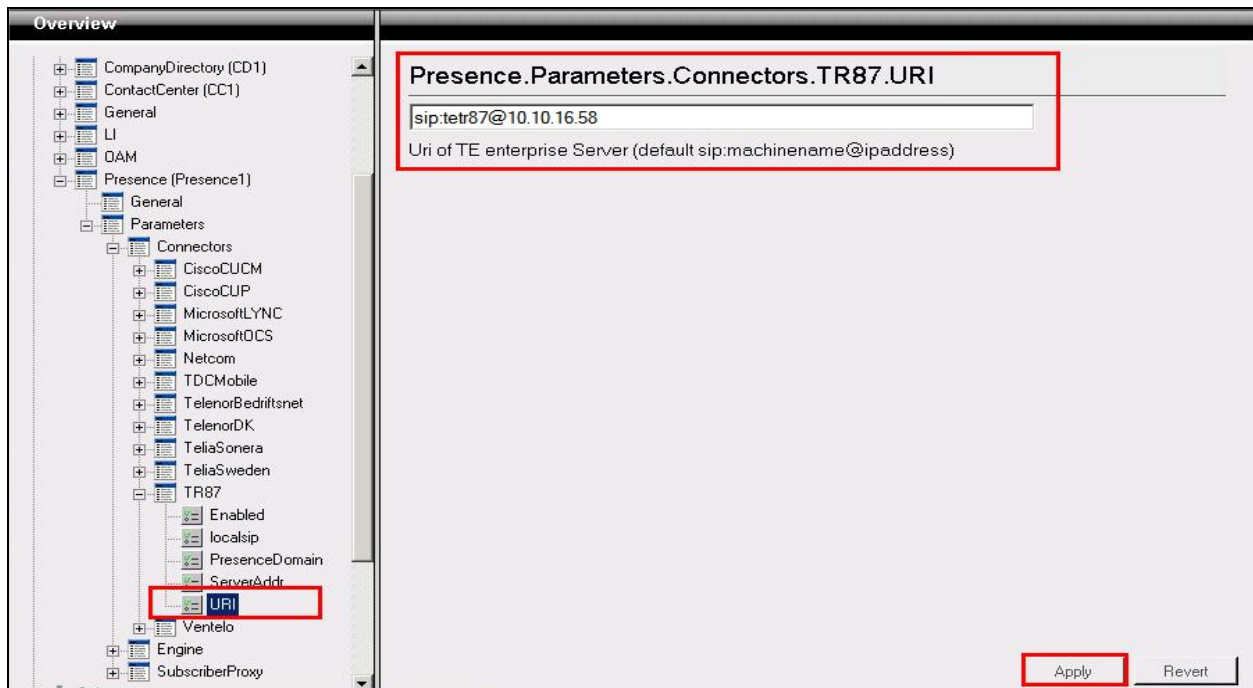
Select **PresenceDomain** under **TR87** in the left window. Enter the Node IP address of the CS1000E as per **Section6**. Click **Apply** to continue.



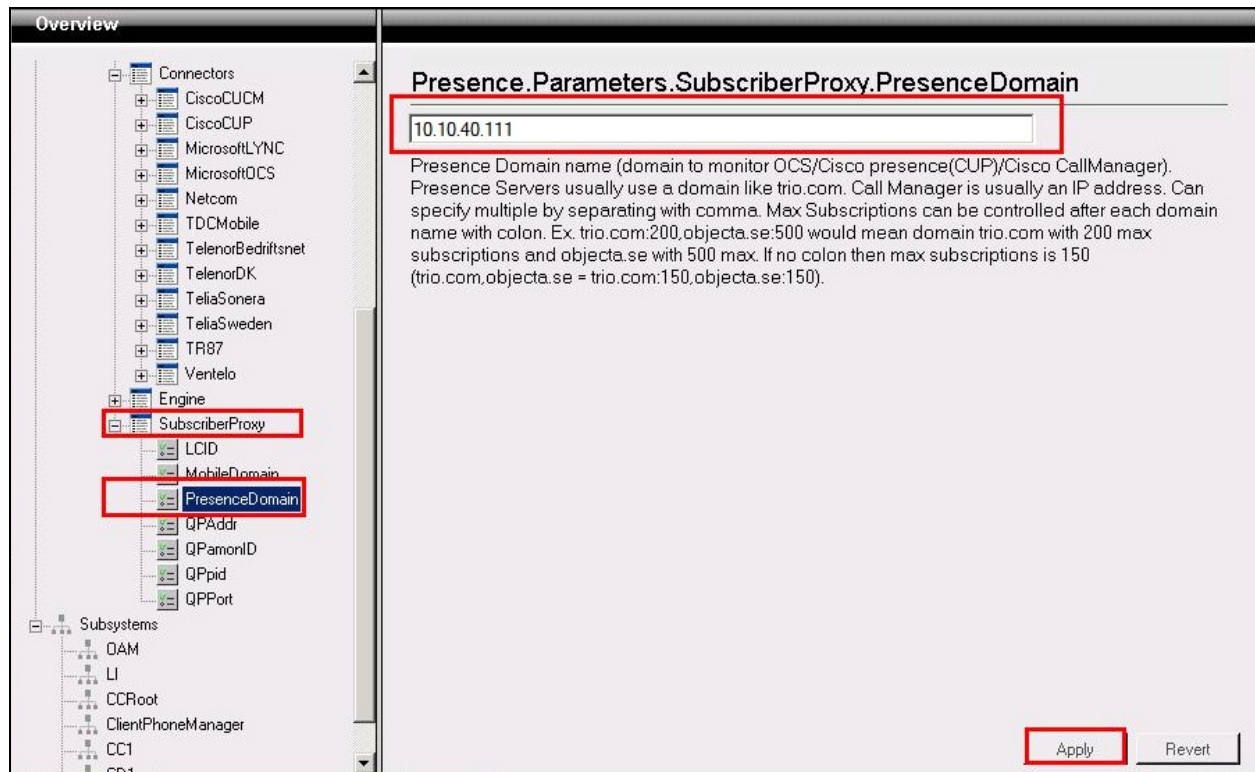
Select **ServerAddr** under **TR87** in the left window and again enter the Node IP address of the CS1000E. Click **Apply** to continue.



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

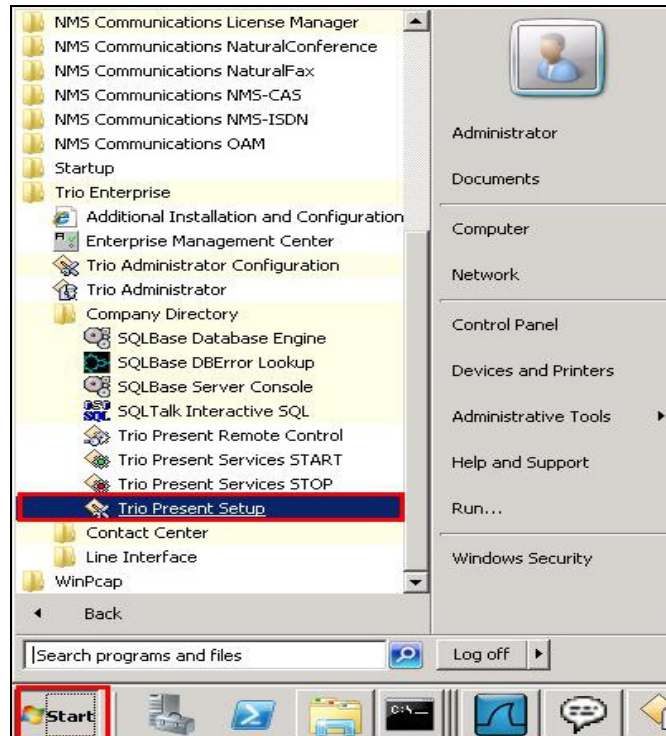


Select **PresenceDomain** under **SubscriberProxy** in the left window. Enter the Node IP address of the CS1000E in the right window. Click **Apply** to continue.

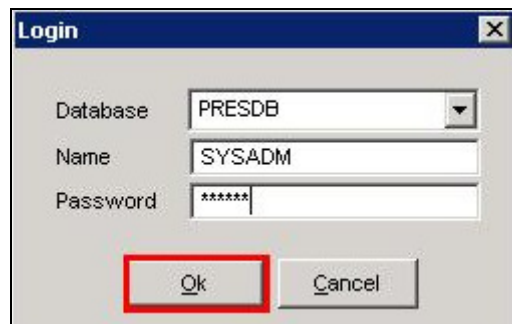


8.5. Configure ICP on TRIO

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



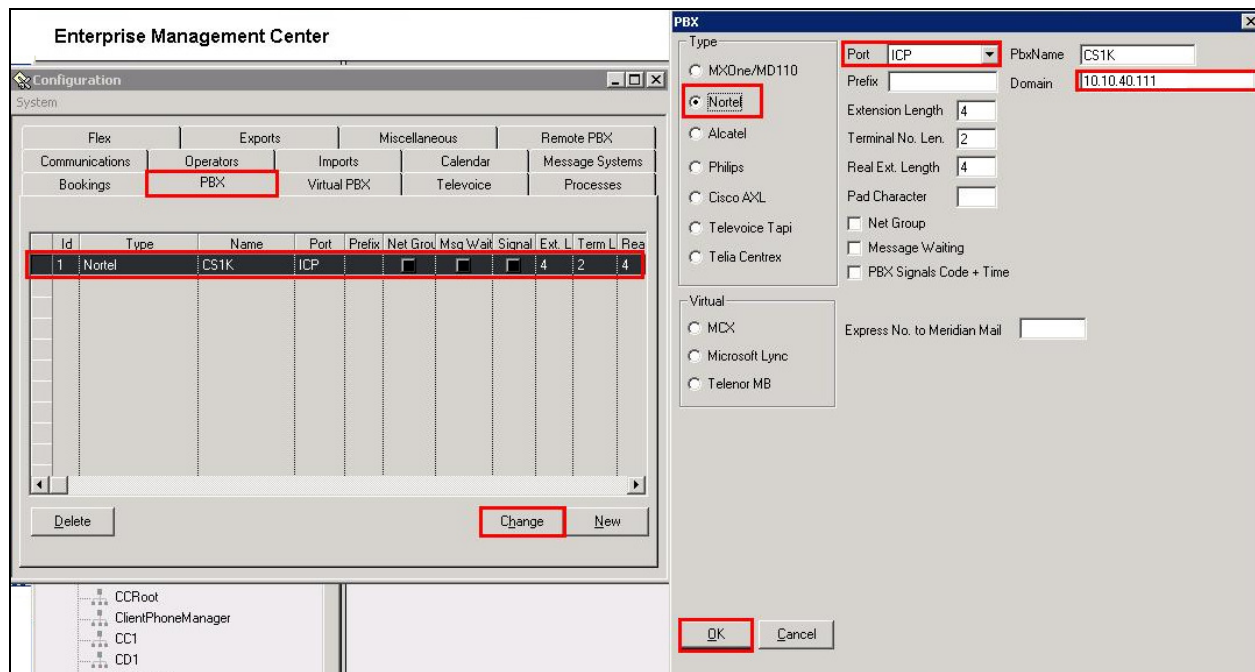
Enter the proper credentials and click **Ok**.



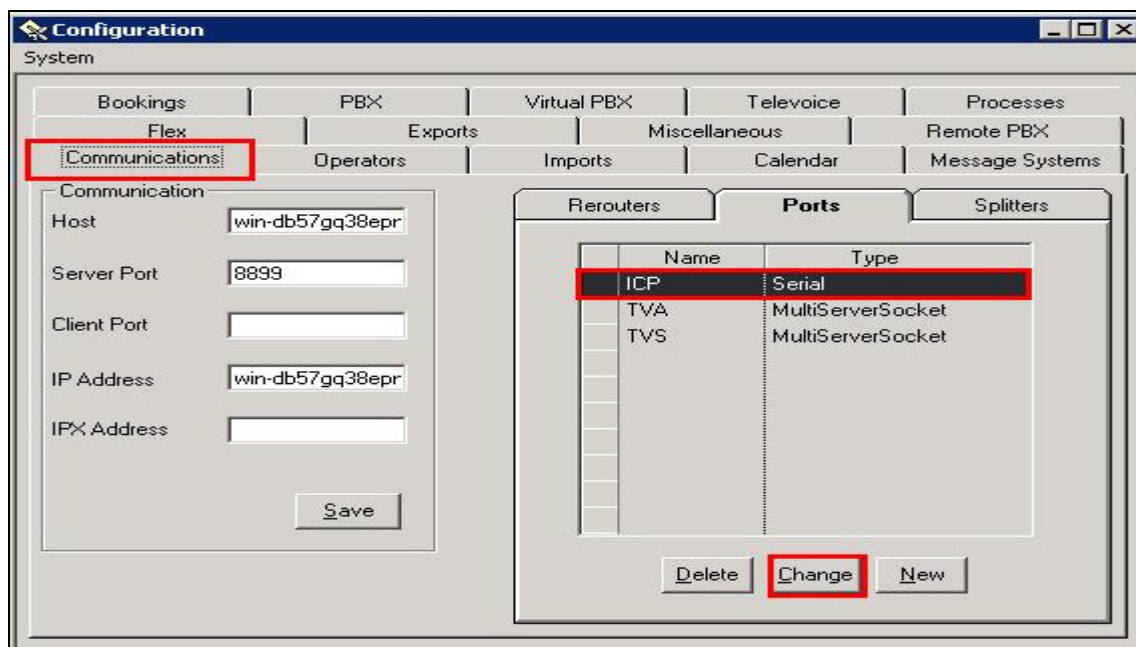
Highlight the selected PBX under the PBX tab and click on change. This opens the window displayed on the right. Ensure the following are selected.

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

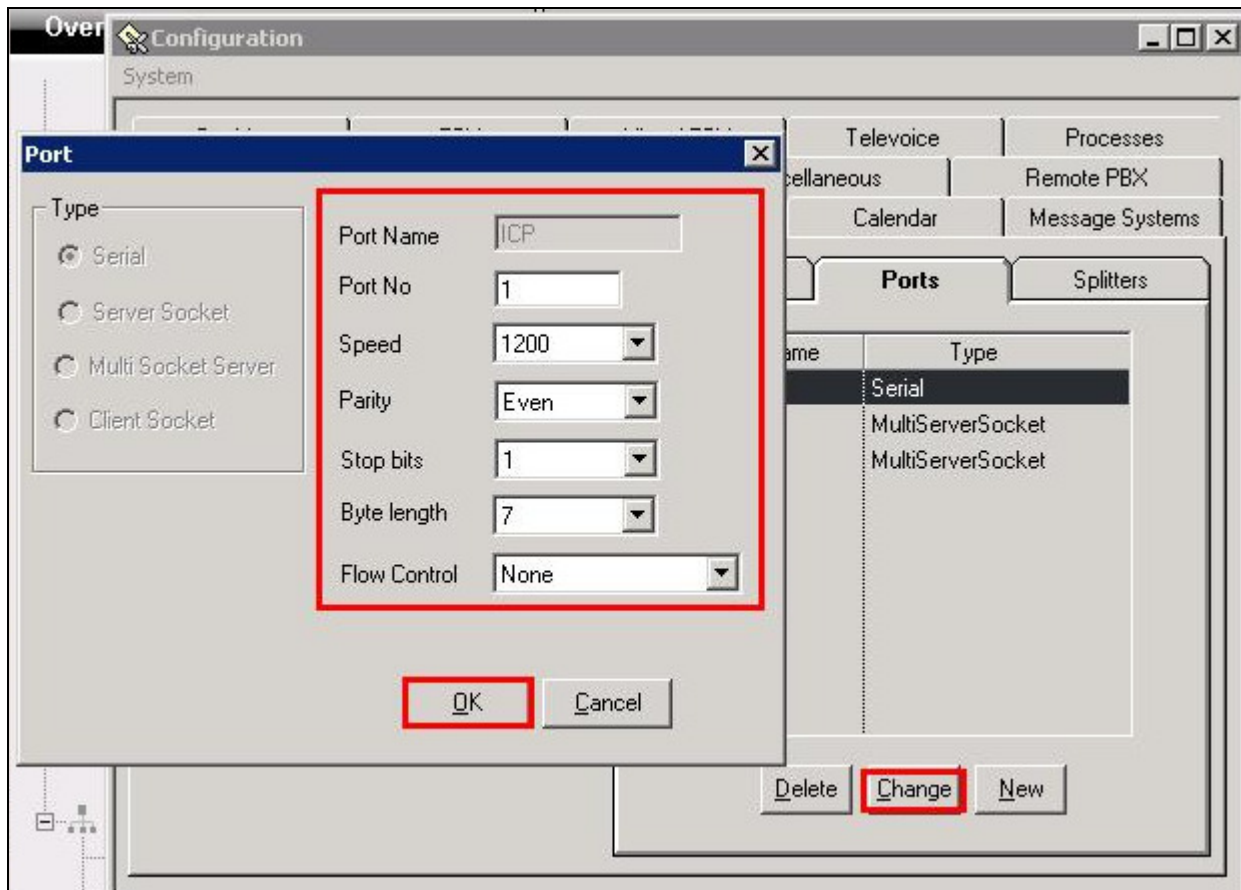
Select **OK** once the correct information is entered.



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 and Session Manager 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 SIP Channels 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. A new window opens, showing the SIP trunk channel status as a series of green squares. 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 R4.1 from Enghouse Interactive AB to successfully interoperate with Avaya Communication Server 1000E R7.6 and Avaya Network Routing Server R7.6 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 7.6*; Document No. NN43001-611_05.02
- [2] *Administering Avaya Aura® Session Manager*; Doc # 03-603324, Release 6.3
- [3] *Unified Communications Management Common Services Fundamentals Avaya Communication Server 1000*; Doc # NN43001-116, 05.08
- [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

CS1000E Linux Service Pack 2

In System service updates: 26					
PATCH#	IN_SERVICE	DATE	SPECINS	REMOVABLE	NAME
0	Yes	27/08/13	NO	yes	cs1000-linuxbase-7.65.16.21-04.i386.000
1	Yes	27/08/13	NO	YES	cs1000-patchWeb-7.65.16.21-04.i386.000
2	Yes	27/08/13	NO	YES	cs1000-dmWeb-7.65.16.21-01.i386.000
3	Yes	28/08/13	NO	yes	cs1000-snmp-7.65.16.00-01.i686.000
4	Yes	28/08/13	NO	YES	cs1000-nrsm-7.65.16.00-03.i386.000
5	Yes	28/08/13	NO	YES	cs1000-oam-logging-7.65.16.01-01.i386.000
6	Yes	28/08/13	NO	yes	cs1000-cs1000WebService_6-0-7.65.16.21-00.i386.000
7	Yes	28/08/13	NO	YES	cs1000-sps-7.65.16.21-01.i386.000
8	Yes	28/08/13	NO	YES	cs1000-pd-7.65.16.21-00.i386.000
9	Yes	28/08/13	NO	YES	cs1000-shared-carardtct-7.65.16.21-01.i386.000
10	Yes	28/08/13	NO	YES	cs1000-shared-tpselect-7.65.16.21-01.i386.000
11	Yes	28/08/13	NO	YES	cs1000-emWebLocal_6-0-7.65.16.21-01.i386.000
12	Yes	28/08/13	NO	yes	cs1000-dbcom-7.65.16.21-00.i386.000
13	Yes	28/08/13	NO	YES	cs1000-csmWeb-7.65.16.21-05.i386.000
14	Yes	28/08/13	NO	YES	cs1000-shared-xmsg-7.65.16.21-00.i386.000
15	Yes	28/08/13	NO	YES	cs1000-vtrk-7.65.16.21-29.i386.000
16	Yes	28/08/13	NO	YES	cs1000-tps-7.65.16.21-05.i386.000
17	Yes	28/08/13	NO	YES	cs1000-mscAnnc-7.65.16.21-02.i386.001
18	Yes	28/08/13	NO	YES	cs1000-mscAttn-7.65.16.21-04.i386.001
19	Yes	28/08/13	NO	YES	cs1000-mscConf-7.65.16.21-02.i386.001
20	Yes	28/08/13	NO	YES	cs1000-mscMusc-7.65.16.21-02.i386.001
21	Yes	28/08/13	NO	YES	cs1000-mscTone-7.65.16.21-03.i386.001
22	Yes	28/08/13	NO	YES	cs1000-bcc-7.65.16.21-21.i386.000
23	Yes	28/08/13	NO	YES	cs1000-Jboss-Quantum-7.65.16.21-3.i386.000
24	Yes	28/08/13	NO	YES	cs1000-emWeb_6-0-7.65.16.21-06.i386.000
25	Yes	28/08/13	NO	yes	cs1000-cs-7.65.P.100-01.i386.001

CS1000E Call Server Patches

VERSION 4121
RELEASE 7
ISSUE 65 P +
DepList 1: core Issue: 01 (created: 2013-06-14 03:54:33 (est))

IN-SERVICE PEPs

PAT#	CR #	PATCH REF #	NAME	DATE	FILENAME	SPECINS
000	wi01052968	ISS1:1OF1	p32540_1	28/08/2013	p32540_1.cpl	NO
001	wi01045058	ISS1:1OF1	p32214_1	28/08/2013	p32214_1.cpl	NO
002	wi01085855	ISS1:1OF1	p32658_1	28/08/2013	p32658_1.cpl	NO
003	wi01053314	ISS1:1OF1	p32555_1	28/08/2013	p32555_1.cpl	NO
004	wi01060382	iss1:1of1	p32623_1	28/08/2013	p32623_1.cpl	YES
005	wi01070580	ISS1:1OF1	p32380_1	28/08/2013	p32380_1.cpl	NO
006	wi01067822	ISS1:1OF1	p32466_1	28/08/2013	p32466_1.cpl	YES
007	wi01061481	ISS1:1OF1	p32382_1	28/08/2013	p32382_1.cpl	NO
008	wi01072032	ISS1:1OF1	p32448_1	28/08/2013	p32448_1.cpl	NO
009	wi01022599	ISS1:1OF1	p32080_1	28/08/2013	p32080_1.cpl	NO
010	wi01035976	ISS1:1OF1	p32173_1	28/08/2013	p32173_1.cpl	NO
011	wi01065922	ISS1:1OF1	p32516_1	28/08/2013	p32516_1.cpl	NO
012	wi01055480	ISS1:1OF1	p32712_1	28/08/2013	p32712_1.cpl	NO
013	wi01041453	ISS1:1OF1	p32587_1	28/08/2013	p32587_1.cpl	NO
014	wi01078723	ISS1:1OF1	p32532_1	28/08/2013	p32532_1.cpl	NO
015	WI0110261	ISS1:1OF1	p32758_1	28/08/2013	p32758_1.cpl	NO
016	wi01064599	iss1:1of1	p32580_1	28/08/2013	p32580_1.cpl	NO
017	wi01048457	ISS1:1OF1	p32581_1	28/08/2013	p32581_1.cpl	NO
018	wi01072027	ISS1:1OF1	p32689_1	28/08/2013	p32689_1.cpl	NO
019	wi01059388	iss1:1of1	p32628_1	28/08/2013	p32628_1.cpl	NO
020	wi01074003	ISS1:1OF1	p32421_1	28/08/2013	p32421_1.cpl	NO
021	wi00933195	ISS1:1OF1	p32491_1	28/08/2013	p32491_1.cpl	NO
022	wi00996734	ISS1:1OF1	p32550_1	28/08/2013	p32550_1.cpl	NO
023	wi01065118	ISS1:1OF1	p32397_1	28/08/2013	p32397_1.cpl	NO
024	wi01063864	ISS1:1OF1	p32410_1	28/08/2013	p32410_1.cpl	YES
025	wi01072023	ISS1:1OF1	p32130_1	28/08/2013	p32130_1.cpl	YES
026	wi01075359	ISS1:1OF1	p32671_1	28/08/2013	p32671_1.cpl	NO
027	wi01080753	ISS1:1OF1	p32518_1	28/08/2013	p32518_1.cpl	NO
028	wi01070473	ISS1:1OF1	p32413_1	28/08/2013	p32413_1.cpl	NO
029	wi01075355	ISS1:1OF1	p32594_1	28/08/2013	p32594_1.cpl	NO
030	wi01071379	ISS1:1OF1	p32522_1	28/08/2013	p32522_1.cpl	NO
031	wi01070756	ISS1:1OF1	p32444_1	28/08/2013	p32444_1.cpl	NO
032	wi01075353	ISS1:1OF1	p32613_1	28/08/2013	p32613_1.cpl	NO
033	wi01062607	ISS1:1OF1	p32503_1	28/08/2013	p32503_1.cpl	NO
034	wi01068851	ISS1:1OF1	p32439_1	28/08/2013	p32439_1.cpl	NO
035	wi01075352	ISS1:1OF1	p32603_1	28/08/2013	p32603_1.cpl	NO
036	wi01092300	ISS1:1OF1	p32692_1	28/08/2013	p32692_1.cpl	NO
037	wi01063263	ISS1:1OF1	p32573_1	28/08/2013	p32573_1.cpl	NO
038	wi01087528	ISS1:1OF1	p32700_1	28/08/2013	p32700_1.cpl	NO
039	wi01055300	ISS1:1OF1	p32543_1	28/08/2013	p32543_1.cpl	NO
040	wi01039280	ISS1:1OF1	p32423_1	28/08/2013	p32423_1.cpl	NO
041	wi01068669	ISS1:1OF1	p32333_1	28/08/2013	p32333_1.cpl	NO
042	wi01069441	ISS1:1OF1	p32097_1	28/08/2013	p32097_1.cpl	NO
043	wi01058621	ISS1:1OF1	p32339_1	28/08/2013	p32339_1.cpl	NO
044	wi01032756	ISS1:1OF1	p32673_1	28/08/2013	p32673_1.cpl	NO
045	wi01070465	iss1:1of1	p32562_1	28/08/2013	p32562_1.cpl	NO
046	wi01053920	ISS1:1OF1	p32303_1	28/08/2013	p32303_1.cpl	NO
047	wi00897254	ISS1:1OF1	p31127_1	28/08/2013	p31127_1.cpl	NO
048	wi01057403	ISS1:1OF1	p32591_1	28/08/2013	p32591_1.cpl	NO
049	wi01066991	ISS1:1OF1	p32449_1	28/08/2013	p32449_1.cpl	NO
050	wi01094305	ISS1:1OF1	p32640_1	28/08/2013	p32640_1.cpl	NO
051	wi01058359	ISS1:1OF1	p32331_1	28/08/2013	p32331_1.cpl	NO
052	wi01047890	ISS1:1OF1	p32697_1	28/08/2013	p32697_1.cpl	NO

053	wi01060241	ISS1:1OF1	p32381_1	28/08/2013	p32381_1.cpl	NO
054	wi01034307	ISS1:1OF1	p32615_1	28/08/2013	p32615_1.cpl	NO
055	wi01052428	ISS1:1OF1	p32606_1	28/08/2013	p32606_1.cpl	NO
056	wi00884716	ISS1:1OF1	p32517_1	28/08/2013	p32517_1.cpl	NO
057	wi01070468	iss1:1of1	p32418_1	28/08/2013	p32418_1.cpl	NO
058	wi01091447	ISS1:1OF1	p32675_1	28/08/2013	p32675_1.cpl	NO
059	wi01068042	ISS1:1OF1	p32669_1	28/08/2013	p32669_1.cpl	NO
060	wi01061483	ISS1:1OF1	p32359_1	28/08/2013	p32359_1.cpl	NO
061	wi01065125	ISS1:1OF1	p32416_1	28/08/2013	p32416_1.cpl	NO
062	wi01056633	ISS1:1OF1	p32322_1	28/08/2013	p32322_1.cpl	NO
063	wi01070474	iss1:1of1	p32407_1	28/08/2013	p32407_1.cpl	NO
064	wi01053597	ISS1:1OF1	p32304_1	28/08/2013	p32304_1.cpl	NO
065	wi01070471	ISS1:1OF1	p32415_1	28/08/2013	p32415_1.cpl	NO
066	wi01025156	ISS1:1OF1	p32136_1	28/08/2013	p32136_1.cpl	NO
067	wi01088775	ISS1:1OF1	p32659_1	28/08/2013	p32659_1.cpl	NO
068	wi01083584	ISS1:1OF1	p32619_1	28/08/2013	p32619_1.cpl	NO
069	wi01075360	iss1:1of1	p32602_1	28/08/2013	p32602_1.cpl	NO
070	wi01053195	ISS1:1OF1	p32297_1	28/08/2013	p32297_1.cpl	NO
071	wi01043367	ISS1:1OF1	p32232_1	28/08/2013	p32232_1.cpl	NO
072	wi01082456	ISS1:1OF1	p32596_1	28/08/2013	p32596_1.cpl	NO
073	wi01089519	ISS1:1OF1	p32665_1	28/08/2013	p32665_1.cpl	NO
074	wi01065842	ISS1:1OF1	p32478_1	28/08/2013	p32478_1.cpl	NO
075	wi01088585	ISS1:1OF1	p32656_1	28/08/2013	p32656_1.cpl	NO
076	wi01035980	ISS1:1OF1	p32558_1	28/08/2013	p32558_1.cpl	NO
077	wi01087543	ISS1:1OF1	p32662_1	28/08/2013	p32662_1.cpl	NO
078	wi01060826	ISS1:1OF1	p32379_1	28/08/2013	p32379_1.cpl	NO
079	wi01061484	ISS1:1OF1	p32576_1	28/08/2013	p32576_1.cpl	NO
080	wi01034961	ISS1:1OF1	p32144_1	28/08/2013	p32144_1.cpl	NO
081	wi01056067	ISS1:1OF1	p32457_1	28/08/2013	p32457_1.cpl	NO
082	WI01077073	ISS1:1OF1	p32534_1	28/08/2013	p32534_1.cpl	NO
083	wi01073100	ISS1:1OF1	p32599_1	28/08/2013	p32599_1.cpl	NO
084	wi01060341	ISS1:1OF1	p32578_1	28/08/2013	p32578_1.cpl	NO
MDP>LAST SUCCESSFUL MDP REFRESH :2013-08-27 14:24:01(Local Time)						
MDP>USING DEPLIST ZIP FILE DOWNLOADED :2013-08-27 09:21:58(est)						

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