

Lync™ Server 2010

Mediant™ E-SBC Series

SIP Protocol

Configuration Note

Connecting Microsoft® Lync™ & ThinkTel
SIP Trunk using AudioCodes Mediant™ E-SBC Series



June 2012

Document #: LTRT-38110

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Notice

This document shows how to connect Microsoft Lync 2010 with the ThinkTel SIP Trunk using the AudioCodes Mediant E-SBC series, which includes the Mediant 800 Gateway and E-SBC, Mediant 1000B Gateway and E-SBC, and Mediant 3000 Gateway and E-SBC.

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Date Published: June-24-2012

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Abbreviations and Terminology

Each abbreviation, unless widely used, is spelled out in full when first used.



Note: Throughout this manual, unless otherwise specified, the term *device* refers to the Mediant 800 Gateway and E-SBC, Mediant 1000B Gateway and E-SBC, and the Mediant 3000 Gateway and E-SBC.

Table 1-1: Acronyms

Acronym	Meaning
Transferee	The party being transferred to the transfer target
Transferor	The party initiating the transfer
Transfer target	The new party being introduced into a call with the transferee
Blind or semi-attended transfer	The transferor having a session in hold state with the transferee and initiating the transfer by a consultation call to the target performs the transfer while the target is in ringing state
Attended transfer or transfer on conversation	The transferor waits to be in conversation state with the target before completing the transfer
CLIP	Calling Line Identification Presentation
CNIP	Calling Name Identification Presentation
CLIR	Calling Line Identification Restriction
CNIR	Calling Name Identification Restriction
COLP	Connected Line Identification Presentation
CONP	Connected Name Identification Presentation
COLR	Connected Line Identification Restriction
CONR	Connected Name Identification Restriction
CRC	Customer Relationship Centre
PG	SIP GW XXX Peripheral Gateway
ICM	SIP GW XXX Intelligent Call Manager
CCM	SIP GW XXX Call Manager
CVP	Customer voice Portal
BC	ALU Business Contact
CTI	Computer Telephony Integration

1 Introduction

This Configuration Note shows how to set up the device to operate with the ThinkTel SIP Trunking and Microsoft Lync Communication platform.

1.1 Intended Audience

The document is intended for Installation Engineers or AudioCodes and ThinkTel Partners who are installing and configuring the ThinkTel SIP Trunking and Microsoft Lync Communication platform to place VoIP calls using the AudioCodes E-SBC.

1.2 About AudioCodes' E-SBC Series

AudioCodes' family of Enterprise Session Border Controllers (E-SBC) enables reliable connectivity and security between enterprises and Service Providers' VoIP networks.

The E-SBC family provides perimeter defense as a way of protecting companies from malicious VoIP attacks; mediation for allowing the connection of any PBX and/or IP-PBX to any Service Provider; and Service Assurance for service quality and manageability.

Designed as a cost-effective appliance, the E-SBC Family is based on field-proven VoIP and network services with a native host processor, allowing the creation of purpose-built multiservice appliances, providing smooth connectivity to cloud services, with integrated quality of service, SLA monitoring, security and manageability. The native implementation of SBC provides a host of additional capabilities that are not possible with standalone SBC appliances, such as VoIP mediation, PSTN access survivability, and third party value-added services applications. This enables enterprises to utilize the advantages of converged networks and eliminate the need for standalone appliances.

AudioCodes E-SBC is available as an integrated solution running on top of the field-proven Mediant Media Gateway and Multi-Service Business Gateway platforms or as a software-only solution for deployment on 3rd party hardware.



Note: The scope of this document does not cover security aspects for connecting the SIP Trunk to the Microsoft Lync environment. Security measures should be implemented in accordance with your organization's security policies. For basic security guidelines, see 'AudioCodes Security Guidelines'.

Reader's Notes

2 Components Information

2.1 AudioCodes E-SBC Version

Table 2-1: AudioCodes Gateway Version

Gateway Vendor	AudioCodes
Model	Mediant 800 Media Gateway and E-SBC, Mediant 1000B Media Gateway and E-SBC, Mediant 3000 Media Gateway and E-SBC
Software Version	SIP_6.40A.039.010
Interface Type	SIP/IP
VoIP Protocol	SIP/UDP – to the ThinkTel Sip Trunk SIP/TCP or TLS – to the Lync FE Server
Additional Notes	None

2.2 ThinkTel SIP Trunking Version

Table 2-2: ThinkTel Version

Service Vendor	ThinkTel
Models	MetaSwitch CFS 7.4
Software Version	CFS 7.4
VoIP Protocol	SIP
Additional Notes	None

2.3 Microsoft Lync Version

Table 2-3: Microsoft Lync Version

PBX Vendor	Microsoft
Models	Microsoft Lync
Software Version	RTM: Release 2010 4.0.7577.0
VoIP Protocol	SIP
Additional Notes	None

2.4 Deploying the E-SBC (Typical Topology)

Procedures in this document show how to deploy the E-SBC in this example scenario:

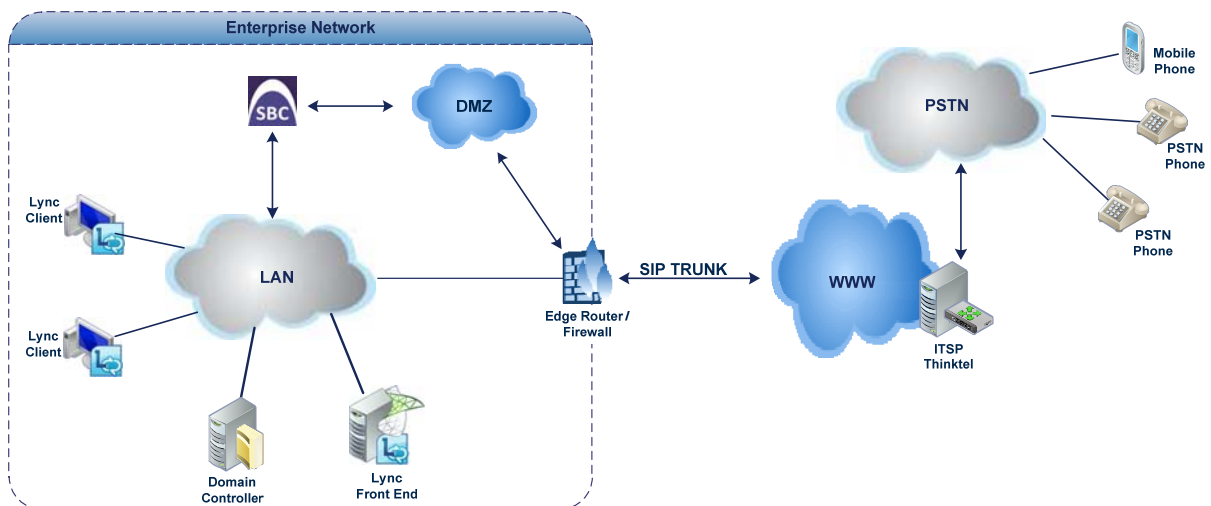
- An enterprise deploys Microsoft Lync 2010 in its private network for enhanced communication within the enterprise.
- The enterprise decides to offer its employees enterprise voice capabilities and to connect the enterprise to the PSTN network using the ThinkTel SIP Trunking service.
- AudioCodes' E-SBC (Enterprise Session Border Controller) is used to manage the connection between the Enterprise LAN and the ITSP SIP trunk.

Session = the real-time voice session using IP SIP signaling protocol.

Border = the IP to IP network border between the Microsoft Lync network in the Enterprise LAN and the ThinkTel SIP trunk in the public network.

The figure below shows the E-SBC device managing the connection between Microsoft Lync Server 2010 LAN and the ThinkTel SIP Trunking site.

Figure 2-1: Topology



2.5 Setup Requirements

Setup requirements are:

- Microsoft Lync Server 2010 environment is located in the enterprise's Local Area Network (LAN); ThinkTel SIP Trunks are located on the WAN.
- Microsoft Lync Server 2010 functions with **TLS** transport type; ThinkTel SIP trunk functions on the SIP over **UDP** transport type.
- Transcoding support: Microsoft Lync Server 2010 supports G.711A-law and G.711U-law coders; ThinkTel SIP Trunk also supports G.729 coder type.
- Microsoft Lync Server 2010 functions with the **SRTP** media type, while the ThinkTel SIP trunk functions on the **RTP** media type
- Microsoft Lync Server 2010 functions with **Media Bypass** Enabled.

2.6 Known Limitation

A limitation that occurred in interoperability tests:

- Microsoft Lync Server 2010 is configured with the **Refer** feature disabled. It's disabled because the ThinkTel SIP trunk doesn't support Refer SIP messages.

3 Configuring Lync Server 2010

This section shows how to configure the Lync Server 2010 to operate with the E-SBC device. Follow this procedure:

1. Configure the E-SBC device as a 'IP/PSTN Gateway' (see Section 3.1 on page 13)
2. Associate the 'IP/PSTN Gateway' with the Mediation Server (see Section 3.2 on page 16)
3. Configure a 'Route' to utilize the SIP trunk connected to the E-SBC device (see Section 3.3 on page 21)



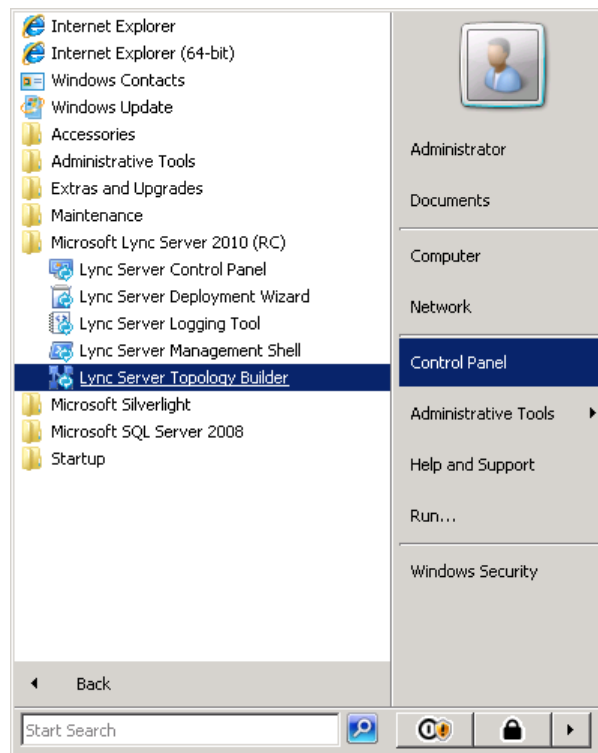
Note: Dial Plans, Voice Policies and PSTN usages are also necessary for enterprise voice deployment but they're beyond the scope of this document.

3.1 Configuring the E-SBC device as a 'IP/PSTN Gateway'

This section shows how to configure the E-SBC device as an IP/PSTN Gateway.

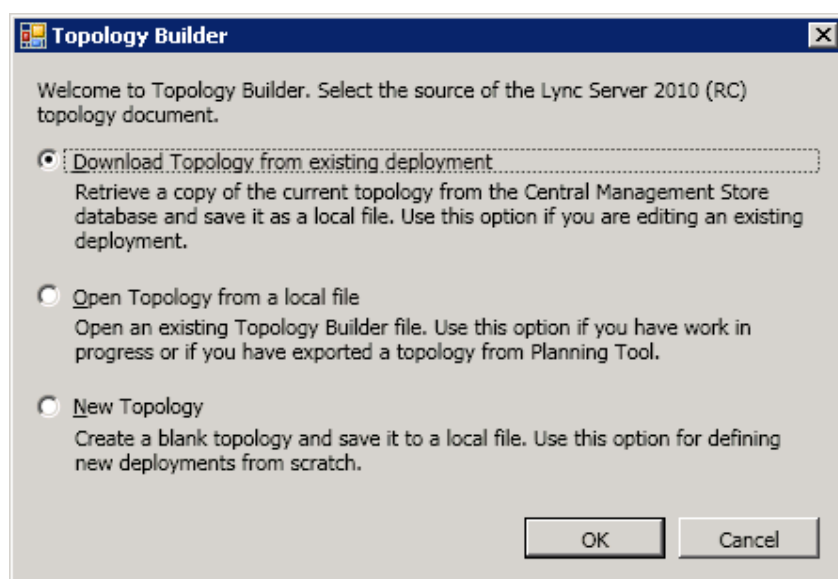
- **To configure the E-SBC device as an IP/PSTN Gateway and associate it with the Mediation Server:**
1. On the server where the Topology Builder is located, start the Lync Server 2010 **Topology Builder**: Click **Start**, select **All Programs** and select **Lync Server Topology Builder**.

Figure 3-1: Opening the Lync Server Topology Builder



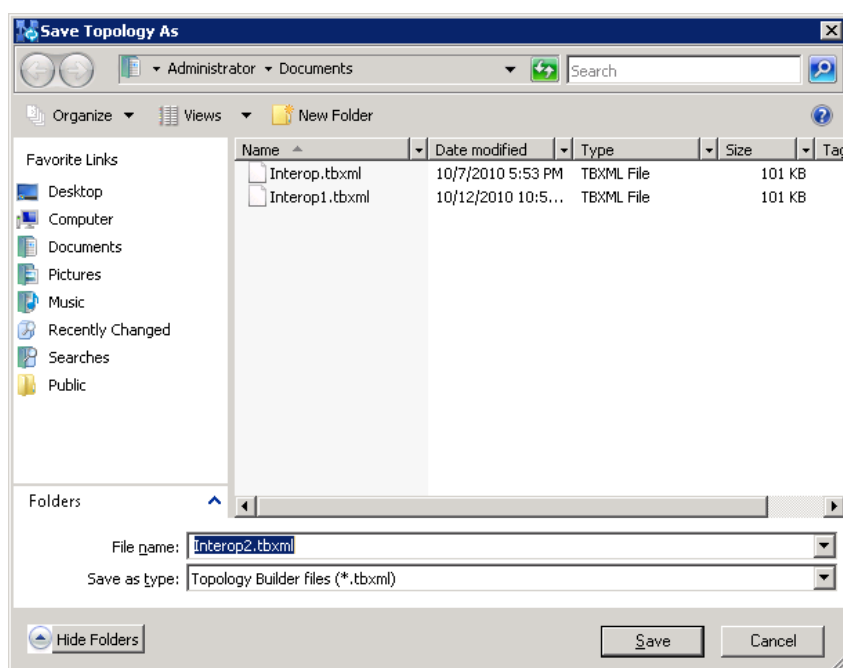
This screen is displayed:

Figure 3-2: Topology Builder Options



2. Choose 'Download Topology from the existing deployment' and click **OK**. You're prompted to save the Topology you downloaded.

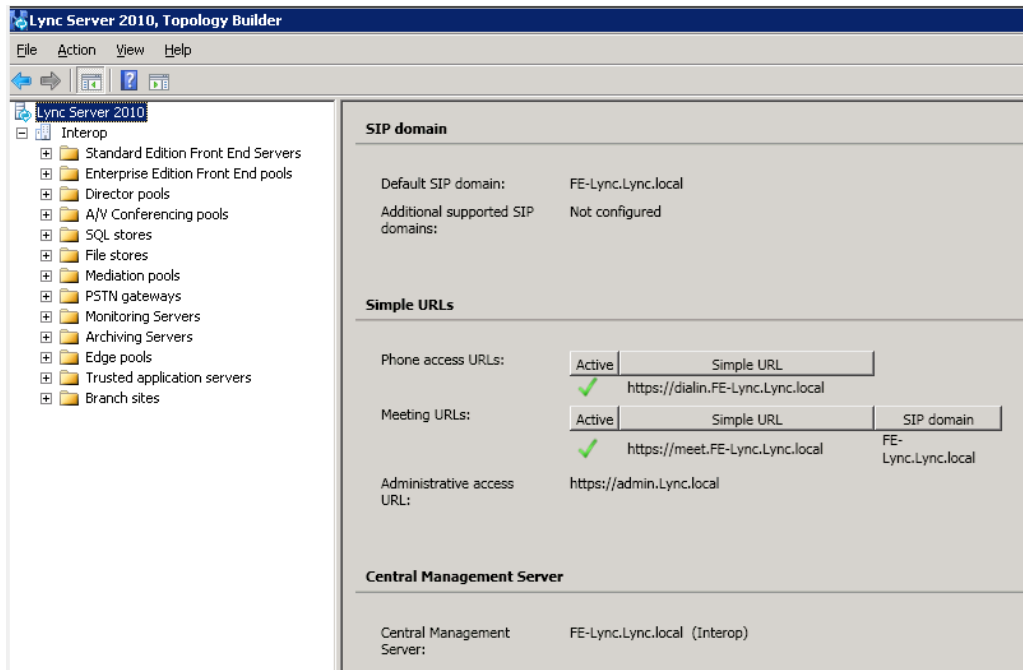
Figure 3-3: Save Topology



3. Enter new **File Name** and **Save**. This action enables you to roll back from any changes you make during the installation.

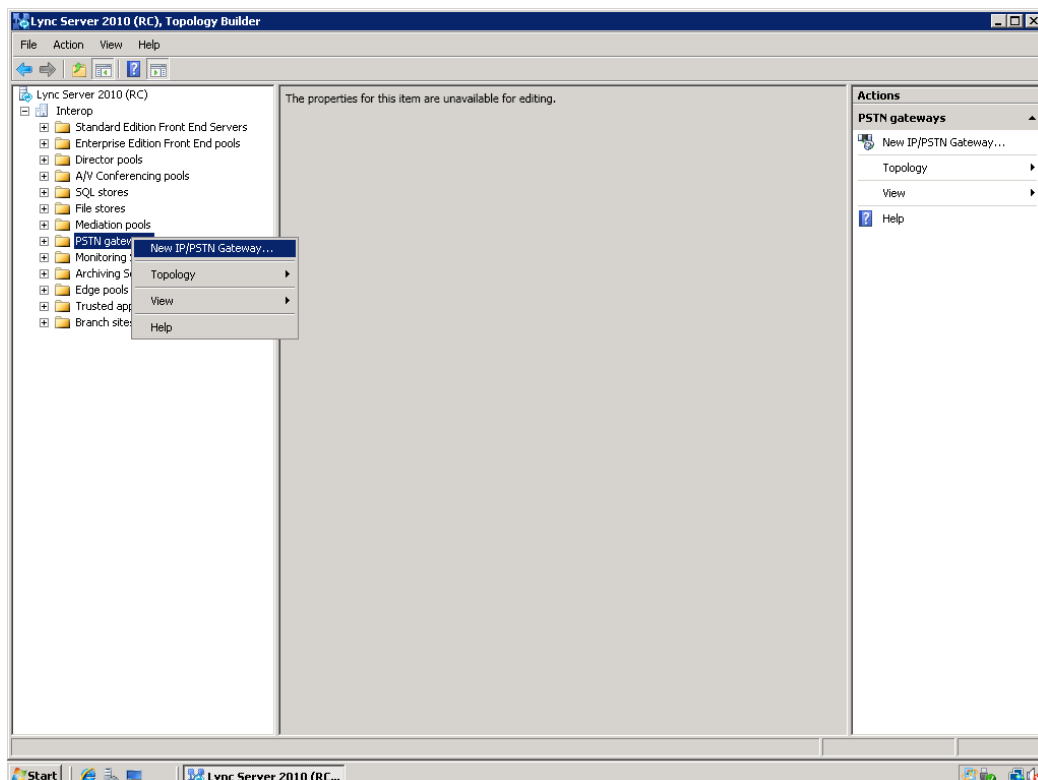
The Topology Builder screen with the topology downloaded is displayed.

Figure 3-4: Downloaded Topology



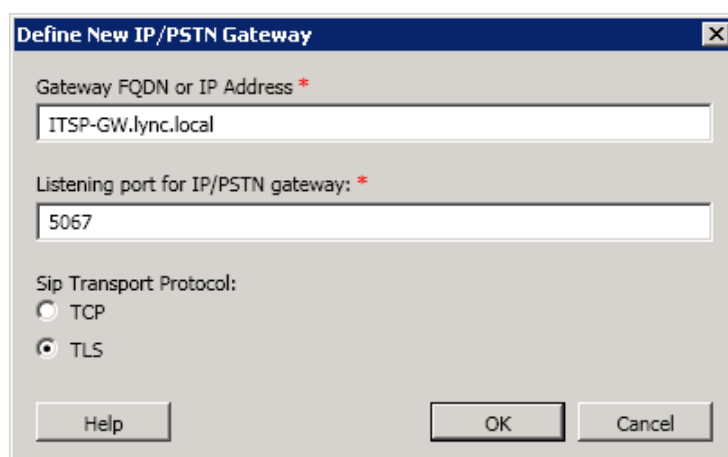
- Expand the Site; right-click the IP/PSTN Gateway and choose 'New IP/PSTN Gateway':

Figure 3-5: New IP/PSTN Gateway



- Enter the FQDN of the E-SBC (i.e., 'ITSP-GW.lync.local') and click **OK**. Note that the listening port for the Gateway is **5067** and Transport Type is **TLS**.

Figure 3-6: Define New IP/PSTN Gateway

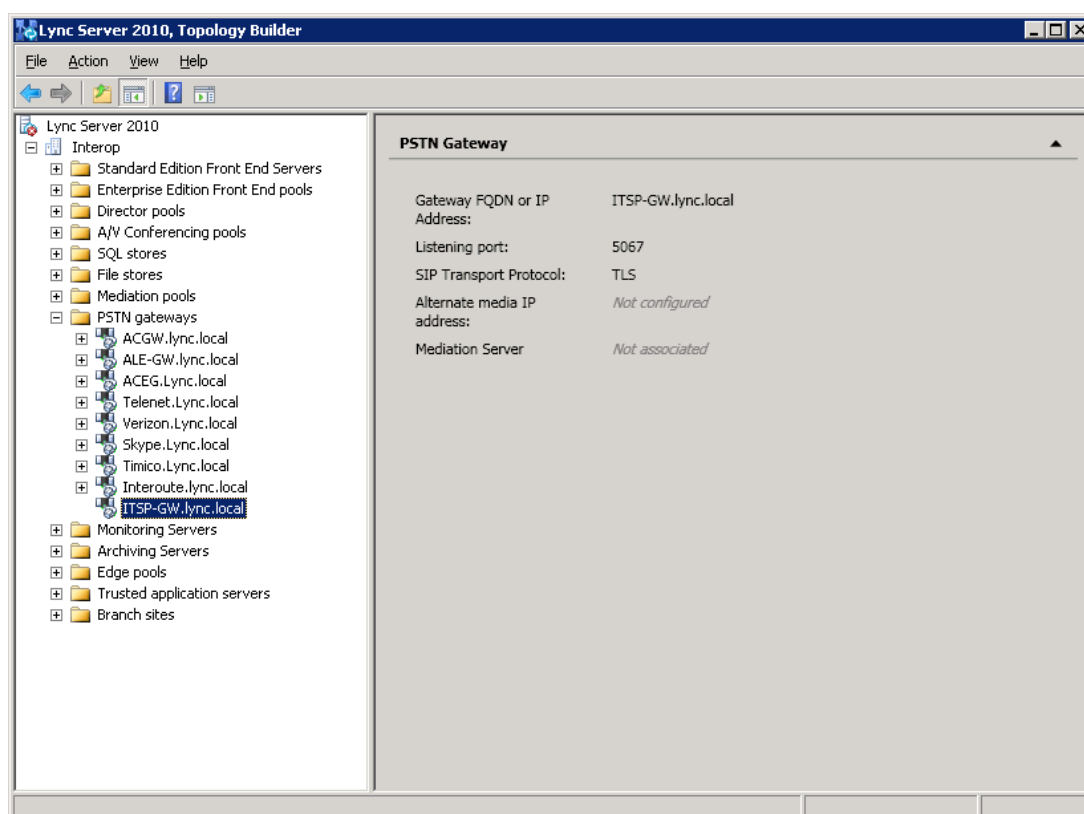


The dialog box 'Define New IP/PSTN Gateway' contains the following fields and options:

- Gateway FQDN or IP Address ***: ITSP-GW.lync.local
- Listening port for IP/PSTN gateway: ***: 5067
- Sip Transport Protocol:**
 - ☐ TCP
 - ☒ TLS
- Buttons:** Help, OK, Cancel

The E-SBC device is now added as an 'IP/PSTN Gateway'.

Figure 3-7: IP/PSTN Gateway



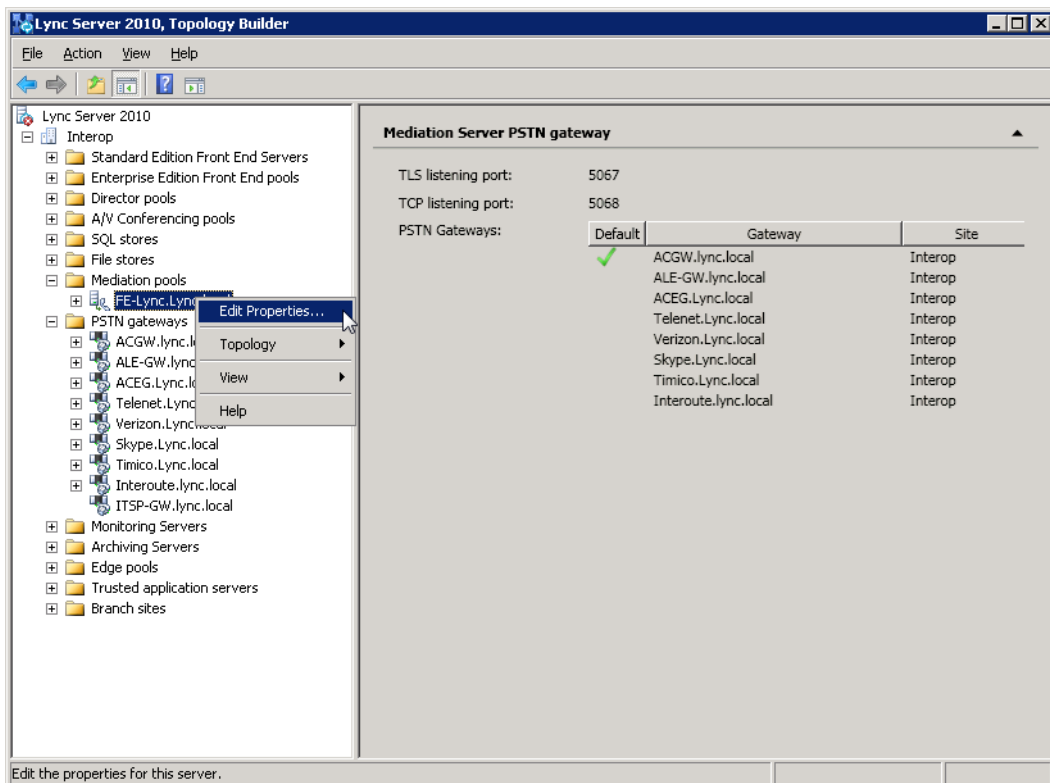
3.2 Associating the 'IP/PSTN Gateway' with the Mediation Server

This section shows how to associate the 'IP/PSTN Gateway' with the Mediation Server.

➤ **To associate the IP/PSTN Gateway with the Mediation Server:**

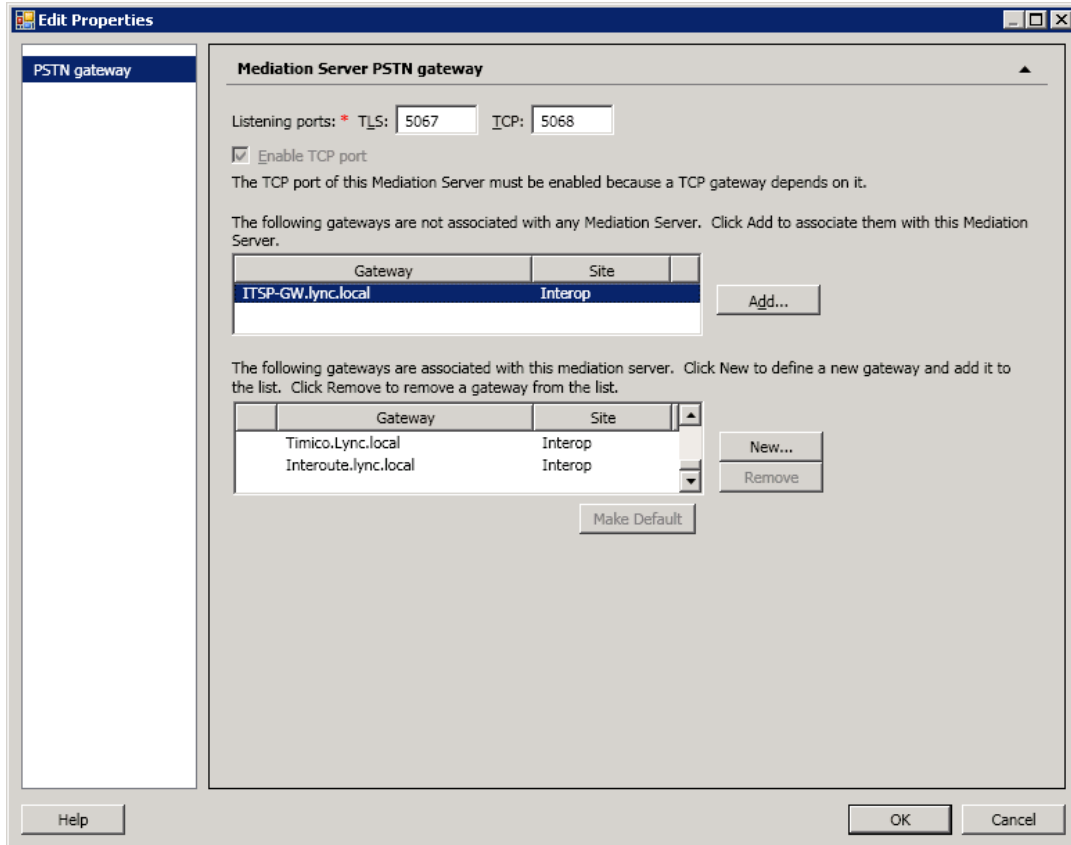
1. Right-click the Mediation Server that uses the E-SBC device (i.e., FE-Lync.Lync.local) and choose **Edit Properties**:

Figure 3-8: Associating Mediation Server with IP/PSTN Gateway



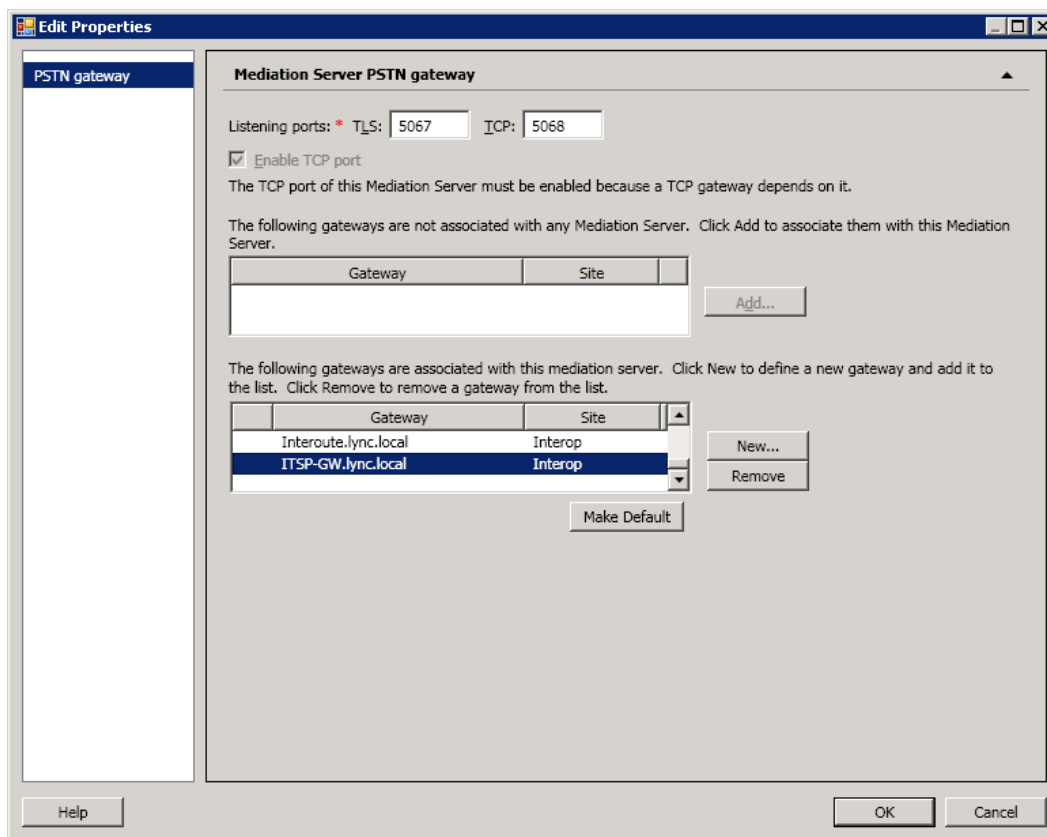
This screen is displayed:

Figure 3-9: Before Associating IP/PSTN Gateway with Mediation Server



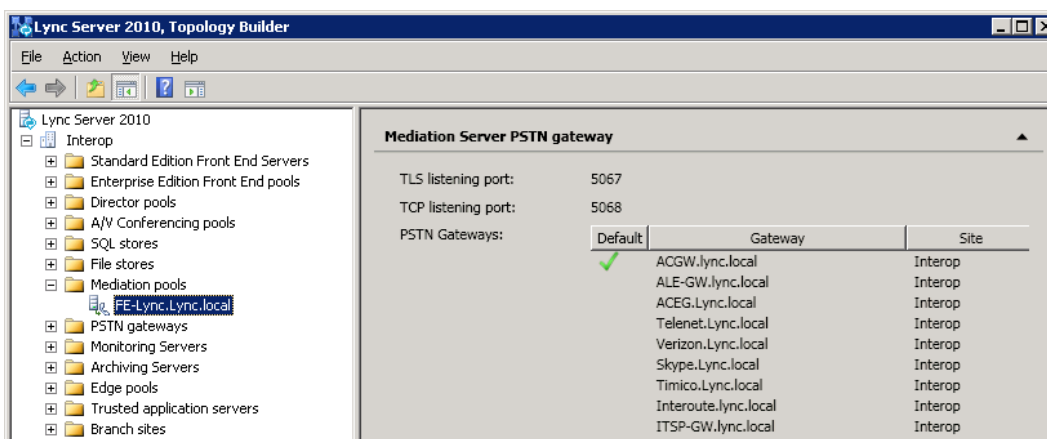
2. In the uppermost-left corner choose **PSTN gateway** and in the Mediation Server PSTN gateway pane, select the E-SBC gateway (i.e., 'ITSP-GW.lync.local') and click **Add** to associate it with this Mediation Server. Note that there are two sub-panes, one including a list of gateways not associated with the Mediation server and one including a list of gateways associated with the Mediation Server.

Figure 3-10: After Associating IP/PSTN Gateway with the Mediation Server



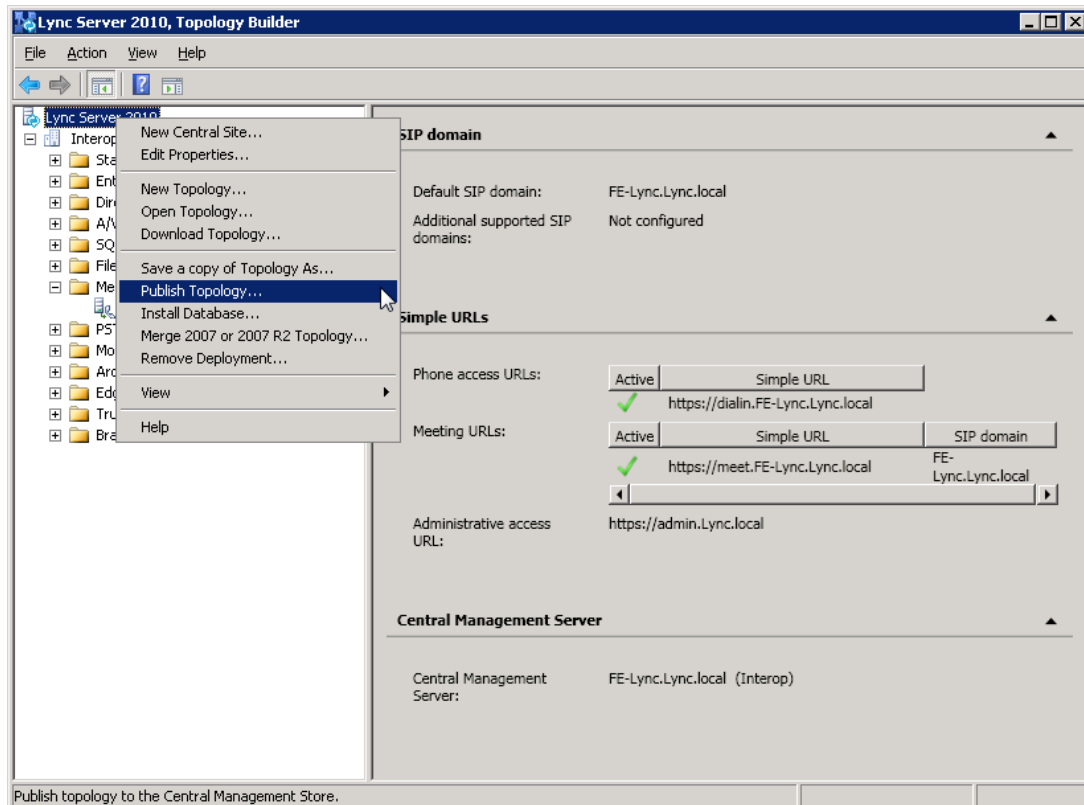
3. Click **OK**.

Figure 3-11: Media Server PSTN Gateway Association Properties



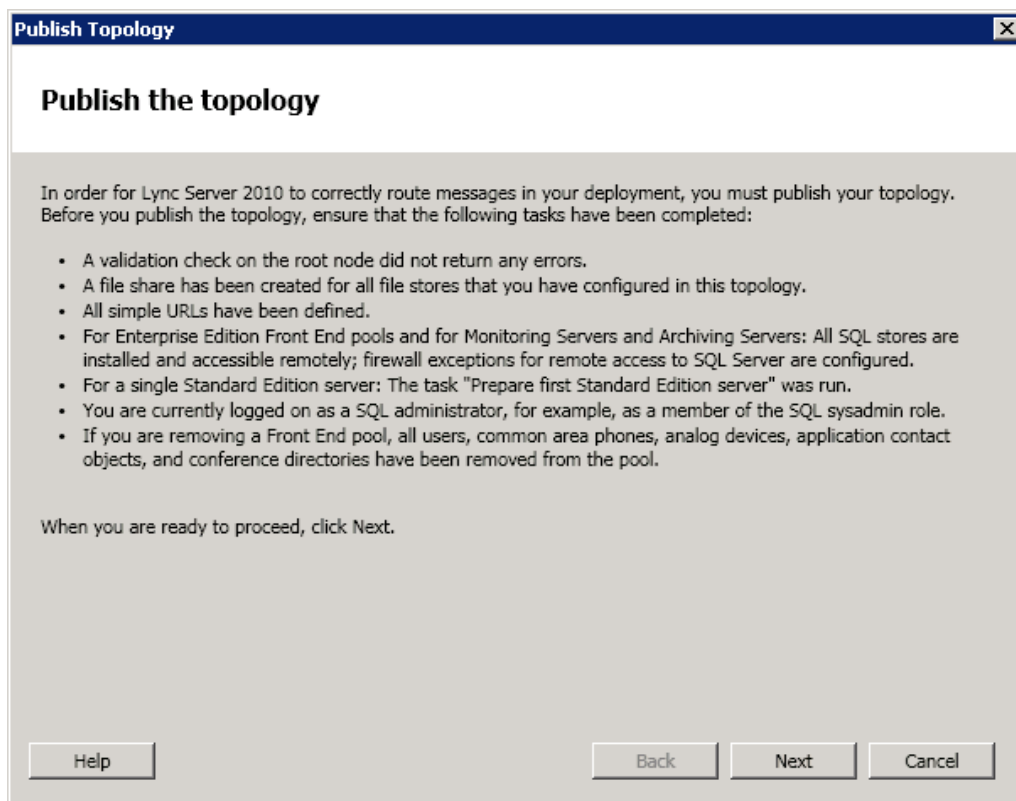
4. In the Lync Server main menu, choose **Action > Publish Topology**.

Figure 3-12: Publishing Topology



The Publish Topology screen is displayed.

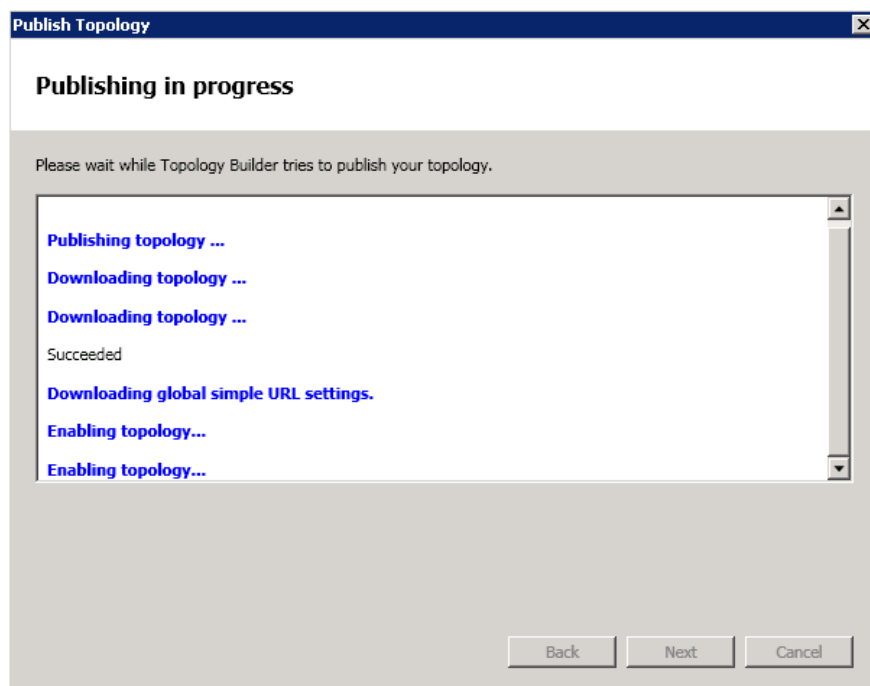
Figure 3-13: Publish Topology Confirmation



5. Click **Next**.

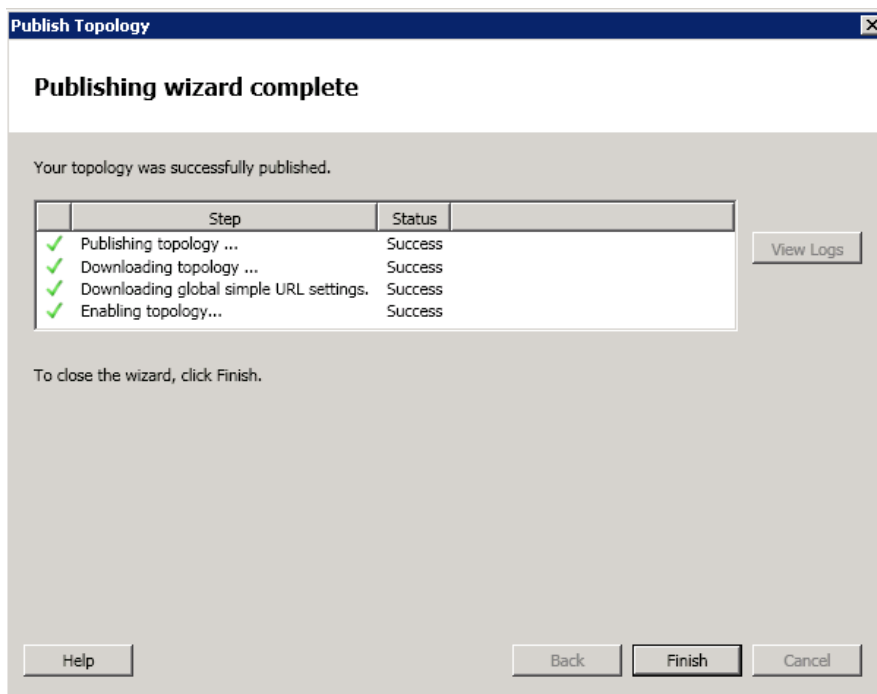
The Topology Builder attempts to publish your topology.

Figure 3-14: Publish Topology In-Progress



Wait until the process ends successfully:

Figure 3-15: Publish Topology Successfully Completed



6. Click **Finish**.

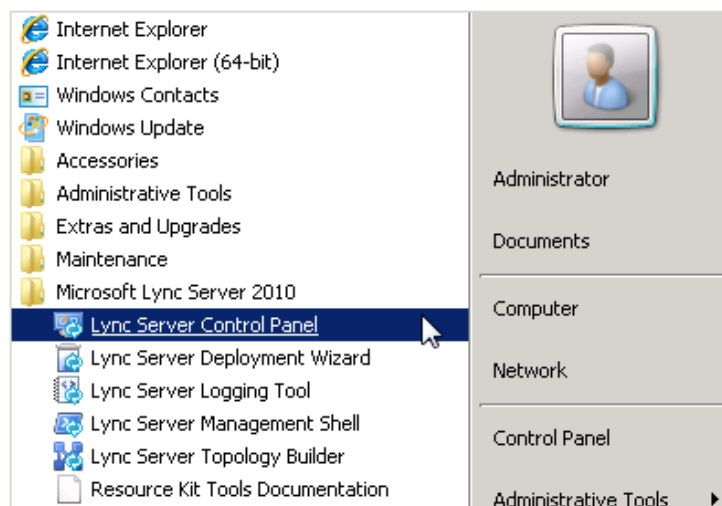
3.3 Configuring the 'Route' on the Lync Server 2010

This section shows how to configure a 'Route' on the Lync server and associate it with the E-SBC PSTN gateway.

➤ **To configure a 'route' on the Lync server:**

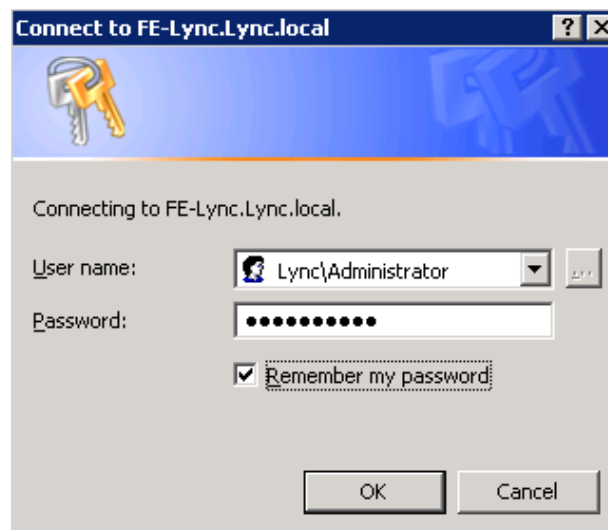
1. Open the Communication Server Control Panel (CSCP), click **Start**, select **All Programs**, and select **Lync Server Control Panel**.

Figure 3-16: Opening the Lync Server Control Panel

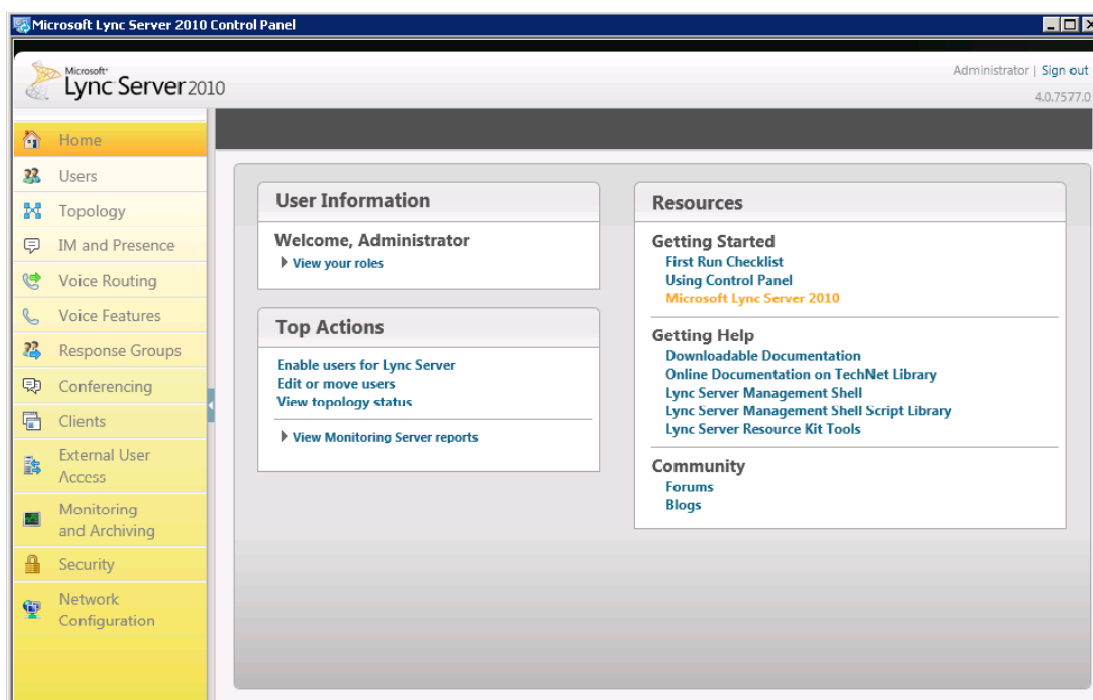


2. In the prompt for credentials, enter your domain username and password:

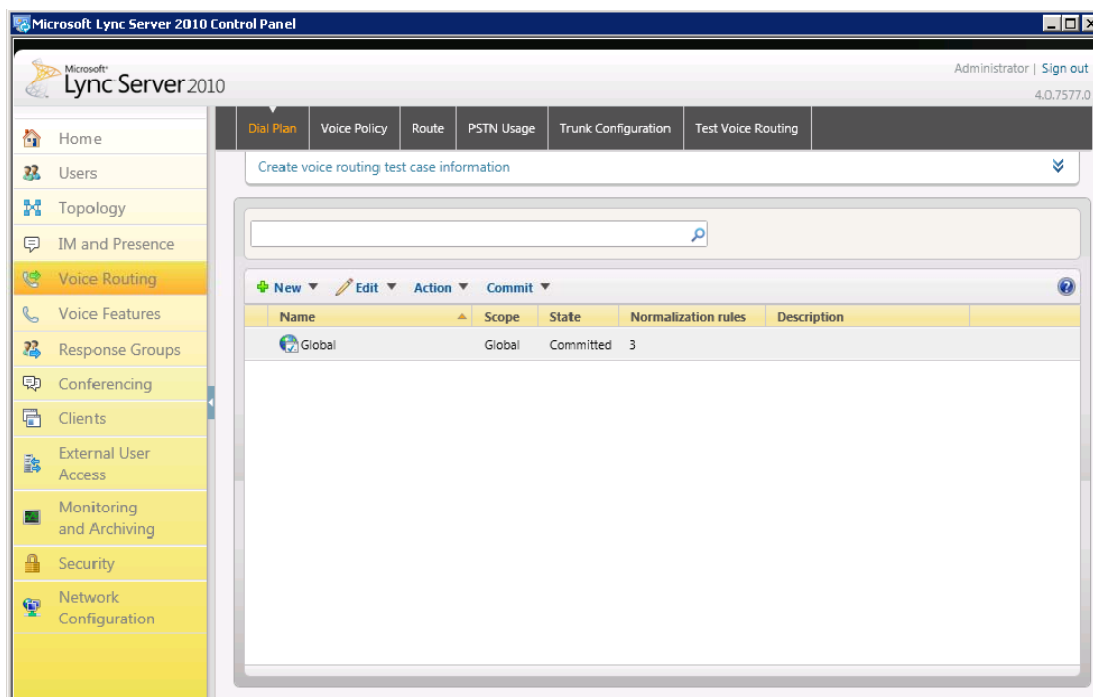
Figure 3-17: Lync Server Credentials



The CSCP Home page is displayed.

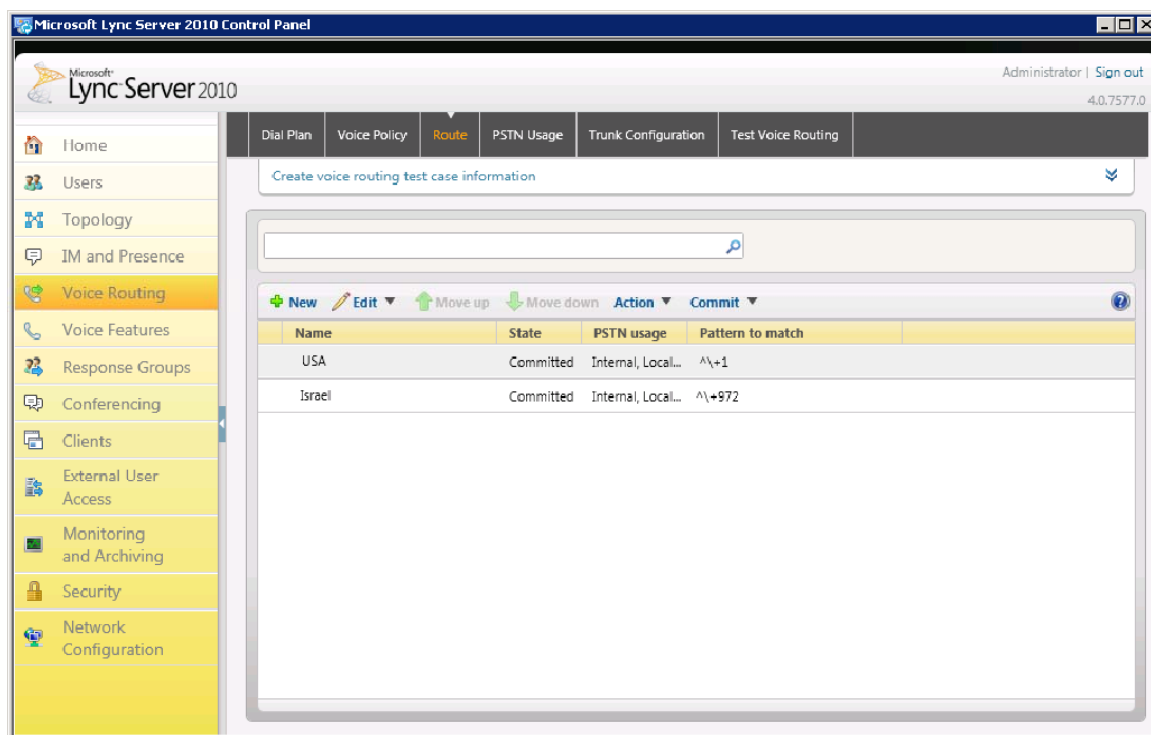
Figure 3-18: CSCP Home page


3. In the Navigation pane, select the **Voice Routing** menu.

Figure 3-19: Voice Routing Menu


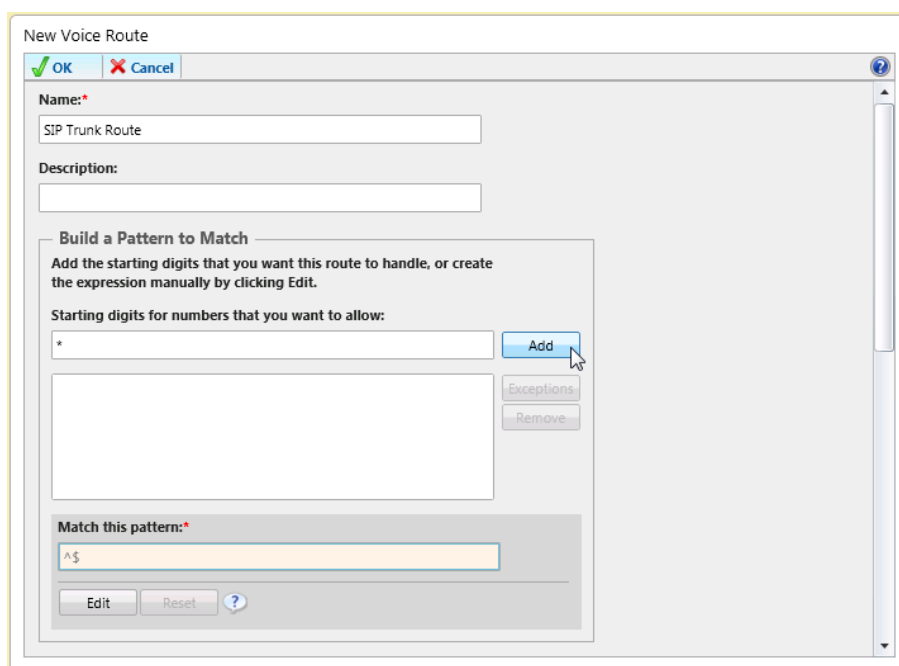
4. Select the **Route** tab:

Figure 3-20: Route Tab



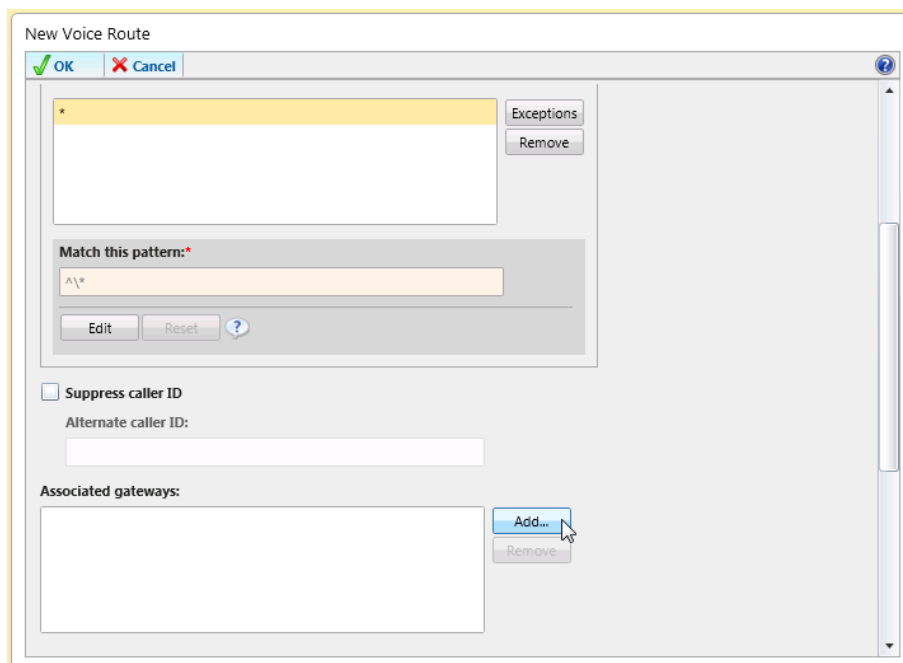
5. Click 
6. In the New Voice Route screen (see below), enter a Name for this route (i.e., SIP Trunk Route).
7. Under the Build a Pattern to Match screen section, add the starting digits you want this route to handle. In this example, the pattern to match is '*', which means 'to match all numbers'.
8. Click **Add**.

Figure 3-21: Adding New Voice Route



9. Associate the route with the E-SBC IP/PSTN gateway you created above; scroll down to the Associated Gateways pane and click **Add**.

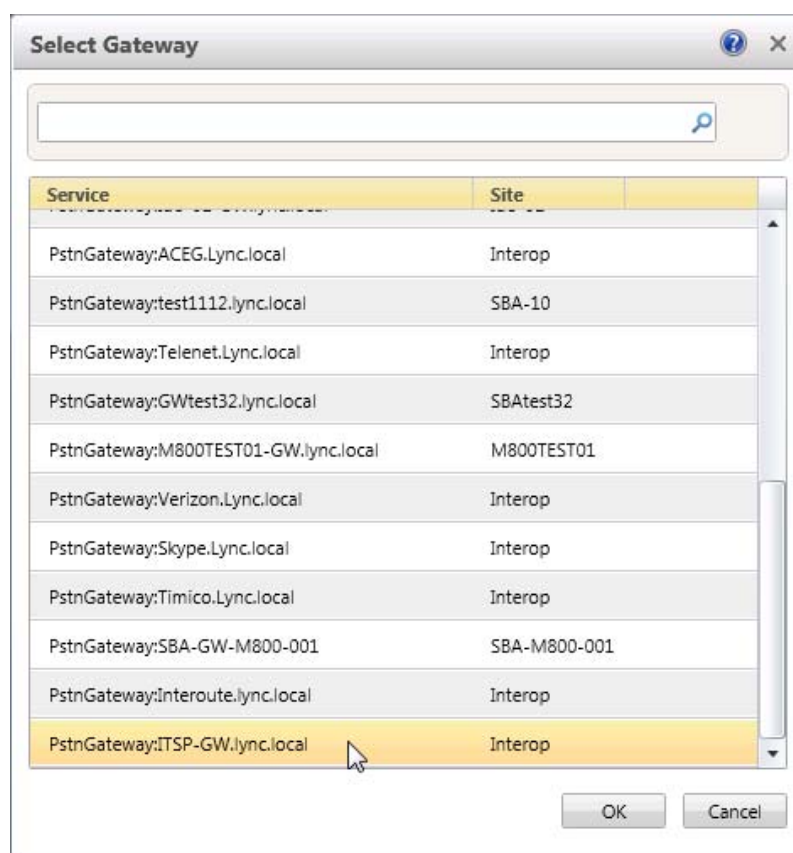
Figure 3-22: Adding New E-SBC Gateway



The 'New Voice Route' dialog box is shown. It has a title bar with 'OK' and 'Cancel' buttons. The main area contains a list of exceptions (currently empty), a 'Match this pattern:' field with a text input containing 'A*', and buttons for 'Edit', 'Reset', and a help icon. Below this is a checkbox for 'Suppress caller ID' and an 'Alternate caller ID:' text input. At the bottom, there is an 'Associated gateways:' list (currently empty) and buttons for 'Add...' and 'Remove'.

A list of all deployed Gateways is displayed:

Figure 3-23: List of Deployed Gateways



The 'Select Gateway' dialog box is shown. It has a title bar with a help icon and a close button. Below the title bar is a search bar. The main area is a table with two columns: 'Service' and 'Site'. The table contains the following data:

Service	Site
PstnGateway:ACEG.Lync.local	Interop
PstnGateway:test1112.lync.local	SBA-10
PstnGateway:Telenet.Lync.local	Interop
PstnGateway:GWtest32.lync.local	SBAtest32
PstnGateway:M800TEST01-GW.lync.local	M800TEST01
PstnGateway:Verizon.Lync.local	Interop
PstnGateway:Skype.Lync.local	Interop
PstnGateway:Timico.Lync.local	Interop
PstnGateway:SBA-GW-M800-001	SBA-M800-001
PstnGateway:Interoute.lync.local	Interop
PstnGateway:ITSP-GW.lync.local	Interop

The 'PstnGateway:ITSP-GW.lync.local' row is highlighted. At the bottom of the dialog are 'OK' and 'Cancel' buttons.

10. Select the E-SBC Gateway you created above and click **OK**.

Figure 3-24: Selecting the E-SBC Gateway

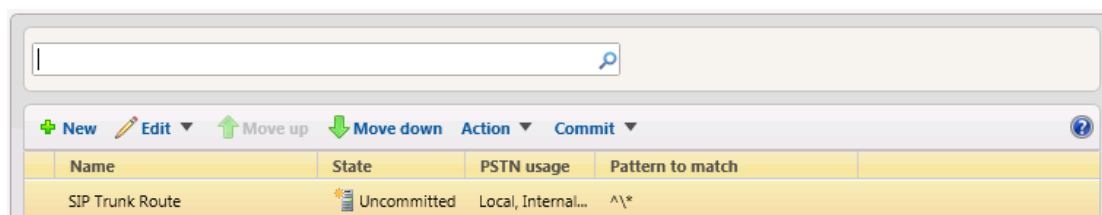
11. Associate a PSTN Usage with this route. In the Associated PSTN Usages toolbar, click **Select** and add the associated PSTN Usage.

Figure 3-25: Associating PSTN Usage with E-SBC Gateway

PSTN usage record	Associated voice policies
Long Distance	Global Interop
Internal	Global Interop

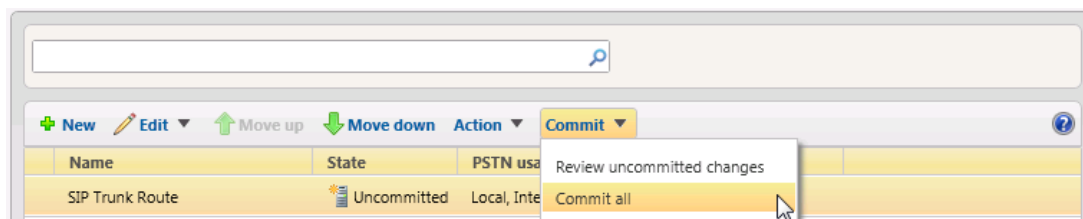
12. Click the **OK** button in the toolbar at the top of the New Voice Route pane. The New Voice Route (Uncommitted) is displayed.

Figure 3-26: Confirmation of New Voice Route



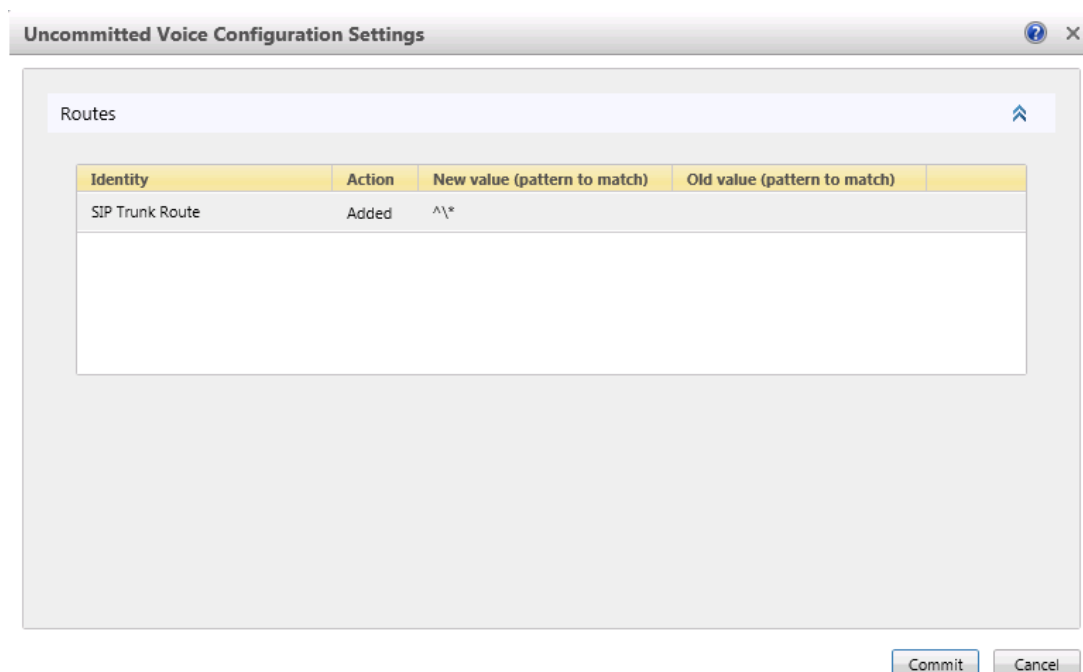
13. From the **Commit** drop-down menu select the **Commit All** option:

Figure 3-27: Committing Voice Routes

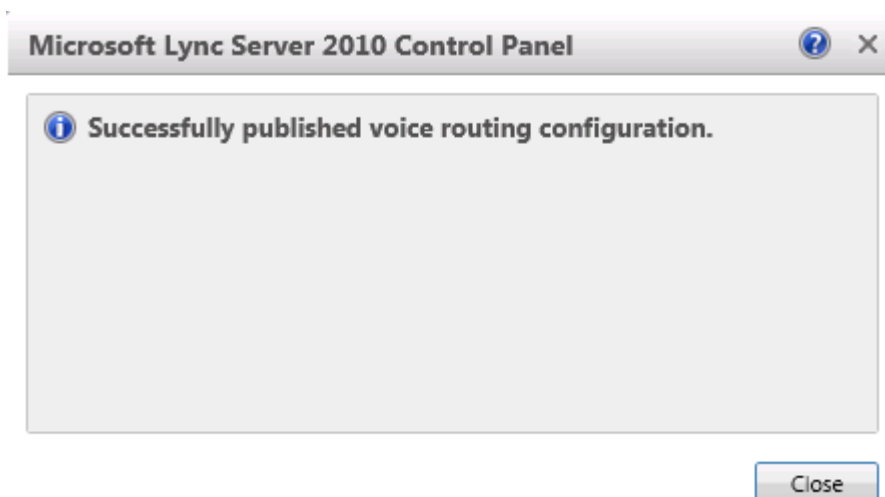


14. In the Uncommitted Voice Configuration Settings window, click **Commit**.

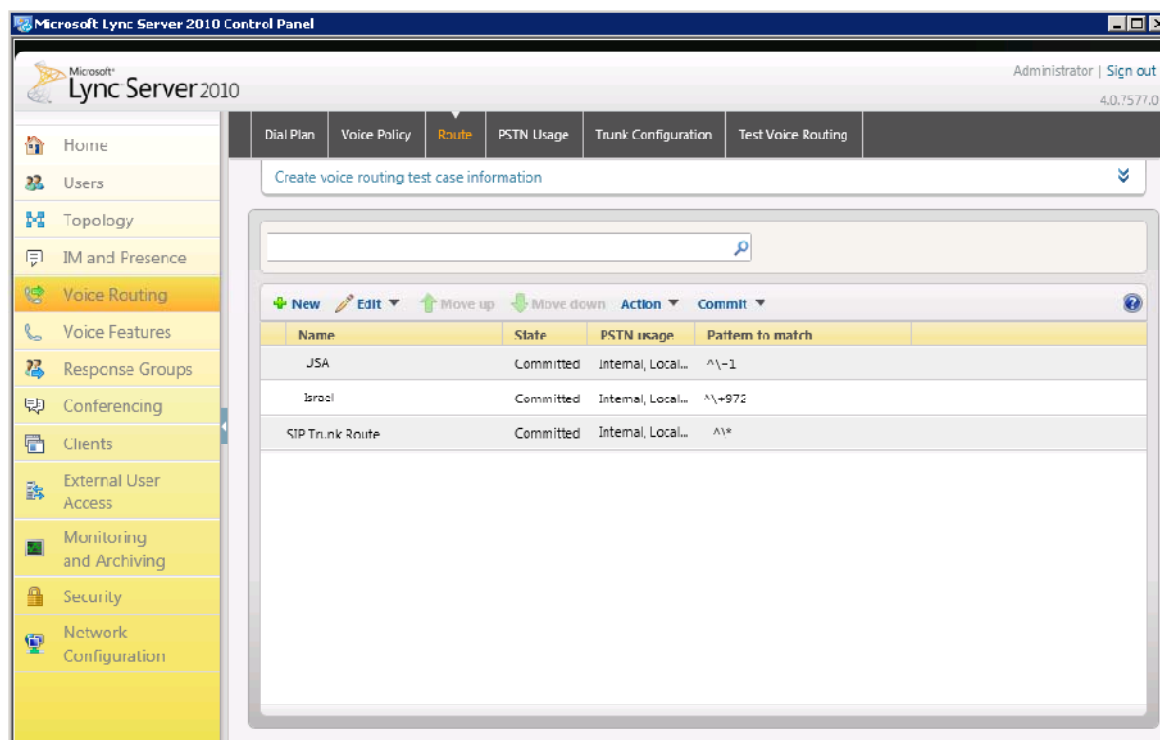
Figure 3-28: Uncommitted Voice Configuration Settings



15. A message is displayed confirming a successful voice routing configuration; in the **Microsoft Lync Server 2010 Control Panel** prompt, click **Close**.

Figure 3-29: Voice Routing Configuration Confirmation

The new committed Route is now displayed in the Voice Routing screen:

Figure 3-30: Voice Routing Screen Displaying Committed Routes

Reader's Notes

4 Configuring the E-SBC Device

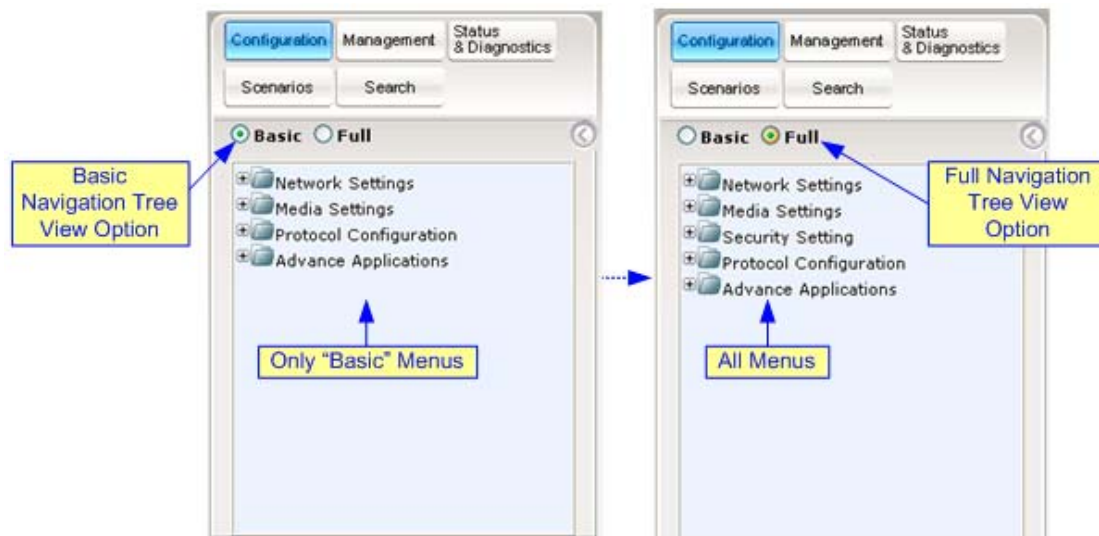
This section shows how to configure the E-SBC device in the ThinkTel SIP Trunking environment.

Configuration is performed using the E-SBC device's Web-based management tool (i.e., embedded Web server).

Displaying Navigation Tree in Full View

Before you begin configuring the E-SBC device, ensure that the Web interface's Navigation tree is in full menu display mode (i.e., the **Full** option on the Navigation bar is selected):

Figure 4-1: Basic and Full View Navigation Tree



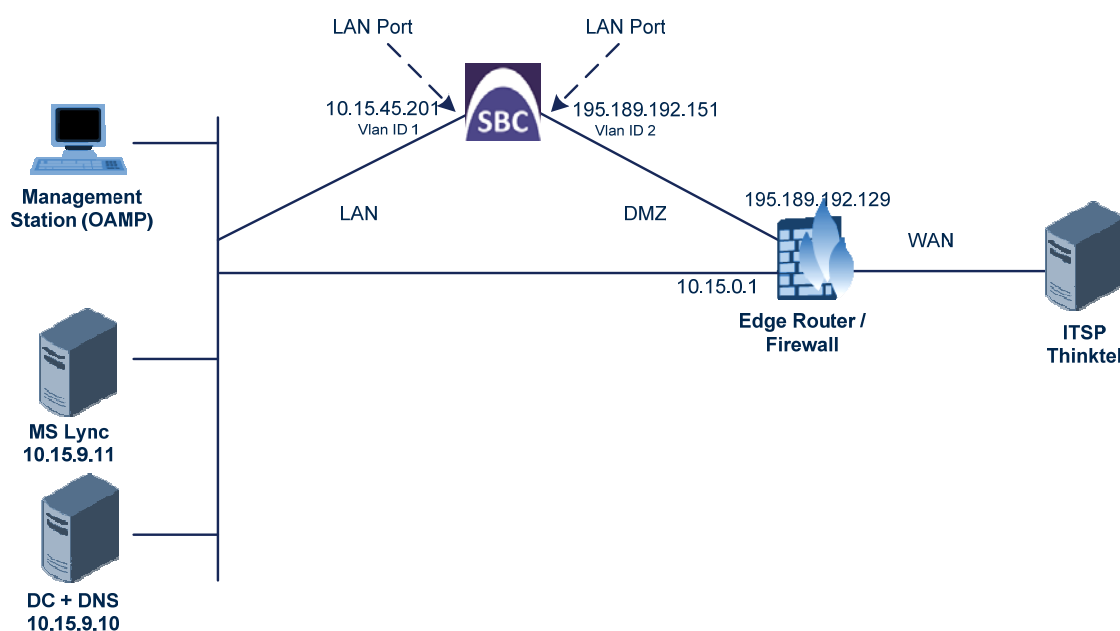
Note: After resetting the device, the Web GUI is displayed in Basic view.

4.1 Step 1: System Network Configuration

This step describes configuring the E-SBC device's Network Setting. There are several ways to deploy the E-SBC. This document covers only this scenario:

The E-SBC interfaces between enterprise users located in the LAN and the ThinkTel SIP Trunk located in the WAN. The connection between the E-SBC and the WAN is through a DMZ network.

Figure 4-2: Network Interfaces



4.1.1 Configure Network Interfaces

This section shows the typical physical LAN port connections of the E-SBC deployed in the enterprise. The type of physical LAN connection depends on the method used to connect to the enterprise's network.

In this example E-SBC connects to LAN and WAN using dedicated LAN ports (i.e., two ports and network cables) and with two logical network interfaces at the enterprise—one to the LAN (VLAN 1) and one to the WAN (VLAN 2).

The Multiple Interface Table page allows you to configure the IP addresses, DG, and VLANs for the device, one for each of the following interface names:

- LAN VoIP (Voice)
- WAN VoIP (WanSP)

➤ To configure the interface table:

1. Open the Multiple Interface Table page (**Configuration > Network Settings > IP Settings**).

Figure 4-3: Multiple Interface Table

Index	Application Type	Interface Mode	IP Address	Prefix Length	Gateway	VLAN ID	Interface Name	Primary DNS Server IP Address	Secondary DNS Server IP Address	Underlying Interface
0	OAMP + Media + Control	Pv4 Manual	10.15.45.201	16	10.15.0.1	1	Voice	10.15.9.10		GROUP_1
1	Media + Control	Pv4 Manual	195.189.192.151	16	195.189.192.129	2	WanSP	80.179.52.100	80.179.55.100	GROUP_2

2. Select the 'Index' radio button corresponding to the Application Type **OAMP + Media + Control** (i.e., LAN) and click **Edit**.

Set these parameters:

- **IP-Address:** <E-SBC IP-Address> (e.g., 10.15.45.201)
 - **Prefix Length:** <Subnet Mask in bits> (e.g., 16 for 255.255.0.0)
 - **Gateway:** <Gateway Default Gateway> (e.g., 10.15.0.1)
 - **VLAN ID:** < Vlan ID number> (e.g., 1)
 - **Interface Name:** <Internal Name> (i.e., Voice)
 - **Primary DNS Server IP Address:** <DNS IP-Address> (e.g., 10.15.9.10).
 - **Secondary DNS Server IP Address:** <DNS IP-Address>
 - **Underlying Interface:**<Group number> (e.g., GROUP_1)
3. Add another network interface (for the WAN side). Enter **1** and press 'Add Index'
 4. Set these parameters:
 - **Application Type: Media + Control**
 - **IP-Address:** <WAN IP-Address> (e.g., 195.189.192.151).
 - **Prefix Length:** <Subnet Mask in bits> (e.g., 16 for 255.255.0.0).
 - **Gateway:** < DG Router's IP Address> (e.g., 195.189.192.129).
 - **VLAN ID:** < Wan Vlan ID number> (e.g., 2)
 - **Interface Name:** <Wan Name> (e.g., **WanSP**)
 - **Primary DNS Server IP Address:** <DNS IP-Address> (e.g., 80.179.52.100).
 - **Secondary DNS Server IP Address:** <DNS IP-Addr> (e.g., 80.179.55.100).
 - **Underlying Interface:**<Group number> (e.g., **GROUP_2**)
 5. Click **Apply** and **Done**.

4.1.2 Set the Native VLAN ID

➤ **To configure the Ports table:**

1. Open the Physical Ports Settings page (**Configuration> VoIP > Network > Physical Ports Settings**).
2. In the GROUP_1 member ports set the 'Native Vlan' to **1** (that's assigned to network interface **Voice**).
3. In the GROUP_2 member ports set the 'Native Vlan' to **2** (that's assigned to network interface **WanSP**).

Figure 4-4: Ports Native VLAN

Index	Port	Mode	Native Vlan	Speed&Duplex	Description	Group Member	Group Status
1	GE_3_1	Enable	1	Auto Negotiation	User Port #0	GROUP_1	Active
2	GE_3_2	Enable	1	Auto Negotiation	User Port #1	GROUP_1	Redundant
3	GE_3_3	Enable	2	Auto Negotiation	User Port #2	GROUP_2	Active
4	GE_3_4	Enable	2	Auto Negotiation	User Port #3	GROUP_2	Redundant

4.2 Step 2: Enabling Application Mode

This step shows how to enable the SBC application mode.

➤ **To enable the application mode:**

1. Open the 'Applications Enabling' page (**Configuration** tab > **VoIP** menu > **Applications Enabling** > **Applications Enabling**).

Figure 4-5: Applications Enabling

⚡ SAS Application	Disable
⚡ SBC Application	Enable
⚡ IP to IP Application	Disable

2. Enable **SBC Application**.



Notes:

1. To enable SBC capabilities on the E-SBC, your device must be loaded with a Feature Key that includes the SBC feature.
2. The E-SBC device must be running SIP version 6.2 or later.
3. Reset with BURN to FLASH is required.

4.3 Step 3: Configuring Signaling Routing Domains

This step describes how to configure Signaling Routing Domain. A Signaling Routing Domain (SRD) is a set of definitions comprising IP interfaces, device resources, SIP behaviors and media realms. Together, these create virtual multi-service gateways from a single physical device. Once configured, the SRD can be assigned to an IP Group and to a Proxy Set

4.3.1 Configuring Media Realms

A Media Realm represents a set of ports, associated with an IP interface, that are used by the E-SBC to transmit or receive media (RTP or SRTP). Media Realms are associated with SRDs or IP Groups.

The simplest configuration is to create one Media Realm for internal traffic and another for external (internet-facing) traffic.

Figure 4-6: Media Realm Table

Media Realm Table			
Add	Media Realm Name	IPv4 Interface Name	IPv6 Interface Name
1	LanRealm	Voice	None
2	WanRealm	WanSP	None

Page 1 of 1 View 1 - 2 of 2

➤ **To configure an Internal Media Realm:**

1. Open the SIP Media Realm Table page (**Configuration > VoIP > Media > Media Realm Configuration**).
2. Click **Add**.
3. In the 'Index' field, enter **1**.
4. In the 'Media Realm Name' field, enter a name (e.g. **LanRealm**).
5. In the 'IPv4 Interface Name' field, select interface name **Voice**.
6. In the 'Port Range Start' field, enter a number that represents the lowest UDP port number that will be used for media in the LAN (e.g., **6000**).
7. In the 'Number of Media Session Legs' field, define the number of media sessions that are assigned with the port range (e.g., **10**).

Figure 4-7: Internal Media Realm Configuration

Edit Record

Index

1

Media Realm Name

LanRealm

IPv4 Interface Name

Voice

IPv6 Interface Name

None

Port Range Start

6000

Number Of Media Session Legs

10

Port Range End

6090

Trans Rate Ratio

0

Is Default

Yes

Submit

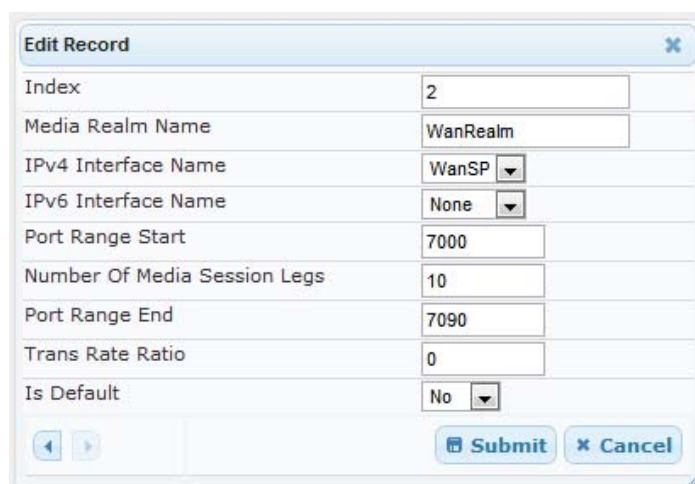
Cancel

8. Click **Submit**.

➤ **To configure an External Media Realm:**

1. Open the SIP Media Realm Table page (**Configuration > VoIP > Media > Media Realm Configuration**).
2. Click **Add**.
3. In the 'Index' field, enter **2**.
4. In the 'Media Realm Name' field, enter a name (e.g., **WanRealm**).
5. In the 'IPv4 Interface Name' field, select interface name **WanSP**.
6. In the 'Port Range Start' field, enter a number that represents the lowest UDP port number that will be used for media in the WAN (e.g., **7000**).
7. In the 'Number of Media Session Legs' field, define the number of media sessions that are assigned with the port range (e.g., **10**).

Figure 4-8: External Media Realm Configuration



Edit Record	
Index	2
Media Realm Name	WanRealm
IPv4 Interface Name	WanSP
IPv6 Interface Name	None
Port Range Start	7000
Number Of Media Session Legs	10
Port Range End	7090
Trans Rate Ratio	0
Is Default	No
Submit Cancel	

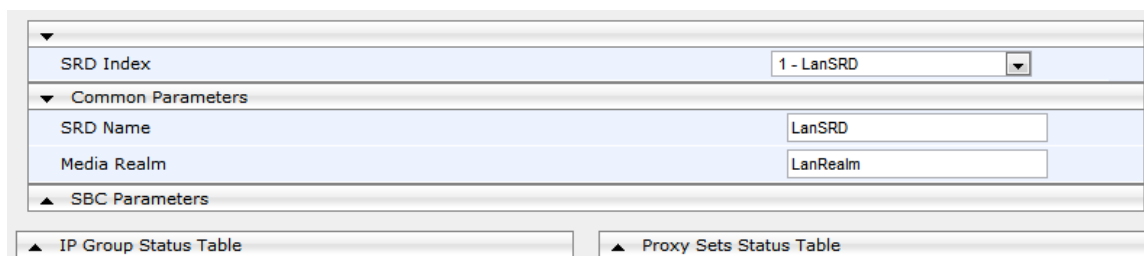
8. Click **Submit**.

4.3.2 Configuring SRDs

➤ **To configure an Internal SRD:**

1. Open the SRD Table page (**Configuration > VoIP > Control Network > SRD Table**).
2. Add an entry with index **1** to the SRD table. This will represent the SBC's internal interface (towards the Lync Server).
3. Assign descriptive name to the interface entry (e.g., **LanSRD**).
4. Enter the 'Media Realm' field value (e.g., **LanRealm**).

Figure 4-9: Internal SRD Configuration



SRD Index	1 - LanSRD
Common Parameters	
SRD Name	LanSRD
Media Realm	LanRealm
SBC Parameters	
IP Group Status Table	Proxy Sets Status Table

5. Click **Submit**.

➤ **To configure an External SRD:**

1. Open the SRD Table page (**Configuration > VoIP > Control Network > SRD Table**).
2. Add an entry with index **2** to the SRD table. This will represent the SBC's External interface (towards the ThinkTel SIP Trunk).
3. Assign a descriptive name to the interface entry (e.g., **WanSRD**).
4. Enter the 'Media Realm' field value (e.g., **WanRealm**).

Figure 4-10: External SRD Configuration

5. Click **Submit**.

4.3.3 Configuring SIP Signaling Interfaces

The SIP Signaling Interface represents a combination of ports (UDP, TCP and TLS) associated with a specific IP address. It allows other SIP nodes on the network to communicate with a specific SRD, using the SIP Interface associated with it.

Specify internal and external SIP interfaces for the device:

Figure 11: SIP Interface - Required Configuration

1	Add						
Index	Network Interface	Application Type	UDP Port	TCP Port	TLS Port	SRD	Message Policy
1	Voice	SBC	5060	5060	5067	1	None
2	WanSP	SBC	5060	5060	5067	2	None

➤ **To configure Internal SIP Signaling Interfaces:**

1. Open the SIP Interface Table page (**Configuration > VoIP > Control Network > SIP Interface Table**).
2. Create a new row; enter **1** and click **Add**.
3. In the 'Network Interface' field, enter the name **Voice**.
4. From the 'Application Type' drop-down list, select **SBC**.
5. Set 'TLS Port' to **5067**.
6. Set the 'SRD' field value to **1**.
7. Click **Apply**.

➤ **To configure External SIP Signaling Interfaces:**

1. Open the SIP Interface Table page (**Configuration > VoIP > Control Network > SIP Interface Table**).
2. Create a new row; enter **2** and click **Add**.
3. In the 'Network Interface' field, enter the name **WanSP**.
4. From the 'Application Type' drop-down list, select **SBC**.
5. Verify the 'UDP Port' is **5060**.
6. Set the 'SRD' field value to **2**.
7. Click **Apply**.

4.4 Step 4: Configuring Proxy Sets Tables

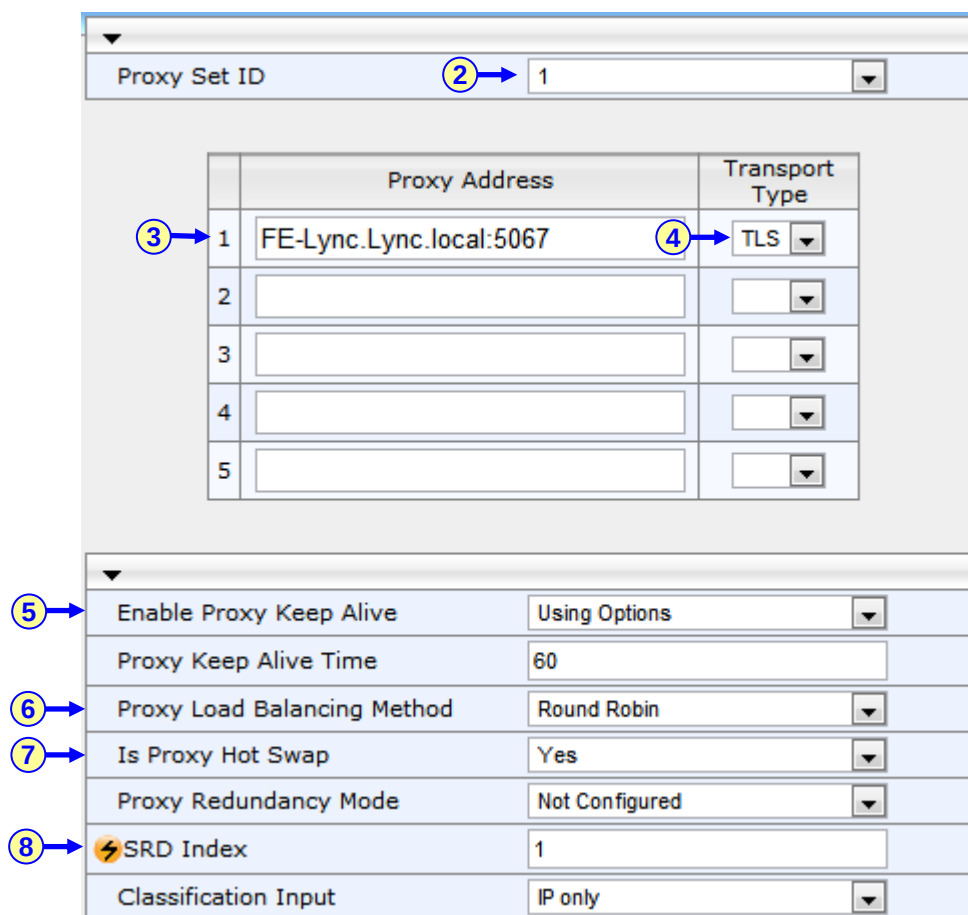
This step describes how to configure the proxy set tables. Proxy Set is a group of Proxy servers defined by IP address or fully qualified domain name (FQDN). You need to configure two proxy sets, one for the ThinkTel SIP trunk and the other for the Microsoft Lync server.

These Proxy sets will be associated later with IP Groups.

➤ **To configure Proxy Set Table 1 for Microsoft Lync:**

1. Open the Proxy Sets Table page (**Configuration** tab > **VoIP** menu > **Control Network**> **Proxy Sets Table**).

Figure 4-12: Proxy Sets Table 1



	Proxy Address	Transport Type
1	FE-Lync.Lync.local:5067	TLS
2		
3		
4		
5		

Enable Proxy Keep Alive	Using Options
Proxy Keep Alive Time	60
Proxy Load Balancing Method	Round Robin
Is Proxy Hot Swap	Yes
Proxy Redundancy Mode	Not Configured
SRD Index	1
Classification Input	IP only

2. Set Proxy Set ID to **1**.
3. Configure Microsoft Lync Server SIP Trunking IP-Address or FQDN and Destination Port (e.g., **FE-Lync.Lync.local:5067**).
4. Set 'Transport Type' to **TLS**.
5. Set 'Enable Proxy Keep Alive' to **Using Options**.
6. Set 'Proxy Load Balancing Method' to **Round Robin**.
7. Set 'Is Proxy Hot Swap' to **Yes**.
8. Set 'SRD Index' to **1**.

➤ **To configure Proxy Set Table 2 for ThinkTel SIP Trunk:**

1. Open the Proxy Sets Table page (**Configuration** tab > **VoIP** menu > **Control Network**> **Proxy Sets Table**).

Figure 4-13: Proxy Sets Table 2

Proxy Set ID: 2

	Proxy Address	Transport Type
1	208.68.17.52:5060	UDP
2		
3		
4		
5		

Enable Proxy Keep Alive: Disable
 Proxy Keep Alive Time: 60
 Proxy Load Balancing Method: Disable
 Is Proxy Hot Swap: No
 Proxy Redundancy Mode: Not Configured
 SRD Index: 2
 Classification Input: IP only

2. Set 'Proxy Set ID' to 2.
3. Configure ThinkTel IP-Address or FQDN and Destination Port (e.g., **208.68.17.52:5060**).
4. Set 'Transport Type' to **UDP**.
5. Set 'SRD Index' to **2** (this allows classification by Proxy Set for this SRD ID in the IP Group pertaining to the ThinkTel SIP Trunk).

4.5 Step 5: Configuring IP Group Tables

This step shows how to create IP groups. Each IP group represents a SIP entity in the gateway's network. You need to create IP groups for the following entities:

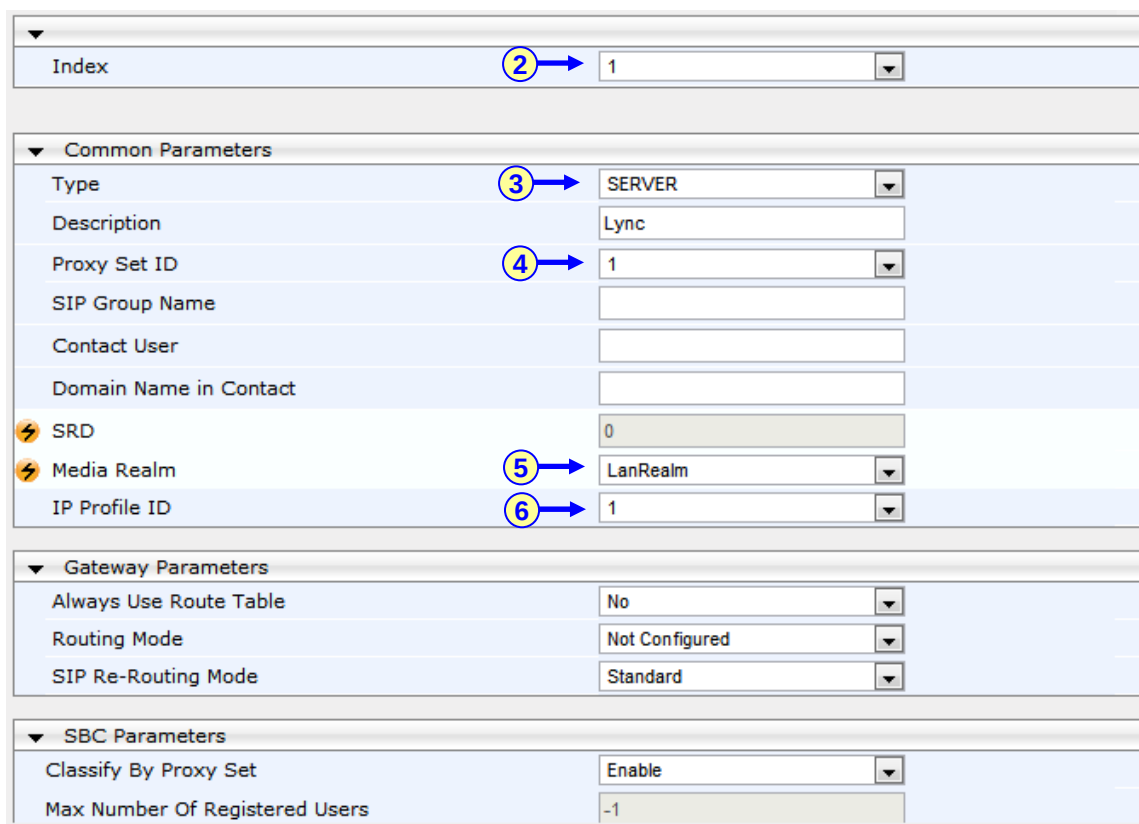
- Lync Server 2010 – Mediation Server
- ThinkTel SIP Trunk

These IP groups are later used by the SBC application for routing calls.

➤ To configure IP Group Table 1:

1. Open the IP Group Table page (**Configuration** tab > **VoIP** menu > **Control Network**> **IP Group Table**).

Figure 4-14: IP Group Table 1



Index		2 → 1
Common Parameters		
Type	3 →	SERVER
Description		Lync
Proxy Set ID	4 →	1
SIP Group Name		
Contact User		
Domain Name in Contact		
SRD		0
Media Realm	5 →	LanRealm
IP Profile ID	6 →	1
Gateway Parameters		
Always Use Route Table		No
Routing Mode		Not Configured
SIP Re-Routing Mode		Standard
SBC Parameters		
Classify By Proxy Set		Enable
Max Number Of Registered Users		-1

2. Add a new entry with index **1** (to represent the internal SIP peer).
3. From the 'Type' drop-down list, select **SERVER**.
4. In the 'Description' field, add a name that will help to identify this as the external group (e.g., Lync).
5. From the 'Proxy Set ID' drop-down list, select **1** (to associate this IP Group with Proxy Set 1).
6. From the 'Media Realm' drop-down list, select **LanRealm** (to associate this IP Group with the LAN Media Realm).
7. Set 'IP Profile ID' to **1**.

➤ **To configure IP Group Table 2:**

1. Open the 'IP Group Table' page (**Configuration** tab > **VoIP** menu > **Control Network**> **IP Group Table**).

Figure 4-15: IP Group Table 2

▼	
Index	2
▼ Common Parameters	
Type	SERVER
Description	ThinkTel
Proxy Set ID	2
SIP Group Name	208.68.17.52
Contact User	
Domain Name in Contact	
SRD	0
Media Realm	WanRealm
IP Profile ID	2
▼ Gateway Parameters	
Always Use Route Table	No
Routing Mode	Not Configured
SIP Re-Routing Mode	Standard
▼ SBC Parameters	
Classify By Proxy Set	Enable
Max Number Of Registered Users	-1

2. Add a new entry with index **2** (to represent the external SIP peer).
3. From the 'Type' drop-down list, select **SERVER**.
4. In the 'Description' field, add a name that will help to identify this as the external group (e.g., ThinkTel).
5. From the 'Proxy Set ID' drop-down list, select **2** (to associate this IP Group with Proxy Set 2).
6. Set 'SIP Group Name' to **207.245.2.12**; this IP Address will be used in the INVITE messages to ThinkTel IP Group.
7. From the 'Media Realm' drop-down list, select **WanRealm** (to associate this IP Group with the WAN Media Realm).
8. Set 'IP Profile ID' to **2**

4.6 Step 6: Configuring IP Profile

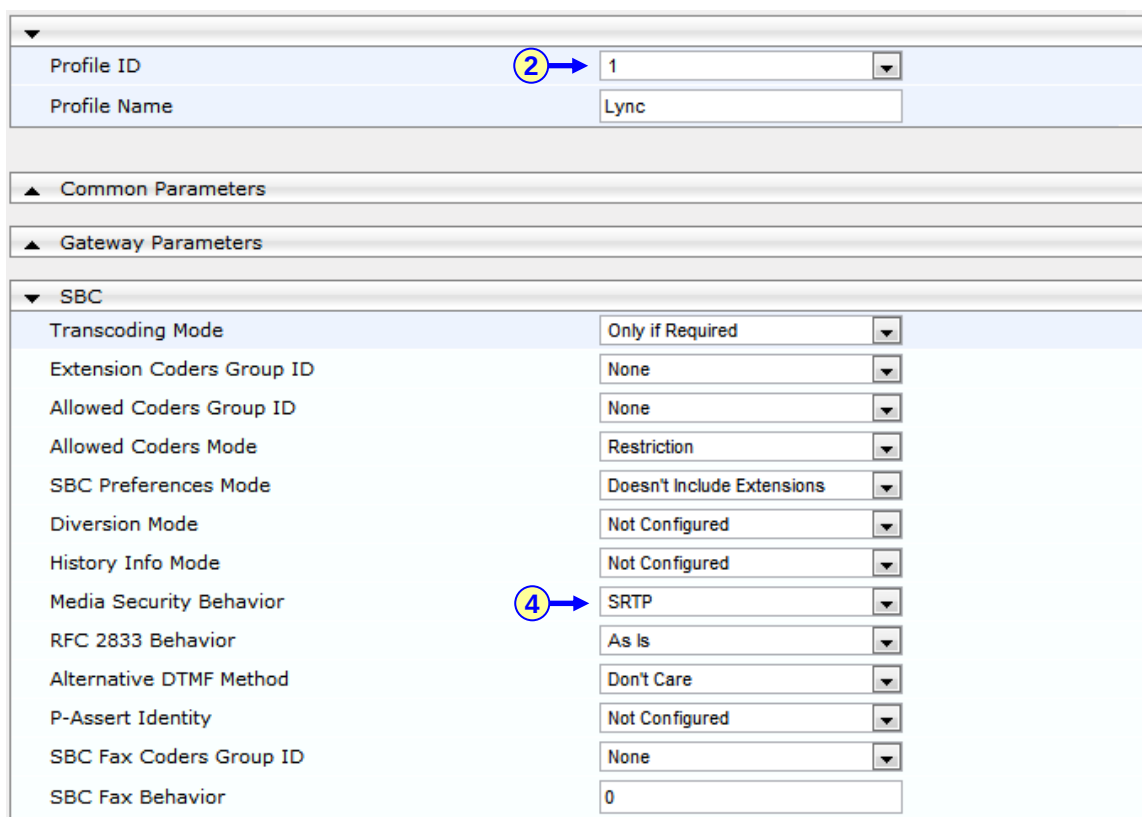
This step shows how to configure the IP Profile. In this configuration, the IP Profile is used to configure the SRTP/TLS mode and other parameters that differ between each profile.

You need to configure Microsoft Lync to work in secure mode (SRTP/TLS); the ThinkTel SIP trunk is configured in non-secure mode RTP/UDP.

➤ **To configure IP Profile for Microsoft Lync:**

1. Open the IP Profile Settings page (**Configuration** tab > **VoIP** menu > **Coders And Profiles** > **IP Profile Settings**).

Figure 4-16: IP Profile Settings



Profile ID	1
Profile Name	Lync
Common Parameters	
Gateway Parameters	
SBC	
Transcoding Mode	Only if Required
Extension Coders Group ID	None
Allowed Coders Group ID	None
Allowed Coders Mode	Restriction
SBC Preferences Mode	Doesn't Include Extensions
Diversion Mode	Not Configured
History Info Mode	Not Configured
Media Security Behavior	SRTP
RFC 2833 Behavior	As Is
Alternative DTMF Method	Don't Care
P-Assert Identity	Not Configured
SBC Fax Coders Group ID	None
SBC Fax Behavior	0

2. Select **Profile ID 1**.
3. From the 'Media Security Behavior' drop-down list, select **SRTP**.
4. Click **Submit**.

➤ **To configure IP Profile for ThinkTel SIP Trunk:**

1. Open the IP Profile Settings page (**Configuration** tab > **VoIP** menu > **Coders And Profiles** > **IP Profile Settings**).

Figure 4-17: IP Profile Settings

Profile ID	2
Profile Name	ThinkTel
Common Parameters	
Gateway Parameters	
SBC	
Transcoding Mode	Only if Required
Extension Coders Group ID	None
Allowed Coders Group ID	None
Allowed Coders Mode	Restriction
SBC Preferences Mode	Doesn't Include Extensions
Diversion Mode	Not Configured
History Info Mode	Not Configured
Media Security Behavior	RTP
RFC 2833 Behavior	As Is
Alternative DTMF Method	Don't Care
P-Assert Identity	Not Configured
SBC Fax Coders Group ID	None
SBC Fax Behavior	0

2. Select Profile ID 2.
3. From the 'Media Security Behavior' drop-down list, select **RTP**.
4. Click **Submit**.

4.7 Step 7: Configuring SIP TLS Connection

This step shows how to configure AudioCodes devices for a TLS connection with the Microsoft Lync Mediation server. This is essential for a secure SIP TLS connection.

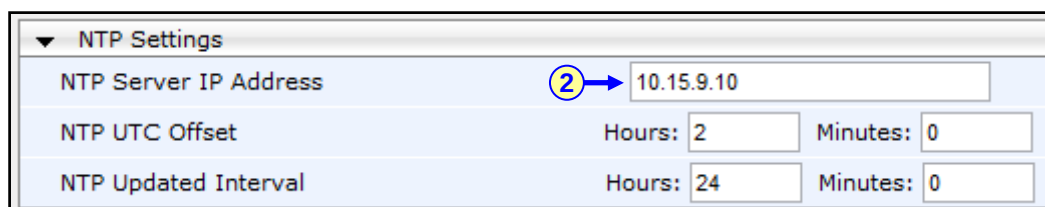
4.7.1 Step 7-1: Configuring NTP Server

This step shows how to configure the NTP Server IP address. It is recommended to implement a 3rd party NTP server so that the E-SBC device receives the accurate current date and time. This is necessary for validation of remote parties' certificates.

➤ **To configure NTP Settings:**

1. Open the Application Settings page (**Configuration** tab > **System** menu > **Application Settings**).

Figure 4-18: NTP Settings



NTP Settings		
NTP Server IP Address	10.15.9.10	
NTP UTC Offset	Hours: 2	Minutes: 0
NTP Updated Interval	Hours: 24	Minutes: 0

2. Set the **NTP Server IP Address** to <NTP Server IP-Address> (e.g., 10.15.9.10).

4.7.2 Step 7-2: Configuring a Certificate

This step shows how to exchange a certificate with the Microsoft Certificate Authority. The certificate is used by the E-SBC device to authenticate the connection with the management PC (the PC used to manage the E-SBC using the embedded Web server).

➤ **To configure a certificate:**

1. Open the Certificates page (**Configuration** tab > **System** menu > **Certificates**).

Figure 4-19: Certificates Page

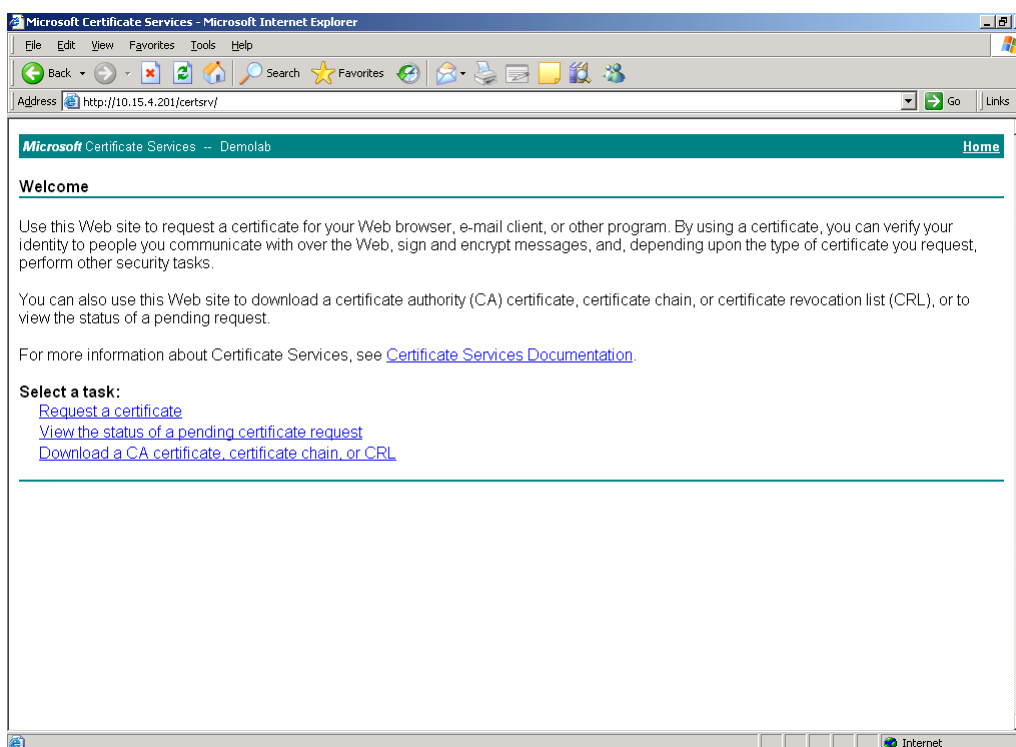
The screenshot displays the 'Certificates' page with two main sections:

- Certificate information:** A table showing details for an existing certificate:

Certificate subject:	/CN=ITSP-GW.Lync.local
Certificate issuer:	/DC=local/DC=Lync/CN=Lync-DC-LYNC-CA
Time to expiration:	739 days
Key size:	2048 bits
- Certificate Signing Request:** A form for creating a new CSR.
 - The **Subject Name [CN]** field is pre-filled with 'ITSP-GW.Lync.local' and is highlighted with a blue circle and arrow labeled '2'.
 - Other fields (Organizational Unit [OU], Company name [O], Locality or city name [L], State [ST], Country code [C]) are optional and currently empty.
 - A **Create CSR** button is located below the form, highlighted with a blue circle and arrow labeled '3'.
 - Below the button, a text instruction states: 'After creating the CSR, copy the text below (including the BEGIN/END lines) and send it to your Certification Authority for signing.'
 - A large text area contains the generated CSR text, starting with '-----BEGIN CERTIFICATE REQUEST-----' and ending with '-----END CERTIFICATE REQUEST-----'. This area is highlighted with a blue circle and arrow labeled '4'.

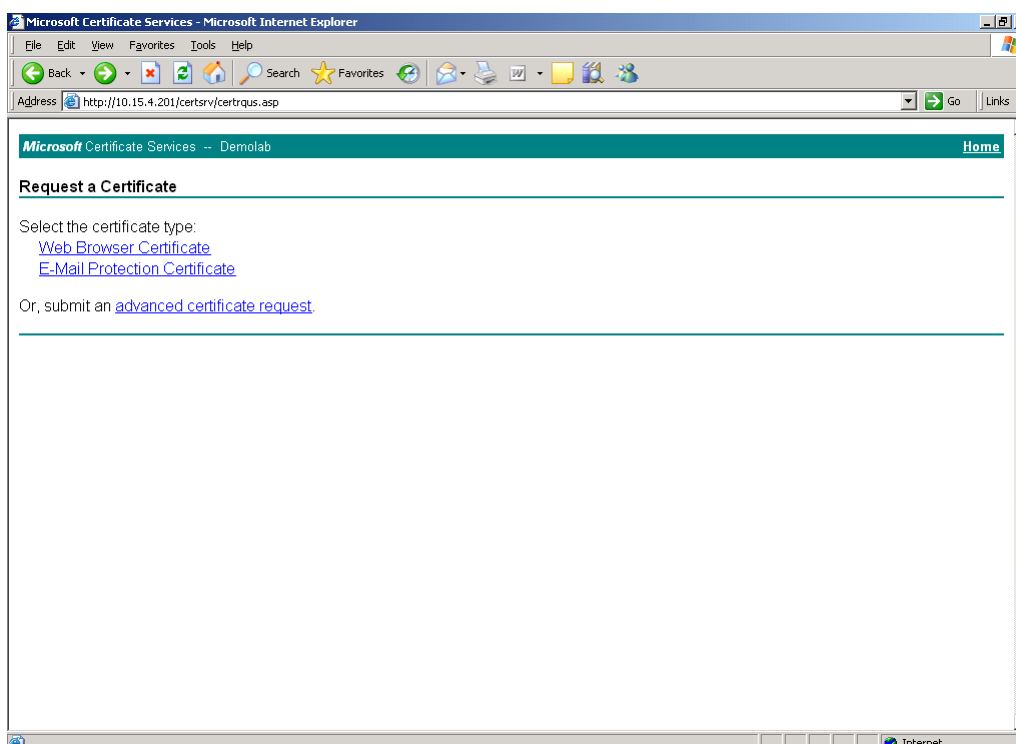
2. In the 'Subject Name' field, enter the device name (i.e., **ITSP-GW.Lync.local**) – it must be identical to the name configured in the Topology Builder in MS Lync Server, (see under Section 3.1 on page 13).
3. Click **Generate CSR**; a Certificate request is generated.
4. Copy the CSR (from the line ----BEGIN CERTIFICATE to END CERTIFICATE REQUEST----) to a text file (such as Notepad) and save it to a folder on your PC as *certreq.txt*.
5. Navigate to the certificate 'Server http://<Certificate Server>/CertSrv'.

Figure 4-20: Microsoft Certificate Services Web Page



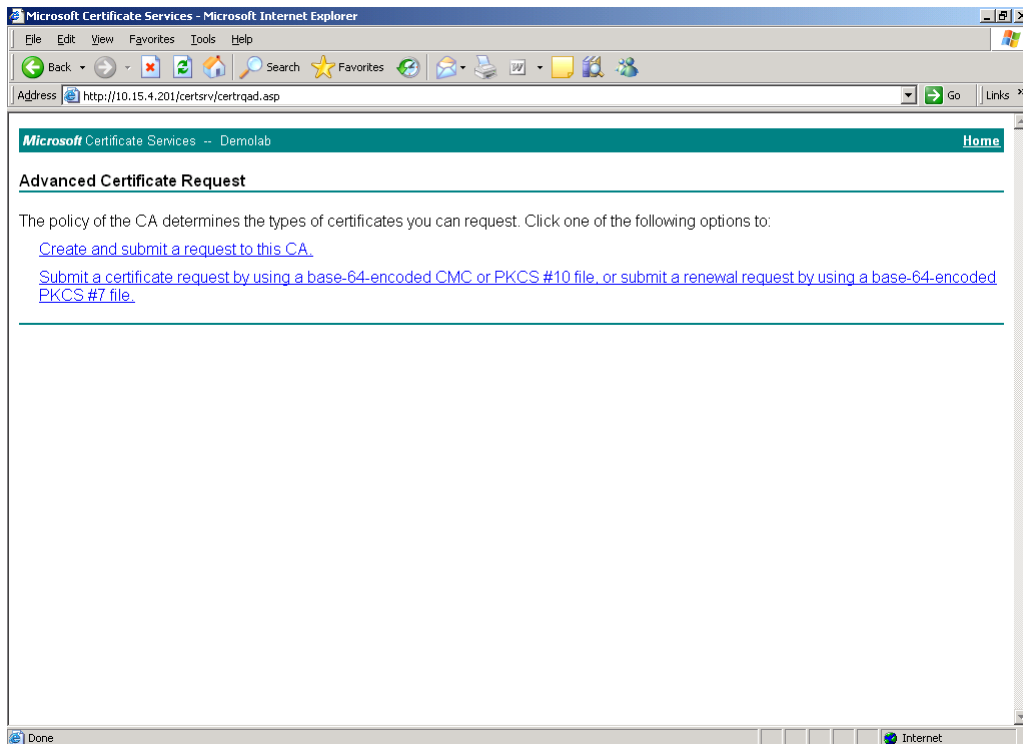
6. Click the link **Request a Certificate**.

Figure 4-21: Request a Certificate Page



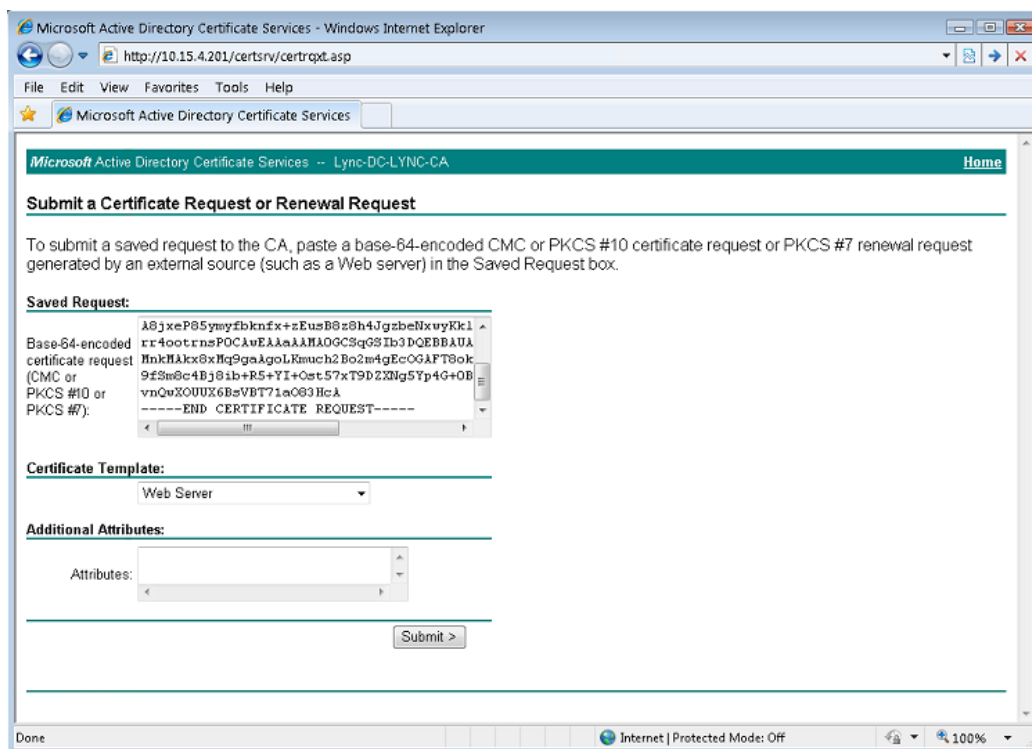
7. Click the link **Advanced Certificate Request** and click **Next**.

Figure 4-22: Advanced Certificate Request Page



8. Click the link **Submit a Certificate request by using base64 encoded...** and click **Next**.

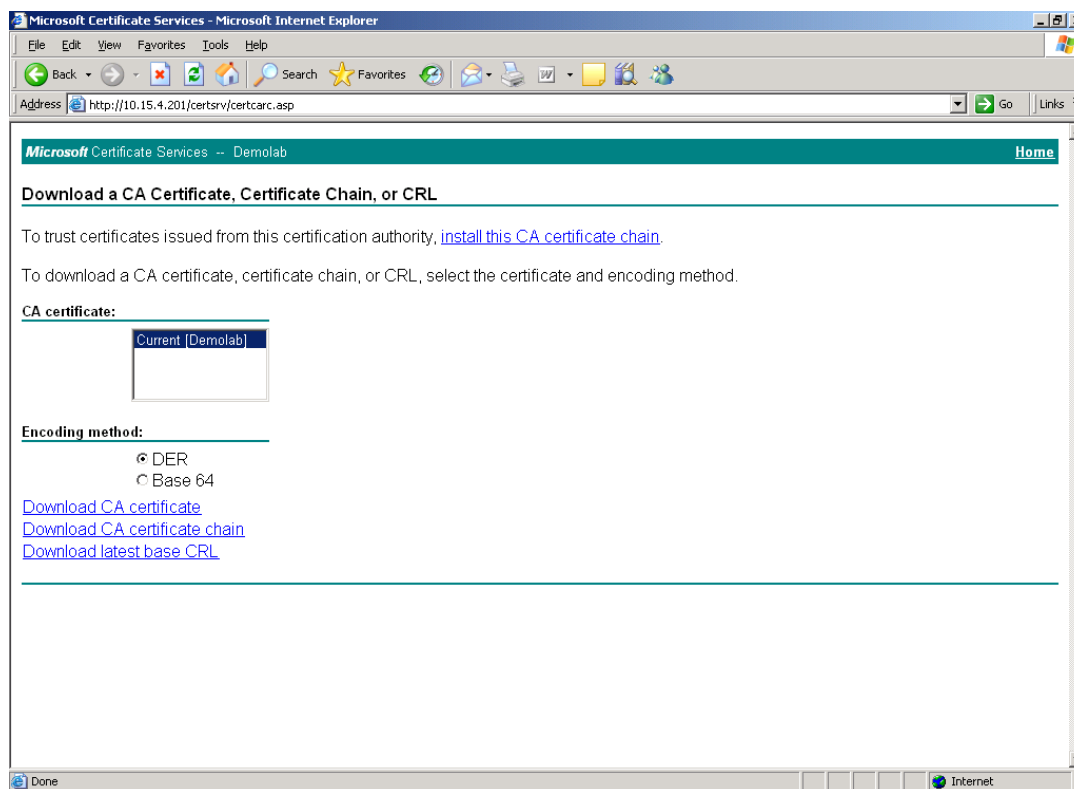
Figure 4-23: Submit a Certificate Request or Renewal Request Page



9. Open the *certreq.txt* file that you created and saved (see Step 4) and copy its contents to the 'Base64 Encoded Certificate Request' pane.
10. Select 'Web Server' from the **Certificate Template** drop-down.

11. Click **Submit**.
12. Choose the 'Base 64' encoding option and click the link **Download CA certificate**.
13. Save the file as 'gateway.cer' in a folder on your PC.
14. Navigate to the certificate Server <http://<Certificate Server>/CertSrv>.
15. Click the link **Download a CA Certificate, Certificate Chain or CRL**.

Figure 4-24: Download a CA Certificate, Certificate Chain, or CRL Page



16. Under **Encoding method**, do the following:
17. Select the 'Base 64' encoding method option.
18. Click the link **Download CA certificate**.
19. Save the file as 'certroot.cer' in a folder on your PC.
20. Navigate back (in the E-SBC device) to the 'Certificates' page.

Figure 4-25: Certificates Page

21. In the 'Certificates' page under 'Device Certificate', click **Choose File** and select the 'Gateway.cer' certificate file that you saved on your local disk (see Step 13). Click **Send File** to upload the certificate.
22. In the 'Certificates' page under 'Trusted Root Certificate Store', click **Choose File** and select the 'Certroot.cer' certificate file that you saved on your local disk (see Step 19). Click **Send File** to upload the certificate.
23. Save (burn) the device configuration and reset the device using the Web interface's Maintenance Actions page (**Maintenance** tab > **Maintenance Actions**).

4.8 Step 8: Configuring Secure Real-Time Transport Protocol (SRTP)

If you configure TLS for the SIP transport link between the E-SBC and the Mediation Server, specify Secure RTP (SRTP) encryption with:

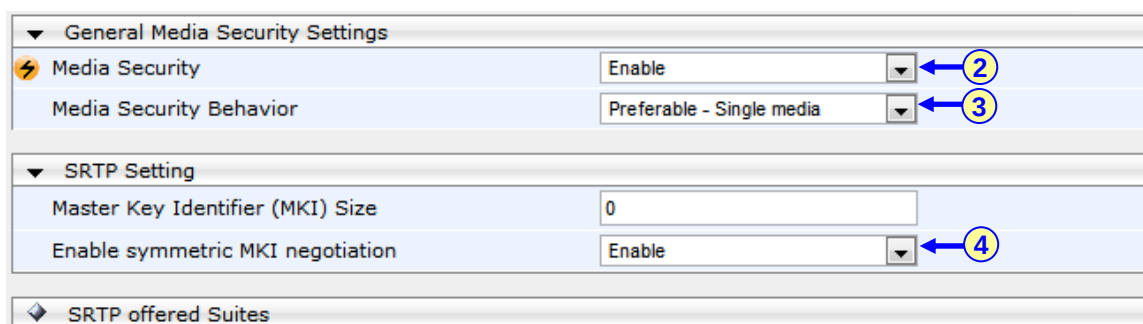
- **Required** (SRTP should be attempted but do not use encryption if negotiation for SRTP is unsuccessful)
-OR-
- **Optional** (attempt to negotiate the use of SRTP to secure media packets. Use RTP if SRTP cannot be negotiated)
-OR-
- **Not used** (send media packets using RTP)

If you opt to configure the Mediation Server to use SRTP (**Required** or **Optional**), configure the device to operate in the same manner.

➤ **To configure the media security:**

1. Open the Media Security page (**Configuration** tab > **Media** menu > **Media Security**).

Figure 4-26: Media Security Page



2. Set the 'Media Security' to **Enable**.
3. Set the 'Media Security Behavior' to:
 - **Mandatory** (if Mediation Server is configured to **SRTP Required**)
 - **Preferable - Single media** (if Mediation Server is configured to **SRTP Optional**)
4. Set 'Enable symmetric MKI negotiation' to **Enable**.
5. Click **Submit**.
6. Save (burn) the configuration and reset the device.



Notes: To set 'Media Security Behavior' to the IP Profile of the Mediation Server, see the IP Profile Settings.

4.9 Step 9: Configuring IP Media

This step shows how to configure the number of media channels for the IP media. To reform coder transcoding, define DSP channels. The number of media channels represents the number of DSP (digital signaling processors) channels that the device allocates to IP-to-IP calls (the remaining DSP channels can be used for PSTN calls). Two IP media channels are used per IP-to-IP call.

Maximum number of media channels available on the Mediant 800 E-SBC device is 30.

Maximum number of media channels available on the Mediant 1000 E-SBC device is 120.

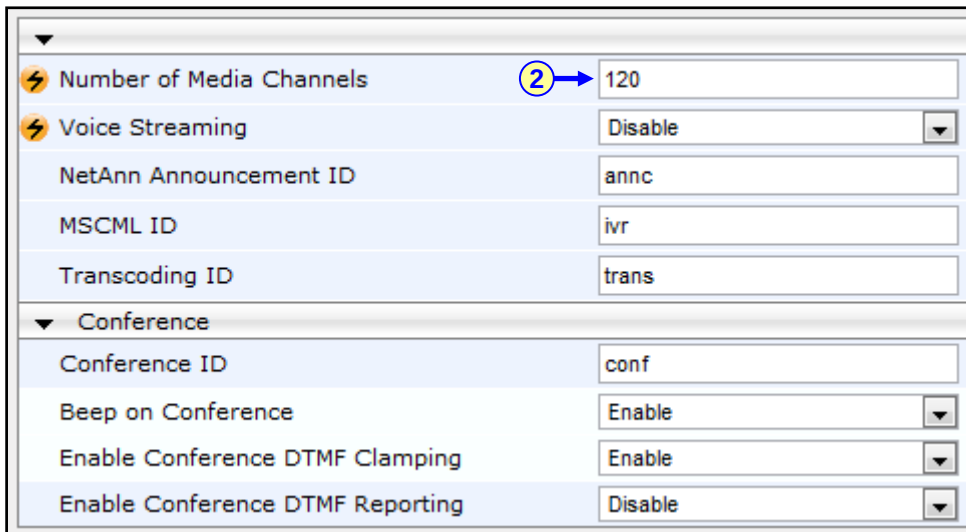
Maximum number of media channels available on the Mediant 3000 E-SBC device is 2016.

In this configuration, 120 channels are configured.

➤ **To configure IP Media settings:**

1. Open the IP Media Settings page (**Configuration** tab > **VoIP** menu > **IP Media** > **IP Media Settings**).

Figure 4-27: IP Media Settings



Number of Media Channels	120
Voice Streaming	Disable
NetAnn Announcement ID	annc
MSCML ID	ivr
Transcoding ID	trans
Conference	
Conference ID	conf
Beep on Conference	Enable
Enable Conference DTMF Clamping	Enable
Enable Conference DTMF Reporting	Disable

2. Set 'Number of Media Channels' to **120**.



Notes: This step is necessary only if transcoding is required.

4.10 Step 10: Configure IP-to-IP Call Routing Rules

This step shows how to configure The IP2IP Routing Rules. This table defines rules for transferring SIP messages (e.g., INVITE), received at one IP interface, to another interface. The message is routed according to a rule whose configured input characteristics (e.g., Source IP Group) match those of the message. If the characteristics of an incoming message do not match the first rule in the table, they're then compared by the second rule, and so on, until a matching rule is located. If no rule is matched, the message is rejected.

You need to add IP-to-IP routing rules for the following routing directions:

- Calls from the LAN side to the WAN side.
- Calls from the WAN side to the LAN side.

Figure 4-28: IP-to-IP Routing Table

IP2IP Routing Table										
Index	Source IPGroup ID	Destination Username Prefix	Destination Host	Request Type	ReRoute IPGroup ID	Call Trigger	Destination Type	Destination IPGroup ID	Destination SRD ID	Destination Port
1	1	*	*	All	0	Any	IP Group	2	2	0
2	2	*	*	All	0	Any	IP Group	1	1	0

➤ To route from an internal to an external IP Group:

1. Open the IP2IP Routing Table page (**Configuration > VoIP > SBC > Routing SBC > IP to IP Routing Table**).
2. Click **Add** and add a rule for index **1** to the table.

Figure 4-29: Internal IP-to-IP Routing Configuration

Edit Record

Index: 1
Source IPGroup ID: 1
Source Username Prefix: *
Source Host: *
Destination Username Prefix: *
Destination Host: *
Request Type: All
Message Condition: None
ReRoute IPGroup ID: 0
Call Trigger: Any
Destination Type: IP Group
Destination IPGroup ID: 2
Destination SRD ID: 2
Destination Address:
Destination Port: 0
Destination Transport Type:
Alternative Route Options: Route Row
Cost Group: None

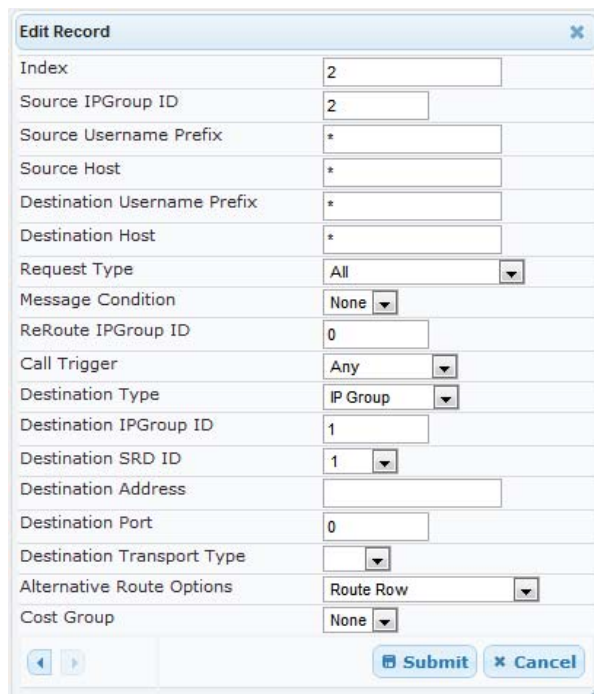
Submit Cancel

3. From the 'Source IP Group ID' drop-down list, select **1**.
4. From the 'Destination Type' drop-down list, select **IP Group**.
5. From the 'Destination IP Group ID' drop-down list, select **2**.
6. Click **Submit**.

➤ **To route from external an to an internal IP Group:**

1. Open the IP2IP Routing Table page (**Configuration > VoIP > SBC > Routing SBC > IP to IP Routing Table**).
2. Click **Add** and add a rule for index **2** to the table.

Figure 4-30: External IP-to-IP Routing configuration



The screenshot shows the 'Edit Record' dialog box for configuring an external IP-to-IP routing rule. The fields are as follows:

Field	Value
Index	2
Source IPGroup ID	2
Source Username Prefix	*
Source Host	*
Destination Username Prefix	*
Destination Host	*
Request Type	All
Message Condition	None
ReRoute IPGroup ID	0
Call Trigger	Any
Destination Type	IP Group
Destination IPGroup ID	1
Destination SRD ID	1
Destination Address	
Destination Port	0
Destination Transport Type	
Alternative Route Options	Route Row
Cost Group	None

At the bottom, there are navigation buttons (back, forward), a **Submit** button, and a **Cancel** button.

3. From the 'Source IP Group ID' drop-down list, select **2**.
4. From the 'Destination Type' drop-down list, select **IP Group**.
5. From the 'Destination IP Group ID' drop-down list, select **1**.
6. Click **Submit**.



Note: The Routing configuration may change according to the local deployment topology.

4.11 Step 11: IP-to-IP Outbound Manipulation

This step shows how to configure manipulation tables. The Manipulation Table allows you to configure number manipulation for the source or destination number for each IP Group.



Note: Adapt the manipulation table according to your environment's dial plan.

Figure 4-31: IP-to-IP Outbound Manipulation Table

Index	Additional Manipulation	Source IP Group ID	Destination IP Group ID	Source Username Prefix	Source Host	Destination Username Prefix
1	 0	2	1	*	*	*
2	 0	1	2	*	*	+1
3	 0	1	2	*	*	*
4	 0	1	2	+1	*	*

Destination Host	Request Type	Manipulated URI	Remove From Left	Remove From Right	Leave From Right	Prefix to Add	Suffix to Add	Privacy Restriction Mode
*	All	Destination	0	0	255	+1		Transparent
*	All	Destination	2	0	255			Transparent
*	All	Destination	1	0	255	011		Transparent
*	All	Source	2	0	255			Transparent

In the above example Table, there are 4 entries:

Index #1 defines Destination manipulation of calls from IP Group 2 (ThinkTel Sip Trunk). All calls received to Destination IP Group 1 and the Destination Number is any (*), add prefix +1 to the destination number.

Index #2 defines Destination manipulation of calls from IP Group 1. All calls received to Destination IP Group 2 and the Destination Number is with +1 prefix, remove this prefix (+1) to the destination number.

Index #3 defines Destination manipulation of calls from IP Group 1. All calls received to Destination IP Group 2 and the Destination Number is other than +1, remove the + prefix and add prefix of 011 to the destination number.

Index #4 defines Source manipulation of calls from IP Group 1 (Lync Server). All calls received to Destination IP Group 2 and the Source Number is with +1 prefix, remove this prefix (+1) to the Source number.

➤ **To Manipulate Number For Index 1:**

1. Open the IP2IP Outbound Manipulation page (**Configuration > VoIP > SBC > Manipulation SBC > IP to IP Outbound Table**).
2. Add index number 1.

Figure 4-32: IP-to-IP Outbound Manipulation Index 1

1

Index	Additional Manipulation	Source IP Group ID	Destination IP Group ID	Source Username Prefix	Source Host	Destination Username Prefix
1	0	2	1	*	*	*

Destination Host	Request Type	Manipulated URI	Remove From Left	Remove From Right	Leave From Right	Prefix to Add	Suffix to Add	Privacy Restriction Mode
*	All	Destination	0	0	255	+1		Transparent

3. Set 'Source IP Group' to **2**.
4. Set 'Destination IP Group' to **1**.
5. Set 'Destination Username Prefix' to *****
6. Set 'Manipulated URI' to **Destination**.
7. Set 'Prefix to Add' to **+1**
8. Click **Apply**.

4.12 Step 12: Account Table

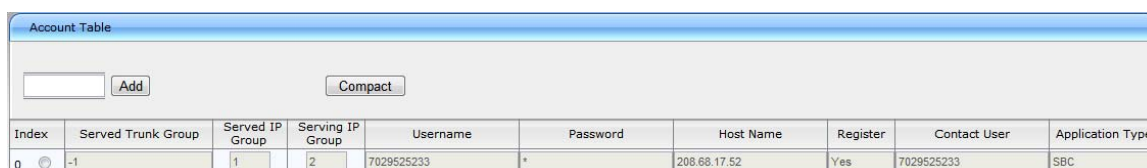
This step shows how to configure the Account Table. The Account Table is used by the device to register to ThinkTel's SIP trunk on behalf of MS Lync 2010. ThinkTel's SIP Trunk requires registration and authentication to provide service.

In this example, the Served IP Group is the Lync (IP Group ID #1) and the Serving IP Group is ThinkTel SIP Trunk (IP Group ID #2).

➤ **To configure an Account entry:**

1. Open the Account Table page (**Configuration > VoIP > SIP Definitions > Account Table**).
2. Enter an index table entry number (0) and click **Add**.

Figure 4-33: Account Table



Index	Served Trunk Group	Served IP Group	Serving IP Group	Username	Password	Host Name	Register	Contact User	Application Type
0	-1	1	2	7029525233	*	208.68.17.52	Yes	7029525233	SBC

3. Configure the account user entry according to the provided information. Configure the entry's table according to the example above:
4. Set Served 'IP Group' to **1** (i.e., Lync server).
5. Set Serving 'IP Group' to **2** (i.e., ThinkTel Sip Trunk).
6. Set 'Username'.
7. Set 'Password'.
8. Set 'Host Name' to **208.68.17.52**
9. Set 'Register' to **Yes**
10. Set 'Contact User' as trunk main line (e.g., **7029525233**)
11. Set 'Application Type' to **SBC**.

4.13 Step 13: Configuring Miscellaneous Parameters

This step shows how to configure miscellaneous parameters for SBC functionality.

➤ **To configure Disconnect Parameters:**

1. Open the Advance Parameters page (**Configuration** tab > **VoIP** menu > **SIP Definitions** > **Advance Parameters**).

Figure 4-34: Disconnect Parameters Screen

2. From the 'Disconnect on Broken Connection' drop-down list, select **No** (it's mandatory to set this field in a Lync environment). It determines whether the device releases the call if RTP packets are not received within a user-defined timeout.

➤ **To configure AdminPage parameters:**

1. Open the Admin page: Append the case-sensitive suffix 'AdminPage' to the device's IP address in your Web browser's URL field (e.g., <http://10.15.45.201/AdminPage>).
2. In the left pane click **ini Parameters**:

Figure 4-35: INI File Output Window

3. Enter these values in the 'Parameter Name' and 'Enter Value' fields:

Parameter	Value
SBCFORKINGHANDLINGMODE	Enter 1 . Determines if 18x with SDP is received, the device opens a voice stream according to the received SDP. The device reopens the stream according to subsequently received 18x responses with SDP, or plays a Ringback tone if 180 response without SDP is received. It's mandatory to set this field for the Lync environment.

4. Click **Apply New Value** for this parameter.

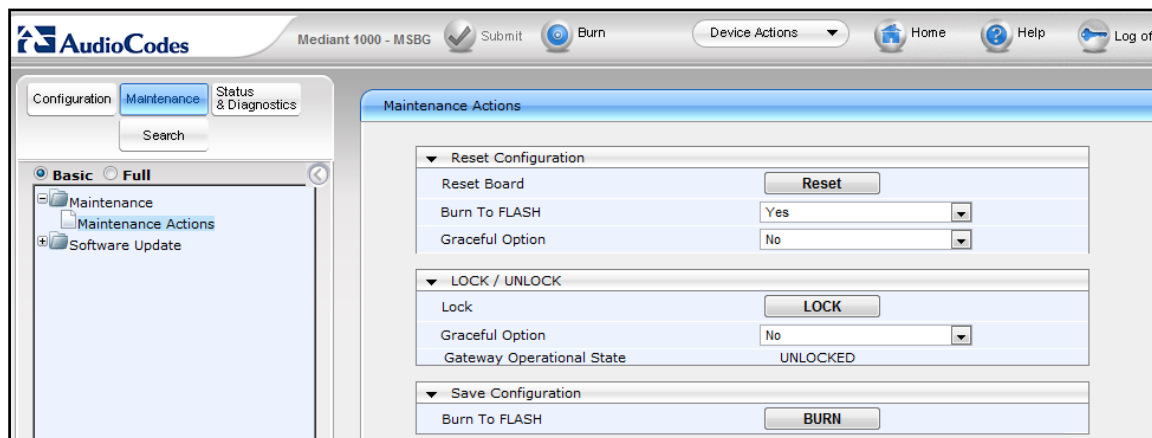
4.14 Step 14: Resetting the Device

After completing device configuration as shown above, burn the configuration to the device's flash memory and reset the device.

➤ **To reset the device:**

- Click the **Reset** button to burn the configuration to flash and reset the device (ensure that the 'Burn to FLASH' field is set to **Yes**).

Figure 4-36: Reset the Device



The screenshot shows the AudioCodes Mediant 1000 - MSBG web interface. The 'Maintenance Actions' section is active. Under 'Reset Configuration', the 'Reset Board' button is visible, and the 'Burn To FLASH' dropdown is set to 'Yes'. Under 'LOCK / UNLOCK', the 'Lock' button is visible, and the 'Gateway Operational State' is 'UNLOCKED'. Under 'Save Configuration', the 'Burn To FLASH' button is visible.



Note: Reset with BURN to FLASH is required.

A AudioCodes INI File

This appendix shows the E-SBC device INI file. The file reflects the configuration described in Section 4 on page 29.

```
;*****
;** Ini File **
;*****

;Board: Mediant 1000
;Serial Number: 3589366
;Slot Number: 1
;Software Version: 6.40A.039.010
;DSP Software Version: 624AE3 => 640.03
;Board IP Address: 10.15.45.201
;Board Subnet Mask: 255.255.0.0
;Board Default Gateway: 10.15.0.1
;Ram size: 512M   Flash size: 64M
;Num of DSP Cores: 13   Num DSP Channels: 63
;Profile: NONE
;Key features:;Board Type: Mediant 1000 ;PSTN Protocols: ISDN IUA=4 CAS
;Coders: G723 G729 GSM-FR G727 ILBC ;E1Trunks=4 ;T1Trunks=4 ;IP Media:
Conf VXML VoicePromptAnnounc(H248.9) ;Channel Type: RTP DspCh=240
IPMediaDspCh=240 ;DSP Voice features: IpmDetector ;DATA features: Routing
FireWall&VPN WAN Advanced-Routing ;Security: IPSEC MediaEncryption
StrongEncryption EncryptControlProtocol ;Control Protocols: MSFT MGCP
MEGACO SIP SASurvivability SBC=120 ;Default features:;Coders: G711 G726;

;----- Mediant-1000 HW components -----
;
; Slot # : Module type : # of ports : # of DSPs
;-----
;      1 : FALC56      :          2 :          3
;      2 : FXS         :          4 :          1
;      3 : Empty
;      4 : Empty
;      5 : Empty
;      6 : Empty
;-----

[SYSTEM Params]

SyslogServerIP = 10.15.45.200
EnableSyslog = 1
NTPServerUTCOffset = 7200
PM_VEDSPUtil = '1,68,76,15'

[BSP Params]

PCMLawSelect = 3

[Analog Params]

[ControlProtocols Params]

AdminStateLockControl = 0
```

```
[MGCP Params]
```

```
[MEGACO Params]
```

```
EP_Num_0 = 0
```

```
EP_Num_1 = 1
```

```
EP_Num_2 = 1
```

```
EP_Num_3 = 0
```

```
EP_Num_4 = 0
```

```
[PSTN Params]
```

```
[SS7 Params]
```

```
[Voice Engine Params]
```

```
ENABLEMEDIASEcurity = 1
```

```
SRTPTxPacketMKISize = 1
```

```
CallProgressTonesFilename = 'usa_tones_13.dat'
```

```
[WEB Params]
```

```
LogoWidth = '145'
```

```
HTTPSCipherString = 'RC4:EXP'
```

```
[SIP Params]
```

```
MEDIACHANNELS = 120
```

```
GWDEBUGLEVEL = 5
```

```
DISCONNECTONBROKENCONNECTION = 0
```

```
MEDIASEcurityBEHAVIOUR = 3
```

```
ENABLESYMMETRICMKI = 1
```

```
ENABLESBCAPPLICATION = 1
```

```
SBCFORKINGHANDLINGMODE = 1
```

```
[SCTP Params]
```

```
[VXML Params]
```

```
[IPsec Params]
```

```
[Audio Staging Params]
```

```
[SNMP Params]
```

```
[ SRD ]
```

```

FORMAT SRD_Index = SRD_Name, SRD_MediaRealm, SRD_IntraSRDMediaAnchoring,
SRD_BlockUnRegUsers, SRD_MaxNumOfRegUsers,
SRD_EnableUnAuthenticatedRegistrations;
SRD 1 = LanSRD, LanRealm, 0, 0, -1, 1;
SRD 2 = WanSRD, WanRealm, 0, 0, -1, 1;

[ \SRD ]

[ ProxyIp ]

FORMAT ProxyIp_Index = ProxyIp_IpAddress, ProxyIp_TransportType,
ProxyIp_ProxySetId;
ProxyIp 0 = FE-Lync.Lync.local:5067, 2, 1;
ProxyIp 1 = 208.68.17.52:5060, 0, 2;

[ \ProxyIp ]

[ IpProfile ]

FORMAT IpProfile_Index = IpProfile_ProfileName, IpProfile_IpPreference,
IpProfile_CodersGroupID, IpProfile_IsFaxUsed,
IpProfile_JitterBufMinDelay, IpProfile_JitterBufOptFactor,
IpProfile_IPDiffServ, IpProfile_SigIPDiffServ, IpProfile_SCE,
IpProfile_RTPRedundancyDepth, IpProfile_RemoteBaseUDPPort,
IpProfile_CNGmode, IpProfile_VxxTransportType, IpProfile_NSEMode,
IpProfile_IsDTMFUsed, IpProfile_PlayRBTone2IP,
IpProfile_EnableEarlyMedia, IpProfile_ProgressIndicator2IP,
IpProfile_EnableEchoCanceller, IpProfile_CopyDest2RedirectNumber,
IpProfile_MediaSecurityBehaviour, IpProfile_CallLimit,
IpProfile_DisconnectOnBrokenConnection, IpProfile_FirstTxDtmfOption,
IpProfile_SecondTxDtmfOption, IpProfile_RxDTMFOption,
IpProfile_EnableHold, IpProfile_InputGain, IpProfile_VoiceVolume,
IpProfile_AddIEInSetup, IpProfile_SBCExtensionCodersGroupID,
IpProfile_MediaIPVersionPreference, IpProfile_TranscodingMode,
IpProfile_SBCAllowedCodersGroupID, IpProfile_SBCAllowedCodersMode,
IpProfile_SBCMediaSecurityBehaviour, IpProfile_SBCRFC2833Behavior,
IpProfile_SBCAlternativeDTMFMethod, IpProfile_SBCAssertIdentity,
IpProfile_AMDSensitivityParameterSuit, IpProfile_AMDSensitivityLevel,
IpProfile_AMDMaxGreetingTime, IpProfile_AMDMaxPostSilenceGreetingTime,
IpProfile_SBCDiversionsMode, IpProfile_SBCHistoryInfoMode,
IpProfile_EnableQSIGTunneling, IpProfile_SBCFaxCodersGroupID,
IpProfile_SBCFaxBehavior, IpProfile_SBCFaxOfferMode,
IpProfile_SBCFaxAnswerMode, IpProfile_EnableEarly183;
IpProfile 1 = Lync, 1, 0, 0, 10, 10, 46, 40, 0, 0, 0, 0, 2, 0, 0, 0, 0, -
1, 1, 0, 0, -1, 0, 4, -1, 1, 1, 0, 0, , -1, 0, 0, -1, 0, 1, 0, 0, -1, 0,
8, 300, 400, -1, -1, 0, -1, 0, 0, 1, 0;
IpProfile 2 = ThinkTel, 1, 0, 0, 10, 10, 46, 40, 0, 0, 0, 0, 2, 0, 0, 0,
0, -1, 1, 0, 0, -1, 0, 4, -1, 1, 1, 0, 0, , -1, 0, 0, -1, 0, 2, 0, 0, -1,
0, 8, 300, 400, -1, -1, 0, -1, 0, 0, 1, 0;

[ \IpProfile ]

[ ProxySet ]

FORMAT ProxySet_Index = ProxySet_EnableProxyKeepAlive,
ProxySet_ProxyKeepAliveTime, ProxySet_ProxyLoadBalancingMethod,
ProxySet_IsProxyHotSwap, ProxySet_SRD, ProxySet_ClassificationInput,
ProxySet_ProxyRedundancyMode;
ProxySet 0 = 0, 60, 0, 0, 0, 0, -1;

```

```

ProxySet 1 = 1, 60, 1, 1, 0, 0, -1;
ProxySet 2 = 0, 60, 0, 0, 2, 0, -1;

[ \ProxySet ]

[ IPGroup ]

FORMAT IPGroup Index = IPGroup Type, IPGroup Description,
IPGroup_ProxySetId, IPGroup_SIPGroupName, IPGroup_ContactUser,
IPGroup_EnableSurvivability, IPGroup_ServingIPGroup,
IPGroup_SipReRoutingMode, IPGroup_AlwaysUseRouteTable,
IPGroup_RoutingMode, IPGroup_SRD, IPGroup_MediaRealm,
IPGroup_ClassifyByProxySet, IPGroup_ProfileId, IPGroup_MaxNumOfRegUsers,
IPGroup_InboundManSet, IPGroup_OutboundManSet, IPGroup_RegistrationMode,
IPGroup_AuthenticationMode, IPGroup_MethodList,
IPGroup_EnableSBCCClientForking, IPGroup_ContactName;
IPGroup 1 = 0, Lync, 1, , , 0, -1, 0, 0, -1, 1, LanRealm, 1, 1, -1, -1, -
1, 0, 0, , 0, ;
IPGroup 2 = 0, ThinkTel, 2, 208.68.17.52, , 0, -1, 0, 0, -1, 2, WanRealm,
1, 2, -1, -1, -1, 0, 0, , 0, ;

[ \IPGroup ]

[ Account ]

FORMAT Account_Index = Account_ServedTrunkGroup, Account_ServedIPGroup,
Account_ServingIPGroup, Account_Username, Account_Password,
Account_HostName, Account_Register, Account_ContactUser,
Account_ApplicationType;
Account 0 = -1, 1, 2, 7029525233, *, 208.68.17.52, 1, 7029525233, 2;

[ \Account ]

[ IP2IPRouting ]

FORMAT IP2IPRouting Index = IP2IPRouting SrcIPGroupID,
IP2IPRouting_SrcUsernamePrefix, IP2IPRouting_SrcHost,
IP2IPRouting_DestUsernamePrefix, IP2IPRouting_DestHost,
IP2IPRouting_RequestType, IP2IPRouting_MessageCondition,
IP2IPRouting_DestType, IP2IPRouting_DestIPGroupID,
IP2IPRouting_DestSRDID, IP2IPRouting_DestAddress, IP2IPRouting_DestPort,
IP2IPRouting_DestTransportType, IP2IPRouting_AltRouteOptions,
IP2IPRouting_CostGroup;
IP2IPRouting 1 = 1, *, *, *, *, 0, , 0, 2, 2, , 0, -1, 0, ;
IP2IPRouting 2 = 2, *, *, *, *, 0, , 0, 1, 1, , 0, -1, 0, ;

[ \IP2IPRouting ]

[ SIPInterface ]

FORMAT SIPInterface_Index = SIPInterface_NetworkInterface,
SIPInterface_ApplicationType, SIPInterface_UDPPort, SIPInterface_TCPSPort,
SIPInterface_TLSPort, SIPInterface_SRD, SIPInterface_MessagePolicy;
SIPInterface 1 = Voice, 2, 5060, 5060, 5067, 1, ;
SIPInterface 2 = WanSP, 2, 5060, 5060, 5067, 2, ;

[ \SIPInterface ]

```

```

[ IOutboundManipulation ]

FORMAT IOutboundManipulation_Index =
IOutboundManipulation_IsAdditionalManipulation,
IOutboundManipulation_SrcIPGroupID,
IOutboundManipulation_DestIPGroupID,
IOutboundManipulation_SrcUsernamePrefix, IOutboundManipulation_SrcHost,
IOutboundManipulation_DestUsernamePrefix,
IOutboundManipulation_DestHost, IOutboundManipulation_RequestType,
IOutboundManipulation_ManipulatedURI,
IOutboundManipulation_RemoveFromLeft,
IOutboundManipulation_RemoveFromRight,
IOutboundManipulation_LeaveFromRight, IOutboundManipulation_Prefix2Add,
IOutboundManipulation_Suffix2Add,
IOutboundManipulation_PrivacyRestrictionMode;
IOutboundManipulation 1 = 0, 2, 1, *, *, *, *, 0, 1, 0, 0, 255, +1, , 0;
IOutboundManipulation 2 = 0, 1, 2, *, *, +1, *, 0, 1, 1, 0, 255, , , 0;
IOutboundManipulation 3 = 0, 1, 2, *, *, *, *, 0, 1, 1, 0, 255, 011, ,
0;
IOutboundManipulation 4 = 0, 1, 2, +1, *, *, *, 0, 0, 2, 0, 255, , , 0;

[ \IOutboundManipulation ]

[ CodersGroup0 ]

FORMAT CodersGroup0_Index = CodersGroup0_Name, CodersGroup0_pTime,
CodersGroup0_rate, CodersGroup0_PayloadType, CodersGroup0_Sce;
CodersGroup0 0 = g711Alaw64k, 20, 0, -1, 0;

[ \CodersGroup0 ]

[ RoutingRuleGroups ]

FORMAT RoutingRuleGroups_Index = RoutingRuleGroups_LCREnable,
RoutingRuleGroups_LCRAverageCallLength, RoutingRuleGroups_LCRDefaultCost;
RoutingRuleGroups 0 = 0, 0, 1;

[ \RoutingRuleGroups ]

[ InterfaceTable ]

FORMAT InterfaceTable_Index = InterfaceTable_ApplicationTypes,
InterfaceTable_InterfaceMode, InterfaceTable_IPAddress,
InterfaceTable_PrefixLength, InterfaceTable_Gateway,
InterfaceTable_VlanID, InterfaceTable_InterfaceName,
InterfaceTable_PrimaryDNSServerIPAddress,
InterfaceTable_SecondaryDNSServerIPAddress,
InterfaceTable_UnderlyingInterface;
InterfaceTable 0 = 6, 10, 10.15.45.201, 16, 10.15.0.1, 1, Voice,
10.15.9.10, , GROUP_1;
InterfaceTable 1 = 5, 10, 195.189.192.151, 16, 195.189.192.129, 2, WanSP,
80.179.52.100, 80.179.55.100, GROUP_2;

[ \InterfaceTable ]

```

```
[ DspTemplates ]

;
; *** TABLE DspTemplates ***
; This table contains hidden elements and will not be exposed.
; This table exists on board and will be saved during restarts.
;

[ \DspTemplates ]

[ CpMediaRealm ]

FORMAT CpMediaRealm Index = CpMediaRealm MediaRealmName,
CpMediaRealm_IPv4IF, CpMediaRealm_IPv6IF, CpMediaRealm_PortRangeStart,
CpMediaRealm_MediaSessionLeg, CpMediaRealm_PortRangeEnd,
CpMediaRealm_TransRateRatio, CpMediaRealm_IsDefault;
CpMediaRealm 1 = LanRealm, Voice, , 6000, 10, 6090, 0, 1;
CpMediaRealm 2 = WanRealm, WanSP, , 7000, 10, 7090, 0, 0;

[ \CpMediaRealm ]
```

Configuration Note