MAX Communication Server
Release 8.5 QuickFix

AudioCodes Mediant 1000
Configuration Guide

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Contents

AltiGen Communications, Inc.
679 River Oaks Parkway
San Jose, CA 95134
Telephone: 888-AltiGen (258-4436) Fax: 408-597-9020 - E-mail: info@altigen.com Web site: www.altigen.com

About This Guide

This guide describes how to configure an AudioCodes Mediant 1000 gateway for use with MAXCS 8.5.

Please note the following considerations before you begin the procedures in this guide:

- The examples in this guide illustrate the configuration for a Mediant 1000 gateway. For other models, adjust the port settings as needed.
- AltiGen does not provide general configuration support for AudioCodes devices. Contact AudioCodes support for assistance with general setup.

Refer to your gateway's product documentation, which came with your device, for installation instructions and to retrieve the IP address of the AudioCodes web configuration tool.

Requirements

Your system and environment must meet the following requirements:

- You must be using an AudioCodes gateway model Mediant 1000 with a T1/PRI module.
- You must be running MAXCS Release 8.0.
- You must have a support agreement with AudioCodes.
- The gateway must already have a static IP address and must be able to be configured through the web configuration tool. Make sure that MaxCS can ping the gateway.
- The gateway must be running the correct version of firmware: Click the **Home** button and check that you have firmware version 6.60A.336.04. If the version is incorrect, talk to AudioCodes Support to obtain the correct firmware and update instructions.
- The gateway and MAXCS must be on the same LAN. If they are in different locations, a VPN must be set up between the two locations.

Configuring the AudioCodes Gateway

This section shows how to customize AudioCodes' software settings for interoperability with the MAX Communications Server.

Network Topology

The following figure illustrates the gateway and server deployed in the network.

Using the AudioCodes Web Configuration Tool

During these procedures, you will use the AudioCodes Web configuration tool.

The Home page shows component status. Click any component in the graphic representation of the gateway to display operational information or additional configuration options.

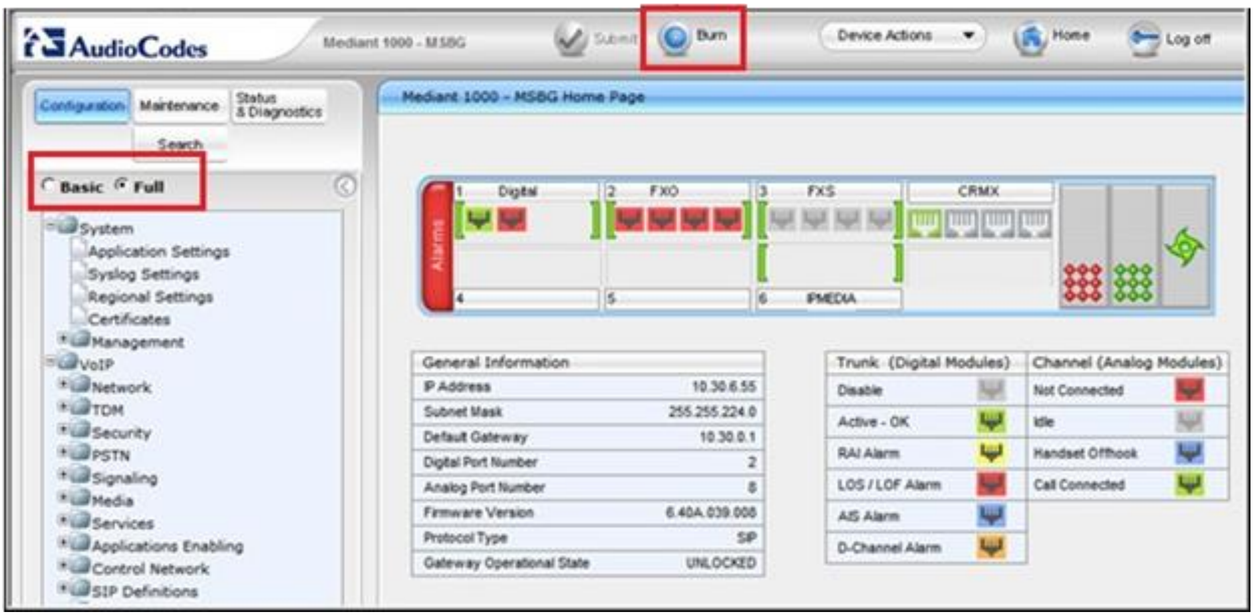


Figure 1: The AudioCodes Web Configuration Tool

You must stay in *Full* menu mode; *Basic* mode does not offer all of the menus and options that you will need.

If you take a break while configuring the gateway, upon return we recommend that you confirm that the menus are still set to *Full* before you continue. In some cases, switching to *Full* menu mode while on a page will not automatically refresh the page.

Use the **Burn** button to write configuration changes to flash memory.

Reset the Gateway to Default Settings

We recommend that you reset the gateway to its original factory settings before you begin your configuration.

Reminder: Make sure that the menus set to **Full**, as shown in the next figure.

1. We recommend that you save your current configuration as a precaution; click **Maintenance** above the menu, and then select **Software Update** > **Configuration File**. Click **Save INI File** and choose a name and folder.

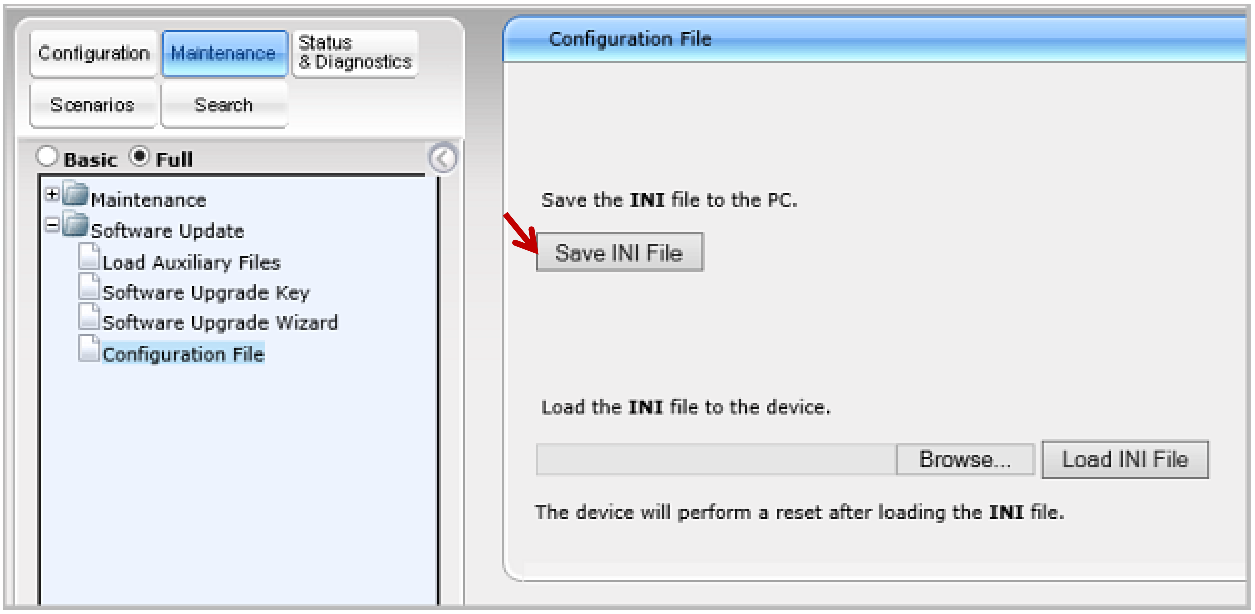


Figure 2: Click Maintenance and choose Software Update > Configuration File

2. Reset the device to its default settings. This procedure will **not** reset the device's web login IP address.

    A. Use the Windows application Notepad to create an empty file. In this example, we name it *nullconfig.ini*.

    B. In the AudioCodes configuration tool, click **Maintenance** above the menu and then select **Software Update** > **Configuration File**. Click **Browse** and select the empty file that you just created (*nullconfig.ini*).

    C. Click **Load INI File** and follow the instructions to reboot the gateway.

Disable the DHCP Sever

Disable the DHCP server to avoid conflict with another DHCP server during the initial configuration.

1. Click **Configuration** above the menu. Select **Data** > **Data Services** > **DHCP Server**.
2. If the **WAN Ethernet** service is shown as **Enabled**, click the pencil icon on that row to edit the settings. From the menu, select **Disabled** and click **OK**.

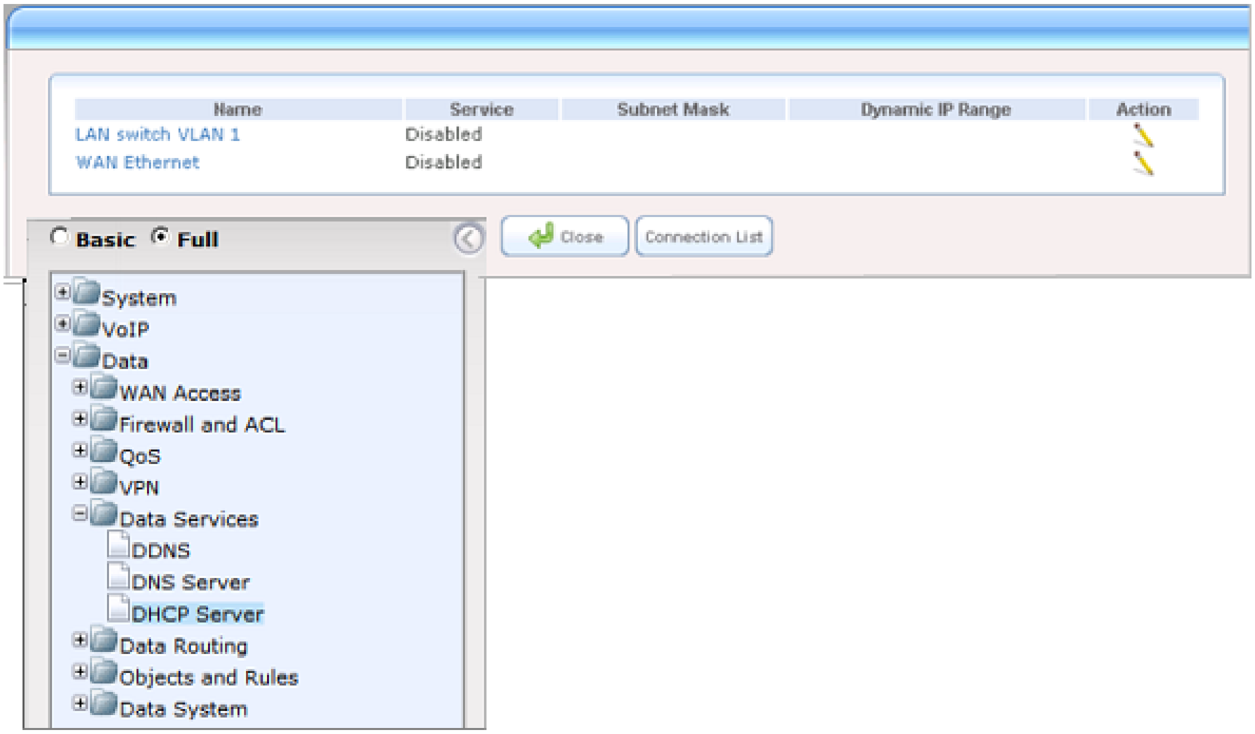


Figure 3: Select Data > Data Services > DHCP Server and disable WAN Ethernet

Set VOIP Parameters

Set the gateway IP address information for your system.

1. Select **VoIP** > **Network** > **IP Interfaces Table**.
2. Click the **0** (zero) Index button; an *Edit* button appears. Click it and configure the network settings corresponding to your network IP address scheme:
   - Set *IP Address* to the AudioCodes gateway's IP address
   - Set *Prefix length* to the subnet mask length in CIDR notation
   - Set *Gateway* to the default gateway's IP address
   - (Optional) DNS: Enter the primary DNS server IP address (and the secondary if relevant)
   - Leave the remaining options set to their default settings

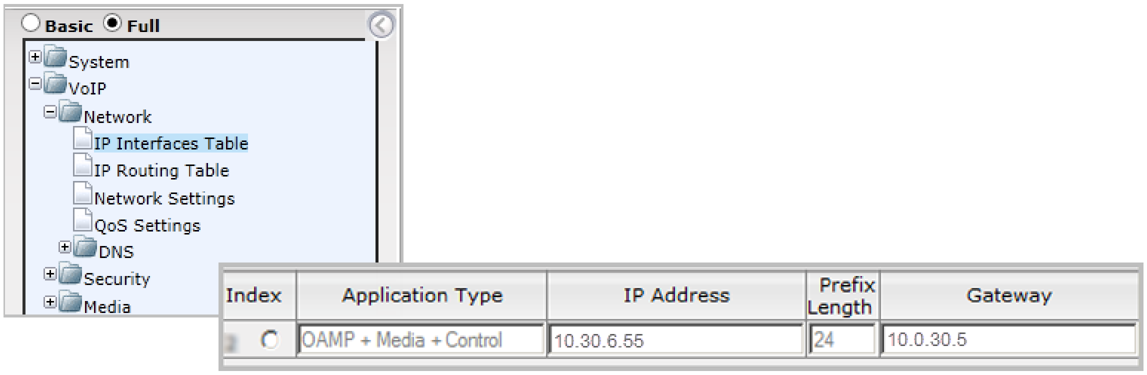


Figure 4: Select VoIP > Network > IP Interfaces Table

3. Click **Apply**. Click **Done**. Click **Burn**. The gateway reboots and starts using the new IP address. Maintain the cabled connection between the gateway LAN port and the provisioning computer.

Set TDM Bus Parameters

The PSTN gateway's TDM bus must be configured. The parameters shown below configure the signal encoding used between the AudioCodes gateway and MaxCS.

1. Select **VoIP** > **TDM** > **TDM Bus Settings**.
2. Set *PCM Law Select* to **MuLaw**.

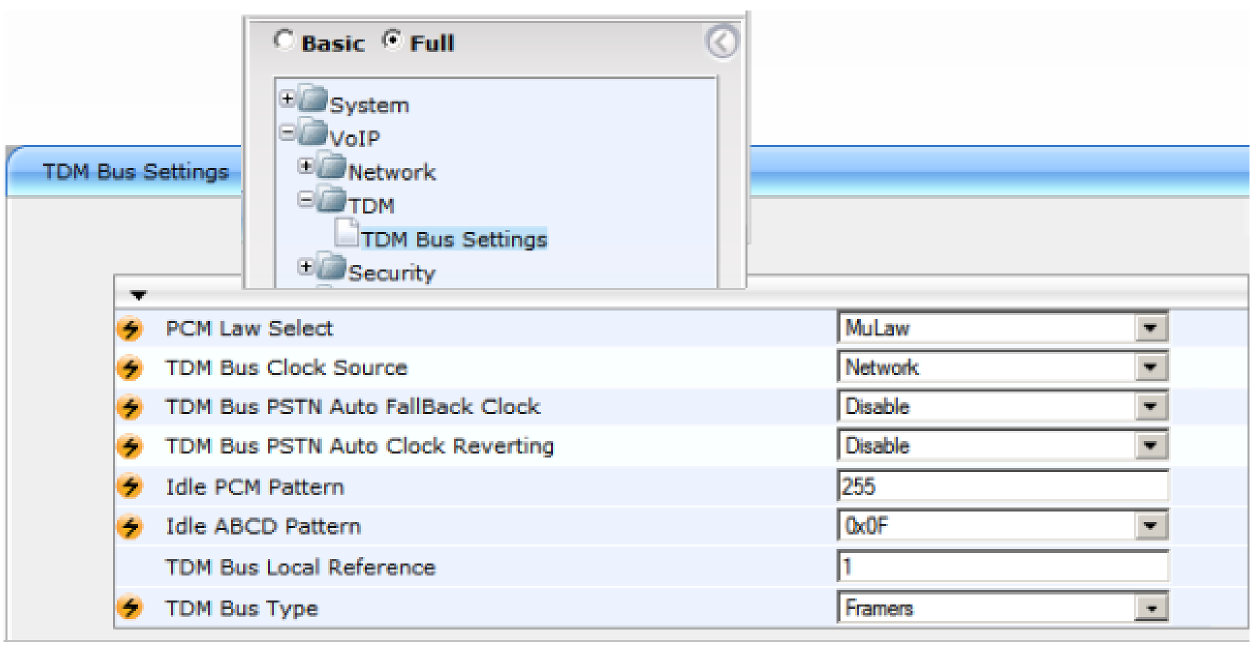


Figure 5: Select VoIP > TDM > TDM Bus Settings and set PCM Law Select to MuLaw

3. Click **Submit**.

Set PSTN Trunk Parameters

Important! In this example, we use the typical PRI parameters. Before you configure this section, talk to your PRI service provider to get the correct protocol type and parameters.

1. Select **VoIP** > **PSTN** > **Trunk Settings**.
2. Set these parameters:
   - Set *Protocol Type* to **T1 NI2 ISDN**
   - Set *Framing Method* to **T1 FRAMING ESF CRC6**
3. Click **Submit**.

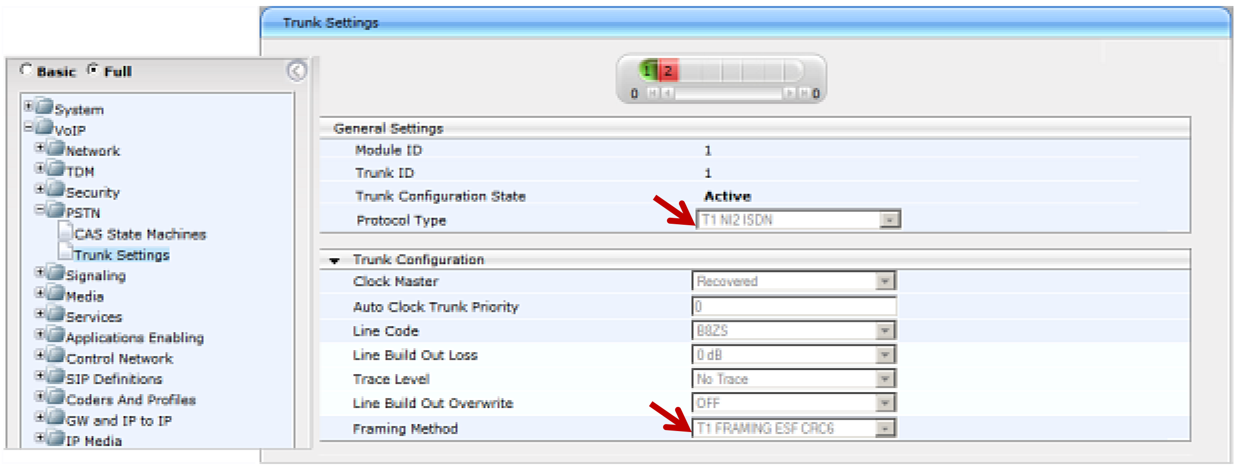


Figure 6: Select VoIP > PSTN > Trunk Settings and adjust the settings

Set IPMedia Parameters

Configure the IPMedia parameters.

1. Select **VoIP** > **Media** > **IPMedia Settings**.
2. Set these (optional) parameters:
   - Set *IPMedia Detectors* to **Enable**
   - Set *Enable AGC* to **Enable**
3. Click **Submit**.

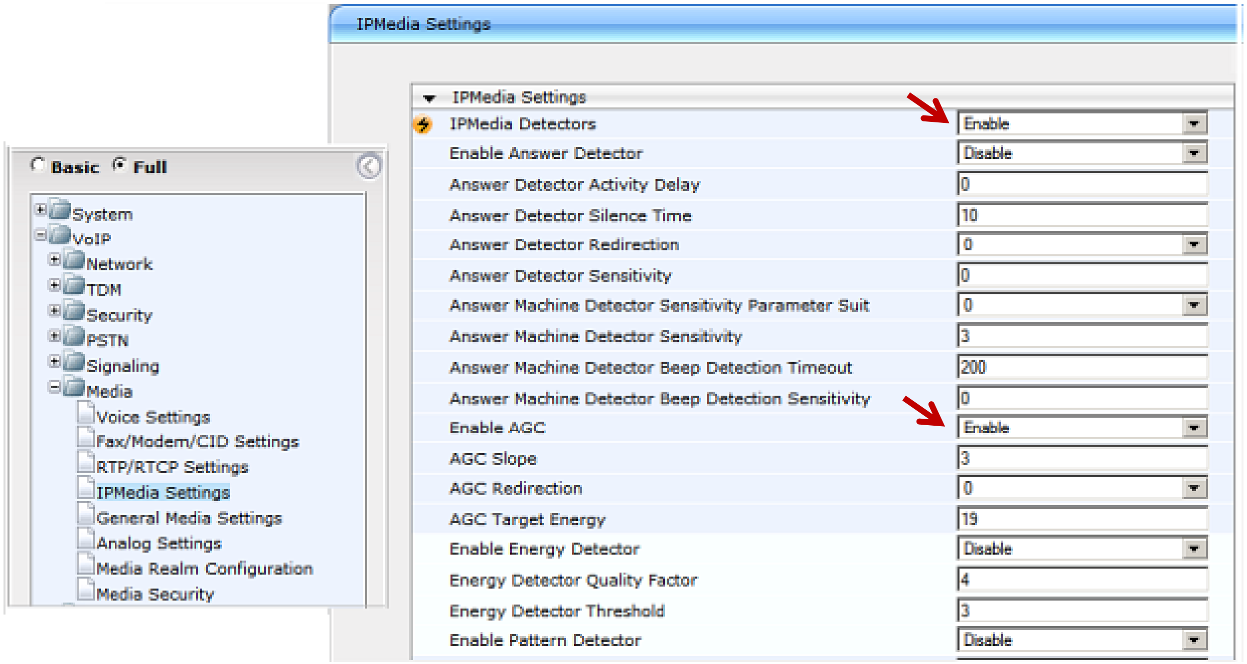


Figure 7: Select VoIP > Media > IP Media Settings and adjust the parameters

Set SIP General Parameters

Configure the gateway SIP parameters.

1. Select **VoIP** > **SIP Definitions** > **General Parameters**.
2. Set the following parameters:
    - Set *Enable Early Media* to **Enable**
    - Set *Session Expires Time* to **300**
    - Make sure that *SIP Transport Type* is set to **UDP**
    - Make sure that *SIP TLS Local Port* is set to **5061**

3. Click **Submit**.

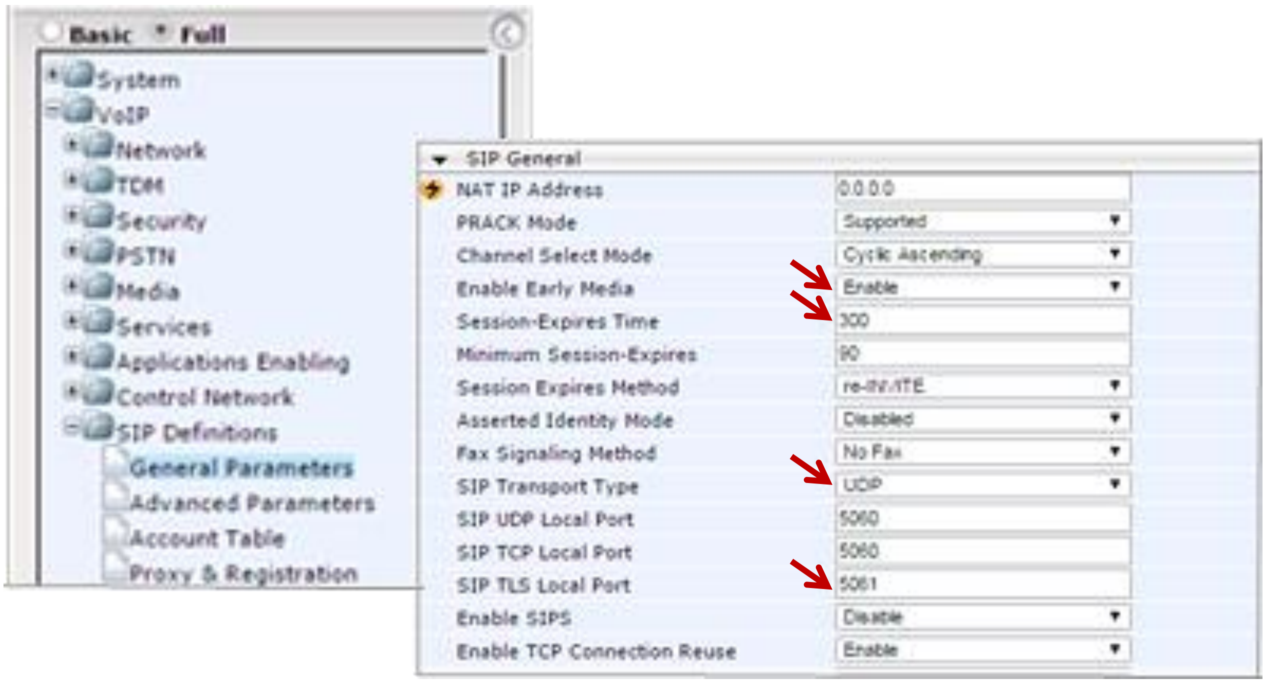


Figure 8: Select VoIP> SIP Definitions > General Parameters

Set Proxy and Registration Parameters

Configure proxy and registration parameters.

1. Choose **VoIP** > **SIP Definitions** > **Proxy & Registration**.
2. Set *Use Default Proxy* to **Yes**.
3. Click the arrow below the *Use Default Proxy* option to open the Proxy Set Table.

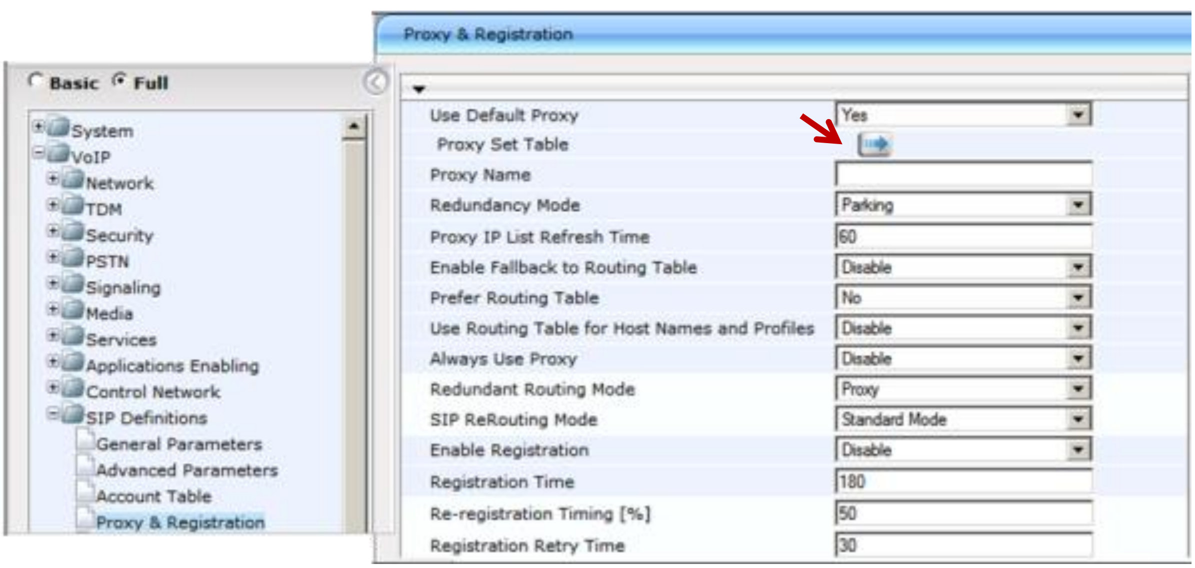


Figure 9: Select VoIP > SIP Definitions > Proxy & Registration

4. On row 1, set *Proxy Address* to the MaxCS server's IP address and port 5060.

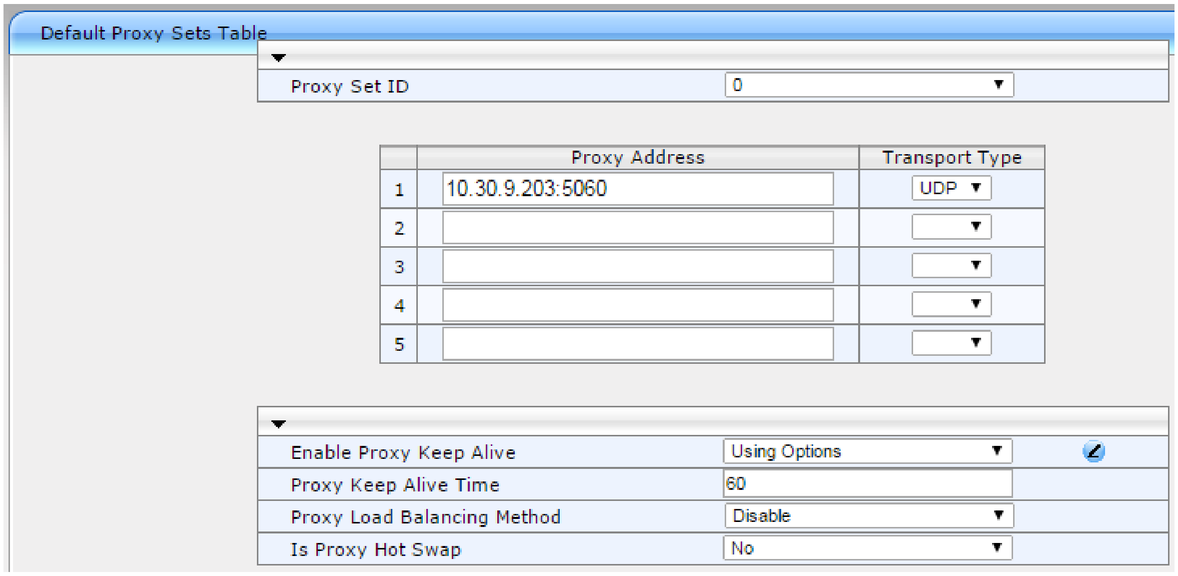


Figure 10: For Proxy Set ID 0, configure row 1 parameters

5. Set *Transport Type* to **UDP**.
6. Set *Enable Proxy Keep Alive* to **Using Options**.
7. Click **Submit**.

Set VoIP Coder Parameters

Configure the VoIP coder parameters.

1. Choose **VoIP** > **Coders and Profiles** > **Coders**. Set the following parameters:
    - For *Coder Name,* select the codec type to **G.711 U-la**w.
    - Set *Silence Suppression* to **Disable**.
2. Click **Submit**.

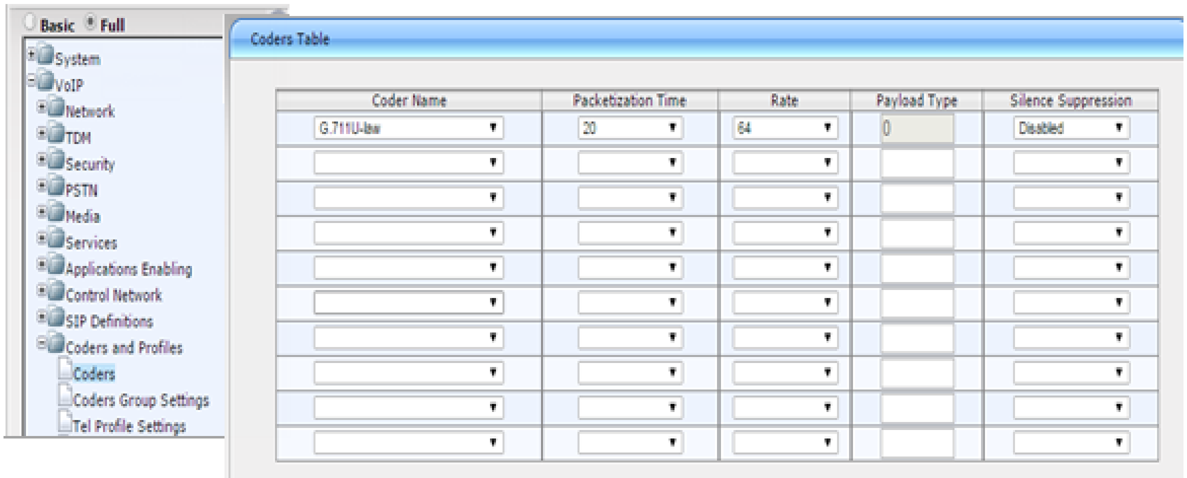


Figure 11: Select VoIP > Coders and Profiles > Coders

Set VoIP Trunk Group Parameters

Configure VoIP Trunk group settings.

1. Choose **VoIP** > **GW and IP to IP** > **Trunk Group** > **Trunk Group**.
2. For each trunk group, set these parameters:
    - Set *Module* to the module number and type (e.g., PRI) on which the trunks are located
    - Set *From Trunk* (first available) and *To Trunk* (last) to the physical trunk range
    - For *Channels*, specify **1-23**
    - Set *Phone Number* to the number for the first channel; the rest will be assigned sequentially
    - Set *Trunk Group ID* to the ID group

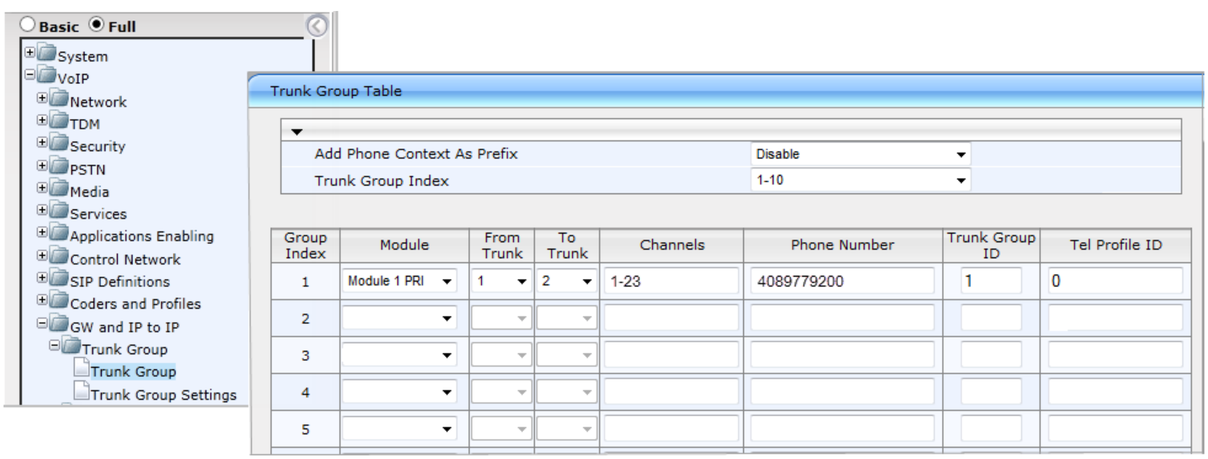


Figure 12: Select VoIP > GW and IP to IP > Trunk Group > Trunk Group

3. Click **Submit**.

Set VOIP Trunk Group Parameters

Configure the Trunk Group setting.

1. Select **VoIP** > **GW and IP to IP** > **Trunk Group** > **Trunk Group Settings**.
2. For each trunk group, set *Channel Select Mode* to **Descending** and click **Submit**.

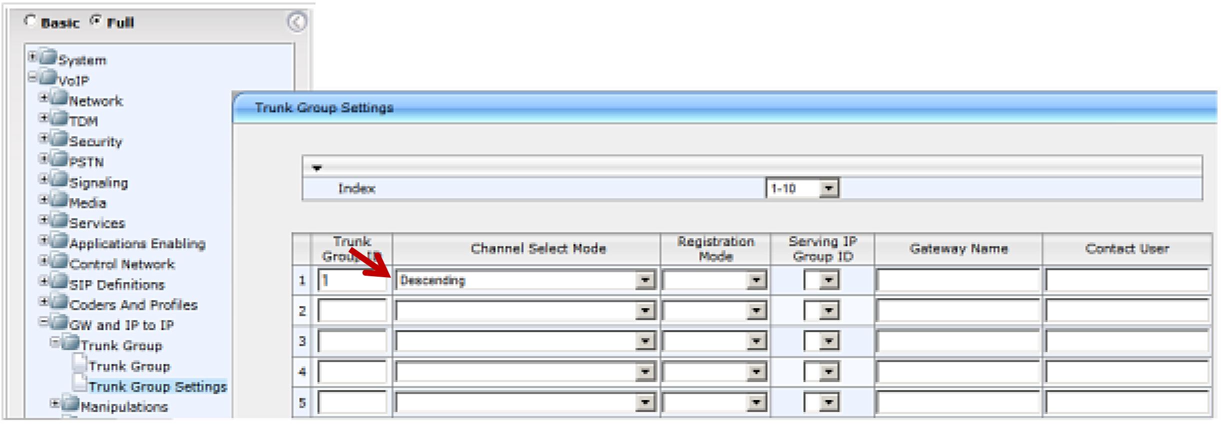


Figure 13: Select VoIP > GW and IP to IP > Trunk Group > Trunk Group Settings

Configure IP to Trunk Group Routing

Important! Be sure to set the source IP address as the MaxCS server's address instead of a wild card; otherwise, a device from any IP address can use the gateway to make PSTN calls.

1. Choose **VoIP** > **GW and IP to IP** > **Routing** > **IP to Trunk Group Routing**.
2. Set *Source IP Address* to the IP address of the MaxCS server.
3. Click **Submit**.

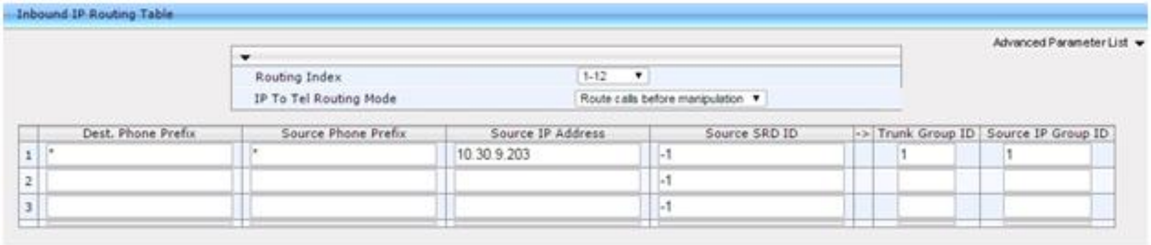


Figure 14: Select VoIP > GW and IP to IP > Routing > IP to Trunk Group Routing

Set Digital Gateway Parameters

Configure digital gateway options.

1. Choose **VoIP** > **GW and IP to IP** > **Digital Gateway** > **Digital Gateway Parameters**.
2. Set *B-Channel Negotiation* to **Preferred**.
3. Click **Submit**.

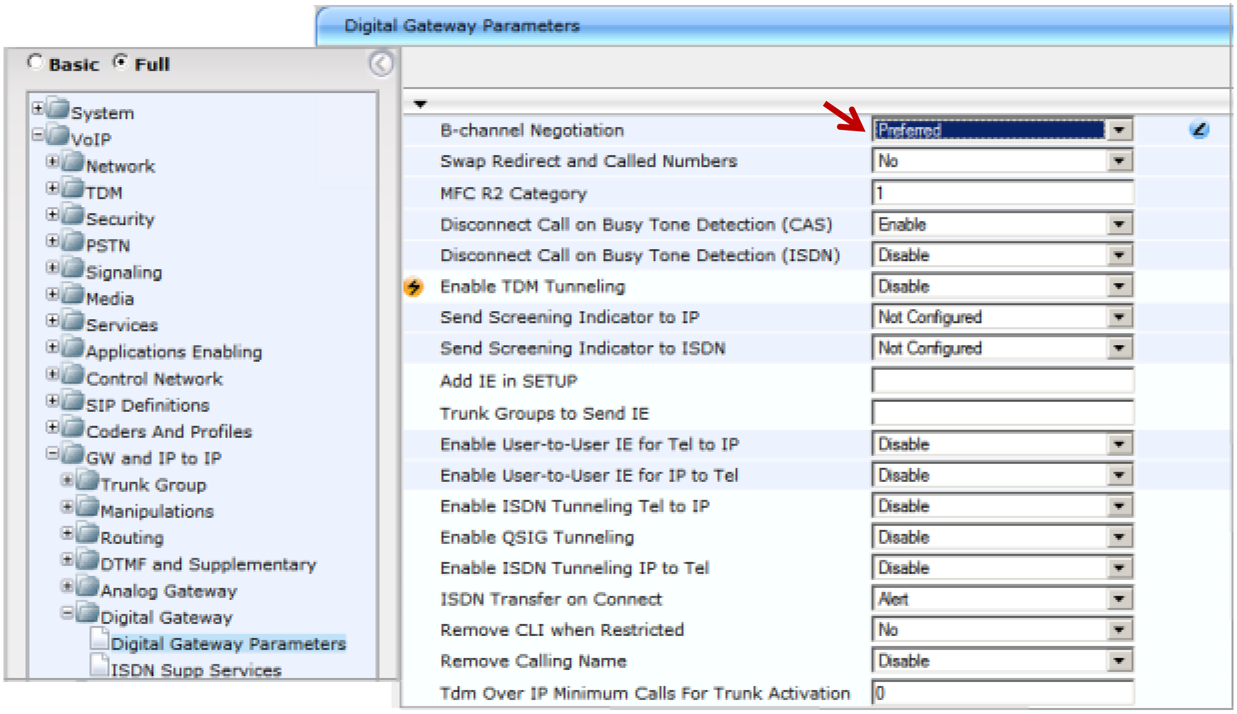


Figure 15: Select VoIP > GW and IP to IP > Digital Gateway > Digital Gateway Parameters

4. Click **Burn** and reboot the gateway.

Configuring the MAX Communications Server

This section shows how to configure MaxCS to work with the AudioCodes gateway.

Configure the SIP Trunk in Enterprise Manager

Configure the SIP trunk in Enterprise Manager.

1. In MaxAdministrator, select **VoIP** > **Enterprise Network Management**.
2. In Enterprise Manager, click the **Codec** button on the top menu bar.

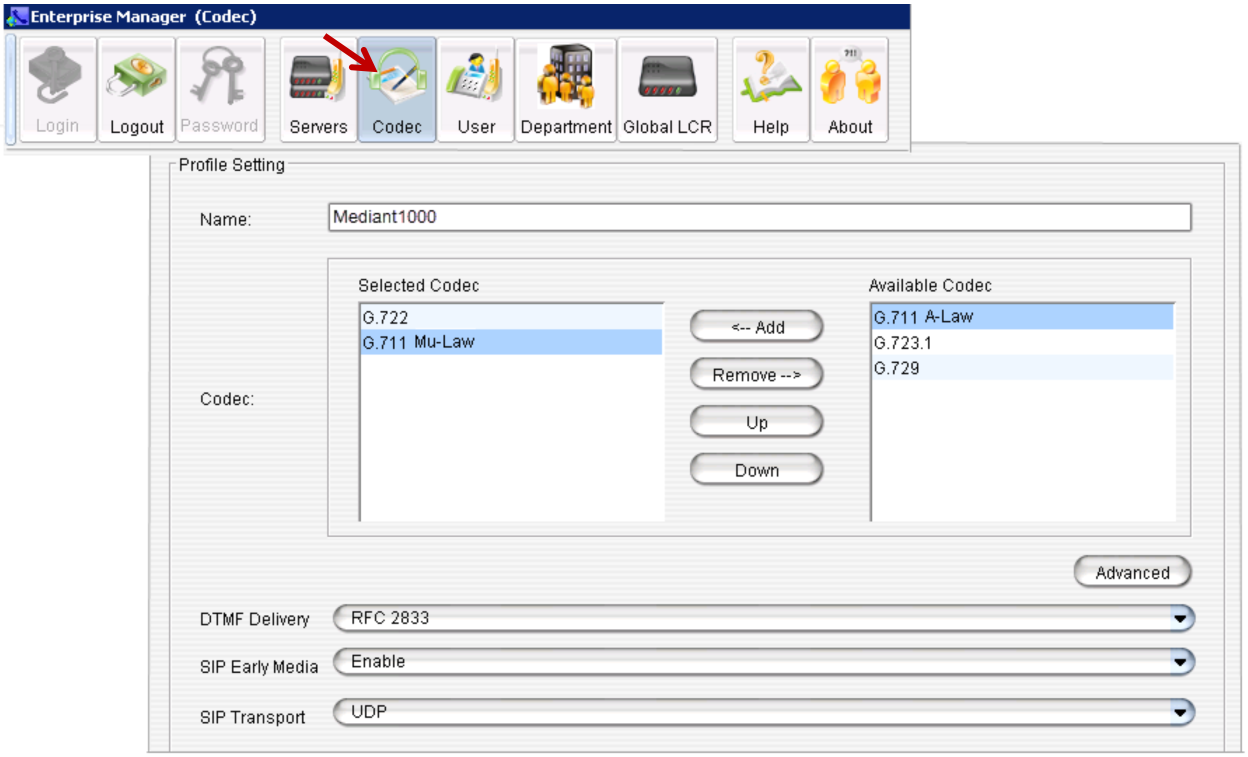


Figure 16: In Enterprise Manager, click the Codec button at the top

3. In the lower left corner, click **Add** to add a new codec profile. Name the profile **Mediant1000** and assign the following properties:
   - For *Selected Codec*, select the appropriate codec and then add **G.711 Mu-Law**
   - Set *DTMF Delivery* to **RFC 2833**
   - Set *SIP Early Media* to **Enable**
   - Set *SIP Transport* to **UDP** and click **Apply**
4. Click the **Servers** button on the top menu bar.
5. Click the **IP Codec** tab, and in the IP Codec pane, click **Add** (the button below the IP Device Range).

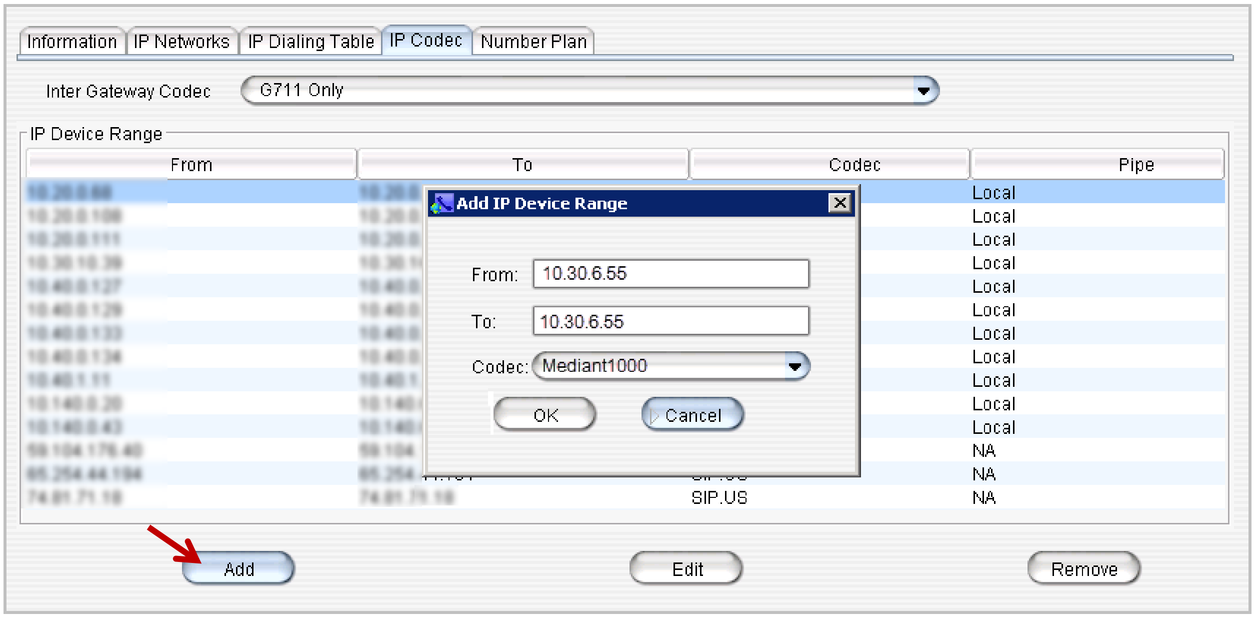


Figure 17: In Enterprise Manager, click Add and enter the IP device range

6. Enter the gateway IP address for both the *From* and *To* IP addresses.
7. For *Codec*, select **Mediant1000**.
8. Click **OK**.

Configure the SIP Group in MaxAdministrator

1. First, create a SIP Group. In MAXCS Administrator, double-click **SIPSP** in *Boards* view. Click **Board Configuration** and then click **SIP Group Configuration**.

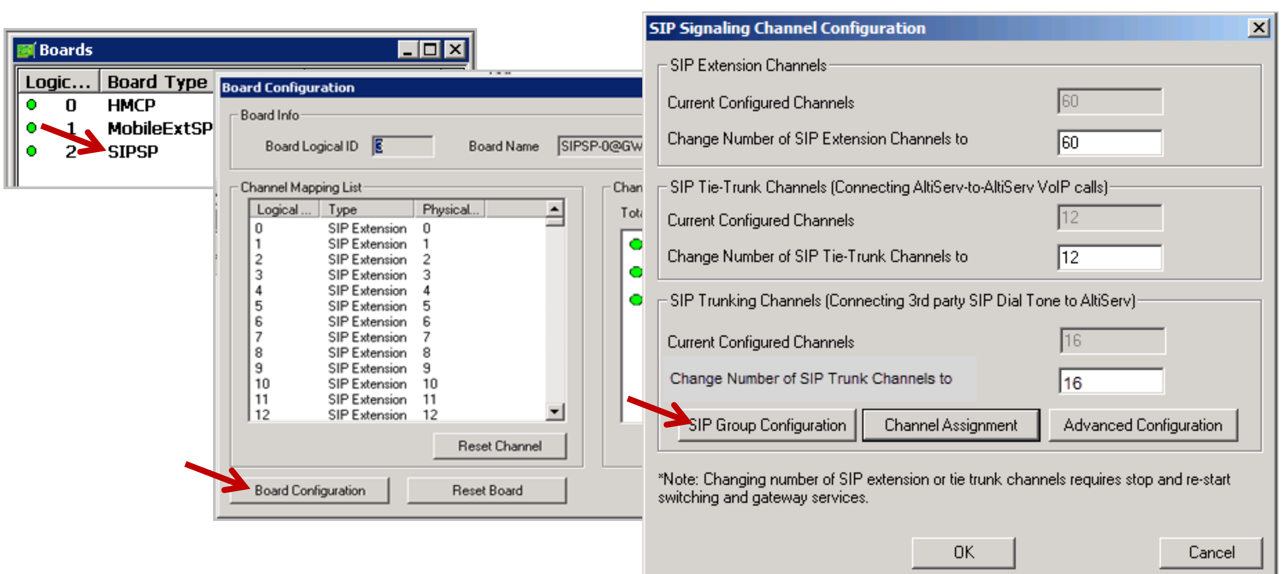


Figure 18: Open the SIP Group Configuration panel

2. Click **Add**. Enter a name for the group (for example, *M1000*). Do not check the *AltiGen Trunk* option. Click **OK**.

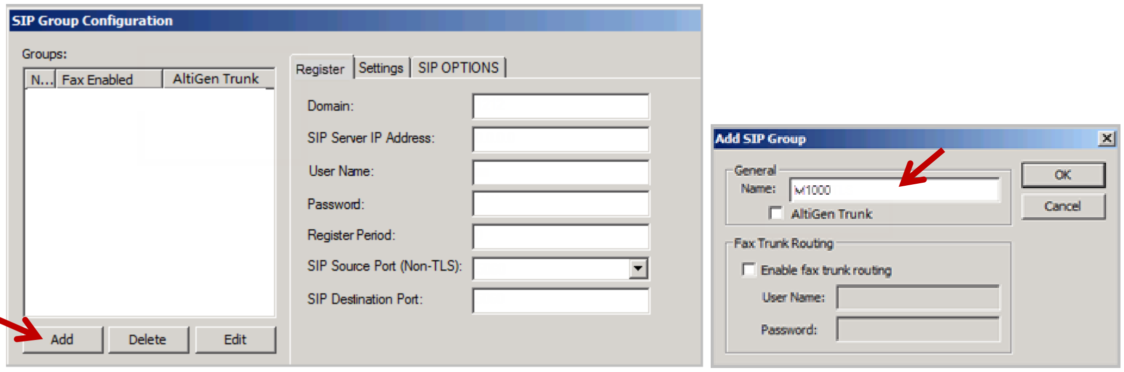


Figure 19: Enter a name for this new SIP Group

3. You will now add a SIP server to this new SIP Group.

   In the panel, highlight the new SIP Group (in the next figure, the new group is named *M1000*) and click the lower **Add** button (the one that is below the *SIP Servers* list). Enter the URL for the domain and click **OK**.

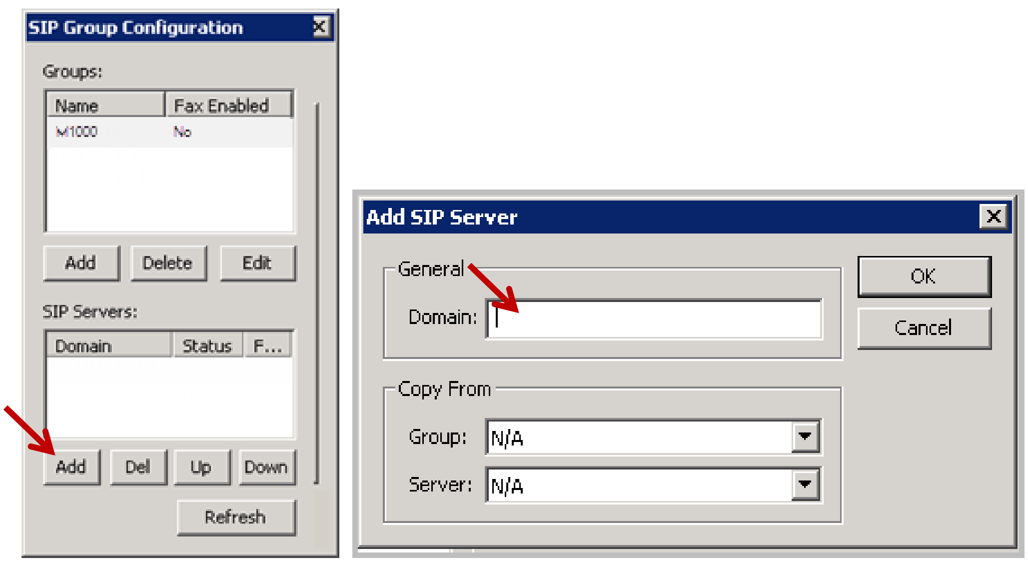


Figure 20: Add a SIP server to the new SIP Group

4. Highlight the new SIP Group. Select this new SIP Server and configure the settings on the *Register* tab.

   - Enter the SIP Server IP Address in the second field.
   - For *User Name,* enter **audiocodes**
   - Leave the *Password* field empty; AudioCodes does not accept registration, so no password is needed.

- For the Register Period, enter **0**
- For the *SIP Source Port (Non-TLS)* and the *SIP Destination Port* options, enter **5060**

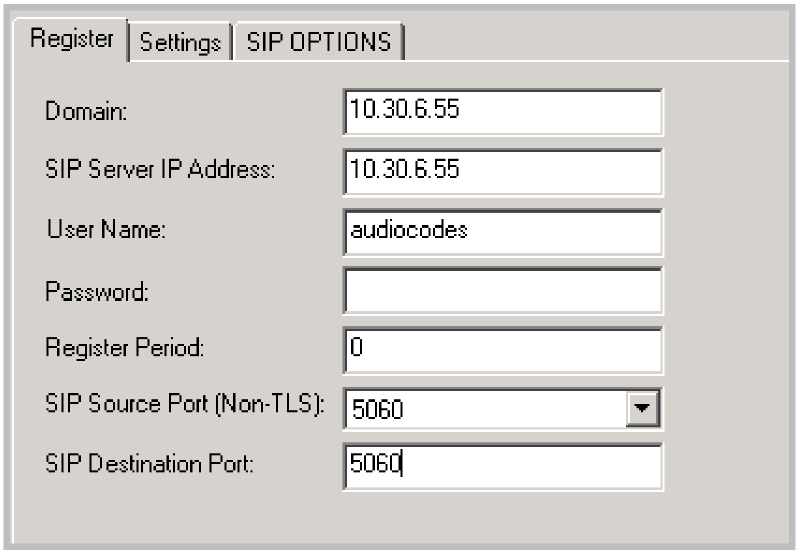


Figure 21: Configure SIP Trunk parameters

5. Switch to the *Settings* tab and set the following parameters:
   - Set the *SIP Protocol Field* to **From Header**
   - Set the options for the carrier's ability to accept transmitted caller ID based on the restrictions provided by the PRI carrier. In this example, *Carrier can only accept Calling Number with minimum xx digits* is set to **10** digits.
   - For *Use this as Calling Number if the Carrier cannot accept configured numbers*, enter your main AudioCodes number.
   - Select **Send Caller Name** to send the extension's name in the outbound call. Note that many remote systems may not receive or display this information.
   - Make sure that *Enable Standard Record-Route Header* is NOT checked.
   - Select **To Header** for the *Incoming DID Numbe*r field.
6. Next, enable channels. Return to the *Board Configuration* panel. Click **Channel Assignment**. Select the appropriate channels (use **Ctrl-Click** to select multiple channels) and click **Assign Group**. Choose the SIP Group you created earlier and click **OK**. Check their checkboxes to enable those channels.

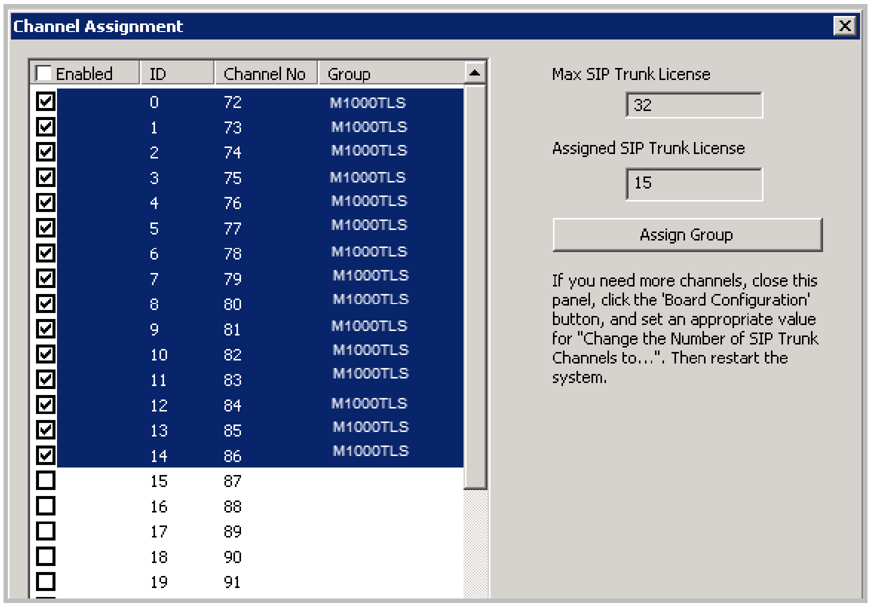


Figure 22: Assign channels to the new group and enable those channels

7. Add a trunk access code to the SIP Trunks that you just configured.
8. Close all of the SIP Group/Board Configuration windows.
9. Re-open *Boards* view. Double click **SIPSP**, select **Board Configuration**, and click **Advanced Configuration**. Add the gateway's IP address, 10.30.6.55, to the *Trusted SIP Device* List.

Figure 23: Add the gateway's IP address to the Trusted Device list

If this IP address is not included in the list, then the IP address will be treated as a malicious SIP device due to excessive SIP messages coming from that address.

10. Verify the configuration by making inbound and outbound calls. Do not proceed any further with this configuration until you can successfully make and receive calls.

Configuring PRI TBCT - Release Link Tie for PRI (Optional)

Before you begin these procedures, be aware that you will be stopping the trunk, which will cause any calls over PRI to drop. Consider performing this step during a period of low call volume.

1. Call your PRI provider to check if they support PRI TBCT (Two B Channel Transfer). If they do, ask them to enable it. Also, please be aware that additional fees may be charged for every TBCT that is made from your PRI provider. Check with your PRI provider to determine if any additional fees will be incurred.
2. Make sure you can make inbound and outbound regular PRI calls without issues. If you cannot make regular inbound or outbound calls, repeat the previous sections until you resolve the issue.
3. In the AudioCodes configuration tool, make sure the menu option **Full** is selected.

Figure 24: Make sure the Menu is set to Full

4. Select **Configuration** > **VoIP** > **PSTN** > **Trunk Settings**. Click **Stop Trunk**. (Warning: Any active calls on the PRI lines will be dropped!)

5. Change *Transfer Mode* to **TBCT**.

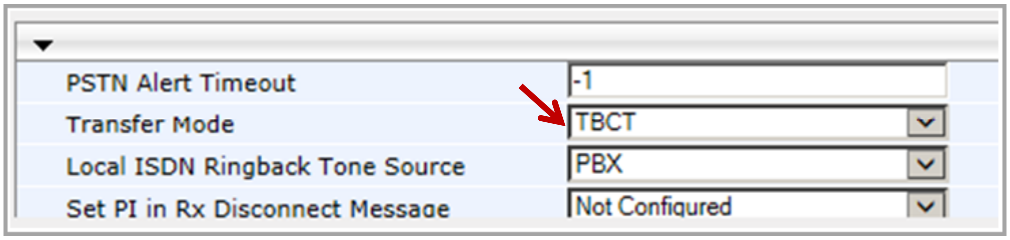


Figure 25: Change Transfer Mode and click Apply Trunk Settings

6. Click **Apply Trunk Settings** near the bottom-left corner to re-enable the trunk.
7. In MaxCS Administrator, open *Boards* view. Double-click **SIPSP,** click **Board Configuration**, and then click **SIP Group Configuration**.

8. Select the SIP group in the list, and then select the SIP server below. Switch to the *Settings* tab and check **Enable SIP REFER**.

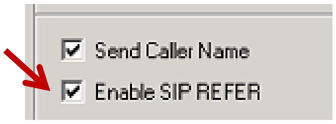


Figure 26: Check the Enable SIP REFER option

9. In MaxCS Administrator, create a virtual extension. The next figure shows a virtual extension *400*. Check the **Release SIP Tie-Link Trunk** option.

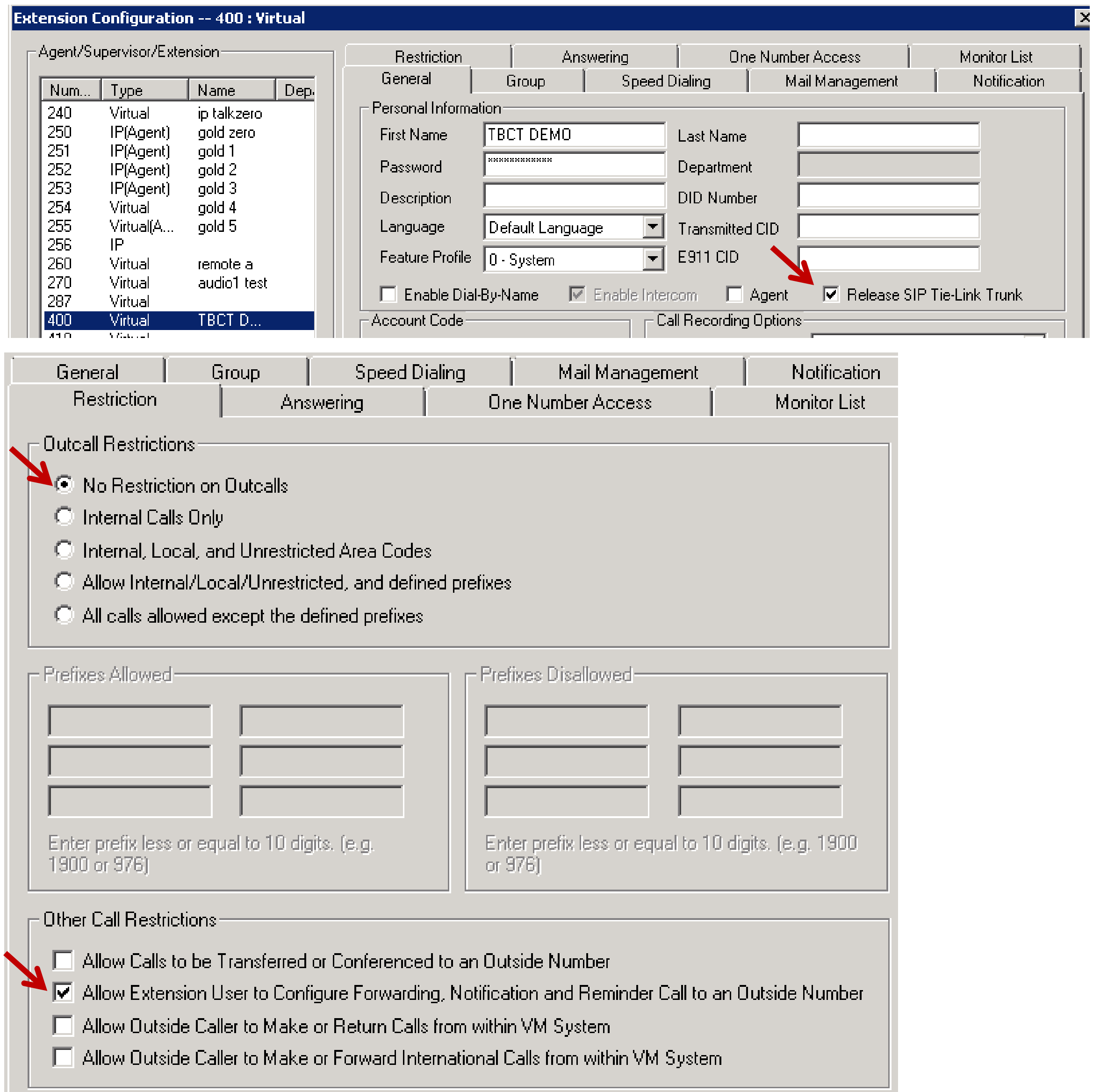


Figure 27: Create a new virtual extension

10. For the same virtual extension, open the extension's *Restriction* tab and check the option **Allow Extension User to Configure Forwarding, Notification and Reminder Call to an Outside number**. In this example, the option **No Restriction on Outcalls** is also selected.
11. On the extension's Answering tab, select *Enable Forward to* and choose **Outside Number**. Enter a target number. In the next example, 14085979000 is the target number.

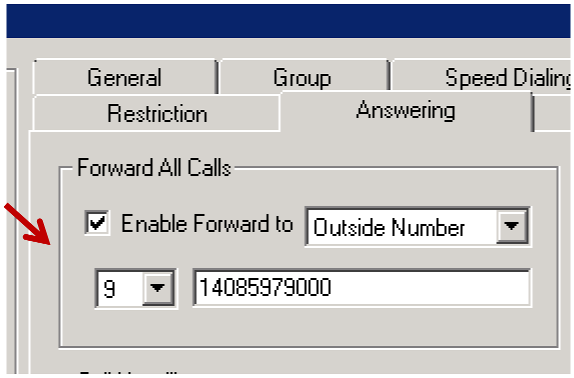


Figure 28: Select the Enable Forward option and choose Outside Number

To verify the configuration,

1. Make a call from your cell phone to the MaxCS system, the number is 14085979200 in this example. The call will enter auto attendant.
2. Dial 400, the call will be transferred to 14085979000. Check the MaxCS Administrator Trunk View; initially, it will use two SIP trunks, but once the call is connected, two of the trunks will be released shortly. The voice between your cell phone and 4085979000 will remain.
3. Remove the PRI cable from the gateway. The voice path between your cell phone and the call (408597900) will remain. (Be aware that the other active calls on the PRI lines will drop during this testing.)

Configuring TLS Support (Optional)

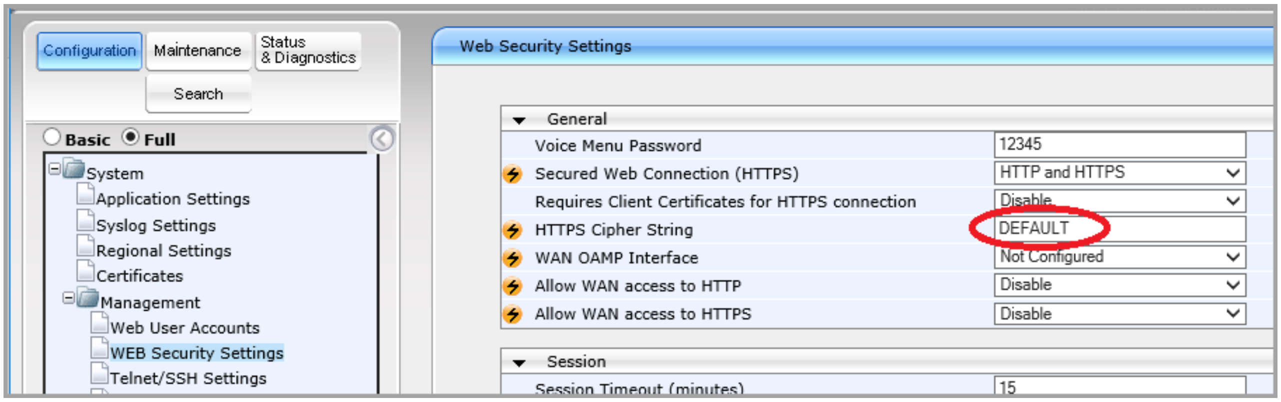
This section shows how to configure the gateway for TLS support.

Set Web Security Settings

AudioCodes' SIP TLS cannot work properly if Web Management's HTTPS is not turned on properly.

⇨ **THESE STEPS ARE IMPORTANT – If you set the Web Security Settings incorrectly, then you may need to reset your device to its initial defaults and reconfigure it again from scratch**.

1. To configure TLS, select **System** > **Management** > **WEB Security settings.**
2. Set *Secured Web Connection (HTTPS)* to **HTTP and HTTPS**. (If you set this to only HTTPS and the device stops working, you may need to reset the device and reconfigure it again.)
3. Set *HTTPS Cipher String* to **DEFAULT**. This field is case-sensitive; **your entry must be in all uppercase letters** as shown in the following figure.



4. Use the **Burn** button to write configuration changes to memory, and then reboot the gateway.

Set Proxy & Registration Settings

Set the proxy and registration parameters.

1. In the AudioCodes web utility, choose **VoIP** > **SIP Definitions** > **Proxy & Registration**.
2. Set *Use Default Proxy* to **Yes**.
3. Click the arrow below the *Use Default Proxy* parameter to open the Proxy Set Table.

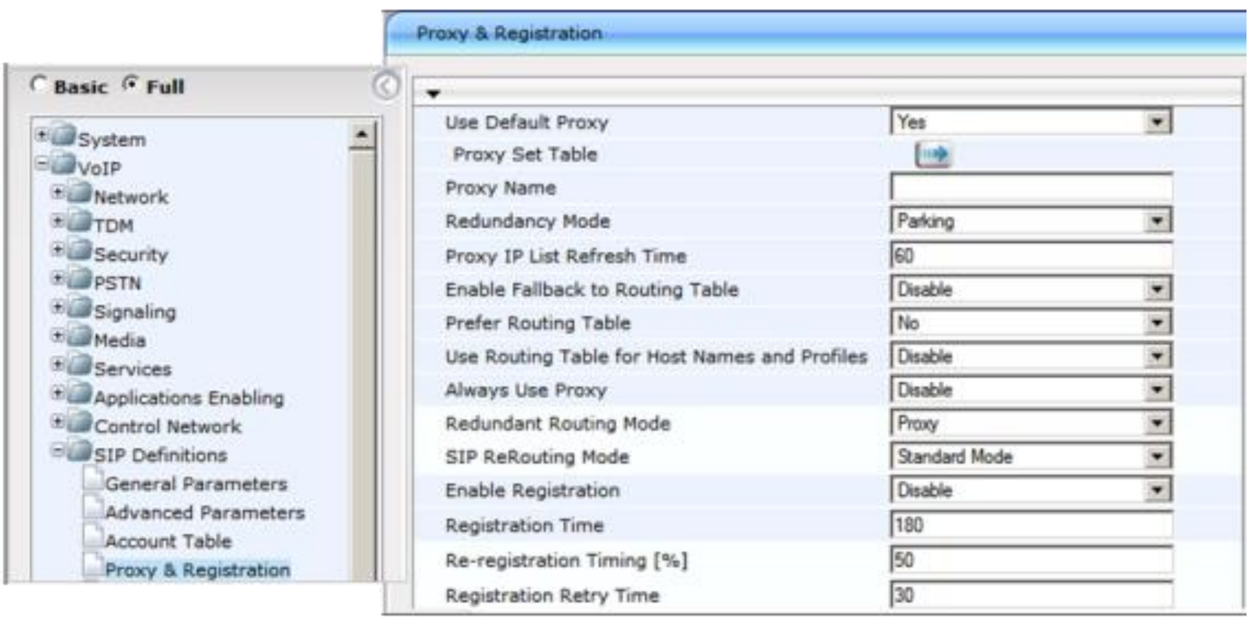


Figure 29: Select VoIP > SIP Definitions > Proxy & Registration

4. In row 1, set *Proxy Address* to the MaxCS server's IP address and port 5061.
   - Set *Transport Type* to **TLS**
   - Set *Enable Proxy Keep Alive* to **Using Options**

5. Click **Submit**. Click **Burn**.

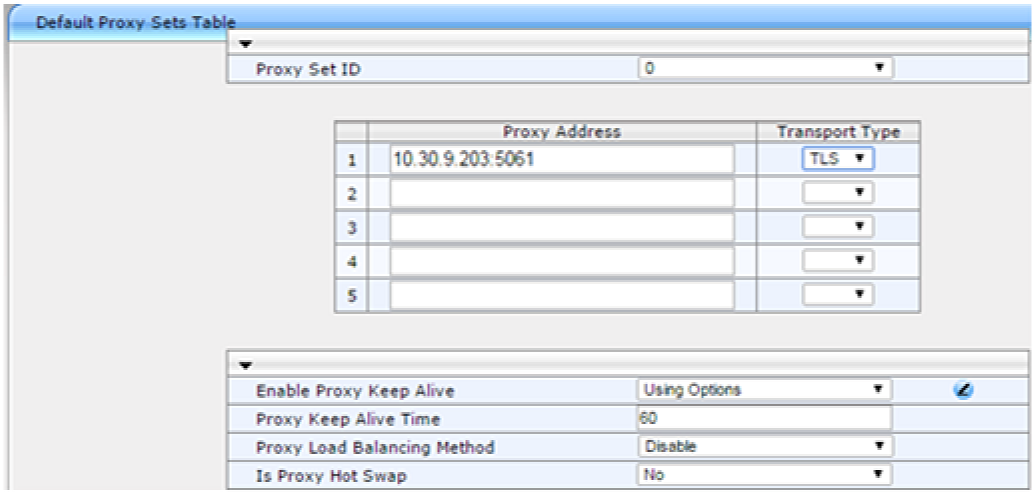


Figure 30: Configure Proxy Set ID 0 parameters

6. Select **VoIP** > **Media** > **Media Security**. Change *Media Security* to **Enable**.

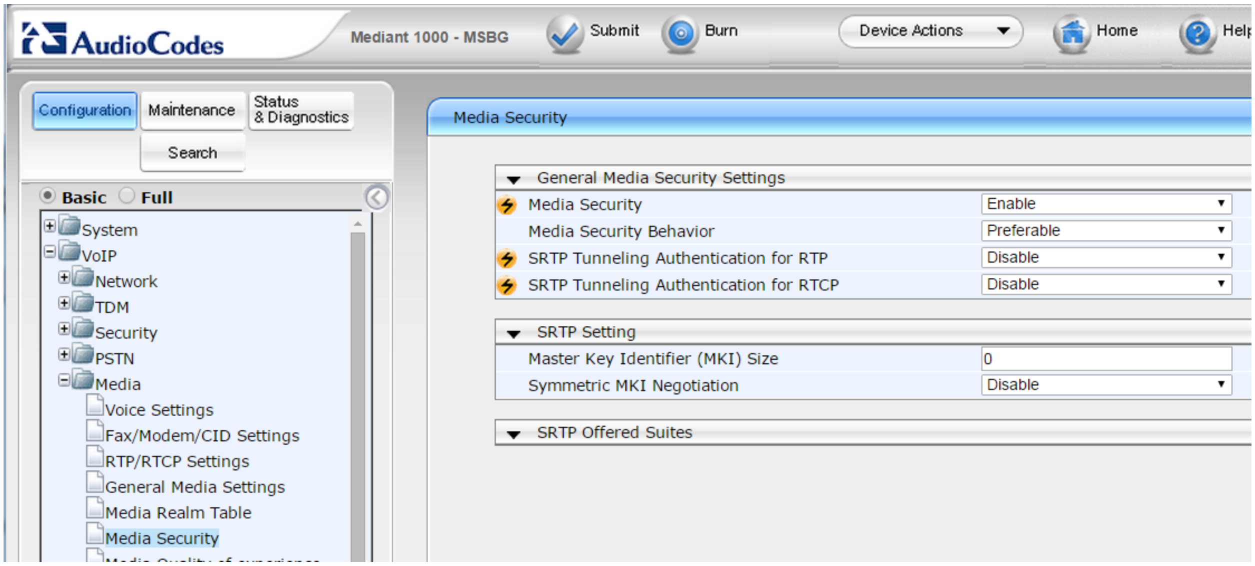


Figure 31: Select VoIP > Media > and set Media Security to enable

7. Burn, and then reboot the Gateway.

Configure TLS in the Codec Profile in Enterprise Manager

Create a new codec profile in Enterprise Manager.

1. In MaxCS Administrator, select **VoIP** > **Enterprise Network Management**.
2. In Enterprise Manager, click the **Codec** button on the top menu bar.

3. In the lower corner, click **Add** to add a new codec profile. Configure these properties:
   - Assign the name **Mediant1000TLS**
   - Select the appropriate codec and then add **G.711 Mu-Law**
   - Set *DTMF Delivery* to **RFC 2833**
   - Set *SIP Early Media* to **Enable**
   - Set *SIP Transport* to **TLS**

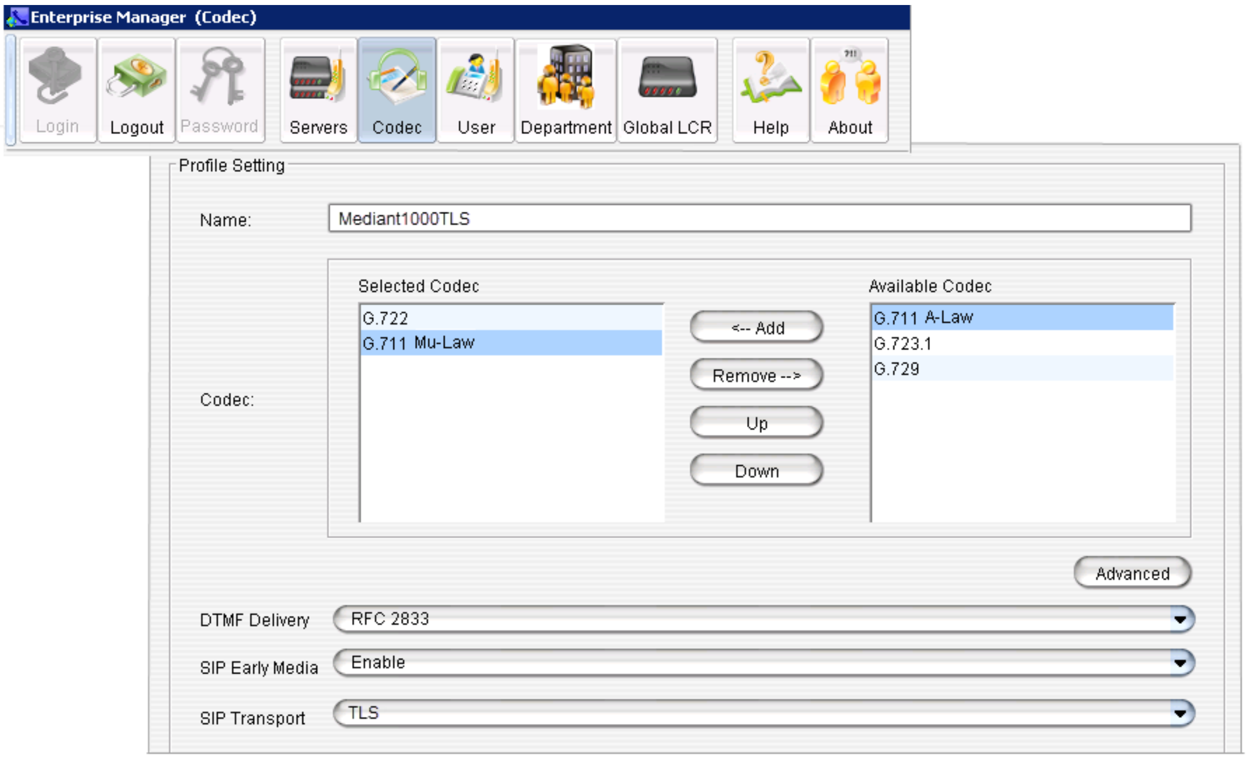


Figure 32: Open Enterprise Manager and add a new codec

4. Click the **Servers** button. Click the **IP Codec** tab.
5. In the IP Codec pane, select the entry points to Mediant 1000 and click **Edit**.
   - Enter the gateway IP address for both the *From* and *To* IP addresses
   - For *Codec*, select **Mediant1000TLS**
6. Click **OK**.

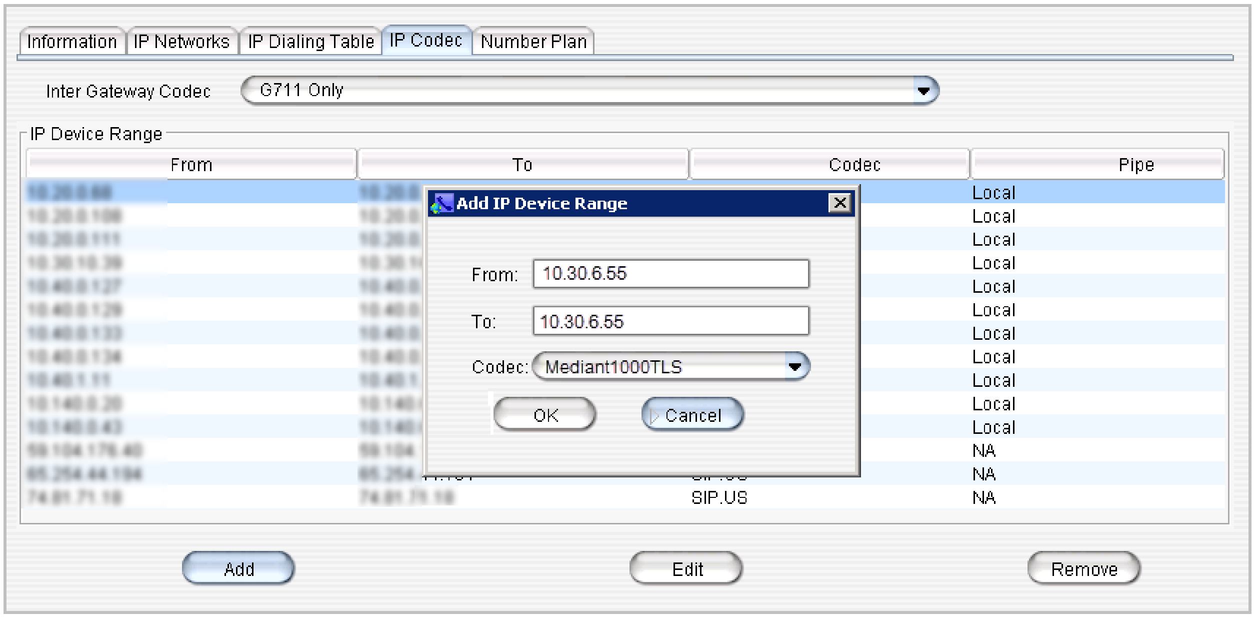


Figure 33: Define the range for the new IP Device

Configure the SIP Trunk in MaxAdministrator

Set up the SIP Trunk in MaxCS Administrator.

1. In MAXCS Administrator, double-click **SIPSP** in *Boards* view. Click **Board Configuration** and then click **SIP Group Configuration**.

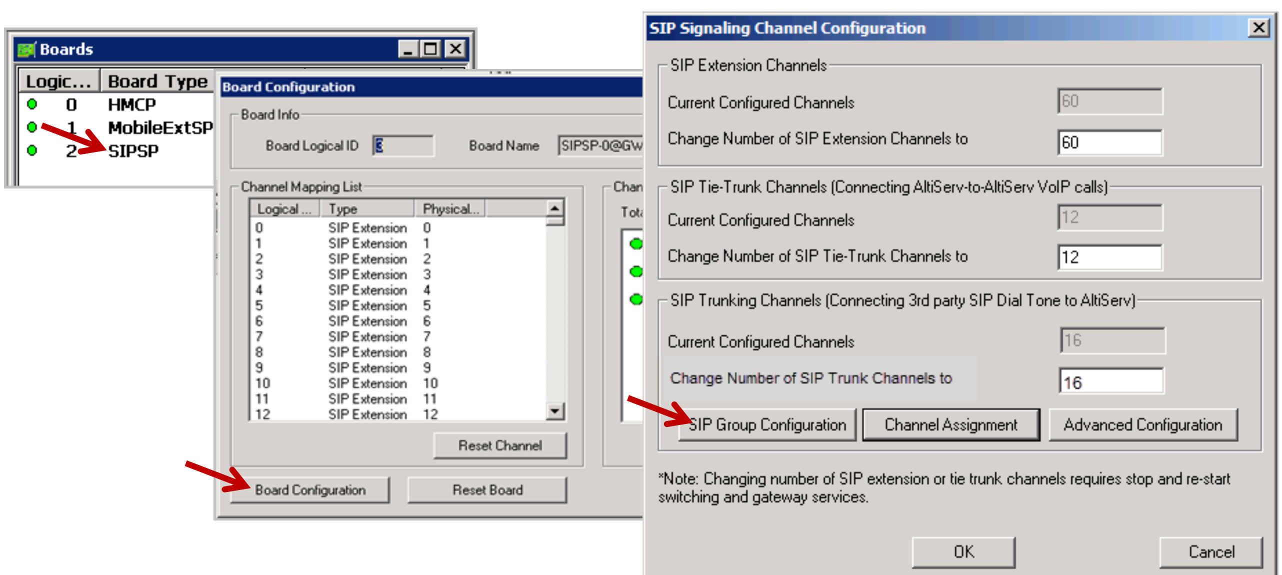


Figure 34: In MaxCS Administrator, open the SIP Group Configuration panel

2. In the SIP Trunk Configuration window, select the SIP Group that you created earlier *(M1000)* and the SIP Server. Check the following parameters:
    - The *SIP Server IP Address* should be the gateway IP address
    - The *User Name* should still be AudioCodes
    - Leave the password empty
    - The *SIP Register Period* should be 0
    - The *SIP Source Port* should be 5060
    - Set the *SIP Destination Port* to **5061**
3. Next, check that the channels are enabled (you did this step earlier). In the Board Configuration panel. Click **Channel Assignment**. Confirm that the channels are assigned and are enabled.
4. Add a trunk access code to the SIP Trunk that you just configured.
5. Click **OK** to save the changes.
6. Click **OK** again to close the *SIP Trunk Configuration* window.
7. Verify the configuration by making inbound and outbound calls.

Troubleshooting

If making outbound PSTN calls sometimes fails, open the AudioCodes configuration tool, select **VoIP** > **GW and IP to IP** > **Digital Gateway** and set *Remove Calling Name* to **Enable**.