



# **BroadSoft Partner Configuration Guide**

Sonus Networks, Inc. SBC 1000 / SBC 2000

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## BroadWorks® Guide

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## Document Revision History

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Version	Reason for Change
1.0	Example: Introduced document for SONUS SBC 1000 / SONUS SBC 2000 version 4.1.0 validation with BroadWorks Release 20.sp1.

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## 1 Overview

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This guide describes the configuration procedures required for the SONUS SBC 1000 / SONUS SBC 2000 for interoperability with BroadWorks.

The SONUS SBC 1000 / SONUS SBC 2000 is an Enterprise SBC with Analog and Digital Interfaces that uses the Session Initiation Protocol (SIP) to communicate with BroadWorks for call control.

This guide describes the specific configuration items that are important for use with BroadWorks. It does not describe the purpose and use of all configuration items on the SONUS SBC 1000 / SONUS SBC 2000. For those details, see the Refer to the SBC 4.0 User's Guide [Error! Reference source not found.](#) supplied by Sonus Network, Inc.

## 2 Interoperability Status

This section provides the known interoperability status of the SONUS SBC 1000 / SONUS SBC 2000 with BroadWorks. This includes the version(s) tested, the capabilities supported, and known issues.

Interoperability testing validates that the device interfaces properly with BroadWorks via the SIP interface. Qualitative aspects of the device or device capabilities not affecting the SIP interface such as display features, performance, and audio qualities are not covered by interoperability testing. Requests for information and/or issues regarding these aspects should be directed to SONUS.

### 2.1 Verified Versions

The following table identifies the verified SONUS SBC 1000 / SONUS SBC 2000 and BroadWorks versions and the month/year the testing occurred. If the device has undergone more than one test cycle, versions for each test cycle are listed, with the most recent listed first.

*Compatible Versions* in the following table identify specific SONUS SBC 1000 / SONUS SBC 2000 versions, which the partner has identified as compatible and they should interface properly with BroadWorks. Generally, maintenance releases of the validated version are considered compatible and may not be specifically listed here. For any questions concerning maintenance and compatible releases, contact <partner name>.

**NOTE:** Interoperability testing is usually performed with the latest generally available (GA) device firmware/software and the latest GA BroadWorks release and service pack at the time the testing occurs. If there is a need to use a non-verified mix of BroadWorks and device software versions, customers can mitigate their risk by self-testing the combination themselves using the *BroadWorks SIP Access Device Interoperability Test Plan* [5].

#### Verified Versions

Date (mm/yyyy)	BroadWorks Release	SONUS SBC 1000 / SONUS SBC 2000 Verified Version	SONUS SBC 1000 / SONUS SBC 2000 Compatible Versions
09/2014	Release R20.0	Release 4.1.0 b15	N/A

### 2.2 Interface Capabilities Supported

This section identifies interface capabilities that have been verified through testing as supported by SONUS SBC 1000 / SONUS SBC 2000.

The *Supported* column in the tables in this section identifies the SONUS SBC 1000 / SONUS SBC 2000's support for each of the items covered in the test plan, with the following designations:

- Yes Test item is supported.

- No Test item is not supported.
- NA Test item is not applicable to the device type.
- NT Test item was not tested.

Caveats and clarifications are identified in the *Comments* column.

### 2.2.1 SIP Interface Capabilities

The Sonus Networks, Inc. SONUS SBC 1000 / SONUS SBC 2000 has completed interoperability testing with BroadWorks using the *BroadWorks SIP Access Device Interoperability Test Plan* [5]. The results are summarized in the following table.

The BroadWorks test plan is composed of packages, each covering distinct interoperability areas, such as “Basic” call scenarios and “Redundancy” scenarios. Each package is composed of one or more test items, which in turn, are composed of one or more test cases. The test plan exercises the SIP interface between the device and BroadWorks with the intent to ensure interoperability sufficient to support the BroadWorks feature set.

**NOTE:** *DUT* in the following table refers to the *Device Under Test*, which in this case is the Sonus Networks, Inc. SONUS SBC 1000 / SONUS SBC 2000.

BroadWorks SIP Access Device Interoperability Test Plan Support Table			
Test Plan Package	Test Plan Package Items	Supported	Comments
<b>Basic</b>	Call Origination	Yes	
	Call Termination	Yes	
	Session Audit	Yes	
	Session Timer	Yes	
	Ringback	Yes	
	Forked Dialog	Yes	
	Early UPDATE	Yes	No support for sending early update.
	Early-Session	No	
	181 Call Being Forwarded	Yes	
	Dial Plan	Yes	
	DTMF – Inband	Yes	
	DTMF – RFC 2833	Yes	
	DTMF – DTMF Relay	No	
	Codec Negotiation	Yes	
	Codec Renegotiation	Yes	
	<b>BroadWorks Services</b>	Third-Party Call Control – Basic	Yes
Voice Message Deposit and Retrieval		Yes	
Message Waiting Indicator		No	
Voice Portal Outcall		Yes	
Advanced Alerting - Ringing		No	
Advanced Alerting – Call Waiting		No	
Advanced Alerting – Ring Splash		No	
Calling Line ID		Yes	
Calling Line ID with Unicode Characters		No	
Connected Line ID		No	
Connected Line ID with Unicode Characters	No		
Connected Line ID on UPDATE	No		

	Connected Line ID on Re-INVITE	No	
	Diversion Header	Yes	
	History-Info Header	No	
	Advice of Charge	No	
	Meet-Me Conferencing	Yes	
	Meet-Me Conferencing – G722	No	
	Meet-Me Conferencing – AMR-WB	No	
<b>DUT Services – Call Control Services</b>	Call Waiting	Yes	
	Call Hold	Yes	
	Call Transfer	No	
	Three-Way Calling	No	
	Network-Based Conference	No	
<b>DUT Services – Registration and Authentication</b>	Register Authentication	No	
	Maximum Registration	No	
	Minimum Registration	No	
	Invite Authentication	No	
	Re-Invite/Update Authentication	No	
	Refer Authentication	No	
	Device Authenticating BroadWorks	No	
<b>DUT Services – Fax</b>	G711 Fax Passthrough	Yes	
	G711 Fax Fallback	Yes	
	T38 Fax Messaging	Yes	
<b>DUT Services – Emergency Call</b>	Emergency Call	No	
	Emergency Call with Ringback	No	
<b>DUT Services – Miscellaneous</b>	Do Not Disturb	No	
	Call Forwarding Always	No	
	Call Forwarding Always Diversion Inhibitor	No	
	Anonymous Call	No	
	Anonymous Call Block	No	
	Remote Restart Via Notify	No	
<b>Redundancy</b>	DNS SRV Lookup	No	
	Register Failover/Failback	No	
	Invite Failover/Failback	No	
	Bye Failover	No	
<b>Session Border Controller (SBC)/Application Layer Gateway (ALG)</b>	Register	Yes	
	Outgoing Invite	Yes	
	Incoming Invite	Yes	
<b>TCP</b>	Register	Yes	
	Outgoing Invite	Yes	
	Incoming Invite	Yes	
<b>IPV6</b>	Call Origination	No	
	Call Termination	No	
	Session Audit	No	
	Ringback	No	
	Codec Negotiation/Renegotiation	No	
	Voice Message Deposit/Retrieval	No	
	Call Control	No	
	Registration with Authentication	No	
	T38 Fax Messaging	No	
	Redundancy	No	
	SBC	No	
	Dual Stack with Alternate Connectivity	No	



### 2.3 Known Issues

This section lists the known interoperability issues between BroadWorks and specific partner release(s). Issues identified during interoperability testing and known issues identified in the field are listed.

The following table provides a description of each issue and, where possible, identifies a workaround. The verified partner device versions are listed with an “X” indicating that the issue occurs in the specific release. The issues identified are device deficiencies or bugs, and are typically not BroadWorks release dependent.

If the testing was performed by BroadSoft, then the *Issue Number* is a BroadSoft ExtraView partner issue number. If the testing was performed by the partner or a third party, then the partner may or may not supply a tracking number.

For more information on any issues related to the particular partner device release, see the partner release notes.

Issue Number	Issue Description	Partner Version			
		4.1.0			
-----	None				

### 3 BroadWorks Configuration

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This section identifies the required BroadWorks device profile type for the SONUS SBC 1000 / SONUS SBC 2000 as well as any other unique BroadWorks configuration required for interoperability with the SONUS SBC 1000 / SONUS SBC 2000 .

#### 3.1 BroadWorks Device Profile Type Configuration

This section identifies the device profile type settings to use when deploying the SONUS SBC 1000 / SONUS SBC 2000 with BroadWorks.

Create a device profile type for the SONUS SBC 1000 / SONUS SBC 2000 as shown in the following example. A separate device profile type should be created for each SONUS SBC 1000 / SONUS SBC 2000 model. The settings shown are recommended for use when deploying the SONUS SBC 1000 / SONUS SBC 2000 with BroadWorks. For an explanation of the profile parameters, see the *BroadWorks Device Management Configuration Guide* [1].

The device profile type shown below provides the *Number of Ports* (number of SIP lines) setting for SONUS SBC 1000 / SONUS SBC 2000. For other SONUS SBC 1000 / SONUS SBC 2000 models, create a new device profile type and set the *Number of Ports* to match the available number of SIP lines per model according to the table below.

Model	Number of Lines
SONUS SBC 1000	24
SONUS SBC 2000	48

### Identity/Device Profile Type Add

Add a new identity/device profile type.

OK Cancel

\* Identity/Device Profile Type:   
 Signaling Address Type:

**Standard Options**

Number of Ports:  Unlimited  Limited To   
 Ringback Tone/Early Media Support:  RTP - Session  
 RTP - Early Session  
 Local Ringback - No Early Media  
 Authentication:  Enabled  
 Disabled  
 Enabled With Web Portal Credentials  
 Hold Normalization:  Unspecified Address  
 Inactive  
 RFC3264  
 Registration Capable  Authenticate REFER  
 Static Registration Capable  Video Capable  
 E164 Capable  Use History Info Header  
 Trusted

**Advanced Options**

Route Advance  Forwarding Override  
 Wireless Integration  Conference Device  
 PBX Integration  Mobility Manager Device  
 Add P-Called-Party-ID  Music On Hold Device  
 Auto Configuration Soft Client  Requires BroadWorks Digit Collection  
 Requires BroadWorks Call Waiting Tone  Requires MWI Subscription  
 Advice of Charge Capable  Support Call Center MIME Type  
 Support Emergency Disconnect Control  Support Identity In UPDATE and Re-INVITE  
 Enable Monitoring  Support RFC 3398  
 Static Line/Port Ordering  Support Client Session Info  
 Support Call Info Conference Subscription URI  Support Remote Party Info  
 Support Visual Device Management  Bypass Media Treatment  
 Reset Event:  reSync  checkSync  Not Supported  
 Trunk Mode:  User  Pilot  Proxy  
 Hold Announcement Method:  Inactive  Bandwidth Attributes  
 Unscreened Presentation Identity Policy:  Profile Presentation Identity  
 Unscreened Presentation Identity  
 Unscreened Presentation Identity With Profile Domain  
 Web Based Configuration URL Extension:

Device Configuration Options:  Not Supported  Device Management  Legacy

OK Cancel

### 3.2 BroadWorks Configuration Steps

There are no additional BroadWorks configurations needed.

## 4 SONUS SBC 1000 / SONUS SBC 2000 Configuration

This section describes the configuration settings required for the SONUS SBC 1000 / SONUS SBC 2000 integration with BroadWorks, primarily focusing on the SIP interface configuration. The SONUS SBC 1000 / SONUS SBC 2000 configuration settings identified in this section have been derived and verified through interoperability testing with BroadWorks. Refer to the Refer to the SBC 4.0 User's Guide [Error! Reference source not found.](#) for SONUS SBC 1000 / SONUS SBC 2000 configuration details not covered in this section.

### 4.1 Configuration Method

Out of the box, the Sonus SONUS SBC 1000/2000 is configured primarily using a web browser via a web interface hosted on the Sonus SONUS SBC 1000/2000 system.



The WebUI provides a full range of configuration options to end-users. To list a few, the ability to configure IP interfaces, setting the telephony ports, configuring routes and digit manipulation, and managing Users and Groups.

### 4.2 System Level Configuration

This section describes system-wide configuration items that are generally required for each SONUS SBC 1000 / SONUS SBC 2000 to work with BroadWorks. Subscriber-specific settings are described in the next section.

#### 4.2.1 Configuration Settings

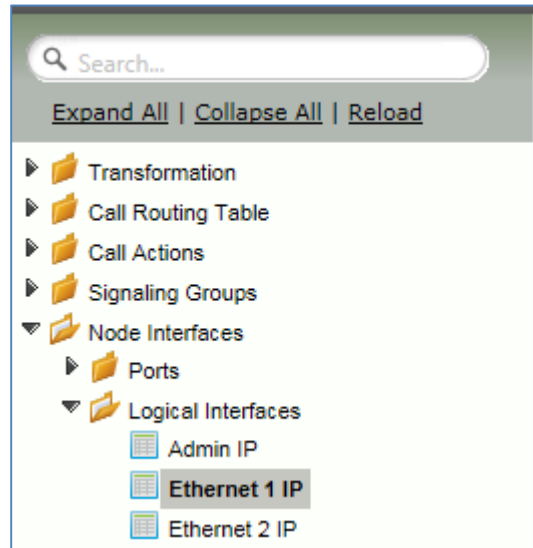
The Tabs across the top of the Sonus SBC WebUI permit the user to access various configuration subsystems. Within this document, all configurations will be performed under the SETTINGS tab.



## 4.2.2 Configure Network Settings

Configure the SBC's basic network connectivity items to permit the SBC to interoperate with the Broadsoft Server as well as Enterprise network.

- In the Navigation tree, click on *Ethernet 1 IP*



- Configure the Ethernet IP 1 port as necessary to connect to the Broadsoft server.

**Ethernet 1 IP**      10.1.1.74      Disabled

**Identification/Status**

Interface Name: Ethernet 1 IP  
 I/F Index: 39  
 Alias:   
 Description:   
 Admin State: Enabled

**Networking**

MAC Address: 00:10:23:01:01:01  
 IP Assign Method: Static  
 Primary Address: 10.1.1.74  
 Primary Netmask: 255.255.255.0  
 Configure Secondary Interface: Disabled

ACL In: None  
 ACL Out: None  
 ACL Forward: None

- Configure an additional Ethernet Port for connection to the Enterprise LAN.

**Ethernet 3 IP**

**Identification/Status**

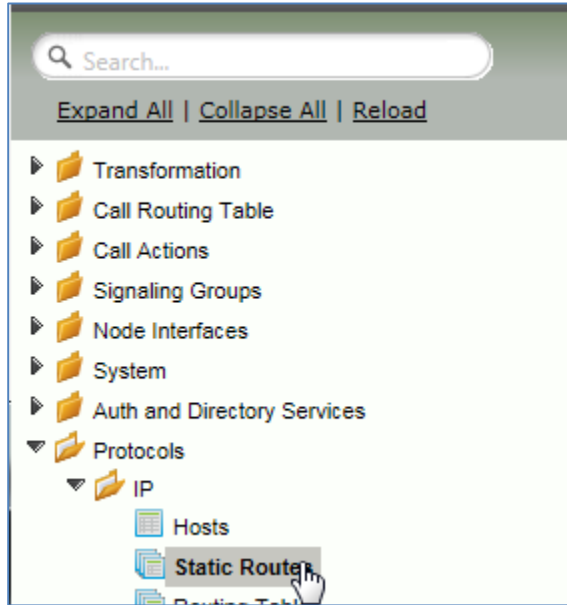
Interface Name: Ethernet 3 IP  
 I/F Index: 0  
 Alias:   
 Description:   
 Admin State: Enabled

**Networking**

MAC Address: 00:10:23:01:01:01  
 IP Assign Method: Static  
 Primary Address: 10.56.242.15  
 Primary Netmask: 255.255.255.0  
 Configure Secondary Interface: Disabled

ACL In: None  
 ACL Out: None  
 ACL Forward: None

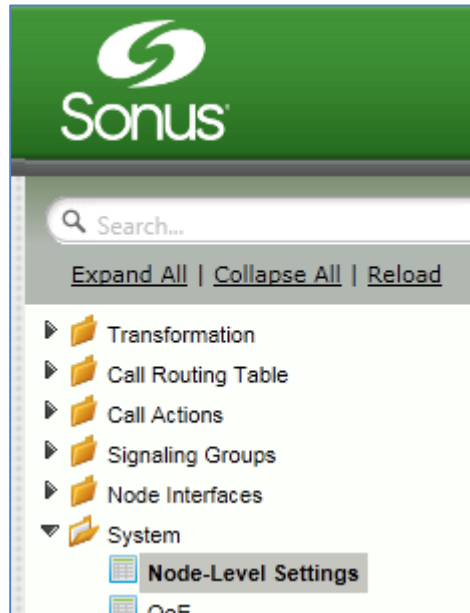
- In the Navigation Tree, click on *Static Routes*



- Configure any IP routes required to provide connectivity between the SBC and the Broadsoft server, as well as any IP routes required to provide connectivity to the Enterprise LAN.

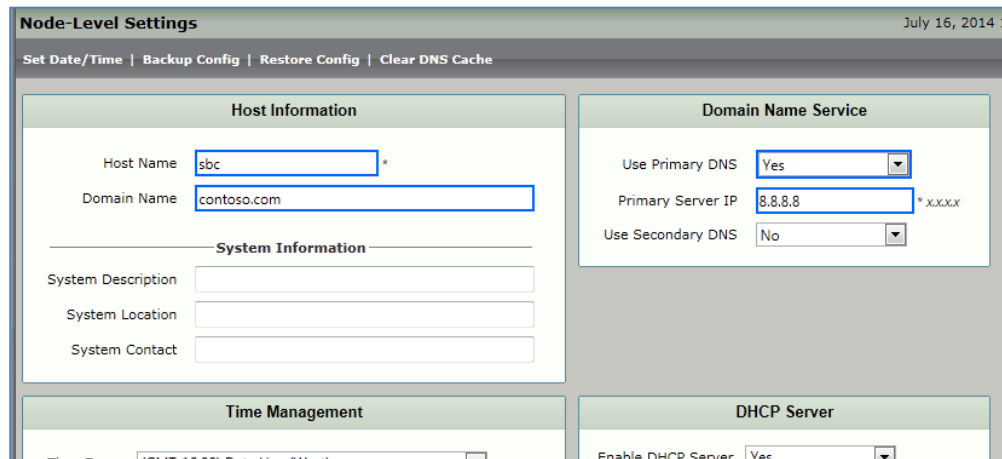
Static IP Route Table				
Total 4 IP Route Rows				
Row ID	Destination IP	Mask	Gateway	Metric
1	172.16.110.106	255.255.255.255	134.56.227.5	1
2	199.19.193.0	255.255.255.0	134.56.242.1	1

- In the Navigation Tree, click on *System | Node-Level Settings*



Verify or add the following information to the Node-Level Settings:

- Ensure the SBC has a configured Host Name
- Ensure the SBC has a configured Domain Name
- Ensure Primary DNS Server IP is set to an appropriate DNS server
- Click Apply



#### 4.2.2.1 Configure IPV6 Settings

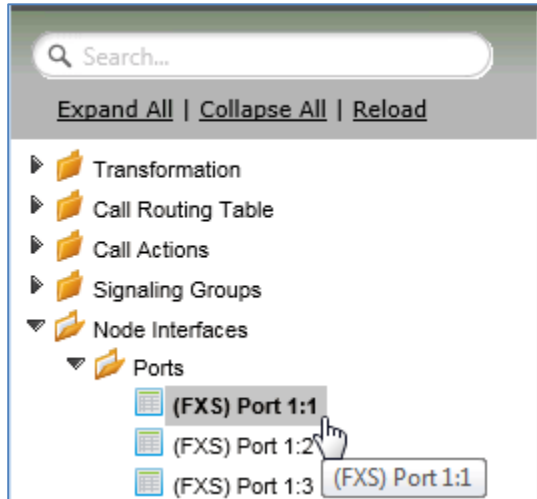
*Not Supported.*



### 4.2.3 Configure an FXS Port

Create an *FXS Port* as noted below.

- In the Navigation Tree, click on *Settings Tab | Node Interfaces | Ports | FXS Port*



- Set the FXS Port as shown below and click *Apply*

**Identification/Status**

Port Alias	<input type="text" value="FXS 1"/>
Description	<input type="text" value="FXS Port 1"/>
Admin State	<input type="text" value="Enabled"/>
Service Status	Up
Last Service Status Change	Thu Sep 25 17:54:30 2014
Physical Alarm Status	Normal

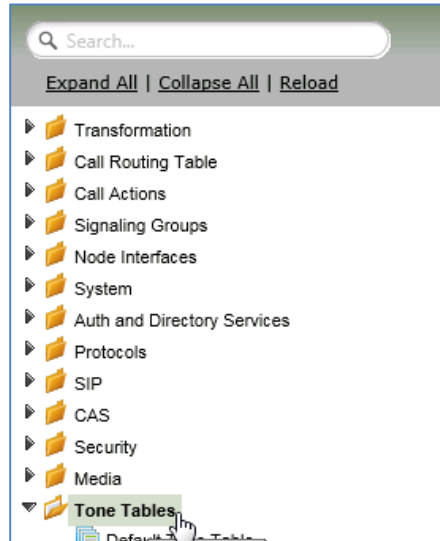
**Physical Layer**

Analog Line Profile	<input type="text" value="United States"/>
<b>Relative Profile Adjustments</b>	
Receive Gain	<input type="text" value="-6"/> dB [-11..0]
Transmit Gain	<input type="text" value="0"/> dB [-5..5]

#### 4.2.4 Configure a FXS Tone Table

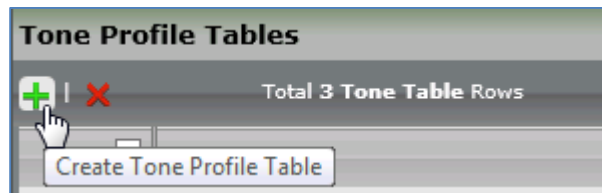
Tone tables allow the Sonus SONUS SBC 1000/2000 Administrator to customize the tones a user hears when placing a call. You can modify the tone to match your local PSTN or PBX. The default tone table is configured for the values used in the United States for the following categories: Ringback, Dial, Busy, Congestion, Call Waiting, Disconnect, and Confirmation.

- In the Navigation tree, click on Tone Table



Add a Tone Profile Table:

- Click the + to add a Tone Table

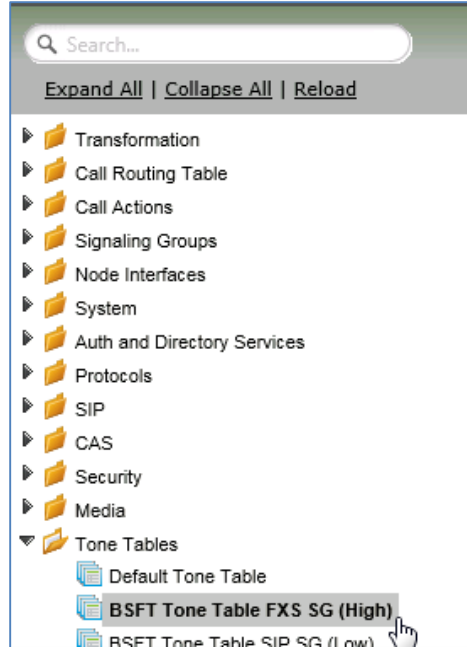


- Type of name of the Table

A screenshot of the 'Create Tone Profile Table' form. The title bar shows 'Create Tone Profile Table' and the date/time 'September 26, 2014 05:09:53'. The form contains two fields: 'Row ID' with the value '4' and 'Description' with the value 'BSFT Tone Table FXS SG (High)'. The 'Description' field is highlighted with a blue border.

- Click OK

- In the Navigation tree, click on the name of the new Tone Table that you just added

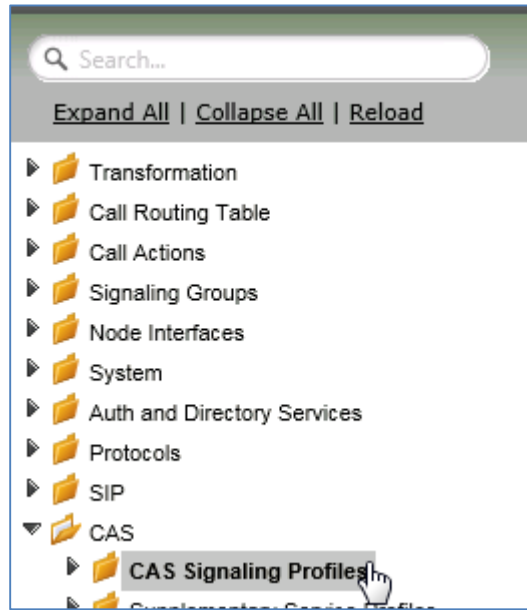


- Set each Tone Table entry as noted below

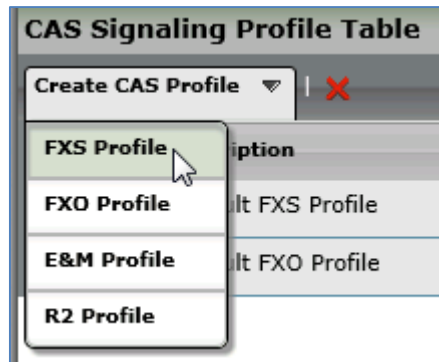
BSFT Tone Table FXS SG (High)				
Total 7 Tone Profile Rows				
Tone Type	Frequency 1 (Hz)	Amplitude 1 (dBm)	Frequency 2 (Hz)	Amplitude 2 (dBm)
Ringback	900	-19	900	-19
Dial	350	-13	440	-13
Busy	480	-24	620	-24
Congestion	480	-24	620	-24
Call Waiting	440	-13	Not Used	Not Used
Disconnect	480	-24	620	-24
Confirmation	350	-13	440	-13

#### 4.2.5 Configure a CAS Signaling Profile

- In the Navigation tree, click on *CAS Signaling Profile*



- From the *Create CAS Profile* pulldown, select *FXS Profile*



Enter the CAS Profile information as noted below. Click OK.

**CAS Loop Start FXS Profile: Default FXS Profile**
Septemb

Description

**Loop Start FXS Properties**

Loop Start Type  ▼

Forward Disconnect Duration  \* ms [100..3000]

Disconnect Tone Generation  ▼

Flashhook Signal Detection  ▼

Maximum Flashhook Duration  \* ms [50..1000]

Minimum Flashhook Duration  \* ms [50..1000]

Inter-Digit Timeout  \* ms [250..30000]

**Ringing Cadence**

Cadence On  \* ms [50..9000]

Cadence Off  \* ms [50..9000]

**Double Cadence**

Double Cadence  ▼

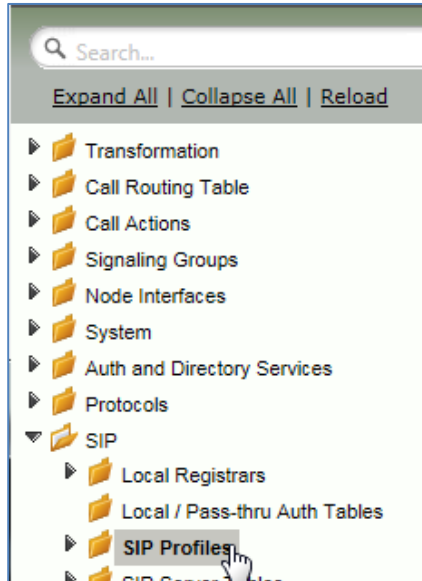
Cadence On  \* ms [50..9000]

Cadence Off  \* ms [50..9000]

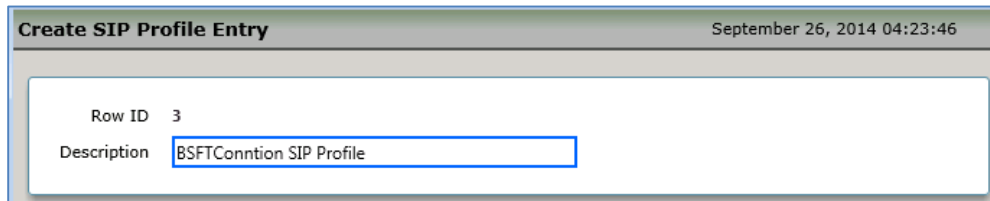
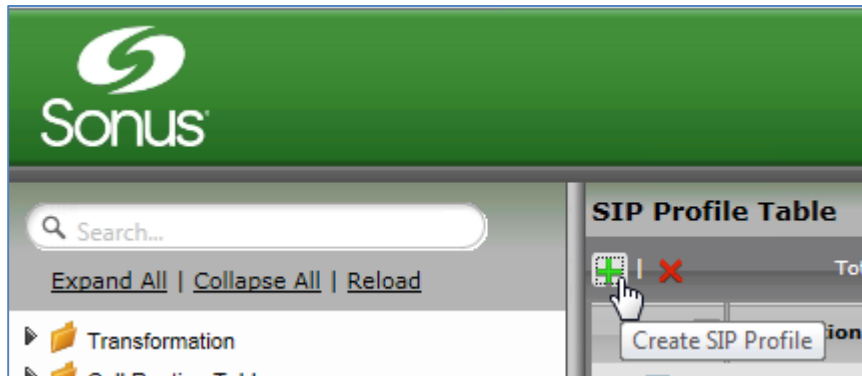
#### 4.2.6 Configure SIP Interface Settings for Broadworks

Create the *Broadworks SIP Profile* as noted below.

- In the Navigation Tree, click on *SIP Profiles*



- Create a SIP Profile by clicking +.



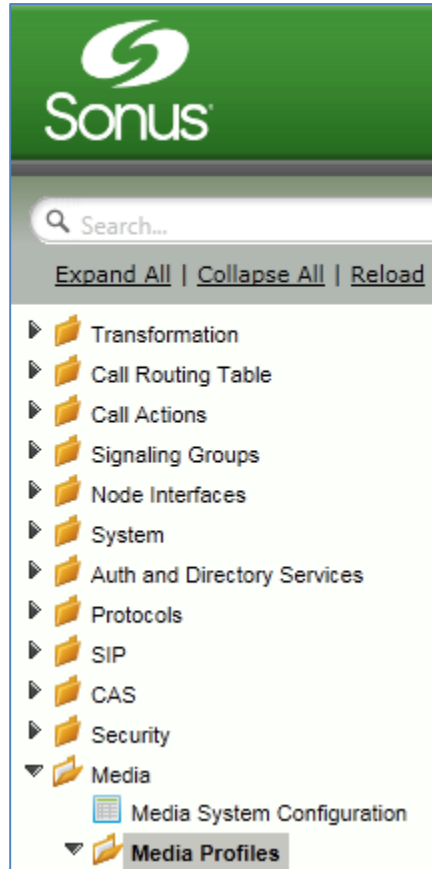
- Configure the SIP Profile as noted below to permit proper connectivity to the Broadsoft Server.

SIP Profile Entry: BSFTConntion SIP Profile																																					
Description BSFTConntion SIP Profile																																					
<table border="1"> <thead> <tr> <th colspan="2">Session Timer</th> </tr> </thead> <tbody> <tr> <td>Session Timer</td> <td>Disable</td> </tr> </tbody> </table>	Session Timer		Session Timer	Disable	<table border="1"> <thead> <tr> <th colspan="2">MIME Payloads</th> </tr> </thead> <tbody> <tr> <td>ELIN Identifier</td> <td>LOC</td> </tr> <tr> <td>PIDF-LO Passthrough</td> <td>Enable</td> </tr> <tr> <td>Unknown Subtype Passthrough</td> <td>Disable</td> </tr> </tbody> </table>	MIME Payloads		ELIN Identifier	LOC	PIDF-LO Passthrough	Enable	Unknown Subtype Passthrough	Disable																								
Session Timer																																					
Session Timer	Disable																																				
MIME Payloads																																					
ELIN Identifier	LOC																																				
PIDF-LO Passthrough	Enable																																				
Unknown Subtype Passthrough	Disable																																				
<table border="1"> <thead> <tr> <th colspan="2">Header Customization</th> </tr> </thead> <tbody> <tr> <td>FQDN in From Header</td> <td>Server FQDN</td> </tr> <tr> <td>Send Assert Header</td> <td>Trusted Only</td> </tr> <tr> <td>Trusted Interface</td> <td>Enable</td> </tr> <tr> <td>UA Header</td> <td>Sonus SBC</td> </tr> <tr> <td>Calling Info Source</td> <td>RFC Standard</td> </tr> <tr> <td>Diversion Header Selection</td> <td>Last</td> </tr> </tbody> </table>	Header Customization		FQDN in From Header	Server FQDN	Send Assert Header	Trusted Only	Trusted Interface	Enable	UA Header	Sonus SBC	Calling Info Source	RFC Standard	Diversion Header Selection	Last	<table border="1"> <thead> <tr> <th colspan="2">Options Tags</th> </tr> </thead> <tbody> <tr> <td>100rel</td> <td>Supported</td> </tr> <tr> <td>Update</td> <td>Supported</td> </tr> </tbody> </table>	Options Tags		100rel	Supported	Update	Supported																
Header Customization																																					
FQDN in From Header	Server FQDN																																				
Send Assert Header	Trusted Only																																				
Trusted Interface	Enable																																				
UA Header	Sonus SBC																																				
Calling Info Source	RFC Standard																																				
Diversion Header Selection	Last																																				
Options Tags																																					
100rel	Supported																																				
Update	Supported																																				
<table border="1"> <thead> <tr> <th colspan="2">Timers</th> </tr> </thead> <tbody> <tr> <td>Transport Timeout Timer</td> <td>5000</td> </tr> <tr> <td>Maximum Retransmissions</td> <td>RFC Standard</td> </tr> <tr> <td colspan="2" style="text-align: center;">————— RFC timers —————</td> </tr> <tr> <td>Timer T1</td> <td>500</td> </tr> <tr> <td>Timer T2</td> <td>4000</td> </tr> <tr> <td>Timer T4</td> <td>5000</td> </tr> <tr> <td>Timer D</td> <td>32000</td> </tr> <tr> <td>Timer B</td> <td>32000 ms</td> </tr> <tr> <td>Timer F</td> <td>32000 ms</td> </tr> <tr> <td>Timer H</td> <td>32000 ms (64*TimerT1)</td> </tr> <tr> <td>Timer J</td> <td>32000 ms (64*TimerT1)</td> </tr> </tbody> </table>	Timers		Transport Timeout Timer	5000	Maximum Retransmissions	RFC Standard	————— RFC timers —————		Timer T1	500	Timer T2	4000	Timer T4	5000	Timer D	32000	Timer B	32000 ms	Timer F	32000 ms	Timer H	32000 ms (64*TimerT1)	Timer J	32000 ms (64*TimerT1)	<table border="1"> <thead> <tr> <th colspan="2">SDP Customization</th> </tr> </thead> <tbody> <tr> <td>Send Number of Audio Channels</td> <td>True</td> </tr> <tr> <td>Connection Info in Media Section</td> <td>True</td> </tr> <tr> <td>Origin Field Username</td> <td>SBC</td> </tr> <tr> <td>Session Name</td> <td>VoipCall</td> </tr> <tr> <td>Digit Transmission Preference</td> <td>RFC 2833/Voice</td> </tr> </tbody> </table>	SDP Customization		Send Number of Audio Channels	True	Connection Info in Media Section	True	Origin Field Username	SBC	Session Name	VoipCall	Digit Transmission Preference	RFC 2833/Voice
Timers																																					
Transport Timeout Timer	5000																																				
Maximum Retransmissions	RFC Standard																																				
————— RFC timers —————																																					
Timer T1	500																																				
Timer T2	4000																																				
Timer T4	5000																																				
Timer D	32000																																				
Timer B	32000 ms																																				
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Origin Field Username	SBC																																				
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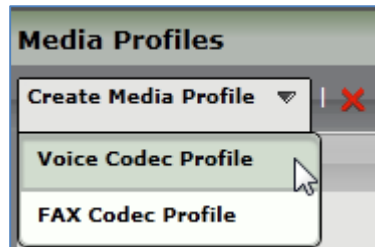
#### 4.2.7 Configure Media Settings

Media Profiles allow you to specify the individual voice and fax compression codecs and their associated settings, for inclusion in a [Media List](#). Different codecs provide varying levels of compression, allowing one to reduce bandwidth requirements at the expense of voice quality.

- In the Navigation Tree, click on *Media Profiles*.

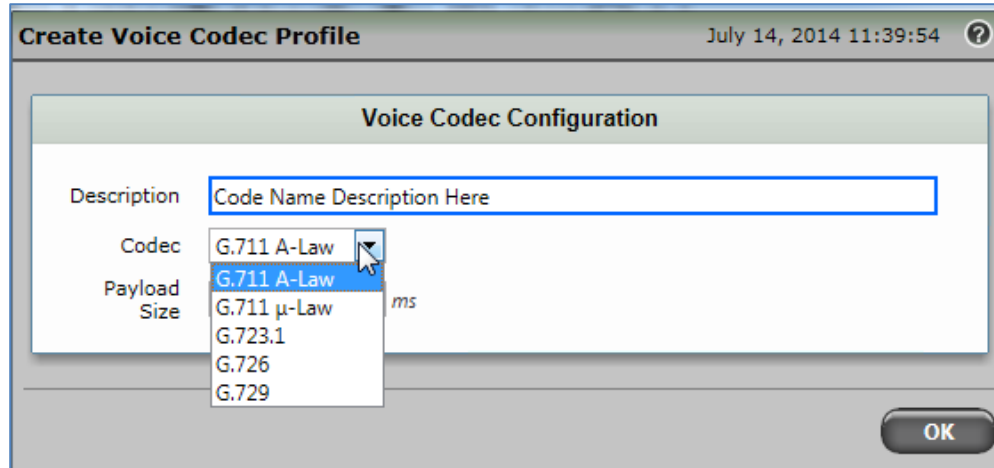


- Create a *Voice Codec Profile*.





- Add any codecs required for your configuration Broadworks or Enterprise applications. Repeat these steps until all the desired codecs are added.



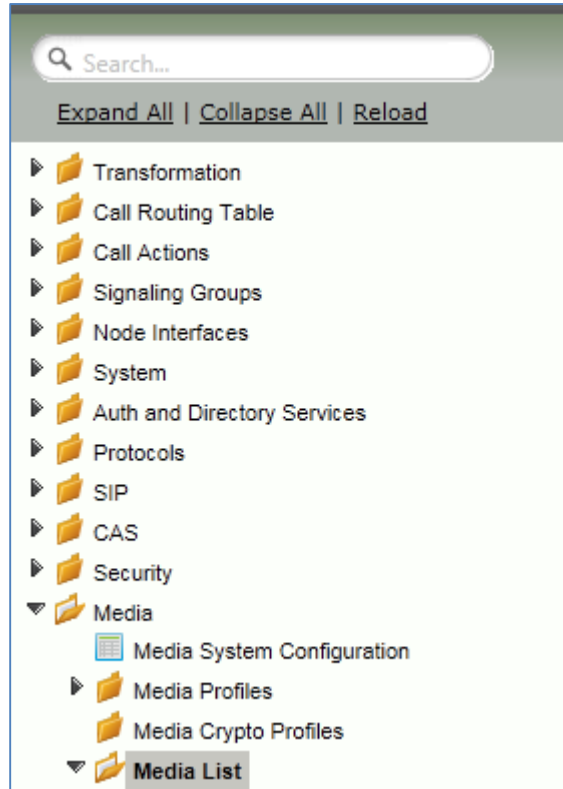
- When completed, your codec configuration will list all the codecs you've created.

Media Profiles		
Create Media Profile ▼   ✖		Total 6 Media Profile Rows
<input type="checkbox"/>	Codec	Description
▶ <input type="checkbox"/>	G.711 A-Law	Default G711A
▶ <input type="checkbox"/>	G.711 μ-Law	Default G711u
▶ <input type="checkbox"/>	G.729	G.729
▶ <input type="checkbox"/>	G.723.1	G.723.1
▶ <input type="checkbox"/>	G.726	G.726
▶ <input type="checkbox"/>	T.38 Fax	T.38 Fax

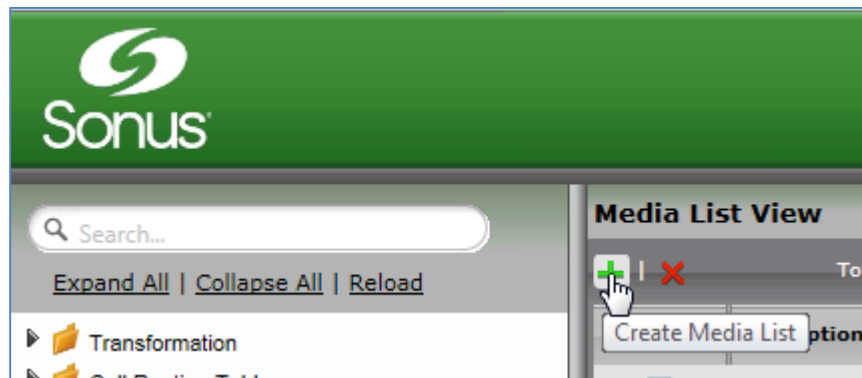
#### 4.2.8 Configure Media Lists

Media Lists allow you to specify a set of codecs and fax profiles that are allowed on a given SIP Signaling Group. They contain one or more Media Profiles, which must first be defined in [Media Profiles](#). These lists allow you to accommodate specific transmission requirements, and SIP devices that only implement a subset of the available voice codecs.

- In the Navigation Tree, click on *Media List*



- Create a Media List for the Broadsoft application



- Add any codecs to be available from the Broadsoft application.

BSFT Media List

Description: BSFT Media List

Media Profiles List: Default G711A, Default G711u, G.729

Crypto Profile ID: None

Media DSCP: 46 \* [0..63]

RTCP Mode: RTCP

Dead Call Detection: Disabled

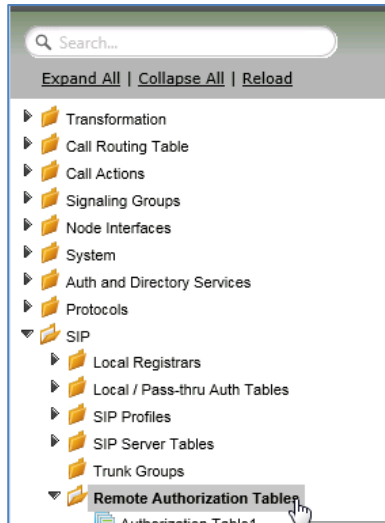
Silence Suppression: Enabled

**\*\*NOTE:** You will need to repeat the steps above to create another Media List for the Enterprise network if the codec list for Enterprise devices is different than those you added to the Media List above.

#### 4.2.9 Configure a Remote Authorization Table

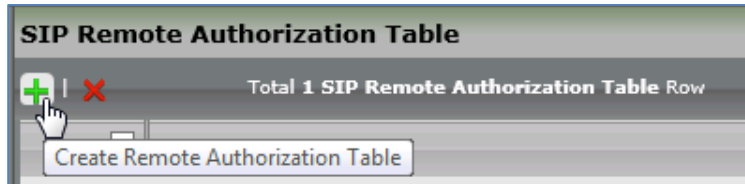
Remote Authorization Tables and their entries contain information used to respond to request message challenges by an upstream server. The Remote Authorization tables defined in this page appear as options in the Remote Authorization and Contacts Panel for SIP Servers.

- In the Navigation tree, click on *Remote Authorization Table*

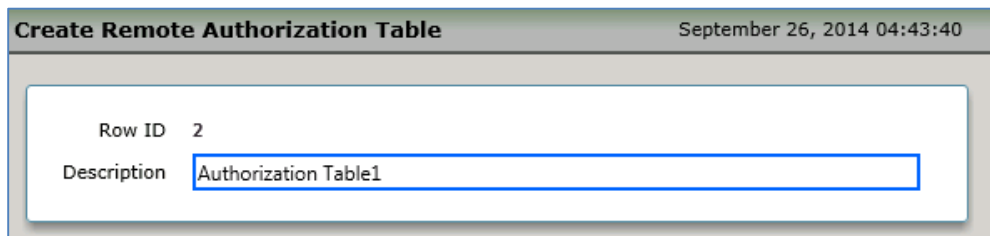


Add a Remote Authorization Table:

- Click the + to add a SIP Server Table

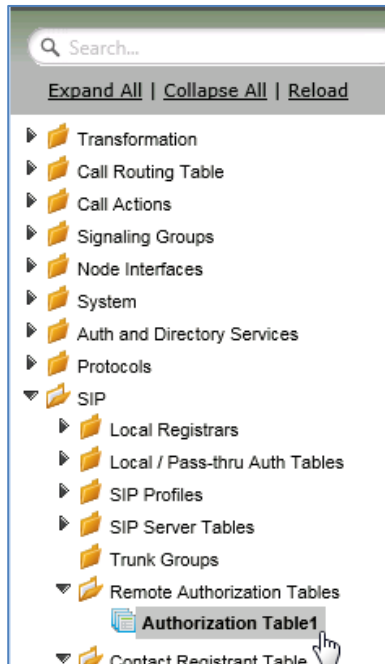


- Type of name of the Table

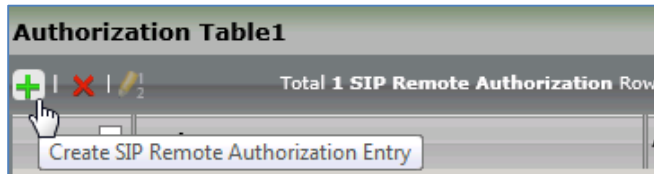


- Click OK

- In the Navigation tree, click on the name of the new Remote Authorization Table that you just added.



- Click the + to add a Remote Authorization entry



- Create the Remote Authorization entries as desired for your installation. Click OK.

**Create Remote Authorization Entry** September 26, 2014  
04:49:44

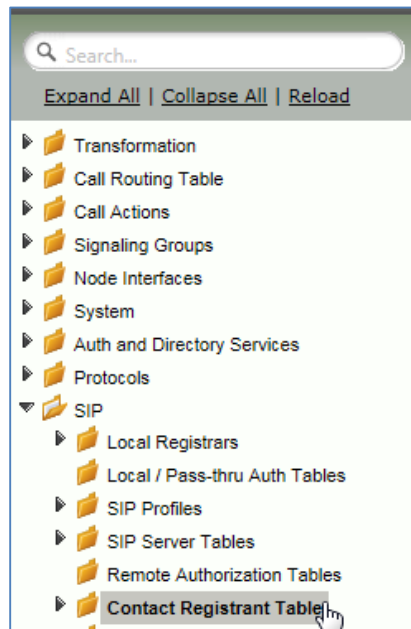
Row ID	2
Realm	<input type="text" value="as.iop1.broadworks.net"/>
Authentication ID	<input type="text" value="2405556256"/> *
Enter Password	<input type="password" value="....."/> *
Confirm Password	<input type="password" value="....."/> *
From URI User Match	<input type="text" value="Authentication ID"/> ▼

### 4.3 Subscriber Level Configuration

#### 4.3.1 Configure the Broadsoft Subscriber Information

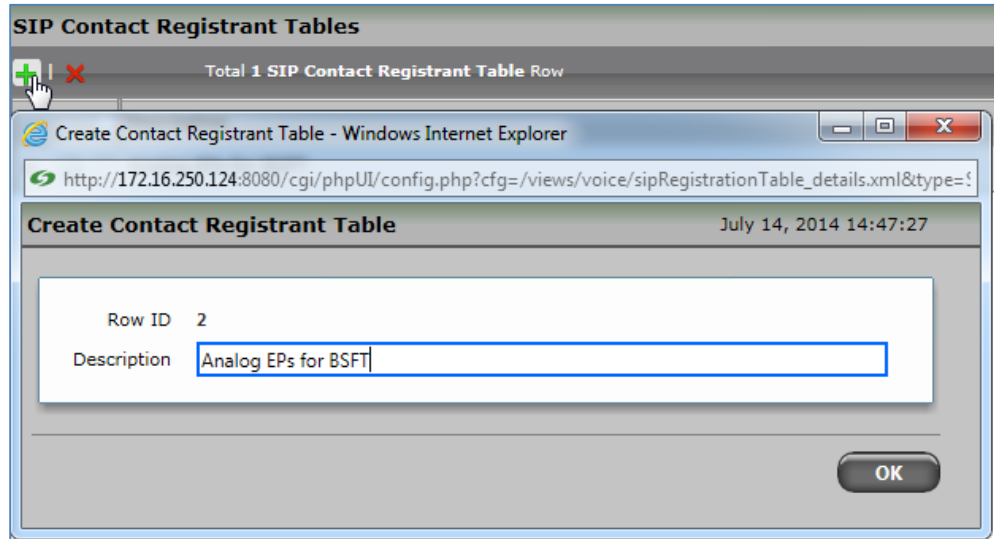
The Contact Registrant Table is used to provide user authentication to the Broadsoft server when calls are made.

- In the Navigation Tree, click on *Contact Registrant Table*

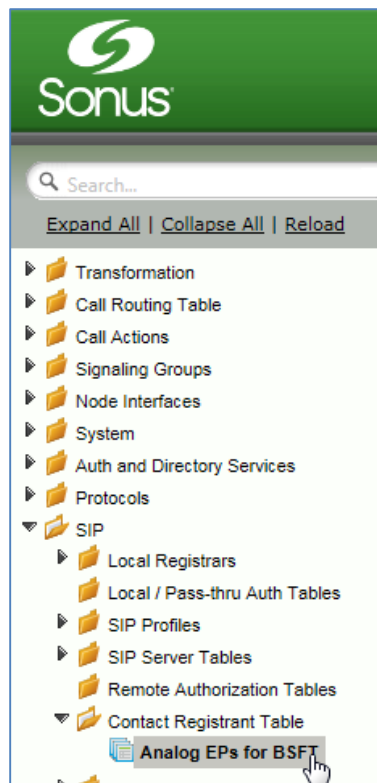


Add a Contact Registrant Table to hold the Broadsoft subscriber information.

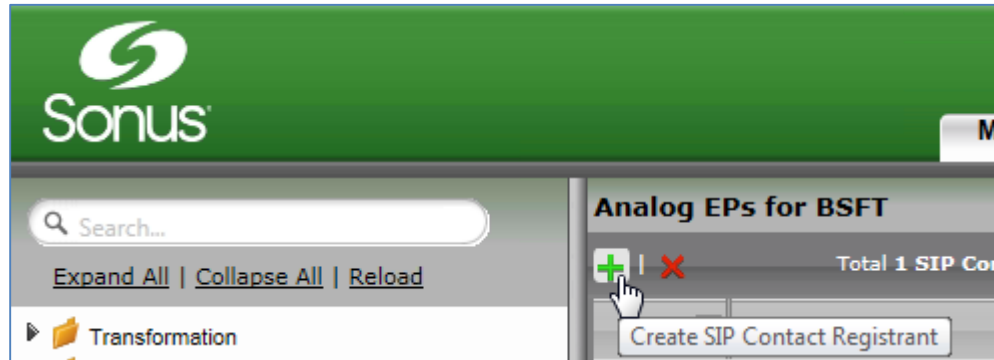
- Click the + to add a Contact Registrant Table
- Type of name of the Table
- Click OK



- Click the newly added Contact Registrant Table in the Navigation Tree.



- Click the + to add a Contact Registrant





- Add the Broadsoft subscription user in the *Address of Record URI* box. This information will be supplied by your service provider.

Type of Address of Record

Address of Record URI  \* *user@host[:port]*

Global Time to Live (TTL)  \* *secs [30..86400]*

Failed Registration Retry Timer  \* *secs [30..86400]*

---

**SIP Contacts**

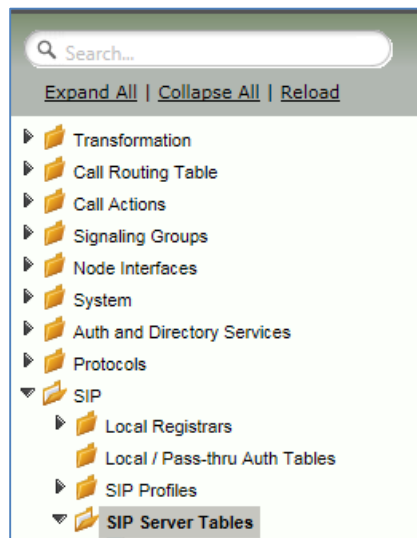
Total 1 SIP User Contact Row

	Contact URI Username	TTL (secs)	Priority (Q)
✎ <input type="checkbox"/>	2405556256	Inherited	0

### 4.3.2 Configure a SIP Server Table and Entry for the Broadsoft Server

SIP Server Tables contain information about the SIP devices connected to the SONUS SBC 1000 / SONUS SBC 2000. The entries in the tables provide information about the IP Addresses, ports, and protocols used to communicate with each server. The Table Entries also contain links to counters that are useful for troubleshooting.

- In the Navigation tree, click on SIP Server Table

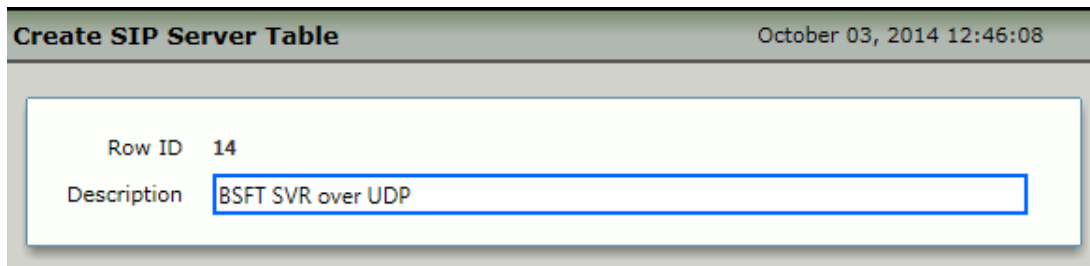


Add a SIP Server Table:

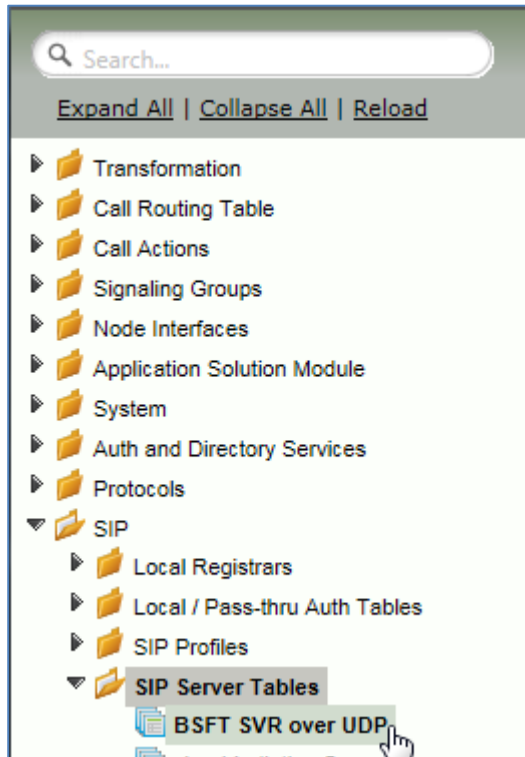
- Click the + to add a SIP Server Table



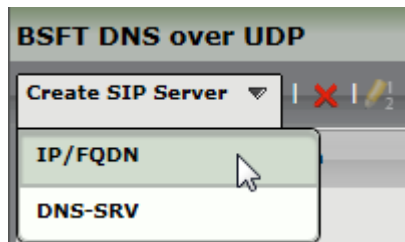
- Type of name of the Table
- Click OK



- In the Navigation tree, click on the name of the new *SIP Server Table* that you just added.



- From the *Create SIP Server* pull down, select *DNS-SRV*. This will place a SIP Server Entry in the newly created SIP Server Table.



Enter the SIP Server information as noted below:

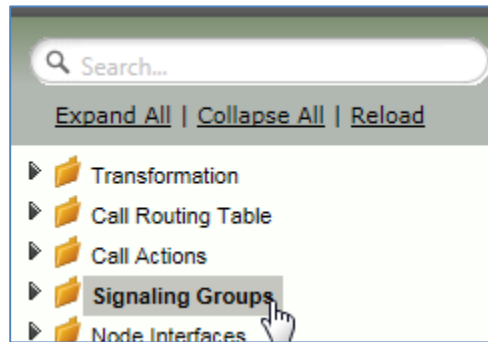
- Enter the FQDN of the **Broadworks** Server
- Verify the Protocol

SIP Server Entry: :5060 UDP	
<b>Server Host</b>	
Server Lookup	IP/FQDN
Domain Name / FQDN	as.iop1.broadworks.net
Service Name	sip
Protocol	UDP
<b>Transport</b>	
Monitor	None
<b>Remote Authorization and Contacts</b>	
Remote Authorization Table	Authorization Table1
Contact Registrant Table	Analog EPs for BSFT
Clear Remote Registration on Startup	False
Contact URI Randomizer	False
Stagger Registration	False
Retry Non-Stale Nonce	True

### 4.3.3 Configure a Signaling Group for the Broadsoft Server

Signaling groups allow telephony channels to be grouped together for the purposes of routing and shared configuration. They are the entity to which calls are routed, as well as the location from which [Call Routes](#) are selected. In the case of SIP, they specify protocol settings and link to server, media and mapping tables

- In the Navigation Tree, click *Signaling Groups*



- From the *Create Signaling Group* pulldown, select *SIP Signaling Group*



Enter the Broadsoft Signaling Group information as noted below:

- Select the *SIP Profile* you created earlier
- Select the Broadsoft *SIP Server Table*
- Verify/Delete/Create *Listening Ports* that the SBC will use to receive SIP from the Broadsoft Server
- Set all Media Modes to *Enable*
- Add the Broadsoft Server FQDNs in the *Federated IP* with a netmask of 255.255.255.255.  
**The list of servers to add to as Federated IPs will be provided by your ISP provider.**

**SIP Signaling Group Details: BSFT Connection** September 26, 2014 05

Show Channels

Description: BSFT Connection  
Admin State: Enabled  
Service Status: Up

---

**SIP Channels and Routing**

Action Set Table: None  
Call Routing Table: From SIP  
No. of Channels: 10  
SIP Profile: BSFTConnction SIP Profile  
SIP Mode: Basic Call  
Agent Type: Back-to-Back User Agent  
SIP Server Table: BSFT SRV over UDP  
Channel Hunting: Most Idle  
Notify Lync CAC Profile: Disable  
Challenge Request: Disable  
Outbound Proxy: 5060  
Outbound Proxy Port: 5060  
No Channel Available Override: 34: No Circuit/Channel Available  
Call Setup Response Timer: 255

**Media Information**

Audio/Fax Stream Proxy Mode: Enabled  
Audio/Fax Stream DSP Mode: Enabled  
Video/Application Stream Proxy Mode: Disabled  
Media List ID: BSFT Media List  
Play Ringback: Auto  
Tone Table: BSFT Tone Table FXS 5G (High)  
Early 183: Disable  
Music on Hold: Disabled

**Mapping Tables**

SIP To Q.850 Override Table: Default (RFC4497)  
Q.850 To SIP Override Table: Default (RFC4497)  
Pass-thru Peer SIP Response Code: Enable

**SIP IP Details**

NAT Traversal: None  
Signaling/Media Source IP: Auto  
Signaling DSCP: 40

---

**Listen Ports**

Total 2 SIP Listen Port Rows

Port	Protocol	TLS Profile ID
5060	UDP	N/A
5060	TCP	N/A

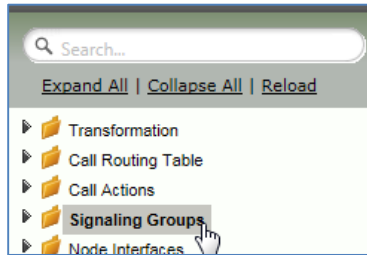
**Federated IP/FQDN**

Total 1 SIP Federated IP Row

IP/FQDN	Netmask
as.iop1.broadworks.n...	255.255.255.255

#### 4.3.4 Configure a Signaling Group for the FXS

- In the Navigation Tree, click *Signaling Groups*



- From the *Create Signaling Group* pulldown, select *CAS Signaling Group*



Enter the FXS Signaling Group information as noted below:

- Select the *Tone Table* you created earlier
- Select the *CAS Signaling Profile*
- Add the FXS Channels to assign to this Signaling Group (Assigned Channels)

**CAS Signaling Group Details: FXS port 1:1** September 26, 2014 05:25:03

---

Description **FXS port 1:1**  
 Line Type **Analog**  
 Admin State **Enabled**  
 Service Status **Up**

**Channels and Routing**

Direction **Bidirectional**  
 Channel Hunting **Own Number**  
 Tone Table **BSFT Tone Table FXS SG (High)**  
 Action Set Table **None**  
 Call Routing Table **From FXS**  
 No Channel Available Override **34: No Circuit/Channel Available**  
 Call Setup Response Timer **255**

**CAS Protocol**

CAS Signaling Profile **(FXS) Default FXS Profile**  
 Supplementary Services Profile **Hold, Transfer & CW**  
 Caller ID Type **Disabled**  
 Play Ringback **Auto**  
 Call Forwarding Feature **Enable**  
 Call Forwarding Activate DTMF **\*72**  
 Call Forwarding Deactivate DTMF **\*73**

**Assigned Channels**

Total 1 CAS Channel Row

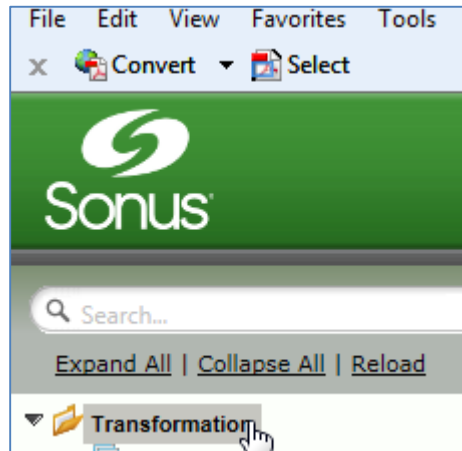
Port Name	Channel Phone Number	Hotline Enabled	Hotline Number	Call Forwarding Activated	Call Forwarding Number
1:1	2405556256	No		No	



### 4.3.5 Configure a Transformation Table

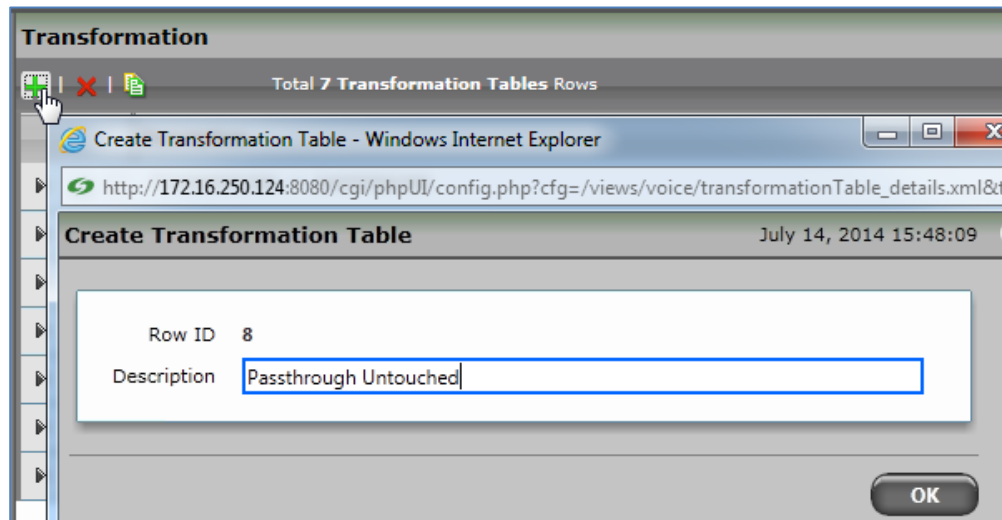
Transformation Tables facilitate the conversion of names, numbers and other fields when routing a call. They can, for example, convert a public PSTN number into a private extension number, or into a SIP address (URI). Every Call Routing Table Entry requires a Transformation Table.

- In the Navigation tree, click on Transformations

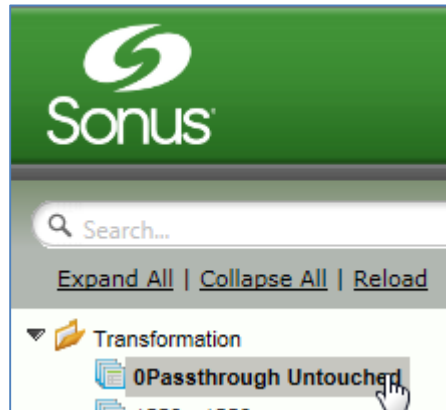


Create a new Transformation Table:

- Click the + to add a Transformation Table
- Type the desired name of the Table
- Click OK



- In the Navigation tree, click on the name of the new Transformation Table that you just added.



- Use the + to create the Transformation Entries as desired for your installation.

Passthrough Untouched						
Total 2 Transformation Entry Rows						
Admin State	Input Field Type	Input Field Value	Output Field Type	Output Field Value	Match Type	
<input type="checkbox"/>	Called Address/Number	(.*)	Called Address/Number	\1	Mandatory	
<input type="checkbox"/>	Calling Name	(.*)	Calling Name	\1	Optional	

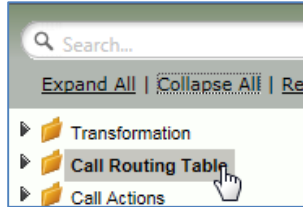
**\*\*NOTE:** You will likely need to create a separate Transformation Table for each Enterprise-based SIP Server or TDM destination.

The sample transformation above simply passes the calling and called number unchanged through the SBC. Modify the (number) transformations to properly manipulate the called and calling number for your installation.

#### 4.3.6 Configure a Call Routing Table to the Broadsoft Server

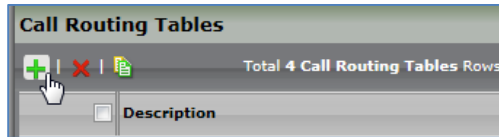
Call Routing allows calls to be carried between signaling groups, thus allowing calls to be carried between ports and between protocols (like ISDN to SIP). Call Routes are grouped into Call Routing Tables.

- In the Navigation tree, click on *Call Routing Table*

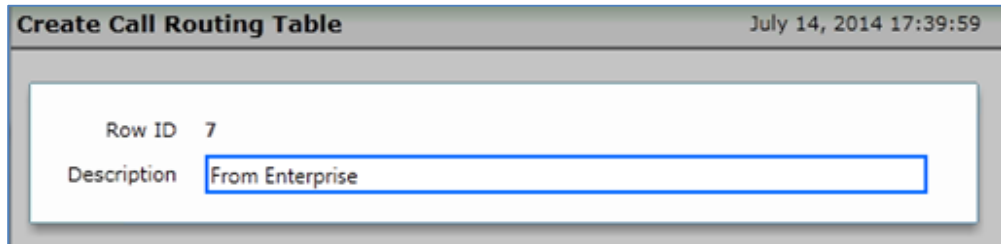


Create a new Call Routing Table. This call routing will take call from the Enterprise and route them to the Broadsoft server:

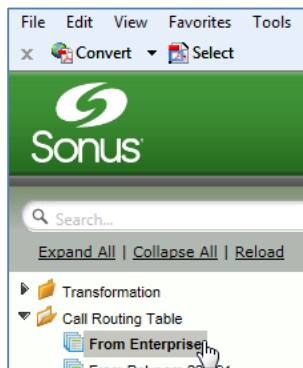
- Click the + to add a Call Routing Table



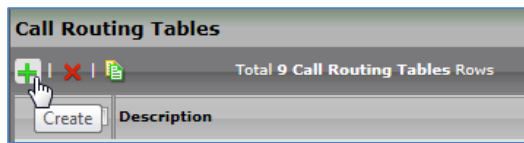
- Type the desired name of the Table
- Click OK



- In the Navigation tree, click on the name of the new Call Routing Table that you just added.



- Use the + to create the Call Routing Entries as desired for your installation



- Select the *Transformation Table* created in the previous step
- Set the *Destination Signaling Group* to the Broadsoft Signaling Group
- Set the *Media Modes* as noted below
- Click OK

**Call Routing Entry: Entry ID 3**

**Route Details**

Description

Admin State **Enabled**

Route Priority **1**

Call Priority **Normal**

Number/Name Transformation Table **Passthrough Untouched**

**Destination Information**

Destination Type **Normal**

Message Translation Table **None**

Cause Code Reroutes **None**

Cancel Others upon Forwarding **Disabled**

Fork Call **No**

Destination Signaling Groups (SIP) BSFT Connection \*

**Media**

Audio/Fax Stream Mode **DSP**

Video/Application Stream Mode **Disabled**

Media Transcoding **Enabled**

Media List **BSFT Media List**

**Quality of Service**

Quality Metrics Number of Calls **10**

Quality Metrics Time Before Retry **10**

Min. ASR Threshold **0**

Enable Max. R/T Delay **Enabled**

Max. R/T Delay **65535**

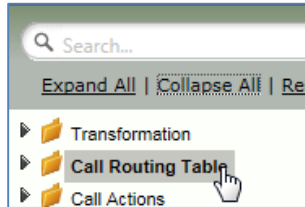
Enable Max. Jitter **Enabled**

Max. Jitter **3000**

### 4.3.7 Configure a Call Routing Table to the FXS

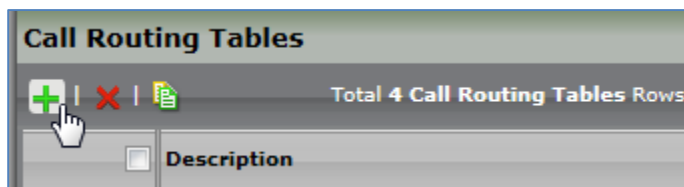
Call Routing allows calls to be carried between signaling groups, thus allowing calls to be carried between ports and between protocols (like ISDN to SIP). Call Routes are grouped into Call Routing Tables.

- In the Navigation tree, click on *Call Routing Table*

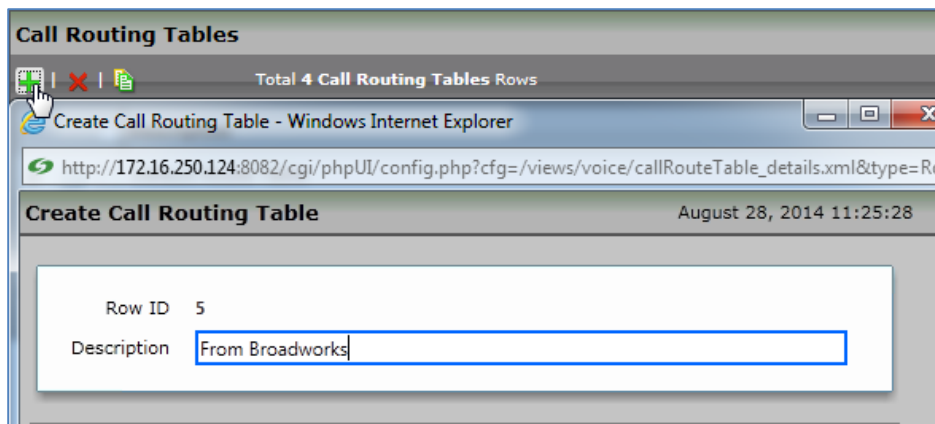


Create a new Call Routing Table. This call routing will take call from the Broadsoft and route them to the Enterprise:

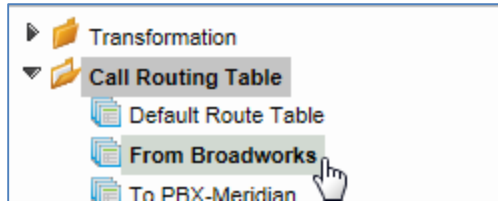
- Click the + to add a Call Routing Table



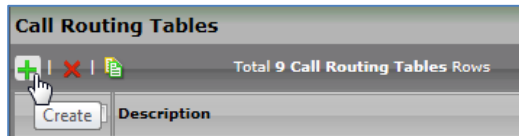
- Type the desired name of the Table
- Click OK



- In the Navigation tree, click on the name of the new Call Routing Table that you just added.



- Use the + to create the Call Routing Entries as desired for your installation



- Select the *Transformation Table* created in the previous step
- Set the *Destination Signaling Group* to the FXS Signaling Group
- Set the *Media Modes* as noted below
- Click OK

**Call Routing Entry: To FXS**

Route Details	
Description	To FXS
Admin State	Enabled
Route Priority	1
Call Priority	Normal
Number/Name Transformation Table	Passthrough Untouched

Destination Information	
Destination Type	Normal
Message Translation Table	None
Cause Code Reroutes	None
Cancel Others upon Forwarding	Disabled
Fork Call	No
Destination Signaling Groups	<div style="border: 1px solid black; padding: 2px;">(CAS) FXS port 1:1</div>

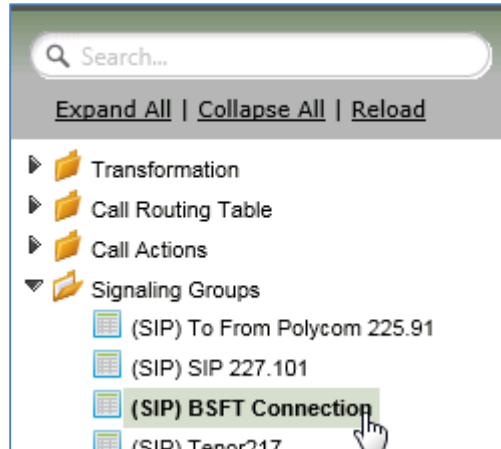
Media	
Audio/Fax Stream Mode	DSP
Video/Application Stream Mode	Disabled
Media Transcoding	Enabled
Media List	BSFT Media List

Quality of Service	
Quality Metrics Number of Calls	10
Quality Metrics Time Before Retry	10
Min. ASR Threshold	0
Enable Max. R/T Delay	Enabled
Max. R/T Delay	65535
Enable Max. Jitter	Enabled
Max. Jitter	3000

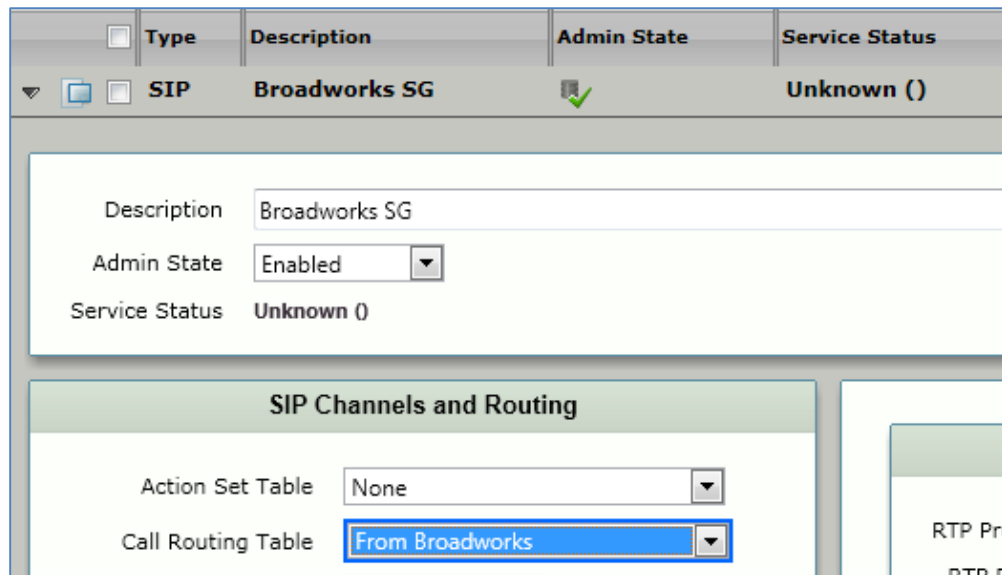
#### 4.3.8 Set/Verify the Call Routing Table in the Broadsoft Signaling Group

Ensure that each Signaling Group is configured using an appropriate Call Route Table.

- In the Navigation Tree, click the *Broadworks SG* Signaling Group



- The Broadsoft Signaling Group must be configured to use the *From Broadworks* Call Routing Table



## 4.4 SIP Feature Configuration

### 4.4.1 Emergency Call Configuration

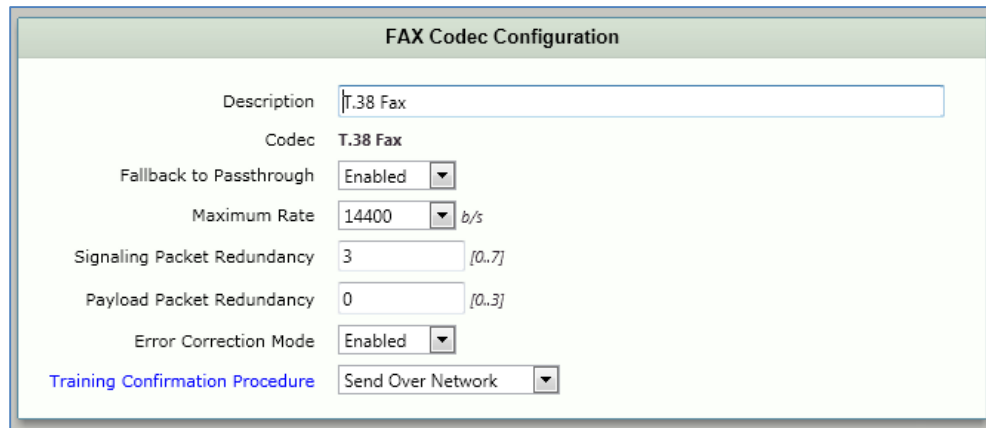
Not supported.

### 4.4.2 Advice of Charge Configuration

Not supported.

### 4.4.3 Fax Configuration

This section provides configuration instructions for configuring the device to enable fax.



The screenshot shows a web interface titled "FAX Codec Configuration". It contains several configuration fields:

- Description: T.38 Fax
- Codec: T.38 Fax
- Fallback to Passthrough: Enabled
- Maximum Rate: 14400 b/s
- Signaling Packet Redundancy: 3 [0..7]
- Payload Packet Redundancy: 0 [0..3]
- Error Correction Mode: Enabled
- Training Confirmation Procedure: Send Over Network



## References

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- [1] Sonus Networks 2014 SBC 4.0 User's Guide , available at <https://support.sonus.net/display/ALLDOC/SBC+1000-2000+Documentation>
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