



BroadSoft Partner Configuration Guide SIP Access Device Configuration

Sonus Networks, Inc. SBC 1000 / SBC 2000

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BroadWorks® Guide

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Document Revision History

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.

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1 Overview

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 a Enterprise SBC 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.

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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 <partner name>.

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
Basic	Call Origination (P0)	Yes	Passed
	Call Termination (P0)	Yes	Passed
	Session Audit (P0)	Partial	Passed except DUT doesn't send re-invite for HOLD in TC10.
	Session Timer (P1)	Yes	
	Ringback (P0)	Yes	
	Forked Dialog (P0)	Partial	Passed except DUT doesn't send ringback after forwarding the call to a no-remote ringback Endpoint in TC20. SYM-16656
	Early UPDATE (P1-P2)	Partial NO	Will not execute
	Early-Session (P2)	NO	Will not execute
	181 Call Being Forwarded (P1)	Yes	Passed
	Dial Plan (P0)	Yes	Passed
	DTMF – Inband (P0)	Yes	Passed
	DTMF – RFC 2833 (P0)	Yes	Passed
	DTMF – DTMF Relay (P2)	NO	Will not execute
	Codec Negotiation (P0)	Yes (?)	Passed except SDP Session version is not incrementing by 1 in TC36.
	Codec Renegotiation (P0)	Partial	Passed except DUT doesn't send re-invite for HOLD in TC40.
BroadWorks Services	Third-Party Call Control – Basic (P0)	Partial	Passed except DUT doesn't support Call Waiting – TC44.
	Voice Message Deposit and Retrieval (P0)	Yes	Passed
	Message Waiting Indicator (P1)	NO	Will not execute
	Voice Portal Outcall (P0)	Yes	Passed
	Advanced Alerting – Ringing (P2)		Will not execute

	Advanced Alerting – Call Waiting (P2)		Will not execute
	Advanced Alerting – Ring Splash (P2)		Will not execute
	Calling Line ID (P1)	Yes	Passed
	Calling Line ID with Unicode Characters (P1)	NO	Can't config with Nuicode on BW
	Connected Line ID (P2)	NO	Will not execute
	Connected Line ID with Unicode Characters (P2)	NO	Will not execute
	Connected Line ID on UPDATE (P2)	NO	Will not execute
	Connected Line ID on Re-INVITE (P2)	NO	Will not execute
	Diversion Header (P1)	NO	Will not execute
	History-Info Header (P1)	NO	Will not execute
	Advice of Charge (P1)	NO	Will not execute
	Meet-Me Conferencing (P0)	Yes	Passed
	Meet-Me Conferencing – G722 (P1)	NO	Will not execute
	Meet-Me Conferencing – AMR-WB (P1)	NO	Will not execute
DUT Services – Call Control Services	Call Waiting (P1)	NO	Will not execute
	Call Hold (P1)	NO	Will not execute
	Call Transfer (P1)	NO	Will not execute
	Three-Way Calling (P1)	NO	Will not execute
	Network-Based Conference (P2)	NO	Will not execute
DUT Services – Registration and Authentication	Register Authentication (P1)	4.0	Will not execute
	Maximum Registration (P1)	4.0	Will not execute
	Minimum Registration (P1)	4.0	Will not execute
	Invite Authentication (P1)	4.0	Will not execute
	Re-Invite/Update Authentication (P1)	4.0	Will not execute
	Refer Authentication (P1)	4.0	Will not execute
	Device Authenticating BroadWorks (P2)	4.0	Will not execute
DUT Services – Fax	G711 Fax Passthrough (P1)	Yes	Passed under condition: No-re- invite will be sent if disable Silence Suppression
	G711 Fax Fallback (P1)		
	T38 Fax Messaging (P1)		
DUT Services – Emergency Call	Emergency Call (P1)		
	Emergency Call with Ringback (P1)		
DUT Services – Miscellaneous	Do Not Disturb (P1)		
	Call Forwarding Always (P1)		
	Call Forwarding Always Diversion Inhibitor (P1)		
	Anonymous Call (P1)		
	Anonymous Call Block (P1)		
	Remote Restart Via Notify (P1)		
Redundancy	DNS SRV Lookup (P1)		
	Register Failover/Fallback (P1)		
	Invite Failover/Fallback (P1)		
	Bye Failover (P1)		
Session Border Controller (SBC)/Application Layer Gateway (ALG)	Register (P1)		
	Outgoing Invite (P1)		
	Incoming Invite (P1)		
TCP	Register (P1)		
	Outgoing Invite (P1)		
	Incoming Invite (P1)		
IPv6	Call Origination		

Call Termination		
Session Audit		
Ringback		
Codec Negotiation/Renegotiation		
Voice Message Deposit/Retrieval		
Call Control		
Registration with Authentication		
T38 Fax Messaging		
Redundancy		
SBC		
Dual Stack with Alternate Connectivity		

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.

{Issues should be described as follows: The issue "title" in bold should be a brief statement of the symptom. The symptom is usually the issue the end user experiences, such as calls dropping or voice path issues. The description of the issue should fully describe the problem and the signaling root cause. If there is a workaround, then it should identify a configurable method that can be used to avoid the problem.}

Issue Number	Issue Description	Partner Version			
		version>			
<Issue Number>	<p>Title of issue or test case failure</p> <p>Full description of the issue or test case failure.</p> <p>Workaround: Identify the workaround, if any. Otherwise, indicate as follows: "None"</p>				
<Issue Number>	<p>Title of issue or test case failure</p> <p>Full description of the issue or test case failure.</p> <p>Workaround: Identify the workaround, if any. Otherwise, indicate as follows: "None"</p>				

3 BroadWorks Configuration

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

Generic SIP Intelligent Proxy Domain GW

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	Device Profile Type
<model name>	<lines>	
SONUS SBC 1000	24	Generic SIP Intelligent Proxy Domain GW
SONUS SBC 2000	48	Generic SIP Intelligent Proxy Domain GW

{Provide a window capture for a device identity/profile type named and configured for the device. Ensure "Number of Ports" is set to the number of registering lines provided by the device. Ensure other parameters are configured based on the interoperability test results.}

BROADSOFT Help - Home
System - My SIP Access Device Welcome Default Administrator (Logout)

Options:
Identity/Device Profile Type

Identity/Device Profile Type Modify

Modify an existing Identity/device profile type.

OK Apply Delete Export Cancel

Identity/Device Profile Type: My SIP Access Device
Signaling Address Type: Intelligent Proxy Addressing
 Obsolete

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

<input type="checkbox"/> Route Advance	<input type="checkbox"/> Forwarding Override
<input type="checkbox"/> Wireless Integration	<input type="checkbox"/> Conference Device
<input type="checkbox"/> PBX Integration	<input type="checkbox"/> Mobility Manager Device
<input type="checkbox"/> Add P-Called-Party-ID	<input type="checkbox"/> Music On Hold Device
<input type="checkbox"/> Auto Configuration Soft Client	<input type="checkbox"/> Requires BroadWorks Digit Collection
<input type="checkbox"/> Requires BroadWorks Call Waiting Tone	<input type="checkbox"/> Requires MWI Subscription
<input type="checkbox"/> Advice of Charge Capable	<input type="checkbox"/> Support Call Center MIME Type
<input type="checkbox"/> Support Emergency Disconnect Control	<input type="checkbox"/> Support Identity In UPDATE and Re-INVITE
<input type="checkbox"/> Enable Monitoring	<input type="checkbox"/> Support RFC 3398
<input type="checkbox"/> Static Line/Port Ordering	<input type="checkbox"/> Support Client Session Info
<input type="checkbox"/> Support Call Info Conference Subscription	<input type="checkbox"/> Support Remote Party Info
<input type="checkbox"/> URI	<input type="checkbox"/> Support Visual Device Management
<input type="checkbox"/> Support Visual Device Management	<input type="checkbox"/> 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 Apply Delete Export Cancel

3.2 BroadWorks Configuration Steps

{Provide BroadWorks configuration steps for setting up the device. This configuration is optional, but any special configuration items should be identified.}

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.

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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

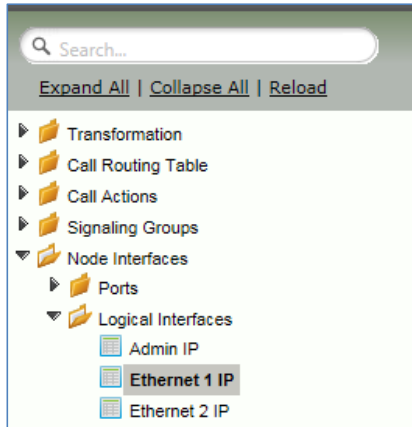
The Tabs across the top of the Sonus SBC WebUI permit the user to access various configuration subsystems. Within this document, all configurations will be performed under the SETTINGS tab.



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*



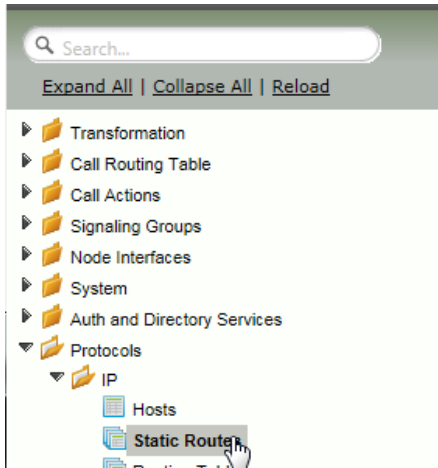
- Configure the Ethernet IP 1 port as necessary to connect to the Broadsoft server.

Ethernet 1 IP		10.1.1.74	Disabled
Identification/Status			
Interface Name	Ethernet 1 IP		
I/F Index	39		
Alias	<input type="text"/>		
Description	<input type="text"/>		
Admin State	Enabled <input type="button" value="v"/>		
Networking			
MAC Address	00:10:23:01:01:01		
IP Assign Method	Static <input type="button" value="v"/>		
Primary Address	10.1.1.74 <small>x.x.x.x</small>		
Primary Netmask	255.255.255.0 <small>x.x.x.x</small>		
Configure Secondary Interface	Disabled <input type="button" value="v"/>		
ACL In	None <input type="button" value="v"/>		
ACL Out	None <input type="button" value="v"/>		
ACL Forward	None <input type="button" value="v"/>		

- 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	<input type="text"/>		
Description	<input type="text"/>		
Admin State	Enabled <input type="button" value="v"/>		
Networking			
MAC Address	00:10:23:01:01:01		
IP Assign Method	Static <input type="button" value="v"/>		
Primary Address	10.56.242.15 <small>x.x.x.x</small>		
Primary Netmask	255.255.255.0 <small>x.x.x.x</small>		
Configure Secondary Interface	Disabled <input type="button" value="v"/>		
ACL In	None <input type="button" value="v"/>		
ACL Out	None <input type="button" value="v"/>		
ACL Forward	None <input type="button" value="v"/>		

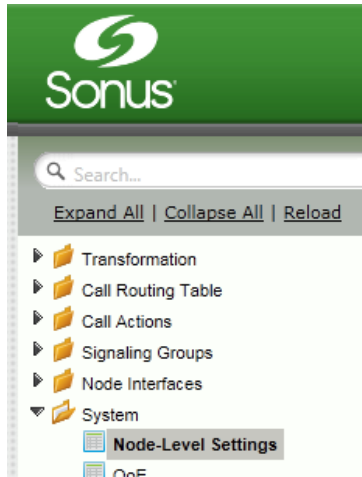
- In the Navigation Tree, click on *Static Routes*



- 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.

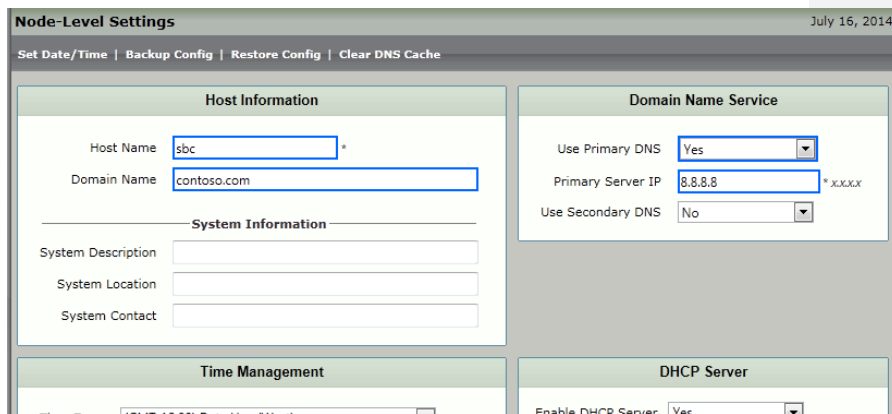
Static IP Route Table				
Row ID	Destination IP	Mask	Gateway	Metric
1	172.16.110.106	255.255.255.255	134.56.227.5	1
2	199.19.193.0	255.255.255.0	134.56.242.1	1

- 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



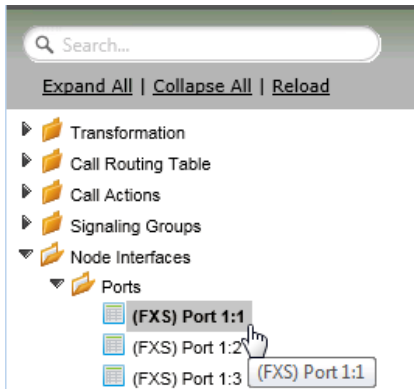
4.2.2.1 Configure IPV6 Settings

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

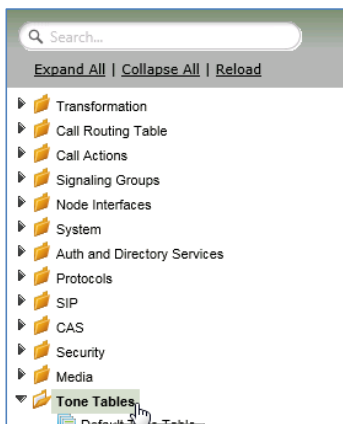
Physical Layer

Analog Line Profile	<input type="text" value="United States"/> ▼
————— Relative Profile Adjustments —————	
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

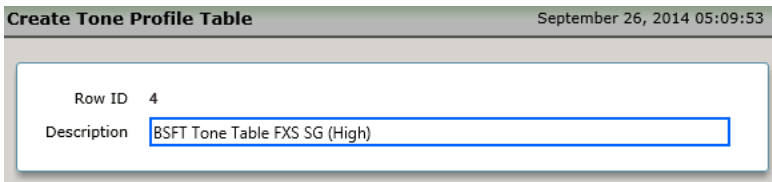


Add a Tone Profile Table:

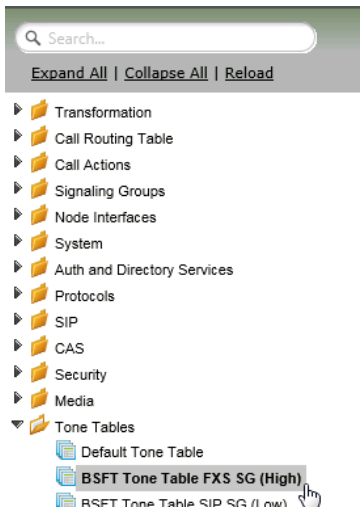
- Click the + to add a Tone Table



- Type of name of the Table



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

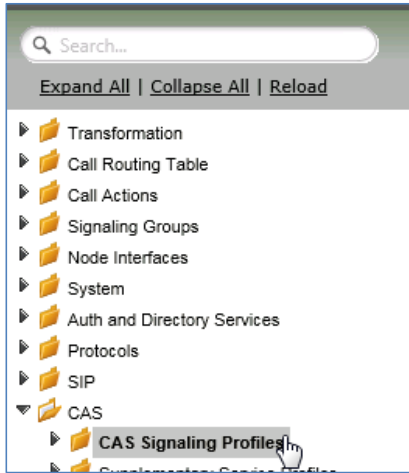


- Set each Tone Table entry as noted below

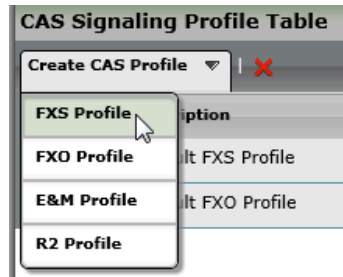
BSFT Tone Table FXS SG (High) September				
Total 7 Tone Profile Rows Q Fi				
Tone Type	Frequency 1 (Hz)	Amplitude 1 (dBm)	Frequency 2 (Hz)	Ampli (dBm)
▶ Ringback	900	-19	900	-19
▶ Dial	350	-13	440	-13
▶ Busy	480	-24	620	-24
▶ Congestion	480	-24	620	-24
▶ Call Waiting	440	-13	Not Used	Not L
▶ Disconnect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



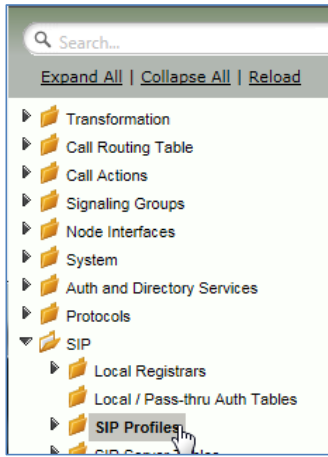
Enter the CAS Profile information as noted below. Click OK.

CAS Loop Start FXS Profile: Default FXS Profile		Septemb
Description	Default FXS Profile	
Loop Start FXS Properties		
Loop Start Type	Forward Disconnect ▼	
Forward Disconnect Duration	700	* ms [100..3000]
Disconnect Tone Generation	Disabled ▼	
Flashhook Signal Detection	Enabled ▼	
Maximum Flashhook Duration	700	* ms [50..1000]
Minimum Flashhook Duration	200	* ms [50..1000]
Inter-Digit Timeout	30000	* ms [250..30000]
Ringing Cadence		
Cadence On	2000	* ms [50..9000]
Cadence Off	4000	* ms [50..9000]
Double Cadence		
Double Cadence	No ▼	
Cadence On	400	* ms [50..9000]
Cadence Off	2000	* ms [50..9000]

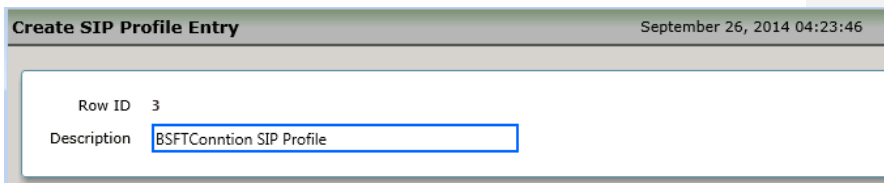
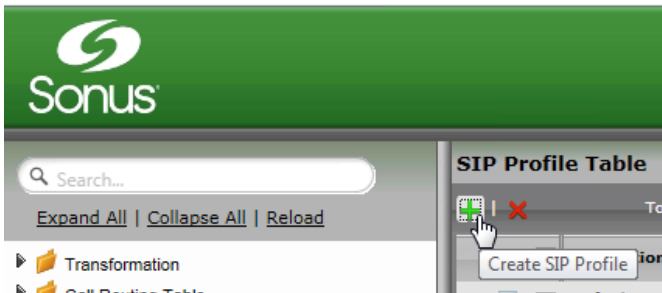
4.2.6 Configure SIP Interface Settings for Broadworks

Create the *Broadworks SIP Profile* as noted below.

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



- Create a SIP Profile by clicking +.



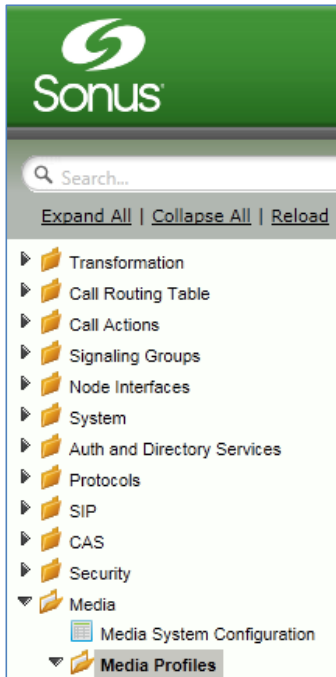
- Configure the SIP Profile as noted below to permit proper connectivity to the Broadsoft Server.

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																								
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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																																					
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Timer B	32000 ms																																				
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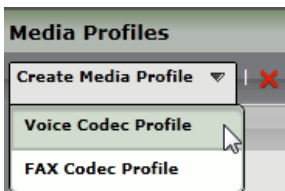
4.2.7 Configure Media Settings

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.

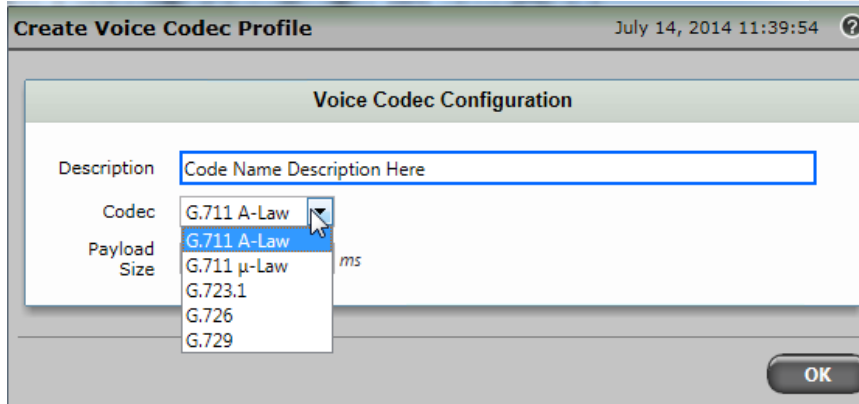
- In the Navigation Tree, click on *Media Profiles*.



- 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

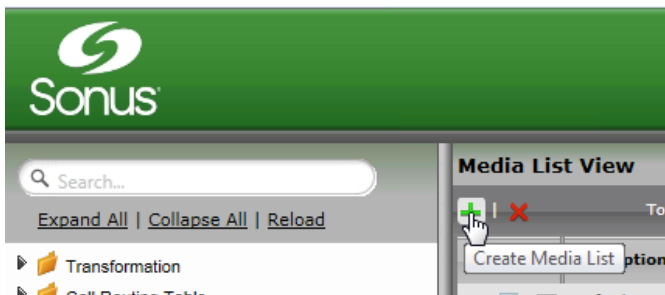
4.2.8 Configure Media Lists

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

Buttons: Up, Down, Add/Edit, Remove *

Crypto Profile ID: None

Media DSCP: 46 * [0..63]

RTCP Mode: RTCP

Dead Call Detection: Disabled

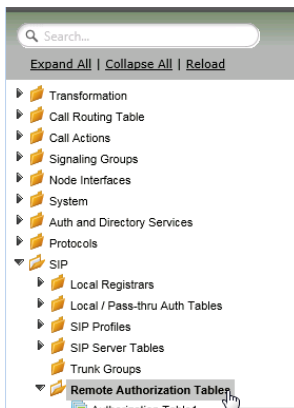
Silence Suppression: Enabled

****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

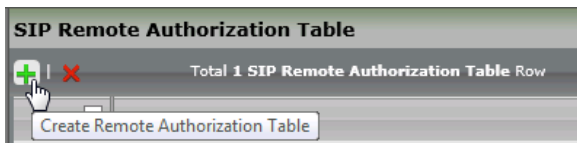
Remote Authorization Tables and their entries contain information used to respond to request message challenges by an upstream server. The Remote Authorization tables defined in this page appear as options in the [Remote Authorization and Contacts Panel](#) for SIP Servers.

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

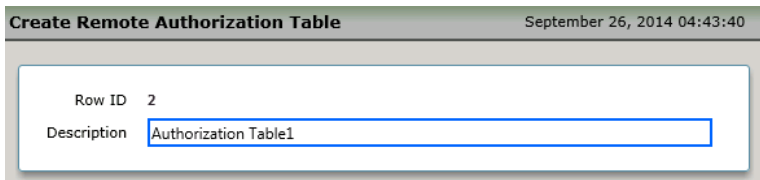


Add a Remote Authorization Table:

- Click the + to add a SIP Server Table

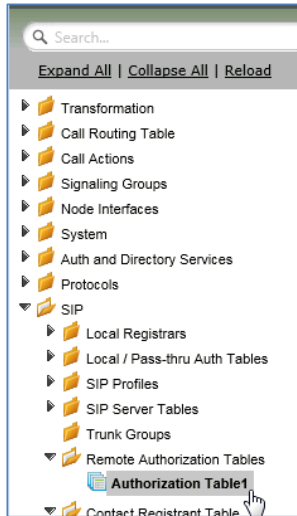


- Type of name of the Table

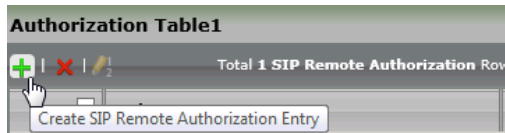


- Click OK

- 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.

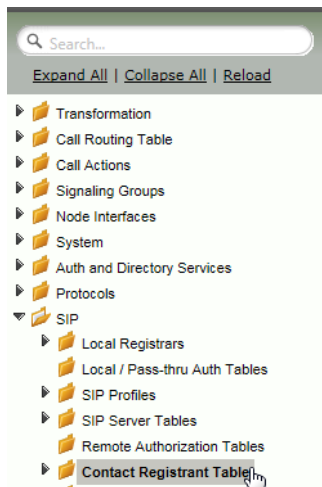
Create Remote Authorization Entry September 26, 2014
04:49:44

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"/> ▼

4.2.10 Configure the Broadsoft Subscriber Information

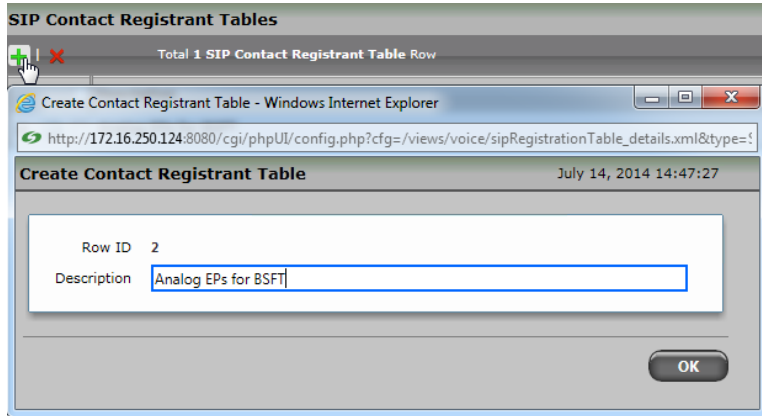
The Contact Registrant Table is used to provide user authentication to the Broadsoft server when calls are made.

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

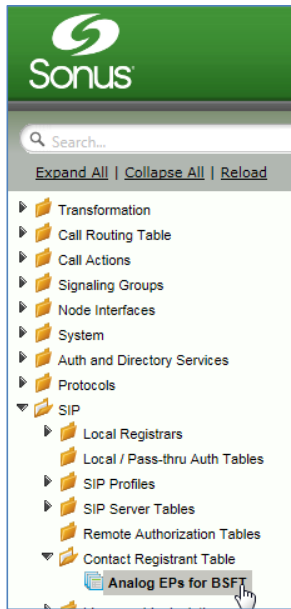


Add a Contact Registrant Table to hold the Broadsoft subscriber information.

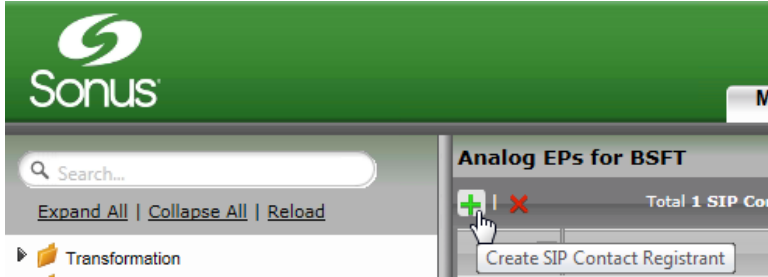
- Click the + to add a Contact Registrant Table
- Type of name of the Table
- Click OK



- 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]*

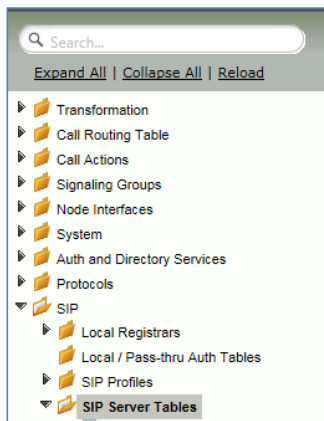
SIP Contacts

+ ✕ Total 1 SIP User Contact Row			
	Contact URI Username	TTL (secs)	Priority (Q)
<input type="checkbox"/>	2405556256	Inherited	0

4.2.11 Configure a SIP Server Table and Entry for the Broadsoft Server

SIP Server Tables contain information about the SIP devices connected to the Sonus SONUS SBC 1000 / SONUS SBC 2000/2000. 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

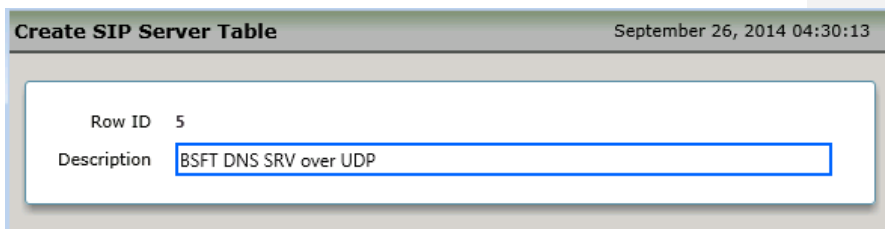


Add a SIP Server Table:

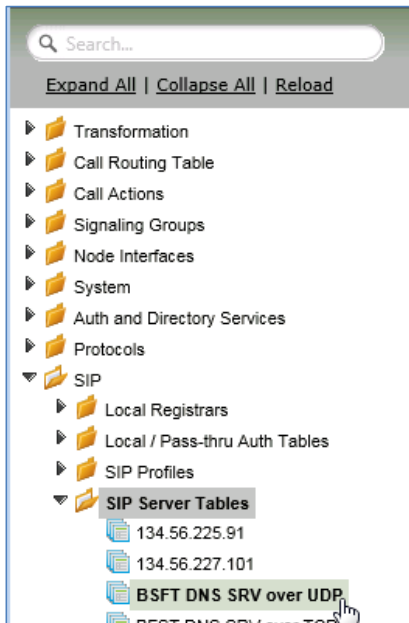
- Click the + to add a SIP Server Table



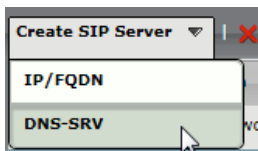
- Type of name of the Table
- Click OK



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



- From the *Create SIP Server* pulldown, 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

Server Host		Transport	
Server Lookup	DNS SRV	Monitor	None
Domain Name / FQDN	as.iop1.broadworks.net		
Service Name	sip		
Protocol	UDP		

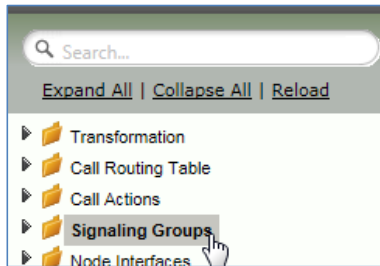
Remote Authorization and Contacts	
Remote Authorization Table	Authorization Table1
Contact Registrant Table	Analog EPs for BSFT
Clear Remote Registration on Startup	False
Contact URI Randomizer	False
Stagger Registration	False
Retry Non-Stale Nonce	True

SRV Servers						
Total 2 SipSrvServer Rows						
Server ID	FQDN/Domain Name	Protocol	Port	Time to Live	Priority	Weight
101	as1.iop1.broadworks....	UDP	5060	38380	1	50
100	as2.iop1.broadworks....	UDP	5060	38380	2	50

4.2.7 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	BSFTConntion SIP Profile
SIP Mode	Basic Call
Agent Type	Back-to-Back User Agent
SIP Server Table	BSFT DNS SRV over UDP
Channel Hunting	Most Idle
Notify Lync CAC Profile	Disable
Challenge Request	Disable
Outbound Proxy	
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

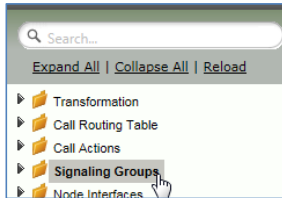
Total 2 SIP Listen Port Rows		
Port	Protocol	TLS Profile ID
5060	UDP	N/A
5060	TCP	N/A

Federated IP/FQDN

Total 1 SIP Federated IP Row	
IP/FQDN	Netmask
as.iop1.broadworks.n...	255.255.255.255

4.2.17 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		CAS Protocol	
Direction	Bidirectional	CAS Signaling Profile	(FXS) Default FXS Profile
Channel Hunting	Own Number	Supplementary Services Profile	Hold, Transfer & CW
Tone Table	BSFT Tone Table FXS SG (High)	Caller ID Type	Disabled
Action Set Table	None	Play Ringback	Auto
Call Routing Table	From FXS	Call Forwarding Feature	Enable
No Channel Available Override	34: No Circuit/Channel Available	Call Forwarding Activate DTMF	*72
Call Setup Response Timer	255	Call Forwarding Deactivate DTMF	*73

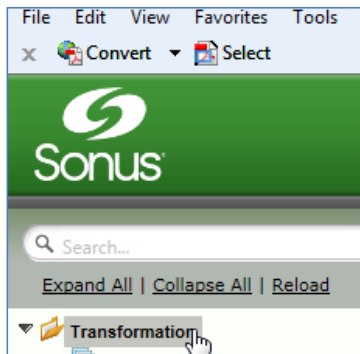
Assigned Channels

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	

4.2.18 Configure a Transformation Table

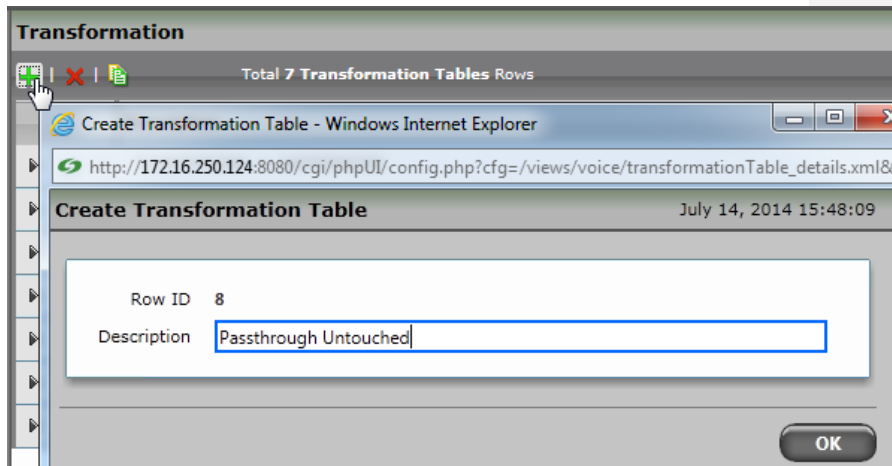
Transformation Tables facilitate the conversion of names, numbers and other fields when routing a call. They can, for example, convert a public PSTN number into a private extension number, or into a SIP address (URI). Every Call Routing Table Entry requires a Transformation Table.

- In the Navigation tree, click on Transformations

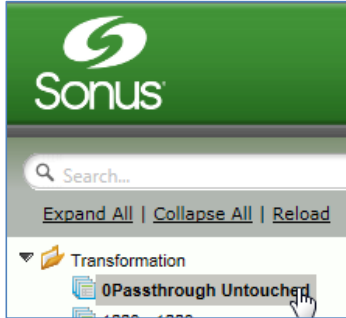


Create a new Transformation Table:

- 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
▶ [icon] [icon] [icon]	Called Address/Number	(.*)	Called Address/Number	\1	Mandatory
▶ [icon] [icon] [icon]	Calling Name	(.*)	Calling Name	\1	Optional

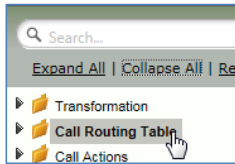
****NOTE:** You will likely need to create a separate Transformation Table for each Enterprise-based SIP Server or TDM destination.

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.

4.2.19 Configure a Call Routing Table to the Broadsoft Server

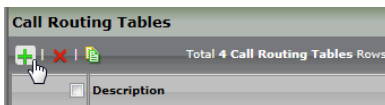
Call Routing allows calls to be carried between signaling groups, thus allowing calls to be carried between ports and between protocols (like ISDN to SIP). Call Routes are grouped into Call Routing Tables.

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

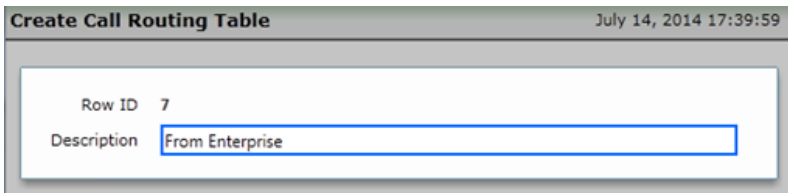


Create a new Call Routing Table. This call routing will take call from the Enterprise and route them to the Broadsoft server:

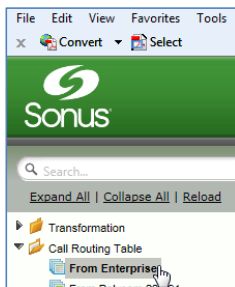
- Click the + to add a Call Routing Table



- 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	<div style="border: 1px solid black; padding: 2px;">(SIP) BSFT Connection</div>

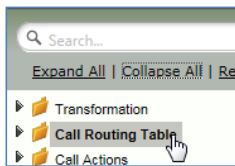
Media	
Audio/Fax Stream Mode	DSP
Video/Application Stream Mode	Disabled
Media Transcoding	Enabled
Media List	BSFT Media List

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

4.2.20 Configure a Call Routing Table to the FXS

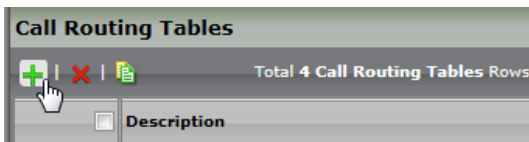
Call Routing allows calls to be carried between signaling groups, thus allowing calls to be carried between ports and between protocols (like ISDN to SIP). Call Routes are grouped into Call Routing Tables.

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

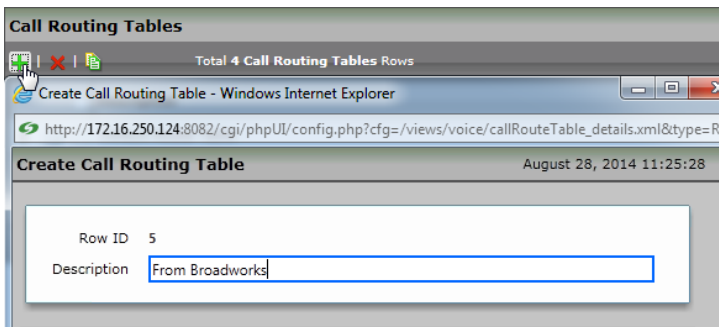


Create a new Call Routing Table. This call routing will take call from the Broadsoft and route them to the Enterprise:

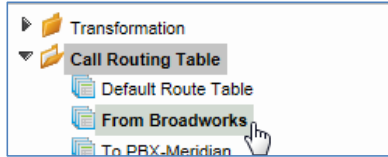
- Click the + to add a Call Routing Table



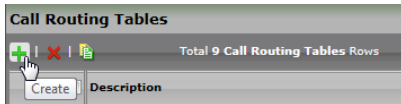
- Type the desired name of the Table
- Click OK



- 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>

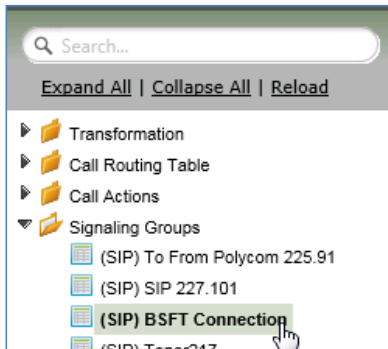
Media	
Audio/Fax Stream Mode	DSP
Video/Application Stream Mode	Disabled
Media Transcoding	Enabled
Media List	BSFT Media List

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

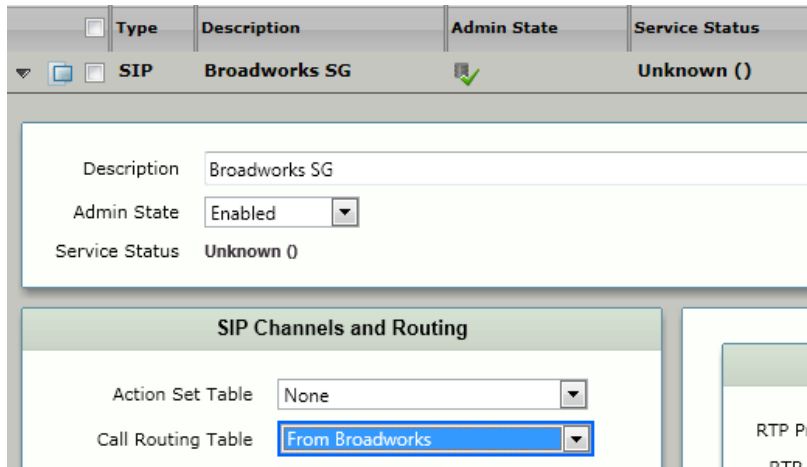
4.2.21 Set/Verify the Call Routing Table in the Broadsoft Signaling Group

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



4.3 SIP Feature Configuration

4.3.1 Emergency Call Configuration

Not supported.

4.3.2 Advice of Charge Configuration

Not supported.

4.3.3 Fax Configuration

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

The screenshot displays the 'FAX Codec Configuration' window. It contains the following fields and settings:

Field	Value
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

- [1] Sonus Networks 2014 SBC 4.0 User's Guide , available at <https://support.sonus.net/display/ALLDOC/SBC+1000-2000+Documentation>
- [2] BroadSoft, Inc. 2013. *BroadWorks Device Management Configuration Guide, Release 20.0*. Available from BroadSoft at xchange.broadsoft.com.
- [3] BroadSoft, Inc. 2013. *BroadWorks Redundancy Guide, Release 20.0*. Available from BroadSoft at xchange.broadsoft.com.
- [4] BroadSoft, Inc. 2013. *BroadWorks SIP Access Interface Interworking Guide, Release 20.0*. Available from BroadSoft at xchange.broadsoft.com.
- [5] BroadSoft, Inc. 2014. *BroadWorks SIP Access Device Interoperability Test Plan, Release 20.0*. Available from BroadSoft at xchange.broadsoft.com.
- [6] BroadSoft, Inc. 2014. *BroadWorks Device Management Interoperability Test Plan, Release 20.0*. Available from BroadSoft at xchange.broadsoft.com.