AudioCodes DR-SBA for Microsoft Teams

# Microsoft Teams Direct Routing Survivable Branch Appliance (DR-SBA)

Version 1.1.x



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### Notice

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This document is subject to change without notice.

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### **Security Vulnerabilities**

All security vulnerabilities should be reported to vulnerability@audiocodes.com.

### **WEEE EU Directive**

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### **Customer Support**

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### **Abbreviations and Terminology**

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

Throughout this manual and unless otherwise specified, the term *device* refers to the Mediant 800C and Mediant 1000B DR-SBA.

### **Notes and Warnings**

The device is an INDOOR unit and thus, must be installed ONLY indoors. In addition, Ethernet port interface cabling must be routed only indoors and must not exit the building.
 Installation of this device must be in a weather protected location of maximum ambient temperature of 40°C.
 This device must be installed only in a restricted access location.
 Service of the device must be made only by qualified service personnel.

The device must be connected only to a grounded AC mains power socket.

### **Related Documentation**

Document Name
Microsoft Teams Direct Routing SBA Release Notes
Mediant SBC with Microsoft Teams Direct Routing Enterprise Model

### **Document Revision Record**

LTRT	Description
33440	Initial document release.
33441	Command typo CsTeamsSurvivableBranchAppliancePolicy; updated to Ver. 1.0.22.
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33484	IVR removed; firewall for SRTP; section added for multiple DR-SBAs per site; section added for different management and media interfaces.
33485	Firewall rule for PC management station to DR-SBA.
33486	Added Sections 17 "Survivability PSTN Calling using Cellular Backup".
33487	Added sections 14.9 "Validating registered Users".
33488	Troubleshooting alarm due to computer / server name change.
33489	Creating bootable USB; SNMP settings for OVOC and OVOC in cloud
33490	OSN USB port functionality
33491	Q&A Multiple DR-SBAs updated re single/multiple SBCs.
33492	MSFT SBA service 2024.7.26.2 - New SBA capabilities and Firewall changes
33493	Update to the Known Issues for Token authentication.
33494	Updated to Ver. 1.1.018; new section on configuring Voice Application; new section Token expiration grace; known issues updated; miscellaneous
33495	Known issue added about routing extension numbers

### **Documentation Feedback**

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### **1** Introduction

This document provides step-by-step instructions on installing and configuring AudioCodes Direct Routing Survivable Branch Appliances (DR-SBA) application running on AudioCodes Mediant 800C or Mediant 1000B SBA, or as a Virtual Appliance DR-SBA with Mediant VE/CE SBC.

This document is applicable only to Microsoft Teams.

### 1.1 Overview

Mediant SBA (referred to as the *device* in this document) is an essential element for multi/single-site deployments of Teams and is fully **certified by Microsoft**. The device provides HQ/branch office site voice calling resiliency during Wide Area Network (WAN) failure scenarios where loss of connectivity occurs with Teams Cloud Service.

During survivability, the device maintains local call connectivity call (Dial a Number) among Microsoft Teams users located at the site. It also provides call connectivity between users and the PSTN (SIP/E1/T1 Trunk or FXS/FXO) during a WAN failure (E1/T1 if interfaces are ordered with the device).





AudioCodes offers the follow DR-SBA devices:

- Mediant 800C DR-SBA
- Mediant 1000B DR-SBA
- Virtual Appliance DR-SBA

Mediant 800C and Mediant 1000B are 1U chassis, providing Microsoft Teams resiliency as well as optional, PSTN Gateway and Session Border Controller (SBC) capabilities. They also provide optional, direct connectivity to Analog Devices through customer ordered FXS port interfaces.

The device provides an embedded, Web-based management tool called *SBA Management Interface* for installing and configuring DR-SBA functionality. The tool also provides a setup wizard, allowing quick-and-easy initial DR-SBA installation.

AudioCodes can also offer a UMP solution to manage the Users Teams Policies (as Teams Branch Survivability Policy) as well as Lifecycle management.

The DR-SBA application is installed on a generic single-board computer module—Open Solution Network (OSN)—housed in the device chassis. The OSN allows you to host multiple third-party applications. The DR-SBA application runs on Windows Server 2019 operating system.

The OSN provides the following network interface cards (NIC):

- Up to four "external" NICs (RJ-45 connectors). Ethernet port #1 and #2 create a teaming interface which is enabled by default (192.168.0.20). These NICs are used to connect the DR-SBA application to your network. This connection also allows you to connect to the local SBC/Gateway.
- One "internal" NIC. This NIC connects to the internal chassis switch and is enabled, and DHCPclient enabled. This NIC, like the external NICs, is used to connect the DR-SBA application to your network. This connection also allows you to connect to the local SBC/Gateway.

Installation of any third-party software, except that which is included in the Mediant 800C and Mediant 1000B DR-SBA package purchased from AudioCodes, on the device's OSN server must first be approved by AudioCodes.

### **1.2** Main Benefits

The device offers the following main benefits:

- Ensure uninterrupted Teams voice calls for HQ and branch offices
- Secured SIP trunk connectivity with an embedded qualified E-SBC
- Hosting communications-enabled business processes (CEBP) applications such as call recording and Fax Server (according to platform)
- PSTN connectivity in parallel and as fallback to SIP Trunk connectivity
- Full modularity and interface flexibility, including digital spans, analog ports and BRI interfaces
- Fully interoperability with AudioCodes SBC's, supports emergency calling standards, including E911/ ELIN and Local Media Optimization (LMO)

### **1.3** Specifications

This section lists the specifications of the available DR-SBA models.

- If you have a Mediant 800C or Mediant 1000B DR-SBA model with Lync/Skype for Business Server or CCE (Mediant 800C), refer to the <u>Product Notice</u> for upgrading to Microsoft Teams.
  - When upgrading from an existing Skype SBA (or earlier), we recommend you check the SSD's health and replace it with a new card if the total number of writes to the SSD is greater than 30 TB.

### 1.3.1 Mediant 800C DR-SBA

#### Table 1: Mediant 800C DR-SBA Specifications

Item	Description
Maximum PSTN Capacity (Channels)	120
Maximum Number of SBC Sessions	400
Ability to Host Additional Business Applications	Yes (Only for the EO model)
Modularity	Fixed with software scalability options

Item	Description
Digital Interfaces	Up to 4 E1/T1 spans
LAN	4 GE interfaces
OSN Platform	OSN module:
	Standard model:
	✓ Intel Atom C3558 4 cores
	✓ 8G RAM
	✓ 128 SSD
	EO model:
	<ul> <li>Intel Atom C3758 8 cores</li> </ul>
	✓ 16G RAM
	✓ 256 SSD
	The OSN provides the following interfaces:
	4 GE interfaces
	1 USB 3.0 port
	<ul> <li>1 micro-USB port (console)</li> </ul>
IPv6 Support	Yes
Physical Dimensions	1RU
Power Supply	Single or dual AC power supply
Storage options	SSD

### 1.3.2 Mediant 1000B DR-SBA

Item	Description
Maximum PSTN Capacity (Channels)	192
Maximum Number of SBC Sessions	150
Ability to Host Additional Business Applications (SBA v2)	Yes
Modularity	Modular
Digital Interfaces	<ul> <li>1, 2, 4, 6, 8 T1/J1 spans</li> <li>1, 2, 4, 6 E1 spans</li> <li>Optional 1+1 or 2+2 fallback spans</li> </ul>
Analog FXO and FXS Interfaces	<ul> <li>4, 8, 12, 16, 20, 24 FXS/FXO ports</li> <li>4 ports per module</li> <li>One lifeline port per FXS module</li> </ul>
BRI Interfaces	<ul> <li>4, 8, 12, 16, 20 BRI lines</li> <li>4 BRI lines (8 calls) per module S/T interfaces</li> </ul>
LAN	Up to 6 x 10/100 Base-TX Ethernet LAN ports configured in 1+1 redundancy or as individual ports

Item	Description
OSN Platform	<ul> <li>OSN server (OISN4B):         <ul> <li>16-GB RAM</li> <li>USB 2.0 port for connecting peripheral devices such as DR-SBA Dongle, USB hub (to which keyboard and mouse can be connected)</li> <li>2 x Gigabit Ethernet interface (RJ-45) for connection to the network</li> <li>Console (serial) port (micro-USB) for serial communication</li> <li>HDMI interface (19-pin Type D, micro-HDMI port) for connection to graphic display monitor</li> </ul> </li> <li>HDMX module for solid-state drive (SSD)</li> </ul>
IPv6 Support	Yes
Physical Dimensions	1RU
Power Supply	Single or dual AC power supply
Storage options	SSD (supports dual SSD)

### 1.3.3 Virtual Appliance DR-SBA

#### Table 3: Minimum Virtual DR-SBA Specifications

Item	Description
Platforms	<ul><li>Microsoft HyperV 2016 or 2019</li><li>VMware ESXi 6.7 and later</li></ul>
СРИ	2 cores
RAM	8-Gb RAM
Storage	50 Gb
LAN	1 LAN



The SBC is not included in the Virtual DR-SBA and should be installed and purchased separately according to Customer requirements.



## **Hardware Description**

### 2 Verifying Package Contents

### 2.1 Mediant 800C DR-SBA

Ensure that your device package is shipped with the following items:

- Four anti-slide bumpers for desktop installation
- 19-inch rack mounting kit (two flanges and six screws)
- One AC power cable
- (Optional) E1/T1 splitter cable adapter for T1 WAN interface (customer-ordered item)
- USB dongle for DR-SBA software upgrade and recovery procedure (Teams image)
- Microsoft Windows 2019 license (in envelope and label affixed to module)
- (Optional) 1 x micro-USB to USB cable adaptor 1.5m for serial connections (for Mediant 800 without VGA connector in the rear panel)

Check, retain and process any documents. If any items are missing or damaged, please contact your AudioCodes sales representative.

### 2.2 Mediant 1000B DR-SBA

Ensure that your Mediant 1000B DR-SBA package is shipped with the following items:

- 4 x Anti-slide bumpers for desktop installation
- 19-inch rack mounting kit (two flanges and six screws)
- 1 x micro-HDMI (Type D) to standard-HDMI (Type A) 1.5m cable adaptor for monitor connections
- 1 x micro-USB to USB cable adaptor 1.5m for serial connections
- 1 or 2 AC power cables (depending on customer order)
- 1 x USB dongle for DR-SBA software upgrade and recovery procedure (Teams Image)
- Microsoft Windows 2019 license (in envelope and label affixed to module)

Check, retain and process any documents. If any items are missing or damaged, please contact your AudioCodes sales representative.

### 2.3 Virtual Appliance DR-SBA

Ensure that you have downloaded the virtual disk file (OVA) containing the DR-SBA image for deploying a virtual appliance on VMware, or the VHDX file for deploying on Hyper-V from <u>AudioCodes download portal</u>.

The Microsoft Windows 2019 license for the virtual machine must be provided by the Customer.

The OVA package was officially tested on VMware Version 6.7 Update 03 and on VMware Version 7.0 Update 02.

### **3** Physical Description for OSN-Based Devices

This section provides a brief description of the front and rear panels of the device. For a detailed description, refer to the following documents:

- Mediant 800 Gateway and SBC Hardware Installation Manual
- Mediant 1000B Gateway and SBC Hardware Installation Manual

### 3.1 Mediant 800C DR-SBA

### **3.1.1** Front-Panel Description

İ

The front panel of the device provides various port interfaces for the **optional** SBC-Gateway functionality.



The telephony interfaces are customer-ordered items and not shipped by default.
 The figure above is used only as an example. The number and type of interfaces depend on the ordered configuration.

#### **Table 4: Front-Panel Description**

Item #	Label	Description
1	POWER / STATUS	LEDs indicating the status of power and reboot/initialization.
2	FXS / FXO / BRI / PRI	<ul> <li>Telephony port interfaces that can include one or a combination of the following, depending on the ordered model:</li> <li>FXS port interfaces (RJ-11)</li> <li>FXO port interfaces (RJ-11)</li> <li>ISDN BRI port interfaces (RJ-45)</li> <li>ISDN PRI (E1/T1) port interfaces (RJ-48)</li> </ul>
3	GE	Up to four 10/100/1000Base-T (Gigabit Ethernet) LAN ports for connecting IP phones, computers, or switches.
4	FE	Eight Fast Ethernet (10/100Base-TX) RJ-45 LAN ports for connecting IP phones, computers, or switches. The supported port features are the same as the GE ports (see Item #6 above). Note: The Fast Ethernet ports are available only on "pure" SBC Mediant 800 (i.e., without PSTN / Gateway interfaces).

Item #	Label	Description
5	-	Reset pinhole button for resetting the device and optionally, for restoring the device factory defaults.
6	CONSOLE	RS-232 port (RJ-45) for serial communication.
7	USB/WWAN	Two USB ports used for various functionalities such as saving debug captures to a USB storage device.

### 3.1.2 Rear-Panel Description

The rear panel of the device provides the interface to the OSN server on which the DR-SBA runs.

Figure 3: Mediant 800C Rear Panel



**Table 5: Rear-Panel Description** 

Item #	Label	Description
1	USB	USB 3.0 port (Standard-A type) for connecting a USB storage device to the OSN server.
2	OSN PWR	LED indicating power status of the OSN server.
3	-	Reset button for resetting the OSN server.
4	CONSOLE	Micro-USB port for serial communication (CLI) with the OSN server.
5	GE 1-4	Four 10/100/1000Base-T Ethernet ports (RJ-45) for connecting directly to the OSN server.
6	DC IN 12V 10A	(Optional) DC power inlet for accepting a DC terminal block plug. <b>Note:</b> Use only the AC/DC power adaptor supplied by AudioCodes to connect the DC inlet.
7	Ţ	Protective earthing screw.
8	100-240V 50-60Hz	3-Prong AC power supply entry. Note: The device can be ordered with dual Power Supply entries.

### 3.2 Mediant 1000B DR-SBA

### 3.2.1 Front-Panel Description

The front panel of the device provides various port interfaces for the **optional** SBC-Gateway functionality.



The figure above is used only as an example. The number and type of interface modules depend on the ordered configuration.

ltem #	Label / Module	Component Description
1	FXS,	(Optional) Telephony and DSP resource modules:
	FXO,	FXS module
	BRI,	FXO (or FXO G) module
	TRUNKS,	BRI module
	MPM	TRUNKS (E1/TE/J1) module
		<ul> <li>MPM module (provides additional DSP resources)</li> </ul>
		Note: The modules are customer-ordered items.
2	CRMX	CRMX module, providing the following:
		<ul> <li>Gigabit Ethernet ports</li> </ul>
		<ul> <li>RS-232 serial port</li> </ul>
		<ul> <li>Reset pinhole button</li> </ul>
3	SWX	(Optional) LAN Extension (SWX) module, providing four Gigabit Ethernet ports.
		Note: The module is a customer-ordered item.
4	Power 1	(Optional) Spare Power Supply module slot.
		Note: The module is a customer-ordered item.
5	Power 2	Main Power Supply module.
6	-	Extractable Fan Tray module with a schematic displayed on its front panel showing the chassis' slot numbers.

#### **Table 6: Front-Panel Description**

### 3.2.2 Rear-Panel Description

The rear panel of the device provides the modules for the OSN server on which the DR-SBA runs.



#### Table 7: Rear-Panel Description

Item #	Label	Description
1	<u> </u>	Protective earthing screw.
2	ESD	Electrostatic Discharge (ESD) socket.
3	100-240V~1A	Dual AC Power Supply Entries.
4	OSN	<ul> <li>OSN4B module:</li> <li>USB 2.0 port for connecting peripheral devices such as DR-SBA Dongle, USB hub (to which keyboard and mouse can be connected).</li> <li>2 x Gigabit Ethernet interface (RJ-45) for connecting to the network.</li> <li>Console (serial) port (micro-USB) for serial communication.</li> <li>HDMI interface (19-pin Type D, micro-HDMI port) for connecting to graphic display monitor.</li> </ul>
5	HDMX	Main hard-disk drive (HDD) or Solid-State Drive (SSD) AMC module for OSN server platform.
6	HDMX	Slot for second (optional) HDD or SSD for OSN server platform.
7	-	Unused and covered AMC module slots.



# Preparing DR-SBA at Datacenter

### 4 Introduction

Before you can install and configure the device at your Site Office, you need to check the following guidelines.

### 4.1 Ready and working Direct Routing SBC

The SBC needs to be configured for Media Bypass to ensure that media flows directly between the Microsoft Teams client in the branch site and the SBC.

Refer to one of the following documents:

- Enterprise Solution: Connecting AudioCodes' SBC to Microsoft Teams Direct Routing Enterprise Model
- Service Provider Solution: Connecting AudioCodes SBC to Microsoft Teams Direct Routing Hosting Model Configuration Note

### 4.2 DR-SBA FQDN and Certification

The FQDN for the DR-SBA is configured in the certificate (you can use a .pfx certificate file or use the DR-SBA GUI to create a CSR). This certificate must be trusted by the end points that host the Teams client and by the SBC.

 $\mathsf{DR}\text{-}\mathsf{SBA}$  allows you to upload and assign certificates with the  $\mathsf{DR}\text{-}\mathsf{SBA}$  FQDN in the SAN and not on CN.

The DR-SBA certificate and FQDN must be trusted by the SBC and by the Teams clients. You can also use a private CA for the certificate and a local DNS for the FQDN.

Although private certificate is supported from Version 1.0.22, it is recommended to use a **public certificate**.

### 4.3 Admin User with Manage Roles

DR-SBA installation requires M365 users with Teams Administrator roles and role that allow to create Azure App Registration.

### 4.4 Azure AD App Registration

Î

Create App Registration in Azure AD and note **applicationId** and **appSecret** for the later install steps. Customers can either use the same Azure App Registration for all the SBAs in the Tenant or create a specific App Registration per DR-SBA.

To register and Azure AD App Registration:

 Sign-in to Azure portal with tenant administrator user and create new App registration (Azure Active Directory 2 App registrations 2 New registration) – the same App Registration can be used for all the tenant DR-SBAs, add name for the new application and select "Accounts in this organizational directory only – single tenant" under Supported account types. Select Register and note the Application ID for the next steps.

#### Figure 6: App Register

Dashboard > audiocodes.be >
Register an application
* Name
The user-facing display name for this application (this can be changed later).
SBA-Connector 🗸
Supported account types
Who can use this application or access this API?
<ul> <li>Accounts in this organizational directory only (audiocodes.be only - Single tenant)</li> </ul>
O Accounts in any organizational directory (Any Azure AD directory - Multitenant)
O Accounts in any organizational directory (Any Azure AD directory - Multitenant) and personal Microsoft accounts (e.g. Skype, Xbox)
O Personal Microsoft accounts only
Help me choose
Redirect URI (optional)
We'll return the authentication response to this URI after successfully authenticating the user. Providing this now is optional and it can be changed later, but a value is required for most authentication scenarios.
Web X a a https://ouspn.com/auth
By proceeding, you agree to the Microsoft Platform Policies 🗗
Register

#### Figure 7: Application ID and Tenant ID

Dashboard > audiocodes.be >		
BA-Connector	¢	
₽ Search (Ctrl+/)	« Î Delete Indpoints I Preview features	
Overview	Got a second? We would love your feedback on Microsoft identity platform (previously Azi	ure AD for developer). $ ightarrow$
🍪 Quickstart		
🚀 Integration assistant	Display name : SBA-Connector	Supported account types : My organization only
Manage	Application (client) ID :	Redirect URIs : Add a Redirect URI
🔤 Branding	Directory (tenant) ID :	Application ID URI : Add an Application ID URI
Authentication	Object ID :	Managed application in I : SBA-Connector
📍 Certificates & secrets	<ol> <li>Welcome to the new and improved App registrations. Looking to learn how it's changed fr</li> </ol>	rom App registrations (Legacy)? Learn more
Token configuration	-	
API permissions	Starting June 30th, 2020 we will no longer add any new features to Azure Active Directory	/ Authentication Library (ADAL) and Azure AD Graph. We will continue to provide technica
Expose an API	and security updates but we will no longer provide feature updates. Applications will need	to be upgraded to Microsoft Authentication Library (MSAL) and Microsoft Graph. Learn
🐣 App roles   Preview		
Owners	Call APIs	Documentation
Roles and administrators   Pr		Microsoft identity platform
🔟 Manifest		Authentication scenarios Authentication libraries
Support + Troubleshooting		Code samples Microsoft Graph
Troubleshooting		Glossary Help and Support
	Ruild more powerful appr with rich user and husiness data	

- 2. Select the Authentication tab.
- 3. Select Add Platform.
- 4. Select Web.
- 5. Insert https://login.microsoftonline.com/common/oauth2/nativeclient into Redirect URIs
- 6. Select the "Access tokens" and "ID tokens" check boxes.
- 7. Select Configure.

"Add a Platform" is only required for the 1<sup>st</sup> URI. If a Web Platform has already been created, select **Add URI**.



#### Figure 8: Add URI

8. Adding application\_access\_custom\_sba\_appliance API permissions:

• Click Add a permission and then select the APIs my organization uses tab.

#### Figure 9: Add a Permission

Dashboard > TEST_TEST_AUDIOCODE_Test > SBA-Connector						
<sub> - SBA-Connector   Af</sub>						
Search (Ctrl+/)	○ Refresh					
Overview	Successfully granted admin consent for the requested permissions.					
<ul> <li>Quickstart</li> <li>Integration assistant</li> </ul>	Configured permissions					
Manage	Applications are authorized to call APIs when they are granted permissions by users/admins as part of the consent process. The list of configured permissions should all the permissions the application needs. Learn more about permissions and consent	include				
Branding	+ Add a permission / Grant admin consent for TEST_TEST_AUDIOCODE_Test					
Authentication     Cartificator & correte	API / Permissions name Type Description Admin consent req Status					
Token configuration	✓ Microsoft Graph (1)					
API permissions	User.Read Delegated Sign in and read user profile - 🔮 Granted for TEST_TEST					
<ul> <li>Expose an API</li> </ul>	✓ Skype and Teams Tenant Admin #					
App roles   Preview						
B Owners						

9. In the search box type: "Skype and Teams Tenant Admin API"

#### Figure 10: Add a Permission

Dashboard > TEST_TEST_AUDIOCODE_1	fest > SBA-Connector	Request API permissions
Search (Ctrl+/) «     Gverview     Quickstart	Configured permissions     Applications are authorized to call APIs when they are granted permissions by users/admins as granted p	Select an API Microsoft API (8 APIs my organization uses) My APIs Apps in your directory that expose APIs are shown below
Integration assistant Manage	all the permissions the application needs. Learn more about permissions and consent + Add a permission ✓ Grant admin consent for TEST_TEST_AUDIOCODE_Test (	Skype and Teams Tenant Admin AFI
<ul> <li>Branding</li> <li>Authentication</li> </ul>	API / Permissions name Type Description V Microsoft Graph (1)	Skype for Business Skype for Business Management Reporting and Analytics
Certificates & secrets     Token configuration	User,Read Delegated Sign in and read user profile	Skype for Business Online Skype Presence Service
API permissions     Expose an API		Skype Teams Firehose SkypeForBusinessRemotePowershell

**10.** Select this API and on the next page select **Application permissions**, check "application\_access\_custom\_sba\_appliance API" and then click **Add permission**.

**11.** Add new Application permissions:

Figure 11: Add a Permission

Dashboard > TEST_TEST_AUDIOCODE_T	iest > SBA-Connector	Request API permissions	×
SDA-Connector   AP     P sauch (Ctri+)       Conview     Guidstant     // integration assistant     Manage		C AR APH  C AR APH  C ARAMINAPH  C ARAMINAP	daemon without a
Branding     Authentication     Certificates & secrets     Token configuration     All preservicions	API / Permissions name Type Description  Microsoft Graph (1) User/Red Delegated Sign in and read user profile  Visype and Teams Transit Admin J		

- **12.** Select the new permission you added, select the "Grant admin consent for..." and then select **yes**.
  - Figure 12: Add a Permission

		1.841				~ ~
Microsoft Azure	Search resources, serv	ices, and docs (G	5+/)			\$\$ (V
Home > App registrations > DrSbaNet	w					
DrSbaNew   API per	rmissions 🖈 …					
P Search (Ctrl+/) ≪	🕐 Refresh   🞘 Got feedba	ck?				
Soverview						
🗳 Quickstart	• • • • • • • • •					
🚀 Integration assistant	<ul> <li>The "Admin consent required organizations where this app</li> </ul>	will be used. Lear	ne default value for an organization. However, user conser in more	it can be customized per permission,	user, or app. This column may not	reflect the value i
Manage	Configured permissions					
🚾 Branding	Applications are authorized to call	APIs when they	are granted permissions by users/admins as part of th	ne consent process. The list of con	figured permissions should inclu	ıde
Authentication	all the permissions the application	needs. Learn mo	ore about permissions and consent			
📍 Certificates & secrets	+ Add a permission 🗸 Gran	nt admin consen	t for Test_Test_Test_Audiocodes(R&D lab)			
Token configuration	API / Permissions name	Туре	Description	Admin consent requ	Status	
-> API permissions	✓ Microsoft Graph (1)					
🙆 Expose an API	User.Read	Delegated	Sign in and read user profile	No	Granted for Test_Test_Te,	
App roles	✓Skype and Teams Tenant Admin	AP				
A Owners	application_access_custom_sl	ba_ Application	application_access_custom_sba_appliance	Yes	Granted for Test_Test_Te,	
& Roles and administrators   Preview						
Manifest	To view and manage permissions a	and user consent	, try Enterprise applications.			
		Figur	e 13: Add a Permission			
Microsoft Azure	Q Search resources serv	ices and docs (0				\$\$ Ø
	, , , , , , , , , , , , , , , , , , , ,					** •
DuCla - Nave   A Diverse	w					
	rmissions 💉 …					
Q Search (Ctrl+/)	C) Refresh	ck?				
Ovickstart						
	The "Admin consent required organizations where this app	" column shows ti will be used. Lear	he default value for an organization. However, user conser in more	nt can be customized per permission,	user, or app. This column may not	reflect the value i
A Integration assistant						
Manage	Configured permissions					
Branding	Applications are authorized to call	APIs when they	are granted permissions by users/admins as part of th	ne consent process. The list of con	figured permissions should inclu	ıde
Authentication	all the permissions the application	needs. Learn mo	bre about permissions and consent			
Certificates & secrets	+ Add a permission 🗸 Gran	nt admin consen	t for Test_Test_Audiocodes(R&D lab)			
Token configuration	API / Permissions name	Туре	Description	Admin consent requ	Status	
<ul> <li>API permissions</li> </ul>	✓ Microsoft Graph (1)					
Expose an API	User.Read	Delegated	Sign in and read user profile	No	Granted for Test_Test_Te,	
App roles	✓ Skype and Teams Tenant Admin	АР				•••
A Owners	application_access_custom_sl	ba_ Application	application_access_custom_sba_appliance	Yes	Granted for Test_Test_Te,	
& Roles and administrators   Preview						
Manifest	To view and manage permissions a	and user consent	, try Enterprise applications.			

### 4.5 Application Secret

This section describes how to create an Application secret.

#### To create an Application secret:

- **1.** In the Navigation pane, open **Certificates & secrets**.
- 2. Select New client secret.

#### Figure 14: Add Application Secret

> Search (Ctri+/)	~	💙 Got feedback?					
Overview		Credentials enable confidential ap	plications to identify themselves	to the authentication se	vice when receiving tok	ens at a web addressable location	(using an HTT
🗳 Quickstart		scheme). For a higher level of assi	urance, we recommend using a c	ertificate (instead of a cli	ent secret) as a credenti	31.	
💅 Integration assistant		Certificates					
Manage		Certificates can be used as secrets	s to prove the application's identi	ity when requesting a tol	en. Also can be referred	to as public keys.	
🚾 Branding							
Authentication		↑ Upload certificate					
📍 Certificates & secrets 🔵		Thumbprint		Start date	Expires	ID	
Token configuration		No certificates have been added f	or this application.				
API permissions							
Expose an API							
App roles   Preview		Client secrets					
Owners		A secret string that the application	n uses to prove its identity when	requesting a token. Also	can be referred to as ap	plication password.	
Roles and administrators   Pre	view G						
0 Manifest	2	- New client secret					
		Page and the table to the	Evpiroc	Value		ID	

#### Figure 15: Add Application

) lab) > SBA_Connector_Test	Add a client secret		×
t   Certificates & secrets 👒 …			
	Description	Enter a description for this client secret	
♥ Got feedback?	Expires	Recommended: 6 months	
Cartificater can be used as recreats to prove the application's identity when requesting a token. Also can be refe		Recommended: 6 months	
Certificates can be used as secrets to prove the application's identity when requesting a token. Also can be rere		3 months	
→ Upload certificate		12 months	
Thumbprint Start date Expires		18 months	
No certificates have been added for this application.		24 months	- 1
	3	Custom	
Client secrets			
A secret string that the application uses to prove its identity when requesting a token. Also can be referred to a	5		
· · · · · · · · · · · · · · · · · · ·			

- 3. Select either **24 months** or **Custom** years for expiration time and enter description.
- 4. Click Add.
- 5. **Copy** the new client secret value for the following steps.

Ī

#### Figure 16: Copy Client Secret Value

Dashboard > TEST_TEST_AUDIOCODE_Te	est > SBA-Connector			
🔶 SBA-Connector   Ce	rtificates & secrets 🛛 🖈			
·				
	♡ Got feedback?			
Overview	Copy the new client secret value. You won't be able t	to retrieve it after you perform another opera	ation or leave this blade.	
i Quickstart				
🚀 Integration assistant	Credentials enable confidential applications to identify t scheme). For a higher level of assurance, we recommend	themselves to the authentication service v d using a certificate (instead of a client se	when receiving tokens at a web addressable loca ecret) as a credential.	tion (using an HTTPS
Manage				
Branding	Certificates			
Authentication	Certificates can be used as secrets to prove the applicat	ion's identity when requesting a token. A	llso can be referred to as public keys.	
📍 Certificates & secrets	↑ Upload certificate			
Token configuration	Thumborint	Start date	Expires ID	
-> API permissions		51511 0010	upito io	
Expose an API	No certificates have been added for this application.			
App roles   Preview				
Owners	Client secrets			
Roles and administrators   Preview		-	a set and the set and like time and and	
Manifest	A secret string that the application uses to prove its idea	nuty when requesting a token. Also can b	be referred to as application password.	
Support + Troubleshooting	+ New client secret			
P Troubleshooting	Description Exp	ires Value	ID	
New support request	SBA 12/3	31/2299		r 🗊
		L	' <b>^</b>	
		5 Copy 1	the new client secret va	alue

Copy the new client secret value. You won't be able to retrieve it after you do another operation or leave this page. If you forget to copy it, you need to add a new secret and delete the old one if no DR-SBA devices use this secret.

### 5 Teams DR-SBA Setup

This chapter describes the Teams DR-SBA setup.

# 5.1 Deploying DR-SBA Image with VMware vSphere Hypervisor (ESXi)

This section describes how to deploy the DR-SBA Image on the VMware vSphere hypervisor (ESXi) virtual appliance.

#### To deploy DR-SBA image on VMware:

**1.** Download the OVA file containing the DR-SBA image to the virtual machine (see Section 2.3).

1 Select creation type 2 Select OVF and VMDK files 3 Select storage	Belect creation type How would you like to create a Virtual Machine?	
<ul> <li>3 select storage</li> <li>4 License agreements</li> <li>5 Deployment options</li> <li>6 Additional settings</li> <li>7 Ready to complete</li> </ul>	Create a new virtual machine Deploy a virtual machine from an OVF or OVA file Register an existing virtual machine	This option guides you through the process of creating a virtual machine from an OVF and VMDK files.
<b>vm</b> ware <sup>.</sup>		

Figure 17: Select Creation Type

2. Select option Deploy a virtual machine from OVF or OVA file and then click Next.

	5
1 New virtual machine - 670rigOVA	
<ul> <li>1 Select creation type</li> <li>2 Select OVF and VMDK files</li> <li>3 Select storage</li> <li>4 License agreements</li> <li>5 Deployment options</li> <li>6 Additional settings</li> <li>7 Ready to complete</li> </ul>	Select OVF and VMDK files         Select the OVF and VMDK files or OVA for the VM you would like to deploy         Enter a name for the virtual machine.         \$70rigOVA         Virtual machine names can contain up to 80 characters and they must be unique within each ESXi instance.         Click to select files or drag/drop
<b>vm</b> ware <sup>.</sup>	
	Back Next Finish Cancel

#### Figure 18: Select Files

Figure 19: Select File

New virtual machine - 670rigOV	A
✓ 1 Select creation type	Select OVF and VMDK files
2 Select OVF and VMDK files 3 Select storage	Select the OVF and VMDK files or OVA for the VM you would like to deploy
4 License agreements	Enter a name for the virtual machine.
6 Additional settings	67OrigOVA
7 Ready to complete	Virtual machine names can contain up to 80 characters and they must be unique within each ESXi instance.
vmware <sup>.</sup>	× 🐨 TeamsSba_1_0_16.ova
	Back Next Finish Cancel

**3.** Enter the name of the Virtual machine to create, drag the file containing the installation package and then click **Next**.

New virtual machine - 670rigOVA							
<ul> <li>1 Select creation type</li> <li>2 Select OVF and VMDK files</li> <li>3 Select storage</li> <li>4 License agreements</li> <li>5 Deployment options</li> <li>6 Additional settings</li> <li>7 Ready to complete</li> </ul>	Select storage Select the storage type and datastore Standard Persistent Memory Select a datastore for the virtual machine's of	onfiguration files	and all of it:	s' virtual disks.			
	Name ~	Capacity ~	Free	~ Туре	Thin pro     Y	Access ~	
	datastore1	1.51 TB	1.1 TB	VMFS6	Supported	Single	
						1 items	1
vmware <sup>.</sup>							
				Back	Next Fin	ish Cance	el

#### Figure 20: Select Storage Type

4. Select **Standard** datastore and then click **Next**.

#### Figure 21: Deployment Options

Provide the second seco			
<ul> <li>1 Select creation type</li> <li>2 Select OVF and VMDK files</li> <li>3 Select storage</li> </ul>	Deployment options Select deployment options		
4 Deployment options     5 Ready to complete	Network mappings	VM Network VM Network ~	
	Disk provisioning	Thin O Thick	
	Power on automatically		
<b>vm</b> ware*			
		Back Next Finish Cancel	4

#### 5. Configure the following options and then click **Next**:

- From the Network mappings drop-down list, select VM Network.
- For the Disk provisioning option, select Thick.
- Select the Power on automatically checkbox.
- The following screen appears during the deployment process.

Select creation type	A required disk image	was missing.	۲
Select OVF and VMDK files	Review your settings selection b	pefore finishing the wizard	
3 Select storage     4 Deployment options     5 Ready to complete	Product	SBAlso	
	VM Name	670rigOVA	
	Files	TeamsSba_1_0_16-disk1.vmdk	
	Datastore	datastore1	
	Provisioning type	Thin	
	Network mappings	VM Network: VM Network	
	Guest OS Name	Unknown	
	Do not refresh y	our browser while this VM is being deployed.	

#### Figure 22: Ready to complete

The error message displayed in the figure above can be ignored.

#### Figure 23: Review Settings

<ul> <li>2 Select OVF and VMDK files</li> <li>3 Select storage</li> </ul>	Ready to complete Review your settings selection b	efore finishing the wizard
4 Deployment options	Product	SBAIso
5 Ready to complete	VM Name	67OrigOVA
	Files	TeamsSba_1_0_16-disk1.vmdk
	Datastore	datastore 1
	Provisioning type	Thin
	Network mappings	VM Network: VM Network
	Guest OS Name	Unknown
<b>vm</b> ware <sup>.</sup>	Do not refresh y	our browser while this VM is being deployed.

Review the settings and then click Finish.
 The new virtual machine is created.

Vitual machine       Status         Image: Status       Image: Status         Image: Status	Used space           Unknown           ald         29.84 GB           ald         33.92 GB           ald         31.96 GB           ald         31.58 GB           ald         9.06 GB           ald         30.72 GB           ald         31.58 GB           ald         31.58 GB           ald         30.72 GB	~	Guest OS Microsoft Windows Server 201 Microsoft Windows Server 201 Microsoft Windows Server 201 Microsoft Windows Server 201 Microsoft Windows Server 201	Host name  Unknown Unknown Unknown Unknown Unknown Unknown Unknown Unknown Unknown	Host CPU 0 MHz 0 MHz 48 MHz 2.3 GHz 60 MHz 129 MHz 0 MHz 51 MHz	Host memory 0 MB 0 MB 4.06 GB 501 MB 4.04 GB 4.06 GB 0 MB
<sup>(1)</sup> / <sub>2</sub> TSV1-105 <sup>(1)</sup> / <sub>2</sub> ISV1-105 <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> MVIQA-105 <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> QA112 <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> QA112Main <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> QA112Main <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> QVF112EXP <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> G70rig0VA <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> G70rig0VA <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> G70rig0VA <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> G70rig0VA <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> G70rig0VA <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> G70rig0VA <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> Norr <sup>(1)</sup> / <sub>2</sub> G70rig0VA	id         Unknown           tall         29.84 GB           all         33.92 GB           tall         33.92 GB           tall         31.98 GB           tall         31.58 GB           tall         31.58 GB           tall         30.72 GB           tall         32.65 GB		Microsoft Windows Server 201 Microsoft Windows Server 201	Unknown Unknown Unknown Unknown Unknown Unknown Unknown	0 MHz 0 MHz 48 MHz 2.3 GHz 60 MHz 129 MHz 0 MHz 51 MHz	0 MB 0 MB 4.06 GB 501 MB 4.04 GB 4.06 GB 0 MB
	aal         29.84 GB           aal         33.92 GB           aal         4.08 GB           aal         31.98 GB           aal         31.58 GB           aal         3.072 GB           aal         3.072 GB           aal         1.326 GB		Microsoft Windows Server 201 Microsoft Windows Server 201	Unknown Unknown Unknown Unknown Unknown Unknown	0 MHz 48 MHz 2.3 GHz 60 MHz 129 MHz 0 MHz	0 MB 4.06 GB 501 MB 4.04 GB 4.06 GB 0 MB
ŵ VMQA-105             whore	all         33.92 GB           hall         4.08 GB           hall         31.98 GB           hall         31.58 GB           hall         9.06 GB           hall         30.72 GB           hall         13.26 GB		Microsoft Windows Server 201 Microsoft Windows Server 201	Unknown Unknown Unknown Unknown Unknown	48 MHz 2.3 GHz 60 MHz 129 MHz 0 MHz	4.06 GB 501 MB 4.04 GB 4.06 GB 0 MB
	all         4.08 GB           hall         31.98 GB           hall         31.58 GB           hall         9.06 GB           hall         30.72 GB           hall         13.26 GB		Microsoft Windows Server 201 Microsoft Windows Server 201 Microsoft Windows Server 201 Microsoft Windows Server 201 Microsoft Windows Server 201	Unknown Unknown Unknown Unknown Unknown	2.3 GHz 60 MHz 129 MHz 0 MHz	501 MB 4.04 GB 4.06 GB 0 MB
	all         31.98 GB           all         31.58 GB           all         9.06 GB           all         30.72 GB           all         13.26 GB		Microsoft Windows Server 201 Microsoft Windows Server 201 Microsoft Windows Server 201 Microsoft Windows Server 201	Unknown Unknown Unknown Unknown	60 MHz 129 MHz 0 MHz	4.04 GB 4.06 GB 0 MB
A 112Main     ONOT     A 112Main     ONOT     A 112Main     ONOT     A 112EXP     ONOT     A SAAfomOVA     ONOT     A SAAfomOVA     ONOT     A ONOT     Oulck filters     V	aal         31.58 GB           nal         9.06 GB           nal         30.72 GB           nal         13.26 GB		Microsoft Windows Server 201 Microsoft Windows Server 201 Microsoft Windows Server 201	Unknown Unknown Unknown	129 MHz 0 MHz	4.06 GB 0 MB
	al         9.06 GB           nal         30.72 GB           nal         13.26 GB		Microsoft Windows Server 201 Microsoft Windows Server 201	Unknown	0 MHz	0 MB
	1al 30.72 GB 1al 13.26 GB		Microsoft Windows Server 201	Unknown	Ed Miles	
B SBAfromOVA     ONOr     Onor     Ouick filters	13.26 GB				51 MHZ	4.07 GB
GrorigoVA     Over     Norr     Quick filters	al O.B.		Microsoft Windows Server 201	Unknown	12 MHz	4.06 GB
Quick filters	Idi U D		Microsoft Windows Server 201	Unknown	0 MHz	0 MB
						10 10
Recent tasks						
<ul> <li>Target</li> </ul>	Initiator ~	Queued	<ul> <li>Started</li> </ul>	✓ Result ▲	~	Completed V
#0 disk - Teams Sba_1_0_18-0ck1.vmdk (1 of 1)	root	07/20/2021 15:0	07/20/2021 15:03:13		0	Running 1 %
te VM		07/20/2021 16:0	05:14 07/20/2021 16:05:14	Completed successfully		07/20/2021 16:05:14

#### Figure 24: New Virtual Machine Added

The progress of the running task is displayed in the lower pane of the above screen. Once the virtual machine is created, it is added to the list in the top pane.

### 5.2 Deploying DR-SBA Image with Hyper-V Hypervisor

This section describes how to deploy the DR-SBA Image on the Hyper-V hypervisor virtual appliance.

To deploy the DR-SBA image with Hyper-V hypervisor:

- 1. Download the VHDX file containing the DR-SBA image to the virtual machine (see Section 2.3).
- 2. Open the Hyper-V management console and then click **Next**.

#### Figure 25: New Virtual Machine

8	New Virtual Machine Wizard	x
Before You E	Begin	
Before You Begin Specify Name and Location Specify Generation Assign Memory Configure Networking Connect Virtual Hard Disk Installation Options Summary	This wizard helps you create a virtual machine. You can use virtual machines in place of physical computers for a variety of uses. You can use this wizard to configure the virtual machine now, and you can change the configuration later using Hyper-V Manager. To create a virtual machine, do one of the following:  • Click Finish to create a virtual machine that is configured with default values. • Click Next to create a virtual machine with a custom configuration.  Do not show this page again	
	< Previous Next > Finish Cancel	

3. Name the new virtual server.

#### Figure 26: Specify VM Name and Location

8	New Virtual Machine Wizard
Specify Nam	ne and Location
Before You Begin Specify Name and Location Specify Generation Assign Memory Configure Networking Connect Virtual Hard Disk Installation Options Summary	Choose a name and location for this virtual machine.         The name is displayed in Hyper-V Manager. We recommend that you use a name that helps you easily identify this virtual machine, such as the name of the guest operating system or workload.         Name:       Virtual Teams DR SBA VHDX         You can create a folder or use an existing folder to store the virtual machine. If you don't select a folder, the virtual machine is stored in the default folder configured for this server.         Store the virtual machine in a different location         Location:       C:\ProgramData\Wicrosoft\Windows\Hyper-V\         Browse         If you plan to take checkpoints of this virtual machine, select a location that has enough free space. Checkpoints include virtual machine data and may require a large amount of space.
	< Previous Next > Finish Cancel

4. Select the **Generation 1** radio button and then click **Next**.

Figure 27: Specify Generation

36	New Virtual Machine Wizard			
Specify Gene	ration			
Before You Begin Specify Name and Location Specify Generation Assign Memory Configure Networking Connect Virtual Hard Disk Installation Options Summary	<ul> <li>Choose the generation of this virtual machine.</li> <li> ④ Generation 1  This virtual machine generation provides the same virtual hardware to the virtual machine as in previous versions of Hyper-V. </li> <li> ○ Generation 2  This virtual machine generation provides support for features such as Secure Boot, SCSI boot, and PXE boot using a standard network adapter. Guest operating systems must be running at least Windows Server 2012 or 64-bit versions of Windows 8. ▲ Once a virtual machine has been created, you cannot change its generation. </li> </ul>			
	< Previous Next > Finish Cancel			

5. Assign memory (8G minimum).

Figure 28: Assign Memory

	New Virtual Machine Wizard	x
Assign Memo	or <b>y</b>	
Before You Begin Specify Name and Location Specify Generation Assign Memory Configure Networking Connect Virtual Hard Disk Installation Options Summary	Specify the amount of memory to allocate to this virtual machine. You can specify an amount from 32 MB through 2560 MB. To improve performance, specify more than the minimum amount recommender for the operating system.         Startup memory:       2048       MB         Use Dynamic Memory for this virtual machine.       Image: Startup memory for this virtual machine.         Image: When you decide how much memory to assign to a virtual machine, consider how you intend to use the virtual machine and the operating system that it will run.	2 d
	< Previous Next > Finish Cancel	

6. Configure the available network interface:

Figure 29: Configure Networking

30	New Virtual Machine Wizard	×
Configure No	etworking	
Before You Begin Specify Name and Location Specify Generation Assign Memory Configure Networking Connect Virtual Hard Disk Installation Options Summary	Each new virtual machine includes a network adapter. You can configure the network adapter to virtual switch, or it can remain disconnected. Connection: New Virtual Switch v	o use a
	< Previous Next > Finish Ca	incel

7. Chose to use an existing virtual hard disk and click **Browse**.

#### Figure 30: Connect Virtual Hard Disk

a.	New Virtual Machine Wizard
Connect Virt	tual Hard Disk
Before You Begin Specify Name and Location Specify Generation Assign Memory Configure Networking Connect Virtual Hard Disk Summary	A virtual machine requires storage so that you can install an operating system. You can specify the storage now or configure it later by modifying the virtual machine's properties. Create a virtual hard disk Use this option to create a VHDX dynamically expanding virtual hard disk. Name: Virtual Teams DR SBA VHDX.vhdx Location: C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks\ Browse Size: 127 GB (Maximum: 64 TB) Cuse this option to attach an existing virtual hard disk, either VHD or VHDX format. Location: C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks\ Browse Actach a virtual hard disk later Use this option to skip this step now and attach an existing virtual hard disk later.
	< Previous Next > Finish Cancel

8. Navigate to the location of the vhdx file you downloaded and copied to the hypervisor server.

Figure 31: Navigate to VHDX File

<b>8</b>	Open		x
⊘ ⊘ → ↑ 🚺 « Hy	per-V 🔸 Virtual hard disks 🕨	✓ ♂ Search Virtual hard disks	Q
Organize 🔻 New folde	r	≣≡ ▼ 🔟	0
A Microsoft Manager	Name	Date modified Type	
	🚹 TeamsSba_1.0.110.zip	5/4/2021 1:01 AM Compressed	l (zipp
🔆 Favorites	👝 TeamsSba_1.0.112.vhdx	5/20/2021 5:54 PM Hard Disk In	nage F
🔤 Desktop	🜗 TeamsSba_1.0.112_vhdx.zip	5/6/2021 5:15 PM Compressed	l (zipp
📜 Downloads 🔤			
🖳 Recent places 📒			
Image Performants Image Perfor			
📔 Videos 🗠	< 1	11	>
File na	me: TeamsSba_1.0.112.vhdx	Virtual hard disk files (*.vhd; Open Cancel	• • 

9. After the Hyper-v's new virtual server has been created, click **Settings**:

		Figure 32: Se	ettings		
1 mm		Hyper-V Ma	nager		
File Action View Help					
🗢 🄿 🙇 🖬 🚺 🖬					
Hyper-V Manager					Actions
SBAEREZ2012R2	Virtual Machines				SBAEREZ2012R2
	Name	State		CPU Usag	New 🕨
					🕞 Import Virtual Machine
					🛃 Hyper-V Settings
			$\mathbf{X}$		🗱 Virtual Switch Manager
			$\mathbf{X}$		🤮 Virtual SAN Manager
	<	Ш			💋 Edit Disk
	Checkpoints				🔄 Inspect Disk
					Stop Service
		The selected virtual machin	e has no checkpoints.		🗙 Remove Server
			\		🔉 Refresh
					View 🕨 🗎
			```		Help
					New Virtual Machine
					Connect
New Virtual Machine				💽 Settings	
	Adapter	Connection	IP Addresses	Status	Start
	Network Adapter (Dynami	New Virtual Switch			Checkpoint
					Move

**10.** Click 'Processor' and set the number of processor cores (minimum 2):

#### Figure 33: Number of Virtual Processors

- 12. This paragraph shows how to change the MAC address to **Static** in Microsoft Hyper-V.
  - i. *Turn-off* the SBC virtual machine.
  - ii. Enter the **Settings** of the selected SBC virtual machine.
  - iii. For each Network Adapter, do the following:
    - a. Choose Advanced Features
    - b. Change the 'MAC address' option to Static.

#### Figure 5-34: Advanced Features - Network Adapter – Static MAC Address

10	Settings for SBC_VE_NEW on QAHYPERV2	x
SBC_VE_NEW		
<ul> <li>★ Hardware</li> <li>★ Add Hardware</li> <li>★ BIOS Boot from CD</li> <li>➡ Memory</li> <li>2048 MB</li> <li>➡ Processor</li> <li>1 Virtual processor</li> <li>➡ IDE Controller 0</li> <li>★ Hard Drive SBC_VE.vhdx</li> <li>➡ IDE Controller 1</li> <li>➡ DVD Drive None</li> <li>♥ SCSI Controller</li> <li>➡ Retwork Adapter</li> </ul>	<ul> <li>Advanced Features</li> <li>MAC address</li> <li>Dynamic</li> <li>              § Static                 00 - 15 - 5D - 5E - 74 - 29      </li> <li>MAC address spoofing allows virtual machines to change the source MAC address in outgoing packets to one that is not assigned to them.          </li> <li>Enable MAC address spoofing         </li> <li>DHCP guard              DHCP guard drops DHCP server messages from unauthorized virtual machines pretending to be DHCP servers.          </li> </ul>	
<ul> <li>Internet Nation Vision V</li></ul>	□       Enable DHCP guard         Router guard       Router guard drops router advertisement and redirection messages from unauthorized virtual machines pretending to be routers.         □       Enable router advertisement guard         Protected network       Move this virtual machine to another cluster node if a network disconnection is detected.         ☑       Protected network         Port mirroring       Port mirroring allows the network traffic of a virtual machine to be monitored by copying incoming and outgoing packets and forwarding the copies to another virtual machine configured for monitoring.	
C:\Ronen\Virtual Machines\	Mirroring mode:     None	~
	QK <u>Cancel</u> Apply	

**13.** When the new virtual machine is ready, click **Start** to start the server.



Figure 35: Start Virtual Machine
# 5.3 Logging into DR-SBA and Enabling DR-SBA License

This section describes the initial login to the DR-SBA Web browser and DR-SBA license activation.

To login to DR-SBA and enable license:

- 1. Login via web browser to the DR- SBA IP with the following credentials:
  - User: Administrator
  - Password: Pass123

Login to Direct Routing SBA Web Ad	ministration
Administrator	×
Password	<b>a</b>
☐ Yes, I accept <u>the terms &amp; condition</u>	
	Sign In

The above user and password are the DR-SBA Windows local Administrator default account.

The following screen is applicable only for the Virtual Edition:

Figure 37: License Settings

audioc	Odes 🛯 🏺 Microsoft Teams	
License Setting	S	
	License Info	S/N fb08bd11242dc5a4d649b96cc556768077d30a5e
Customer Name:	-	Type License Content
PO Number:	-	
Order Number:	-	
Product Key:	-	
S/N:	-	
Expiration Date:	-	Upload License

Upon initial login, you are prompted to enter the DR-SBA license. The license is mandatory to install; without the license you can't proceed to the next setup wizard page.

2. Copy the Serial Number (S/N) from the License Settings screen (see figure above). Proceed to Section 5.3.1 for Licensing activation.

- 3. Load the license and proceed to the Welcome page.
- **4.** After login the Wizard opens. You can close the wizard by clicking cancel and returning to it from a key on the top bar.

CC audiocodes 😼 Microsoft Teams	WIN-P10HHH6UUJ1	.\Administrator <del>√</del>	8
Welcome to the Direct Routing Survivability Branch Appliance (SBA) Setup Wizard			
This wizard will guide you through the Direct Routing Survivability Branch Appliance (SBA) installation. Please follow the instructions from the installation manual.			
Make sure you have all the information and needed credentials for the installation: IP addresses, certificates and so on.			
	Back Next	Cancel	

## Figure 38: Welcome Page

5. Click Next to continue.

## 5.3.1 Licensing the Product

Once you have successfully completed DR-SBA Virtual Teams virtual machine deployment, you need to obtain, activate and then install your purchased DR-SBA license key file.



This license is only relevant for the DR-SBA Virtual Appliance.

License activation is intended only for first-time software activation upon product purchase (or if your License Key is "lost", due to whatever reason).

## To obtain and activate the License Key:

 Open AudioCodes Web-based Software License Activation tool at <u>http://www.audiocodes.com/swactivation</u>:

#### Figure 39: Software License Activation Tool

() En	<b>OC</b> audiocodes	Q
		it.
		G
Home > Software License #	Activation	
	Software License Activation	
Please enter your Prod generated as a result o For technical assistanc "Supports CloudBond 36	luct Key received from AudioCodes and the fingerprint (e.g. Serial Number or Server Machine ID) that was of your installation. e, please contact AudioCodes support at <u>support@audiocodes.com</u> . 5 version 7.2 and above.	
	Product Key *	
	8B0521934FF13DN8	
	Fingerprint • For instructions on how to locate your product's fingerprint, please read the documentation relevant to your product	
	Email *	
	I'm not a robot	

- 2. Enter the following information:
  - **Product Key:** The Product Key identifies your specific DR-SBA purchase for the purpose of subsequent communication with AudioCodes (for example, for support and software upgrades). The Product Key is provided in the Order Confirmation e-mail sent to you by AudioCodes upon your purchase, as shown in the example below:

Figure 40: Product Key in Order Confirmation E-mail

<b>C</b> audiocodes
Direct Routing SBA for Microsoft Teams
Virtual SBA
Dear Customer,
Thank you for your recent purchase!
<ul> <li>Customer PO#: V_Customer_po</li> <li>Order #: V_order_number , Line # v_line_number</li> <li>Product Key: V_PRODUCT_KEY_TABLE</li> </ul>
Please follow these instructions to install and activate your Virtual SBA
<ol> <li>Obtain the software image</li> <li>Select the relevant software installation option according to the platform on which you wish to run your product:</li> </ol>
VMware: <u>download</u> Hyper-V: <u>download</u>
2] Download the Installation Manual: <u>AudioCodes documentation library</u> .
3] Install the product according to the instructions in the Installation Manual.
4] Obtain your product's Fingerprint (Serial Number S/N) according to the instructions in "Licensing the Product" section of the Installation Manual.
5] Activate your product through AudioCodes License Activation page at http://www.audiocodes.com/swactivation.
You will need your Product Key and Fingerprint (S/N) for this activation process. An e-mail will subsequently be sent to you with your Product License.
6] Install the Product License according to the instructions in "Installing the Product License" section of the Installation Manual.
If you have any questions, please contact us at <u>https://www.audiocodes.com/services-support</u> .
Thank you, AudioCodes

- **Fingerprint:** The fingerprint is the DR-SBA's Serial Number (S/N) which can be extracted from the License Settings screen (see Section 5.3). This ID uniquely identifies the software installation.
- **Email:** Provide one or more e-mail addresses to where you want the License Key to be sent.

- 3. Click Send to submit your license activation request.
- **4.** Once AudioCodes processes and completes your license activation, you will receive an e-mail notification with the License Key file attached. Open the file with any text-based program (such as Notepad) and make sure that the serial number ("**S/N**") in the License Key is correct and reflects the Serial Number of your DR-SBA displayed in the License Settings screen.

Figure 41: Email	Confirmation w	vith new	License	Kev
Inguie 41. Linan	commation v		LICENSE	ncy

Product License for Product Key xxxxxxxxxxxxxx	
noreplytest To SQLDB	
	AC_DOOX_DOOX 508 bytes
	<b>C</b> audiocodes
	Dear Customer,
	You have successfully activated your product through AudioCodes License Activation tool.
	Attached is your Product License for Product Key X000000000000000000000000000000000000
	original recipients:
	Sincerely, AudioCodes www.audiocodes.com

Do not modify the contents of the DR-SBA License Key file.

5. Proceed to Step 1.3 in Section 5.3.

## 5.4 Network Setup

This section describes the Network Interface Setup.

#### To setup the network:

- 1. Disable the non-used NIC Its recommended to have only one NIC enabled network card. (On the Virtual Edition, there is only one NIC by default).
- 2. Click Next.
- **3.** Set the IP address as required for the interface that is used (or do it directly via RDP) You can skip this step if the network has been setup correctly.

```
Figure 42: Network Interface Setup (OSN-Based Setup)
```

Network A	dapters						
It is recomm	ended to disable all unne	ecessary Netv	work Adapters.				
External	Ethernet 4 (GE3)	External	Ethernet 5 (GE4)	External	External team	Internal	Internal network
Status:	MediaDisconnected	Status:	Connected	Status:	MediaDisconnected	Status:	Connected
IP Address	Disable	IP Address	10.21.2.15 Disable	IP Address	Disable	IP Address	169.254.87.227 Disable

## Figure 43: Network Interface Setup (Virtual Machine-Based Setup)

Network	
ad	MICROSOFT HYPE Connected External External Enabled

i

## Figure 44: Direct Routing DR-SBA LAN Setup

Direct Routing SBA LAN Setup		
Wizard will be automatically reconnecSele Select a Network Interface Card	ct external network intërfacëre card	ss.
GE1		
Use the following IP address		
IP Address		
Subnet Mask		
Default Gateway		
Use the following DNS server address		~
eferred DNS Server		
ternate DNS Server		

After changing the Teams DR-SBA IP, you need to restart the Microsoft service. Restart the service also when you update the current IP address of the server. There is no need to restart the service while running the Setup through the initial setup wizard.

Whenever you change the IP address, you need to modify the same/new IP address in the 'SIP Listen IP' dropdown list, as described in Section 5.9.2 on page 40.

# 5.5 Change Local Administrator Password

The default password is **Pass123**, which is recommended that you change.



You can skip this step if you wish to retain the old password.

### Figure 45: Change Local Admin Password

ange Local Administrator Password	
Current Password	
New Password	
Confirm Password	

## 5.6 Set Date and Time

1. Set the correct date/time/time zone. Make sure that you have access to NTP (by default, global NTP is used for workgroup: time.windows.com).



When the DR-SBA is in the workgroup, the NTP can be set via cmd when you RDP to the DR-SBA.

Set-ItemProperty -Path "HKLM:\SYSTEM\CurrentControlSet\Services\w32time\Parame
ters" -Name "NtpServer" -Value "ntp.server,0x8"

2. Restart # restart Windows Time service:

Restart-Service w32Tim

You can skip this step if the date/time are already set.

## Figure 46: Set Date and Time Zone

et Date	e And Time Zone	
Time Z	Cone C+02:00) Jerusalem	~
Date		
	06-10-2020	
Time		

# 5.7 Join to Domain

You can join to the domain if its required. The Teams DR-SBA can run in Workgroup mode as well.



## Figure 47: Change Local Admin Password

oin To Domain	
rect Routing SBA can I	be join to domain but it can work without joining to domain too.
Domain Name	
New Computer Name	9
Current computer na	ime: WIN-P10HHH6UUJ1
User Name	
User Password	

## 5.8 Log in to Teams

This section describes how to log in to Microsoft Teams.

#### **To login to Microsoft Teams:**

- 1. Enter Tenant (Teams) Admin/Password. You must use Teams Admin without MFA.
  - Customers can alternatively supply Tenant ID as Teams Admin credentials (select the 'Set DR-SBA without enter Teams Tenant Administrator' check box to enable this mode).
  - To obtain the Tenant ID, enter the following Online PowerShell command: Get-CsTenant
- If you enter tenant Admin/Password, click Login credentials (this may take some time). Once successfully logged in, a short message notification that you have logged in successfully is displayed and tenant information is displayed in "Last Login tenant information" section (see below) – click Next.

Direct Routing SBA Tenant Crec	lential						
Set DR SBA without enter Teams Tenant Administrator	Type tenant ID						
Teams Administrator	Enter name	Lonin					
Password	Enter password	Lugin					
	Last login tenant information						
Account							
Environment							

#### Figure 48: Login to Teams (User & Password)

Direct Routing SBA Tenant Credential						
	Tenant Global Admin	Enter name	Loria			
	Password	Enter password	Login			
		Last login tenant information				
	Account					
	Environment	AzureCloud				
	Tenant Domain					

#### Figure 49: Login Direct Routing DR-SBA Tenant Credential (Set DR-SBA)

## 5.9 Add or Select Teams DR-SBA

Define the Teams DR-SBA and add it to Microsoft Teams. You can add the new Teams DR-SBA or use one that has already been defined on Teams directly via the PowerShell.

Don't select the same Teams DR-SBA that is already used on different active hardware. If you logged in without supplying the Teams admin username and password (see Section 5.8), you need to enter the FQDN manually without the option to add/select directly from the tenant.

Whether you add it through PowerShell or through the wizard, DR-SBA's FQDN should be written in lowercase.

## 5.9.1 Add DR-SBA via PowerShell

Add the DR-SBA via PowerShell directly, by entering the following command:

```
New-CsTeamsSurvivableBranchAppliance -Fqdn <sba FQDN> -Description
"Description"
```

## 5.9.2 Add DR-SBA via Login to Tenant

**1.** If you are logged into a tenant without supplying the tenant's username and password, add the new DR-SBA FQDN:

## Figure 50: Direct Routing DR-SBA Tenant Credentials

New Direct Routing SBA(Create new FQDN)		
<ul> <li>Existing Direct Routing SBA(FQDN pre-created</li> </ul>	1)	
FQDN:		
Type new FQDN		
Description:		
	Add	ł
P Listen IP		
40.24.0.204		

- 2. Enter the Teams DR-SBA FQDN and description (optional), and then click Add (this operation takes time due to the Teams connection).
- 3. From the 'SIP Listen IP' drop-down list, select on which IP address the DR-SBA listens for SIP transport.

Whenever you change the IP address, you need to modify the same/new IP address in the 'SIP Listen IP' dropdown list.

## 5.9.3 Select Existing Teams DR-SBA FQDN

If you wish to select the Teams DR-SBA FQDN that has already been defined for this DR-SBA:

- 1. Select the Existing Direct Routing SBA (FQDN pre-created) option.
- 2. Select the FQDN from the drop-down list and if you wish to update related data, for example, the SBA description, select the update key.
- 3. Proceed to step 6 below.



Existing Direct Routing SBA(FQDN pre-created)	
FQDN:	
sbaTeams.audctrunk.aceducation.info	
Description:	
AUDC SBA IL	
	Update
P Listen IP	
10 21 8 201	~

- 4. From the 'SIP Listen IP' drop-down list, select the IP address on which the DR-SBA listens for SIP transport.
- 5. When data has been updated, click Next.
- 6. If you selected to authenticate using the Tenant ID in Section (instead of logging with Tenant Username and password), enter the FQDN manually.

### Figure 52: Enter FQDN

Create or Select Direct Routing SBA FQDN	
FQDN:	
sbaTeams164.audctrunk.aceducation.info	

## 5.10 Teams DR-SBA Certificate

This section describes how to assign Teams DR-SBA certificates. Firstly, you must import a certificate, which can be done by importing a pfx file or by generating a CSR via the DR-SBA Web, have it signed and then imported.

## 5.10.1 Import PFX File

## To import PFX file:

Select Import Certificate and upload the PFX file (you must supply the private key password).

### Figure 53: Import pfx file

<b>Q</b> caudiocodes ≡	SETUP	MONITOR	TOOLS	🐞 Microsoft Teams	Resume Setup Wizard	WIN-OIQPQOUC260
DIRECT ROUTING SBA SETUP	equest, l	nstall or Ass rts the Certifica	ign Direct te Wizard. Ci	: Routing SBA Certificates reate certificate request for local system. Install, and	l assign Certificate for this system based on the to	pology definition.
Network Change Admin Password Date & Time SNMP Direct Routing SBA Certificate Access List Teams Online License	Import Ce Select Ce Choos Type cert	rtificate. rtificate file (*.p æ File usethisA ificate's fil pas	7b, *.pfx, *.ce	er file)	Import	

## 5.10.2 Request CSR

To request CSR:

1. If you If you need to generate a CSR, you can click **Request CSR**.

## Figure 54: DR-SBA Certificate

<b>C</b> audiocodes	🎁 Microsoft Teams		WIN-P10HHH6UUJ1	.\Administrator - 🕜
Request, Install or Assign Dir This step starts the Certificate Wizara	ect Routing SBA Certificates Create certificate request for local system. Install, and assign Certificate for per Certificate Turpe and then exlect a task. Expand the Certificate Turpe	or this system based on the topology definition.		
Certificate	Friendly Name	Expiration Date	Assigned	Request CSR
Refresh Import Certificate				Assign

- 2. Fill the CSR fields.
- **3.** If a CSR was generated, download the file by clicking on download key, sign the certificate and then import the signed certificate.

## 5.10.3 Assign Certificate

## To assign certificate:

- Click Assign, and then select the certificate you wish to use (DR-SBA looks for the certificate with CN = SBA FQDN). You should have one certificate with the same CN. If there is more than one certificate, delete those that are not relevant.
  - The CA that is used must be trusted by the Teams clients and the SBC.
    - If a Private CA is used, you need to verify that its CA is installed on the DR-SBA. Do this by importing a .p7b/.pfx certificate file with full certificate chain or directly via RDP.
      - Certificate must include the SBA FQDN in the certificate CN and in the SAN.
      - You can assign a Wildcard certificate.
      - The DR-SBA creates a certificate for internal communication (localhost). Do not delete it. The certificate is unique to the system. Without it, the system will not work correctly.
- Click Assign and select the certificate that you wish to use (the DR-SBA searches for the certificate according to the DR-SBA FQDN that was set in the previous step in this certificate) you should have one certificate with the same common name (CN).

After changing the certificate, you need to reset the SBA Microsoft service.

There is no need to restart the service while running the Setup through the initial setup wizard. Restart the service only when you update the current server certificate.

# 5.11 Application ID and Application Secret

**1.** Enter the Application ID and application secret according to the App Registration that you defined on Azure AD.

Application ID	Enter application ID	
Application Secret	Enter Application secret	

### Figure 55: AD Application ID

2. Click Next to complete the setup of the DR-SBA.

## Figure 56: DR-SBA is Ready

Congratulations	
You have successfully completed the Direct Routing Survivability Branch Appliance (SBA) Configuration Wizard.	
Finish Back Next Cancel	

- 3. Click **Finish** to close the Wizard.
- 4. Due to a known issue, restart the "Microsoft Teams SBA service" after completing the wizard. This can be done from the Tools menu:

## Figure 57: Microsoft Teams SBA service Restart

<b>C</b> audiocodes		TOOLS 🎁 Microsoft Teams	SBC Resume Setup Wizard
DIRECT ROUTING SBA	SERVICES	Running	- x
<ul> <li>TOOLS</li> <li>Direct Routing SBA Services</li> <li>Direct Routing SBA Syslog</li> </ul>	TeamsSbaConfig	Running	- 209
Web Admin Logs Direct Routing SBA Configuration Logs Direct Routing SBA Restore	RESTART		
Defaults Direct Routing SBA Alarm Tester	C Restart SBA		

# 6 SBC Setup

Setup the SBC for Teams Direct Routing support with media bypass and validate that it works for incoming and outgoing calls. For configuration guidelines, refer to one of the following documents:

- Enterprise Solution: <u>Connecting AudioCodes' SBC to Microsoft Teams Direct Routing</u> <u>Enterprise Model</u>
- Service Provider Solution: <u>Connecting AudioCodes SBC to Microsoft Teams Direct Routing</u> <u>Hosting Model Configuration Note</u>

This chapter describes an example setup on how to configure the SBC setup to work with Teams DR-SBA. The setup can vary between customers and depends on the customer network topology. It represents common Enterprise topology. If you need to route calls via ARM or by using tagging, this requires a different setup, in which case, please contact AudioCodes Professional services for detailed guidelines.

**()** 

The CA that is used to assign to the DR-SBA must be trusted by the Teams clients and the SBC. Add the Certificates on the SBC via the SBC Web interface.

()

Please continue to the next step only after you confirm that SBC is configured correctly and verify that Media bypass is enabled.

# 6.1 Add Proxy Set

This section describes how to add a Proxy Set for the DR-SBA.

Figure 58: Configuration Example Proxy Sets before the change

Index	Name	SBC IPv4 SIP Interface	TLS Context Name	Proxy Keep- Alive	Proxy Hot Swap	Proxy Load Balancing Method
1	SIPTrunk (arbitrary name)	SIPTrunk	Default	Using Options	-	-
2	Teams (arbitrary name)	Teams	Teams	Using Options	Enable	Random Weights

#### To add a Proxy Set:

- 1. Open the Proxy Sets table (Setup menu > Signaling & Media tab > Core Entities > Proxy Sets).
  - a. Click the Add button to create a Proxy Set for DR-SBA Teams Calls.
  - **b.** Use the same TLS context used by the Teams proxy in this case the SBC uses the same certificate used on the Teams leg (the DR-SBA must trust the global CA that signed the SBC certificate).
  - c. From the 'Proxy Keep-Alive' drop-down list, select **Using OPTIONS** to discover whether a particular Mediation Server in the cluster is available and set Proxy Keep-Alive Time (secs) to 60 seconds.
  - d. Click **Apply** to apply your settings.

#### Figure 59: Configuration Example Proxy Sets in Proxy Sets Table

Index	Name	SBC Ipv4 SIP Interface	TLS Context Name	Proxy Keep- Alive	Proxy Hot Swap	Proxy Load Balancing Method
1	SIPTrunk (arbitrary name)	SIPTrunk	Default	Using Options	-	-
2	Teams (arbitrary name)	Teams	Teams	Using Options	Enable	Random Weights
3	Teams (arbitrary name)	Teams	Teams	Using Options	Enable	-

## 6.1.1 Configure Proxy Addresses

This section shows how to configure a Proxy Address.

To configure a Proxy Address for DR-SBA Teams:

- Open the Proxy Sets table (Setup menu > Signaling & Media tab > Core Entities folder > Proxy Sets), click the Proxy Set SBA Teams, and then click the Proxy Address link located below the table; the Proxy Address table opens.
- 2. Click +New; the following dialog box appears:

#### Figure 60: Configuring Proxy Address for Teams Direct Routing SBA Interface

Index	0	
Proxy Address	Teams SBAs FQDNs :5061	
Transport Type	TLS	~
Proxy Priority	0	
Proxy Random Weight	0	

**3.** Configure the address of the Proxy Set according to the parameters described in the table below:

Index	Proxy Address	Transport Type	Proxy Priority	Proxy Random Weight
0	Teams DR-SBA FQDN:5061 (DR-SBA FQDN / port)	TLS	0	0

#### Figure 61: Configuration Proxy Address for SIP Trunk

## 4. Click Apply.

The proxy set should connect to SIP interface that must listen on TLS 5061 and must be routable to DR-SBA.

If the DNS used by the SBC can't resolve the DR-SBA FQDN, add the DR-SBA FQDN to the SBC local DNS.

## 6.1.2 Add IP Group

This step describes how to configure an SBC IP Group to the DR-SBA. The IP Group represents an IP entity on the network with which the SBC communicates. Once IP Groups are configured, they are used to configure IP-to-IP routing rules for denoting source and destination of the call.

In the SBC topology, IP Groups must be configured for Teams DR-SBA.

To create an IP Group for Teams DR-SBA:

- Open the IP Group table (Setup menu > Signaling & Media tab > Core Entities folder > IP Groups).
- 2. Click New to create an IP Group of Type 'Server' for the Teams SBAs:
  - a. Configure the DR-SBA Proxy Set that you created in Section 6.16.1
  - **b.** Select the same IP Profile as used for Teams IP Group. If you create a new IP Profile pay attention and configure as set for Teams side with ICE Mode set to **Lite**.
  - Select Media Realm for the LAN side media between the Teams clients and the SBC.
  - d. Configure the SBC FQDN for the SIP Group Name (Local Host Name). Use the same FQDN that is used for the SBC direct routing setup in Teams Tenant.
  - e. Enable Proxy Keep-Alive using IP Group settings.
  - f. Click **Apply** to apply your settings.

#### Figure 62: Configured IP Group for Teams SBA

Parameter	Value				
Name	DR-SBA				
Туре	Server				
Proxy Set	DR-SBA				
IP Profile	Teams (same profile as used for Teams IP Group)				
Media Realm	MRLan (Select Media Realm for the LAN side)				
SIP Group Name	<fqdn enterprise="" in="" name="" of="" sbc="" tenant="" the=""> Use the same FQDN that is used for the SBC direct routing setup in Teams Tenant</fqdn>				
Local Host Name	<fqdn enterprise="" in="" name="" of="" sbc="" tenant="" the=""></fqdn>				
	Use the same FQDN that is used for the SBC direct routing setup in Teams Tenant				
Proxy Keep-Alive using IP Group settings	Enable				
All other parame	All other parameters can be left unchanged with their default values.				

## 6.2 Terminate SIP OPTIONS and Refer

Validate that the IP-to-IP Routing rules that were added for Microsoft Teams for SIP OPTIONS and REFER are valid for Teams DR-SBA as well or add the same routing for the Teams SBA IP Group.

## 6.3 Add IP-to-IP Routing from Teams DR-SBA to PSTN

Add IP-to-IP Routing from Teams DR-SBA to PSTN/SIP Trunk.



A separate configuration is required per SIP Trunk.

# 6.4 Add Forking for PSTN Calls to Teams and Teams DR-SBA

This step describes how to configure forking IP-to-IP call routing rules for incoming PSTN calls.

To configure forking IP-to-IP routing for Teams:

- Open the IP-to-IP Routing page (Setup menu > Signaling & Media tab > SBC folder > Routing > IP-to-IP Routing).
- 2. Click Edit to modify rule for routing from PSTN to Teams:
  - a. Set Group Policy to Forking.
  - b. Click Apply to apply your settings.
- 3. Click New to create a new rule for routing from PSTN to Teams DR-SBA:
  - a. Set Group Policy to Forking.
  - b. Set Alternative Route Options to Group Member Consider Inputs.
  - c. Set destination IP Group as the DR-SBA IP Group
  - d. Set source IP Group as the PSTN IP Group
  - e. Click Apply to apply your settings.

A separate configuration is required per SIP Trunk.

Index		Source IP Group	Request Type	Call Triger	ReRoute IP Group	Dest Type	Dest IP Group	Dest Address
0	Terminate OPTIONS	Any	OPTIONS			Dest Address		internal
1	Refer from Teams (arbitrary name)	Any		REFER	Teams	Request URI	Teams	
2	Refer from DR-SBA (arbitrary name)	Any		REFER	DR-SBA	Request URI	DR-SBA	
3	Teams to SIP Trunk (arbitrary name)	Teams				IP Group	SIPTrunk	
4	DR-SBA to SIP Trunk (arbitrary name)	DR-SBA				IP Group	SIPTrunk	
5	SIP Trunk to Teams (arbitrary name)	SIPTrunk				IP Group	Teams	
6	SIP Trunk to DR-SBA (arbitrary name)	SIPTrunk				IP Group	DR-SBA	

#### Figure 63: IP-to-IP Call Routing Rules

For Index 5 & 6, set Group Policy to Forking

# 7 Teams Branch Survivability Policy

The Teams Branch Policy contains one or more Teams DR-SBA devices. You need to create the policies via PowerShell command *New-CsTeamsSurvivableBranchAppliancePolicy* in Skype for Business Online PS. The parameters to the cmdlet are as follows:

- Identity: Defines the identity of the policy
- BranchApplianceFqdns: Defines the FQDN of the DR-SBA(s) in the site

For example:

```
new-CsTeamsSurvivableBranchAppliancePolicy -Identity SbalPolicy -
BranchApplianceFqdns "sbal.contoso.com","sba2.contoso.com"
Identity: Tag: SbalPolicy BranchApplianceFqdns :
{sbal.contoso.com, sba2.contoso.com}
```

You can add or remove DR-SBA's from a policy by using the Set-CSTeamsSurvivableApplianceBranch Policy as shown in the example below:

```
Set-CsTeamsSurvivableBranchAppliancePolicy -Identity SbalPolicy -
BranchApplianceFqdns @{remove="sbal.contoso.com"}
```

# 8 Assigning Teams Branch Survivability Policy to Users

You assign the policy to individual users by using the "*Grant-CsTeamsSurvivableBranch*" cmdlet in Skype for Business Online PS. The parameters to the cmdlet are:

- Identity: Defines the identity of the user
- PolicyName: Defines the identity of the policy

For example:

```
Grant-CsTeamsSurvivableBranchAppliancePolicy -PolicyName
SbalPolicy -Identity userl@contoso.com
```

You can remove a policy from a user by granting the \$Null policy:

```
Grant-CsTeamsSurvivableBranchAppliancePolicy -PolicyName $Null -
Identity user1@contoso.com
```



AudioCodes' can offer User Management Pack 365 (UMP 365). UMP365 is a software application Web GUI that simplifies Microsoft 365 Users MACD and lifecycle management of Microsoft Teams, SharePoint and OneDrive policies with Microsoft Direct Routing capabilities. UMP 365 supports Teams Branch Survivability Policy.
 All DD SDA users should be licensed and must have an assigned above number.

All DR SBA users should be licensed and must have an assigned phone number.

# 9 Firewall

The following tables describe the firewall rules that need to be configured on the enterprise firewall.

Traffic	From	То	Source port	Destination port	Flow Direction
Teams	Client $\leftarrow \rightarrow$ D	R-SBA			
ТСР	Teams Client	DR-SBA	Any	4444	Bi-directional
ТСР	Teams Client	DR-SBA	Any	3443	Bi-directional
ТСР	Teams Client	DR-SBA	Any	8443	Bi-directional
DR-SBA	<ul> <li>←→ Teams</li> </ul>	Client (Media) or SBC $\leftarrow \rightarrow$ Team	s Client (Media)	1	1
SRTP	DR-SBA or SBC	Teams Client	UDP: 50000 or higher	UDP: configured on SBC	-
DR-SBA	<→ sbc	1	1	1	1
ТСР	DR-SBA	SBC	Any	5061 (or as configured on SBC)	-
ТСР	SBC	DR-SBA	Any	5061	-
DR-SBA	$\rightarrow$ NTP Serv	er	1		1
UDP	DR-SBA	NTP	UDP: Any (by default DR-SBA uses time.microsoft.com)	UDP: 123	-
DR-SBA	(Appliance/	Virtual Appliance) → Microsoft 3	65 (Teams tenant)		1
HTTPS	DR-SBA	Azure IP Ranges and Service	Any	443	-
*ICMP	DR-SBA	www.microsoft.com	Any		-
**TCP	DR-SBA	sip.pstnhub.microsoft.com sip2.pstnhub.microsoft.com sip3.pstnhub.microsoft.com	Any	5061	
Admin	Browser 🗲 🖯	Teams DR-SBA Web			
НТТР	Admin Browser	Teams DR-SBA Web	Any	80	
HTTPS	Admin Browser	Teams DR-SBA Web	Any	443	
Manage	ement PC Sta	tion (e.g., RDP) → DR-SBA			
ТСР	Computer	DR-SBA	Any	3389	Bi-directional

Table 8: Firewall Rules

\* For ICMP, see Known Issues on page 86. From version 1.1.008 no need for this rule on the firewall.

\*\* This is needed from version 1.1.008 and above

i

Azure IP Ranges and Service Tags for the Public Cloud should be defined according to the guidelines described at Download Azure IP Ranges and Service Tags – Public Cloud from Official Microsoft Download Center.

Pending receipt of specific IP address ranges from Microsoft.

For Firewall rules between the SBC and Teams client, refer to the <u>Mediant SBC for Microsoft</u> <u>Teams Direct Routing documents</u>.

HTTP or HTTPS proxy is not supported.

# **10 Using DR-SBA Management Interface**

Once you have initially set up the DR-SBA through the DR-SBA Management Interface's DR-SBA Setup Wizard, as described in Chapter 5, you can use the DR-SBA Management Interface for full configuration, maintenance, and monitoring of the DR-SBA. In addition, if your DR-SBA device is also employing gateway functionality (i.e., PSTN Gateway and/or SBC), you can use the DR-SBA Management Interface for viewing basic monitoring of the gateway and for accessing the gateway's Web interface (single sign-on) for full gateway configuration.

The figure below shows the main areas of the DR-SBA Management Interface.

#### Figure 64: Main Areas of DR-SBA Management Interface



### Table 9: Main Areas of DR-SBA Management Interface

Item #	Description
1	When clicked, displays the Dashboard.
2	Menu bar with menus (Setup, Monitor and Tools).
3	Switch to local SBC Web Interface (not applicable on Virtual Edition).
4	<b>Resume Setup Wizard</b> button. If you exit the DR-SBA Setup Wizard before its completion, you can later resume from the same wizard page, by clicking this button.
5	Displays the DR-SBA computer name (defined when joining the domain). If clicked, a pop-up appears displaying system information.
6	Displays the currently logged-in username. When clicked, a drop-down menu appears with the <b>Logout</b> command, which if clicked, logs you out of the DR-SBA Management interface.
7	Displays the details of the DR-SBA for Skype for Business and dashboard statistics.
9	Navigation pane containing folders and page items, which depend on the menu selected from the menu bar.
10	Opens AudioCodes website, displaying a page with additional DR-SBA applications (Fax Server).

# **10.1** Viewing General DR-SBA Details on Dashboard

The following procedure describes how to view general DR-SBA details, which are displayed on the dashboard.

To view general DR-SBA details:

1. From the **Monitor** menu, select the **Dashboard** folder, and then click **Dashboard**:

#### Figure 65: Viewing Dashboard

Direct Rout	ting Survivability	y Branch Ap	pliance (SBA	A) for 🤹 Microsoft	Teams	Aug 9, 2022
Status	Server Na WIN-LKJJH6	ame 6 <b>GM271</b>	Domain No Domain	Last Boot UpTime 04/05/2022 13:49:38	Direct Routing SBA Version 1.0.130	License Expiration Date Sep 9, 2022
1	ACTIVE USERS	TOTAL U: 0 Nore info 🛇	SERS			
0% CPU Utilizatio		<b>323</b> Available MByt <sup>More</sup>	info <b>O</b>			

The following information is displayed:

- Status:
  - Second state of the DR-SBA is ready (can replicate data from Teams).
  - A means that there is a problem. If you hover your mouse over the icon, a pop-up appears displaying detailed information of the problem.
- Server Name: Name of the DR-SBA server.
- **Domain:** Domain name to which the DR-SBA is joined.
- **Last Boot UpTime:** Date and time at which the DR-SBA server was last restarted.
- Direct Routing SBA Version: Version of the DR-SBA service. If you hover your mouse over the version, the OS and DR-SBA software components versions are displayed.
- Active Users / Total Users: Number of active and total users. This is displayed even when the internet is connected.
- **CPU Utilization:** CPU utilization of DR-SBA server.
- Available Mbytes: Free memory of DR-SBA server.

You can also view general DR-SBA details, by clicking the arrow next to the logged-in username, and then choosing **Info**:

System Info	×
Name: AdministratorDomain: . DNS Host Name: WIN-V1MJ00PPAKE Last Boot UpTime: 05/06/2021 18:22:09 	
Version: 10.0.17763 BuildNumber: 17763 Direct Routing SBA Version: 1.0.109 Web Admin Version: Direct Routing SBA Config Version: 1.0.109.49443	
	Close

The following information is displayed:

- Name: Username of the currently logged-in user
- Domain: Domain name to which the DR-SBA is joined
- DNS Host Name: Name of the DR-SBA
- Last Boot Up Time: Date and time at which the DR-SBA server was last restarted
- Version: Version of the Windows Server 2019 operating system
- Build Number: Build version of the Windows Server 2019 operating system
- **SBA Version:** Software version of the DR-SBA
- Web Admin Version: Version number of the DR-SBA Management Interface
- **SBA Config Version:** Version of the Teams SBA Config service

# **10.2** DR-SBA Configuration

This section describes DR-SBA configuration operations that can be performed through the DR-SBA Management Interface (in addition to configuration through the DR-SBA Setup Wizard described in Chapter 5).

## **10.2.1** Viewing and Configuring Network Interfaces

The device includes the following network interface cards (NIC):

- OSN DR-SBA:
  - External Ethernet Ports:
  - If there are two or four external interfaces, NIC teaming is used between the first two.
    - External Team: By default, the NIC is enabled (192.168.0.20)
    - **GE 3:** By default, the NIC is Disable.
    - **GE 4:** By default, the NIC is Disable.
    - GE 3 and GE 4 are available only for specific HW
  - Internal Ethernet Port: By default, the NIC is enabled and enabled for DHCP
- Virtual DR-SBA:

The virtual machine virtual network interface is listed

To view and configure network interfaces:

1. From the **Setup** menu, select the **Setup** folder, and then click **Network**:

## Figure 67: Viewing Network Interfaces (OSN-Based DR-SBA)

External team External ( Disable Internal network Internal ( Disable	<u>\$</u> \$	MICROSOFT NETWORK ADAPTER MUL MediaDisconnected External team External ( Disable	l	MICROSOFT NETWORK ADAPTER MUL <b>Connected</b> Internal network Internal <b>Disable</b>
----------------------------------------------------------------------------	--------------	-------------------------------------------------------------------------------------------	---	--------------------------------------------------------------------------------------------------

## Figure 68: Viewing Network Interfaces (Virtual Appliance-Based DR-SBA)



- 2. To disable a network interface, click **Disable**; to enable a network interface, click **Enable**.
- 3. To configure a network interface, click the required network icon; the following appears:

Network IP address and DNS address	
Network Interface Card	
DHCP Or IP	
Obtain an IP address automatically	~
IP Address	
Enter IP address	
IP Mask	
Enter subnet mask address	
Default Gateway	
Enter default gateway address	
DNS Address	
Obtain DNS server address automatically	~
Preferred DNS server	
Enter preffered IP address	
Alternate DNS server	
Enter alternate IP address	
	Submit Cancel

## Figure 69: Configuring a Network Interface (e.g., External NIC Team)

Network configuration is explained in detail in the DR-SBA Wizard section (see Section 5.45.4).

When the DR-SBA IP has changed, navigate to **Configuring Teams Online** > **Teams SBA FQDN** tab and set the new IP to be used by the DR-SBA services. After this change, restart the Microsoft SBA Service.

## 10.2.2 Changing Login Password

The following procedure describes how to change the login password of the administrator who is currently logged into the DR-SBA Management Interface.

To change the login password:

1. From the **Setup** menu, select the **Setup** folder, and then click **Change Admin Password**; the following appears:

Change Admin Password
Current Password
Enter Current Password
Password
Password
Confirm Password
Confirm Password
Submit

Figure 70: Changing Login Password

- 2. In the 'Current Password' field, enter the current password.
- 3. In the 'New Password' field, enter the new password.
- 4. In the 'Confirm Password' field, enter the new password again.
- 5. Click Submit.

## **10.2.3** Configuring Date and Time

The following procedure describes how to configure the DR-SBA server's date and time.

To configure the date and time:

1. From the **Setup** menu, select the **Setup** folder, and then click **Date & Time**; the following appears:

Date &	& Time
Date:	
	17-01-2017
Time:	
٥	12:13 AM
Save Time zo	Date & Time
(UTC	C+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna 🔹
Save	Time Zone

## Figure 71: Configuring Date and Time

- 2. Click the 'Date' field, and then select the date using the pop-up calendar.
- 3. Click the 'Time' field, and then select the time using the pop-up time box.
- 4. Click Save Date & Time.
- 5. From the 'Time Zone' drop-down list, select the UTC time zone in which the DR-SBA is located, and then click **Save Time Zone**; the date in the 'Date' field is automatically adjusted according to the selected time zone.

## **10.2.4** Configuring SNMP

The following procedure describes how to configure SNMP-based communication between DR-SBA and AudioCodes One Voice Operations Center (OVOC).

To configure SNMP:

1. From the Setup menu, select the Setup folder, and then click **SNMP**.

Figure 72: Configuring SNMP

	OVOC Connection		Access Setti	ngs	
ddress *	10.21.8.37	Login URL	Login URL http://10.21.8.37/tenantui		
ort *	1161				
p Alive Port *	162		SNMP	SNMP	
		• SNN	1P v2	$\odot$ snmp v	
	OVOC Public Cloud				
public OVOC		Community Read *	public		
		Community Write *	private		
		community mile	process .		

2. In the 'IP Address' field, type the OVOC address (FQDN or IP address).

For 'Public OVOC', the 'IP Address' field is grayed out.

- 3. In the 'Trap Port' field, type the SNMP port number for sending traps.
- 4. In the 'Keep Alive Port' field, type the SNMP port number for sending keep-alive messages.
- 5. Under System Info Settings, in the 'System Name' and 'Location' fields, type the system name and physical location, respectively.
- 6. In the 'Login URL' field, type the URL of the DR-SBA Web interface. OVOC uses this URL to access the DR-SBA Web.
- 7. Under **SNMP**, do the following:
  - a. Select the SNMP v2 or SNMP v3 option.
  - b. Enter the SNMP authentication fields according to the protocol you selected.
- 8. Click Save.

## 10.2.4.1 OVOC in Public Cloud

When OVOC is deployed in the cloud, DR-SBA can connect to OVOC through a WebSocket tunnel using port 443 (instead of opening incoming SNMP transport on the firewall from OVOC to DR-SBA).

This Public OVOC mode allows the OVOC administrator to access DR-SBA's Web Admin or access DR-SBA by remote desktop, using this WebSocket tunnel. For more information on WebSocket tunneling with OVOC, refer to the <u>OVOC User's Manual</u>.

#### To enable Public OVOC mode:

- 1. From the Setup menu, select the Setup folder, and then click **SNMP**.
- 2. Select the 'Use public OVOC' check box:

## Figure 73: Enabling Public OVOC Mode

	OVOC Connection		Access	Settings			
P Address *	10.21.8.37	Login URL	http://10.21.8.37/tena	ntui			
Trap Port *	1161						
Keep Alive Port *	162		SNMP				
	OVOC Public Cloud	• •	SNMP v2	○ SNMP v3			
✓ Use public OVOC	OVOC Public Cloud	) S Community Read	SNMP v2	○ SNMP v3			
✓ Use public OVOC OVOC Public IP *	OVOC Public Cloud	© s Community Read • Community Write •	public private	○ SNMP v3			
✓ Use public OVOC OVOC Public IP * OVOC Public User *	OVOC Public Cloud	© s Community Read • Community Write •	public private	○ SNMP v3			

- 3. In the 'OVOC Public IP' field, type the public address (FQDN or IP address) of OVOC.
- 4. In the 'OVOC Public User' field, type the username.
- 5. In the 'OVOC Public Password' field, type the password.
- 6. Click Save.

## **10.2.5** Configuring Certificates

The following dialog is used to configure the DR-SBA certificate.

To configure certificates:

1. From the **Setup** menu, select the **Setup** folder, and then click **Direct Routing SBA Certificate**.

**Figure 74: Configuring Certificates** 

<b>Q</b> audiocodes ≡	SETUP	MONITOR	TOOLS	rij	Microsoft Teams	WIN-V:	1MJ00PPAKE	.\Administrator <del>-</del>	0
<ul> <li>DIRECT ROUTING SBA SETUP</li> <li>setup</li> </ul>	Request, Install or Assign Direct Routing SBA Certificates This step starts the Certificate Wizard. Create certificate request for local system. Install, and assign Certificate for this system based on the topology definition.								
Network Change Admin Password Date & Time	Sele	ect a Teams S ficate usage t	3A Server ( asks.	Certifi	cate Type and then sele	ect a task. Expand the Certil	ficate Type to	perform advanced	
SNMP		Cer	tificate		Friendly Name	Expiration Date	Assigned	Request CSR	
Direct Routing SBA Certificate Access List	*.au	dctrunk.aceduc	ation.info			05/04/2022 17:24:51	0	Assign	
Teams Online License		Refresh Ir	nport Certific	ate					

Certificate configuration is explained in detail in the DR-SBA Wizard section in Chapter 5.

2. After the certificate has been changed, restart Microsoft SBA Service to load the new certificate.

## 10.2.6 Access List

The following procedure describes how to configure which IP addresses are allowed to access the DR-SBA Web and RDP. This setup limits access to the DR-SBA part only and not to the SBC/Gateway part (for the SBC/Gateway access list, use the SBC/Gateway Web interface).

Pay attention to which IP address/subnet you specify. You can accidently block access to the DR-SBA. If this occurs, use the screen and keyboard to connect to the DR-SBA locally and open the Web interface locally to fix the access list.

#### To configure the Access List:

1. From the **Setup** menu, select the **Setup** folder, and then click **Access List**.

Figure 75: Access List
Access List
Select the Web and RDP access list: <b>Any</b> – Web and RDP can be access from any IP. <b>Authorized IP/Subnet</b> – Web and RDP can be access from the list of IP/Subnet that you define. Adding IP/Subnet can be done in one of the following formats: Single IP4 address (e.g. "192.168.0.17") Single IP4 subnet by subnet mask (e.g. "192.168.0.17/255.255.255.0") Single IP4 subnet by network bits (e.g. "192.168.0.17/24")
Any Authorized IP/Subnet
Save

- 2. By default, any IP address can access the Web and RDP (Any option).
- **3.** To allow DR-SBA management from a specific IP/Subnet, select the **Authorized IP/Subnet** option; the following appears:

#### Figure 76: Access List: Authorized IP/Subnet

Access List
Select the Web and RDP access list: <b>Any</b> – Web and RDP can be access from any IP. <b>Authorized IP/Subnet</b> – Web and RDP can be access from the list of IP/Subnet that you define. Adding IP/Subnet can be done in one of the following formats: Single IP4 address (e.g. "192.168.0.17") Single IP4 subnet by subnet mask (e.g. "192.168.0.17/255.255.255.0") Single IP4 subnet by network bits (e.g. "192.168.0.17/24")
<ul> <li>Any</li> <li>Authorized IP/Subnet</li> <li>Add</li> </ul>
Save

- 4. You can add an IP address/subnet in one of the following formats:
  - Single IPv4 address (e.g., "192.168.0.17")
  - Single IPv4 subnet by subnet mask (e.g., "192.168.0.17/255.255.255.0")
  - Single IPv4 subnet by network bits (e.g., "192.168.0.17/24")
- 5. Click Add.
- 6. Click Save to save your changes.
## 10.2.7 Configuring Teams Online

The following dialog is used to configure the DR-SBA FQDN, SIP listen IP and Azure Application ID/Secret.

To configure Tenant ID, SBA FQDN or SBA Application ID/Secret:

**1.** Select the Setup folder, and then click **Teams Online**.

Figure 77: Configuring Teams Online

<ul> <li>Set DR SBA without enter</li> <li>Teams Tenant Administrator</li> </ul>	Type tenant ID	
Teems Administrator	ron@cce.aceducation.info	
Password	Enter password	Login
	Last login tenant information	
Account	ron@cce.aceducation.info	
Environment	AzureCloud	
Tenant Domain	audiocodesipprnd.onmicrosoft.com	

2. For detailed information on Teams Online configuration,, see the DR-SBA Wizard section (see Section 5.8, Log in to Teams).

### **10.2.8** Configuring Voice Application

The **Voice Application** menu allows you to configure the DR-SBA Voice Application. This allows you to configure where to redirect Teams Call queue or Auto attendant calls upon survivable mode:

- Redirect an incoming PSTN call to a Call queue or Auto attendant number, to a local agent.
- Redirect an incoming PSTN call to a Call queue or Auto attendant number, to an alternative Call queue or Auto attendant number.

The Tenant admin can configure on-prem agent (Teams users in the format username@company.domain) or user's number, or external PSTN numbers for each Call queue or Auto attendant number.

Incoming calls to a Call queue or Auto attendant number via the PSTN or VoIP (from outside or within the SBA site) are redirected to a predefined phone number or Teams user, based on the settings defined by the Tenant Admin. If this Teams user doesn't answer, the call is forwarded to a fallback number or a user.



Simultaneous ringing is not supported. DR-SBA supports 1:1 mapping only – one agent per Call queue or Auto attendant number.

### To configure voice application:

1. From the **Setup** menu, expand the **Setup** folder, and then click **Voice Application**:

Caudiocodes SETUP MONITOR TOOLS 1 **Microsoft Teams** Voice Application DIRECT ROUTING SBA SETUP ▲ SETUP **PSTN Usages** Call Queue Auto Attendant Network Change Admin Password Date & Time SNMP No PSTN Usage values Direct Routing SBA Certificate Access List Teams Online Voice Application

### Figure 78: Configuring Voice Application

- 2. The **PSTN Usages** tab is for PSTN-to-PSTN calls, where a redirect of an incoming PSTN call to a Call queue or Auto attendant number is redirected back to the PSTN:
  - a. Click Add New.
  - b. Click Save.

Figure 79: Configuring	PSTN	Usages
------------------------	------	--------

QC audiocodes	SETUP	MONITOR	TOOLS	4	Microsoft Teams	
DIRECT ROUTING SBA SETUP	Voice	e Application				
✓ SETUP Network	PS	TN Usages	Call Que	ue A	Auto Attendant	
Change Admin Password						
SNMP		E PSTN Usa	ige			
Access List	1	PSTNusagee	xample		<b>I</b>	
Teams Online Voice Application						

- **3.** To configure Call queue:
  - a. Select the Call Queue tab.
  - b. Click Add New.
  - c. Click Save.

### Figure 80: Configuring Call Queue

SE	TUP	мо	NITOR TOOLS	🤹 Mi	crosoft Teams		
	Voice	e App	olication				
	PST	TN Us	ages Call Que	ue Auto	Attendant		
	Ξ		Phone Number		Fallback Number	Fallback Interval	Agents
	1	L	444444		5678	25	

- 4. To configure Auto attendant:
  - a. Select the Auto Attendant tab.
  - b. Click Add New:

Phone Number *	Fallback Interval
Enter phone number	25 🗸
SBA requires either an agent, a fallba	ck number, or both to be configured.
Fallback Number	
Fallback Number	
Fallback Number Enter fallback number	
Fallback Number Enter fallback number Agents	<b></b>

- Add an agent or simply add a fallback number. The fallback number can also be a Teams
  - user phone number connected to DR-SBA.
    - Agent: This can be a phone number associated with a user or an external PSTN number, or a username of a local Teams user.
    - FallbackCloudNumber: (Optional) This can be a Calling Plan, Operator Connect number, or an external PSTN number. If the configured agent is unavailable (busy, rejects the call, or doesn't answer within the FallbackInterval duration – see below), the call is forwarded to this number.
    - FallbackInterval: (Optional) Defines the duration (in seconds) before the call is forwarded to the FallbackCloudNumber (see above). The value must be between 16 and 30 seconds. If you don't configure this parameter or configure it to a value outside of the range, it defaults to 25 seconds. For optimal performance, it's recommended to configure the parameter between 17 to 25 seconds.

For the Voice Application, DR-SBA requires that you configure at least an **agent** or a **FallbackCloudNumber**, or both. If you configure only a **FallbackCloudNumber**, forwarding is done immediately, regardless of the **FallbackInterval** value.

c. Click Apply, and then click Save.

When simulating survivability mode, you must also simulate no internet for the SBA server and not only for the Teams client, to allow the voice application to function.

## **10.3 SBC/Gateway-Related Operations**

If you are also using your device for SBC/Gateway functionality (i.e., PSTN Gateway and/ or SBC), you can use the DR-SBA Management Interface for various Gateway-related operations, as described in this section.



To enable communication between the DR-SBA Management Interface and the Gateway's Web interface, ensure Internal VLAN is enabled (OSNInternalVLAN=1).

### 10.3.1 Viewing SBC/Gateway Information

The following subsections describe how to view various information relating to the SBC/Gateway.

### **10.3.1.1** Viewing SBC/Gateway Details

The following procedure describes how to view details about the SBC/Gateway.

### To view gateway details:

- 1. From the **Monitor** menu, select the **Dashboard** folder, and then click **Dashboard**.
- 2. Scroll down the page to the SBC/Gateway section:

### Figure 82: Viewing SBC/Gateway Details

SBC/Gateway	<ul><li>✿ 10.21.66.67</li></ul>			
Product Name	Product Version 7.10A.036.018	IP Address	Serial Number	MAC Address
Mediant 800B		10.21.41.89	8952484	00908f889aa4

The following information is displayed:

- Product Name: Name of the SBC/Gateway model
- Product Version: Software version currently running on the SBC/Gateway
- IP Address: IP address of the SBC/Gateway's OAMP interface
- Serial Number: Serial number of the SBC/Gateway's CPU
- MAC Address: MAC address of the SBC/Gateway

### **10.3.2** Accessing the SBC/Gateway's Web Interface

If required, you can access the SBC/Gateway's Web interface from the DR-SBA Management Interface. The Web interface allows you to fully configure SBC/Gateway functionality.

To access SBC/Gateway's Web interface:

- 1. From the **Monitor** menu, select the **Dashboard** folder, and then click **Dashboard**.
- 2. You can modify the SBC/Gateway IP address manually and only once, during initial setup.
- Scroll down the page to the SBC/Gateway section, and then click <sup>1</sup>; the Web interface opens.
- 4. Type the SBC/Gateway IP address, and then click **Save**:

SDC/Gateway web Admin in	
10.21.66.67	
	Save Close

For more information on using the SBC/Gateway's Web interface, refer to the SBC/Gateway's User's Manual.

## **10.4** Performance Monitoring

The DR-SBA Management Interface allows you to monitor the DR-SBA.

### **10.4.1** Viewing Registered Users Statistics

The following procedure describes how to view active registered user statistics, which includes users and endpoints.

To view registered user statistics:

- 1. From the Dashboard menu, select the More Info link on Active Registered counter.
- 2. Click **On** to enable statistics or **Off** to disable.

#### Figure 83: Viewing Active Registered Users

On Off				
LIII Active Re	gistered Users			
1000				
750				
500				
250				
0.0				

## 10.4.2 Viewing General DR-SBA Server Statistics

The following procedure describes how to view general statistics of the DR-SBA server.

To view DR-SBA server statistics:

- 1. From the **Monitor** menu, select the **Performance** folder, and then click **Key Health Indicators**.
- 2. Click **On** to enable statistics or **Off** to disable.

### Figure 84: Viewing DR-SBA Server Statistics



### Table 10: DR-SBA Server Statistics

Graph	Description	
General Server Health		
Available Bytes	Available physical memory (in MBytes) for running processes	
CPU Utilization	Current utilization of CPU (in %)	
Avg. Disk Sec/Read	Average time of disk-read latency	
Avg. Disk Sec/Write	Average time of disk-write latency	

## **10.5** Maintenance

This section describes various maintenance operations.

### 10.5.1 Stopping and Starting DR-SBA Services

The following procedure describes how to stop and start DR-SBA services.

To stop and start DR-SBA services:

1. From the **Tools** menu, click **Direct Routing SBA Services**; the following screen appears:

Figure 85: Stopping and Starting DR-SBA Services

DIRECT ROUTING SBA TOOLS	SERVICES		- ×
▲ TOOLS Direct Routing SBA Services	OVOC Alarms Agent	Running	Stop
Direct Routing SBA Syslog Web Admin Logs	OVOC Main Agent	Running	Stop
Direct Routing SBA Logs Direct Routing SBA Configuration Logs	Microsoft Teams SBA	Running	Stop
Direct Routing SBA Alarm Tester	✓ TeamsSbaConfig	Running	
	RESTART		
	C Restart SBA		

- 2. Do one of the following:
  - To stop a service, click the corresponding **Stop** button; the service displays the "Stopped" status message.
  - To start a service, click the corresponding **Start** button; the service displays the "Running" status message.

### 10.5.2 Restarting DR-SBA Server

The following procedure describes how to restart the DR-SBA.

### To restart the DR-SBA:

1. From the **Tools** menu, click **SBA Services**; the following screen appears:

### Figure 86: Restarting DR-SBA

RESTART		
C Restart SBA		

2. Click Restart SBA.

## **10.5.3** Configuring Syslog

The following procedure describes how to enable the DR-SBA to send DR-SBA configuration logs (see SBA Configuration Logs on page 77) to a Syslog server (for diagnostics).

**To configure Syslog:** 

1. From the **Tools** menu, click **Direct Routing SBA Syslog**; the following screen appears:

Figure 87: Configuring Syslog

	Carling Cattions
DIRECT ROUTING SBA TOOLS	Systog Settings
✓ TOOLS Direct Routing SBA Services	Enable
Direct Routing SBA Syslog	Server
Web Admin Logs	127.0.0.1
Direct Routing SBA Logs	
Direct Routing SBA Alarm Tester	
	514
	Submit

- 2. Select the Enable check box.
- 3. In the 'Server' field, enter the Syslog server's IP address.
- 4. In the 'Port' field, enter the Syslog server's port.
- 5. Click Submit.

### 10.5.4 Viewing Logged DR-SBA Management Interface Activities

The following procedure describes how to view logged activities performed in the DR-SBA Management interface such as logging in and out of the GUI.

To view logged activities:

1. From the **Tools** menu, click **Web Admin Logs**; the following screen appears:

Figure 88: Viewing Logged DR-SBA Management Activities

DIRECT ROUTING SBA TOOLS	Direct Routing SBA Web Admin Logs							
✓ TOOLS Direct Routing SBA Services Direct Routing SBA Syslog Web Admin Logs Direct Routing SBA Logs	Display last 10 v rows Last Log log.txt Show Download							
Direct Routing SBA Configuration Logs Direct Routing SBA Alarm Tester	Date	Archive Name						
	2021/05/13 20:14:29	logger_2021_05_189_21.txt	Show	Download				
	2021/05/09 23:22:11	logger_2021_05_1011_28.txt	Show	Download				

- 2. From the 'Display last' drop-down list, select the number of row records to display.
- 3. Click **Show** to view the contents of the logged file or **Download** to save the logged file to your PC.

### 10.5.5 Viewing Logged Teams DR-SBA Activities

The following procedure describes how to view Microsoft service logs for logged DR-SBA operations.

To view Microsoft Service Logs:

1. From the **Tools** menu, click **Direct Routing SBA Logs**; the following screen appears:

### Figure 89: Viewing Microsoft DR-SBA Operations

DIRECT ROUTING SBA TOOLS	Direct Routing SBA Logs								
TOOLS	Display last 10 v ro	DWS							
Direct Routing SBA Services Direct Routing SBA Syslog	Last Log								
Web Admin Logs Direct Routing SBA Logs	SBA.log		Show	Download					
Direct Routing SBA Configuration Logs									
Direct Routing SBA Alarm Tester		Archive							
	Date	Name							
	2021/05/18 11:59:12	SBA_2021_05_18_11_59_12.log	Show	Download					
	2021/05/18 10:59:58	SBA_2021_05_18_10_59_58.log	Show	Download					
	2021/05/18 09:59:55	SBA_2021_05_18_09_59_55.log	Show	Download					
	2021/05/18 08:59:51	SBA_2021_05_18_08_59_51.log	Show	Download					
	2021/05/18 07:59:46	SBA_2021_05_18_07_59_46.log	Show	Download					

## 10.5.6 Viewing Logged Teams DR-SBA Configuration Activities

This option displays logged AudioCodes DR-SBA configuration operations.

To view logged DR-SBA configuration:

1. From the **Tools** menu, click **Direct Routing SBA Configuration Logs**; the following screen appears:

Figure 90: Viewing	Logged SBA	<b>Configuration</b>	perations

DIRECT ROUTING SBA TOOLS	Direct Routing SBA Configuration Logs								
✓ TOOLS Direct Routing SBA Services Direct Routing SBA Syslog	Display last 10 v rows								
Web Admin Logs Direct Routing SBA Logs	teams-sba-config-log.txt Show Download								
Direct Routing SBA Configuration Logs Direct Routing SBA Alarm Tester		Archive							
	Date	Name							
	2021/05/17 22:59:08	202105172359-teams-sba-config-log.txt	Show	Download					
	2021/05/16 22:59:01	202105162359-teams-sba-config-log.txt	Show	Download					
	2021/05/15 22:58:53	202105152358-teams-sba-config-log.txt	Show	Download					
	2021/05/14 22:58:41	202105142358-teams-sba-config-log.txt	Show	Download					
	2021/05/13 22:58:35	202105132358-teams-sba-config-log.txt	Show	Download					

- 2. From the 'Display last' drop-down list, select the number of rows to display.
- **3.** Click **Show** to view the contents of the logged file or click **Download** to save the logged file to your PC.

## **10.5.7** Generating DR-SBA Test Alarms

This option generates tests alarms and sends them to OVOC.

To generate test alarms:

1. From the **Tools** menu, click **Direct Routing SBA Alarm Tester**; the following screen appears:

Figure 91: Direct Routing DR-SBA Alarm Tester

<b>Q</b> audiocodes ≡	SETUP MONITOR TOOLS 👘 Microsoft Teams
<ul> <li>DIRECT ROUTING SBA TOOLS</li> <li>TOOLS</li> <li>Direct Routing SBA Services</li> <li>Direct Routing SBA Syslog</li> <li>Web Admin Logs</li> <li>Direct Routing SBA Logs</li> <li>Direct Routing SBA Configuration Logs</li> <li>Direct Routing SBA Alarm Tester</li> </ul>	Send Test Alarm To The OVOC   Name   Direct Routing SBA Services Status Alarm   Severity Name   Warning   Source   Description

- 2. From the Name drop-down list, select the desired alarm to generate.
- 3. From the Severity Name drop-down list, select the desired severity.
- 4. In the Source field, enter the alarm source (free text field). For example, for the DR-SBA Services Status alarm, enter "RtcSrv/ RTCMEDSRV/ REPLICA/ RTCCLSAGT". For details regarding the Alarm Source formats, refer to the "SBA Alarms" section in the <u>OVOC Alarms Guide</u>.
- 5. In the description field, enter the alarm description of the alarm (best to use the "Alarm Text" field; refer to the "SBA Alarms" section in the OVOC Alarms Guide).
- 6. Click the **Test** button; the alarm is generated and sent to OVOC.

## **10.5.8** Restoring DR-SBA to Factory Defaults Remotely

This option does not appear for the Virtual Appliance. If the DR-SBA hosts a virtual machine, restoring the DR-SBA to factory defaults deletes the virtual machine. Therefore, if you need the virtual machine, before restoring the DR-SBA to factory defaults, make a backup of the virtual machine through Hyper-V and keep the backup on an external storage device (as the C drive will be formatted).

You can restore the DR-SBA to factory defaults, by using the DR-SBA Management Interface to remotely soft-burn the image of the DR-SBA. This is instead of using the USB. This uses the image from the D:\ partition. By default, the same DR-SBA image is used; the image that was used to burn the DR-SBA on the previous burn. If you want to burn a different DR-SBA image, then replace the existing .wim file, located on the D:\ partition.

When updating an existing DR-SBA with the new DR-SBA Management Interface, the upgrade file does not include the remote burn package. Therefore, you need to download the burn package separately and install it on the DR-SBA through RDP. If the remote burn package is not installed on the DR-SBA, the DR-SBA Management Interface displays a message with the download link.

- Remote soft-burn of the DR-SBA image restores only the DR-SBA OSN to factory defaults (not the SBC-Gateway).
- If the DR-SBA hosts a virtual machine, restoring the DR-SBA to factory defaults deletes the virtual machine. Therefore, if you need the virtual machine, before restoring the DR-SBA to factory defaults, make a backup of the virtual machine through Hyper-V and keep the backup on an external storage device (as the C drive will be formatted).

<b>CC</b> audiocodes	SETUP MONITOR TOOLS SKYPE FOR BUSINESS 2015
SBA TOOLS	Resume Setup Wizard Erez29120A cloudbond365B.com\Administrator - 🕜
SBA Software Upgrade	SBA Restore To Factory Defaults
SBA Services SBA Syslog Web Admin Logs SBA Configuration Logs	This option burn the SBA machine with the image that located at D:\. You may select a static IP address which be set to the new image or DHCP option. Once you submit the option, the current SBA machine will no longer functioning. The burn process can take about an hour and the machine is inaccessible during that period. Once the image burn is completed, the new SBA machine
SBA Restore Defaults SBA Alarm Tester	is restarted with the selected network settings. You shell run the setup to configure the new image. Select SBA IP address to restore
	✓ Restore
Additional SBA Applications  Fax Server  Auto Attendent IVR	
Read More	

### Figure 92: Restoring DR-SBA to Factory Defaults

# 10.6 Logging Out

The following procedure describes how to log out the DR-SBA Management Interface.

To log out DR-SBA Management Interface:

**1.** Click the arrow adjacent to the logged-in username:

WIN-V1MJ00PPA	KE .\Administrator~	?
	Info	
	Logout	

2. Choose Logout.

# **11** Configuring Token Expiration Grace Period

You can configure the token expiration grace, which provides up to 7 days grace period after the 24-hour Teams client-token expires. During this period, you can operate in survivability mode.



 Currently, configuration is done through the DR-SBA configuration file (not through the DR-SBA Web interface).

To configure token expiration grace:

- Make a backup of the sbasettings.json file (C:\Program Files\Microsoft\Microsoft SBA\sbasettings.json).
- 2. Open the sbasettings.json file.
- 3. Add the voiceApps section after the logger section (keep existing section intact).
- Configure Call queue or Auto attendant numbers with their respective fallback numbers or users.
- 5. Restart the Microsoft Teams SBA service.

Below is a configuration example in the **sbasettings.json** file. The parameters related to token expiration grace are displayed in bold:

```
{
  "SbaBasic": {
    "ServerCertificateCommonName": sbalab-xxx.com ",
    "ClientCertificateThumbprints": ["xxxxxxxx-xxxx-xxxx-xxxx-
xxxxxxxxxxxxxxxxxx"],
    "LocalSipIPAddress": "0.0.0.0"
  },
  "Sba": {
    "Identity": " sbalab-xxx.com ",
    "TenantId": "xxxxxxxx-xxxx-yyyy-yyyy-xxxxxxxxxx",
    "Logger": {
      "Directory": "",
      "Level": "Trace",
      "MaxArchiveDays": 30
    },
    "VoiceApps":
    {
    },
    "ConnectivityCheckIntervalSeconds": 10,
    "ExpiredTokenAcceptancePeriodHours": 72,
    "AcceptExpiredTokenAfterMinutes": 20,
    "DeclareOutageAfterSeconds": 30
  },
  "SbaSecured": {
  }
```

İ.

- The ExpiredTokenAcceptancePeriodHours parameter is optional. It's valid value is an integer in hours, ranging from 0 to 168. If you don't configure the parameter, the default value of 72 hours is used. Configuring a value of 0 or less disables the acceptance of expired tokens, and any request with an expired token will be rejected.
  - The remaining parameters -- ConnectivityCheckIntervalSeconds , AcceptExpiredTokenAfterMinutes and DeclareOutageAfterSeconds – are related to the expired token acceptance functionality. However, it's strongly recommended to use their default values (i.e., not configure them).

# **12 Configure DR-SBA Web to Work with HTTPS**

This section describes how to configure the DR-SBA Web interface to work over HTTPS.

To configure HTTPS for DR-SBA Web interface:

- For configuring the DR-SBA Web interface to work over HTTPS, a certificate is required. You can use same certificate you selected for the DR-SBA (with the DR-SBA FQDN CN) or install a different certificate for the DR-SBA Web.
- 2. Open Microsoft Internet Information Services (IIS).
- 3. Open the" Default Web Site" site and then click Bindings:

#### Figure 93: Default Web Site



The following appears:

#### **Figure 94: Site Bindings**

			Site Bi	ndings	? X
Туре	Host Name	Port	IP Address	Binding Informa	Add
http		80	*		
https		443	*		Edit
					Remove Browse
					 Close

4. If you don't have a binding line for HTTPS, click **Add**. If you have the HTTPS line, click **Edit**; the following screen appears:

Edit Site Binding			? ×
<u>T</u> ype: https ∨ <u>H</u> ost name:	IP address: All Unassigned	P <u>o</u> rt: ✓ 443	]
Require Server <u>N</u> ar	ne Indication		
Disable OCSP Stap	ling		
SSL certi <u>f</u> icate:		1	
Not selected	~	Se <u>l</u> ect	<u>V</u> iew
WMSVC-SHA2 localhost *.audctrunk.aceducat	ion.info	ОК	Cancel

Figure 95: Edit Site Bindings

- 5. From the 'Type' drop-down list, select https.
- 6. From the 'SSL certificate' drop-down list, select the certificate created by the DR-SBA setup (or use the certificate that you added for the Web interface).
- 7. For the certificate created by the DR-SBA, use the DR-SBA FQDN as the Subject Name (When you access the DR-SBA's Web interface using this Web certificate, you need to enter the DR-SBA's FQDN as the URL –requiring local DNS resolving).
- 8. By default, binding to port 80 is available. If you want to enable access only through HTTPS (and therefore block HTTP), you need to delete the HTTP binding. Before doing this, check that HTTPS is functioning correctly.

# **13** Running an Anti-Virus Software

To ensure that the antivirus scanner does not interfere with the operation of DR-SBA, you must exclude specific processes and directories. The following processes and directories should be excluded:

- Directories (need to exclude subfolders too):
  - C:\Program Files\AudioCodes
  - C:\Program Files\Microsoft\Microsoft SBA
  - C:\AudioCodes
  - C:\PHP\log
- DR-SBA processes:
  - C:\Program Files\AudioCodes\TeamsSbaConfig\TeamsSbaConfig.exe
  - C:\Program Files\AudioCodes\SbaRecovery\SbaRecovery.exe
  - C:\Program Files\AudioCodes\MainAgent\MainAgent.exe
  - C:\Program Files\AudioCodes\AlarmsAgent\AlarmsAgent.App.exe
  - C:\Program Files\Microsoft\Microsoft SBA\Sba\Microsoft.Teams.SBA.exe
- IIS processes:
  - %systemroot%\system32\inetsrv\w3wp.exe
  - %systemroot%\SysWOW64\inetsrv\w3wp.exe

# 14 Known Issues

- To view the list of updated known issues published by Microsoft, click <u>here</u>.
- When the Teams DR-SBA IP address is changed and the SIP listen IP address is updated, the MSFT service needs to be restarted.
- When recovering from USB and the goRecover command fails, try to run goRecover again without rebooting.
- The Microsoft API returns a "503 Error" when there is no certificate that matches the DR-SBA FQDN. When the basic API returns a "serverCertificateCommonName" that does not exist on the server certificate list, the call to the general API returns a "503 Error".
- As a workaround, open "sbasettings.json" under C:\Program Files\Microsoft\Microsoft SBA, and then change the "ServerCertificateCommonName" parameter to "ServerCertificateCommonName": "localhost". You can then save the file and reset the Microsoft SBA service.
- A TLS connectivity check to sip.pstnhub.microsoft.com, sip2.pstnhub.microsoft.com, sip3.pstnhub.microsoft.com is required as part of the firewall requirements. If this check is denied by the firewall, the DR-SBA doesn't function. A log is recorded every 30 seconds in the sba.log file, showing "TcpClient did not manage to establish connection. No connectivity with sip.pstnhub.microsoft.com".
- If you install the SBA server and then change the name of the computer on which the SBA is installed, an alarm is raised (even though it doesn't affect functionality). To resolve this issue and clear this alarm, see Section 15.10, Clearing Alarm Due to Computer Name Change.
- DR-SBA doesn't support numbers with extensions. For example, if the outbound routing is destined to '+xxxxxxxxx;ext=1000', it's routed without using the extension.

# 15 DR-SBA Troubleshooting

This section describes DR-SBA troubleshooting issues.

## **15.1** Validate Tenant is Enabled for DR-SBA

Enter the following command to validate if new PowerShell commands are available:

```
Get-Command *TeamsSurvivableBranchAppliance*
```

# **15.2** Ensure User is Enabled for DR-SBA

You can use the following process to ensure that the Teams user has been enabled for DR-SBA support:

- 1. Restart the Microsoft Teams client.
- 2. Immediately after restart, download the MSTeams Diagnostics Log (see here for instructions on how to collect them).
- 3. Open the file with a name like MSTeams Diagnostics Log 12\_9\_2019\_\_10\_58\_11\_AM.txt and search for the string enableSurvivability

It should display a value of true like in the example below:

- "enableSurvivability": true,
- If it displays false validate that user was granted DR-SBA policy.

# **15.3** Verify which DR-SBA the Client Retrieves Based on Policy

Search the diagnostics log collected above for lines similar to below:

```
2020-09-22T01:04:37.595Z Inf SurvivabilityService:
[setAvailableAppliances] setting appliances to
[{"fqdn":"sba1.contoso.dk"}]
```

If you do not view lines similar to the above, this means that the user has not been granted the correct policy or that the policy does not contain the expected DR-SBA.

# 15.4 Verify if Client can Send Keep-Alive Messages to DR-SBA

Search the diagnostics log collected above for lines similar to below:

```
2020-09-22T01:04:37.595Z Inf SurvivabilityService:
[setupApplianceLivenessChecks] 1 appliances have been pinged
[appliances=[{"fqdn":"sbal.contoso.dk","lastCheck":1600736677529,"
isUp":true}]]
2020-09-22T01:04:37.582Z Inf SurvivabilityService:
[setupApplianceLivenessChecks] appliance reached successfully
[status=200]
```

If you don't see lines similar to above, this means that Keep-alive messages that are sent from the Teams client reach the DR-SBA.

If you see lines similar to below, this means that the Keep-alive messages that are sent from the Teams client do not reach the DR-SBA. Check firewall settings on the SBC, name resolution and general network connectivity issues between the Teams client and the DR-SBA.

```
2020-09-22T01:04:37.595Z Inf SurvivabilityService:
[setupApplianceLivenessChecks] 1 appliances have been pinged
[appliances=[{"fqdn":"sbal.contoso.dk","lastCheck":1600736677529,"
isUp":false}]]
```

## 15.5 DR-SBA to SBC SIP OPTIONS Not Responding

If you don't see any response from DR-SBA to SBC SIP OPTIONS, make sure that the SBC was added to Teams.

## 15.6 Collect Required Information to Report an Issue

To create a log for troubleshooting, set the trace level of MSFT service's log file to 'Trace':

- 1. Browse to C:\Program Files\Microsoft\Microsoft SBA and edit the sbasettings.json file.
- 2. Change the trace level from 'Info' to 'Trace'
- 3. Restart the MSFT service.
- 4. Wait 4-5 minutes before you make the test call.
- 5. Make the test call.
- 6. Collect the logs.
- 7. Revert the log level back to 'Info' and restart the MSFT service again.

To collect the information for AudioCodes technical support regarding the troubleshooting of issues, Provide the following information:

- Detailed description of the scenario.
- Date & Time in UTC time zone for when the issue happened.
- Traces files from Microsoft Teams immediately after you reproduced the issue.
- SBC traces corresponding to the client-side traces.
- For obtaining the necessary trace information from the Microsoft Teams client: Microsoft Teams debug logs, click <u>here</u>.

## 15.7 One-Way Voice

Check that the ICE Mode is set to Lite d for the DR-SBA profile IP Profile on the SBC configuration.

# 15.8 LMO (Local Media Optimization) not Working

The DR-SBA SBC should be connected on the outbound leg to the main site SBC (the Proxy Set that is paired as the Microsoft Teams Direct Routing interface) and not paired with the Teams SIP HUB.

# 15.9 Validating Active Users

Connect through RDP and use the following link <u>localhost:8081/api/v1/diagnostics/users</u> to get a list of activated users (with valuable information, e.g., "Last Active Time" and "Token Expiry Time"):

```
[{"userId":"110051a8-67b8-4f41-9803-
1fbf49ed7fda","sipUri":sip:sps2121@cce.aceducation.info,"lastActiv
eTime":"2023-07-31T15:32:54.7590087","lastSyncTime":"2023-07-
20T20:03:26.9582457","tokenExpiresAt":"2023-08-
01T05:44:58"},{"userId":"36198c46-8c34-462b-8489-
fc4df5ed71c5","sipUri":sip:sps2119@cce.aceducation.info,"lastActiv
eTime":"2023-07-31T15:32:25.0898998","lastSyncTime":"2023-07-
20T20:03:26.9582457","tokenExpiresAt":"2023-07-31T17:56:51"}]
```

# 15.10 Clearing Alarm Due to Computer Name Change

If you deploy the SBA server and then change the name of the computer on which the SBA is installed, the alarm *acGaManEnvUnreachableAlarm* is raised (even though it doesn't affect SBA functionality).

To resolve this issue and clear this alarm, you need to delete the old computer name:

- 1. Open Swagger:
  - a. Perform a remote desktop to the SBA.
  - b. Open Chrome or Edge, and then go to <u>http://localhost:8862/swagger/ui/index#!/AppSystemInfoSettings/AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppSystemInfoSettings\_AppS</u>
- 2. Navigate to GET /api/admininfo/systemComponents.
- 3. Click Try it out!; the output looks something like this:



- 4. Copy the FQDN to your clipboard (verify that it's the old computer name).
- 5. Scroll down to the **DELETE** button for */api/admininfo/systemComponents/{fqdn}*, and then click the button.
- 6. Paste the FQDN from your clipboard into the 'Value' field for the **fqdn** parameter:

DELETE	/api/ad	minInfo/systemComponent/{fqdn}							
Respo Model	nse Class Model S	s (Status 200) chema							
{}	0								
Respor	nse Conte	nt Type application/json 🗸							
Param	neters								
Param	eter	Value	Description	Parameter Type	Data Type				
fqdn		(required)		path	string				
Try it	Try it out!								

- 7. Click Try it out!.
- 8. Verify that a 200 OK response is sent.
- 9. Scroll back up to *GET/api/admininfo/systemComponents* and verify that the old FQDN no longer exists.

# 16 Q&A

This section provides answers to frequently asked questions.

# 16.1 Multiple DR-SBAs per Site

You can deploy multiple DR-SBAs at a site and add Microsoft Teams clients to the policy associated with the DR-SBAs.

DR-SBAs provide flexible deployment options for SBCs:

- **One-to-Many:** A single DR-SBA can work with multiple SBCs.
- Many-to-Many: Multiple DR-SBAs can work with multiple SBCs.
- Many-to-One: Multiple DR-SBAs can work with a single SBC.

Every SBC must send SIP OPTIONS keep-alive messages to all the DR-SBAs.

Call forking must be done for all DR-SBAs.

Teams clients send keep-alive messages to all DR-SBAs in the policy. For survivability, if the internet goes down, the Teams clients choose one of the DR-SBAs (using round-robin).

# 16.2 Different Management and Media Interfaces

DR-SBA can have different network interfaces for management and media.

To have separate interfaces, you can use two NICs:

- One NIC for external communication with the internet (i.e., interfacing with Microsoft Teams).
- One NIC for internal communication (i.e., DR-SBA <-> SBC, and Teams clients -> DR-SBA).

When configuring (in the wizard) the DR-SBA, in the 'SIP Listen IP' field, you need to select the IP address that is used for the DR-SBA <-> SBC, and Teams clients connection (see Add DR-SBA via Login to Tenant).

# **17** Re-image DR-SBA from USB

This Appendix describes the process, how to create a bootable USB dongle, loaded with the DR-SBA for Teams image.

This section is only relevant for OSN-based devices (Mediant 800C and Mediant 1000B DR-SBAs) and is not relevant for the Virtual Appliance DR-SBA.

## 17.1 Burn DR-SBA via USB

- 1. Plug the USB into the USB port on the rear panel.
- 2. Connect the console port (Mediant 800C and Mediant 1000B) or HDMI port (Mediant 1000B) to your monitor (screen).
- **3.** For COM Console connection: on your PC/Laptop, find the COM port via the Device manager and use PuTTY, for example, to open a console (115200, n8).
- 4. Reset the power.
- 5. Boot from the USB. Most of the hardware boots from the USB automatically if a USB is detected. If this is not the case, access BIOS and select to boot from the USB, or access the Boot menu and select to boot from USB.
- 6. Proceed to one of the following procedures:
  - COM Console (see below)
  - KVM/VGA Systems (see Section 17.3)

## 17.2 COM Console

- 1. After booting from USB, the SAC console appears; wait to see the following message: "EVENT: The CMD command is now available."
- 2. Type the following:

cmd

**3.** Type the following:

```
ch -sn Cmd0001 (Cmd0001 the channel that is open for you see the exact number on the screen)
```

4. To burn the SSD, type the following:

```
goRecovery.exe when prompted, click 'Yes' to approve and continue
```

When completed, a text message is displayed to remove the USB and reset; remove the USB, enter 'exit' and when the SAC console appears, type 'restart'.

The system boots twice due to the sysprep.

- 5. After the second boot, connect the OSN (rear panel of the Mediant device) to the network.
- 6. Type "i" and then the IP address that was retrieved from the DHCP should be displayed.

### Figure 96: Display the IP Address

```
Net: 12, Ip=10.21.2.164 Subnet=255.255.0.0 Gateway=10.21.0.1
Net: 12, Ip=fe80::213a:b934:97d3:f9a2
Net: 4, Disconnected
Net: 8, Disconnected
Net: 16, Disconnected
SAC>
```

If a static IP address needs to be set, use the following command:

```
i <#> <ip> <subnet> <gateway>
```

<#> is the interface number – the example above interface number 12 is connected and can be set.

For example: i 12 10.21.2.164 255.255.0.0 10.21.0.1

## 17.3 KVM/VGA Systems

After booting from USB, the cmd screen is displayed.

- 1. Type **goRecovry.exe** to burn the SSD.
- 2. When complete, a text message is displayed to remove the USB and reset. Remove the USB, enter exit, and then validate that the system restarts.

The system boots twice due to the sysprep.

After the second boot, you can connect to Windows, set the IP address manually or see which IP address was received from DHCP.

## **17.4 Teams DR-SBA Update Procedure**

To upgrade AudioCodes Teams DR-SBA:

- 1. Download the new GUI version from <u>https://downloads-</u> audiocodes.s3.amazonaws.com/Download/AC Teams SBA upgrade.html.
- 2. Stop the Microsoft Teams SBA service.
- 3. Backup the DR-SBA settings by copy the sbasettings.json under C:\Program Files\Microsoft\Microsoft SBA.
- 4. Open the Add Or Remove Programs menu, and uninstall service Microsoft Survivable Branch Appliance.
- 5. Validate if Microsoft Skype for Business Online PowerShell exists in the Add Or Remove Programs menu. If it exists, uninstall Microsoft Skype for Business Online.
- 6. Upgrade Microsoft Teams PowerShell:
  - a. Start PowerShell.
  - b. At the prompt, type the following:
  - Install-Module -Name MicrosoftTeams -force
  - c. At the prompt, to check if an earlier version is installed, type the following: Get-InstalledModule -Name MicrosoftTeams -AllVersions

If an earlier version exists, uninstall it:

```
Uninstall-Module -name MicrosoftTeams -RequiredVersion <earlier PowerShell version>
```

- 7. Run the upgrade files that you downloaded.
- 8. Copy sbasettings.json back to C:\Program Files\Microsoft\Microsoft SBA.
- 9. Restart the server.

# 17.5 Recovery USB Update (for OSN-based devices)

The recovery USB can be upgraded as follows:

- 1. Download the new WIM file from <u>https://downloads-</u> audiocodes.s3.amazonaws.com/Download/AC Teams SBA Wim.html
- 2. Copy the downloaded file to the root of the USB. (If there is no free memory, delete the old WIM file.)
- 3. In the USB recoveryUtil.ini file, change the WIM file name to the same name as the downloaded file.



If you don't have the original USB dongle and need to prepare one, see Creating a Bootable USB Dongle.

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# **18 Survivability PSTN Calling using Cellular Backup**

This section describes the required configuration to support DR-SBA backup connectivity through a cellular network for survivability. This occurs when there is no internet and connectivity with Teams cloud.

In normal operation (when there is connectivity), outgoing calls don't traverse the DR-SBA. Instead, the Teams client directly contacts the Teams cloud through the main router.

In survivability mode, the Teams client has no connectivity to the Teams cloud. The Teams client sends the traffic to the DR-SBA, which forwards the traffic to the PSTN using a unique backup channel on its cellular interface.

PSTN calling survivability over a cellular network is a special application that is applicable only to the Mediant 800C DR-SBA model that provides an internal 3G/4G cellular modem (CPN# M800C-4S-LA-SBA-TMS).

This feature is explained using the configuration example setup illustrated below.

#### fal-scc1-sbc-fqdn.com UC Node EAST Remote Site Remote MGMT MSBR-Foley - 82 80 53 209:22 - User/Pass = Admin/audc1234 MSBR-Foley - https://82.80.53.209:443 - User/Pass = Admin/audc1234 <sup>82.80.53.209</sup> adelev@M365x69077812.onmicrosoft.com VLAN . Main Router 192.168.0.1/24 <u>\_Gig 0/0</u> 192.168.0.100/24 Local\_Route +123456789112/Xag15786 đj -Fiber 0/1\_\_\_\_\_ 192.168.77.2/29 (y) đj Cell 0/0 (0 80.250.151.185 M800C-SBA VLAIN 1 192.168.77.1/29 Remote MGMT SBA alexw@M365x69077812.onmicrosoft.com IP 192.168.77.5/29 Core-SBC MSBR-SBC - 81.218.208.50:22 (SSH) -+123456789112/1hL79Rj9FA`r`]d} User/Pass = Admin/audc1234 ote MGMT 192.168.0.1/24 MSBR-SBC - https://81.218.208.50:443 -User/Pass = Admin/audc1234 MSBR-SBC - https://80.250.151.185:443 -User/Pass = Admin/audc1234 MP-118 - 81.218.208.50:8080 (HTTP) -MSBR-SBC - 80.250.151.185:22 (SSH) -User/Pass = Admin/audc1234 User/Pass = Admin/audc1234 FXS +123456789212 FXS +123456789211

### Figure 97: Example Setup for PSTN Calling based on Cellular Backup

In this example setup, DR-SBA needs to be configured with the following interfaces:

- interface osn: Layer-2 connection between SBC and DR-SBA
- interface VLAN 1: Communication between SBC and DR-SBA
- **interface Cellular 0/0:** WAN cellular interface (backup interface)

Configure DR-SBA according to this manual.

- The cellular interface must have a static IP address.
- DR-SBA must support ICE.
- The IP-to-IP Routing rule must operate in sequential mode and not forking ('Group Policy' parameter in the IP-to-IP Routing table).
- The IP host is sba-br3424.audiocodesaas.com [DR-SBA IP address] 120.

#### Configuration is as follows:

```
configure data
  interface VLAN 1
   ip address 192.168.77.1 255.255.255.248
   mtu auto
   desc "LAN switch VLAN 1"
   no ipv6 enable
   no service dhcp
   ip dns server static
   no napt
   no firewall enable
   no link-state monitor
   no shutdown
  exit
  interface Cellular 0/0
   desc "WAN Cellular"
   mode dhcp
   ip address auto
   firewall enable
   napt
   mtu dhcp
   profile
    apn statreal
    user user
    obscured-pass 8oKSh4aBmIqd
    exit
  no ipv6 enable
   no shutdown
   ip dns server auto
  exit
   interface osn
    switchport mode trunk
    switchport trunk native vlan 1
    switchport trunk allowed vlan add 1
    no shutdown
   exit
  ip host sba-br3424.audiocodesaas.com 192.168.77.5 120
  ip route 0.0.0.0 0.0.0.0 Cellular 0/0 1
  ip route 192.168.20.0 255.255.255.0 192.168.77.2 VLAN 1 1
 exit
```

Based on this example setup, the call flow for normal operation and survivability mode is as follows:

- **Normal Operation:** Call traverses the main router.
  - Incoming call: PSTN > Core SBC > Teams Cloud > Main Router > Teams client (DR-SBA rejects the call with a SIP 480 as not in survivability mode)



#### Figure 98: Normal Operation – Incoming Call Flow

• **Outgoing call:** Teams client > Main Router > Teams Cloud > Core SBC > PSTN



### Figure 99: Normal Operation – Outgoing Call Flow

- **Survivability Mode:** Teams cloud and Main Router are not reachable.
  - Outgoing call: Teams client > DR-SBA > Core SBC > PSTN

😁 SIP Flow Diagram - 746f2e:141:109906						-		×
	# \(\not\)	SID	Туре	Time	From	То		
80.250.151.185 81.218.208.50 192.168.0.10	1	746f2e:	INVITE	18:19:39	+123456789111@TomerS	+123456789211@tc	mersfoley.auc	i
	2	746f2e:	OPTIONS	18:20:11	+123456789212@81.218.2	+123456789212@81	.218.208.50	
	3	746f2e:	OPTIONS	18:20:11	80.250.151.185	80.250.151.185		
INVITE (SDP)								
100								
180								
180								
18:19:40 200 (SDP)								
200 (SDP)	<<	Find	>>	Export	<ul> <li>Refresh Show</li> </ul>	v: All 💌	Calls: 1 Othe	r: 2
18:19:41 ACK	18:1	9:39.000	- Incomin	g SIP Me	ssage from 80.250.151.	185:44918 to SI	PInterface	-
ACK	INVI	TE sip:+12345	6789211@t	- omersfol	ey.audiocodesaas.com;u	iser=phone SIP/2	.0	
18:19:42 INVITE (SDP)	Via: Max-	SIP/2.0/TLS Forwards: 69	80.250.15	1.185:50	61;alias;branch=z9hG4b	Kac902695084		
INVITE (SDP)	From To:	: "Adele Vanc <sip:+1234567< td=""><td>:e" <sip:+ 789211@tom</sip:+ </td><td>12345678 ersfoley</td><td>9111@TomerSFoley.audio .audiocodesaas.com;use</td><th>codesaas.com:50 er=phone&gt;</th><td>61;user=ph</td><td></td></sip:+1234567<>	:e" <sip:+ 789211@tom</sip:+ 	12345678 ersfoley	9111@TomerSFoley.audio .audiocodesaas.com;use	codesaas.com:50 er=phone>	61;user=ph	
200 (SDP)	Call	-ID: 18909468 : 1 INVITE	872312020	224@80.2	50.151.185			-11
200 (SDP)	Supp	act: <sip:80. orted: sdp-an</sip:80. 	250.151.1 at	85:5061;	transport=tls;x-1=d930	19780-1860-4030-	a087-99C07	
18:19:43	User	-Agent: M8000	/v.7.26A.	356.074	TE, NUTIFT			
ACK	P-As	serted-Identi	ty: <tel:< td=""><td>+1234567</td><td>89111&gt;</td><th></th><td></td><td></td></tel:<>	+1234567	89111>			
ACK	Cont	ent-Length: 1	1350	sup				
18:19:47	0=-	949489676 189 ssion	0997019 I	N IP4 80	.250.151.185			
BYE	c=IN b=CT	IP4 80.250.1 :4000	.51.185					-
10:13:48 200							<u> </u>	

#### Figure 100: Survivability Mode – Outgoing Call Flow

• Incoming call: PSTN > Core SBC > DR-SBA >Teams client



#### Figure 101: Survivability Mode – Incoming Call Flow

# **19** Creating a Bootable USB Dongle

This section describes how to create a bootable USB dongle for DR-SBA.

To create a bootable USB dongle:

- 1. Prepare a new USB dongle that has a 32 GB storage size.
- 2. Start a PowerShell or Command Prompt session.
- 3. Enter diskpart: Commandline: diskpart
- 4. List disks: Commandline: list disk
- 5. Choose the USB Drive Number (where 0 is the number of the USB Drive): Commandline: select disk 1
- Clean the disk: Commandline: clean
- 7. Create a primary partition on the disk: Commandline: create partition primary
- Format the partition to NTFS: Commandline: format fs=ntfs quick label="ACSSetup"
- 9. Make the flash drive bootable: Commandline: active
- 10. Assign a drive letter: Commandline: assign
- 11. Exit diskpart: Commandline: exit
- 12. Download the USB content from <u>https://downloads-audiocodes.s3.eu-central-</u> <u>1.amazonaws.com/SBA/TEAMS/Entire+USB+(zip)/DRSBA</u> <u>1.1.001.zip</u>
- **13.** Unzip and copy all the files to the root directory of the newly created USB drive.
- 14. Continue according to Section Re-image DR-SBA from USB.

### International Headquarters Naimi Park 6 Ofra Haza Street Or Yehuda, 6032303, Israel Tel: +972-3-976-4000 Fax: +972-3-976-4040

## AudioCodes Inc.

80 Kingsbridge Rd Piscataway, NJ 08854, USA Tel: +1-732-469-0880 Fax: +1-732-469-2298

Contact us: <u>https://www.audiocodes.com/corporate/offices-worldwide</u> Website: <u>https://www.audiocodes.com</u>

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