Unify OpenScape Session Border Controller

OpenScape SBC V11 with Survivable Branch Appliance (SBA)

Installation Guide

July 2024

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Mitel

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History of Changes

Issue	Date	Summary
1	10/2023	First issue of the guide.
2	07/2024	Rebranded to Mitel layout.

Contents

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1. Introduction

The Survivable Branch Appliance (SBA) is an application developed by Microsoft and integrated with the OpenScape Session Border Controller (OSSBC) to enable and maintain calls between the Microsoft Teams Client and the Public Switched Telephone Network (PSTN) in cases of internet outage.

If a client site uses Direct Routing to connect to the Microsoft Phone System, there may be internet connection disruption. During these temporary interruptions, the "branch" at the client site loses connection to the Microsoft Cloud via Direct Routing. However, the intranet within the site remains fully functional, allowing users to maintain their connectivity with the PSTN.

The functionality of the Microsoft Teams Client will be limited to the following PSTN call functions:

- Making PSTN calls via local SBA/SBC with media flowing through the SBC.
- Receiving PSTN calls via local SBA/SBC with media flowing through the SBC.
- Hold and Resume of PSTN calls.

No other Microsoft Teams Client features will be available. For more information on the functionality of the SBA appliance, please refer to the official Microsoft page SBA for Direct Routing. For additional information on Direct Routing, please refer to the official Microsoft pages Plan Direct Routing and Configure Direct Routing.

Important: This system does not work if the user uses the Teams Client via the web.

1.1. About this Guide

This installation guide outlines the SBA, covering the installation on a Windows Server and the essential configurations in Azure Active Directory, in the SBA Application, in the Direct Routing SBA, and the necessary settings in the SBC. For the setup requirements, please refer to 1.2. Setup Requirements.

The following abbreviations are used in this guide:

Abbreviation	Meaning
SBA	Survivable Branch Appliance
SBA Server	Survivable Branch Appliance application on the Windows Server
DR SBA	Direct Routing Survivable Branch Appliance

Intended audience

It is intended for users familiar with installing and upgrading a Microsoft Windows Server. This familiarity should include downloading and installing additional packages for this guide.

1.2. Setup Requirements

Before installing the SBA, ensure that your system meets the following requirements:

1. Operating System

   The SBA requires a machine running Windows Server.

   Supported versions include Windows Server 2022 Standard.

2. Hardware Compatibility:

   The SBA can be installed on either physical hardware or a virtual machine (VM).

   Note: For optimal performance and compatibility, it is highly recommended to use the OpenScape Kontron 550 hardware with Windows Server 2022 Standard.

3. Supported Microsoft Teams Clients:

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  The SBA is supported only for the following Microsoft Teams clients:

  - Teams Windows desktop
  - Teams MacOS desktop

The SBA also has usage restrictions due to its reliance on 24-hour validity authentication tokens. It can support outages for up to 24 hours from the last token renewal. For more information, please refer to the official Microsoft page SBA for Direct Routing.

2. Configuring SBA on Windows Server

Certain configurations are necessary to ensure a successful SBA installation and smooth integration.

2.1 Microsoft configurations

Microsoft requires the following configurations:

Direct Routing SBC Configuration: Ensure that the **DR SBC** is set to "Media Bypass".

1. Go to the Microsoft Teams admin center → Voice → Direct Routing → SBC Settings.
2. Edit the SBC to activate “Media bypass” on the *Location based routing and media optimization* session.

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TLS 1.2: Enable TLS 1.2 on the server to ensure secure communication on SBA Server.

Firewall Port Settings: Allow the following TCP ports in your firewall settings, related to SBA Server:

- 3443
- 4444
- 8443
- 443

Also, ensure that UDP port 123 is allowed.

SBC Port: Allow port 5061 or the port configured on the SBC for SBA communication.

Additionally, ensure that both the Windows Server and the firewall have been appropriately configured. Refer to the Table 1 below for a summarized overview of the necessary firewall configurations.

Traffic Type	From	To	Source Port	Destination Port
Income TCP	MS Teams Clients	DR-SBA	Any	**3443**
Income TCP	MS Teams Clients	DR-SBA	Any	**4444**
Income TCP	MS Teams Clients	DR-SBA	Any	**8443**
Outgoing HTTPS	SBA	Azure Ips	Any	**443**
Outgoing TCP	SBA	SBC	Any	**5061 (See SBC)**

Outgoing HTTPS	SBC	DR-SBA	Any	**5061**

Table 1 Firewall configurations

3. Installing SBA Binary

The installation of the SBA application is completed by the "run installer" method. After transferring the SBA installer package to the Windows server, proceed by clicking "Next" until the installation procedure is finished. If needed, there is an option available to modify the SBA installation directory. For reference, Figure 1 provides a screenshot illustrating one of the steps within this process.

Note: The SBA application will be provided by Unify.

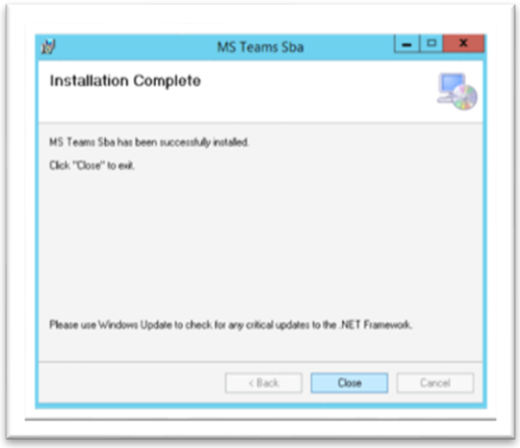


Figure 1 Succesful installation of the MS Teams Sba

After completing the installation, verify if the service is running as shown in Figure 2. If it's not running, make sure to check if all the necessary components are installed.

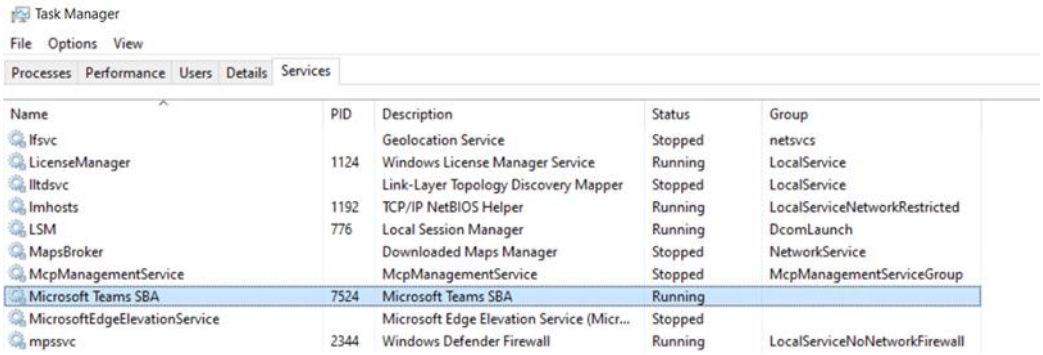


Figure 2 MS Teams Sba: confirmation of succesful installation

After the binary installation, check the DNS resolution and certificate inclusion configurations. Please refer to chapters **3.1 DNS resolution** and **3.2 Certificate Requirements**.

3.1 DNS resolution

To ensure proper setup and use the SBA Server, it is necessary to establish a Fully Qualified Domain Name (FQDN). This FQDN can be either public or private.

Hint: In case of communication loss, the FQDN of the DR SBC will not resolve because there will not be an external DNS server available to the SBA Server. To address this issue, you need to edit the Windows Server host file and add the FQDN of the SBC for local resolution. The file path is: **C:\Windows\System32\drivers\etc**

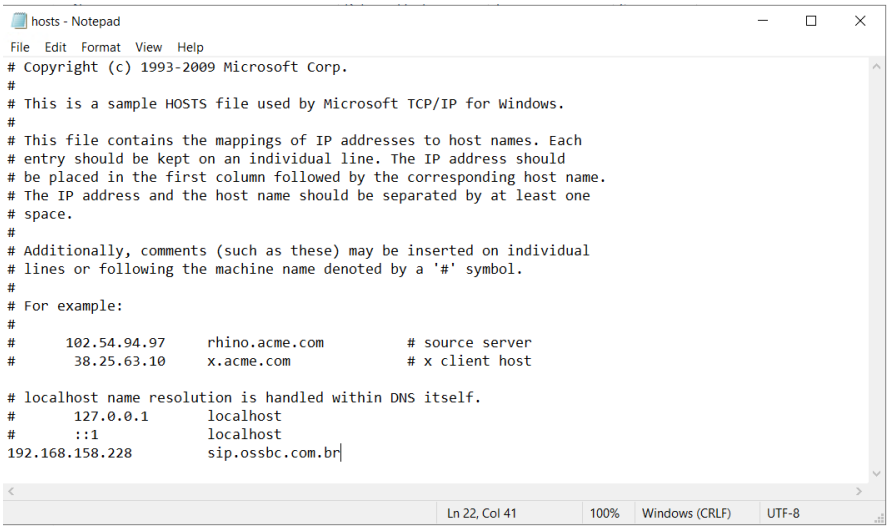


Figure 3 Windows Server host file

3.2 Certificate Requirements

A certificate is necessary for TLS negotiation between the SBC and the Teams client. To align with Microsoft's requirements, make sure that the certificate adheres to the following criteria:

1. **Assign the Certificate to both SBC and SBA:** The certificate should be assigned to the SBC and the SBA.

2. **Public or Private:** The certificate can be either public or private.

3. **Include the SBA's FQDN:** The Fully Qualified Domain Name (FQDN) of the SBA must be present in the common name (CN) or Subject Alternative Name (SAN) of the TLS certificate.

3.2.1 Certificate Installation

To install the certificate and ensure a successful installation for secure communication between the SBC and the Client Teams, follow the steps below:

Step 1: Import the Certificate

Import the certificate into the Windows Server Certificate Store:

- Click on the **Start** button and then select **Run.**
- Enter **certmgr.msc** by navigating to Console Root → Certificates (Local Computer) → Personal → Certificates

- Right-click to open the context menu, select **All tasks,** and then **Import**.

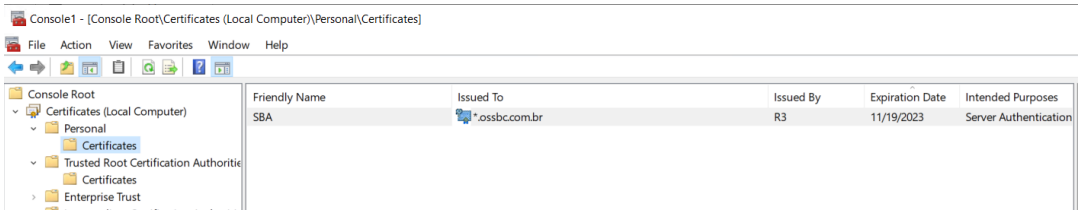


Figure 4 Console Root: Certificates

Step 2: Import the Root CA Certificate

Import the Root CA Certificate from the Certificate Signaling Authority that signs the certificate. This Root CA Certificate should be in the **Trusted Root Certificate Authorities** location.

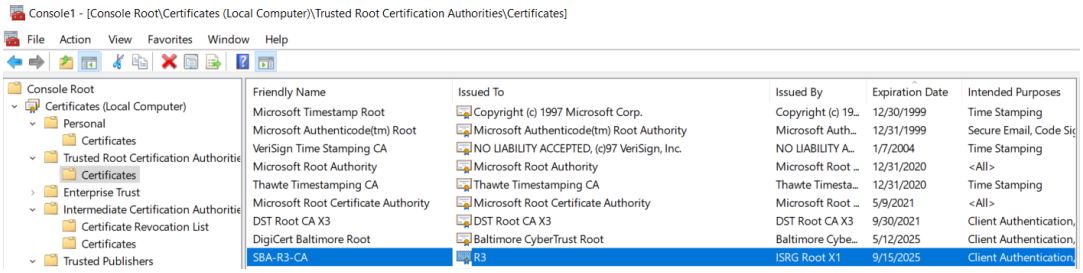


Figure 5 Console Root: Trusted Root Certificate Authorities

4. Configuring the Azure Active Directory SBA Application

To ensure the SBA can access data from Microsoft 365, it must be registered in Azure Active Directory. It's important to note that only one application registration is needed to cover all SBAs within a tenant. To complete this registration and configure the DR SBA, the following information is required:

1. **Application Name:** Any name of your choice.
2. **Supported Account Types:** Account in this organizational directory only.
3. **Web Redirect URI:** https://login.microsoftonline.com/common/oauth2/nativeclient
4. **Implicit Grant Tokens:** Access tokens and ID tokens.
5. **API Permissions:** Skype and Teams Tenant Admin:

- Access -> Application Permissions -> application_access_custom_sba_appliance

6. **Client Secret:** You can use any description and set expiration.

> **Note**: Please make sure to save the Application ID (Client) and Client Secret, as they will be used in the application configuration.

- Follow the steps outlined below to register and configure the SBA using the Azure portal: https://portal.azure.com.

Step 1: Register an application

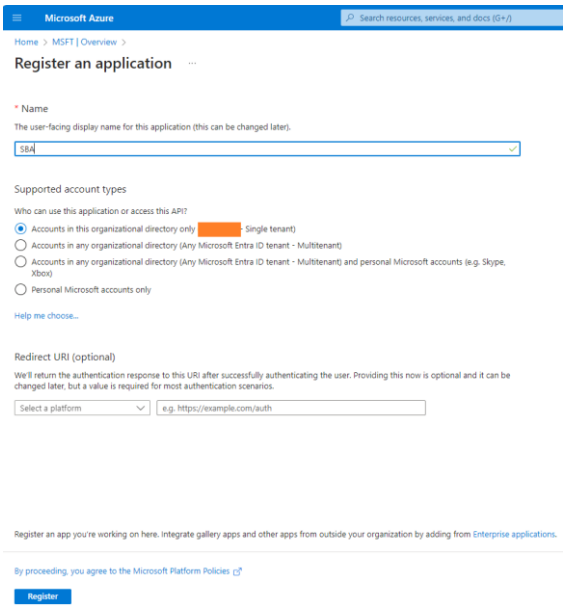


Figure 6 App Registration

Step 2: Define Implicit Grant Tokens

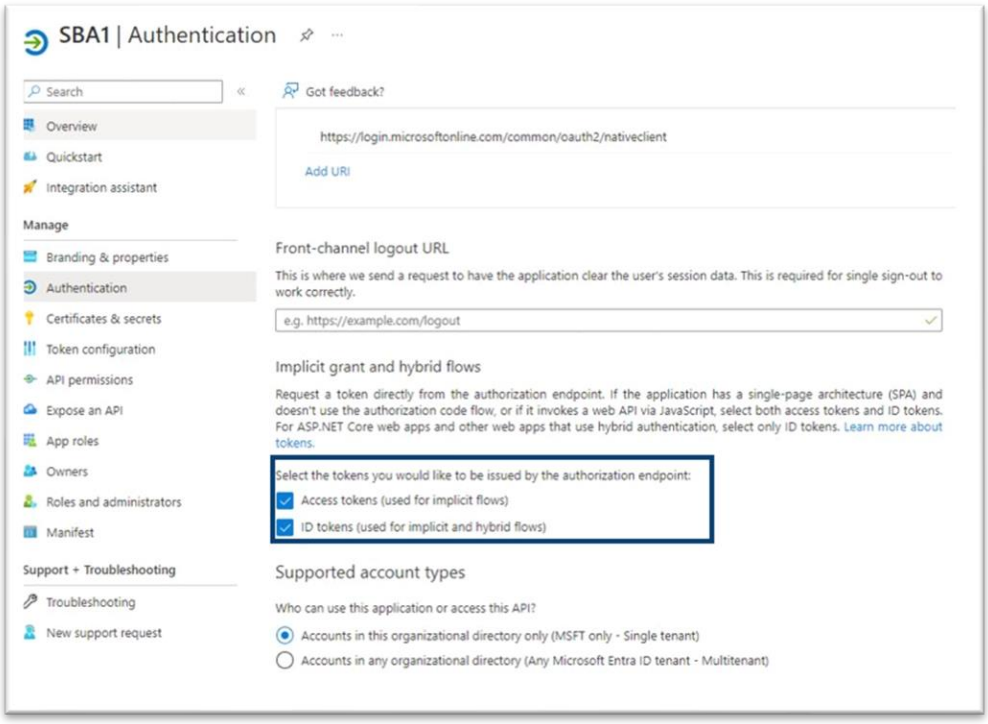


Figure 7 Grant Tokens selection

Step 3: Define API Permissions

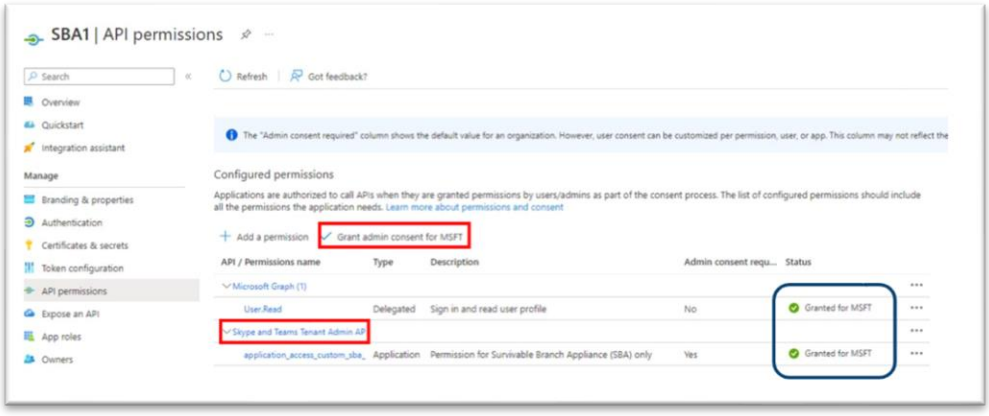


Figure 8 API Permissions

Step 4: **Create the Client Secret**

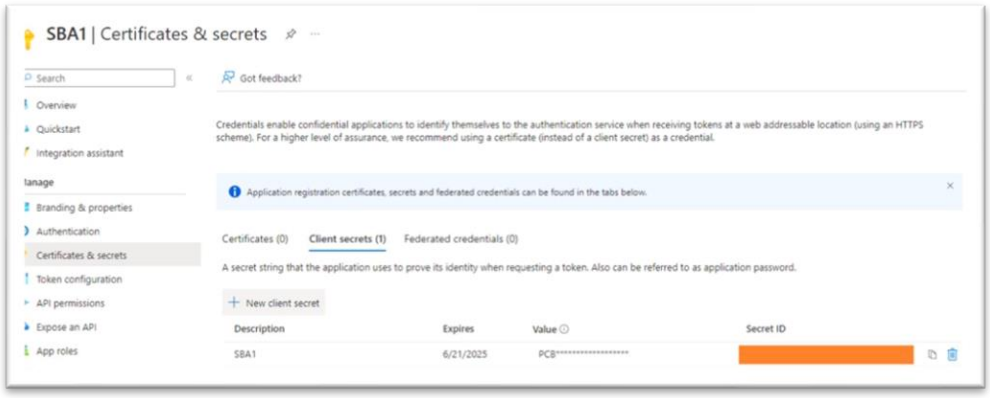


Figure 9 Client Secret creation

After completing these steps, the overview screen will be as shown in Figure 10:

Figure 10 Overview screen

5. Configuring Direct Routing SBA

SBAs and the branch survivability policies need to be created using PowerShell Teams cmdlet for Teams and subsequently assigned to Teams users. This configuration is essential for informing the Teams client about the availability of SBAs at each branch.

To perform these tasks, you will require several PowerShell libraries, which can be installed using the following commands:

> Install-Module -Name PowerShellGet -Force -AllowClobber

> Install-Module -Name MicrosoftTeams -Force -AllowClobber

The settings must be made according to the following steps:

Step 1: Create the SBAs

- **Command:** New-CsTeamsSurvivableBranchAppliance
- **Parameters**:
  - -Fqdn: SBA FQDN
  - -Description: SBA Description

Example:

> New-CsTeamsSurvivableBranchAppliance -Fqdn sba1.ossbc.com.br -Description "SBA 1"

Identity: sba1.ossbc.com.br

Fqdn: sba1.ossbc.com.br

Site:

Description: SBA 1

Step 2: Create the Teams Branch Survival Policy

- **Command:** New-CsTeamsSurvivableBranchAppliancePolicy
- **Parameters**:
  - -Identity: Policy Identity
  - -Fqdn: SBA FQDN

Example:

> New-CsTeamsSurvivableBranchAppliancePolicy -Identity CPH -BranchApplianceFqdns "sba1.ossbc.com.br"
Identity: Tag:CPH
BranchApplianceFqdns: {sba1.ossbc.com.br}

Step 3: Assign a Policy to a User

- **Command:** Grant-CsTeamsSurvivableBranchAppliancePolicy
- **Parameters**:
    - -PolicyName: Policy Identity
    - -Identity: Teams user

Example:

> Grant-CsTeamsSurvivableBranchAppliancePolicy -PolicyName CPH -Identity sbc01@8lrpr0.onmicrosoft.com

For more detailed commands and information, please refer to the official Microsoft page SBA for Direct Routing.

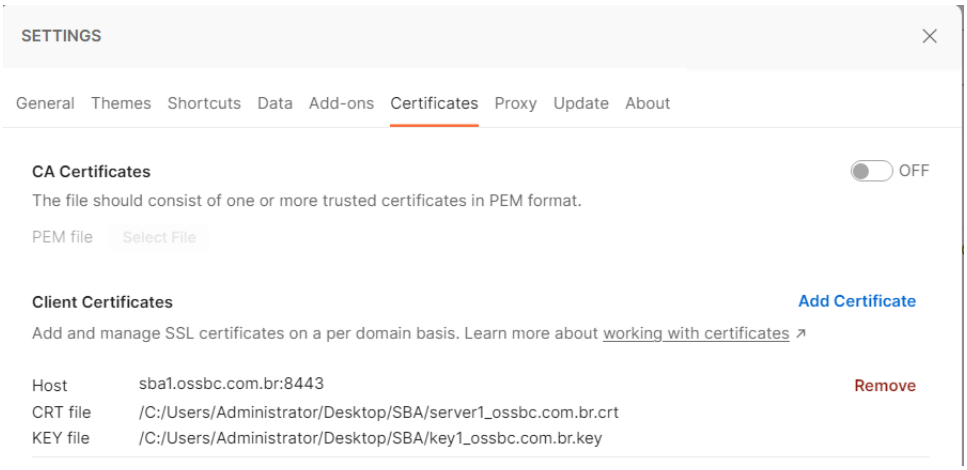
6. Configuring the SBA Application

After completing the preceding steps, the basic SBA configuration will be completed. At this point, please confirm that the SBA Server is up and running. The SBA Application configuration is achieved through an API, and a client is required to execute the commands. One example of a REST API client is the Postman program.

The Postman is available on the page: https://www.postman.com/downloads/

The commands use the PUT or GET to send or receive the configuration parameters to/from the SBA Application. The 200 OK and 202 OK Accepted are the successful response messages.

The SBA Application uses port 8443 for HTTPS communication. When using POSTMAN, ensure that your client certificate is included in the application's settings.

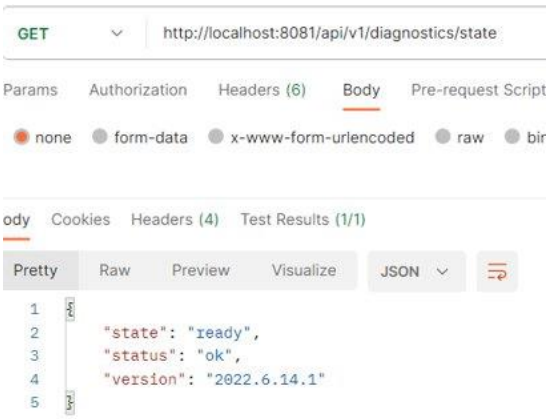


When querying the HTTPS API, use the FQDN:PORT or IP:PORT combination in the URI address.

The API command list is as follows:

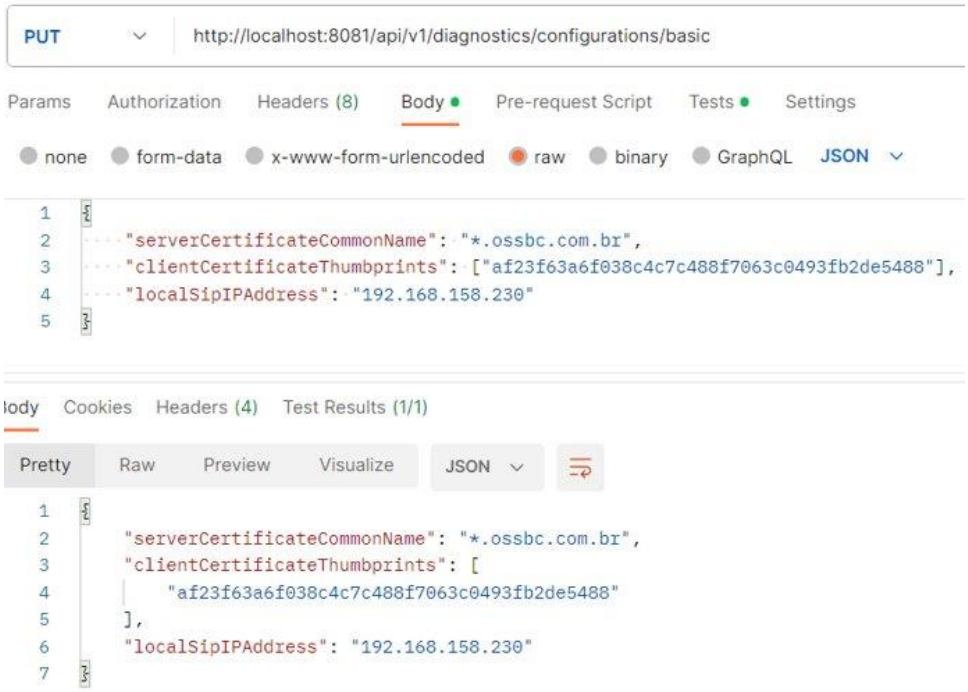
- **GET** http://localhost:8081/api/v1/diagnostics/state
    - **Method:** GET

  Provides the SBA state. The initial state is “waiting initial parameters” and after the configuration, the state is “ready”



- **PUT** http://localhost:8081/api/v1/diagnostics/configurations/basic
    - **Method**: PUT and GET
    - **Parameters**:
        - serverCertificateCommonName: SBA Certificate commom name.
        - clientCertificateThumbprints: SBC Certificate Thumbprint
        - localSipIPAdress: SBA IP address

  Provides the basic configuration to SBA.

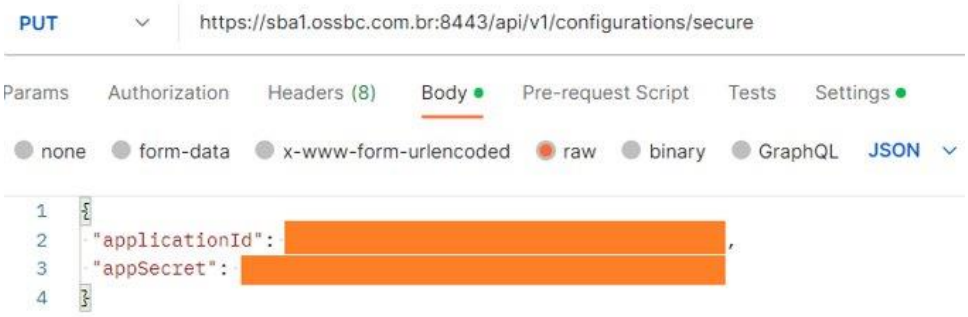


- **PUT** https://192.168.158.230:8443/api/v1/configurations/general
    - **Method**: PUT and GET
    - Parameters:
        - **identity**: SBA FQDN configured on DR SBA
        - **tenant**: Identity of your Tenant
        - logger:
            - directory: SBA Log directory
            - level: SBA log level:
                - Critical, Error, Warning, Information, Debug, Trace, None.
            - maxArchiveFiles: Log file range: 24-10000

  Provides the configuration to SBA.

- **PUT** https://sba1.ossbc.com.br/api/v1/configurations/secure
    - Method: PUT
    - Parameters:
        - applicationId: The application ID (client)
        - appSecret: The Client Secret from DR SBA

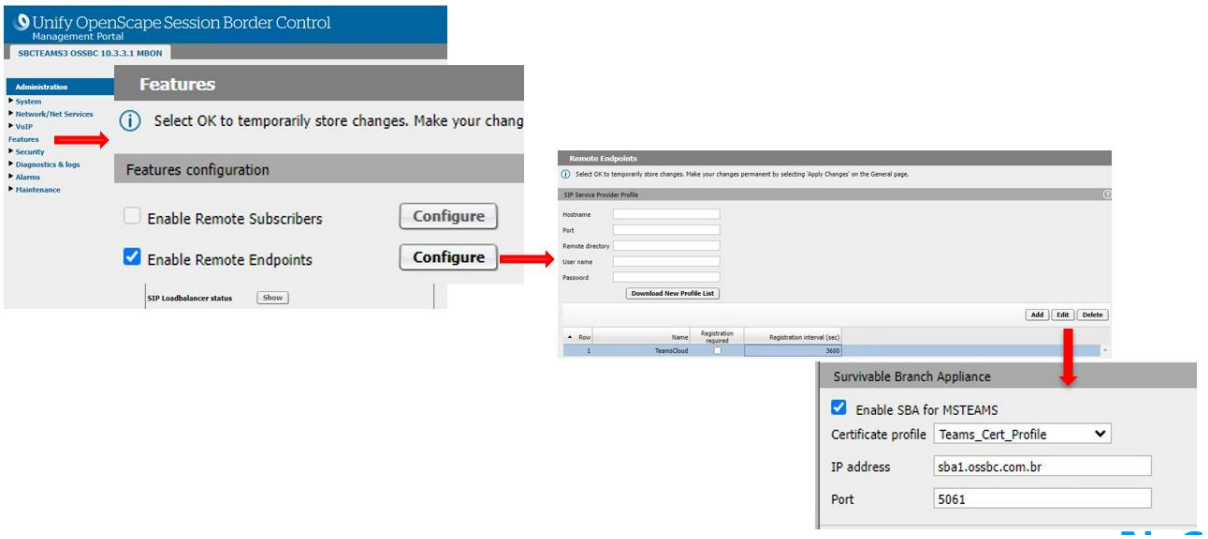
Provides security information to SBA and is necessary for the tenant information synchronization.



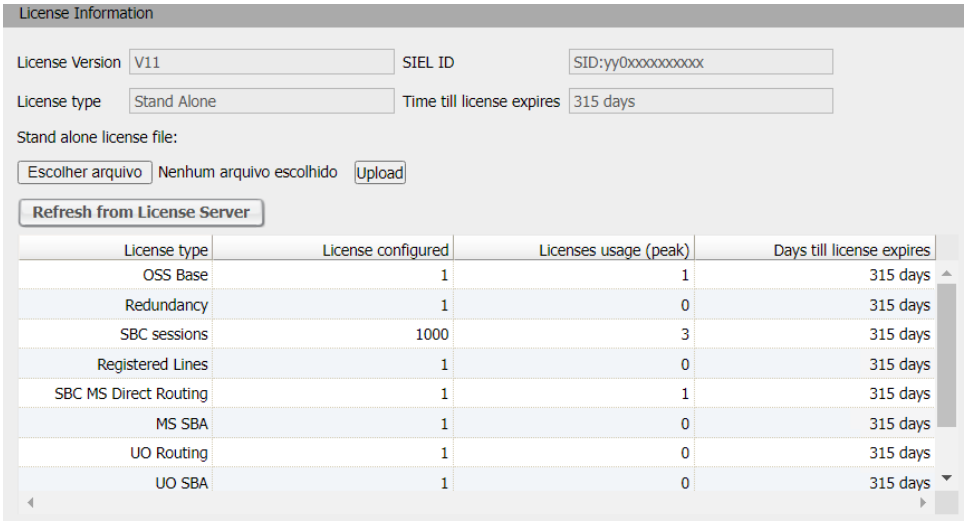
After the SBA configuration, the MS Teams service should be restarted.

7. Configuring the OpenScape SBC

The SBA configuration on the SBC must be done by enabling SBA in the SIP Service Provider Profile GUI.



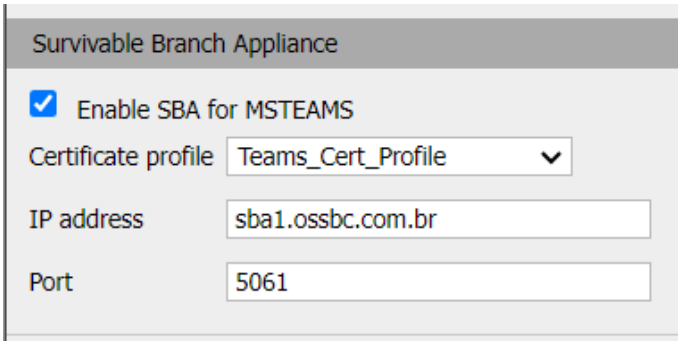
OSSBC V11, SBC MS Direct Routing, and MS SBA licenses are required to enable the SBA Feature.



License type	License configured	Licenses usage (peak)	Days till license expires
OSS Base	1	1	315 days
Redundancy	1	0	315 days
SBC sessions	1000	3	315 days
Registered Lines	1	0	315 days
SBC MS Direct Routing	1	1	315 days
MS SBA	1	0	315 days
UO Routing	1	0	315 days
UO SBA	1	0	315 days

The following parameters must be informed:

- Certificate **profile:** the certificate must be the same as the one added on the SBA Server. It is recommended to use a specific certificate for the SBA.
- **IP address:** the IP or FQDN of the SBA Server. It is highly recommended to use the FQDN
- **Port:** by default, SBA uses port 5061



7.2 Additional Information:

The SBC uses the fork mechanism to send SIP messages to the SBA. Therefore, for the correct feature function, the MS Teams endpoints must be configured as follows:

1. The endpoint audit must be disabled when using SBA.
2. In BYOT, the endpoint connection check must be disabled.