

ORACLE

Oracle SBC Configuration Template Outline
for Microsoft Teams with Twilio Elastic SIP
Trunking

[Technical Application Note](#)

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1 Intended Audience

This document is intended for use by Oracle Systems Engineers, third party Systems Integrators, Oracle Enterprise customers, partners and end users of the Oracle Enterprise Session Border Controller (SBC).

Please note, applying a configuration to the SBC via the Configuration Assistant will overwrite any existing configuration currently applied to the SBC. **We highly recommend this only be used for initial setup of the SBC. This feature is not recommended to be used to make changes to existing configurations.**

2 Introduction

When you first log on to the E-SBC, the system requires you to set the configuration parameters necessary for basic operation. To help you set the initial configuration with minimal effort, the E-SBC provides the Configuration Assistant. The Configuration Assistant, which you can run from the Web GUI or the Acme Command Line Interface (ACLI), asks you questions and uses your answers to set parameters for managing and securing call traffic. You can use the Configuration Assistant for the initial set up to make to the basic configuration. See "Configuration Assistant Operations" in the [Web GUI User Guide](#) and "Configuration Assistant Workflow and Checklist" in the [ACLI Configuration Guide](#)

3 Revision History

Date	Document Version	Template Version	Comments
21-05-2021	1.0	1.0	Initial Revision

4 Document Overview

This Oracle document describes how to use our Configuration Assistance feature as a quick and simple way to configure the Oracle SBC for integration with Microsoft Teams Direct Routing and Twilio Elastic SIP Trunking.

These software releases with the configuration listed below can run on any of the following products:

- AP 1100
- AP 3900
- AP 4600
- AP 6350
- AP 6300
- VME

5 Requirements

- SBC running release SCZ840p5A or later
- TLS certificate for the SBC preferably in PKCS format, or access to MSFT supported CA to sign certificate once CSR is generated by the SBC. A list of supported CA's can be found [here](#). For Twilio side, list of supported CA's can be found [here](#)
- **The template can be downloaded from our app note link given below.**
- [**https://www.oracle.com/technical-resources/documentation/acme-packet.html**](https://www.oracle.com/technical-resources/documentation/acme-packet.html)

The template designed for Teams Twilio can be found under “Configuration Assistant Templates” section of the app note page.

6 Microsoft Teams Twilio Trunk Configuration Assistance Template

The following outline assumes you have established initial access to the SBC via console and completed the following steps:

- Configured boot parameters for management access
- Setup Product
- Set Entitlements
- Configured HTTP-Server to establish access to SBC GUI

For more information on how to complete the above, please refer to Section 6 of the [Oracle SBC integration with Teams Direct Routing and Twilio Elastic Sip Trunking Application Note](#)

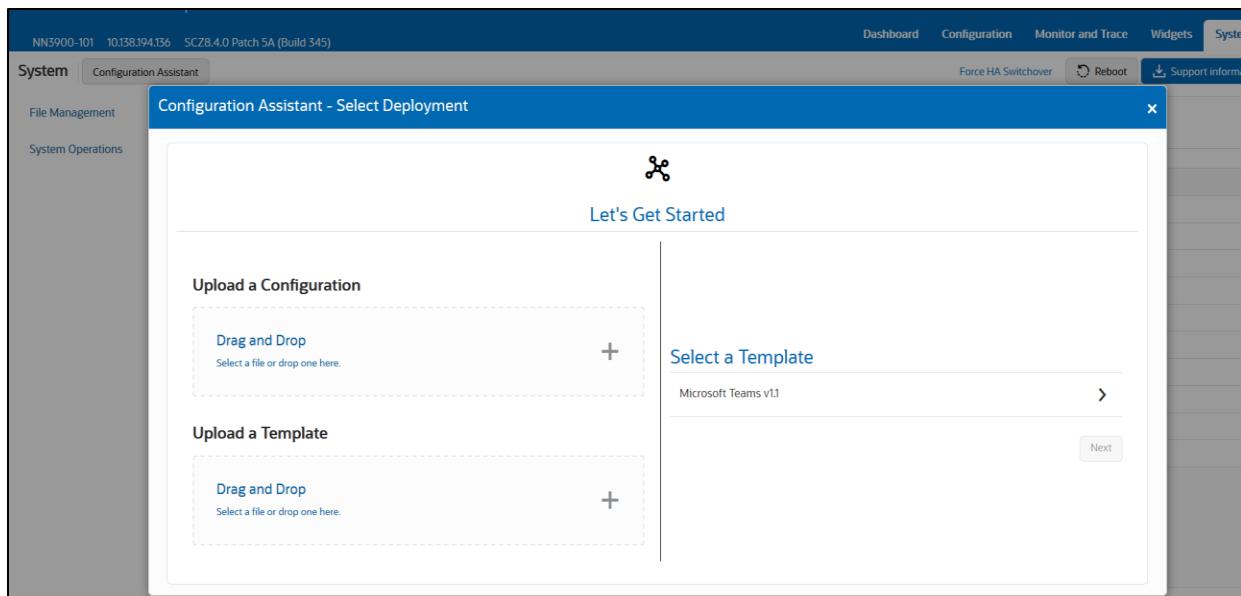
6.1 Initial GUI Access

The Oracle SBC WebGui can be accessed by entering the following in your web browser:

[http\(s\)://<SBC Management IP>](http://<SBC Management IP>).

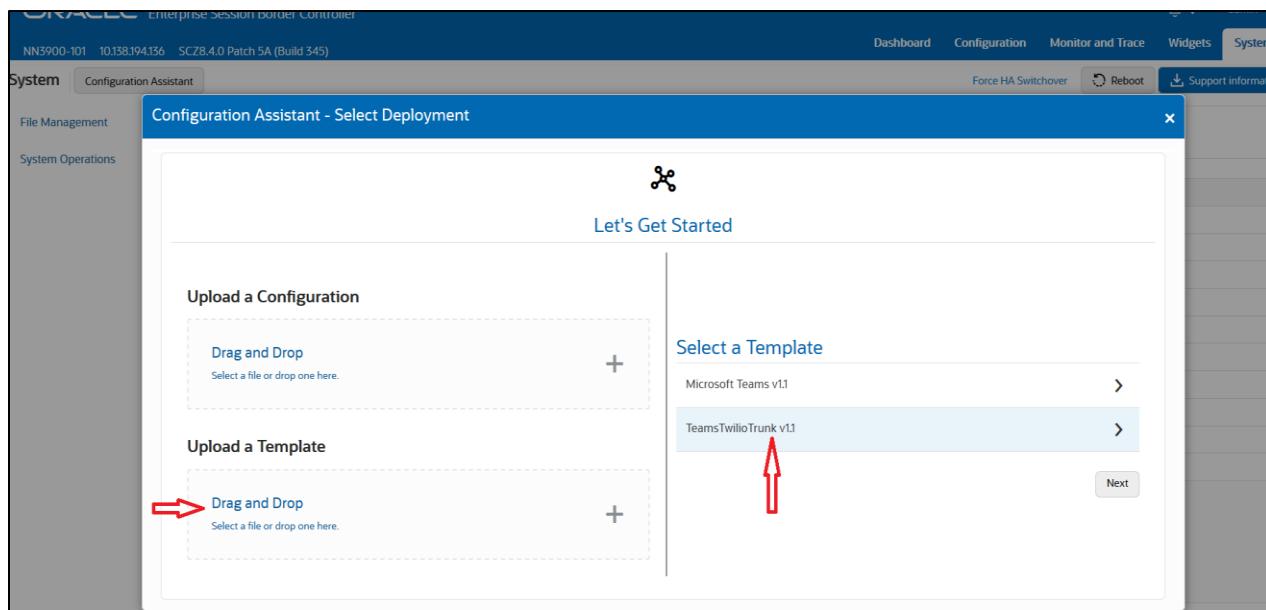
The username and password are the same as that of the CLI.

If there is no configuration on the SBC, the configuration assistant will show immediately upon login to the SBC GUI:



As you can see in the screen shot above, on the right side, Microsoft Teams is already listed under “Select a Template” which is the default template along with this patch. Please select “Upload a Template” tab on left hand side and select the TeamsTwilio template downloaded from the app note site to upload that to the SBC. **The template downloaded from the app note site will be in .gz(zipped) format.**

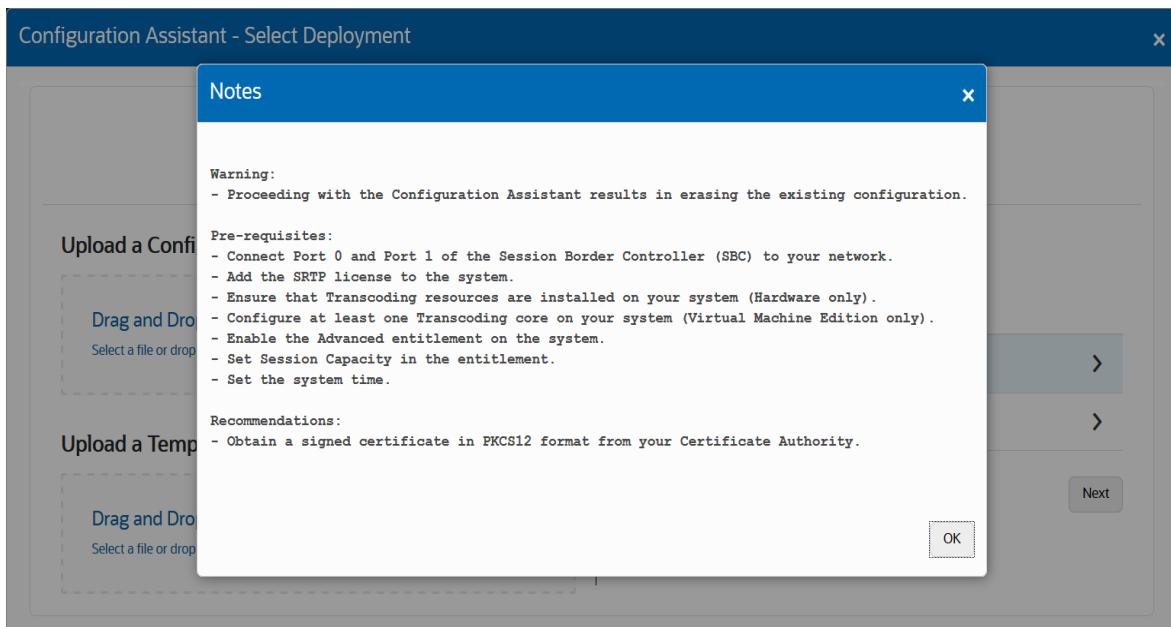
As an alternate, the template file downloaded from the site can also be loaded to /code/configAssistant/templates folder of the SBC using WinSCP or any file transfer software. Once done, the template shows up under Select Template tab as shown below.



Once you highlight “TeamsTwilioTrunkv1.1” template, you will see a pop up with the filename and description of the templates purpose:



Click **Next**: The following “Notes” will be displayed.

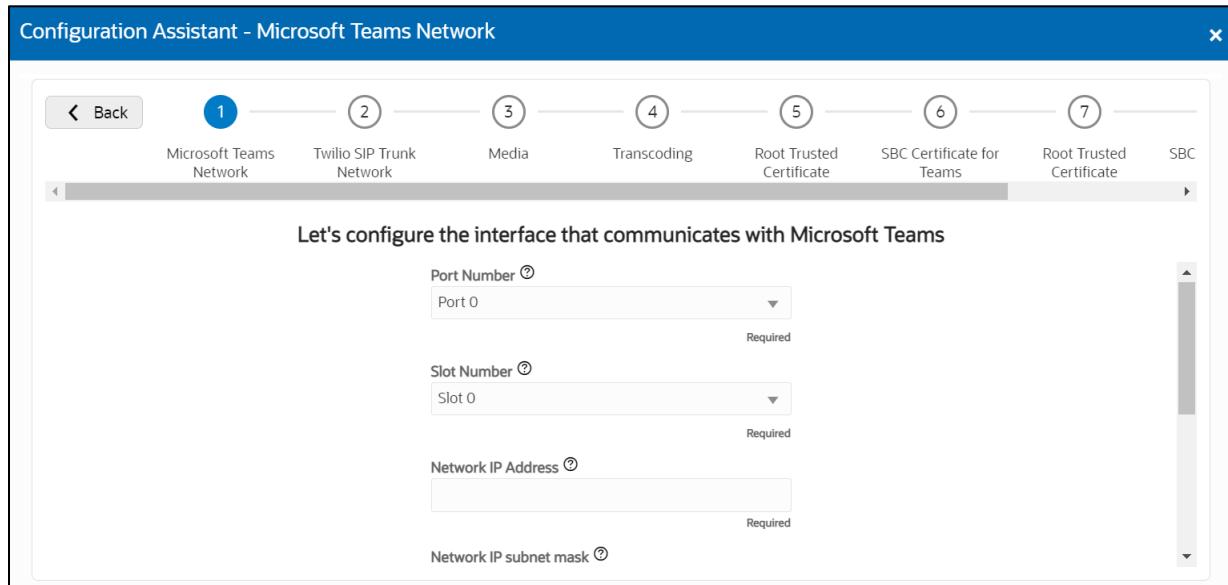


Click OK at the bottom.

6.2 Networking

6.2.1 Page 1-Microsoft Teams Network

Page 1 of the template is where you will configure the network information to connect Microsoft Teams Direct Routing.



Next to each field is a help icon. If you hover over the icon, you will be provided with a description or definition of each field. Also, pay close attention to which fields are listed as "required".

6.2.2 Page 2-Twilio Elastic SIP Trunk Network

Page 2 of the template is where you will configure the network that connects to Twilio Elastic SIP trunking.

The top entry box on this page, “Twilio Session Agent IP/hostname”, in this field is where you will enter the next hop IP address for sip signaling to and from your Twilio Elastic SIP trunk.

Configuration Assistant - Twilio SIP Trunk Network

2 3 4 5 6 7 8 Skip >

ams Twilio SIP Trunk Network Media Transcoding Root Trusted Certificate SBC Certificate for Teams Root Trusted Certificate SBC Certificate for Twilio

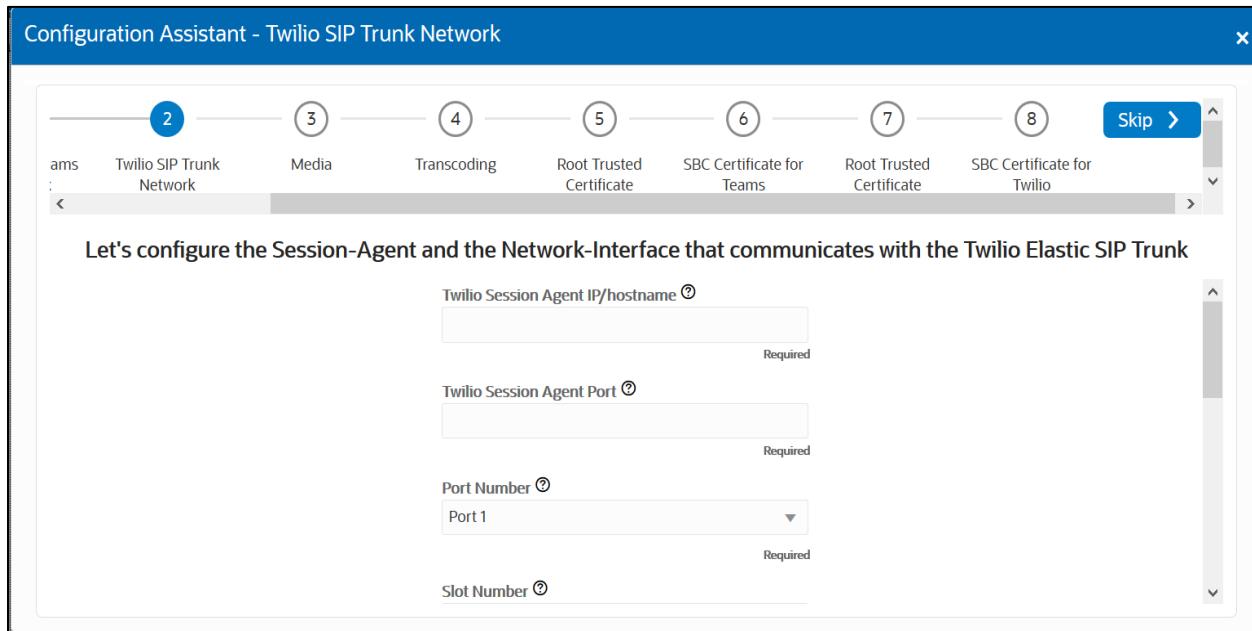
Let's configure the Session-Agent and the Network-Interface that communicates with the Twilio Elastic SIP Trunk

Twilio Session Agent IP/hostname Required

Twilio Session Agent Port Required

Port Number Port 1 Required

Slot Number

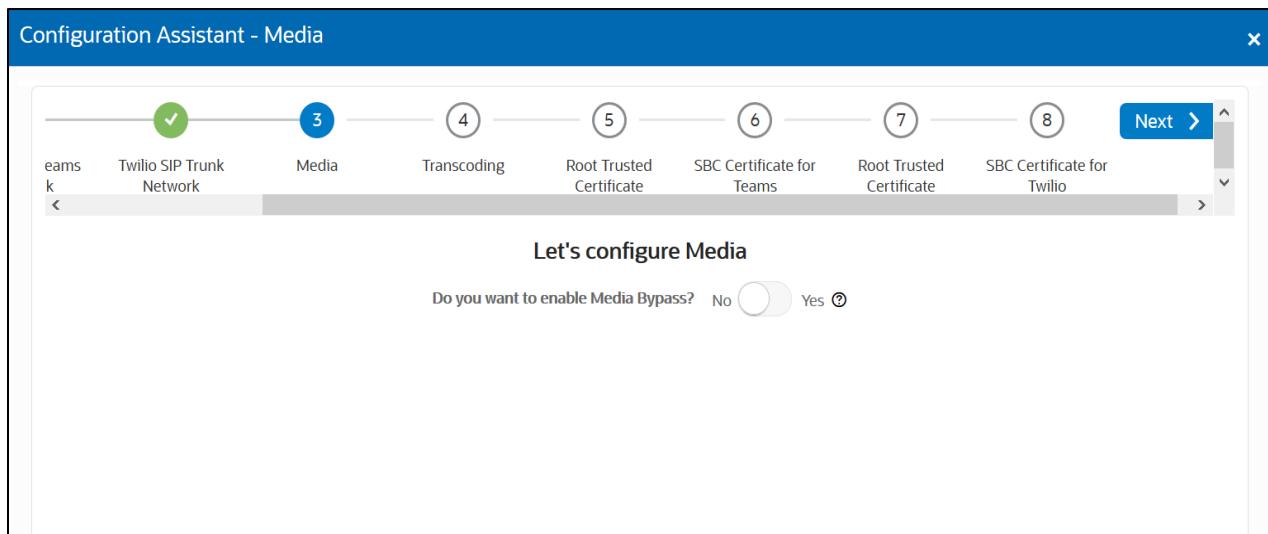


Once all required boxes are populated on each page, Top Right, *Skip* becomes *Next*. Click *Next* to proceed to the next page of the template.

6.3 Media and Transcoding

6.3.1 Page 3-Media

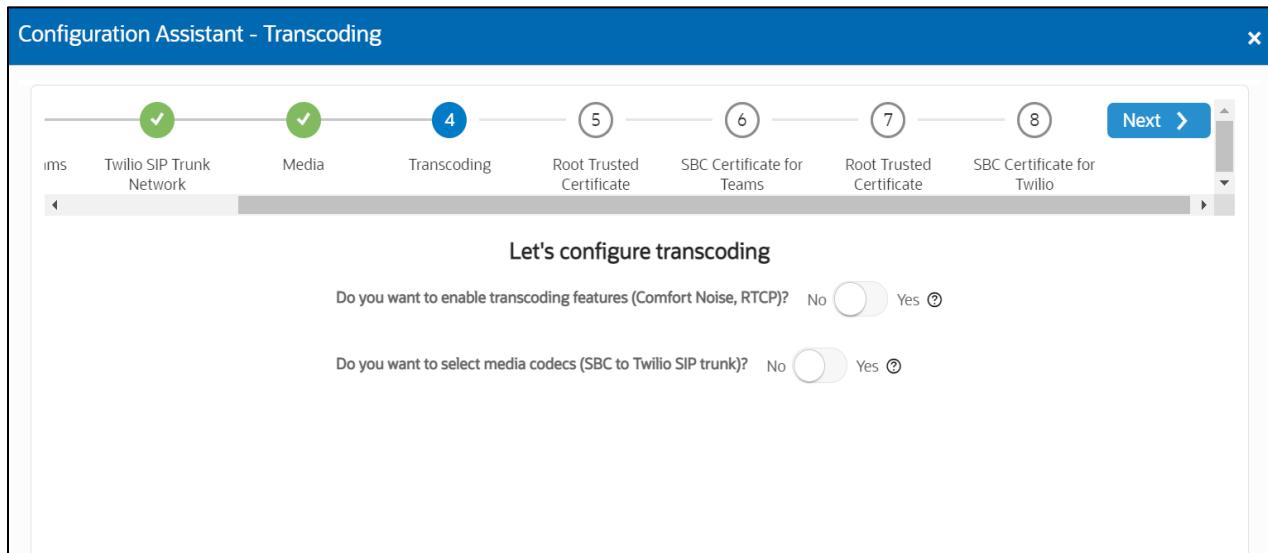
Page 3 of the template is where you configure the SBC for media bypass or non-media bypass. Your Teams side configurations determine whether or not media will flow directly between the SBC and your Teams client, or from the SBC to a Microsoft Cloud media server.



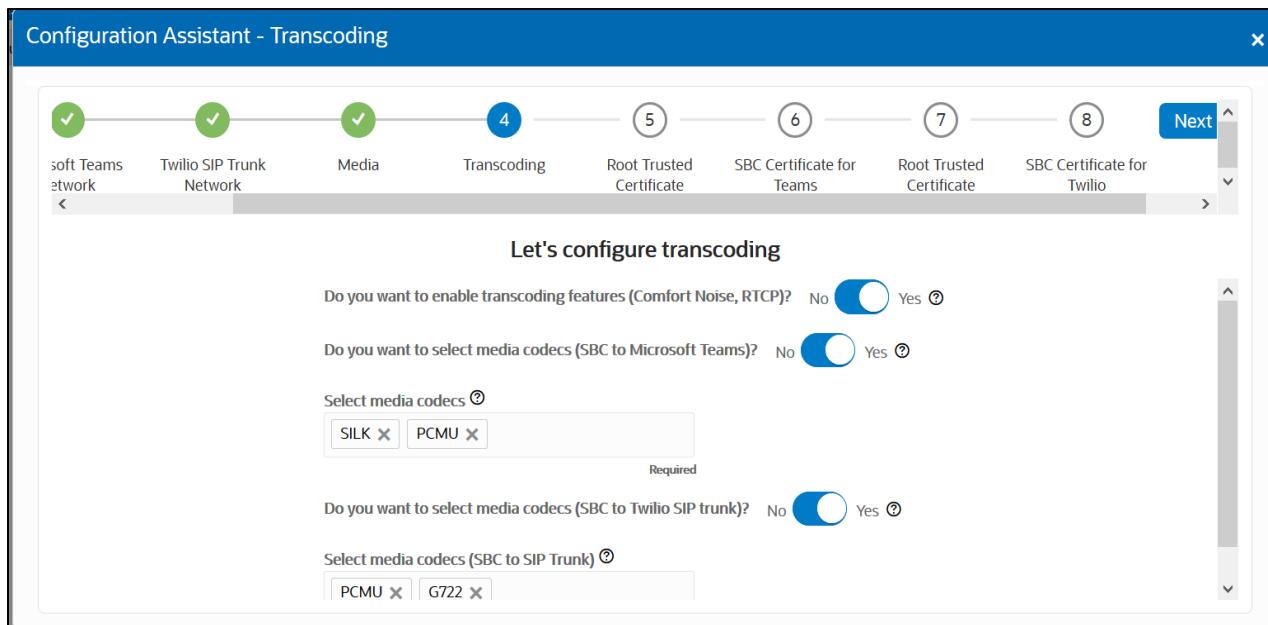
Click **Next** to proceed to the next page of the template.

6.3.2 Page 4-Transcoding

Page 4 is where you will be able to configure transcoding between the SBC and Microsoft Teams, and/or between your Twilio Elastic SIP trunk and Microsoft Teams.



Just to note, Microsoft Teams requires the use of both Comfort Noise and RTCP on call flows. Once transcoding features is set to "yes", you will then have an option to select additional media codecs you want included in offers/answers toward Teams.

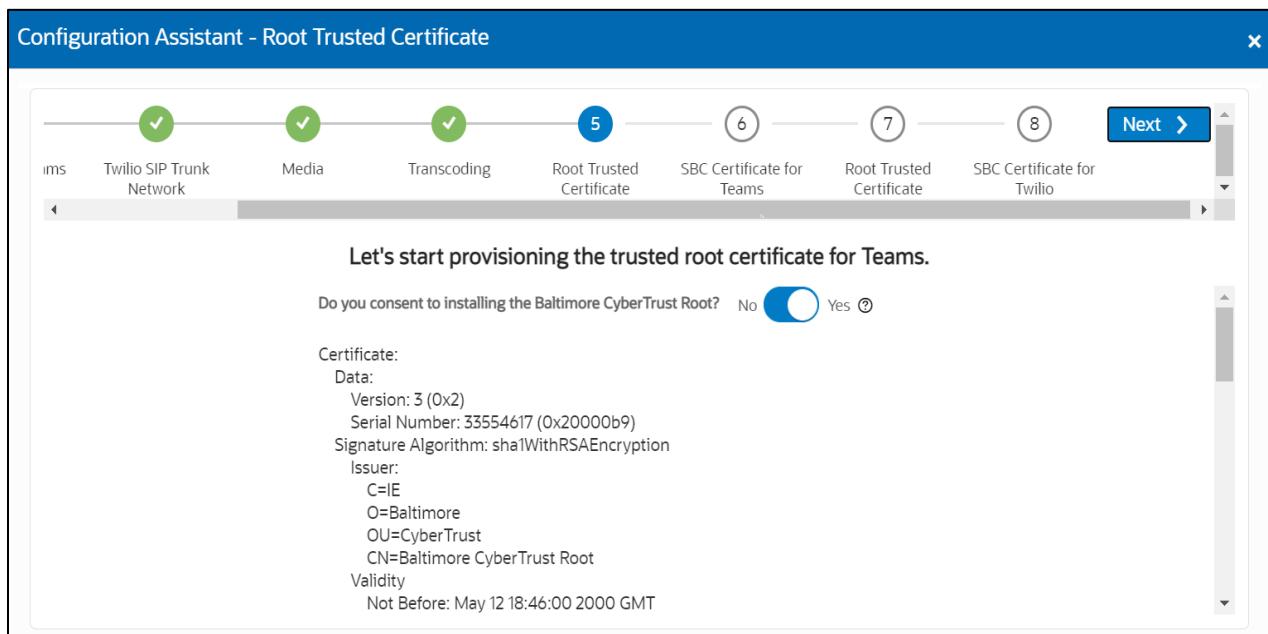


If you select yes to either question regarding media codecs, you will be presented with a required drop down. You can select as many codecs from the list presented as you would like for each side.

6.4 Security

6.4.1 Page 5-Import Baltimore Root Trusted CA Certificate

Page 5 of this template is where the SBC will import the Baltimore Root CA certificate, which Microsoft uses to sign the certs it presents to the SBC during the TLS handshake.



Importing the Baltimore Root CA certs is enabled by default.

6.4.2 Page 6-SBC Certificates for Teams side.

Page 6 of this template is where you will either import or create a tls certificate for the SBC.

Configuration Assistant - SBC Certificate for Teams

Let's start provisioning SBC certificates for Teams Side

Certificate provisioning type ?
PKCS12

Fully Qualified Domain Name or Common Name ?

PKCS12 certificate (.p12 or .pfx) ?
Upload

PKCS12 certificate password ?

Progress: 1ms, Twilio SIP Trunk Network, Media, Transcoding, Root Trusted Certificate, **SBC Certificate for Teams** (6), Root Trusted Certificate, SBC Certificate for Twilio (8), Skip >

6.4.2.1 PKCS12 Import

By default, the SBC is set to import a certificate in PKCS 12 format. This is the simplest and recommended way to add a certificate to the Oracle SBC. Using this method, you will add the SBC's hostname under "FQDN or Common Name" field, upload a certificate from a Microsoft support CA, and enter the certificates password.

6.4.2.2 Certificate Signing Request (CSR)

The alternative to importing a PKCS12 certificate to the SBC is to configure a certificate and generate a certificate signing request that you will have signed by a Microsoft supported CA

Configuration Assistant - SBC Certificate for Teams

Let's start provisioning SBC certificates for Teams Side

Certificate provisioning type ?
CSR

Fully Qualified Domain Name or Common Name ?

Country ?

State ?

Locality ?

Organization ?

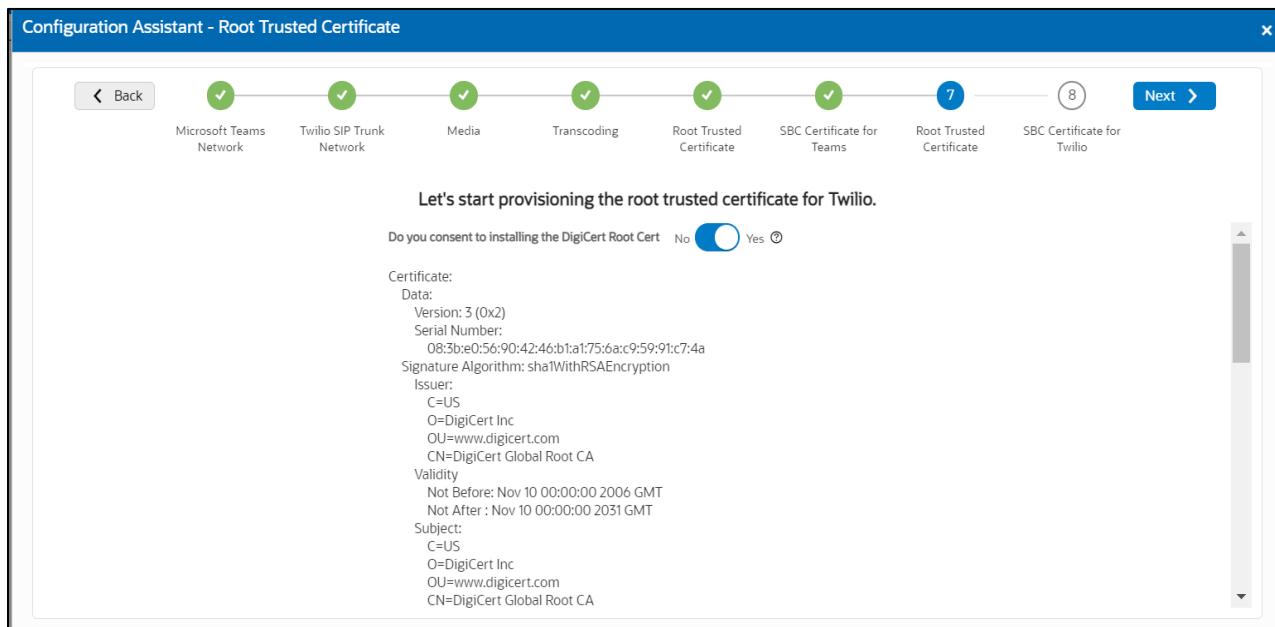
Organization Unit ?

Progress: Microsoft Teams Network, Twilio SIP Trunk Network, Media, Transcoding, Root Trusted Certificate, SBC Certificate for Teams (6), Root Trusted Certificate, SBC Certificate for Twilio, Skip >

Same as PKCS12, you will enter the SBC's hostname under "FQDN or Common Name" field (required) and answer the remaining question presented on this page (optional).

6.4.3 Page 7- Import DigiCert Root Trusted CA Certificate for Twilio Elastic SIP trunk.

Page 7 of this template is where the SBC will import the DigiCertRoot CA certificate, which Twilio Elastic SIP trunk uses to sign the certs it presents to the SBC during the TLS handshake.



Importing the DigiCert Root CA certs is enabled by default

6.4.4 Page 8-SBC Certificates for Twilio Elastic SIP trunk side.

Page 8 of this template is where you will either import or create a tls certificate for the SBC. The Procedure to import the SBC certificate for Twilio Side is same as the way it is done for Teams side.

Configuration Assistant - SBC Certificate for Twilio

Back ✓ ✓ ✓ ✓ ✓ ✓ ✓ 8 Review

Microsoft Teams Network Twilio SIP Trunk Network Media Transcoding Root Trusted Certificate SBC Certificate for Teams Root Trusted Certificate SBC Certificate for Twilio

Let's start provisioning SBC certificates for Twilio Side

Certificate provisioning type ⓘ
PKCS12

Fully Qualified Domain Name or Common Name ⓘ

PKCS12 certificate (.p12 or .pfx) ⓘ
Upload

PKCS12 certificate password ⓘ

6.4.4.1 PKCS12 Import

By default, the SBC is set to import a certificate in PKCS 12 format. This is the simplest and recommended way to add a certificate to the Oracle SBC. Using this method, you will add the SBC's hostname under "FQDN or Common Name" field, upload a certificate from a Twilio supported CA, and enter the certificates password.

6.4.4.2 Certificate Signing Request (CSR)

The alternative to importing a PKCS12 certificate to the SBC is to configure a certificate and generate a certificate signing request that you will have signed by a Twilio supported CA

Configuration Assistant - SBC Certificate for Twilio

Back ✓ ✓ ✓ ✓ ✓ ✓ ✓ 8 Review

Microsoft Teams Network Twilio SIP Trunk Network Media Transcoding Root Trusted Certificate SBC Certificate for Teams Root Trusted Certificate SBC Certificate for Twilio

Let's start provisioning SBC certificates for Twilio Side

Certificate provisioning type ⓘ
CSR

Fully Qualified Domain Name or Common Name ⓘ

Country ⓘ

State ⓘ

Locality ⓘ

Organization ⓘ

Organization Unit ⓘ

Same as PKCS12, you will enter the SBC's hostname under "FQDN or Common Name" field (required) and answer the remaining question presented on this page (optional).

6.5 Review

At the end of the template, you will notice in the top right, a "*Review*" tab. If all 8 pages presented across the top are showing green, indicating there are no errors with the information entered, click on the "*Review*" tab:

Microsoft Teams Network	
Port Number	Edit
Port 0	
Slot Number	
Slot 0	
Network IP Address	
141.146.36.68	
Network IP subnet mask	
255.255.255.192	
Network Gateway IP Address	
141.146.36.65	
Primary DNS server IP Address	
8.8.8.8	
DNS Domain	

Generated Configuration	
certificate-record	TeamsCSR CSR
name	BaltimoreRootCert
common-name	Baltimore CyberTrust Ro
certificate-record	
name	DigiCertRootCert
common-name	DigiCert Root CA
certificate-record	
name	TeamsCSR
common-name	sbc.com
extended-key-usage-list	serverAuth
unit	ClientAuth
certificate-record	
name	TwilioCSR
state	California
locality	Redwood City
organization	Oracle Corporation
unit	Oracle CGBU-LABS BOSTON
common-name	telechat.o-test06161977
http-server	
name	telechat.o-test06161977

On the left side of the review contains the entries for each page. Each page has an "*Edit*" tab that can be used to make changes to the information entered on that specific page without having to go through the entire template again.

On the right side of the review page, under the "*Generated Config*" tab is the ACLI output from the SBC. This is the complete configuration of the SBC based on the information entered throughout the template.

Also on the right side of the review page you may see another tab, "*TeamsCSR CSR*".

On Page 6 or page 8 of the template, if you chose CSR from the drop down menu instead of PKCS, the SBC configures a certificate record and generates a certificate signing request for you. Also, if you choose CSR on both pages (pages 6 and 8), there will be two CSR's on the review page.

The screenshot shows the Configuration Assistant - Summary window. On the left, under 'Microsoft Teams Network', there is a table with the following data:

	Edit
Port Number	
Port 0	
Slot Number	
Slot 0	
Network IP Address	
141.146.36.68	
Network IP subnet mask	
255.255.255.192	
Network Gateway IP Address	
141.146.36.65	
Primary DNS server IP Address	
8.8.8.8	
DNS Domain	

On the right, there are two tabs: 'Generated Configuration' (selected) and 'TeamsCSR CSR'. The 'Generated Configuration' tab contains a large block of text representing a certificate request (CSR). The 'TeamsCSR CSR' tab contains a 'Copy' button.

```

-----BEGIN CERTIFICATE REQUEST-----
MIICujCCAQAwZELMAkGA1UEBhMCVVMCzAQBglVBAgTAk1BMRMwEQYDQH
EwpCdXjsa5ndG9uIRQwEgYDVQQKEwtFbmdpbmVlcmIuzzEQQMA4GA1UEAxMHC2j
LmIvbTCCASIWQYJKoZIhvchNAQEQQADggEPADCCAQoCggEBAKGMYuItlge9o33H
uZQ39m86kGLepczZzX/erJusWZHQEWyExF8uf97Li8RpabQzvTwLi33cV3Tpu4
w9/xEiAKcgmpJPRFcljnZ5v0KFcgc6F3vs9k9j80q5/NvanseK1wQGh4lQGQGJNq
oHSz8dNcaqkBdwCazv8vbz099fxjDNKjzXVfotkrRHMFn9tIpD4n+/eVJE3w5EE
AyIw6SNox1ddsxPqoox+o1D70RAdTleENRYvvIbybcDcKxoVyp2E9lHZXNgkSwpr
jWEctiLwxzBaJVD+pBgcDoQgxPoeCsZK5MSGLQVMI75ag0U3/Eg530FBaT2s+zV
57r5bkkCwEAaaAeBwgCsqGS1b3DQEQJDjEPMAoWcWYDVR0PBQAQDgwgMA0GCSqG
S1b3DQEBCwUA4IBAQ8fiUAHmP1KseLrSz3jiegWI8A9m0Lxnz1JxfRevdgWIT
K4bDG4UDKCr4GPo/9dhgKaiV6008F7NbJUfde1JHNVK66ZUbJUXrxVIAHieJswf
uV1u1/UakJMGgV9xgZH60L/OY77j5au86HouG1wfUHdd//k5o1AmvMyf34p5cTZ
C3gqS3Khyd6FvpmMntf5w68b/QxRp7G6Ft+I+rp4PrnW7n2Y0PhwWdf9YsKmyQ0
CY1Smv+nCwT7gaLzgd7v3cc7Zj1nmv02+Blas9j1Va+6UsGgMALXB27A26HeU
Fv/64D0tCWCtKLMJFxFsyccEVsg1jsL6AJM230GE
-----END CERTIFICATE REQUEST-----

```

Click the copy button under the CSR, and paste the output into a text file. Next, provide the txt file to your CA for signature. Once the certificate is signed by a Microsoft or Twilio supported CA, you will need to import that certificate into the SBC manually, either via ACLI or through the GUI.

Note: if you chose to import a certificate in PKCS12 format, the CSR tab will not be present under review.

6.6 Download and/or Apply

Now that the entries provided throughout the template have been reviewed, and the CSR has been copied into a text file (optional), the template provides you with the ability to “Download” the config by clicking the “**Download**” tab on the top right. Next, click the “**Apply**” button on the top right, and you will see the following pop up box appear:

The screenshot shows the Configuration Assistant - Summary window with an 'Apply Confirmation' dialog box overlaid. The dialog box contains the following text:

Are you sure you want to apply the configuration?

Perform the following actions when the system comes up to complete the TeamsTwilioTrunk deployment ::

Security:
- If you opted to generate a CSR during the SBC certificate provisioning step, please make sure to import the signed certificate after the reboot.

If you proceed, the system erases the existing configuration and reboots.

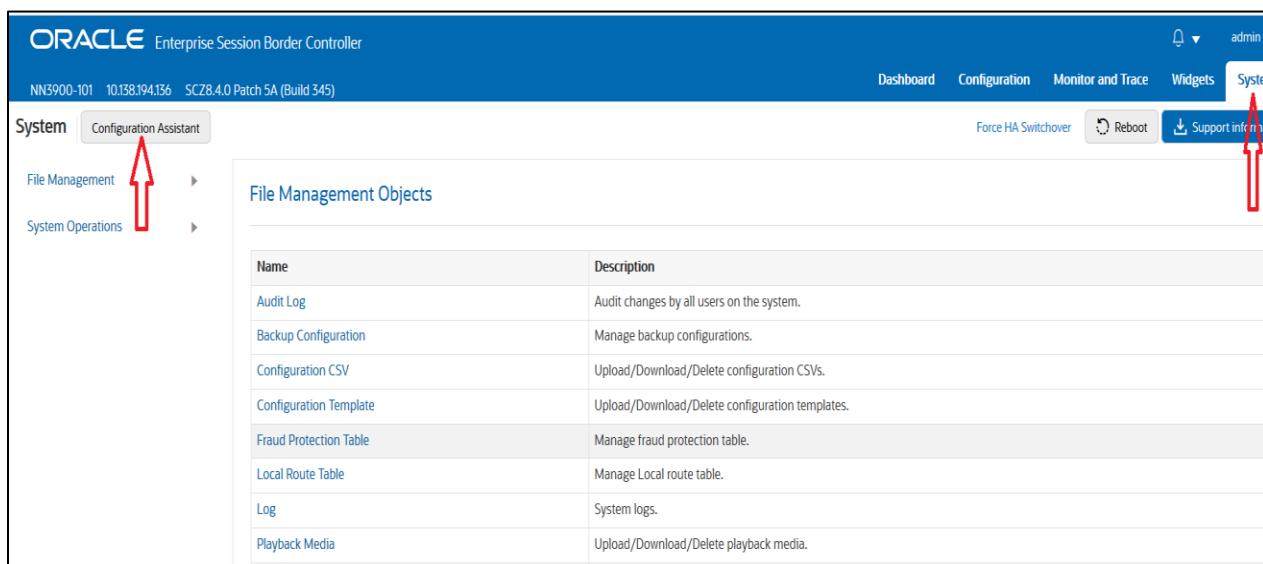
Confirm

Now you can click “**Confirm**” to confirm you want to apply the configuration to the SBC. The SBC will reboot. When it comes back up, the SBC will have a basic configuration in place for Microsoft Teams Direct Routing.

7 Configuration Assistant Access

Upon initial login, if the Configuration Assistant Template does not immediately appear on the screen, you can access by clicking on the “**SYSTEM**” tab, top right of your screen.

Next, click on the “**Configuration Assistant**” tab, top left.



The screenshot shows the Oracle Enterprise Session Border Controller (SBC) GUI. At the top, there is a blue header bar with the text "ORACLE Enterprise Session Border Controller" and "NN3900-101 10.138.194.156 SCZ8.4.0 Patch 5A (Build 345)". On the right side of the header, there are several tabs: "Dashboard", "Configuration", "Monitor and Trace", "Widgets", "System" (which is highlighted in blue), and "Support Information". Below the header, there is a navigation menu on the left with "System" selected, and "File Management" and "System Operations" listed. A red arrow points from the text "click on the Configuration Assistant tab, top left." to the "Configuration Assistant" tab in the navigation menu. Another red arrow points from the text "click on the SYSTEM tab, top right of your screen." to the "System" tab in the header. The main content area is titled "File Management Objects" and contains a table with the following data:

Name	Description
Audit Log	Audit changes by all users on the system.
Backup Configuration	Manage backup configurations.
Configuration CSV	Upload/Download/Delete configuration CSVs.
Configuration Template	Upload/Download/Delete configuration templates.
Fraud Protection Table	Manage fraud protection table.
Local Route Table	Manage Local route table.
Log	System logs.
Playback Media	Upload/Download/Delete playback media.

This allows end users to access the Configuration Assistance at any time through the SBC GUI.



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Integrated Cloud Applications & Platform Services

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