



# Cloud Computing – ZEN Class

## Microsoft Azure – Project - 2

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### Project Synopsis:

Creating a Demo Using Azure Cognitive Services: Text-to-Speech.

To create a simple application that converts text input into spoken audio using Azure Cognitive Services' Text-to-Speech service.

### Architectural Overview

#### Components:

1. **User Interface (UI):** A simple web or mobile application interface where users input text .
2. **Azure Cognitive Services - Text-to-Speech:** The core service converts text input into spoken audio.
3. **API Gateway:** Manages and routes requests between the UI and the Text-to-Speech service.
4. **Backend Server:** Handles business logic, communicates with the Text-to-Speech API, and serves the audio to the UI.
5. **Database:** Stores user preferences, logs, and any other necessary data.

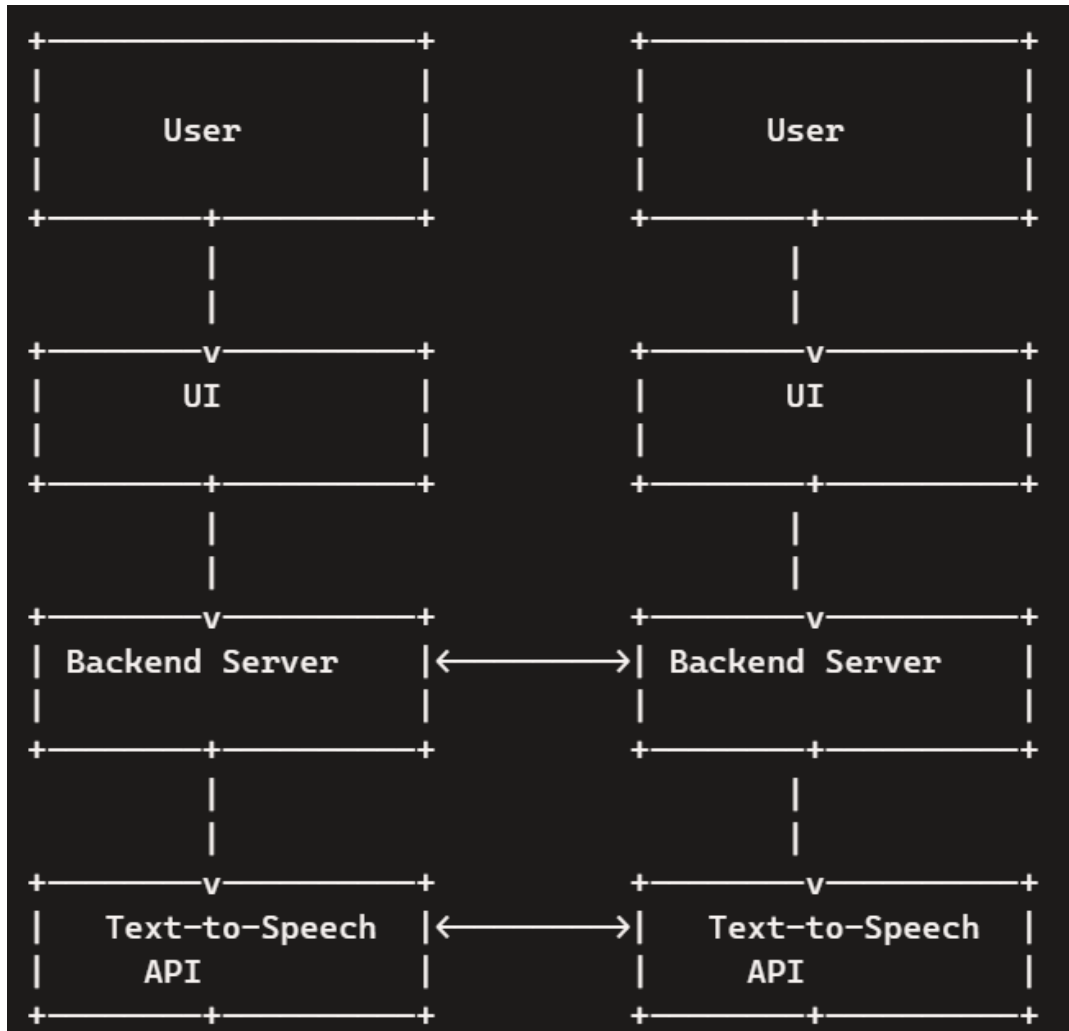
#### Workflow:

1. **User Input:** The user types of text into the application interface.
2. **API Request:** The application sends the text to the backend server via an API call.
3. **Backend Processing:** The backend server processes the request and sends the text to the Azure Text-to-Speech API.
4. **Text-to-Speech Conversion:** The Text-to-Speech service converts the text into spoken audio.
5. **Audio Delivery:** The backend server receives the audio file and sends it back to the application interface.

6. **User Playback:** The application plays the audio for the user.

## Diagram

Here's a simple diagram to illustrate this architecture:



## Steps to Implement:

1. **Set Up UI:** Create a simple web or mobile app interface for text input.
2. **Backend Server:** Develop a backend server to handle API requests and communicate with the Text-to-Speech API.
3. **Integrate Text-to-Speech API:** Use the Azure Cognitive Services Text-to-Speech API to convert text to audio.
4. **Deploy and Test:** Deploy the application and test the end-to-end functionality.

## Prerequisites:

An Azure subscription

A Text-to-Speech resource created in Azure

## Procedure:

- Login to Azure portal
- Create Translator resource in Azure portal

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## Create Translator ...

**Basics**   Network   Identity   Tags   Review + create

Easily integrate real-time text translation capabilities into your application's websites, tools, or any solution requiring multi-language support such as website localization, e-commerce, customer support, messaging applications, internal communication, and more.

### Project Details

Subscription \* ⓘ

Pay-as-you-go



Resource group \* ⓘ

(New) Translator-RG

[Create new](#)

### Instance Details

**i** Please choose the Global region unless your business or application requires a specific region. Applications that do not offer a region selection use the Global region.

### Instance Details

**i** Please choose the Global region unless your business or application requires a specific region. Applications that do not offer a region selection use the Global region.

Region \* ⓘ

East US

Name \* ⓘ

Speech-to-text-project-1

Pricing tier \* ⓘ

Standard S1 (Pay as you go)

[View full pricing details](#)

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[Review + create](#)

- Next: Network

# Create Translator ...

Basics Network Identity Tags Review + create

 Configure network security for your Azure AI services resource. 

Type \*

- ☒ All networks, including the internet, can access this resource.
- ☐ Selected networks, configure network security for your Azure AI services resource.
- ☐ Disabled, no networks can access this resource. You could configure private endpoint connections that will be the exclusive way to access this resource.

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- Next: Identity

## Create Translator ...

Basics Network Identity Tags Review + create

### System assigned managed identity

Enable system assigned identity to grant the resource access to other existing resources.

Status ⓘ ☒ Off ☐ On

### User assigned managed identity

Add user assigned identities to grant the resource access to other existing resources.

[+](#) Add [Remove](#)

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- Skip Tags
- Validate, Review and Create

# Create Translator ...

Basics Network Identity Tags Review + create

 [View automation template](#)

## TERMS

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the [Azure Marketplace Terms](#) for additional details.

## Basics

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Create

- After your resource deploys, select **Go to Resource Management-> Keys and Endpoint** and retrieve your key and endpoint


[Home](#) > [Microsoft.CognitiveServicesTextTranslation-20241026012607 | Overview](#) > [Speech-to-text-project-1](#)





**Speech-to-text-project-1 | Keys and Endpoint** ☆ ...

Search  << [Regenerate Key1](#) [Regenerate Key2](#)


[Show Keys](#)


KEY 1  
..... 


KEY 2  
..... 

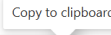
Location/Region ⓘ  
eastus 

**Web API** Containers

 Use the below endpoints while using the Web API. To force the request to be handled by a specific geographv. [see here.](#)

Text Translation <https://api.cognitive.microsofttranslator.com/> 

Document Translation <https://speech-to-text-project-1.cognitiveservices.azure.com/> 

 Copy to clipboard

- Make sure you have installed Python3 in your local
- `sudo apt install python3-pip`

```

root@LAPTOP-VJGJ8BEB:~# sudo apt install python3-pip
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  build-essential bzip2 cpp cpp-11 dpkg-dev fakeroot g++ g++-11 gcc gcc-11 gcc-11-base javascript-common
  libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan6 libatomic1 libc-dev-bin libc-devtools
  libc6-dev libcc1-0 libcrypt-dev libdpkg-perl libexpat1-dev libfakeroot libfile-fcntllock-perl libgcc-11-dev libgd3
  libgomp1 libisl23 libitm1 libjs-jquery libjs-sphinxdoc libjs-underscore liblsan0 libmpc3 libnsl-dev libpython3-dev
  libpython3.10-dev libquadmath0 libstdc++-11-dev libtirpc-dev libtsan0 libubsan1 libxpm4 linux-libc-dev lto-disabled-list
  make manpages-dev python3-dev python3-wheel python3.10-dev rpcsvc-proto zlib1g-dev
Suggested packages:
  bzip2-doc cpp-doc gcc-11-locales debian-keyring g++-multilib g++-11-multilib gcc-11-doc gcc-multilib autoconf automake
  libtool flex bison gdb gcc-doc gcc-11-multilib apache2 | lighttpd | httpd glibc-doc bzip2 libgd-tools libstdc++-11-doc
  make-doc
The following NEW packages will be installed:
  build-essential bzip2 cpp cpp-11 dpkg-dev fakeroot g++ g++-11 gcc gcc-11 gcc-11-base javascript-common
  libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan6 libatomic1 libc-dev-bin libc-devtools
  libc6-dev libcc1-0 libcrypt-dev libdpkg-perl libexpat1-dev libfakeroot libfile-fcntllock-perl libgcc-11-dev libgd3
  libgomp1 libisl23 libitm1 libjs-jquery libjs-sphinxdoc libjs-underscore liblsan0 libmpc3 libnsl-dev libpython3-dev
  libpython3.10-dev libquadmath0 libstdc++-11-dev libtirpc-dev libtsan0 libubsan1 libxpm4 linux-libc-dev lto-disabled-list
  make manpages-dev python3-dev python3-pip python3-wheel python3.10-dev rpcsvc-proto zlib1g-dev
0 upgraded, 55 newly installed, 0 to remove and 7 not upgraded.
Need to get 69.5 MB of archives.
After this operation, 234 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 libc-dev-bin amd64 2.35-0ubuntu3.8 [20.3 kB]
Ign:2 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 linux-libc-dev amd64 5.15.0-122.132
Get:3 http://archive.ubuntu.com/ubuntu jammy/main amd64 libcrypt-dev amd64 1:4.4.27-1 [112 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy/main amd64 rpcsvc-proto amd64 1.4.2-0ubuntu6 [68.5 kB]
Get:5 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 libtirpc-dev amd64 1.3.2-2ubuntu0.1 [192 kB]

```

- sudo apt-get update
- Create a new python file “**translator-app.py**” and paste the python code in the file

```

root@LAPTOP-VJGJ8BEB:~# sudo vi translator-app.py
root@LAPTOP-VJGJ8BEB:~# cat translator-app.py
import requests, uuid, json

# Add your key and endpoint
key = "097624472f9e462b84fce2b7b8a71ea2"
endpoint = "https://api.cognitive.microsofttranslator.com/"

# location, also known as region.
# required if you're using a multi-service or regional (not global) resource. It can be found in the Azure portal on the Key
# s and Endpoint page.
location = "eastus"

path = '/translate'
constructed_url = endpoint + path

params = {
    'api-version': '3.0',
    'from': 'en',
    'to': ['fr', 'zu']
}

headers = {
    'Ocp-Apim-Subscription-Key': key,
    # location required if you're using a multi-service or regional (not global) resource.
    'Ocp-Apim-Subscription-Region': location,
    'Content-type': 'application/json',
    'X-ClientTraceId': str(uuid.uuid4())
}

# You can pass more than one object in body.

```

```

# You can pass more than one object in body.
body = [{
    'text': 'I would really like to drive your car around the block a few times!'
}]

request = requests.post(constructed_url, params=params, headers=headers, json=body)
response = request.json()

print(json.dumps(response, sort_keys=True, ensure_ascii=False, indent=4, separators=(',', ': ')))
root@LAPTOP-VJGJ8BEB:~#

```

- Type the following command in your console:  
sudo python3 translator-app.py

## OUTPUT:

```
root@LAPTOP-VJGJ8BEB:~# sudo python3 translator-app.py
[
  {
    "translations": [
      {
        "text": "J'aimerais vraiment conduire votre voiture autour du pâté de maisons plusieurs fois !",
        "to": "fr"
      },
      {
        "text": "Ngingathanda ngempela ukushayela imoto yakho emhlabeni block izikhathi ezimbalwa!",
        "to": "zu"
      }
    ]
  }
]
root@LAPTOP-VJGJ8BEB:~#
```



## Reference:

<https://learn.microsoft.com/en-gb/azure/ai-services/translator/quickstart-text-rest-api?tabs=python>