

# Azure Function Apps



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# Azure Function Apps

## Overview

- Service for running code scripts in the cloud
- Extension of App service
- Support many languages, e.g. C#, Java, JavaScript, Python, PowerShell, ...
- Use your own dependencies
- Developed in VS Code or Portal
- Integration with GitHub or Azure DevOps
- Open source



# Azure Function Apps

## Pricing

^ Azure Functions ⓘ Flex Consumption tier, 2048 MB Instance memory size, 1,00... 🗑️ Upfront: \$0.00 Monthly: \$3.90

Azure Functions [Give feedback](#)

Region:  Tier:

Instance Memory Size

Memory size (MB):

On Demand

ⓘ Flex consumption plan pricing includes a monthly free grant of 250,000 requests and 100,000 GB-s of resource consumption per month per subscription in pay-as-you-go on-demand pricing across all function apps in that subscription.

On Demand Total Executions

= \$3.90

x10 On Demand executions per month

Active On Demand Execution Time

×  ×  = \$0.00

Instance memory size (MB) Active On Demand execution seconds per instance per month Number of instances



<https://azure.microsoft.com/en-us/pricing/calculator/>

# Azure Function Apps

How does it work



## Core Triggers

- HTTP Trigger
- Timer Trigger
- Blob Trigger
- Queue Trigger

## Messaging Triggers

Service Bus Trigger  
Event Hub Trigger

...



# Azure Function Apps

## Bindings

Type	1.x <sup>1</sup>	2.x and later <sup>2</sup>	Trigger	Input	Output
<a href="#">Blob Storage</a>	✓	✓	✓	✓	✓
<a href="#">Azure Cosmos DB</a>	✓	✓	✓	✓	✓
<a href="#">Azure Data Explorer</a>		✓		✓	✓
<a href="#">Azure SQL</a>		✓	✓	✓	✓
<a href="#">Dapr<sup>4</sup></a>		✓	✓	✓	✓
<a href="#">Event Grid</a>	✓	✓	✓		✓
<a href="#">Event Hubs</a>	✓	✓	✓		✓
<a href="#">HTTP and webhooks</a>	✓	✓	✓		✓
<a href="#">IoT Hub</a>	✓	✓	✓		
<a href="#">Kafka<sup>3</sup></a>		✓	✓		✓
<a href="#">Mobile Apps</a>	✓			✓	✓

<https://learn.microsoft.com/en-us/azure/azure-functions/functions-triggers-bindings?tabs=isolated-process%2Cnode-v4%2Cpython-v2&pivots=programming-language-python>



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# Azure Function Apps

Create function

# 1. Create a new directory for your function app and navigate into it

```
mkdir MyPythonFuncApp
```

```
cd MyPythonFuncApp
```

# 2. (Optional but recommended) Create and activate a Python virtual environment

```
python -m venv .venv
```

```
source .venv/bin/activate # On Windows, use: .venv\Scripts\activate
```

# 3. Initialize the function app project for Python

```
func init --worker-runtime python
```



# Azure Function Apps

Create function

```
(.venv) C:\Projects\LiveTrainings\Bildungsurlaub_AzureAI\scripts\azure_func1>func init --worker-runtime python
Found Python version 3.13.5 (py).
The new Python programming model is generally available. Learn more at https://aka.ms/pythonprogrammingmodel
Writing requirements.txt
Writing .funcignore
Writing function_app.py
Writing .gitignore
Writing host.json
Writing local.settings.json
Writing C:\Projects\LiveTrainings\Bildungsurlaub_AzureAI\scripts\azure_func1\.vscode\extensions.json
```



# Azure Function Apps

Create function

```
(.venv) C:\Projects\LiveTrainings\Bildungsurlaub_AzureAI\scripts\azure_func1>func new
Use the up/down arrow keys to select a template:
Blob trigger
CosmosDB trigger
Dapr Publish Output Binding
Dapr Service Invocation Trigger
Dapr Topic Trigger
Durable Functions Entity Trigger
Durable Functions Orchestration
Blob trigger (using EventGrid source)
EventGrid trigger
EventHub trigger
HTTP trigger
MCP trigger
MySQL trigger
Queue trigger
ServiceBus Queue trigger
ServiceBus Topic trigger
Timer Trigger
```



# Azure Function Apps

Create trigger

```
(.venv) C:\Projects\LiveTrainings\Bildungsurlaub_AzureAI\scripts\azure_func1>func new
Use the up/down arrow keys to select a template:Function Name: [http_trigger]
Use the up/down arrow keys to select a Auth Level:Appending to C:\Projects\LiveTrainings\Bildungsurlaub_AzureAI\scripts\azure_func1\function_app.py
The function "http_trigger" was created successfully from the "HTTP trigger" template.
```



# Azure Function Apps

Start function locally and test

```
(.venv) C:\Projects\LiveTrainings\Bildungsurlaub_AzureAI\scripts\azure_func1>func start  
Found Python version 3.13.5 (py).
```

## Azure Functions Core Tools

```
Core Tools Version:          4.2.2+78afd8b84c8e31f0ddac570ba9e8128eefbd3d4a (64-bit)
```

```
Function Runtime Version: 4.1041.200.25360
```

```
[2025-11-06T17:22:28.477Z] Worker process started and initialized.
```

## Functions:

```
    http_trigger:  http://localhost:7071/api/http_trigger
```

```
For detailed output, run func with --verbose flag.
```

```
[2025-11-06T17:22:32.963Z] Executing 'Functions.http_trigger' (Reason='This function was p
```

```
[2025-11-06T17:22:33.012Z] Executed 'Functions.http_trigger' (Succeeded, Id=14f1c434-d7da-
```

← → ↻ ⓘ localhost:7071/api/http\_trigger

This HTTP triggered function executed successfully. Pass a name in the query string or in the request body for a personalized response.

# Azure Function Apps

## Install Requirements

```
pip install -r requirements.txt
```

```
azure-functions  
fastapi  
uvicorn  
pydantic  
onnxruntime  
Pillow  
numpy  
requests
```

requirements.txt



# Azure Function Apps

## Adapt function\_app.py

```
import azure.functions as func
import json
import logging
import onnxruntime as ort
from PIL import Image
import numpy as np
import io
import requests

app = func.FunctionApp()

# Load ONNX model at module level
session = ort.InferenceSession(
    "bin_class_model.onnx",
    providers=["CPUExecutionProvider"],
)

@app.route(route="predict", auth_level=func.AuthLevel.ANONYMOUS)
def predict(req: func.HttpRequest) -> func.HttpResponse:
    logging.info('Python predict function processed a request.')

    # Get image_url from query params or request body
    image_url = req.params.get('image_url')
    if not image_url:
        try:
            req_body = req.get_json()
        except ValueError:
            pass
        else:
            image_url = req_body.get('image_url') if req_body else None

    if not image_url:
        return func.HttpResponse(
            json.dumps({"error": "image_url parameter is required"}),
            status_code=400,
            mimetype="application/json"
        )

    # Download image
    try:
        headers = {
            "User-Agent": "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/126.0.0.0 Safari/537.36",
            "Accept": "text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.7",
            "Accept-Language": "en-US,en;q=0.9",
            "Referer": "https://www.google.com/",
            "Connection": "keep-alive",
```



# Azure Function Apps

Test Endpoint

```
curl "http://127.0.0.1:7071/api/predict?image_url=https://upload.wikimedia.org/wikipedia/commons/8/8a/Muffin_NIH.jpg"
```

```
{"label": "chihuahua", "prob_chihuahua": 0.6972862305017932, "prob_muffin": 0.30271376949820683}  
(.venv) C:\Projects\LiveTrainings\Bildungsurlaub_AzureAI>
```



# Azure Function Apps

Deploy to Cloud

```
(.venv) C:\Projects\LiveTrainings\Bildungsurlaub_AzureAI\scripts\azure_func1>az login
Select the account you want to log in with. For more information on login with Azure CLI, see https://go.microsoft.com/fwlink/?linkid=2271136
```

```
Retrieving tenants and subscriptions for the selection...
```

```
The following tenants don't contain accessible subscriptions. Use `az login --allow-no-subscriptions` to have tenant level access.
```

```
258bd77a-7bbb-44db-855d-0833ab813c1b 'University of Warmia and Mazuria in Olsztyn'
```

```
f930300c-c97d-4019-be03-add650a171c4 'Fraunhofer'
```

```
[Tenant and subscription selection]
```

No	Subscription name	Subscription ID	Tenant
-----	-----	-----	-----
[1] *	Azure subscription 1	9b8688c3-4700-4975-8bcf-8ad3a2248379	Gollnick Data Solutions GmbH

```
The default is marked with an *; the default tenant is 'Gollnick Data Solutions GmbH' and subscription is 'Azure subscription 1' (9b8688c3-4700-4975-8bcf-8ad3a2248379).
```



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# Azure Function Apps

Deploy to Cloud

- Create resource group
- Create storage container

```
FUNCTION_APP_NAME="my-python-func-app-$(date +%s)" # Generates a unique name

az functionapp create \
  --resource-group $RESOURCE_GROUP_NAME \
  --consumption-plan-location $LOCATION \
  --os-type Linux \
  --runtime python \
  --runtime-version 3.10 \
  --functions-version 4 \
  --name $FUNCTION_APP_NAME \
  --storage-account $STORAGE_ACCOUNT_NAME
```

Command line



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# Azure Function Apps

Deploy to Cloud

```
>azure functions: dep|
```

**Azure Functions:** Configure **D**eployment Source...

**Azure Functions:** **D**eploy to Azure...

**Azure Functions:** **D**eploy to Function App...



**Azure Functions:** **D**eploy to Slot...

**Azure Functions:** View **D**eployment Logs

Azure Functions: Install or Update Azure Functions Core Tools

similar commands

Azure Functions: Open Azure Functions Extension Walkthrough

Azure Functions: Uninstall Azure Functions Core Tools

Azure Functions: Create Function App in Azure...

Azure Functions: Create Function App in Azure... (Advanced)

Using Azure functions extension



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# Azure Function Apps

## Deploy to Cloud

[Home](#) > [Function App](#) > [Create Function App](#) >

### Create Function App (Flex Consumption) ...

[Basics](#) [Storage](#) [Azure OpenAI](#) [Networking](#) [Monitoring](#) [Deployment](#) [Authentication](#) [Tags](#) [F](#)

Create a function app, which lets you group functions as a logical unit for easier management, deployment and sharing of resources. Functions lets you execute your code in a serverless environment without having to first create a VM or publish a web application.

#### Project Details

Select a subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription \* ⓘ

Resource Group \* ⓘ  [Create new](#)

#### Instance Details

Function App name \*  ✓  
-dqdbjcjc6eqdeee.eastus-01.azurewebsites.net

☒ Secure unique default hostname (preview) on. [More about this update](#) ⓘ

Region \*

Runtime stack \*

Version \*

Instance size \* ⓘ

#### Zone redundancy

Instances of your app are distributed across availability zones for increased reliability. [More about zone redundancy.](#) ⓘ

Zone redundancy

☐ **Enabled:** Your Flex Consumption app will be zone redundant. This changes your app's required instance count per function or function group.

☒ **Disabled:** Your Flex Consumption app will not be zone redundant.

[Review + create](#) [< Previous](#) [Next : Storage >](#)

## Using Azure Portal



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# Azure Function Apps

Deploy to Cloud

```
func azure functionapp publish muffinchihuahua20251106
```

```
(.venv) C:\Projects\LiveTrainings\Bildungsurlaub_AzureAI\scripts\azure_func1>func azure functionapp publish muffinchihuahua20251106
Getting site publishing info...
[2025-11-06T17:52:53.040Z] Starting the function app deployment...
[2025-11-06T17:52:53.045Z] Creating archive for current directory...
Performing remote build for functions project.
```

# Azure Function Apps

## Test Deployment

```
curl --ssl-no-revoke "https://muffinchihuahua20251106-dqdbcjhc6eqdeee.eastus-01.azurewebsites.net/api/predict?image_url=https://upload.wikimedia.org/wikipedia/commons/8/8a/Muffin_NIH.jpg"
```

```
(.venv) C:\Projects\LiveTrainings\Bildungsurlaub_AzureAI\scripts\azure_func1>curl --ssl-no-revoke "https://muffinchihuahua20251106-dqdbcjhc6eqdeee.eastus-01.azurewebsites.net/api/predict?image_url=https://upload.wikimedia.org/wikipedia/commons/8/8a/Muffin_NIH.jpg"
{"label": "chihuahua", "prob_chihuahua": 0.6972862305017932, "prob_muffin": 0.30271376949820683}
```

