

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

[Give feedback](#)

Region: West US Tier: Flex Consumption

Instance Memory Size
Memory size (MB): 2048

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
1000000 x 10 On Demand executions per month = \$3.90

Active On Demand Execution Time
2,048 MB x 1000 seconds per instance per month x 0 instances = \$0.00



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<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

...



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Bindings

Type	1.x ¹	2.x and later ²	Trigger	Input	Output
Blob Storage	✓	✓	✓	✓	✓
Azure Cosmos DB	✓	✓	✓	✓	✓
Azure Data Explorer		✓		✓	✓
Azure SQL		✓	✓	✓	✓
Dapr ⁴		✓	✓	✓	✓
Event Grid	✓	✓	✓		✓
Event Hubs	✓	✓	✓		✓
HTTP and webhooks	✓	✓	✓		✓
IoT Hub	✓	✓	✓		
Kafka ³		✓	✓		✓
Mobile Apps	✓			✓	✓

<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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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
```



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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
```



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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
```

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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.
```



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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+78af8b84c8e31f0ddac570ba9e8128eefbd3d4a (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.

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Install Requirements

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

azure-functions
fastapi
uvicorn
pydantic
onnxruntime
Pillow
numpy
requests

requirements.txt



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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:
        if 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",
        }
```



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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>[]
```



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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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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 Deployment Source...](#)

[Azure Functions: Deploy to Azure...](#)

[Azure Functions: Deploy to Function App...](#)



[Azure Functions: Deploy to Slot...](#)

[Azure Functions: View Deployment 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 * -dqbccj6eqdeee.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](#)

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Next : Storage >

Using Azure Portal



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Deploy to Cloud

```
func azure functionapp publish muffinchiuhua20251106
```

```
(.venv) C:\Projects\LiveTrainings\Bildungsurlaub_AzureAI\scripts\azure_func1>func azure functionapp publish muffinchiuhua20251106
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.
```

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Test Deployment

```
curl --ssl-no-revoke "https://muffinchiuhua20251106-dqdbcjcjc6eqdeee.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://muffinchiuhua20251106-dqdbcjcjc6eqdeee.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}
```



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