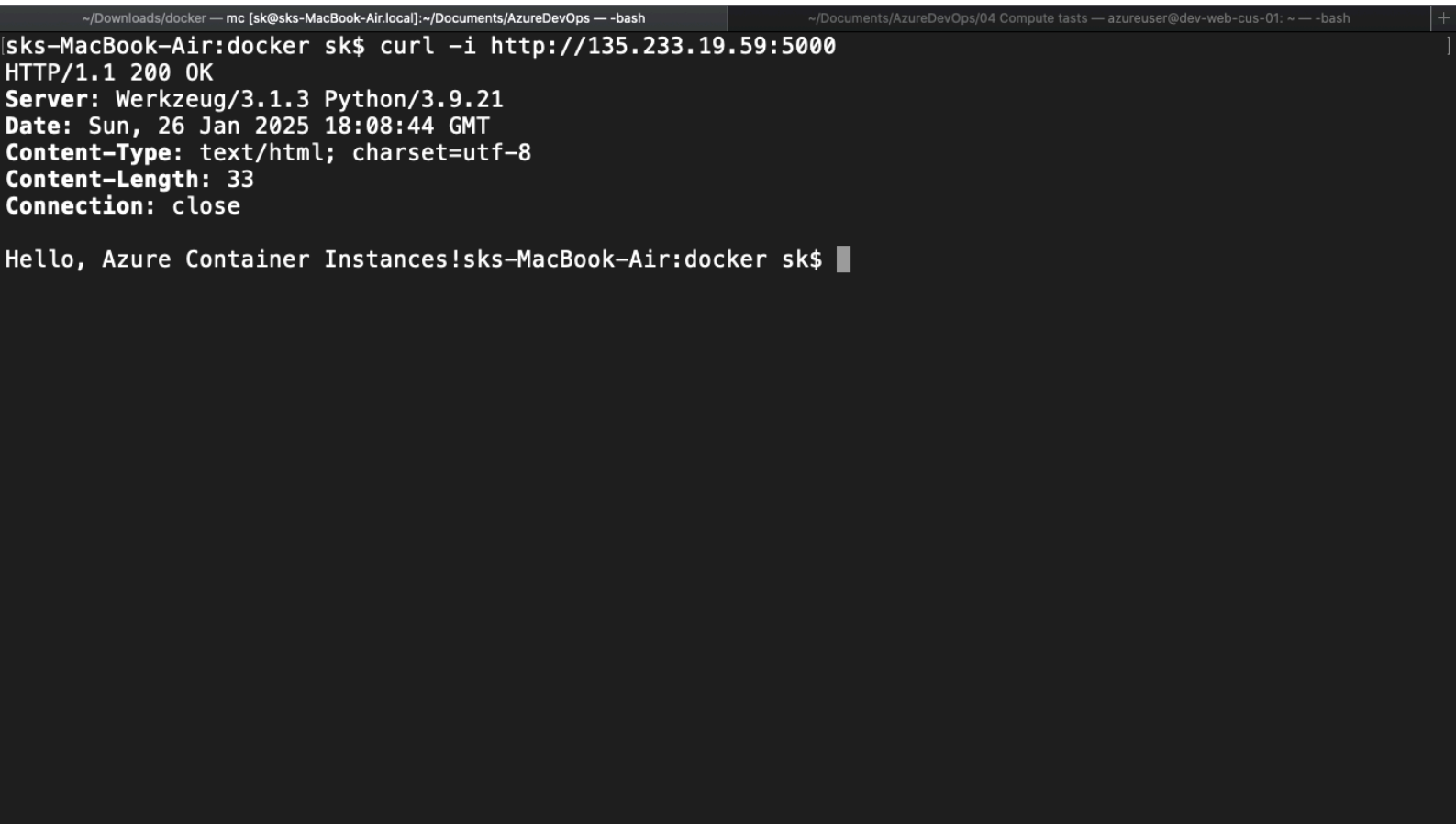
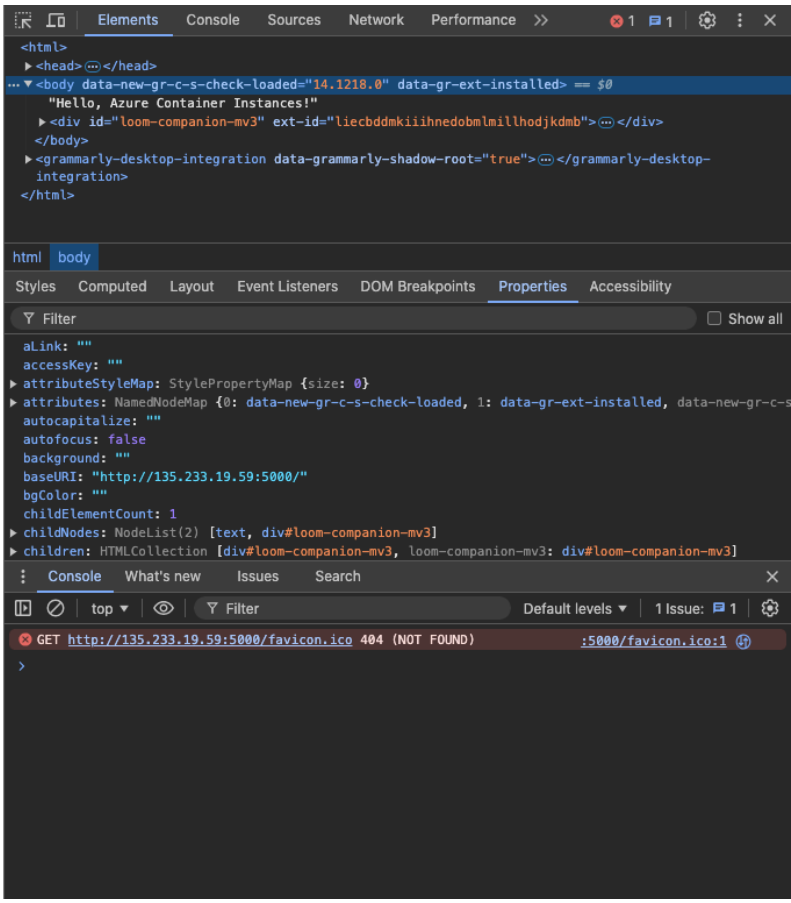
Practical Task 1: Deploy a Docker Container to Azure Container Instances (ACI) via Azure Portal

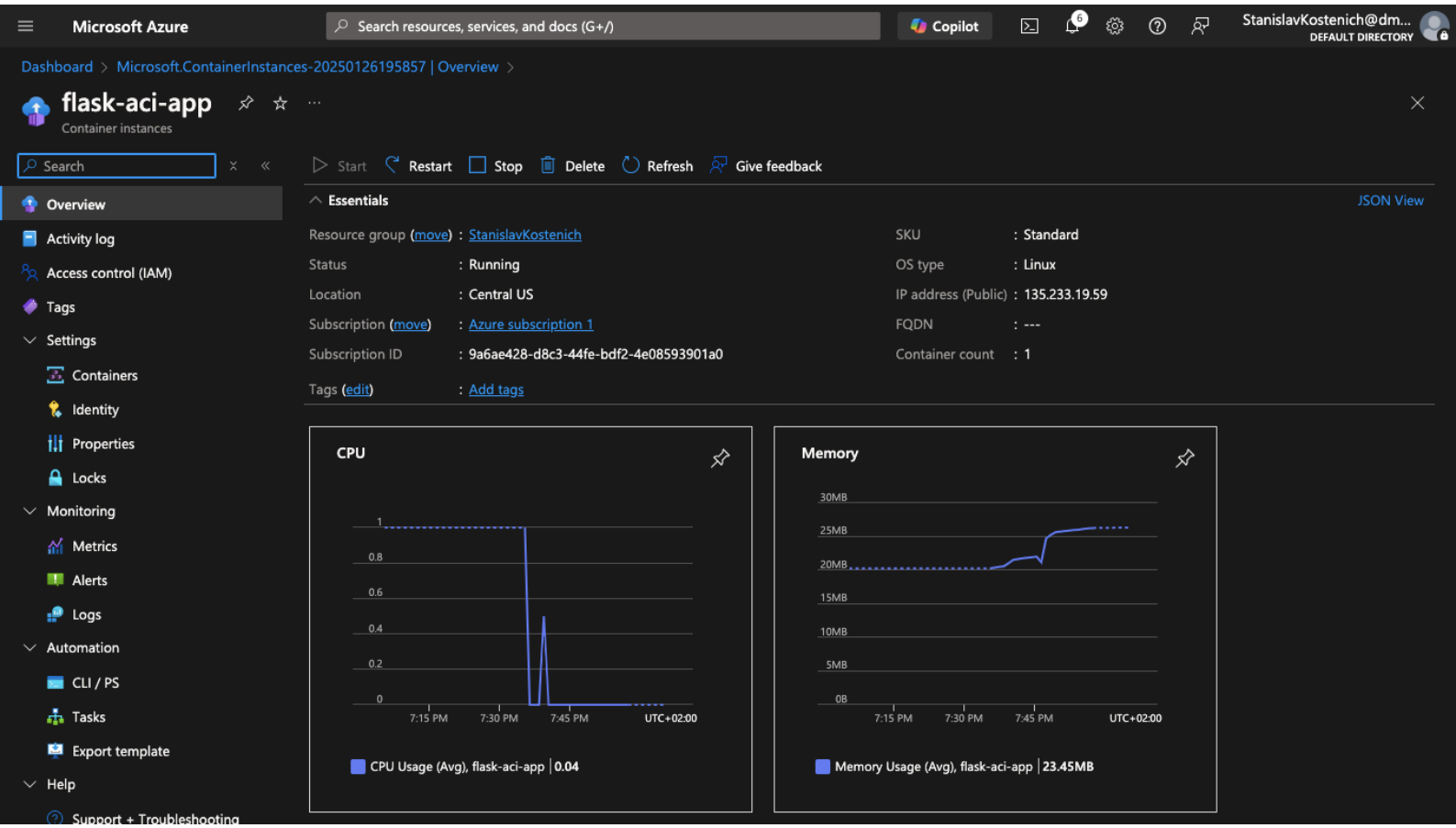
Requirements:

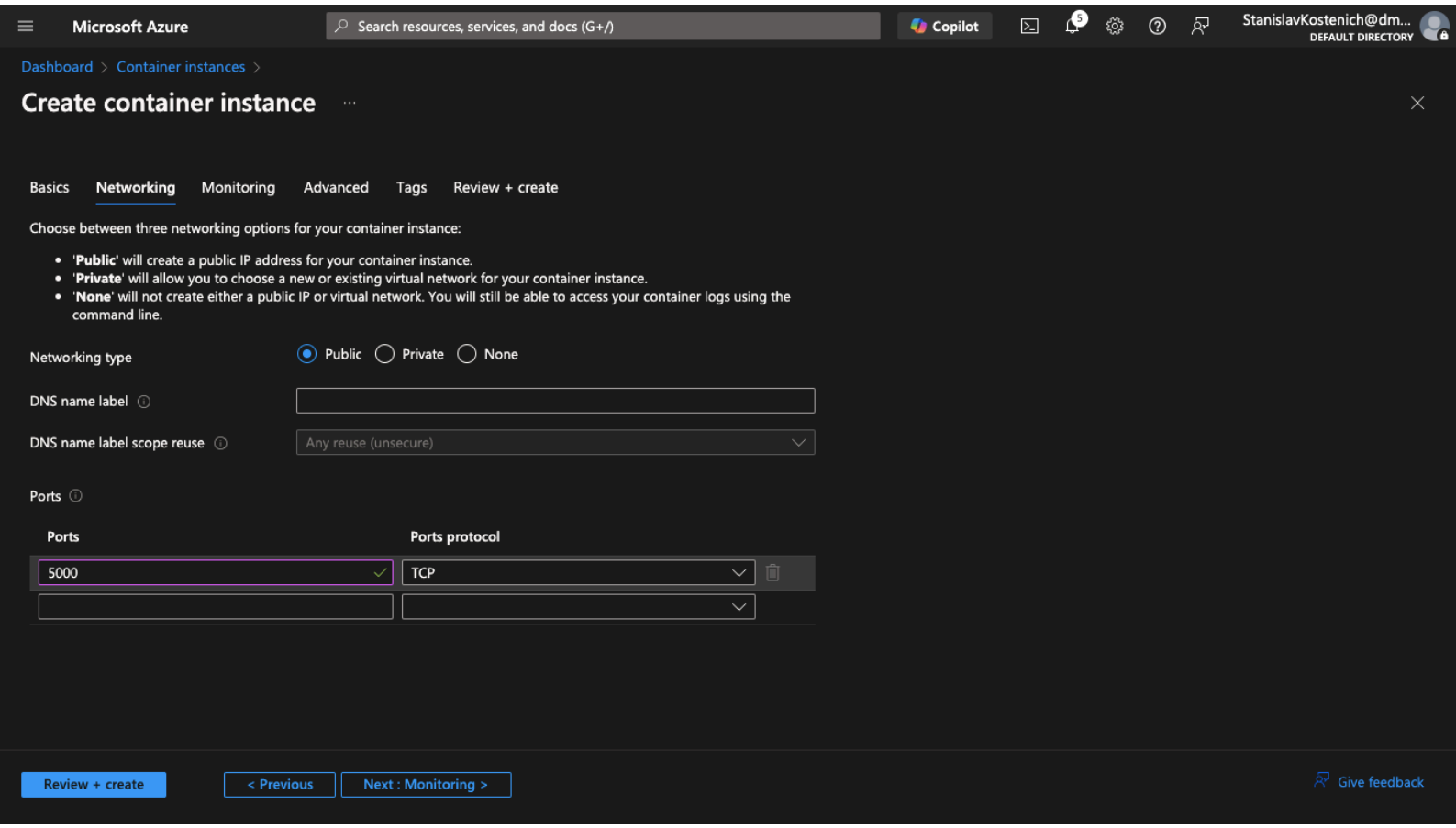
1. Create a lightweight Docker image for a simple web application (e.g., a Python Flask app) with minimal dependencies to reduce resource usage.
2. Push the Docker image to Azure Container Registry (ACR) using a low-cost storage option.
3. Use a lightweight ACI instance (e.g., B1s) to deploy the Docker container from ACR.
4. Verify the deployment by accessing the web application via the public IP address provided by ACI.
5. Remove the ACI container after verifying the deployment to stop billing.


~/Downloads/docker — mc [sk@sks-MacBook-Air.local]:~/Documents/AzureDevOps — -bash
~/Documents/AzureDevOps/04 Compute tasts — azureuser@dev-web-cus-01: ~ — -bash
sks-MacBook-Air:docker sk$ curl -i http://135.233.19.59:5000
HTTP/1.1 200 OK
Server: Werkzeug/3.1.3 Python/3.9.21
Date: Sun, 26 Jan 2025 18:08:44 GMT
Content-Type: text/html; charset=utf-8
Content-Length: 33
Connection: close
Hello, Azure Container Instances!sks-MacBook-Air:docker sk$

Hello, Azure Container Instances!




Microsoft Azure
Search resources, services, and docs (G+/)
Copilot
StanislavKostenich@dm...
DEFAULT DIRECTORY
Dashboard > Microsoft.ContainerInstances-20250126195857 | Overview >
flask-aci-app
Container instances
Search
Start
Restart
Stop
Delete
Refresh
Give feedback
Overview
Activity log
Access control (IAM)
Tags
Settings
Containers
Identity
Properties
Locks
Monitoring
Metrics
Alerts
Logs
Automation
CLI / PS
Tasks
Export template
Help
Support + Troubleshooting
Essentials
JSON View
Resource group (move) : StanislavKostenich
Status : Running
Location : Central US
Subscription (move) : Azure subscription 1
Subscription ID : 9a6ae428-d8c3-44fe-bdf2-4e08593901a0
Tags (edit) : Add tags
SKU : Standard
OS type : Linux
IP address (Public) : 135.233.19.59
FQDN : ---
Container count : 1
CPU
1
0.8
0.6
0.4
0.2
0
7:15 PM
7:30 PM
7:45 PM
UTC+02:00
CPU Usage (Avg), flask-aci-app | 0.04
Memory
30MB
25MB
20MB
15MB
10MB
5MB
0B
7:15 PM
7:30 PM
7:45 PM
UTC+02:00
Memory Usage (Avg), flask-aci-app | 23.45MB


Microsoft Azure
Search resources, services, and docs (G+/)
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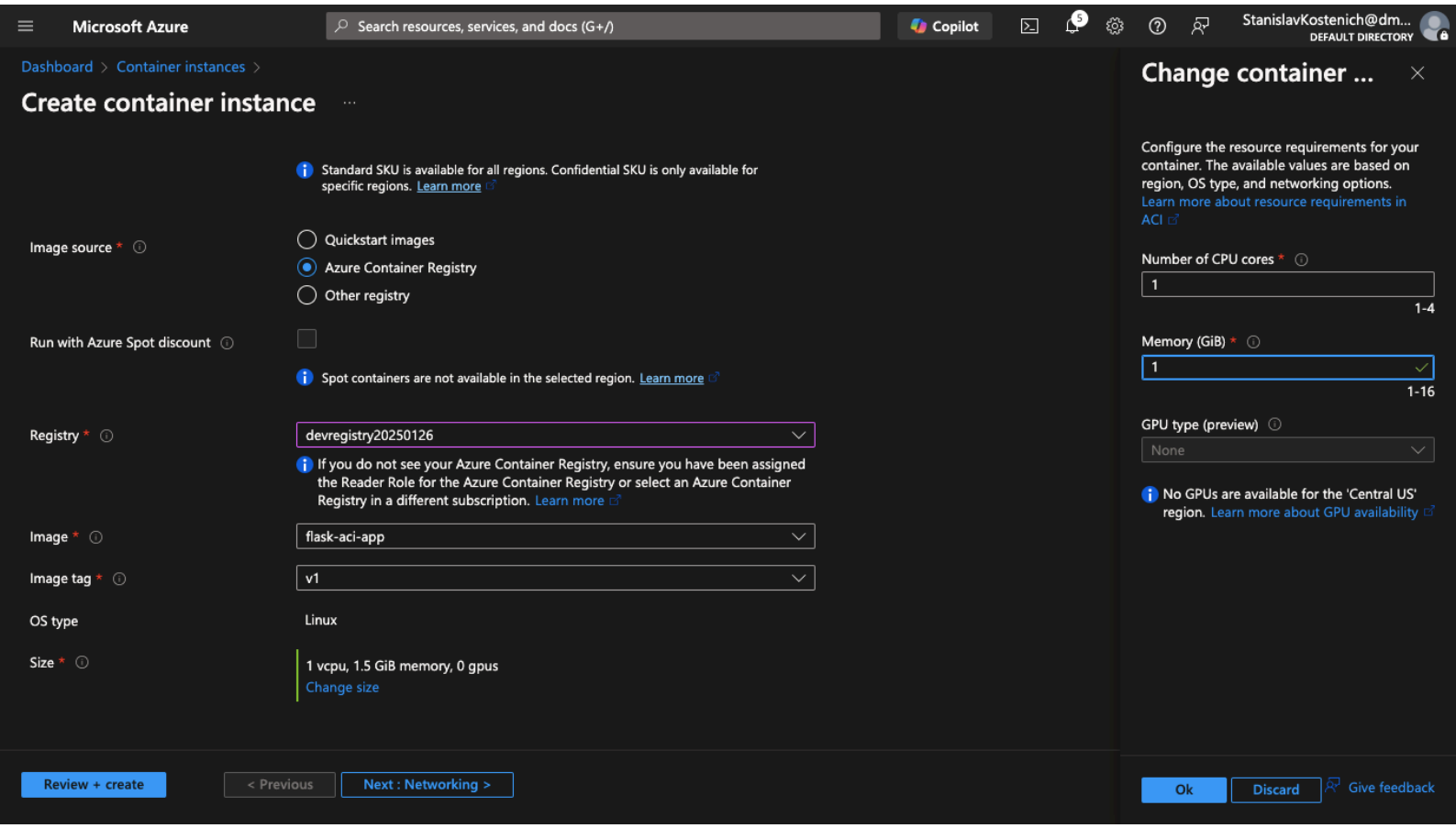
DEFAULT DIRECTORY
Dashboard > Container instances >
Create container instance
Basics
Networking
Monitoring
Advanced
Tags
Review + create
Choose between three networking options for your container instance:
'Public' will create a public IP address for your container instance.
'Private' will allow you to choose a new or existing virtual network for your container instance.
'None' will not create either a public IP or virtual network. You will still be able to access your container logs using the command line.
Networking type
Public
Private
None
DNS name label
DNS name label scope reuse
Any reuse (unsecure)
Ports
Ports
Ports protocol
5000
TCP
Review + create
< Previous
Next : Monitoring >
Give feedback


Microsoft Azure
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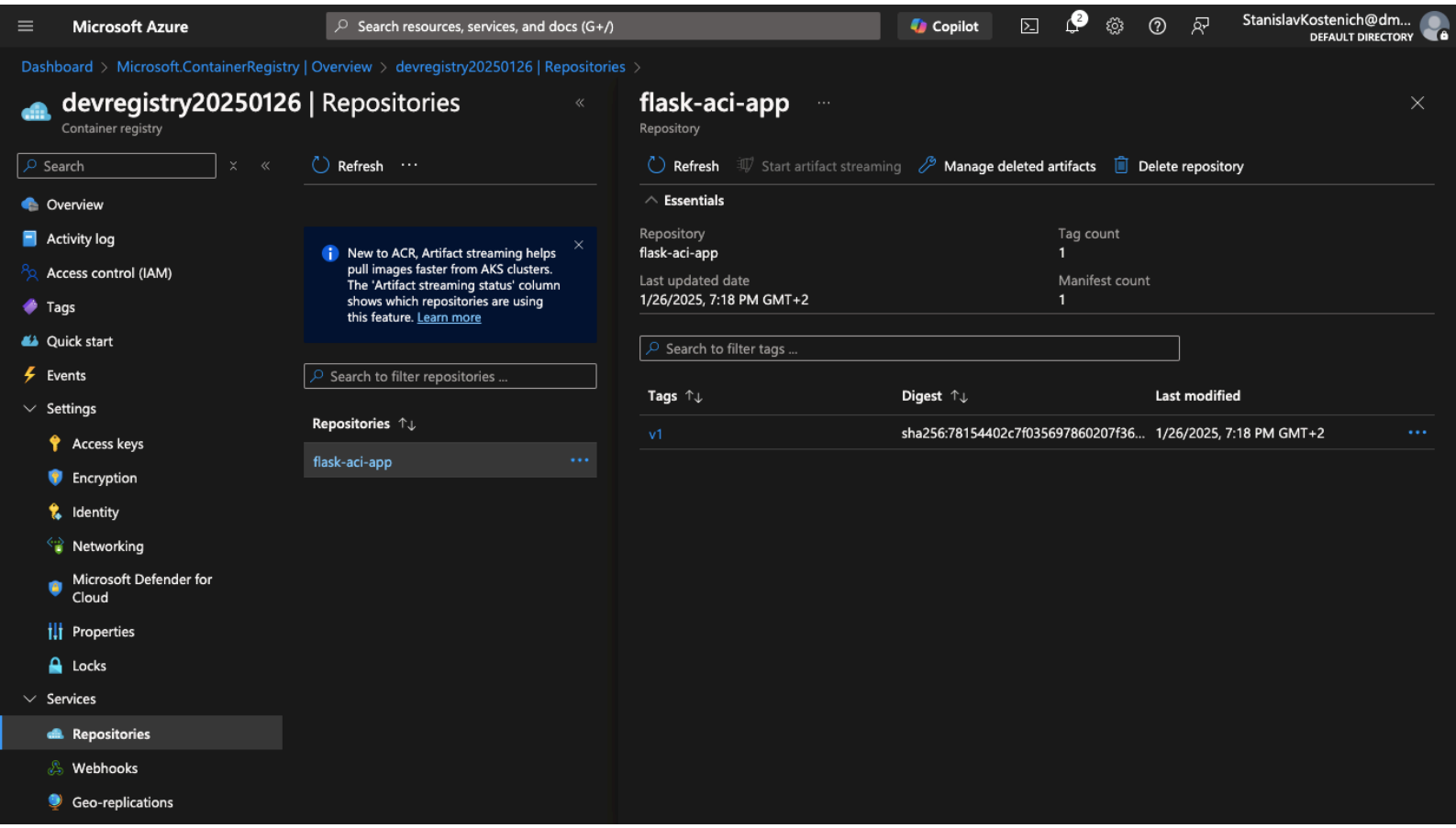
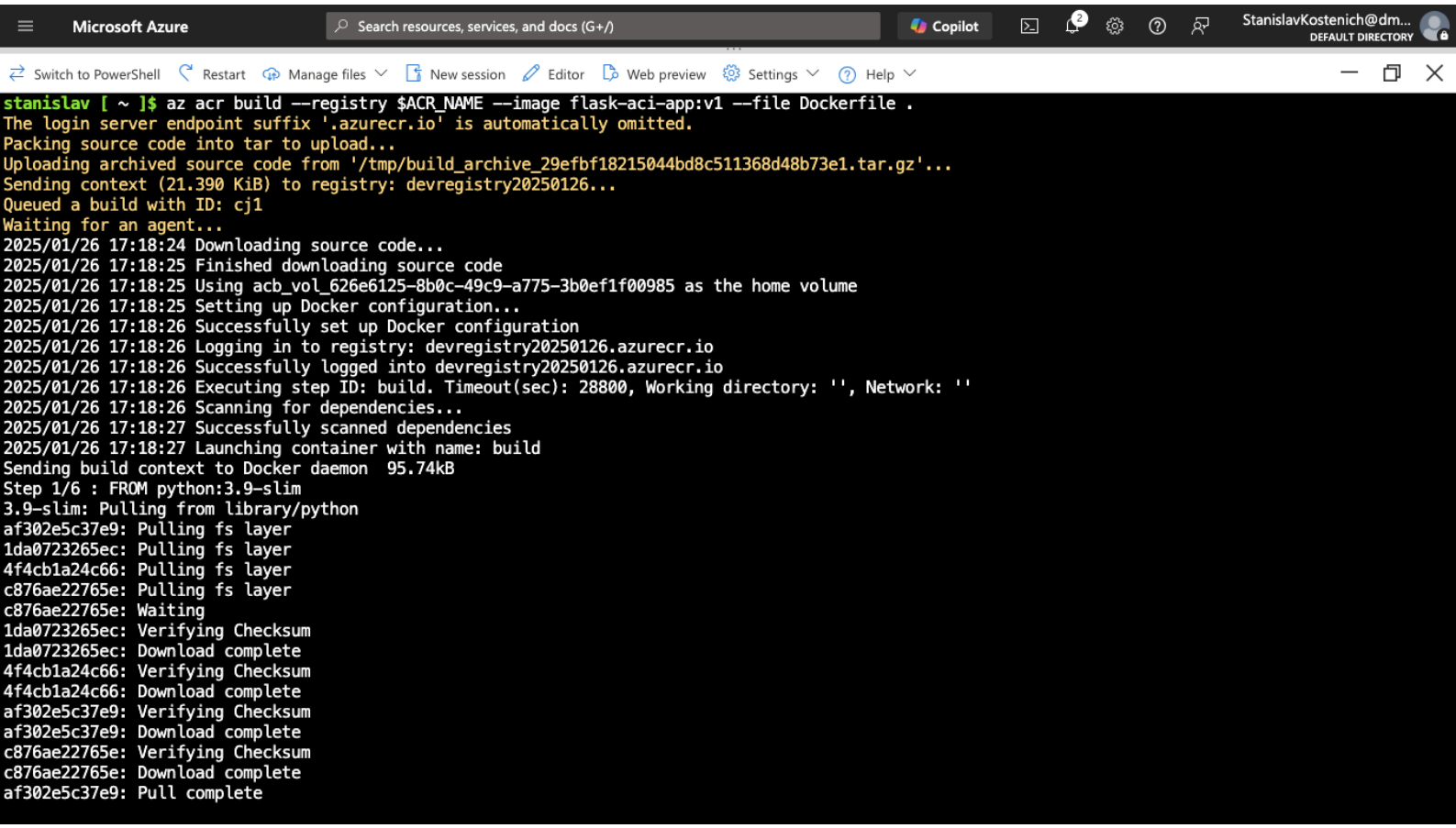
DEFAULT DIRECTORY
Dashboard > Container instances >
Create container instance
Standard SKU is available for all regions. Confidential SKU is only available for specific regions. Learn more
Image source *
Quickstart images
Azure Container Registry
Other registry
Run with Azure Spot discount
Spot containers are not available in the selected region. Learn more
Registry *
devregistry20250126
If you do not see your Azure Container Registry, ensure you have been assigned the Reader Role for the Azure Container Registry or select an Azure Container Registry in a different subscription. Learn more
Image *
flask-aci-app
Image tag *
v1
OS type
Linux
Size *
1 vcpu, 1.5 GiB memory, 0 gpus
Change size
Review + create
< Previous
Next : Networking >
Change container ...
Configure the resource requirements for your container. The available values are based on region, OS type, and networking options.
Learn more about resource requirements in ACI
Number of CPU cores *
1
1-4
Memory (GiB) *
1
1-16
GPU type (preview)
None
No GPUs are available for the 'Central US' region. Learn more about GPU availability
Ok
Discard
Give feedback


Microsoft Azure
Search resources, services, and docs (G+/)
Copilot
StanislavKostenich@dm...
DEFAULT DIRECTORY
Dashboard > Microsoft.ContainerRegistry | Overview > devregistry20250126 | Repositories >
devregistry20250126 | Repositories
Container registry
Search
Overview
Activity log
Access control (IAM)
Tags
Quick start
Events
Settings
Access keys
Encryption
Identity
Networking
Microsoft Defender for Cloud
Properties
Locks
Services
Repositories
Webhooks
Geo-replications
Refresh
New to ACR, Artifact streaming helps pull images faster from AKS clusters. The 'Artifact streaming status' column shows which repositories are using this feature. Learn more
Search to filter repositories ...
Repositories
flask-aci-app
flask-aci-app
Repository
Refresh
Start artifact streaming
Manage deleted artifacts
Delete repository
Essentials
Repository
flask-aci-app
Tag count
1
Last updated date
1/26/2025, 7:18 PM GMT+2
Manifest count
1
Search to filter tags ...
Tags
Digest
Last modified
v1
sha256:78154402c7f035697860207f36...
1/26/2025, 7:18 PM GMT+2


Microsoft Azure
Search resources, services, and docs (G+/)
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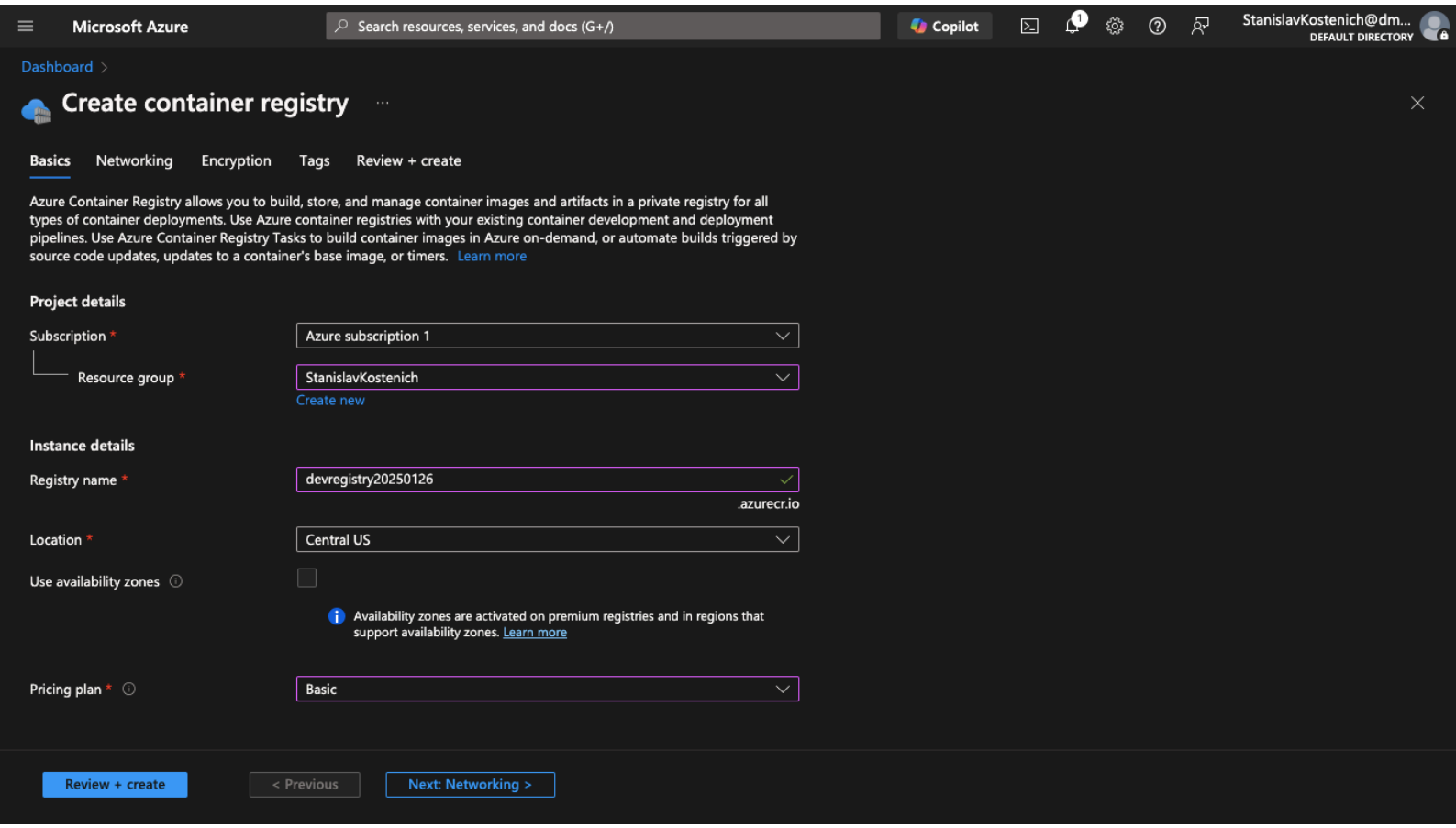
StanislavKostenich@dm...
DEFAULT DIRECTORY
Switch to PowerShell
Restart
Manage files
New session
Editor
Web preview
Settings
Help
stanislav [~]$ az acr build --registry $ACR_NAME --image flask-aci-app:v1 --file Dockerfile .
The login server endpoint suffix '.azurecr.io' is automatically omitted.
Packing source code into tar to upload...
Uploading archived source code from '/tmp/build_archive_29efbf18215044bd8c511368d48b73e1.tar.gz'...
Sending context (21.390 KiB) to registry: devregistry20250126...
Queued a build with ID: cj1
Waiting for an agent...
2025/01/26 17:18:24 Downloading source code...
2025/01/26 17:18:25 Finished downloading source code
2025/01/26 17:18:25 Using acb_vol_626e6125-8b0c-49c9-a775-3b0ef1f00985 as the home volume
2025/01/26 17:18:25 Setting up Docker configuration...
2025/01/26 17:18:26 Successfully set up Docker configuration
2025/01/26 17:18:26 Logging in to registry: devregistry20250126.azurecr.io
2025/01/26 17:18:26 Successfully logged into devregistry20250126.azurecr.io
2025/01/26 17:18:26 Executing step ID: build. Timeout(sec): 28800, Working directory: '', Network: ''
2025/01/26 17:18:26 Scanning for dependencies...
2025/01/26 17:18:27 Successfully scanned dependencies
2025/01/26 17:18:27 Launching container with name: build
Sending build context to Docker daemon 95.74kB
Step 1/6 : FROM python:3.9-slim
3.9-slim: Pulling from library/python
af302e5c37e9: Pulling fs layer
1da0723265ec: Pulling fs layer
4f4cb1a24c66: Pulling fs layer
c876ae22765e: Pulling fs layer
c876ae22765e: Waiting
1da0723265ec: Verifying Checksum
1da0723265ec: Download complete
4f4cb1a24c66: Verifying Checksum
4f4cb1a24c66: Download complete
af302e5c37e9: Verifying Checksum
af302e5c37e9: Download complete
c876ae22765e: Verifying Checksum
c876ae22765e: Download complete
af302e5c37e9: Pull complete


Microsoft Azure
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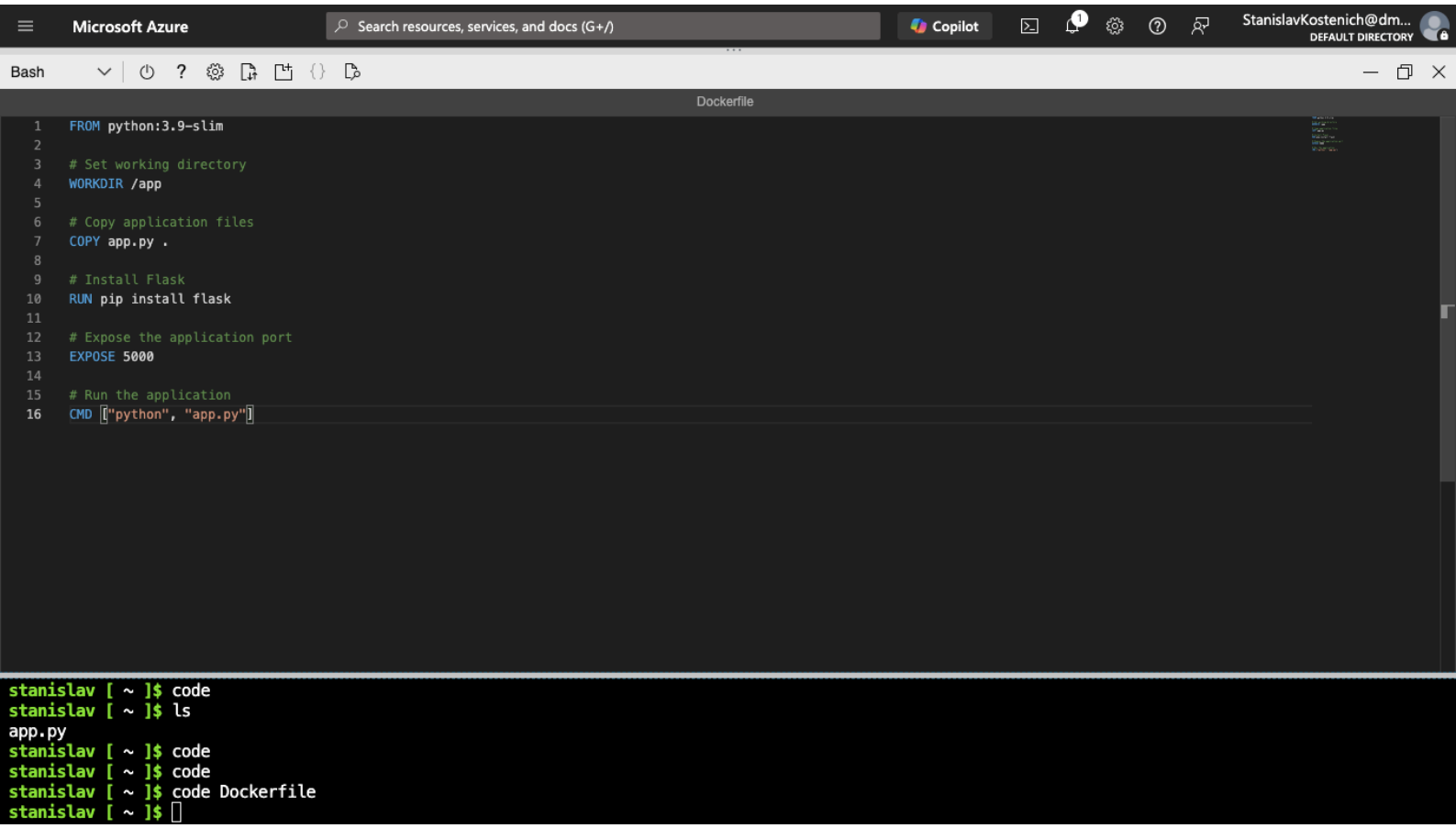
DEFAULT DIRECTORY
Dashboard
Create container registry
Basics
Networking
Encryption
Tags
Review + create
Azure Container Registry allows you to build, store, and manage container images and artifacts in a private registry for all types of container deployments. Use Azure container registries with your existing container development and deployment pipelines. Use Azure Container Registry Tasks to build container images in Azure on-demand, or automate builds triggered by source code updates, updates to a container's base image, or timers. Learn more
Project details
Subscription *
Azure subscription 1
Resource group *
StanislavKostenich
Create new
Instance details
Registry name *
devregistry20250126
.azurecr.io
Location *
Central US
Use availability zones
Availability zones are activated on premium registries and in regions that support availability zones. Learn more
Pricing plan *
Basic
Review + create
< Previous
Next: Networking >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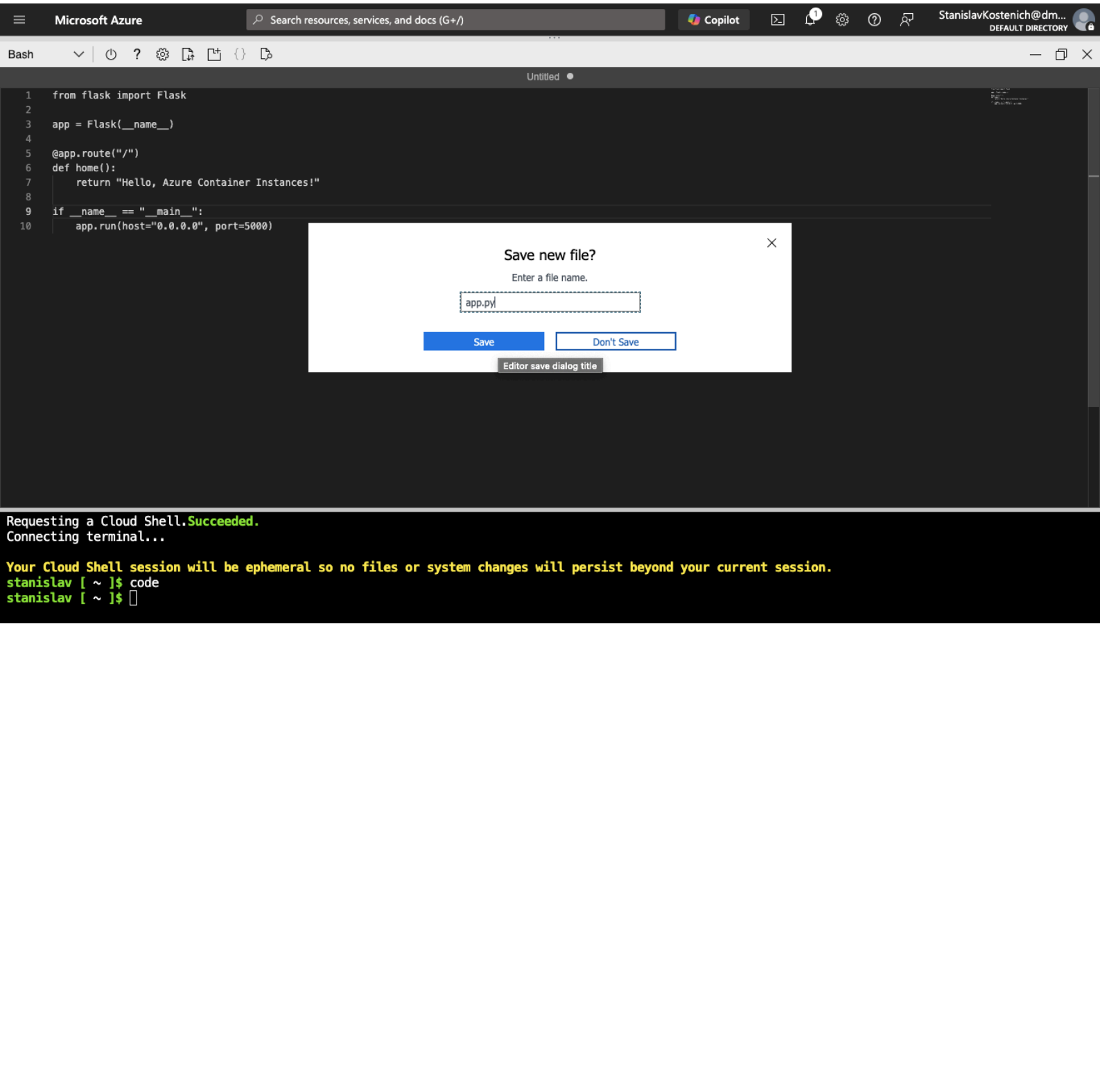
DEFAULT DIRECTORY
Bash
Dockerfile
1 FROM python:3.9-slim
2
3 # Set working directory
4 WORKDIR /app
5
6 # Copy application files
7 COPY app.py .
8
9 # Install Flask
10 RUN pip install flask
11
12 # Expose the application port
13 EXPOSE 5000
14
15 # Run the application
16 CMD ["python", "app.py"]
stanislav [~]$ code
stanislav [~]$ ls
app.py
stanislav [~]$ code
stanislav [~]$ code
stanislav [~]$ code Dockerfile
stanislav [~]$


Microsoft Azure
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Copilot
StanislavKostenich@dm...
DEFAULT DIRECTORY
Bash
Untitled
from flask import Flask
app = Flask(__name__)
@app.route("/")
def home():
return "Hello, Azure Container Instances!"
if __name__ == "__main__":
app.run(host="0.0.0.0", port=5000)
Save new file?
Enter a file name.
app.py
Save
Don't Save
Editor save dialog title
Requesting a Cloud Shell.Succeeded.
Connecting terminal...
Your Cloud Shell session will be ephemeral so no files or system changes will persist beyond your current session.
stanislav [~]$ code
stanislav [~]$

Practical Task 1: Deploy a Docker Container to Azure Container Instances (ACI) via Azure Portal

Requirements:

1. Create a lightweight Docker image for a simple web application (e.g., a Python Flask app) with minimal dependencies to reduce resource usage.
2. Push the Docker image to Azure Container Registry (ACR) using a low-cost storage option.
3. Use a lightweight ACI instance (e.g., B1s) to deploy the Docker container from ACR.
4. Verify the deployment by accessing the web application via the public IP address provided by ACI.
5. Remove the ACI container after verifying the deployment to stop billing.