How to deploy to Azure Kubernetes AKS a Web API .NET 8

1. Prerequisites

Install **kubectl** command in Windows: https://kubernetes.io/docs/tasks/tools/install-kubectl-windows/

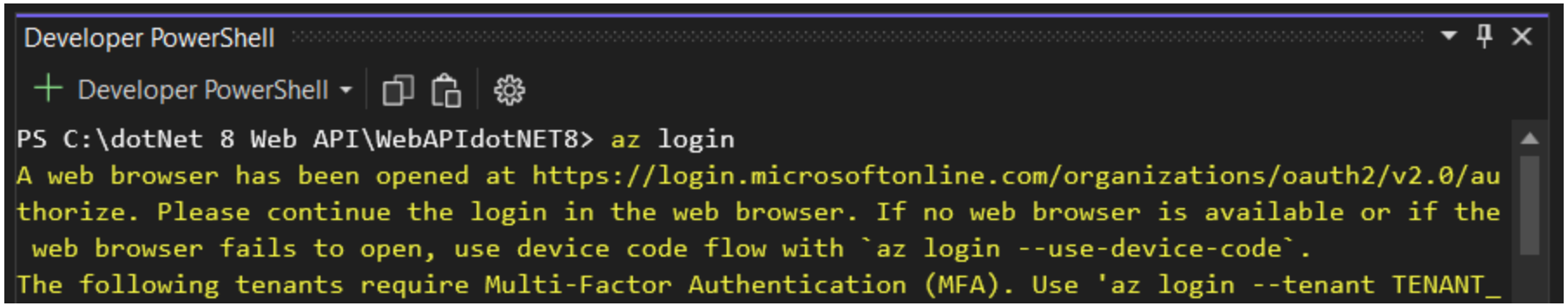
Download and Install Docker Desktop: https://docs.docker.com/desktop/install/windows-install/

Install Azure CLI: https://learn.microsoft.com/en-us/cli/azure/install-azure-cli-windows

2. Create Azure Container Registry (ACR)

2.1. Login in to Azure:

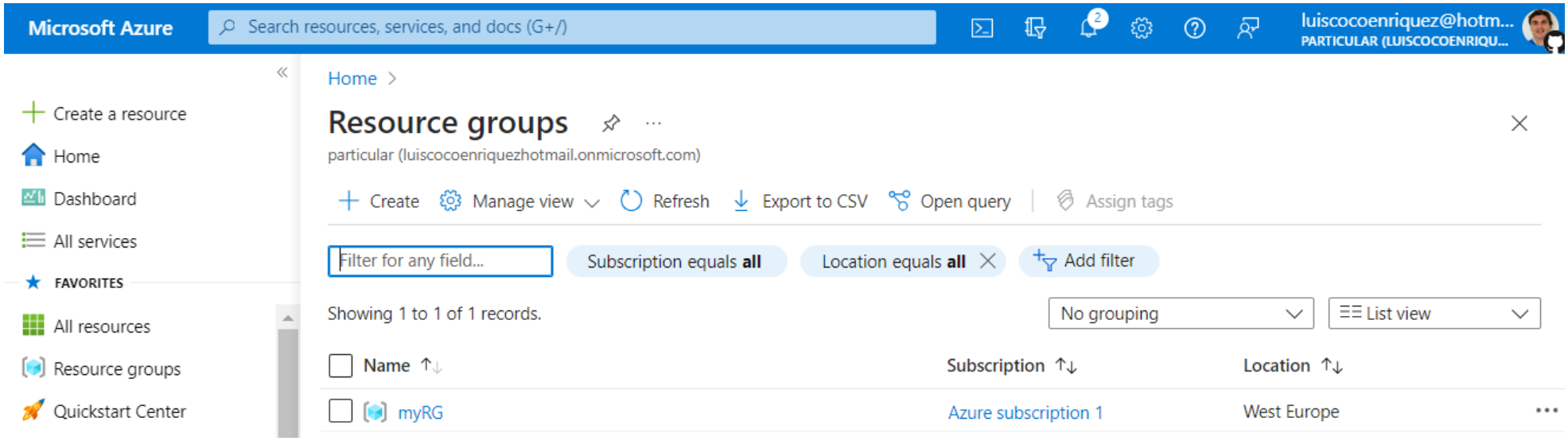
```
az login
```



2.2. Create a ResourceGroup:

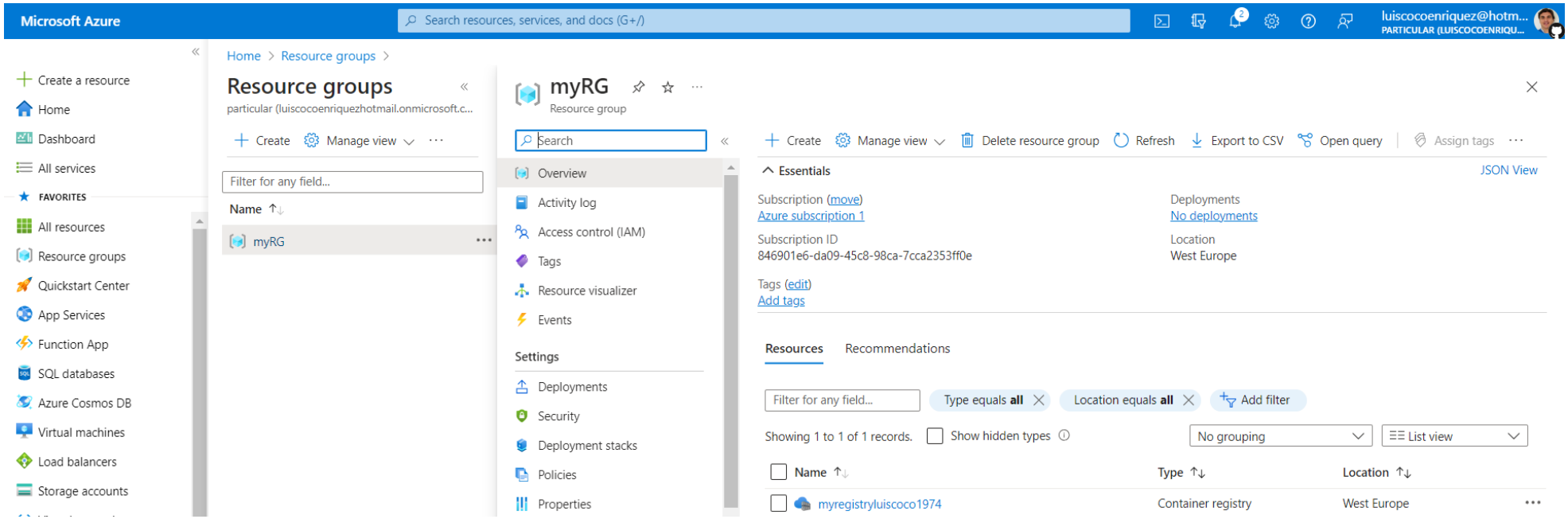
```
az group create --name myRG --location westeurope
```

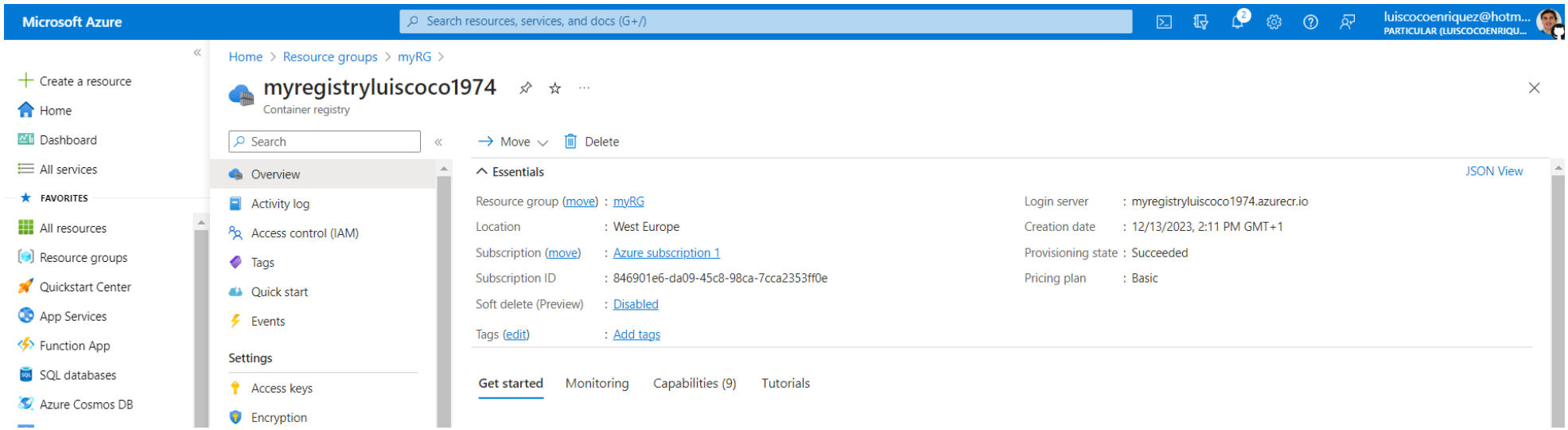
```
Developer PowerShell
Developer PowerShell
PS C:\dotNet 8 Web API\WebAPIdotNET8> az group create --name myRG --location westeurope
{
  "id": "/subscriptions/846901e6-da09-45c8-98ca-7cca2353ff0e/resourceGroups/myRG",
  "location": "westeurope",
  "managedBy": null,
  "name": "myRG",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
PS C:\dotNet 8 Web API\WebAPIdotNET8>
```



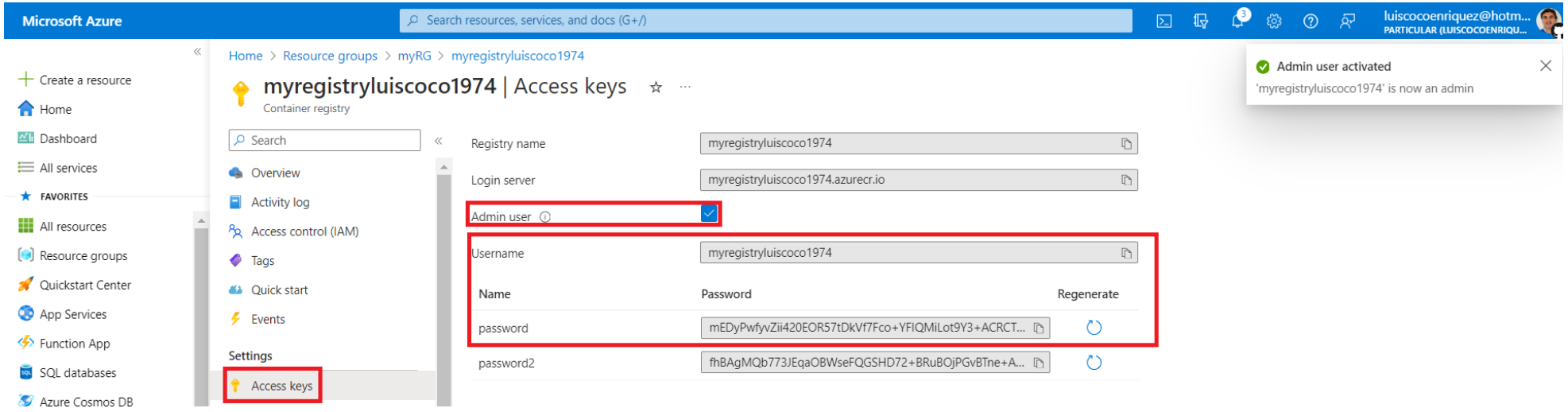
2.3. Create an ACR instance (Note: only use lowercase letters for the ACR name):

```
az acr create --resource-group myRG --name myregistryluiscoco1974 --sku Basic --location westeurope
```





2.4. Set the Admin user in the ACR and copy the username and password:



3. Build and Push Docker image

3.1. Navigate to your project

```
cd path/to/your/project
```

3.2. Log in to ACR:

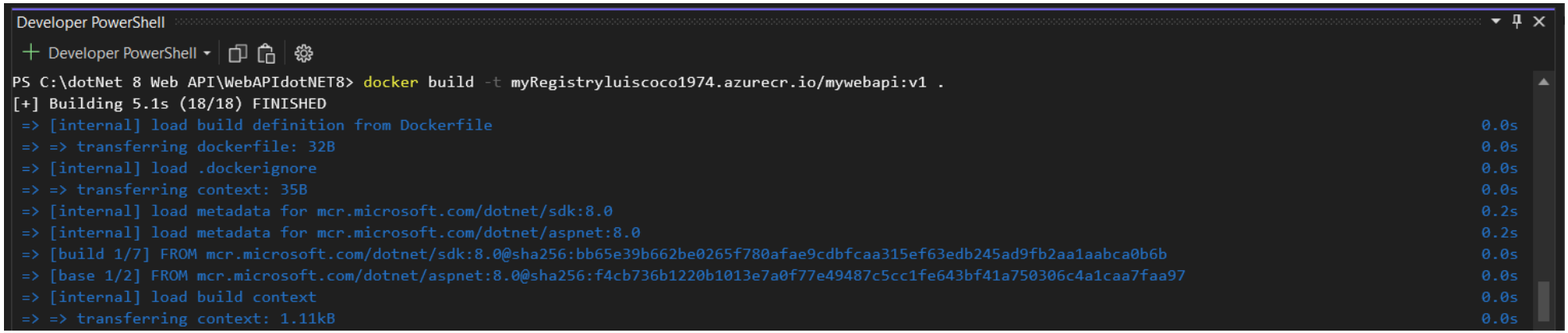
```
az acr login --name myregistryluiscoco1974
```

```
PS C:\dotNet 8 Web API\WebAPIdotNET8> az acr login --name myregistryluiscoco1974
Unable to get AAD authorization tokens with message: 2023-12-13 13:23:54.151641 An error occurred: CONNECTIVITY_REFRESH_TOKEN_ERROR
Access to registry 'myregistryluiscoco1974.azurecr.io' was denied. Response code: 401. Please try running 'az login' again to refresh permissions.
Unable to get admin user credentials with message: The resource with name 'myregistryluiscoco1974' and type 'Microsoft.ContainerRegistry/registries' could not be fo
und in subscription 'Azure subscription 1 (846901e6-da09-45c8-98ca-7cca2353ff0e)'.
Username: myregistryluiscoco1974
Password:
Login Succeeded
```

NOTE: if you cannot enter with this command run again "az login" and try again running the command "az acr login --name myregistryluiscoco1974"

3.3. Build your Docker image:

```
docker build -t myregistryluiscoco1974.azurecr.io/mywebapi:v1 .
```



3.4. Push the Image to ACR:

```
docker push myregistryluiscoco1974.azurecr.io/mywebapi:v1
```

```
PS C:\dotNet 8 Web API\WebAPIdotNET8> docker push myregistryluiscoco1974.azurecr.io/mywebapi:v1
The push refers to repository [myregistryluiscoco1974.azurecr.io/mywebapi]
cb9ee206da60: Pushed
5f70bf18a086: Pushed
5a1eae6cf5a3: Pushed
ab632e5b9102: Pushed
e20390680009: Pushed
62f56989de64: Pushed
a2ab801c518c: Pushed
e122ea2d6d32: Pushed
92770f546e06: Pushed
v1: digest: sha256:2b7bccaf6ef2fa36d1e1cb61ac6c6c173a130a9f131c9de3e3a3efca988c6939 size: 2204
PS C:\dotNet 8 Web API\WebAPIdotNET8>
```

4. Create Azure Kubernetes AKS Cluster

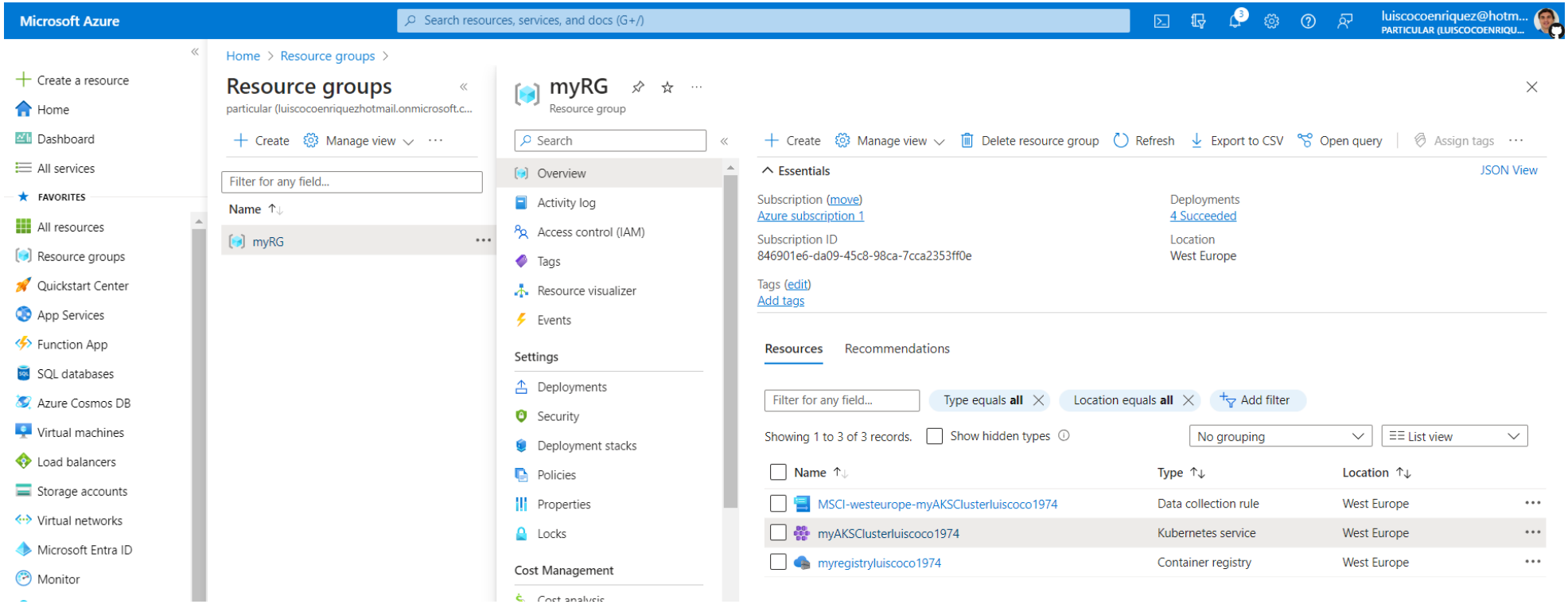
```
az aks create --resource-group myRG --name myAKSClusterluiscoco1974 --node-count 1 --enable-addons monitoring --generate-ssh-keys
```

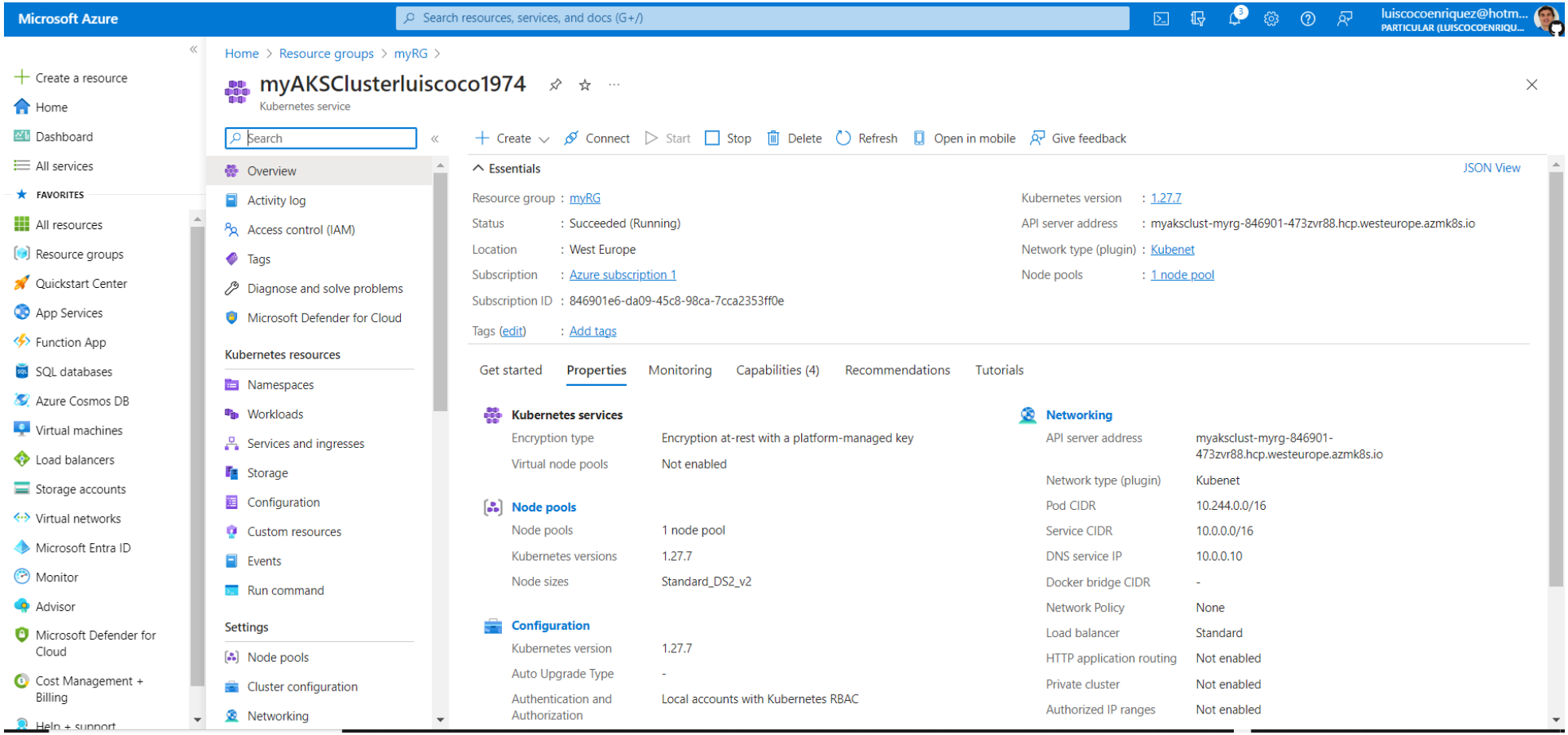
5. Connect to Azure Kubernetes AKS Cluster

```
az aks get-credentials --resource-group myRG --name myAKSClusterluiscoco1974
```

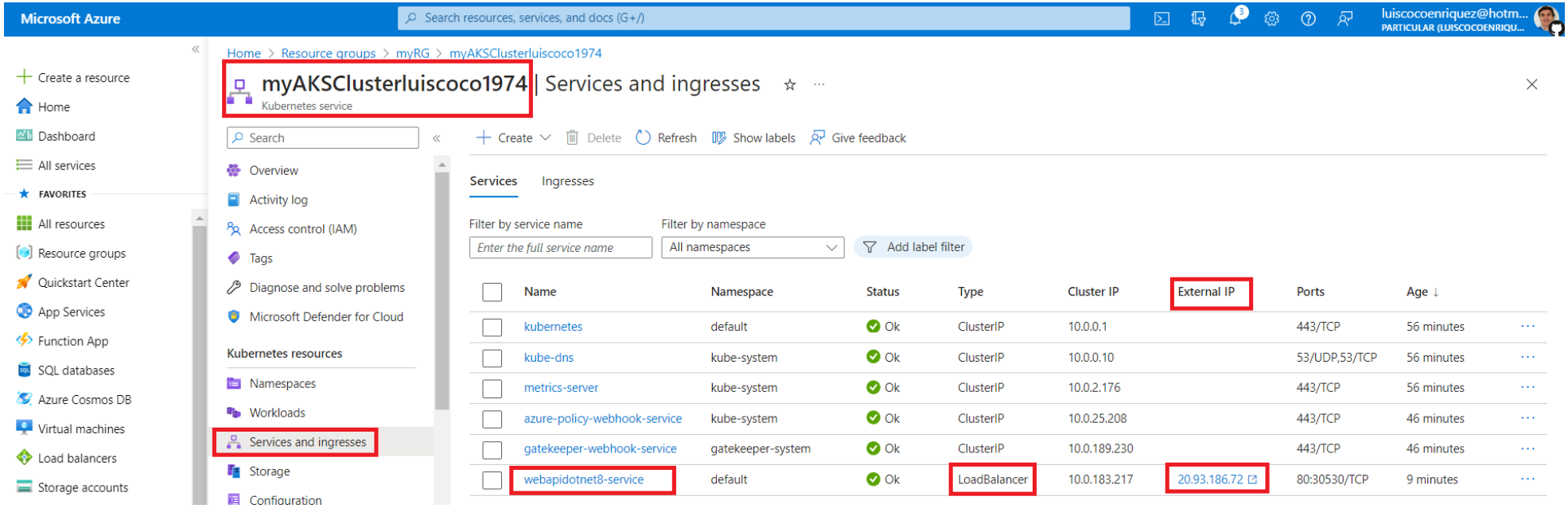
6. Access to the Web API endpoint

We navigate to the ResourceGroup "myRG", and Then we click in the Kubernetes service "myAKSClusterluiscoco1974":


Microsoft Azure
Search resources, services, and docs (G+/)
luiscocoenriquez@hotm...
PARTICULAR (LUISCOCOENRIQU...
Create a resource
Home
Dashboard
All services
FAVORITES
All resources
Resource groups
Quickstart Center
App Services
Function App
SQL databases
Azure Cosmos DB
Virtual machines
Load balancers
Storage accounts
Virtual networks
Microsoft Entra ID
Monitor
Home > Resource groups >
Resource groups
particular (luiscocoenriquezhotmail.onmicrosoft.c...
Create
Manage view
Filter for any field...
Name
myRG
myRG
Resource group
Search
Overview
Activity log
Access control (IAM)
Tags
Resource visualizer
Events
Settings
Deployments
Security
Deployment stacks
Policies
Properties
Locks
Cost Management
Create
Manage view
Delete resource group
Refresh
Export to CSV
Open query
Assign tags
Essentials
JSON View
Subscription (move)
Azure subscription 1
Subscription ID
846901e6-da09-45c8-98ca-7cca2353ff0e
Deployments
4 Succeeded
Location
West Europe
Tags (edit)
Add tags
Resources
Recommendations
Filter for any field...
Type equals all
Location equals all
Add filter
Showing 1 to 3 of 3 records.
Show hidden types
No grouping
List view
Name
Type
Location
MSCI-westeurope-myAKSClusterluiscoco1974
Data collection rule
West Europe
myAKSClusterluiscoco1974
Kubernetes service
West Europe
myregistryluiscoco1974
Container registry
West Europe



We copy the Load Balancer External IP:



In the internet web browser we input the Load Balancer External IP followed by the controller name "weatherforecast":

Not secure | 20.93.186.72/weatherforecast
[
{
"date": "2023-12-14",
"temperatureC": 15,
"temperatureF": 58,
"summary": "Hot"
},
{
"date": "2023-12-15",
"temperatureC": 31,
"temperatureF": 87,
"summary": "Balmy"
},
{
"date": "2023-12-16",
"temperatureC": 13,
"temperatureF": 55,
"summary": "Chilly"
},
{
"date": "2023-12-17",
"temperatureC": -20,
"temperatureF": -3,
"summary": "Bracing"
},
{
"date": "2023-12-18",
"temperatureC": -4,
"temperatureF": 25,
"summary": "Mild"
}
]