Project

AKS CICD using Azure DevOps

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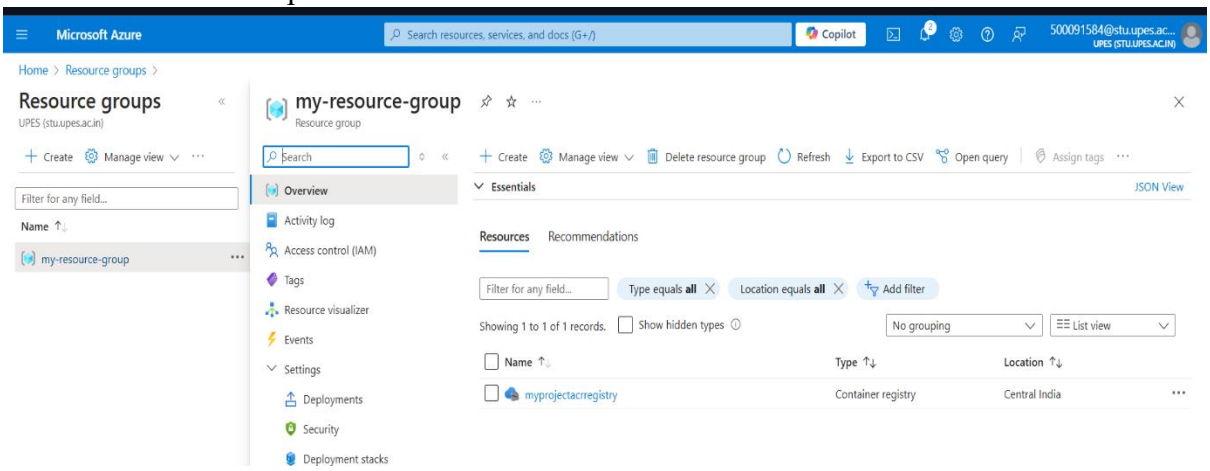
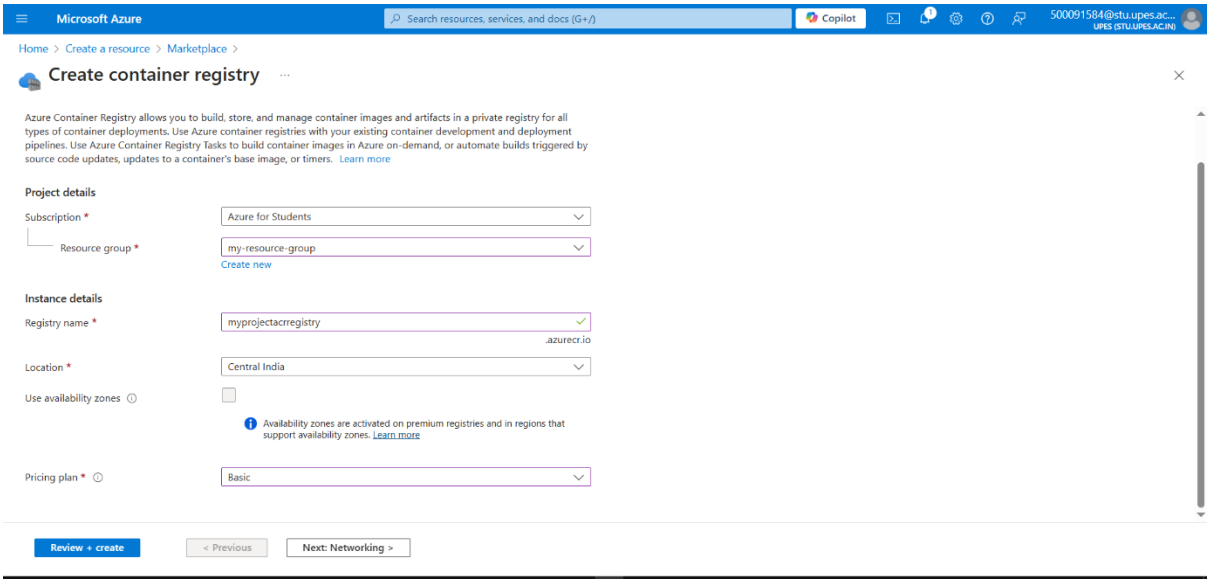
CT_CSI_DV_4106

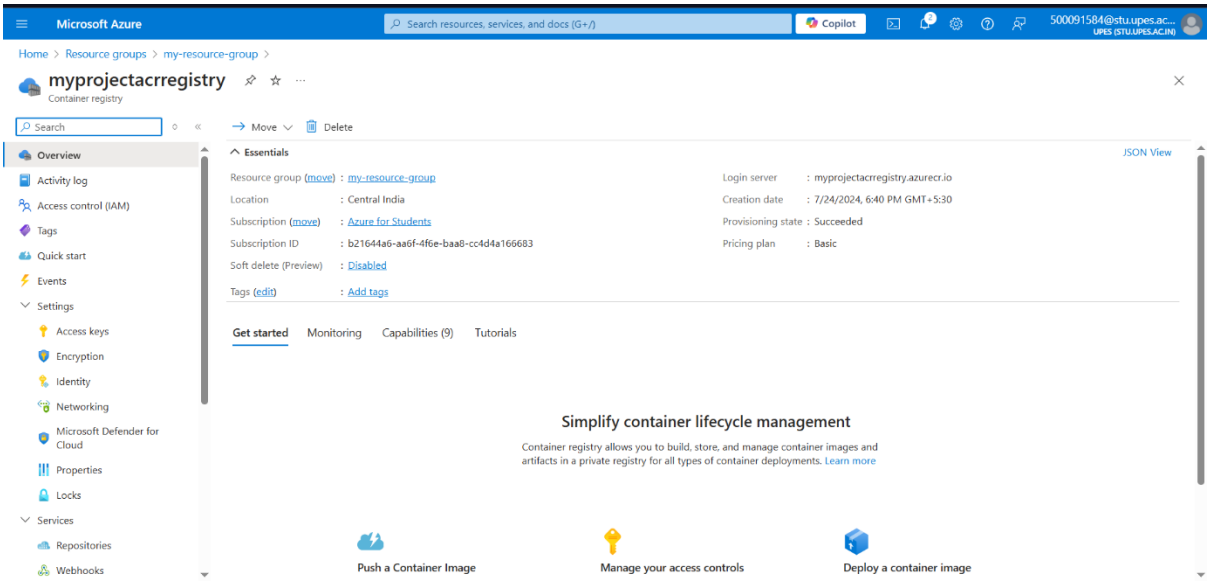
ujjwalgupta1.ujg@gmail.com

1. Create Resource Group

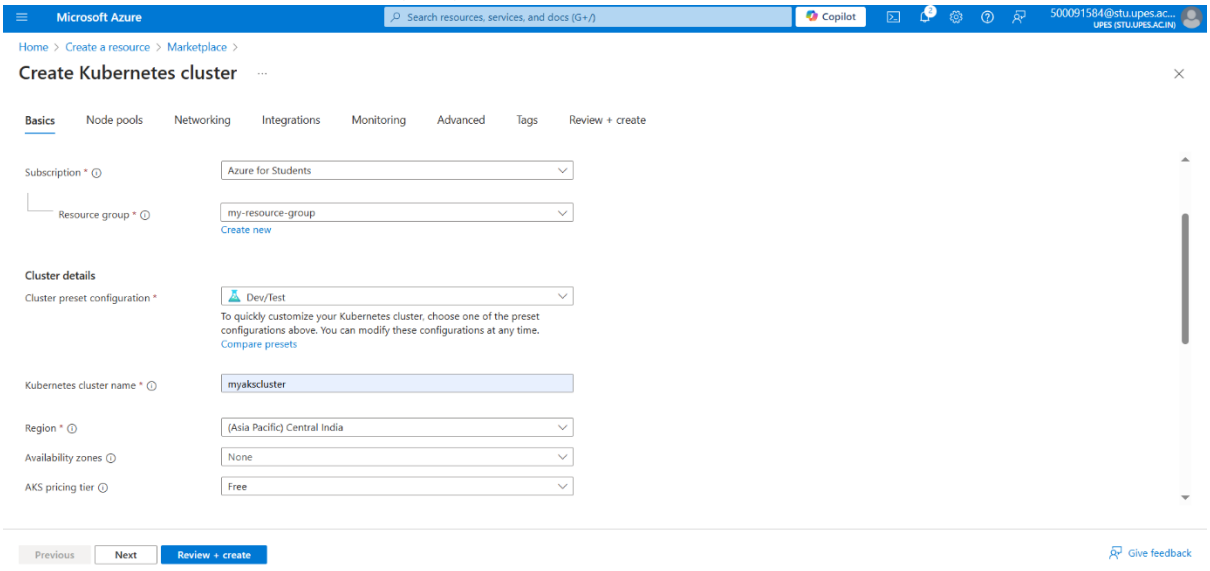


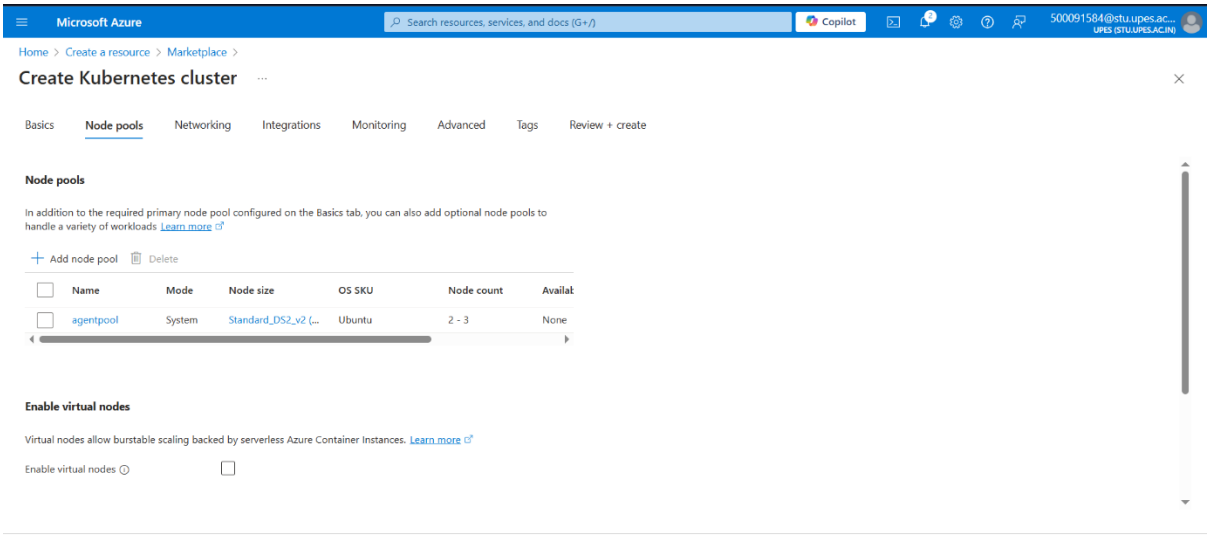
2. Create Azure Container Registry (ACR)

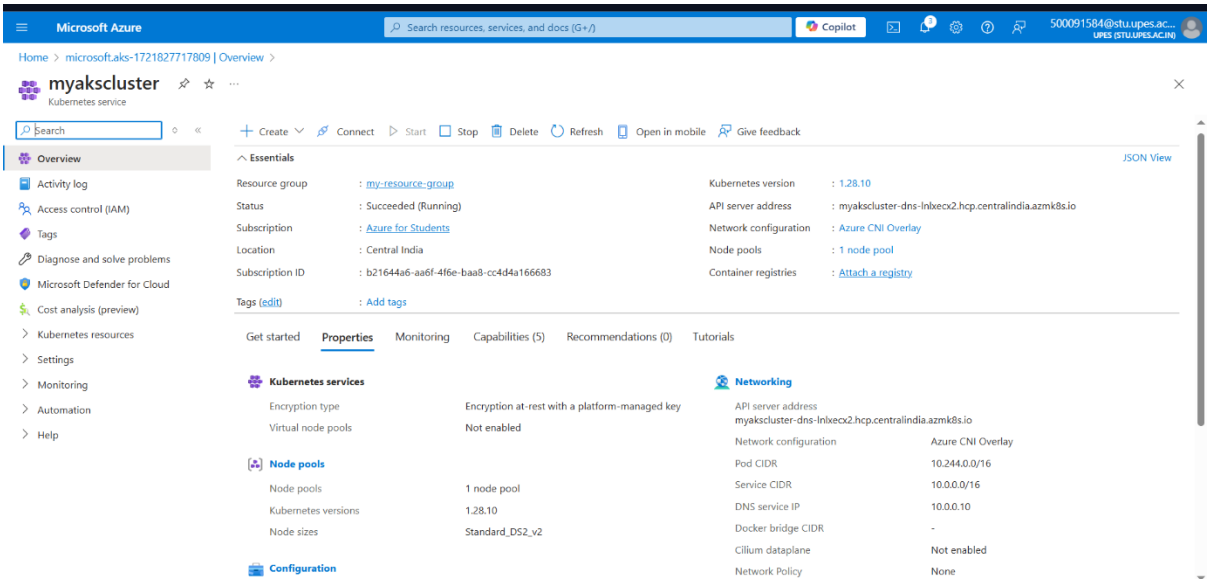




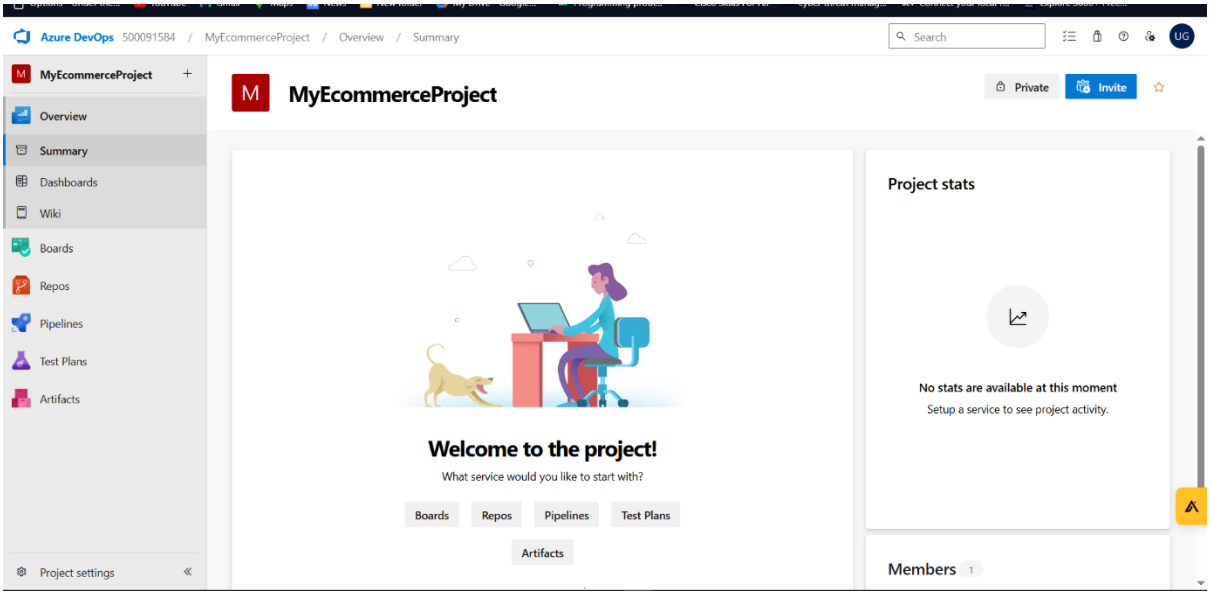
3. Create Azure Kubernetes Service (AKS)



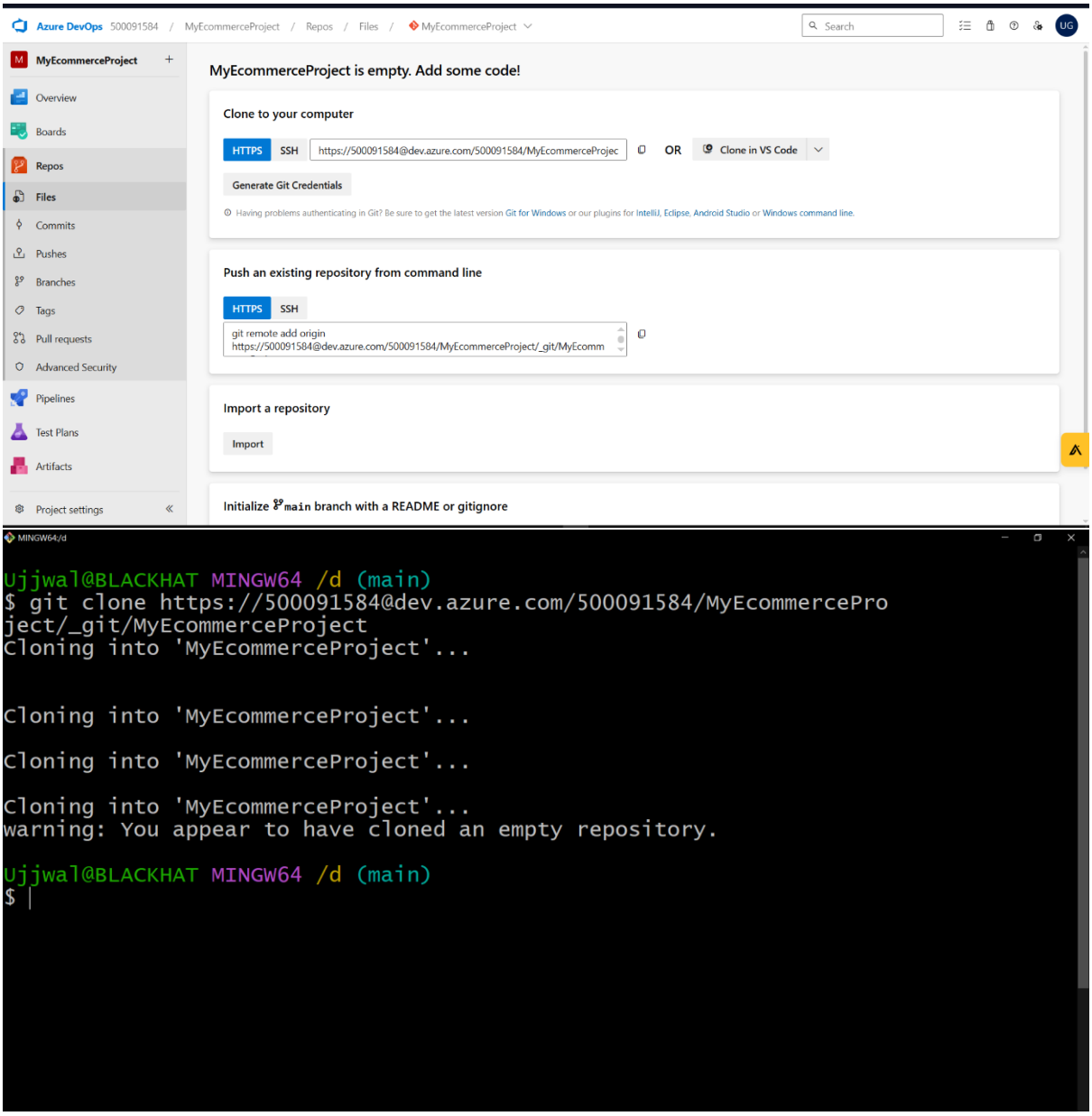




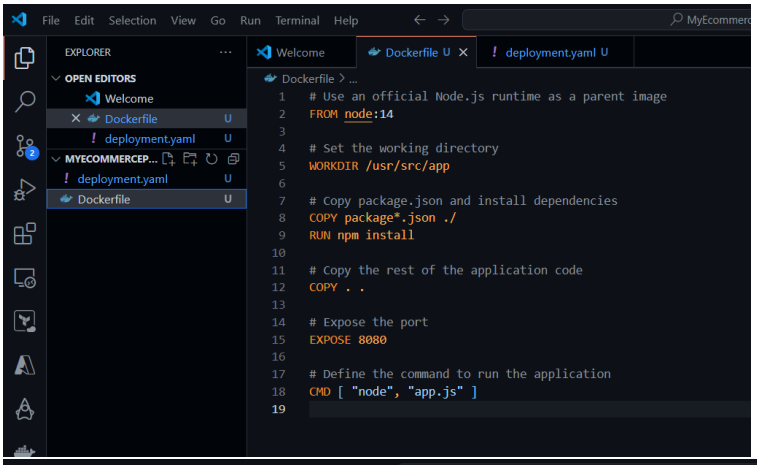
4. Create an Azure DevOps Project



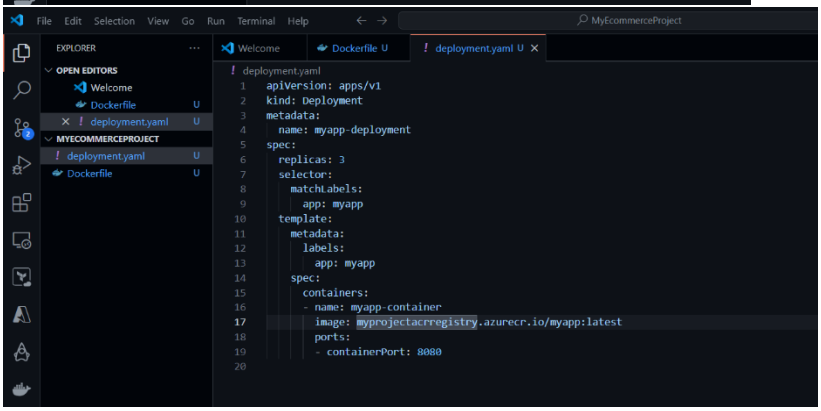
5. Set Up Repository & Clone the Repository



6. Create Dockerfile and Deployment.yaml file.

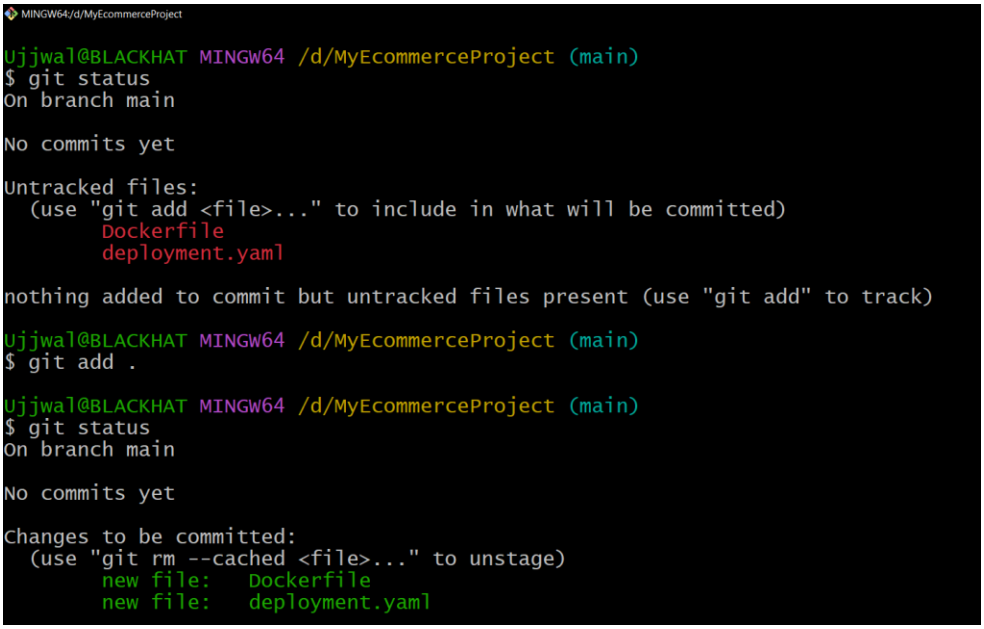


```
# Use an official Node.js runtime as a parent image
FROM node:14

# Set the working directory
WORKDIR /usr/src/app

# Copy package.json and install dependencies
COPY package*.json ./
RUN npm install

# Copy the rest of the application code
COPY . .

# Expose the port
EXPOSE 8080

# Define the command to run the application
CMD [ "node", "app.js" ]
```



```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: myapp-deployment
spec:
  replicas: 3
  selector:
    matchLabels:
      app: myapp
  template:
    metadata:
      labels:
        app: myapp
    spec:
      containers:
      - name: myapp-container
        image: myprojectacrregistry.azurecr.io/myapp:latest
        ports:
        - containerPort: 8080
```

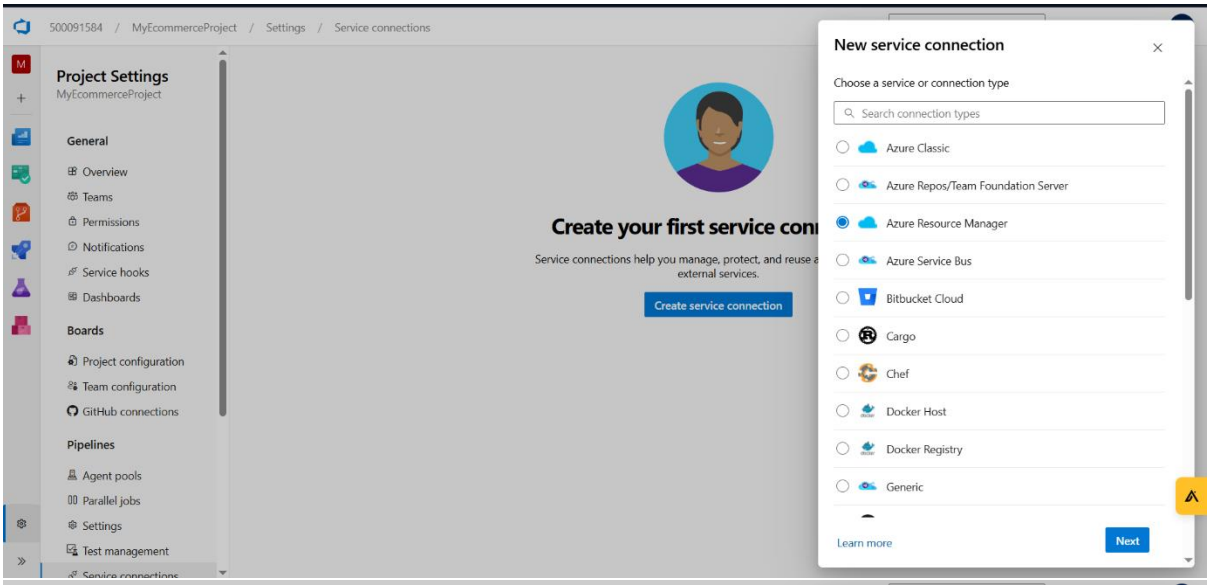
7. Commit and Push the changes

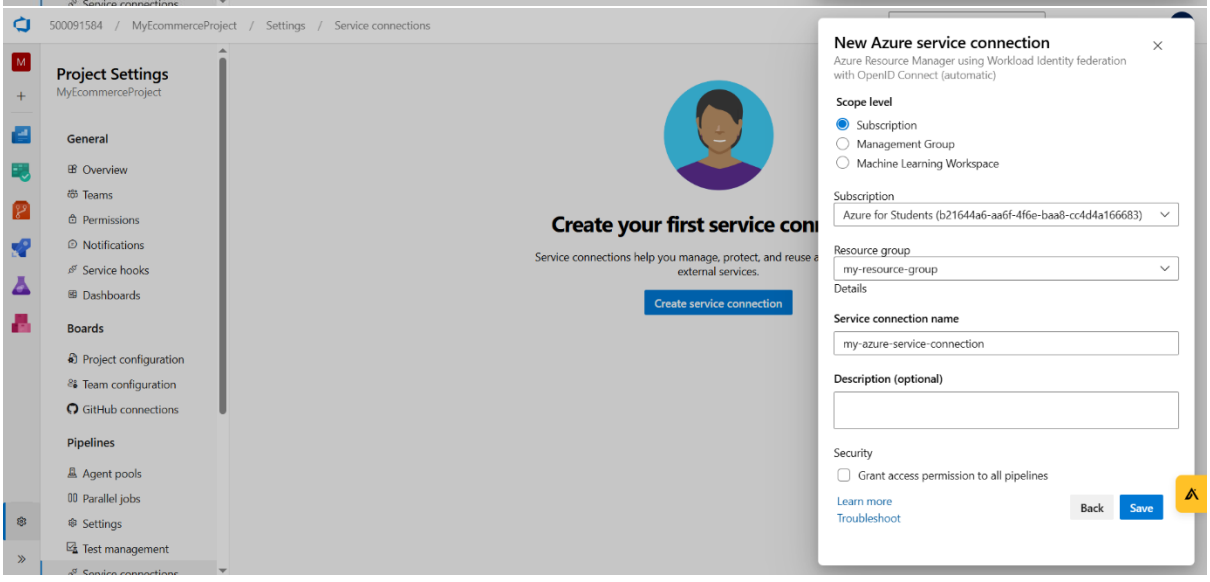


```
MINGW64:/d/MyEcommerceProject

Ujjwal@BLACKHAT MINGW64 /d/MyEcommerceProject (main)
$ git status
On branch main

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        Dockerfile
        deployment.yaml

nothing added to commit but untracked files present (use "git add" to track)

Ujjwal@BLACKHAT MINGW64 /d/MyEcommerceProject (main)
$ git add .

Ujjwal@BLACKHAT MINGW64 /d/MyEcommerceProject (main)
$ git status
On branch main

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   Dockerfile
        new file:   deployment.yaml
```

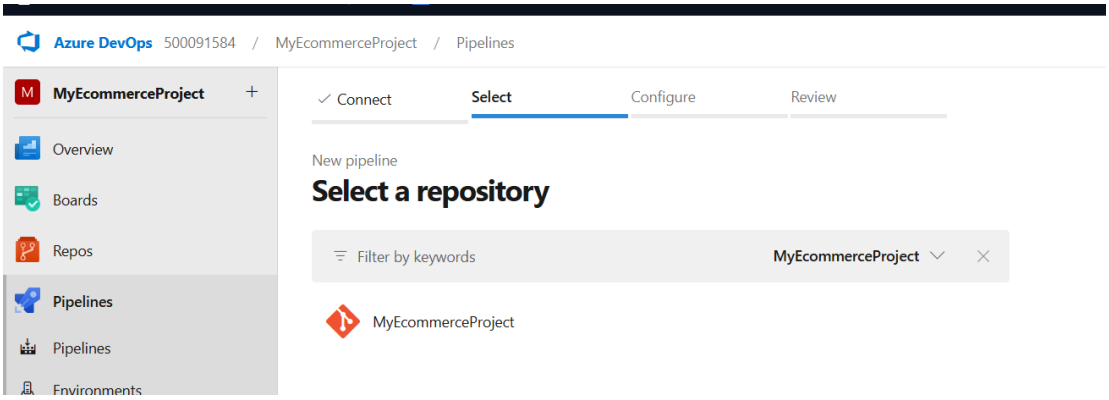
```
MINGW64:/d/MyEcommerceProject

Ujjwal@BLACKHAT MINGW64 /d/MyEcommerceProject (main)
$ git commit -m "Initial commit with Dockerfile and deployment.yaml"
[main (root-commit) 9aa60ff] Initial commit with Dockerfile and deployment.yaml
 2 files changed, 37 insertions(+)
 create mode 100644 Dockerfile
 create mode 100644 deployment.yaml

Ujjwal@BLACKHAT MINGW64 /d/MyEcommerceProject (main)
$ git push origin main
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 8 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (4/4), 731 bytes | 731.00 KiB/s, done.
Total 4 (delta 0), reused 0 (delta 0), pack-reused 0
remote: Analyzing objects... (4/4) (4 ms)
remote: Validating commits... (1/1) done (0 ms)
remote: Storing packfile... done (46 ms)
remote: Storing index... done (32 ms)
To https://dev.azure.com/500091584/MyEcommerceProject/_git/MyEcommerceProject
 * [new branch]      main -> main

Ujjwal@BLACKHAT MINGW64 /d/MyEcommerceProject (main)
$
```

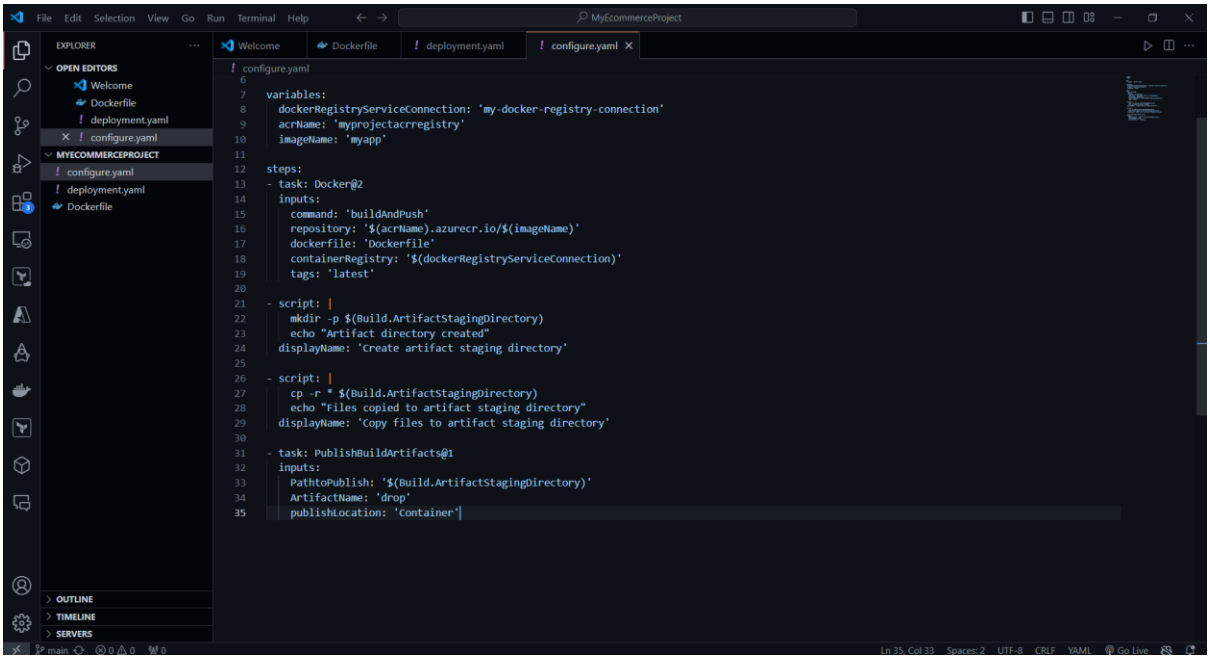
8. Set Up Service Connection

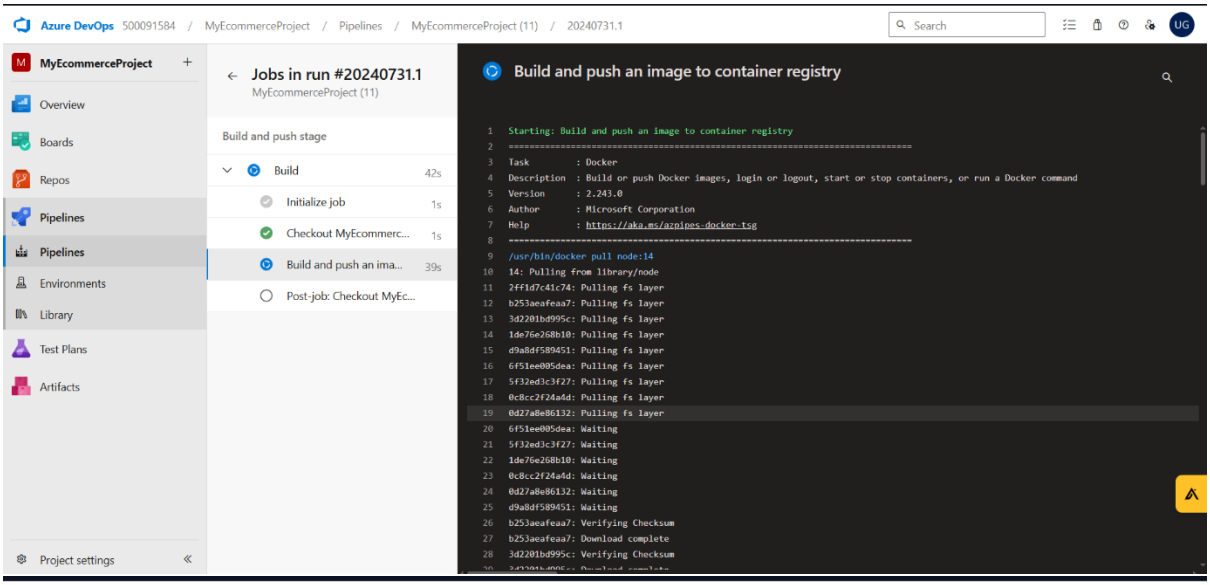




9. Create CI Pipeline



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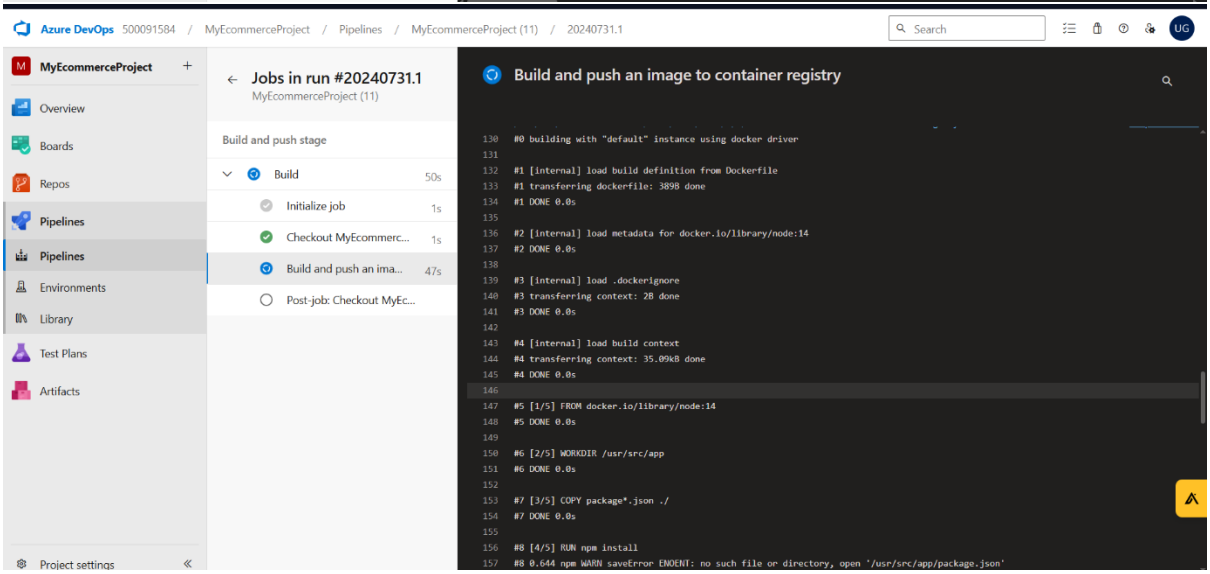
Jobs in run #20240731.1
MyEcommerceProject (11)
Build and push stage
Build 42s
Initialize job 1s
Checkout MyEcommerc... 1s
Build and push an ima... 39s
Post-job: Checkout MyEc...
Build and push an image to container registry
Starting: Build and push an image to container registry
Task : Docker
Description : Build or push Docker images, login or logout, start or stop containers, or run a Docker command
Version : 2.243.0
Author : Microsoft Corporation
Help : https://aka.ms/azpipes-docker-tsg
/usr/bin/docker pull node:14
14: Pulling from library/node
2ff1d7c41c74: Pulling fs layer
b253aeafeaa7: Pulling fs layer
3d2201bd995c: Pulling fs layer
1de76e268b10: Pulling fs layer
d9a8df589451: Pulling fs layer
6f51ee005dea: Pulling fs layer
5f32ed3c3f27: Pulling fs layer
0c8cc2f24a4d: Pulling fs layer
0d27a8e86132: Pulling fs layer
6f51ee005dea: Waiting
5f32ed3c3f27: Waiting
1de76e268b10: Waiting
0c8cc2f24a4d: Waiting
0d27a8e86132: Waiting
d9a8df589451: Waiting
b253aeafeaa7: Verifying Checksum
b253aeafeaa7: Download complete
3d2201bd995c: Verifying Checksum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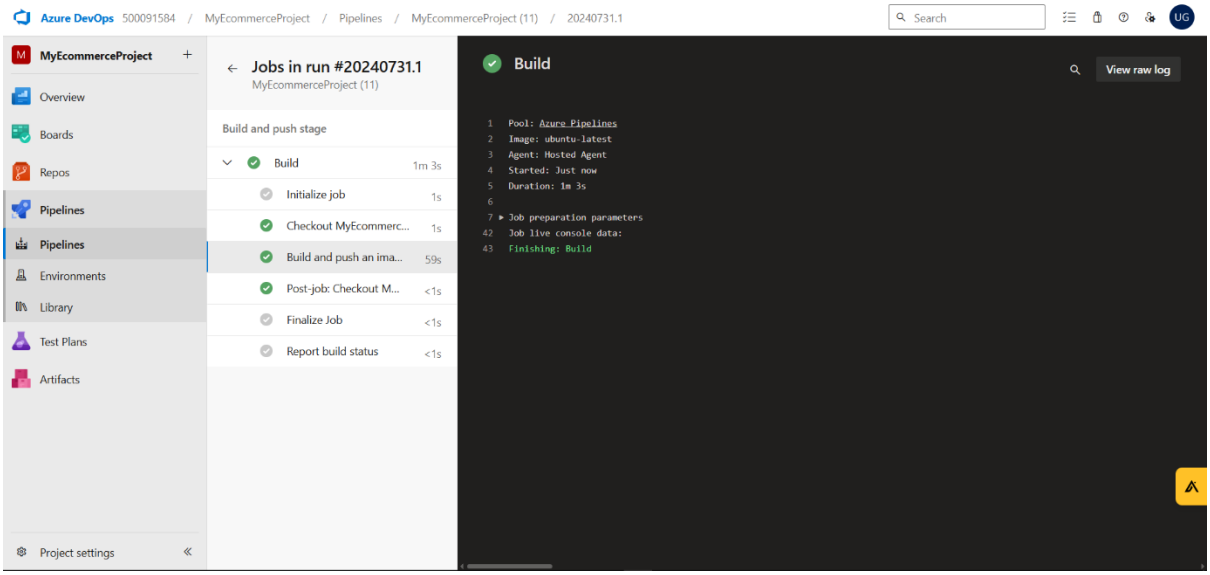
Build and push stage
Build 50s
Initialize job 1s
Checkout MyEcommerc... 1s
Build and push an ima... 47s
Post-job: Checkout MyEc...
Build and push an image to container registry
#0 building with "default" instance using docker driver
#1 [internal] load build definition from Dockerfile
#1 transferring dockerfile: 389B done
#1 DONE 0.0s
#2 [internal] load metadata for docker.io/library/node:14
#2 DONE 0.0s
#3 [internal] load .dockerignore
#3 transferring context: 2B done
#3 DONE 0.0s
#4 [internal] load build context
#4 transferring context: 35.09kB done
#4 DONE 0.0s
#5 [1/5] FROM docker.io/library/node:14
#5 DONE 0.0s
#6 [2/5] WORKDIR /usr/src/app
#6 DONE 0.0s
#7 [3/5] COPY package*.json ./
#7 DONE 0.0s
#8 [4/5] RUN npm install
#8 0.644 npm WARN saveError ENOENT: no such file or directory, open '/usr/src/app/package.json'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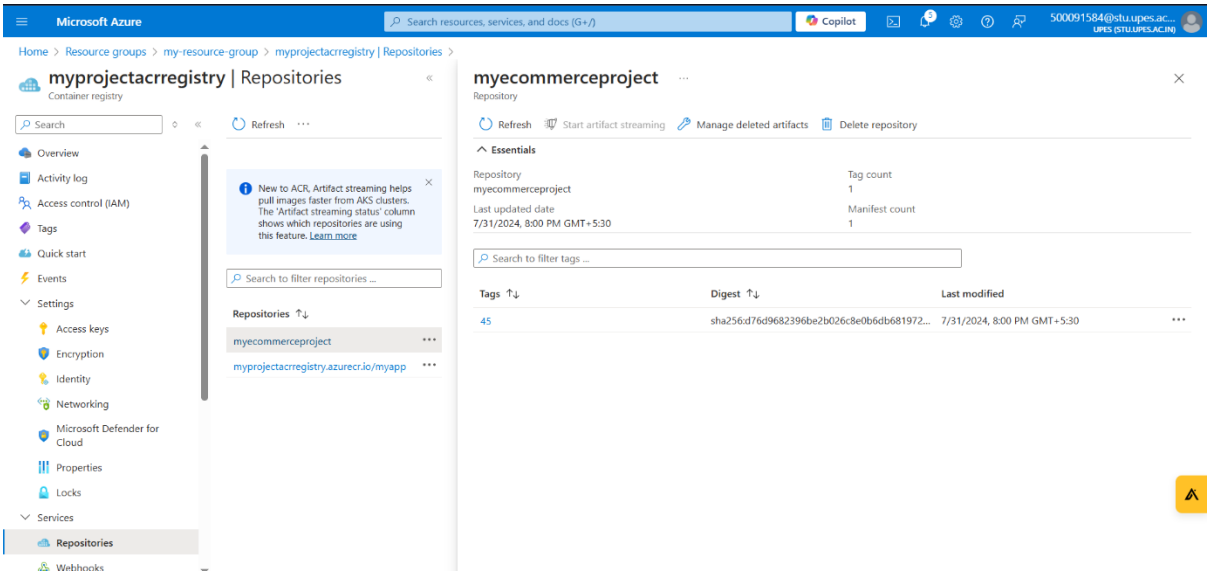
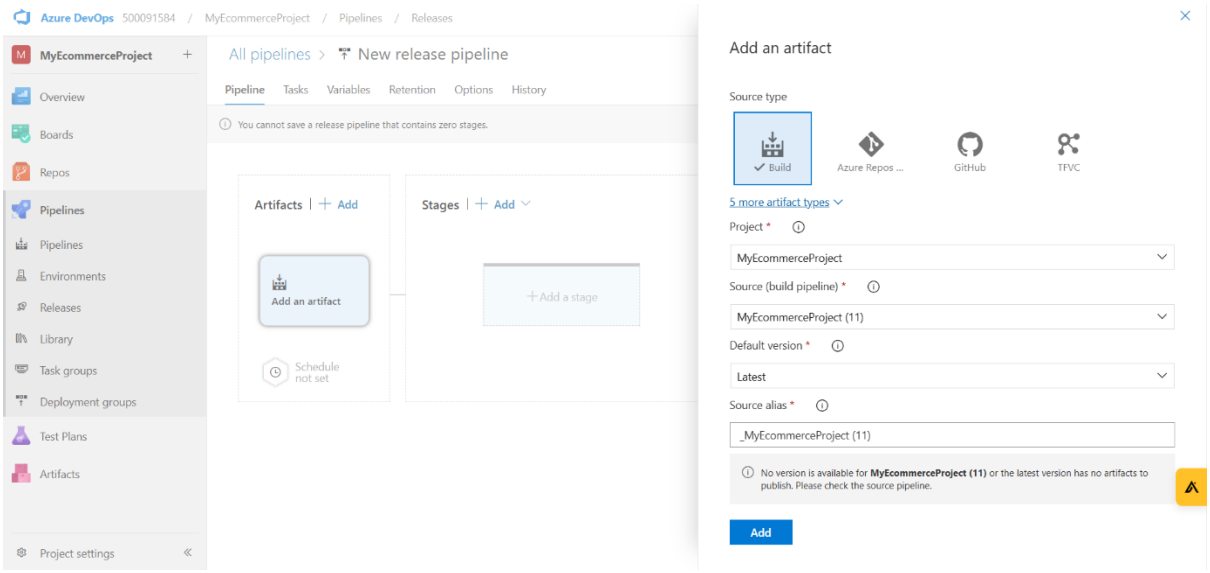
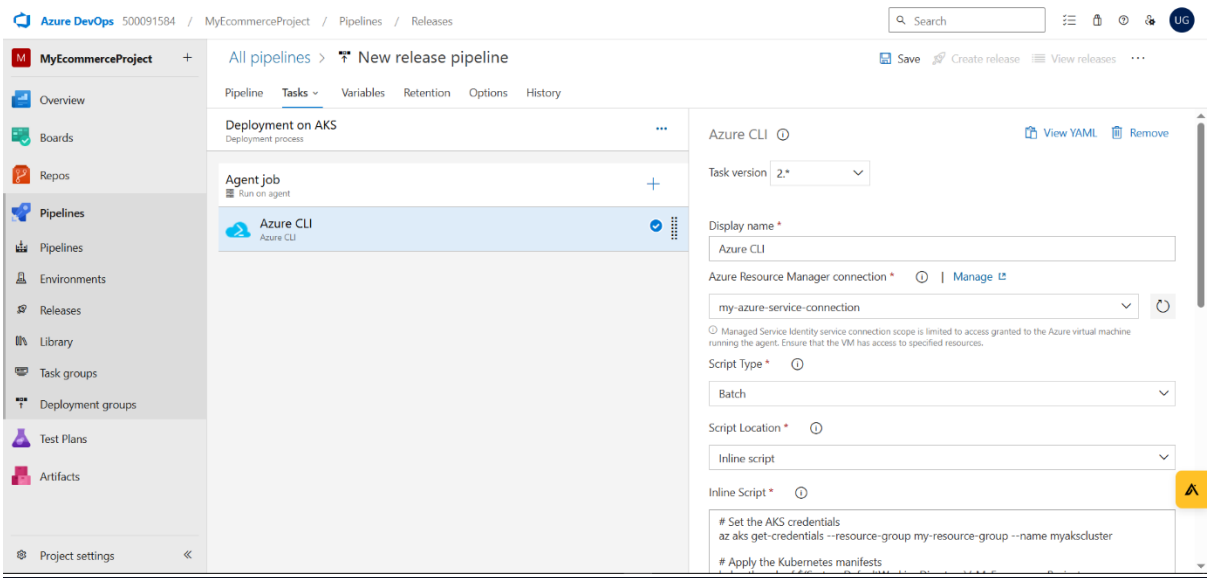
Jobs in run #20240731.1
MyEcommerceProject (11)
Build and push stage
Build 1m 3s
Initialize job 1s
Checkout MyEcommerc... 1s
Build and push an ima... 59s
Post-job: Checkout M... <1s
Finalize Job <1s
Report build status <1s
Build
View raw log
Pool: Azure Pipelines
Image: ubuntu-latest
Agent: Hosted Agent
Started: Just now
Duration: 1m 3s
Job preparation parameters
Job live console data:
Finishing: Build



10. Create CD Pipeline

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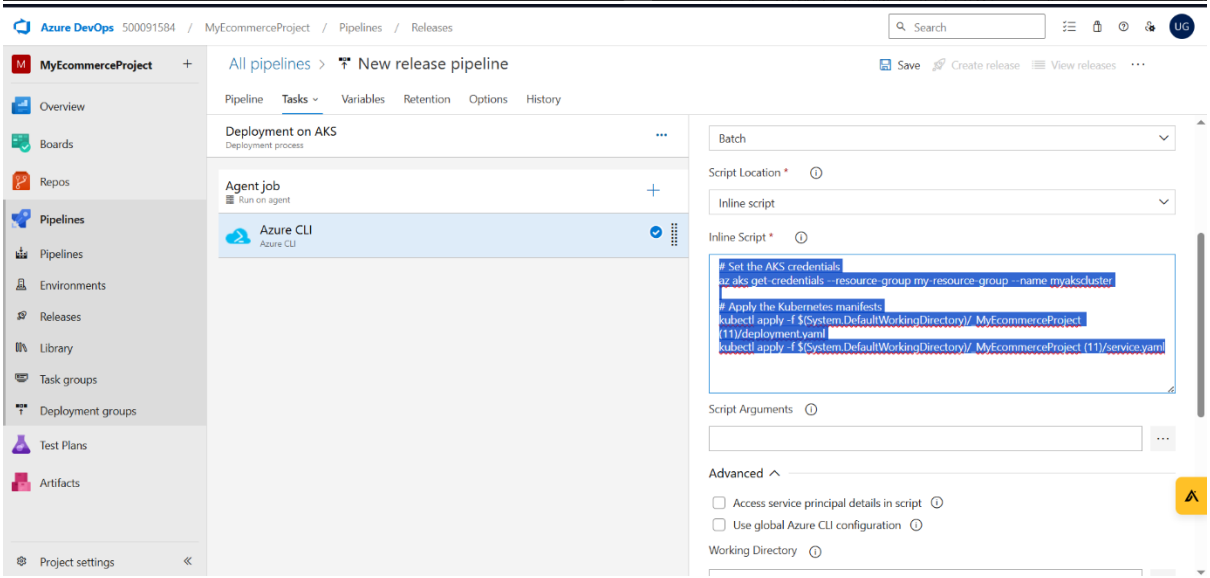
Deployment process
Agent job
Run on agent
Azure CLI
Azure CLI
Azure CLI
View YAML
Remove
Task version 2.*
Display name *
Azure CLI
Azure Resource Manager connection *
Manage
my-azure-service-connection
Managed Service Identity service connection scope is limited to access granted to the Azure virtual machine running the agent. Ensure that the VM has access to specified resources.
Script Type *
Batch
Script Location *
Inline script
Inline Script *
Set the AKS credentials
az aks get-credentials --resource-group my-resource-group --name myakscluster
Apply the Kubernetes manifests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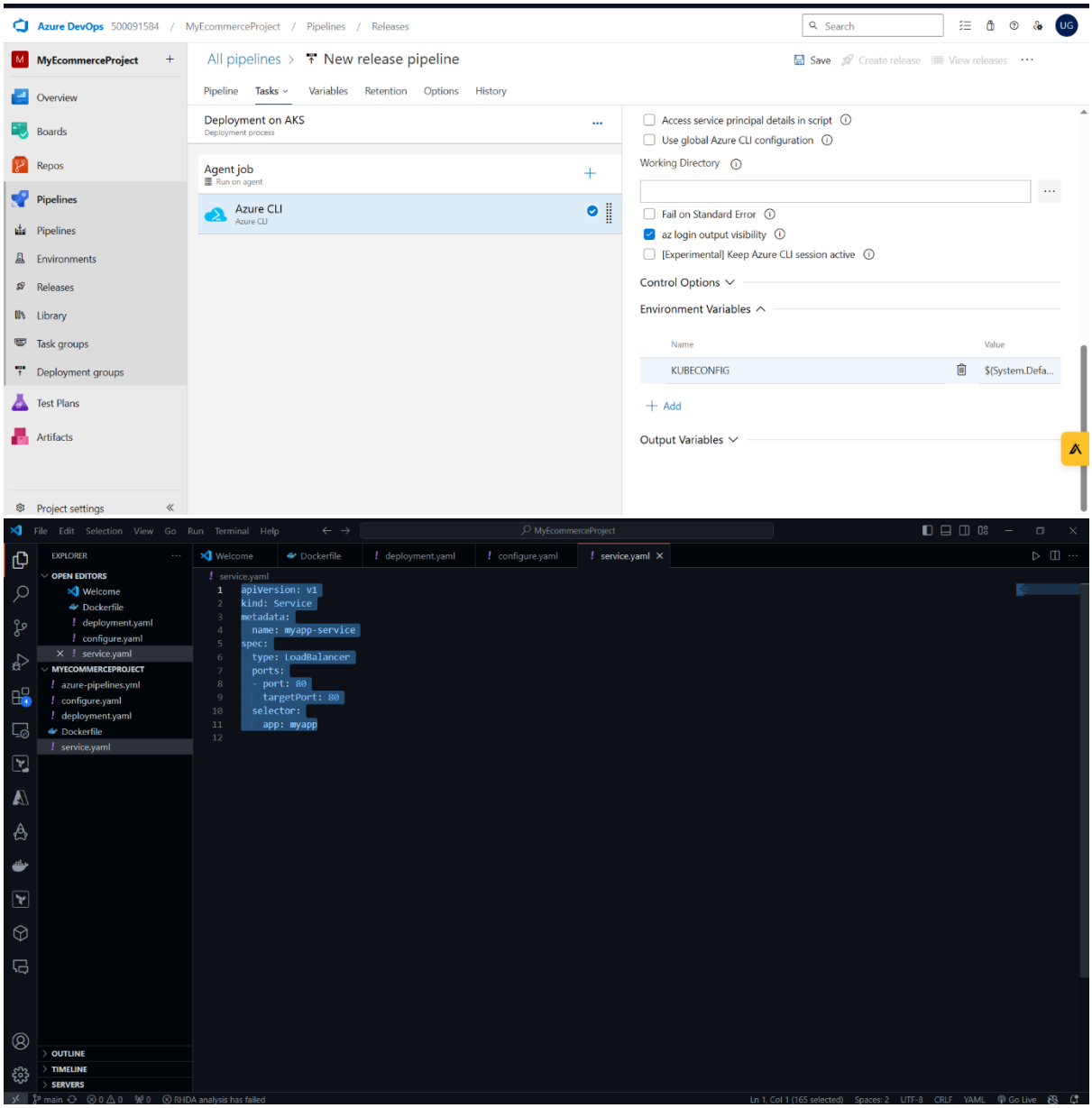
Agent job
Run on agent
Azure CLI
Azure CLI
Batch
Script Location *
Inline script
Inline Script *
Set the AKS credentials
az aks get-credentials --resource-group my-resource-group --name myakscluster
Apply the Kubernetes manifests
kubectl apply -f $(System.DefaultWorkingDirectory)/ MyEcommerceProject (11)/deployment.yaml
kubectl apply -f $(System.DefaultWorkingDirectory)/ MyEcommerceProject (11)/service.yaml
Script Arguments
Advanced
Access service principal details in script
Use global Azure CLI configuration
Working Directory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Run on agent
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Azure CLI
Access service principal details in script
Use global Azure CLI configuration
Working Directory
Fail on Standard Error
az login output visibility
[Experimental] Keep Azure CLI session active
Control Options
Environment Variables
Name
Value
KUBECONFIG
$(System.Defa...
Add
Output Variables

File Edit Selection View Go Run Terminal Help
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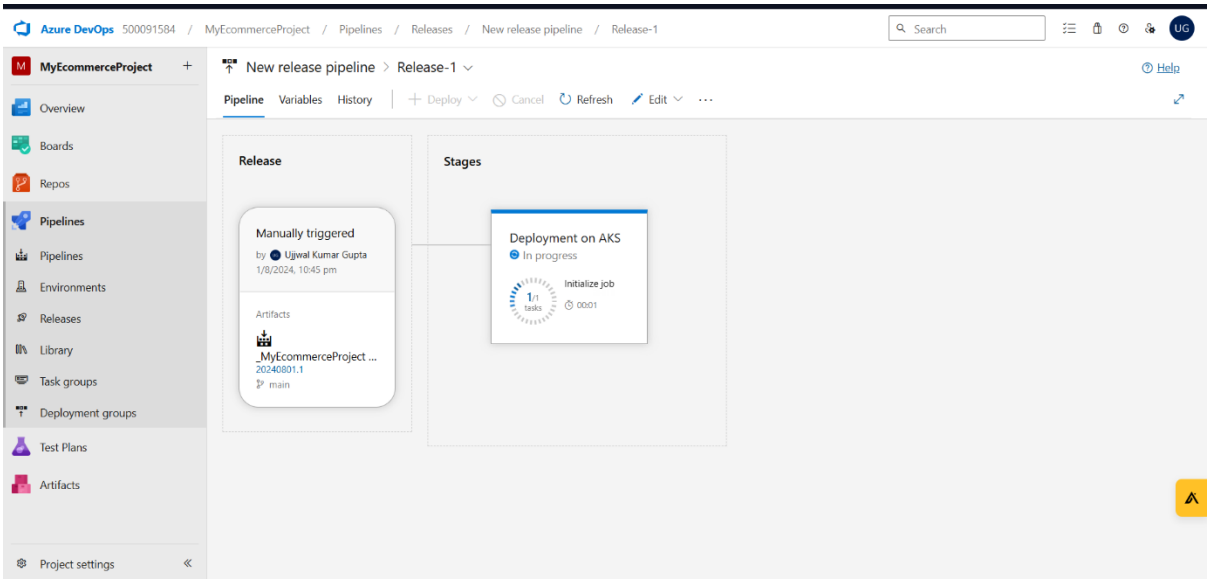
Welcome
Dockerfile
deployment.yaml
configure.yaml
service.yaml
MYECOMMERCEPROJECT
azure-pipelines.yml
configure.yaml
deployment.yaml
Dockerfile
service.yaml
OUTLINE
TIMELINE
SERVERS
Welcome
Dockerfile
deployment.yaml
configure.yaml
service.yaml
service.yaml
apiVersion: v1
kind: Service
metadata:
name: myapp-service
spec:
type: LoadBalancer
ports:
- port: 80
targetPort: 80
selector:
app: myapp
main
RHDA analysis has failed
Ln 1, Col 1 (165 selected)
Spaces: 2
UTF-8
CRLF
YAML
Go Live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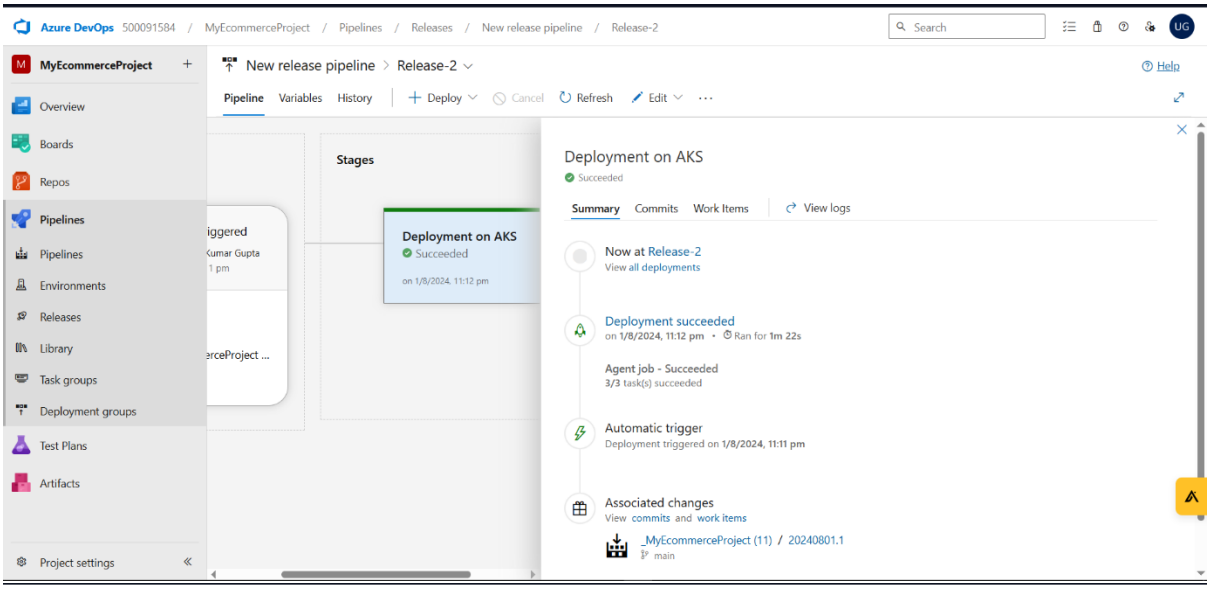
Help
Pipeline Variables History
Deploy Cancel Refresh Edit
Release
Stages
Manually triggered
by Ujjwal Kumar Gupta
1/8/2024, 10:45 pm
Artifacts
_MyEcommerceProject ...
20240801.1
main
Deployment on AKS
In progress
Initialize job
1/1 tasks
00:01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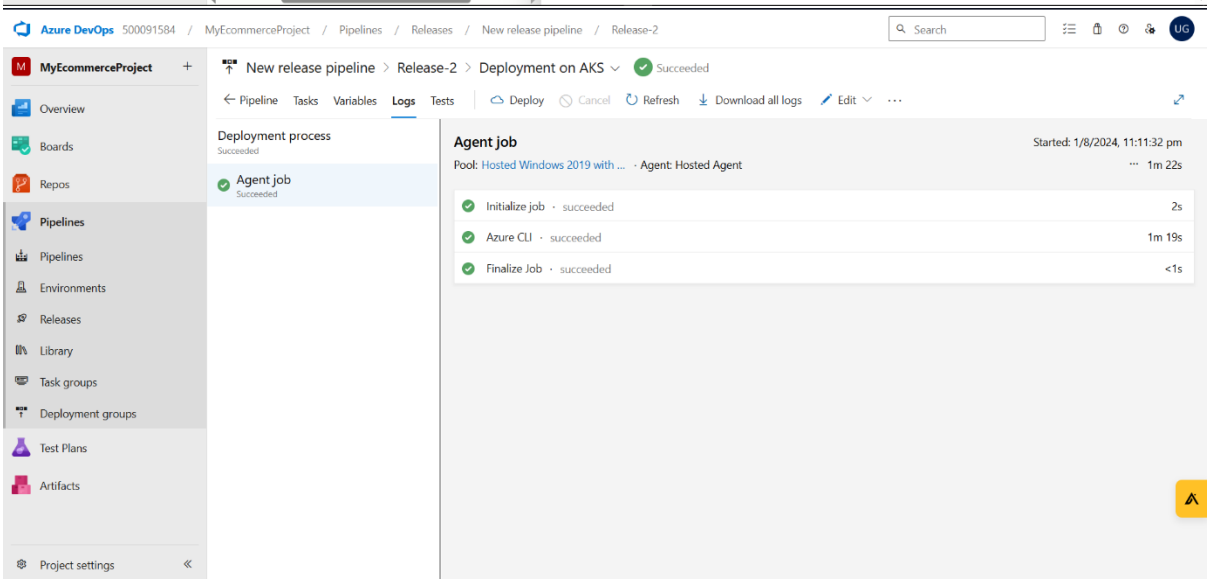
Stages
Deployment on AKS
Succeeded
on 1/8/2024, 11:12 pm
Deployment on AKS
Succeeded
Summary Commits Work Items
View logs
Now at Release-2
View all deployments
Deployment succeeded
on 1/8/2024, 11:12 pm • Ran for 1m 22s
Agent job - Succeeded
3/3 task(s) succeeded
Automatic trigger
Deployment triggered on 1/8/2024, 11:11 pm
Associated changes
View commits and work items
_MyEcommerceProject (11) / 20240801.1
main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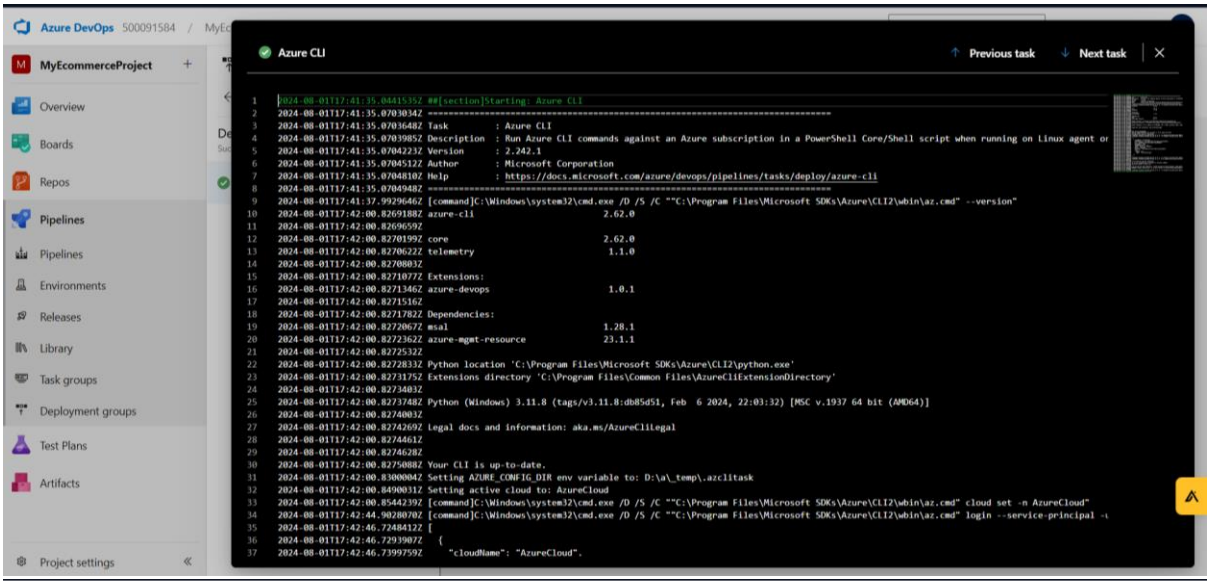
New release pipeline > Release-2 > Deployment on AKS
Succeeded
Pipeline Tasks Variables Logs Tests
Deploy Cancel Refresh Download all logs Edit
Deployment process
Succeeded
Agent job
Succeeded
Agent job
Started: 1/8/2024, 11:11:32 pm
Pool: Hosted Windows 2019 with ... · Agent: Hosted Agent
1m 22s
Initialize job · succeeded 2s
Azure CLI · succeeded 1m 19s
Finalize Job · succeeded <1s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Deployment groups
Test Plans
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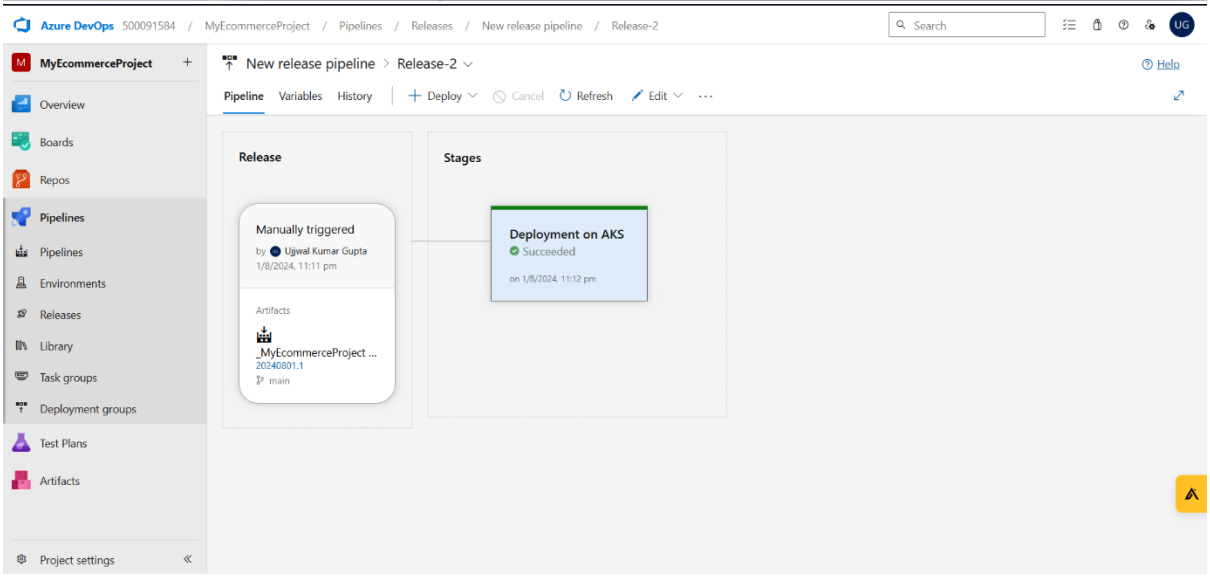
Project settings
Azure CLI
Previous task
Next task
2024-08-01T17:41:35.0441535Z ##[section]Starting: Azure CLI
2024-08-01T17:41:35.0703034Z ==
2024-08-01T17:41:35.0703648Z Task : Azure CLI
2024-08-01T17:41:35.0703985Z Description : Run Azure CLI commands against an Azure subscription in a PowerShell Core/Shell script when running on Linux agent or
2024-08-01T17:41:35.0704223Z Version : 2.242.1
2024-08-01T17:41:35.0704512Z Author : Microsoft Corporation
2024-08-01T17:41:35.0704810Z Help : https://docs.microsoft.com/azure/devops/pipelines/tasks/deploy/azure-cli
2024-08-01T17:41:35.0704948Z ==
2024-08-01T17:41:37.9929646Z [command]C:\Windows\system32\cmd.exe /D /S /C ""C:\Program Files\Microsoft SDKs\Azure\CLI2\wbin\az.cmd" --version"
2024-08-01T17:42:00.8269188Z azure-cli 2.62.0
2024-08-01T17:42:00.8269659Z
2024-08-01T17:42:00.8270199Z core 2.62.0
2024-08-01T17:42:00.8270622Z telemetry 1.1.0
2024-08-01T17:42:00.8270803Z
2024-08-01T17:42:00.8271077Z Extensions:
2024-08-01T17:42:00.8271346Z azure-devops 1.0.1
2024-08-01T17:42:00.8271516Z
2024-08-01T17:42:00.8271782Z Dependencies:
2024-08-01T17:42:00.8272067Z msal 1.28.1
2024-08-01T17:42:00.8272362Z azure-mgmt-resource 23.1.1
2024-08-01T17:42:00.8272532Z
2024-08-01T17:42:00.8272833Z Python location 'C:\Program Files\Microsoft SDKs\Azure\CLI2\python.exe'
2024-08-01T17:42:00.8273175Z Extensions directory 'C:\Program Files\Common Files\AzureCliExtensionDirectory'
2024-08-01T17:42:00.8273403Z
2024-08-01T17:42:00.8273748Z Python (Windows) 3.11.8 (tags/v3.11.8:db85d51, Feb 6 2024, 22:03:32) [MSC v.1937 64 bit (AMD64)]
2024-08-01T17:42:00.8274033Z
2024-08-01T17:42:00.8274269Z Legal docs and information: aka.ms/AzureCliLegal
2024-08-01T17:42:00.8274461Z
2024-08-01T17:42:00.8274628Z
2024-08-01T17:42:00.8275088Z Your CLI is up-to-date.
2024-08-01T17:42:00.8300004Z Setting AZURE_CONFIG_DIR env variable to: D:\a_temp\.azclitask
2024-08-01T17:42:00.8490031Z Setting active cloud to: AzureCloud
2024-08-01T17:42:00.8544239Z [command]C:\Windows\system32\cmd.exe /D /S /C ""C:\Program Files\Microsoft SDKs\Azure\CLI2\wbin\az.cmd" cloud set -n AzureCloud"
2024-08-01T17:42:44.9028070Z [command]C:\Windows\system32\cmd.exe /D /S /C ""C:\Program Files\Microsoft SDKs\Azure\CLI2\wbin\az.cmd" login --service-principal -u
2024-08-01T17:42:46.7248412Z [
2024-08-01T17:42:46.7293907Z {
2024-08-01T17:42:46.7399759Z "cloudName": "AzureCloud".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1/8/2024, 11:11 pm
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20240801.1
main
Deployment on AKS
Succeeded
on 1/8/2024, 11:12 pm