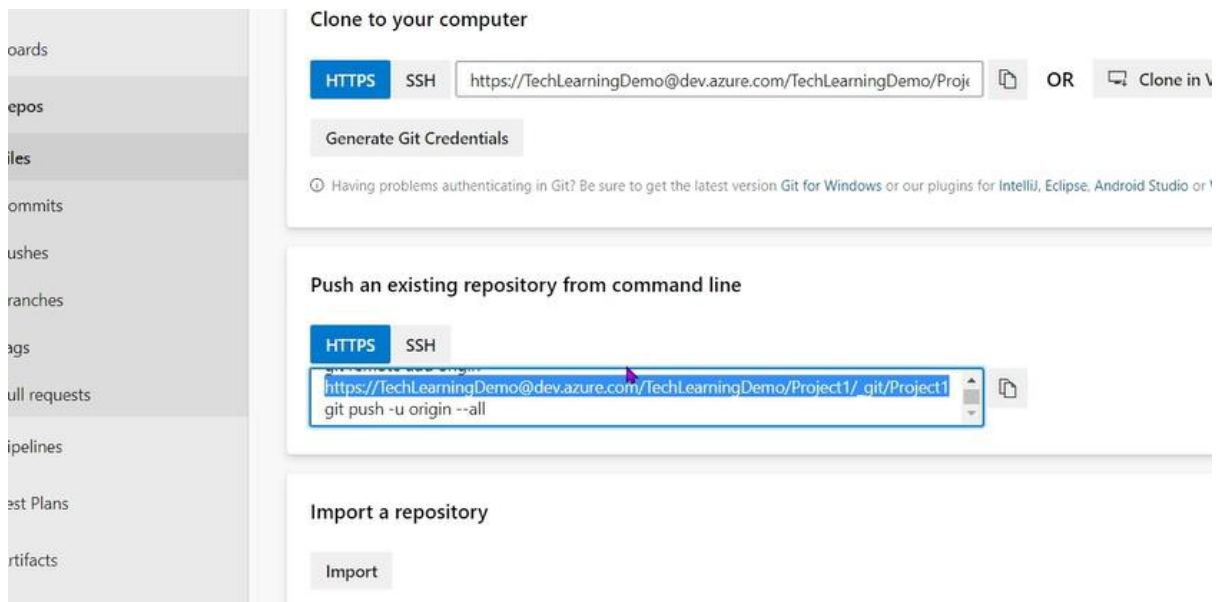
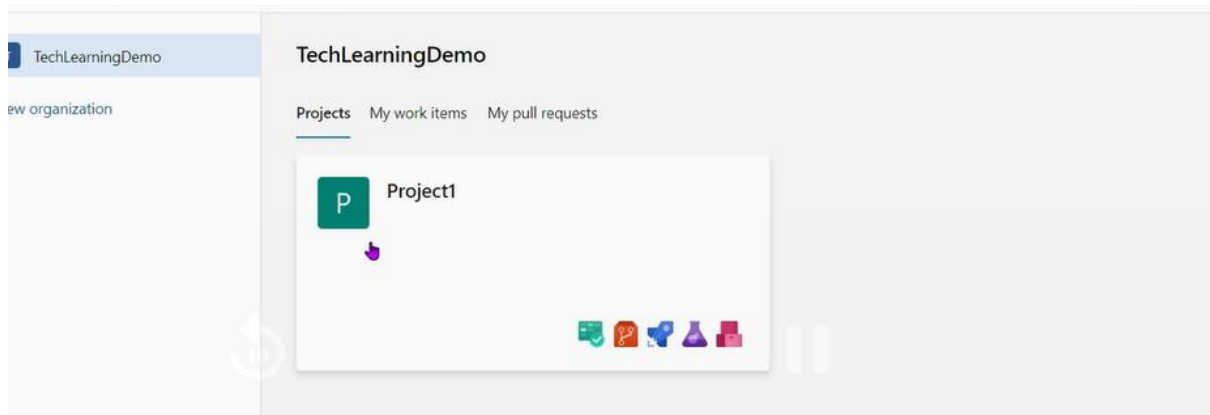
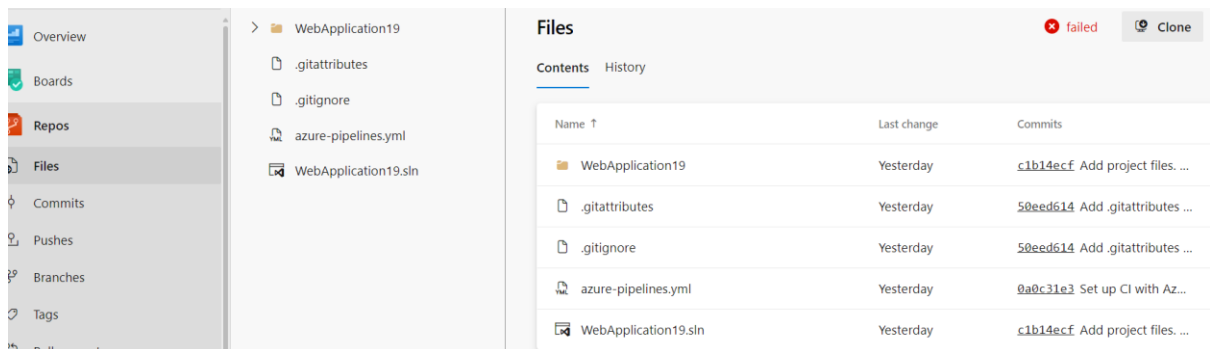


ARM Templates Integration with Azure CI/CD Pipelines

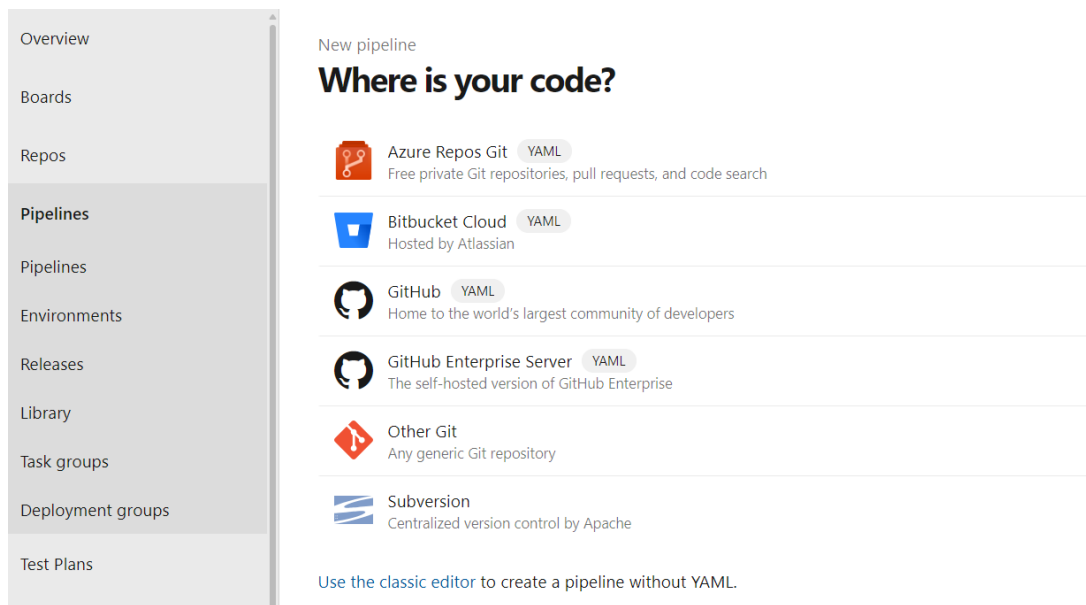
Create a Project on Azure DevOps Portal



Create ASP.Net web Application in Visual Studio and push it to Azure Repos.



Create Build Pipeline and select it from Azure repos Git and select ASP.Net Framework



YAML Pipeline Code to build the solution and Publish Artifacts.

```
# ASP.NET Core (.NET Framework)
# Build and test ASP.NET Core projects targeting the full .NET Framework.
# Add steps that publish symbols, save build artifacts, and more:
# https://docs.microsoft.com/azure/devops/pipelines/languages/dotnet-core
```

trigger:

- master

pool:

vmImage: 'windows-latest'

variables:

solution: '**/*.sln'

buildPlatform: 'Any CPU'

buildConfiguration: 'Release'

steps:

- task: NuGetToolInstaller@1

- task: NuGetCommand@2

inputs:

restoreSolution: '\$(solution)'

- task: VSBUILD@1

inputs:

solution: '\$(solution)'

```

msbuildArgs: '/p:DeployOnBuild=true /p:WebPublishMethod=Package /p:PackageAsSingleFile=true /p:SkipInvalidConfigurations=true /p:DesktopBuildPackageLocation="$(build.artifactStagingDirectory)\WebApp.zip" /p:DeployIisAppPath="Default Web Site"'
platform: '$(buildPlatform)'
configuration: '$(buildConfiguration)'

```

- task: VSTest@2

inputs:

```

platform: '$(buildPlatform)'
configuration: '$(buildConfiguration)'

```

- task: CopyFiles@2

inputs:

```

contents: '_buildOutput/**'
targetFolder: $(Build.ArtifactStagingDirectory)

```

- task: PublishBuildArtifacts@1

inputs:

```

pathToPublish: $(Build.ArtifactStagingDirectory)
artifactName: MyBuildOutputs

```

The screenshot displays the Azure DevOps Pipelines interface. On the left, a sidebar contains navigation options: Overview, Boards, Repos, Pipelines (selected), Environments, Releases, Library, Task groups, Deployment groups, Test Plans, Artifacts, and Project settings. The main area shows a YAML pipeline configuration for 'master' branch, titled 'armtemplate / azure-pipelines.yml'. The pipeline is configured to run on the 'windows-latest' pool. It includes a 'trigger' section for the 'master' branch, a 'pool' section, and a 'variables' section. The 'steps' section contains two tasks: 'NuGetToolInstaller@1' and 'NuGetCommand@2'. The 'NuGetCommand@2' task has inputs for 'solution' and 'restoreSolution'. On the right, a 'Tasks' panel lists various tasks available in the marketplace, including '.NET Core', 'Android signing', 'Ant', 'App Center distribute', 'App Center test', 'Archive files', and 'ARM template deployment'.

```

1 # ASP.NET Core (.NET Framework)
2 # Build and test ASP.NET Core projects targeting the full .NET Framework.
3 # Add steps that publish symbols, save build artifacts, and more:
4 # https://docs.microsoft.com/azure/devops/pipelines/languages/dotnet-core
5
6 trigger:
7   - master
8
9 pool:
10  - vmImage: 'windows-latest'
11
12 variables:
13   - solution: '**/*.sln'
14   - buildPlatform: 'Any CPU'
15   - buildConfiguration: 'Release'
16
17 steps:
18   - task: NuGetToolInstaller@1
19
20   - task: NuGetCommand@2
21     inputs:
22       - restoreSolution: '$(solution)'
23

```

23

Settings

- task: VSBuild@1

- inputs:

- solution: '\$(solution)'

- msbuildArgs: '/p:DeployOnBuild=true /p:WebPublishMethod=Package /p:PackageAsSingleFile'

- platform: '\$(buildPlatform)'

- configuration: '\$(buildConfiguration)'

24

25

26

27

28

29

30

Settings

31

32

33

34

35

36

Settings

37

38

39

40

Settings

41

42

43

Search tasks

dotnet

.NET Core

Build, test, package, or publish a dotnet applicatio...

android

Android signing

Sign and align Android APK files

ant

Ant

Build with Apache Ant

appcenter

App Center distribute

Distribute app builds to testers and users via Visu...

appcenter

App Center test

Test app packages with Visual Studio App Center

archive

Archive files

Compress files into .7z, .tar.gz, or .zip

arm

ARM template deployment

Deploy an Azure Resource Manager (ARM) templ...

30

Settings

- task: VSTest@2

- inputs:

- platform: '\$(buildPlatform)'

- configuration: '\$(buildConfiguration)'

31

32

33

34

35

36

Settings

37

38

39

40

Settings

41

42

43

44

Search tasks

dotnet

.NET Core

Build, test, package, or publish a dotnet applicatio...

android

Android signing

Sign and align Android APK files

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Test app packages with Visual Studio App Center

archive

Archive files

Compress files into .7z, .tar.gz, or .zip

arm

ARM template deployment

Deploy an Azure Resource Manager (ARM) templ...

Run the pipeline. It will be success.

armtemplate

Edit

Run pipeline

Runs

Branches

Analytics

Description

Stages

✓

#20240915.1 • Set up CI with Azure Pipelines

Individual CI for master @ 0a0c31e3

✓

Yesterday

1m 34s

Create new Release Pipeline and select Empty job

+

All pipelines > New release pipeline (1)

Pipeline Tasks Variables Retention Options History

Artifacts | + Add

Stages | + Add

+ Add an artifact

Schedule not set

Stage 1
Select a template

Select a template

Or start with an [Empty job](#)

Search

Featured

- Azure App Service deployment**
Deploy your application to Azure App Service. Choose from Web App on Windows, Linux, containers, Function Apps, or WebJobs.
- Deploy a Java app to Azure App Service**
Deploy a Java application to an Azure Web App.
- Deploy a Node.js app to Azure App Service**
Deploy a Node.js application to an Azure Web App.
- Deploy a PHP app to Azure App Service and Azure Database for MySQL**
Deploy a PHP application to an Azure Web App and database to Azure Database for MySQL.
- Deploy a Python app to Azure App Service and Azure database for MySQL**
Deploy a Python Django, Bottle, or Flask application to an

Specify the stage name to Production. Click on Save. Also add to artifacts.

Pipeline Tasks Variables Retention Options History

Artifacts | + Add

Stages | + Add

+ Add an artifact

Schedule not set

Production
1 job, 0 task

Stage

Production

Delete Move ...

Properties

Name and owners of the stage

Stage name

Production

Stage owner

TP Tanvi Puri

Pipeline Tasks Variables Retention Options History

Artifacts | + Add

+ Add an artifact

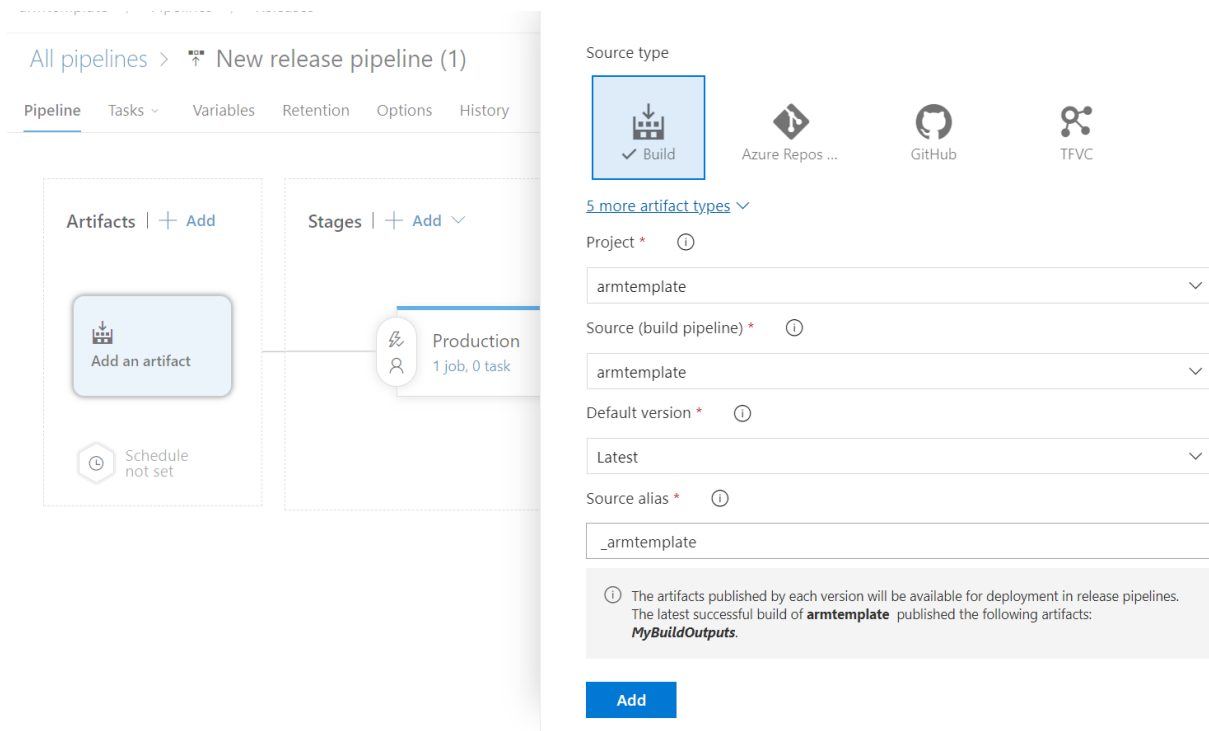
Schedule not set

Save

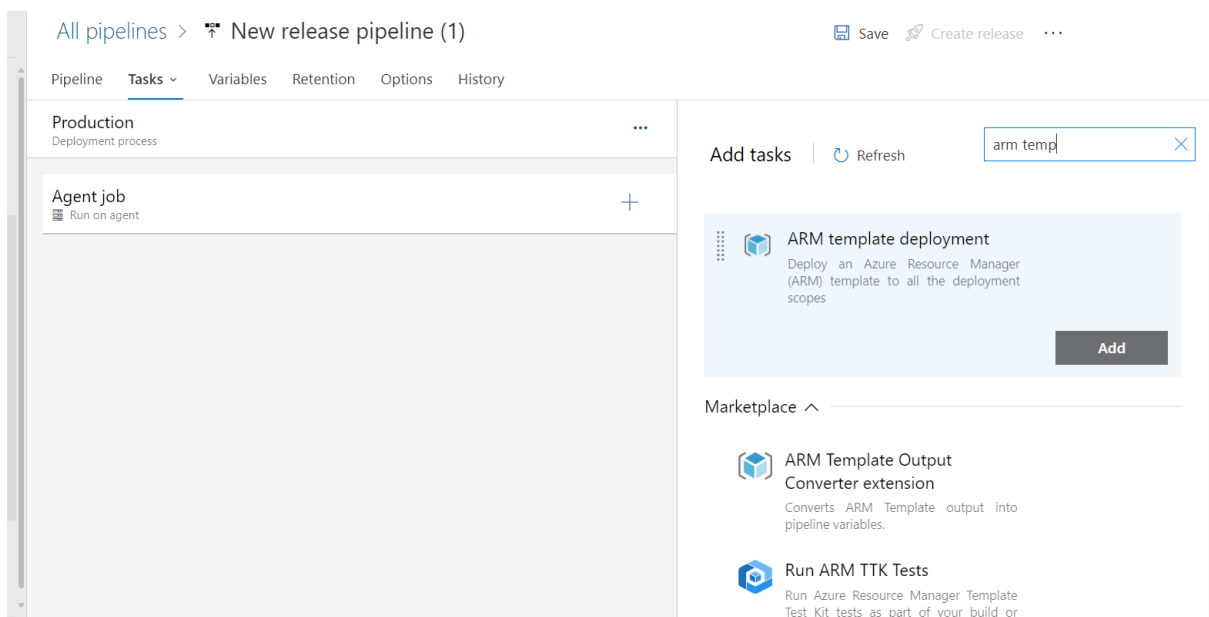
Folder *

Comment

OK Cancel



Add the task for ARM Template Deployment



On Azure Portal create storage account as per configurations given in the below screenshot.


Create a storage account ...


Select the subscription in which to create the new storage account. Choose a new or existing resource group to organize and manage your storage account together with other resources.


Subscription *	MSDN Platforms Subscription
Resource group *	(New) rgdemo


[Create new](#)

Instance details

Storage account name * ⓘ	demostoracnt678
Region * ⓘ	(US) East US
	Deploy to an Azure Extended Zone
Primary service ⓘ	Azure Blob Storage or Azure Data Lake Storage Gen 2
Primary workload ⓘ	Backup and archive
	 Best for secure, durable, and cost-effective retention of backups and archives Customize your storage account for your workload or with a modifiable recommended preset based on best practice. See summary table for recommended presets

Region * ⓘ	(US) East US
	Deploy to an Azure Extended Zone
Primary service ⓘ	Azure Blob Storage or Azure Data Lake Storage Gen 2
Primary workload ⓘ	Backup and archive
	 Best for secure, durable, and cost-effective retention of backups and archives Customize your storage account for your workload or with a modifiable recommended preset based on best practice. See summary table for recommended presets

Performance * ⓘ	<input checked="" type="radio"/> Standard: Recommended for most scenarios (general-purpose v2 account) <input type="radio"/> Premium: Recommended for scenarios that require low latency.  Standard performance is recommended for the Backup and archive workload.
-----------------	--

Redundancy * ⓘ	Geo-redundant storage (GRS)
	<input checked="" type="checkbox"/> Make read access to data available in the event of regional unavailability.  RA-GRS is recommended for the Backup and archive workload.

Enable Anonymous access on Container. Keep other settings as default.

Security

Configure security settings that impact your storage account.

Require secure transfer for REST API operations ☒

Allow enabling anonymous access on individual containers ☒

Enable storage account key access ☒

Default to Microsoft Entra authorization in the Azure portal ☐

Minimum TLS version

Permitted scope for copy operations (preview)

Hierarchical Namespace

Hierarchical namespace, complemented by Data Lake Storage Gen2 endpoint, enables file and directory semantics, accelerates big data analytics workloads, and enables access control lists (ACLs) [Learn more](#)

demostoracnt678_1726471880565 | Overview

Deployment

Search

Delete Cancel Redeploy Download Refresh

Overview

Inputs

Outputs

Template

Deployment is in progress

Deployment name: demostoracnt678_1726471880565

Subscription: MSDN Platforms Subscription

Resource group: rgdemo

Start time: 9/16/2024, 1:01:36 PM

Correlation ID: 7326518f-0067-41b2-8e04-19c3ca9ea168

Deployment details

Resource	Type	Status	Operation details
No results.			

Give feedback

Tell us about your experience with deployment

Microsoft

Secure you

Go to Micr

Free Micro

Start learni

Work with

Azure expe

who can hi

and he uo

Create a new container, provide read access to container level and upload ARM Template json script to blob.

data

Container

Search

Upload Change access level Refresh Delete Change tier

Overview

Diagnose and solve problems

Access Control (IAM)

Settings

Authentication method: Access key (Switch to Microsoft Entra user account)

Location: data

Search blobs by prefix (case-sensitive)

Add filter

Name	Modified	Access tier	Arch
No results			

1 file(s) selected: ARMTemplate01.json

Drag and drop files here or Browse for files

☐ Overwrite if files already exist

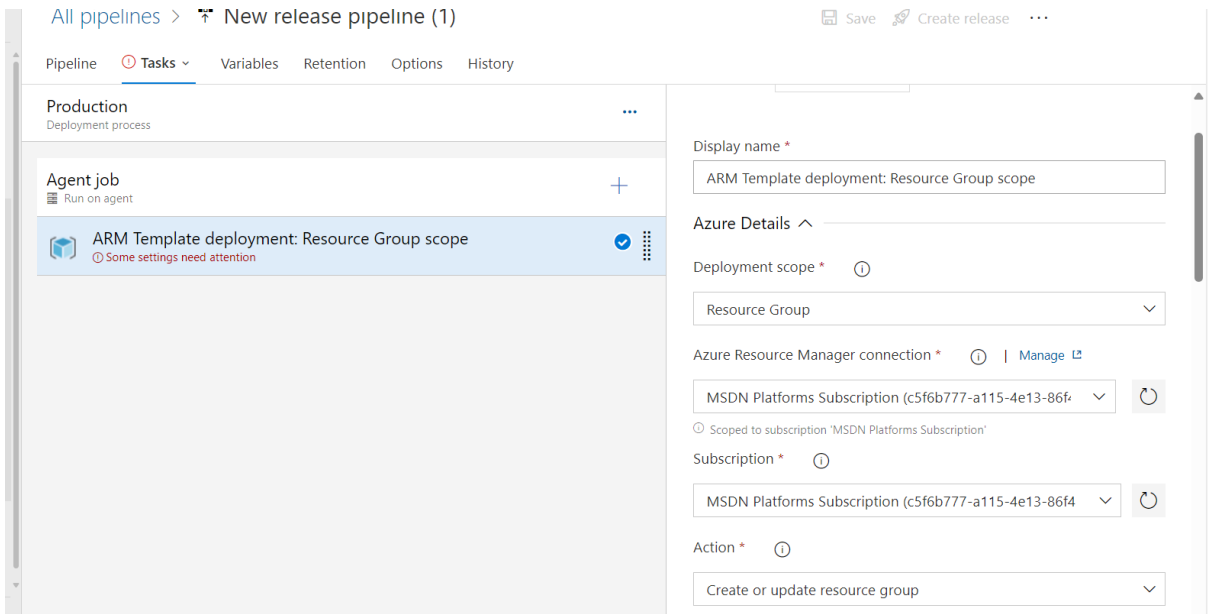
Advanced

Upload

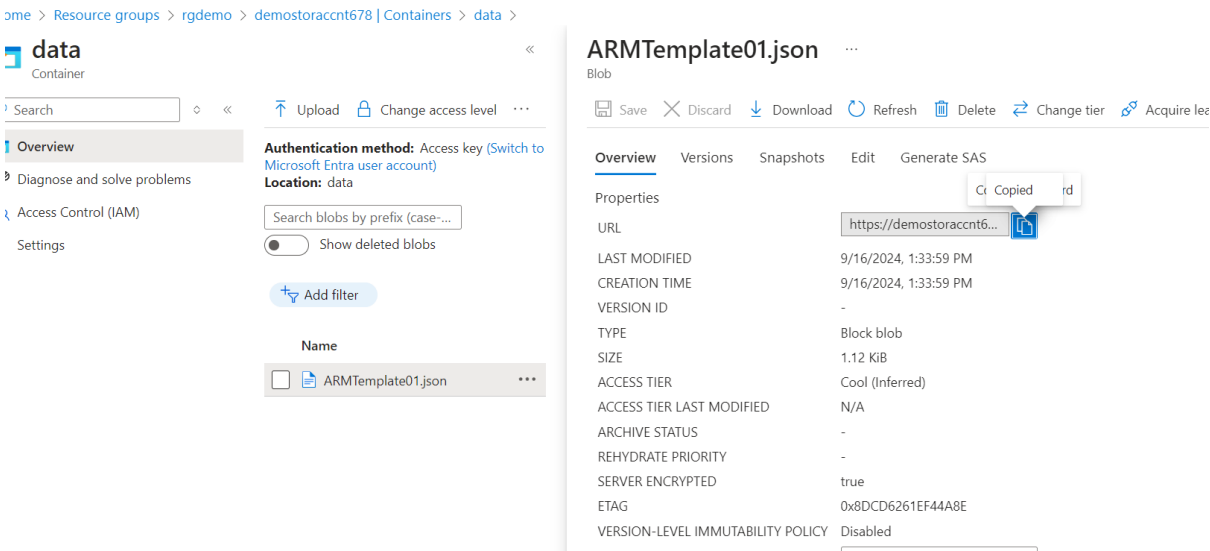
ARM Template Script to create web app and app service plan instance in Azure account.

```
{
  "$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.json#",
  "contentVersion": "1.0.0.0",
  "parameters": {},
  "functions": [],
  "variables": {},
  "resources": [
    {
      "type": "Microsoft.Web/serverfarms",
      "apiVersion": "2022-03-01",
      "name": "demowebapp09876",
      "location": "[resourceGroup().location]",
      "sku": {
        "name": "F1",
        "capacity": 1
      },
      "properties": {
        "name": "demowebapp09876"
      }
    },
    {
      "type": "Microsoft.Web/sites",
      "apiVersion": "2022-03-01",
      "name": "websitedemo567",
      "location": "[resourceGroup().location]",
      "properties": {
        "name": "websitedemo567",
        "serverFarmId": "[resourceId('Microsoft.Web/serverfarms','demowebapp09876')]"
      },
      "dependsOn": [
        "[resourceId('Microsoft.Web/serverfarms','demowebapp09876')]"
      ]
    }
  ],
  "outputs": {}
}
```

Navigate to Azure DevOps Portal and complete the configuration as per screenshot.



Paste the Url of Blob in the template link



Pipeline Tasks Variables Retention Options History

Production

Deployment process

Agent job

Run on agent

ARM Template deployment: Resource Group scope

ARM template deployment

Create or update resource group

Resource group *

rgdemo

Location *

East US

Template

Template location *

URL of the file

Template link *

<https://demostoracnt678.blob.core.windows.net/data/ARMTemplate01.json>

Template parameters link

Rest all settings keep as default.

Pipeline Tasks Variables Retention Options History

Production

Deployment process

Agent job

Run on agent

ARM Template deployment: Resource Group scope

ARM template deployment

Template location *

URL of the file

Template link *

<https://demostoracnt678.blob.core.windows.net/data/ARMTemplate01.json>

Template parameters link

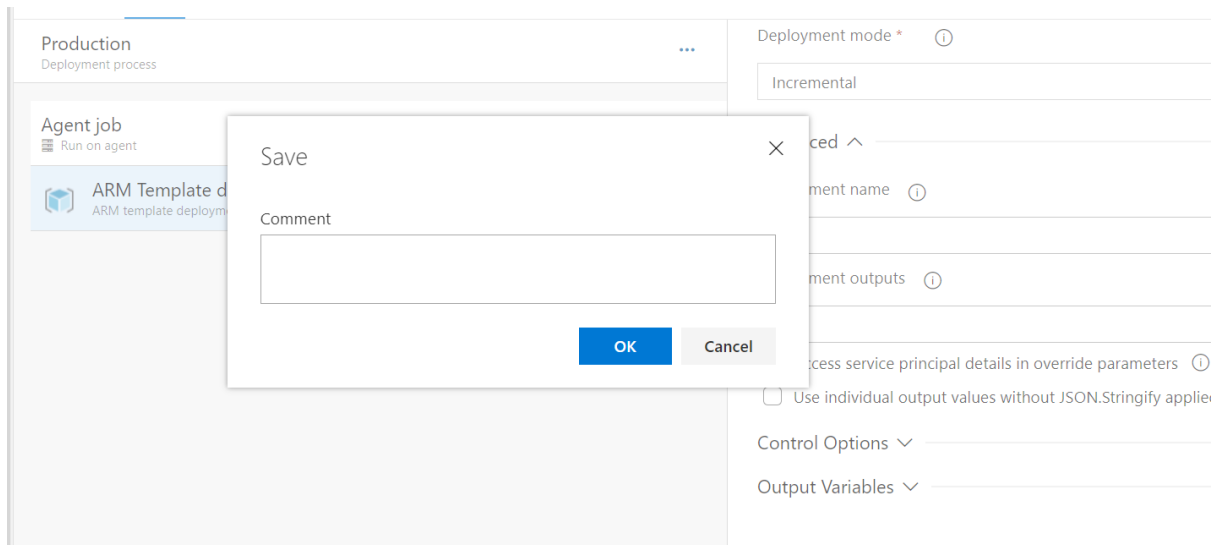
Override template parameters

Deployment mode *

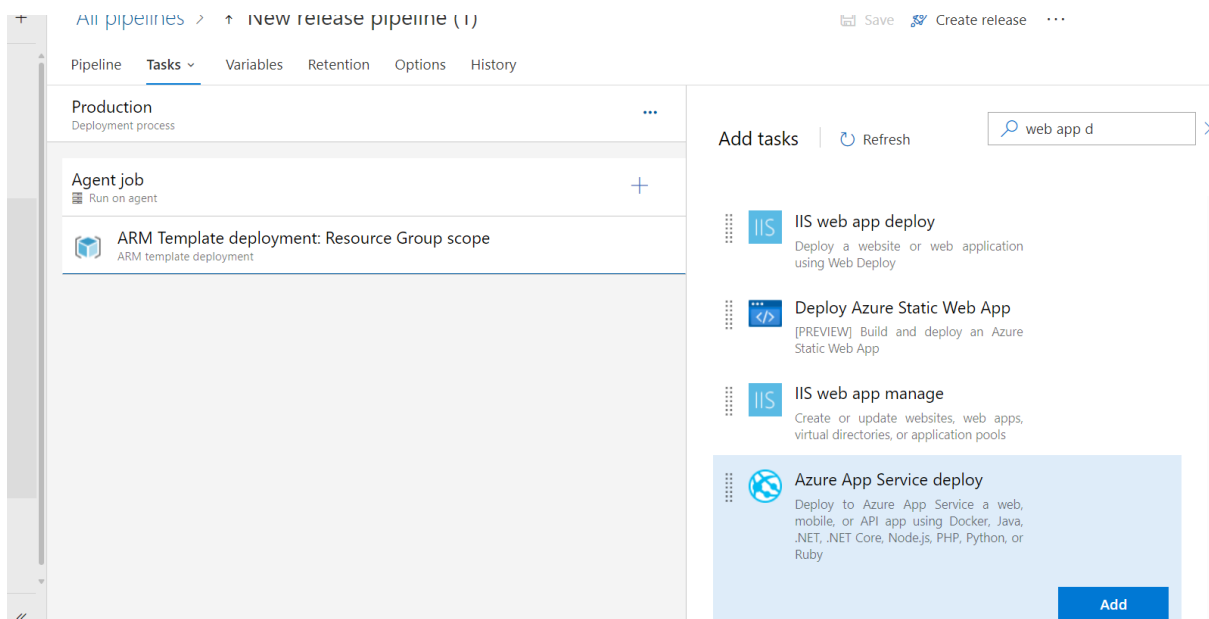
Incremental

Advanced

Deployment name



Add Task App Service Deploy and configure the settings in order to deploy our application to web app instance that will be created by ARM Template Deployment mentioned in Task1.



Paste the app service name from the script which you have uploaded to Azure storage account as blob.

new release pipeline (1)

Pipeline Tasks Variables Retention Options History

Production
Deployment process

Agent job
Run on agent

ARM Template deployment: Resource Group scope
ARM template deployment

Azure App Service Deploy: websitedemo567
Azure App Service deploy

Display name *
Azure App Service Deploy: websitedemo567

Connection type * ⓘ
Azure Resource Manager

Azure subscription * ⓘ | Manage [Manage](#)
MSDN Platforms Subscription (c5f6b777-a115-4e13-86f...)

ⓘ Scoped to subscription 'MSDN Platforms Subscription'

App Service type * ⓘ
Web App on Windows

App Service name * ⓘ
websitedemo567

☐ Deploy to Slot or App Service Environment ⓘ

Rest other settings as default. Save it.

Pipeline Tasks Variables Retention Options History

Production
Deployment process

Agent job
Run on agent

ARM Template deployment: Resource Group scope
ARM template deployment

Azure App Service Deploy: websitedemo567
Azure App Service deploy

App Service name * ⓘ
websitedemo567

☐ Deploy to Slot or App Service Environment ⓘ

Virtual application ⓘ

Package or folder * ⓘ
\$(System.DefaultWorkingDirectory)/**/*.zip

File Transforms & Variable Substitution Options ▾

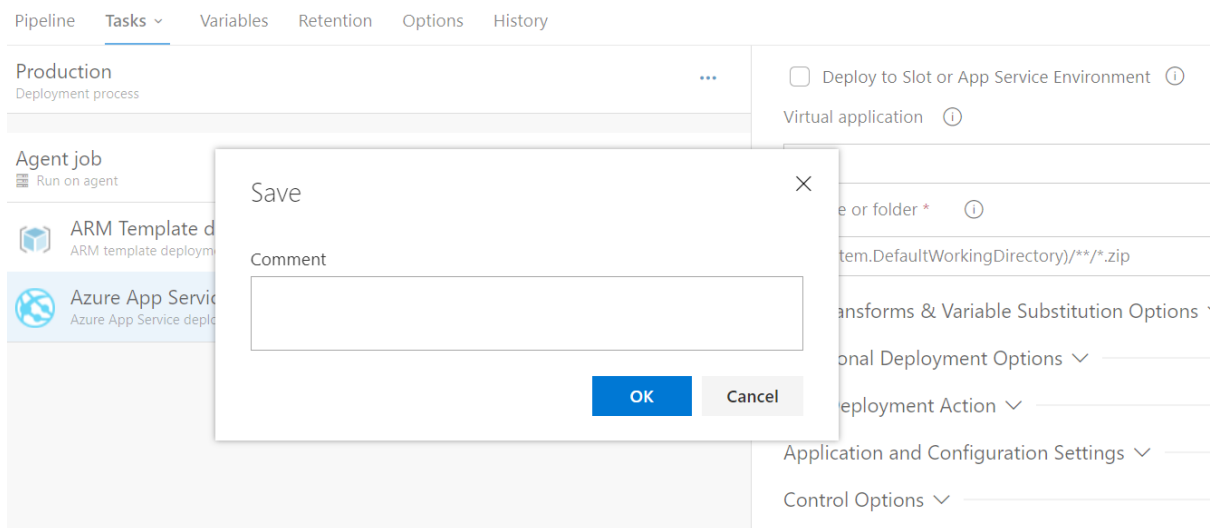
Additional Deployment Options ▾

Post Deployment Action ▾

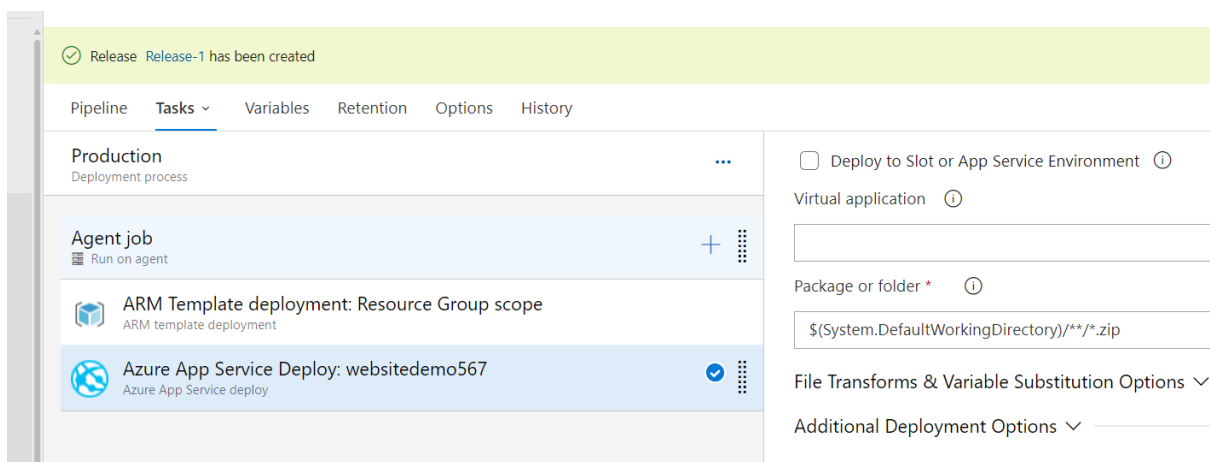
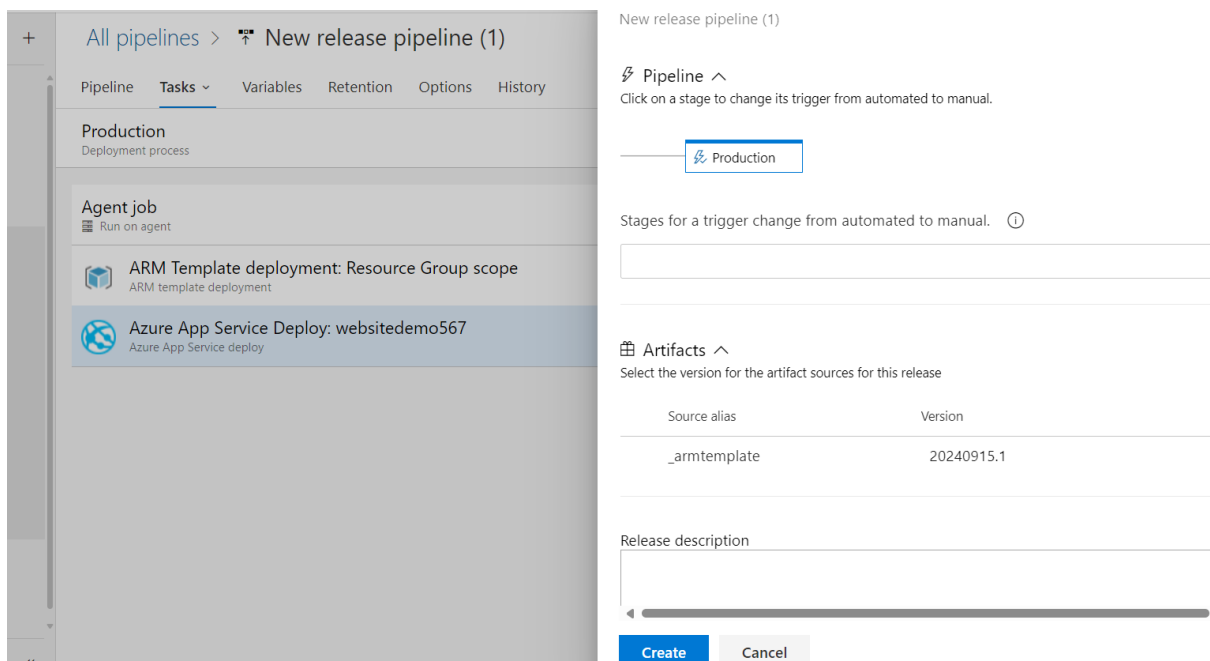
Application and Configuration Settings ▾

Control Options ▾

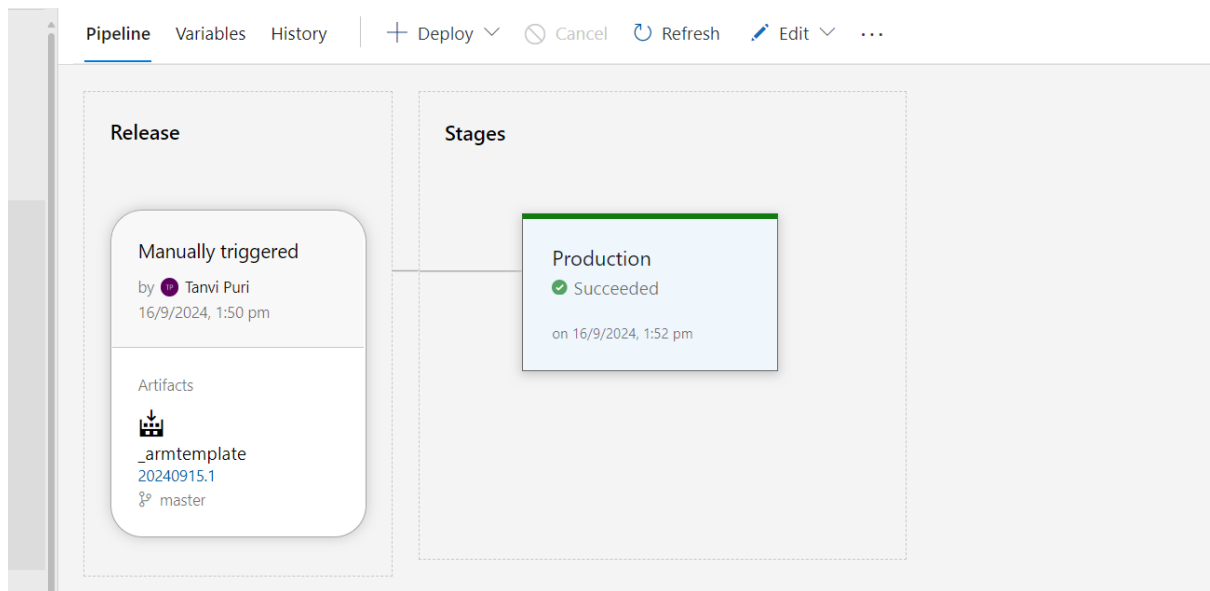
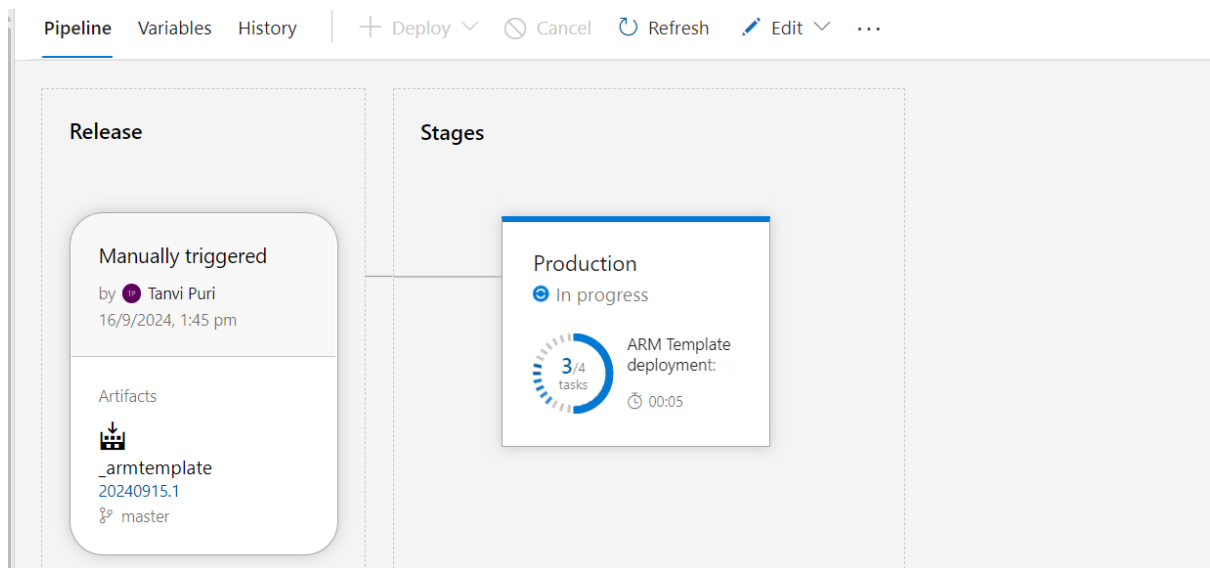
Output Variables ▾



Create a Release Pipeline.

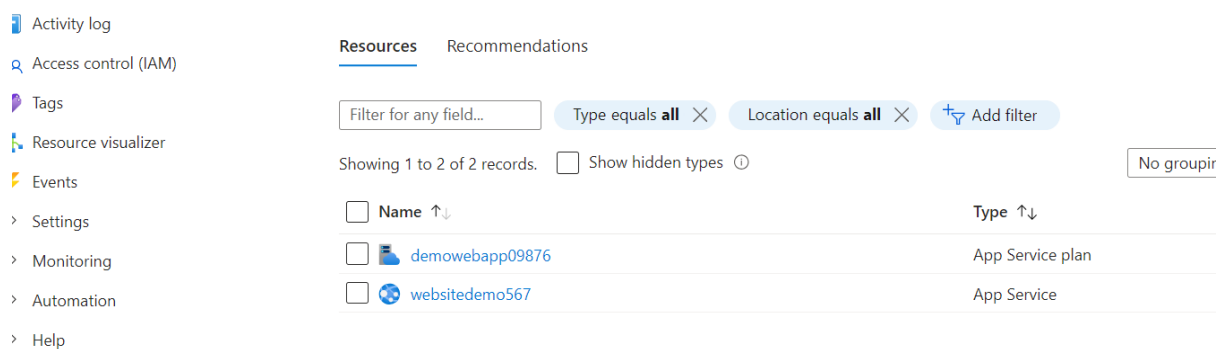


Click on Release and check the status.



In case you get an error in pipeline execution try with some other region and SKU [S1 instead of F1].

Verify on Azure Portal



Hit on browse and see the deployment.



websitedemo567

Web App



Search

Browse Stop Swap Restart Delete Refresh Download publish

Overview

Activity log

Click here to access Application Insights for monitoring and profiling for your app.

Essentials



https://websitedemo567.azurewebsites.net

WebApplication19 [Home](#) [Privacy](#)

Welcome

Learn about [building Web apps with ASP.NET Core](#).