

Creating and running CD pipeline & .NET Core in Azure



Presented by

Mohamed Farouk

Cloud Architect | Technical Instructor

LinkedIn: <https://www.linkedin.com/in/mftawfik/>

Creating Web App for .NET Core in Azure & Creating and running CD pipeline

In my previous article I showed you how to use Azure DevOps to create a CI Pipeline, in this article will show you how to create a CD pipeline to deploy the .Net application on Azure app service, before proceeding further let us understand what CD pipeline is.

What is a **continuous delivery pipeline**? Continuous Delivery (CD) is a process by which code is built, tested, and deployed to one or more test and production environments. Deploying and testing in multiple environments drives quality. CI systems produce the deployable artifacts including infrastructure and apps. Automated release processes consume these artifacts to release new versions and fixes to existing systems. Monitoring and alerting systems run continually to drive visibility into the entire CD process. The Release service in TFS helps you set up and manage CD for your applications.

Now let us go through the steps:

Image 1

Login to Azure portal

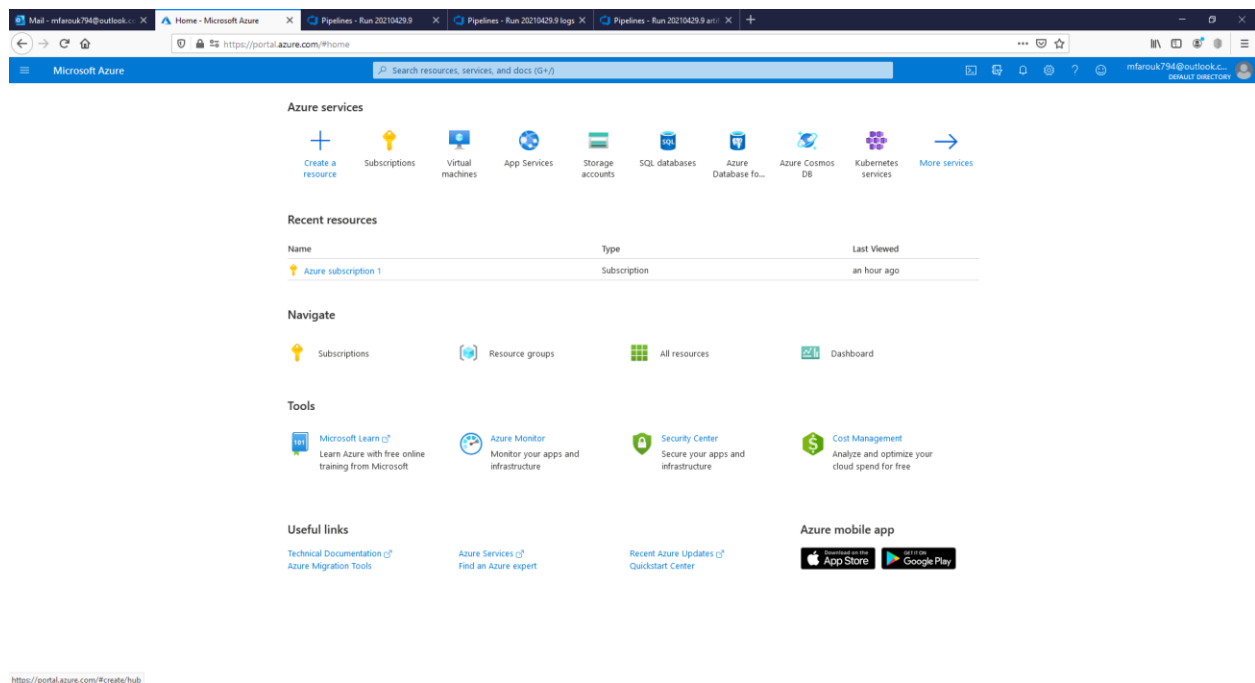


Image 2

Click create resource then choose web then search for web app then press enter.

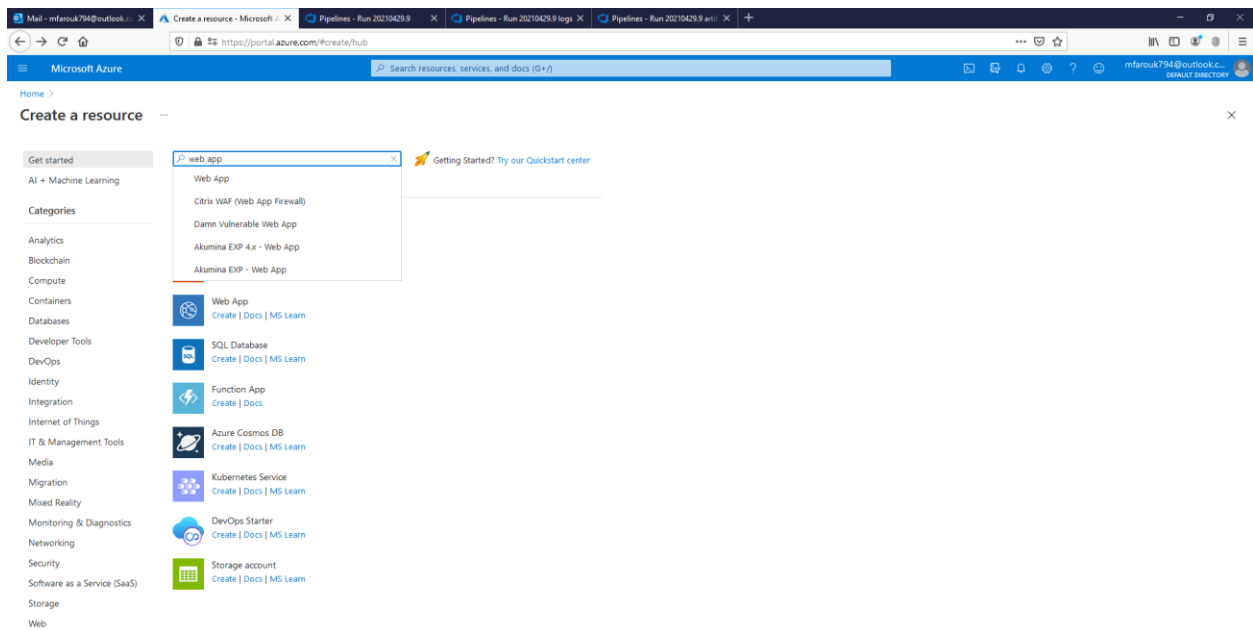


Image 3

Search in the search box for Web App and once appeared choose it.

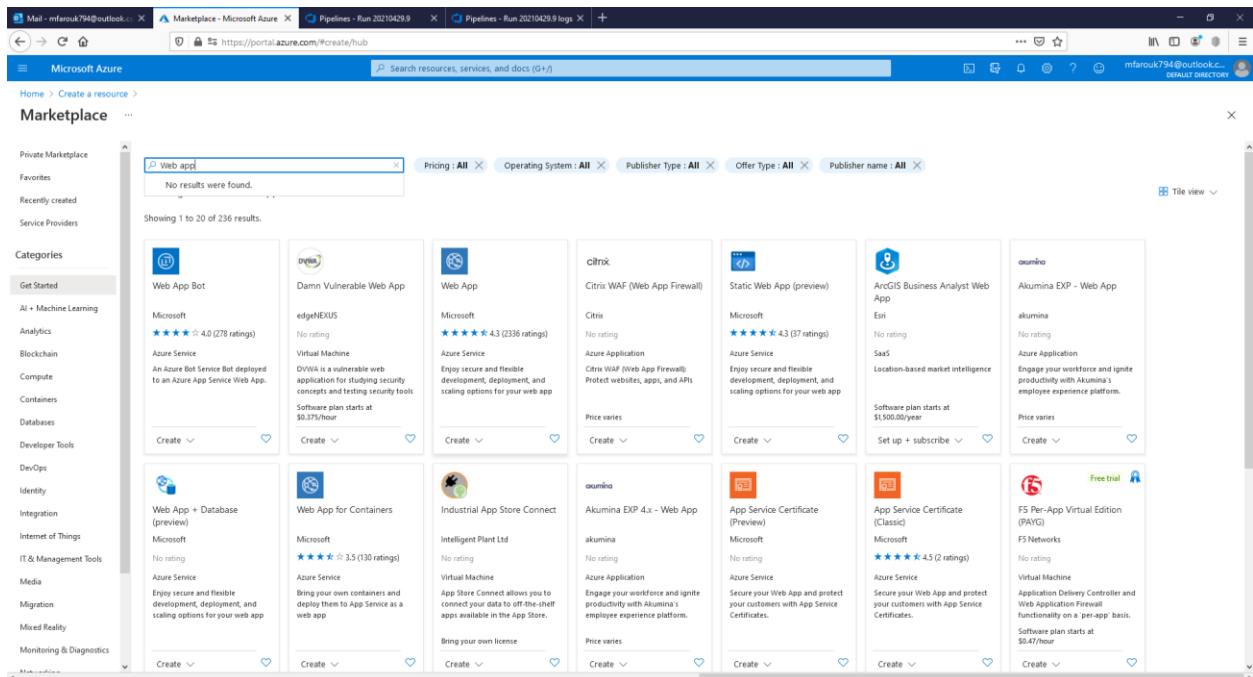


Image 4

Click create to proceed with creating web app and App Service as well.

The screenshot shows the Microsoft Azure portal interface. At the top, there's a navigation bar with the 'Web App' resource selected. Below the navigation bar, the 'Web App' resource is displayed with a 'Create' button. The main content area provides an overview of App Service Web Apps, highlighting their benefits for building, deploying, and scaling web, mobile, and API apps. It also lists supported languages and frameworks, and provides links to more information. At the bottom, there's a section titled 'More offers from Microsoft' which includes links to 'Workspace', 'Microsoft HPC Pack 2012 R2', 'Windows 10 IoT Core Services', and 'Web App + SQL'.

Microsoft Azure

Home > Create a resource > Marketplace >

Web App

Microsoft

Web App

Microsoft

4.3 (2336 ratings)

Create

Overview Plans Usage Information + Support Reviews

App Service Web Apps lets you quickly build, deploy, and scale enterprise-grade web, mobile, and API apps running on any platform. Meet rigorous performance, scalability, security and compliance requirements while using a fully managed platform to perform infrastructure maintenance. Leverage existing tools to deploy and automatically scale your apps without the hassle of managing infrastructure.

App Service supports:

- Applications written in: Node.js, Python, PHP, Java, Ruby, .NET Core, and ASP.NET.
- Run your apps on Linux or Windows.
- Bring your own Code or bring your own Docker containers.
- Hosting at any scale, from simple websites to cloud scale applications.

App Service provides:

- Integrated tooling support for Eclipse, Visual Studio Code, and Visual Studio.
- CI/CD integration with GitHub, Docker Hub, Azure Pipelines, Azure Container Registry, Bitbucket, and others.
- Extensive diagnostics, monitoring and alerting features with Application Insights and Azure Monitor.

More offers from Microsoft

See All

Workspace

Microsoft

No rating

Virtual Machine

Windows Virtual Desktop resource

Microsoft HPC Pack 2012 R2

Microsoft

3.9 (7 ratings)

Virtual Machine

Enterprise-class HPC solution. Easy to deploy, cost-effective and supports Windows/Linux

Windows 10 IoT Core Services

Microsoft

3.0 (2 ratings)

Azure Service

Commercialize your project with enterprise-grade security and support

Web App + SQL

Microsoft

No rating

Azure Service

Enjoy secure and flexible development, deployment, and scaling options for your web app

https://portal.azure.com/#

Image 5

Fill the details required like name for the web application which should be unique across Azure Web Apps, runtime stack, Operating system, and the location.

Microsoft Azure

Home > Create a resource > Marketplace > Web App >

Create Web App

App Service Web Apps lets you quickly build, deploy, and scale enterprise-grade web, mobile, and API apps running on any platform. Meet rigorous performance, scalability, security and compliance requirements while using a fully managed platform to perform infrastructure maintenance. [Learn more](#)

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

Name *
azurewebsites.net

Publish * ☒ Code ☐ Docker Container

Runtime stack *

Operating System * ☐ Linux ☒ Windows

Region *
Not finding your App Service Plan? Try a different region.

App Service Plan

App Service plan pricing tier determines the location, features, cost and compute resources associated with your app. [Learn more](#)

Windows Plan (Central US) *
[Create new](#)

Sku and size * **Standard S1**
100 total ACU, 1.75 GB memory
[Change size](#)

[Review + create](#) [Previous](#) [Next: Deployment \(Preview\)](#)

Image 6

For the SKU and Size will choose the free tier as this is for demo purpose only, click change size, after choosing the shared Infrastructure click apply.

Create Web App

App Service Web Apps lets you quickly build, deploy, and scale enterprise-grade web, mobile, and API apps running on any platform. Meet rigorous performance, scalability, security and compliance requirements while using a fully managed platform to perform infrastructure maintenance. [Learn more](#)

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

Name * azurewebsites.net

Publish * ☒ Code ☐ Docker Container

Runtime stack *

Operating System * ☐ Linux ☒ Windows

Region * Not finding your App Service Plan? Try a different region.

App Service Plan

App Service plan pricing tier determines the location, features, cost and compute resources associated with your app. [Learn more](#)

Windows Plan (Central US) * [Create new](#)

SKU and size *

Standard S1
100 total ACU, 1.75 GB memory
[Change size](#)

Spec Picker

Dev / Test
For less demanding workloads

Production
For most production workloads

Isolated
Advanced networking and scale

Recommended pricing tiers

Tier	Infrastructure	Memory	Compute	Cost
F1	Shared infrastructure	1 GB memory	60 minutes/day compute	Free
D1	Shared infrastructure	1 GB memory	240 minutes/day compute	9.49 USD/Month (Estimated)
B1	100 total ACU	1.75 GB memory	A-Series compute equivalent	54.75 USD/Month (Estimated)

[See additional options](#)

Included hardware

Every instance of your App Service plan will include the following hardware configuration:

- Memory**
Memory available to run applications deployed and running in the App Service plan.
- Storage**
1 GB disk storage shared by all apps deployed in the App Service plan.

[Review + Create](#) [Previous](#) [Next: Deployment \(Preview\)](#)

[Apply](#)

Image 7

Click Review + Create.

Create Web App

App Service Web Apps lets you quickly build, deploy, and scale enterprise-grade web, mobile, and API apps running on any platform. Meet rigorous performance, scalability, security and compliance requirements while using a fully managed platform to perform infrastructure maintenance. [Learn more](#)

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

Name * azurewebsites.net

Publish * ☒ Code ☐ Docker Container

Runtime stack *

Operating System * ☐ Linux ☒ Windows

Region * Not finding your App Service Plan? Try a different region.

App Service Plan

App Service plan pricing tier determines the location, features, cost and compute resources associated with your app. [Learn more](#)

Windows Plan (Central US) * [Create new](#)

SKU and size *

Free F1
Shared infrastructure, 1 GB memory
[Change size](#)

Spec Picker

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[See additional options](#)

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[Review + Create](#) [Previous](#) [Next: Deployment \(Preview\)](#)

[Apply](#)

Image 8

Click create.

The screenshot shows the 'Create Web App' wizard in the Microsoft Azure portal, specifically the 'Review + create' step. The browser tabs at the top include 'Mail - infanuk794@outlook...', 'Create Web App - Microsoft Azure', and two 'Pipelines - Run 20210429.9' tabs. The address bar shows the URL 'https://portal.azure.com/#create/Microsoft.WebSite'. The page header includes the 'Microsoft Azure' logo and a search bar. The breadcrumb trail is 'Home > Create a resource > Marketplace > Web App >'. The main content area has tabs for 'Basics', 'Deployment (Preview)', 'Monitoring', 'Tags', and 'Review + create'. A 'Summary' section shows the 'Web App by Microsoft' icon and 'Free sku' with an 'Estimated price - free'. The 'Details' section lists: Subscription (ce3bdf98-d4a1-4053-a48b-393d4d86ba0), Resource Group (VisualStudioOnline-2A722A9BD348411381E9FC7492D840A7), Name (Sampledotnetwebsite), Publish (Code), and Runtime stack (.NET Core 3.1 (LTS)). The 'App Service Plan (New)' section lists: Name (ASP-VisualStudioOnline2A722A9BD3484-b333), Operating System (Windows), Region (Central US), SKU (Free), ACU (Shared infrastructure), and Memory (1 GB memory). The 'Monitoring (New)' section lists: Application Insights (Enabled), Name (Sampledotnetwebsite), and Region (Central US). The 'Deployment (Preview)' section shows Continuous deployment as 'Not enabled / Set up after app creation'. At the bottom, there are buttons for 'Create', '< Previous', 'Next >', and 'Download a template for automation'.

Microsoft Azure

Home > Create a resource > Marketplace > Web App >

Create Web App

Basics Deployment (Preview) Monitoring Tags Review + create

Summary

Web App
by Microsoft

Free sku
Estimated price - free

Details

Subscription: ce3bdf98-d4a1-4053-a48b-393d4d86ba0
Resource Group: VisualStudioOnline-2A722A9BD348411381E9FC7492D840A7
Name: Sampledotnetwebsite
Publish: Code
Runtime stack: .NET Core 3.1 (LTS)

App Service Plan (New)

Name: ASP-VisualStudioOnline2A722A9BD3484-b333
Operating System: Windows
Region: Central US
SKU: Free
ACU: Shared infrastructure
Memory: 1 GB memory

Monitoring (New)

Application Insights: Enabled
Name: Sampledotnetwebsite
Region: Central US

Deployment (Preview)

Continuous deployment: Not enabled / Set up after app creation

Create < Previous Next > Download a template for automation

Image 9

Now deployment completed and we can go to resource.

The screenshot displays the Microsoft Azure portal interface. The top navigation bar shows the user is logged in as 'infanuk794@outlook.c...' and the current page is 'Microsoft.Web-WebApp-Portal-d33013d4-8564 | Overview'. The left sidebar contains a search bar and a list of tabs: Overview (selected), Inputs, Outputs, and Template. The main content area features a purple banner with the message 'Your deployment is complete' and a green checkmark icon. Below this, deployment details are listed: Deployment name: Microsoft.Web-WebApp-Portal-d33013d4-8564, Subscription: Azure subscription 1, Resource group: VisualStudioOnline-2A722A9BD348411381E9C74..., Start time: 5/2/2021, 12:08:29 AM, and Correlation ID: dfbd5ae2-0799-4ec5-a909-f39d44972c92. A 'Go to resource' button is visible. The right sidebar contains links to the Security Center, Free Microsoft tutorials, and Work with an expert.

Microsoft Azure

Home > Microsoft.Web-WebApp-Portal-d33013d4-8564 | Overview

Deployment

Search (Ctrl+F)

Delete Cancel Redeploy Refresh

We'd love your feedback! →

✓ Your deployment is complete

Deployment name: Microsoft.Web-WebApp-Portal-d33013d4-8564 Start time: 5/2/2021, 12:08:29 AM
Subscription: Azure subscription 1 Correlation ID: dfbd5ae2-0799-4ec5-a909-f39d44972c92
Resource group: VisualStudioOnline-2A722A9BD348411381E9C74...

Deployment details (Download)

Next steps

Manage deployments for your app. Recommended
Protect your app with authentication. Recommended

Go to resource

Security Center
Secure your apps and infrastructure
Go to Azure security center >

Free Microsoft tutorials
Start learning today >

Work with an expert
Azure experts are service provider partners who can help manage your assets on Azure and be your first line of support.
Find an Azure expert >

Image 10

We can see that app service created successfully and we can access the sample application URL.

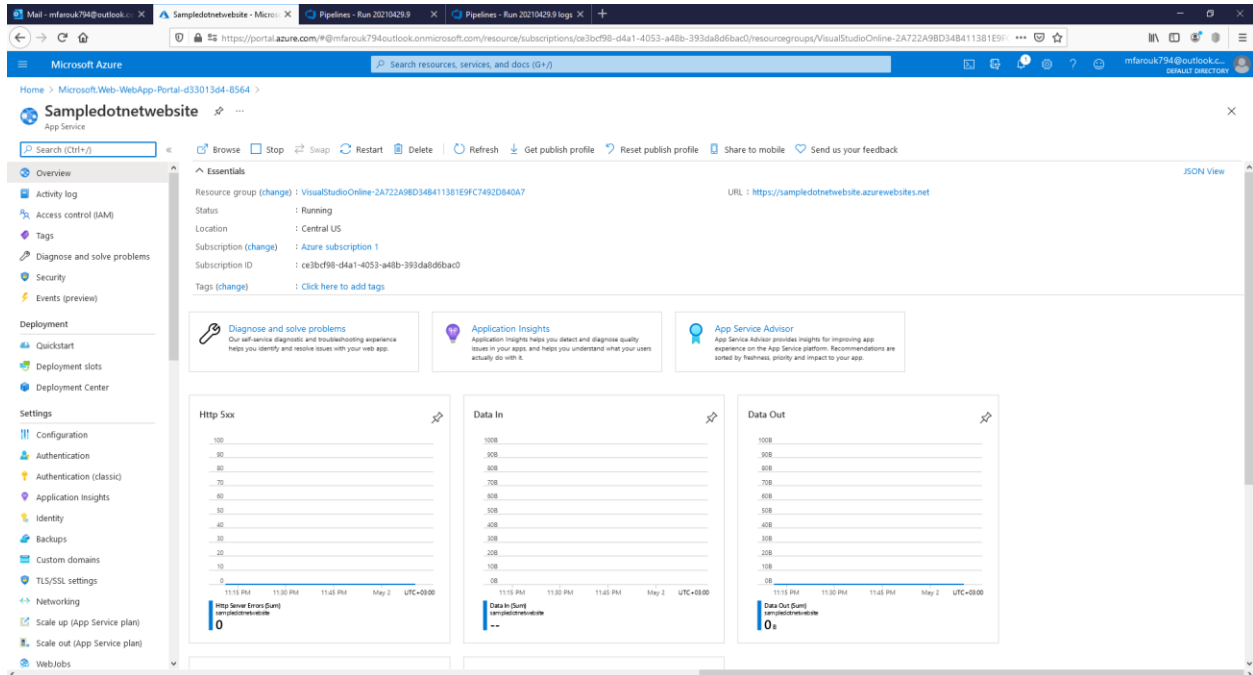


Image 11

This is the default sample application home page that we will override after deploying the application using AZURE DevOps CD pipeline.

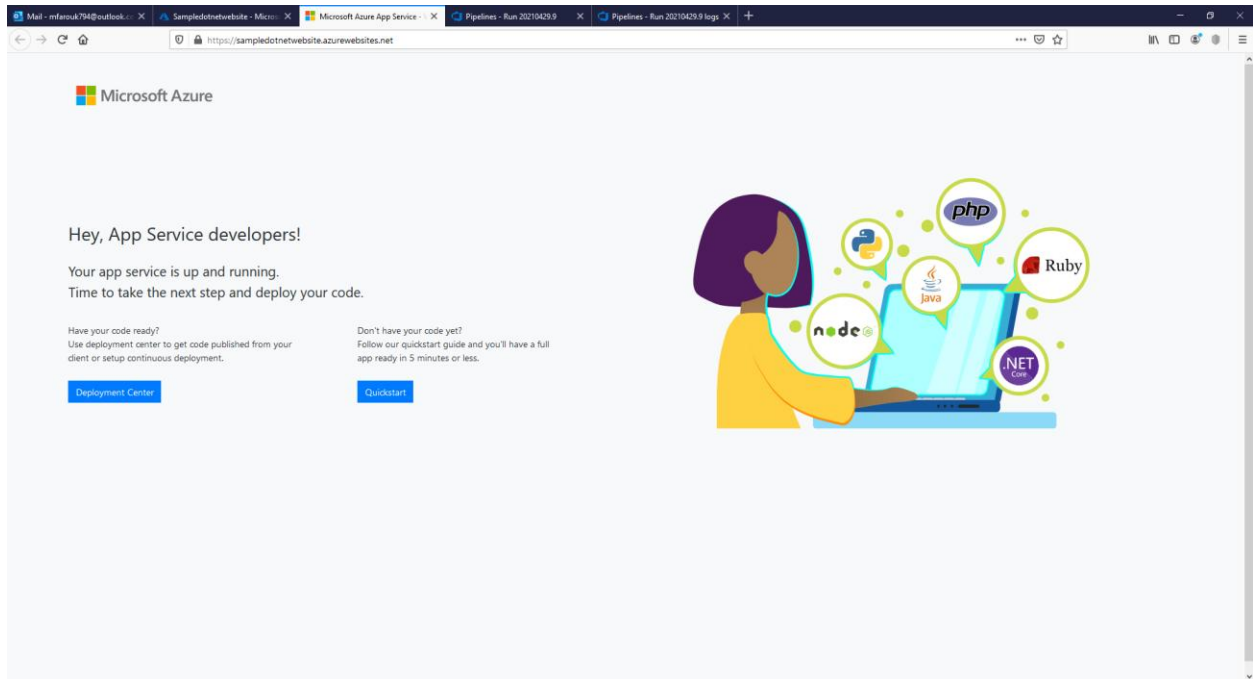


Image 12

Now let us go back to Azure DevOps to start creating AZURE CD pipeline to deploy the sample .Net core web application, click on pipeline then choose releases.

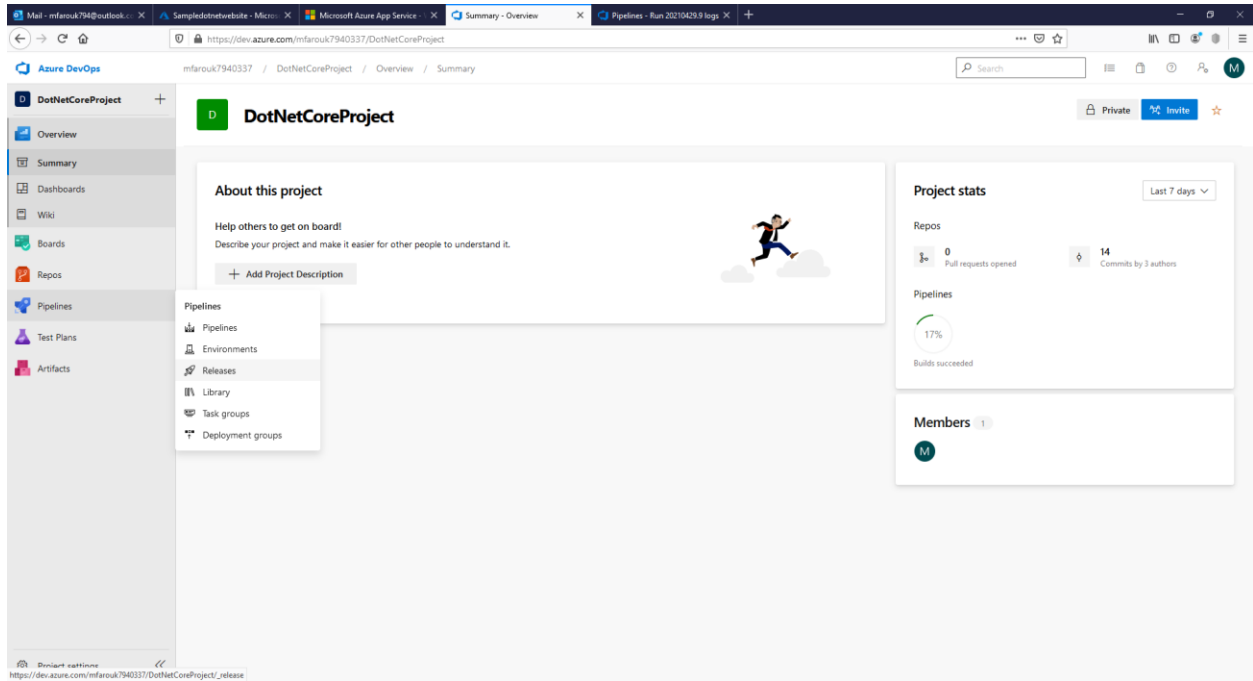


Image 13

Click new pipeline.

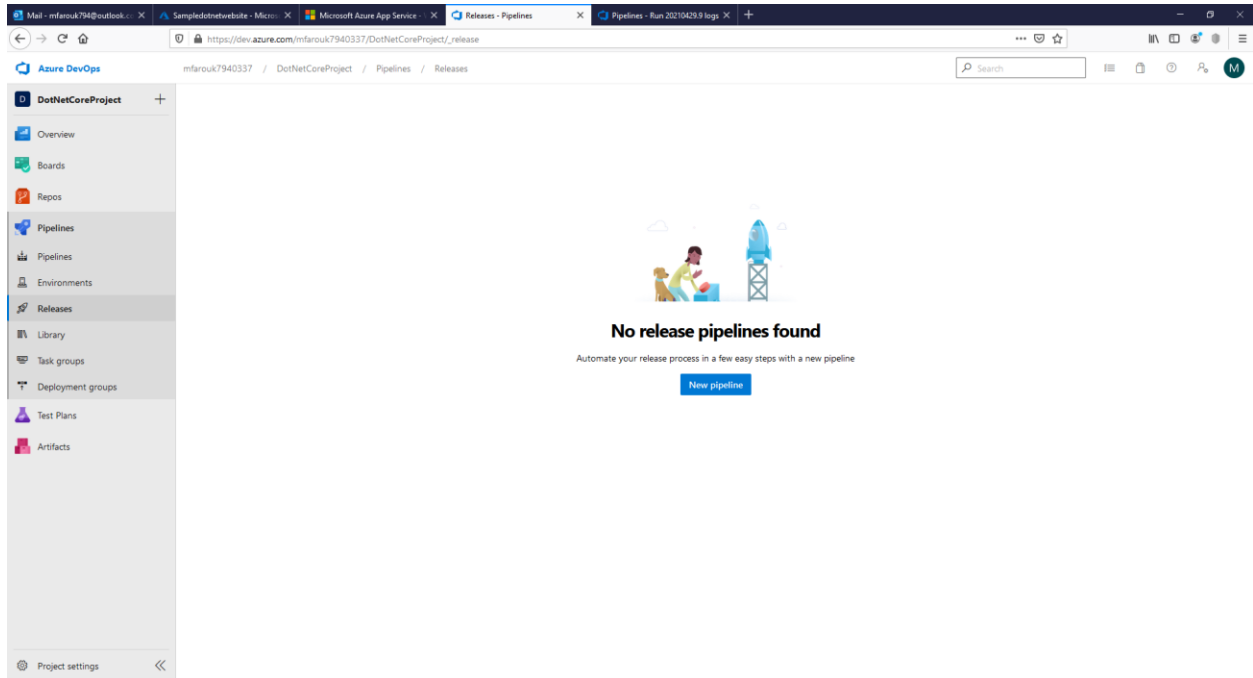


Image 14

As we can see we have multiple deployment options, but for our application will select “Azure App Service Deployment” and click apply.

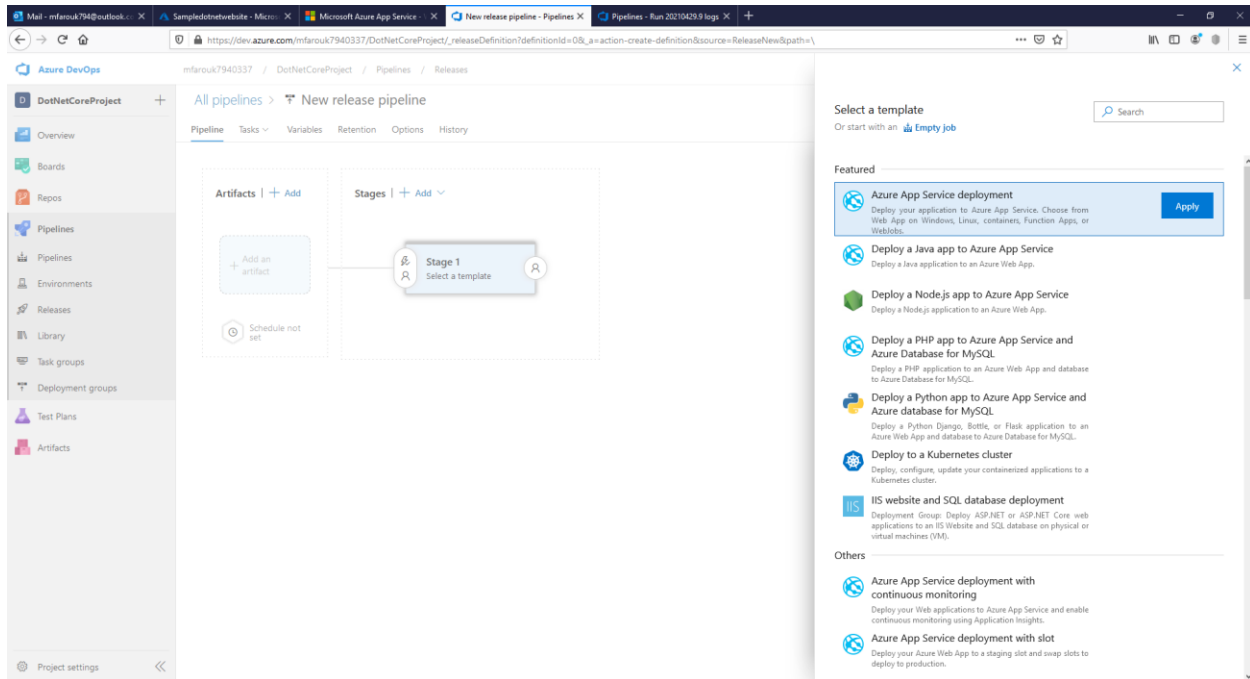


Image 15

Now we need to add an artifact to use in deployment so click on Add artifact, we will get it from the build we previously created in my previous post and specify the source then click add.

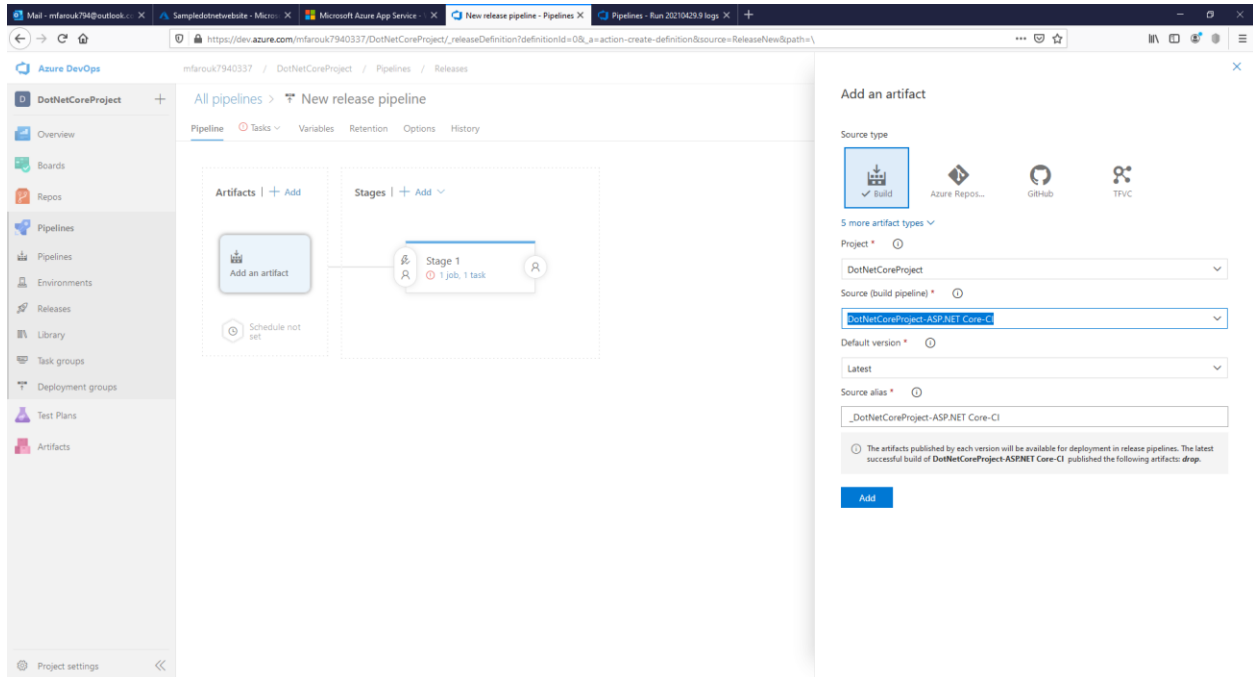


Image 16

Now we need to configure Stage 1 job to be able to run the task, click on 1 job, 1 task.

The screenshot displays the Azure DevOps web interface for configuring a new release pipeline. The left sidebar shows the navigation menu with options like Overview, Boards, Repos, Pipelines, Environments, Releases, Library, Task groups, Deployment groups, Test Plans, and Artifacts. The main area is titled "New release pipeline" and shows a list of tasks for "Stage 1". The tasks listed are "Run on agent" and "Deploy Azure App Service". The "Deploy Azure App Service" task is selected, and its configuration panel is visible on the right. This panel includes fields for "Stage name" (set to "Stage 1"), "Parameters" (with a "Unlink all" option), "Azure subscription" (a dropdown menu with a red border and a "This setting is required." error message), "App type" (set to "Web App on Windows"), and "App service name" (a dropdown menu with a red border and a "This setting is required." error message). The interface also shows a "Save" button and a "Create release" button at the top right.

Image 17

Enter the subscription you want to use for your deployment and after that we need to authorize DevOps to be able to deploy the application to this subscription.

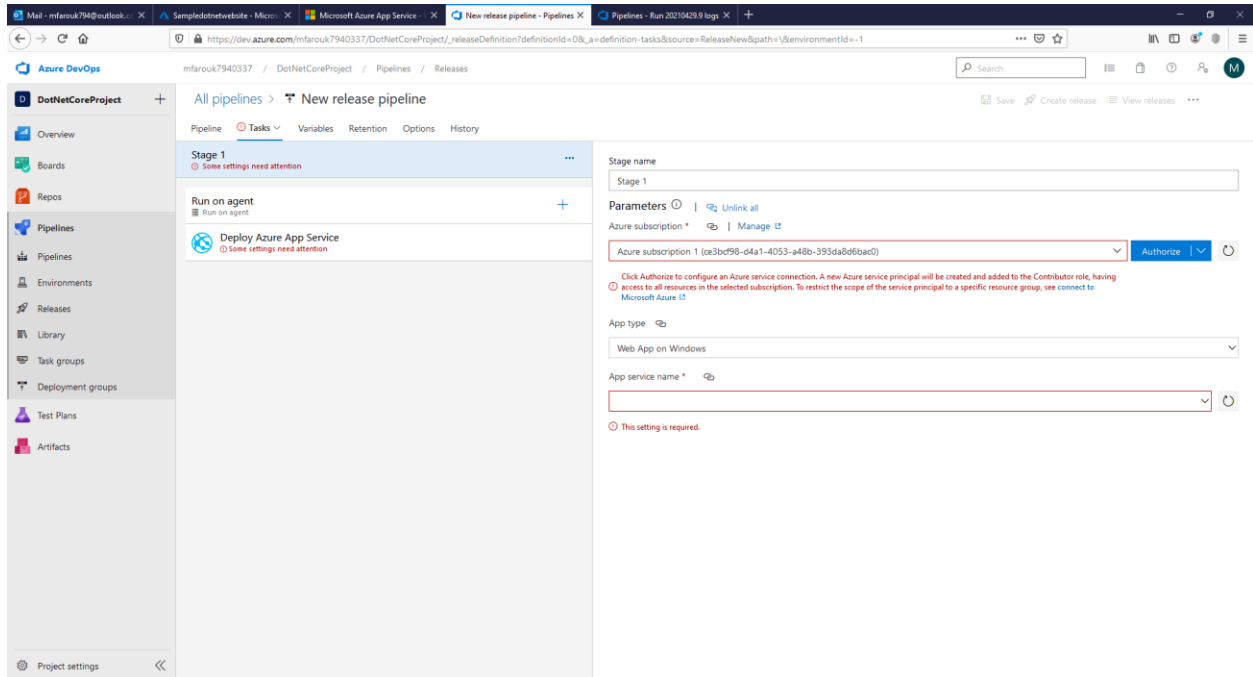
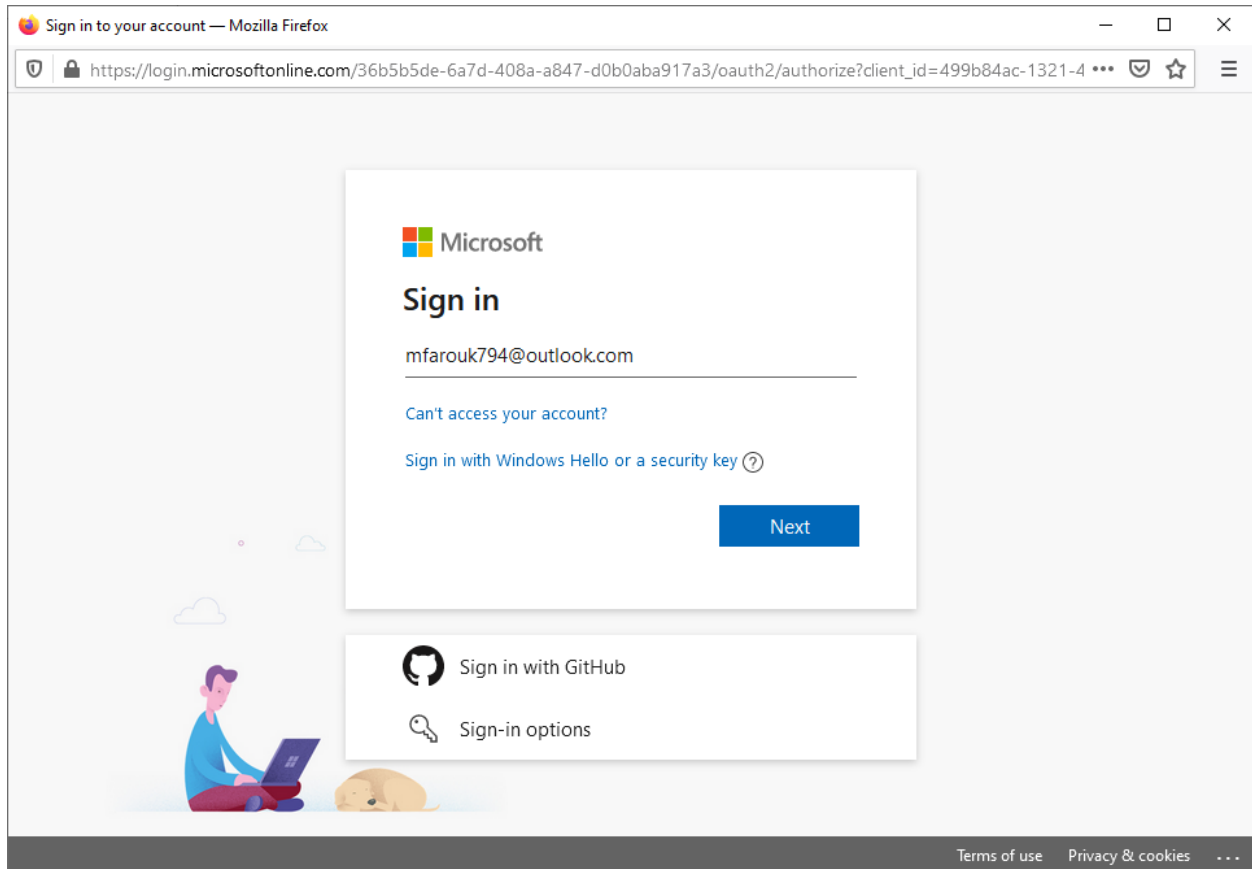


Image 18, 19

Click Authorize, a new popup window will open to perform authorization, enter your credentials and click next then sign in.



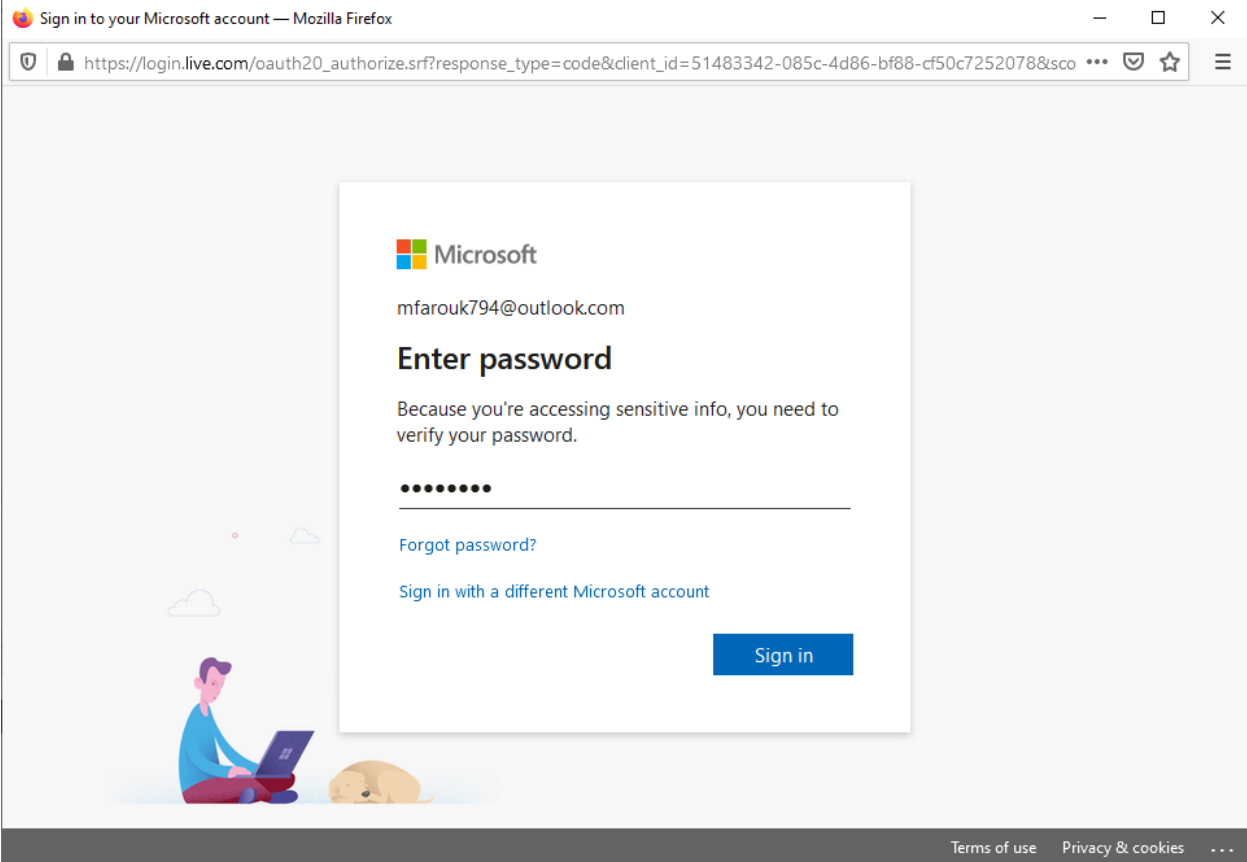


Image 20

After completing authorization, the popup window will disappear and we will be able to choose the App Service and the application we created previously from Azure portal.

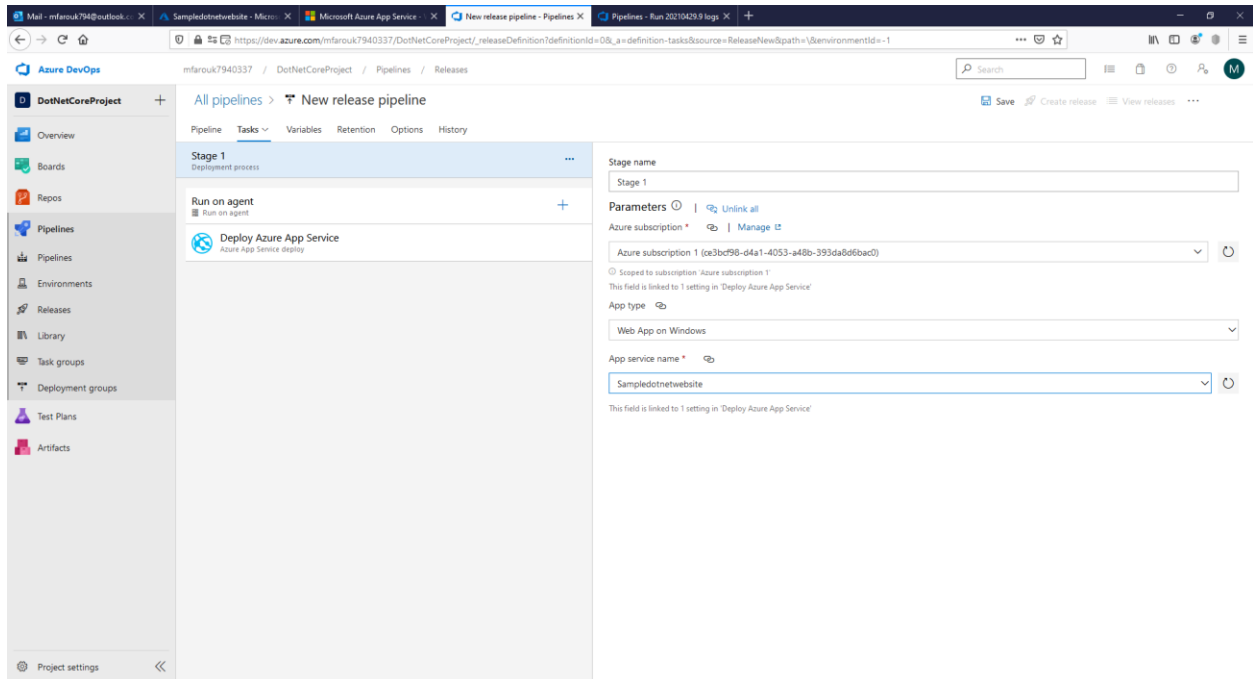


Image 21

Click on Deploy Azure App Service, click on package or folder in the right-hand side that we can specify the artifact already create by our CI pipeline.

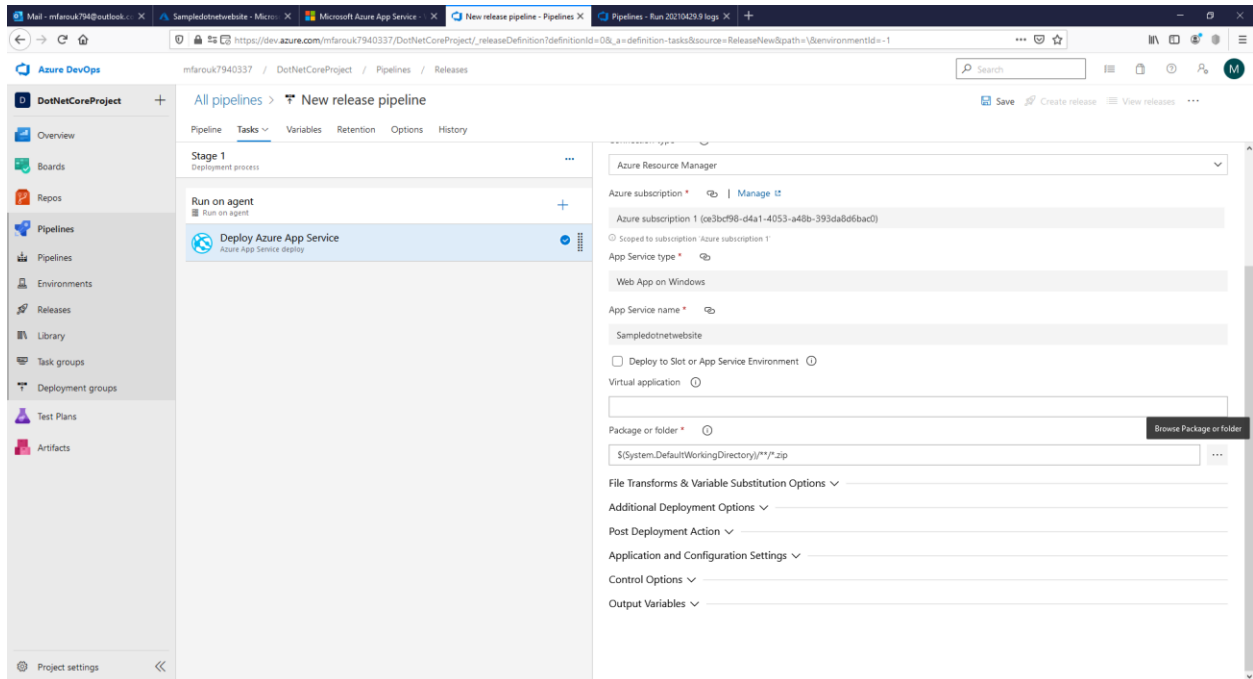


Image 22

After choosing the zip file click Ok

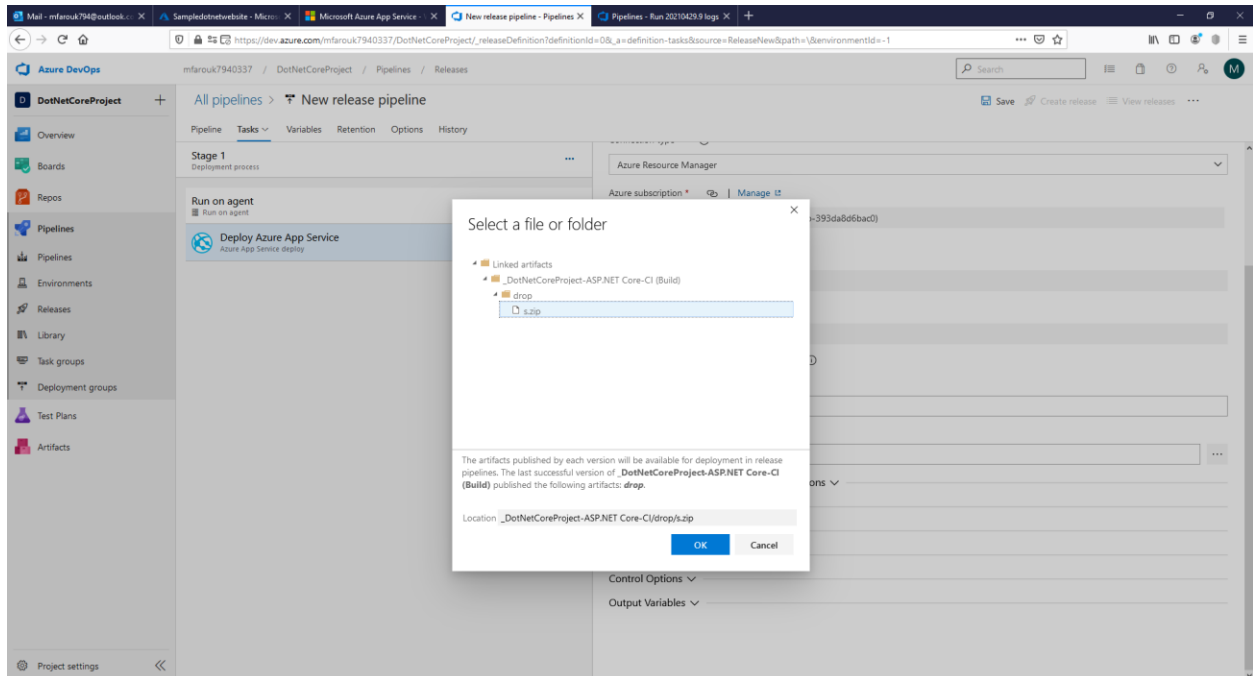
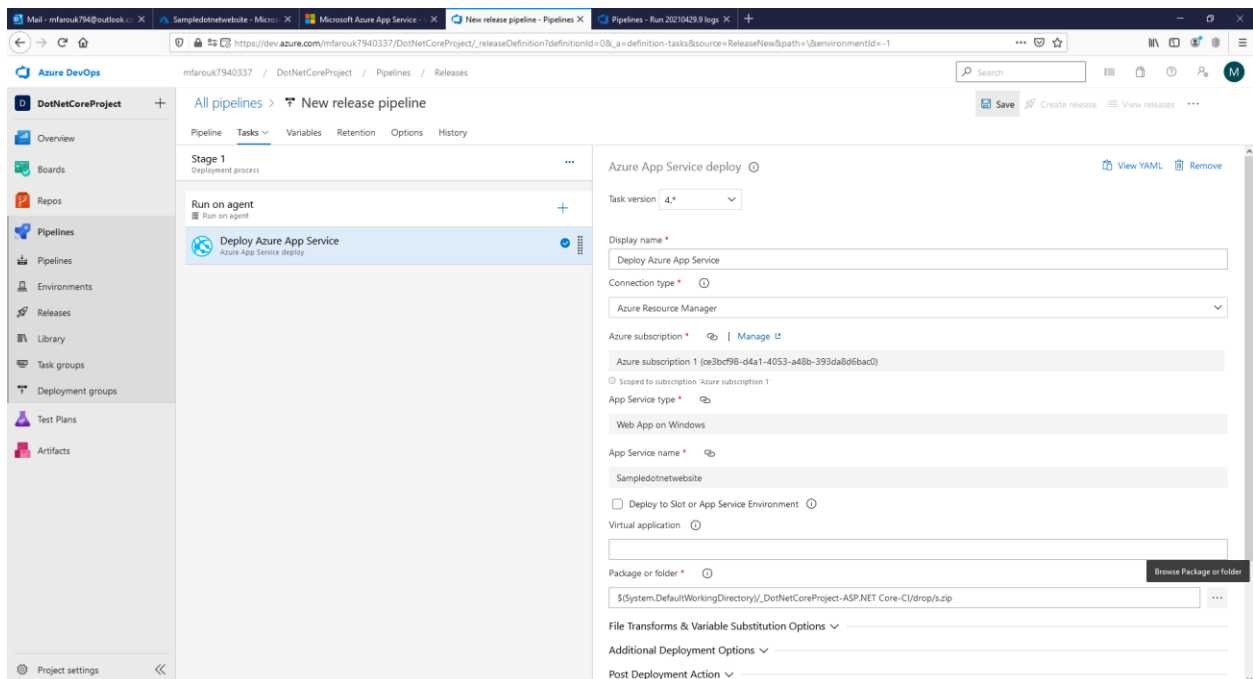


Image 23, 24

Click Save and Ok



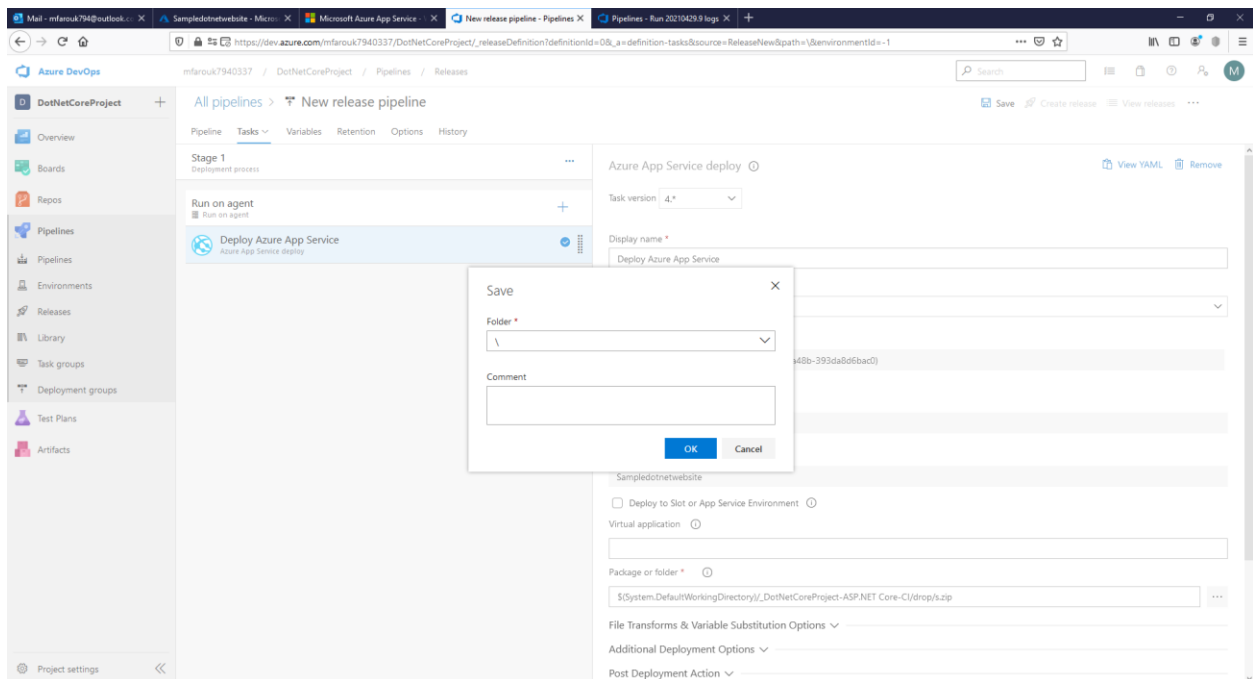


Image 25

Let us run CD pipeline to deploy the application on AZURE App Service, click create release then click create.

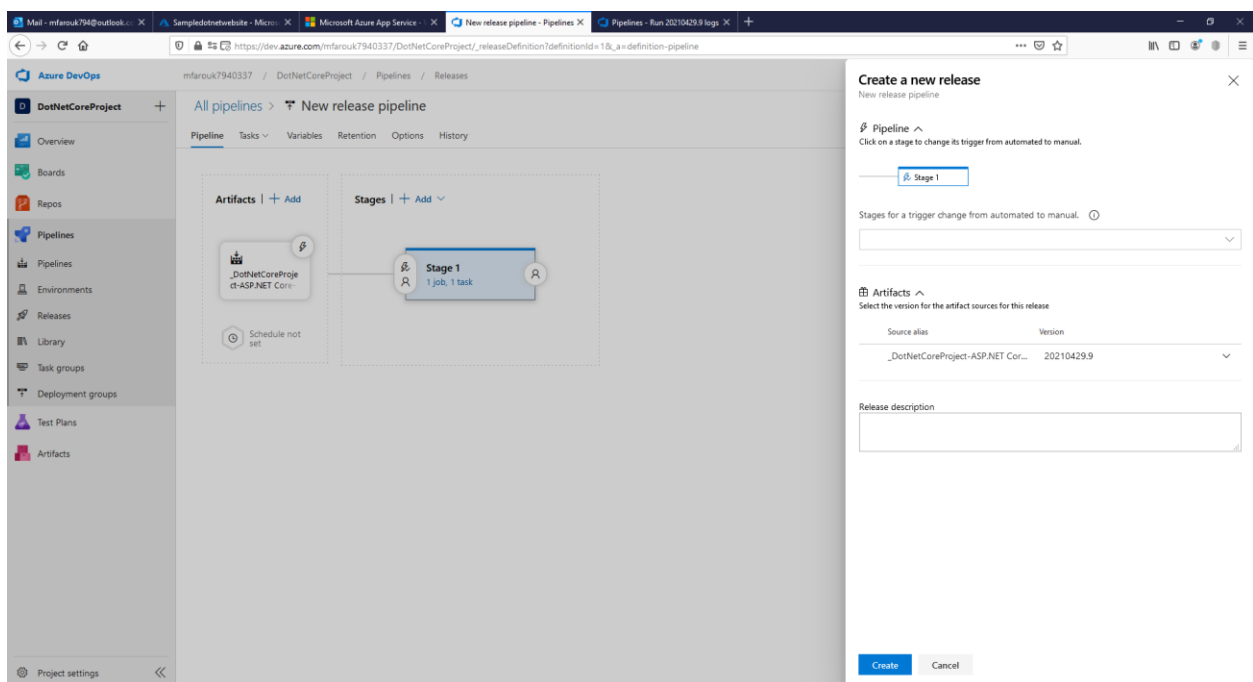


Image 26

Click on Release-1 in the green ribbon to see the progress of the deployment.

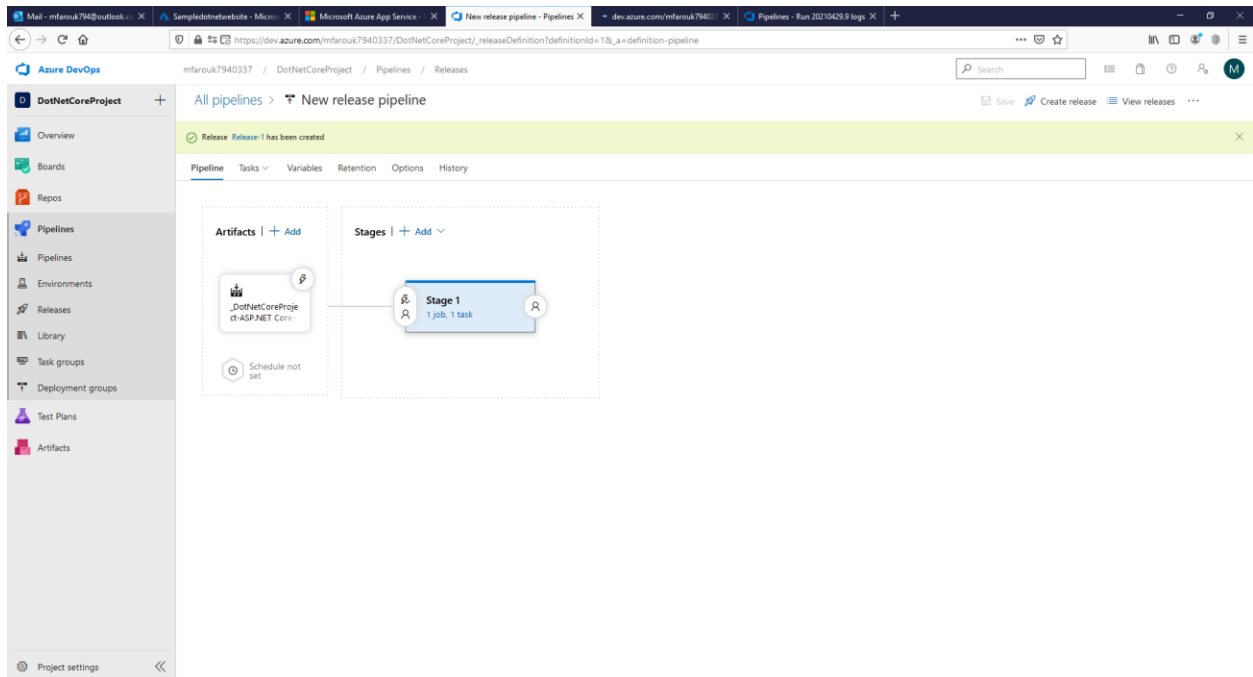


Image 27

We can see the progress of the deployment.

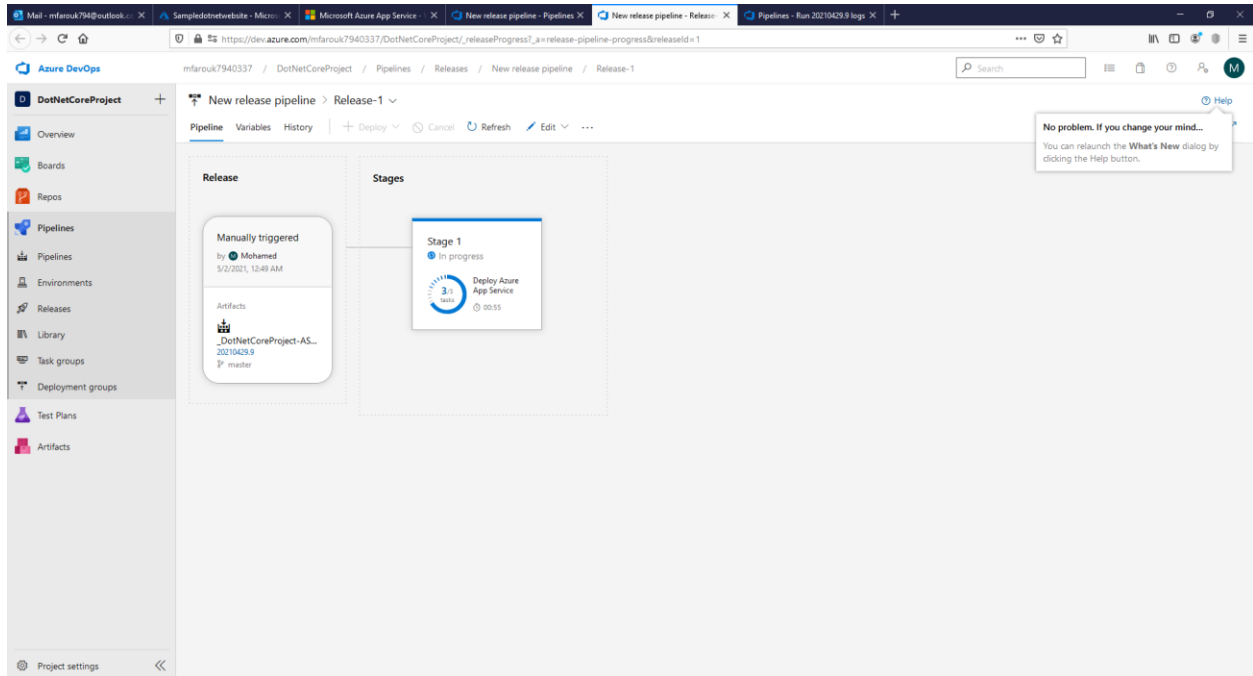
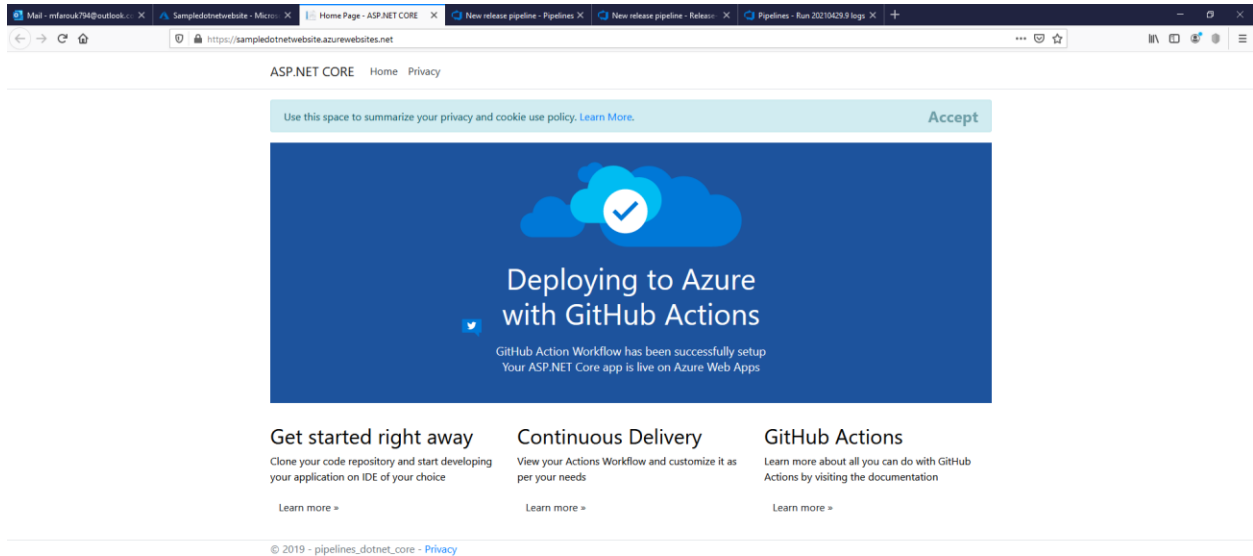


Image 28

Let us return to the .Net Application home page to see it after deployment.



References:

<https://docs.microsoft.com/en-us/azure/devops/pipelines/get-started/what-is-azure-pipelines>

<https://docs.microsoft.com/en-us/azure/devops-project/azure-devops-project-github>

<https://docs.microsoft.com/en-us/azure/architecture/example-scenario/apps/devops-dotnet-webapp>

<https://www.youtube.com/watch?v=Dti6XLNm1XI>