

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



Presented by

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# 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

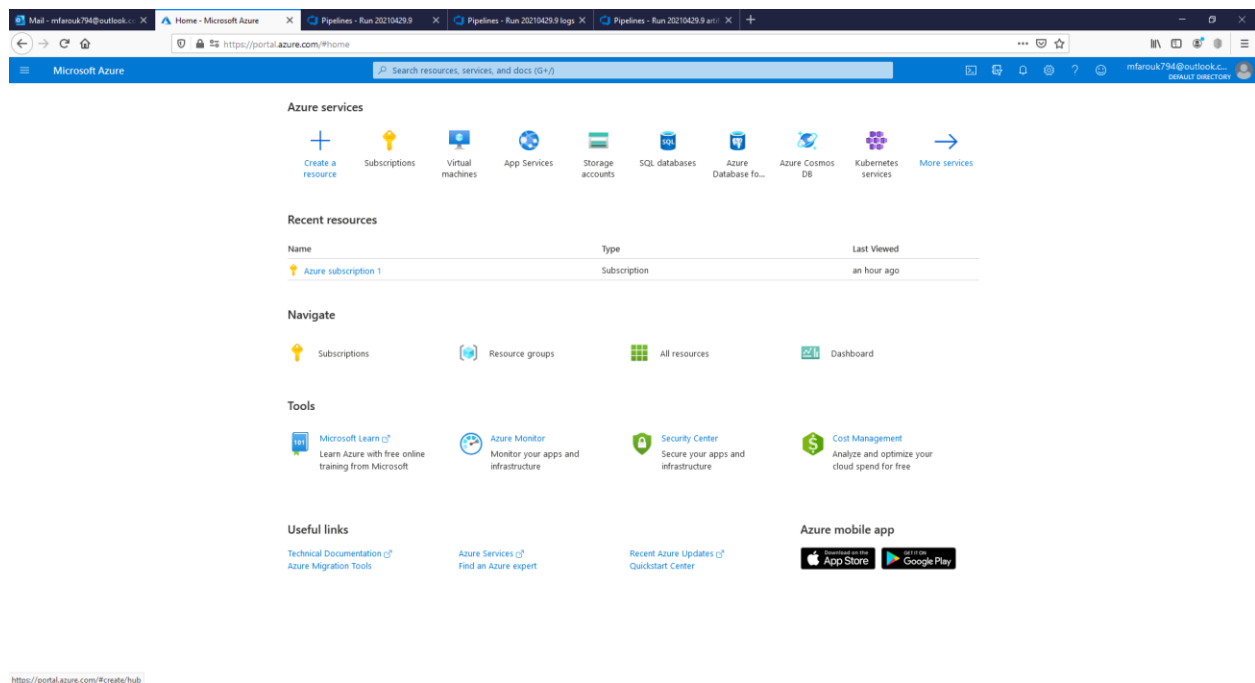


Image 2

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

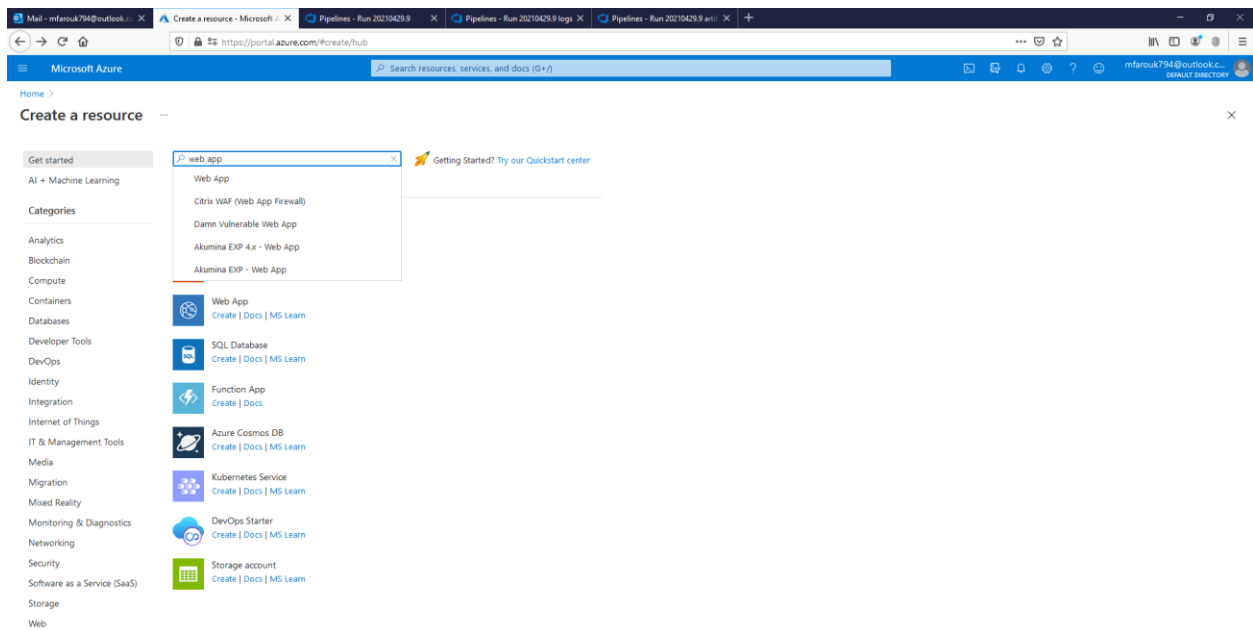
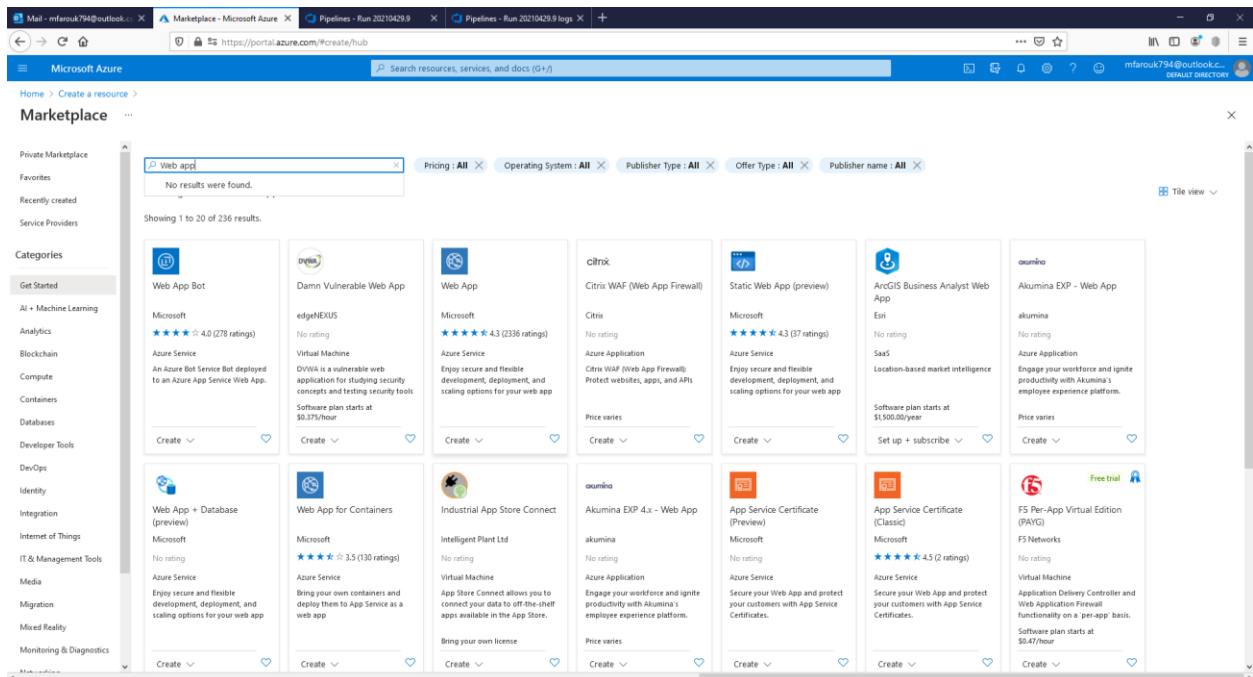


Image 3

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 page content includes a description of App Service Web Apps, a list of supported applications, and a section titled 'More offers from Microsoft' with links to Workspace, Microsoft HPC Pack 2012 R2, Windows 10 IoT Core Services, and Web App + SQL.

**Web App** [Add to Favorites](#)

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 HPC Pack 2012 R2	Windows 10 IoT Core Services	Web App + SQL
Microsoft	Microsoft	Microsoft	Microsoft
No rating	4.3 (7 ratings)	3.0 (2 ratings)	No rating
Virtual Machine	Virtual Machine	Azure Service	Azure Service
Windows Virtual Desktop resource	Enterprise-class HPC solution. Easy to deploy, cost-effective and supports Windows/Linux	Commercialize your project with enterprise-grade security and support	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.

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](#)

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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.

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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**

<b>F1</b> Shared infrastructure 1 GB memory 60 minutes/day compute Free	<b>D1</b> Shared infrastructure 1 GB memory 360 minutes/day compute 9.49 USD/Month (Estimated)	<b>B1</b> 100 total ACU 1.75 GB memory A-Series compute equivalent \$4.75 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.

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 \***

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

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

## 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 A...', 'Pipelines - Run 20210429.9', and 'Pipelines - Run 20210429.9 logg...'. The address bar shows the URL 'https://portal.azure.com/#create/Microsoft.WebSite'. The page title is 'Create Web App' with a three-dot menu icon. The navigation bar includes '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 a '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 lists: Continuous deployment (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 Search resources, services, and docs (Ctrl)

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 navigation items: Overview (selected), Inputs, Outputs, and Template. The main content area features a purple banner with the message 'Your deployment is complete'. 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+J) 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.

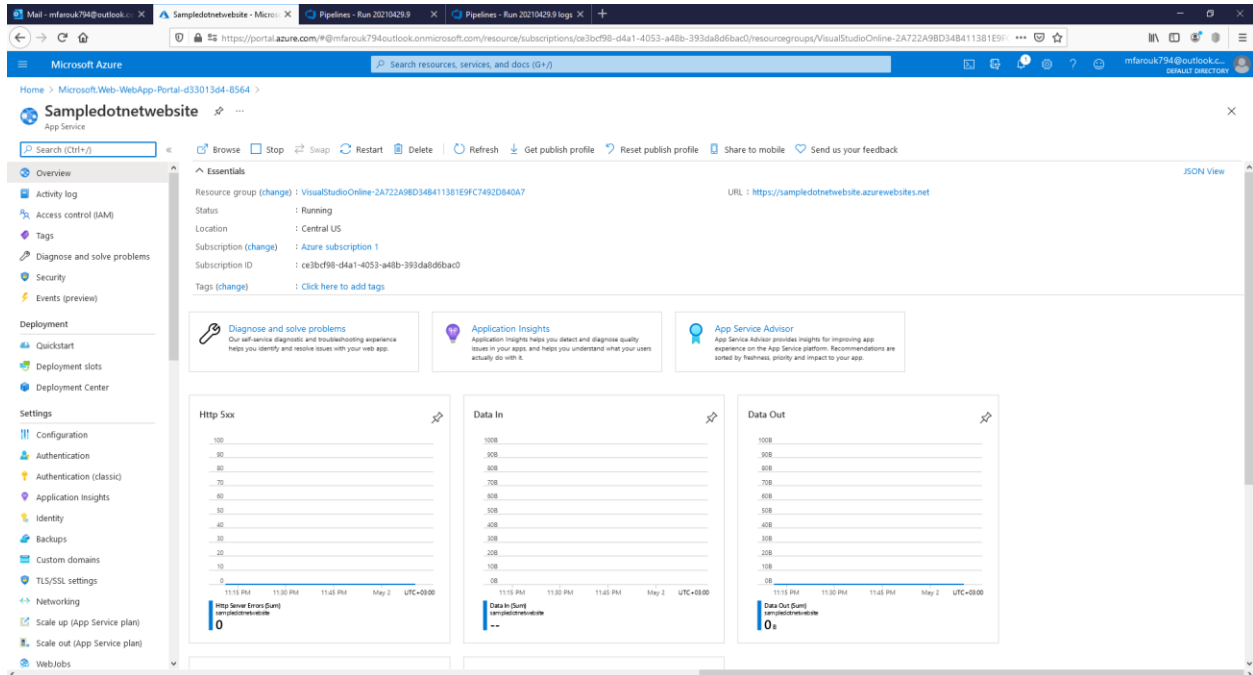


Image 11

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

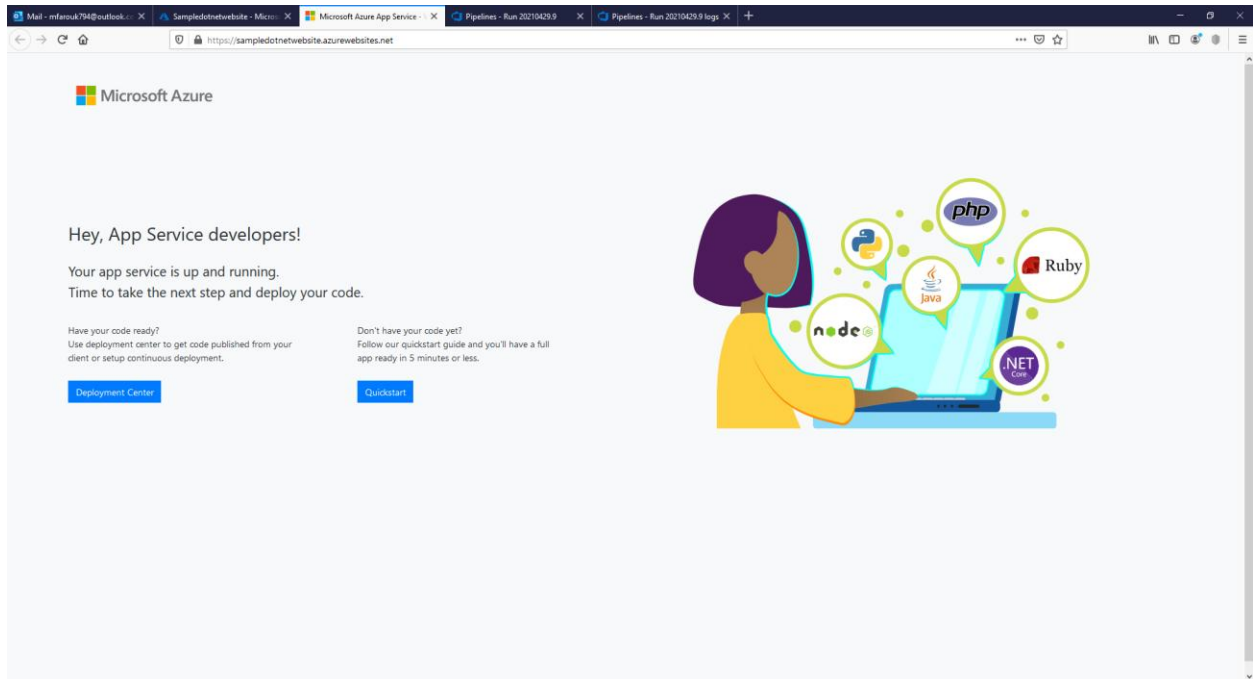


Image 12

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.

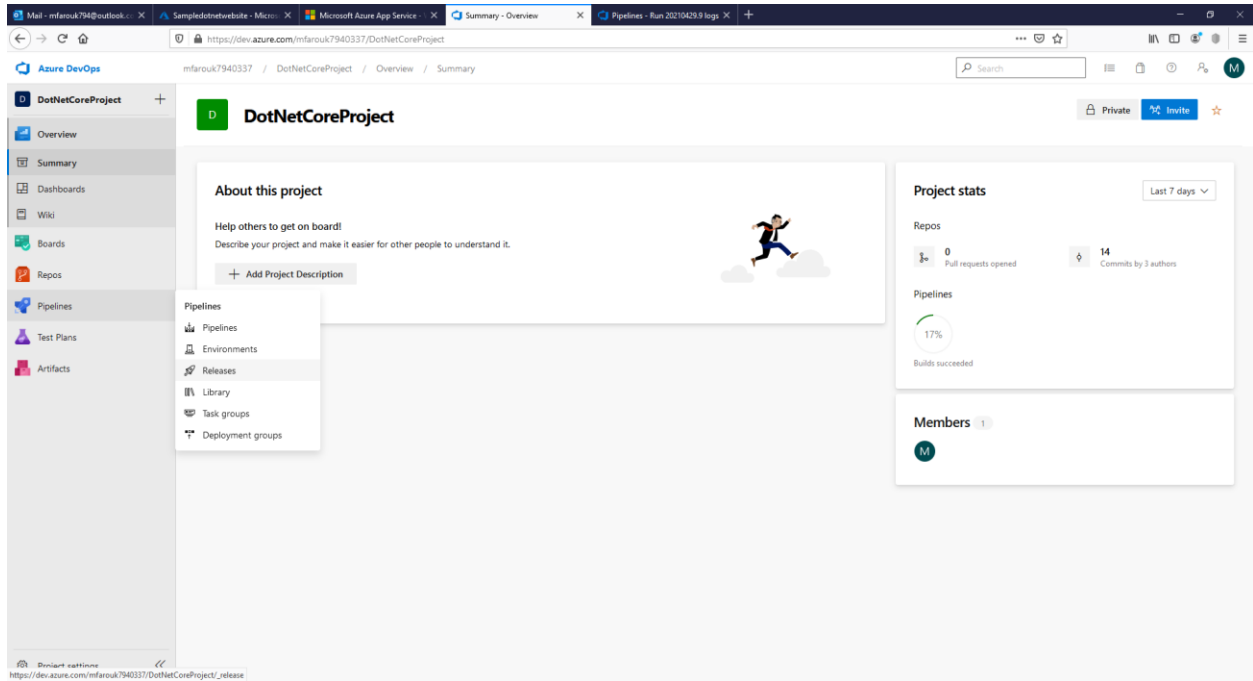
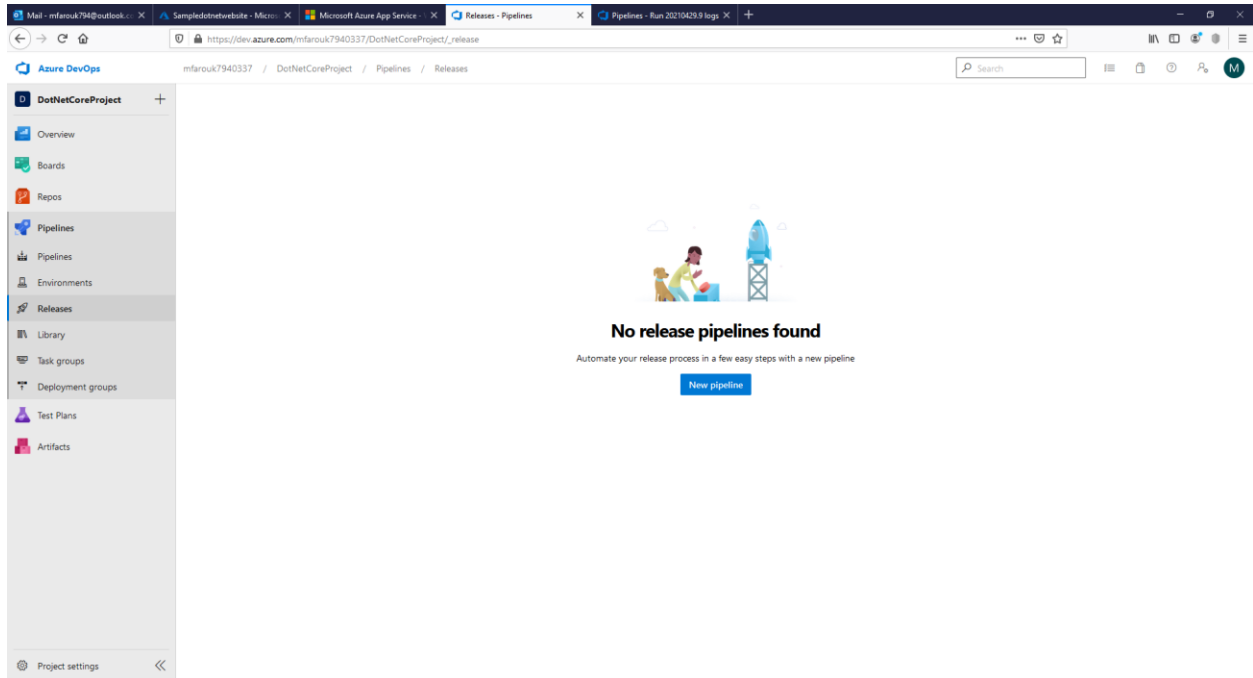


Image 13

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.

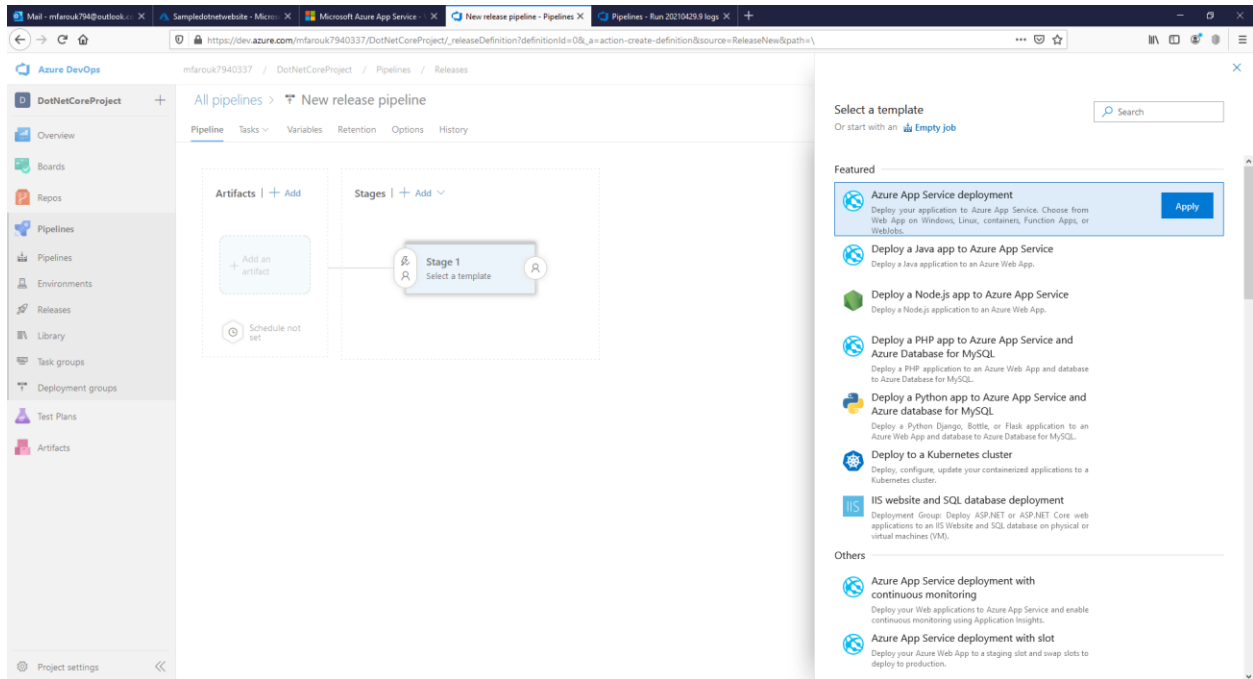


Image 15

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.

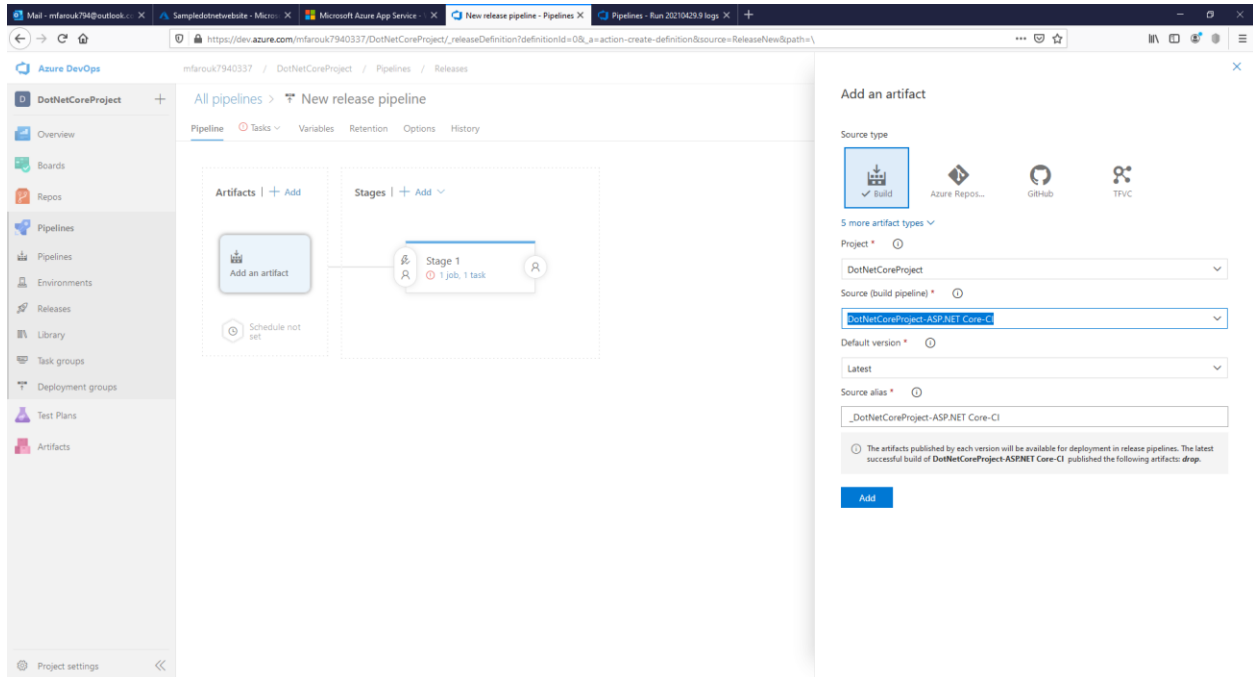


Image 16

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" button), "Azure subscription" (a dropdown menu with a red border and a "This setting is required." 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." 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.

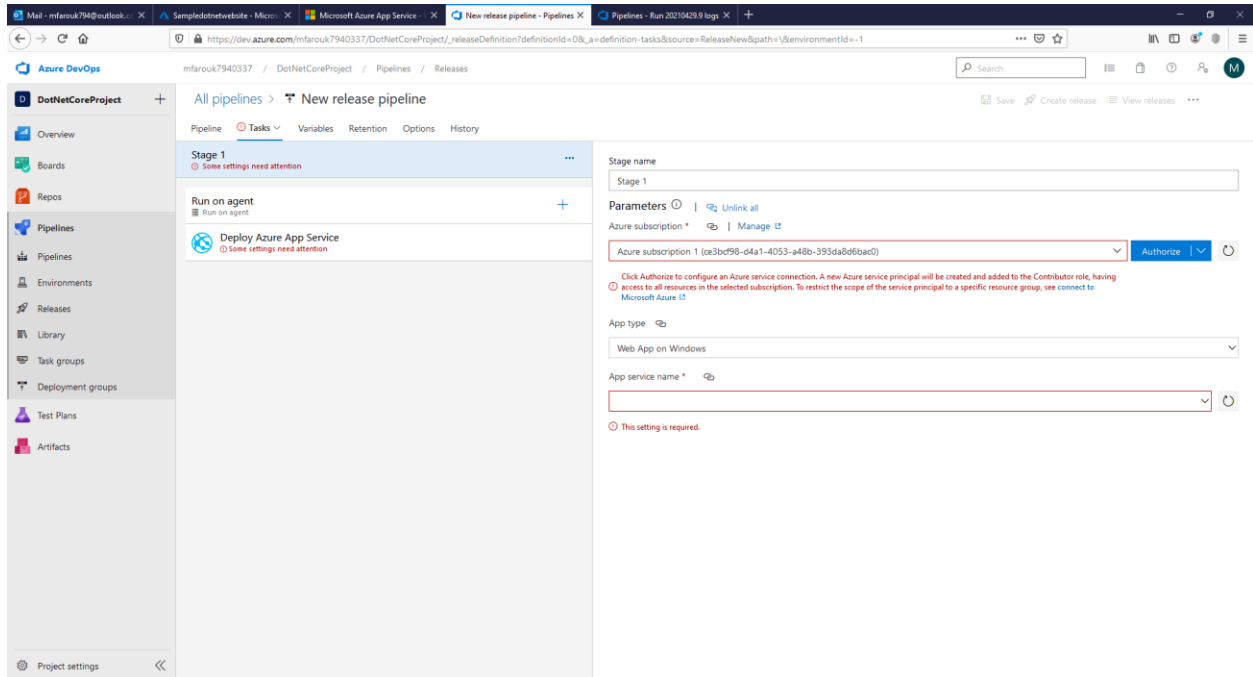
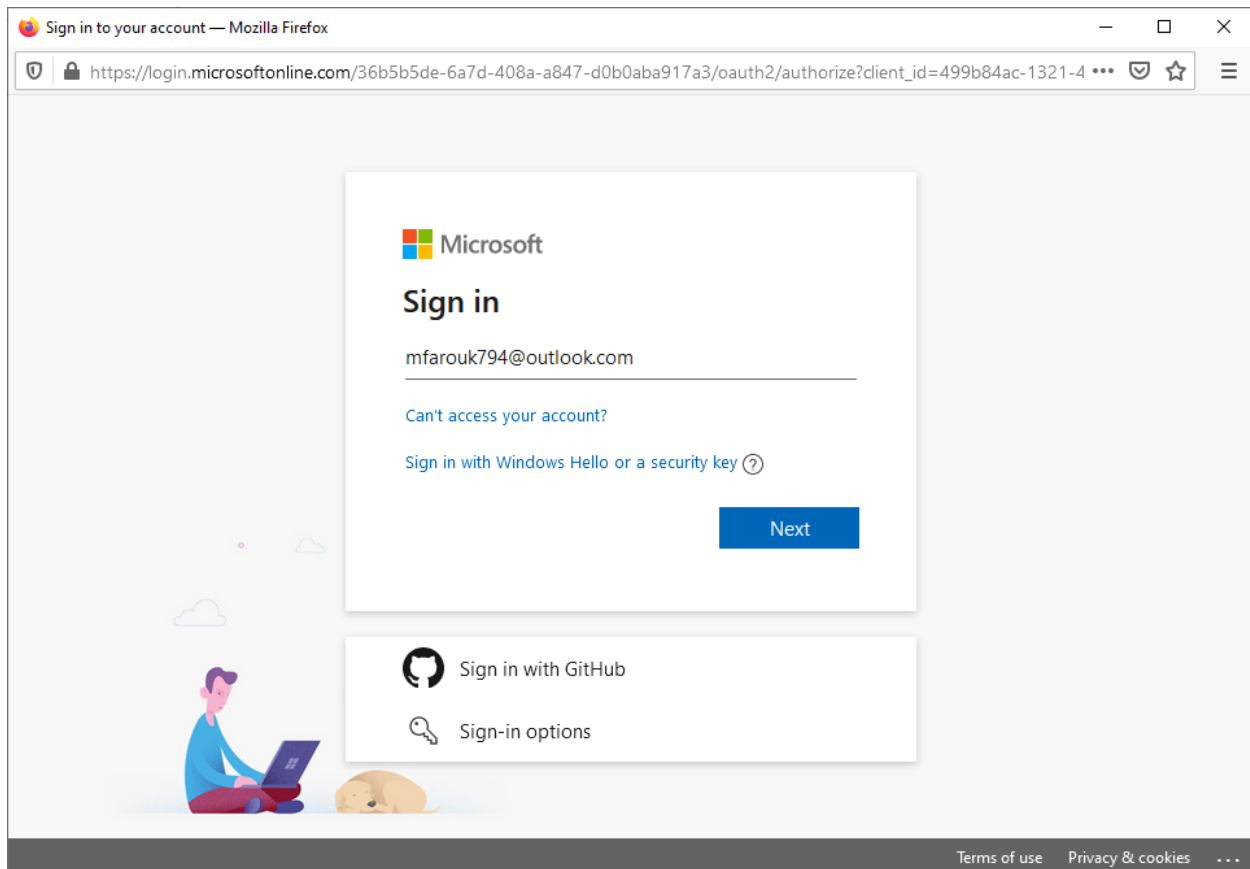
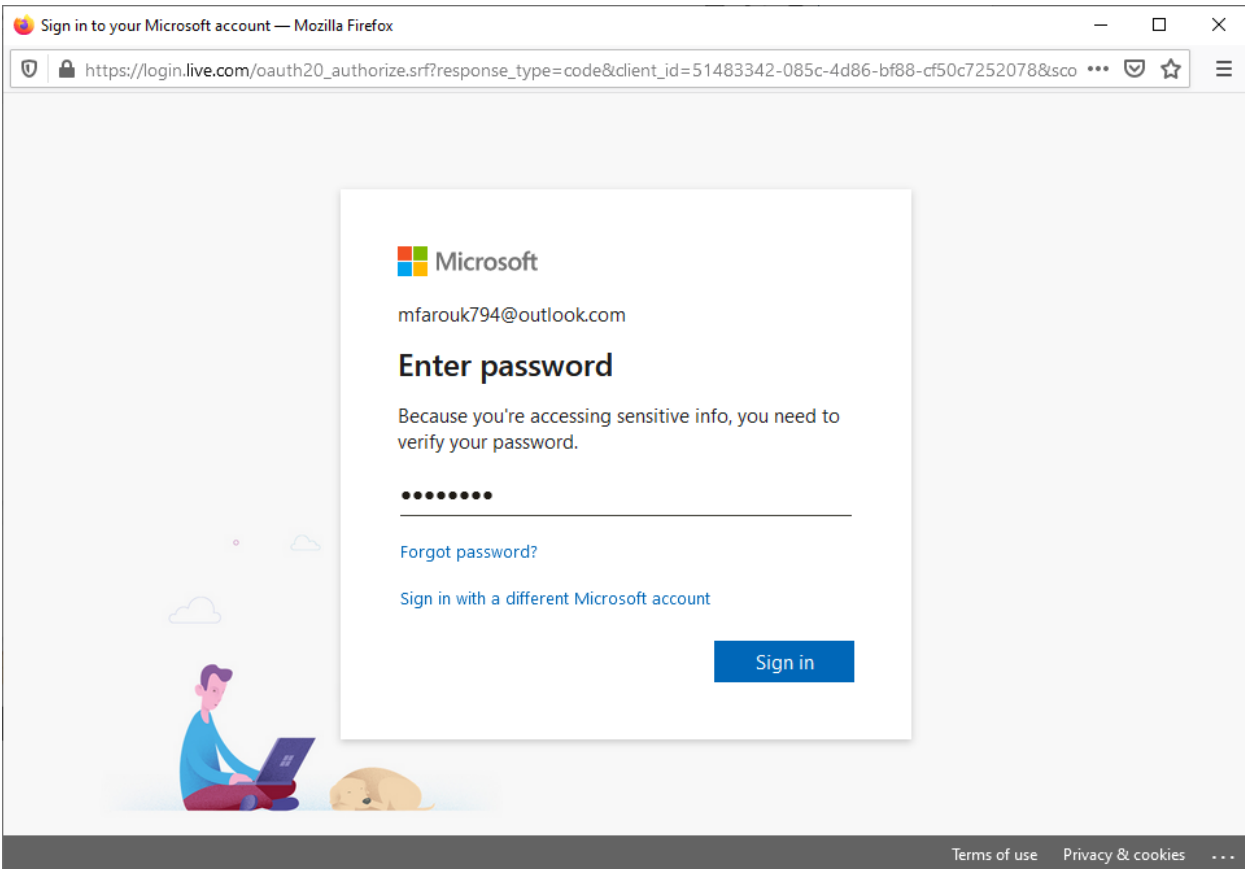




Image 18, 19

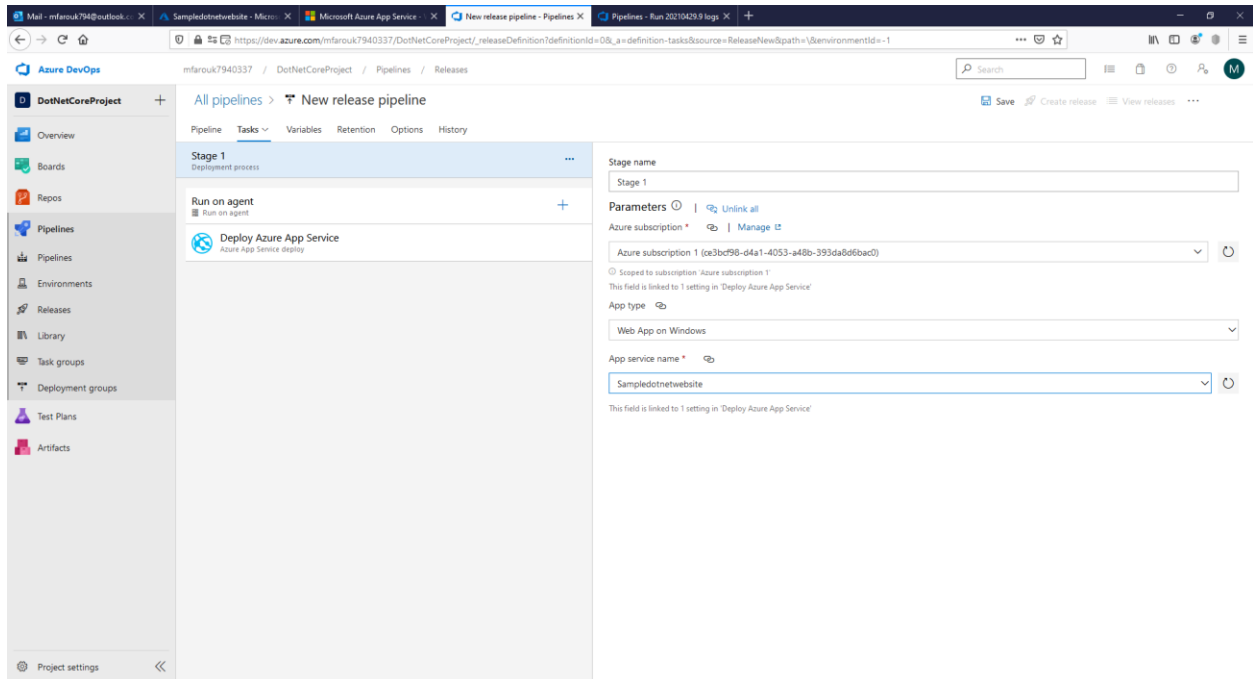
Click Authorize, a new popup window will open to perform authorization, enter your credentials and click next then sign in.





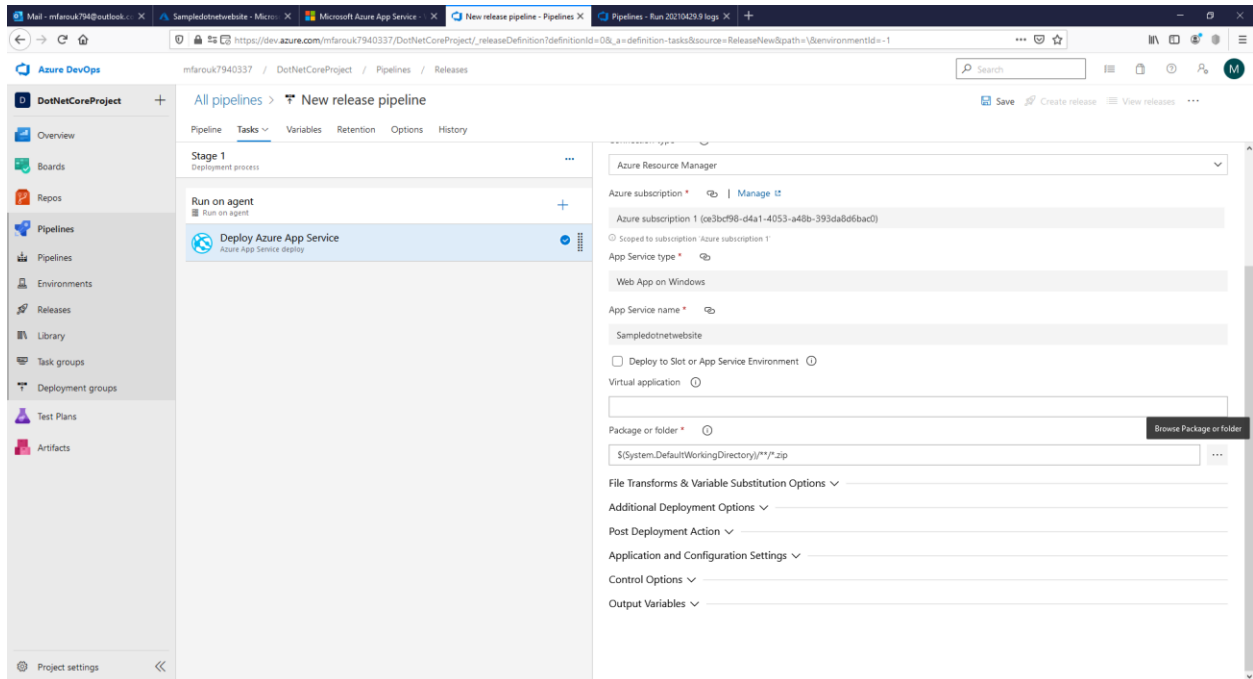
## Image 20

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

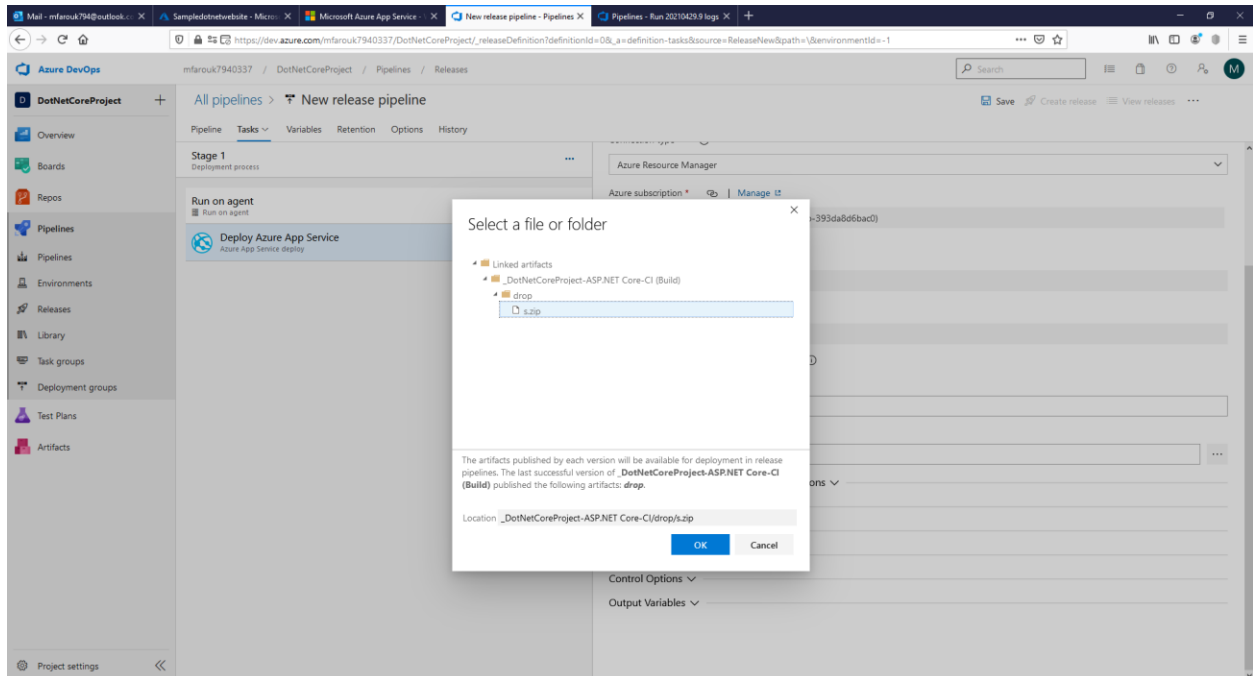
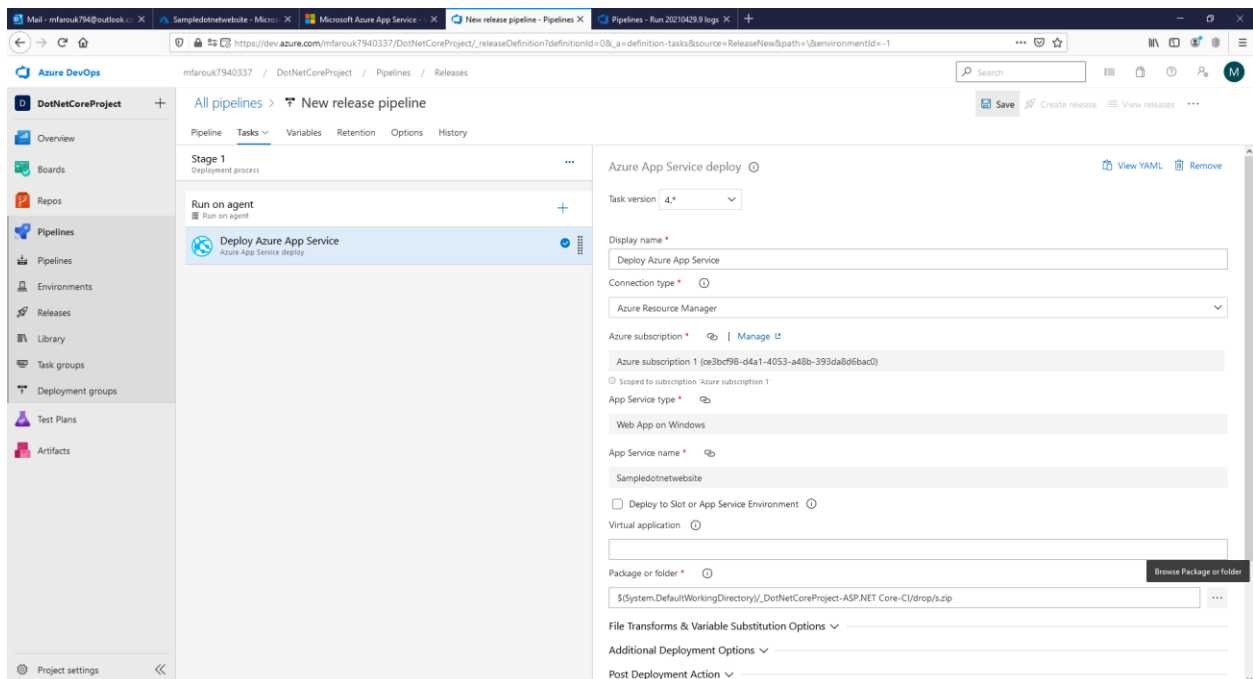


Image 23, 24

Click Save and Ok



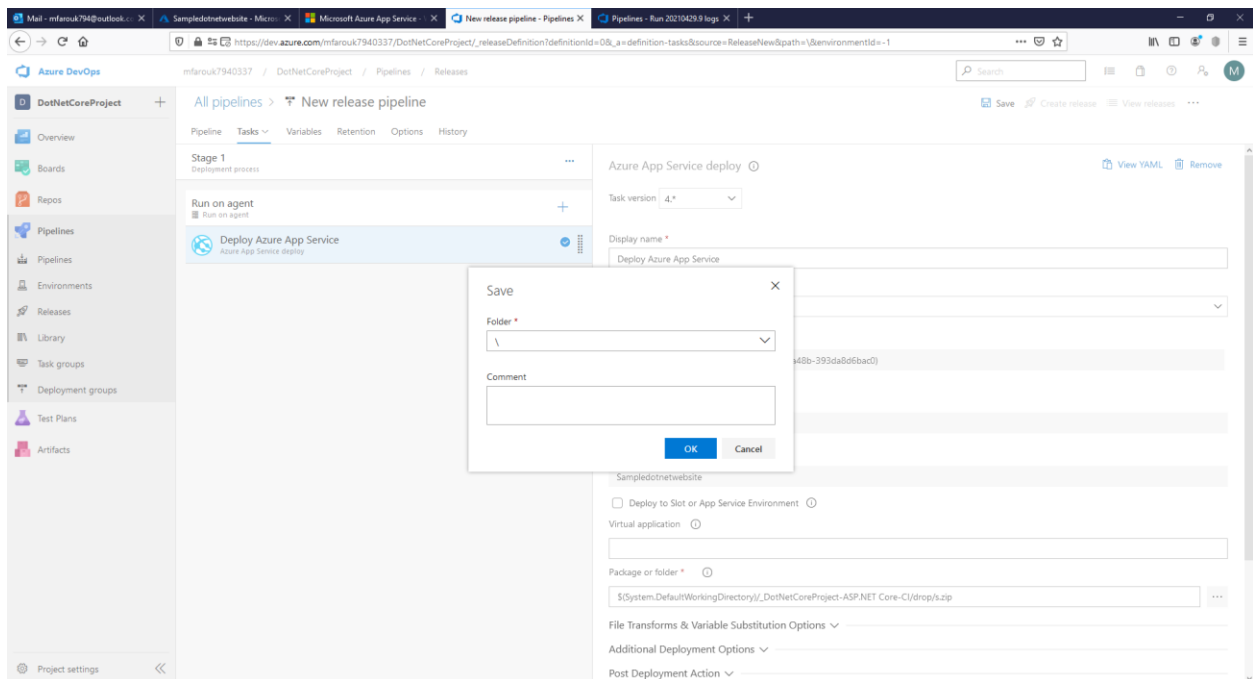


Image 25

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

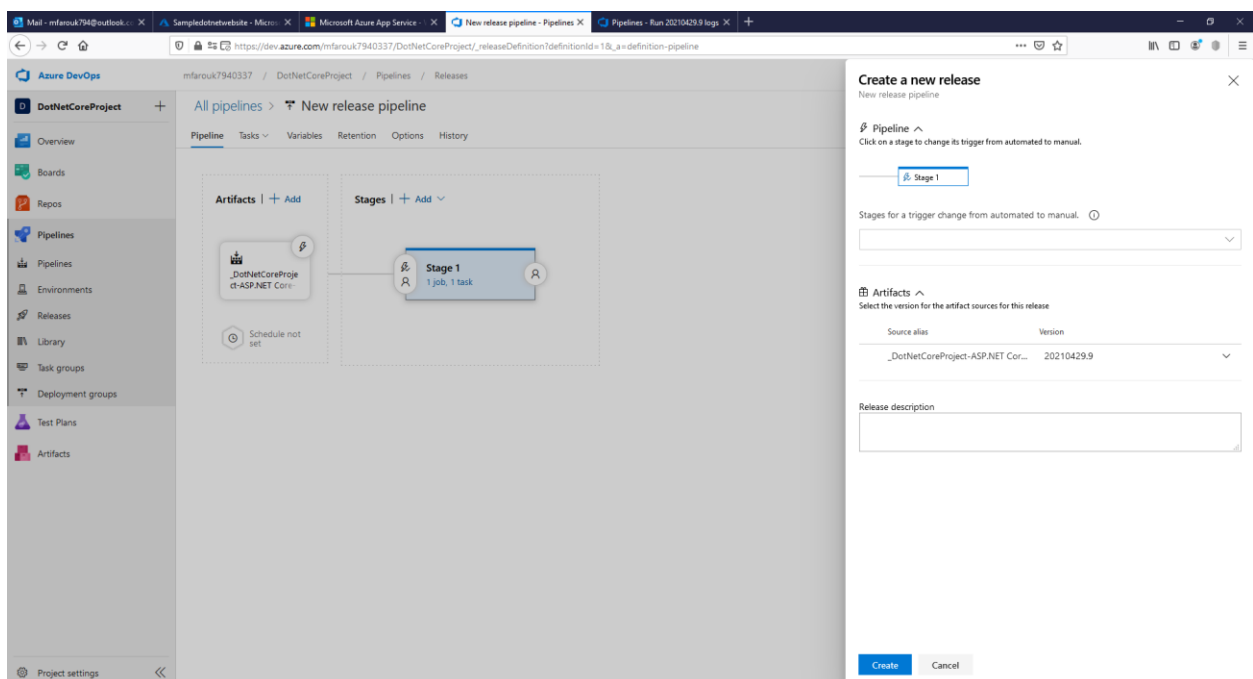
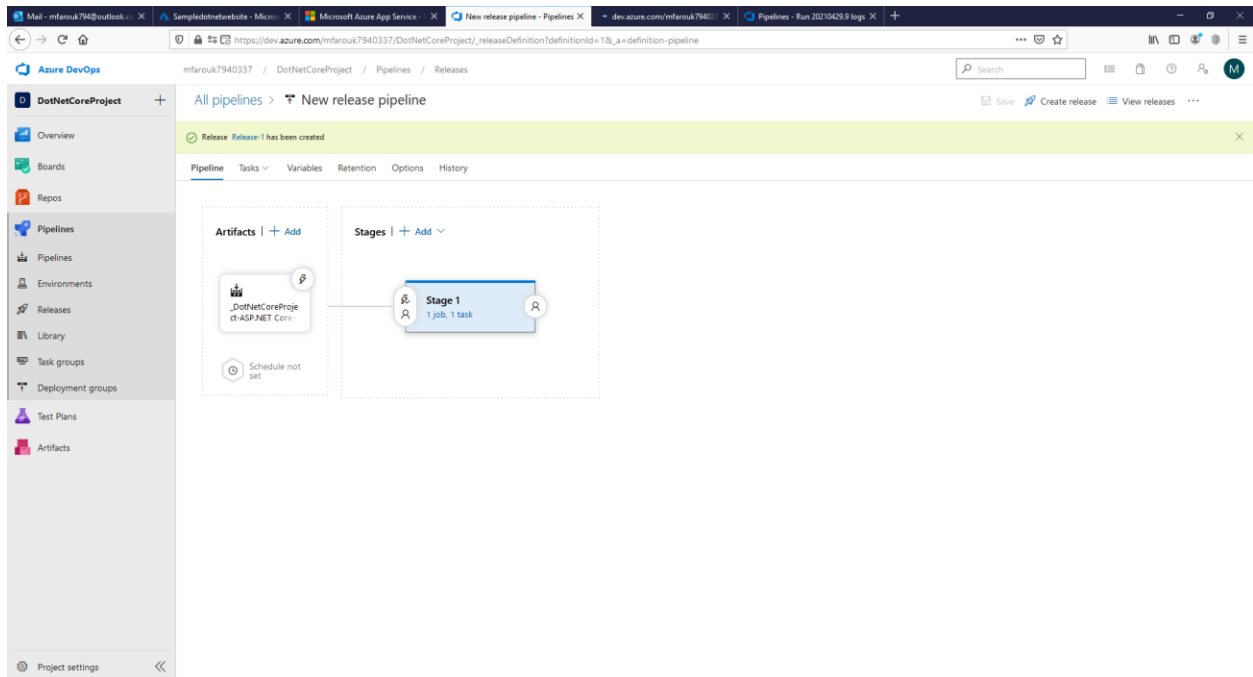


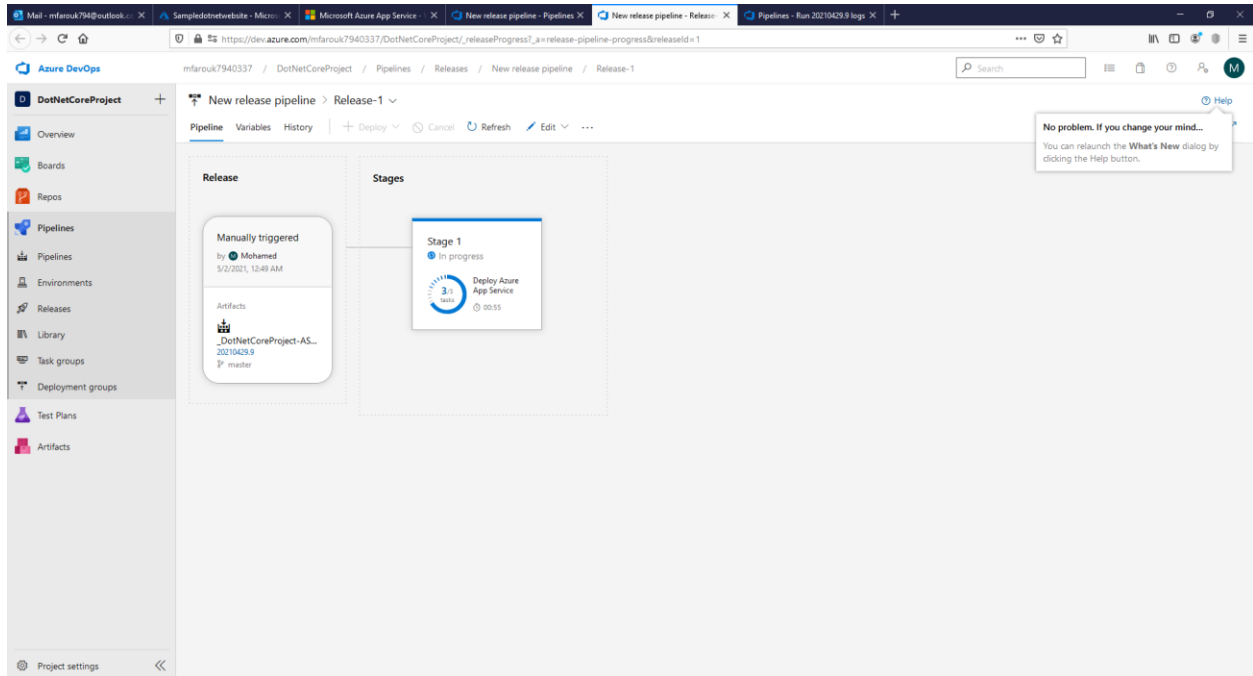
Image 26

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



## Image 27

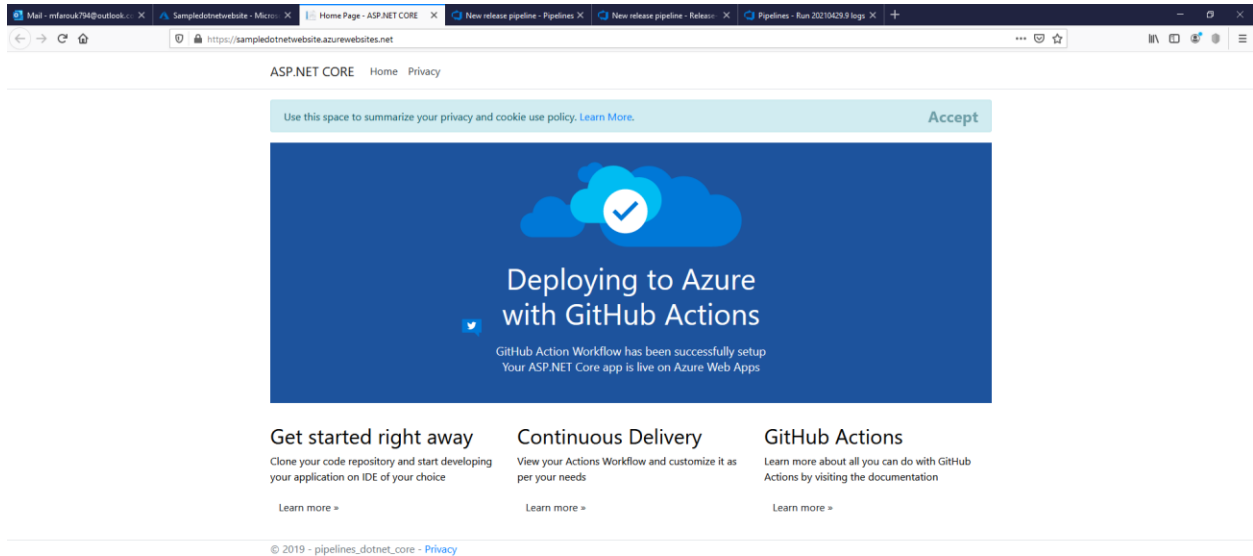
We can see the progress of the deployment.





## 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>