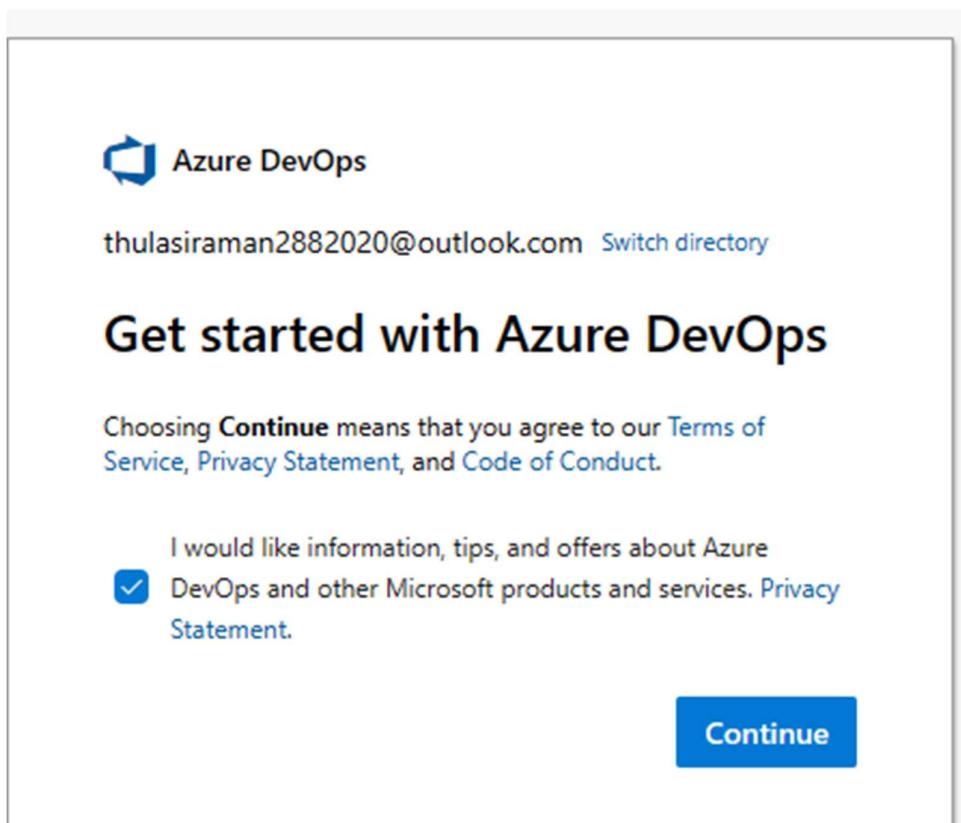
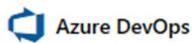


AZURE DEVOPS

Task: to setup up CI / CD using Azure Devops for online products portal (ASP.Net MVC C#)

CREATING ORGANIZATION IN AZURE DEVOPS





thulasiraman2882020@outlook.com [Switch directory](#)

Almost done...

Name your Azure DevOps organization

dev.azure.com/ XYZEnterprizesLTD

We'll host your projects in

South India

Enter the characters you see

New Audio

NRDVW

[Continue](#)

CREATING PROJECT IN AZURE DEVOPS

Creating a basic webapp

The screenshot shows the Microsoft Azure portal interface. The left sidebar includes links for Home, Dashboard, All services, Favorites, App Services, Function App, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, and Azure Active Directory. The main content area has a search bar at the top with the text 'newapp'. Below the search bar, there are tabs for All, Services (6), Resources, Resource Groups, Marketplace (8), and Documentation (99+). A sub-menu for 'Services' is open, showing options like App Services, Static Web Apps, Cloud services (classic), Power Platform, Web App, Web App + Database, Web App for Containers, HERE Maps & Location Services for WebApp backends, Akumina EXP - Web App, Akumina EXP 4.x - Web App, Sirius NGSI-LD Contextbroker webapp, OMNIA Low-code Platform, and Continue searching in Azure Active Directory. A feedback button ('Give feedback') is located at the bottom right of the search results.

Home > App Services >
Create Web App ...

Details

Subscription	670401e4-d3bb-4017-8f07-99fe6e5b229e
Resource Group	myazdwebapp
Name	onlineproductsportal123123
Publish	Code
Runtime stack	.NET 6 (LTS)

App Service Plan (New)

Name	ASP-myazdwebapp-92f5
Operating System	Windows
Region	East US
SKU	Free
ACU	Shared infrastructure
Memory	1 GB memory

Monitoring

Application Insights	Not enabled
----------------------	-------------

To verify if our webapp is working:

onlineproductsportal123123.azurewebsites.net



Your web app is running and waiting for your content

Your web app is live, but we don't have your content yet. If you've already deployed, it could take up to 5 minutes for your content to show up, so come back soon.

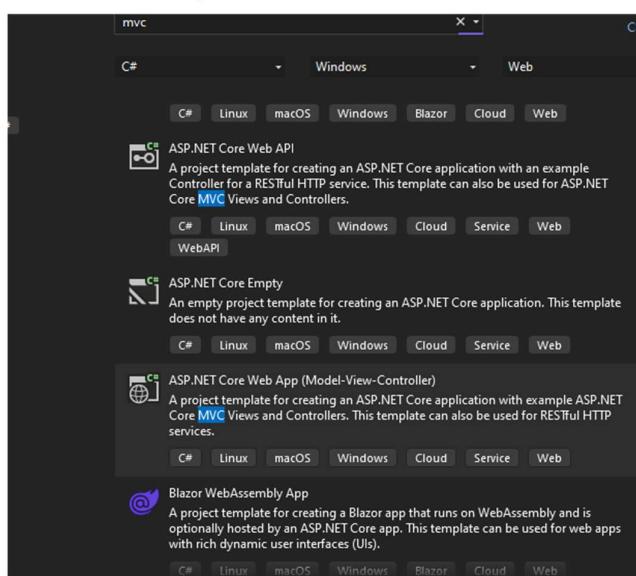


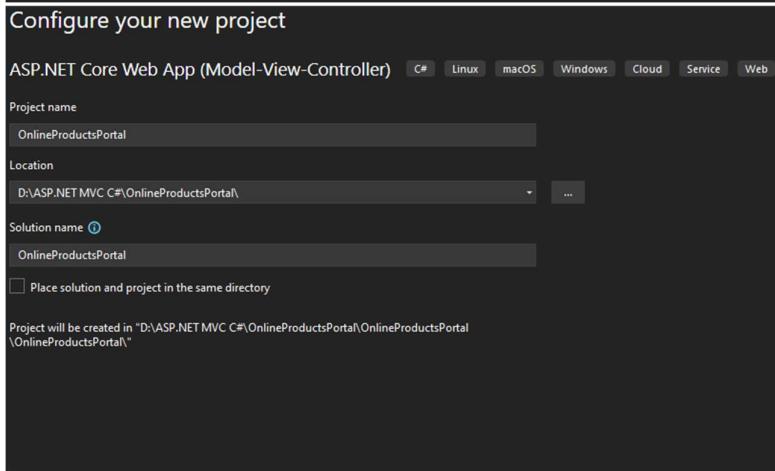
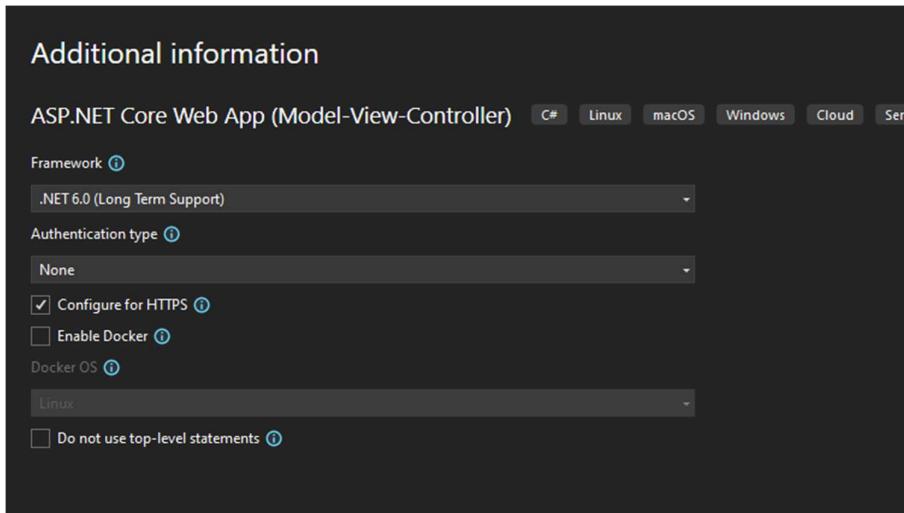
 Supporting Node.js, Java, .NET and more

Haven't deployed yet?
Use the deployment center to publish code or set up continuous deployment.

Starting a new web site?
Follow our Quickstart guide to get a web app ready quickly.

Creating a simple ASP .net MVC app in Visual studio





Build and verify if the app is running Locally

The screenshot shows the Visual Studio IDE interface. The code editor displays the 'Index.cshtml' file with the following content:

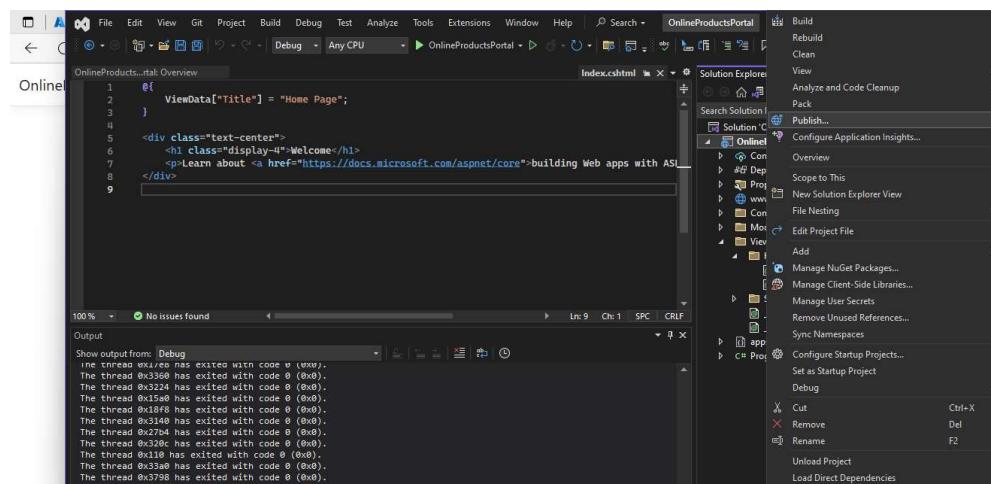
```
1  @{
2      ViewData["Title"] = "Home Page";
3  }
4
5  <div class="text-center">
6      <h1 class="display-4">Welcome</h1>
7      <p>Learn about <a href="https://docs.microsoft.com/aspnet/core">building Web apps with ASP.NET Core</a></p>
8  </div>
```

The Solution Explorer shows the project structure for 'OnlineProductsPortal' with files like 'Index.cshtml', 'Privacy.cshtml', 'ViewImports.cshtml', 'ViewStart.cshtml', 'appsettings.json', and 'Program.cs'. The output window at the bottom shows the build process starting and completing successfully.

```
Output
Build started...
Build started: Project: OnlineProductsPortal, Configuration: Debug Any CPU -----
OnlineProductsPortal -> D:\ASP.NET MVC C#\OnlineProductsPortal\OnlineProductsPortal\bin\Debug\
Build: 1 succeeded, 0 failed, 0 up-to-date, 0 skipped
Build started at 2:39 PM and took 01:50.863 minutes
```

The screenshot shows a web browser window with the URL <https://localhost:7187>. The page title is "OnlineProductsPortal". Below the title, there is a large "Welcome" heading and a link to "building Web apps with ASP.NET Core".

publishing the code manually to the azure webapp at first



Publish

Where are you publishing today?

Target



Azure

Publish your application to the Microsoft cloud



Docker Container Registry

Publish your application to any supported Container Registry that works with Docker images



Folder

Publish your application to a local folder or file share



FTP/FTPS Server

Publish your application to an FTP/FTPS server



Web Server (IIS)

Publish your application to IIS using Web Deploy or Web Deploy Package



Import Profile

Import your publish settings to deploy your app

Publish

Which Azure service would you like to use to host your application?

Target

Specific target



Azure Container Apps (Linux)

Run scalable containerized applications and microservices on a serverless platform in Azure



Azure App Service (Windows)

Publish your application code to a managed infrastructure that is easy to scale



Azure App Service (Linux)

Publish your application code to a managed infrastructure that is easy to scale



Azure App Service Container

Publish your application as a Docker image to Azure Container Registry and run it on Azure App Service



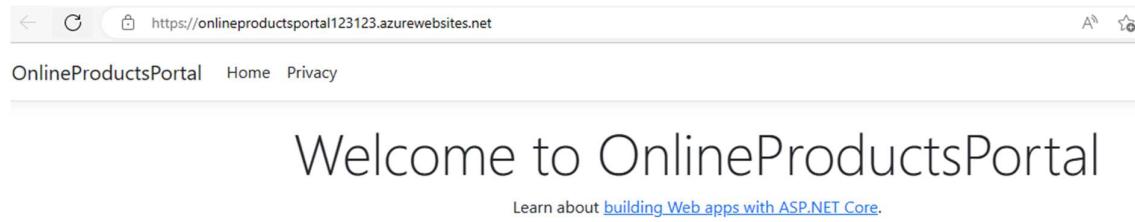
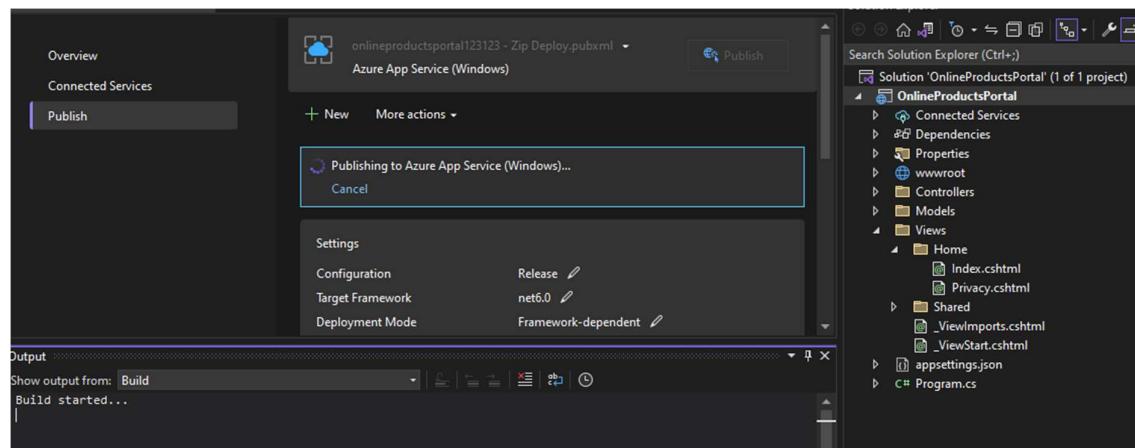
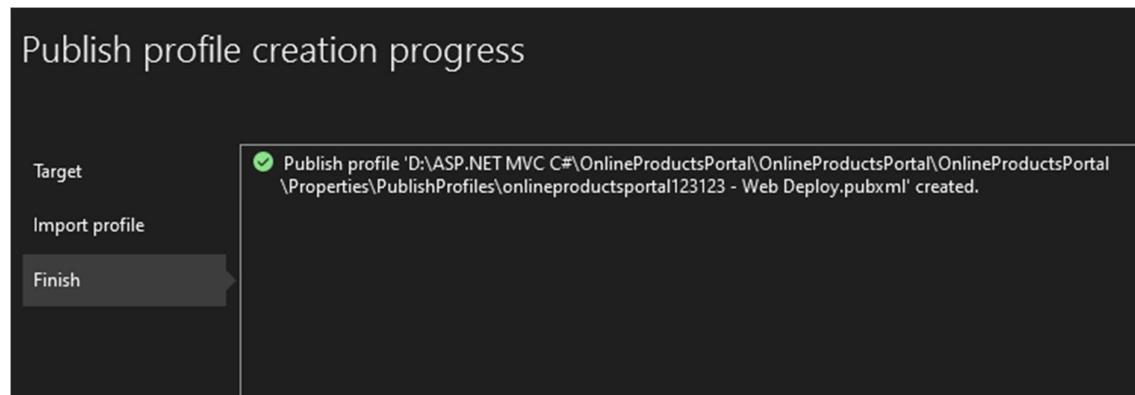
Azure Container Registry

Publish your application as a Docker image to Azure Container Registry

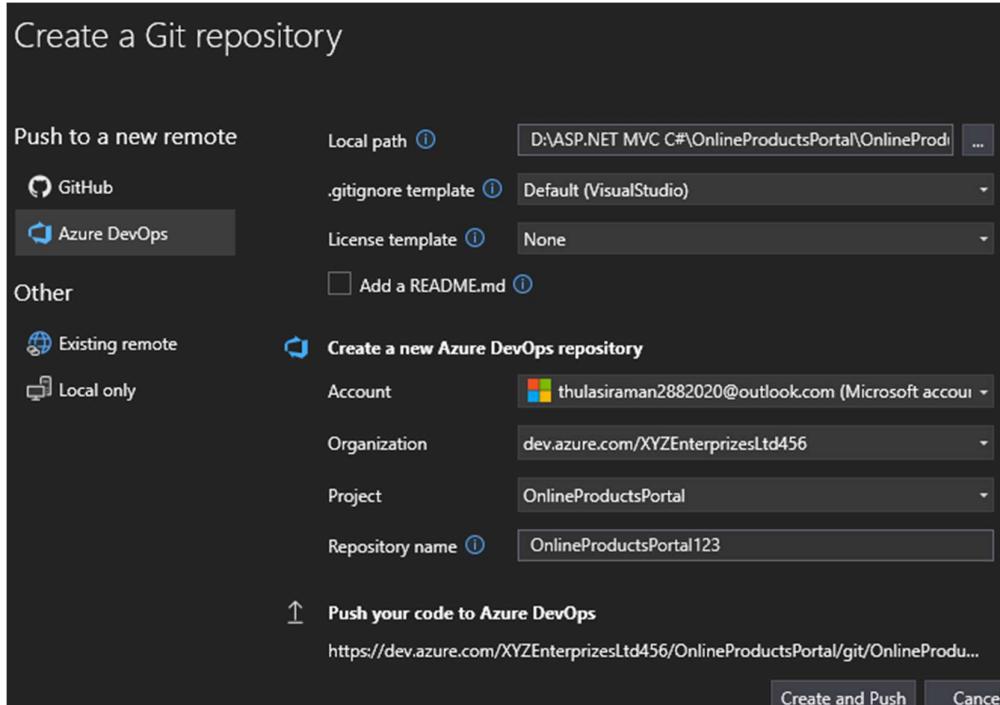


Azure Virtual Machine

Manage your own infrastructure



Pushing our code to azure repos



Verifying if files are pushed to Azure repos

The screenshot shows the Azure DevOps repository details page for 'OnlineProductsPortal123'. The left sidebar has 'Repos' selected. The main area shows the 'master' branch with four commits. The commit history is as follows:

Name	Last change	Commits
OnlineProductsPortal	6m ago	c200c622 Add project files. Your Name
.gitattributes	6m ago	94c0ffde Add .gitattributes and .gitignore. Your...
.gitignore	6m ago	94c0ffde Add .gitattributes and .gitignore. Your...
OnlineProductsPortal.sln	6m ago	c200c622 Add project files. Your Name

Creating Build Pipeline

Connect Select Configure Review

New pipeline

Where is your code?



Azure Repos Git

[YAML](#)

Free private Git repositories, pull requests, and code search



Bitbucket Cloud

[YAML](#)

Hosted by Atlassian



GitHub

[YAML](#)

Home to the world's largest community of developers



GitHub Enterprise Server

[YAML](#)

The self-hosted version of GitHub Enterprise



Other Git

Any generic Git repository



Subversion

Centralized version control by Apache

[Use the classic editor](#) to create a pipeline without YAML.

Code from : Azure Repos - > onlineproductsportal123123

New pipeline

Select a repository

Filter by keywords

OnlineProductsPortal

OnlineProductsPortal123

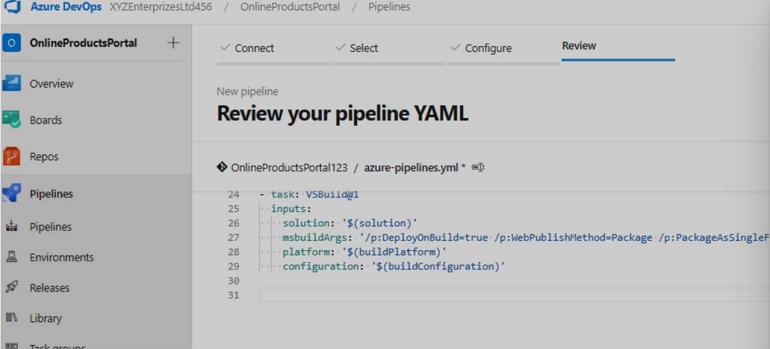
Configuring pipeline for ASP .Net Core project

New pipeline

Configure your pipeline

-  **ASP.NET**
Build and test ASP.NET projects.
-  **.NET Core** (.NET Framework)
Build and test ASP.NET Core projects targeting the full .NET Framework.
-  **.NET Desktop**
Build and run tests for .NET Desktop or Windows classic desktop solutions.
-  **Universal Windows Platform**
Build a Universal Windows Platform project using Visual Studio.
-  **Xamarin.Android**
Build a Xamarin.Android project.
-  **Xamarin.iOS**
Build a Xamarin.iOS project.
-  **Starter pipeline**
Start with a minimal pipeline that you can customize to build and deploy your code.
-  **Existing Azure Pipelines YAML file**
Select an Azure Pipelines YAML file in any branch of the repository.

Setup the initial commit of Build pipeline



The screenshot shows the Azure DevOps interface for configuring a new pipeline. The left sidebar has 'Pipelines' selected. The main area is titled 'Review your pipeline YAML' and displays the following YAML code:

```
24 - task: VSBuild@1
25   inputs:
26     solution: '$(solution)'
27     msbuildargs: '/p:DeployOnBuild=true /p:WebPublishMethod=Package /p:PackageAsSingleFile=true /p:SkipInvalidConfigurations=true'
28     platform: '$(buildPlatform)'
29     configuration: '$(buildConfiguration)'
```

To the right, under 'Save and run', there is a 'Commit message' field containing 'Set up CI with Azure Pipelines'. Below it is an 'Optional extended description' field with the placeholder 'Add an optional description...'. At the bottom, there are two radio buttons: 'Commit directly to the master branch' (selected) and 'Create a new branch for this commit'.

Job failed to no hosted parallelism agent in free subscription

Hence, Self hosted agent setup to run pipeline jobs using Personal Access Token

The screenshot shows the 'Get the agent' section of the Azure DevOps website. It includes tabs for Windows, macOS, x64, and x86. Under the x64 tab, there's a 'System prerequisites' section with a link to configuration steps. Below it is a 'Download' button and a link to 'Create the agent'. A code block shows PowerShell commands for extracting the agent zip file to the 'agent' directory. To the right, a 'Downloads' window shows the 'vsts-agent-win-x64-3.218.0.zip' file being downloaded.

The screenshot shows a Windows PowerShell session in Administrator mode. It starts with a 'dir' command showing the contents of the 'agent' folder, which includes 'bin', 'externals', 'config.cmd', and 'run.cmd'. Then, the user runs '.\config.cmd', which outputs the agent version (agent v3.218.0) and a commit hash (commit 0386f01). Finally, the user types '>> Connect:' followed by the server URL 'https://dev.azure.com/XYZEnterprizesLtd456' and the authentication type 'PAT'.

```
PS C:\agent> dir

Directory: C:\agent

Mode                LastWriteTime         Length Name
----                -              -          -
d-----        15-04-2023     17:01                bin
d-----        15-04-2023     17:02                externals
-a----        16-03-2023    12:22      2967 config.cmd
-a----        16-03-2023    12:22      3190 run.cmd

PS C:\agent> .\config.cmd

agent v3.218.0          (commit 0386f01)

>> Connect:

Enter server URL > https://dev.azure.com/XYZEnterprizesLtd456
Enter authentication type (press enter for PAT) >
```

The screenshot shows the 'Agent pools' section of the Azure DevOps settings. The 'Default' pool is selected. A table lists one agent: 'DESKTOP-4P58I61' (Offline), with status 'Idle', agent version '3.218.0', and 'Enabled' set to 'On'. There is a 'Update all agents' button at the top right.

Initiate a manual build

The screenshot shows the 'Pipelines' page for the 'OnlineProductsPortal' project. A build run is selected, showing the 'Jobs' list. One job is expanded, revealing sub-tasks like 'Initialize job', 'Checkout OnlineProd...', 'NuGetToolInstaller', etc. A modal window titled 'Finalize Job' is open, showing the log output for the finalization process.

And response from self hosted agent (backend pool)

```
PS C:\agent> .\run.cmd
Scanning for tool capabilities.
Connecting to the server.
2023-04-15 11:40:17Z: Listening for Jobs
2023-04-15 11:47:31Z: Running job: Job
2023-04-15 11:54:00Z: Job Job completed with result: Succeeded
2023-04-15 11:54:02Z: Running job: Job
2023-04-15 11:56:53Z: Job Job completed with result: Succeeded
```

Creating a release pipeline to continue the successful build triggers

The screenshot shows the 'New release pipeline' creation interface. On the left, there are sections for 'Artifacts' and 'Stages'. Under 'Artifacts', there is a button to 'Add an artifact'. Under 'Stages', a stage named 'Stage 1' is selected with the placeholder 'Select a template'. On the right, a 'Select a template' pane is open, showing a list of featured templates:

- 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 Azure Web App and database to Azure Database for MySQL.
- Deploy to a Kubernetes cluster**: Activate Windows. Deploy, configure, update your containerized applications to a Kubernetes cluster.

Stage 1 created : create and deployment to staging slot using Azure CLI (inline powershell script)

The screenshot shows the 'Agent job' configuration for Stage 1. The left sidebar lists tasks: 'Agent job' (selected), 'Creating Staging slot' (Azure CLI), and 'Azure App Service Deploy: staging slot' (Azure App Service deploy). The main area shows the 'Agent job' configuration:

- Display name**: Agent job
- Agent selection**: Agent pool: Default
- Demands**: None
- Execution plan**: Parallelism: None
- Activate Windows**: Multi-configuration (radio button selected)

All pipelines > **webapp-deployment**

Pipeline Tasks Variables Retention Options History

deployment
Deployment process

Agent job
Run on agent

Creating Staging slot
Azure CLI

Azure App Service Deploy: staging slot
Azure App Service deploy

App Service name *

Deploy to Slot or App Service Environment

Resource group *

Slot *

Virtual application

Package or folder *

File Transforms & Variable Substitution Options

Additional Deployment Options

Activate Windows

Post Deployment Action

Artifact : from last build of our application from project

All pipelines > **webapp-deployment**

Pipeline Tasks Variables Retention Options History

Artifacts | + Add

_OnlineProductsPortal123

Schedule not set

Stages | + Add ▾

deployment 1 job, 2 tasks

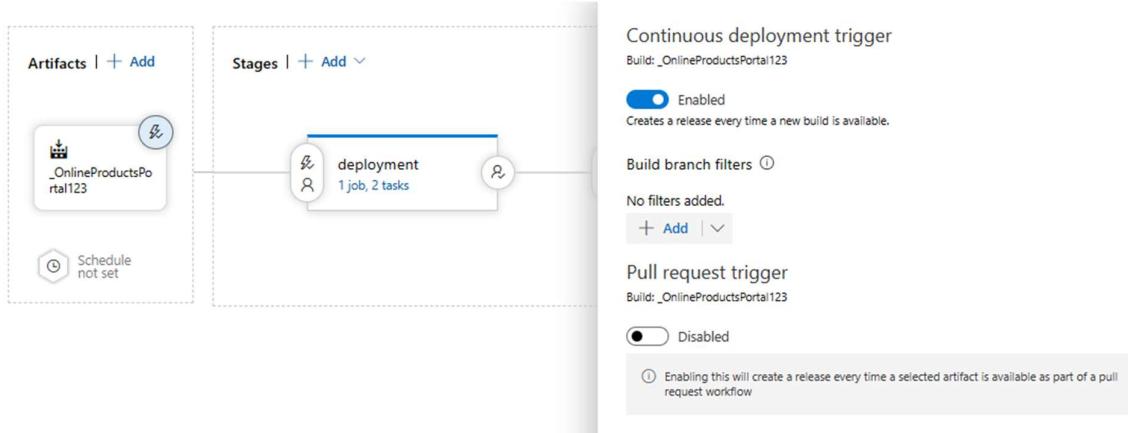
Stage deployment

Properties ^
Name and owners of the stage

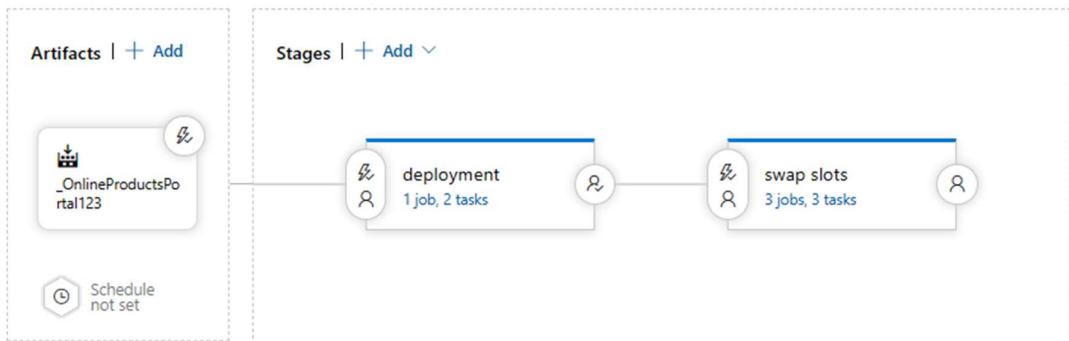
Stage name

Stage owner  THULASI RAMAN

Continuous deployment trigger is enabled to create new release when a new build is available



Add the stage to swap and delete the staging slot once post-deployment approval



The screenshot shows the configuration for the 'swap slots' task. The left sidebar lists other tasks: 'Agent job' (Swap Slots), 'Agentless job' (Manual Intervention - perform checkouts), and 'Agent job' (Azure CLI : delete staging). The right panel shows the 'Action' dropdown set to 'Swap Slots'. Configuration fields include:

- Action:** Swap Slots
- App Service name ***: onlineproductsportal123123
- Resource group ***: myazdwebapp
- Source Slot ***: staging
- Swap with Production
- Preserve Vnet
- Control Options**: (dropdown menu)
- Output Variables**: (dropdown menu)

Activate Windows

A manual intervention (agent less job – to perform checkout) and approve for deletion

The screenshot shows the Azure DevOps pipeline editor. On the left, a list of tasks is visible: Agent job (Run on agent), Swap Slots (Azure App Service manage), Agentless job (Run on server), Manual Intervention - perform checkouts (Manual intervention, highlighted in blue), Agent job (Run on agent), and Azure CLI : delete staging (Azure CLI). On the right, the configuration for the "Manual Intervention - perform checkouts" task is shown. The "Task version" is set to 8.*. The "Display name" is "Manual Intervention - perform checkouts". The "Instructions" field is empty. Under "Notify users", there is a placeholder "Search users and groups". Below that, "On timeout" options are shown: "Reject" (selected) and "Resume". A note says "Activate Windows Go to Settings to activate Windows.".

Delete once checkout is completed

The screenshot shows the Azure DevOps pipeline editor. The tasks listed on the left are the same as the previous screenshot. The configuration for the "Azure CLI : delete staging" task is shown on the right. The "Task version" is set to 2.*. The "Display name" is "Azure CLI : delete staging". The "Azure Resource Manager connection" is set to "Pay-As-You-Go (670401e4-d3bb-4017-8f07-99fe6e5b229e)". The "Script Type" is "PowerShell". The "Script Location" is "Inline script". The "Inline Script" field contains the command: "az webapp deployment slot delete --name onlineproductsportal123123 --resource-group myazdwebapp --slot staging". A note says "Go to Settings to activate Windows."

Save and Test the release by making some change in Source code(azure repos)

Index.cshtml

Edit ⋮ ↗

Contents History Compare Blame

Committed 9dd0b948: Updated Index.cshtml Create a pull request X

```
1 @{
2     ViewData["Title"] = "Home Page";
3 }
4
5 <div class="text-center">
6     <h1 class="display-4">Welcome to OnlineProductsPortal - 2</h1>
7     <p>Learn about <a href="https://docs.microsoft.com/aspnet/core">building Web apps with ASP.NET Core</a>.</p>
8 </div>
9
```

Commit

Comment

Updated Index.cshtml

Branch name

master

Work items to link

Search work items by ID or title

Verifying a build pipeline is triggered

OnlineProductsPortal123

Description	Stages	Time
#20230415.12 • Updated Index.cshtml	1	Just now 18s
#20230415.11 • Updated Index.cshtml	2	31m ago 3m 36s
#20230415.10 • Update azure-pipelines.yml for publish artifact	2	46m ago 2m 56s
#20230415.9 • Update azure-pipelines.yml for publish artifact	2	46m ago 7m 51s
#20230415.8 • updated pool to point self hosted agent	2	2h ago

Job is running to produce updated Build artifact (using Publishpipelineartifact)

Jobs in run #20230415.12

Checkout OnlineProductsPortal123@master to s

```

1 Starting: Checkout OnlineProductsPortal123@master to s
2 =====
3 Task : Get sources
4 Description : Get sources from a repository. Supports Git, TfsVC, and SVN repositories.
5 Version : 1.0.0
6 Author : Microsoft
7 Help : [More Information](https://go.microsoft.com/fwlink/?LinkId=798199)
8 =====
9 Syncing repository: OnlineProductsPortal123 (git)
10 Prepending Path environment variable with directory containing 'git.exe'.
11 git version
12 git version 2.39.1.windows.1
13 git lfs version

```

Seeing the release pipeline trigger when new build is available

Release

Continuous deployment

for THULASI RAMAN
15/4/2023, 7:12 pm

Artifacts

_OnlineProductsP...
20230415.12
master

Stages

- deployment: In progress (1/2 tasks)
- swap slots: Not deployed

Initially, no slots

onlineproductsportal123123 | Deployment slots

Web App

Search Save Discard Add Slot Swap Logs Refresh

You haven't added any deployment slots. Click here to get started.

Deployment Slots

Deployment slots are live apps with their own hostnames. App content and configurations element swapped between two deployment slots, including the production slot.

NAME	STATUS	APP SERVICE PLAN	TRAFFIC %
onlineproductsportal123123 PRODUCTION	Running	ASP-myazdwebapp-92f5	100

Deployment

Deployment slots Deployment Center

Deployment Slots

Deployment slots are live apps with their own hostnames. App content and configurations elements can be swapped between two deployment slots, including the production slot.

NAME	STATUS	APP SERVICE PLAN	TRAFFIC %
onlineproductsportal123123 PRODUCTION	Running	ASP-myazdwebapp-92f5	100
onlineproductsportal123123-QAStaging	Running	ASP-myazdwebapp-92f5	0

Verification:

Production:

https://onlineproductsportal123123.azurewebsites.net

OnlineProductsPortal Home Privacy

Welcome to OnlineProductsPortal - 1

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

QA staging:

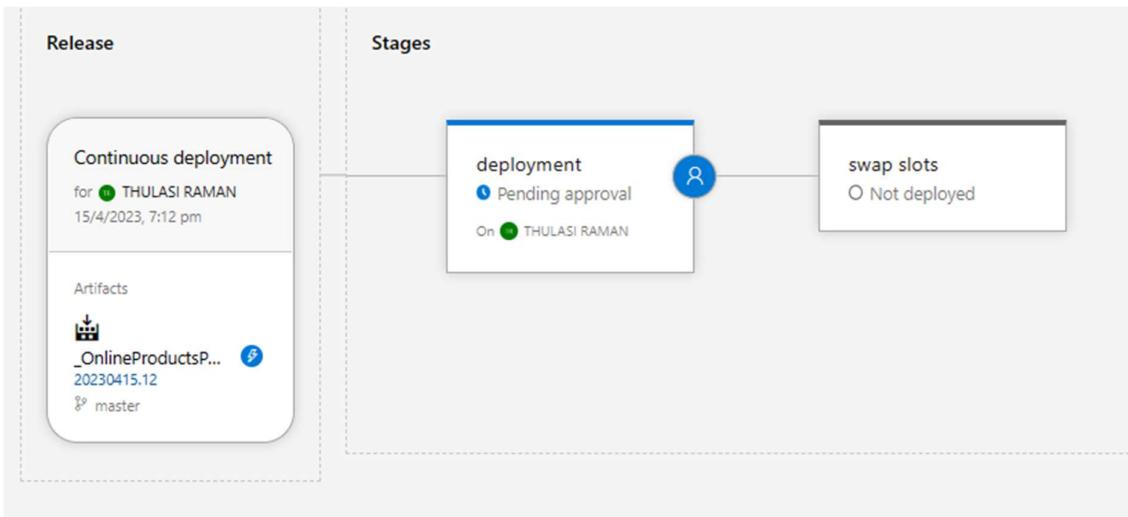
https://onlineproductsportal123123-qastaging.azurewebsites.net

OnlineProductsPortal Home Privacy

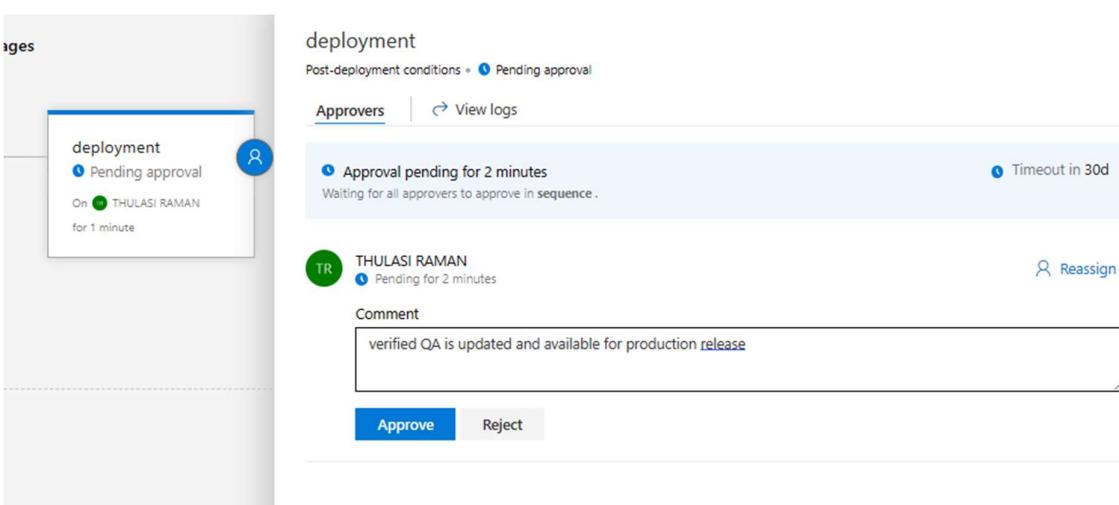
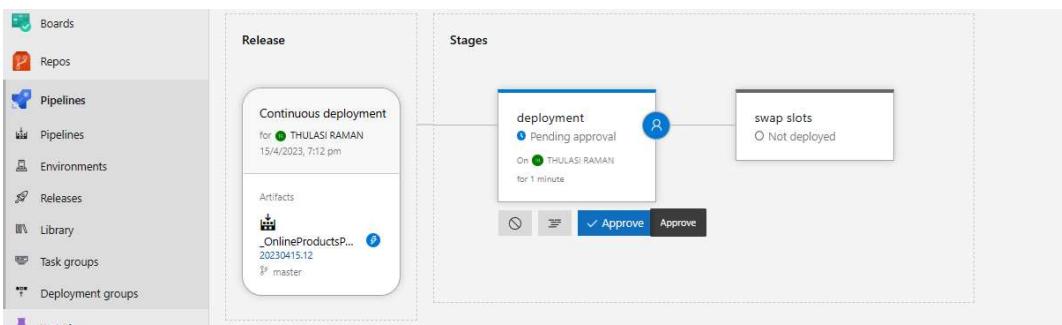
Welcome to OnlineProductsPortal - 2

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

Post deployment approval once after deployment to staging slot



Validate and approval process



Then jobs (to swap the slots. Staging -> production) under next stage is queued

The screenshot shows the Azure DevOps Release Pipeline interface. On the left, the 'Release' section displays a 'Continuous deployment' card for THULASI RAMAN on 15/4/2023 at 7:12 pm, with artifacts for _OnlineProductsPortal123 20230415.12 and master. To the right, the 'Stages' section shows a 'deployment' stage that has succeeded on 15/4/2023 at 7:57 pm. Following this is a 'swap slots' stage, which is currently in progress for 1 minute. This stage includes a sub-job titled 'Swap Slots' that has completed 3/3 tasks in 00:09.

Deployment attempt #2
In progress

Agent job
In progress

Download artifact - _OnlineProductsPortal123 - webapp-artifact succeeded 9s

Swap Slots 1m 17s

```
*****  
Starting: Swap Slots  
*****  
Task : Azure App Service manage  
Description : Start, stop, restart, slot swap, slot delete, install site extensions or enable continuous monitoring for an Azure App Service  
Version : 0.217.2  
Author : Microsoft Corporation  
Help : https://docs.microsoft.com/azure/devops/pipelines/tasks/deploy/azure-app-service-manage  
=====  
Warning-up slots  
Swapping App Service 'onlineproductsportal123123' slots - 'QAStaging' and 'production'  
Swapped App Service 'onlineproductsportal123123' slots - 'QAStaging' and 'production'  
Successfully updated deployment History at https://onlineproductsportal123123-qastaging.scm.azurewebsites.net/api/deployments/51681569104856
```

Verify the result in Azure app service

Production is updated to version 2:

A screenshot of a web browser displaying the 'OnlineProductsPortal' application. The URL is https://onlineproductsportal123123.azurewebsites.net. The page header shows 'OnlineProductsPortal' and links for 'Home' and 'Privacy'. The main content area displays the message 'Welcome to OnlineProductsPortal - 2'. Below this, a note says 'Learn about [building Web apps with ASP.NET Core](#)'.

QA staging back to 1:

The screenshot shows a browser window with the URL <https://onlineproductsportal123123-qastaging.azurewebsites.net>. The page title is "Welcome to OnlineProductsPortal - 1". Below the title, there is a link to "Learn about [building Web apps with ASP.NET Core](#)". The page content is mostly blank, indicating a successful deployment.

Resume the manual intervention(agent less) task as confirming the checkout

The screenshot shows the Azure DevOps Pipelines interface. On the left, there is a sidebar with various options: Boards, Repos, Pipelines, Releases, Library, Task groups, Deployment groups, Test Plans, and Artifacts. The "Pipelines" option is selected. In the main area, there is a "Release" section and a "Stages" section. The "Release" section shows a "Continuous deployment" card for THULAS RAMAN, dated 15/4/2023, 7:12 pm. The "Stages" section shows a "deployment" stage that has succeeded. To the right of the deployment stage is a "swap slots" task. The "swap slots" task is in a pending intervention state, with a message: "Waiting on Manual Intervention - 01:08". There is a "Resume" button next to the task.

swap slots

Manual Intervention - perform checkouts [View logs](#)

⌚ Manual Intervention - perform checkouts pending.

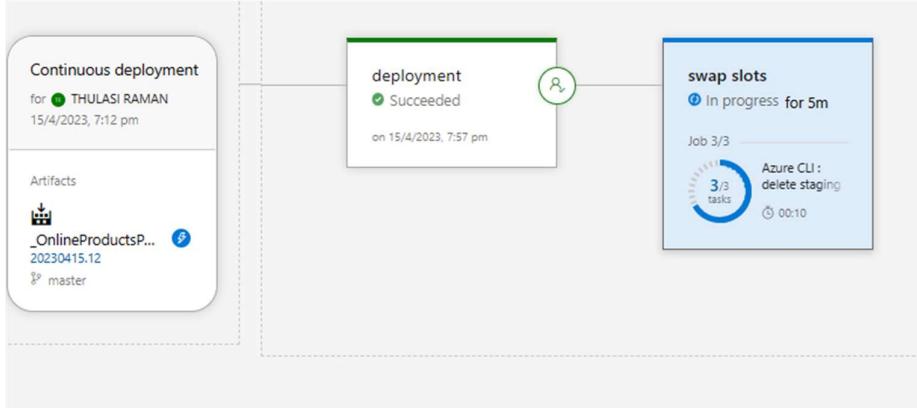
Comment

swap slots confirmed. Production is up and running, staging can be deleted.

[Resume](#)

[Reject](#)

Finally the staging will no longer be available in slots



Azure App service:

The screenshot shows the 'Deployment slots' page for an Azure App Service named 'onlineproductsportal123123'. The left sidebar shows navigation options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Microsoft Defender for Cloud, Events (preview), Deployment (selected), Deployment slots (selected), and Deployment Center. The main area displays a message: 'You haven't added any deployment slots. Click here to get started.' Below this is a 'Deployment Slots' section with a green icon and a brief description: 'Deployment slots are live apps with their own hostnames. App content and configurations element swapped between two deployment slots, including the production slot.' A table lists one deployment slot:

NAME	STATUS	APP SERVICE PLAN	TRAFFIC %
onlineproductsportal123123 PRODUCTION	Running	ASP-myazdwebapp-92f5	100

