Azure DevOps

Scott Kirkland CA&ES Dean's Office

What is Azure DevOps

Kinda a full-service development and collaboration platform. Includes:

- Boards (Kanban, Work Item Tracking, Sprint planning, etc)
- Repos (Hosts Git repositories directly)
- Test Plans (Organize Manual Testing plans)
- Artifacts (Host your own packages, ex: NPM, NuGet, Python packages)
- Pipelines (CI/CD -- Build and deploy your code)

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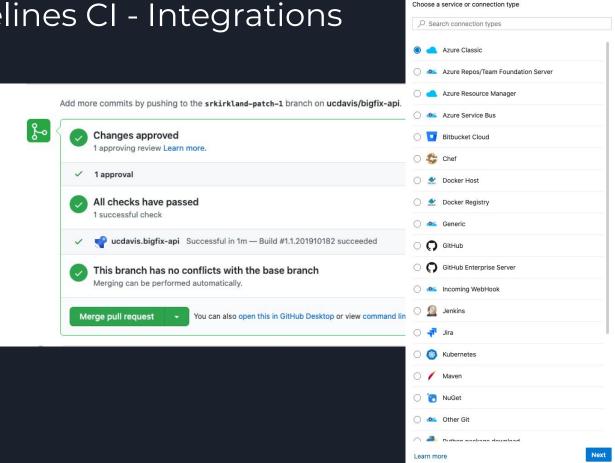
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Azure Pipelines - Two things in one

- "Releases" Automated deployments (CD)
- "Pipelines" Automated builds (CI)

Cloud-hosted pipeline agents for Linux, macOS, and Windows

Pipelines CI - Integrations



New service connection

Like most other tools, it's essentially a YML file you store in your repository

-steps:

-task: DEMOTIME

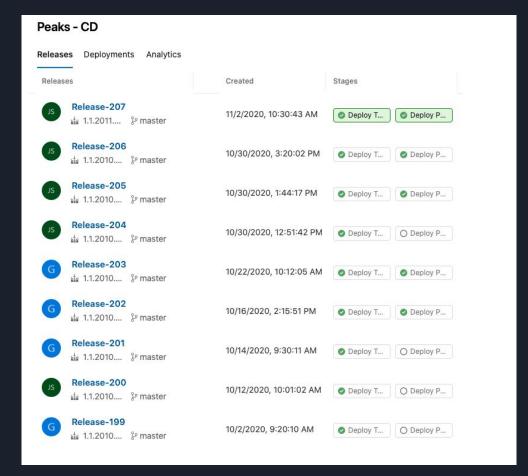
```
trigger:
    - master
     pool:
      vmImage: 'windows-latest'
     variables:
13
      solution: '**/*.sln'
      buildPlatform: 'Any CPU'
15
      buildConfiguration: 'Release'
16
    steps:
    - task: NuGetToolInstaller@1
19
    - task: NuGetCommand@2
      inputs:
22
      restoreSolution: '$(solution)'
23
    Settings
    - task: VSBuild@1
25
       inputs:
       - solution: '$(solution)'
        msbuildArgs: '/p:DeployOnBuild=true /p:WebPublishMethod=Package /p:PackageAsSingleFile=true /p:SkipInv
        platform: '$(buildPlatform)'
29
        configuration: '$(buildConfiguration)'
    Settings
    - task: VSTest@2
      inputs:
        platform: '$(buildPlatform)'
33
34
        configuration: '$(buildConfiguration)'
35
    - task: PublishBuildArtifacts@1
37
38
        PathtoPublish: '$(Build.ArtifactStagingDirectory)'
39
       ArtifactName: 'drop'
40
        publishLocation: 'Container'
```

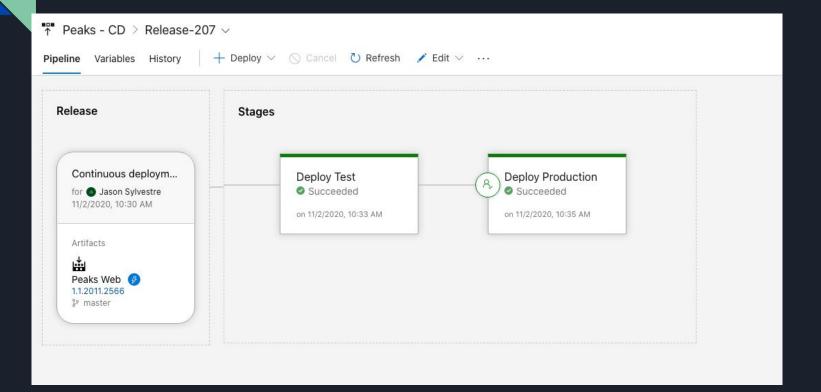
← Peaks - CI		Edit Run pipeline :
Runs Branches Analytics		Y
Description	Stages	
#1.1.2011.2566 Merge pull request #1053 from ucdavis/JCS/FixReportColumn20201102 Ondividual CI for \$\sigma\$ master \$\daggeq\$ 9248f9b \$\sigma\$	0 - 0	≅ Monday ⊙ 15m 13s
#1.1.2011.2565 Fix column header \$\mathbb{T}\$ PR automated for \$\bigsim \mathbb{T}\$ 1053 \$\dot \text{6bbedf1 } \phi\$	⊘ -⊙	tā Monday ⊙ 6m 16s
#1.1.2010.2564 Merge pull request #1052 from ucdavis/JCS/FixNonbreakingSpaceInReportList	0 - 0	t∄ Friday ⑥ 14m 7s
#1.1.2010.2563 Non breaking styled span \$\mathbb{\gamma} \text{ PR automated for } \begin{center} \mathbb{\gamma} \mathbb{1} \mathbb{1} \mathbb{2} \mathbb{2} \display \display \mathbb{5} \mathbb{5} \mathbb{7} \mathbb{7} \mathbb{2} = \display \display \display \mathbb{7} \mathbb{7} \mathbb{7} \mathbb{7} \mathbb{7} \mathbb{8} = \display \dinfty \display \display \display \display \din \display \dinfty \display \disp	⊘ -⊙	ಡ Friday ⊙ 7m 42s
#1.1.2010.2562 Merge pull request #1049 from ucdavis/JCS/PeopleLeavingReport Individual CI for \$\strue{\psi}\$ master \$\dagger\$ 9f680b3 \$\rangle\$	0 - 0	ಡ Friday ⊙ 13m 16s
#1.1.2010.2561 People leaving who have assets report \$\mathbb{\gamma} \text{ PR automated for } \begin{align*} \mathbb{\gamma} \text{ 117e0e7} \\ \mathre{\gamma} \text{ 1317e0e7} \end{align*}	⊘ -⊙	텮 Friday ⓒ 9m 23s
#1.1.2010.2560 Merge pull request #1051 from ucdavis/cyd/design3 O Individual CI for \$\strue{\psi}\$ master \$\dagger\$ ad78ec0 \$\nathered{\strue{\psi}}\$	0 - 0	텮 Friday ⓒ 12m 12s
#1.1.2010.2559 People leaving who have assets report \$\mathbb{T}\$ PR automated for \$\exists 17 1049 \div 8370093	⊘ -⊙	텮 Friday ⓒ 6m 9s
#1.1.2010.2558 People leaving who have assets report \$\mathbb{T}\$ PR automated for \$\begin{array}{c} \mathbb{T}\$ 1049 \	⊘ -⊙	ಡಿ Friday ⊙ 9m 47s
#1.1.2010.2557 info circle & report nbsp % PR automated for 🚳 🖏 1051 🕴 3d50990	⊘ -⊙	ಡ Friday ⊙ 6m 55s
#1.1.2010.2555 People leaving who have assets report \$\mathbb{T}\$ PR automated for \$\mathbb{S}\$ \$\mathbb{T}\$ 1049 \$\display\$ 68ca708	⊘ -⊙	ট Friday ⊙ 6m 34s

Deploy to any cloud, including Azure, AWS, and GCP. Deploy to Kubernetes, VMs, and even on-premise. Use stages, gates, and approvals to create a deployment strategy that's right for you and ensures quality at every step. Even deploy from other CI systems, like Jenkins.

PLEASE WAIT...

DEPLOYING DEMO





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Artifacts -

```
Settings
     - task: DotNetCoreCLI@2
       displayName: Package Nuget
      inputs:
30
     ---command: 'pack'
32
      packagesToPack: '**/*.csproj'
     · · · includesymbols: true
33
     versioningScheme: 'byBuildNumber'
34
35
     buildProperties: 'SymbolPackageFormat=snupkg'
36
     Settings
     - task: DotNetCoreCLI@2
       displayName: Push Nuget to Feed
38
      inputs:
39
      command: 'push'
      packagesToPush: '$(Build.ArtifactStagingDirectory)/*.nupkg'
     nuGetFeedType: 'internal'
42
43
         publishVstsFeed: $(vstsFeed)
44
     Settings
     - task: PublishSymbols@2
       displayName: Push symbols package to server
      inputs:
47
      SearchPattern: '**/bin/**/*.pdb'
48
      SymbolServerType: 'TeamServices'
49
50
```

Artifacts -

uNuget ∨								
∀ Filter by keywords								
Package	Views	Source	Last pushed	Description	Downloads	Users		
Adfs-Status Version 1.0.20200707.1		This feed	Jul 7	adfs status script	<u>↓</u> 38	g ^R 2		
Get-Hello Version 1.0.0		This feed	May 13	The module says hello to the user	<u>↓</u> 2	_ب 8 1		
let.Core.ActiveDirectory.Reader Version 1.0.20201030.2		This feed	Oct 30	Package Description	<u>↓</u> 295	g ⁸ 2		
let.Core.ActiveDirectory.Writer Version 1.0.20201022.6		This feed	Oct 22	Package Description	<u>↓</u> 139	g ^R 2		
let.Core.ApiKeys Version 1.0.20200608.1		This feed	Jun 8	Package Description	<u>↓</u> 114	g ^Q 2		
let.Core.CommandQueue Version 1.0.20201103,5		This feed	Tuesday	Package Description	<u>↓</u> 14	gR 2		
let.Core.Mothra.Reader Version 1.0.20200917.1		This feed	Sep 17	Package Description	<u>↓</u> 65	g ^R 2		
let.Core.PpsRequests Version 1.0.20201105.7		This feed	Yesterday	Package Description	<u>↓</u> 9	g ^R 2		
let.Core.Requests Version 1.0.20201021.1		This feed	Oct 21	Package Description	<u>↓</u> 273	g ^R 3		

OPTION 1: Small team

First 5 users free, then \$6 per user per month

OPTION 2: Visual Studio Subscriptions

Subscribers get access to any number of organizations and don't count against your 5 free users

OPTION 3: Open Source

10 Free parallel jobs with unlimited minutes per month

BASICS

- 1 Microsoft-hosted job with 1,800 minutes per month for CI/CD
- \$40 per extra Microsoft-hosted CI/CD parallel job
- You can always self-host a build agent yourself as well, and that's included for the first one

In Conclusion

- Azure DevOps does way more than I've shown, including project
 Wikis, Work tracking, Sprint planning, and more.
- GitHub Actions is really a front-end for Azure DevOps and another cool option.
- The price is right for smaller teams or those producing mostly open source code.
- Has worked well for me for the last few years.

Thanks for watching!

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Good Examples

- Broken build: https://dev.azure.com/ucdavis/Peaks/ build?definitionId=12
- Successful build with artifacts: https://dev.azure.com/ucdavis/Peaks/_build/results?buildId=2566&view=results
- Deployment with approval:
 https://dev.azure.com/ucdavis/Peaks/ apps/hub/ms.vss-releaseManagement-web.cd-release-progress? a=release-pipeline-progress&releaseId=207