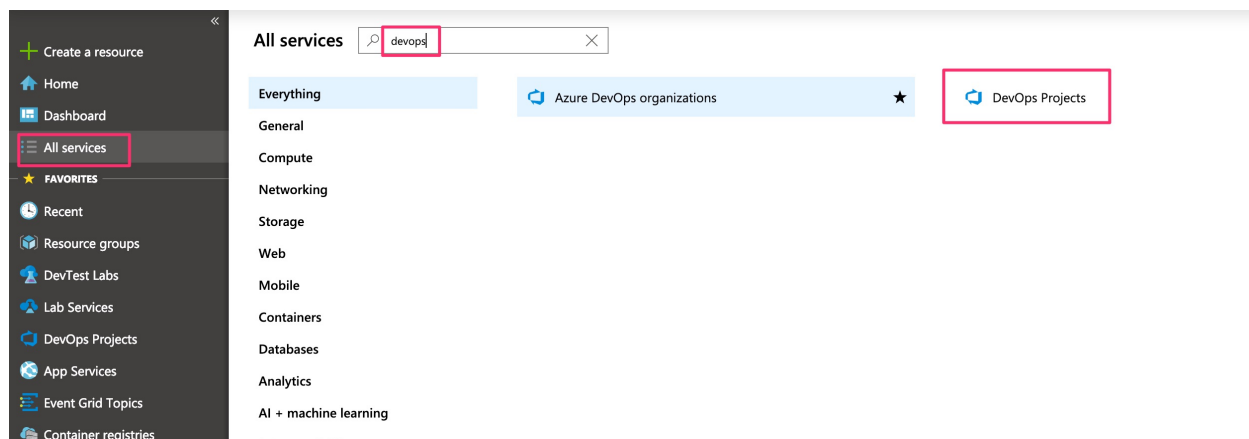


Lab 5: IaaS Automation

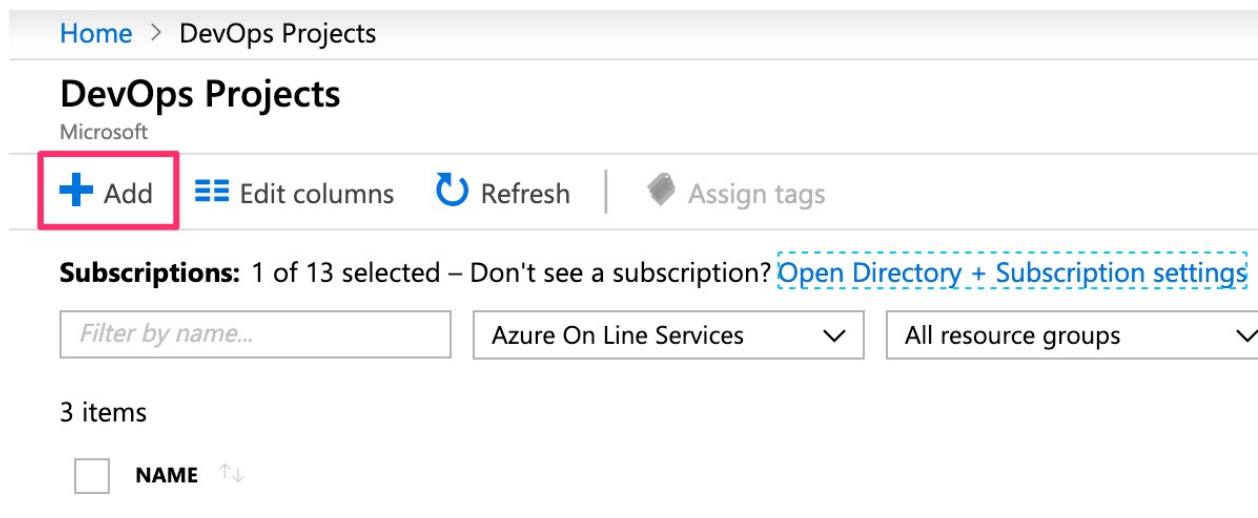
[<- Lab 4: Failover between regions](#) | [Home](#)

This lab will cover automating the provisioning of infrastructure as part of a continuous delivery pipeline using Azure DevOps.

1. In the Azure Portal search services for DevOps Projects and select it:




2. Select Add:



3. Select .NET and Next:

DevOps Projects


Create




Launch an app running in Azure in a few quick steps
Everything you need, created and ready to go: code repository, CI/CD pipeline, and the necessary Azure resources.

New to DevOps Projects?
[Check out our tutorials](#)


Start fresh with a new application

 .NET


New Web App using ASP.NET or ASP.NET Core, or a new IoT app

 Node.js


New Web app using Node.js, Express.js or Sails.js, or a new IoT app

 PHP


New Web app using Laravel or Symfony

 Java

New Web App using Spring or JSF, or a new IoT app

 Static Website

New static website using HTML, CSS, and JavaScript

 Python

New Web App using Bottle, Django, or Flask, or a new IoT app

Previous

Next

4. Select ASP.NET and Next:

DevOps Projects

Create

✓

2

3

4

Runtime

Framework

Service

Create

Choose an application framework

ASP.NET

✓

Open source web framework for building modern web apps and services

ASP.NET Core

Cross-platform, open-source framework for building modern web apps and services

Simple IoT (Preview)

A fully managed service that delivers cloud intelligence locally on cross-platform IoT devices

Add a database

☐

SQL Database

Previous

Next

5. Select Virtual Machine and Next:

DevOps Projects

Create

✓


✓


3


4

RuntimeFrameworkServiceCreate

Select an Azure service to deploy the application

**Windows Web App**
Fully managed compute platform on Windows for web applications and websites.

**Function App**
A serverless compute service to run code on-demand without managing infrastructure.

**Virtual machine** ✓
Windows virtual machine to run your app

Don't see a service you're looking for? We're continuously adding support for more Azure services and app frameworks.

[Learn more](#)

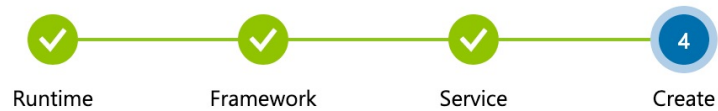
Previous

Next

- The next step will create an Azure DevOps project with a release pipeline. Enter a name for the project, choose your Azure DevOps organisation (or enter a unique name to create one), and select the region:

DevOps Projects

Create



Almost there!

Ready to deploy ASP.NET app to Azure Virtual machine.

* Project name

laasPipeline

✓

* Azure DevOps Organization

gidavies

▼

* Subscription ⓘ

Azure On Line Services

▼

Virtual machine name ⓘ

laasPipeline

✓

Location ⓘ

UK South

▼

Location: UK South

Size: B2s Standard

Operating system: Windows Server

7. Scroll down to find additional settings. Make any changes you'd like to here including creating a new Azure DevOps organisation, changing the resource group name and other settings. Click OK and then done:

Additional settings



DevOps project

* Create new Azure DevOps organization

Yes

No

Your project will be hosted in selected DevOps Services organization: gidavies

Virtual Machine

Resource group ⓘ

Resource group ⓘ

laasPipeline-rg



User name ⓘ

devopsproject

Size ⓘ

B2s Standard



Operating system

Windows Server 2016 Datacenter



Application Insights Location ⓘ

UK South



OK

-
8. Wait a short time (30 secs or so) and the Portal will display the progress of the DevOps project:

Home > Deploy_DevOps_Project_IaaS Pipeline - Overview

Deploy_DevOps_Project_IaaS Pipeline - Overview

Deployment

Search (Ctrl+/)

Overview


Inputs

Outputs

Template

... Your deployment is underway

Check the status of your deployment, manage resources, or troubleshoot deployment issues. Pin this page to your dashboard to easily find it next time.

 Deployment name: Deploy_DevOps_Project_IaaS Pipeline
Subscription: [Azure On Line Services](#)
Resource group: [VS-gidavies-Group](#)

DEPLOYMENT DETAILS [\(Download\)](#)

Start time: 27/03/2019, 21:12:42
Duration: 12 seconds
Correlation ID: 252e55ea-3370-40a6-af4d-c61814813ea5

RESOURCE	TYPE	STATUS	OPERATION DETAILS
No results.			

9. After another short time you should see that the deployment is complete (try the refresh button if not). Click on Go to resource:

Home > Deploy_DevOps_Project_IaaS Pipeline - Overview

Deploy_DevOps_Project_IaaS Pipeline - Overview

Deployment

Search (Ctrl+/)

Overview


Inputs

Outputs

Template

✓ Your deployment is complete

[Go to resource](#)

 Deployment name: Deploy_DevOps_Project_IaaS Pipeline
Subscription: [Azure On Line Services](#)
Resource group: [VS-gidavies-Group](#)

DEPLOYMENT DETAILS [\(Download\)](#)

Start time: 27/03/2019, 21:12:42
Duration: 35 seconds
Correlation ID: 252e55ea-3370-40a6-af4d-c61814813ea5

RESOURCE	TYPE	STATUS	OPERATION DETAILS
✓ gidavies/laasPipeline	microsoft.visualstudi...	OK	Operation details
✓ gidavies	microsoft.visualstudi...	OK	Operation details

10. This summary screen is showing that some sample code has been imported and a build definition created and the build is in progress. For this lab the key aspect is the release pipeline that has also been created (but at this point not yet run). Click on Release pipelines:

Home > Deploy_DevOps_Project_laasPipeline - Overview > laasPipeline

laasPipeline
DevOps Projects

Refresh Project homepage Repositories Build pipelines **Release pipelines** Agile backlogs Users & groups Delete

CI/CD pipeline

Code
laasPipeline master
335a8a27 First commit azuredevopsproject 5 d ago

Build
laasPipeline - CI
Build 20190327.1 In progress 2 min ago

dev
laasPipeline - CD

Azure resources

Azure Resources are not yet created

11. Click Edit to see what has been configured in the release pipeline:

gidavies / laasPipeline / Pipelines / Releases

Search all pipelines

laasPipeline - CD
dev

laasPipeline - CD

Releases Deployments Analytics

Releases Created Stages

Release-1
20190327.1 master 2019-03-27 21:15 dev

Edit Create a release

All releases

12. You are now looking at a release pipeline deploying to one stage, called Dev. In reality you'd add more (such as Test and Production) but for now we'll take a look at how the dev stage is being automatically deployed to. Click in dev where it says 2 jobs, 3 tasks:

All pipelines > ⚙️ laasPipeline - CD

Pipeline Tasks Variables Retention Options History



13. The first step is to provision the virtual machine using an ARM Template:

The screenshot shows the configuration for the 'dev' stage in the 'laasPipeline - CD' pipeline. The left pane shows the task list, and the right pane shows the configuration for the selected task.

Task List (Left Pane):

- Agent phase:** Run on agent
 - Azure Deployment: Create Azure Resources** (Selected, highlighted with a red box)
- Deploy:** Run on deployment group
 - Create Website** (IIS Web App Manage)
 - Deploy application to Website** (IIS Web App Deploy)

Task Configuration (Right Pane):

Azure Resource Group Deployment ⓘ

Task version: 2.*

Display name *: Azure Deployment: Create Azure Resources

Azure Details ^

Azure subscription *: ⓘ | Manage ⓘ

laasPipeline - Service Endpoint

Action *: ⓘ

Create or update resource group (Highlighted with a red box)

Resource group *: ⓘ

laasPipeline-rg

Location *: ⓘ

14. Click on the first task and scroll down on the right hand side to see the ARM Template and parameter settings:

All pipelines > laasPipeline - CD

Save + Release View releases ...

Pipeline Tasks Variables Retention Options History

dev
Deployment process

Agent phase
Run on agent

Azure Deployment: Create Azure Resources
Azure Resource Group Deployment

Deploy
Run on deployment group

Create Website
IIS Web App Manage

Deploy application to Website
IIS Web App Deploy

laasPipeline-rg

Location * ①
UK South

Template ^

Template location *
Linked artifact

Template * ①
\$(System.DefaultWorkingDirectory)/**/*.windows-vm-template.json

template parameters ①

Override template parameters ①

```
-vmName "laasPipeline" -adminUsername "devopsproject" -adminPassword "$(vmPassword)"
-appInsightsLocation "UK South" -vmSize "Standard_B2s" -location "UK South" -windowsOSVersion
"2016-Datacenter-smalldisk"
```

Deployment mode * ①
Incremental

Note that the task action is Create or update resource group - i.e. if it doesn't exist, create it, if it does exist then update it to match the ARM Template. Changes are being rolled out from the ARM Template into deployment.

- Finally, go back to the Azure Portal and refresh the deployment page and you should see that it is complete. The release has provisioned a Windows VM and deployed a sample web application into IIS on that machine. Click on the application endpoint if you want to see the deployed app:

Home > Deploy_DevOps_Project_IaaS Pipeline - Overview > IaaS Pipeline

IaaS Pipeline

DevOps Projects

[Refresh](#) [Project homepage](#) [Repositories](#) [Build pipelines](#) [Release pipelines](#) [Agile backlogs](#) [Users & groups](#) [Delete](#)

CI/CD pipeline

Code
IaaS Pipeline master

335a8a27 First commit azuredevopsproject 5 d ago

Build
IaaS Pipeline - CI

Build 20190327.1 Succeeded 15 min ago

dev
IaaS Pipeline - CD

Release-1 Succeeded 2 min ago

Repository

Azure resources

Application endpoint
<http://IaaSPipeline4mvn6n2pm5mmm.uksouth.cloudapp.azure...> [Browse](#)

Virtual machine [Connect](#)

IaaS Pipeline

Running

Application Insights

IaaS Pipeline

Application name Home About Contact

Success!

Azure DevOps Project has been successfully setup
Your ASP.NET MVC app is up and running on Azure

Get started right away

Clone your code repository and start developing your application on IDE of your choice

[Learn more »](#)

Continuous Delivery

View your CI/CD pipeline on Azure DevOps and customize it as per your needs

[Learn more »](#)

Azure DevOps Project

Learn more about all you can do with Azure DevOps project by visiting the documentation

[Learn more »](#)

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To tidy up in the Azure DevOps project area in the Azure Portal, select the project you just created and select Delete to remove the resources.

Another that lab that may be of interest is how to [deploy the UK Official IaaS Reference Architecture using ARM Templates and Azure DevOps](#)

[<- Lab 4: Failover between regions](#) | [Home](#)