

A photograph showing five hands of different skin tones (dark brown, medium brown, light brown, and two shades of white) stacked on a dark wooden table. The hands are arranged in a row, with fingers slightly spread. A semi-transparent white rectangular box is overlaid on the image, containing the text 'Module 03 – Azure DevOps – Intégration continue'.

Module 03 – Azure DevOps – Intégration continue

Objectifs

- Créer des artéfacts en .Net en local pour comprendre le processus
- Créer un pipeline dans Azure DevOps avec les deux technologies proposées

Intégration continue (CI)

- Processus déclenché automatiquement ou manuellement
- Généralement :
 - Récupération des sources du/des projets à partir du gestionnaire de source
 - Restauration des dépendances du/des projets
 - Compilation des sources
 - Lancement des tests automatisés
 - Génération des artéfacts de déploiement
 - Sauvegarde des artéfacts pour le processus de déploiement

Création d'artefact – ligne commande

- Création du projet

Création d'un répertoire
pour ranger notre projet

```
mkdir TrouveTout  
cd TrouveTout
```

Création de la solution

```
dotnet new sln --name "TrouveTout"
```

Création du projet web
et ajout à la solution

```
dotnet new mvc --name "TrouveToutWeb" --auth Individual  
dotnet sln add TrouveToutWeb
```

Création du projet de
tests du projet web et
ajout à la solution

```
dotnet new xunit --name TrouveToutWeb.Tests  
cd TrouveToutWeb.Tests  
dotnet add reference ../TrouveToutWeb  
cd ..  
dotnet sln add TrouveToutWeb.Tests
```

Création d'artefact – ligne commande

- Compilation du projet (partie du CI)

Restauration des
packages nuget



dotnet restore

Compilation du projet



dotnet build

Lancement des tests



dotnet test

(À partir du répertoire « TrouveTout »)

Création d'artefact – ligne commande

- Exécution de la partie Web

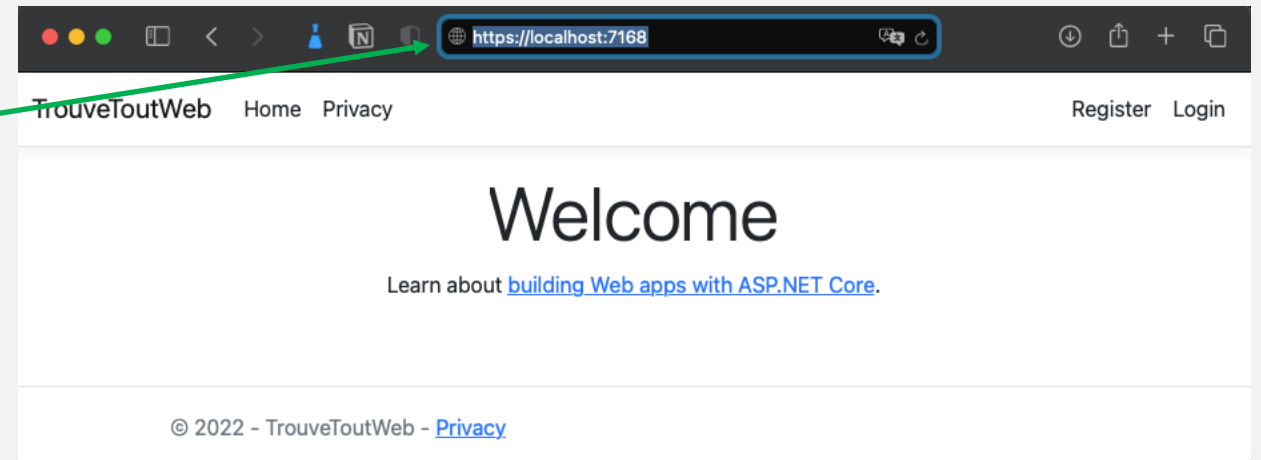
```
cd TrouveToutWeb  
dotnet run
```

(À partir du répertoire « TrouveTout »)

- Lancez le navigateur sur l'URL sécurisée affichée sur la console

```
pflleon@pflmb ~/tmp/TrouveTout/TrouveToutWeb dotnet run  
Génération...  
info: Microsoft.Hosting.Lifetime[14]  
Now listening on: https://localhost:7168  
info: Microsoft.Hosting.Lifetime[14]  
Now listening on: http://localhost:5232  
info: Microsoft.Hosting.Lifetime[0]
```

([Ctrl] + [C] pour sortir du programme dans la console)



Création d'artefact – ligne commande

- Compilation en mode « Release »

```
dotnet build --configuration Release
```

(À partir du répertoire « TrouveTout »)

- Publication des artefacts dans le répertoire « publishedArtifact »

```
dotnet publish TrouveToutWeb --configuration Release --output publishedArtifact
```

(À partir du répertoire « TrouveTout »)

Création d'artefact – ligne commande

- Exécution locale :

```
cd publishedArtifact  
dotnet TrouveToutWeb.dll
```

(À partir du répertoire « TrouveTout »)

- Lancez le navigateur sur l'URL sécurisée affichée sur la console

The image shows a terminal window on the left and a web browser on the right. The terminal window displays the command `dotnet TrouveToutWeb.dll` being executed, with output messages indicating the application is listening on `http://localhost:5000` and `https://localhost:5001`. The `https://localhost:5001` URL is highlighted with a red box. A green arrow points from this box to the browser's address bar, which contains `https://localhost:7168`. The browser displays a "Welcome" message and a link to "building Web apps with ASP.NET Core".

pfleon@pflmb ~/tmp/TrouveTout/publishArtifact ➤ dotnet TrouveToutWeb.dll

info: Microsoft.Hosting.Lifetime[14]
Now listening on: http://localhost:5000

info: Microsoft.Hosting.Lifetime[14]
Now listening on: **https://localhost:5001**

info: Microsoft.Hosting.Lifetime[0]

([Ctrl] + [C] pour sortir du programme dans la console)

Web Home Privacy Register Login

Welcome

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

© 2022 - TrouveToutWeb - [Privacy](#)

Ajout du projet dans Azure DevOps

- Initialisation du dépôt

```
git init
```

(À partir du répertoire « TrouveTout »)

- Création d'un fichier « gitignore » : allez sur gitignore.io et tapez ASPNetCore et enregistrez le fichier à partir du répertoire « TrouveTout »
- Ajout des fichiers et commit

```
git add .gitignore  
git add TrouveTout*  
git commit -m "version initiale"
```

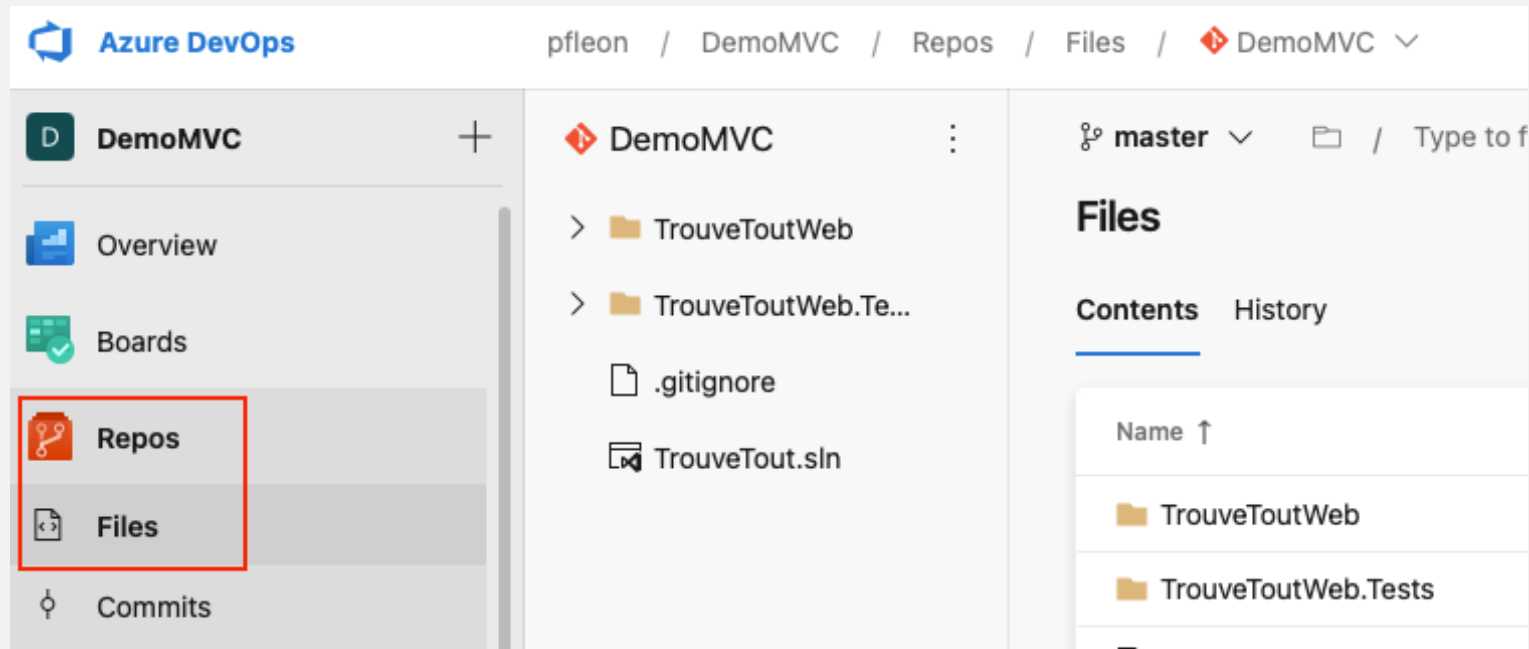
(À partir du répertoire « TrouveTout »)

Ajout du projet dans Azure DevOps

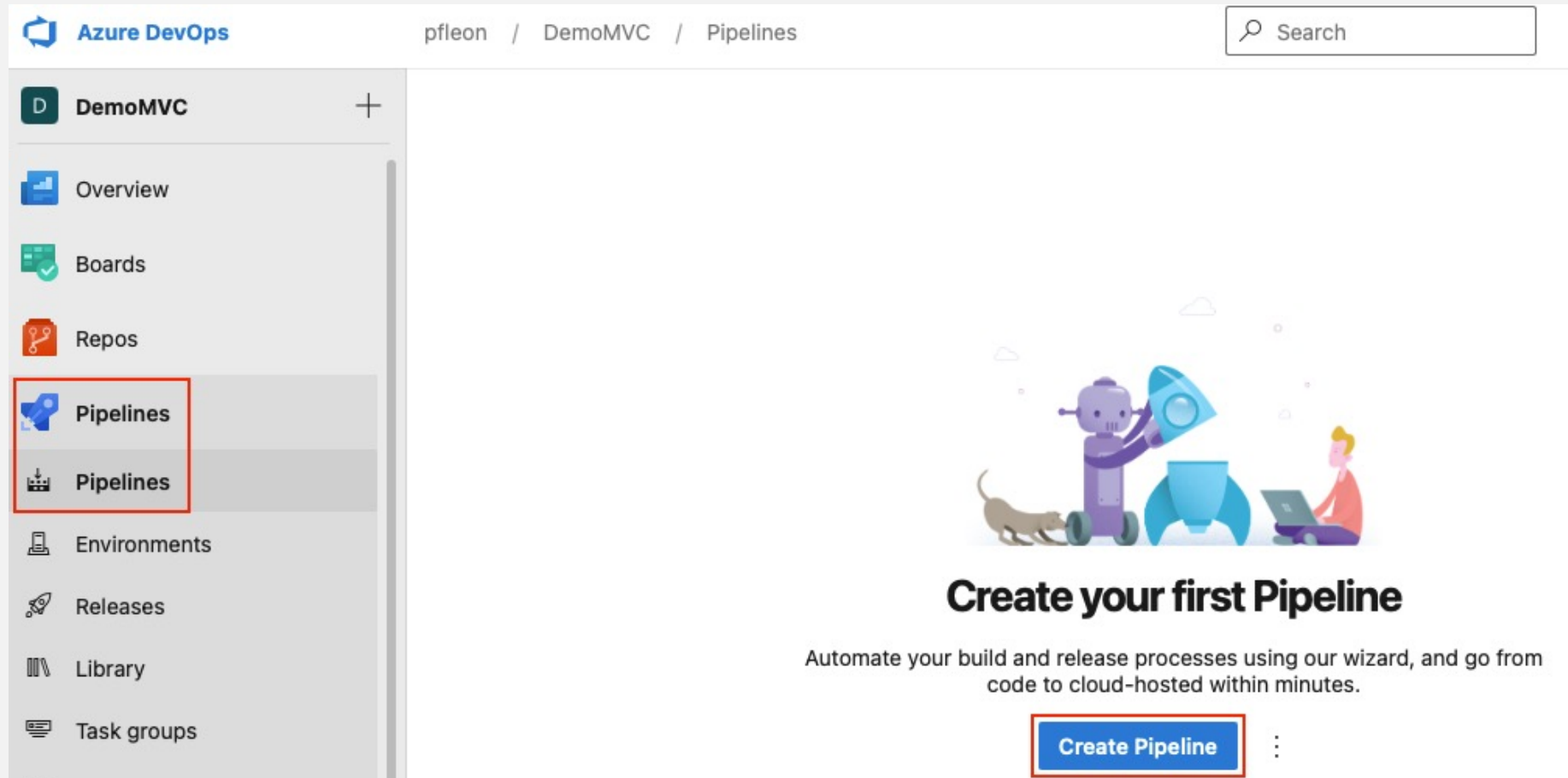
- Ajout du dépôt présent dans Azure DevOps et envoi des modifications (Adaptez avec vos informations)

```
git remote add origin https://pfleon@dev.azure.com/pfleon/DemoMVC/_git/DemoMVC  
git push -u origin --all
```

(À partir du répertoire « TrouveTout »)



Création d'un Pipeline



The screenshot displays the Azure DevOps web interface. The top navigation bar includes the 'Azure DevOps' logo, a breadcrumb trail 'pfleon / DemoMVC / Pipelines', and a search box. The left-hand sidebar lists various project components: 'DemoMVC' (with a plus icon), 'Overview', 'Boards', 'Repos', 'Pipelines' (highlighted with a red box), 'Environments', 'Releases', 'Library', and 'Task groups'. The main content area features an illustration of a robot, a person at a laptop, and a dog. Below the illustration, the heading 'Create your first Pipeline' is followed by the text: 'Automate your build and release processes using our wizard, and go from code to cloud-hosted within minutes.' A blue button labeled 'Create Pipeline' is highlighted with a red box, and a vertical ellipsis menu icon is positioned to its right.

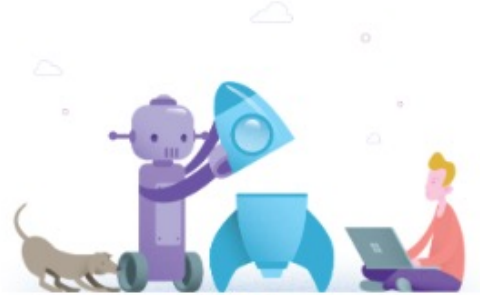
Azure DevOps

pfleon / DemoMVC / Pipelines

Search

DemoMVC +

- Overview
- Boards
- Repos
- Pipelines**
- Pipelines
- Environments
- Releases
- Library
- Task groups



Create your first Pipeline

Automate your build and release processes using our wizard, and go from code to cloud-hosted within minutes.

Create Pipeline

Création d'un Pipeline

- Deux versions :
 - Classique : ancienne version, graphique
 - YAML : à partir d'un fichier de configuration, possibilité d'utiliser l'outil d'édition

Création d'un Pipeline

- Classique

The screenshot displays the Azure DevOps interface for creating a new pipeline. The left sidebar shows the navigation menu with 'Pipelines' selected. The main area shows the 'TrouveToutWeb - CI' pipeline configuration. The 'Save & queue' button is highlighted with a red box. The pipeline tasks are listed as 'Get sources', 'Agent job 1', 'Restore', 'Build', 'Test', 'Publish', and 'Publish Artifact'. The right sidebar shows configuration fields for Name, Agent pool, Agent Specification, Parameters, and Project(s) to restore and build.

Navigation: DemoMVC / Overview / Boards / Repos / Pipelines / Pipelines / Environments / Releases / Library / Task groups / Deployment groups / Test Plans / Artifacts

Page Header: pfleon / DemoMVC / Pipelines

Search: Search

Buttons: Save & queue, Discard, Summary, Queue, ...

Pipeline: Build pipeline

Get sources: DemoMVC master

Agent job 1: Run on agent

Tasks: Restore (.NET Core), Build (.NET Core), Test (.NET Core), Publish (.NET Core), Publish Artifact (Publish build artifacts)

Configuration Fields:

- Name: TrouveToutWeb - CI
- Agent pool: Azure Pipelines (Pool information | Manage)
- Agent Specification: windows-2022
- Parameters: Unlink all
- Project(s) to restore and build: **/*.csproj
- Project(s) to test:

Création d'un Pipeline

- YAML

The screenshot displays the Azure DevOps web interface. On the left, the navigation pane shows the 'Pipelines' section highlighted with a red box. The main area shows the pipeline configuration for 'TrouveToutWeb - CI - YAML'. The YAML code is displayed with line numbers 5 through 26. Key sections are highlighted with red boxes: the 'pool' section (lines 9-10) showing 'vmImage: windows-2022', and the 'steps' section (lines 17-26) showing a task 'DotNetCoreCLI@2' with inputs for 'command', 'projects', and 'feedsToUse'. On the right, the 'Task configuration' panel for '.NET Core' is shown, with fields for 'Command' (set to 'restore'), 'Path to project(s)' (set to '**/*.csproj'), and 'Feeds and authentication' options. The 'Run' button is visible at the top right of the pipeline configuration area.

```
5
6 trigger:
7   - master
8
9 pool:
10  - vmImage: 'windows-2022'
11
12 variables:
13   - solution: '**/*.sln'
14   - buildPlatform: 'Any CPU'
15   - buildConfiguration: 'Release'
16
17 steps:
18   - task: DotNetCoreCLI@2
19     inputs:
20       command: 'Path to project(s)'
21       projects: '**/*.csproj'
22       feedsToUse: 'select'
23
24   - task: DotNetCoreCLI@2
25     inputs:
26       command: 'build'
```


Création d'un Pipeline

```
trigger:
- master

pool:
  vmImage: 'windows-2022'

variables:
  solution: '**/*.sln'
  buildPlatform: 'Any CPU'
  buildConfiguration: 'Release'

steps:
- task: DotNetCoreCLI@2
  inputs:
    command: 'restore'
    projects: '**/*.csproj'
    feedsToUse: 'select'

- task: DotNetCoreCLI@2
  inputs:
    command: 'build'
    projects: '**/*.csproj'
    arguments: '--configuration $(buildConfiguration)'

- task: DotNetCoreCLI@2
  inputs:
    command: 'test'
    projects: '**/*[Tt]ests/*.csproj'
    publishTestResults: true
    arguments: '--configuration $(buildConfiguration) --collect "Code coverage"'

- task: DotNetCoreCLI@2
  inputs:
    command: 'publish'
    publishWebProjects: true
    arguments: '--configuration $(buildConfiguration) --output $(build.artifactstagingdirectory)'

- task: PublishBuildArtifacts@1
  inputs:
    PathToPublish: '$(Build.ArtifactStagingDirectory)'
    ArtifactName: 'publishedArtifact'
    publishLocation: 'Container'
```

Exécution d'un Pipeline

The screenshot displays the Azure DevOps web interface. The left sidebar contains navigation links: DemoMVC, Overview, Boards, Repos, Pipelines (selected), Environments, Releases, Library, Task groups, Deployment groups, Test Plans, Artifacts, and Project settings. The main content area shows the details of a pipeline run. At the top, the breadcrumb path is 'pfleon / DemoMVC / Pipelines / TrouveToutWeb - CI - YAML / 20220311.2'. The pipeline name is '#20220311.2 Ajout de la collecte des tests de couverture' with a green checkmark icon. Below it, the repository path 'TrouveToutWeb - CI - YAML' is highlighted with a red box. A blue 'Run new' button is in the top right. A message states: 'This run is being retained as one of 3 recent runs by master (Branch).' with a 'View retention leases' link. The 'Summary' tab is active, showing 'Triggered by Pierre-François Le...' with a 'View change' link. Below this, four metrics are displayed: 'Repository and version' (DemoMVC master 5c9e02eb, highlighted with a red box), 'Time started and elapsed' (Today at 14:25, 1m 47s), 'Related' (0 work items, 1 published, highlighted with a red box), and 'Tests and coverage' (100% passed, 17.27% covered, highlighted with a red box). The 'Jobs' section shows a single job 'Job' with a green checkmark, status 'Success', and duration '1m 39s'.

Azure DevOps

pfleon / DemoMVC / Pipelines / TrouveToutWeb - CI - YAML / 20220311.2

Search

DemoMVC

Overview

Boards

Repos

Pipelines

Pipelines

Environments

Releases

Library

Task groups

Deployment groups

Test Plans

Artifacts

Project settings

#20220311.2 Ajout de la collecte des tests de couverture

TrouveToutWeb - CI - YAML

Run new

This run is being retained as one of 3 recent runs by master (Branch).

View retention leases

Summary Tests Code Coverage

Triggered by Pierre-François Le...

View change

Repository and version

DemoMVC

master 5c9e02eb

Time started and elapsed

Today at 14:25

1m 47s

Related

0 work items

1 published

Tests and coverage

100% passed

17.27% covered

Jobs

Name	Status	Duration
Job	Success	1m 39s

Exécution d'un Pipeline

Azure DevOps

pfeon / DemoMVC / Pipelines / TrouveToutWeb - CI - YAML / 20220311.2

Search

Run new

This run is being retained as one of 3 recent runs by master (Branch). View retention leases

Summary Tests Code Coverage

Summary

1 Run(s) Completed (1 Passed, 0 Failed)

1 Total tests

100% Pass percentage

6s 203ms Run duration

0 Tests not reported

↑ +2s 943ms

Bug Link

Test run Column Options

Filter by test or run name

Tags Test file Owner Aborted (+2)

Test	Duration	Failing since	Failing build	Tags
✓ VSTest_TestResults_9 (1/1)	0:00:06.203			
✓ TrouveToutWeb.Tests.UnitTest1.Test1	0:00:00.027			

Références

- <https://docs.microsoft.com/en-us/dotnet/core/tools/>