


## TP 4 - Pipelines


### 4.1 Verificar acceso a Pipelines concedido


Request Details:

|                     |  |
|---------------------|--|
| Name                | Carolina   |
| Email               | <a href="mailto:1803161@ucc.edu.ar">1803161@ucc.edu.ar</a>   |
| Organization Name   | 1803161  |
| Parallelism Type    | Private  |
| Public Repositories | <a href="https://dev.azure.com/1803161/sample02">https://dev.azure.com/1803161/sample02</a>  |
| Explanation         | Educational purposes   |
| Note                | According to our policy, we could grant you only private parallelism. We would encourage you to change the project visibility to Private on Project Settings page. |


### 4.2 Agregar en pipeline YAML una tarea de Publish.




 **sample02**



 main ▾



 sample02 / azure-pipelines.yml \*


```
30
  Settings
31 - task: VSTest@2
32   inputs:
33     platform: '$(buildPlatform)'
34     configuration: '$(buildConfiguration)'
  Settings
35 - task: DotNetCoreCLI@2
36   inputs:
37     command: publish
38     publishWebProjects: True
39     arguments: '--configuration $(BuildConfiguration) --output $(Build.ArtifactStagingDirectory)'
40     zipAfterPublish: true
  Settings
41 - task: PublishBuildArtifacts@1
42   inputs:
43     PathToPublish: '$(Build.ArtifactStagingDirectory)'
44     ArtifactName: 'drop'
45     publishLocation: 'Container'
46
```

Manually run by  1803161 vi

Repository and version  
 sample02  
 main  2cc138dc

Time started and elapsed  
 Today at 14:36  
 1m 58s

Related  
 0 work items  
 1 published

Tests and coverage  
 [Get started](#)

### 4.3 Explicar por qué es necesario contar con una tarea de Publish en un pipeline que corre en un agente de Microsoft en la nube.

Cuando un pipeline se ejecuta en un agente en la nube, ese agente es efímero. Una vez que termina la ejecución del pipeline, todo el entorno, incluidos los archivos generados durante la ejecución (builds, binarios, logs, etc.), se destruye. La tarea de Publish permite guardar esos artefactos de manera persistente, almacenándolos en un lugar donde puedan ser usados en etapas posteriores del pipeline o por otros pipelines.

### 4.4 Descargar el resultado del pipeline y correr localmente el software compilado.

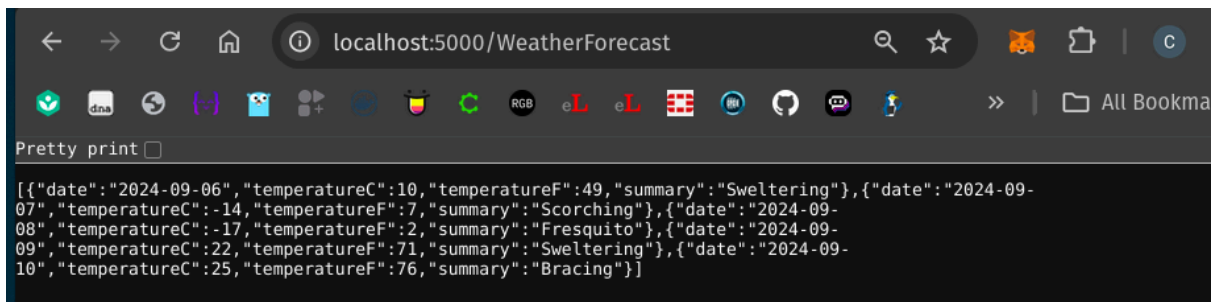
| Name                            | Size  |
|---------------------------------|-------|
| ▼ drop                          | 3 MB  |
| SimpleWebAPI.deploy-readme.txt  | 4 KB  |
| SimpleWebAPI.deploy.cmd         | 15 KB |
| SimpleWebAPI.Parameters.xml     | 320 B |
| SimpleWebAPI.SetParameters.xml  | 147 B |
| SimpleWebAPI.SourceManifest.xml | 148 B |
| SimpleWebAPI.zip                | 2 MB  |
| WebApp.zip                      | 2 MB  |

Descargar drop.

Descomprimir drop.zip y descomprimir SimpleWebApi.zip

```
caro@e14:~/Documents/tp_ingsw3/drop 4.4/SimpleWebAPI$ dotnet SimpleWebAPI.dll
info: Microsoft.Hosting.Lifetime[14]
      Now listening on: http://localhost:5000
info: Microsoft.Hosting.Lifetime[0]
      Application started. Press Ctrl+C to shut down.
info: Microsoft.Hosting.Lifetime[0]
      Hosting environment: Production
info: Microsoft.Hosting.Lifetime[0]
      Content root path: /home/caro/Documents/tp_ingsw3/drop 4.4/SimpleWebAPI
```

localhost:5000/WeatherForecast



```
localhost:5000/WeatherForecast
Pretty print
[{"date": "2024-09-06", "temperatureC": 10, "temperatureF": 49, "summary": "Sweltering"}, {"date": "2024-09-07", "temperatureC": -14, "temperatureF": 7, "summary": "Scorching"}, {"date": "2024-09-08", "temperatureC": -17, "temperatureF": 2, "summary": "Fresquito"}, {"date": "2024-09-09", "temperatureC": 22, "temperatureF": 71, "summary": "Sweltering"}, {"date": "2024-09-10", "temperatureC": 25, "temperatureF": 76, "summary": "Bracing"}]
```

4.5 Habilitar el editor clásico de pipelines. Explicar las diferencias claves entre este tipo de editor y el editor YAML.



**Disable creation of classic build pipelines**

No classic build pipelines can be created / imported. Existing ones will continue to work.

Editor clásico de pipelines: usa una GUI para configurar las opciones del pipeline, agregar tareas, etc. Es más fácil de usar para principiantes, y permite que no se requieran conocimientos de programación para crear pipelines. Menos portables porque están guardados dentro del proyecto de Azure DevOps.

Editor YAML: se basa en archivos de texto escritos en YAML. Es más difícil de utilizar, requiere conocer la sintaxis de YAML. Están almacenados como archivos en el repositorio por lo que son fáciles de reutilizar.

4.6 Crear un nuevo pipeline con el editor clásico. Descargar el resultado del pipeline y correr localmente el software compilado.

Select a source



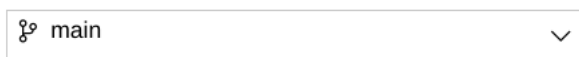
Team project



Repository



Default branch for manual and scheduled builds



Continue

Tasks Variables Triggers Options History | Save & queue Discard Summary Queue ...

**Pipeline**  
Build pipeline

**Get sources**  
sample02 main

**Agent job 1**  
Run on agent

- Restore .NET Core
- Build .NET Core
- Test .NET Core
- Publish .NET Core
- Publish Artifact  
Publish build artifacts

**Name \***  
sample02-ASP.NET Core-CI

**Agent pool** | Pool information | Manage  
Azure Pipelines

**Agent Specification \***  
windows-latest

**Parameters** | Unlink all

**Project(s) to restore and build**  
\*\*/\*.csproj

**Project(s) to test**  
\*\*/\*[T]ests/\*.\*.csproj

Manually run by 1 1803161

**View 35 changes**

| Repository and version | Time started and elapsed | Related                 | Tests and coverage |
|------------------------|--------------------------|-------------------------|--------------------|
| sample02               | Today at 15:03           | 0 work items            | Get started        |
| main 2cc138dc          | 1m 41s                   | 1 published; 1 consumed |                    |

Descargar drop.

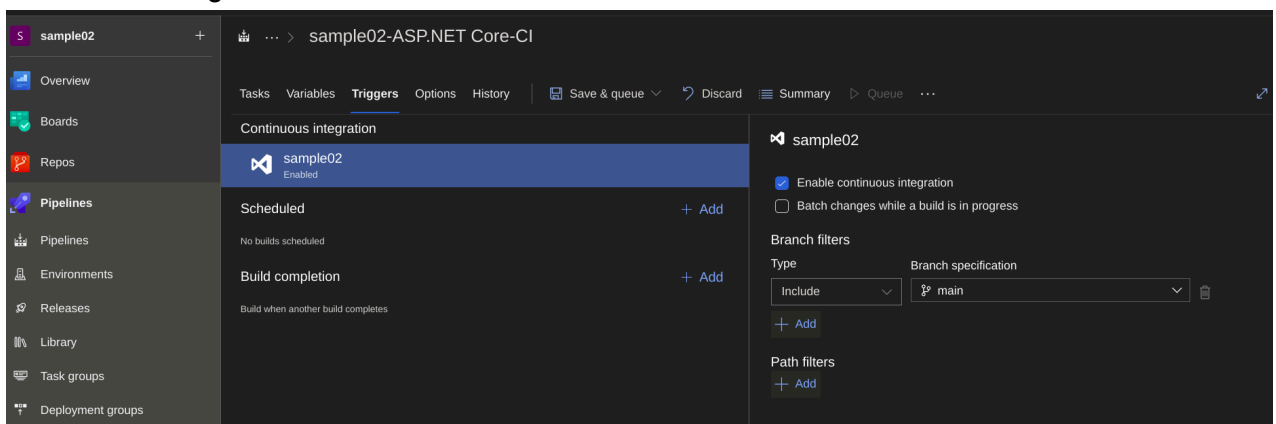
Descomprimir drop.zip y descomprimir SimpleWebApi.zip

```
caro@e14:~/Documents/tp_ingsw3/drop4.6/SimpleWebAPI$ dotnet SimpleWebAPI.dll
info: Microsoft.Hosting.Lifetime[14]
      Now listening on: http://localhost:5000
info: Microsoft.Hosting.Lifetime[0]
      Application started. Press Ctrl+C to shut down.
info: Microsoft.Hosting.Lifetime[0]
      Hosting environment: Production
info: Microsoft.Hosting.Lifetime[0]
      Content root path: /home/caro/Documents/tp_ingsw3/drop4.6/SimpleWebAPI

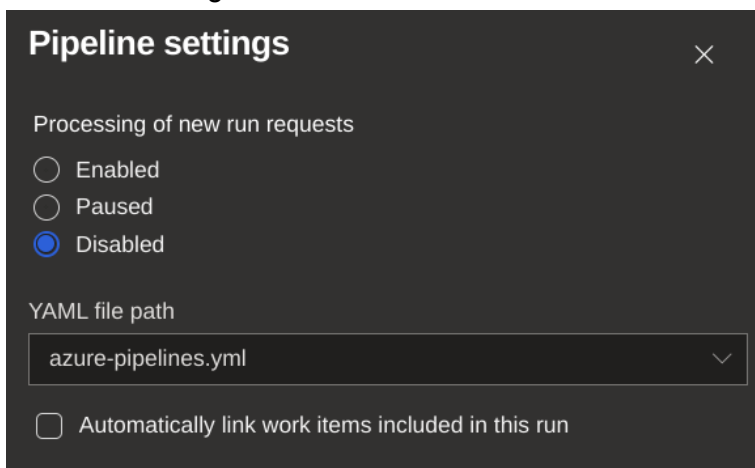
localhost:5000/WeatherForecast
[{"date": "2024-09-06", "temperatureC": 52, "temperatureF": 125, "summary": "Calido"}, {"date": "2024-09-07", "temperatureC": 29, "temperatureF": 84, "summary": "Balmy"}, {"date": "2024-09-08", "temperatureC": 32, "temperatureF": 89, "summary": "Scorching"}, {"date": "2024-09-09", "temperatureC": 40, "temperatureF": 103, "summary": "Helado"}, {"date": "2024-09-10", "temperatureC": 28, "temperatureF": 82, "summary": "Caloron"}]
```

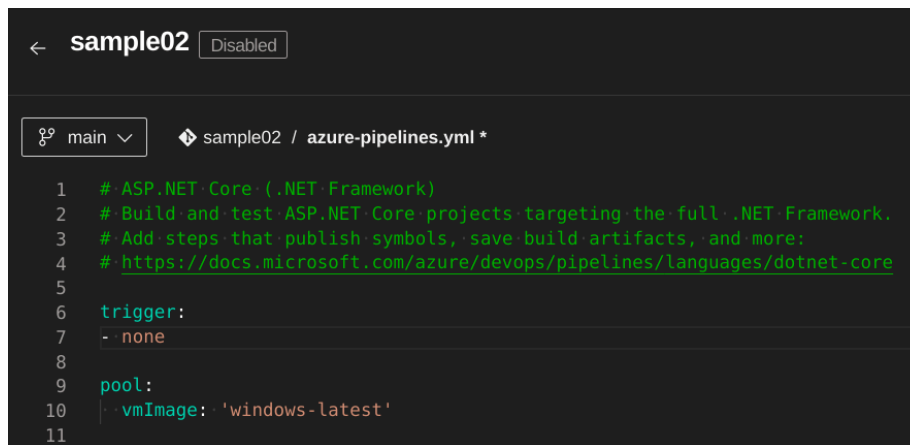
4.7 Configurar CI en ambos pipelines (YAML y Classic Editor). Mostrar resultados de la ejecución automática de ambos pipelines al hacer un commit en la rama main.

### Continuous Integration en Classic Editor



### Continuous Integration en YAML





```
← sample02 Disabled

main ▼ sample02 / azure-pipelines.yml *

1  # ASP.NET Core (.NET Framework)
2  # Build and test ASP.NET Core projects targeting the full .NET Framework.
3  # Add steps that publish symbols, save build artifacts, and more:
4  # https://docs.microsoft.com/azure/devops/pipelines/languages/dotnet-core
5
6  trigger:
7    - none
8
9  pool:
10   vmImage: 'windows-latest'
11
```

4.8 Explicar la diferencia entre un agente MS y un agente Self-Hosted. ¿Qué ventajas y desventajas hay entre ambos? ¿Cuándo es conveniente y/o necesario usar un Self-Hosted Agent?

**Agente Microsoft-Hosted (MS-Hosted Agents):** son proporcionados y gestionados por Microsoft en su infraestructura en la nube. Se ejecutan en máquinas virtuales que Microsoft administra y actualiza.

Ventajas:

- Fácil de configurar.
- Actualización automática.
- Escalabilidad.

Desventajas:

- Configuración limitada: Los usuarios no tienen control sobre la configuración de estos agentes más allá de seleccionar la imagen del sistema operativo y las herramientas preinstaladas.
- Costo.
- Puede haber tiempos de espera para la disponibilidad del agente en horas pico.

**Agente Self-Hosted (Self-Hosted Agents):** son instalados y gestionados por los usuarios en sus propias máquinas físicas o virtuales. Los usuarios tienen control total sobre la configuración, las herramientas instaladas y el entorno de ejecución.

Ventajas:

- Personalización.
- Control sobre el Hardware.
- Reducción de costos.
- Privacidad y seguridad.

Desventajas:

- Mantenimiento.
- Debe gestionar la escalabilidad manualmente.
- Configuración y gestión más complejas.

## 4.8 Crear un Pool de Agentes y un Agente Self-Hosted

### Add agent pool

Agent pools are shared across an organization.

Pool to link:

☒ New ☐ Existing

Pool type:

Self-hosted

A pool of agents that you set up and manage on your own to run jobs. [Learn more.](#)

Name:

myagent




Description (optional):

[Markdown supported.](#)

Pipeline permissions:

☒ Grant access permission to all pipelines

Create

| Agent pools   |  |             | Security     | Add pool |
|---|--|-------------|--------------|----------|
| Name  |  | Queued jobs | Running jobs |          |
|  <b>Azure Pipelines</b><br>Azure Pipelines |  |             |              |          |
|  <b>Default</b><br>Azure Pipelines         |  |             |              |          |
|  <b>myagent</b><br>1803161                 |  |             |              |          |

## 4.9 Instalar y correr un agente en nuestra máquina local.

PAT personal access token: n4bhuaajwmrflfcuokdc6iac5nc6iao27hvj4e6iagt6crevf7t3a

X

Linux

RHEL6

## Create the agent

```
caro@e14:~/myagent$ ./config.sh

  Azure Pipelines
  agent v3.243.1      (commit 3bb22cd)

>> End User License Agreements:

Building sources from a TFVC repository requires accepting the Team Explorer Everywhere End User License Agreement. This step is not required for building sources from Git repositories.

A copy of the Team Explorer Everywhere license agreement can be found at:
/home/caro/myagent/license.html

Enter (Y/N) Accept the Team Explorer Everywhere license agreement now? (press enter for N) > y

>> Connect:

Enter server URL > https://dev.azure.com/1803161/
Enter authentication type (press enter for PAT) >
Enter personal access token > *****
Connecting to server ...

>> Register Agent:

Enter agent pool (press enter for default) >
Enter agent name (press enter for e14) >
Scanning for tool capabilities.
Connecting to the server.
Successfully added the agent
Testing agent connection.
Enter work folder (press enter for _work) >
2024-09-09 22:56:41Z: Settings Saved.
```

Default

Update all agentsNew agent

JobsAgentsDetailsSecurityApprovals and checksAnalytics

| Name           | Last run | Current status | Agent version | Enabled |
|----------------|----------|----------------|---------------|---------|
| e14<br>Offline |          | Idle           | 3.243.1       | On      |

JobsAgentsDetailsSecurityApprovals and checksAnalytics

| Name          | Last run | Current status | Agent version | Enab... |
|---------------|----------|----------------|---------------|---------|
| e14<br>Online |          | Idle           | 3.243.1       | On      |

A copy of the Team Explorer Everywhere license agreement can be found at:  
/home/caro/myagent/license.html

Enter (Y/N) Accept the Team Explorer Everywhere license agreement now? (press  
enter for N) > y

>> Connect:

Enter server URL > https://dev.azure.com/1803161/  
Enter authentication type (press enter for PAT) >  
Enter personal access token > \*\*\*\*\*  
\*\*\*\*\*  
Connecting to server ...

>> Register Agent:

Enter agent pool (press enter for default) >  
Enter agent name (press enter for e14) >  
Scanning for tool capabilities.  
Connecting to the server.  
Successfully added the agent  
Testing agent connection.  
Enter work folder (press enter for \_work) >  
2024-09-09 22:56:41Z: Settings Saved.  
caro@e14:~/myagent\$ ./run.sh  
Scanning for tool capabilities.  
Connecting to the server.  
2024-09-09 23:00:58Z: Listening for Jobs

4.10 Crear un pipeline que use el agente Self-Hosted alojado en nuestra máquina local.

TasksVariablesTriggersOptionsHistorySave & queueDiscardSummaryQueue

PipelineBuild pipeline

Get sources  
sample02main

Agent job 1  
Run on agent

Restore.NET Core  
Build.NET Core  
Test.NET Core  
Publish.NET Core  
Publish Artifact  
Publish build artifacts

Name  
sample02-ASP.NET Core-CI - selfHosted

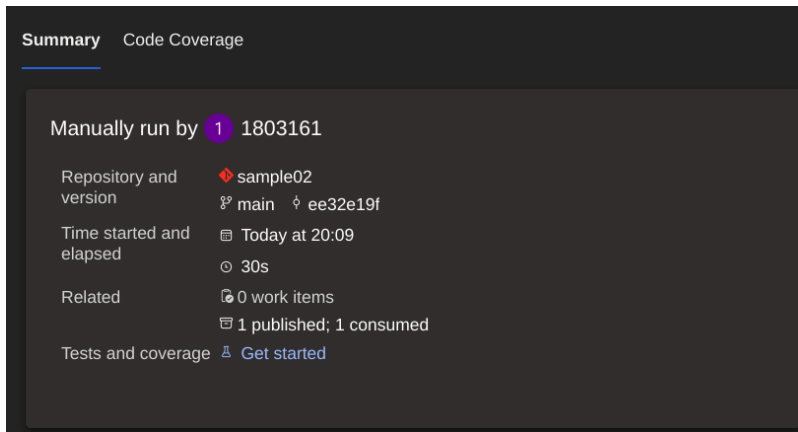
Agent pool  
Default

Parameters  
Project(s) to restore and build  
\*\*/\*.csproj  
Project(s) to test  
\*\*/\*[Tt]ests/\*.csproj

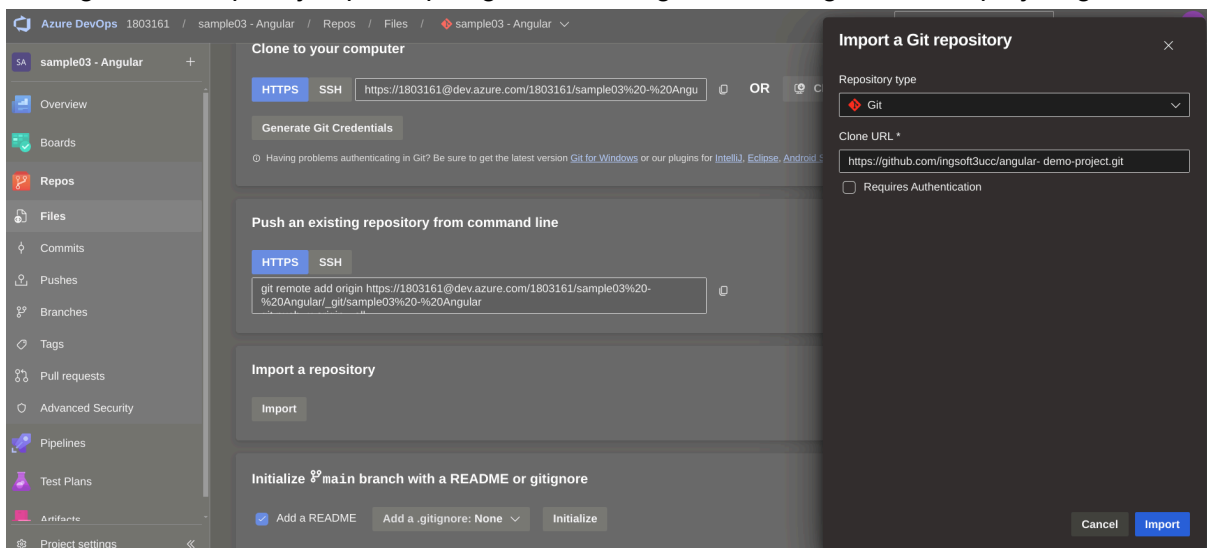
4.11 Buscar el resultado del pipeline y correr localmente el software compilado.

```
caro@e14:~/myagent$ ./run.sh
Scanning for tool capabilities.
Connecting to the server.
2024-09-09 23:00:58Z: Listening for Jobs
2024-09-09 23:09:11Z: Running job: Agent job 1
2024-09-09 23:09:34Z: Job Agent job 1 completed with result: Succeeded
```





4.12 Crear un nuevo proyecto en ADO clonado desde un repo que contenga una aplicación en Angular como por ejemplo <https://github.com/ingsoft3ucc/angular-demo-project.git>



4.13 Configurar un pipeline de build para un proyecto de tipo Angular como el clonado.

Azure DevOps1803161 / sample03 - Angular / Pipelines

Search

1

sample03 - Angular

VariablesValidate and save

main

sample03 - Angular / azure-pipelines.yml \*

```
1 # Node.js with Angular
2 # Build a Node.js project that uses Angular.
3 # Add steps that analyze code, save build artifacts
4 # https://docs.microsoft.com/azure/devops/pipelines
5
6 trigger:
7   - main
8
9 pool:
10  vmImage: ubuntu-latest
11
12 steps:
13   Settings
14   - task: NodeTool@0
15     inputs:
16       versionSpec: '18.x'
17       displayName: 'Install Node.js'
18
19   - script: node --version
20     displayName: 'Check Node.js version'
21
22   - script: |
23     npm install -g @angular/cli
24     npm install
25     ng build --configuration=production
26     displayName: 'npm install and build'
27
28   Settings
29   - task: PublishBuildArtifacts@1
30     inputs:
31       PathToPublish: 'dist'
32       ArtifactName: 'dist'
```

Tasks

Search tasks

.NET Core  
Build, test, package, or publish a dotnet applicati...

Android signing  
Sign and align Android APK files

Ant  
Build with Apache Ant

App Center distribute  
Distribute app builds to testers and users via Vis...

App Center test  
Test app packages with Visual Studio App Center

Archive files  
Compress files into .7z, .tar.gz, or .zip

ARM template deployment  
Deploy an Azure Resource Manager (ARM) tem...

Azure App Configuration Snapshot  
Create a snapshot in an Azure App Configuration...

Azure App Service deploy  
Deploy to Azure App Service a web, mobile, or A...

Azure App Service manage  
Start, stop, restart, slot swap, slot delete, install s...

Azure App Service Settings  
Update/Add App settings an Azure Web App for ...

#20240909.5 • Update azure-pipelines.yml for Azure Pipelines
Run new

sample03 - Angular

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

Summary
Code Coverage

Manually run by
1
1803161

View 9 changes

Repository and version

sample03 - Angular  
main 720270a5

Time started and elapsed

Today at 20:41  
1m 35s

Related

0 work items  
1 published

Tests and coverage

Get started

Jobs

| Name | Status | Duration |
|------|--------|----------|
| Job  | Queued |          |

#### 4.14 Habilitar CI para el pipeline.

sample03 - Angular

YAML Variables Triggers History

Save & queue Discard Summary Queue

Continuous integration

sample03 - Angular
 Enabled

Scheduled
 + Add
 

No builds scheduled

Build completion
 + Add
 

Build when another build completes

sample03 - Angular

☒ Override the YAML continuous integration trigger from here
 

☐ Disable continuous integration
 ☒ Enable continuous integration

☐ Batch changes while a build is in progress

Branch filters

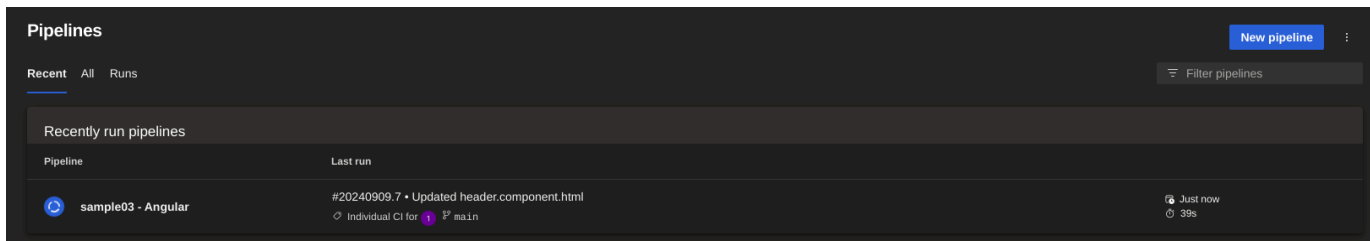
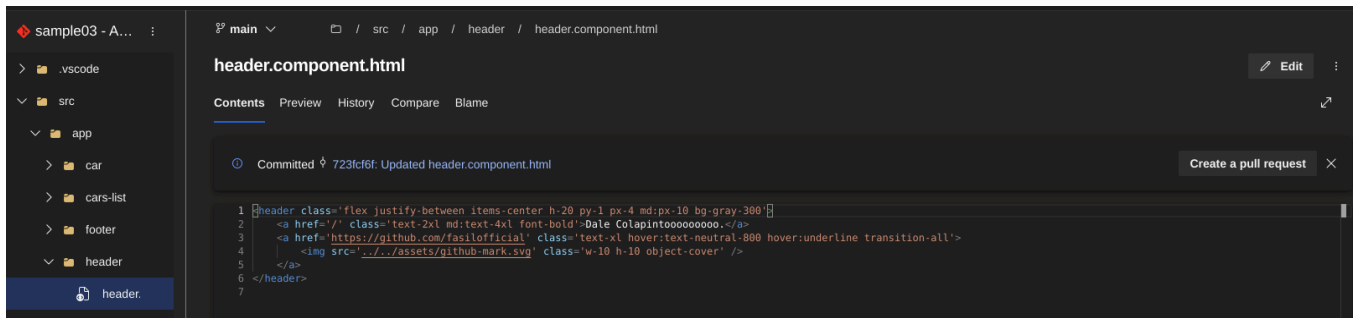
Type
 Branch specification

Include
 main

+ Add

Path filters
 + Add

#### 4.15 Hacer un cambio a un archivo del proyecto (algún cambio en el HTML que se renderiza por ejemplo) y verificar que se ejecute automáticamente el pipeline.



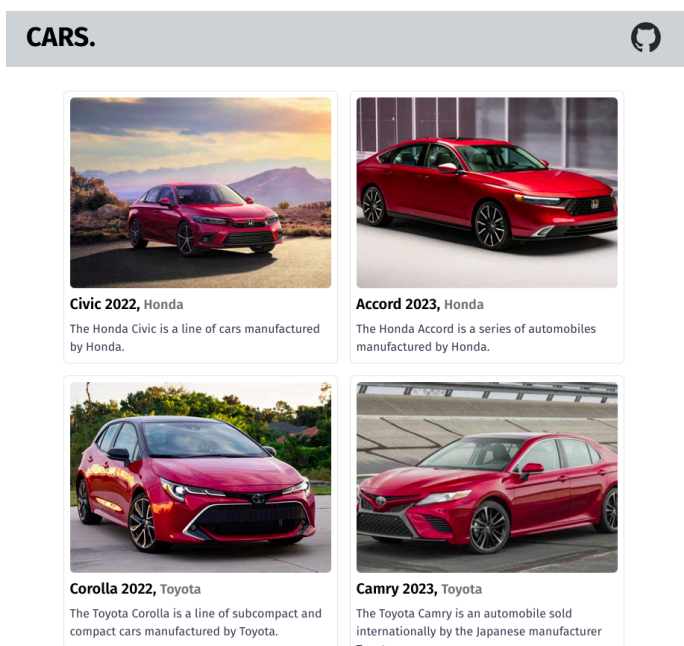
4.16 Descargar el resultado del pipeline y correr en un servidor web local el sitio construido.

```
caro@e14:~/Documents/tp_ingsw3/tp4.ej4.16/first-app/server$ node server.mjs
Node Express server listening on http://localhost:4000
```

4.17 Mostrar el antes y el después del cambio

Antes

```
caro@e14:~/Documents/tp_ingsw3/tp4.ej4.16.antes/dist/first-app/server$ node s
server.mjs
Node Express server listening on http://localhost:4000
```



Después

```
caro@e14:~/Documents/tp_ingsw3/tp4.ej4.16/first-app/server$ node server.mjs
Node Express server listening on http://localhost:4000
█
```

Dale Colapintooooooooooooo.



**Civic 2022, Honda**

The Honda Civic is a line of cars manufactured by Honda.



**Accord 2023, Honda**

The Honda Accord is a series of automobiles manufactured by Honda.



**Corolla 2022, Toyota**

The Toyota Corolla is a line of subcompact and compact cars manufactured by Toyota.



**Camry 2023, Toyota**

The Toyota Camry is an automobile sold internationally by the Japanese manufacturer Toyota.