

# VISUAL STUDIO INTEGRAT AMB DEVOPS I GIT

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Seminari 1 – Desenvolupament de SW  
en Visual Studio (Part 1)

Enginyeria del Programari

DSIC-UPV

Curs 2024-2025

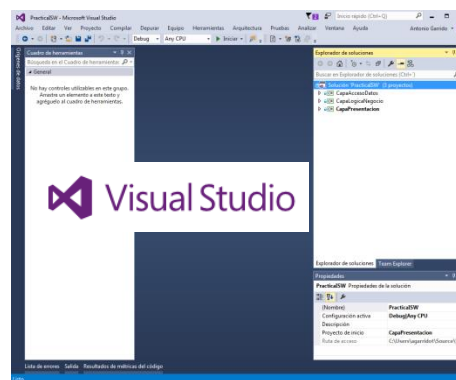
# Objectius

- Aplicar una metodologia àgil en el desenvolupament de software utilitzant **Azure DevOps** (eina online) i combinar-ho amb l'eina de desenvolupament **Microsoft Visual Studio**

**Part 1. Gestió del projecte amb  
Azure DevOps (eina Web)**  
(Tema 2)



**Part 2. Desenvolupament del  
projecte des de Visual Studio**  
(Tema 3)



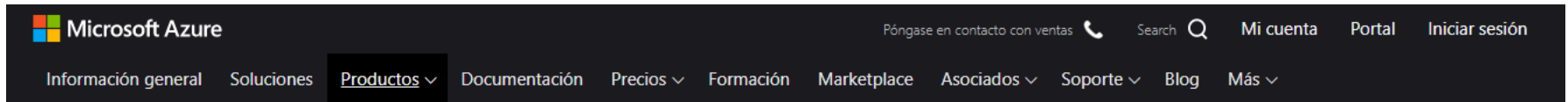
# Part 1. Gestió del projecte des de la Web

- Aprendre a elaborar un pla de projecte de programari aplicant una metodologia àgil, utilitzant Azure DevOps
- Passos:
  - Crear una organització en AzureDevOps
  - Creació d'un nou projecte
  - Afegir membres a l'equip del projecte
  - Gestió del treball

# Inici

## Des de la Web d'Azure DevOps:

<https://azure.microsoft.com/es-es/services/devops/>



[Página principal](#) / [Servicios](#) / [Azure DevOps](#)

## Azure DevOps

Planeamiento más inteligente, mejor colaboración y envíos más rápidos con un moderno conjunto de servicios de desarrollo.

Empiece gratis

Comience gratis con GitHub

¿Ya tiene una cuenta?

[Inicie sesión en Azure DevOps >](#)

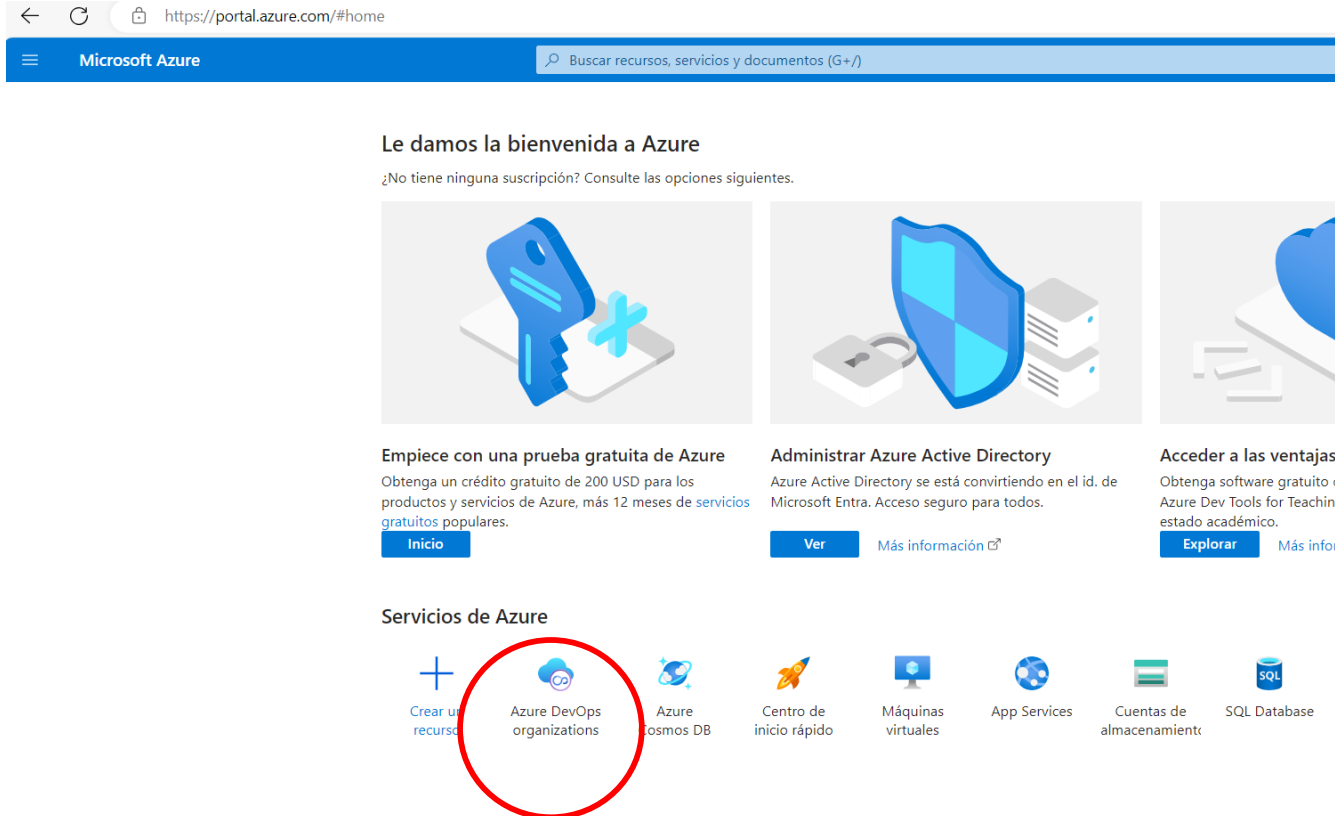
1



# Inici

Des del portal d'Azure:

<https://portal.azure.com/#home>



The screenshot shows the Microsoft Azure portal home page. At the top, there is a navigation bar with the Microsoft Azure logo and a search bar. Below the navigation bar, the main content area is titled "Le damos la bienvenida a Azure" (We welcome you to Azure). Under this title, there is a message: "¿No tiene ninguna suscripción? Consulte las opciones siguientes." (Do you have no subscriptions? Check the following options). There are three main promotional cards:

- Empiece con una prueba gratuita de Azure** (Start with a free Azure trial): "Obtenga un crédito gratuito de 200 USD para los productos y servicios de Azure, más 12 meses de [servicios gratuitos populares](#)." (Get a free 200 USD credit for Azure products and services, plus 12 months of [popular free services](#)). A blue button labeled "Inicio" (Start) is at the bottom.
- Administrar Azure Active Directory** (Manage Azure Active Directory): "Azure Active Directory se está convirtiendo en el id. de Microsoft Entra. Acceso seguro para todos." (Azure Active Directory is being converted to the Microsoft Entra ID. Secure access for everyone). A blue button labeled "Ver" (View) and a link "Más información" (More information) are at the bottom.
- Acceder a las ventajas** (Access the benefits): "Obtenga software gratuito o Azure Dev Tools for Teaching estado académico." (Get free software or Azure Dev Tools for Teaching academic state). A blue button labeled "Explorar" (Explore) and a link "Más inform" (More information) are at the bottom.

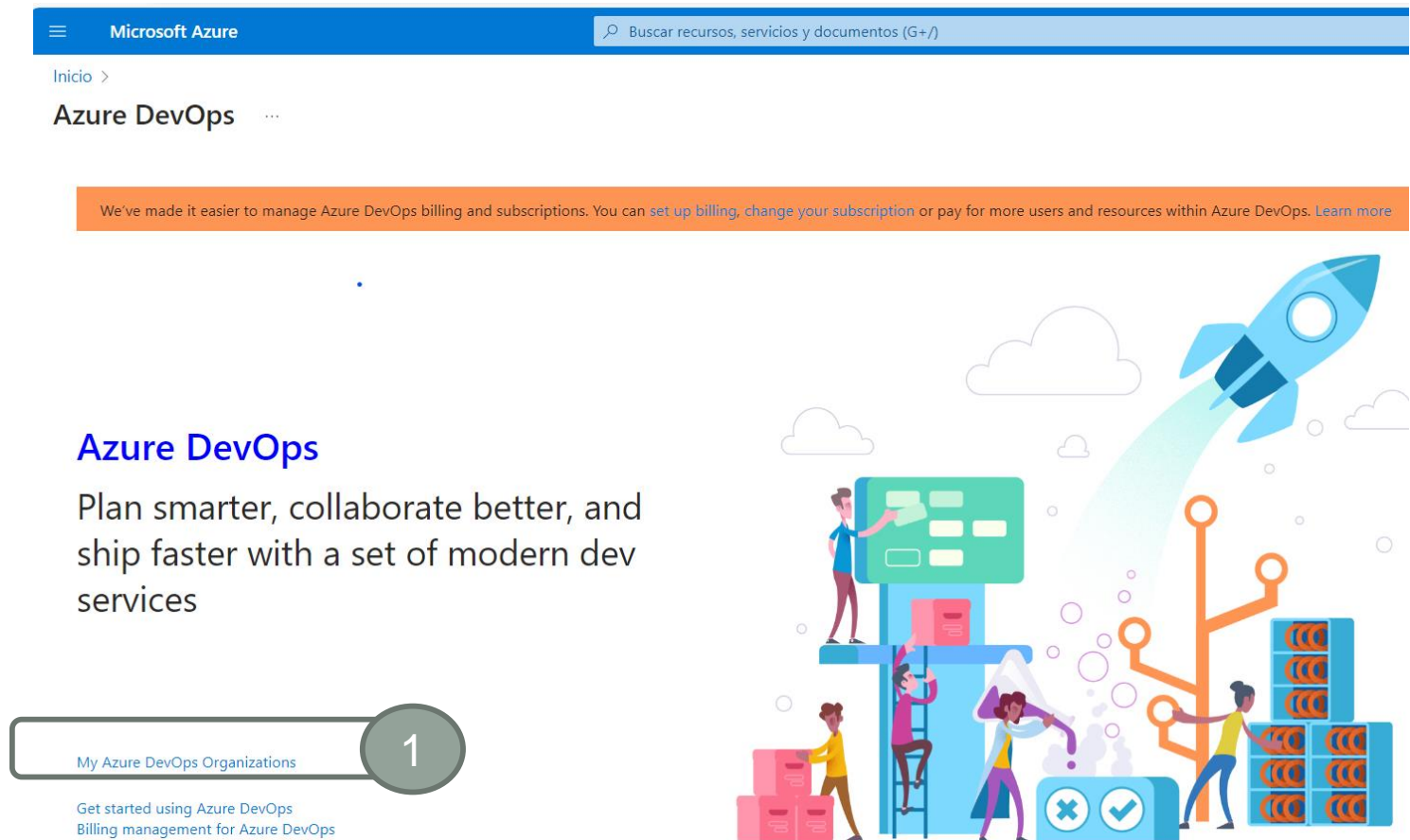
Below these cards, there is a section titled "Servicios de Azure" (Azure Services). It features a row of icons and labels for various services:

- Crear un recurso (Create a resource)
- Azure DevOps organizations (highlighted with a red circle)
- Azure Cosmos DB
- Centro de inicio rápido (Quickstart center)
- Máquinas virtuales (Virtual machines)
- App Services
- Cuentas de almacenamiento (Storage accounts)
- SQL Database

# Inici

Des del portal d'Azure:

<https://portal.azure.com/#home>



Microsoft Azure

Buscar recursos, servicios y documentos (G+)

Inicio >

Azure DevOps

We've made it easier to manage Azure DevOps billing and subscriptions. You can [set up billing](#), [change your subscription](#) or [pay for more users and resources](#) within Azure DevOps. [Learn more](#)

## Azure DevOps

Plan smarter, collaborate better, and ship faster with a set of modern dev services

My Azure DevOps Organizations

1

Get started using Azure DevOps

Billing management for Azure DevOps

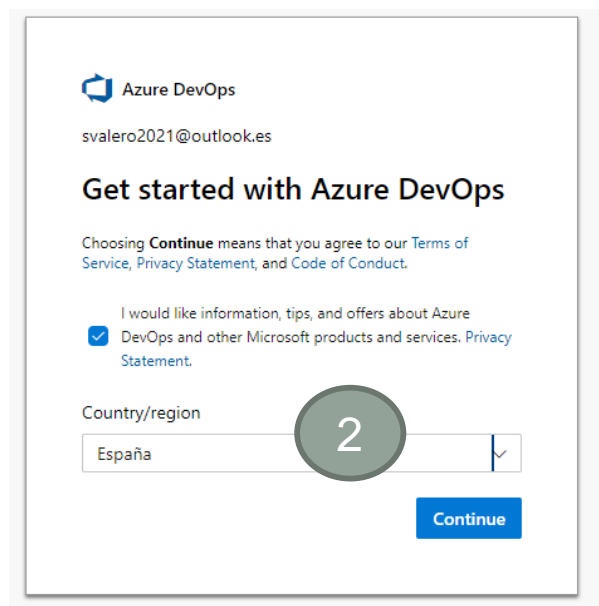
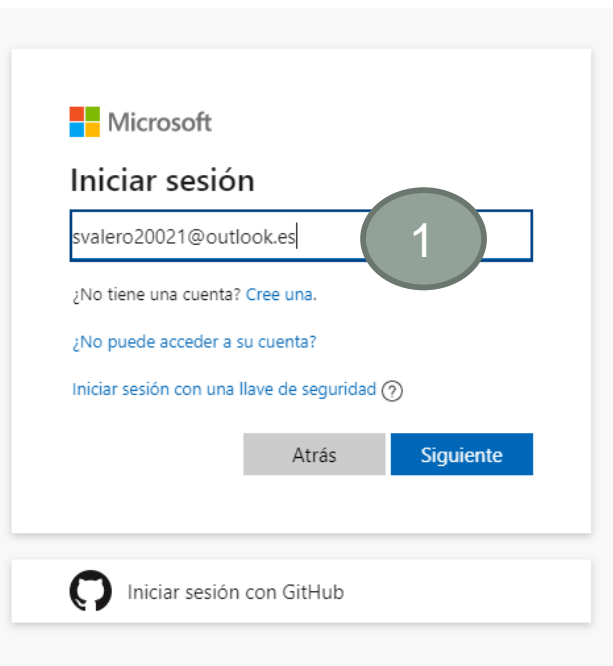
# Crear una organització DevOps

## 1. Iniciarem sessió amb el compte **upv.edu**

- tots els membres de l'equip han de gastar eixa, si no es comporta de forma estranya.

## 2. Crearà una organització per defecte amb el teu nom d'usuari

Una organització és un equip que desenvolupa projectes SW



# Modificar una organització DevOps

Anem a **modificar el nom donat per defecte**, el nostre nom d'usuari, amb el nou nom d'equip

**Azure DevOps**

svalero2021

New organization

ⓘ Azure DevOps will test a new networking configuration for two hours between September 9, 2020 and Sep 15, 2020. While most of the features will continue to work during this period, a small number of features may be impacted. We apologize for the inconvenience and thank you.

## Create a project to get started

Project name \*

Visibility

Public

Anyone on the internet can view the project. Certain features like TFVC are not supported.

Private

Only people you give access to will be able to view this project.

+ Create project

⚙ Organization settings

1



# Modificar una organització DevOps

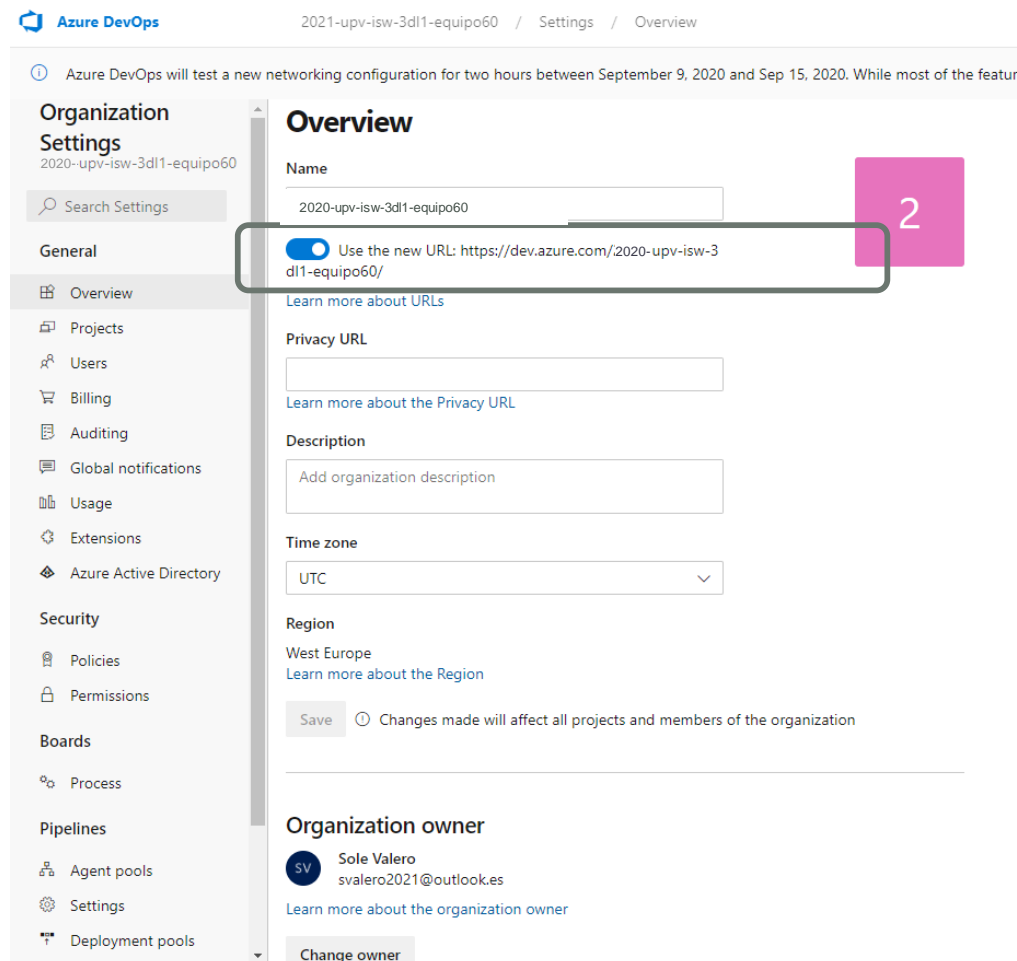
Decidim el nom de la nostra organització. Ex: 2024-L1 o L2-NomEquip.

The screenshot shows the 'Overview' tab of the 'Organization Settings' page for 'svalero2021'. The 'Name' field is highlighted with a red circle and the number '2', containing the text '2020-upv-isw-3dl1-equip60'. To the right of the name field is a red square logo with a white 'S'. Below the name field, there is a toggle for 'Use the new URL: https://dev.azure.com/svalero2021/' which is currently turned on. Other fields include 'Privacy URL', 'Description', 'Time zone' (set to UTC), and 'Region' (set to West Europe). At the bottom, the 'Organization owner' is listed as 'Sole Valero' with email 'svalero2021@outlook.es'. A 'Save' button is visible at the bottom of the settings section.

The screenshot shows a 'Change organization name' dialog box. It contains the following text: 'Changing your organization name has several side effects. Please read the following before you proceed. Save all your work and ensure that nobody is using the service. The existing organization URL https://dev.azure.com/svalero2021/ will not be redirected. Workspaces and connection strings will need to be updated to point to the new URL. Learn more'. Below this, it shows 'Current name: svalero2021' and a field for 'Return new organization name' which is highlighted with a red circle and the number '3', containing the text '2020-upv-isw-3dl1-equip60'. There is a checked checkbox for 'I understand the consequences of renaming this organization.' and 'Cancel' and 'Save' buttons at the bottom.

# Modificar una organització DevOps

A partir d'ací ja disposarem d'un **servidor en el núvol** com a repositori per al nostre codi: <https://dev.azure.com/2024-L1-equip1/>



Azure DevOps

2021-upv-isw-3dl1-equipo60 / Settings / Overview

① Azure DevOps will test a new networking configuration for two hours between September 9, 2020 and Sep 15, 2020. While most of the featur

## Organization Settings

2020-upv-isw-3dl1-equipo60

Search Settings

### General

- Overview
- Projects
- Users
- Billing
- Auditing
- Global notifications
- Usage
- Extensions
- Azure Active Directory

### Security

- Policies
- Permissions

### Boards

- Process

### Pipelines

- Agent pools
- Settings
- Deployment pools

## Overview

Name

2020-upv-isw-3dl1-equipo60

☒ Use the new URL: <https://dev.azure.com/2020-upv-isw-3dl1-equipo60/>

[Learn more about URLs](#)

Privacy URL

[Learn more about the Privacy URL](#)

Description

Time zone

UTC


Region

West Europe

[Learn more about the Region](#)

Save ⓘ Changes made will affect all projects and members of the organization

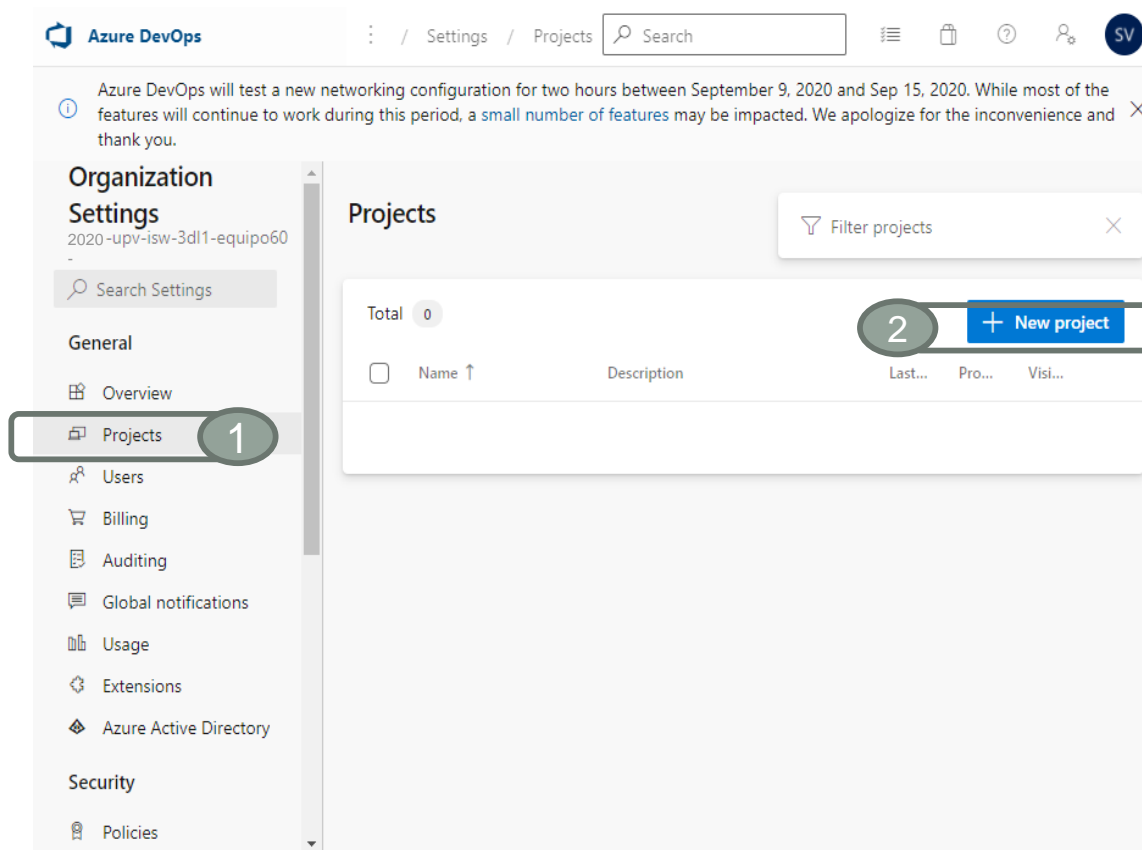
## Organization owner

 Sole Valero  
svalero2021@outlook.es

[Learn more about the organization owner](#)

Change owner

# Creació d'un nou projecte



1. Creem un nou projecte
2. Introduïm el nom i la seua visibilitat (que serà privada)
3. Despleguem les característiques avançades
4. Seleccionar Git per al control de versions i Agile com metodologia
5. Creem el projecte adicional

# Creació d'un nou projecte

The screenshot shows a 'Create new project' dialog box with the following elements:

- Project name \***: A text input field containing 'proyectoISW'. A green checkmark is visible to the right. A circled '1' is placed over the input field.
- Description**: An empty text input field.
- Visibility**: Two radio button options.
  - Public**: Represented by a globe icon. Description: 'Anyone on the internet can view the project. Certain features like TFVC are not supported.'
  - Private**: Represented by a lock icon. Description: 'Only people you give access to will be able to view this project.' A circled '2' is placed over this option, and a line connects it to the 'Advanced' button.
- Advanced**: A button with a dropdown arrow. A circled '3' is placed over this button.

1. Creem un nou projecte
2. Introduïm el nom i la seua visibilitat (que serà privada)
3. Despleguem les característiques avançades
4. Seleccionar git per al control de versions i Agile com metodologia
5. Creem el projecte


# Creació d'un nou projecte


Create new project ×

Project name \*  
projectolSW ✓

Description

Visibility

 Public  
Anyone on the internet can view the project. Certain features like TFVC are not supported.

 Private  
Only people you give access to will be able to view this project.

Advanced

Version control ⓘ 1

Work item process ⓘ 2

3 Cancel Create

1. Creem un nou projecte
2. Introduïm el nom i la seua visibilitat (que serà privada)
3. Despleguem les característiques avançades
4. Seleccionar **git** per al control de versions i **Agile** com metodologia
5. Creem el projecte

Azure DevOps

/ Settings / Projects

Search

Azure DevOps will test a new networking configuration for two hours between September 9, 2020 and Sep 15, 2020. While most of the features will continue to work during this period, a small number of features may be impacted. We apologize for the inconvenience and thank you.

Organization Settings  
2021-upv-sw-3d11-equip060

Search Settings

General

- Overview
- Projects
- Users
- Billing
- Auditing

Projects

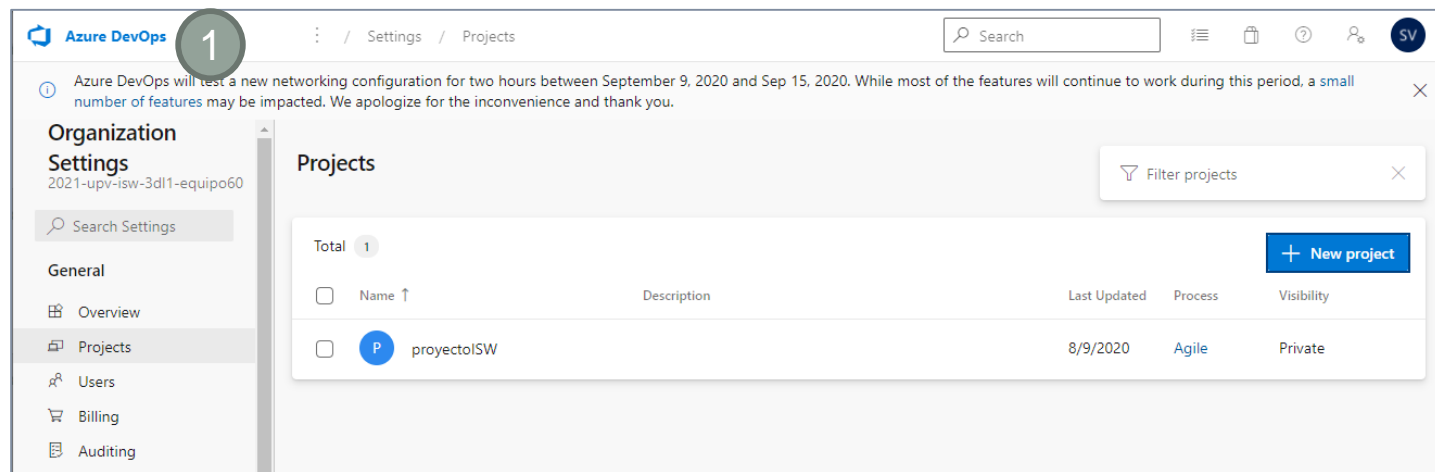
Filter projects

Total 1

+ New project

	Name ↑	Description	Last Updated	Process	Visibility
<input type="checkbox"/>	P	projectolSW <span>4</span>	8/9/2020	Agile	Private

# Vista del projecte



**Azure DevOps** 1 / Settings / Projects

Azure DevOps will test a new networking configuration for two hours between September 9, 2020 and Sep 15, 2020. While most of the features will continue to work during this period, a small number of features may be impacted. We apologize for the inconvenience and thank you.

**Organization Settings**  
2021-upv-isw-3dl1-equip060

Search Settings


**General**

- Overview
- Projects**
- Users
- Billing
- Auditing

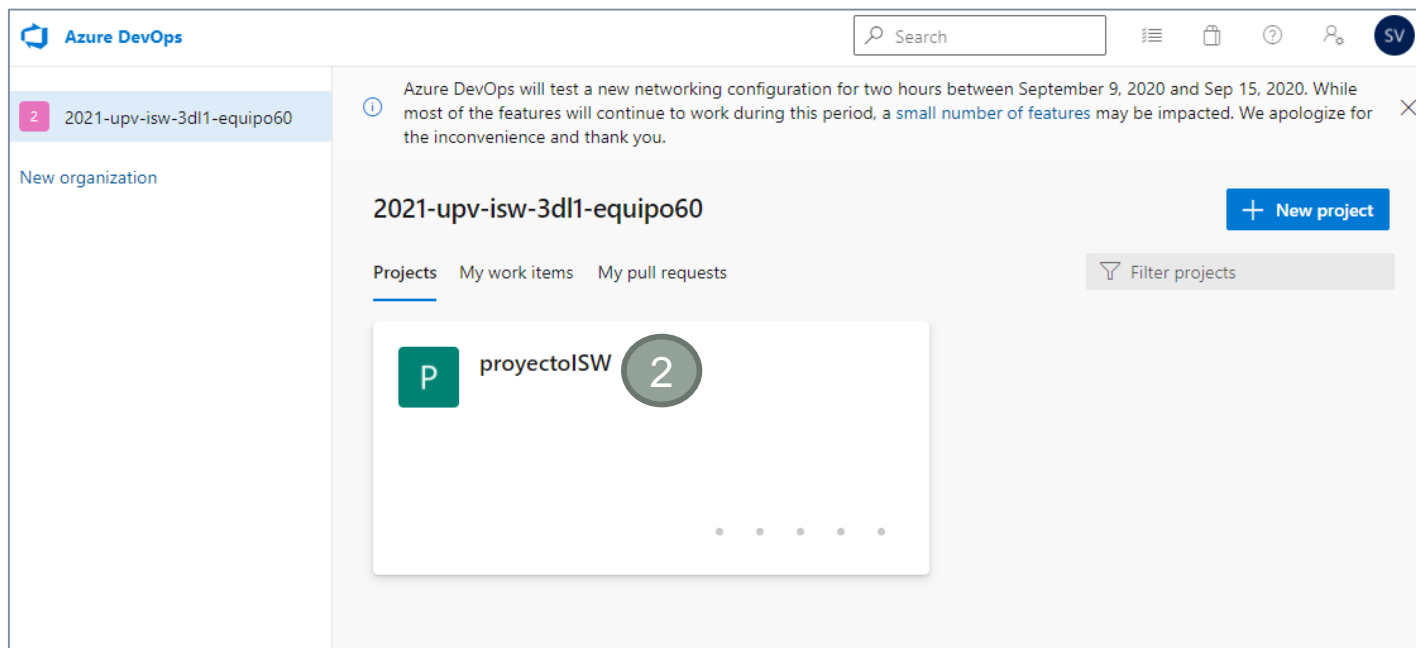
**Projects**

Filter projects

Total 1

<input type="checkbox"/>	Name ↑	Description	Last Updated	Process	Visibility
<input type="checkbox"/>	 projectoISW		8/9/2020	Agile	Private

[+ New project](#)



**Azure DevOps** Search

2 2021-upv-isw-3dl1-equip060

New organization


Azure DevOps will test a new networking configuration for two hours between September 9, 2020 and Sep 15, 2020. While most of the features will continue to work during this period, a small number of features may be impacted. We apologize for the inconvenience and thank you.

**2021-upv-isw-3dl1-equip060**

[+ New project](#)

**Projects** My work items My pull requests

Filter projects

 projectoISW 2

# Vista del projecte

Afegir (convidar) a  
membres per a  
aquest projecte

The screenshot shows the Azure DevOps interface for a project named 'ProjectoISW'. The top navigation bar includes the Azure DevOps logo, the project name, and a breadcrumb trail: 'ProjectoISW / Overview / Summary'. On the right side of the top bar are icons for search, menu, and a user profile. Below the top bar, the left sidebar contains a list of navigation items: Overview, Summary (highlighted), Dashboards, Wiki, Boards, Repos, Pipelines, Test Plans, Artifacts, and Project settings. The main content area features a large illustration of a person working on a laptop with a dog nearby, and the text 'Welcome to the project!'. To the right of the main area is a 'Project stats' section with a placeholder for a chart and the text 'No stats are available at thi' and 'Setup a service to see projec'. A red arrow points from the 'Invite' button in the top right to the text 'Afegir (convidar) a membres per a aquest projecte'. Another red arrow points from the 'Project settings' item in the sidebar to the text 'Configuració del projecte'. A third red arrow points from the 'Dashboards' item in the sidebar to the text 'Panell de navegació'. A fourth red arrow points from the 'ProjectoISW' project name in the top bar to the text 'Llista de projectes'.

Azure DevOps

ProjectoISW

Overview / Summary

Private Invite

Project stats

No stats are available at thi  
Setup a service to see projec

Welcome to the project!

Project settings

Llista de projectes

Panell de navegació

Configuració del projecte

# Configurar el repositori

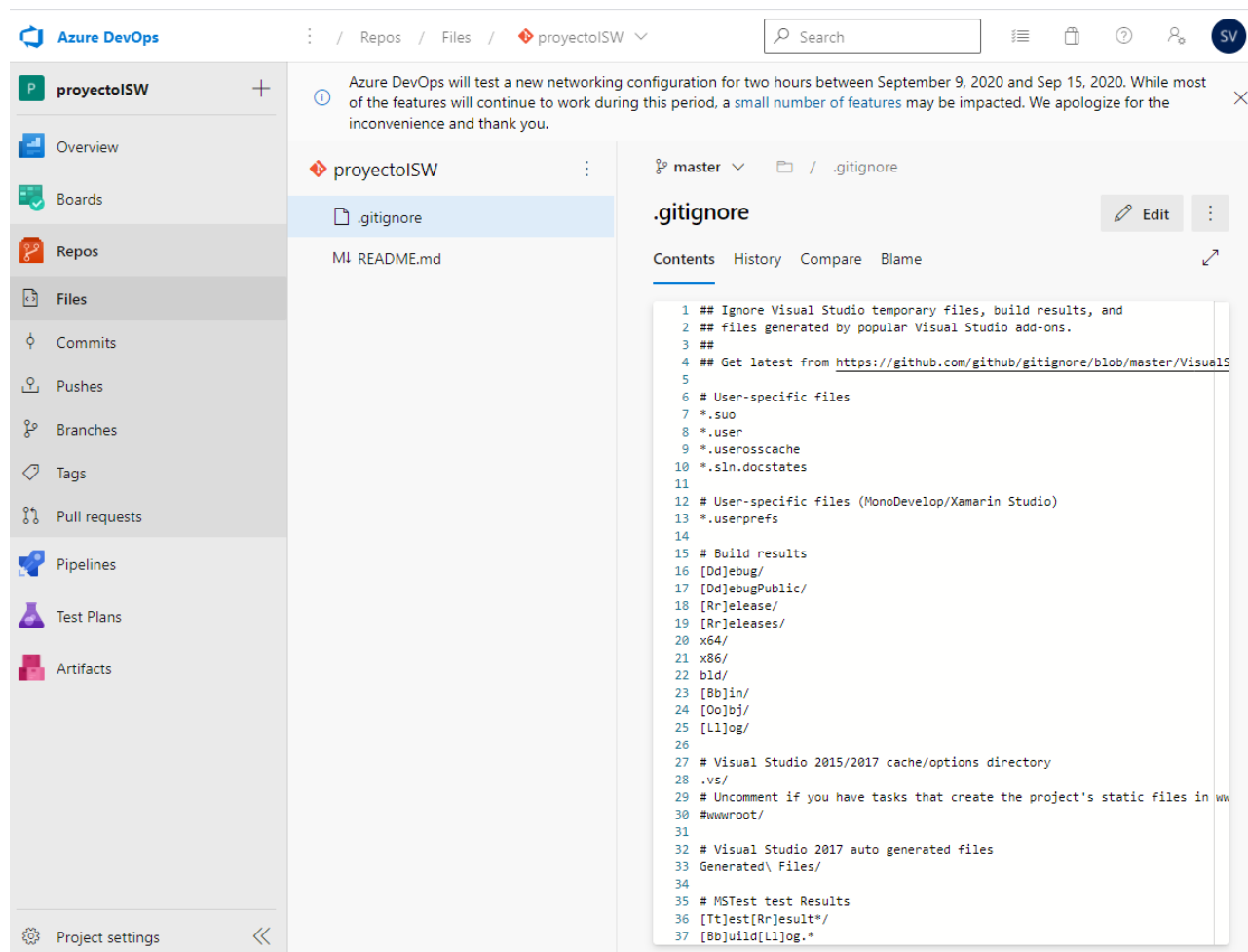
Inicialitzarem el repositori **git** per a que treballi correctament amb Visual Studio:

1. Seleccionem *Repos*
2. Seleccionem VisualStudio de l'opció **Add a .gitignore**
3. Seleccionem *Initialize*

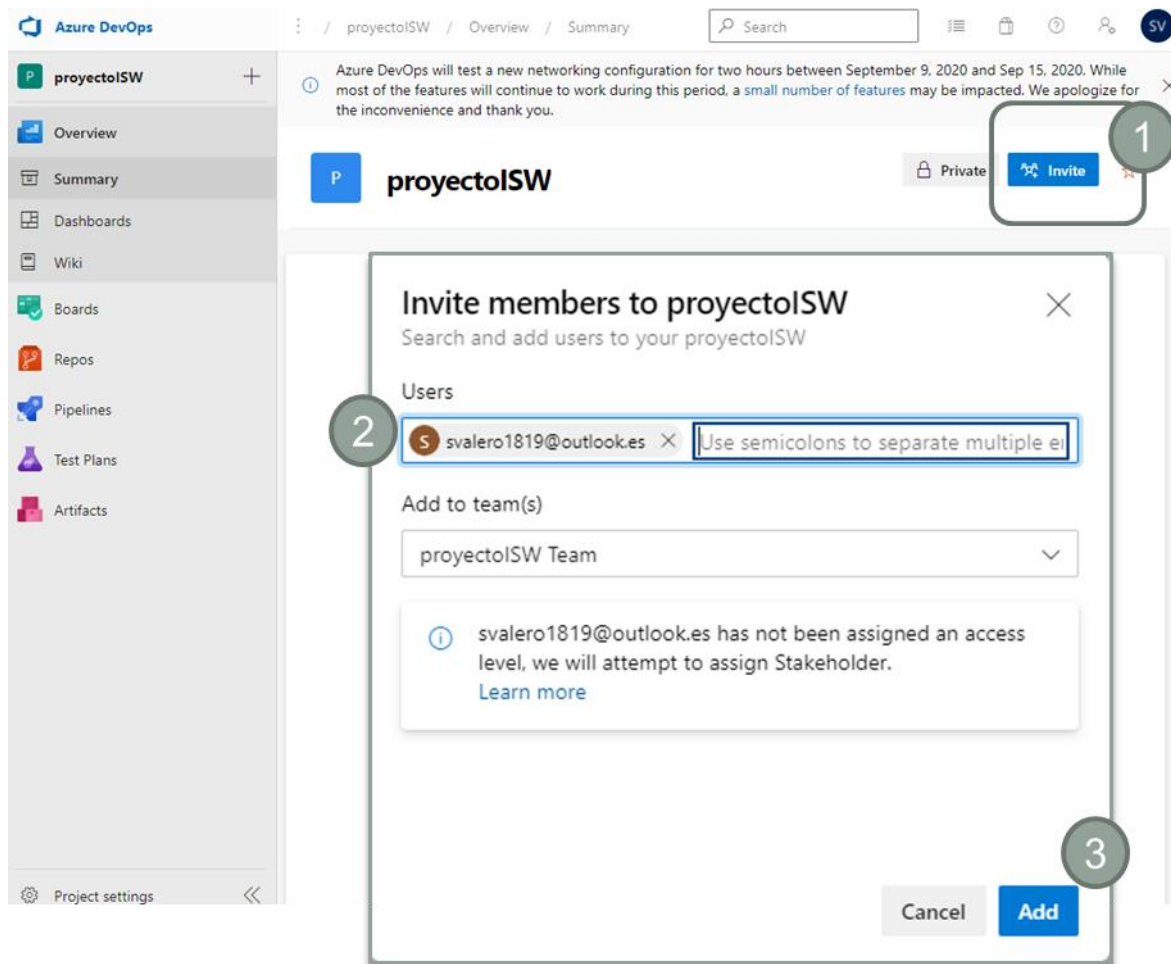


# Configurar el repositori

- Ens crea un arxiu *.gitignore* y un *README.md* per defecte.



# Afegir membres al projecte



Afegir nous membres a l'equip és molt senzill (5 usuaris bàsics gratuïts)

Convidem als membres en base del seu correu electrònic. L'usuari rebrà un correu d'invitació perquè s'uneixca al projecte

NOTA: l'email per a la invitació ha d'estar associat a un compte de Microsoft, o haurà d'associar-lo abans d'unir-se

- En cas d'error al introduir el email d'un membre de l'equip, es deu eliminar des de l'opció Setting/Teams abans de afegir el correcte.

# Membres del projecte (Nivell Accés)

Tots els membres de l'equip han de tindre nivell BASIC

El nivell d'accés es modifica en la configuració de l'organització.

## What's new

### Sprint 191 release notes

We've added support for environment variables in Linux scale set agents. Check out the release notes for details.

## Organization settings

1

↓ Export users

Filter users



Access Level ▾ AAD User Type ▾ ×

Total 2

2

Summary

Add users

		Access Level	Date Added	Last Accessed
<input type="checkbox"/>	 Francisco Javier Jaén Martínez fjaen@upv.edu.es	Basic	2/9/2021	13/9/2021
<input type="checkbox"/>	 JORGE MONTANER MARCO jormonm5@upv.edu.es	Stakeholder	13/9/2021	Never

3

Change access level

Manage user

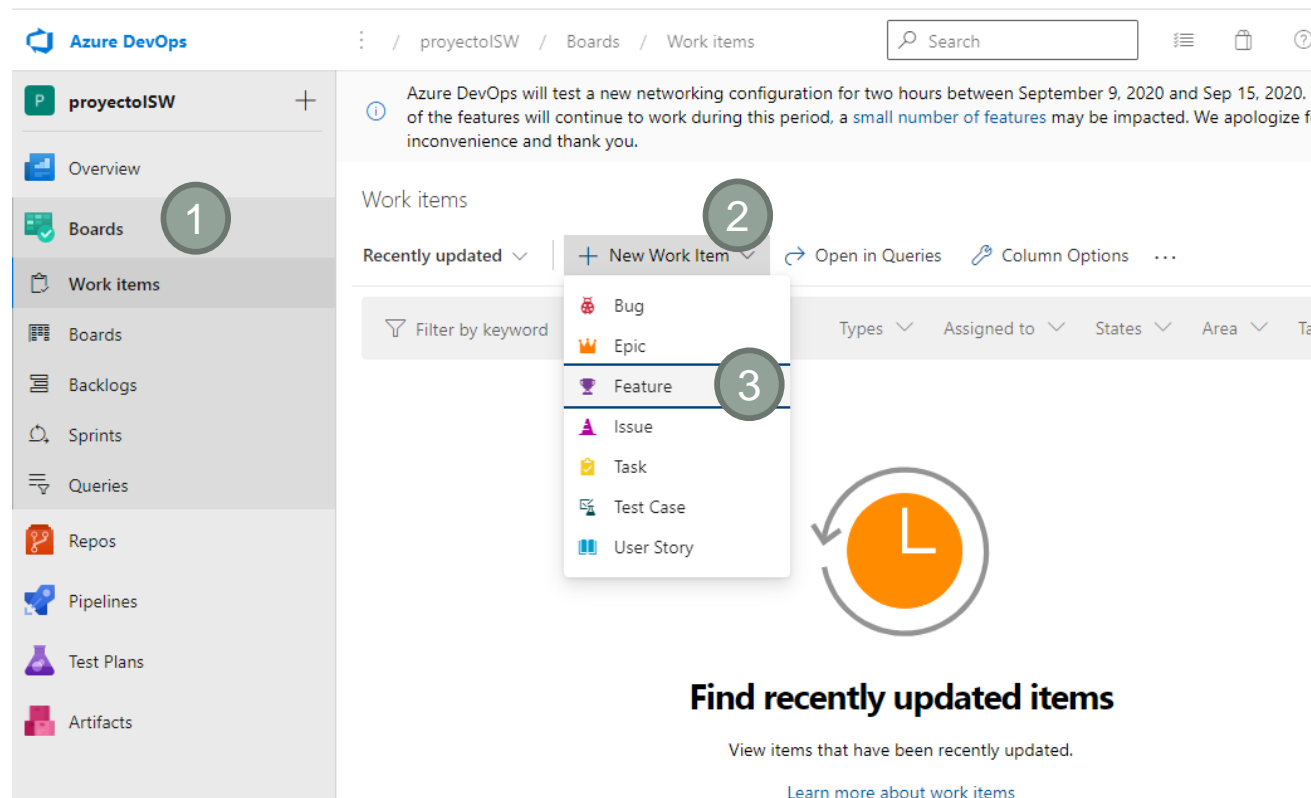
Resend invite

# GESTIÓ DEL TREBALL

---

# Unitats de treball: Creació

- Es poden crear unitats de treball (*work items*) per a repartir el treball a fer entre els membres de l'equip.



1. Seleccionar *Boards*
2. Seleccionar *New Work Items*
3. Seleccionar el tipus de la tasca, per exemple *Feature*

\* Para más información sobre work items, podéis acceder a la [documentación de Microsoft](#)

# Unitats de treball: Creació

Azure DevOps will test a new networking configuration for two hours between September 9, 2020 and Sep 15, 2020. While of the features will continue to work during this period, a small number of features may be impacted. We apologize for the inconvenience and thank you.

Work Items | Back to Work Items

NEW TASK \*

Crear la clase Curso

Sole Valero 0 comments Add tag

Save

State New Area proyectoISW

Reason New Iteration proyectoISW

Description

Click to add Description

Discussion

Add a comment. Use # to link a work item, ! to link a pull request, or @ to mention a person.

Planning

Priority 2

Activity

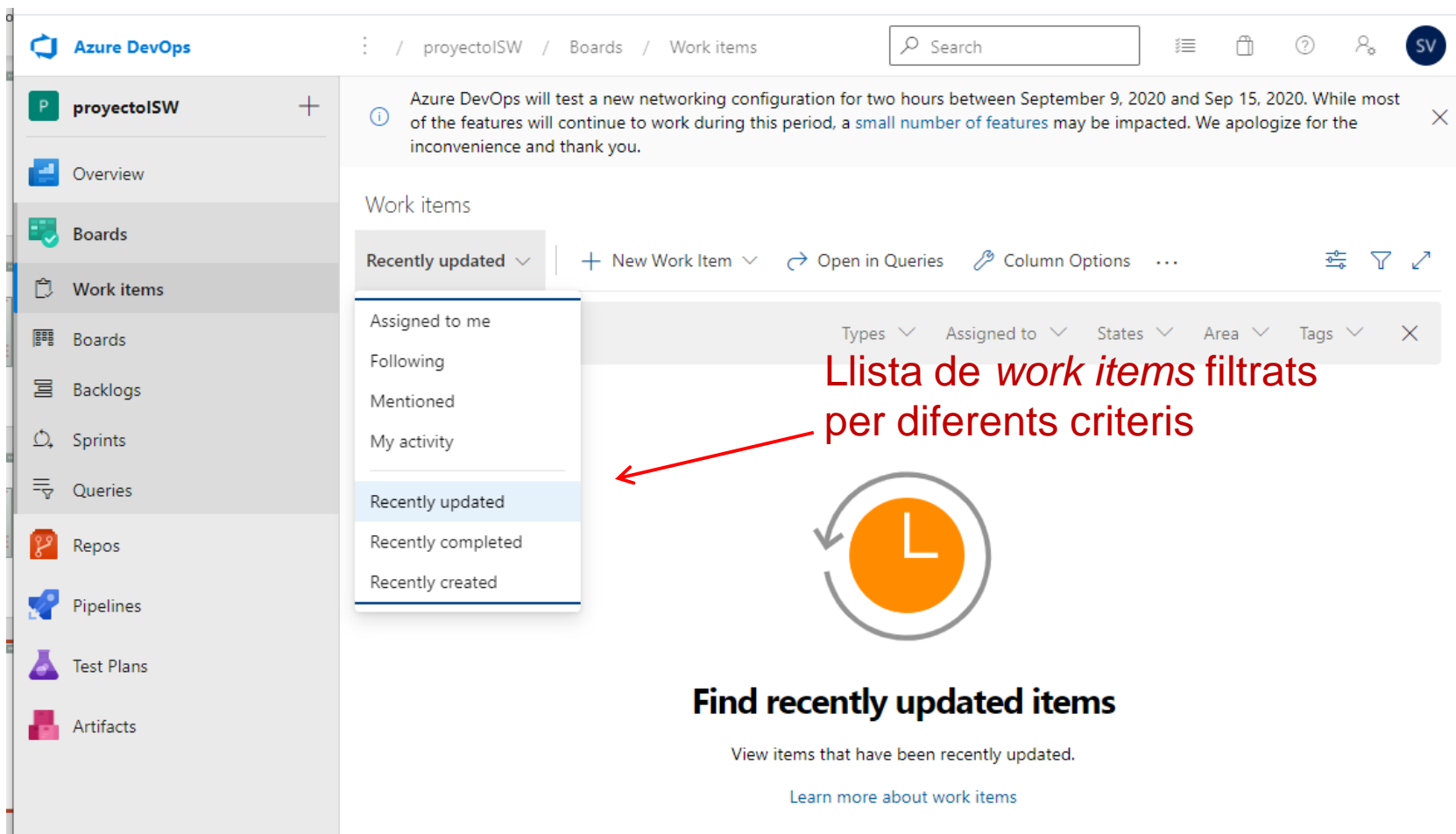
Effort (Hours)

Original Estimate

4. Afegix el nom de la tasca
5. Asignar el membre que va a fer la tasca o deixar-la sense assignar
6. Seleccionar Save

\* Para más información sobre work items, podéis acceder a la [documentación de Microsoft](#)

# Unitats de treball: Visualització



Azure DevOps

projectoISW / Boards / Work items

Search

projectoISW

Overview

Boards

Work items

Boards

Backlogs

Sprints

Queries

Repos

Pipelines

Test Plans

Artifacts

Azure DevOps will test a new networking configuration for two hours between September 9, 2020 and Sep 15, 2020. While most of the features will continue to work during this period, a small number of features may be impacted. We apologize for the inconvenience and thank you.

Work items

Recently updated

+ New Work Item

Open in Queries

Column Options

Types

Assigned to

States

Area

Tags

Assigned to me

Following

Mentioned

My activity

Recently updated

Recently completed

Recently created

Llista de *work items* filtrats per diferents criteris

Find recently updated items

View items that have been recently updated.

[Learn more about work items](#)

# Unitats de treball: Visualització des de el *board*

Es poden crear unitats de treball des de ací

Features/Stories

2

Features

New

Active 2/5

Resolved 0/5

Closed

New item

Funcionalidad 3

Funcionalidad 1 de la aplicación

Antonio Garrido Tejero

Funcionalidad 2

Antonio Garrido Tejero

Drag & Drop unitats de treball per a canviar el seu estat: Active-Resolved-Closed (manual o automàticament)

El *board* (tablero) consta d'un conjunt d'unitats de treball. Cada unitat de treball es pot gastar per a donar visibilitat al treball, a la seua organització, etc. . .



# Organització i progrés del temps

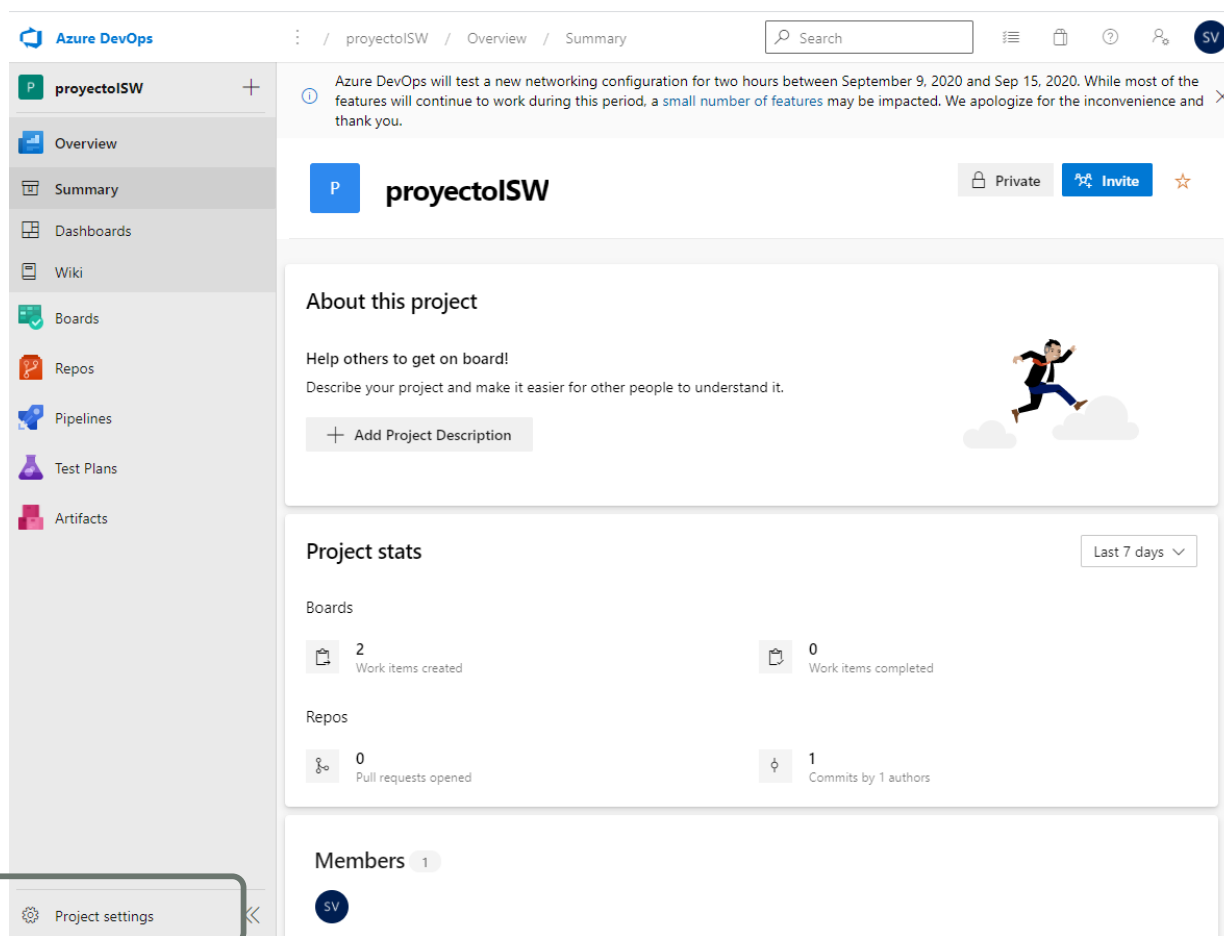
A mesura que avancem i els membres del projecte desenvolupen codi, les unitats de treball canviaran d'estat fins que estiguen totalment validades i tancades (closed)

The screenshot displays the Jira ProjectoISW interface. On the left is a sidebar with navigation options: Overview, Boards, Work Items, Boards (selected), Backlogs, Sprints, Queries, and Repos. The main area shows the 'Taskboard' view for the 'ProjectoISW Team'. The board is organized into columns: 'New', 'Active', and 'Closed'. The 'New' column contains two items: 'Unparented' and 'Conectarse a la BD' (assigned to 'Unassigned', state 'New'). The 'Active' column contains two items: 'Realizar la conexión a la BD' (assigned to 'Antonio Garrido...') and 'Ejecutar sentencia de recuperación de datos' (assigned to 'Antonio Garrido...'). The 'Closed' column contains one item: 'Abrir la conexión' (assigned to 'Antonio Garrido...'). The interface also includes a top navigation bar with 'Taskboard', 'Backlog', and 'Capacity' tabs, and a 'New Work Item' button. A warning icon is visible in the top right corner.

Column	Item	Assignee	State
New	Unparented		
New	Conectarse a la BD	Unassigned	New
Active	Realizar la conexión a la BD	Antonio Garrido...	
Active	Ejecutar sentencia de recuperación de datos	Antonio Garrido...	
Closed	Abrir la conexión	Antonio Garrido...	

# Configuració del projecte

- Es poden gestionar els permisos dels usuaris, notificacions, equips, etc.



## Project Settings

### General

#### Overview

#### Teams

#### Permissions

#### Notifications

#### Service hooks

#### Dashboards

### Boards

#### Project configuration

#### Team configuration

#### GitHub connections

### Pipelines

#### Agent pools

#### Parallel jobs

#### Settings

#### Test management

#### Release retention

#### Service connections

#### XAML build services

### Repos

#### Repositories

### Test

#### Retention

# Conclusions

The screenshot shows the Azure DevOps interface for a project named 'ProyectoISW'. The top navigation bar includes the Azure DevOps logo, the project path '2018-upv-isw-3dl1-profesor / ProyectoISW / Overview / Summary', and search, list, and user icons. The left sidebar contains a list of project components: Overview, Summary (selected), Dashboards, Wiki, Boards, Repos, Pipelines, Test Plans, and Artifacts. The main content area displays the project name 'ProyectoISW' with a 'Private' lock icon and an 'Invite' button. Below this, there is a section titled 'About this project' with the text 'Help others to get on board! Describe your project and make it easier for other people to understand it.' and a '+ Add Project Description' button. To the right of this text is an illustration of a person running on clouds. Further right, there are two summary cards: 'Project stats' showing '2 Work items created' under the 'Boards' section, and 'Members' showing '2' members, one of whom is 'SV'.

En tot moment tindrem accés a tota la informació del nostre projectes per a conèixer la seua evolució, conèixer el treball realitzat pels usuaris, estadístiques, etc.

# En Azure DevOps

Cada equip de pràctiques:

- Crearà la seua organització
- Crearà el nou projecte
- Afegirà membres al equip
- Pot crear un sencill pla de projecte per a l'equip en el projecte