

Azure DevOps: How to create my first repo and run a pipeline (.NET 8 WebAPI in VSCode and Visual Studio 2022)

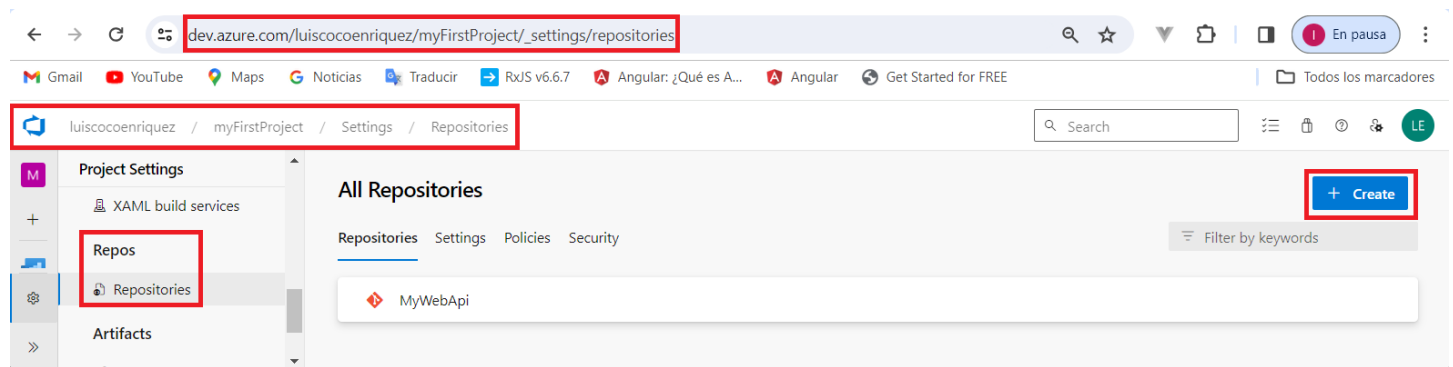
1. How to create a new repo in my Azure DevOps project

By default when we create a new Project inside one Organization in Azure DevOps a new repo is automatically created.

If we need to create a new repo inside an existing Project we can navigate to **Project->Settings->Repositories** and press on the Create button

https://dev.azure.com/organizationName/projectName/_settings/repositories


https://dev.azure.com/luiscoenriquez/myFirstProject/_settings/repositories



We input the repository type, repo name and gitignore file, then we press the create button

Create a repository ✕

Repository type


 Git ▼

Repository name *

myfirstrepo

☒ Add a README

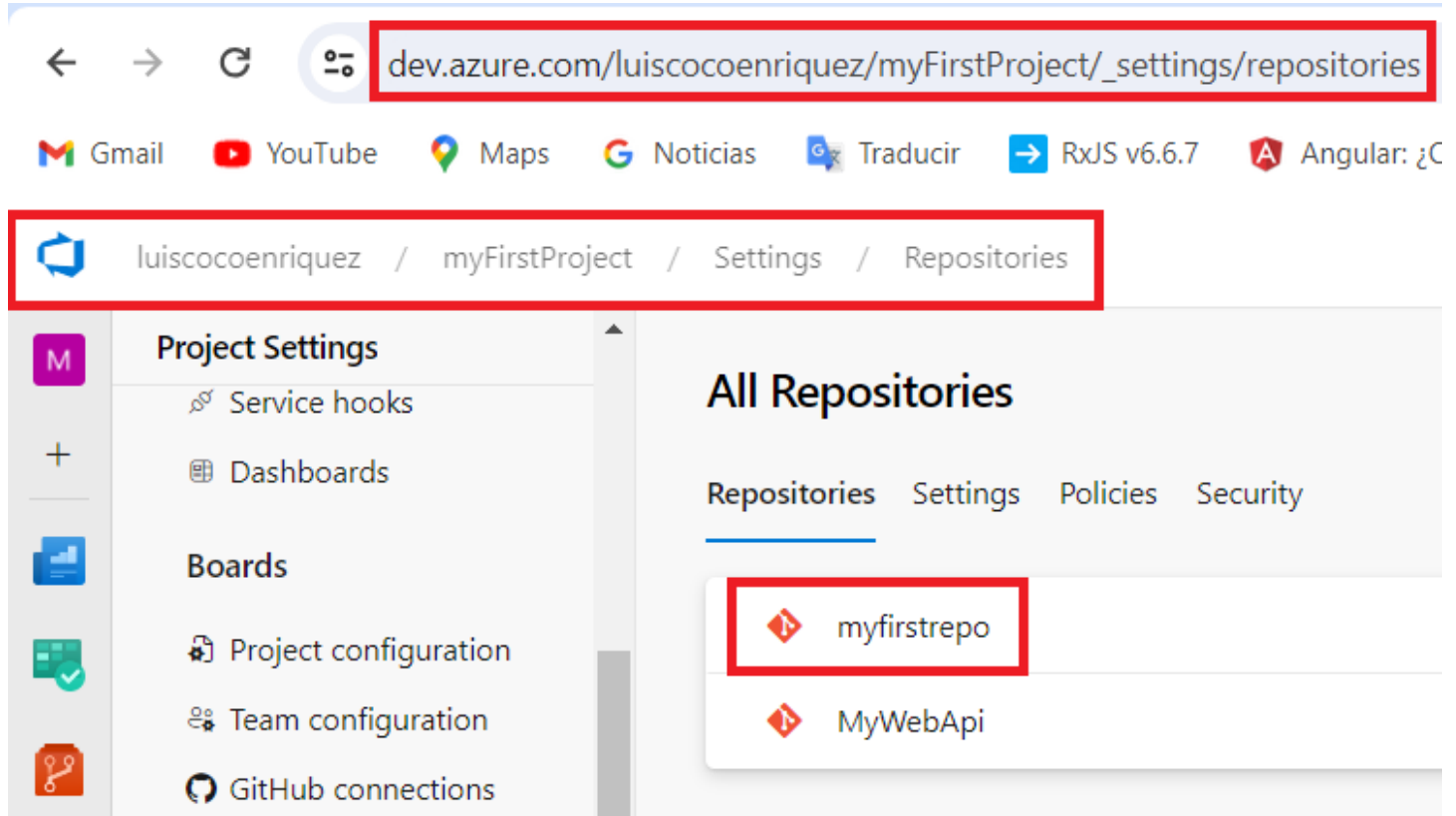
Add a .gitignore: VisualStudio ▼

Your repository will be initialized with a  main branch.

Cancel

Create

Pay attention the new repo will be initialized with a **main** branch



2. How to create a .NET 8 WebAPI in VSCode and

Open VSCode and then open a terminal in VSCode.

Create a new folder for your project and navigate into it:

```
mkdir MyWebApi
cd MyWebApi
```

Create a new .NET 8 WebAPI project:

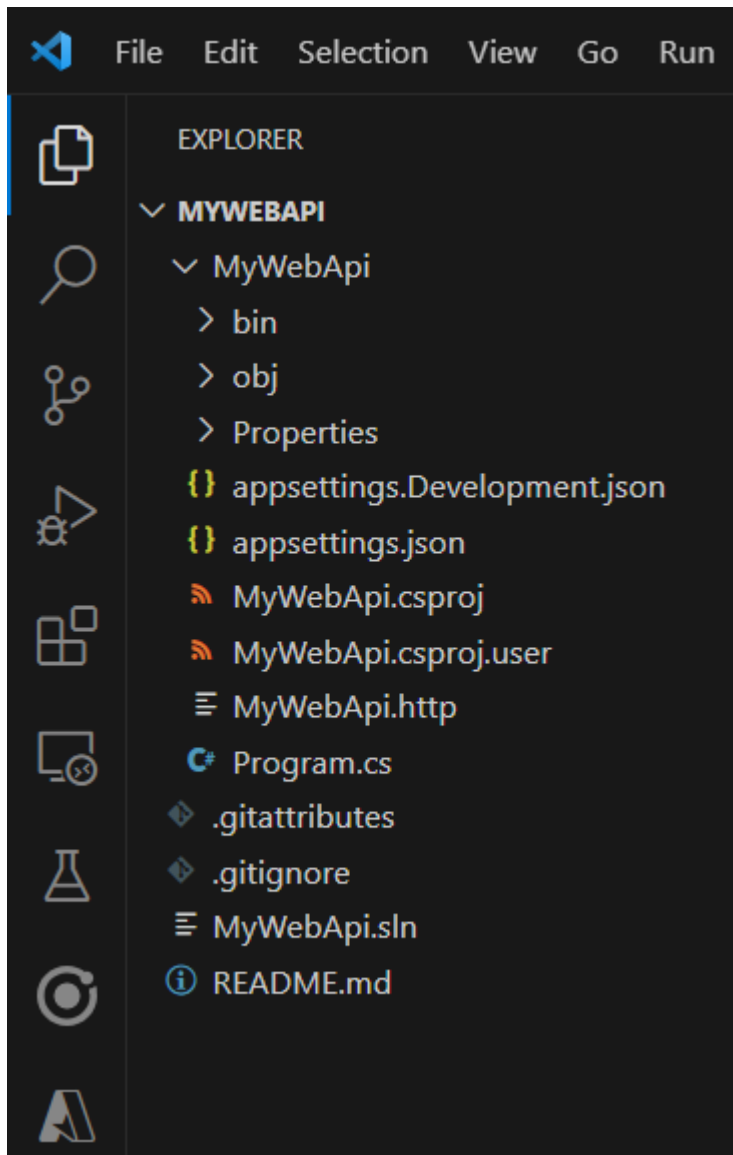
```
dotnet new webapi -n MyWebApi
```

This command creates a new directory named MyWebApi inside your current folder, and then it generates a basic WebAPI project inside this new directory.

Open your project in VSCode:

```
code . -r
```

The -r flag tells VSCode to reload the current window with the contents of the current directory.



Test your application (optional):

Run your application to ensure everything is working correctly.

```
dotnet run
```

By default, your WebAPI will be accessible at

<https://localhost:5001/swagger/index.html>

or

<http://localhost:5000/swagger/index.html>

3. Initialize a local git repo, add files, commit changes and push changes to the Azure DevOps repo

Initialize a Git repository:

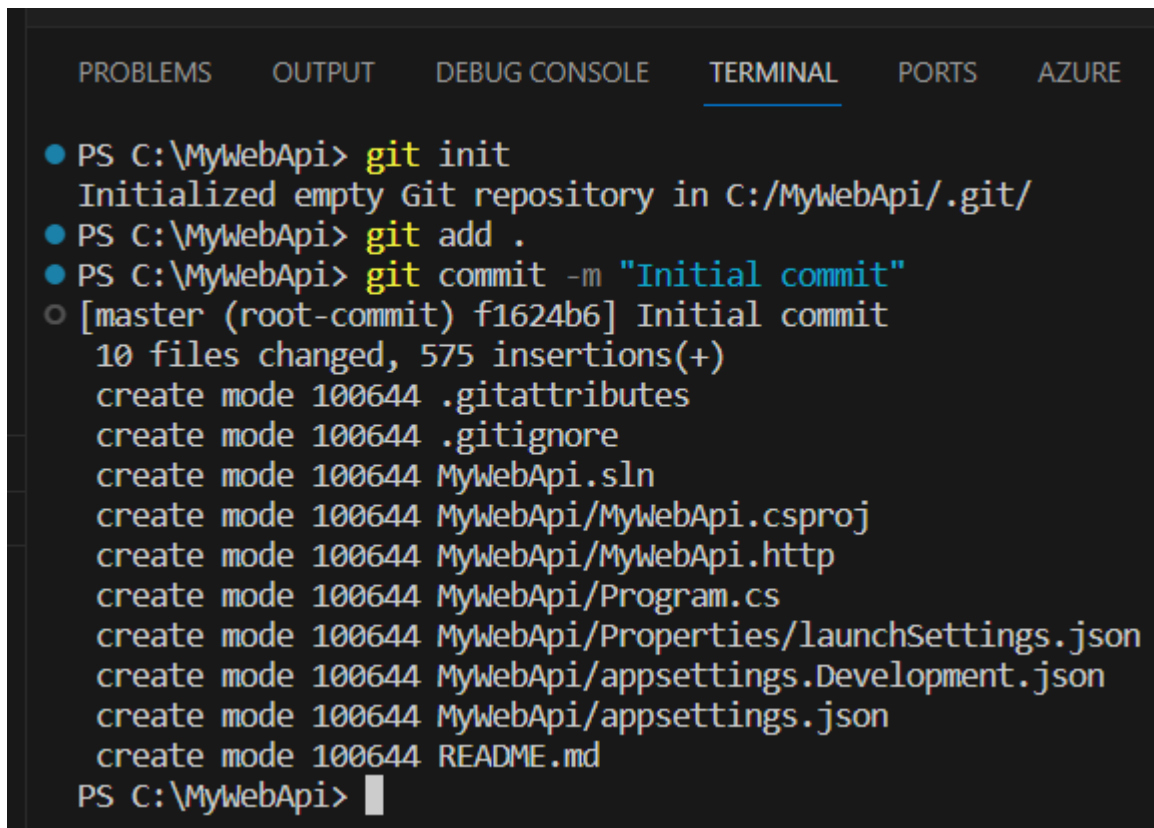
```
git init
```

Add your project files to the repository:

```
git add .
```

Commit your changes:

```
git commit -m "Initial commit"
```

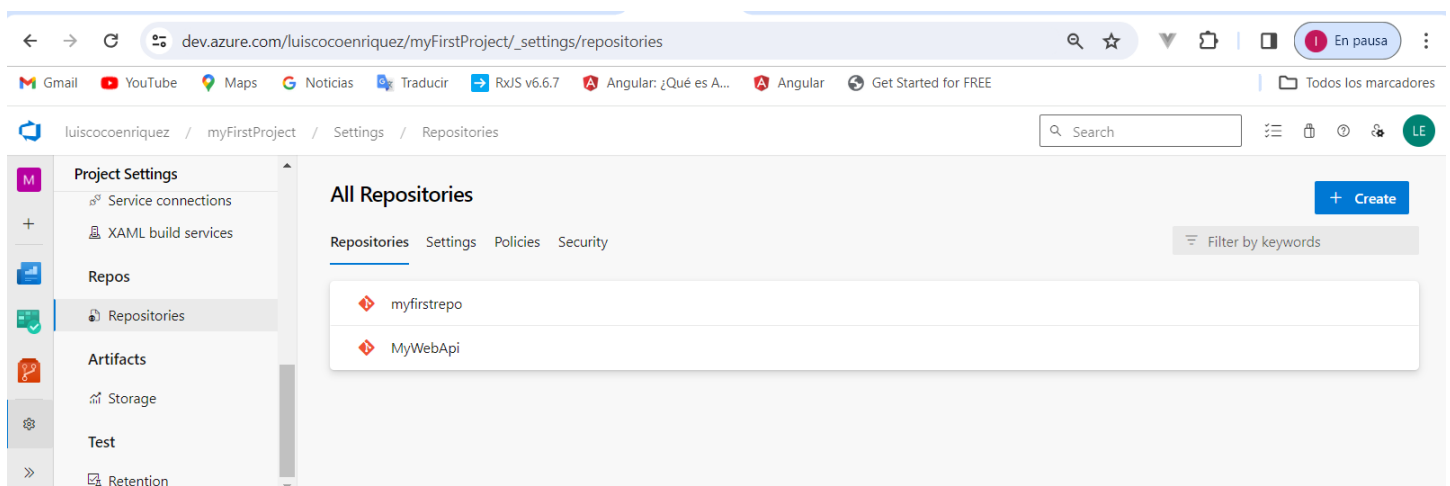


```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  AZURE

● PS C:\MyWebApi> git init
  Initialized empty Git repository in C:/MyWebApi/.git/
● PS C:\MyWebApi> git add .
● PS C:\MyWebApi> git commit -m "Initial commit"
○ [master (root-commit) f1624b6] Initial commit
  10 files changed, 575 insertions(+)
  create mode 100644 .gitattributes
  create mode 100644 .gitignore
  create mode 100644 MyWebApi.sln
  create mode 100644 MyWebApi/MyWebApi.csproj
  create mode 100644 MyWebApi/MyWebApi.http
  create mode 100644 MyWebApi/Program.cs
  create mode 100644 MyWebApi/Properties/launchSettings.json
  create mode 100644 MyWebApi/appsettings.Development.json
  create mode 100644 MyWebApi/appsettings.json
  create mode 100644 README.md
PS C:\MyWebApi> 
```

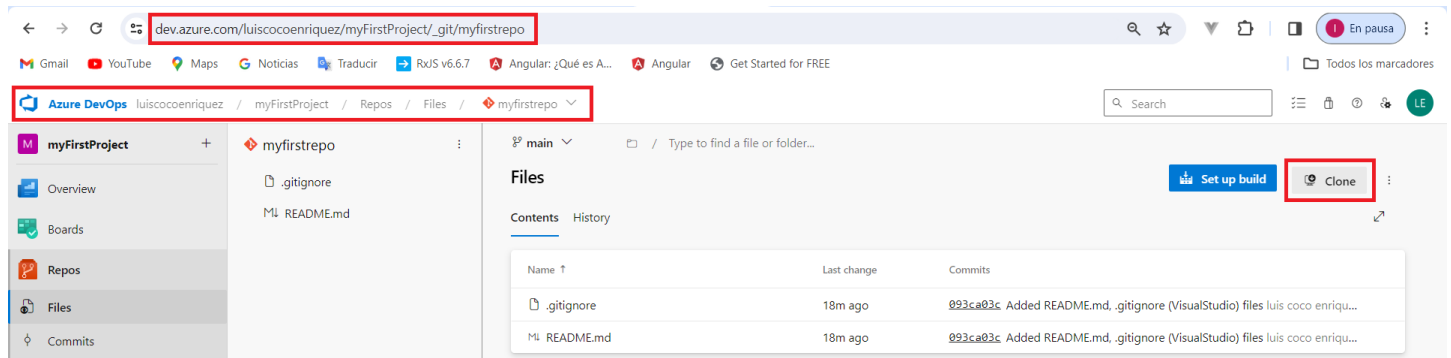
Go to your Azure DevOps project:

Navigate to your Azure DevOps portal. Go to the Repos section of your project.



Create a new repository (if you haven't already)

We navigate to the repo files and we click on the **Clone** button



We copy the **repo URL**:

https://luiscocoenriquez@dev.azure.com/organizationName/projectName/_git/repoName

https://luiscocoenriquez@dev.azure.com/luiscocoenriquez/myFirstProject/_git/myfirstrepo

Git command to push an existing repository from the command line:

```
git remote add origin https://luiscocoenriquez@dev.azure.com/luiscocoenriquez/myFirstProject/_
git branch -M main
git push -u origin main
```

IMPORTANT NOTE:

if you've initialized your Azure DevOps repository with some files (like a **README.md** or any other file) that your local repository doesn't have,

you need to first pull the changes from the remote repository, resolve any conflicts if they exist, and then push your changes again.

We pull the changes from the repo in Azure DevOps

```
git pull origin main --allow-unrelated-histories
```

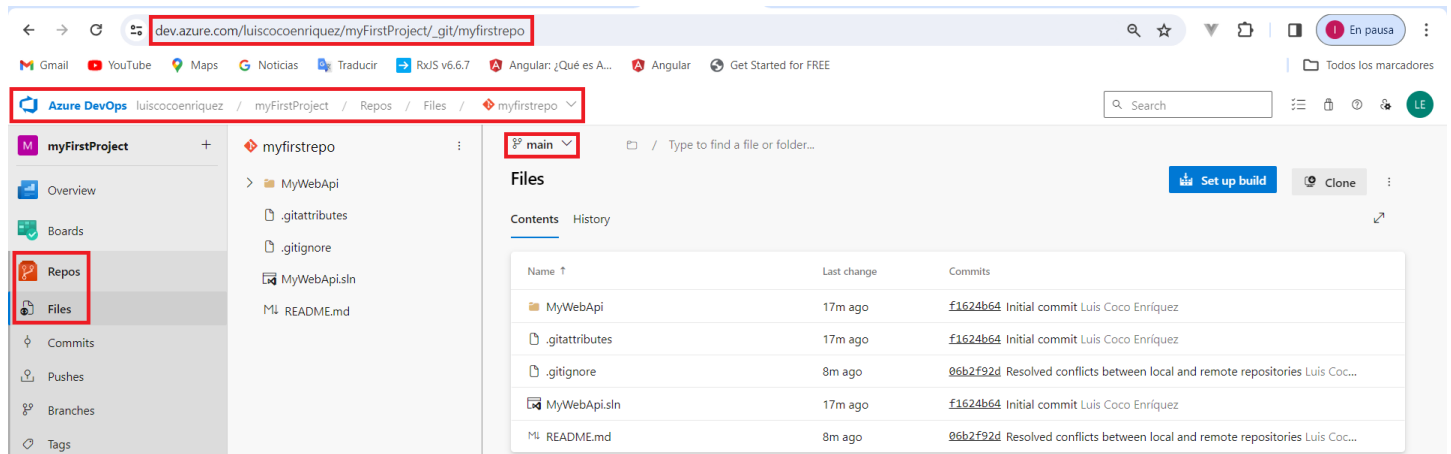
We add the files and commit them

```
git add .
git commit -m "Resolved conflicts between local and remote repositories"
```

Once the conflicts are resolved and the changes from the remote repository are successfully merged into your local repository, we can push your changes:

```
git push -u origin main
```

We verify the new Azure repo with all the pushed changes



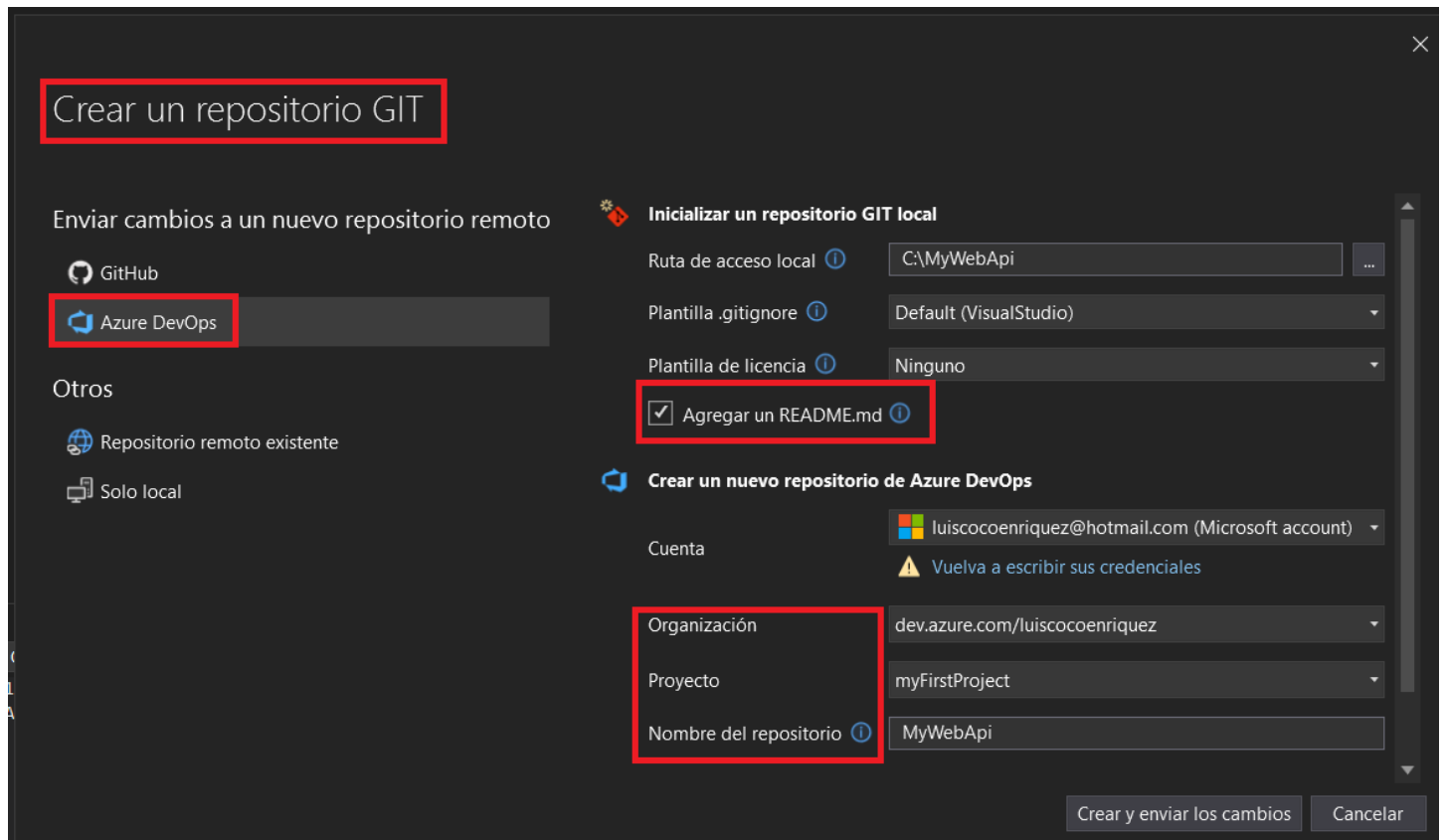
4. How to create a new repo in Visual Studio 2022 Community Edition and push the code to Azure DevOps repo

We run Visual Studio 2022 and open the solution

We select the Git changes tab and click on Create Git repo button



We select the organization, project and the repo name. We press on the Create and Send changes button



We verify in AzureDevOps the new repo

https://dev.azure.com/organizationName/projectName/_settings/repositories

https://dev.azure.com/luiscocoenriquez/myFirstProject/_settings/repositories

The screenshot shows the Azure DevOps web interface. The browser address bar displays the URL `dev.azure.com/luiscoenriquez/myFirstProject/_settings/repositories`. The left sidebar contains a navigation menu with categories: Project Settings, Boards, Pipelines, and Repos. The 'Repositories' item is highlighted. The main content area is titled 'All Repositories' and includes tabs for Repositories, Settings, Policies, and Security. A list of repositories is shown, with 'MyWebApi' and 'NewRepo' visible. The 'MyWebApi' repository is highlighted.

5. How to create and run a Pipeline

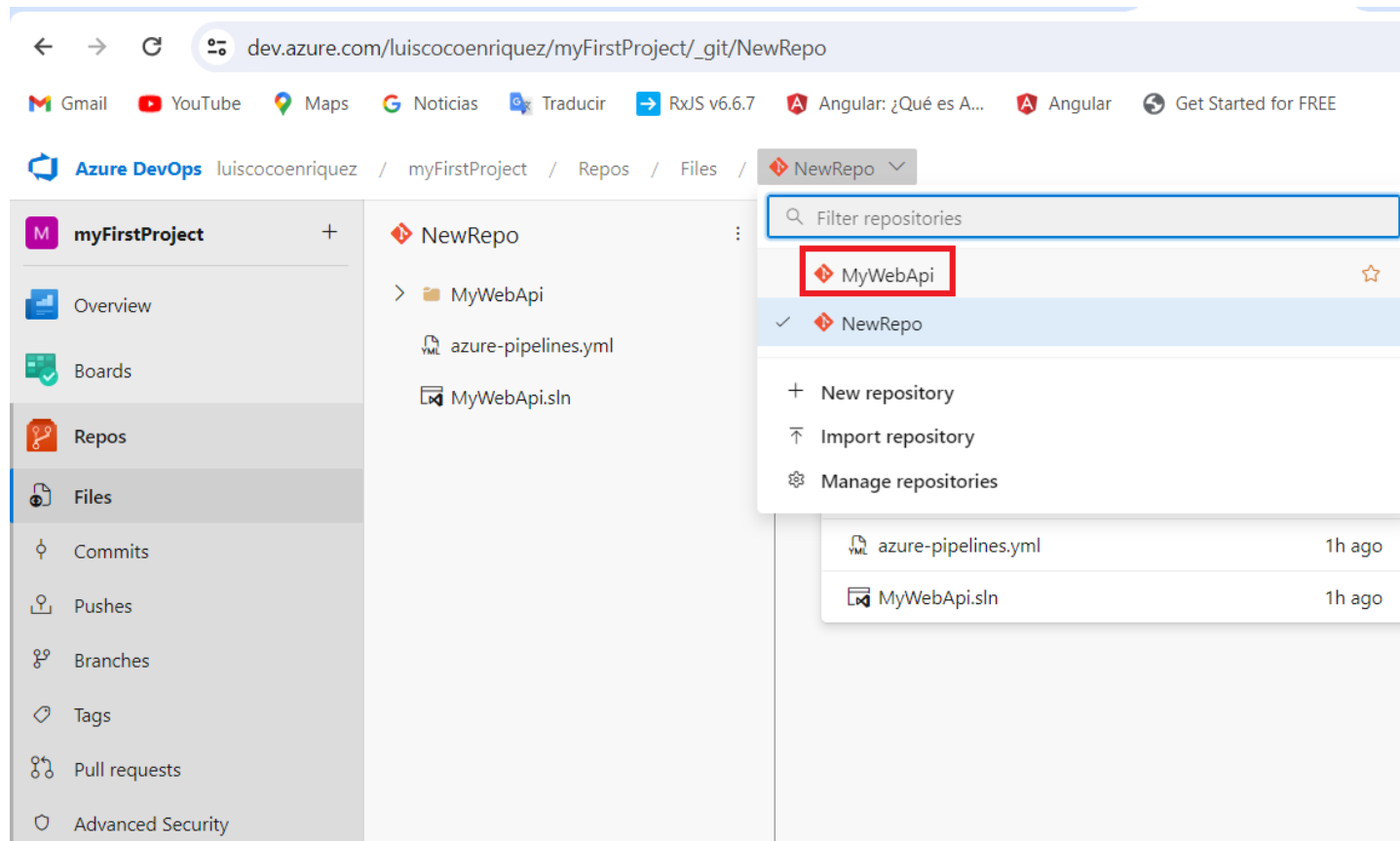
We click on the Repo button

The screenshot shows the Azure DevOps web interface. The browser address bar displays `dev.azure.com/luiscocoenriquez/myFirstProject/_settings/repositories`. Below the address bar, there are links to Gmail, YouTube, Maps, Noticias, Traducir, RxJS v6.6.7, and Angular. The breadcrumb navigation shows `luiscocoenriquez / myFirstProject / Settings / Repositories`.

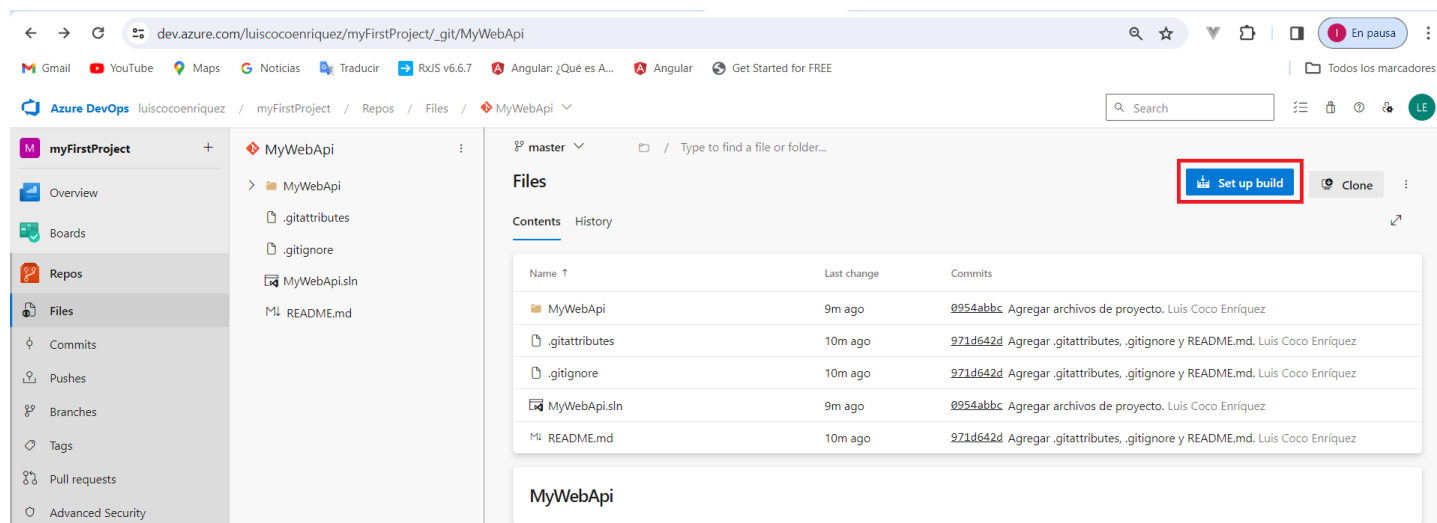
The interface is divided into two main sections:

- Project Settings (myFirstProject):** This sidebar contains a list of settings categories. The 'Repositories' icon, which is a red square with a white key symbol, is highlighted with a red rectangle.
- All Repositories:** This main content area shows a list of repositories. The 'Repositories' tab is selected, and the list contains two items: 'MyWebApi' and 'NewRepo', each with a red square icon containing a white key symbol.

We click on the drop-down list and select MyWebApi repo



We click on the **Set up build** button



We click on the **Starter pipeline** option

Azure DevOps luiscoenriquez / myFirstProject / Pipelines

myFirstProject +

- Overview
- Boards
- Repos
- Pipelines**
- Pipelines
- Environments
- Library
- Test Plans
- Artifacts

Project settings <<

✓ Connect ✓ Select **Configure** Review

New pipeline

Configure your pipeline

- ASP.NET**
Build and test ASP.NET projects.
- ASP.NET Core (.NET Framework)**
Build and test ASP.NET Core projects targeting the full .NET Framework.
- .NET Desktop**
Build and run tests for .NET Desktop or Windows classic desktop solutions.
- Universal Windows Platform**
Build a Universal Windows Platform project using Visual Studio.
- Xamarin.Android**
Build a Xamarin.Android project.
- Xamarin.iOS**
Build a Xamarin.iOS project.
- Starter pipeline**
Start with a minimal pipeline that you can customize to build and deploy your code.
- Existing Azure Pipelines YAML file**
Select an Azure Pipelines YAML file in any branch of the repository.

Show more

We copy the pipeline yaml file content

```
trigger:
- master

pool:
  vmImage: 'windows-latest'

steps:
- task: UseDotNet@2
  inputs:
    version: '8.x'
    includePreviewVersions: true # Set to true if .NET 8 is still in preview

- script: dotnet restore
  displayName: 'dotnet restore'
```

- script: `dotnet build --configuration Release`
displayName: 'dotnet build'
- script: `dotnet test --configuration Release --logger trx`
displayName: 'dotnet test'
- script: `dotnet publish --configuration Release --output publishOutput`
displayName: 'dotnet publish'

We click on **Save and run** button

The screenshot shows the Azure DevOps web interface for reviewing a pipeline. The breadcrumb navigation at the top indicates the path: **myFirstProject** / Pipelines. The left sidebar contains navigation links for Overview, Boards, Repos, Pipelines, Environments, Library, Test Plans, and Artifacts. The main content area is titled 'Review your pipeline YAML' and displays the pipeline configuration for 'MyWebApi / azure-pipelines.yml'. The configuration includes a trigger for the master branch, a pool using 'windows-latest', and three steps: 'dotnet restore', 'dotnet build', and 'dotnet test'. The 'dotnet build' step is configured with the 'Release' configuration. The 'dotnet test' step is configured with the 'Release' configuration and the 'trx' logger. The 'dotnet publish' step is configured with the 'Release' configuration and the 'publishOutput' output. The 'Save and run' button is highlighted with a red box.

myFirstProject / Pipelines

Connect Select Configure Review

New pipeline

Review your pipeline YAML

Variables Save and run

MyWebApi / azure-pipelines.yml

```
1 trigger:
2   - master
3
4 pool:
5   - vmImage: 'windows-latest'
6
7 steps:
8   - task: UseDotNet@2
9     inputs:
10      - version: '8.x'
11      - includePreviewVersions: true # Set to true if .NET 8 is still in preview
12
13   - script: dotnet restore
14     displayName: 'dotnet restore'
15
16   - script: dotnet build --configuration Release
17     displayName: 'dotnet build'
18
19   - script: dotnet test --configuration Release --logger trx
20     displayName: 'dotnet test'
21
22   - script: dotnet publish --configuration Release --output publishOutput
23     displayName: 'dotnet publish'
24
```

Save and run

×

Saving will commit azure-pipelines.yml to the repository.

Commit message

Set up CI with Azure Pipelines

Optional extended description

Add an optional description...

☒ Commit directly to the master branch
☐ Create a new branch for this commit

Save and run

We verify the job is running

The screenshot shows the Azure DevOps web interface. The browser address bar displays the URL: `dev.azure.com/luiscoenriquez/myFirstProject/_build/results?buildId=3&view=results`. The page title is "#20240122.1 • Set up CI with Azure Pipelines". The left sidebar shows the navigation menu with options like Overview, Boards, Repos, Pipelines, Environments, Library, Test Plans, and Artifacts. The main content area shows the pipeline summary for the build #20240122.1. It indicates the pipeline was triggered by "luis coco enriquez" and shows details for the repository (MyWebApi) and the build status (Queued).

We get this error message:

"##[error]No hosted parallelism has been purchased or granted."

To request a free parallelism grant, please fill out the following form <https://aka.ms/azpipelines-parallelism-request>"

If we navigate to this URL: <https://aka.ms/azpipelines-parallelism-request>

The screenshot shows the Azure DevOps web interface with the job log expanded. The error message is displayed in red text: `##[error]No hosted parallelism has been purchased or granted. To request a free parallelism grant, please fill out the following form https://aka.ms/azpipelines-parallelism-request`. The log also shows the pool name (Azure Pipelines), the image (windows-latest), and the duration (30s).

We have to fulfill a form to request **Azure DevOps Parallelism Free**

Azure DevOps Parallelism Request

This form is for users to request increased parallelism in Azure DevOps.

Please consider that it could take 2-3 business days to proceed the request. We are working on improving this process at the moment. Sorry for the inconvenience.

* Required

1. What is your name? *

luis coco enriquez

2. What is your email address? *

luiscoconenriquez@hotmail.com

3. What is the name of your Azure DevOps Organization? *

(E.g. for <https://myorganization.visualstudio.com> or <https://dev.azure.com/myorganization> link formats - organization name would be 'myorganization')

luiscoconenriquez

4. Are you requesting a parallelism increase for Public or Private projects? *



Private



Public

Submit

See also the information in this URL regarding **Configure and pay for parallel jobs**:

<https://learn.microsoft.com/en-us/azure/devops/pipelines/licensing/concurrent-jobs?view=azure-devops&tabs=ms-hosted>

It takes us **2-3 business days** to respond to your free tier request.

Also we can see the **Pricing for Azure DevOps** in the following URL

<https://azure.microsoft.com/en-us/pricing/details/devops/azure-devops-services/>

INDIVIDUAL SERVICES

Azure Pipelines



1 Free Microsoft-hosted CI/CD
1 Free Self-Hosted CI/CD

Start free

- 1 Microsoft-hosted job with 1,800 minutes per month for CI/CD and 1 self-hosted job with unlimited minutes per month
- \$40 per extra Microsoft-hosted CI/CD parallel job and \$15 per extra self-hosted CI/CD parallel job with unlimited minutes

Microsoft-hosted

Free



1,800 minutes free with 1
free parallel job

\$0/mo

Azure Artifacts



2 GiB free,
then starting at \$2 per GiB

Start free

- Industry-leading NuGet Server
- Support for Maven, npm, and Python packages
- Upstream sources to help protect open-source dependencies
- Integrated with Azure Pipelines
- Sophisticated access controls

First 2 GiB free

0

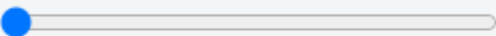


\$0/extra gigabyte

\$0/mo

Self-hosted

1



1 free parallel job with
unlimited minutes

\$0/mo

Rate card

- 0 - 2 GiB = Free
- 2 - 10 GiB = \$2 per GiB
- 10 - 100 GiB = \$1 per GiB
- 100 - 1,000 GiB = \$0.50 per GiB
- 1,000+ GiB = \$0.25 per GiB

Another option is navigate to **Organization Settings** and press on the **Set up billing**

The screenshot shows the Azure DevOps web interface. The browser address bar displays `dev.azure.com/luiscoenriquez/_settings/billing`. The top navigation bar includes links to Gmail, YouTube, Maps, Noticias, Traducir, RxJS v6.6.7, and Angular. The Azure DevOps header shows the organization name `luiscoenriquez` and the current path `Settings / Billing`.

On the left, the 'Organization Settings' sidebar for `luiscoenriquez` is visible, with a search bar and a list of settings categories: General, Overview, Projects, Users, Billing (selected), Global notifications, Usage, Extensions, and Microsoft Entra.

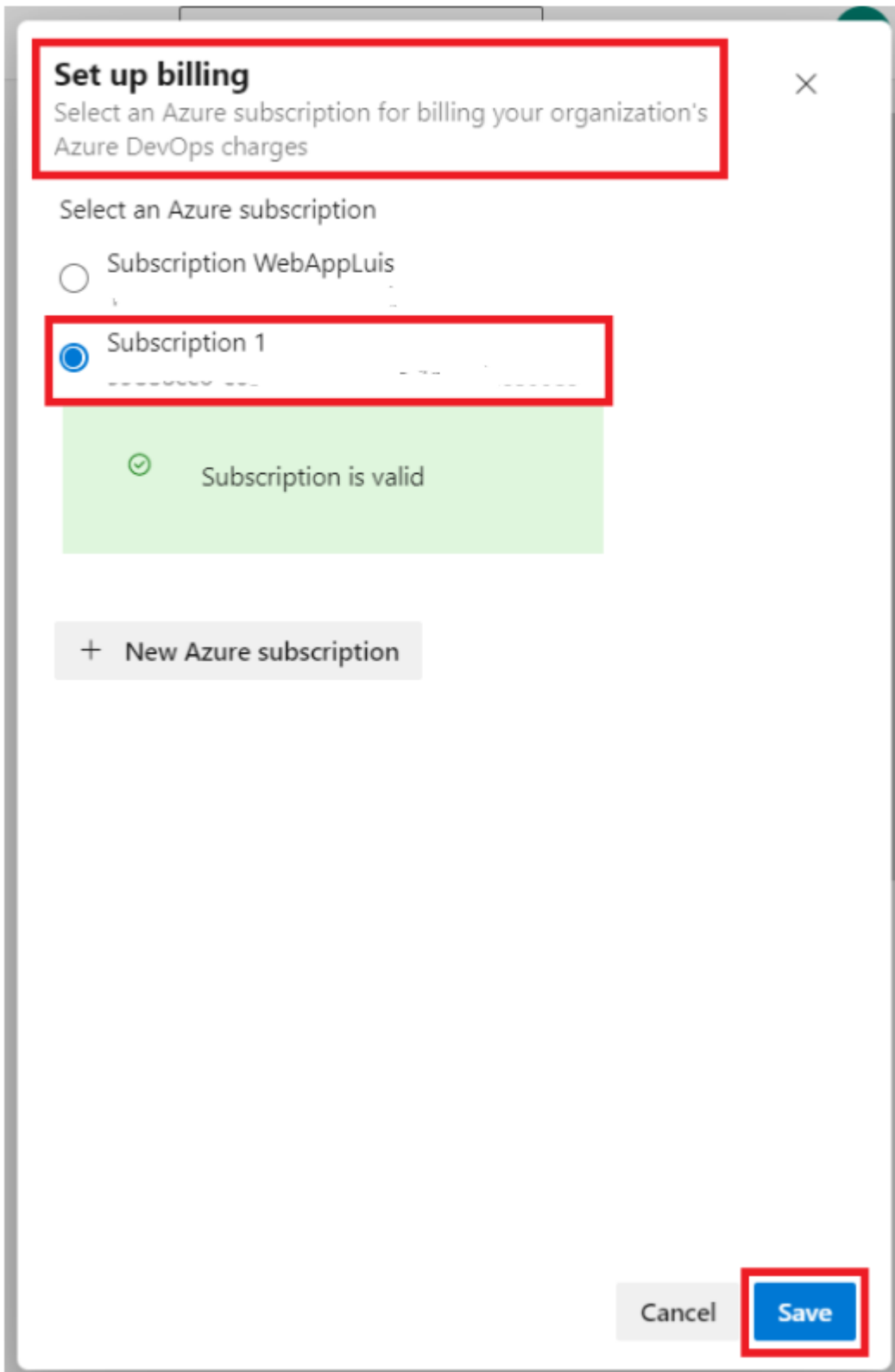
The main content area is titled 'Billing'. It contains a message: 'Billing has not been set up for this organization. Access will be available up to [free tier limits](#).' Below this message is a blue button labeled 'Set up billing'.

Below the button is a table showing the free tier limits for pipelines:

Pipelines for private projects	Free	Paid parallel jobs
MS Hosted CI/CD ↗	1800 minutes	0
Self-Hosted CI/CD ↗	1	0

Below the table, there is a link: 'Visit [parallel jobs](#) for full details on free pipelines and public concurrency'.

We link Azure DevOps billing to our **Azure Subscription**



After linking our Azure Subscription to Azure DevOps we can set the **MS Host Parallel job** to 1 and press the **Save** button

The screenshot shows the Azure DevOps Billing settings page for the organization 'luiscoenriquez'. The page is divided into two main sections: 'Organization Settings' on the left and 'Billing' on the right. The 'Billing' section is further divided into 'Azure Subscription ID' and 'Paid parallel jobs'.

Organization Settings:

- Search Settings
- General
 - Overview
 - Projects
 - Users
- Billing**
 - Global notifications
 - Usage
 - Extensions
 - Microsoft Entra
- Security
 - Policies
 - Permissions
- Boards
 - Process
- Pipelines

Billing:

- Azure Subscription ID:** [Redacted]
- Change billing** | **Configure user billing**
- Pipelines for private projects:** Free
 - MS Hosted CI/CD:** [Redacted]
 - Self-Hosted CI/CD:** 1
- Paid parallel jobs:** 1
- Boards, Repos and Test Plans:** Free
 - Basic users:** 5
 - Basic + Test Plans:** [Redacted]
- Start free trial**
- [Visit parallel jobs](#) for full details on free pipelines and public concurrency.
- [Learn more](#)

This organization is enabled for user assignment based billing and daily pro-rated charges, instead of monthly committed purchases. [Learn more](#)

We can verify the MS Host Parallel jobs we updated to 1

dev.azure.com/luiscoenriquez/_settings/buildqueue?_a=concurrentJobs%E2%80%8B

Gmail YouTube Maps Noticias Traducir RxJS v6.6.7 Angular: ¿Qué es A... Angular

Azure DevOps luiscoenriquez / Settings / Parallel jobs

Organization Settings

- Global notifications
- Usage
- Extensions
- Microsoft Entra

Security

- Policies
- Permissions

Boards

- Process


Pipelines

- Agent pools
- Settings
- Deployment pools
- Parallel jobs**
- OAuth configurations

Repos

- Repositories

Private projects


 Microsoft-hosted ⓘ	1 Parallel jobs
View in-progress jobs	
Monthly purchases	1 Change

Self-hosted ⓘ

[View in-progress jobs](#)

Free parallel jobs	1
Visual Studio Enterprise subscribers ⓘ	0
Monthly purchases	0 Change

Public projects

 Microsoft-hosted ⓘ	1 Parallel jobs
View in-progress jobs	
Free parallel jobs	0
Monthly purchases	1 Change

Self-hosted ⓘ

[View in-progress jobs](#)

	Unlimited Parallel jobs
--	-------------------------

Now we can navigate to the pipeline and press the **Run pipeline** button

dev.azure.com/luiscoenriquez/myFirstProject/_build?definitionId=4

Gmail YouTube Maps Noticias Traducir RxJS v6.6.7 Angular: ¿Qué es A... Angular Get Started for FREE

Azure DevOps luiscoenriquez / myFirstProject / Pipelines / myfirstrepo

myFirstProject

- Overview
- Boards
- Repos
- Pipelines**

myfirstrepo

Runs Branches Analytics

Run pipeline

Description

#20240122.1 • Set up CI with Azure Pipelines

Individual CI for main 7f6f7e19

Stages


12m ago <1s

Run pipeline

×

Select parameters below and manually run the pipeline

Branch/tag

 main ▼

Select the branch, commit, or tag

Advanced options

Variables

This pipeline has no defined variables

>

Stages to run

Run as configured

>

Resources

Use latest version of all resources

>

☐ Enable system diagnostics

Cancel

Run

We verify one Jos is running

The screenshot shows the Azure DevOps web interface. On the left, the 'Pipelines' menu item is highlighted with a red box. The main content area displays the pipeline '#20240122.2 • Set up CI with Azure Pipelines' for repository 'myfirstrepo'. The pipeline was manually run by 'luis coco enriquez'. A table under the 'Jobs' section shows one job named 'Job' with a status of 'Running' and a duration of '16s'. This table is also highlighted with a red box.

Name	Status	Duration
Job	Running	16s

We confirm the final Pipeline job result was successfully

This screenshot shows the same pipeline run after it has completed successfully. The pipeline title '#20240122.2 • Set up CI with Azure Pipelines' is now marked with a green checkmark and is highlighted with a red box. Below the title, a message states: 'This run is being retained as one of 3 recent runs by main (Branch)'. The 'Jobs' table at the bottom shows the 'Job' with a status of 'Success' and a duration of '1m 22s'. This table is also highlighted with a red box.

Name	Status	Duration
Job	Success	1m 22s