Azure DevOps Integration with Jenkins

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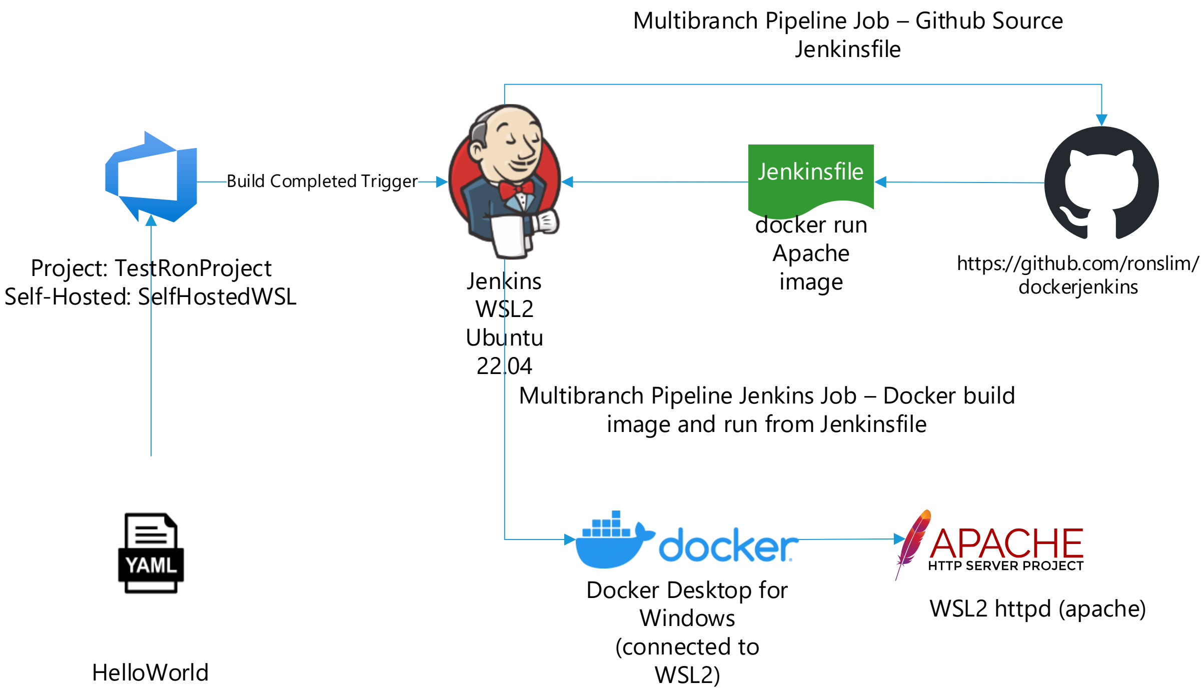
Objective

To perform sample integration of Azure Dev Ops and Jenkins

Architecture Design

Please see below diagram a sample case to test integration of Azure Dev Ops and Jenkins:



Specifications

- Windows 10 OS Home Edition version 22H2
- WSL2 Ubuntu version 22.04
- Azure DevOps Free = Self-hosted (SelfHostedWSL), project: TestRonProject
- Docker Desktop for Windows (version 24.0.2)
- Github = https://github.com/ronslim/dockerjenkins
- Localtunnel link: https://ronjenkins.loca.lt
- Jenkins (version 2.410) in WSL2

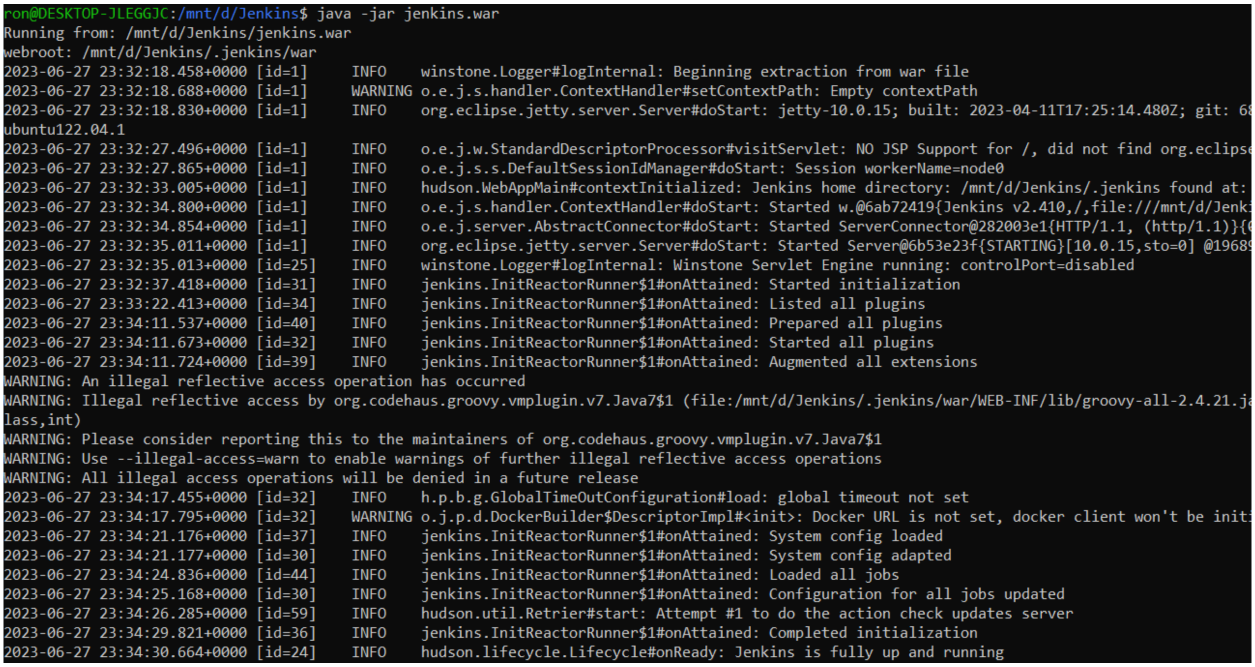
Pre-requisites

- WSL Ubuntu 22.04 packages

  - npm (For installing Localtunnel)
  - Localtunnel (install using npm)
  - git
  - Jenkins.war = For installing and running Jenkins
  - docker
  - java
    openjdk version "11.0.19" 2023-04-18
    OpenJDK Runtime Environment (build 11.0.19+7-post-Ubuntu-0ubuntu122.04.1)
    OpenJDK 64-Bit Server VM (build 11.0.19+7-post-Ubuntu-0ubuntu122.04.1, mixed mode, sharing)
- Docker Desktop for Windows

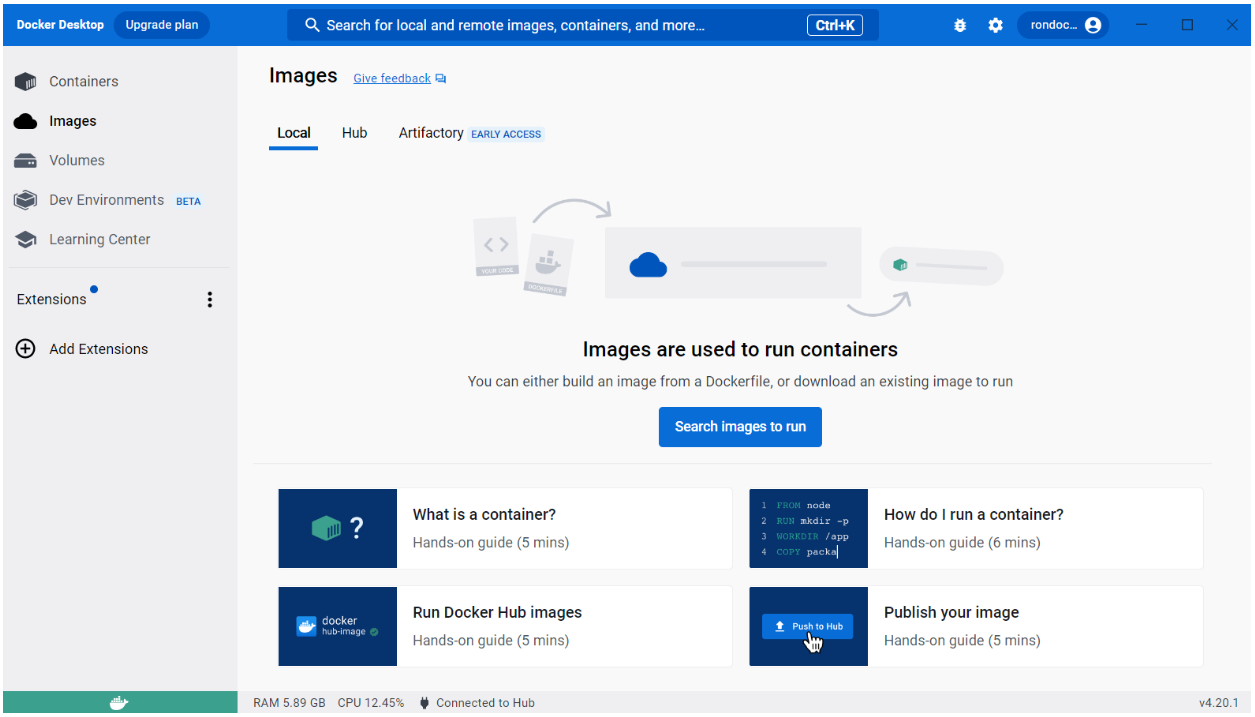
Initializations

1. Jenkins in WSL2



```
ron@DESKTOP-JLEGGJC:/mnt/d/Jenkins$ java -jar jenkins.war
Running from: /mnt/d/Jenkins/jenkins.war
webroot: /mnt/d/Jenkins/.jenkins/war
2023-06-27 23:32:18.458+0000 [id=1]     INFO    winstone.Logger#logInternal: Beginning extraction from war file
2023-06-27 23:32:18.688+0000 [id=1]     WARNING o.e.j.s.handler.ContextHandler#setContextPath: Empty contextPath
2023-06-27 23:32:18.830+0000 [id=1]     INFO    org.eclipse.jetty.server.Server#doStart: jetty-10.0.15; built: 2023-04-11T17:25:14.480Z; git: 68
ubuntu122.04.1
2023-06-27 23:32:27.496+0000 [id=1]     INFO    o.e.j.w.StandardDescriptorProcessor#visitServlet: NO JSP Support for /, did not find org.eclipse
2023-06-27 23:32:27.865+0000 [id=1]     INFO    o.e.j.s.s.DefaultSessionIdManager#doStart: Session workerName=node0
2023-06-27 23:32:33.005+0000 [id=1]     INFO    hudson.WebAppMain#contextInitialized: Jenkins home directory: /mnt/d/Jenkins/.jenkins found at:
2023-06-27 23:32:34.800+0000 [id=1]     INFO    o.e.j.s.handler.ContextHandler#doStart: Started w.@6ab72419{Jenkins v2.410,/,file:///mnt/d/Jenki
2023-06-27 23:32:34.854+0000 [id=1]     INFO    o.e.j.server.AbstractConnector#doStart: Started ServerConnector@282003e1{HTTP/1.1, (http/1.1)}{
2023-06-27 23:32:35.011+0000 [id=1]     INFO    org.eclipse.jetty.server.Server#doStart: Started Server@6b53e23f{STARTING}[10.0.15,sto=0] @19689
2023-06-27 23:32:35.013+0000 [id=25]    INFO    winstone.Logger#logInternal: Winstone Servlet Engine running: controlPort=disabled
2023-06-27 23:32:37.418+0000 [id=31]    INFO    jenkins.InitReactorRunner$1#onAttained: Started initialization
2023-06-27 23:33:22.413+0000 [id=34]    INFO    jenkins.InitReactorRunner$1#onAttained: Listed all plugins
2023-06-27 23:34:11.537+0000 [id=40]    INFO    jenkins.InitReactorRunner$1#onAttained: Prepared all plugins
2023-06-27 23:34:11.673+0000 [id=32]    INFO    jenkins.InitReactorRunner$1#onAttained: Started all plugins
2023-06-27 23:34:11.724+0000 [id=39]    INFO    jenkins.InitReactorRunner$1#onAttained: Augmented all extensions
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.codehaus.groovy.vmplugin.v7.Java7$1 (file:/mnt/d/Jenkins/.jenkins/war/WEB-INF/lib/groovy-all-2.4.21.ja
lass,int)
WARNING: Please consider reporting this to the maintainers of org.codehaus.groovy.vmplugin.v7.Java7$1
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
2023-06-27 23:34:17.455+0000 [id=32]    INFO    h.p.b.g.GlobalTimeOutConfiguration#load: global timeout not set
2023-06-27 23:34:17.795+0000 [id=32]    WARNING o.j.p.d.DockerBuilder$DescriptorImpl#<init>: Docker URL is not set, docker client won't be initi
2023-06-27 23:34:21.176+0000 [id=37]    INFO    jenkins.InitReactorRunner$1#onAttained: System config loaded
2023-06-27 23:34:21.177+0000 [id=30]    INFO    jenkins.InitReactorRunner$1#onAttained: System config adapted
2023-06-27 23:34:24.836+0000 [id=44]    INFO    jenkins.InitReactorRunner$1#onAttained: Loaded all jobs
2023-06-27 23:34:25.168+0000 [id=30]    INFO    jenkins.InitReactorRunner$1#onAttained: Configuration for all jobs updated
2023-06-27 23:34:26.285+0000 [id=59]    INFO    hudson.util.Retrier#start: Attempt #1 to do the action check updates server
2023-06-27 23:34:29.821+0000 [id=36]    INFO    jenkins.InitReactorRunner$1#onAttained: Completed initialization
2023-06-27 23:34:30.664+0000 [id=24]    INFO    hudson.lifecycle.Lifecycle#onReady: Jenkins is fully up and running
```

2. Docker Desktop for Windows

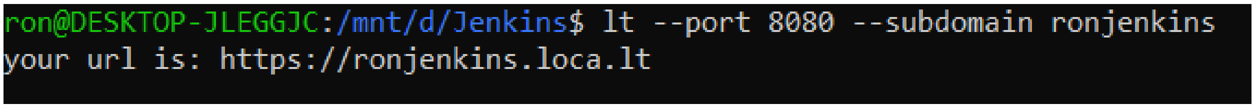


Images are used to run containers

You can either build an image from a Dockerfile, or download an existing image to run

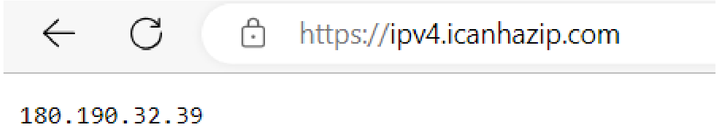
3. Localtunnel in WSL2

port = 8080
subdomain = ronjenkins
url = https://ronjenkins.loca.lt/



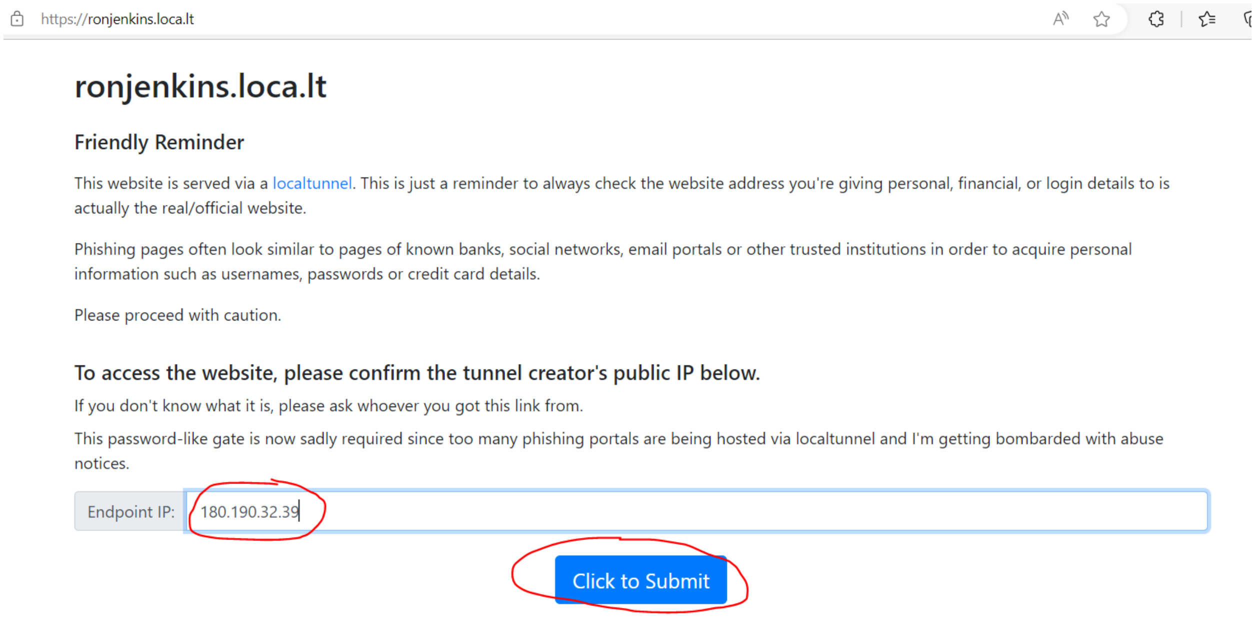
```
ron@DESKTOP-JLEGGJC:/mnt/d/Jenkins$ lt --port 8080 --subdomain ronjenkins
your url is: https://ronjenkins.loca.lt
```

Initialize Local Tunnel:
Get your Public IP via https://ipv4.icanhazip.com/



```
https://ipv4.icanhazip.com

180.190.32.39
```

Fill-out the Endpoint IP in the main website and use the retrieved Public IP as Endpoint IP. Then click “Click to Submit”.



https://ronjenkins.loca.lt

ronjenkins.loca.lt

Friendly Reminder

This website is served via a localtunnel. This is just a reminder to always check the website address you're giving personal, financial, or login details to is actually the real/official website.

Phishing pages often look similar to pages of known banks, social networks, email portals or other trusted institutions in order to acquire personal information such as usernames, passwords or credit card details.

Please proceed with caution.

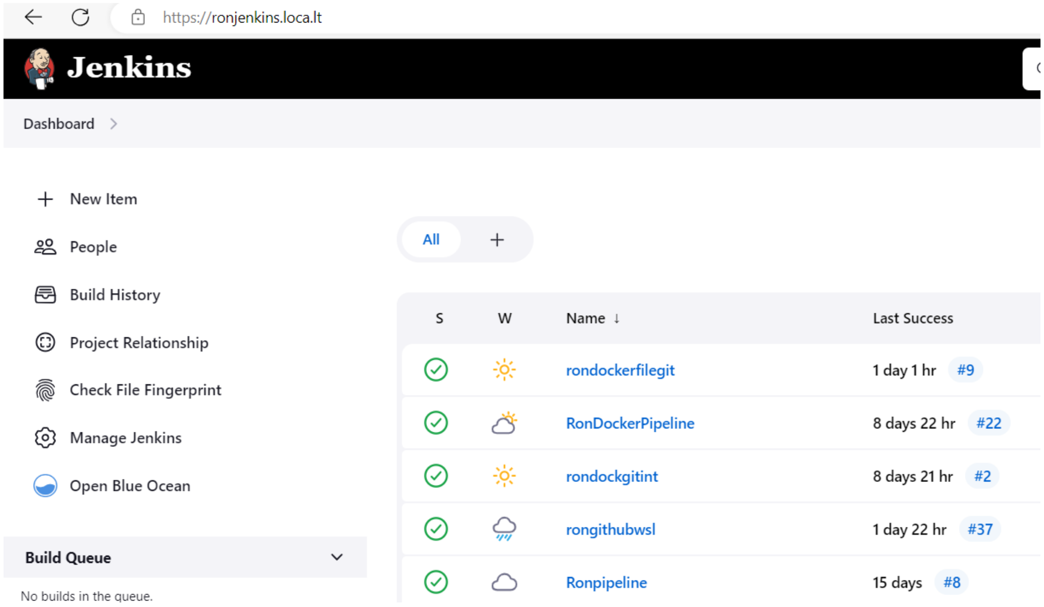
To access the website, please confirm the tunnel creator's public IP below.

If you don't know what it is, please ask whoever you got this link from.

This password-like gate is now sadly required since too many phishing portals are being hosted via localtunnel and I'm getting bombarded with abuse notices.

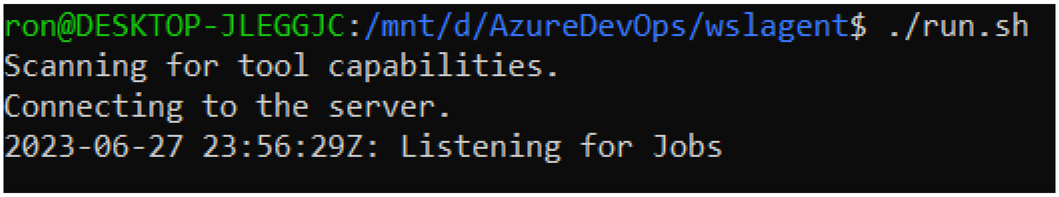
Endpoint IP: 180.190.32.39

Now Jenkins is available via Public Internet



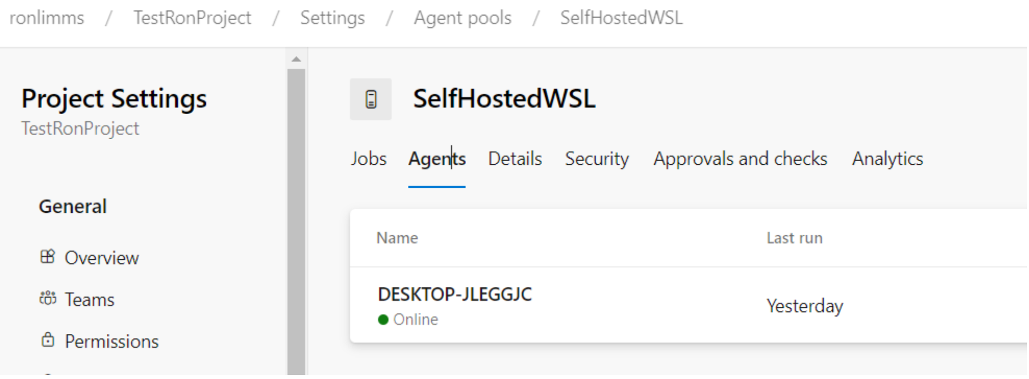
S	W	Name ↓	Last Success
✓	☀	rondockerfilegit	1 day 1 hr #9
✓	⛅	RonDockerPipeline	8 days 22 hr #22
✓	☀	rondockgitint	8 days 21 hr #2
✓	🌧	rongithubwsl	1 day 22 hr #37
✓	☁	Ronpipeline	15 days #8

4. Azure DevOps Self-Hosted



```
ron@DESKTOP-JLEGGJC:/mnt/d/AzureDevOps/wslagent$ ./run.sh
Scanning for tool capabilities.
Connecting to the server.
2023-06-27 23:56:29Z: Listening for Jobs
```

Verify in Azure DevOps Agent Pool in Agent tab that Self-hosted agent is online

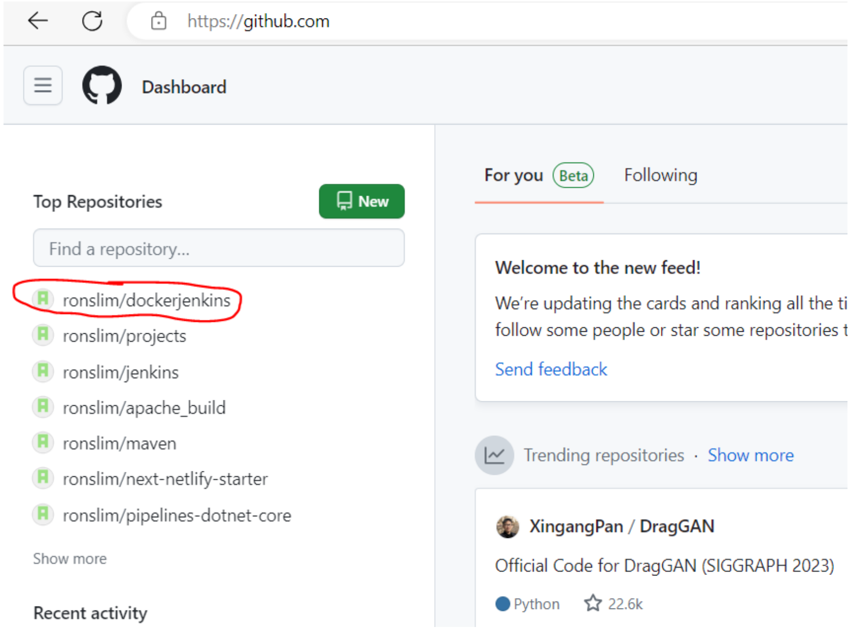


Name	Last run
DESKTOP-JLEGGJC ● Online	Yesterday

Additional Setup

5. Github Webhook for Jenkins

Go to the folder of your Jenkinsfile

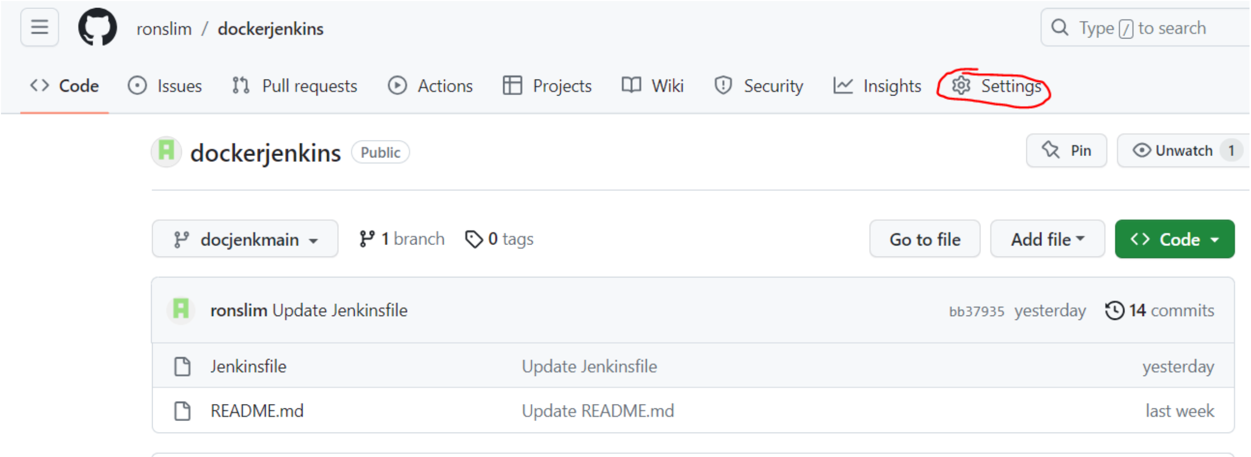


Welcome to the new feed!

We're updating the cards and ranking all the ti
follow some people or star some repositories t

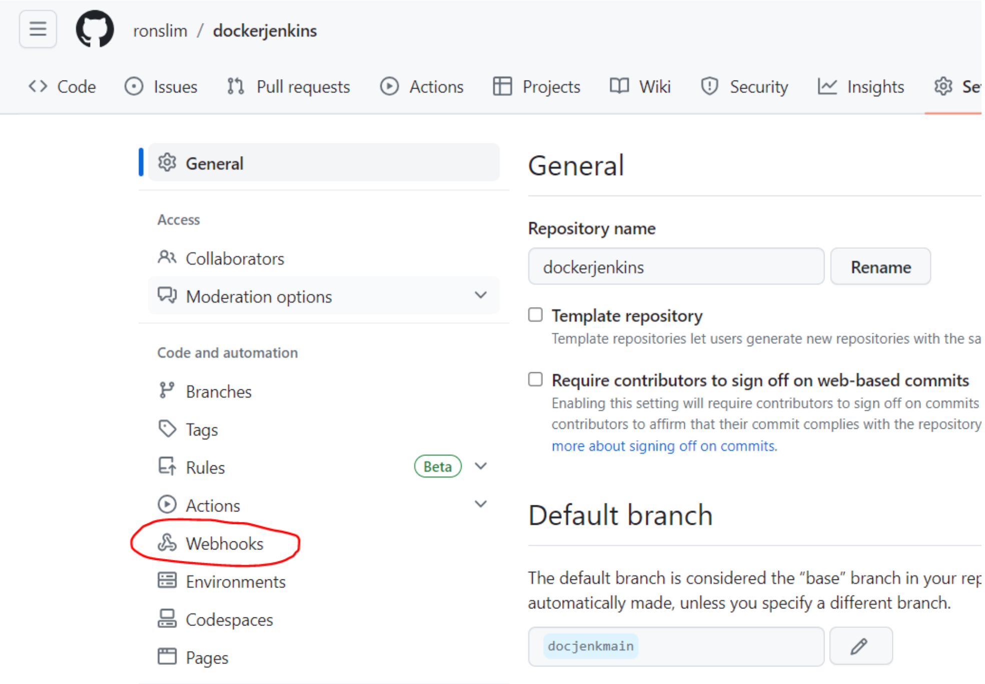
Official Code for DragGAN (SIGGRAPH 2023)

Then click Settings tab



ronslim Update Jenkinsfile	bb37935 yesterday	14 commits
Jenkinsfile	Update Jenkinsfile	yesterday
README.md	Update README.md	last week

In Settings page, click Webhooks



General

Repository name

dockerjenkins

□ Template repository

Template repositories let users generate new repositories with the sa

□ Require contributors to sign off on web-based commits

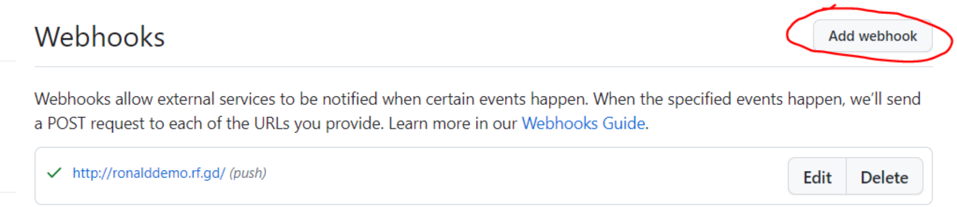
Enabling this setting will require contributors to sign off on commits contributors to affirm that their commit complies with the repository more about signing off on commits.

Default branch

The default branch is considered the "base" branch in your rep automatically made, unless you specify a different branch.

docjenkmain

In Webhooks page, click Add Webhook

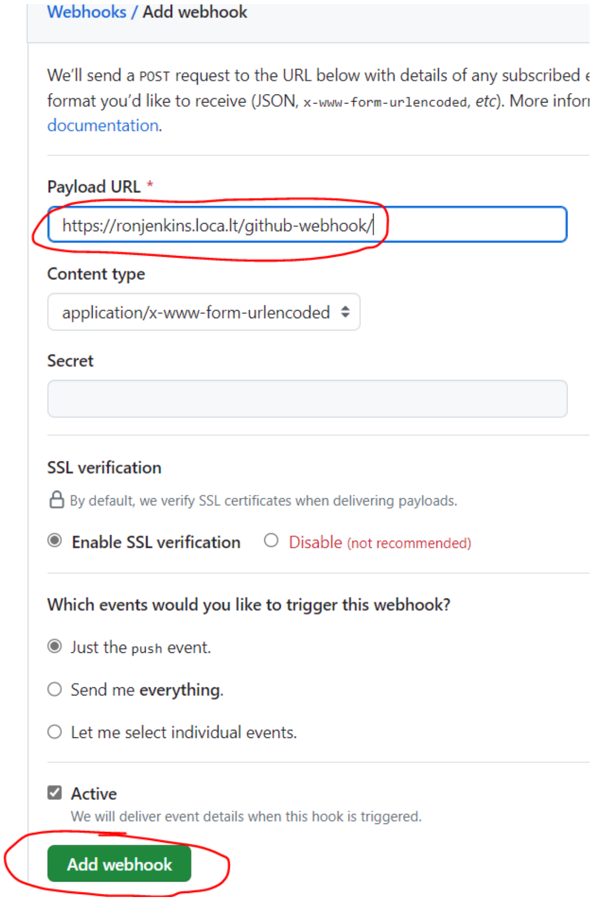


Webhooks

Webhooks allow external services to be notified when certain events happen. When the specified events happen, we'll send a POST request to each of the URLs you provide. Learn more in our Webhooks Guide.

✓ http://ronalddemo.rf.gd/ *(push)*

For Payload URL, it should be following format: **<Localtunnel link>/github-webhook/**
Then click Add webhook



Webhooks / Add webhook

We'll send a POST request to the URL below with details of any subscribed e
format you'd like to receive (JSON, `x-www-form-urlencoded`, *etc*). More infor
documentation.

Payload URL *

https://ronjenkins.loca.lt/github-webhook/

Content type

application/x-www-form-urlencoded

Secret

SSL verification

By default, we verify SSL certificates when delivering payloads.

● Enable SSL verification ○ Disable (not recommended)

Which events would you like to trigger this webhook?

● Just the `push` event.

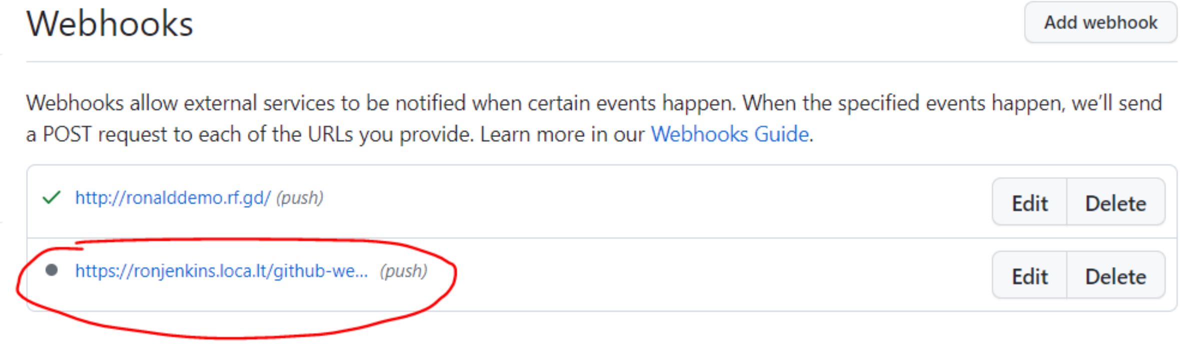
○ Send me **everything**.

○ Let me select individual events.

☑ Active

We will deliver event details when this hook is triggered.

Then webhook is already added to the list



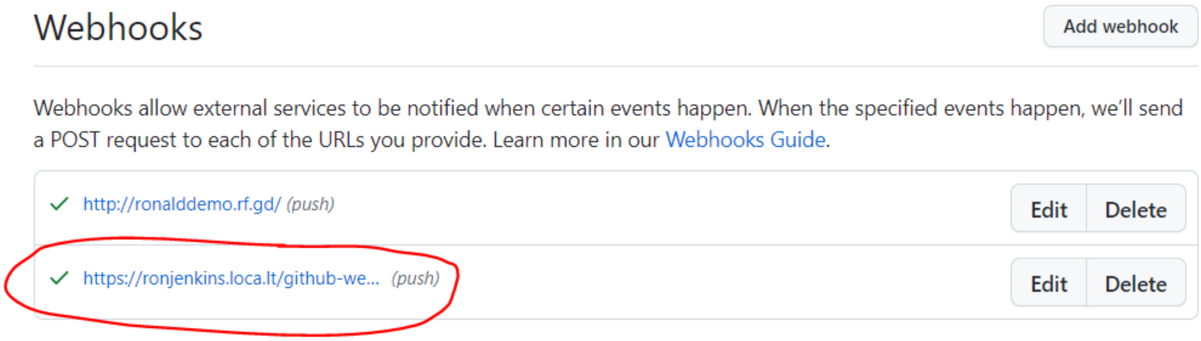
Webhooks

Webhooks allow external services to be notified when certain events happen. When the specified events happen, we'll send a POST request to each of the URLs you provide. Learn more in our Webhooks Guide.

✓ http://ronalddemo.rf.gd/ *(push)*

● https://ronjenkins.loca.lt/github-we... *(push)*

After refreshing page, webhook is already tested. If it is checked then it is successful



Webhooks

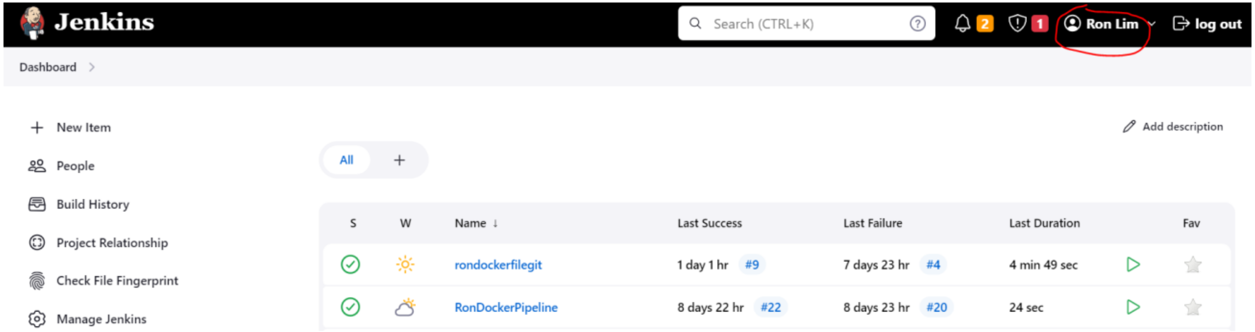
Webhooks allow external services to be notified when certain events happen. When the specified events happen, we'll send a POST request to each of the URLs you provide. Learn more in our Webhooks Guide.

✓ http://ronalddemo.rf.gd/ (push)

✓ https://ronjenkins.loca.lt/github-we... (push)

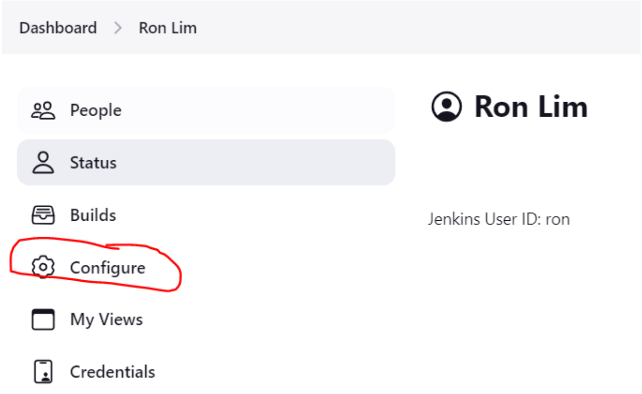
6. Jenkins API Token for Azure DevOps

Click your username, it will go to your main user page



S	W	Name ↓	Last Success	Last Failure	Last Duration	Fav
✓	☀	rondockerfilegit	1 day 1 hr #9	7 days 23 hr #4	4 min 49 sec	☆
✓	⛅	RonDockerPipeline	8 days 22 hr #22	8 days 23 hr #20	24 sec	☆

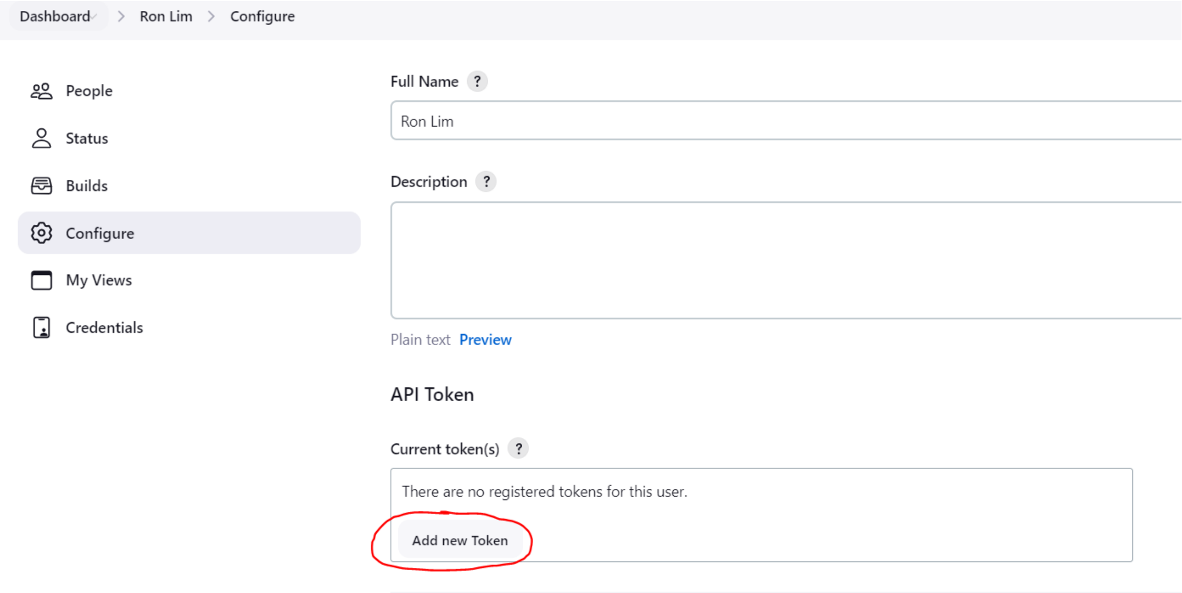
From your main user page, click Configure



Ron Lim

Jenkins User ID: ron

It will go to Configure page, go to the API Token section and click Add New Token



Full Name: Ron Lim

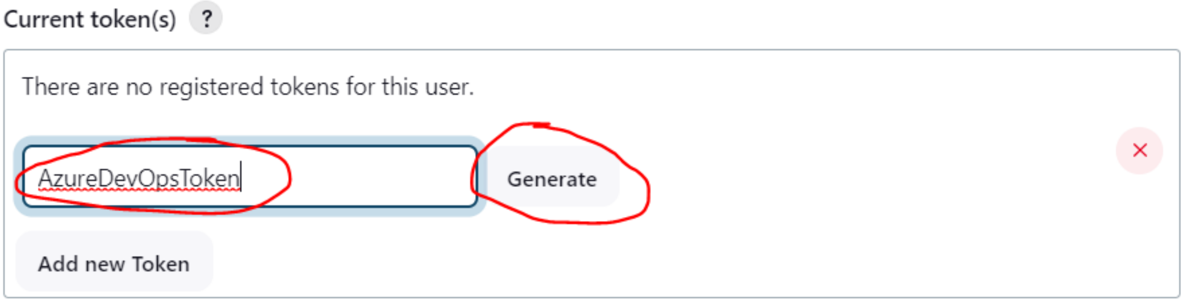
Description

API Token

Current token(s)

There are no registered tokens for this user.

Then specify token name and click Generate, it will generate the password

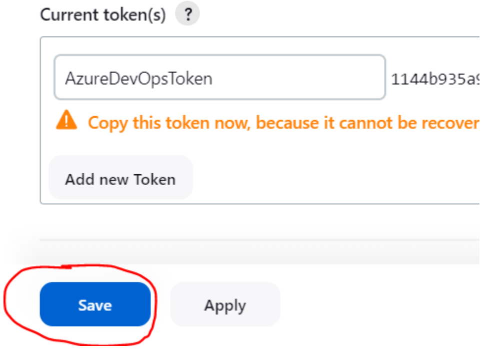


Current token(s)

There are no registered tokens for this user.

AzureDevOpsToken

Please save the password on the right side as this password is no longer visible afterwards. After saving password, click Save to save changes on new API Token



Current token(s)

AzureDevOpsToken 1144b935a

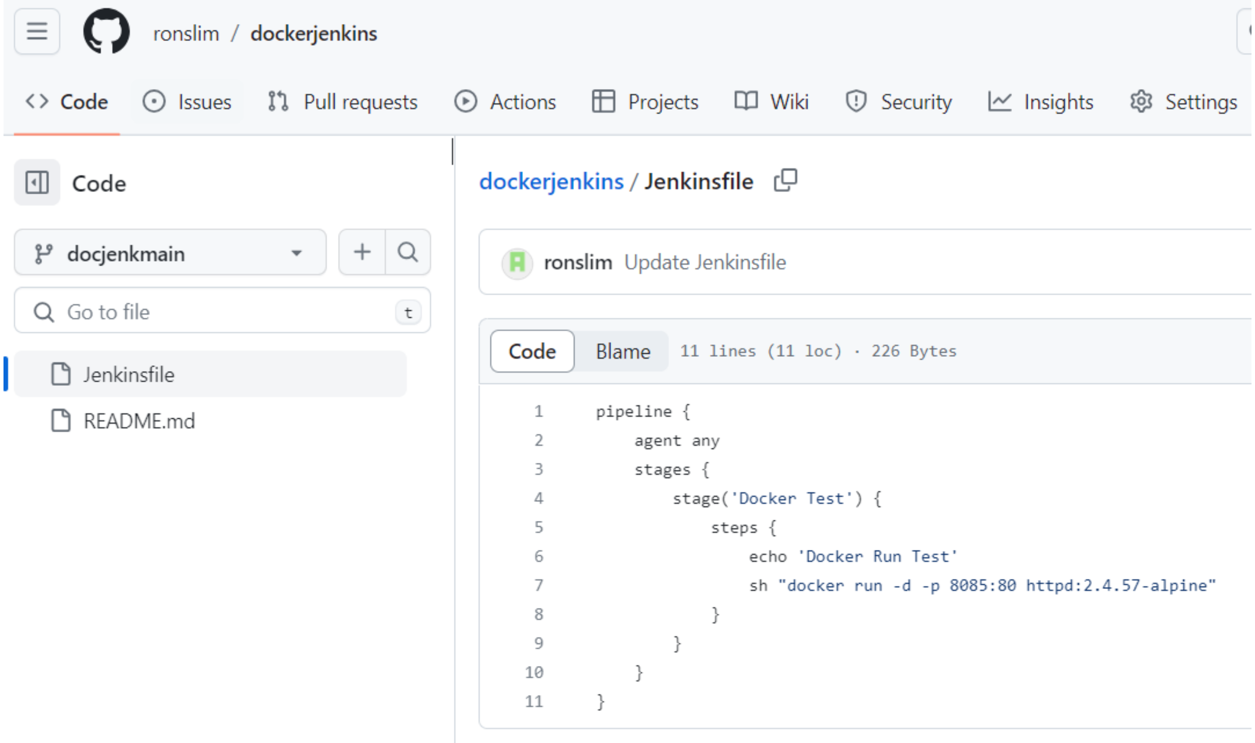
Copy this token now, because it cannot be recover

Build/Implementation

1. Jenkinsfile

Jenkinsfile should already be available in the folder. If not, then create a Jenkinsfile

Sample Jenkinsfile:

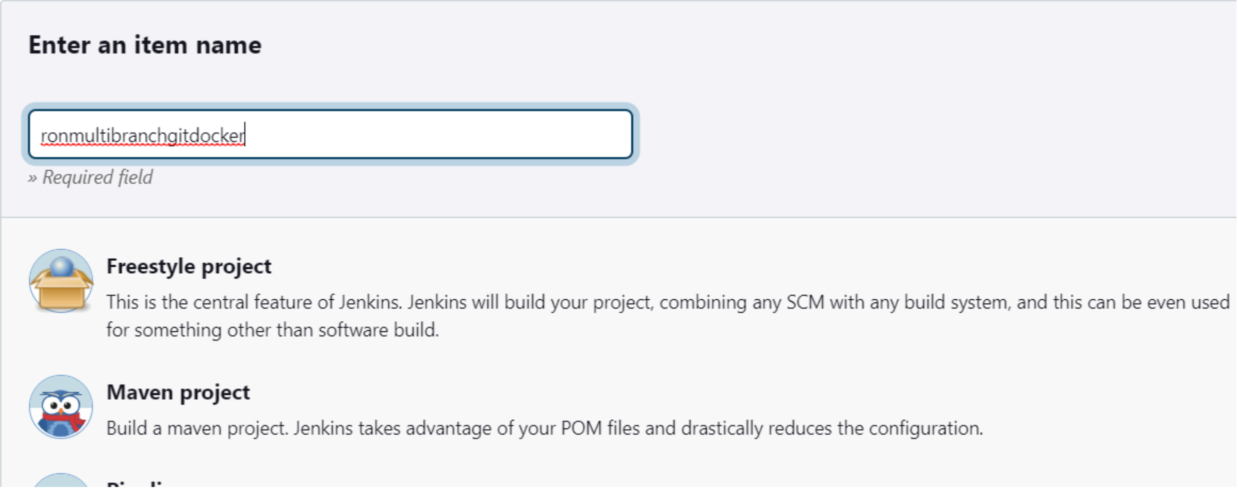


```
pipeline {
    agent any
    stages {
        stage('Docker Test') {
            steps {
                echo 'Docker Run Test'
                sh "docker run -d -p 8085:80 httpd:2.4.57-alpine"
            }
        }
    }
}
```

2. Jenkins Build

Now that the Jenkinsfile is available, we can start the build on Jenkins. On Jenkins Dashboard, click + New Item

Enter a name. I entered ronmultibranchgitdocker

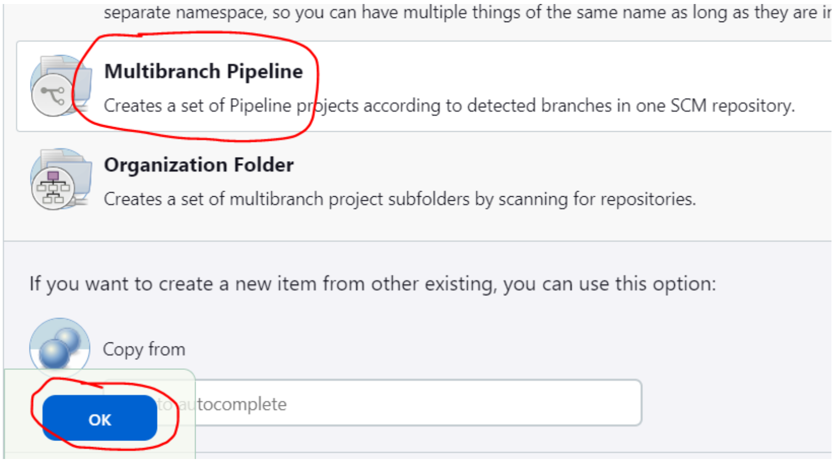


ronmultibranchgitdocker

Freestyle project
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.

Maven project
Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuration.

Then go down further and click Multibranch Pipeline and click OK button



separate namespace, so you can have multiple things of the same name as long as they are ir

Multibranch Pipeline

Creates a set of Pipeline projects according to detected branches in one SCM repository.

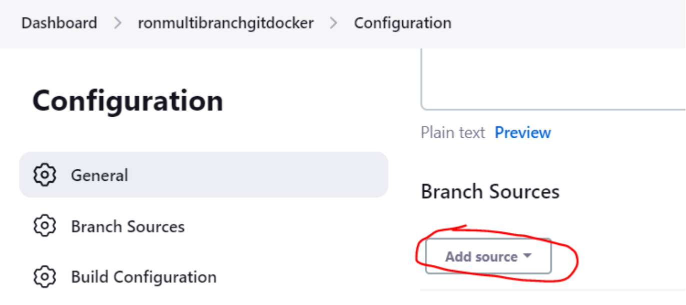
Organization Folder

Creates a set of multibranch project subfolders by scanning for repositories.

If you want to create a new item from other existing, you can use this option:

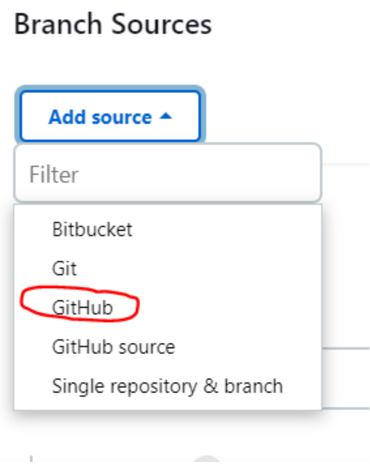
Copy from

In Branch Sources section, click Add Source then click Github



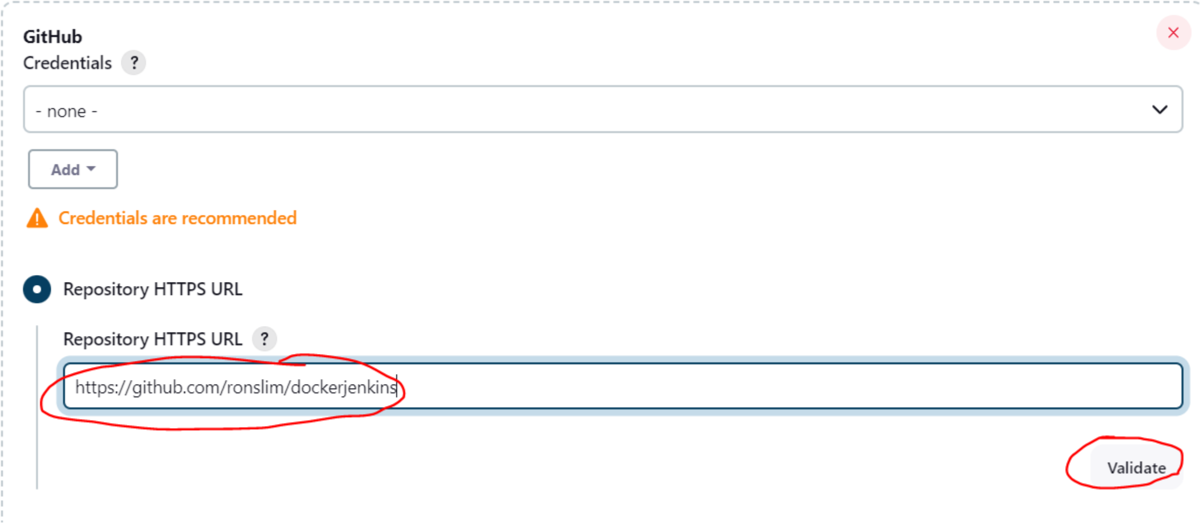
Dashboard > ronmultibranchgitdocker > Configuration

Configuration



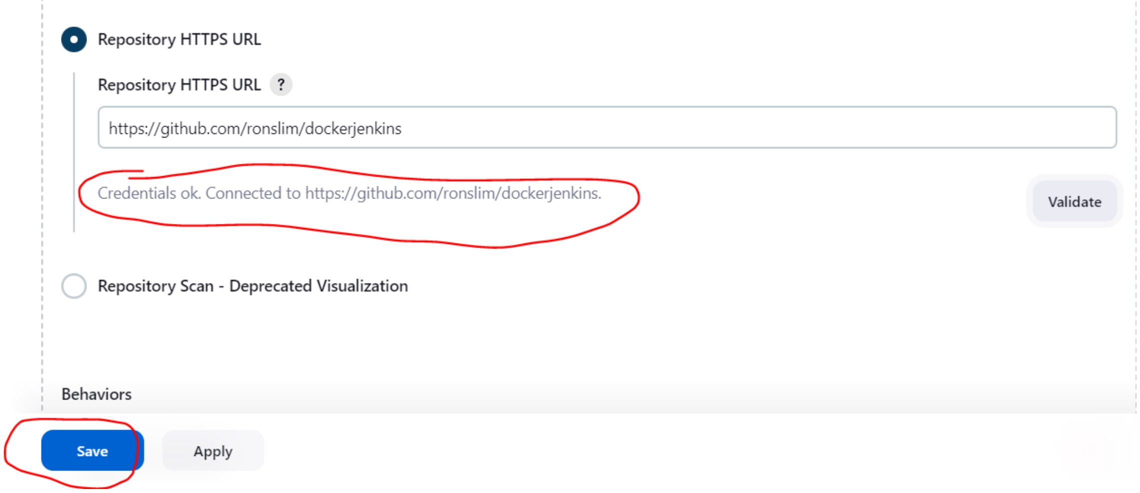
Branch Sources

Then specify Repository URL and click Validate to test that the connection to github folder is working.



https://github.com/ronslim/dockerjenkins

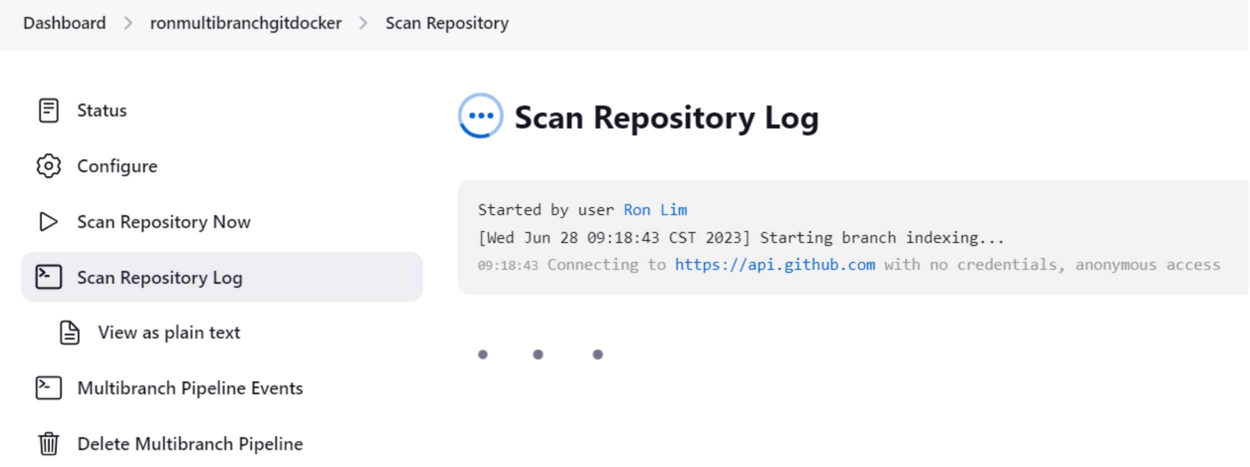
If the validate is success, then we can click Save to save changes to your pipeline



https://github.com/ronslim/dockerjenkins

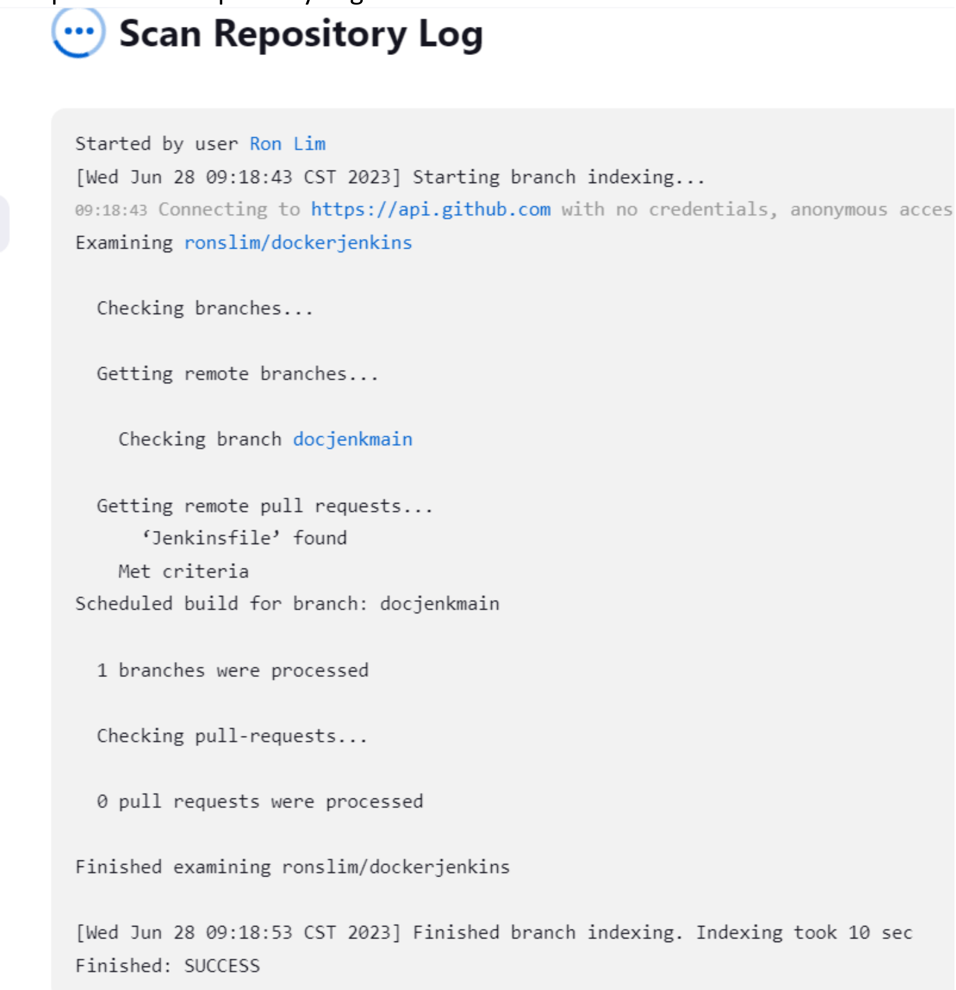
Credentials ok. Connected to https://github.com/ronslim/dockerjenkins.

After saving, it will automatically run the Scan Repository and go to Scan Repository Log page


Dashboard > ronmultibranchgitdocker > Scan Repository
Status
Configure
Scan Repository Now
Scan Repository Log
View as plain text
Multibranch Pipeline Events
Delete Multibranch Pipeline
Scan Repository Log

```
Started by user Ron Lim
[Wed Jun 28 09:18:43 CST 2023] Starting branch indexing...
09:18:43 Connecting to https://api.github.com with no credentials, anonymous access
```

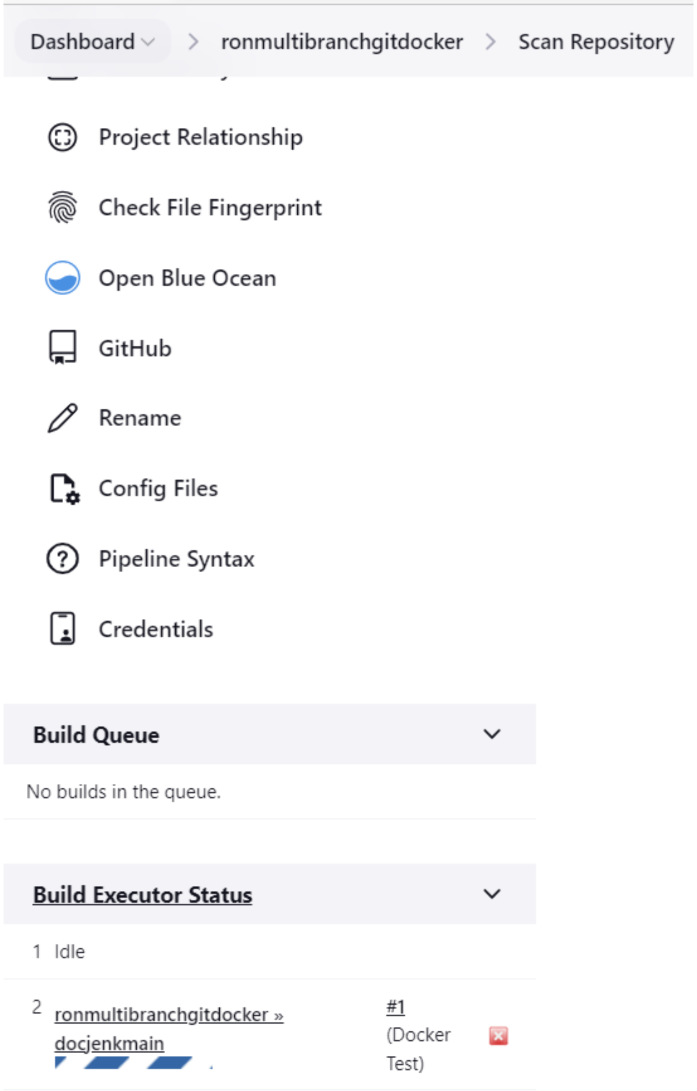
Sample of Scan Repository Log:



Scan Repository Log

```
Started by user Ron Lim
[Wed Jun 28 09:18:43 CST 2023] Starting branch indexing...
09:18:43 Connecting to https://api.github.com with no credentials, anonymous acces
Examining ronslim/dockerjenkins

  Checking branches...

  Getting remote branches...

    Checking branch docjenkmain

  Getting remote pull requests...
      'Jenkinsfile' found
    Met criteria
Scheduled build for branch: docjenkmain

  1 branches were processed

  Checking pull-requests...

  0 pull requests were processed

Finished examining ronslim/dockerjenkins

[Wed Jun 28 09:18:53 CST 2023] Finished branch indexing. Indexing took 10 sec
Finished: SUCCESS
```

On the same page, go to Build Executor Status and click #1 or jobname to monitor the build



Build Queue

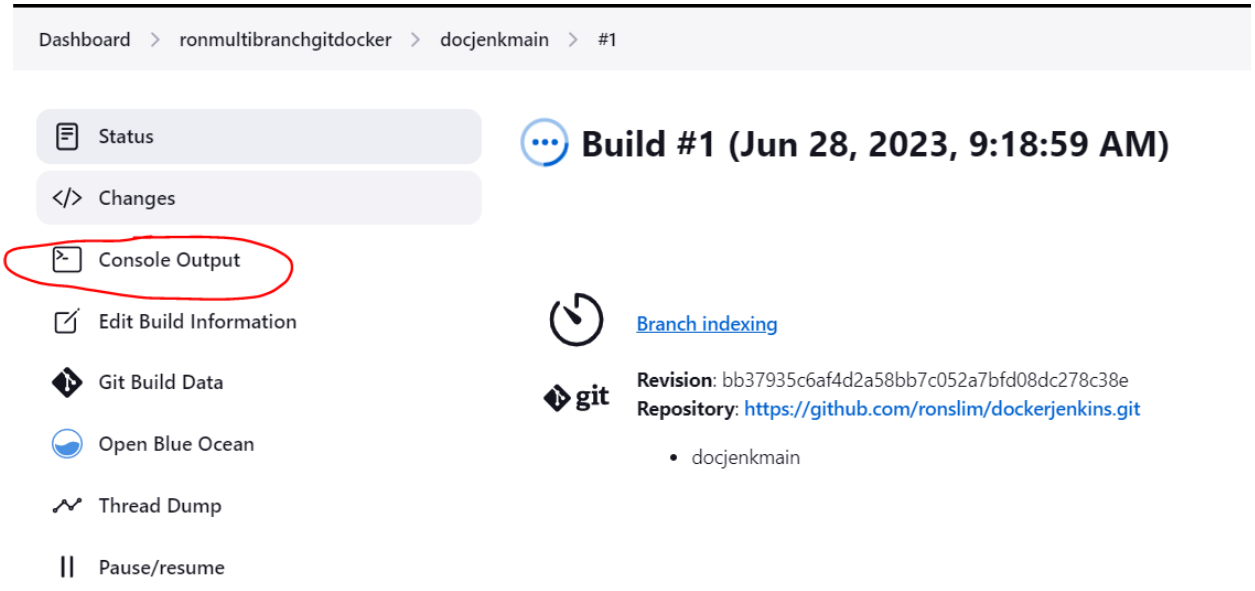
No builds in the queue.

Build Executor Status

1 Idle

2 ronmultibranchgitdocker » docjenkmain #1 (Docker Test)

Then click Console Output to monitor job in real time

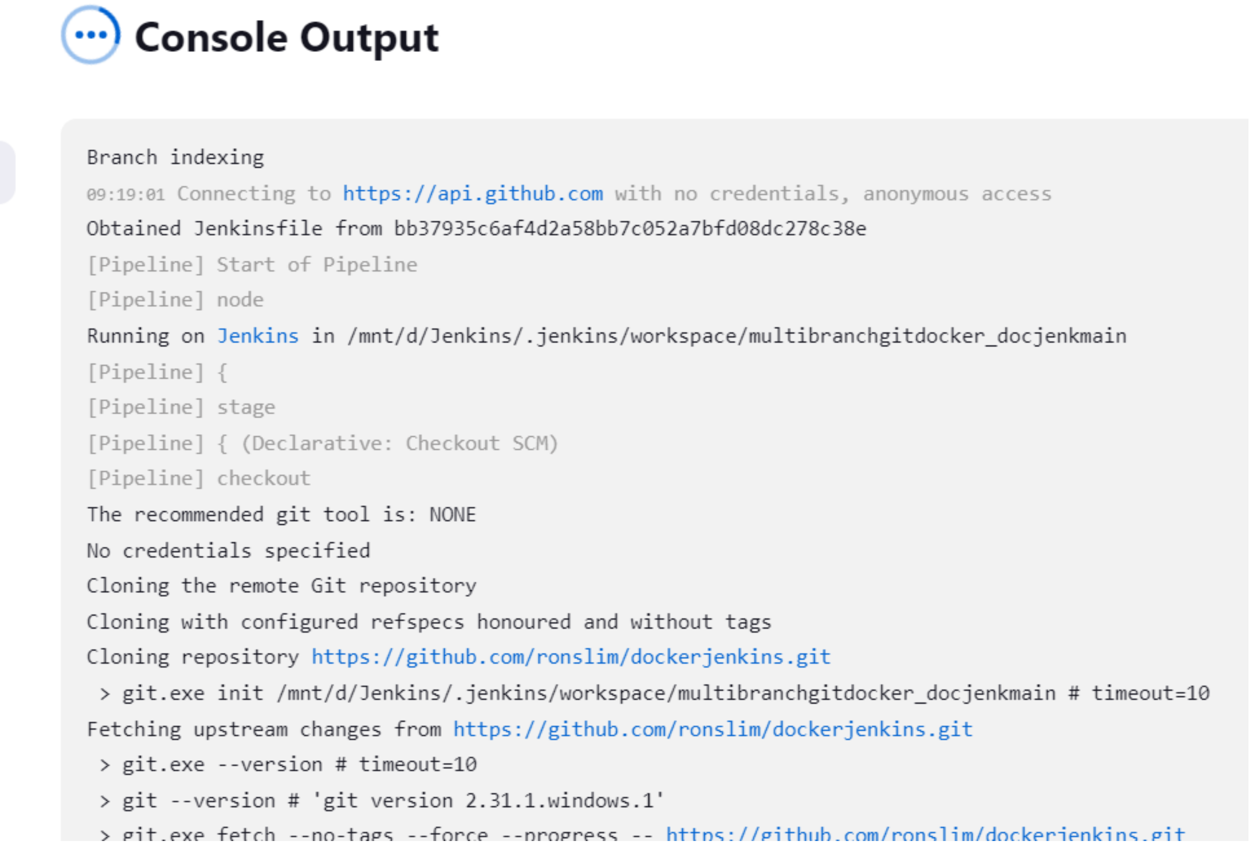


Build #1 (Jun 28, 2023, 9:18:59 AM)

Revision: bb37935c6af4d2a58bb7c052a7bfd08dc278c38e
Repository: https://github.com/ronslim/dockerjenkins.git

- docjenkmain

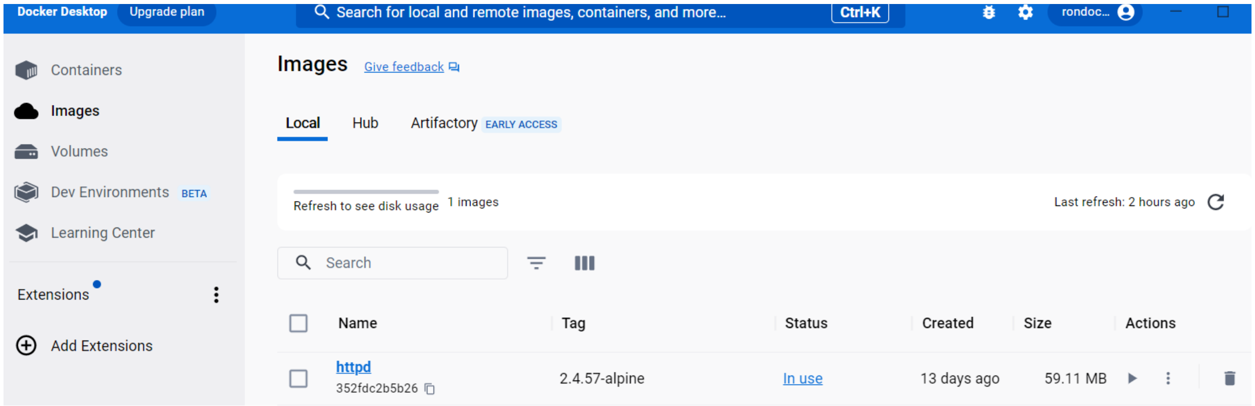
Then continue monitoring until the build job is finished



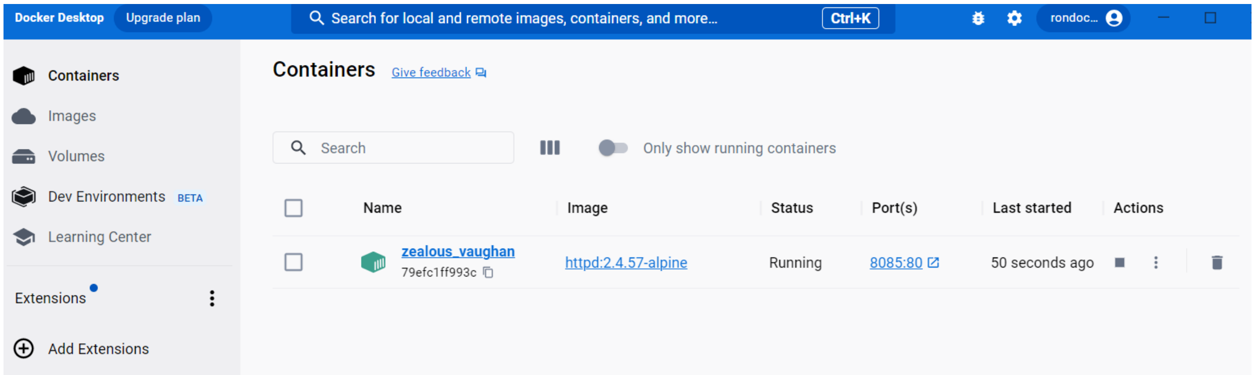
Console Output

```
Branch indexing
09:19:01 Connecting to https://api.github.com with no credentials, anonymous access
Obtained Jenkinsfile from bb37935c6af4d2a58bb7c052a7bfd08dc278c38e
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /mnt/d/Jenkins/.jenkins/workspace/multibranchgitdocker_docjenkmain
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Declarative: Checkout SCM)
[Pipeline] checkout
The recommended git tool is: NONE
No credentials specified
Cloning the remote Git repository
Cloning with configured refspecs honoured and without tags
Cloning repository https://github.com/ronslim/dockerjenkins.git
 > git.exe init /mnt/d/Jenkins/.jenkins/workspace/multibranchgitdocker_docjenkmain # timeout=10
Fetching upstream changes from https://github.com/ronslim/dockerjenkins.git
 > git.exe --version # timeout=10
 > git --version # 'git version 2.31.1.windows.1'
 > git.exe fetch --no-tags --force --progress -- https://github.com/ronslim/dockerjenkins.git
```

Also, notice that the Docker Desktop for Windows already have image and container



Name	Tag	Status	Created	Size	Actions
httpd 352fdc2b5b26	2.4.57-alpine	In use	13 days ago	59.11 MB	



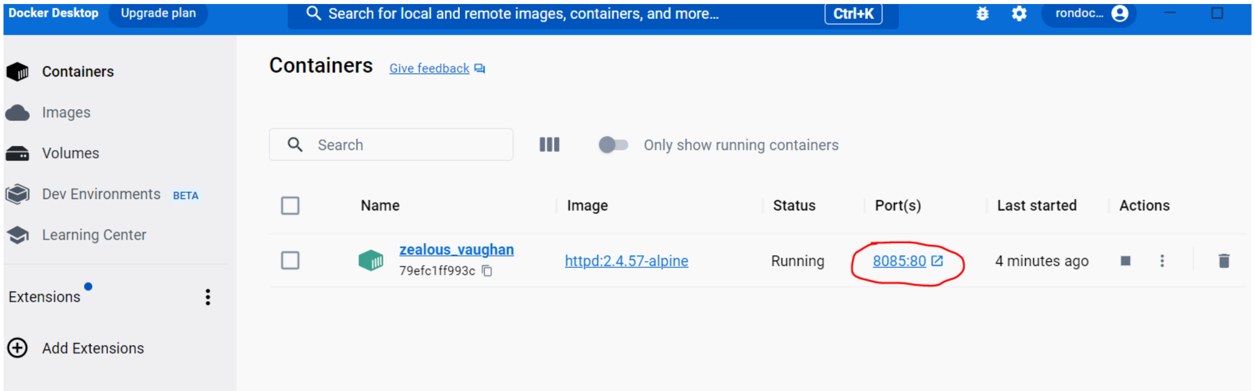
Name	Image	Status	Port(s)	Last started	Actions
zealous_vaughan 79efc1ff993c	httpd:2.4.57-alpine	Running	8085:80	50 seconds ago	

Console Log Output sample full (Success):

```
Branch indexing
09:19:01 Connecting to https://api.github.com with no credentials, anonymous access
Obtained Jenkinsfile from bb37935c6af4d2a58bb7c052a7bfd08dc278c38e
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /mnt/d/Jenkins/.jenkins/workspace/multibranchgitdocker_docjenkmain
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Declarative: Checkout SCM)
[Pipeline] checkout
The recommended git tool is: NONE
No credentials specified
Cloning the remote Git repository
Cloning with configured refspecs honoured and without tags
Cloning repository https://github.com/ronslim/dockerjenkins.git
 > git.exe init /mnt/d/Jenkins/.jenkins/workspace/multibranchgitdocker_docjenkmain #
timeout=10
Fetching upstream changes from https://github.com/ronslim/dockerjenkins.git
 > git.exe --version # timeout=10
 > git --version # 'git version 2.31.1.windows.1'
 > git.exe fetch --no-tags --force --progress -- https://github.com/ronslim/dockerjenkins.git
+refs/heads/docjenkmain:refs/remotes/origin/docjenkmain # timeout=10
 > git.exe config remote.origin.url https://github.com/ronslim/dockerjenkins.git # timeout=10
 > git.exe config --add remote.origin.fetch
+refs/heads/docjenkmain:refs/remotes/origin/docjenkmain # timeout=10
Avoid second fetch
Checking out Revision bb37935c6af4d2a58bb7c052a7bfd08dc278c38e (docjenkmain)
```

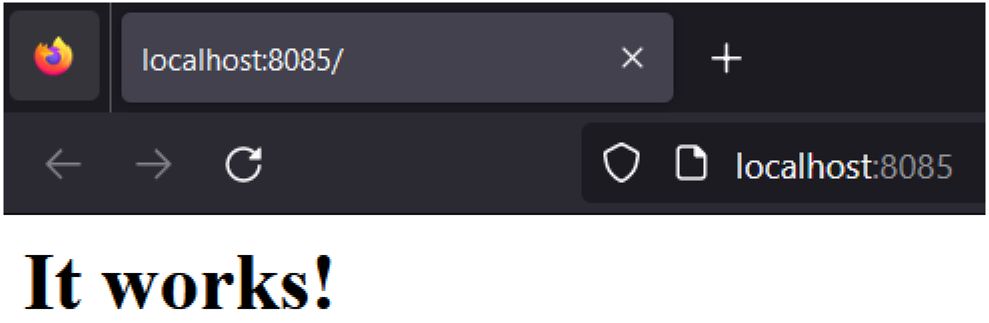
```
 > git.exe config core.sparsecheckout # timeout=10
 > git.exe checkout -f bb37935c6af4d2a58bb7c052a7bfd08dc278c38e # timeout=10
Commit 'AnyObjectId[bb37935c6af4d2a58bb7c052a7bfd08dc278c38e]' not found - no commit
message to print
First time build. Skipping changelog.
[Pipeline] }
[Pipeline] // stage
[Pipeline] withEnv
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Docker Test)
[Pipeline] echo
Docker Run Test
[Pipeline] sh
+ docker run -d -p 8085:80 httpd:2.4.57-alpine
Unable to find image 'httpd:2.4.57-alpine' locally
2.4.57-alpine: Pulling from library/httpd
31e352740f53: Pulling fs layer
ec139fe14694: Pulling fs layer
fd0a7d757a33: Pulling fs layer
8f3d6aa86b7c: Pulling fs layer
a1adb2f7e6ea: Pulling fs layer
4d127a67555b: Pulling fs layer
4d127a67555b: Waiting
8f3d6aa86b7c: Waiting
a1adb2f7e6ea: Waiting
ec139fe14694: Verifying Checksum
ec139fe14694: Download complete
fd0a7d757a33: Download complete
31e352740f53: Download complete
4d127a67555b: Verifying Checksum
4d127a67555b: Download complete
a1adb2f7e6ea: Download complete
31e352740f53: Pull complete
ec139fe14694: Pull complete
8f3d6aa86b7c: Download complete
fd0a7d757a33: Pull complete
8f3d6aa86b7c: Pull complete
a1adb2f7e6ea: Pull complete
4d127a67555b: Pull complete
Digest: sha256:08792333fe72e072ccc7d658099c665d8261a4d5f960b0adcbafdcc0780eb66d
Status: Downloaded newer image for httpd:2.4.57-alpine
79efc1ff993c139cba1f61a90343c5ad4fa4bc340d94f5d4e08f7c3ffa14c3e3
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

After the build success, test the webpage by clicking the port



Name	Image	Status	Port(s)	Last started	Actions
zealous_vaughan 79efc1ff993c	httpd:2.4.57-alpine	Running	8085:80	4 minutes ago	

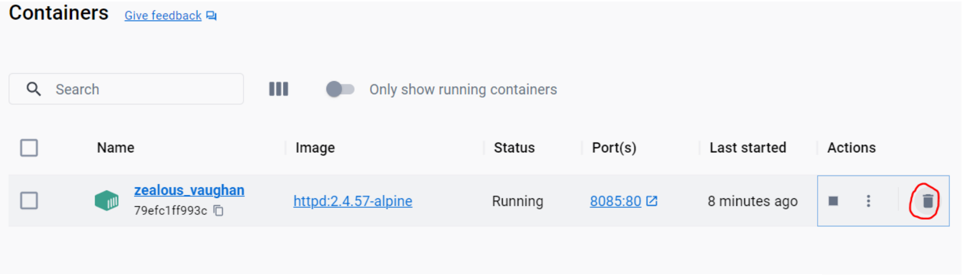
Notice that the webpage is displayed successfully



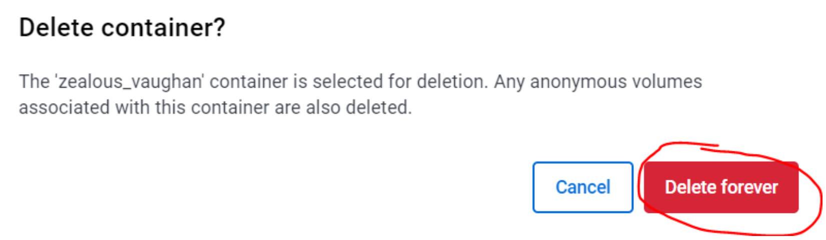
It works!

It depends on you if you want a clean re-execution of Jenkinsfile or do not delete the image. We need to delete the container as we cannot run with the same image on existing container.

Cleaning container



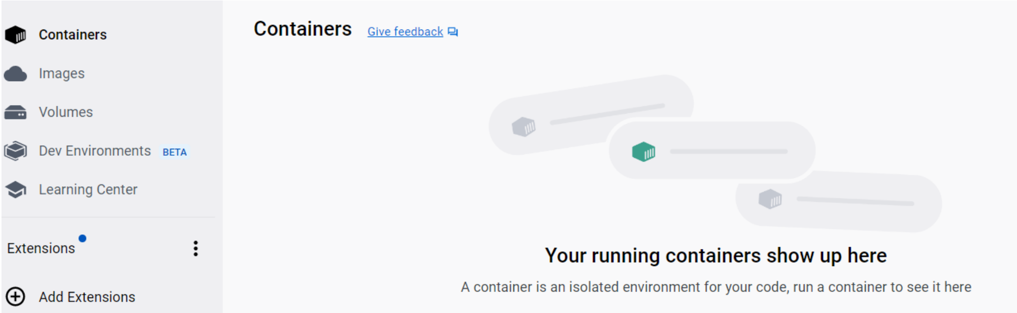
Name	Image	Status	Port(s)	Last started	Actions
zealous_vaughan 79efc1ff993c	httpd:2.4.57-alpine	Running	8085:80	8 minutes ago	



Delete container?

The 'zealous_vaughan' container is selected for deletion. Any anonymous volumes associated with this container are also deleted.

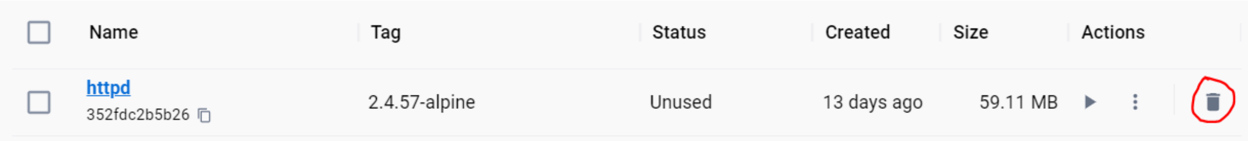
Container is now empty



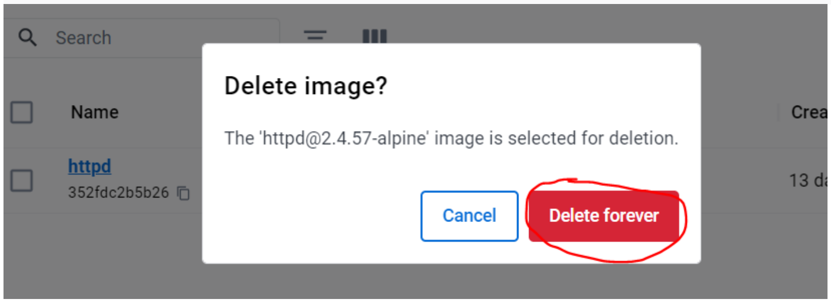
Your running containers show up here

A container is an isolated environment for your code, run a container to see it here

Cleaning image



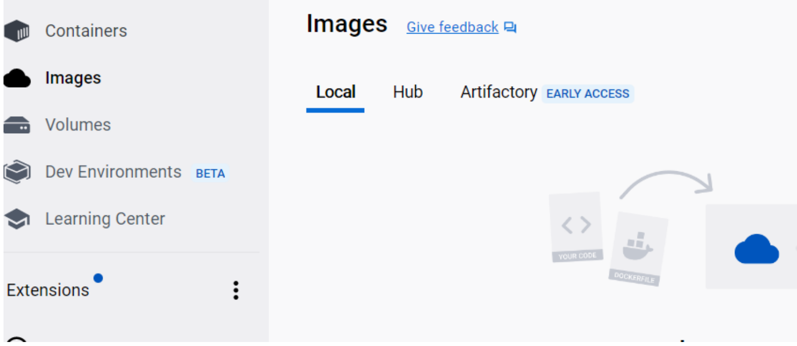
□	Name	Tag	Status	Created	Size	Actions
□	httpd 352fdc2b5b26	2.4.57-alpine	Unused	13 days ago	59.11 MB	▶ ⋮ 🗑



Delete image?

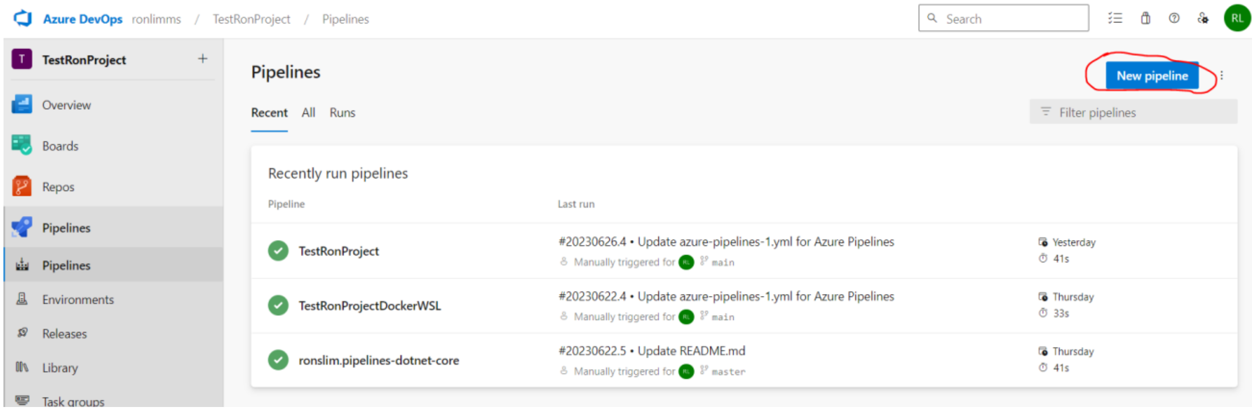
The 'httpd@2.4.57-alpine' image is selected for deletion.

Image is now empty



3. Azure DevOps Build

Go to Pipelines and click New Pipeline

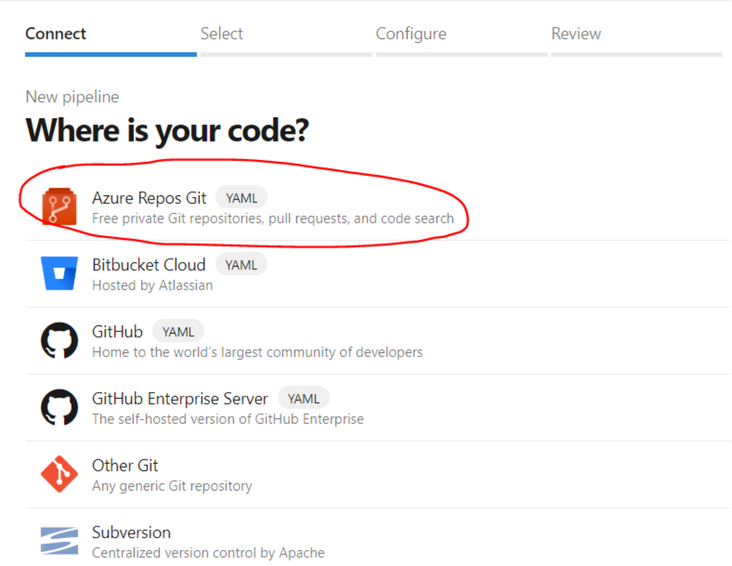


Pipelines

Recently run pipelines

Pipeline	Last run	
TestRonProject	#20230626.4 • Update azure-pipelines-1.yml for Azure Pipelines Manually triggered for RL main	Yesterday 41s
TestRonProjectDockerWSL	#20230622.4 • Update azure-pipelines-1.yml for Azure Pipelines Manually triggered for RL main	Thursday 33s
ronslim.pipelines-dotnet-core	#20230622.5 • Update README.md Manually triggered for RL master	Thursday 41s

Choose Azure Repos Git

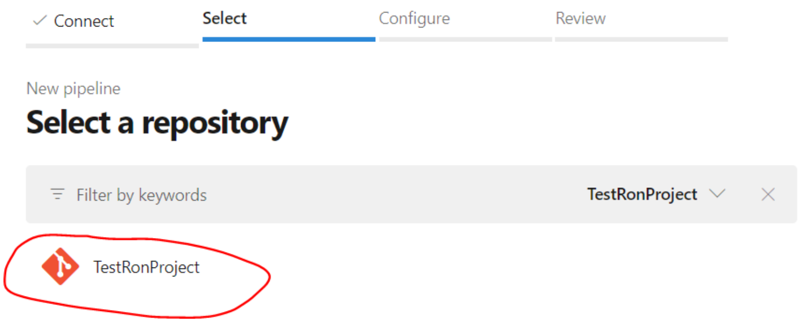


New pipeline

Where is your code?

- Azure Repos Git YAML — Free private Git repositories, pull requests, and code search
- Bitbucket Cloud YAML — Hosted by Atlassian
- GitHub YAML — Home to the world's largest community of developers
- GitHub Enterprise Server YAML — The self-hosted version of GitHub Enterprise
- Other Git — Any generic Git repository
- Subversion — Centralized version control by Apache

Click the Repository or choose a repository

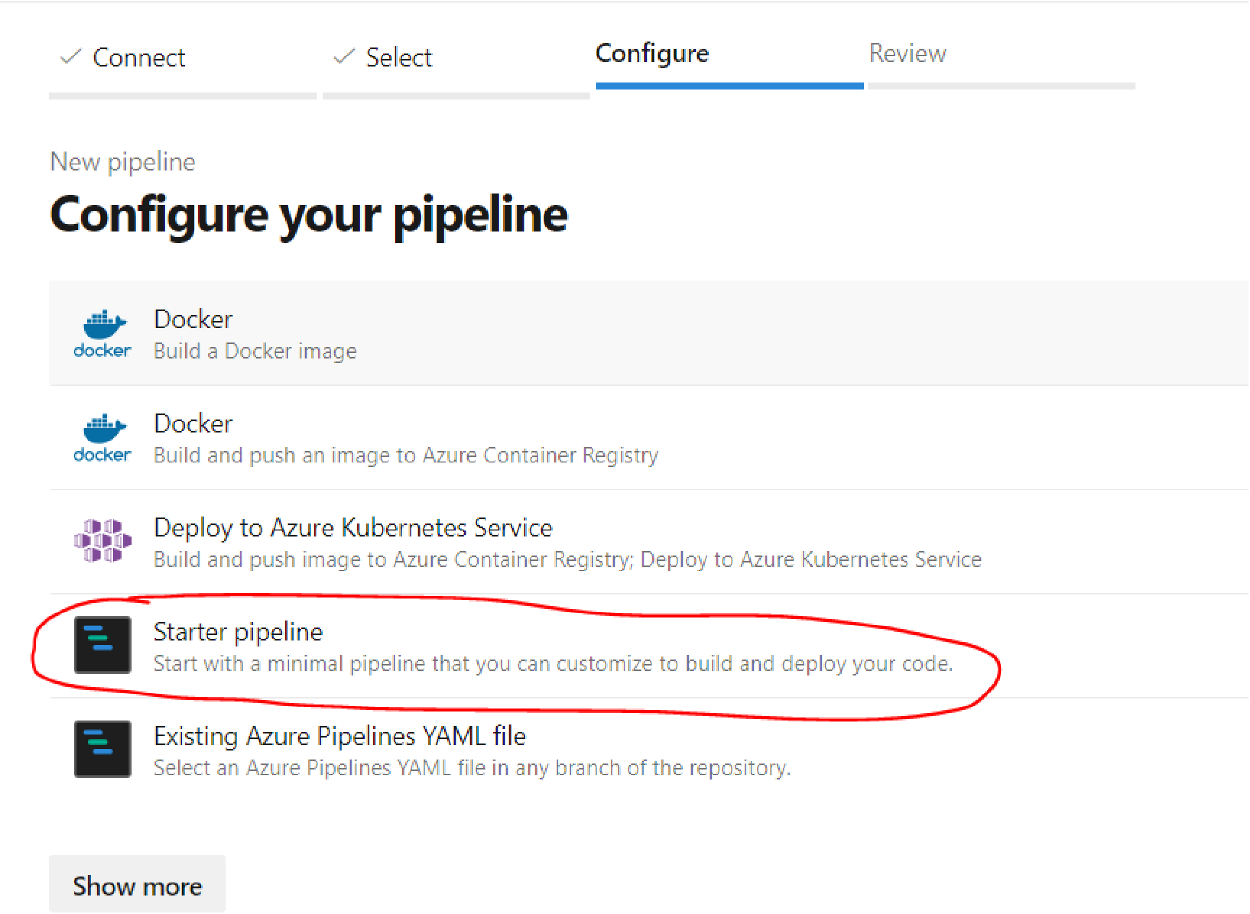


New pipeline

Select a repository

TestRonProject

Click Starter pipeline as we will only use sample build to test integration between Azure DevOps and Jenkins



✓ Connect ✓ Select Configure Review

New pipeline

Configure your pipeline

Docker
Build a Docker image

Docker
Build and push an image to Azure Container Registry

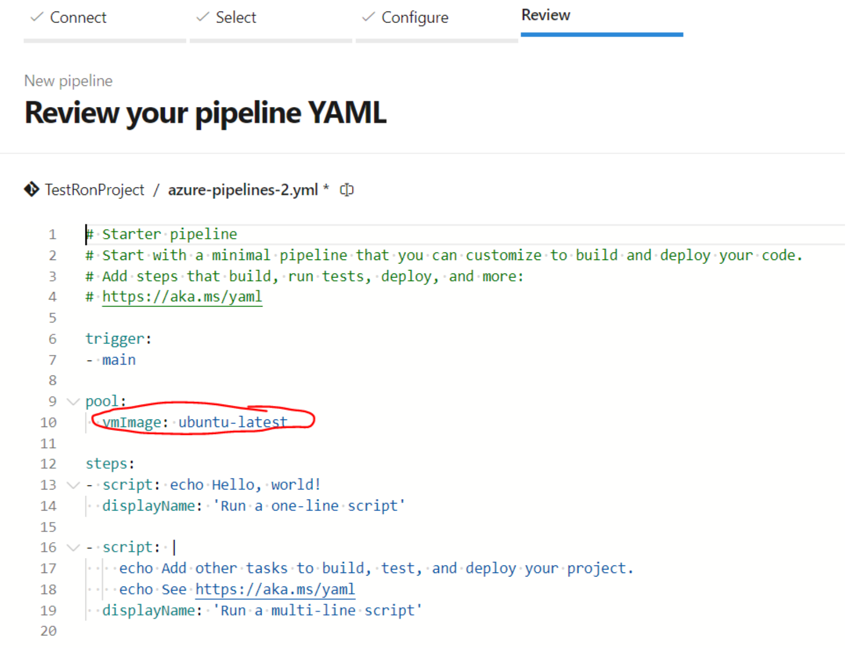
Deploy to Azure Kubernetes Service
Build and push image to Azure Container Registry; Deploy to Azure Kubernetes Service

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.

Since we will use the self-hosted agent, we need to change the pool section

Initial:



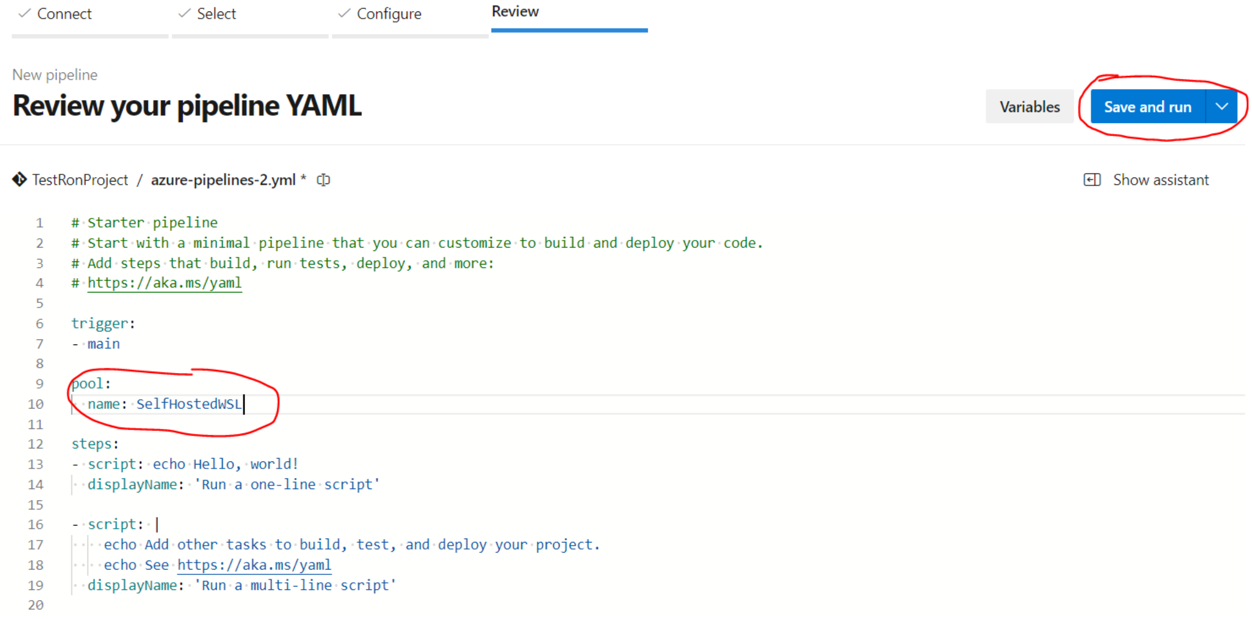
New pipeline

Review your pipeline YAML

TestRonProject / azure-pipelines-2.yml *

```
# Starter pipeline
# Start with a minimal pipeline that you can customize to build and deploy your code.
# Add steps that build, run tests, deploy, and more:
# https://aka.ms/yaml

trigger:
- main

pool:
  vmImage: ubuntu-latest

steps:
- script: echo Hello, world!
  displayName: 'Run a one-line script'

- script: |
    echo Add other tasks to build, test, and deploy your project.
    echo See https://aka.ms/yaml
  displayName: 'Run a multi-line script'

```

Modified to use self-hosted. Then click Save and run to test the initial build



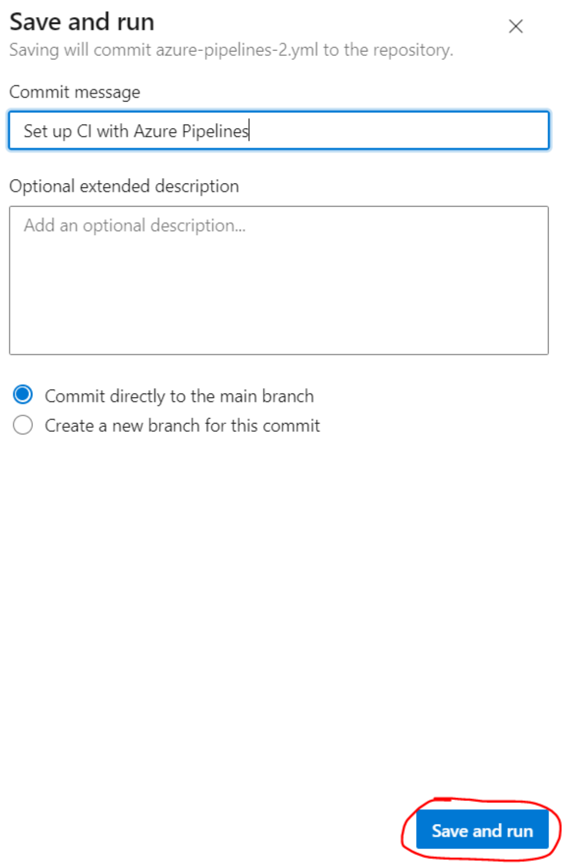
New pipeline

Review your pipeline YAML

TestRonProject / azure-pipelines-2.yml *

```
# Starter pipeline
# Start with a minimal pipeline that you can customize to build and deploy your code.
# Add steps that build, run tests, deploy, and more:
# https://aka.ms/yaml

trigger:
- main

pool:
  name: SelfHostedWSL

steps:
- script: echo Hello, world!
  displayName: 'Run a one-line script'

- script: |
    echo Add other tasks to build, test, and deploy your project.
    echo See https://aka.ms/yaml
  displayName: 'Run a multi-line script'

```

Click Save and run



Save and run

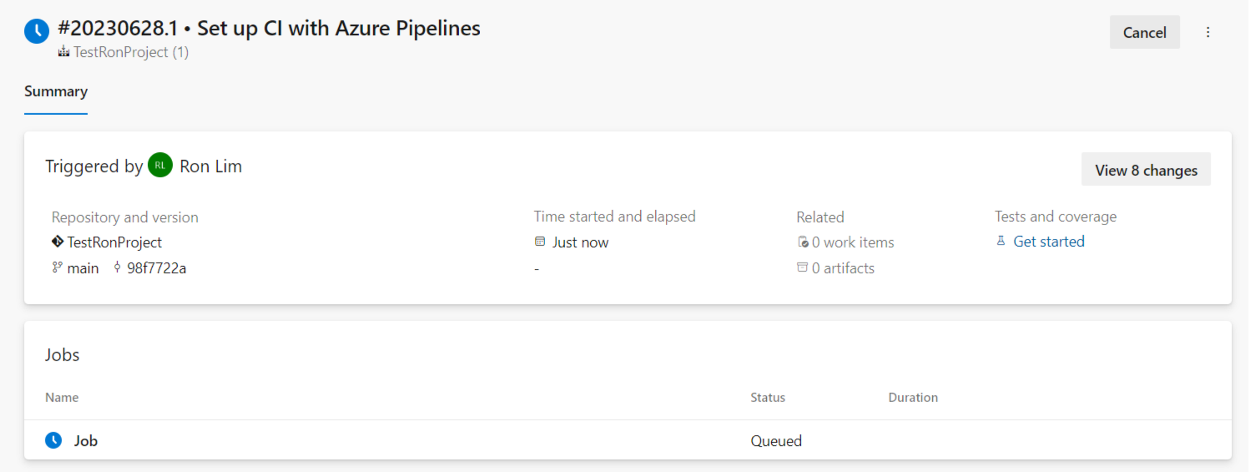
Saving will commit azure-pipelines-2.yml to the repository.

Commit message: Set up CI with Azure Pipelines

Optional extended description: Add an optional description...

● Commit directly to the main branch
○ Create a new branch for this commit

Then job is queued for running



#20230628.1 • Set up CI with Azure Pipelines
TestRonProject (1)

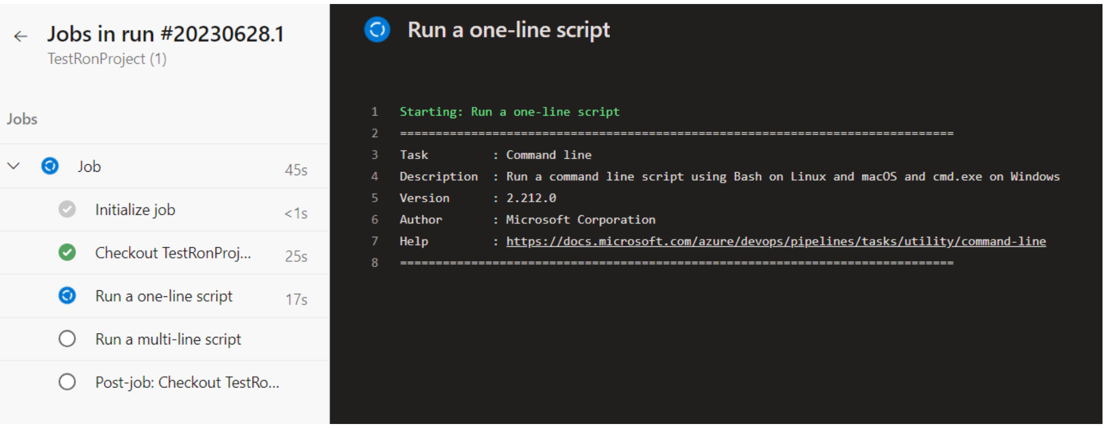
Triggered by Ron Lim

Repository and version	Time started and elapsed	Related	Tests and coverage
TestRonProject	Just now	0 work items	Get started
main 98f7722a	-	0 artifacts	

Jobs

Name	Status	Duration
Job	Queued	

Continue monitoring by clicking the Job word until the build job is done



Jobs in run #20230628.1

TestRonProject (1)

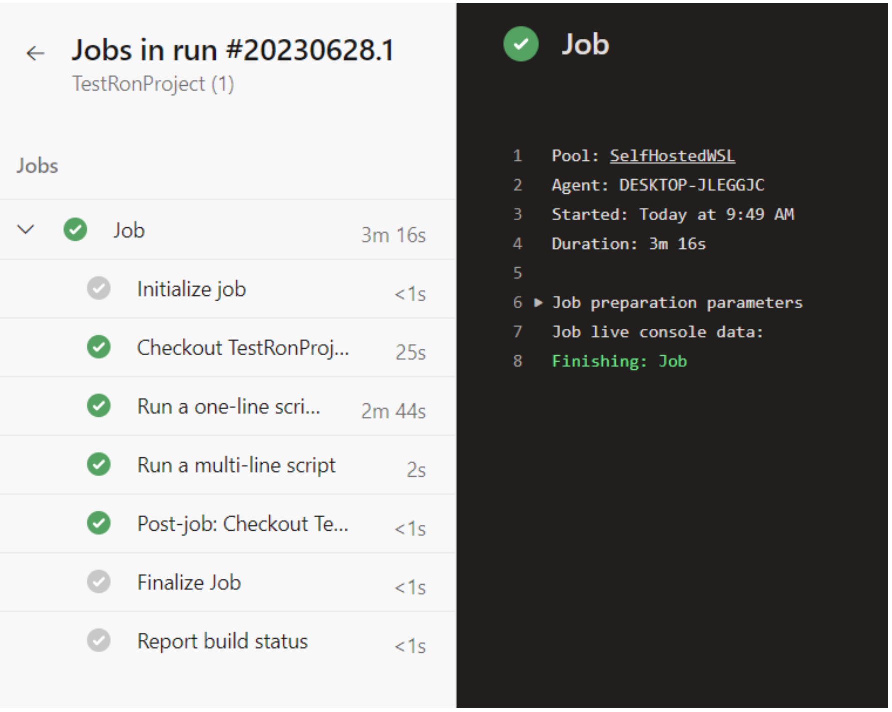
Jobs

Job	45s
Initialize job	<1s
Checkout TestRonProj...	25s
Run a one-line script	17s
Run a multi-line script	
Post-job: Checkout TestRo...	

Run a one-line script

```
Starting: Run a one-line script
==============================================================================
Task         : Command line
Description  : Run a command line script using Bash on Linux and macOS and cmd.exe on Windows
Version      : 2.212.0
Author       : Microsoft Corporation
Help         : https://docs.microsoft.com/azure/devops/pipelines/tasks/utility/command-line
==============================================================================
```

Job completed:



Jobs in run #20230628.1

TestRonProject (1)

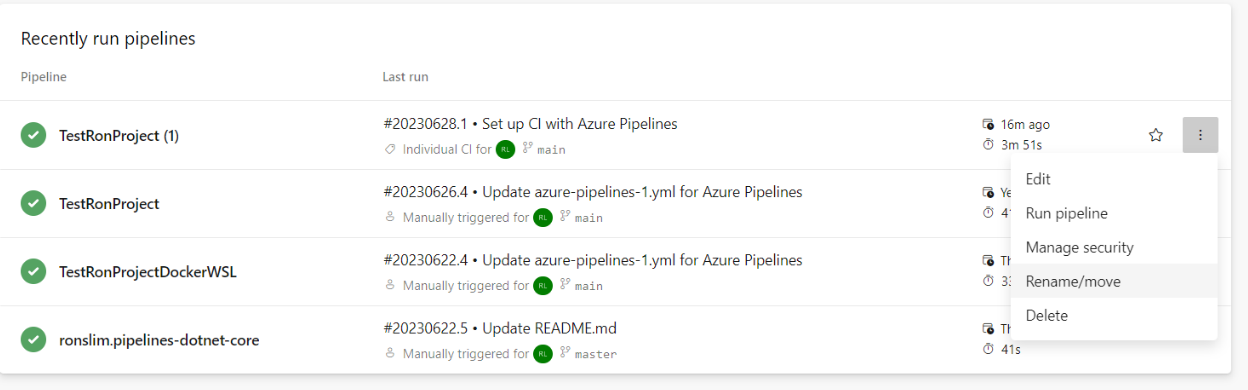
Jobs

Job	3m 16s
Initialize job	<1s
Checkout TestRonProj...	25s
Run a one-line scri...	2m 44s
Run a multi-line script	2s
Post-job: Checkout Te...	<1s
Finalize Job	<1s
Report build status	<1s

Job

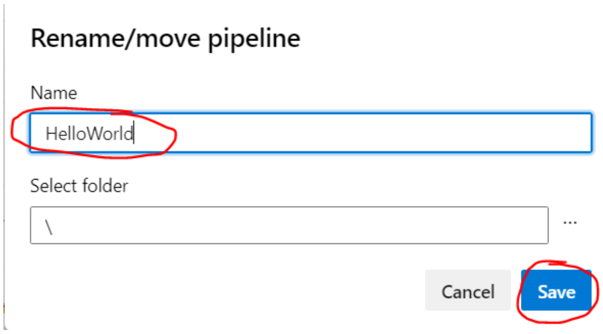
```
Pool: SelfHostedWSL
Agent: DESKTOP-JLEGGJC
Started: Today at 9:49 AM
Duration: 3m 16s

▶ Job preparation parameters
Job live console data:
Finishing: Job
```

Then go back to Pipelines list and then rename the Pipeline to HelloWorld



Recently run pipelines

Pipeline	Last run	
TestRonProject (1)	#20230628.1 • Set up CI with Azure Pipelines Individual CI for RL main	16m ago 3m 51s
TestRonProject	#20230626.4 • Update azure-pipelines-1.yml for Azure Pipelines Manually triggered for RL main	Ye 4
TestRonProjectDockerWSL	#20230622.4 • Update azure-pipelines-1.yml for Azure Pipelines Manually triggered for RL main	Th 3
ronslim.pipelines-dotnet-core	#20230622.5 • Update README.md Manually triggered for RL master	Th 41s

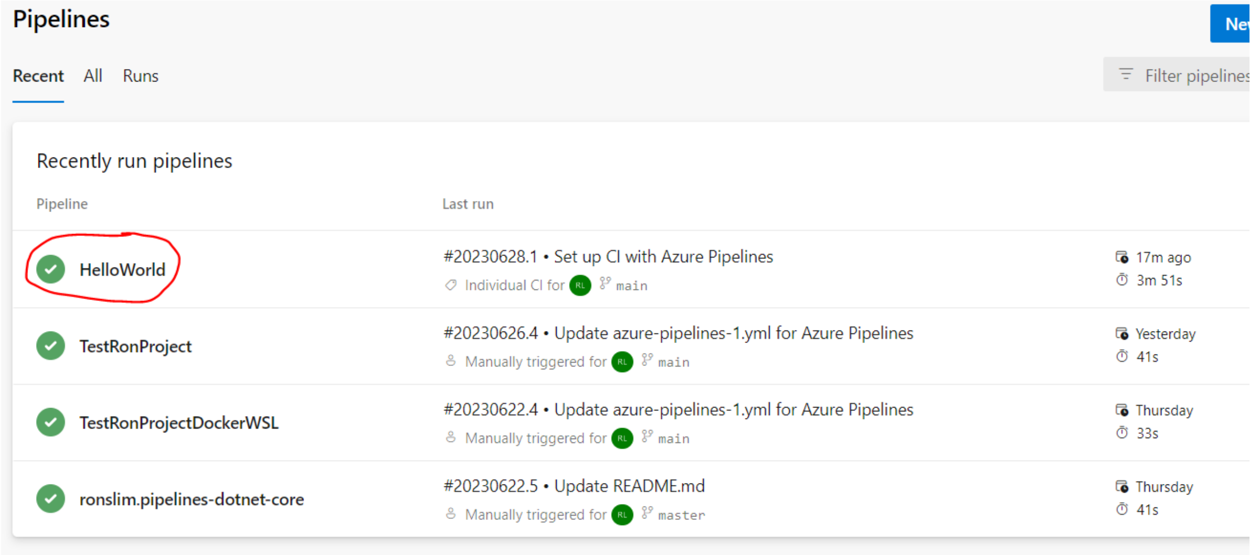


Rename/move pipeline

Name: HelloWorld

Select folder: \

Now the name of Pipeline is HelloWorld



Pipelines

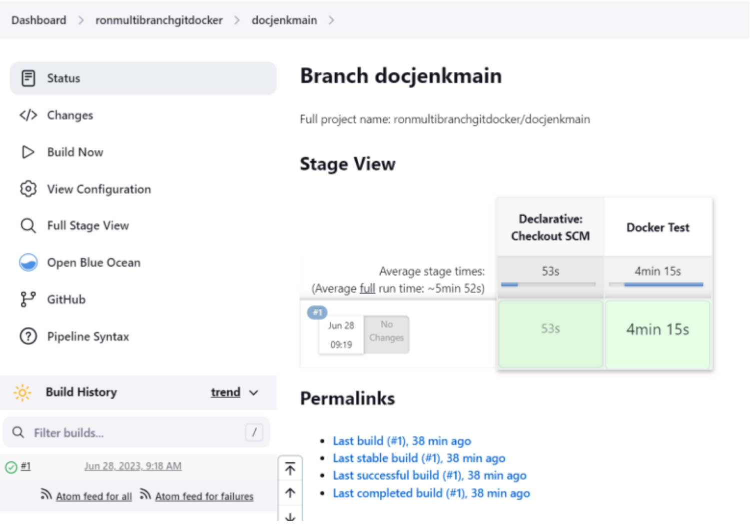
Recently run pipelines

Pipeline	Last run	
✓ HelloWorld	#20230628.1 • Set up CI with Azure Pipelines Individual CI for RL main	17m ago 3m 51s
✓ TestRonProject	#20230626.4 • Update azure-pipelines-1.yml for Azure Pipelines Manually triggered for RL main	Yesterday 41s
✓ TestRonProjectDockerWSL	#20230622.4 • Update azure-pipelines-1.yml for Azure Pipelines Manually triggered for RL main	Thursday 33s
✓ ronslim.pipelines-dotnet-core	#20230622.5 • Update README.md Manually triggered for RL master	Thursday 41s

4. Auto trigger Jenkins build job using Azure DevOps Service Hook

Since both Azure DevOps and Jenkins Build jobs are successful, we can automate that after the successful build of Azure DevOps, it will execute the Jenkins Build Job using Service Hook

For Jenkins window, go to the branch window of the Build Job to monitor if there will be a new job after a successful build in Azure DevOps



Branch docjenkmain

Full project name: ronmultibranchgitdocker/docjenkmain

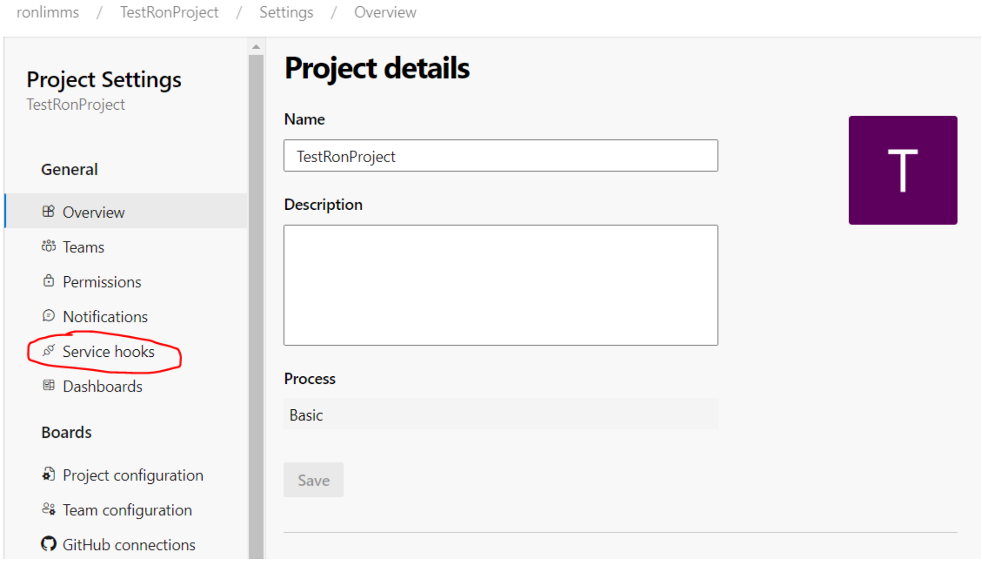
Stage View

	Declarative: Checkout SCM	Docker Test
Average stage times: (Average full run time: ~5min 52s)	53s	4min 15s
#1 Jun 28 09:19 No Changes	53s	4min 15s

Permalinks

- Last build (#1), 38 min ago
- Last stable build (#1), 38 min ago
- Last successful build (#1), 38 min ago
- Last completed build (#1), 38 min ago

In Azure DevOps Project Settings, click Service hooks



Project details

Name

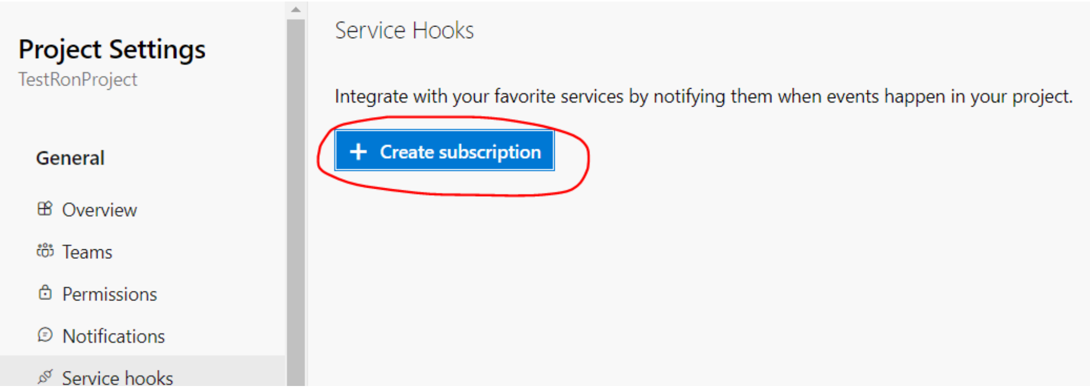
TestRonProject

Description

Process

Basic

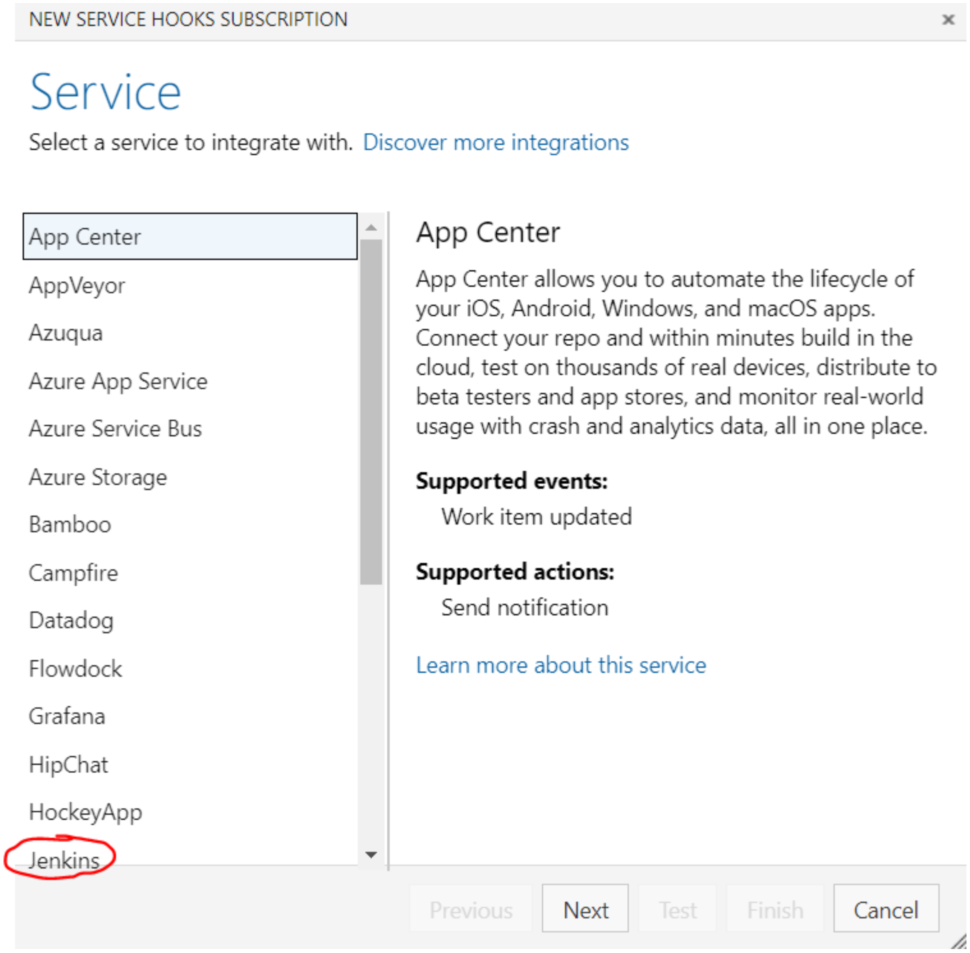
Click + Create subscription



Service Hooks

Integrate with your favorite services by notifying them when events happen in your project.

Choose Jenkins


NEW SERVICE HOOKS SUBSCRIPTION

Service

Select a service to integrate with. Discover more integrations

App Center

App Center allows you to automate the lifecycle of your iOS, Android, Windows, and macOS apps. Connect your repo and within minutes build in the cloud, test on thousands of real devices, distribute to beta testers and app stores, and monitor real-world usage with crash and analytics data, all in one place.

Supported events:

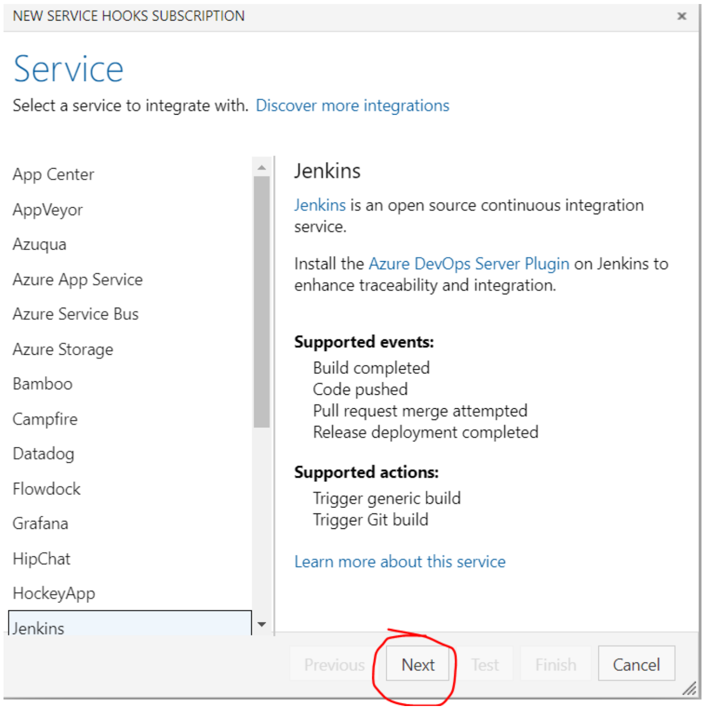
Work item updated

Supported actions:

Send notification

Learn more about this service

Click Next


NEW SERVICE HOOKS SUBSCRIPTION

Service

Select a service to integrate with. Discover more integrations

Jenkins

Jenkins is an open source continuous integration service.

Install the Azure DevOps Server Plugin on Jenkins to enhance traceability and integration.

Supported events:

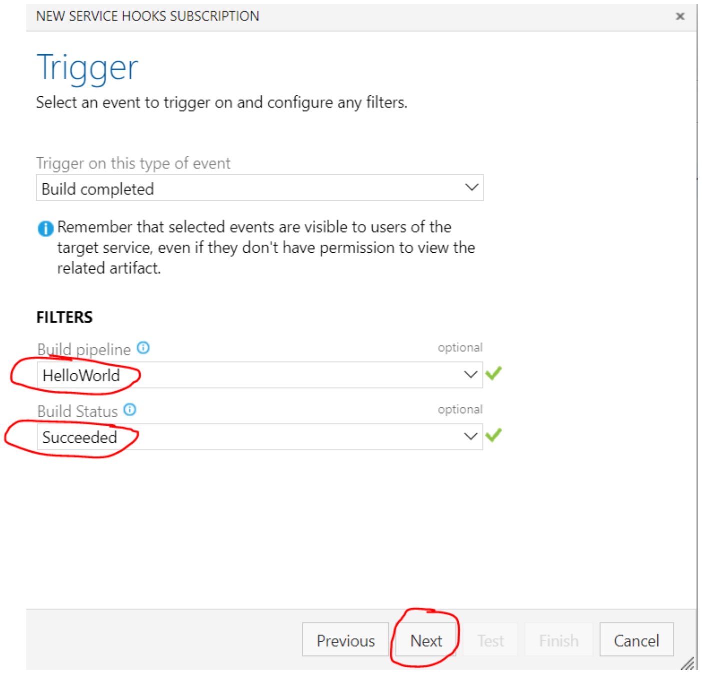
Build completed
Code pushed
Pull request merge attempted
Release deployment completed

Supported actions:

Trigger generic build
Trigger Git build

Learn more about this service

Then choose HelloWorld pipeline for FILTERS section Build pipeline and choose Succeeded in Build Status and click Next



NEW SERVICE HOOKS SUBSCRIPTION

Trigger

Select an event to trigger on and configure any filters.

Trigger on this type of event: Build completed

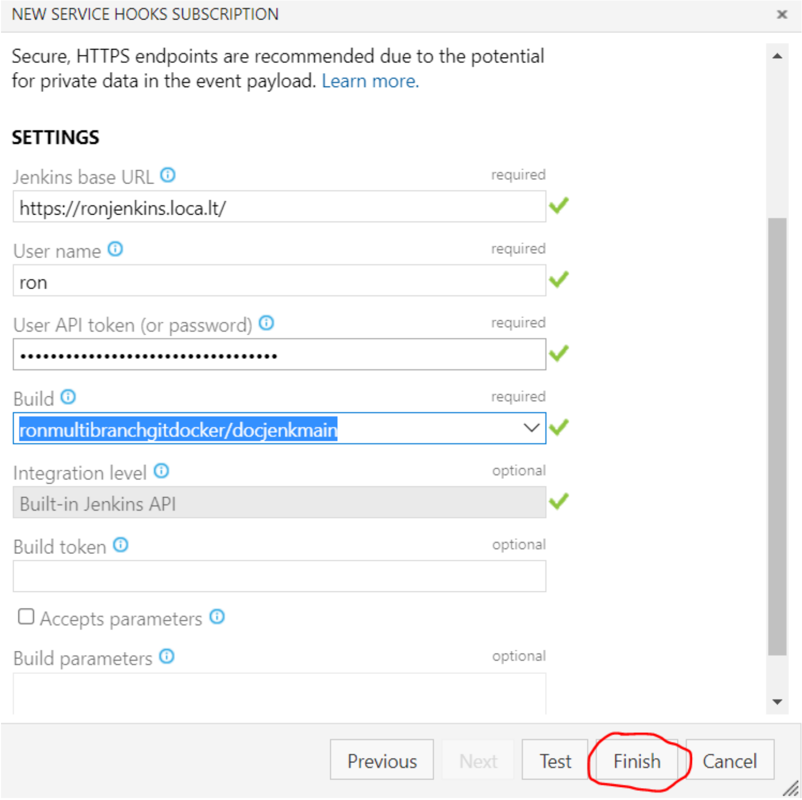
Remember that selected events are visible to users of the target service, even if they don't have permission to view the related artifact.

FILTERS

Build pipeline (optional): HelloWorld

Build Status (optional): Succeeded

Then fill-out the fields, for User API token (or password), use the API Token retrieved and saved from your user’s API Token in Jenkins. Use the ronmultibranchgitdocker/docjenkmain for the Build field and click Finish.



NEW SERVICE HOOKS SUBSCRIPTION

Secure, HTTPS endpoints are recommended due to the potential for private data in the event payload. Learn more.

SETTINGS

Jenkins base URL (required): https://ronjenkins.loca.lt/

User name (required): ron

User API token (or password) (required): ••••••••••••••••••••••••••••••••••

Build (required): ronmultibranchgitdocker/docjenkmain

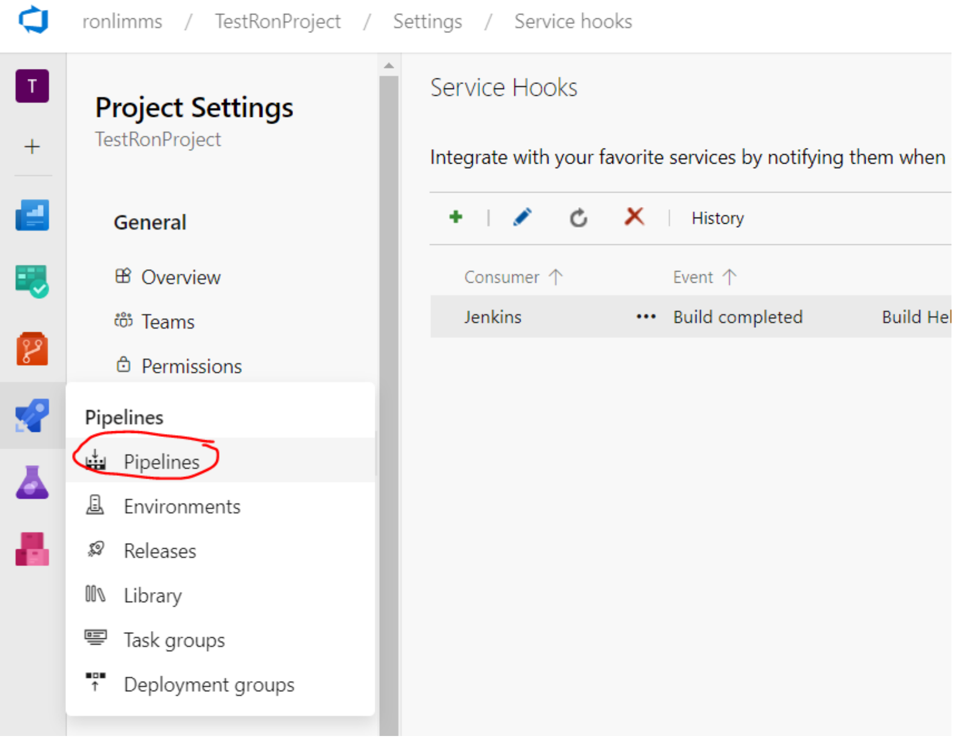
Integration level (optional): Built-in Jenkins API

Build token (optional):

☐ Accepts parameters

Build parameters (optional):

Then click Pipelines to go back to Pipeline lists

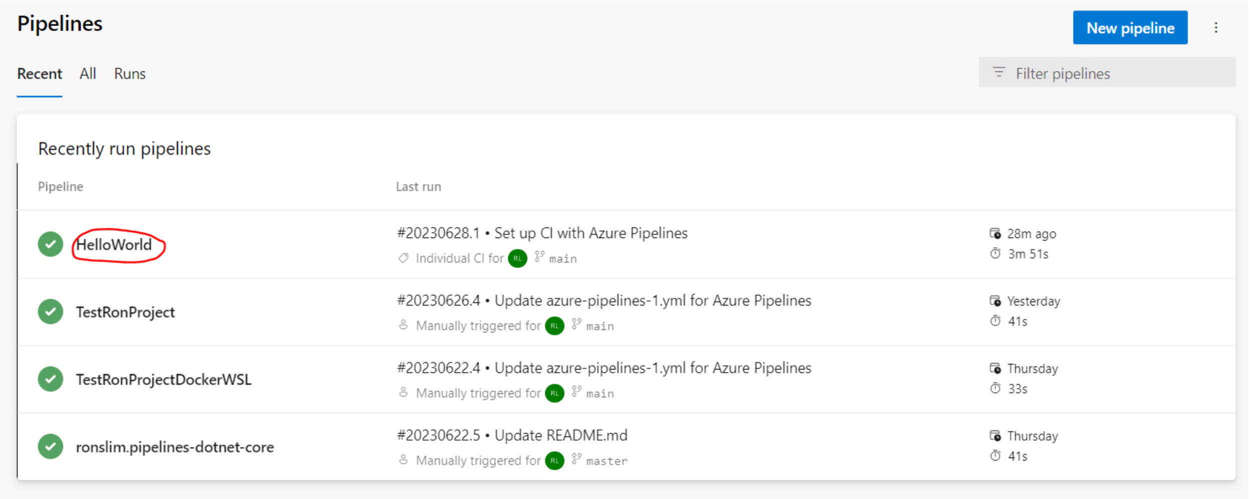


Service Hooks

Integrate with your favorite services by notifying them when

Consumer ↑		Event ↑	
Jenkins	•••	Build completed	Build Hel

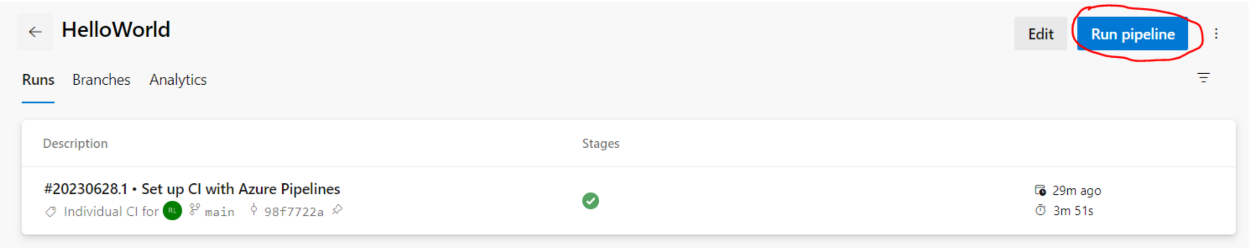
Then click HelloWorld



Recently run pipelines

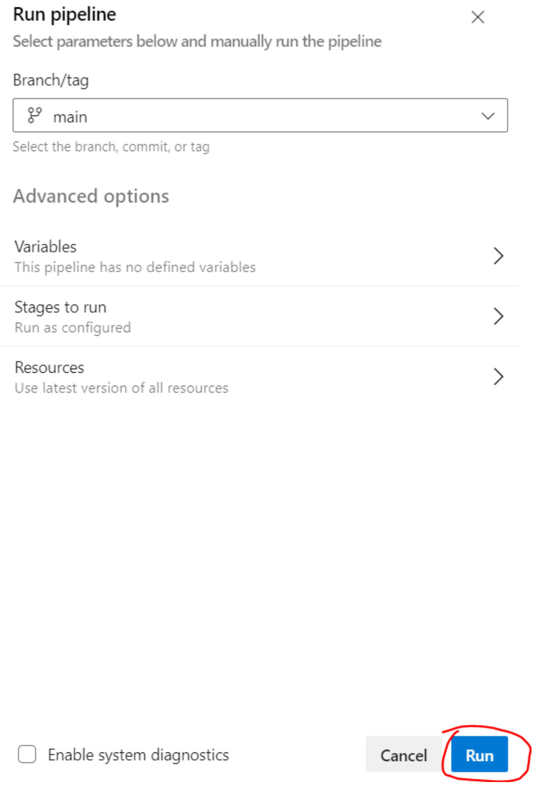
Pipeline	Last run	
✓ HelloWorld	#20230628.1 • Set up CI with Azure Pipelines Individual CI for RL main	28m ago 3m 51s
✓ TestRonProject	#20230626.4 • Update azure-pipelines-1.yml for Azure Pipelines Manually triggered for RL main	Yesterday 41s
✓ TestRonProjectDockerWSL	#20230622.4 • Update azure-pipelines-1.yml for Azure Pipelines Manually triggered for RL main	Thursday 33s
✓ ronslim.pipelines-dotnet-core	#20230622.5 • Update README.md Manually triggered for RL master	Thursday 41s

Then click Run pipeline



Description	Stages	
#20230628.1 • Set up CI with Azure Pipelines Individual CI for RL main 98f7722a	✓	29m ago 3m 51s

Then click Run



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

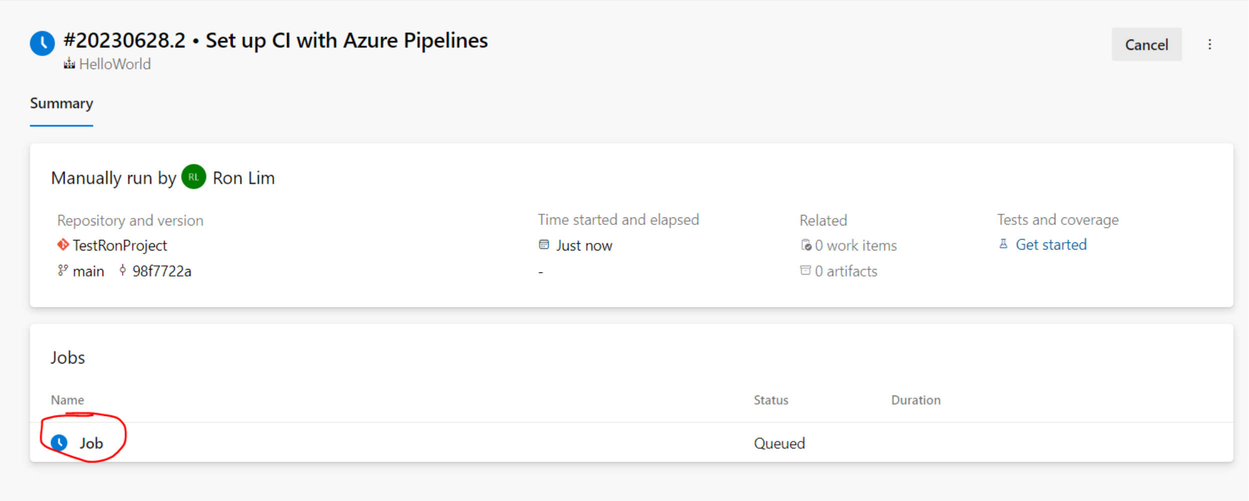
Run as configured

Resources

Use latest version of all resources

☐ Enable system diagnostics

Monitor the job until completed. After completion, immediately check the Jenkins if Multibranch job is also running



#20230628.2 • Set up CI with Azure Pipelines

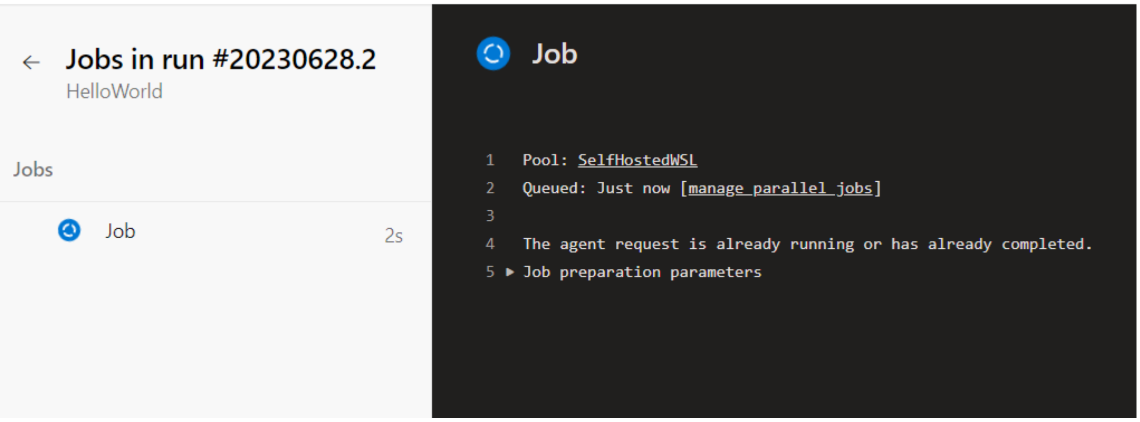
HelloWorld

Manually run by RL Ron Lim

Repository and version	Time started and elapsed	Related	Tests and coverage
TestRonProject	Just now	0 work items	Get started
main 98f7722a	-	0 artifacts	

Jobs

Name	Status	Duration
Job	Queued	



Jobs in run #20230628.2

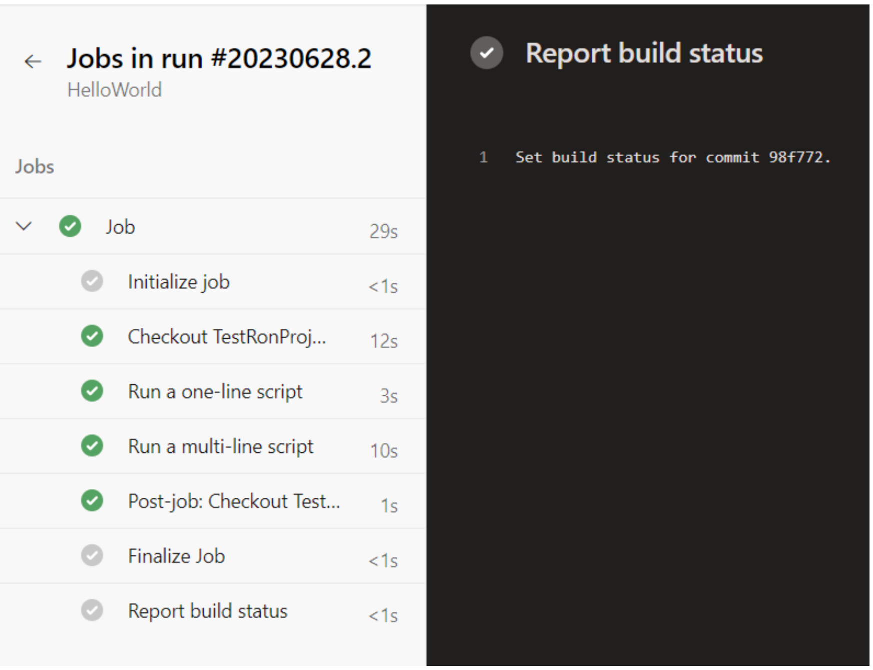
HelloWorld

Jobs

Job	2s

Job

```
Pool: SelfHostedWSL
Queued: Just now [manage parallel jobs]

The agent request is already running or has already completed.
▶ Job preparation parameters
```



Jobs in run #20230628.2

HelloWorld

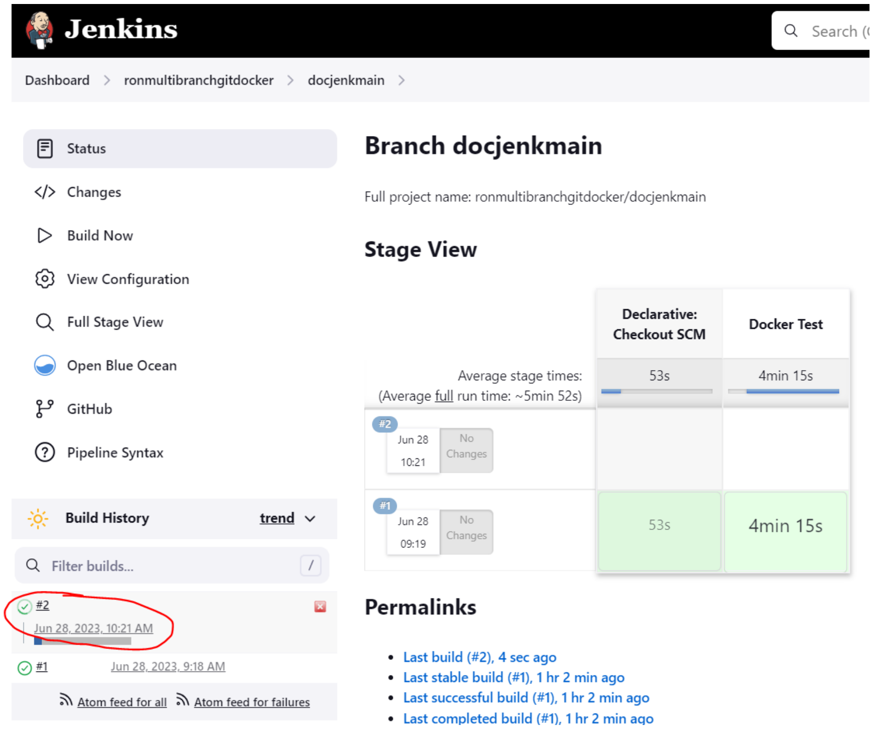
Jobs

✓ Job	29s
✓ Initialize job	<1s
✓ Checkout TestRonProj...	12s
✓ Run a one-line script	3s
✓ Run a multi-line script	10s
✓ Post-job: Checkout Test...	1s
✓ Finalize Job	<1s
✓ Report build status	<1s

Report build status

```
Set build status for commit 98f772.
```

After successful build in Azure DevOps, Jenkins job is triggered automatically. Click #2 to monitor



Branch docjenkmain

Full project name: ronmultibranchgitdocker/docjenkmain

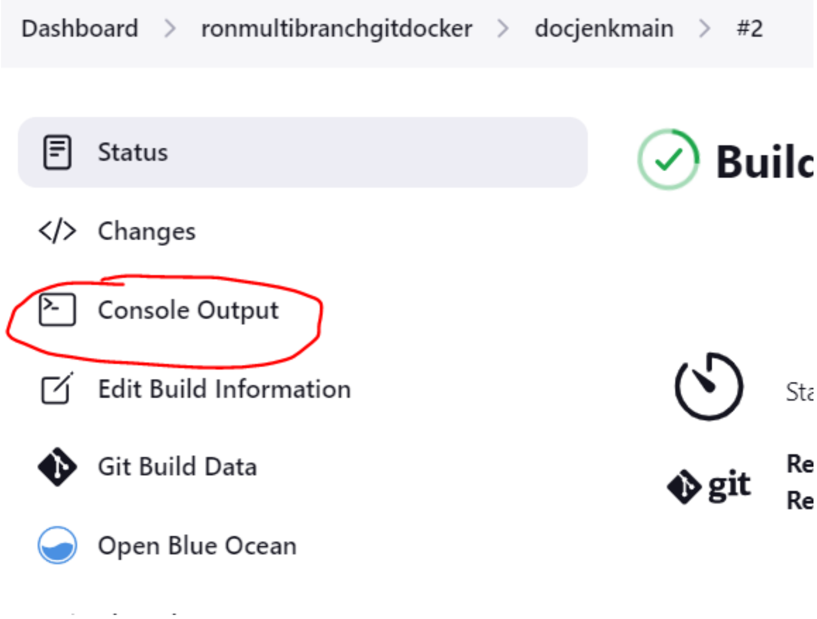
Stage View

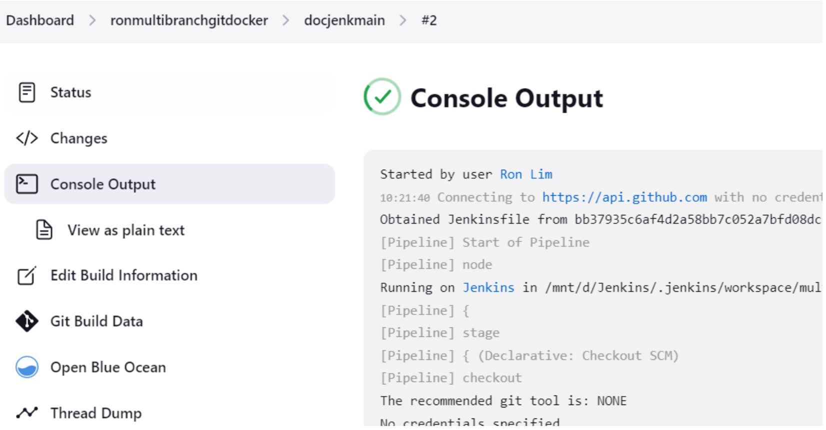
	Declarative: Checkout SCM	Docker Test
Average stage times: (Average full run time: ~5min 52s)	53s	4min 15s
#2 Jun 28 10:21 No Changes		
#1 Jun 28 09:19 No Changes	53s	4min 15s

Permalinks

- Last build (#2), 4 sec ago
- Last stable build (#1), 1 hr 2 min ago
- Last successful build (#1), 1 hr 2 min ago
- Last completed build (#1), 1 hr 2 min ago

Then click Console Output

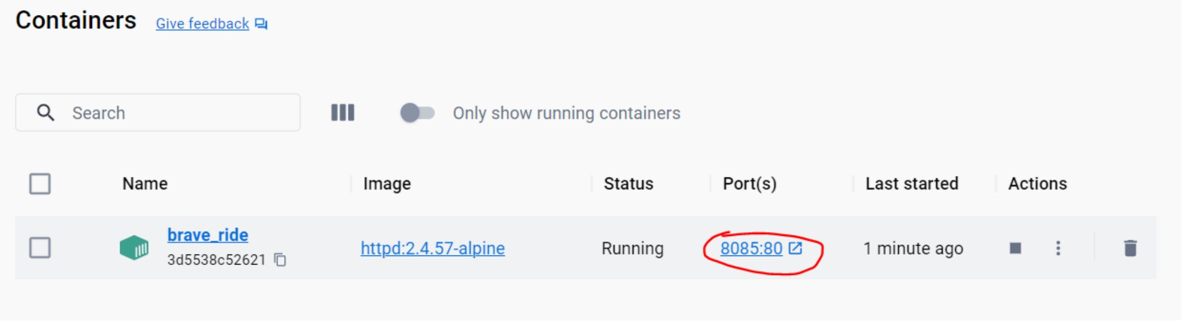




Console Output

```
Started by user Ron Lim
10:21:40 Connecting to https://api.github.com with no credent
Obtained Jenkinsfile from bb37935c6af4d2a58bb7c052a7bfd08dc
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /mnt/d/Jenkins/.jenkins/workspace/mul
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Declarative: Checkout SCM)
[Pipeline] checkout
The recommended git tool is: NONE
No credentials specified
```

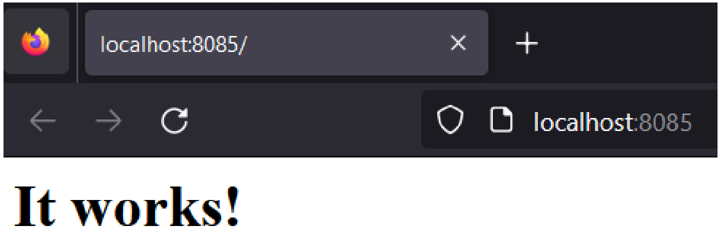
After success, check again the webpage if working as expected



Containers

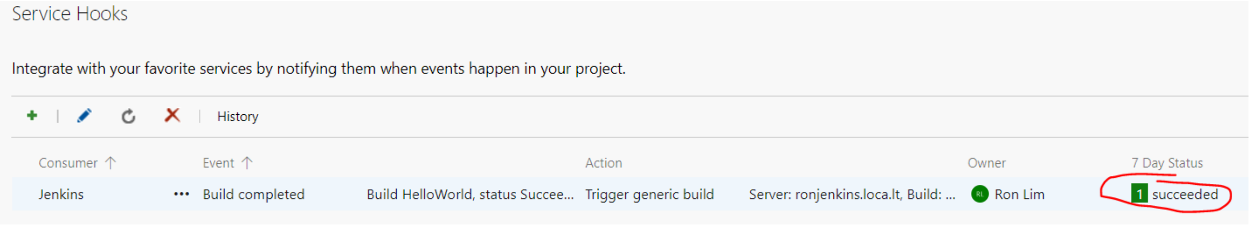
□	Name	Image	Status	Port(s)	Last started	Actions
□	brave_ride 3d5538c52621	httpd:2.4.57-alpine	Running	8085:80	1 minute ago	

Notice that the webpage is displayed successfully



It works!

Upon checking with Service hook, there is already a counter stating one successful trigger



Service Hooks

Integrate with your favorite services by notifying them when events happen in your project.

Consumer ↑		Event ↑		Action		Owner	7 Day Status
Jenkins	•••	Build completed	Build HelloWorld, status Succee...	Trigger generic build	Server: ronjenkins.loca.lt, Build: ...	Ron Lim	1 succeeded