

Assignment 4

Screenshots

GROUP 12

Cloud Development and Operations

Conestoga College, Waterloo Campus

Container and Orchestration

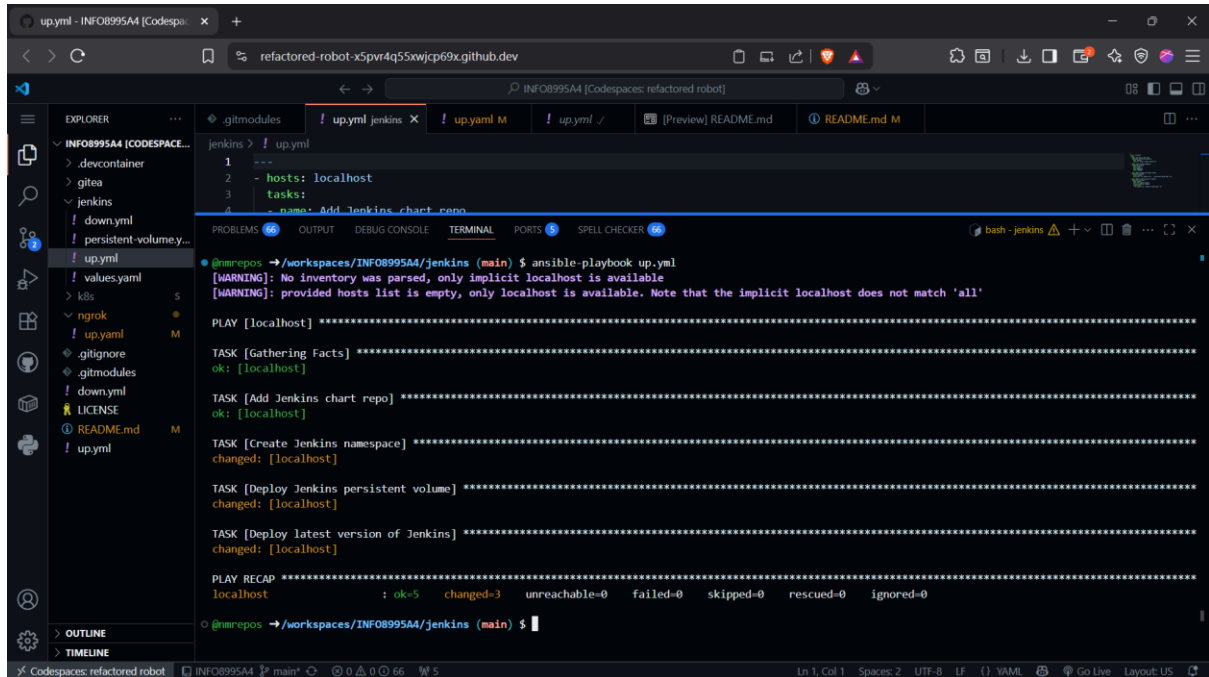
INFO8995 - Spring 2025 - Section 1

CI/CD Pipeline with Jenkins and Gitea

Assignment Github Repo Link: <https://github.com/nmrepos/INFO8995A4>

Python Application Jenkin CICD Repo : <https://github.com/nmrepos/JenPyCICD>

JENKINS INSTALLATION



```
jenkins > ! up.yml
1 ---
2 - hosts: localhost
3   tasks:
4     - name: Add Jenkins chart repo

@nmrepos →/workspaces/INFO8995A4/jenkins (main) $ ansible-playbook up.yml
[WARNING]: No inventory was parsed, only implicit localhost is available
[WARNING]: provided hosts list is empty, only localhost is available. Note that the implicit localhost does not match 'all'

PLAY [localhost] *****

TASK [Gathering Facts] *****
ok: [localhost]

TASK [Add Jenkins chart repo] *****
ok: [localhost]

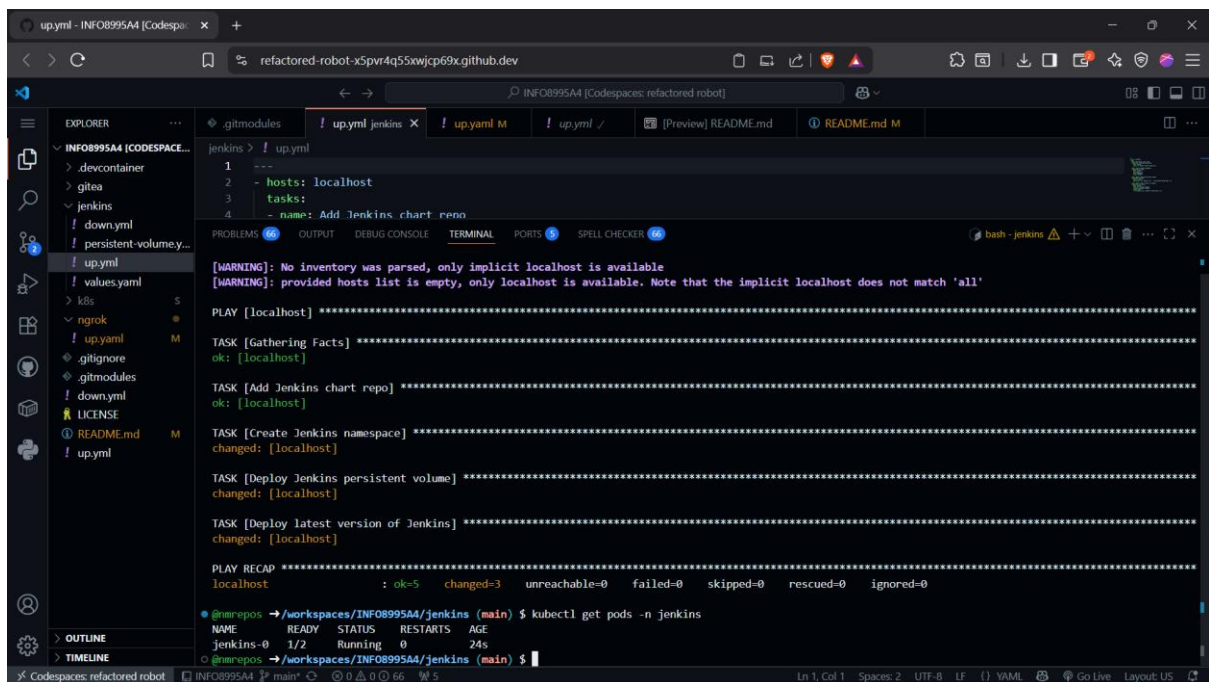
TASK [Create Jenkins namespace] *****
changed: [localhost]

TASK [Deploy Jenkins persistent volume] *****
changed: [localhost]

TASK [Deploy latest version of Jenkins] *****
changed: [localhost]

PLAY RECAP *****
localhost                : ok=5  changed=3  unreachable=0  failed=0  skipped=0  rescued=0  ignored=0

@nmrepos →/workspaces/INFO8995A4/jenkins (main) $
```



```
jenkins > ! up.yml
1 ---
2 - hosts: localhost
3   tasks:
4     - name: Add Jenkins chart repo

[WARNING]: No inventory was parsed, only implicit localhost is available
[WARNING]: provided hosts list is empty, only localhost is available. Note that the implicit localhost does not match 'all'

PLAY [localhost] *****

TASK [Gathering Facts] *****
ok: [localhost]

TASK [Add Jenkins chart repo] *****
ok: [localhost]

TASK [Create Jenkins namespace] *****
changed: [localhost]

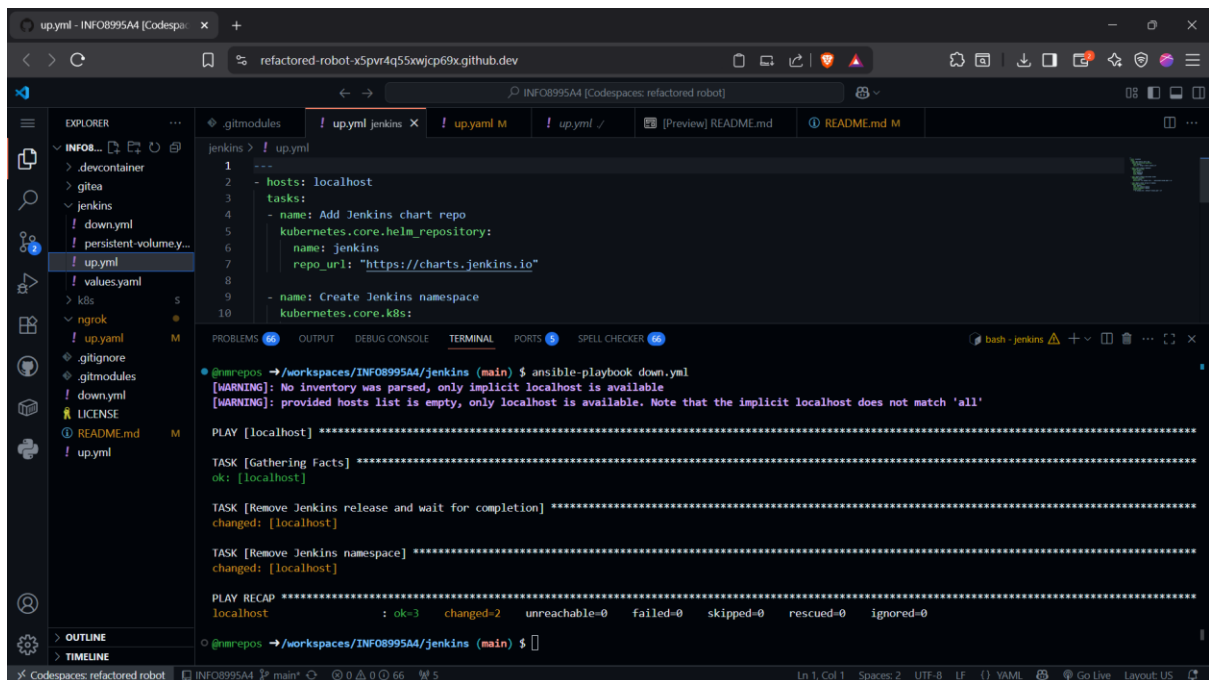
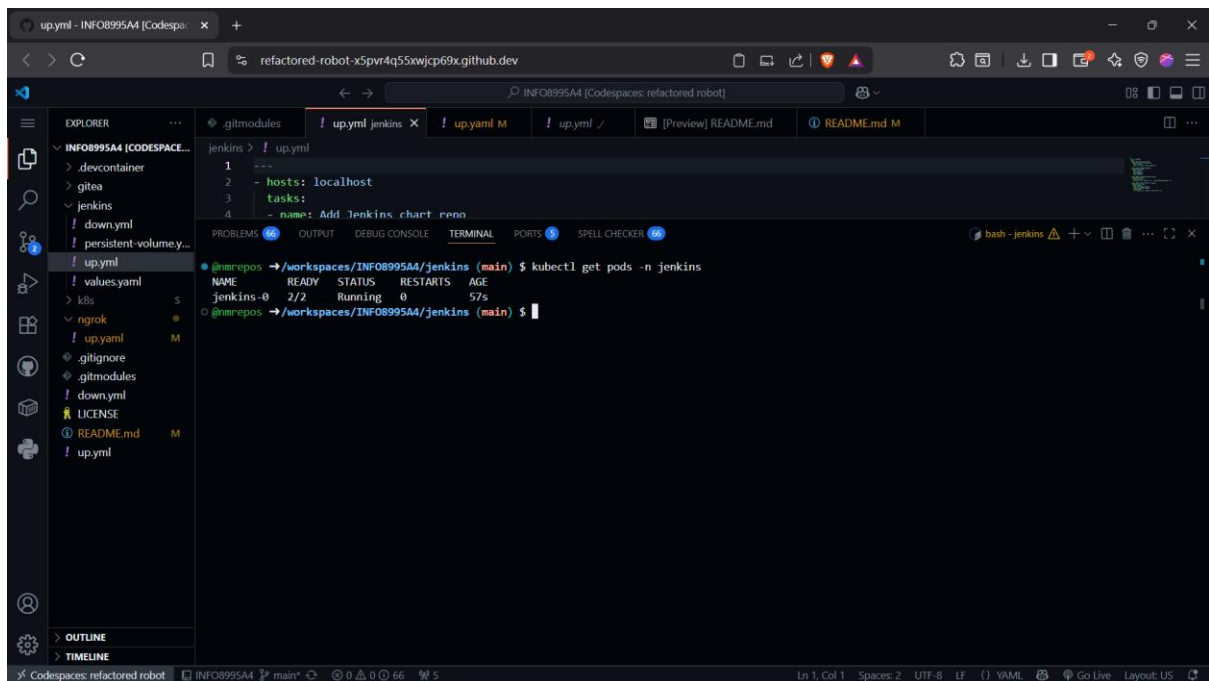
TASK [Deploy Jenkins persistent volume] *****
changed: [localhost]

TASK [Deploy latest version of Jenkins] *****
changed: [localhost]

PLAY RECAP *****
localhost                : ok=5  changed=3  unreachable=0  failed=0  skipped=0  rescued=0  ignored=0

@nmrepos →/workspaces/INFO8995A4/jenkins (main) $ kubectl get pods -n jenkins
NAME      READY   STATUS    RESTARTS   AGE
jenkins-0  1/2     Running   0           24s

@nmrepos →/workspaces/INFO8995A4/jenkins (main) $
```



up.yaml - INFO8995A4 [CodeSpace: x +

refactored-robot-xSvr4q55xwjc69x.github.dev

INFO8995A4 [CodeSpaces: refactored robot]

EXPLORER

- INFO8995A4 [CODESPACE...
 - > .devcontainer
 - > gitea
 - > jenkins
 - ! down.yaml
 - ! persistent-volume.y...
 - ! up.yaml
 - ! values.yaml
 - > k8s
 - ! ngrok
 - ! up.yaml
 - > gitignore
 - > gitmodules
 - > down.yaml
 - > LICENSE
 - > README.md
 - ! up.yaml

ngrok > ! up.yaml

```
1 apiVersion: v1
2 kind: Namespace
3 metadata:
4   name: ngrok
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS SPELL CHECKER

bash

```
@mmrepos -> /workspaces/INFO8995A4 (main) $ kubectl get svc -n jenkins
NAME      TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)    AGE
jenkins   NodePort    10.97.226.44  <none>        8080:32000/TCP  104s
jenkins-agent ClusterIP    10.100.39.142 <none>        50000/TCP    104s

@mmrepos -> /workspaces/INFO8995A4 (main) $ kubectl apply -f ngrok/up.yaml
namespace/ngrok created
secret/ngrok-secret created
deployment.apps/ngrok created
service/ngrok created

@mmrepos -> /workspaces/INFO8995A4 (main) $ kubectl logs -n ngrok -l app=ngrok
t=2025-08-01T22:51:21+0000 lvl=info msg="open config file" path=/var/lib/ngrok/ngrok.yml err=nil
t=2025-08-01T22:51:21+0000 lvl=info msg="open config file" path=/var/lib/ngrok/auth-config.yml err=nil
t=2025-08-01T22:51:21+0000 lvl=info msg="starting web service" obj=web addr=0.0.0.0:4040 allow_hosts=[]
t=2025-08-01T22:51:21+0000 lvl=info msg="update available" obj=updater
t=2025-08-01T22:51:21+0000 lvl=info msg="client session established" obj=tunnels.session
t=2025-08-01T22:51:21+0000 lvl=info msg="tunnel session started" obj=tunnels.session
t=2025-08-01T22:51:21+0000 lvl=info msg="started tunnel" obj=tunnels name=command_line addr=http://jenkins-jenkins.svc.cluster.local:8080 url=https://d1f465f19f76.ngrok-free.app

@mmrepos -> /workspaces/INFO8995A4 (main) $
```

Ln 16, Col 82 Spaces: 2 UTF-8 LF () YAML Go Live Layout: US

up.yaml - INFO8995A4 [CodeSpace: Sign in - Jenkins x +

d1f465f19f76.ngrok-free.app/login?from=%2F

Sign in to Jenkins

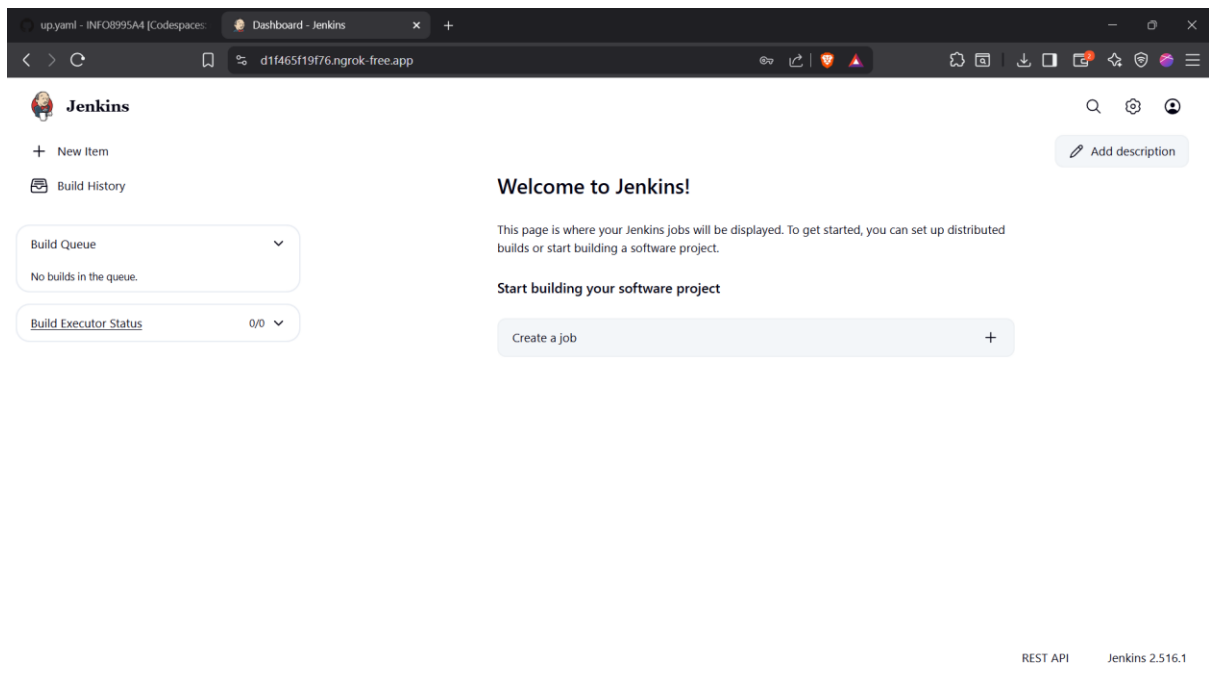
Username

Password

☐ Keep me signed in

Sign in

GITHUB + JENKINS



The screenshot shows the Jenkins Dashboard in a web browser. The browser's address bar displays 'd1f465f19f76.ngrok-free.app'. The Jenkins logo is in the top left, and the title 'Jenkins' is next to it. On the left sidebar, there are links for 'New Item', 'Build History', 'Build Queue', and 'Build Executor Status'. The 'Build Queue' section shows 'No builds in the queue.' and the 'Build Executor Status' shows '0/0'. The main content area has a 'Welcome to Jenkins!' message, a brief explanation of the page's purpose, and a 'Start building your software project' section with a 'Create a job' button. In the top right corner, there is a search icon, a settings icon, and a user profile icon, along with an 'Add description' button. The bottom right corner of the dashboard shows 'REST API' and 'Jenkins 2.516.1'.

up.yaml - INFO8995A4 [Codespaces] Dashboard - Jenkins

d1f465f19f76.ngrok-free.app

Jenkins

+ New Item

Build History

Build Queue

No builds in the queue.

Build Executor Status 0/0

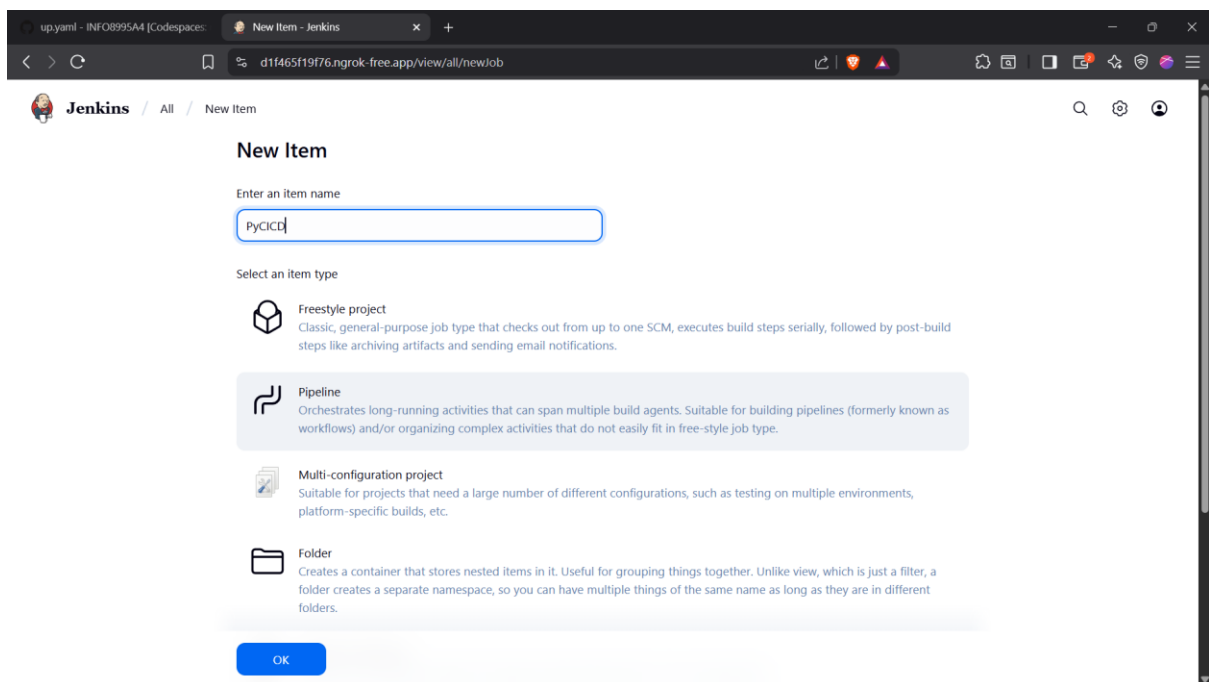
Welcome to Jenkins!

This page is where your Jenkins jobs will be displayed. To get started, you can set up distributed builds or start building a software project.

Start building your software project

Create a job

REST API Jenkins 2.516.1



The screenshot shows the 'New Item' page in the Jenkins web interface. The browser's address bar shows 'd1f465f19f76.ngrok-free.app/view/all/newJob'. The page title is 'New Item'. Below the title, there is a text input field for 'Enter an item name' with the value 'PyCICD'. Below this, there is a section titled 'Select an item type' with four options: 'Freestyle project', 'Pipeline', 'Multi-configuration project', and 'Folder'. Each option has a brief description. The 'Pipeline' option is highlighted with a light blue background. At the bottom of the page, there is a blue 'OK' button.

up.yaml - INFO8995A4 [Codespaces] New Item - Jenkins

d1f465f19f76.ngrok-free.app/view/all/newJob

Jenkins / All / New Item

New Item

Enter an item name

PyCICD

Select an item type

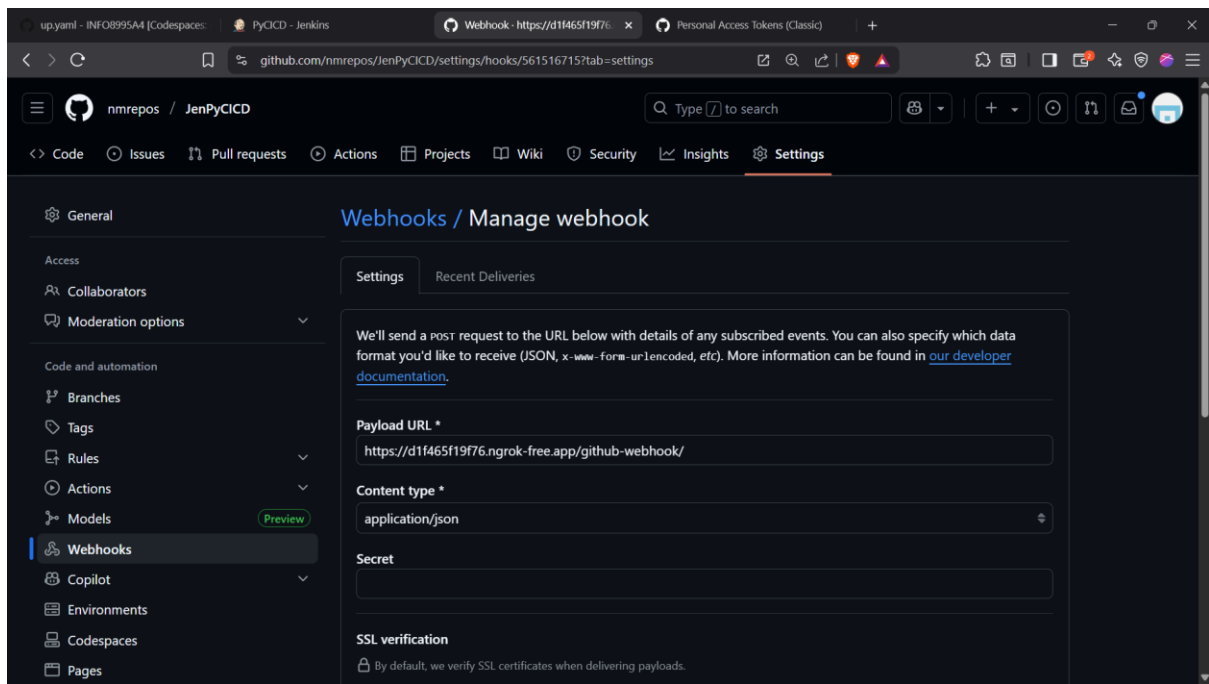
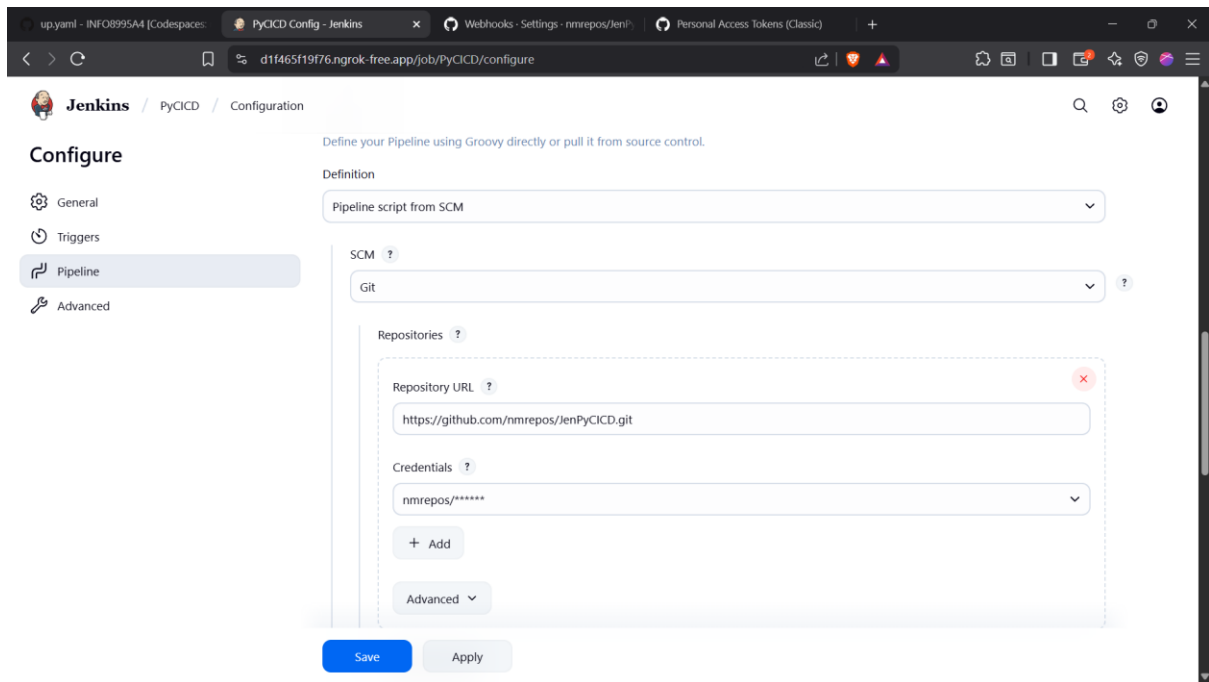
Freestyle project
Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.

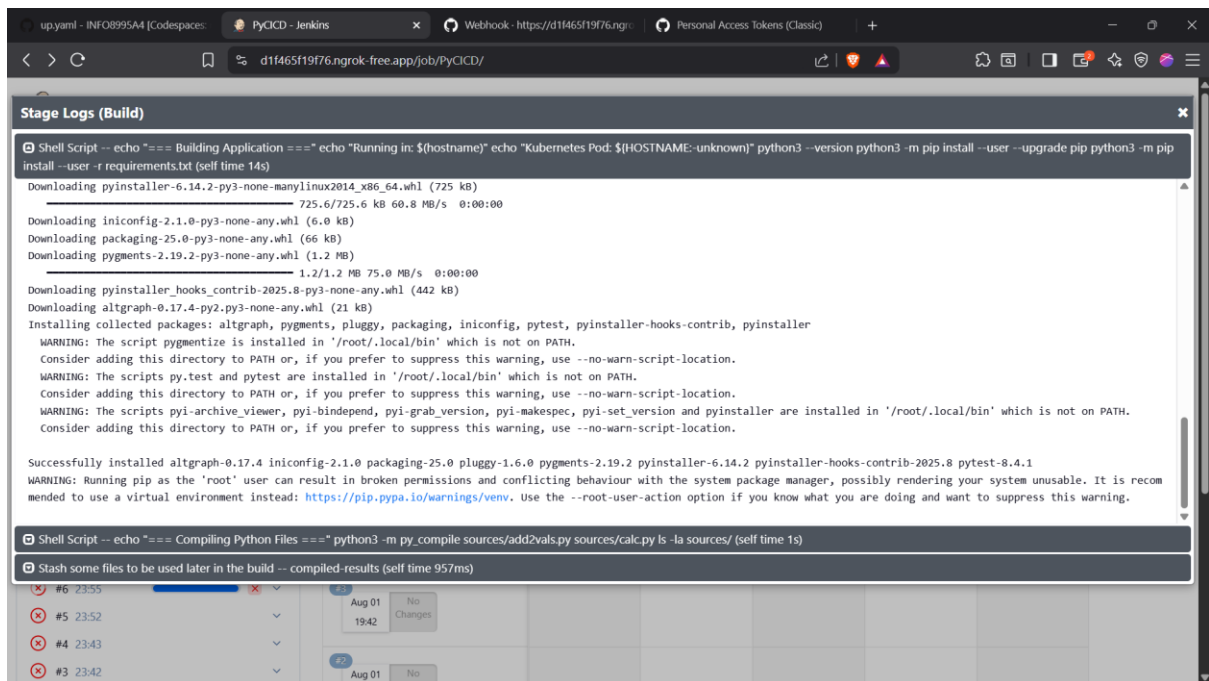
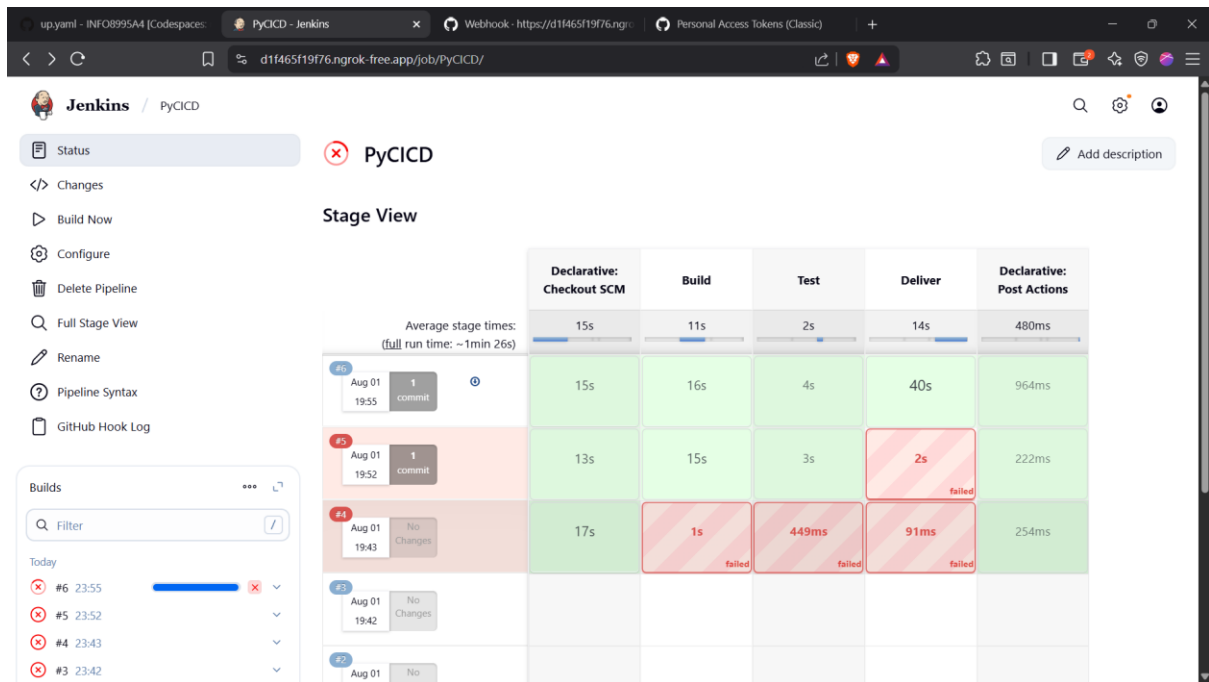
Pipeline
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

Multi-configuration project
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

Folder
Creates a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder creates a separate namespace, so you can have multiple things of the same name as long as they are in different folders.

OK





up.yaml - INFO899SA4 [Codespaces: PyCICD - Jenkins x Webhook: https://d1f465f19f76.ngrok-free.app/job/PyCICD/ Personal Access Tokens (Classic) +

d1f465f19f76.ngrok-free.app/job/PyCICD/

Stage Logs (Build)

Shell Script -- echo "=== Building Application ===" echo "Running in: \$(hostname)" echo "Kubernetes Pod: \$(HOSTNAME:unknown)" python3 --version python3 -m pip install --user --upgrade pip python3 -m pip install --user -r requirements.txt (self time 14s)

Shell Script -- echo "=== Compiling Python Files ===" python3 -m py_compile sources/add2vals.py sources/calc.py ls -la sources/ (self time 1s)

```
+ echo === Compiling Python Files ===
=== Compiling Python Files ===
+ python3 -m py_compile sources/add2vals.py sources/calc.py
+ ls -la sources/
total 24
drwxr-xr-x 3 1000 1000 4096 Aug 1 23:55 .
drwxr-xr-x 4 1000 1000 4096 Aug 1 23:55 ..
drwxr-xr-x 2 root root 4096 Aug 1 23:55 __pycache__
-rw-r--r-- 1 1000 1000 1369 Aug 1 23:55 add2vals.py
-rw-r--r-- 1 1000 1000 868 Aug 1 23:55 calc.py
-rw-r--r-- 1 1000 1000 1366 Aug 1 23:55 test_calc.py
```

Stash some files to be used later in the build -- compiled-results (self time 957ms)

Builds

Filter

Today

- #6 23:55
- #5 23:52
- #4 23:43
- #3 23:42

Build	Time	Status	Duration	Failed	Failed	Failed	Failed	Failed
#4	Aug 01 19:43	No Changes	17s	1s	449ms	91ms	254ms	failed
#5	Aug 01 19:42	No Changes		failed	failed	failed		
#6	Aug 01	No						

up.yaml - INFO899SA4 [Codespaces: PyCICD #6 - Jenkins x Webhook: https://d1f465f19f76.ngrok-free.app/job/PyCICD/6/ Personal Access Tokens (Classic) +

d1f465f19f76.ngrok-free.app/job/PyCICD/6/

Jenkins / PyCICD / #6

Status

Changes

Console Output

Edit Build Information

Delete build '#6'

Polling Log

Timings

Git Build Data

Test Result

Restart from Stage

Replay

Pipeline Steps

Workspaces

Previous Build

✓ #6 (1 Aug 2025, 23:55:13)

Add description

Keep this build forever

Build Artifacts

add2vals 6.67 MIB view

Started by GitHub push by nmrepos

This run spent:

- 12 sec waiting;
- 1 min 26 sec build duration;
- 1 min 33 sec total from scheduled to completion.

Revision: 144b79cd3178e045d791151502336fc1e909d5d1

Repository: <https://github.com/nmrepos/JenPyCICD.git>

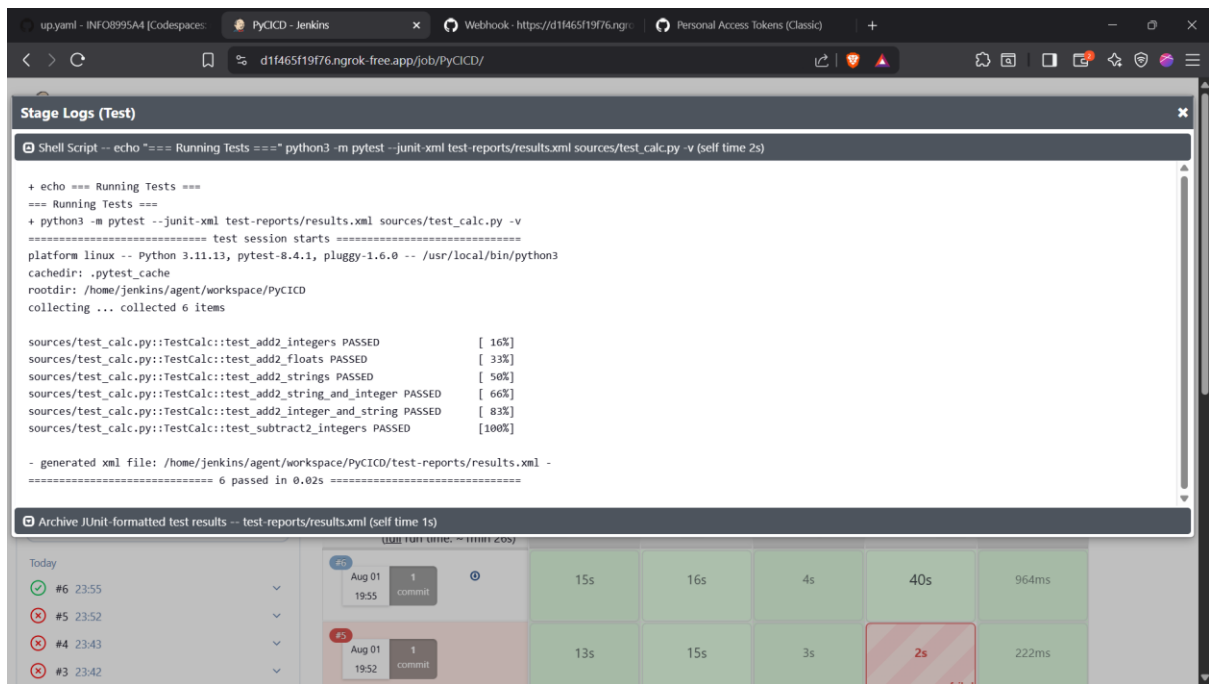
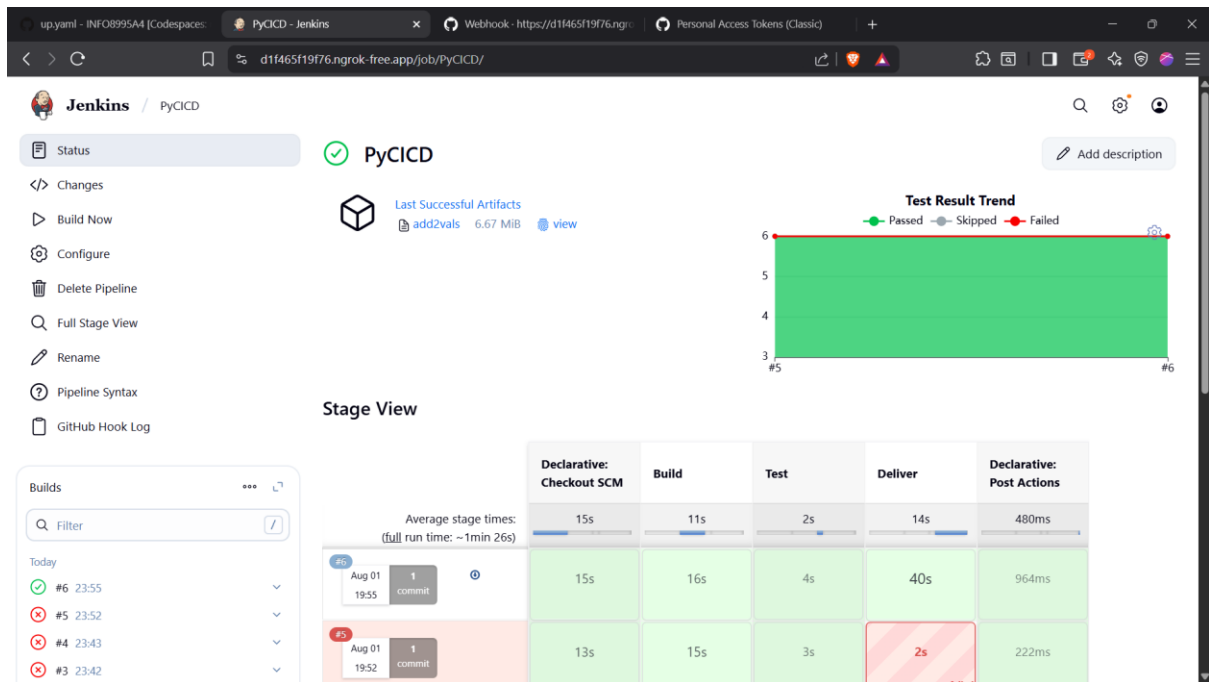
- refs/remotes/origin/main

Test Result (no failures)

Changes

- Add environment variable for noninteractive installs and install system dependencies in Deliver stage ([details](#) / [githubweb](#))

REST API Jenkins 2.516.1



up.yaml - INFO8995A4 [Codespaces] PyCICD #6 Console - Jenkins nmrepos/jenPyCICD Personal Access Tokens (Classic) +

d1f465f19f76.ngrok-free.app/job/PyCICD/6/console

Jenkins / PyCICD / #6

Status

Changes

Console Output

Edit Build Information

Delete build '#6'

Polling Log

Timings

Git Build Data

Test Result

Restart from Stage

Replay

Pipeline Steps

Workspaces

Previous Build

Console Output

Download Copy View as plain text

```
Started by GitHub push by nmrepos
Obtained Jenkinsfile from git https://github.com/nmrepos/jenPyCICD.git
[Pipeline] Start of Pipeline
[Pipeline] podTemplate
[Pipeline] {
[Pipeline] node
Created Pod: kubernetes jenkins/pycicd-6-h86v2-5pjpg0-z4bnj
[PodInfo] jenkins/pycicd-6-h86v2-5pjpg0-z4bnj
  Container [jnlp] waiting [ContainerCreating] No message
  Container [python] waiting [ContainerCreating] No message
  Pod [Pending][ContainersNotReady] containers with unready status: [python jnlp]
Agent pycicd-6-h86v2-5pjpg0-z4bnj is provisioned from template PyCICD_6-h86v2-5pjpg0
---
apiVersion: "v1"
kind: "Pod"
metadata:
  annotations:
    kubernetes.jenkins.io/last-refresh: "1754092515555"
    buildUrl: "http://jenkins.jenkins.svc.cluster.local:8080/job/PyCICD/6/"
    runUrl: "job/PyCICD/6/"
  labels:
    jenkins/jenkins-jenkins-agent: "true"
    jenkins/label-digest: "0b89393b5272b1a130d12c7f9718a9f0c7426a7"
    jenkins/label: "PyCICD_6-h86v2"
```

up.yaml - INFO8995A4 [Codespaces] PyCICD #6 Console - Jenkins nmrepos/jenPyCICD Personal Access Tokens (Classic) +

d1f465f19f76.ngrok-free.app/job/PyCICD/6/console

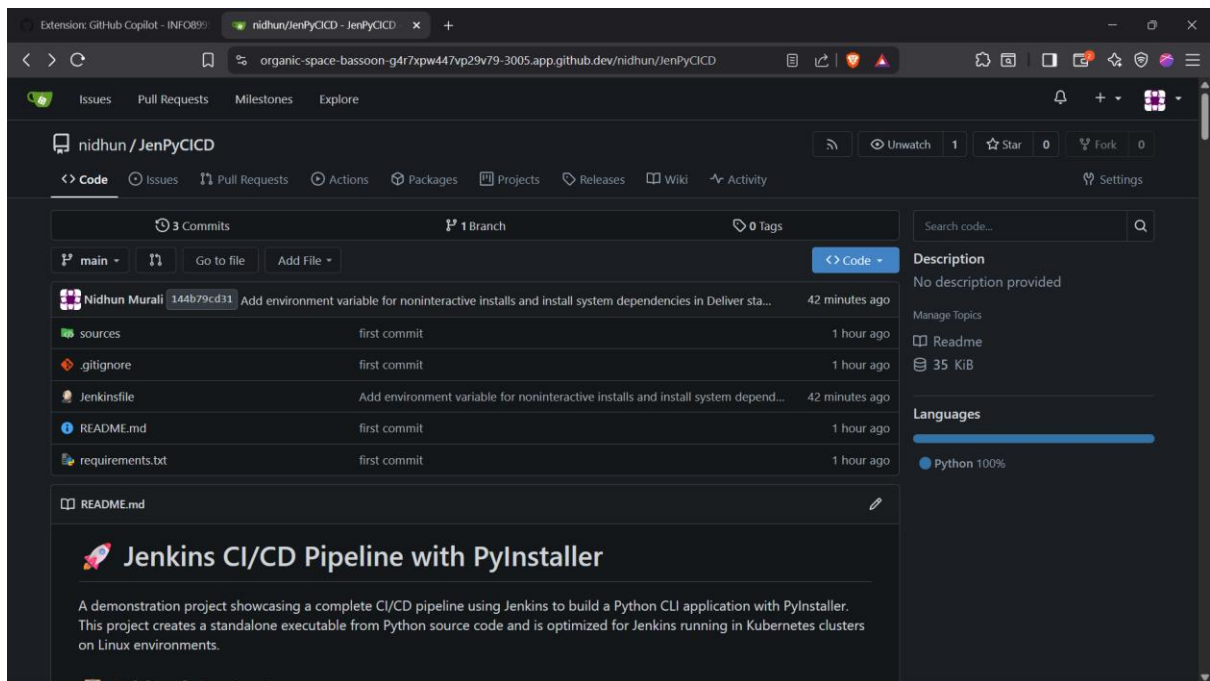
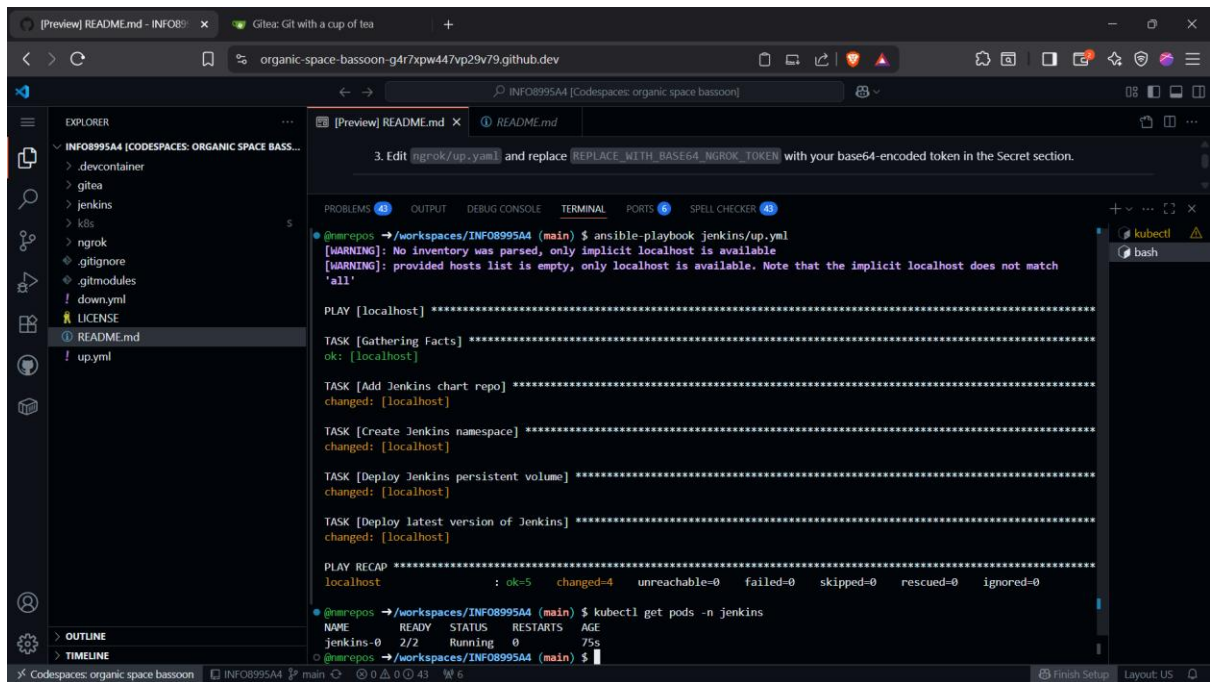
Jenkins / PyCICD / #6

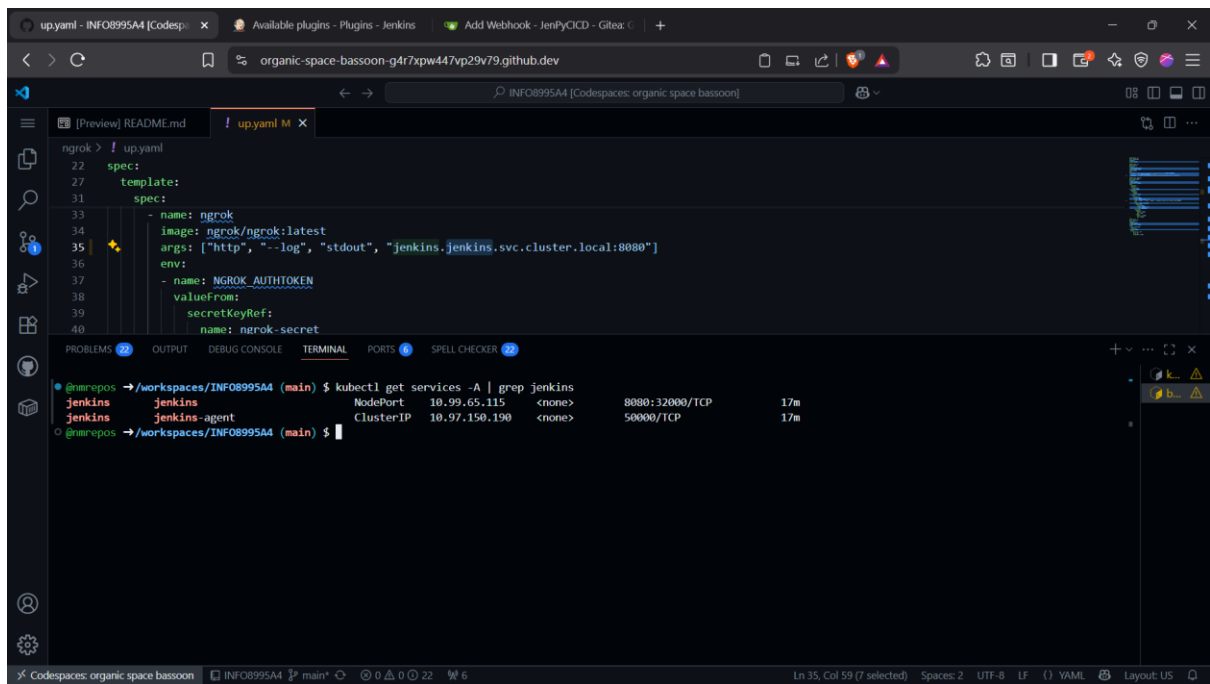
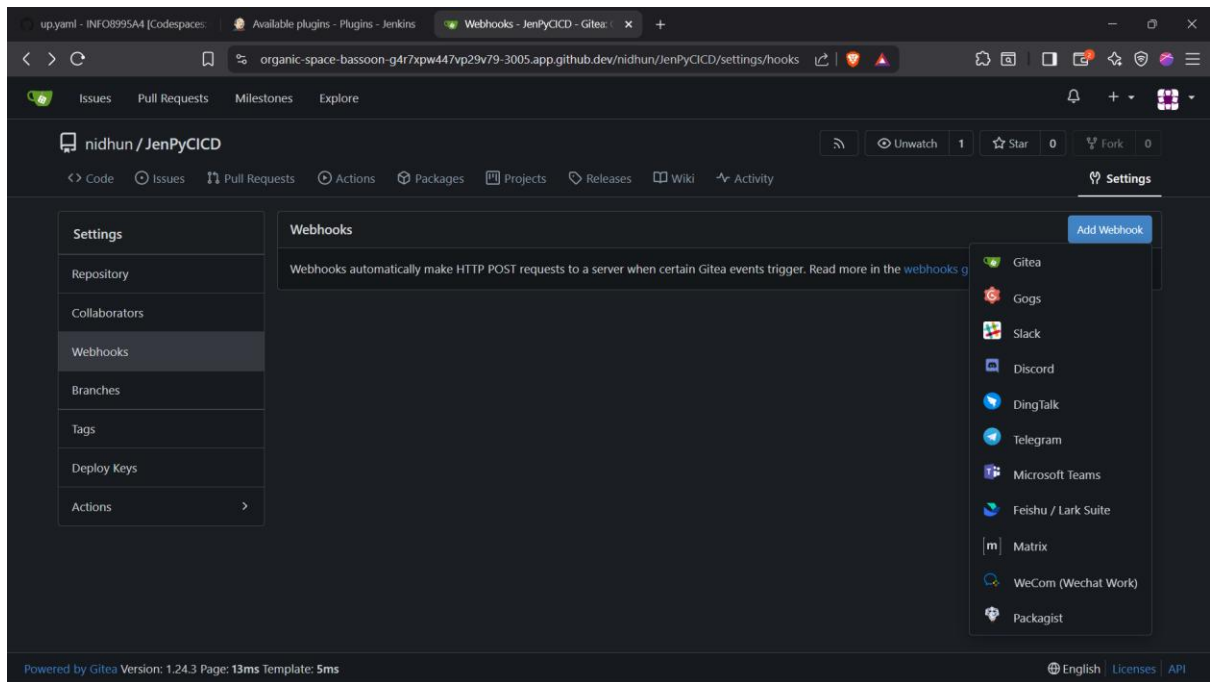
```
[Pipeline] sh
+ echo === Running Tests ===
=== Running Tests ===
+ python3 -m pytest --junit-xml test-reports/results.xml sources/test_calc.py -v
===== test session starts =====
platform linux -- Python 3.11.13, pytest-8.4.1, pluggy-1.6.0 -- /usr/local/bin/python3
cachedir: .pytest_cache
rootdir: /home/jenkins/agent/workspace/PyCICD
collecting ... collected 6 items

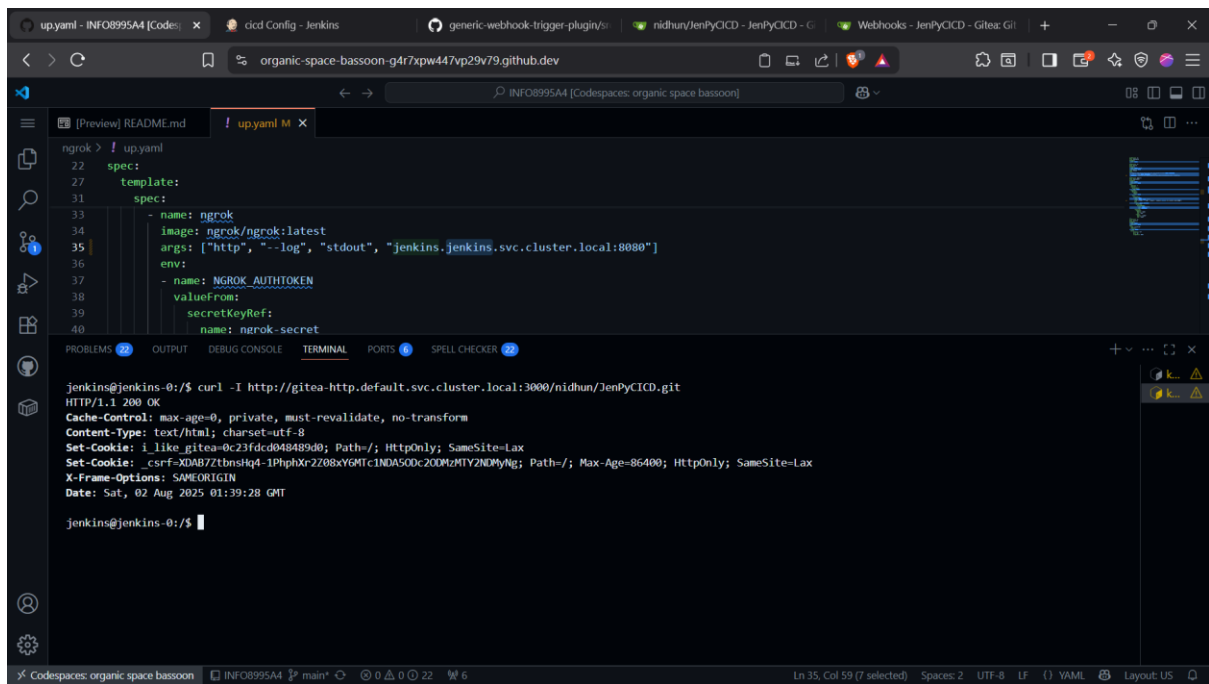
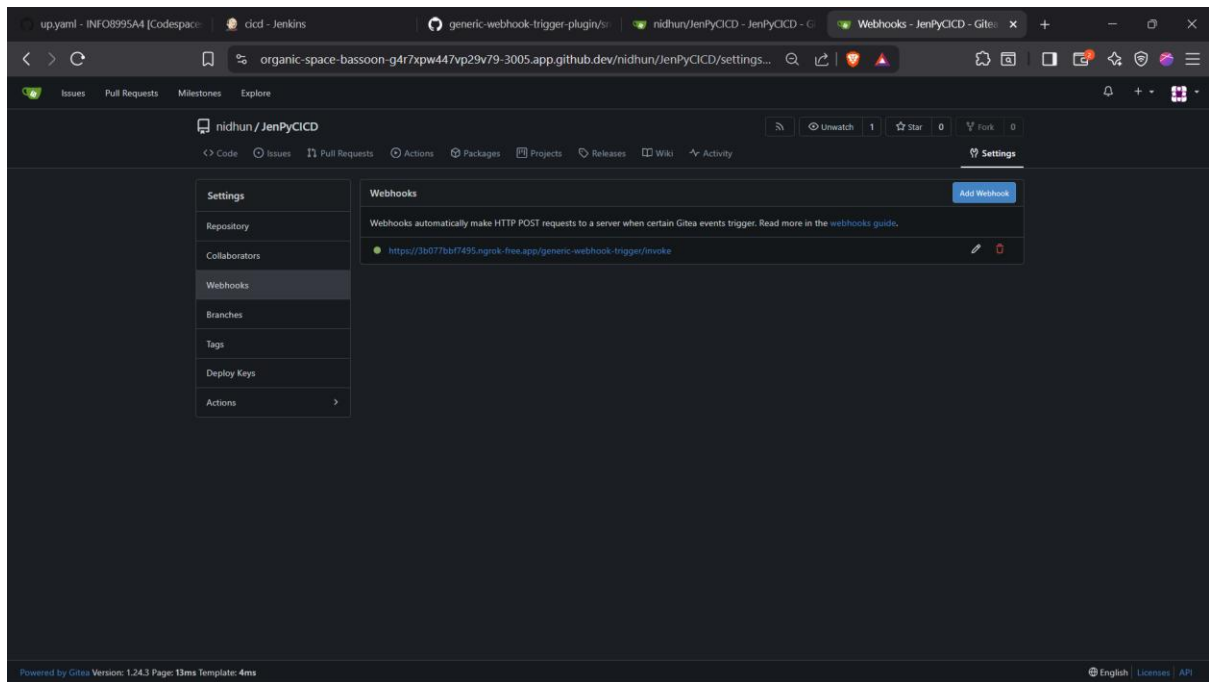
sources/test_calc.py::TestCalc::test_add2_integers PASSED [ 16%]
sources/test_calc.py::TestCalc::test_add2_floats PASSED [ 33%]
sources/test_calc.py::TestCalc::test_add2_strings PASSED [ 50%]
sources/test_calc.py::TestCalc::test_add2_string_and_integer PASSED [ 66%]
sources/test_calc.py::TestCalc::test_add2_integer_and_string PASSED [ 83%]
sources/test_calc.py::TestCalc::test_subtract2_integers PASSED [100%]

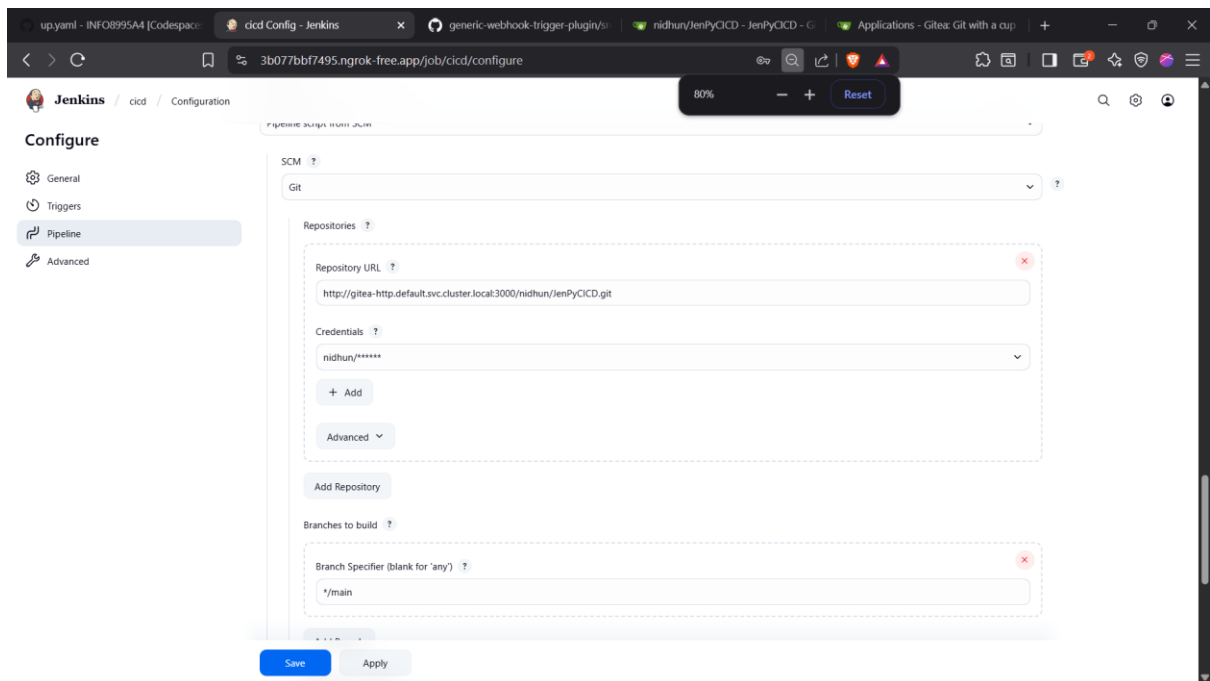
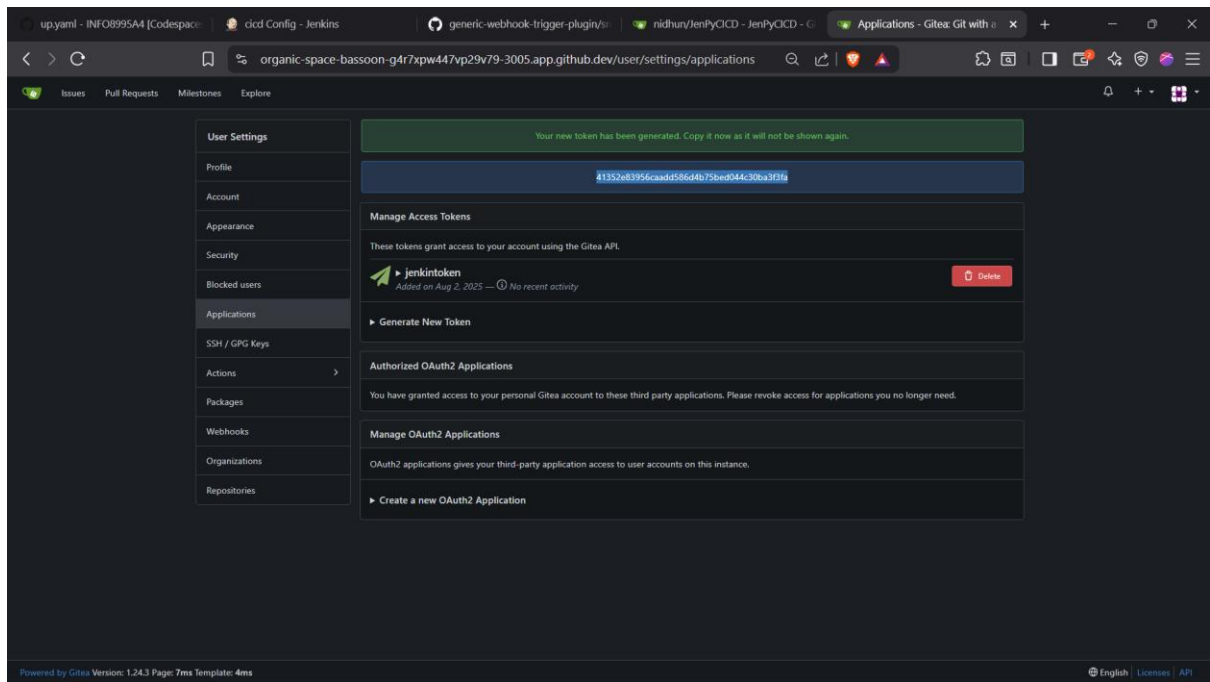
- generated xml file: /home/jenkins/agent/workspace/PyCICD/test-reports/results.xml -
===== 6 passed in 0.02s =====
[Pipeline] }
[Pipeline] // container
Post stage
[Pipeline] junit
Recording test results
[Checks API] No suitable checks publisher found.
[Pipeline] }
[Pipeline] // stage
```











up.yaml - INFO8995A4 [Codespace]

cicd - Jenkins

generic-webhook-trigger-plugin/v...

nidhun/JenPyCICD - JenPyCICD - C

nidhun/JenPyCICD - JenPyCICD

+

-

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x

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organic-space-bassoon-g4r7xpw447vp29v79-3005.app.github.dev/nidhun/JenPyCICD

🔗

🔖

🔒

🔥

🔧

🔍

🔔

⚙️

☰

Issues

Pull Requests

Milestones

Explore

nidhun / JenPyCICD

🔔 Unwatch

1

☆ Star

0

🍴 Fork

0

<> Code

🔔 Issues

🔗 Pull Requests

🔄 Actions

📦 Packages

📁 Projects

🔖 Releases

📖 Wiki

🔔 Activity

⚙️ Settings

🕒 5 Commits

🌿 1 Branch

🏷️ 0 Tags

🔍 Search code...

🔍

🌿 main

🔗 Go to file

➕ Add File

<> Code

nidhun 7db4ba7a8c Update requirements.txt now

sources first commit 2 hours ago

.gitignore first commit 2 hours ago

Jenkinsfile Add environment variable for noninteractive installs and install system depend... 1 hour ago

📖 README.md Update README.md 46 minutes ago

📄 requirements.txt Update requirements.txt now

📖 README.md

✎

🚀 Jenkins CI/CD Pipeline with PyInstaller

A demonstration project showcasing a complete CI/CD pipeline using Jenkins to build a Python CLI application with PyInstaller. This project creates a standalone executable from Python source code and is optimized for Jenkins running in Kubernetes clusters on Linux environments.

github.dev/nidhun/JenPyCICD/.../7db4ba7a8c17a590a25280c00e387a932e249da

▼

up.yaml - INFO8995A4 [Codespace]

cicd - Jenkins

generic-webhook-trigger-plugin/v...

nidhun/JenPyCICD - JenPyCICD - C

Update Webhook - JenPyCICD

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x

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>

↺

organic-space-bassoon-g4r7xpw447vp29v79-3005.app.github.dev/nidhun/JenPyCICD/settings/hooks...

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⚙️

☰

Authorization Header

Will be included as authorization header for requests when present. Examples: Bearer token123456, Basic YWxhZGRpbjpvY2V2ZW11.

☒ Active

Information about triggered events will be sent to this webhook URL.

Update Webhook

Remove Webhook

Recent Deliveries

Test Delivery

✓ b04e038d-aa9d-44d8-aff2-46c218cab83 2 minutes ago

✓ 7c78dfd2-0bf1-47bd-88d6-f0bf6ae406bf 18 minutes ago

✓ 5ae9f875-9def-42ce-8c79-31a419f893b4 18 minutes ago

⚠️ 46078508-e360-4dad-9161-b97b25a157b5 26 minutes ago

⚠️ 7b8f9783-8d45-4102-81a8-33ce0ee1f1d9 43 minutes ago

⚠️ bd9871d6-cb1c-4177-97a1-691939053798 48 minutes ago

up.yaml - INFO899SA4 [Code]

cicd - Jenkins

cicd #4 Changes - Jenkins

generic-webhook-trigger-plugin

nidhun/JenPyCICD - Jenkins

Update Webhook - Jenkins

3b077bbf7495.ngrok-free.app/job/cicd/4/changes

Jenkins

cicd / #4

Status

Changes

Console Output

Edit Build Information

Delete build '#4'

Parameters

Timings

Git Build Data

Test Result

Restart from Stage

Replay

Pipeline Steps

Workspaces

Previous Build

Changes

Summary

1. Update requirements.txt (details)

Commit 7db4ba7a8cf17a590a25280c00e387a932e249da by nidhunofficial

Update requirements.txt

requirements.txt

REST APIJenkins 2.516.1

up.yaml - INFO899SA4 [Code]

cicd - Jenkins

generic-webhook-trigger-plugin

nidhun/JenPyCICD - Jenkins

nidhun/JenPyCICD - Jenkins

3b077bbf7495.ngrok-free.app/job/cicd/

Jenkins

cicd

Rename

Pipeline Syntax

Builds

Filter

Today

#4 01:45

#3 01:43

#2 01:29

#1 01:29

Stage View

Average stage times: (full run time: ~48s)

	Declarative: Checkout SCM	Build	Test	Deliver	Declarative: Post Actions
#4 Aug 01 21:45	1 commit	7s	1s	13s	178ms
#3 Aug 01 21:43	No Changes	7s	1s	13s	140ms
#2 Aug 01 21:29	No Changes				
#1 Aug 01 21:29	No Changes				

1 commit

7db4ba7 Update requirements.txt

See detail page

Latest Test Result (no failures)

up.yml - INFO8995A4 [CodeSpace] cld - Jenkins generic-webhook-trigger-plugin/s nidhun/JenPyCICD - JenPyCICD - G nidhun/JenPyCICD - JenPyCICD - G + -

3b077bbf7495.ngrok-free.app/job/cicd/

Stage Logs (Declarative: Checkout SCM)

Check out from version control (self time 8s)

```
The recommended git tool is: NONE
using credential giteatoken
Cloning the remote Git repository
Cloning repository http://gitea-http.default.svc.cluster.local:3000/nidhun/JenPyCICD.git
> git init /home/jenkins/agent/workspace/cicd # timeout=10
Fetching upstream changes from http://gitea-http.default.svc.cluster.local:3000/nidhun/JenPyCICD.git
> git --version # timeout=10
> git --version # 'git version 2.39.5'
using GIT_ASKPASS to set credentials
> git fetch --tags --force --progress -- http://gitea-http.default.svc.cluster.local:3000/nidhun/JenPyCICD.git +refs/heads/*:refs/remotes/origin/* # timeout=10
> git config remote.origin.url http://gitea-http.default.svc.cluster.local:3000/nidhun/JenPyCICD.git # timeout=10
> git config --add remote.origin.fetch +refs/heads/*:refs/remotes/origin/* # timeout=10
Avoid second fetch
Checking out Revision b30097ec0097d6c2965b1664bae999d9aad10236 (refs/remotes/origin/main)
> git rev-parse refs/remotes/origin/main^{commit} # timeout=10
> git config core.sparsecheckout # timeout=10
> git checkout -f b30097ec0097d6c2965b1664bae999d9aad10236 # timeout=10
Commit message: "Update README.md"
First time build. Skipping changelog.
```

21:29 Changes

41 Aug 01 21:29 No Changes

Latest Test Result (no failures)

up.yml - INFO8995A4 [CodeSpace] cld - Jenkins generic-webhook-trigger-plugin/s nidhun/JenPyCICD - JenPyCICD - G nidhun/JenPyCICD - JenPyCICD - G + -

3b077bbf7495.ngrok-free.app/job/cicd/

Stage Logs (Test)

Shell Script -- echo "=== Running Tests ===" python3 -m pytest --junit-xml test-reports/results.xml sources/test_calc.py -v (self time 763ms)

```
+ echo === Running Tests ===
=== Running Tests ===
+ python3 -m pytest --junit-xml test-reports/results.xml sources/test_calc.py -v
===== test session starts =====
platform linux -- Python 3.11.13, pytest-8.4.1, pluggy-1.6.0 -- /usr/local/bin/python3
cachedir: .pytest_cache
rootdir: /home/jenkins/agent/workspace/cicd
collecting ... collected 6 items

sources/test_calc.py::TestCalc::test_add2_integers PASSED [ 16%]
sources/test_calc.py::TestCalc::test_add2_floats PASSED [ 33%]
sources/test_calc.py::TestCalc::test_add2_strings PASSED [ 50%]
sources/test_calc.py::TestCalc::test_add2_string_and_integer PASSED [ 66%]
sources/test_calc.py::TestCalc::test_add2_integer_and_string PASSED [ 83%]
sources/test_calc.py::TestCalc::test_subtract2_integers PASSED [100%]

- generated xml file: /home/jenkins/agent/workspace/cicd/test-reports/results.xml -
===== 6 passed in 0.03s =====
```

Archive JUnit-formatted test results -- test-reports/results.xml (self time 408ms)

41 Aug 01 21:29 No Changes

Latest Test Result (no failures)

