Note: This Jenkins Setup does not include yet Blue Ocean which will enhance pipelining Specs:

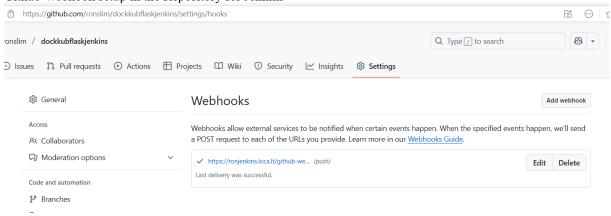
VMWAre Redhat 9.5 Docker Version 28.1.1

Kubectl

Client Version: v1.33.0 Kustomize Version: v5.6.0 Server Version: v1.32.0

Pre-requisites

Github Repository. In my case, my Github Repository (<u>GitHub - ronslim/dockkubflaskjenkins</u>) Github Webhook setup in the Repository for Jenkins

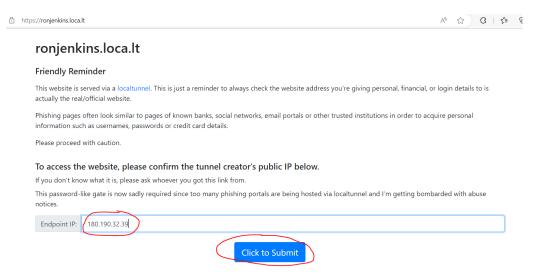


Webhooks / Manage webhook

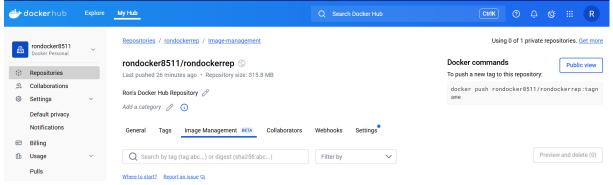
Settings	Recent Deliveries	
	a POST request to the URL below with details of any subscribed events. You can also specify which data u'd like to receive (JSON, x-www-form-urlencoded, etc). More information can be found in our developer ation.	
Payload UI	RL *	
https://ro	onjenkins.loca.lt/github-webhook/	
Content ty	pe *	
applicatio	on/json	\$
Secret		
	ation It, we verify SSL certificates when delivering payloads. SSL verification Disable (not recommended)	
Which eve	nts would you like to trigger this webhook?	
	e push event.	
	ee everything.	
O Let me	select individual events.	
t = 8080 domain = https:/ ons lim(= ronjenkins //ronjenkins.loca.lt/ @ansiblec ~]\$ lt -s ronjenkins -p 8080	
ar url ialize Lo	is: https://ronjenkins.loca.lt ocal Tunnel: ublic IP via https://ipv4.icanhazip.com/	
\leftarrow	C https://ipv4.icanhazip.com	

180.190.32.39

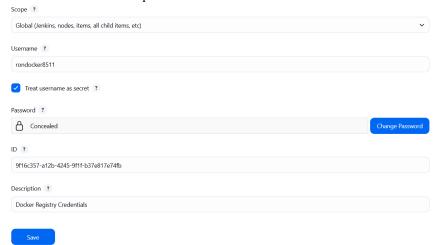
Fill-out the Endpoint IP in the main website and use the retrieved Public IP as Endpoint IP. Then click "Click to Submit".



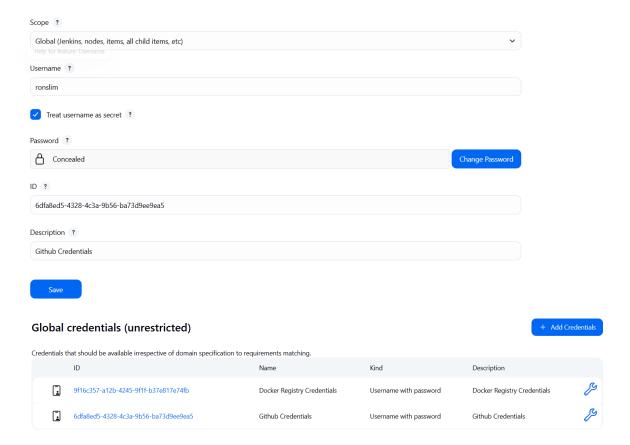
Docker Hub. My Docker Hub Repository is rondocker8511/rondockerrep



Docker Hub Credentials setup in Jenkins:



Github Credentials setup in Jenkins:



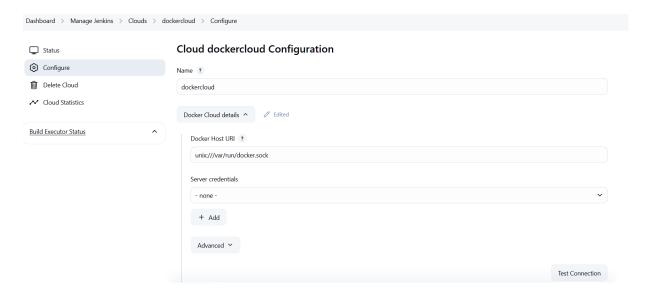




Clouds

During node provisioning, clouds are tried in the order they appear in this table.



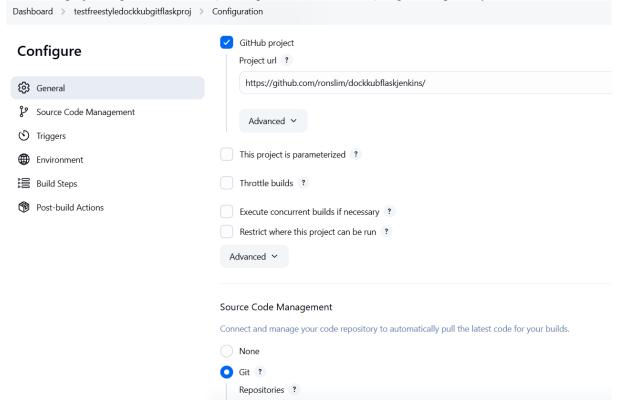


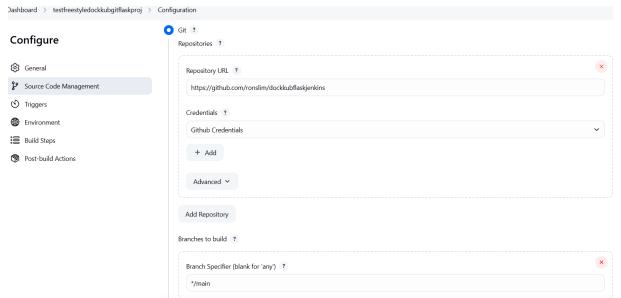
Jenkinsfile, Dockerfile, and app.py are all in Repository (GitHub - ronslim/dockkubflaskjenkins)

Way #1: Freestlyle Project

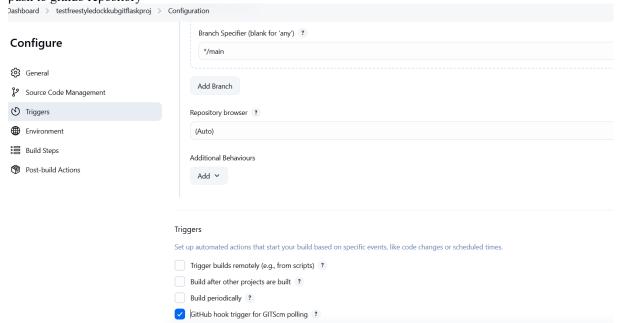
This project uses more of clicking and scripting like windows CMD or shell or other scripting in Build Steps and not using pipeline scripting

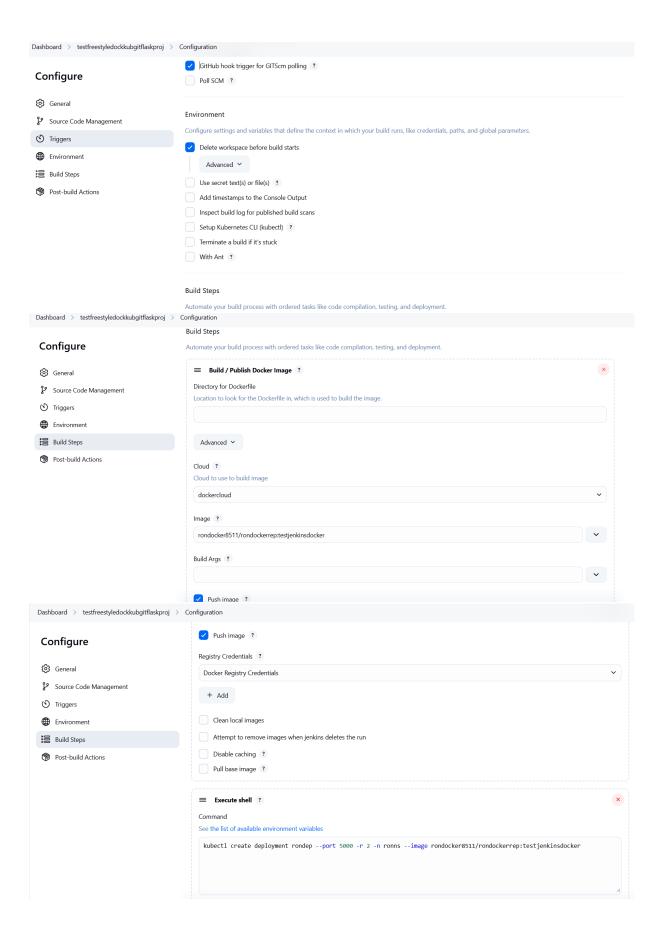
Note: This project requires Dockerfile (with capital D, not dockerfile) in github repository

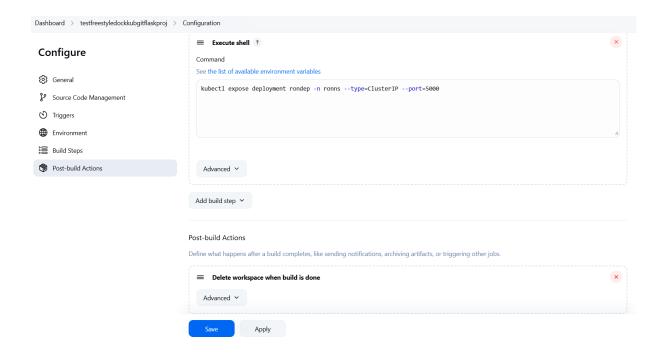




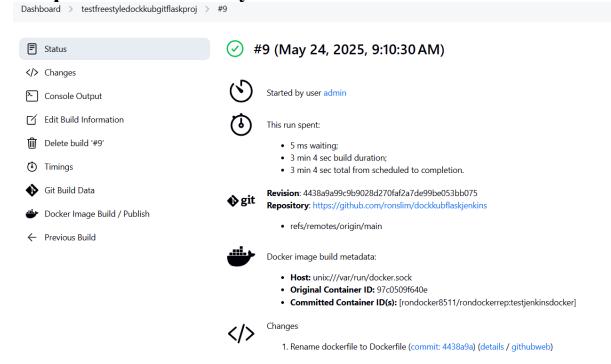
Note: **Github hook trigger for GITScm polling** is required if you want to automatically execute this project after a push to github repository

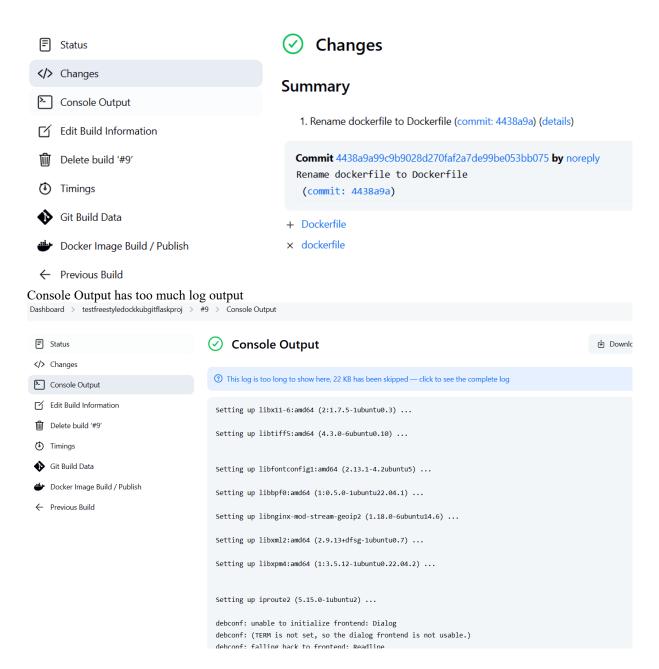






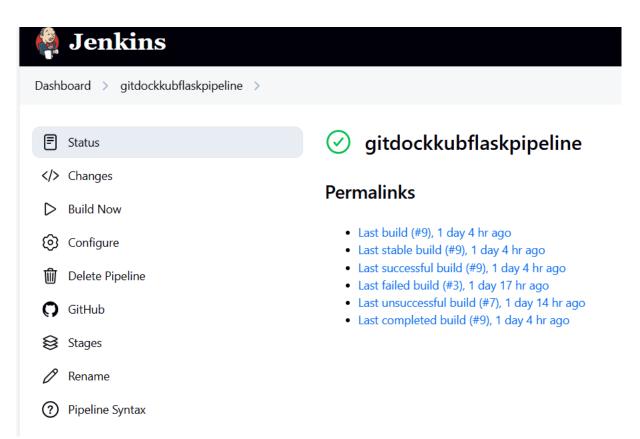
Output in Jenkins Way 1:



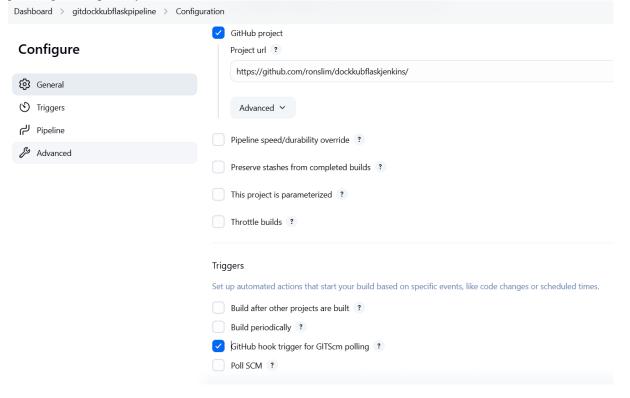


Way #2: Pipeline Project

This project uses Jenkins pipeline syntax Note: Include git checkout in pipeline stage



Note: **Github hook trigger for GITScm polling** is required if you want to automatically execute this project after a push to github repository



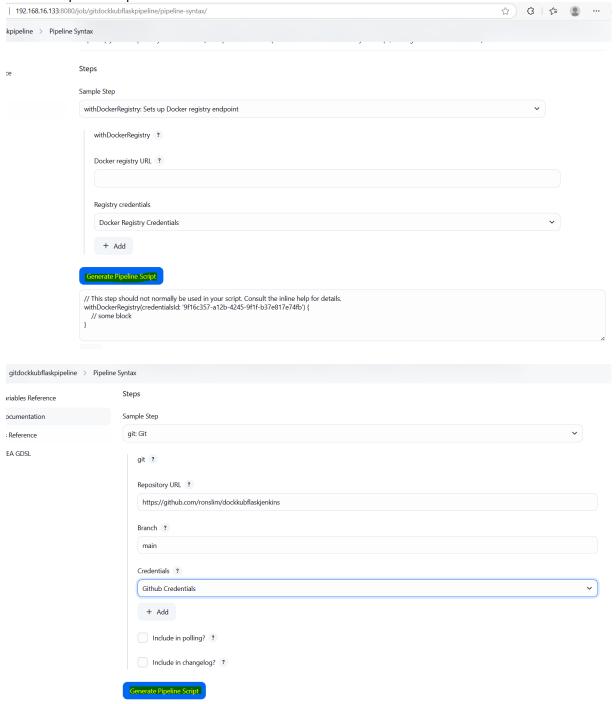
```
Definition
 Configure
                                 Pipeline script

    General

                                   Script ?
 Triggers
 Pipeline
                                           stages {
                                              stage('Git Checkout') {
 Advanced
                                                steps {
                                                   git branch: 'main', credentialsId: '6dfa8ed5-4328-4c3a-9b56-ba73d9ee9ea5', url: 'https://github.com/
                                                   echo "Git Checkout Completed"
                                     12
                                                   sh 'docker build -f Dockerfile -t rondocker8511/rondockerrep:testjenkinsdocker .'
                                     14
                                   ✓ Use Groovy Sandbox ?
                                   Pipeline Syntax
Pipeline Script (Please include Git Checkout):
pipeline {
  agent any
  stages {
     stage('Git Checkout') {
          git branch: 'main', credentialsId: '6dfa8ed5-4328-4c3a-9b56-ba73d9ee9ea5', url:
'https://github.com/ronslim/dockkubflaskjenkins'
           echo "Git Checkout Completed"
     stage('DockerBuild') {
          sh 'docker build -f Dockerfile -t rondocker8511/rondockerrep:testjenkinsdocker .'
     stage('DockerPush') {
        steps {
          script {
          // This step should not normally be used in your script. Consult the inline help for details.
          withDockerRegistry(credentialsId: '9f16c357-a12b-4245-9f1f-b37e817e74fb') {
             // some block
            sh 'docker push rondocker8511/rondockerrep:testjenkinsdocker'
     stage('KubernetesDeployment') {
          sh 'kubectl create deployment rondep --port 5000 -r 2 -n ronns --image
rondocker8511/rondockerrep:testjenkinsdocker'
     stage('KubernetesExpose') {
          sh 'kubectl expose deployment rondep -n ronns --type=ClusterIP --port=5000'
```

} }

How to build Pipeline Syntax for Docker and Git? Go to Pipeline Syntax then Initialize Sample Step then click Generate Pipeline Script

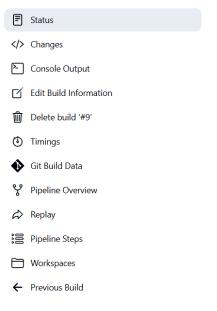




 $git\ branch: 'main',\ changelog:\ false,\ credentials Id:\ '6dfa8ed5-4328-4c3a-9b56-ba73d9ee9ea5',\ poll:\ false,\ url:\ 'https://github.com/ronslim/dockkubflaskjenkins' https://github.com/ronslim/dockkubflaskjenkins' https://github.com/ronslim/dockubflaskjenkins' https://github.com/ronslim/dockubflaskjenkins' https://github.com/ronslim/dockubflaskjenkins' https://github.com/ronslim/dockubflaskjenkins' https://github.com/ronslim/dockubflaskjenkins' https://github.com/ronslim/dockubflaskjenkins' https://$



Output in Jenkins Way 2: Dashboard > gitdockkubflaskpipeline > #9







Started by user admin



This run spent:

- 31 ms waiting;
- 2 min 33 sec build duration;
- 2 min 33 sec total from scheduled to completion.



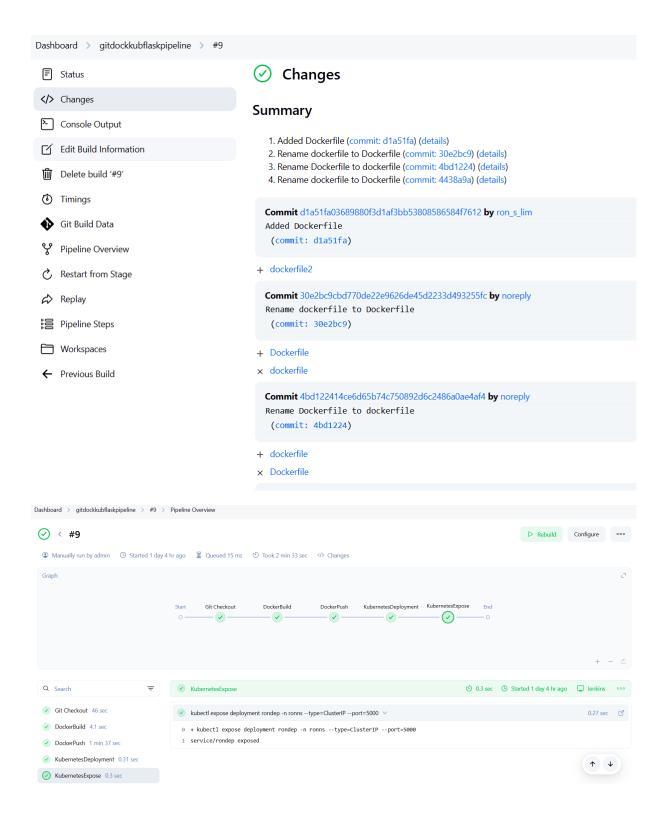
Revision: 4438a9a99c9b9028d270faf2a7de99be053bb075 Repository: https://github.com/ronslim/dockkubflaskjenkins

• refs/remotes/origin/main



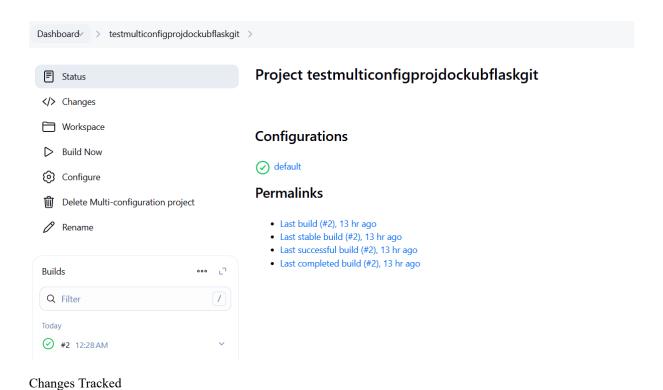
Changes

- 1. Added Dockerfile (commit: d1a51fa) (details / githubweb)
- 2. Rename dockerfile to Dockerfile (commit: 30e2bc9) (details / githubweb)
- 3. Rename Dockerfile to dockerfile (commit: 4bd1224) (details / githubweb)
- 4. Rename dockerfile to Dockerfile (commit: 4438a9a) (details / githubweb)



Way #3: Multiconfiguration Project

This project is a freestyle project but with different matrix. Matrix can be different platforms or different browsers, or different OS. But in the case, we will not use matrix for now due to This project uses Docker Cloud. Therefore we setup Docker Cloud earlier.





Changes

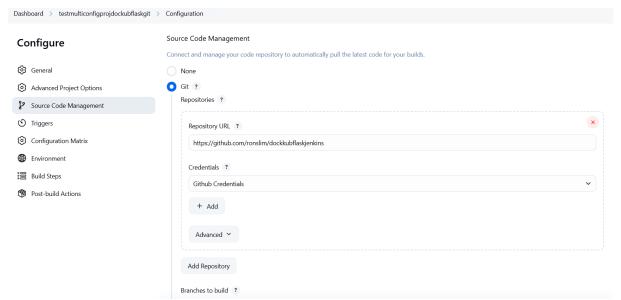


#2 (May 25, 2025, 12:28:31 AM)

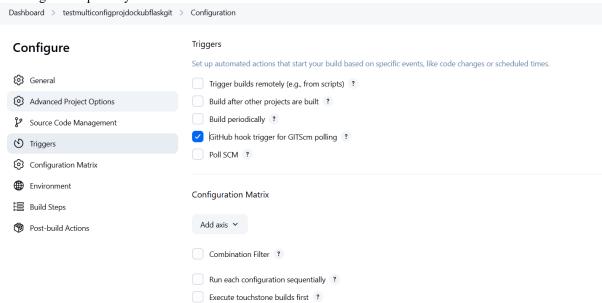
- 1. Added jenkinsfile ron_s_lim / githubweb
- Delete Multi-configuration project
- 2. Test Jenkinsfile edit trigger ron_s_{lim} / githubweb

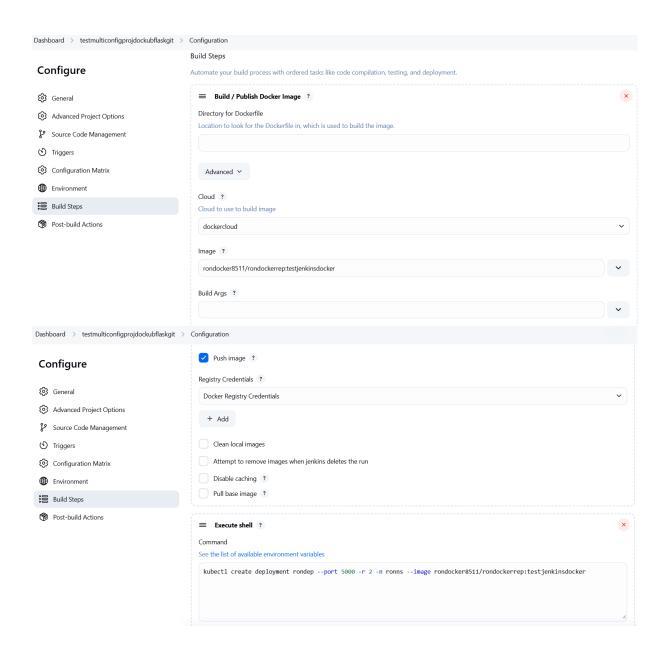
Rename

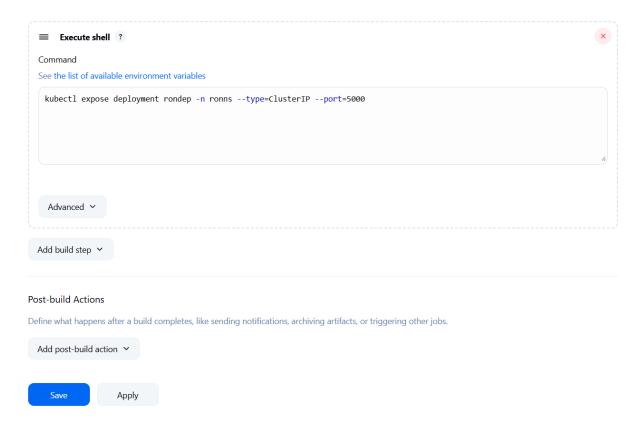
3. Changed jenkinsfile trigger test — ron_s_lim / githubweb



Note: **Github hook trigger for GITScm polling** is required if you want to automatically execute this project after a push to github repository



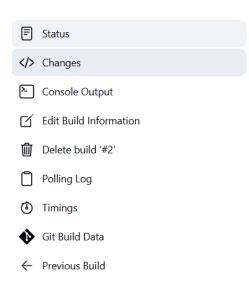




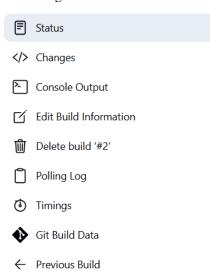
Output in Jenkins Way 3:

Dashboard > testmulticonfigprojdockubflaskgit > #2





Go back again to Status then click Default



⊘ Changes

Summary

- 1. Added jenkinsfile (details)
- 2. Test Jenkinsfile edit trigger (details)
- 3. Changed jenkinsfile trigger test (details)

Commit 574e27a66a4cf3097302395a7e21d0745ee12931 **by** ron_s_lim Added jenkinsfile

+ Jenkinsfile

 $\label{lem:commit} \textbf{Commit} \ fe3fa1f5a635a8574d4f8f5d403bdcaeaac58854 \ \textbf{by} \ ron_s_lim \\ \textbf{Test Jenkinsfile edit trigger}$

Jenkinsfile (diff)

Commit ec820e304a97b9b751d2a3c68d93b39427befcd0 **by** ron_s_lim Changed jenkinsfile trigger test

Jenkinsfile (diff)



#2 (May 25, 2025, 12:28:31 AM)



Started by GitHub push by ronslim



This run spent:

- · 6 sec waiting;
- 3 min 29 sec build duration;
- 3 min 35 sec total from scheduled to completion.

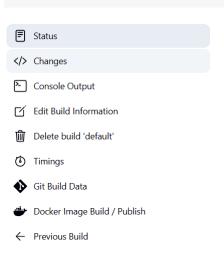


Revision: ec820e304a97b9b751d2a3c68d93b39427befcd0 **Repository**: https://github.com/ronslim/dockkubflaskjenkins

• refs/remotes/origin/main

Configurations









Started by upstream project testmulticonfigprojdockubflaskgit build number 2 originally caused by:

• Started by GitHub push by ronslim



This run spent:

- 7 ms waiting;
- 2 min 57 sec build duration;
- 2 min 57 sec total from scheduled to completion.



Revision: ec820e304a97b9b751d2a3c68d93b39427befcd0 **Repository**: https://github.com/ronslim/dockkubflaskjenkins

• refs/remotes/origin/main



Docker image build metadata:

- Host: unix:///var/run/docker.sock
- Original Container ID: 8d2864c43517
- Committed Container ID(s): [rondocker8511/rondockerrep:testjenkinsdocker]

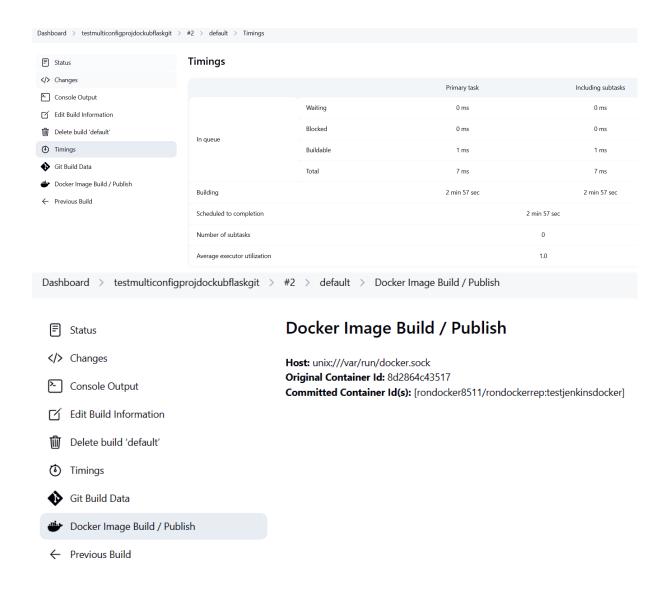


Changes

- 1. Added jenkinsfile (details / githubweb)
- 2. Test Jenkinsfile edit trigger (details / githubweb)
- 3. Changed jenkinsfile trigger test (details / githubweb)

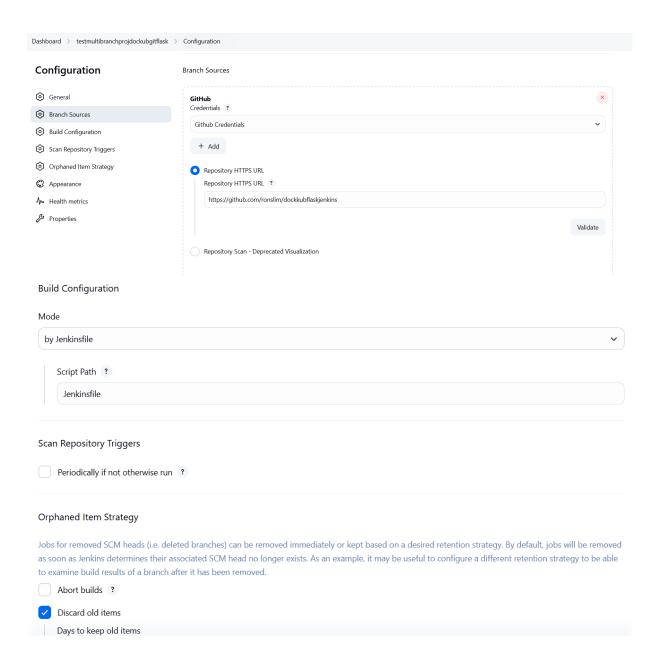
Console Output has too much info

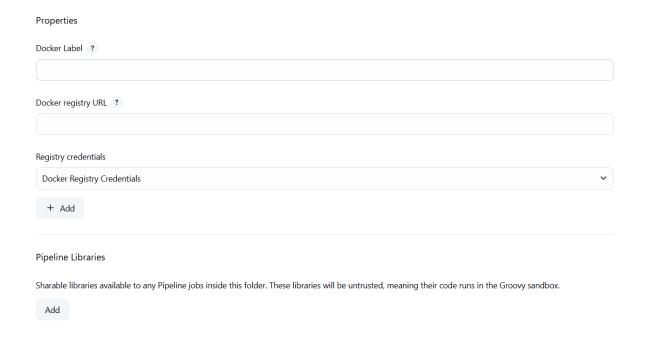




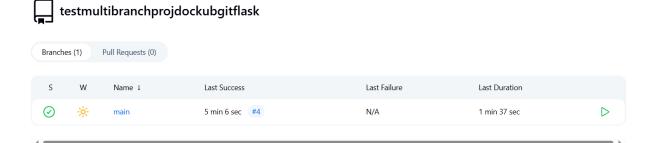
Way #4: Multibranch Pipeline (Required Jenkinsfile)

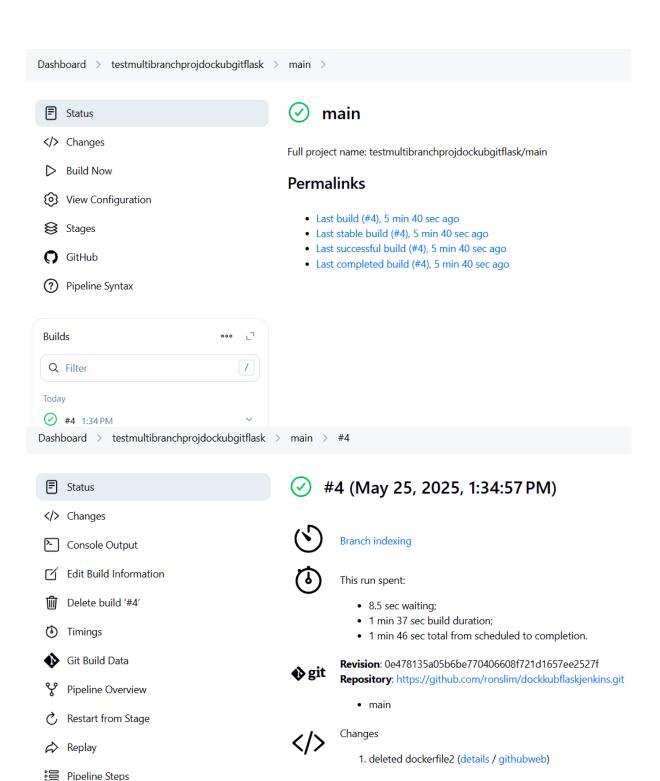
This project can perform ci/cd in multiple Git branches Jenkinsfile = Jenkins Pipeline Script in a file

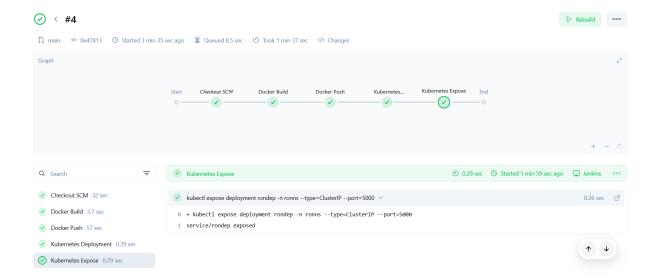




Output in Jenkins Way 4:

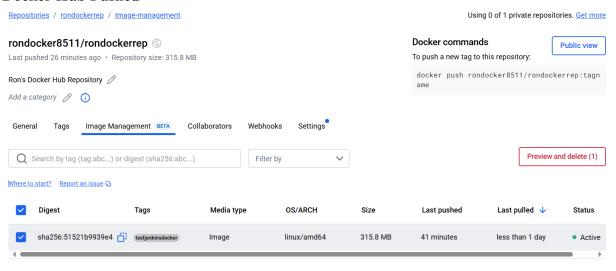






Output for all ways:





Docker Image Local

[ronslim@ansiblec ~]\$ docker REPOSITORY TAG IMAGE ID CREATED SIZE rondocker8511/rondockerrep testjenkinsdocker 5257e29ff989 13 hours ago 821MB gcr.io/k8s-minikube/kicbase v0.0.46 e72c4cbe9b29 1.31GB 4 months ago [ronslim@ansiblec ~]\$|

Kubernetes Deployment

[ronslim@ansiblec ~]\$ kubectl get deployments -n ronns NAME READY UP-TO-DATE AVAILABLE AGE rondep 2/2 2 2 42m [ronslim@ansiblec ~]\$|

Kubernetes Expose Service

```
[ronslim@ansiblec ~]$ kubectl get services -n ronns
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
rondep ClusterIP 10.99.24.91 <none> 5000/TCP 43m
[ronslim@ansiblec ~]$|
```

Then perform the port forward

kubectl port-forward --address localhost,<IP Address of VM> deployment/<deployment
name> -n <namespace> <node port>:<deployment port>

Sample: kubectl port-forward --address localhost, 192.168.16.133 deployment/rondep -n ronns 5000:5000

```
[rons]im@ansiblec ~]$ kubect] port-forward --address localhost,192.168.16.133 deployment/rondep -n ronns 5000:5000 Forwarding from 127.0.0.1:5000 -> 5000 Forwarding from 192.168.16.133:5000 -> 5000 Forwarding from [::1]:5000 -> 5000
```

Then access the site



Disk Utilization

