

Docker

Assignment 1: Build Java Application with Maven and Deploy Using GitLab CI/CD (Using Shell & Docker Executors)

Dockerfile

FROM openjdk:17-jdk-slim

WORKDIR /app

COPY target/java-docker-app-1.0-SNAPSHOT.jar app.jar

CMD ["java", "-jar", "app.jar"]

Build & Test Locally

Build image: -

`docker build -t docker-app:latest .`

```
Vishnu Raj@LAPTOP-KSAOBH37 MINGW64 ~/devops/app_build_deploy (main)
$ docker build -t docker-app:latest .
[+] Building 1.4s (8/8) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 164B
=> [internal] load metadata for docker.io/library/openjdk:17-jdk-slim
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/3] FROM docker.io/library/openjdk:17-jdk-slim@sha256:aaa3b3cb27e3e520b8f116863d0580c438ed55ecfa0bc126b41f68c3f62f9774
=> => resolve docker.io/library/openjdk:17-jdk-slim@sha256:aaa3b3cb27e3e520b8f116863d0580c438ed55ecfa0bc126b41f68c3f62f9774
=> [internal] load build context
=> => transferring context: 2.51kB
=> CACHED [2/3] WORKDIR /app
=> [3/3] COPY target/java-docker-app-1.0-SNAPSHOT.jar app.jar
=> exporting to image
=> => exporting layers
=> => exporting manifest sha256:71ccaf3fcb981b25768a1683bc5f9e5dfed8f6ce36422a71ffca1abbaf5973
=> => exporting config sha256:d1e0e2aab136b1cd55e8bee1ee710065599f757ffe9aae7a07ef7db5df215d28
=> => exporting attestation manifest sha256:6e4e8d312ca002087832efbf601ee71fd425343a8088482b758ba168933d71b
=> => exporting manifest list sha256:2dc774b5c3897fb48018b588448e3ebde97fa54133a40838d514a3b2671e8e20
=> => naming to docker.io/library/docker-app:latest
=> => unpacking to docker.io/library/docker-app:latest
```

Run container: -

`docker run --rm docker-app:latest`

```
Vishnu Raj@LAPTOP-KSAOBH37 MINGW64 ~/devops/app_build_deploy (main)
$ docker run --rm docker-app:latest
Java Application with Maven and Deploy Using GitLab CI/CD
Vishnu Raj@LAPTOP-KSAOBH37 MINGW64 ~/devops/app_build_deploy (main)
```

GitLab CI/CD Configuration

#yaml

stages:

- build
- push
- deploy

variables:

DOCKER_DRIVER: overlay2

DOCKER_TLS_CERTDIR: ""

DOCKER_HOST: tcp://docker:2375

APP_NAME: java-docker-app

IMAGE_TAG: \$CI_REGISTRY_IMAGE:\$CI_COMMIT_SHORT_SHA

build-job:

stage: build

image: maven:latest

script:

- echo "Building the Maven project..."
- mvn clean package

artifacts:

paths:

- target/java-docker-app-1.0-SNAPSHOT.jar

push-job:

stage: push

image: docker:24.0.7

services:

- docker:24.0.7-dind

script:

```
- echo "Login to GITLAB container..."  
  
- echo "$CI_REGISTRY_PASSWORD" | docker login -u "$CI_REGISTRY_USER"  
"$CI_REGISTRY" --password-stdin  
  
- echo "Building Docker image..."  
  
- docker build -t $IMAGE_TAG .  
  
- echo "Pushing the image to GITLAB..."  
  
- docker push $IMAGE_TAG
```

deploy-job:

stage: deploy

image: docker:24.0.7

services:

```
- docker:24.0.7-dind
```

script:

```
- echo "Deploying container..."  
  
- echo "$CI_REGISTRY_PASSWORD" | docker login -u "$CI_REGISTRY_USER"  
"$CI_REGISTRY" --password-stdin  
  
- docker pull $IMAGE_TAG  
  
- docker run --rm $IMAGE_TAG  
  
- docker ps
```

OUTPUT

devops / App_Build_Deploy / Pipelines / #2093854092

update TTY for unknown error on deploy stage

Passed

Vishnu Raj created pipeline for commit a4bb1c7e 5 minutes ago, finished 3 minutes ago

For main

latest

branch

3 jobs

2.27

2 minutes 15 seconds, queued for 0 seconds

Pipeline

Jobs 3

Tests 0

build

build-job

push

push-job

deploy

deploy-job

build-job

devops / App_Build_Deploy / Jobs / #11683848839

Search visible log output

430 Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-io/3.4.0/plexus-io-3.4.0.jar (79 kB at 1.7 MB/s)

431 Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-compress/1.21/commons-compress-1.21.jar (1.0 MB at 15 MB/s)

432 Downloaded from central: https://repo.maven.apache.org/maven2/org/tukaani/xz/1.9/xz-1.9.jar (116 kB at 1.6 MB/s)

433 Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-utils/3.4.2/plexus-utils-3.4.2.jar (267 kB at 3.0 MB/s)

434 [INFO] Building jar: /builds/vishnuraj784-group/app_build_deploy/target/java-docker-app-1.0-SNAPSHOT.jar

435 [INFO] -----

436 [INFO] BUILD SUCCESS

437 [INFO] -----

438 [INFO] Total time: 9.371 s

439 [INFO] Finished at: 2025-10-11T05:24:50Z

440 [INFO] -----

441 Uploading artifacts for successful job 00:02

442 Uploading artifacts...

443 target/java-docker-app-1.0-SNAPSHOT.jar: found 1 matching artifact files and directories

444 Uploading artifacts as "archive" to coordinator... 201 Created correlation_id=3cf670ae573e4e4999570d909ea866cd id=11683848839 responseStatus=201 Created token=eyJraWQ10

445 Cleaning up project directory and file based variables 00:00

446 Job succeeded

Timeout: 1h (from project)

Runner: #12270835 (zxwgkJP) 3-blue.saas-linux-small-amd64.runners-manager.gitlab.com/default

Source: Push

Job artifacts These artifacts are the latest. They will not be deleted (even if expired) until newer artifacts are available.

Keep Download Browse

Commit a4bb1c7e update TTY for unknown error on deploy stage

Pipeline #2093854092 Passed for main build

Related jobs → build-job

push-job

devops / App_Build_Deploy / Jobs / #11683848841

Search visible log output

70 #8 naming image sha256:b0c3d0b1700fca2027407007bdc270e04e0303703c7173008b0c303202 done

91 #8 naming to registry.gitlab.com/vishnuraj784-group/app_build_deploy:a4bb1c7e done

92 #8 DONE 0.0s

93 WARNING: current commit information was not captured by the build: git was not found in the system: exec: "git": executable file not found in \$PATH

94 \$ echo "Pushing the image to GITLAB..."

95 Pushing the image to GITLAB...

96 \$ docker push \$IMAGE_TAG

97 The push refers to repository [registry.gitlab.com/vishnuraj784-group/app_build_deploy]

98 767ab0f6fb8f: Preparing

99 6b68fe672c64: Preparing

100 6be690267e47: Preparing

101 13a34b6fff78: Preparing

102 9c1b6dd6c1e6: Preparing

103 9c1b6dd6c1e6: Layer already exists

104 6be690267e47: Layer already exists

105 13a34b6fff78: Layer already exists

106 767ab0f6fb8f: Pushed

107 6b68fe672c64: Pushed

108 a4bb1c7e: digest: sha256:be98d09678baa406c326124f51c86d8126c9ba8d3f47660b68d8b343ef8ffab2 size: 1367

109 Cleaning up project directory and file based variables 00:01

110 Job succeeded

Duration: 55 seconds

Finished: 5 minutes ago

Queued: 0 seconds

Timeout: 1h (from project)

Runner: #12270837 (J2nyww-s) 4-blue.saas-linux-small-amd64.runners-manager.gitlab.com/default

Source: Push

Commit a4bb1c7e update TTY for unknown error on deploy stage

Pipeline #2093854092 Passed for main push

Related jobs → push-job

deploy-job

devops / App_Build_Deploy / Jobs / #11683848844

Search visible log output

```
48 19bcae5654ee: Verifying Checksum
49 19bcae5654ee: Download complete
50 1fe172e4850f: Verifying Checksum
51 1fe172e4850f: Download complete
52 70fe17174a14: Verifying Checksum
53 70fe17174a14: Download complete
54 6ce99fd16e8: Verifying Checksum
55 6ce99fd16e8: Download complete
56 1fe172e4850f: Pull complete
57 44d3aa8d0766: Pull complete
58 6ce99fd16e8: Pull complete
59 19bcae5654ee: Pull complete
60 70fe17174a14: Pull complete
61 Digest: sha256:be98d09678baa406c326124f51c86d8126c9ba8d3f47660b68d8b343ef8ffab2
62 Status: Downloaded newer image for registry.gitlab.com/vishnuraj784-group/app_build_deploy:a4bb1c7e
63 registry.gitlab.com/vishnuraj784-group/app_build_deploy:a4bb1c7e
64 $ docker run --rm $IMAGE_TAG
65 Java Application with Maven and Deploy Using GitLab CI/CD
66 $ docker ps
67 CONTAINER ID   IMAGE                                COMMAND                  CREATED          STATUS          PORTS          NAMES
68 Cleaning up project directory and file based variables
69 Job succeeded
```

Duration: 47 seconds
Finished: 5 minutes ago
Queued: 0 seconds
Timeout: 1h (from project) ⓘ
Runner: #12270831 (XxUrkriX) 2-blue.saas-linux-small-amd64.runners-manager.gitlab.com/default
Source: Push

Commit a4bb1c7e ⓘ
update TTY for unknown error on deploy stage

Pipeline #2093854092 Passed for main ⓘ
deploy

Related jobs
→ Passed deploy-job

Assignment 2: Manage Docker Build Locally and Using GitLab CI/CD

Dockerfile

FROM openjdk:26-slim

WORKDIR /app

COPY HelloWorld.java .

RUN javac HelloWorld.java

CMD ["java", "HelloWorld"]

Build & Test Locally

Build image: -

docker build -t sample-app .

```

Vishnu Raj@LAPTOP-KSAOBH37 MINGW64 ~/devops/manage_docker_build (main)
$ docker build -t sample-app .
[+] Building 3.6s (10/10) FINISHED                                docker:desktop-linux
=> [internal] load build definition from Dockerfile                0.0s
=> => transferring dockerfile: 151B                                0.0s
=> [internal] load metadata for docker.io/library/openjdk:26-slim 3.3s
=> [auth] library/openjdk:pull token for registry-1.docker.io     0.0s
=> [internal] load .dockerignore                                  0.0s
=> => transferring context: 2B                                       0.0s
=> [internal] load build context                                  0.0s
=> => transferring context: 37B                                       0.0s
=> [1/4] FROM docker.io/library/openjdk:26-slim@sha256:5be22161570041c14 0.0s
=> => resolve docker.io/library/openjdk:26-slim@sha256:5be22161570041c14 0.0s
=> CACHED [2/4] WORKDIR /app                                       0.0s
=> CACHED [3/4] COPY HelloWorld.java .                             0.0s
=> CACHED [4/4] RUN javac HelloWorld.java                          0.0s
=> exporting to image                                              0.1s
=> => exporting layers                                              0.0s
=> => exporting manifest sha256:42e6eab5a6f28abeb00fee10515a3e6754634c51 0.0s
=> => exporting config sha256:a27c88ff8bca400b55ec17b24ac992cbe1e370dcb3 0.0s
=> => exporting attestation manifest sha256:c5ed22e1c4bc3ec9f695717ec8d3 0.0s
=> => exporting manifest list sha256:09e7715661d328fa2944c4382a75f0651d2 0.0s
=> => naming to docker.io/library/sample-app:latest               0.0s
=> => unpacking to docker.io/library/sample-app:latest            0.0s
Vishnu Raj@LAPTOP-KSAOBH37 MINGW64 ~/devops/manage_docker_build (main)
$

```

Run container: -

```
docker run -it sample-app
```

```

Vishnu Raj@LAPTOP-KSAOBH37 MINGW64 ~/devops/manage_docker_build (main)
$ docker run -it sample-app
Hello from Java in Docker!
Vishnu Raj@LAPTOP-KSAOBH37 MINGW64 ~/devops/manage_docker_build (main)
$

```

GitLab CI/CD Configuration

yaml file

stages:

- build
- push

variable

variables:

DOCKER_DRIVER: overlay2

DOCKER_TLS_CERTDIR: ""

DOCKER_HOST: tcp://docker:2375

services:

- name: docker:20.10.24-dind

alias: docker

#docker image

image: docker:20.10.24-git

Login to GitLab Container Registry

before_script:

- echo \$CI_REGISTRY_PASSWORD | docker login -u \$CI_REGISTRY_USER --password-stdin

\$CI_REGISTRY

#build image stage

build-image:

stage: build

script:

- docker build -t "\$CI_REGISTRY_IMAGE:latest" .

- docker save "\$CI_REGISTRY_IMAGE:latest" | gzip > image.tar.gz

artifacts:

paths:

- image.tar.gz

push image stage

push-image:

stage: push

script:

- docker load < image.tar.gz

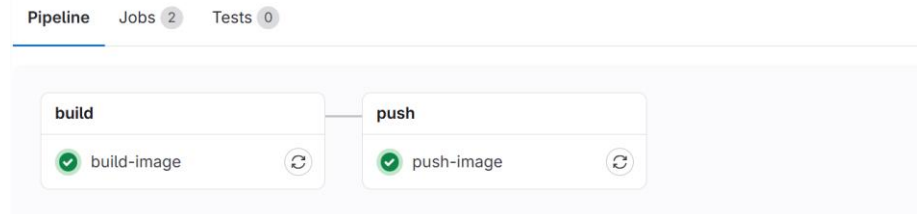
- docker push "\$CI_REGISTRY_IMAGE:latest"

OUTPUT

✓ Passed Vishnu Raj created pipeline for commit `f211ad7a` 26 minutes ago, finished 23 minutes ago

For `main`

latest branch eo 2 jobs 2.8 2 minutes 48 seconds, queued for 1 seconds



build-image job

devops / manage_docker_build / Jobs / #11573071649

Search visible log output

```
54 --- Running in 310492301f0a
55 ---> c96f6fd5a346
56 Step 3/5 : COPY HelloWorld.java .
57 ---> 22c0b52cdd38
58 Step 4/5 : RUN javac HelloWorld.java
59 ---> Running in 74a7cbb697b3
60 Removing intermediate container 74a7cbb697b3
61 ---> 7f1a089749e2
62 Step 5/5 : CMD ["java", "HelloWorld"]
63 ---> Running in 9fa7a4ae3423
64 Removing intermediate container 9fa7a4ae3423
65 ---> dbd48b67df0f
66 Successfully built dbd48b67df0f
67 Successfully tagged registry.gitlab.com/vishnuraj784-group/manage_docker_build:latest
68 $ docker save "$CI_REGISTRY_IMAGE:latest" | gzip > image.tar.gz
69 Uploading artifacts for successful job
70 Uploading artifacts...
71 image.tar.gz: found 1 matching artifact files and directories
72 Uploading artifacts as "archive" to coordinator... 201 Created correlation_id=e5832ba6fd2548
f39fcc9bd635d4291 id=11573071649 responseStatus=201 Created token=eyJnaWQ10
73 Cleaning up project directory and file based variables
74 Job succeeded
```

Queued: 0 seconds
Timeout: 1h (from project)
Runner: #12270831 (XxUrkriX) 2-blue.saas-linux-small-amd64.runners-manager.gitlab.com/default
Source: Push

Job artifacts
These artifacts are the latest. They will not be deleted (even if expired) until newer artifacts are available.
Keep Download Browse

Commit `f211ad7a`
update the docker save command

Pipeline #2075627503 ✓ Passed for main
build

Related jobs
→ ✓ build-image

push-image job

devops / manage_docker_build / Jobs / #11573071655

Search visible log output

```
34 Configure a credential helper to remove this warning. See
35 https://docs.docker.com/engine/reference/commandline/login/#credentials-store
36 $ docker load < image.tar.gz
37 Loaded image: registry.gitlab.com/vishnuraj784-group/manage_docker_build:latest
38 $ docker push "$CI_REGISTRY_IMAGE:latest"
39 The push refers to repository [registry.gitlab.com/vishnuraj784-group/manage_docker_build]
40 99f9e4f38791: Preparing
41 e363eae8562c: Preparing
42 570266b45c6b: Preparing
43 7f0bf75582de: Preparing
44 aeb8eb818d56: Preparing
45 1d46119d249f: Preparing
46 1d46119d249f: Waiting
47 570266b45c6b: Pushed
48 e363eae8562c: Pushed
49 aeb8eb818d56: Pushed
50 99f9e4f38791: Pushed
51 1d46119d249f: Pushed
52 7f0bf75582de: Pushed
53 latest: digest: sha256:2f258983223197d6d58ddf194d58eb1345fcc649fe7936de772fad01fe1835ae size:
1573
54 Cleaning up project directory and file based variables
55 Job succeeded
```

Duration: 1 minute 13 seconds
Finished: 25 minutes ago
Queued: 0 seconds
Timeout: 1h (from project)
Runner: #12270835 (zxwgkjAP) 3-blue.saas-linux-small-amd64.runners-manager.gitlab.com/default
Source: Push

Commit `f211ad7a`
update the docker save command

Pipeline #2075627503 ✓ Passed for main
push

Related jobs
→ ✓ push-image

Assignment 3: Manage Docker Build Locally and Using GitLab CI/CD with Essential Dockerfile

Instructions

Dockerfile

FROM openjdk:26-slim

ARG APP_ENV=production

RUN echo "Building image for environment: \$APP_ENV"

WORKDIR /app

COPY target/java-docker-app-1.0-SNAPSHOT.jar app.jar

ADD https://raw.githubusercontent.com/vishnubob/wait-for-it/master/wait-for-it.sh

/app/wait-for-it.sh

CMD ["java", "-jar", "app.jar"]

Build & Test Locally

Build image: -

docker build -t dockerapp:latest .

```
Vishnu Raj@LAPTOP-KSAOBH37 MINGW64 ~/devops/build_advanced (main)
$ docker build -t dockerapp:latest .
[+] Building 3.0s (12/12) FINISHED                                docker:desktop-linux
=> [internal] load build definition from Dockerfile                0.0s
=> => transferring dockerfile: 342B                                0.0s
=> [internal] load metadata for docker.io/library/openjdk:26-slim 2.4s
=> [auth] library/openjdk:pull token for registry-1.docker.io     0.0s
=> [internal] load .dockerignore                                  0.0s
=> => transferring context: 2B                                       0.0s
=> [1/5] FROM docker.io/library/openjdk:26-slim@sha256:5be22161570041c14 0.0s
=> => resolve docker.io/library/openjdk:26-slim@sha256:5be22161570041c14 0.0s
=> [5/5] ADD https://raw.githubusercontent.com/vishnubob/wait-for-it/master/wait-for-it.sh 0.4s
=> [internal] load build context                                  0.0s
=> => transferring context: 87B                                       0.0s
=> CACHED [2/5] RUN echo "Building image for environment: production" 0.0s
=> CACHED [3/5] WORKDIR /app                                       0.0s
=> CACHED [4/5] COPY target/java-docker-app-1.0-SNAPSHOT.jar app.jar 0.0s
=> CACHED [5/5] ADD https://raw.githubusercontent.com/vishnubob/wait-for-it/master/wait-for-it.sh 0.0s
=> exporting to image                                              0.1s
=> => exporting layers                                              0.0s
=> => exporting manifest sha256:e987d289b664eed14e3a1c554b0abda3535f68fb 0.0s
=> => exporting config sha256:9d46cee5a30ed93e81924899134de413de856d59c5 0.0s
=> => exporting attestation manifest sha256:3ac27025fdcf4866bf950b2fb4c7 0.0s
=> => exporting manifest list sha256:f2da8190da769ce27fca881bebab4b6517b 0.0s
=> => naming to docker.io/library/dockerapp:latest                0.0s
=> => unpacking to docker.io/library/dockerapp:latest              0.0s
Vishnu Raj@LAPTOP-KSAOBH37 MINGW64 ~/devops/build_advanced (main)
$ |
```

Run container: -

docker run -it dockerapp:latest

```
Vishnu Raj@LAPTOP-KSAOBH37 MINGW64 ~/devops/build_advanced (main)
$ docker run -it dockerapp:latest
Hello Docker!

Vishnu Raj@LAPTOP-KSAOBH37 MINGW64 ~/devops/build_advanced (main)
```

GitLab CI/CD Configuration

yaml file

stages:

- build
- push

variable

variables:

DOCKER_DRIVER: overlay2

DOCKER_TLS_CERTDIR: ""

DOCKER_HOST: tcp://docker:2375

services:

- name: docker:20.10.24-dind
- alias: docker

#docker image

image: docker:20.10.24-git

Login to GitLab Container Registry

before_script:

- echo \$CI_REGISTRY_PASSWORD | docker login -u \$CI_REGISTRY_USER --password-stdin

\$CI_REGISTRY

#build image stage

build-image:

stage: build

script:

- docker build -t "\$CI_REGISTRY_IMAGE:latest" .
- docker save "\$CI_REGISTRY_IMAGE:latest" | gzip > image.tar.gz

artifacts:

paths:

- image.tar.gz

push image stage

push-image:

stage: push

script:

- docker load < image.tar.gz
- docker push "\$CI_REGISTRY_IMAGE:latest"

OUTPUT

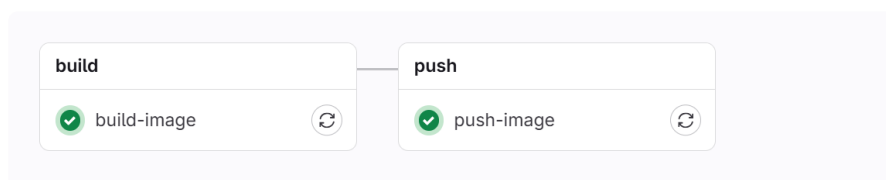
create a pipeline for manage docker build

✓ Passed Vishnu Raj created pipeline for commit 8fdb2bf 5 minutes ago, finished 2 minutes ago

For main

latest branch 2 jobs 2.86 2 minutes 51 seconds, queued for 1 seconds

Pipeline Jobs 2 Tests 0



build-image job

devops / Build_Advanced / Jobs / #11590838564

Search visible log output

60 Step 4/7 : WORKDIR /app

61 ---> Running in 495586aa907f

62 Removing intermediate container 495586aa907f

63 ---> 42ad3c42ff8a

64 Step 5/7 : COPY target/java-docker-app-1.0-SNAPSHOT.jar app.jar

65 ---> 207ec2b332a7

66 Step 6/7 : ADD <https://raw.githubusercontent.com/vishnubob/wait-for-it/master/wait-for-it.sh>

67 ---> 375b34f3cff8

68 Step 7/7 : CMD ["java", "-jar", "app.jar"]

69 ---> Running in 345187de60d3

70 Removing intermediate container 345187de60d3

71 ---> 5c519eba922a

72 Successfully built 5c519eba922a

73 Successfully tagged registry.gitlab.com/vishnuraj784-group/build_advanced:latest

74 \$ docker save "SCI_REGISTRY_IMAGE:latest" | gzip > image.tar.gz

75 Uploading artifacts for successful job 00:21

76 Uploading artifacts...

77 image.tar.gz: found 1 matching artifact files and directories

78 Uploading artifacts as "archive" to coordinator... 201 Created correlation_id=ea4b48bd23842

79 196a8d8aa6d15dc62 id=11590838564 responseStatus=201 Created token=eyJraWQ10

80 Cleaning up project directory and file based variables 00:01

Job succeeded

Timeout: 1h (from project)

Runner: #12270837 (JZnyww-s) 4-blue.saas-linux-small-amd64.runners-manager.gitlab.com/default

Source: Push

Job artifacts

These artifacts are the latest. They will not be deleted (even if expired) until newer artifacts are available.

Keep Download Browse

Commit 8fdb2bf create a pipe line for manage docker build

Pipeline #2078546106 Passed for main

build

Related jobs

→ build-image

push-image job

devops / Build_Advanced / Jobs / #11590838568

Search visible log output

34 Configure a credential helper to remove this warning. See

35 <https://docs.docker.com/engine/reference/commandline/login/#credentials-store>

36 \$ docker load < image.tar.gz

37 Loaded image: registry.gitlab.com/vishnuraj784-group/build_advanced:latest

38 \$ docker push "SCI_REGISTRY_IMAGE:latest"

39 The push refers to repository [registry.gitlab.com/vishnuraj784-group/build_advanced]

40 a3bd2acb7de5: Preparing

41 27385e2a6d8b: Preparing

42 40d2c23fbcf8: Preparing

43 7f0bf75582de: Preparing

44 aeb8eb818d56: Preparing

45 1d46119d249f: Preparing

46 1d46119d249f: Waiting

47 27385e2a6d8b: Pushed

48 40d2c23fbcf8: Pushed

49 aeb8eb818d56: Pushed

50 a3bd2acb7de5: Pushed

51 1d46119d249f: Pushed

52 7f0bf75582de: Pushed

53 latest: digest: sha256:a37619bbf364025ada9b5f0a5b4dab4b7b7caebd9332f29511396f9212193ba4 size: 1575

54 Cleaning up project directory and file based variables 00:01

55 Job succeeded

Duration: 1 minute 13 seconds

Finished: 13 minutes ago

Queued: 0 seconds

Timeout: 1h (from project)

Runner: #32976687 (nN8vMRS9) 6-blue.saas-linux-small-amd64.runners-manager.gitlab.com/default

Source: Push

Commit 8fdb2bf create a pipe line for manage docker build

Pipeline #2078546106 Passed for main

push

Related jobs

→ push-image

Assignment 4: Manage Docker Build Locally and Using GitLab CI/CD with Shell and Docker Executors (Push to GitLab Container Registry)

Dockerfile

FROM openjdk:17-jdk-slim

WORKDIR /app

COPY target/java-docker-sample-1.0-SNAPSHOT.jar app.jar

CMD ["java", "-jar", "app.jar"]

Build & Test Locally

Build image: -

`docker build -t java-registry:latest .`

```
Vishnu Raj@LAPTOP-KSAOBH37 MINGW64 ~/devops/push_registry (main)
$ docker build -t java-registry:latest .
[+] Building 2.7s (9/9) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 169B
=> [internal] load metadata for docker.io/library/openjdk:17-jdk-slim
=> [auth] library/openjdk:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/3] FROM docker.io/library/openjdk:17-jdk-slim@sha256:aaa3b3cb27e3e520b8f116863d0580c438ed55ecfa0bc126b41f68c3f62f9774
=> => resolve docker.io/library/openjdk:17-jdk-slim@sha256:aaa3b3cb27e3e520b8f116863d0580c438ed55ecfa0bc126b41f68c3f62f9774
=> [internal] load build context
=> => transferring context: 90B
=> CACHED [2/3] WORKDIR /app
=> CACHED [3/3] COPY target/java-docker-sample-1.0-SNAPSHOT.jar app.jar
=> exporting to image
=> => exporting layers
=> => exporting manifest sha256:880e2da5c8aa3873333bf0f1ee872cc531b924e00c62b725a9f48f1becdb8375
=> => exporting config sha256:be4e82d5ca5efe901a03104423a6813d76010db90bf43052b406995a2d7e7a72
=> => exporting attestation manifest sha256:ac772c526ee90d7a2ddf5275c1bd59d09394e55e66416792eb5ac5815619e4258
=> => exporting manifest list sha256:84efce4f8cf0e9904ed0adf8ff11f45dcff2c85a7b64c05418b381a0206b8fa0
=> => naming to docker.io/library/java-registry:latest
=> => unpacking to docker.io/library/java-registry:latest
View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/pddzaugm1rsmrkgefepbnxfe62
Vishnu Raj@LAPTOP-KSAOBH37 MINGW64 ~/devops/push_registry (main)
```

Run container: -

`docker run --rm java-registry:latest`

```
Vishnu Raj@LAPTOP-KSAOBH37 MINGW64 ~/devops/push_registry (main)
$ docker run --rm java-registry:latest
This docker assignment is for Push_GL_ContainerRegistry
Vishnu Raj@LAPTOP-KSAOBH37 MINGW64 ~/devops/push_registry (main)
```

GitLab CI/CD Configuration

stages:

- build
- docker_build

Build using Shell Executor

build_job:

stage: build

tags:

- shell

script:

- echo "Running Maven build locally with Shell executor..."
- mvn clean package -DskipTests

artifacts:

paths:

- target/*.jar

Build Docker Image (Docker Executor)

docker_build:

stage: docker_build

image: docker:24.0.7

services:

- docker:24.0.7-dind

variables:

DOCKER_HOST: tcp://docker:2375/

DOCKER_TLS_CERTDIR: ""

tags:

- docker

script:

```

- echo "Logging in to GitLab Container Registry..."

- echo $CI_REGISTRY_PASSWORD | docker login -u $CI_REGISTRY_USER $CI_REGISTRY --
password-stdin

- echo "Building Docker image..."

- docker build -t $CI_REGISTRY_IMAGE:latest .

- echo "Pushing Docker image to GitLab Registry..."

- docker push $CI_REGISTRY_IMAGE:latest

```

OUTPUT

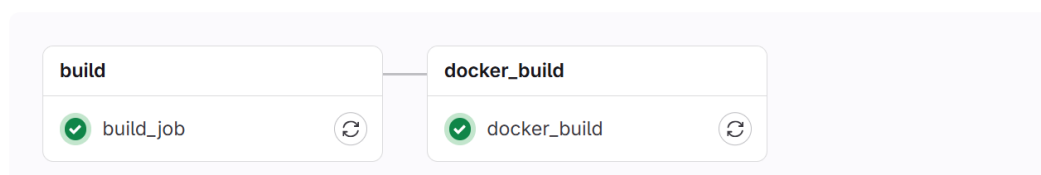
update the correct tag for the build job

✓ Passed Vishnu Raj created pipeline for commit 9018a19b 4 minutes ago, finished 56 seconds ago

For main

latest branch eo 2 jobs ⌚ 2 minutes 25 seconds, queued for 53 seconds

Pipeline Jobs 2 Tests 0



Build job

devops / push_registry / Jobs / #11865185295

Search visible log output

48 [INFO] Building jar: C:\Users\Vishnu Raj\devops\push_registry\builds\q-5f69nLX\0\vishnuraj784-group\push_registry\target\java-docker-sample-1.0-SNAPSHOT.jar
49 [INFO] -----
50 [INFO] BUILD SUCCESS
51 [INFO] -----
52 [INFO] Total time: 5.923 s
53 [INFO] Finished at: 2025-10-27T20:03:28+05:30
54 [INFO] -----
55 Uploading artifacts for successful job
56 Version: 18.3.0
57 Git revision: 9ba718cd
58 Git branch: 18-3-stable
59 GO version: go1.24.4 X:cacheprg
60 Built: 2025-08-21T12:21:12Z
61 OS/Arch: windows/amd64
62 Uploading artifacts...
63 Runtime platform arch=amd64 os=windows pid=15612 revision=9ba718cd version=18.3.0
64 target/*.jar: found 1 matching artifact files and directories
65 Uploading artifacts as "archive" to coordinator... 201 Created correlation_id=9952e8ff80e1118e-80S id=11865185295 responseStatus=201 Created token=eyJraWQ10
66 Cleaning up project directory and file based variables
67 Job succeeded

00:04

Queued: 51 seconds
Timeout: 1h (from project)
Runner: #50303105 (q-5fG9nL) shell runner for this project
Source: Push
Tags: shell

Job artifacts
These artifacts are the latest. They will not be deleted (even if expired) until newer artifacts are available.
Keep Download Browse

Commit 9018a19b
update the correct tag for the build job

Pipeline #2122885506 Passed for main
build

Related jobs
→ build_job

Docker build job

devops / push_registry / Jobs / #11865185297

Search visible log output

Q

111 #8 writing image sha256:b0a5e40c31721da87d0429fac9f4330aa22c9b2493912f78893658ca98762819 done

112 #8 naming to registry.gitlab.com/vishnuraj784-group/push_registry:latest done

113 #8 DONE 0.0s

114 WARNING: current commit information was not captured by the build: git was not found in the s

115 ystem: exec: "git": executable file not found in \$PATH

116 \$ echo "Pushing Docker image to GitLab Registry..."

117 Pushing Docker image to GitLab Registry...

118 \$ docker push \$CI_REGISTRY_IMAGE:latest

119 The push refers to repository [registry.gitlab.com/vishnuraj784-group/push_registry]

120 43989ca8db4d: Preparing

121 63f2382516c3: Preparing

122 6be698267e47: Preparing

123 13a34b6fff78: Preparing

124 9c1b6dd6c1e6: Preparing

125 63f2382516c3: Pushed

126 43989ca8db4d: Pushed

127 13a34b6fff78: Pushed

128 9c1b6dd6c1e6: Pushed

129 6be698267e47: Pushed

130 latest: digest: sha256:ab93e5d2aedc5c5e5a668d5dbf07a857ee02b4acdb23df2de98d6aee25ced41a size:

131 1367

130 Cleaning up project directory and file based variables

131 Job succeeded

Duration: 1 minute 53 seconds

Finished: 5 minutes ago

Queued: 2 seconds

Timeout: 1h (from project) ?

Runner: #50303166 (cne8WoRg)

docker runner for this project

Source: Push

Tags: docker

Commit 9818a19b

update the correct tag for the build job

Pipeline #122885506 Passed for main

docker_build

Related jobs

→ docker_build

Assignment 5: Manage Docker Build Locally and Using GitLab CI/CD with Shell and Docker Executors

Dockerfile

FROM alpine:latest

COPY app.sh /usr/local/bin/app.sh

RUN chmod +x /usr/local/bin/app.sh

CMD ["app.sh"]

Build & Test Locally

Build image: -

docker build -t myapp:latest .


```

Vishnu Raj@LAPTOP-KSAOBH37 MINGW64 ~/devops/push_dockerhub (main)
$ docker build -t myapp:latest .
[+] Building 0.6s (8/8) FINISHED                                docker:desktop-linux
=> [internal] load build definition from Dockerfile              0.0s
=> => transferring dockerfile: 143B                             0.0s
=> [internal] load metadata for docker.io/library/alpine:latest 0.0s
=> [internal] load .dockerignore                                0.0s
=> => transferring context: 2B                                    0.0s
=> [internal] load build context                                0.0s
=> => transferring context: 129B                                  0.0s
=> CACHED [1/3] FROM docker.io/library/alpine:latest@sha256:4bcff63911fcb444 0.0s
=> => resolve docker.io/library/alpine:latest@sha256:4bcff63911fcb444bd4fda 0.0s
=> [2/3] COPY app.sh /usr/local/bin/app.sh                     0.0s
=> [3/3] RUN chmod +x /usr/local/bin/app.sh                    0.2s
=> exporting to image                                           0.2s
=> => exporting layers                                           0.1s
=> => exporting manifest sha256:306a7a1ef6633979e97756eb6190ff8163212f7545ae 0.0s
=> => exporting config sha256:dea7f2eb1e01ea47c4b0d605000bb10a69ed8088e1ff44 0.0s
=> => exporting attestation manifest sha256:855275ac4166c582771d022d4fdde67e 0.0s
=> => exporting manifest list sha256:ae30cdcc88a17f1c46e528a85a2cd3db53cb51c 0.0s
=> => naming to docker.io/library/myapp:latest                  0.0s
=> => unpacking to docker.io/library/myapp:latest               0.0s

```

Run container: -

```
docker run --rm myapp:latest
```

```

Vishnu Raj@LAPTOP-KSAOBH37 MINGW64 ~/devops/push_dockerhub (main)
$ docker run --rm myapp:latest
Hello from inside the Docker container!
Current date and time: Mon Oct 6 14:14:01 UTC 2025

```

GitLab CI/CD Configuration

stages:

- test
- build
- push

variables:

```

IMAGE_NAME: "myapp"
PUBLIC_REPO: "docker.io/vishnuraj784/myapp"
PRIVATE_REPO: "docker.io/vishnuraj784/myapp-private"
DOCKER_DRIVER: overlay2
DOCKER_TLS_CERTDIR: ""
DOCKER_HOST: tcp://docker:2375

```

test_script:

stage: test

tags:

- shell-runner

script:

- echo "Running shell tests..."
- bash app.sh
- echo "Shell test passed!"

build_image:

stage: build

image: docker:24.0

services:

- name: docker:24.0-dind
- alias: docker

tags:

- docker-runner

script:

- echo "Building Docker image..."
- docker build -t \$IMAGE_NAME:latest .
- docker images
- echo "Build complete."

push_dockerhub:

stage: push

image: docker:24.0

services:

- docker:24.0-dind

tags:

- docker-runner

script:

- echo "Logging into Docker Hub..."
- echo "\$DOCKER_HUB_PASSWORD" | docker login -u "\$DOCKER_HUB_USERNAME" --password-stdin
- echo "Rebuilding Docker image for push..."
- docker build -t \$IMAGE_NAME:latest .
- docker tag \$IMAGE_NAME:latest \$PUBLIC_REPO:latest
- docker tag \$IMAGE_NAME:latest \$PRIVATE_REPO:latest
- echo "Pushing images..."
- docker push \$PUBLIC_REPO:latest
- docker push \$PRIVATE_REPO:latest

OUTPUT

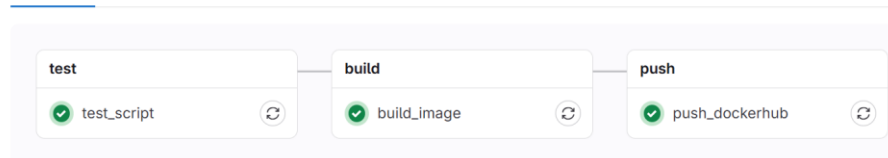
change push job stage for docker tag

✓ Passed Vishnu Raj created pipeline for commit 60a8a1d7 3 minutes ago, finished 17 seconds ago

For **main**

latest branch 3 jobs 2 minutes 2 seconds, queued for 11 seconds

Pipeline Jobs 3 Tests 0



test_script job

devops / push_dockerhub / Jobs / #11621334657

Search visible log output

3

Preparing the "shell" executor

00:00

4

Using Shell (pwsh) executor...

5

Preparing environment

00:01

6

Running on LAPTOP-KSA0BH37...

7

Getting source from Git repository

00:05

8

Gitly correlation ID: 918c83d2daf34aada5a608a07bbe2d69

9

Fetching changes with git depth set to 20...

10

Reinitialized existing Git repository in C:/Users/Vishnu Raj/devops/push_dockerhub/builds/eIWwnr1RS/0/vishnuraj784-group/push_dockerhub/.git/

11

Checking out 60a8a1d7 as detached HEAD (ref is main)...

12

git-lfs/3.6.1 (GitHub; windows amd64; go 1.23.3; git ea47a34b)

13

Skipping Git submodules setup

14

Executing "step_script" stage of the job script

00:01

15

\$ echo "Running shell tests..."

16

Running shell tests...

17

\$ bash app.sh

18

Hello from inside the Docker container!

19

Current date and time: Mon Oct 6 22:27:59 IST 2025

20

\$ echo "Shell test passed!"

21

Shell test passed!

22

Cleaning up project directory and file based variables

00:01

23

Job succeeded

Duration: 11 seconds

Finished: 22 minutes ago

Queued: 11 seconds

Timeout: 1h (from project)

Runner: #50048472 (elWwnr1R) create runner for shell this project

Source: Push

Tags: shell-runner

Commit 60a8a1d7

change push job stage for docker tag

Pipeline #2084012337 ✓ Passed for main

test

Related jobs

→ test_script

build image job

devops / push_dockerhub / Jobs / #11621334663

Search visible log output

52 #5 sha256:9824c27679d3b27c5e1cb00a73adb6f4f8d556994111c12db3c5d61a0c843df8 3.80MB / 3.80MB 1.1s

53 #5 sha256:9824c27679d3b27c5e1cb00a73adb6f4f8d556994111c12db3c5d61a0c843df8 3.80MB / 3.80MB 1.1s done

54 #5 extracting sha256:9824c27679d3b27c5e1cb00a73adb6f4f8d556994111c12db3c5d61a0c843df8 0.1s done

55 #5 DONE 1.3s

56 #6 [2/3] COPY app.sh /usr/local/bin/app.sh

57 #6 DONE 0.0s

58 #7 [3/3] RUN chmod +x /usr/local/bin/app.sh

59 #7 DONE 0.2s

60 #8 exporting to image

61 #8 exporting layers 0.0s done

62 #8 writing image sha256:b780341144a960c9534b2f9b93cd6e6f5e3b446c2d0fe996cce3a9c170e27a92 done

63 #8 naming to docker.io/library/myapp:latest done

64 #8 DONE 0.0s

65 \$ docker images

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Duration: 37 seconds

Finished: 23 minutes ago


Queued: 3 seconds



Timeout: 1h (from project) ?


Runner: #50048494 (MhSgRUP0)
create runner docker for this project

Source: Push


Tags: docker-runner

Commit 60a8a1d7 
change push job stage for docker tag

Pipeline #2084012337  Passed for main 

build 

Related jobs

→  build_image

push dockerhub job

devops / push_dockerhub / Jobs / #11621334669

Search visible log output

78 Pushing images...

79 \$ docker push \$PUBLIC_REPO:latest

80 The push refers to repository [docker.io/vishnuraj784/myapp]

81 02df3849b46c: Preparing

82 e4da9d7f53be: Preparing

83 418dcc7d85a: Preparing

84 418dcc7d85a: Mounted from library/alpine

85 02df3849b46c: Pushed

86 e4da9d7f53be: Pushed

87 latest: digest: sha256:0715e884b454d23b87d78240be32fda49128f08c65dcc208723325cd9f3d58e0 size: 942

88 \$ docker push \$PRIVATE_REPO:latest

89 The push refers to repository [docker.io/vishnuraj784/myapp-private]

90 02df3849b46c: Preparing

91 e4da9d7f53be: Preparing

92 418dcc7d85a: Preparing

93 e4da9d7f53be: Mounted from vishnuraj784/myapp

94 02df3849b46c: Mounted from vishnuraj784/myapp

95 418dcc7d85a: Mounted from vishnuraj784/myapp

96 latest: digest: sha256:0715e884b454d23b87d78240be32fda49128f08c65dcc208723325cd9f3d58e0 size: 942

97 Cleaning up project directory and file based variables

98 Job succeeded

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