

Use virtual machine hyperv-vm-1

```
docker-machine ls
```

NAME	ACTIVE	DRIVER	STATE	URL
SWARM DOCKER		ERRORS		
hyperv-vm-1	-	virtualbox	Running	tcp://192.168.99.100:2376
hyperv-vm-2	-	virtualbox	Running	tcp://192.168.99.101:2376

```
docker-machine env hyperv-vm-1
```

```
export DOCKER_TLS_VERIFY="1"
export DOCKER_HOST="tcp://192.168.99.100:2376"
export DOCKER_CERT_PATH="/Users/nagarajskharvi/.docker/machine/
machines/hyperv-vm-1"
export DOCKER_MACHINE_NAME="hyperv-vm-1"
# Run this command to configure your shell:
# eval $(docker-machine env hyperv-vm-1)
```

```
eval $(docker-machine env hyperv-vm-1)
```

```
docker-machine ls
```

NAME	ACTIVE	DRIVER	STATE	URL
SWARM DOCKER		ERRORS		
hyperv-vm-1	*	virtualbox	Running	tcp://192.168.99.100:2376
hyperv-vm-2	-	virtualbox	Running	tcp://192.168.99.101:2376

```
docker-compose-postgresql % ls
```

```
docker-compose.yml  spring-boot-postgres  ubuntu-openjdk11
```

Building image from docker-compose command (Uses docker-compose.yml file)

```
docker-compose build
```

```
db uses an image, skipping
```

```
Building web
```

```
Step 1/5 : FROM kharvinagaraj1/ubuntu-openjdk11:1.0
```

```
1.0: Pulling from kharvinagaraj1/ubuntu-openjdk11
```

```
da7391352a9b: Pull complete
```

```
14428a6d4bcd: Pull complete
```

```
2c2d948710f2: Pull complete
```

```
d502cfd7018c: Pull complete
```

```
fbea45dd0f5e: Pull complete
```

```
7e658dde4267: Pull complete
```

```
Digest:
```

```
sha256:6c0d7c29f0d106b66c136e7715becc5a8de3b9882cbe933da939c8e0eaf2b6a6
```

```
Status: Downloaded newer image for kharvinagaraj1/ubuntu-openjdk11:1.0
```

```
----> 96ec94b01aca
```

```
Step 2/5 : LABEL "Maintainer"="Nagaraj S Kharvi"
```

```
----> Running in 7c119b502b43
```

```
Removing intermediate container 7c119b502b43
```

```
----> 5772cf889505
```

```

Step 3/5 : ADD . /usr/local/spring-boot-postgres
--> 89d324dfa6e1
Step 4/5 : RUN cd /usr/local/spring-boot-postgres && mvn install
--> Running in 5f09f10da630
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by
com.google.inject.internal.cglib.core.$ReflectUtils$1 (file:/usr/
share/maven/lib/guice.jar) to method
java.lang.ClassLoader.defineClass(java.lang.String,byte[],int,int,ja
va.security.ProtectionDomain)
WARNING: Please consider reporting this to the maintainers of
com.google.inject.internal.cglib.core.$ReflectUtils$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
[INFO] Scanning for projects...
Downloading from central: https://repo.maven.apache.org/maven2/org/
springframework/boot/spring-boot-starter-parent/2.4.1/spring-boot-
starter-parent-2.4.1.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/
springframework/session/spring-session-bom/2020.0.1/spring-session-
bom-2020.0.1.pom (2.7 kB at 7.0 kB/s)
[INFO]
[INFO] -----< com.example:spring-boot-postgres
>-----
[INFO] Building spring-boot-postgres 0.0.1-SNAPSHOT
[INFO] -----
[ jar ]-----
Downloading from central: https://repo.maven.apache.org/maven2/org/
springframework/boot/spring-boot-maven-plugin/2.4.1/spring-boot-
maven-plugin-2.4.1.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/
springframework/spring-core/5.3.2/spring-core-5.3.2.jar (1.5 MB at
32 kB/s)
[INFO]
[INFO] --- maven-resources-plugin:3.2.0:resources (default-
resources) @ spring-boot-postgres ---
Downloading from central: https://repo.maven.apache.org/maven2/org/
apache/maven/maven-plugin-api/3.1.0/maven-plugin-api-3.1.0.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/
apache/commons/commons-lang3/3.8.1/commons-lang3-3.8.1.jar (502 kB
at 61 kB/s)
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] Using 'UTF-8' encoding to copy filtered properties files.
[INFO] Copying 1 resource
[INFO] Copying 1 resource
[INFO] The encoding used to copy filtered properties files have not
been set. This means that the same encoding will be used to copy
filtered properties files as when copying other filtered resources.
This might not be what you want! Run your build with --debug to see
which files might be affected. Read more at https://
maven.apache.org/plugins/maven-resources-plugin/examples/filtering-
properties-files.html

```

```
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:compile (default-compile) @
spring-boot-postgres ---
Downloading from central: https://repo.maven.apache.org/maven2/org/
apache/maven/maven-plugin-api/3.0/maven-plugin-api-3.0.pom
Downloaded from central: https://repo.maven.apache.org/maven2/com/
thoughtworks/qdox/qdox/2.0-M9/qdox-2.0-M9.jar (317 kB at 50 kB/s)
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 2 source files to /usr/local/spring-boot-postgres/
target/classes
[INFO]
[INFO] --- maven-resources-plugin:3.2.0:testResources (default-
testResources) @ spring-boot-postgres ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] Using 'UTF-8' encoding to copy filtered properties files.
[INFO] skip non existing resourceDirectory /usr/local/spring-boot-
postgres/src/test/resources
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:testCompile (default-
testCompile) @ spring-boot-postgres ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 1 source file to /usr/local/spring-boot-postgres/
target/test-classes
[INFO]
[INFO] --- maven-surefire-plugin:2.22.2:test (default-test) @
spring-boot-postgres ---
Downloading from central: https://repo.maven.apache.org/maven2/org/
apache/maven/surefire/maven-surefire-common/2.22.2/maven-surefire-
common-2.22.2.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/
junit/platform/junit-platform-engine/1.3.1/junit-platform-
engine-1.3.1.jar (135 kB at 129 kB/s)
[INFO]
[INFO] -----
[INFO]  T E S T S
[INFO] -----
[INFO] Running com.example.demo.SpringBootPostgresApplicationTests
14:37:44,181 |-INFO in ch.qos.logback.classic.LoggerContext[default]
- Could NOT find resource [logback-test.xml]
14:37:44,182 |-INFO in ch.qos.logback.classic.LoggerContext[default]
- Could NOT find resource [logback.groovy]
14:37:44,182 |-INFO in ch.qos.logback.classic.LoggerContext[default]
- Found resource [logback.xml] at [file:/usr/local/spring-boot-
postgres/target/classes/logback.xml]
14:37:44,486 |-INFO in
ch.qos.logback.classic.joran.action.ConfigurationAction - debug
attribute not set
14:37:44,495 |-WARN in
ch.qos.logback.core.joran.action.IncludeAction - Could not find
resource corresponding to [/org/springframework/boot/logging/
logback/base.xml]
14:37:44,496 |-INFO in
ch.qos.logback.core.joran.action.AppenderAction - About to
instantiate appender of type [ch.qos.logback.core.ConsoleAppender]
```

14:37:44,503 |-INFO in
ch.qos.logback.core.joran.action.AppenderAction - Naming appender as
[CONSOLE]
14:37:44,518 |-INFO in
ch.qos.logback.core.joran.action.NestedComplexPropertyIA - Assuming
default type [ch.qos.logback.classic.encoder.PatternLayoutEncoder]
for [encoder] property
14:37:44,627 |-INFO in
ch.qos.logback.core.joran.action.AppenderAction - About to
instantiate appender of type
[ch.qos.logback.core.rolling.RollingFileAppender]
14:37:44,639 |-INFO in
ch.qos.logback.core.joran.action.AppenderAction - Naming appender as
[ROLLING_FILE]
14:37:44,653 |-INFO in
c.q.l.core.rolling.SizeAndTimeBasedRollingPolicy@1623009085 -
setting totalSizeCap to 10 MB
14:37:44,655 |-INFO in
c.q.l.core.rolling.SizeAndTimeBasedRollingPolicy@1623009085 -
Archive files will be limited to [1 MB] each.
14:37:44,657 |-INFO in
c.q.l.core.rolling.SizeAndTimeBasedRollingPolicy@1623009085 - No
compression will be used
14:37:44,658 |-INFO in
c.q.l.core.rolling.SizeAndTimeBasedRollingPolicy@1623009085 - Will
use the pattern logs/app_%d{dd-MM-yyyy}_%i.log for the active file
14:37:44,661 |-INFO in
ch.qos.logback.core.rolling.SizeAndTimeBasedFNATP@121314f7 - The
date pattern is 'dd-MM-yyyy' from file name pattern 'logs/app_%d{dd-
MM-yyyy}_%i.log'.
14:37:44,661 |-INFO in
ch.qos.logback.core.rolling.SizeAndTimeBasedFNATP@121314f7 - Roll-
over at midnight.
14:37:44,691 |-INFO in
ch.qos.logback.core.rolling.SizeAndTimeBasedFNATP@121314f7 - Setting
initial period to Sat Dec 19 13:45:07 GMT 2020
14:37:44,702 |-INFO in
ch.qos.logback.core.rolling.RollingFileAppender[ROLLING_FILE] -
Active log file name: logs/app.log
14:37:44,702 |-INFO in
ch.qos.logback.core.rolling.RollingFileAppender[ROLLING_FILE] - File
property is set to [logs/app.log]
14:37:44,707 |-INFO in
ch.qos.logback.classic.joran.action.RootLoggerAction - Setting level
of ROOT logger to INFO
14:37:44,707 |-INFO in
ch.qos.logback.core.joran.action.AppenderRefAction - Attaching
appender named [CONSOLE] to Logger[ROOT]
14:37:44,707 |-INFO in
ch.qos.logback.core.joran.action.AppenderRefAction - Attaching
appender named [ROLLING_FILE] to Logger[ROOT]
14:37:44,708 |-INFO in
ch.qos.logback.classic.joran.action.LoggerAction - Setting level of
logger [com.example.demo] to DEBUG

```
14:37:44,708 |-INFO in
ch.qos.logback.classic.joran.action.ConfigurationAction - End of
configuration.
14:37:44,708 |-INFO in
ch.qos.logback.classic.joran.JoranConfigurator@130c12b7 -
Registering current configuration as safe fallback point
```

```
[19-12-2020 14:37:45.221] [/] [main] INFO
o.s.b.t.c.SpringBootTestContextBootstrapper.buildDefaultMergedContextConfiguration - Neither @ContextConfiguration nor @ContextHierarchy found for test class
[com.example.demo.SpringBootTestApplicationTests], using
SpringBootTestContextLoader
[19-12-2020 14:37:45.301] [/] [main] INFO
o.s.t.c.s.AbstractContextLoader.generateDefaultLocations - Could not detect default resource locations for test class
[com.example.demo.SpringBootTestApplicationTests]: no resource found for suffixes {-context.xml, Context.groovy}.
[19-12-2020 14:37:45.317] [/] [main] INFO
o.s.t.c.s.AnnotationConfigContextLoaderUtils.detectDefaultConfigurationClasses - Could not detect default configuration classes for test class [com.example.demo.SpringBootTestApplicationTests]:
SpringBootTestApplicationTests does not declare any static, non-private, non-final, nested classes annotated with @Configuration.
[19-12-2020 14:37:45.941] [/] [main] INFO
o.s.b.t.c.SpringBootTestContextBootstrapper.getOrFindConfigurationClasses - Found @SpringBootTestConfiguration
com.example.demo.SpringBootTestApplication for test class
com.example.demo.SpringBootTestApplicationTests
[19-12-2020 14:37:46.337] [/] [main] INFO
o.s.b.t.c.SpringBootTestContextBootstrapper.getDefaultTestExecutionListenerClassNames - Loaded default TestExecutionListener class names from location [META-INF/spring.factories]:
[org.springframework.boot.test.mock.mockito.MockitoTestExecutionListener,
org.springframework.boot.test.mock.mockito.ResetMocksTestExecutionListener,
org.springframework.boot.test.autoconfigure.restdocs.RestDocsTestExecutionListener,
org.springframework.boot.test.autoconfigure.web.client.MockRestServiceServerResetTestExecutionListener,
org.springframework.boot.test.autoconfigure.web.servlet.MockMvcPrintOnlyOnFailureTestExecutionListener,
org.springframework.boot.test.autoconfigure.web.servlet.WebDriverTestExecutionListener,
org.springframework.boot.test.autoconfigure.webservices.client.MockWebServiceServerTestExecutionListener,
org.springframework.test.context.web.ServletTestExecutionListener,
org.springframework.test.context.support DirtiesContextBeforeModesTestExecutionListener,
org.springframework.test.context.support.DependencyInjectionTestExecutionListener,
org.springframework.test.context.support DirtiesContextTestExecutionListener,
```



```
[19-12-2020 14:37:48.097] [/] [main] INFO
c.e.d.SpringBootPostgresApplicationTests.logStartupProfileInfo - No
active profile set, falling back to default profiles: default
[19-12-2020 14:37:53.124] [/] [main] INFO
o.s.s.c.ThreadPoolTaskExecutor.initialize - Initializing
ExecutorService 'applicationTaskExecutor'
[19-12-2020 14:37:54.492] [/] [main] INFO
c.e.d.SpringBootPostgresApplicationTests.logStarted - Started
SpringBootPostgresApplicationTests in 7.242 seconds (JVM running for
12.363)
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time
elapsed: 11.522 s - in
com.example.demo.SpringBootPostgresApplicationTests
[19-12-2020 14:37:55.641] [/] [SpringContextShutdownHook] INFO
o.s.s.c.ThreadPoolTaskExecutor.shutdown - Shutting down
ExecutorService 'applicationTaskExecutor'
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO]
[INFO] --- maven-jar-plugin:3.2.0:jar (default-jar) @ spring-boot-
postgres ---
Downloading from central: https://repo.maven.apache.org/maven2/org/
apache/maven/shared/file-management/3.0.0/file-management-3.0.0.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/
apache/commons/commons-compress/1.19/commons-compress-1.19.jar (615
kB at 179 kB/s)
[INFO] Building jar: /usr/local/spring-boot-postgres/target/spring-
boot-postgres-0.0.1-SNAPSHOT.jar
[INFO]
[INFO] --- spring-boot-maven-plugin:2.4.1:repackage (repackage) @
spring-boot-postgres ---
Downloading from central: https://repo.maven.apache.org/maven2/org/
springframework/boot/spring-boot-buildpack-platform/2.4.1/spring-
boot-buildpack-platform-2.4.1.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/
codehaus/plexus/plexus-utils/3.2.1/plexus-utils-3.2.1.jar (262 kB at
25 kB/s)
[INFO] Replacing main artifact with repackaged archive
[INFO]
[INFO] --- maven-install-plugin:2.5.2:install (default-install) @
spring-boot-postgres ---
Downloading from central: https://repo.maven.apache.org/maven2/
junit/junit/3.8.1/junit-3.8.1.pom
Downloaded from central: https://repo.maven.apache.org/maven2/
commons-codec/commons-codec/1.6/commons-codec-1.6.jar (233 kB at 173
kB/s)
[INFO] Installing /usr/local/spring-boot-postgres/target/spring-
boot-postgres-0.0.1-SNAPSHOT.jar to /root/.m2/repository/com/
example/spring-boot-postgres/0.0.1-SNAPSHOT/spring-boot-
postgres-0.0.1-SNAPSHOT.jar
[INFO] Installing /usr/local/spring-boot-postgres/pom.xml to /
```

```
root/.m2/repository/com/example/spring-boot-postgres/0.0.1-SNAPSHOT/
spring-boot-postgres-0.0.1-SNAPSHOT.pom
[INFO]
```

```
-----
[INFO] BUILD SUCCESS
[INFO]
```

```
-----
[INFO] Total time: 04:34 min
[INFO] Finished at: 2020-12-19T14:38:41Z
[INFO]
```

```
-----
Removing intermediate container 5f09f10da630
----> ba29afa43ca4
Step 5/5 : CMD ["java", "-cp", "/usr/local/spring-boot-postgres/
target/spring-boot-postgres-0.0.1-SNAPSHOT.jar.original",
"com.example.demo.connection.TestConnection"]
----> Running in 6cfab3d8cf2f
Removing intermediate container 6cfab3d8cf2f
----> 2e46215ffeef
```

```
Successfully built 2e46215ffeef
Successfully tagged spring-boot-postgres:latest
```

Running built image from docker-compose command
detached mode

```
docker-compose up -d
```

```
Starting postgresql database ... done
Starting docker-compose-postgresql_web_1 ... done
```

View running containers in virtual machine

```
docker-compose ps
```

	Name	Command
State	Ports	

docker-compose-postgresql_web_1	Up	java -jar /usr/local/sprin ...
postgresql database	Up	docker-entrypoint.sh postgres
	0.0.0.0:5432->5432/tcp	

View running container logs using service name in
virtual machine

```
docker-compose logs web
```

```
Attaching to docker-compose-postgresql_web_1
web_1 | .
web_1 | /\ / _ _ _ _ _ ( _ _ _ _ _ \ \ \ \ \
web_1 | ( ( ) \ _ _ _ _ _ | _ _ _ _ _ | \ \ \ \ \
web_1 | \ \ / _ _ _ _ _ | _ _ _ _ _ | ( _ _ _ _ _ ) ) ) ) )
web_1 | ' | _ _ _ _ _ . _ _ _ _ _ | _ _ _ _ _ , | / / / / /
web_1 | =====|_|=====|_|/=/ / / / /
```



```

web_1 | :: Spring Boot :: (v2.4.1)
web_1 |
web_1 | 2020-12-19 18:50:40.452 INFO 1 --- [ main]
c.e.demo.SpringBootPostgresApplication : Starting
SpringBootPostgresApplication v0.0.1-SNAPSHOT using Java 11.0.9.1 on
web with PID 1 (/usr/local/spring-boot-postgres/target/spring-boot-
postgres-0.0.1-SNAPSHOT.jar started by root in /)
web_1 | [19-12-2020 18:50:40.452] [/] [main] INFO
c.e.d.SpringBootPostgresApplication.logStarting - Starting
SpringBootPostgresApplication v0.0.1-SNAPSHOT using Java 11.0.9.1 on
web with PID 1 (/usr/local/spring-boot-postgres/target/spring-boot-
postgres-0.0.1-SNAPSHOT.jar started by root in /)
web_1 | 2020-12-19 18:50:40.468 DEBUG 1 --- [ main]
c.e.demo.SpringBootPostgresApplication : Running with Spring Boot
v2.4.1, Spring v5.3.2
web_1 | [19-12-2020 18:50:40.468] [/] [main] DEBUG
c.e.d.SpringBootPostgresApplication.logStarting - Running with
Spring Boot v2.4.1, Spring v5.3.2
web_1 | 2020-12-19 18:50:40.482 INFO 1 --- [ main]
c.e.demo.SpringBootPostgresApplication : No active profile set,
falling back to default profiles: default
web_1 | [19-12-2020 18:50:40.482] [/] [main] INFO
c.e.d.SpringBootPostgresApplication.logStartupProfileInfo - No
active profile set, falling back to default profiles: default
web_1 | 2020-12-19 18:50:43.766 INFO 1 --- [ main]
o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with
port(s): 8080 (http)
web_1 | [19-12-2020 18:50:43.766] [/] [main] INFO
o.s.b.w.e.tomcat.TomcatWebServer.initialize - Tomcat initialized
with port(s): 8080 (http)
web_1 | 2020-12-19 18:50:43.800 INFO 1 --- [ main]
o.apache.catalina.core.StandardService : Starting service [Tomcat]
web_1 | [19-12-2020 18:50:43.800] [/] [main] INFO
o.a.catalina.core.StandardService.log - Starting service [Tomcat]
web_1 | 2020-12-19 18:50:43.807 INFO 1 --- [ main]
org.apache.catalina.core.StandardEngine : Starting Servlet engine:
[Apache Tomcat/9.0.41]
web_1 | [19-12-2020 18:50:43.807] [/] [main] INFO
o.a.catalina.core.StandardEngine.log - Starting Servlet engine:
[Apache Tomcat/9.0.41]
web_1 | 2020-12-19 18:50:43.967 INFO 1 --- [ main]
o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring
embedded WebApplicationContext
web_1 | [19-12-2020 18:50:43.967] [/] [main] INFO o.a.c.c.C.
[Tomcat].[localhost].[/].log - Initializing Spring embedded
WebApplicationContext
web_1 | 2020-12-19 18:50:43.968 INFO 1 --- [ main]
w.s.c.ServletWebServerApplicationContext : Root
WebApplicationContext: initialization completed in 3297 ms
web_1 | [19-12-2020 18:50:43.968] [/] [main] INFO
o.s.b.w.s.c.ServletWebServerApplicationContext.prepareWebApplication
Context - Root WebApplicationContext: initialization completed in
3297 ms
web_1 | 2020-12-19 18:50:45.263 INFO 1 --- [ main]

```

```

o.s.s.concurrent.ThreadPoolTaskExecutor : Initializing
ExecutorService 'applicationTaskExecutor'
web_1 | [19-12-2020 18:50:45.263] [/] [main] INFO
o.s.s.c.ThreadPoolTaskExecutor.initialize - Initializing
ExecutorService 'applicationTaskExecutor'
web_1 | 2020-12-19 18:50:45.973 INFO 1 --- [ main]
o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on
port(s): 8080 (http) with context path ''
web_1 | [19-12-2020 18:50:45.973] [/] [main] INFO
o.s.b.w.e.tomcat.TomcatWebServer.start - Tomcat started on port(s):
8080 (http) with context path ''
web_1 | 2020-12-19 18:50:46.016 INFO 1 --- [ main]
c.e.demo.SpringBootPostgresApplication : Started
SpringBootPostgresApplication in 7.17 seconds (JVM running for
9.406)
web_1 | [19-12-2020 18:50:46.016] [/] [main] INFO
c.e.d.SpringBootPostgresApplication.logStarted - Started
SpringBootPostgresApplication in 7.17 seconds (JVM running for
9.406)

```

docker-compose ps

Name	Command
State	Ports

docker-compose-postgresql_web_1	java -jar /usr/local/sprin ...
Up	
postgresqlatabase	docker-entrypoint.sh postgres
Up	0.0.0.0:5432->5432/tcp

Bring down running container using docker-compose command

docker-compose down

```

Stopping docker-compose-postgresql_web_1 ... done
Stopping postgresqlatabase ... done
Removing docker-compose-postgresql_web_1 ... done
Removing postgresqlatabase ... done
Removing network docker-compose-postgresql_default

```

docker-compose ps

Name	Command	State	Ports

docker-compose up -d

```

Creating network "docker-compose-postgresql_default" with the
default driver
Creating postgresqlatabase ... done
Creating docker-compose-postgresql_web_1 ... done

```

To build specific image/service

docker-compose build web

docker-compose build db

To stop service

```
docker-compose stop web  
docker-compose start web
```

Building image and running at the same time from
docker-compose command (Uses docker-compose.yml file)

```
docker-compose up --build -d
```