

Video 5.6

## *Creating a Docker Image from Dockerfile*



In this Video, we are going to take a look at...

- Learning to create a sample image file
- Building a Docker image using a Dockerfile
- Creating an image with Java 8 and Tomcat 9
- Running the Dockerfile and build an image out of it

user@localhost:/home/user

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```
[root@localhost user]# docker build .
```

user@localhost:/home/user/Desktop

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```
[root@localhost Desktop]# docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
docker.io/centos	7	0584b3d2cf6d	12 days ago	196.5 MB
docker.io/tomcat	8.0	ebb17717bed4	2 weeks ago	355.4 MB
docker.io/tomcat	latest	ebb17717bed4	2 weeks ago	355.4 MB
docker.io/ubuntu	latest	f753707788c5	4 weeks ago	127.1 MB
docker.io/hello-world	latest	c54a2cc56cbb	4 months ago	1.848 kB

```
[root@localhost Desktop]# docker build
```

```
docker: "build" requires 1 argument.
```

```
See '/usr/bin/docker-current build --help'.
```

```
Usage: docker build [OPTIONS] PATH | URL | -
```

```
Build an image from a Dockerfile
```

```
[root@localhost Desktop]# docker build .
```

```
unable to prepare context: unable to evaluate symlinks in Dockerfile path: lstat /home/user/Desktop/Dockerfile: no such file or directory
```

```
[root@localhost Desktop]# docker build .
```

```
Sending build context to Docker daemon 351.5 MB
```



user@localhost:/home/user/Desktop

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```
[root@localhost Desktop]# docker build .
Sending build context to Docker daemon 1.186 GB
Step 1 : FROM centos
Trying to pull repository docker.io/library/centos ...
latest: Pulling from docker.io/library/centos

Digest: sha256:b2f9d1c0ff5f87a4743104d099a3d561002ac500db1b9bfa02a783a46e0d366c
Status: Downloaded newer image for docker.io/centos:latest
--> 0584b3d2cf6d
Step 2 : MAINTAINER packt<videotesting@packtpub.com>
--> Running in 67b8fc645101
--> b831aa2c43a4
Removing intermediate container 67b8fc645101
Successfully built b831aa2c43a4
[root@localhost Desktop]# docker images
```

user@localhost:/home/user/Desktop

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Sending build context to Docker daemon 1.186 GB

Step 1 : FROM centos

Trying to pull repository docker.io/library/centos ...

latest: Pulling from docker.io/library/centos

Digest: sha256:b2f9d1c0ff5f87a4743104d099a3d561002ac500db1b9bfa02a783a46e0d366c

Status: Downloaded newer image for docker.io/centos:latest

---> 0584b3d2cf6d

Step 2 : MAINTAINER packt<videotesting@packtpub.com>

---> Running in 67b8fc645101

---> b831aa2c43a4

Removing intermediate container 67b8fc645101

Successfully built b831aa2c43a4

[root@localhost Desktop]# docker images

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
<none>	<none>	b831aa2c43a4	41 seconds ago	196.5 MB
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docker.io/centos	latest	0584b3d2cf6d	12 days ago	196.5 MB
docker.io/tomcat	8.0	ebb17717bed4	2 weeks ago	355.4 MB
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docker.io/ubuntu	latest	f753707788c5	4 weeks ago	127.1 MB
docker.io/hello-world	latest	c54a2cc56cbb	4 months ago	1.848 kB

[root@localhost Desktop]#



user@localhost:/home/user/Desktop

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Trying to pull repository docker.io/library/centos ...

latest: Pulling from docker.io/library/centos

Digest: sha256:b2f9d1c0ff5f87a4743104d099a3d561002ac500db1b9bfa02a783a46e0d366c

Status: Downloaded newer image for docker.io/centos:latest

---> 0584b3d2cf6d

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---> Running in 67b8fc645101

---> b831aa2c43a4

Removing intermediate container 67b8fc645101

Successfully built b831aa2c43a4

[root@localhost Desktop]# docker images

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docker.io/ubuntu	latest	f753707788c5	4 weeks ago	127.1 MB
docker.io/hello-world	latest	c54a2cc56cbb	4 months ago	1.848 kB

[root@localhost Desktop]# uname -m

x86\_64

[root@localhost Desktop]#



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Windows x86	189.22 MB	jdk-8u111-windows-i586.exe
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library/centos - Dock... x Apache Tomcat/8.0.38 x Java SE Development... x Index of /pub/apache... x

← apache-mirror.rbc.ru/pub/apache/tomcat/ Google 7m

# Index of /pub/apache/tomcat

<a href="#">Name</a>	<a href="#">Last modified</a>	<a href="#">Size</a>	<a href="#">Description</a>
<a href="#">Parent Directory</a>		-	
<a href="#">maven-plugin/</a>	2015-10-14 19:24	-	
<a href="#">taglibs/</a>	2015-10-14 19:24	-	
<a href="#">tomcat-6/</a>	2016-11-15 09:16	-	
<a href="#">tomcat-7/</a>	2016-11-15 14:39	-	
<a href="#">tomcat-8/</a>	2016-11-15 15:33	-	
<a href="#">tomcat-9/</a>	2016-11-10 14:28	-	
<a href="#">tomcat-connectors/</a>	2015-10-14 19:24	-	

Applications Places Firefox Web Browser Wed 11:36 user

Index of /pub/apache/tomcat/tomcat-9 - Mozilla Firefox

library/centos - Dock... x Apache Tomcat/8.0.38 x Java SE Development... x Index of /pub/apache... x

← apache-mirror.rbc.ru/pub/apache/tomcat/tomcat-9/ Google 6m

# Index of /pub/apache/tomcat/tomcat-9

<a href="#">Name</a>	<a href="#">Last modified</a>	<a href="#">Size</a>	<a href="#">Description</a>
<a href="#">Parent Directory</a>		-	
<a href="#">v9.0.0.M13/</a>	2016-11-08 13:08	-	



Applications Places Firefox Web Browser Wed 11:36 user

Index of /pub/apache/tomcat/tomcat-9 - Mozilla Firefox

library/centos - Dock... x Apache Tomcat/8.0.38 x Java SE Development... x Index of /pub/apache... x

← apache-mirror.rbc.ru/pub/apache/tomcat/tomcat-9/ Google 6m

# Index of /pub/apache/tomcat/tomcat-9

<a href="#">Name</a>	<a href="#">Last modified</a>	<a href="#">Size</a>	<a href="#">Description</a>
<a href="#">Parent Directory</a>		-	
<a href="#">v9.0.0.M137</a>	2016-11-08 13:08	-	

# Index of /pub/apache/tomcat/tomcat-9/v9.0.0.M13

<a href="#">Name</a>	<a href="#">Last modified</a>	<a href="#">Size</a>	<a href="#">Description</a>
<a href="#">Parent Directory</a>		-	
<a href="#">bin/</a>	2016-11-08 13:08	-	
<a href="#">src/</a>	2016-11-08 13:07	-	
<a href="#">README.html</a>	2016-11-04 00:27	4.3K	Apache Tomcat 9.0.0.M13
<a href="#">RELEASE-NOTES</a>	2016-11-04 00:27	6.7K	

## Apache Tomcat 9.0.0.M13

Useful references:

- [Release notes](#), with important information about known issues
- [Changelog](#)

**NOTE: The tar files in this distribution use GNU tar extensions, and must be untarred with a GNU compatible version of tar. The version of tar on Solaris and Mac OS X will not work with these files.**

Tomcat 9.0 requires Java SE 8 or later. Read the RELEASE-NOTES and the RUNNING.txt file in the distribution for more details.

### Packaging Details (or "What Should I Download?")

**bin/**  
apache-tomcat-[version].zip or .tar.gz

Base distribution. These distributions do not include the Windows service wrapper nor the compiled APR/native library for Windows.

apache-tomcat-[version].exe  
32-bit/64-bit Windows installer for Tomcat. Please note that while this distribution includes the vast majority of the Base distribution, some of the command-line scripts for launching Tomcat are not included. This distribution is intended for those users planning to launch Tomcat through the Windows shortcuts or services.

Transferring data from apache-mirror.rbc.ru...



\*Dockerfile (~/Desktop) - gedit

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\*Dockerfile x

```
FROM centos
MAINTAINER packt<videotesting@packtpub.com>
RUN yum -y update && yum -y install wget && yum -y install tar

# Set Environment Variables
ENV JAVA_HOME /usr/java
ENV CATALINA_HOME /usr/tomcat
ENV PATH $PATH:$JAVA_HOME/bin:$CATALINA_HOME/bin

# Download and Install Java 8 :

http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-
2133151.html
RUN wget --no-cookies --no-check-certificate --header "Cookie:
gpw_e24=http%3A%2F%2Fwww.oracle.com%2F; oraclelicense=accept-securebackup-
cookie"
"http://download.oracle.com/otn-pub/java/jdk/8u92-b14/jdk-8u92-linux-x64.ta
r.gz" && tar -xvf jdk-8u92-linux-x64.tar.gz && rm jdk-8u92-linux-x64.tar.gz
&& mv jdk*
${JAVA_HOME}
```

# Download and Install Tomcat 9 :

http://apache-mirror.rbc.ru/pub/apache/tomcat/

RUN wget

http://apache-mirror.rbc.ru/pub/apache/tomcat/tomcat-9/v9.0.0.M8/bin/apache

-tomcat-9.0.0.M8.tar.gz && tar -xvf apache-tomcat-9.0.0.M8.tar.gz && mv apache-tomcat-9.0.0.M8

http://apche-mirror.rbc.ru/pub/apache/tomcat

Plain Text

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user@localhost:/home/user/Desktop

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Trying to pull repository docker.io/library/centos ...

latest: Pulling from docker.io/library/centos

Digest: sha256:b2f9d1c0ff5f87a4743104d099a3d561002ac500db1b9bfa02a783a46e0d366c

Status: Downloaded newer image for docker.io/centos:latest

---> 0584b3d2cf6d

Step 2 : MAINTAINER packt<videotesting@packtpub.com>

---> Running in 67b8fc645101

---> b831aa2c43a4

Removing intermediate container 67b8fc645101

Successfully built b831aa2c43a4

[root@localhost Desktop]# docker images

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
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docker.io/ubuntu	latest	f753707788c5	4 weeks ago	127.1 MB
docker.io/hello-world	latest	c54a2cc56cbb	4 months ago	1.848 kB

[root@localhost Desktop]# uname -m

x86\_64

[root@localhost Desktop]# doc

user@localhost:/home/user/Desktop

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```
---> Running in 67b8fc645101
---> b831aa2c43a4
Removing intermediate container 67b8fc645101
Successfully built b831aa2c43a4
[root@localhost Desktop]# docker images
```

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docker.io/ubuntu	latest	f753707788c5	4 weeks ago	127.1 MB
docker.io/hello-world	latest	c54a2cc56cbb	4 months ago	1.848 kB

```
[root@localhost Desktop]# uname -m
x86_64
[root@localhost Desktop]# docker build -t devopstomcat
docker: "build" requires 1 argument.
See '/usr/bin/docker-current build --help'.

Usage:  docker build [OPTIONS] PATH | URL | -

Build an image from a Dockerfile
[root@localhost Desktop]#
```



user@localhost:/home/user/Desktop

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```
---> b831aa2c43a4
Removing intermediate container 67b8fc645101
Successfully built b831aa2c43a4
[root@localhost Desktop]# docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
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docker.io/centos	7	0584b3d2cf6d	12 days ago	196.5 MB
docker.io/centos	latest	0584b3d2cf6d	12 days ago	196.5 MB
docker.io/tomcat	8.0	ebb17717bed4	2 weeks ago	355.4 MB
docker.io/tomcat	latest	ebb17717bed4	2 weeks ago	355.4 MB
docker.io/ubuntu	latest	f753707788c5	4 weeks ago	127.1 MB
docker.io/hello-world	latest	c54a2cc56cbb	4 months ago	1.848 kB

```
[root@localhost Desktop]# uname -m
x86_64
[root@localhost Desktop]# docker build -t devopstomcat
docker: "build" requires 1 argument.
See '/usr/bin/docker-current build --help'.

Usage:  docker build [OPTIONS] PATH | URL | -

Build an image from a Dockerfile
[root@localhost Desktop]# docker build -t devopstomcat .
Sending build context to Docker daemon 5.571 MB
```



# Summary

- Understood the difference between virtual machines and containers
- Installed and configuring Docker on CentOS
- Created your first Docker container
- Understood the client-server architecture of Docker
- Managed containers
- Created a Docker image from Dockerfile

Next Section

# Cloud Provisioning and Configuration Management with Chef