

EPAM Systems, RD Dep.

MTN.NIX.Module.Automated Environment Configuration Management.Docker

REVISION HISTORY					
Ver.	Description of Change	Author	Date	Approved	
				Name	Effective Date
1.0	Initial Version	Siarhei Beliakou	23/May/2017		

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Task. Docker. Part 1

Task:

Using base docker image **sbeliakou/centos:7.2**

Repository: <https://github.com/MNTLab/docker/docker-1>

1. With Dockerfiles:

- Create Docker Image of nginx (web.Dockerfile)

```
~/workspace/Docker/nginx> docker build -t my-nginx -f web.Dockerfile .
Sending build context to Docker daemon 3.072kB
Step 1/6 : FROM sbeliakou/centos:7.2
--> 3adf11ba9dc7
Step 2/6 : RUN yum -y install nginx
--> Using cache
--> 4ce2764fadba
Step 3/6 : RUN sed -i 's/location \{/s//location \{/ { proxy_pass http://tomcat:8080;/}' /etc/nginx/nginx.conf
--> Running in 91d8d2e2de8c
--> f779de2629ca
Removing intermediate container 91d8d2e2de8c
Step 4/6 : ADD index.html /usr/share/nginx/html/
--> 966ca3340827
Removing intermediate container 8010c151f475
Step 5/6 : EXPOSE 80
--> Running in 54314142d97b
--> 4a66b6cca65f
Removing intermediate container 54314142d97b
Step 6/6 : CMD nginx -g 'daemon off;'
--> Running in f551be93e893
--> bf65f2f6e465
Removing intermediate container f551be93e893
Successfully built bf65f2f6e465
Successfully tagged my-nginx:latest
~/workspace/Docker/nginx>
```

docker build -t my-nginx -f web.Dockerfile .

- Create Docker Image of Tomcat 7 (tomcat.Dockerfile)

```
~/workspace/Docker/Tomcat docker build -t my-tomcat -f tomcat.Dockerfile
Sending build context to Docker daemon 2.048kB
Step 1/3 : FROM sbeliakou/centos:7.2
---> 3adf11ba9dc7
Step 2/3 : RUN rpm --rebuilddb; yum install -y tomcat tomcat-webapps
---> Using cache
---> b627332be549
Step 3/3 : CMD /usr/libexec/tomcat/server start
---> Using cache
---> e663efef5269
Successfully built e663efef5269
Successfully tagged my-tomcat:latest
```

docker build -t my-tomcat -f tomcat.Dockerfile .

- Create Docker Image (Data Volume) with hello world application for Tomcat (application.Dockerfile)

```
~/workspace/Docker/App docker build -t my-app -f application.Dockerfile .
Sending build context to Docker daemon 7.168kB
Step 1/4 : FROM sbeliakou/centos:7.2
---> 3adf11ba9dc7
Step 2/4 : VOLUME /var/lib/tomcat/webapps/
---> Using cache
---> 064a854daa17
Step 3/4 : ADD sample.war /var/lib/tomcat/webapps/
---> Using cache
---> 7432498b773d
Step 4/4 : CMD sleep infinity
---> Using cache
---> 782c54d54aad
Successfully built 782c54d54aad
Successfully tagged my-app:latest
```

docker build -t my-app -f application.Dockerfile .

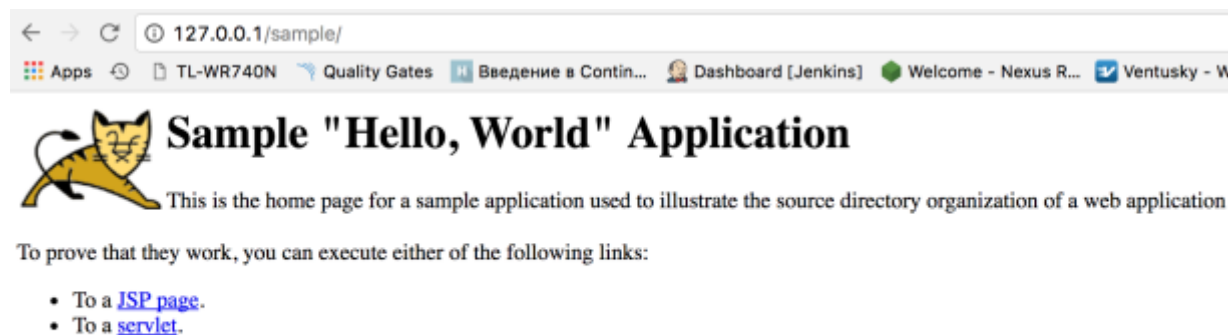
- Run these Images so that <http://localhost/sample> shows hello world page

```
~/workspace/Docker docker run -d --name my-appvol my-app
0b14e0817e0f3b12725d545e739e8401d284fcb2ab0ae8466170bd316b198878
```

```
~/workspace/Docker ➤ docker run -d --volumes-from my-appvol --name tomcat my-tomcat
d9bf5f09ec1368031fd1ea6050a88b75f744c8bae287002c8ccda86542767d01
~/workspace/Docker ➤ docker run -d -p 127.0.0.1:80:80 --link tomcat:tomcat my-nginx
8872ea52f4743b38e2582ffdb3277e55ce29a6909f6e231d35cbb57061fa486a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS
8872ea52f474	my-nginx	"/bin/sh -c 'nginx...'"	19 seconds ago	Up 18 seconds	127.0.0.1:80->80/tcp
gifted_sinoussi					
d9bf5f09ec13	my-tomcat	"/bin/sh -c '/usr/...'"	44 seconds ago	Up 42 seconds	
tomcat					
0b14e0817e0f	my-app	"/bin/sh -c 'sleep...'"	About a minute ago	Up About a minute	
my-appvol					

```
docker run -d --name my-appvol my-app
docker run -d --volumes-from my-appvol --name tomcat my-tomcat
docker run -d -p 127.0.0.1:80:80 --link tomcat:tomcat my-nginx
```



- Nginx container forwards http requests to Tomcat container; Only nginx container exposes port (80)

```
~/workspace/Docker/nginx docker exec -it d70c25182bc3 bash
bash-4.2# curl -IL tomcat:8080/sample
HTTP/1.1 302 Found
Server: Apache-Coyote/1.1
Location: /sample/
Transfer-Encoding: chunked
Date: Mon, 31 Jul 2017 12:01:01 GMT

HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Accept-Ranges: bytes
ETag: W/"636-1185812788000"
Last-Modified: Mon, 30 Jul 2007 16:26:28 GMT
Content-Type: text/html
Content-Length: 636
Date: Mon, 31 Jul 2017 12:01:01 GMT

~/workspace/Docker trc
.
|-- App
|   |-- application.Dockerfile
|   |-- sample.war
|-- Tomcat
|   |-- tomcat.Dockerfile
|-- nginx
|   |-- web.Dockerfile

3 directories, 4 files
```

2. With docker-compose:

- Create docker-compose.yml file to build containers from previous task
- Run "environment" in daemon mode
- Create own branch (epam login without @epam.com, in lowercase)
- Create PR with description of reported task
- All needed resources (if they are) must be placed into /resources folder

Task. Docker. Part 2

Task:

Repository: <https://github.com/MNTLab/docker/docker-2>

- Create custom ansible (v2.2.1) image
- Launch Jenkins from official image
- Link Docker Host as Jenkins slave (ssh)
- Create custom gradle image
- Configure a job to build spring-boot application using gradle image built on previous step
- Configure a job to run just built Spring Boot app with docker-compose