



# AppDynamics Practice Lab

Epic Academy

- Building an AppDynamics Lab Practice Environment – Docker Container

# AppDynamics Lab – Option 1

## 1. Building AppDynamics environment on Docker containers

It provides a faster way to begin testing AppDynamics within 30mins – 2hour. Applications are installed and started for you, Load is generated for you etc.

### Requirement

1. Centos 7 Operating System , 4GB Ram, 1 CPU core, WinSCP, putty Internet access on the virtual machine. Use of editing tools like vi or vim.

Note: You must either use on-premise controller or cloud 14 trial SaaS controller to test this.

# AppDynamics Lab

## Step 1: Install the docker environment

1. Building AppDynamics environment on Docker containers

First install docker ----

**Note:** Make sure you first run updates otherwise you will encounter many frustrating errors!!!!

**[root@localhost opt]# sudo yum update**

**[root@localhost opt]# sudo yum install yum-utils device-mapper-persistent-data lvm2**

**[root@localhost opt]# sudo yum-config-manager --add-repo <https://download.docker.com/linux/centos/docker-ce.repo>**

```
[root@localhost opt]# sudo yum-config-manager --add-repo https://download.docker.com/linux/centos/docker-ce.repo
Loaded plugins: fastestmirror, langpacks
adding repo from: https://download.docker.com/linux/centos/docker-ce.repo
grabbing file https://download.docker.com/linux/centos/docker-ce.repo to /etc/yum.repos.d/docker-ce.repo
repo saved to /etc/yum.repos.d/docker-ce.repo
```

**[root@localhost opt]# sudo yum install docker-ce**

```
[root@localhost opt]# sudo yum install docker-ce
```

Note: Make sure you disable firewalld and selinux

# AppDynamics Lab

Allow the installation to run and complete

```
[root@localhost opt]# sudo yum install docker-ce
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
 * base: mirror.aplus.co.tz
 * extras: centos.mirror.ptisp.pt
 * updates: centos.mirror.ptisp.pt
docker-ce-stable
(1/2): docker-ce-stable/x86_64/updateinfo | 3.5 kB 00:00:00
(2/2): docker-ce-stable/x86_64/primary_db | 55 B 00:00:00
Resolving Dependencies
--> Running transaction check
--> Package docker-ce.x86_64 3:19.03.12-3.el7 will be installed
--> Processing Dependency: container-selinux >= 2:2.74 for package: 3:docker-ce-19.03.12-3.el7.x86_64
--> Processing Dependency: containerd.io >= 1.2.2-3 for package: 3:docker-ce-19.03.12-3.el7.x86_64
--> Processing Dependency: docker-ce-cli for package: 3:docker-ce-19.03.12-3.el7.x86_64
--> Processing Dependency: libcgrouper for package: 3:docker-ce-19.03.12-3.el7.x86_64
--> Running transaction check
```

## Start and enable docker

```
[root@localhost opt]# sudo systemctl start docker
```

```
[root@localhost opt]# sudo systemctl enable docker
```

```
[root@localhost opt]# sudo systemctl start docker
[root@localhost opt]# sudo systemctl enable docker
Created symlink from /etc/systemd/system/multi-user.target.wants/docker.service to /usr/lib/systemd/system/docker.service.
[root@localhost opt]#
```

Confirm the docker is running by running – check for “**active (running)**” in green

```
[root@localhost opt]# sudo systemctl status docker
```

```
[root@localhost opt]# sudo systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; vendor preset: disabled)
   Active: active (running) since Sat 2020-07-18 01:25:45 WAT; 2min 49s ago
     Docs: https://docs.docker.com
   Main PID: 1842 (dockerd)
   CGroup: /system.slice/docker.service
           └─1842 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock

Jul 18 01:25:45 localhost.localdomain dockerd[1842]: time="2020-07-18T01:25:45.390835764+01:00" level=info msg="Creating filesystem xfs on device docker-253:0-491614-base, mkf...evicemapper
Jul 18 01:25:45 localhost.localdomain dockerd[1842]: time="2020-07-18T01:25:45.441784821+01:00" level=info msg="Successfully created filesystem xfs on device docker-253:0-4916...evicemapper
Jul 18 01:25:45 localhost.localdomain dockerd[1842]: time="2020-07-18T01:25:45.467021729+01:00" level=warning msg="[graphdriver] WARNING: the devicemapper storage-driver is de...re release"
Jul 18 01:25:45 localhost.localdomain dockerd[1842]: time="2020-07-18T01:25:45.486215368+01:00" level=info msg="Loading containers: start."
Jul 18 01:25:45 localhost.localdomain dockerd[1842]: time="2020-07-18T01:25:45.640963687+01:00" level=info msg="Default bridge (docker0) is assigned with an IP address 172.17....IP address"
Jul 18 01:25:45 localhost.localdomain dockerd[1842]: time="2020-07-18T01:25:45.697535762+01:00" level=info msg="Loading containers: done."
Jul 18 01:25:45 localhost.localdomain dockerd[1842]: time="2020-07-18T01:25:45.709915146+01:00" level=info msg="Docker daemon" commit=48a66213fe graphdriver(s)=devicemapper version=19.03.12
Jul 18 01:25:45 localhost.localdomain dockerd[1842]: time="2020-07-18T01:25:45.710259518+01:00" level=info msg="Daemon has completed initialization"
Jul 18 01:25:45 localhost.localdomain dockerd[1842]: time="2020-07-18T01:25:45.731713061+01:00" level=info msg="API listen on /var/run/docker.sock"
Jul 18 01:25:45 localhost.localdomain systemd[1]: Started Docker Application Container Engine.
Hint: Some lines were ellipsized, use -l to show in full.
[root@localhost opt]#
[root@localhost opt]#
[root@localhost opt]#
[root@localhost opt]#
```

Check the docker version

```
[root@localhost opt]# docker -v
```

```
[root@localhost opt]# docker -v  
Docker version 19.03.12, build 48a66213fe
```

## Step 2: Install Docker Compose

I used version 1.23.2 but you can use any other recent version as well. Note the hyphens in the command below otherwise it will fail.

```
[root@localhost ~]# sudo curl -L "https://github.com/docker/compose/releases/download/1.23.2/docker-  
compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
```

```
[root@localhost ~]#  
[root@localhost ~]# sudo curl -L "https://github.com/docker/compose/releases/download/1.23.2/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose  
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current  
                                 Dload  Upload   Total   Spent    Left   Speed  
100  638    100  638     0     0    615       0  0:00:01  0:00:01 --:--:--   615  
100 11.2M    100 11.2M     0     0  588k       0  0:00:19  0:00:19 --:--:--  829k  
[root@localhost ~]#
```

Set the permissions to make the binaries executable

```
[root@localhost ~]# sudo chmod +x /usr/local/bin/docker-compose
```

```
[root@localhost ~]# docker-compose --version
```

If you run into this error below "curl: (35) Peer reports incompatible or unsupported protocol version". its probably because you didn't run updates.

```
[root@app ~]# sudo curl -L "https://github.com/docker/compose/releases/download/1.23.2/dockercompose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload  Total  Spent    Left     Speed
  0     0    0     0    0     0      0      0  --:--:-- --:--:-- --:--:--     0
curl: (35) Peer reports incompatible or unsupported protocol version.
```

You can also fix it with this

```
[root@app ~]# yum update -y nss curl libcurl
```

Once you are done, rerun the command and it will be successful

```
[root@app ~]# sudo curl -L "https://github.com/docker/compose/releases/download/1.23.2/dockercompose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload  Total  Spent    Left     Speed
100    911100    9    0     0      0      0      0  0:00:04 0:00:03 0:00:01     2
```

### Step 3: Install git

Install git

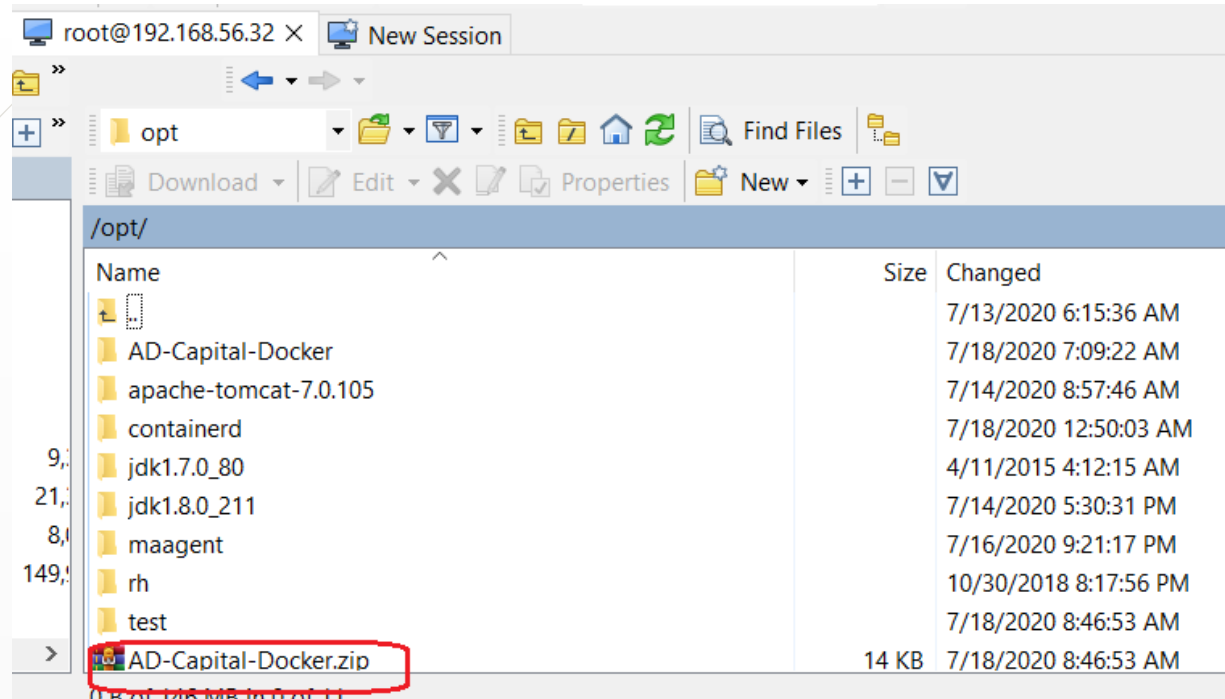
```
[root@localhost opt]# yum -y install git
```

```
[root@localhost opt]#  
[root@localhost opt]# yum -y install git
```



#### Step 4: Copy the AD-Capital Zipped File provided

Copy the AD-Capital Zipped file with WinSCP to /opt directory and unzip



```
[root@localhost opt]#  
[root@localhost opt]# unzip AD-Capital-Docker.zip
```

```
[root@localhost opt]#  
[root@localhost opt]# ls  
AD-Capital-Docker      apache-tomcat-7.0.105  jdk1.7.0_80      jdk-7u80-linux-x64.tar.gz  mysql.sql  test  
AD-Capital-Docker.zip  containerd              jdk1.8.0_211     maagent                    rh  
[root@localhost opt]#  
[root@localhost opt]#
```

## Step 5: Run the Docker compose command to build

cd to the AD-Capital-Tomcat directory `/opt/AD-Capital-Docker/ADCapital-Tomcat` and run  
`[root@localhost ~]# cd /opt/AD-Capital-Docker/ADCapital-Tomcat/`

`[root@localhost ADCapital-Tomcat]# docker-compose build`

```
[root@localhost ADCapital-Tomcat]#  
[root@localhost ADCapital-Tomcat]# docker-compose build  
Building tomcat-base  
Step 1/14 : FROM tomcat:9-jre8  
9-jre8: Pulling from library/tomcat  
c5e155d5a1d1: Downloading [>] 457.1kB/45.34MB  
221d80d00ae9: Downloading [===>] 801.2kB/10.78MB  
4250b3117dca: Downloading [=====>] 911.8kB/4.34MB  
d1370422ab93: Waiting  
deb6b03222ca: Waiting  
9cdea8d70cc3: Waiting  
968505be14db: Waiting  
04b5c270ac81: Waiting  
301d76fcab1f: Waiting  
f4d49608235a: Waiting  
f4c6404fd6f8: Waiting
```

You should get something like the below when completed

```
---> e72c0721111e  
Successfully built e72c0721111e  
Successfully tagged appdynamics/adcapital-tomcat:latest  
[root@localhost ADCapital-Tomcat]#
```

If you run into issues like the one in screenshot below, it could be a DNS issues which you need to fix by editing the DNS **resolv.conf** file or running **yum update** (If it has not been done or **simply restarting the virtual machine**)

The problem is that Docker has a way it uses DNS. Ensure you can resolve **github.com**

Modify your DNS to include at least public DNS like google – 8.8.8.8

```
[root@app ~]# vi /etc/resolv.conf
# Generated by NetworkManager
nameserver 8.8.4.4
nameserver 8.8.8.8
[root@app ~]#
```

```
Step 3/12 : RUN wget https://github.com/jwilder/dockerize/releases/download/$DOCK
KERIZE_VERSION/dockerize-linux-amd64-$DOCKERIZE_VERSION.tar.gz      && tar -C /us
r/local/bin -xzvf dockerize-linux-amd64-$DOCKERIZE_VERSION.tar.gz      && rm dock
erize-linux-amd64-$DOCKERIZE_VERSION.tar.gz
---> Running in dde47d94fc19
--2021-08-26 13:54:40-- https://github.com/jwilder/dockerize/releases/download/
v0.6.0/dockerize-linux-amd64-v0.6.0.tar.gz
Resolving github.com (github.com)... failed: Temporary failure in name resolutio
n.
wget: unable to resolve host address 'github.com'
The command '/bin/sh -c wget https://github.com/jwilder/dockerize/releases/downl
oad/$DOCKERIZE_VERSION/dockerize-linux-amd64-$DOCKERIZE_VERSION.tar.gz      && ta
r -C /usr/local/bin -xzvf dockerize-linux-amd64-$DOCKERIZE_VERSION.tar.gz      &&
rm dockerize-linux-amd64-$DOCKERIZE_VERSION.tar.gz' returned a non-zero code: 4
ERROR: Service 'tomcat-base' failed to build : Build failed
```

Now cd into the main projects and build the images

```
[root@localhost opt]# cd /opt/AD-Capital-Docker/ADCapital-Project
```

Run the docker-compose build

```
[root@localhost ADCapital-Project]# docker-compose build
adcapitaldb uses an image, skipping
rabbitmq uses an image, skipping
Building project
Step 1/13 : FROM openjdk:8
8: Pulling from library/openjdk
e9afc4f90ab0: Downloading [>] 507.1kB/50.39MB
989e6b19a265: Downloading [=====>] 1.506MB/7.812MB
af14b6c2f878: Downloading [=====>] 1.465MB/9.996MB
5573c4b30949: Waiting
fb1a405f128d: Waiting
197b0f525c26: Waiting
35daf494cd0f: Waiting
```

You should get Successfully built when completed.

```
Successfully built 1cb03fde1bb5
Successfully tagged appdynamics/adcapital-load:latest
[root@localhost ADCapital-Project]#
```

## Step 6: Verify the images

Check the images by running. Ensure you see the latest highlighted

[root@localhost ADCapital-Project]# docker images

```
[root@localhost ADCapital-Project]# docker images
REPOSITORY          TAG          IMAGE ID      CREATED        SIZE
appdynamics/adcapital-load   latest      1cb03fde1bb5  24 seconds ago  624MB
<none>               <none>       9f054d5ebbe2  4 minutes ago  536MB
appdynamics/adcapital-project latest      3fbcafd94bd4  4 minutes ago  776MB
<none>               <none>       518ffb4c10e4  12 minutes ago  511MB
appdynamics/adcapital-tomcat latest      e72c0721111e  41 minutes ago  586MB
openjdk              8            51d6b33ebe8a  26 hours ago   511MB
tomcat               9-jre8       e24825d32965  14 months ago  464MB
[root@localhost ADCapital-Project]#
```

## Step 7: Setup the Docker Volumes

The Docker setup uses docker volume to store AppDynamics agent binaries, logs and configuration file so we need to create this volume.

Create two volumes. Last volume will be used by machine agent.

```
[root@localhost ADCapital-Project]# docker volume create --name=appdynamics  
[root@localhost ADCapital-Project]# docker volume create --name=project
```

```
[root@localhost ADCapital-Project]# docker volume create --name=appdynamics  
appdynamics  
[root@localhost ADCapital-Project]#
```

```
[root@localhost ADCapital-Project]# docker volume create --name=project  
project
```

## Step 8: Start the lab environment

Start and stop the lab environment with the following under /opt/AD-Capital-Docker

[root@localhost AD-Capital-Docker]# docker-compose up # to start the lab environment.

and

[root@localhost AD-Capital-Docker]# docker-compose down # to stop the lab environment

```
[root@localhost AD-Capital-Docker]# docker-compose up
```

```
[root@localhost AD-Capital-Docker]# docker-compose up
Creating network "ad-capital-docker_default" with the default driver
Pulling adcapitaldb (mysql:5.7)...
5.7: Pulling from library/mysql
8559a31e96f4: Downloading [==>] 1.665MB/27.1MB
d51ce1c2e575: Download complete
c2344adc4858: Downloading [=====>] 2.051MB/4.178MB
fcf3ceff18fc: Waiting
16da0c38dc5b: Waiting
b905d1797e97: Waiting
4b50d1c6b05c: Waiting
0a52a5c57cd9: Waiting
3b816a39d367: Waiting
13ee22d6b3bb: Waiting
e517c3d2ba35: Waiting
```

You should see something like this as the application is starting

```
[root@localhost AD-Capital-Docker]# docker-compose up
Starting adcapitaldb ...
Starting adcapitaldb ... done
Starting project ... done
Creating portal ... done
Creating processor ... done
Creating approval ... done
Creating verification ... done
Creating rest ... done
Creating adcapitalload ... done
Attaching to rabbitmq, adcapitaldb, project, processor, portal, approval, verification, rest, adcapitalload
rabbitmq      | WARNING: no logs are available with the 'none' log driver
adcapitaldb   | WARNING: no logs are available with the 'none' log driver
processor     | WARNING: no logs are available with the 'none' log driver
portal        | WARNING: no logs are available with the 'none' log driver
approval      | WARNING: no logs are available with the 'none' log driver
verification  | WARNING: no logs are available with the 'none' log driver
rest          | WARNING: no logs are available with the 'none' log driver
adcapitalload | 2020/07/18 00:59:44 Waiting for: tcp://portal:8080
adcapitalload | 2020/07/18 00:59:44 Waiting for: tcp://processor:8080
adcapitalload | 2020/07/18 00:59:44 Problem with dial: dial tcp 172.18.0.5:8080: getsockopt: connection refused. Sleeping 10s
adcapitalload | 2020/07/18 00:59:44 Problem with dial: dial tcp 172.18.0.6:8080: getsockopt: connection refused. Sleeping 10s
project       | AD-Capital project copied to docker volume
project       | GRADLE project copied to docker volume
project exited with code 0
adcapitalload | 2020/07/18 00:59:54 Problem with dial: dial tcp 172.18.0.6:8080: getsockopt: connection refused. Sleeping 10s
adcapitalload | 2020/07/18 00:59:54 Problem with dial: dial tcp 172.18.0.5:8080: getsockopt: connection refused. Sleeping 10s
adcapitalload | 2020/07/18 01:00:04 Problem with dial: dial tcp 172.18.0.5:8080: getsockopt: connection refused. Sleeping 10s
adcapitalload | 2020/07/18 01:00:04 Problem with dial: dial tcp 172.18.0.6:8080: getsockopt: connection refused. Sleeping 10s
```



When it fully starts you should see transactions been generated by the load generator

```
adcapitalload | Jul 18, 2020 1:00:47 AM com.appdynamics.analytics.demo.LoadRunner callPortalAuthenticate
adcapitalload | INFO: Current User: Harper Mayo, Level: Gold
adcapitalload | Jul 18, 2020 1:00:50 AM com.appdynamics.analytics.demo.LoadRunner callPortalSubmitApplication
adcapitalload | INFO: Magee Maldonado, your application has been submitted. ID: 296000 Homed5183c45-fcab-48c1-902c-e7d27840e066
adcapitalload | Jul 18, 2020 1:00:54 AM com.appdynamics.analytics.demo.LoadRunner callProcessorCreditCheck
adcapitalload | INFO: No application found for credit approval
adcapitalload | Jul 18, 2020 1:00:57 AM com.appdynamics.analytics.demo.LoadRunner callProcessorUnderWrite
adcapitalload | INFO: No application found for underwriting
adcapitalload | Jul 18, 2020 1:01:00 AM com.appdynamics.analytics.demo.LoadRunner callPortalAuthenticate
adcapitalload | INFO: Current User: Guy Guzman, Level: Silver
adcapitalload | Jul 18, 2020 1:01:03 AM com.appdynamics.analytics.demo.LoadRunner callPortalSubmitApplication
adcapitalload | INFO: Adrian Cotton, your application has been submitted. ID: 69000 Personalc48847a8-3777-4c8a-9aac-dab0a147aa9a
adcapitalload | Jul 18, 2020 1:01:06 AM com.appdynamics.analytics.demo.LoadRunner callProcessorCreditCheck
adcapitalload | INFO: No application found for credit approval
adcapitalload | Jul 18, 2020 1:01:09 AM com.appdynamics.analytics.demo.LoadRunner callProcessorUnderWrite
adcapitalload | INFO: No application found for underwriting
adcapitalload | Jul 18, 2020 1:01:13 AM com.appdynamics.analytics.demo.LoadRunner callPortalAuthenticate
adcapitalload | INFO: Current User: Magee Maldonado, Level: Silver
adcapitalload | Jul 18, 2020 1:01:16 AM com.appdynamics.analytics.demo.LoadRunner callPortalSubmitApplication
adcapitalload | INFO: Guy Alford, your application has been submitted. ID: 376000 Home6cbc7a43-e58d-493c-9fb8-6c94f1a0f51c
adcapitalload | Jul 18, 2020 1:01:19 AM com.appdynamics.analytics.demo.LoadRunner callProcessorCreditCheck
adcapitalload | INFO: No application found for credit approval
adcapitalload | Jul 18, 2020 1:01:22 AM com.appdynamics.analytics.demo.LoadRunner callProcessorUnderWrite
adcapitalload | INFO: No application found for underwriting
adcapitalload | Jul 18, 2020 1:01:25 AM com.appdynamics.analytics.demo.LoadRunner callPortalAuthenticate
adcapitalload | INFO: Current User: Caesar Schwartz, Level: Silver
adcapitalload | Jul 18, 2020 1:01:28 AM com.appdynamics.analytics.demo.LoadRunner callPortalSubmitApplication
adcapitalload | INFO: Berk Bass, your application has been submitted. ID: 189000 Homea7ca22ad-0b9d-4a28-95d6-8aa8c4ff2b08
adcapitalload | Jul 18, 2020 1:01:31 AM com.appdynamics.analytics.demo.LoadRunner callProcessorCreditCheck
adcapitalload | INFO: No application found for credit approval
adcapitalload | Jul 18, 2020 1:01:34 AM com.appdynamics.analytics.demo.LoadRunner callProcessorUnderWrite
adcapitalload | INFO: No application found for underwriting
adcapitalload | Jul 18, 2020 1:01:37 AM com.appdynamics.analytics.demo.LoadRunner callPortalAuthenticate
adcapitalload | INFO: Current User: Kyle Charles, Level: Silver
adcapitalload | Jul 18, 2020 1:01:40 AM com.appdynamics.analytics.demo.LoadRunner callPortalSubmitApplication
adcapitalload | INFO: Darius Vargas, your application has been submitted. ID: 35000 Personal2f2b49cc-d0cc-4aa2-ae7-0ac4d0c311f6
adcapitalload | Jul 18, 2020 1:01:43 AM com.appdynamics.analytics.demo.LoadRunner callProcessorCreditCheck
adcapitalload | INFO: No application found for credit approval
```

## Step 9: Stop the lab environment

Shutdown the lab environment to proceed to the next task - Very Important

```
[root@localhost AD-Capital-Docker]# docker-compose down
```

**Lab Setup completed – Proceed to install Application agents**

## Install AppDynamics agent

5. Change directory to **ADCapital-AppDynamics** and run **docker-compose up --build** to validate the agent configuration and configure the agent for monitoring..

```
[root@localhost ADCapital-AppDynamics]# docker-compose up --build
```

```
[root@localhost ADCapital-AppDynamics]# docker-compose up --build
Building project
Step 1/14 : FROM centos:centos6
----> d0957ffdf8a2
Step 2/14 : RUN yum -y install unzip
----> Using cache
----> 1ec46a346343
Step 3/14 : ARG APPD_AGENT_ZIP
----> Using cache
----> 48a38d82bfff6
Step 4/14 : ARG APPD_AGENT_SHA256
----> Using cache
----> 993360e5e979
Step 5/14 : ENV AGENT_ZIP AppServerAgent.zip
----> Using cache
----> 2b51e31408c7
Step 6/14 : ENV AGENT_SHA256 AppServerAgent.checksum
----> Using cache
----> 887795fa0864
Step 7/14 : ENV APPD_TMP /tmp
----> Using cache
----> e8c08f812b42
Step 8/14 : COPY ${APPD_AGENT_ZIP} /${AGENT_ZIP}
----> 2cc308cd7dcc
Step 9/14 : RUN echo "${APPD_AGENT_SHA256} *${AGENT_ZIP}" >> /$AGENT_SHA256
----> Running in 7d49e286fdd4
Removing intermediate container 7d49e286fdd4
----> c8f3b33cff74
Step 10/14 : RUN sha256sum -c ${AGENT_SHA256}
----> Running in 2e2cde0285d2
AppServerAgent.zip: OK
Removing intermediate container 2e2cde0285d2
----> 47bf442c2e60
Step 11/14 : COPY appdynamics.sh /appdynamics.sh
```

## Install AppDynamics agent

6. You should get successful message below

```
Step 14/14 : CMD "/startup.sh"
---> Running in 2a8a16fcafc8
Removing intermediate container 2a8a16fcafc8
---> 99154363d4dd
Successfully built 99154363d4dd
Successfully tagged appdynamics/adcapital-agents:latest
Creating appdynamics ... done
Attaching to appdynamics
appdynamics | Copying App Server Agent to volume: /appdynamics
appdynamics | Copying AppDynamics configuration script to /appdynamics
appdynamics exited with code 0
[root@localhost ADCapital-AppDynamics]#
```

## Step 11: Configure the AppDynamics App agents

cd to /opt/AD-Capital-Docker and edit the docker-compose.env with either WinSCP or CLI

```
[root@localhost ~]# cd /opt/AD-Capital-Docker/  
[root@localhost AD-Capital-Docker]#
```

Fill out the controller information in the docker-compose.env file with the appropriate controller variables using WinSCP. I have only filled the following (**Please change these variables to suite your environment- change the controller host name/ IP address and account access key**) You can also change the application name.

```
APPDYNAMICS_AGENT_APPLICATION_NAME=AD-Docker-Capital  
APPDYNAMICS_AGENT_ACCOUNT_NAME=customer1  
APPDYNAMICS_AGENT_ACCOUNT_ACCESS_KEY=xxxxxxxxxxxxxx  
APPD_EVENT_ACCOUNT_NAME=customer1  
APPDYNAMICS_CONTROLLER_HOST_NAME=192.168.56.40  
APPDYNAMICS_CONTROLLER_PORT=8090
```

The Application tier and node names are passed in as environment variables from the main projects docker-compose file

```
APPDYNAMICS_AGENT_ACCOUNT_NAME=customer1  
APPDYNAMICS_AGENT_ACCOUNT_ACCESS_KEY=xxxxxxxxxxxxxxxxxxxxxx|  
APPD_ES_HOST=  
APPD_ES_PORT=  
APPD_ES_SSL=  
APPD_EVENT_ACCOUNT_NAME=customer1  
APPDYNAMICS_CONTROLLER_HOST_NAME=192.168.56.40  
APPDYNAMICS_CONTROLLER_PORT=8090  
APPDYNAMICS_CONTROLLER_SSL_ENABLED=  
APPD_DIR=/appdynamics  
APPD_AGENT_VERSION=4.5.14.27768  
RETRY=10s  
TIMEOUT=240s
```

## Install AppDynamics agent

[root@localhost AD-Capital-Docker]# vi docker-compose.env

```
[root@localhost AD-Capital-Docker]# vi docker-compose.env
APPDYNAMICS_AGENT_APPLICATION_NAME=AD-Docker-Capital
APPDYNAMICS_AGENT_ACCOUNT_NAME=customer1
APPDYNAMICS_AGENT_ACCOUNT_ACCESS_KEY=xxxxxxxxxxxxxxxxxxxxxx
APPD_ES_HOST=
APPD_ES_PORT=
APPD_ES_SSL=
APPD_EVENT_ACCOUNT_NAME=customer1
APPDYNAMICS_CONTROLLER_HOST_NAME=192.168.56.40
APPDYNAMICS_CONTROLLER_PORT=8090
APPDYNAMICS_CONTROLLER_SSL_ENABLED=
APPD_DIR=/appdynamics
APPD_AGENT_VERSION=4.5.14.27768
RETRY=10s
TIMEOUT=240s
```

## Start the lab environment

Start the demo environment. Change directory to **/opt/AD-Capital-Docker** and run  
`[root@localhost AD-Capital-Docker]# docker-compose up`

```
[root@localhost AD-Capital-Docker]#  
[root@localhost AD-Capital-Docker]#  
[root@localhost AD-Capital-Docker]#  
[root@localhost AD-Capital-Docker]#  
[root@localhost AD-Capital-Docker]# docker-compose up  
Creating network "ad-capital-docker_default" with the default driver  
Creating adcapitaldb ... done  
Creating project ... done  
Creating rabbitmq ... done  
Creating portal ... done  
Creating processor ... done  
Creating verification ... done  
Creating rest ... done  
Creating approval ... done  
Creating adcapitalload ... done
```

You should see connected to tcp://portal:8080 once the application starts. The load runner will kick in and continue

```
adcapitalload | 2020/07/18 05:56:53 Connected to tcp://portal:8080
adcapitalload | 2020/07/18 05:56:53 Connected to tcp://processor:8080
adcapitalload | Jul 18, 2020 5:56:56 AM com.appdynamics.analytics.demo.LoadRunner parseArgs
adcapitalload | INFO: portal processor
adcapitalload | Jul 18, 2020 5:57:15 AM com.appdynamics.analytics.demo.LoadRunner callPortalAuthenticate
adcapitalload | INFO: Current User: Abel Casey, Level: Gold
adcapitalload | Jul 18, 2020 5:57:18 AM com.appdynamics.analytics.demo.LoadRunner callPortalSubmitApplication
adcapitalload | INFO: Cruz Rush, your application has been submitted. ID: 87000 Car3ff595d2-6dc6-4da0-be88-eff3e393b67d
adcapitalload | Jul 18, 2020 5:57:29 AM com.appdynamics.analytics.demo.LoadRunner callProcessorUnderWrite
```



# Step 12: Verify the Application is registered on the Controller

The application will register with the controller. Check your controller and confirm

→ ↺ ⓘ Not secure | 192.168.56.40:8090/controller/#/location=£

APPDYNAMICS

HomeApplicationsUser ExperienceDa

Applications

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DetailsCreate ApplicationActionsView Options

🗃️📄🔗

View

Calls / min

So

✅ AD-Docker-Capital >

0 ms

Response Time (ms)

0

Calls

0

Calls / min

0.0 %

Error %

0

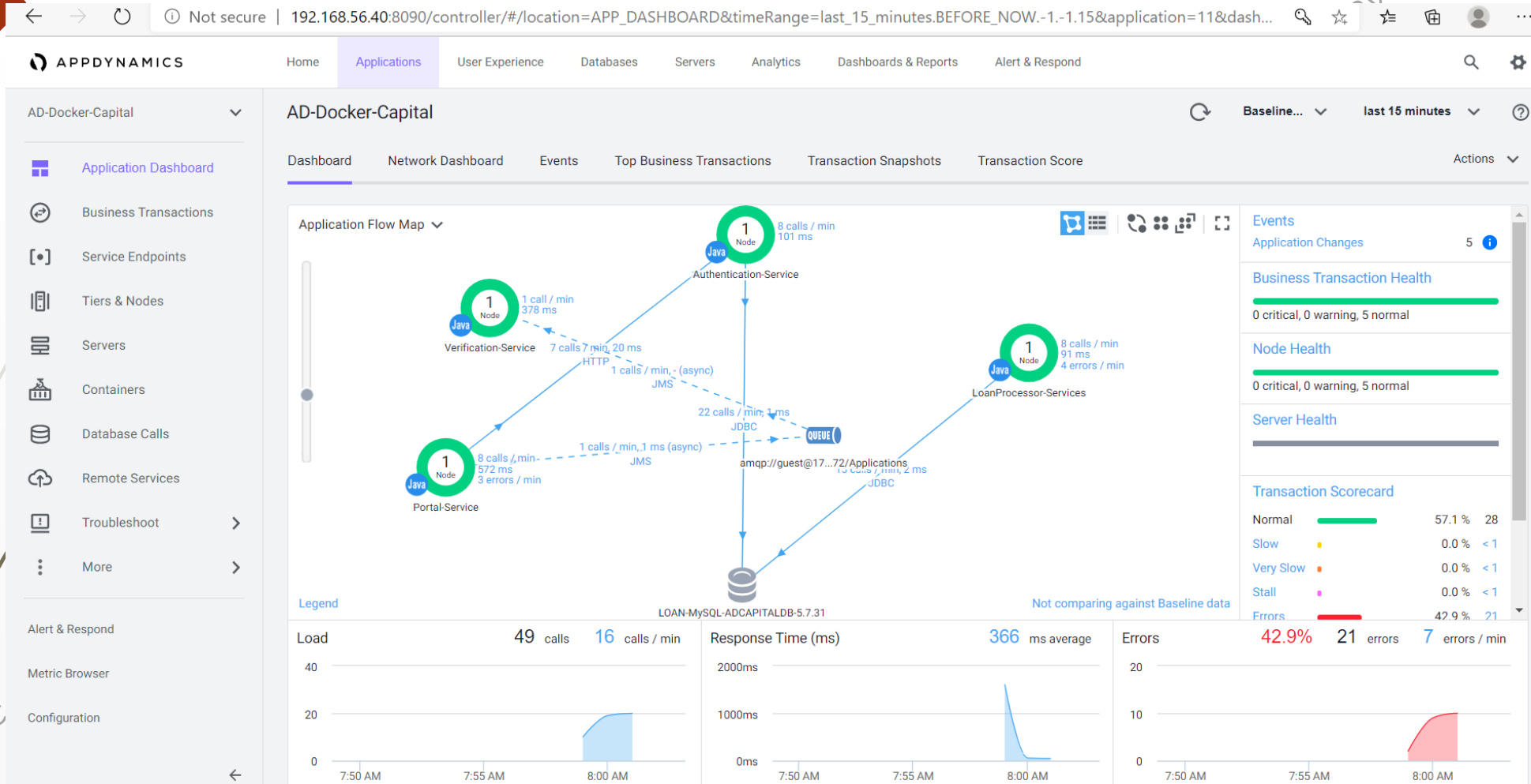
Errors

0

Errors / min

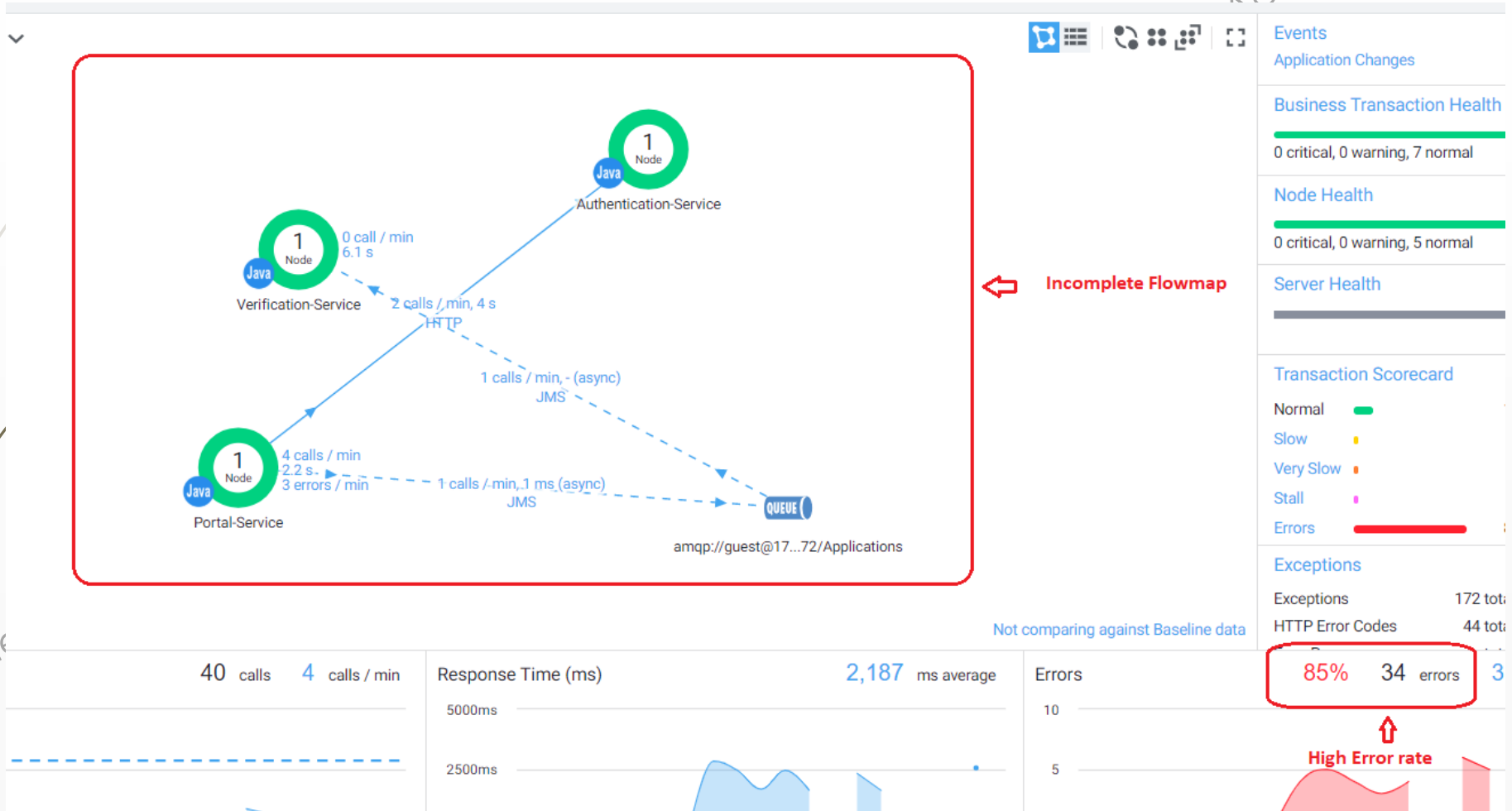
# Starting the Demo environment

Application will start displaying full tiers after some minutes.



## Troubleshooting Docker environment

There might be situation where some containers may not start well, and you might see errors in the application growing big



## Troubleshooting Docker environment

1. Try restarting the whole virtual machine and restart the lab environment. If it doesn't fix it move on to the next stage.
2. Check the lab startup log, you might notice errors. See below

```
adcapitalload | WARNING: Server returned HTTP response code: 500 for URL: http://portal:8080/portal/CustomLogin
adcapitalload | Jul 31, 2020 1:24:36 PM com.appdynamics.analytics.demo.LoadRunner callPortalSubmitApplication
adcapitalload | INFO: Lars Poole, your application has been submitted. ID: 61000 Personal30549f16-3f79-4b6f-a637-416f73b9c4a0
adcapitalload | Jul 31, 2020 1:24:43 PM com.appdynamics.analytics.demo.LoadRunner callProcessorCreditCheck
adcapitalload | WARNING: Server returned HTTP response code: 500 for URL: http://processor:8080/processor/CreditCheck
adcapitalload | Jul 31, 2020 1:24:50 PM com.appdynamics.analytics.demo.LoadRunner callProcessorUnderWrite
adcapitalload | WARNING: Server returned HTTP response code: 500 for URL: http://processor:8080/processor/Underwrite
adcapitalload | Jul 31, 2020 1:24:57 PM com.appdynamics.analytics.demo.LoadRunner callPortalAuthenticate
adcapitalload | WARNING: Server returned HTTP response code: 500 for URL: http://portal:8080/portal/CustomLogin
adcapitalload | Jul 31, 2020 1:25:00 PM com.appdynamics.analytics.demo.LoadRunner callPortalSubmitApplication
adcapitalload | INFO: Darius Robertson, your application has been submitted. ID: 12000 Personalcc81f09c-625a-4827-92ac-ce45b5c
adcapitalload | Jul 31, 2020 1:25:07 PM com.appdynamics.analytics.demo.LoadRunner callProcessorCreditCheck
adcapitalload | WARNING: Server returned HTTP response code: 500 for URL: http://processor:8080/processor/CreditCheck
adcapitalload | Jul 31, 2020 1:25:14 PM com.appdynamics.analytics.demo.LoadRunner callProcessorUnderWrite
adcapitalload | WARNING: Server returned HTTP response code: 500 for URL: http://processor:8080/processor/Underwrite
adcapitalload | Jul 31, 2020 1:25:21 PM com.appdynamics.analytics.demo.LoadRunner callPortalAuthenticate
adcapitalload | WARNING: Server returned HTTP response code: 500 for URL: http://portal:8080/portal/CustomLogin
adcapitalload | Jul 31, 2020 1:25:28 PM com.appdynamics.analytics.demo.LoadRunner callPortalSubmitApplication
adcapitalload | INFO: Ryder Copeland, your application has been submitted. ID: 10000 Personaldea646a-200d-4fa3-af35-fc9293a29
adcapitalload | Jul 31, 2020 1:25:31 PM com.appdynamics.analytics.demo.LoadRunner callProcessorCreditCheck
adcapitalload | WARNING: Server returned HTTP response code: 500 for URL: http://processor:8080/processor/CreditCheck
adcapitalload | Jul 31, 2020 1:25:38 PM com.appdynamics.analytics.demo.LoadRunner callProcessorUnderWrite
adcapitalload | WARNING: Server returned HTTP response code: 500 for URL: http://processor:8080/processor/Underwrite
```

Notice most HTTP responses are returning Failed code 500

## Troubleshooting Docker environment

Checking AppDynamics Transaction Snapshot – I noticed issue with **rest container**

The screenshot shows a transaction snapshot for the URL `/portal/CustomerLogin`. The transaction is marked with a red exclamation mark icon, indicating an error. The error message is: `POST http://rest:8080/Rest/rest/service/login returned a response status of 500 Internal Server Error`. The error occurred at `com.sun.jersey.api.client.WebResource.handler(WebResource.java:688)` and `com.sun.jersey.api.client.WebResource.access$200(WebResource.java:74)`. A button labeled "Drill Down into Call Graph" is visible.

Time ↓	Exe Time (ms)	URL
07/31/20 2:19:50 PM	4,177	/portal/CustomerLogin
07/31/20 2:19:23 PM	5,829	/portal/CustomerLogin

Business Transaction  
`/portal/CustomerLogin`

More Details >

Error

POST http://rest:8080/Rest/rest/service/login returned a response status of 500 Internal Server Error  
at com.sun.jersey.api.client.WebResource.handler(WebResource.java:688)  
at com.sun.jersey.api.client.WebResource.access\$200(WebResource.java:74)

Use **docker ps** command to find the container id and stop and start the container manually  
[root@localhost AD-Capital-Docker]# docker ps

```
[root@localhost AD-Capital-Docker]# docker ps
CONTAINER ID        IMAGE                               COMMAND                  CREATED            STATUS              PORTS                               NAMES
d9c2d94a7770       appdynamics/adcapital-load        "/bin/bash -c /start..." 22 minutes ago    Up 22 minutes                               adcap
4799e5c30fac       appdynamics/adcapital-tomcat      "/bin/sh -c \"/startu..." 22 minutes ago    Up 3 minutes       80/tcp, 8009/tcp, 0.0.0.0:8082->8080/tcp  porta
ce5926fc0e29       appdynamics/adcapital-tomcat      "/bin/sh -c \"/startu..." 22 minutes ago    Up 22 minutes       80/tcp, 8009/tcp, 0.0.0.0:8084->8080/tcp  proce
5c1bb9c0f553       appdynamics/adcapital-tomcat      "/bin/sh -c \"/startu..." 22 minutes ago    Up 22 minutes       80/tcp, 8009/tcp, 0.0.0.0:8083->8080/tcp  verif
458780c79e1d       appdynamics/adcapital-tomcat      "/bin/sh -c \"/startu..." 22 minutes ago    Up 22 minutes       80/tcp, 8009/tcp, 0.0.0.0:8081->8080/tcp  rest
f2bc76e627c3       appdynamics/adcapital-tomcat      "/bin/sh -c \"/startu..." 22 minutes ago    Up 22 minutes       80/tcp, 8009/tcp, 0.0.0.0:8085->8080/tcp  appro
282947a45293       rabbitmq:3.5.4-management         "/docker-entrypoint...." 22 minutes ago    Up 22 minutes       0.0.0.0:5672->5672/tcp, 15672/tcp         rabbi
bc95b02e8978       mysql:5.7                         "docker-entrypoint.s..." 22 minutes ago    Up 22 minutes       0.0.0.0:3306->3306/tcp, 33060/tcp         adcap
```

User “**docker container-id stop**” and “**docker container-id start**” to reset the container

[root@localhost AD-Capital-Docker]# docker start 458780c79e1d

## Troubleshooting Docker environment

You can also connect to the container using the “**docker exec -it container-id bash**” command to view further details inside the container if want to

```
[root@localhost AD-Capital-Docker]#  
[root@localhost AD-Capital-Docker]# docker exec -it 458780c79e1d bash  
root@rest:/usr/local/tomcat# cd logs/  
root@rest:/usr/local/tomcat/logs#  
root@rest:/usr/local/tomcat/logs# tail -f localhost_access_log.2020-07-31.txt  
172.21.0.4 - - [31/Jul/2020:13:37:26 +0000] "POST /Rest/rest/service/login HTTP/1.1" 500 17088  
172.21.0.4 - - [31/Jul/2020:13:37:50 +0000] "POST /Rest/rest/service/login HTTP/1.1" 500 17088  
172.21.0.4 - - [31/Jul/2020:13:38:14 +0000] "POST /Rest/rest/service/login HTTP/1.1" 500 17088  
172.21.0.4 - - [31/Jul/2020:13:38:39 +0000] "POST /Rest/rest/service/login HTTP/1.1" 500 17088  
172.21.0.4 - - [31/Jul/2020:13:39:03 +0000] "POST /Rest/rest/service/login HTTP/1.1" 500 17088  
172.21.0.4 - - [31/Jul/2020:13:39:27 +0000] "POST /Rest/rest/service/login HTTP/1.1" 500 17088  
172.21.0.1 - - [31/Jul/2020:13:39:30 +0000] "-" 400 2240  
172.21.0.4 - - [31/Jul/2020:13:39:51 +0000] "POST /Rest/rest/service/login HTTP/1.1" 500 17088  
172.21.0.4 - - [31/Jul/2020:13:40:15 +0000] "POST /Rest/rest/service/login HTTP/1.1" 500 17088  
172.21.0.4 - - [31/Jul/2020:13:40:40 +0000] "POST /Rest/rest/service/login HTTP/1.1" 500 17088
```

## Troubleshooting Docker environment

Stopping and restarting the container can solve most of the issues.



[illegible]