

Create a GCE VM with following configuration:

Machine type - n2-standard-2

centos-7

Open the port 80 on your VPC

Install and configure Oracle weblogic server on the VM.

1] Install JAVA package into our admin server.

```
sudo su -
yum update
yum install wget
cd /opt/
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/8u131-b11/d54c1d3a095b4ff2b6607d096fa80163/jdk-8u131-linux-x64.rpm
yum localinstall -y jdk-8u131-linux-x64.rpm
```

2] Create JAVA_HOME variable inside the server node and ensure java is installed properly.

```
vi /root/.bash_profile
export JAVA_HOME=/usr/java/jdk1.8.0_131
PATH=$JAVA_HOME/bin:$PATH:$HOME/bin
export PATH

source /root/.bash_profile
java -version

java version "1.8.0_131"
Java(TM) SE Runtime Environment (build 1.8.0_131-b11)
Java HotSpot(TM) 64-Bit Server VM (build 25.131-b11, mixed mode)
```

3] For Oracle weblogic installation it's a requirement that the installation must be done using non-root user. Let's proceed to create an additional user for Oracle weblogic server installation.

```
useradd -s /bin/bash oracle
usermod -aG wheel oracle
passwd oracle
```

```
Changing password for user oracle.
New password:
BAD PASSWORD: The password contains the user name in some form
Retype new password:
passwd: all authentication tokens updated

su - oracle
pwd

/home/oracle
```

4] Configure the environment variables for the Oracle weblogic user.

```
ORACLE_BASE :: Default Oracle installer directory location
ORACLE_HOME :: Default Oracle database directory location /
optional if have Oracle client inside
MW_HOME :: Default Middleware installer directory location
WLS_HOME :: Default Oracle Weblogic managed server directory
location
WL_HOME :: Default Oracle Weblogic admin server directory
location
DOMAIN_BASE :: Default Oracle Weblogic global domain
DOMAIN_HOME :: Default Oracle Weblogic specific domain
```

Execute the below commands to set the environment variables.

```
mkdir wls
cd wls
vi /home/oracle/.bash_profile
export ORACLE_BASE=/home/oracle/wls/oracle
export ORACLE_HOME=$ORACLE_BASE/product/fmw12
export MW_HOME=$ORACLE_HOME
export WLS_HOME=$MW_HOME/wlserver
export WL_HOME=$WLS_HOME
export DOMAIN_BASE=$ORACLE_BASE/config/domains
export DOMAIN_HOME=$DOMAIN_BASE/TEST

export JAVA_HOME=/usr/java/jdk1.8.0_131
PATH=$JAVA_HOME/bin:$PATH:$HOME/bin
export PATH

source /home/oracle/.bash_profile
mkdir -p $ORACLE_BASE
mkdir -p $DOMAIN_BASE
mkdir -p $ORACLE_HOME
mkdir -p $ORACLE_BASE/config/applications
mkdir -p /home/oracle/wls/oraInventory
```

5] Create a file called oraInst.loc and wls.rsp .

— The oraInst.loc file is required to define an inventory location during the Oracle weblogic installation.

— The wls.rsp file as it acts as a response file that will be used during the installation.

```
vi oraInst.loc
inventory_loc=/home/oracle/wls/oraInventory
inst_group=oracle

vi wls.rsp
[ENGINE]
Response File Version=1.0.0.0.0
[GENERIC]
ORACLE_HOME=/home/oracle/wls/oracle/product/fmw12
INSTALL_TYPE=WebLogic Server
DECLINE_SECURITY_UPDATES=true
SECURITY_UPDATES_VIA_MYORACLESUPPORT=false
```

6] Proceed with downloading the Oracle Weblogic installer. Visit the URL [here](#) to get the Oracle Weblogic version of our choice.

Note: For this article, we have used the Oracle Weblogic version 12.1.3.

https://download.oracle.com/otn/nt/middleware/12c/wls/1213/fmw_12.1.3.0.0_wls.jar

```
cd $ORACLE_BASE
ls

config fmw_12.1.3.0.0_wls.jar product
```

7] Minimum of 512 MB of swap space is required for Oracle weblogic server.

- Check if the system has any configured swap by using swapon utility.

```
swapon -s
```

If the response is null by the command, then the summary was empty and no swap file exists

Another way of checking for swap space is with the free utility, which shows us the system's overall memory usage.

```
free -m
```

	total	used	free	shared
buff/cache	available			
Mem:	3788	251	2630	8
906	3287			
Swap:	0	0	0	

As you can see, our total swap space in the system is 0.

- Enable a swapfile.

```
sudo dd if=/dev/zero of=/swapfile count=1024 bs=1MiB
```

```
1024+0 records in
1024+0 records out
1073741824 bytes (1.1 GB) copied, 1.36359 s, 787 MB/s
```

```
ls -lh /swapfile
-rw-r--r--. 1 root root 1.0G Oct 21 09:56

sudo chmod 600 /swapfile

ls -lh /swapfile
-rw-----. 1 root root 1.0G Oct 21 09:56

sudo mkswap /swapfile

Setting up swspace version 1, size = 1048572 KiB
no label, UUID=fbaff8fe-522c-46f1-9013-d96e0acc2ab5

sudo swapon /swapfile
free -m
```

	total	used	free	shared
buff/cache	available			
Mem:	3788	236	2734	8
817	3306			
Swap:	1023	0	1023	

- Make the swap permanent.

Currently, we have configured the swap space in the above steps but if the system is restarted it will not mount the swap file partitions automatically for use. To make the swap space available permanently we need to create a fstab entry to ensure it will automatically mount the filesystems and partitions.

Add the swapfile entry at the bottom of the page.

```
sudo vi /etc/fstab

/swapfile    swap        swap        sw    0    0
```

8] Proceed with the installation.

```
java -jar /home/oracle/wls/oracle/fmw_12.1.3.0.0_wls.jar -silent
-responseFile /home/oracle/wls/wls.rsp -invPtrLoc
/home/oracle/wls/oraInst.loc
```

```

[oracle@oracle-weblogic-server oracle]$ java -jar /home/oracle/wls/oracle/fmw_12.1.3.0.0_wls.jar -silent -responseFile /home/oracle/wls/wls.r
sp -invPtrLoc /home/oracle/wls/oraInst.loc
Launcher log file is /tmp/OraInstall2020-10-21_10-02-20AM/launcher2020-10-21_10-02-20AM.log.
Extracting files.....
Starting Oracle Universal Installer

Checking if CPU speed is above 300 MHz.   Actual 2250.000 MHz   Passed
Checking swap space: must be greater than 512 MB.   Actual 1048572 MB   Passed
Checking if this platform requires a 64-bit JVM.   Actual 64   Passed (64-bit not required)
Checking temp space: must be greater than 300 MB.   Actual 14717 MB   Passed

Preparing to launch the Oracle Universal Installer from /tmp/OraInstall2020-10-21_10-02-20AM
Java HotSpot(TM) 64-Bit Server VM warning: ignoring option MaxPermSize=512m; support was removed in 8.0
Log: /tmp/OraInstall2020-10-21_10-02-20AM/install2020-10-21_10-02-20AM.log
Copyright (c) 1996, 2014, Oracle and/or its affiliates. All rights reserved.
Reading response file...
Starting check : CertifiedVersions
Expected result: One of enterprise-4,enterprise-5,enterprise-6,redhat-6,redhat-4,redhat-5,SuSE-11
Actual Result: (Unknown)
Check complete. The overall result of this check is: Failed <<<<

Problem: This Oracle software is not certified on the current operating system.
Recommendation: Make sure you are installing the software on the correct platform.
Warning: Check:CertifiedVersions failed.
Starting check : CheckJDKVersion
Expected result: 1.7.0_15
Actual Result: 1.8.0_131
Check complete. The overall result of this check is: Passed
CheckJDKVersion Check: Success.
Validations are enabled for this session.
Verifying data.....
Copying Files...
You can find the log of this install session at:
/tmp/OraInstall2020-10-21_10-02-20AM/install2020-10-21_10-02-20AM.log
-----20%-----40%-----60%-----80%-----100%

The installation of Oracle Fusion Middleware 12c WebLogic Server and Coherence 12.1.3.0.0 completed successfully.
Logs successfully copied to /home/oracle/wls/oraInventory /logs.

```

We've successfully installed Oracle weblogic. Next, we will proceed with the configuration phase.

9] Configure the Oracle weblogic server.

Let's proceed with the configuration of weblogic and domain configuration for admin server. We will only create single domain called TEST.

```

cd $WL_HOME
cd /home/oracle/wls/oracle/product/fmw12/wlserver/
cd common/bin/
./commEnv.sh
./wlst.sh

```

```

Java HotSpot(TM) 64-Bit Server VM warning: ignoring
option MaxPermSize=256m; support was removed in 8.0
Initializing WebLogic Scripting Tool (WLST) ...
Jython scans all the jar files it can find at first
startup. Depending on the system, this process may take
a few minutes to complete, and WLST may not return a
prompt right away.
Welcome to WebLogic Server Administration Scripting
Shell
Type help() for help on available commands

```

```

wls:/offline>readTemplate('/home/oracle/wls/oracle/prod
uct/fmw12/wlserver/common/templates/wls/wls.jar')
wls:/offline/base_domain>cd('Servers/AdminServer')

wls:/offline/base_domain/Server/AdminServer>set('Listen
Port',7001)
wls:/offline/base_domain/Server/AdminServer>create('Adm
inServer','SSL')
Proxy for AdminServer: Name=AdminServer, Type=SSL
wls:/offline/base_domain/Server/AdminServer>cd('SSL/Adm
inServer')
wls:/offline/base_domain/Server/AdminServer/SSL/AdminSe
rver>set('Enabled','True')
wls:/offline/base_domain/Server/AdminServer/SSL/AdminSe
rver>set('ListenPort',7002)
wls:/offline/base_domain/Server/AdminServer/SSL/AdminSe
rver>cd('/')
wls:/offline/base_domain>cd('Security/base_domain/User/
weblogic')
wls:/offline/base_domain/Security/base_domain/User/webl
ogic>cmo.setPassword('kV5iP7yS5jP2jY3T')
wls:/offline/base_domain/Security/base_domain/User/webl
ogic>setOption('OverwriteDomain','true')
wls:/offline/base_domain/Security/base_domain/User/webl
ogic>writeDomain('/home/oracle/wls/oracle/config/domain
s/TEST')
wls:/offline/TEST/Security/TEST/User/weblogic>closeTemp
late()
wls:/offline>exit()
Exiting WebLogic Scripting Tool.

```

10] Start the weblogic on the admin server.

```

cd $DOMAIN_HOME
cd bin/
pwd

cd /home/oracle/wls/oracle/config/domains/TEST/bin

./startWebLogic.sh

```

Once verified the Oracle weblogic service is running. Let's go ahead to create a systemd service for it.

11] Create a systemd service for the Oracle weblogic server.

Sometimes we want to run our application automatically if the service is crashed or underlying server restarts. In such cases systemd in Linux helps to configure services which can be managed easily using commands. We will create a systemd service for our weblogic server.

- Create a service file.

```
sudo su
cd /etc/systemd/system
vi wls.service

[Unit]
Description=Oracle Weblogic Server Service
After=network.target

[Service]
Type=simple
User=root
ExecStart=/bin/bash
/home/oracle/wls/oracle/config/domains/TEST/startWebLogic.sh
Restart=on-abort

[Install]
WantedBy=multi-user.target

sudo systemctl daemon-reload
sudo systemctl start wls.service
sudo systemctl enable wls.service

Created symlink from /etc/systemd/system/multi-
user.target.wants/wls.service to /etc/systemd/system/wls.service

sudo systemctl status wls.service
```

- Check the status.


```

wls.service - Oracle WebLogic Server Service
Loaded: loaded (/etc/systemd/system/wls.service; enabled; vendor preset: disabled)
Active: active (running) since Wed 2020-10-21 12:51:58 UTC; 14s ago
Main PID: 30075 (bash)
CGroup: /system.slice/wls.service
├─30075 /bin/bash /home/oracle/wls/oracle/config/domains/TEST/startWebLogic.sh
├─30076 /bin/sh /home/oracle/wls/oracle/config/domains/TEST/bin/startWebLogic.sh
└─30130 /usr/java/jdk1.8.0_131/bin/java -server -Xms256m -Xmx512m -XX:CompileThreshold=8000 -XX:PermSize=128m -XX:MaxPermSize=2...

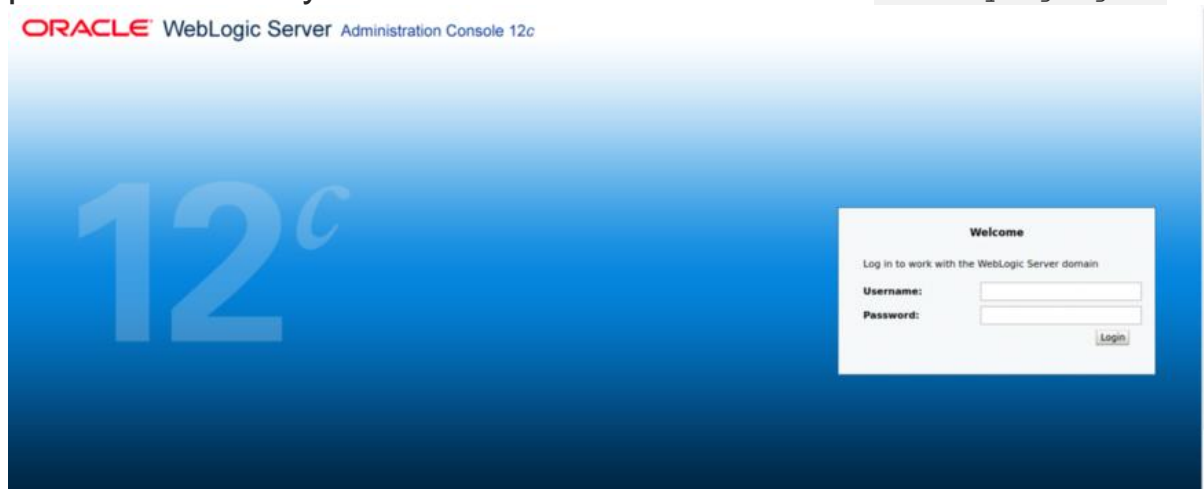
Oct 21 12:52:05 oracle-weblogic-server bash[30075]: <Oct 21, 2020 12:52:05 PM UTC> <Notice> <Server> <BEA-002613> <Channel "Default"...http.>
Oct 21 12:52:05 oracle-weblogic-server bash[30075]: <Oct 21, 2020 12:52:05 PM UTC> <Notice> <Server> <BEA-002613> <Channel "Default[...http.>
Oct 21 12:52:05 oracle-weblogic-server bash[30075]: <Oct 21, 2020 12:52:05 PM UTC> <Notice> <Server> <BEA-002613> <Channel "Default[...http.>
Oct 21 12:52:05 oracle-weblogic-server bash[30075]: <Oct 21, 2020 12:52:05 PM UTC> <Notice> <Server> <BEA-002613> <Channel "Default[...http.>
Oct 21 12:52:05 oracle-weblogic-server bash[30075]: <Oct 21, 2020 12:52:05 PM UTC> <Notice> <Server> <BEA-002613> <Channel "DefaultS...ttps.>
Oct 21 12:52:05 oracle-weblogic-server bash[30075]: <Oct 21, 2020 12:52:05 PM UTC> <Notice> <Server> <BEA-002613> <Channel "DefaultS...ttps.>
Oct 21 12:52:05 oracle-weblogic-server bash[30075]: <Oct 21, 2020 12:52:05 PM UTC> <Notice> <WebLogicServer> <BEA-000331> <Started t...mode.>
Oct 21 12:52:05 oracle-weblogic-server bash[30075]: <Oct 21, 2020 12:52:05 PM UTC> <Notice> <WebLogicServer> <BEA-000360> <The serve...mode.>
Oct 21 12:52:05 oracle-weblogic-server bash[30075]: <Oct 21, 2020 12:52:05 PM UTC> <Notice> <WebLogicServer> <BEA-000365> <Server st...NING.>
Oct 21 12:52:05 oracle-weblogic-server bash[30075]: <Oct 21, 2020 12:52:05 PM UTC> <Warning> <Server> <BEA-002611> <The hostname "lo...:0:1.>
Hint: Some lines were ellipsized, use -l to show in full.

```

12] Access the Oracle weblogic admin dashboard.

[http://\[GCE_INSTANCE_PUBLIC_IP\]:7001/console](http://[GCE_INSTANCE_PUBLIC_IP]:7001/console)

For this test, we have created domain called TEST. Once you have launched the URL in the browser, you should see the console. Provide the username and password that we've defined during configuration above. For this test, the username will be `weblogic` and password which you we have set earlier which is `kV5iP7yS5jP2jY3T`.




From the Oracle weblogic console click on Environment > Servers tab. You will see the the Weblogic Admin server already included inside TEST domain and it is HEALTHY.

Summary of Servers

ConfigurationControl

A server is an instance of WebLogic Server that runs in its own Java Virtual Machine (JVM) and has its own configuration.

This page summarizes each server that has been configured in the current WebLogic Server domain.



[Customize this table](#)

Servers (Filtered - More Columns Exist)

NewCloneDelete

Showing 1 to 1 of 1Previous | Next

<input type="checkbox"/>	Name ↕	Type	Cluster	Machine	State	Health	Listen Port
<input type="checkbox"/>	AdminServer(admin)	Configured			RUNNING	✓ OK	7001

NewCloneDelete

Showing 1 to 1 of 1Previous | Next

1.4. Deploying Spring MVC on Oracle webLogic server

Now, as have our Oracle webLogic server running let's create sample deployment through which we can compare the results post migration.

1] Let's install maven utility to package our spring mvc application on your local system.

```
sudo yum install maven
```

```
sudo yum install git
```

2] Clone the GitHub repository for spring mvc application code.

```
git clone https://github.com/luvvero/m4a
```

3] Change the current working directory

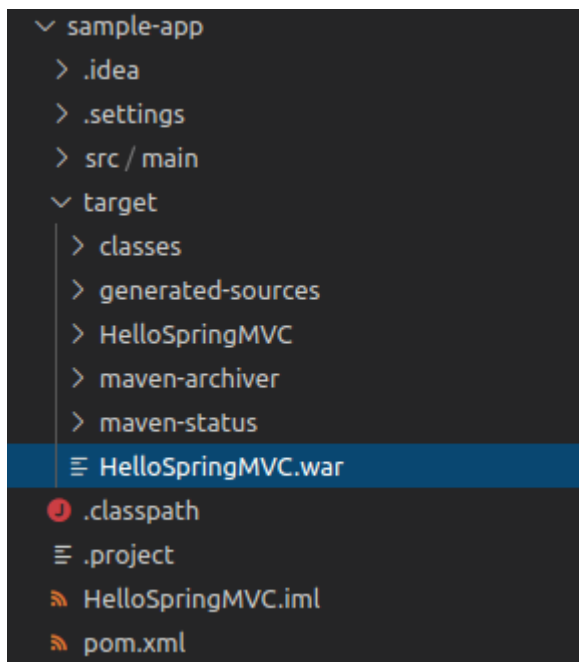
```
cd m4a/sample-app1
```

4] Build the package

```
mvn clean // Clears the target directory into which Maven normally builds your project.
```

```
mvn install // Builds the project described by your Maven POM file and installs the resulting artifact (WAR) into your local Maven repository
```

5] A `HelloSpringMVC.war` will be created in your `target/` directory.



6] Deploy on Oracle weblogic server.

- Click on **Deployments** under the **Domain Structure** on the left panel.

ORACLE WebLogic Server Administration Console 12c

Home Log Out Preferences
Home > Summary of Environment

Change Center
View changes and restarts
Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.

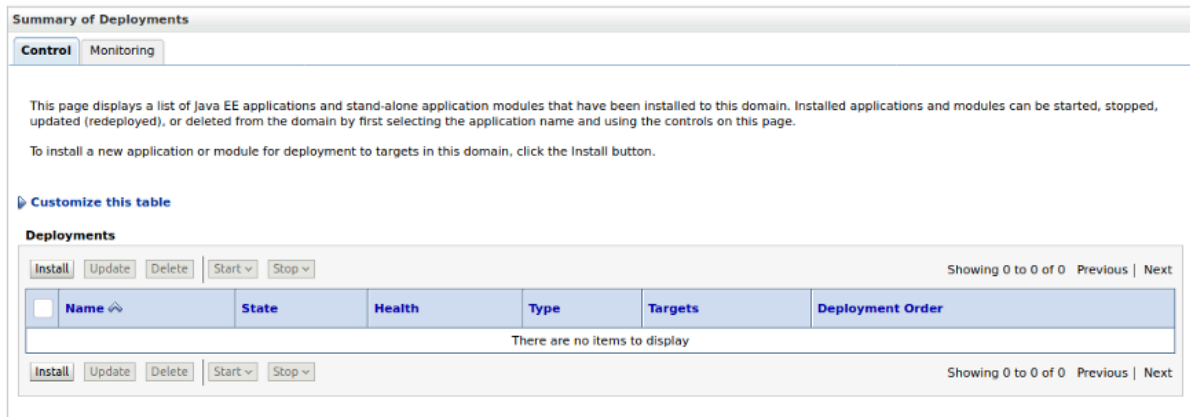
Domain Structure
TEST
+ Environment
+ **Deployments**
+ Services
+ Security Realms
+ Interoperability
+ Diagnostics

Summary of Deployments
Control Monitoring
This page displays a list of JARs, WARs, EARs, or other artifacts that have been installed, updated (redeployed), or deleted.
To install a new application or update an existing one, click the **Install** button.

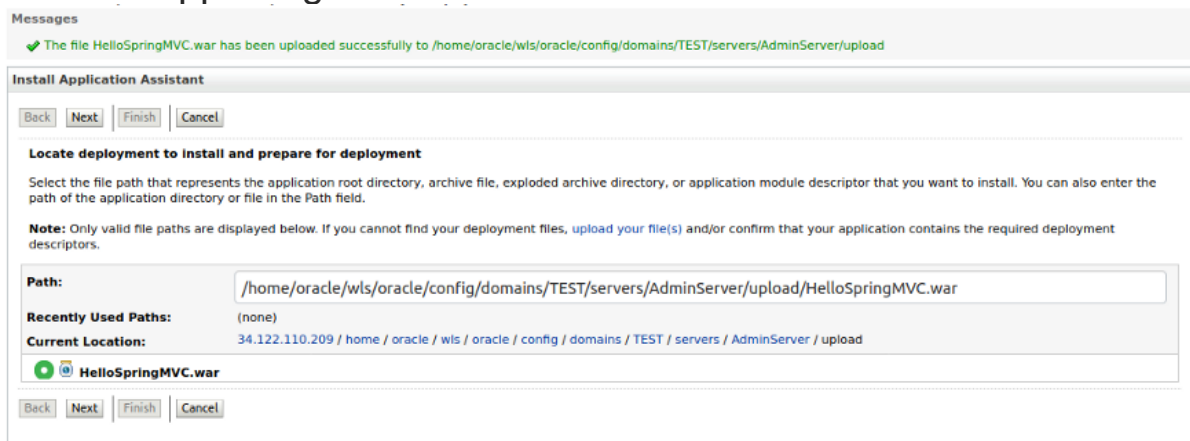
Customize this table
Deployments
Install Update Delete

<input type="checkbox"/>	Name
--------------------------	------

- To install a new application or module for deployment to targets in this domain, click `Install` button.



- To upload the `HelloSpringMVC.war` which was generated earlier and click `Next`. On the next page, click the `Browse` button below to select an application or module on the machine from which you are currently browsing. When you have located the file, click the `Next` button to upload this deployment to the Admin Server.
- Once the file is successfully uploaded you will receive a success message on top of the panel. Click `Next` button to prepare a deployment.
- Else update the path to `/etc/systemd/system/m4a/sample-app1/target`



- Select the targeting style as **Install this deployment as an application** and click **Next** button.

Install Application Assistant

Back Next Finish Cancel

Choose targeting style

Targets are the servers, clusters, and virtual hosts on which this deployment will run. There are several ways you can target an application.

☒ **Install this deployment as an application**

The application and its components will be targeted to the same locations. This is the most common usage.

☐ **Install this deployment as a library**

Application libraries are deployments that are available for other deployments to share. Libraries should be available on all of the targets running their referencing applications.

Back Next Finish Cancel

- Provide name for your deployment and click on **Finish** button to proceed.

Install Application Assistant

Back Next Finish Cancel

Optional Settings

You can modify these settings or accept the defaults

* Indicates required fields

General

What do you want to name this deployment?

* Name:

- Once the deployment is successful under **Control** section you will see your application listed and it is **HEALTHY**.

Home Log Out Preferences Record Help Welcome, weblogic Connected to: TEST

Home > Summary of Deployments

Messages

✓ All changes have been activated. No restarts are necessary.
✓ The deployment has been successfully installed.

Summary of Deployments

Control Monitoring

This page displays a list of Java EE applications and stand-alone application modules that have been installed to this domain. Installed applications and modules can be started, stopped, updated (redeployed), or deleted from the domain by first selecting the application name and using the controls on this page.

To install a new application or module for deployment to targets in this domain, click the Install button.

[Customize this table](#)

Deployments

Install Update Delete Start Stop

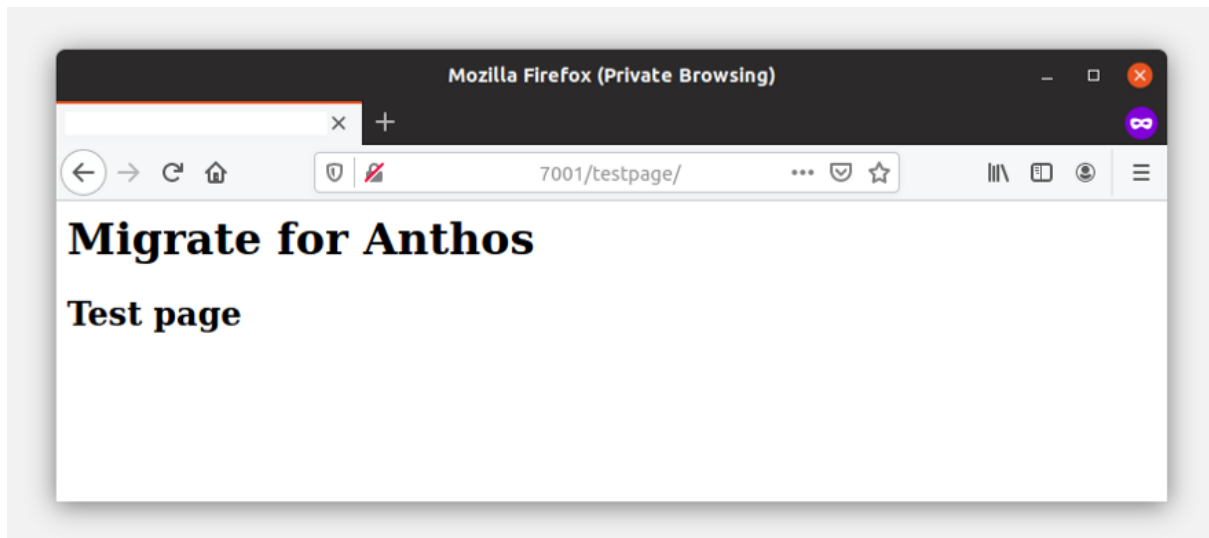
Showing 1 to 1 of 1 Previous Next

Name	State	Health	Type	Targets	Deployment Order
HelloSpringMVC	Active	✓ OK	Web Application	AdminServer	100

Install Update Delete Start Stop

Showing 1 to 1 of 1 Previous Next

[http://\[GCE_INSTANCE_PUBLIC_IP\]:7001/testpage](http://[GCE_INSTANCE_PUBLIC_IP]:7001/testpage)



We have successfully created an Oracle weblogic server running on GCE server.