Lab Manual

JBoss AS7 (EAP 6)

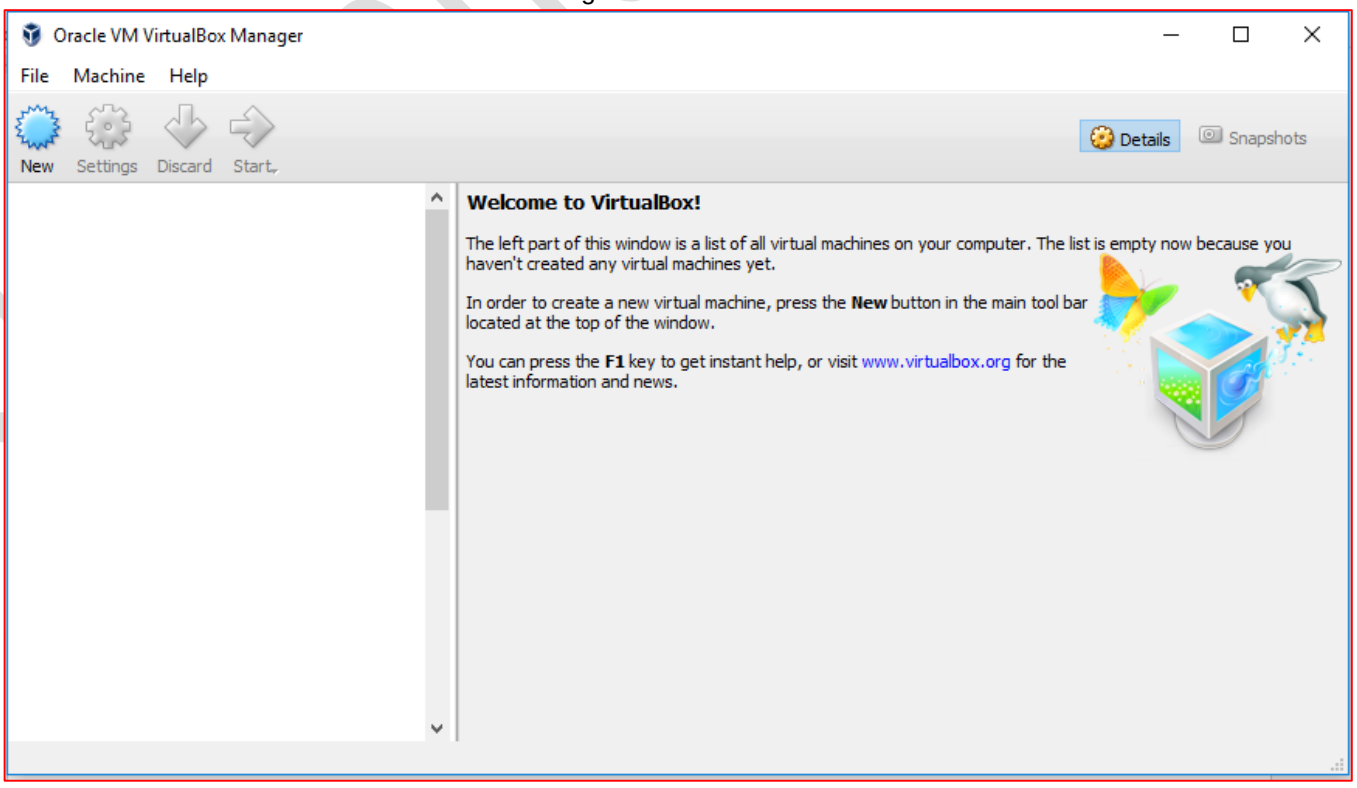
1. Software and Support files provided in JBoss7Lab Folder

- VM
- Examples
- JBossClass
- CLI Recipes-v28-20180418_1000.pdf
- devstudio-11.2.0.GA-installer-standalone.jar
- jboss-eap-6.4.0.zip
- jdk-8u77-linux-i586.tar.gz
- npp.6.9.2.Installer.exe
- putty.exe
- VirtualBox-5.1.24-117012-Win.exe
- vmware-player-12.1.1.exe
- WinSCP-5.13-Setup.exe
- Win-Setup (Contains files for windows OS)
- mysql-connector-java-5.1.26.jar

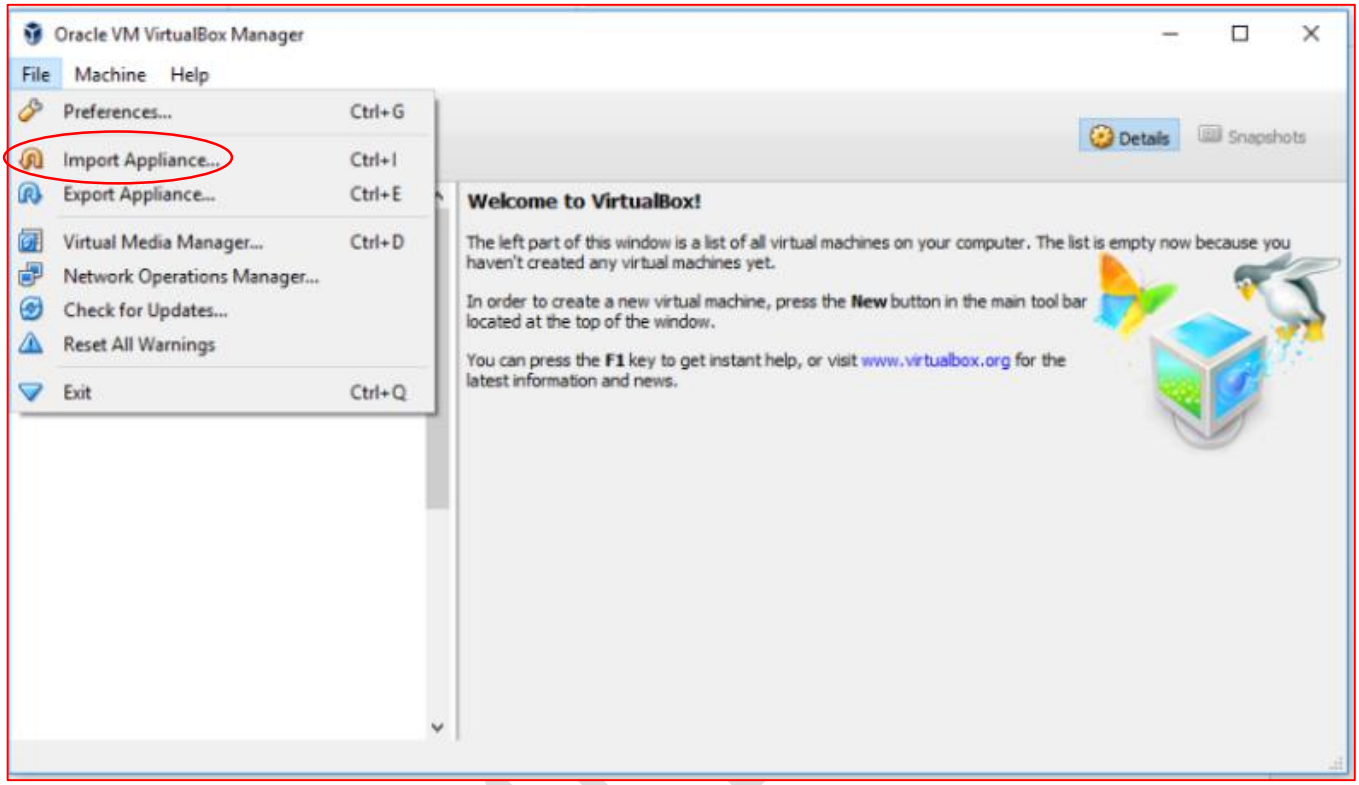
LAB 1: Install VirtualBox Software

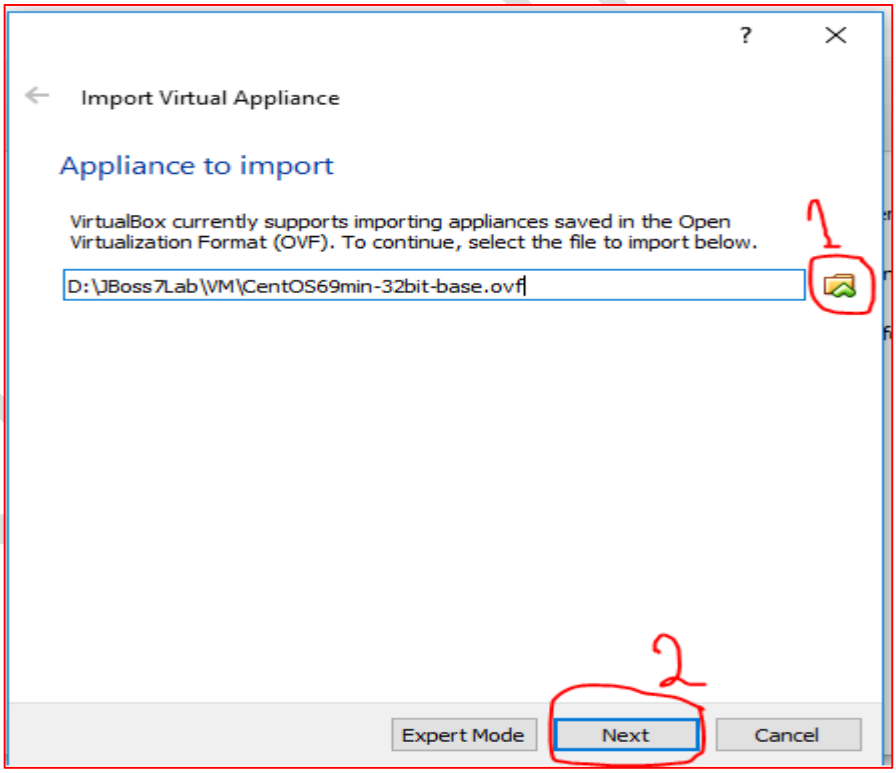
- To install VirtualBox it is necessary to enable virtualisation in your computer (Verify and Enable it)
- Double click “VirtualBox-5.1.24-117012-Win.exe” and follow the On Screen instructions
- Once the installation is complete then start the VirtualBox Manager. See the following Screen

Double click on  It starts VIrtualBox Manager as below

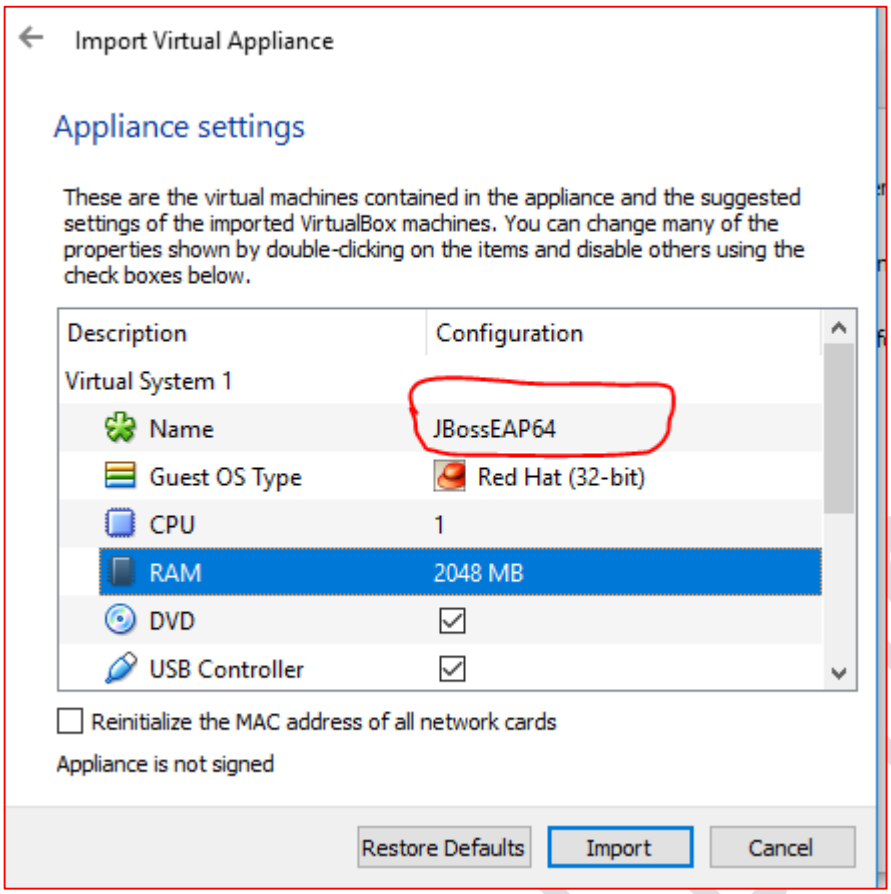


Click on File>Import Appliance and navigate to JBoss7Lab/VM folder and select the .OVF file and click on Next button

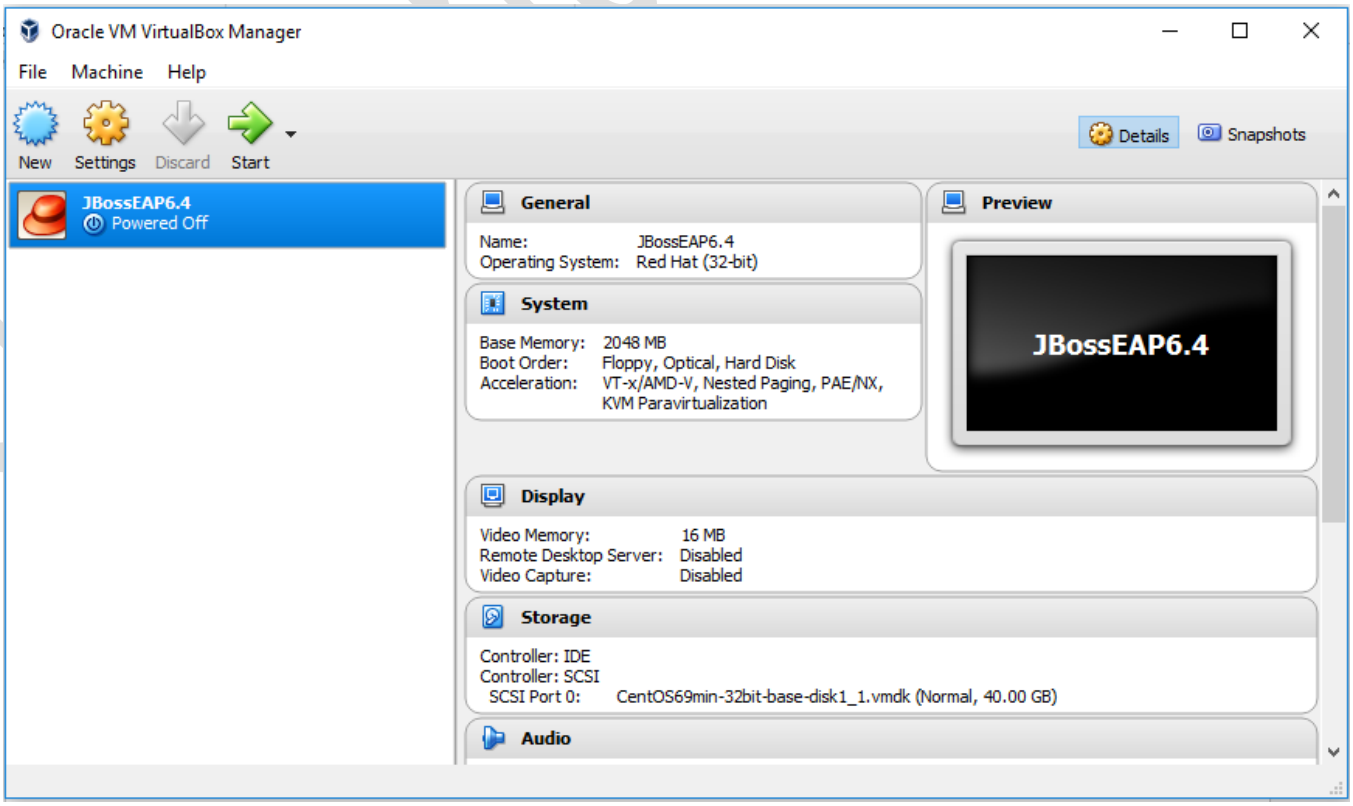




In the Next Screen Change the name of the Linux VM to “JBossEAP64” and then click on Import

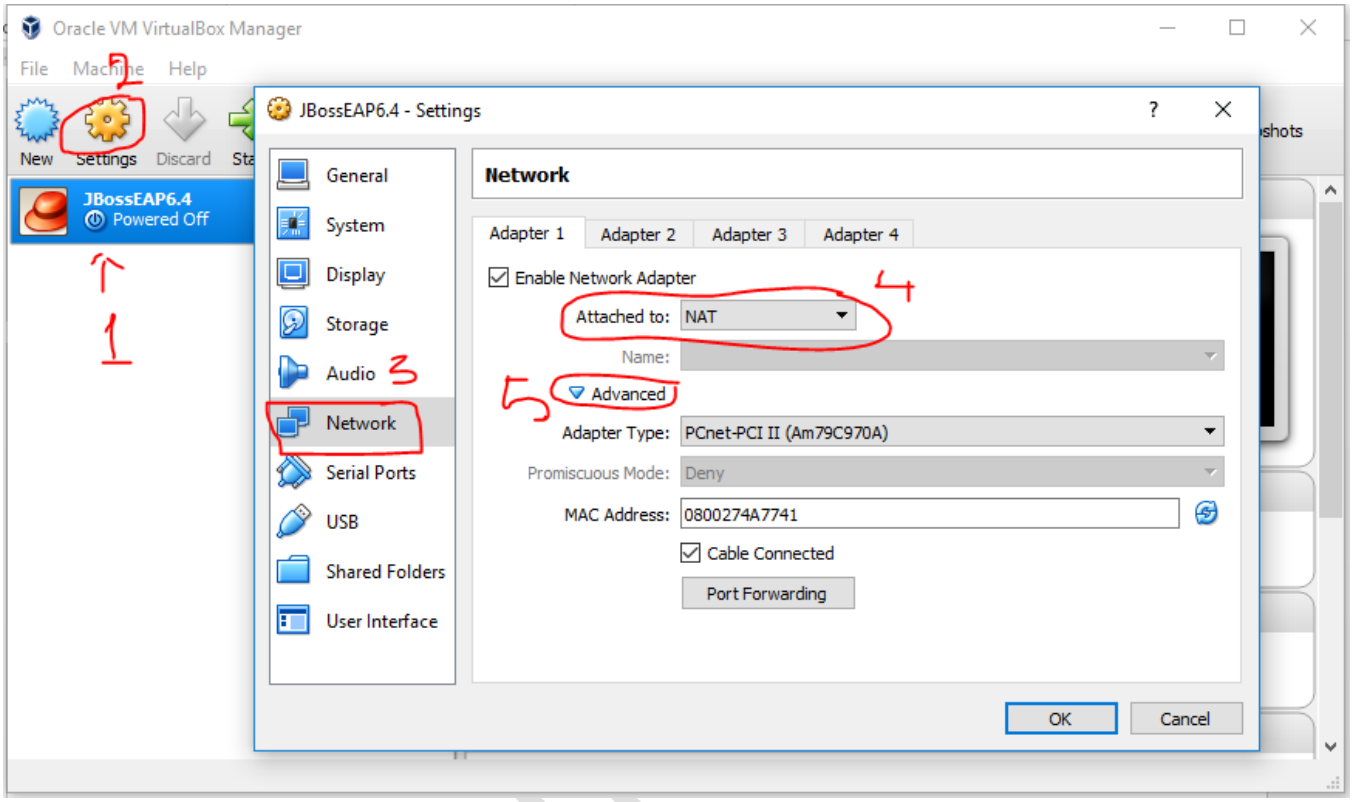


Once it is imported your screen should look like the following:

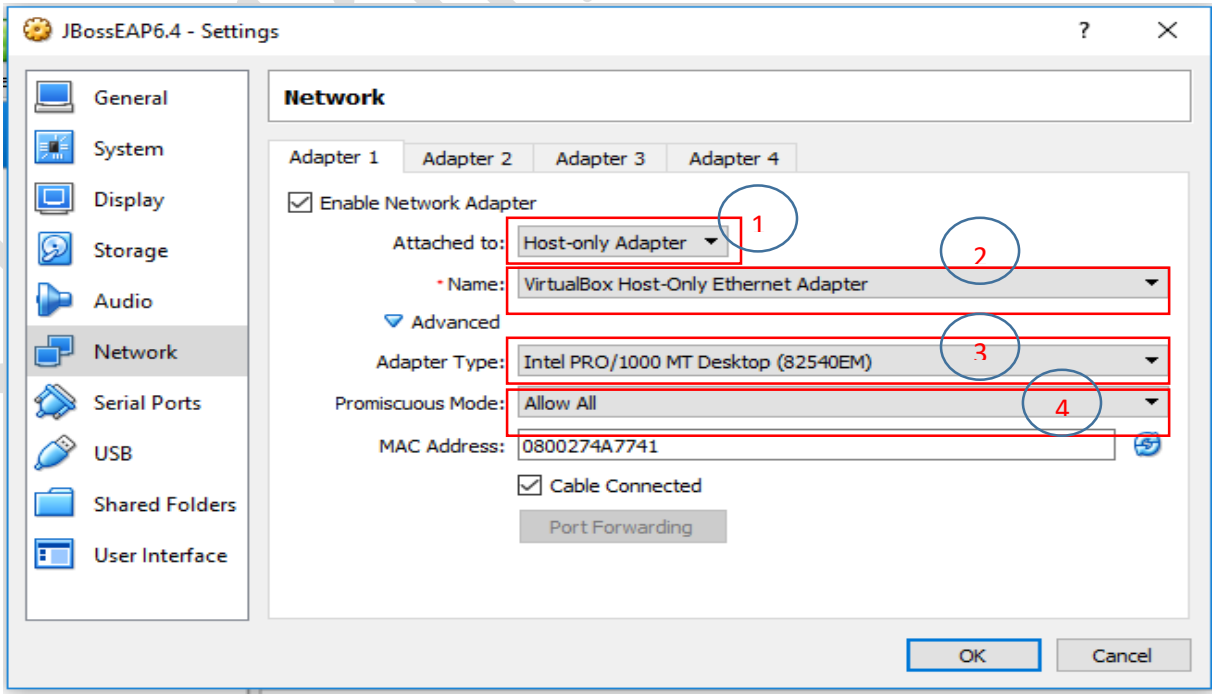


Modify the Network Adapter

1.Click On the Virtual Machine (JBossEAP64) and then click on the gear button labelled as **settings**. The settings page for the VM opens. Select Network from left Pane(3). Expand the Advanced Option (5)



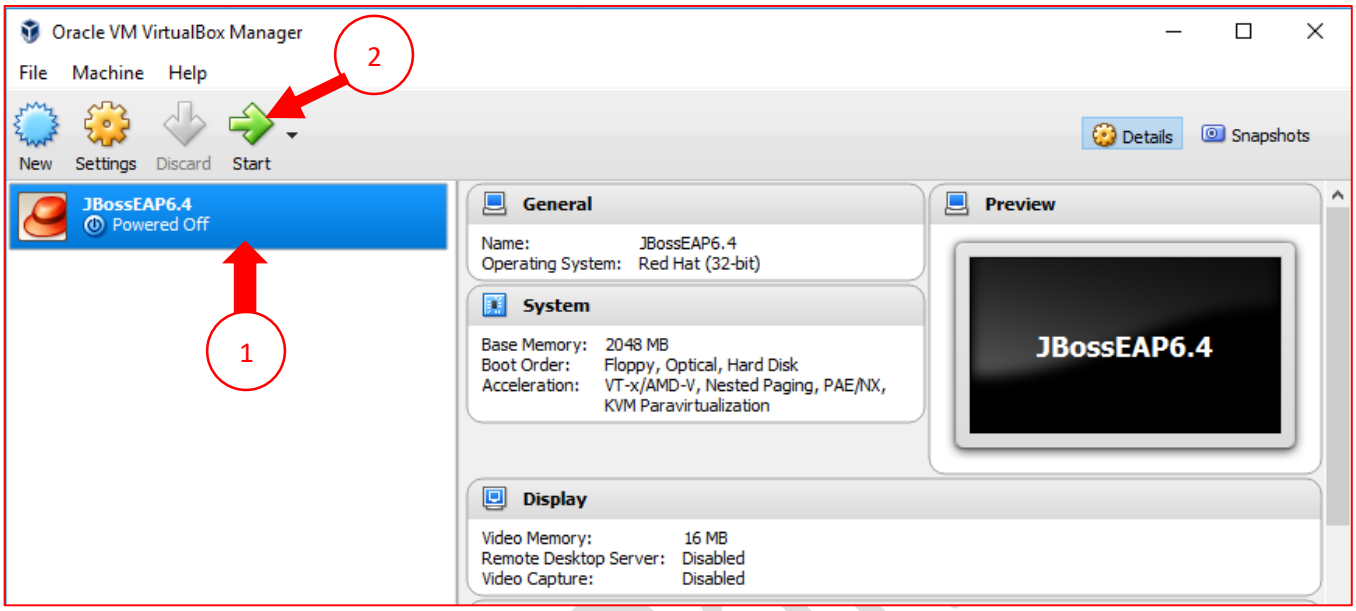
By Default the Network Adapter will be attached to NAT. We need to change it to "**Host Only Adapter**" for intercommunication between Guest VM and Host OS. Select From dropdown "Host Only Adapter" (1) and make the other changes as per the given screen below:



After making the changes, click on OK Button.

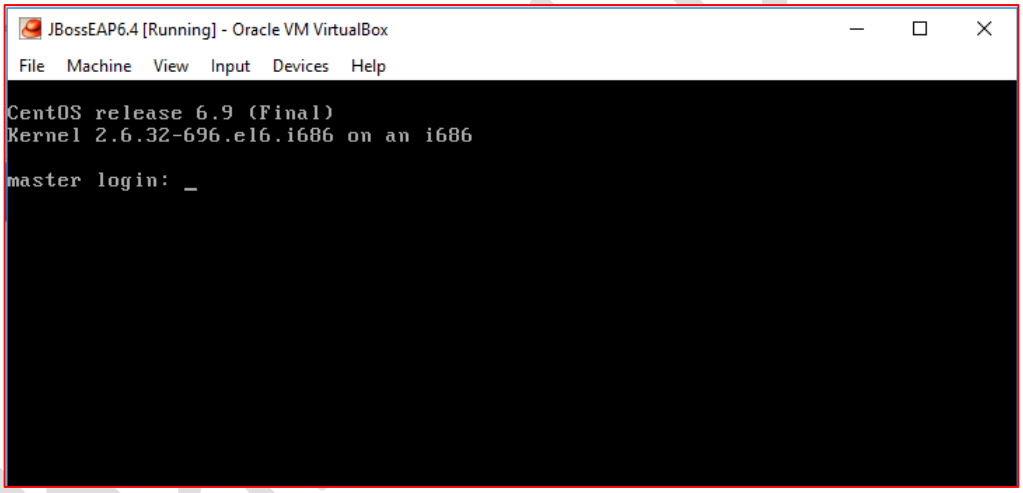
LAB2: Start the Virtual Machine (Guest OS) and setup the network if required.

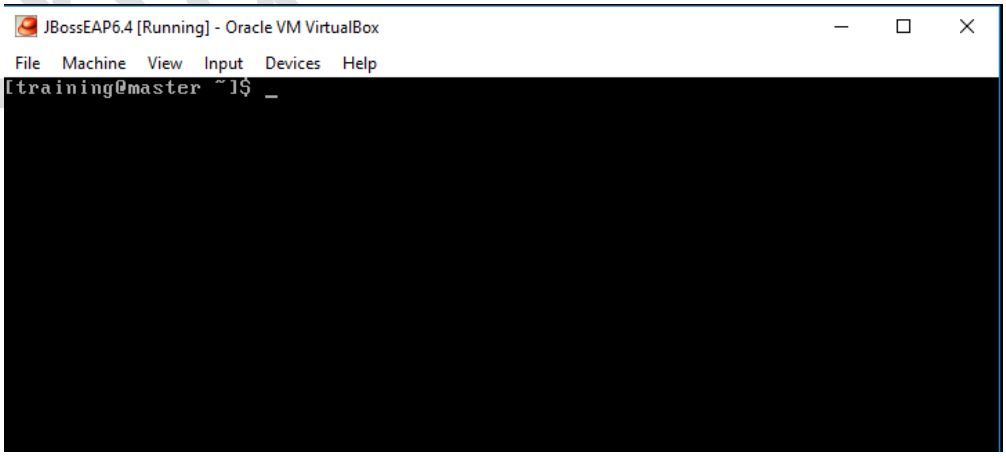
1. Select the VM (JBossEAP64) and click on Start button as shown:



The VM Starts and prompts for user name and password. Enter

User Name: training || Password: training





Check the network adapter and reconfigure if required. OR Skipped to Lab 3

$ifconfig

```
[training@master ~]$
[training@master ~]$ ifconfig
lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:0 (0.0 b)  TX bytes:0 (0.0 b)

[training@master ~]$ _
```

We do not find any adapter containing the IP address for the VM. It's only the localhost with an adapter "lo". We need to configure the network adapter.

Use the command "`ip addr`" to list all installed Adapters. We see an adapter installed as "eth1" but not configured. Let's configure it.

```
[training@master ~]$
[training@master ~]$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: eth1: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN qlen 1000
    link/ether 08:00:27:4a:77:41 brd ff:ff:ff:ff:ff:ff
[training@master ~]$ _
```

Use the following commands to configure and start the adapter named "**eth1**"

1. Note down the MAC address of eth1 (08:00:27:4a:77:41)

$cd /etc/sysconfig/network-scripts

$sudo cp ifcfg-eth0 ifcfg-eth1

Edit the file **`ifcfg-eth1`** using vi and update the DEVICE=eth1 and HWADDR =08:00:27:4a:77:41
(please note your adapter hardware address may be different)

$sudo vi ifcfg-eth1

```
DEVICE=eth1
HWADDR=08:00:27:4a:77:41_
TYPE=Ethernet
UUID=74df55c6-4302-4259-8554-59ae9a91bbd3
ONBOOT=yes
NM_CONTROLLED=yes
BOOTPROTO=dhcp
~
~
~
~
~
~
~
~
```

Save the file and restart the network service and verify the ip address of the eth1 adapter

```
$sudo service network restart
```

```
[training@master network-scripts]$ sudo service network restart
[sudo] password for training:
Shutting down loopback interface:                          [  OK  ]
Bringing up loopback interface:                            [  OK  ]
Bringing up interface eth0:  Device eth0 does not seem to be present, delaying i
nitialization.
                                                           [FAILED]
Bringing up interface eth1:
Determining IP information for eth1... done.
                                                           [  OK  ]
[training@master network-scripts]$ _
```

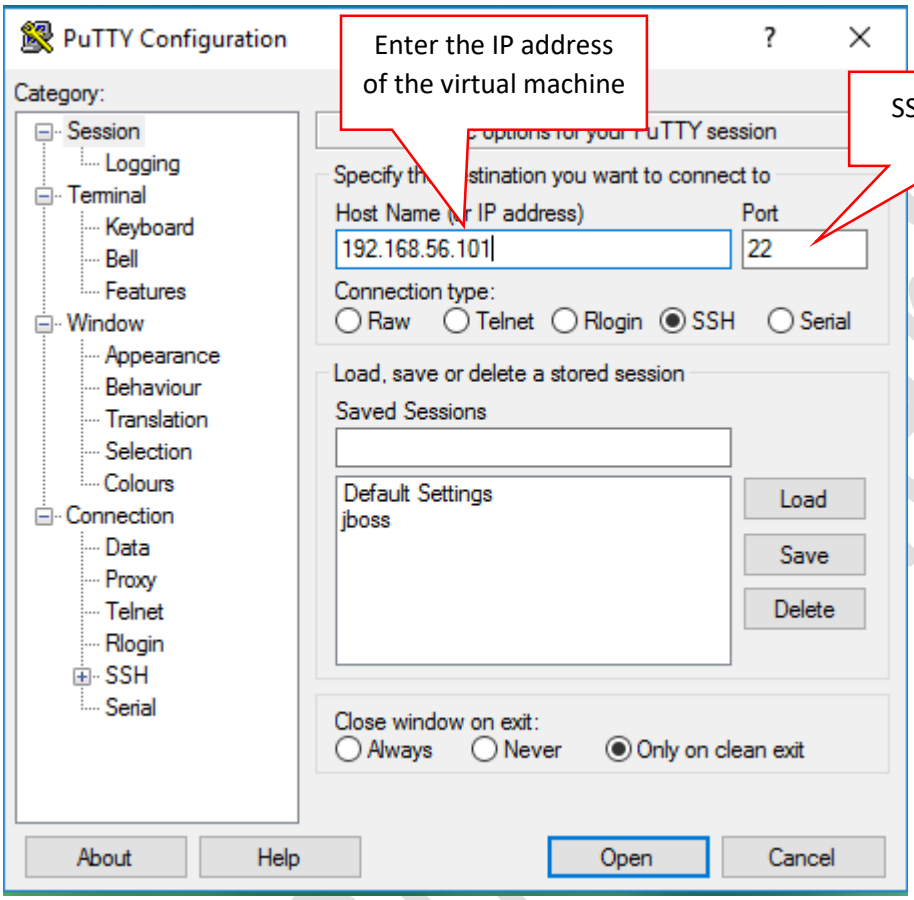
$ifconfig

```
[training@master ~]$
[training@master ~]$ ifconfig
eth1      Link encap:Ethernet  HWaddr 08:00:27:4A:77:41
          inet addr:192.168.56.101  Bcast:192.168.56.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:fe4a:7741/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:14 errors:0 dropped:0 overruns:0 frame:0
          TX packets:10 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:3268 (3.1 KiB)  TX bytes:1272 (1.2 KiB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:0 (0.0 b)  TX bytes:0 (0.0 b)
```

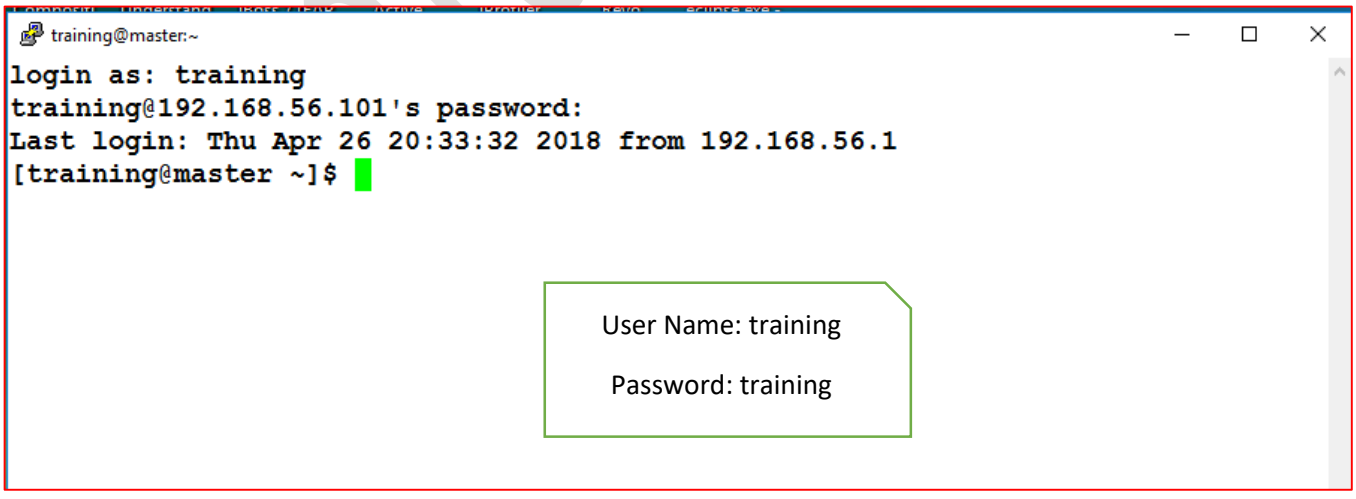
IP Address for the VM Now is 192.168.56.101

LAB3: Connect the VM using Putty and WInSCP

1. **Putty Connection**:
   Double click on putty.exe. Putty opens and the following screen appears:



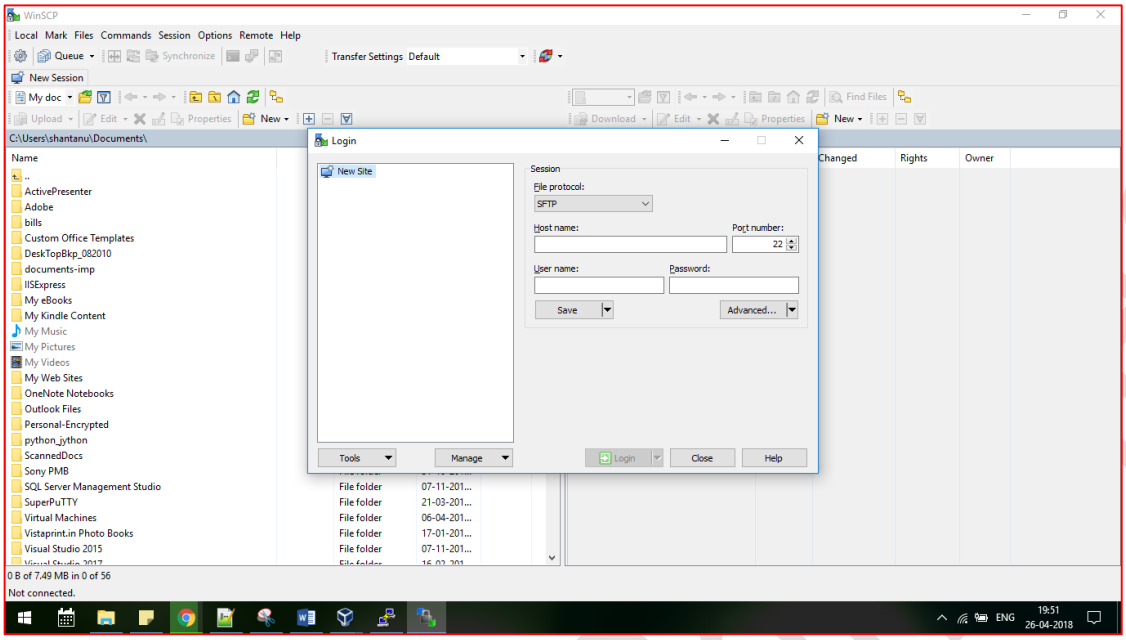
Provide the IP address and SSH port and press “Open”



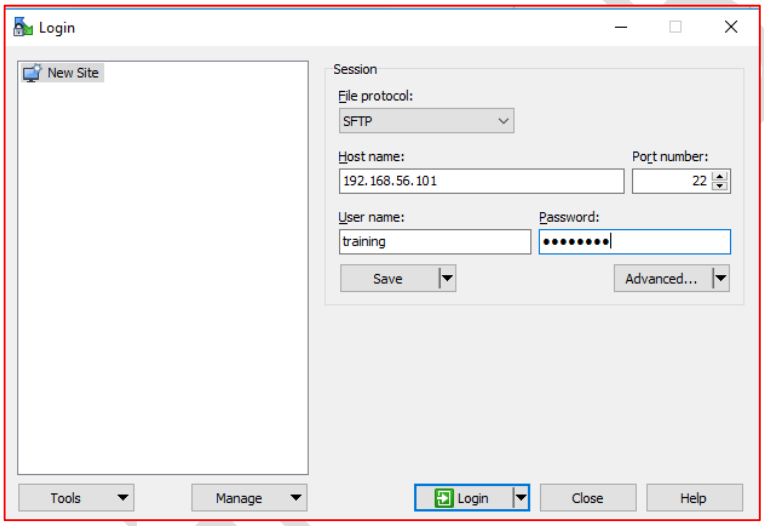
YOU ARE NOW CONNECTED TO THE VM USING PUTTY

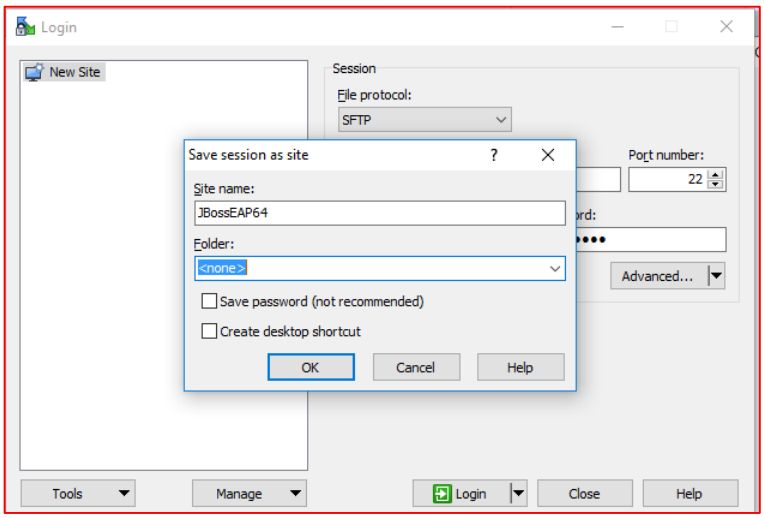
2. WinSCP Connection: (Install WInSCP, if required and then do the following)

Double Click on WinSCP and it opens as follows:

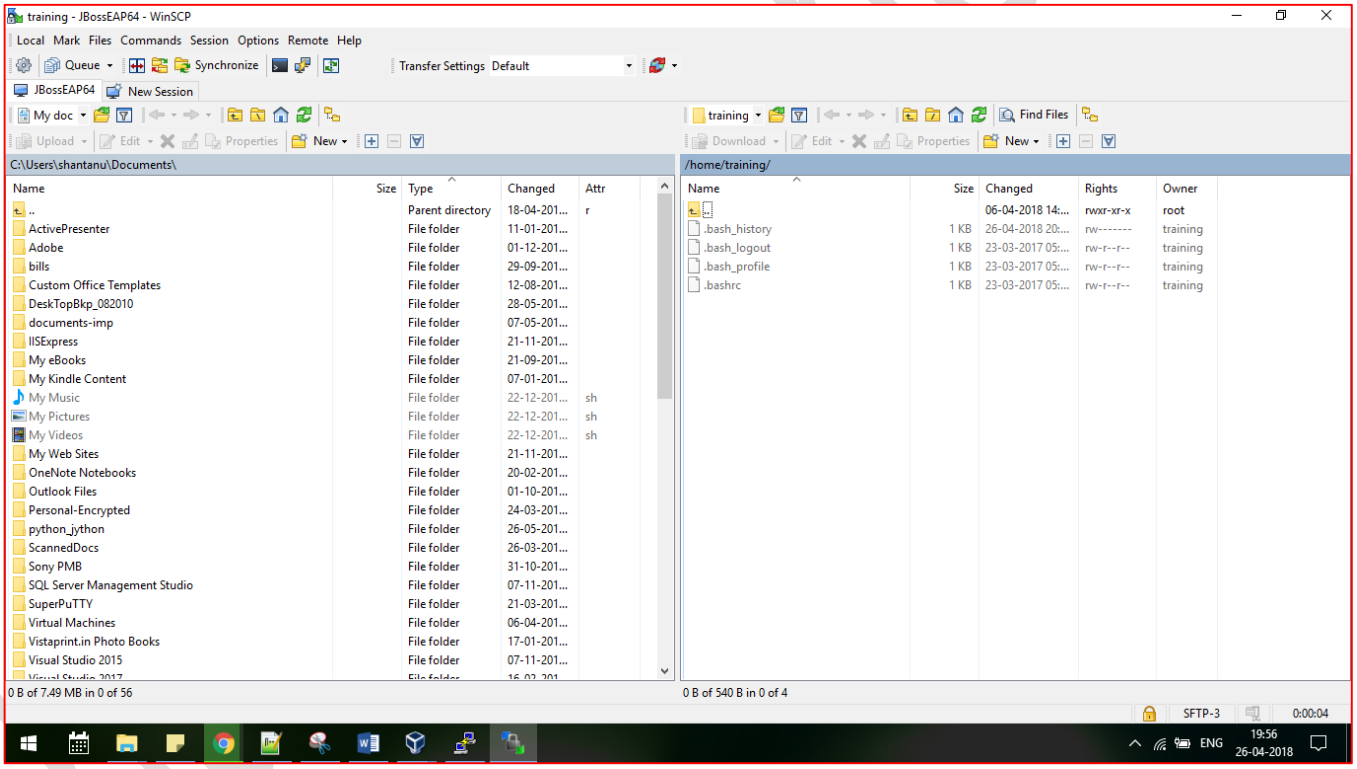


Provide IP Address, username and password and click on save. Save the configuration as JBossEAp64.





After Successful Connection WinSCP opens as follows:



Now you are connected to the VM using WinSCP. You can transfer and edit files using WInSCP

LAB 4: Install Java

1. Use WinSCP to transfer **"jdk-8u77-linux-i586.tar.gz"** to **/home/training/** directory of the Linux VM

Execute the following commands:

```
$cd

$sudo mkdir /usr/java

$sudo tar zxvf jdk-8u77-linux-i586.tar.gz -C /usr/java/

$sudo ln -s /usr/java/jdk1.8.0_77 /usr/java/latest

$ sudo vi /etc/profile.d/javaenv.sh
```

when the file opens, enter the following to set JAVA_HOME and Java Path

```
export JAVA_HOME=/usr/java/latest

export PATH=$JAVA_HOME/bin:$PATH
```

Save the file and check the correctness by using source command

```
$source /etc/profile.d/javaenv.sh
```

Note: If you get some error after running this command, please correct them and re run the same command to recheck

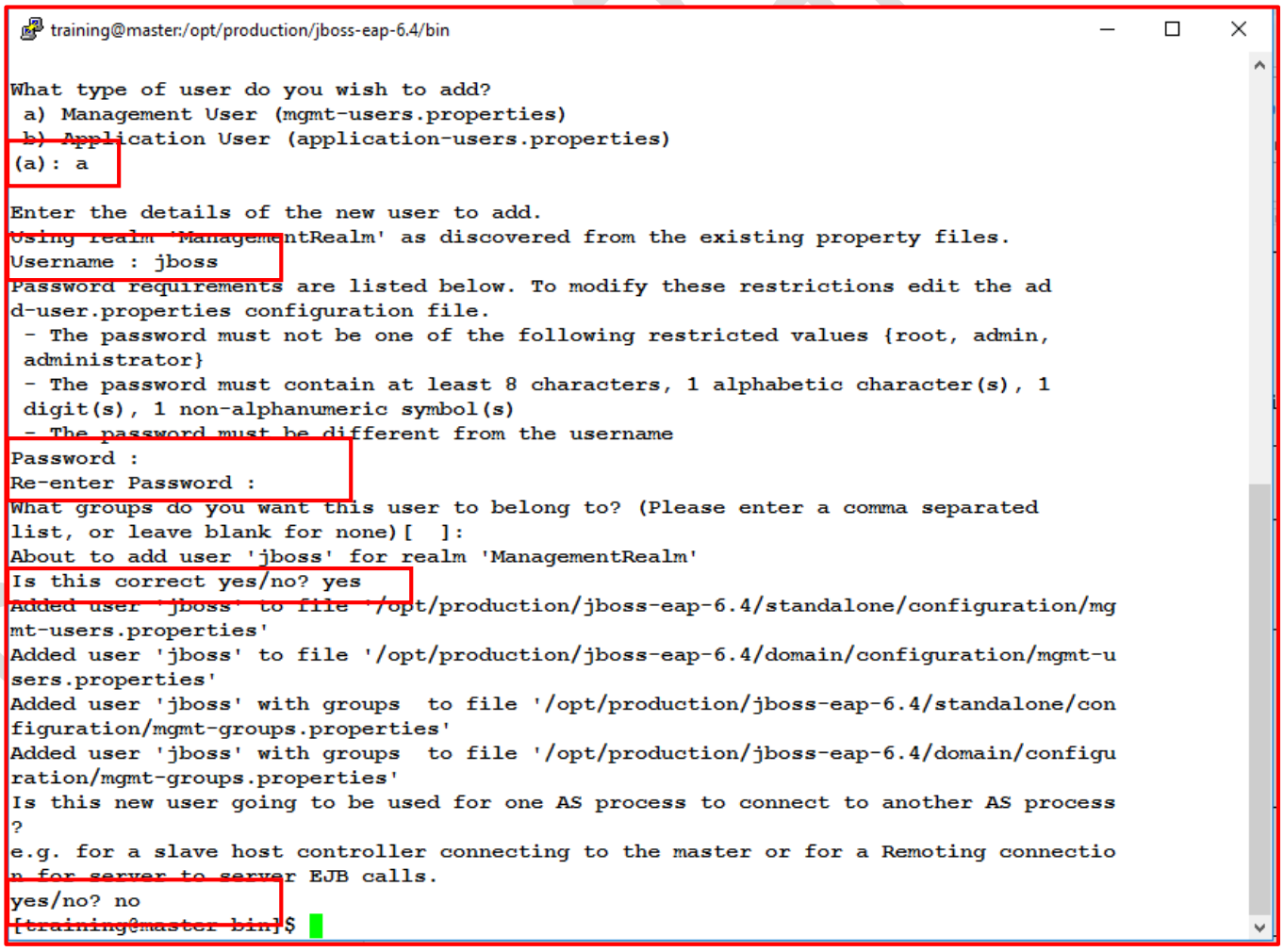
LAB 5: Install ,Start and Shutdown JBossEAP 6 (Standalone Mode)

1. Copy the file “jboss-eap-6.4.0.zip” to VM path “/home/training/” using WinSCP
2. Use the following commands to install JBoss-eap-6.4.0

```
$sudo mkdir /opt/production

$sudo chown -R training:training /opt/production

$cd

$unzip /home/training/jboss-eap-6.4.0.zip -d /opt/production/
```

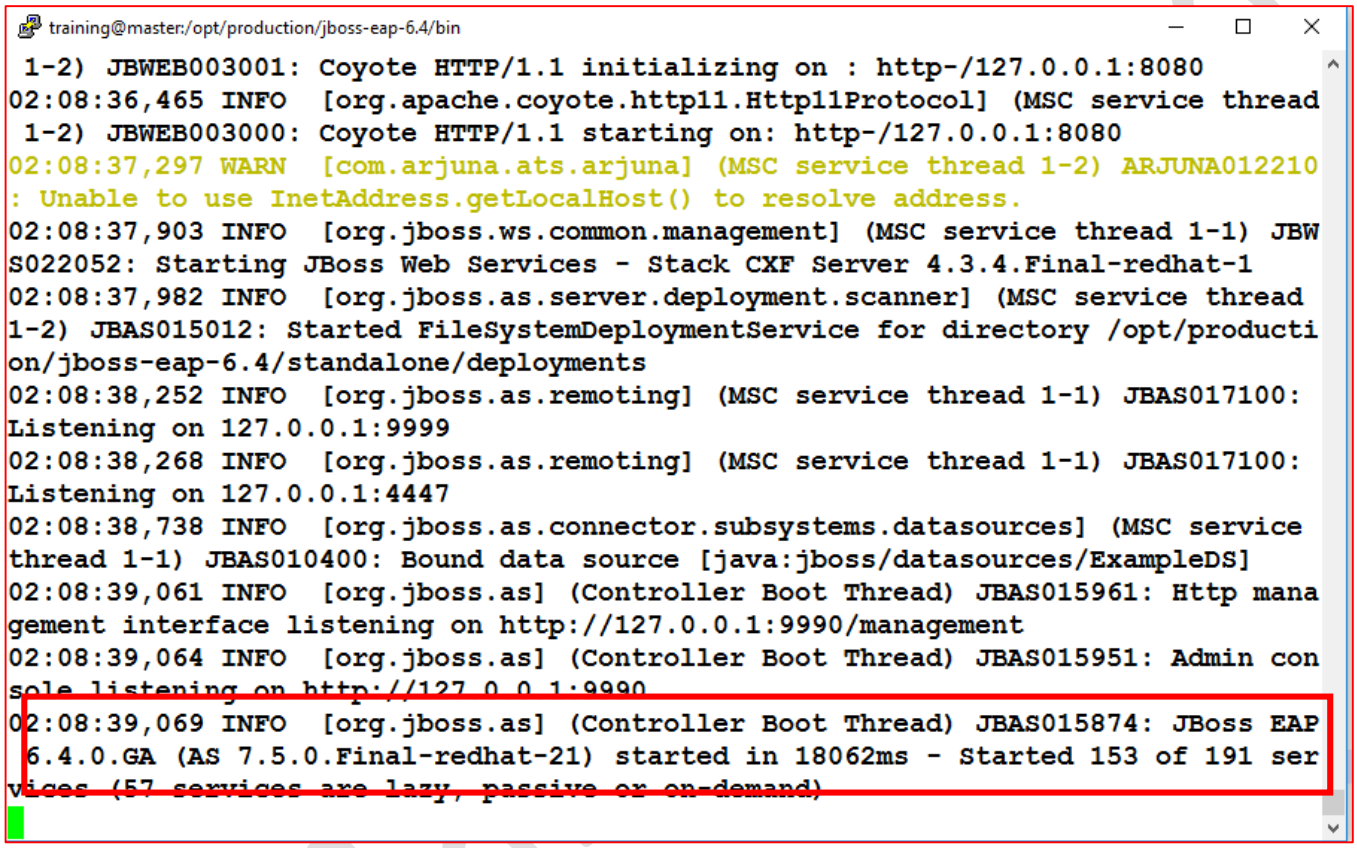
3. Create a JBoss-EAP administrator (Management User):

```
$cd /opt/production/jboss-eap-6.4/bin

$./add-user.sh
```



Start JBoss Server in Standalone mode

```
$cd /opt/production/jboss-eap-6.4/bin

$./standalone.sh
```

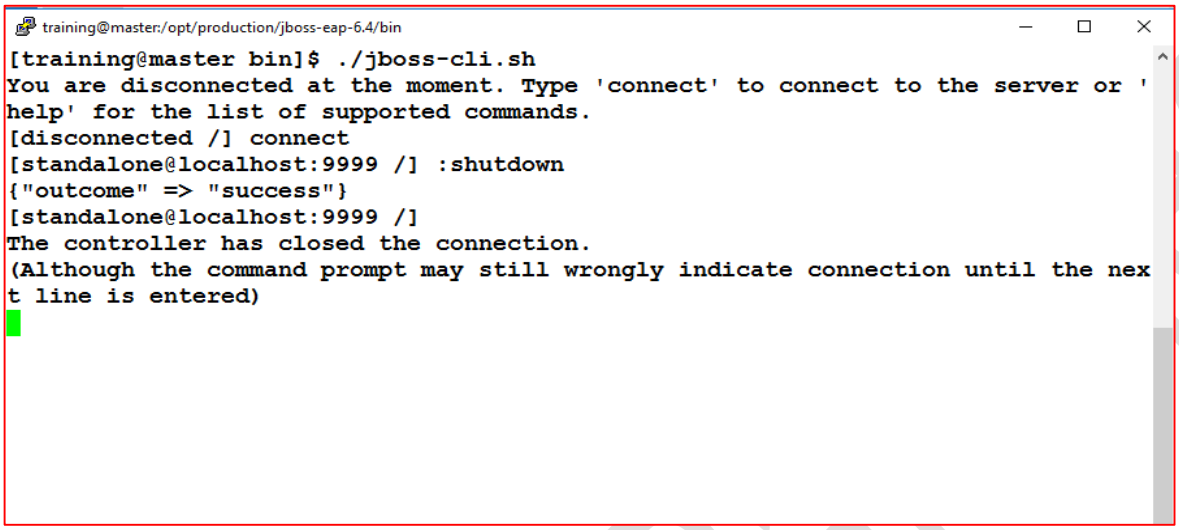


Shutdown JBoss EAP:

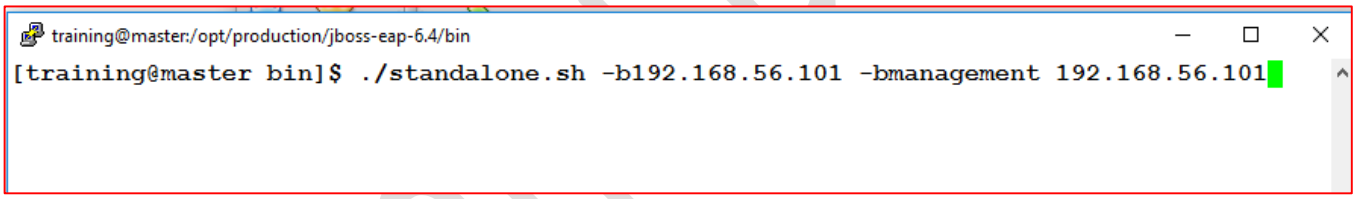
There is no shutdown command as script. We need to use Jboss CLI as below:

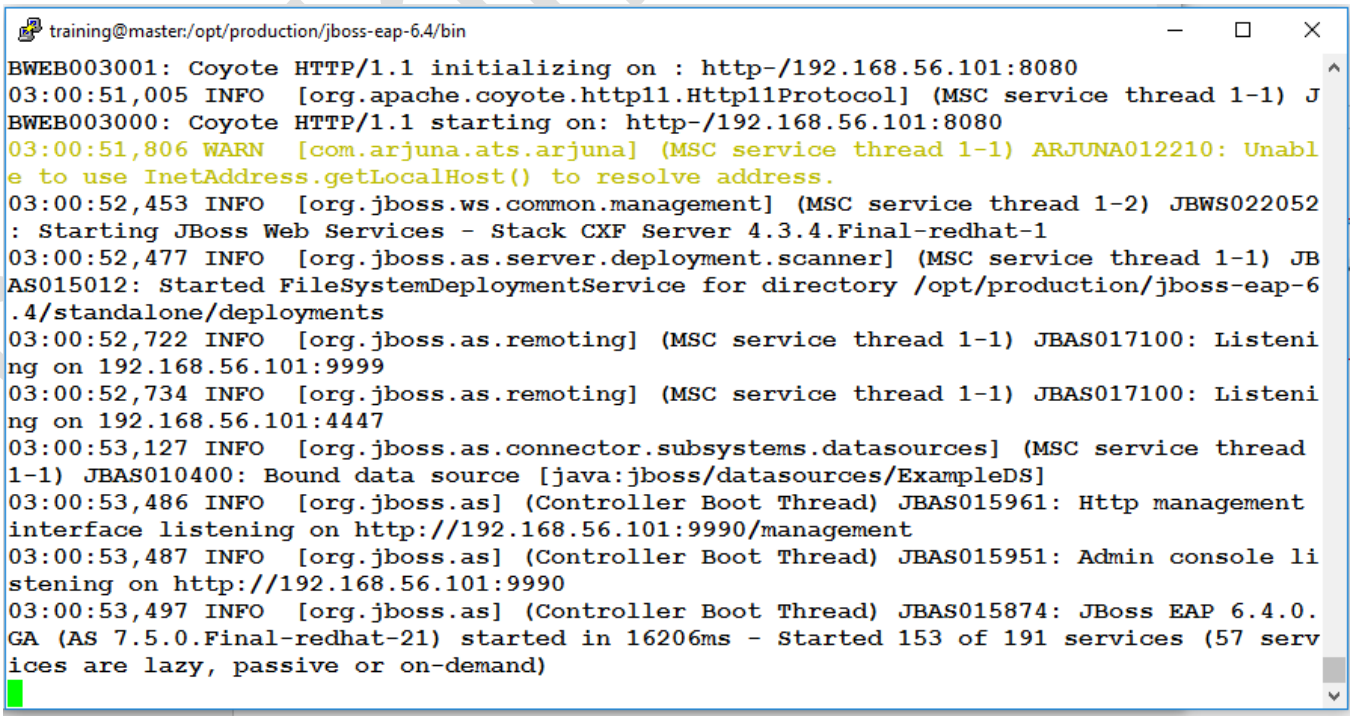
$cd /opt/production/jboss-eap-6.4/bin

$./jboss-cli.sh



Run JBoss-EAP on particular IP address to be accessed from Host OS:



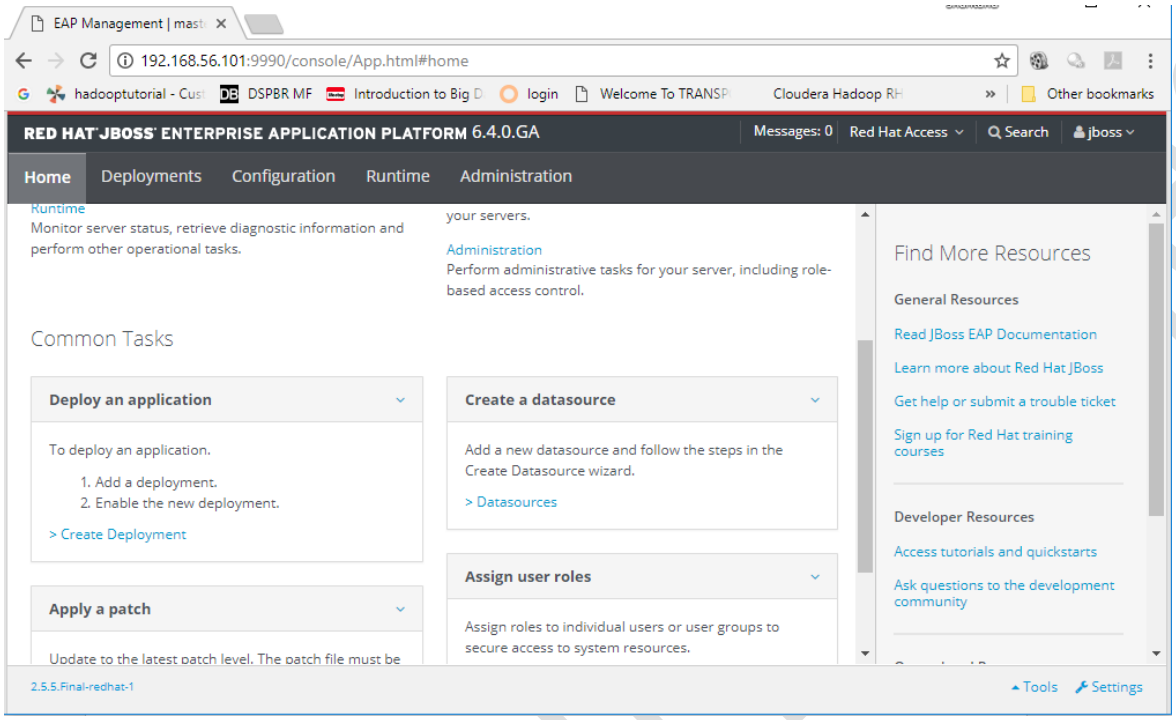


1. Switch to Host OS (Windows in our case)

2. Open a Browser and type the JBossEAP management address http://192.168.56.101:9990/

When prompted for username and password enter:

Username: jboss Password: welcome@123 **(your password may be different!!)**



LAB 6: Deploy Applications to JBoss EAP (Standalone Mode)

1. Copy **JBoss7Lab/JBossClass** folder to **VM's /home/training/** folder using WinSCP
2. Deployment of applications can be done in following ways
    a. Drop-In deployment
    b. Deployment of applications using admin console
    c. Deployment Using JBoss CLI
    d. Exploded Deployment

3. Drop-In Deployment

a. The applications are deployed by copying the application archive to the server's deployment folder i.e. `$JBOSS_HOME/standalone/deployments` folder

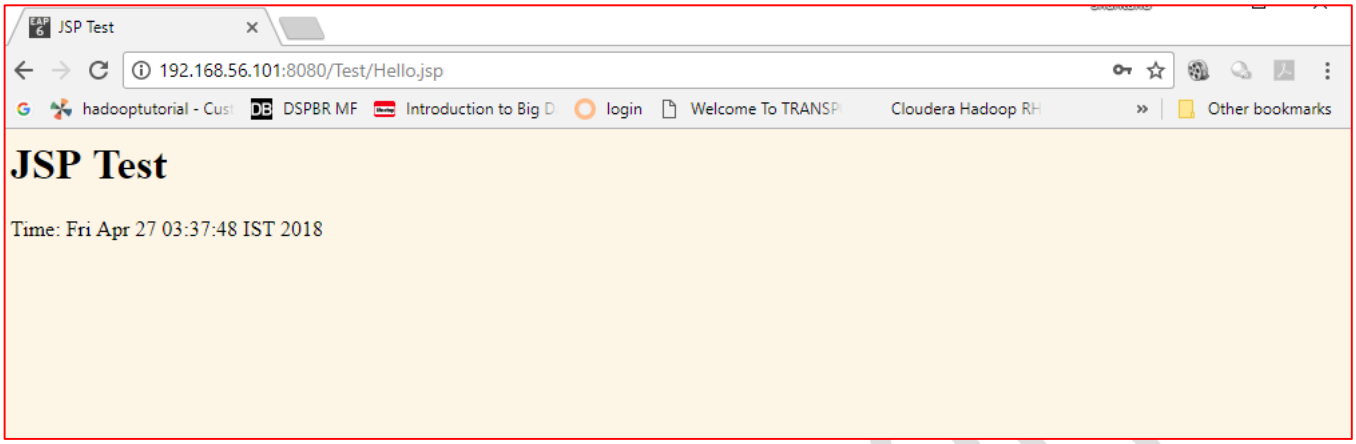
```
$cp /home/training/JBossClass/Test.war /opt/production/Jboss-eap-6.4/standalone/deployments/
```

If the deployment is successful, you will see the notification in the server's logging console.

```
03:34:38,900 INFO  [org.jboss.as.server.deployment] (MSC service thread 1-1) JBAS015876
: Starting deployment of "Test.war" (runtime-name: "Test.war")
03:34:40,353 INFO  [org.jboss.web] (ServerService Thread Pool -- 55) JBAS018210: Regist
er web context: /Test
03:34:41,490 INFO  [org.jboss.as.server] (DeploymentScanner-threads - 1) JBAS015859: De
ployed "Test.war" (runtime-name : "Test.war")
```

Access the application from browser by entering the url as

http://192.168.56.101/Test/Hello.jsp



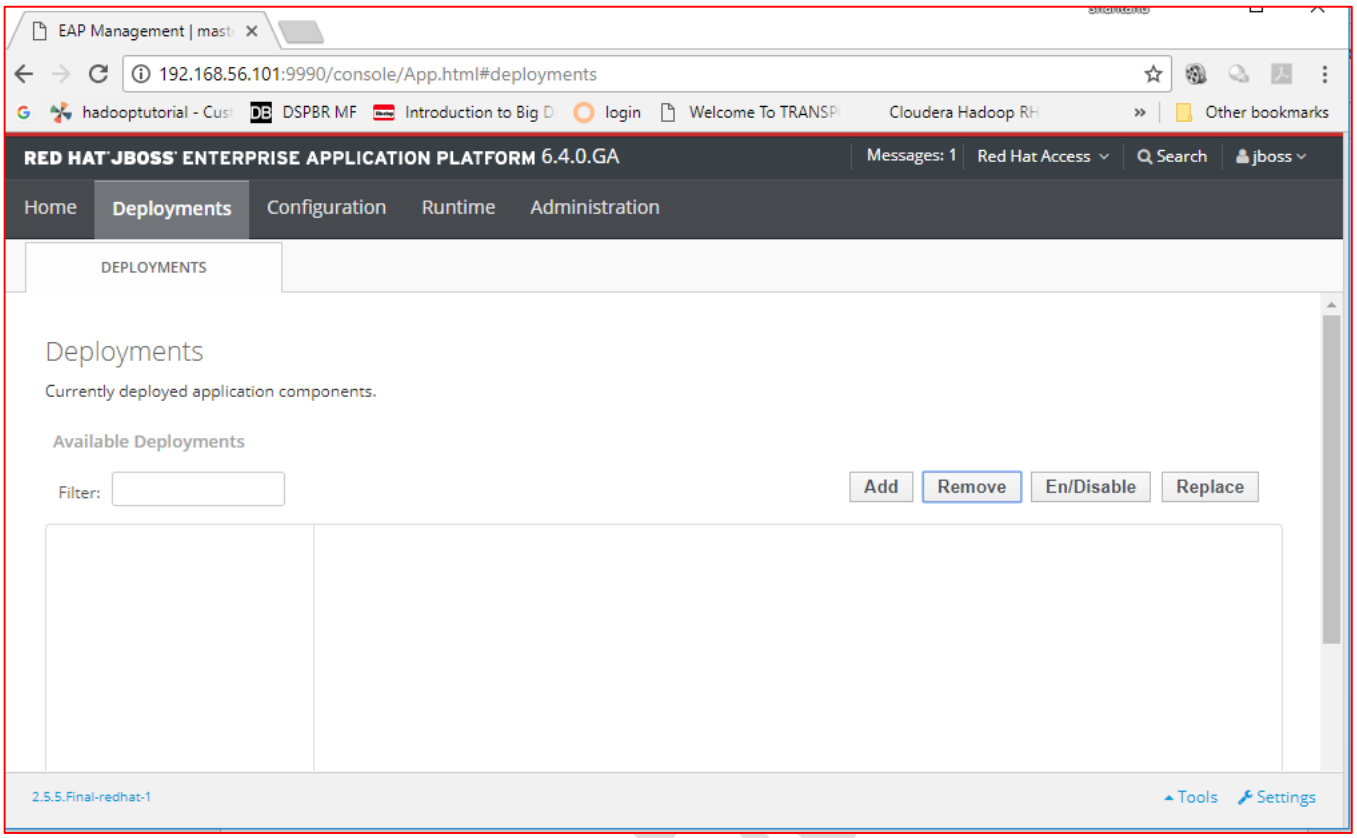
Using the same procedure you may deploy other type of archives e.g. .war, .ear and .jar etc.

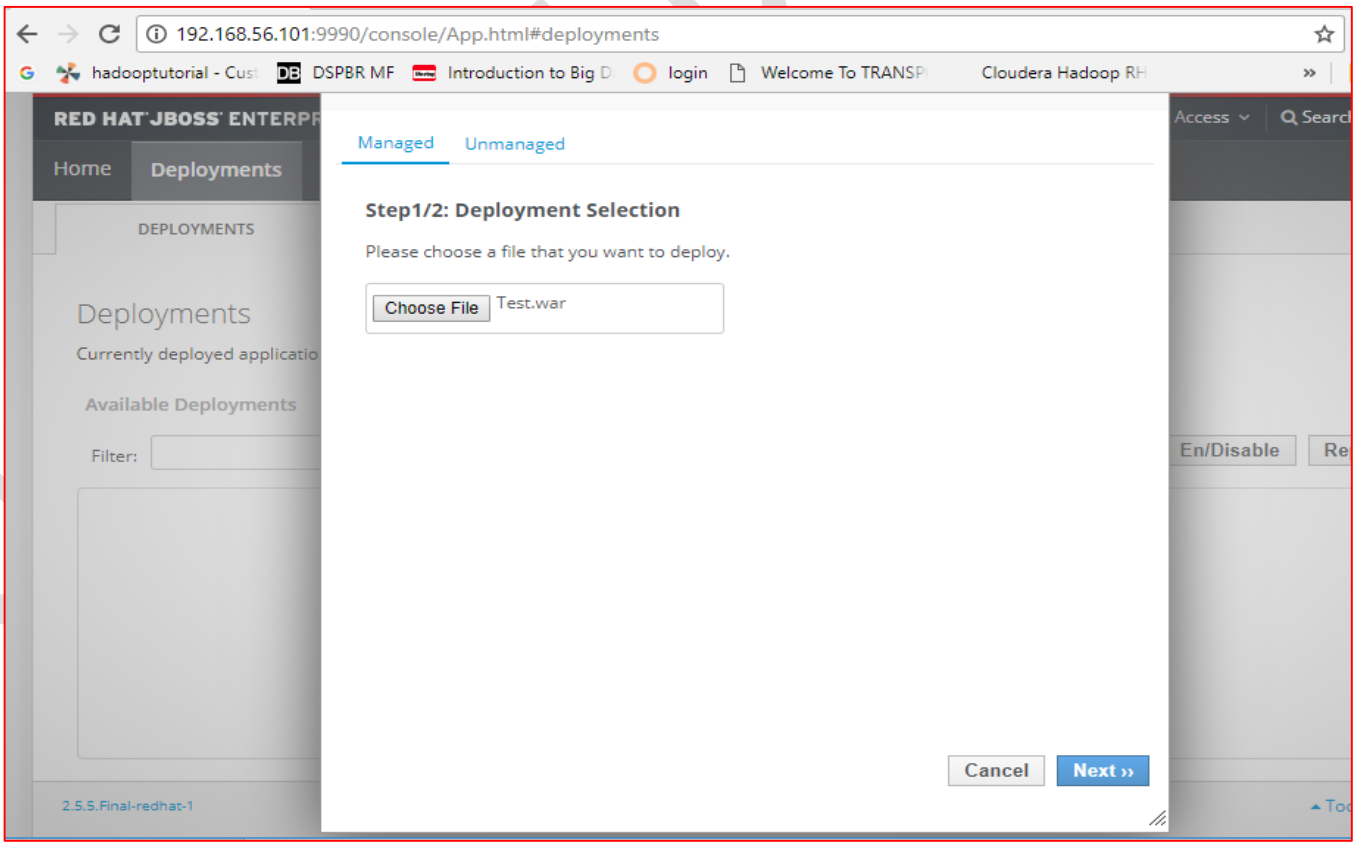
4. Deployment using Admin Console (Web Console)

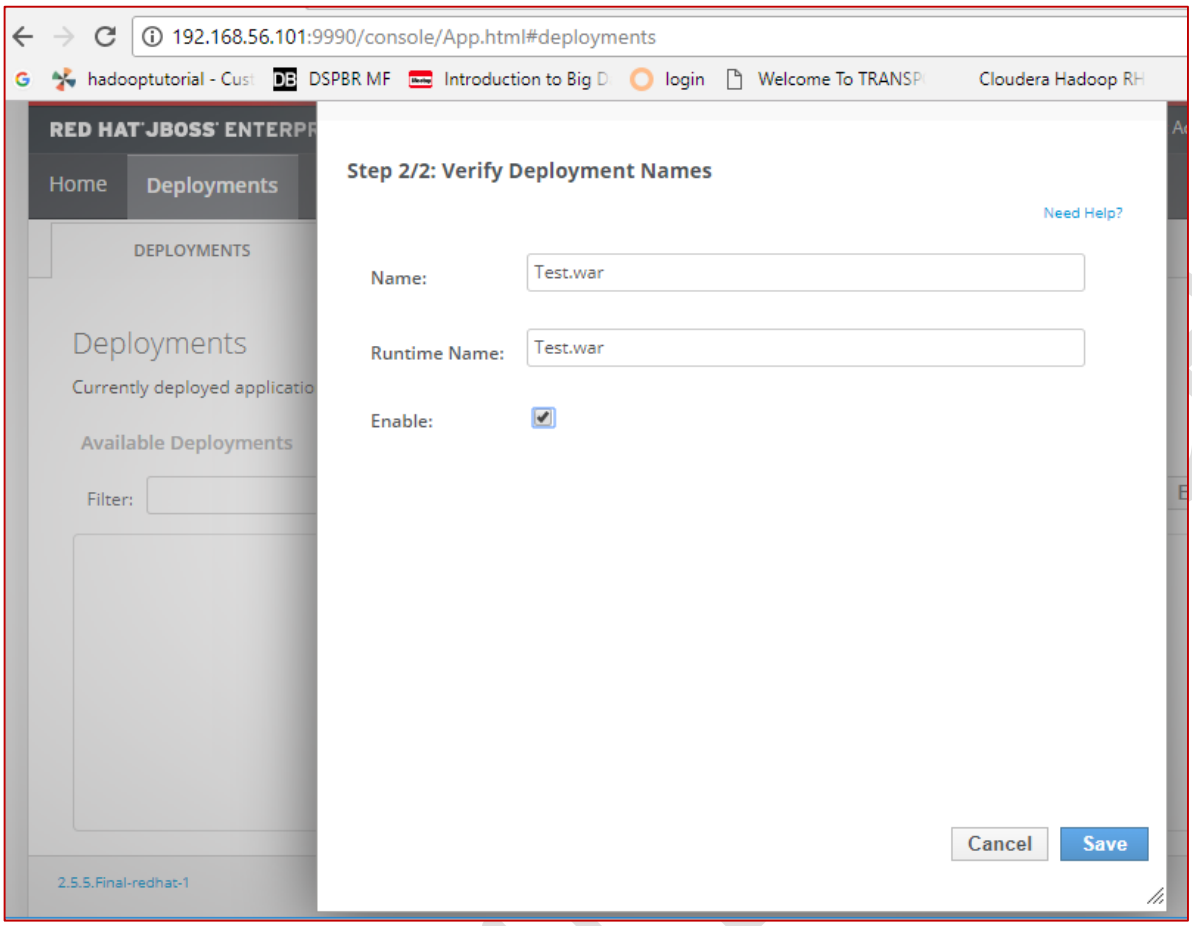
(We are going to reuse the same Test.war file for demonstration. Please remove the app from the deployment folder prior to redeployment)

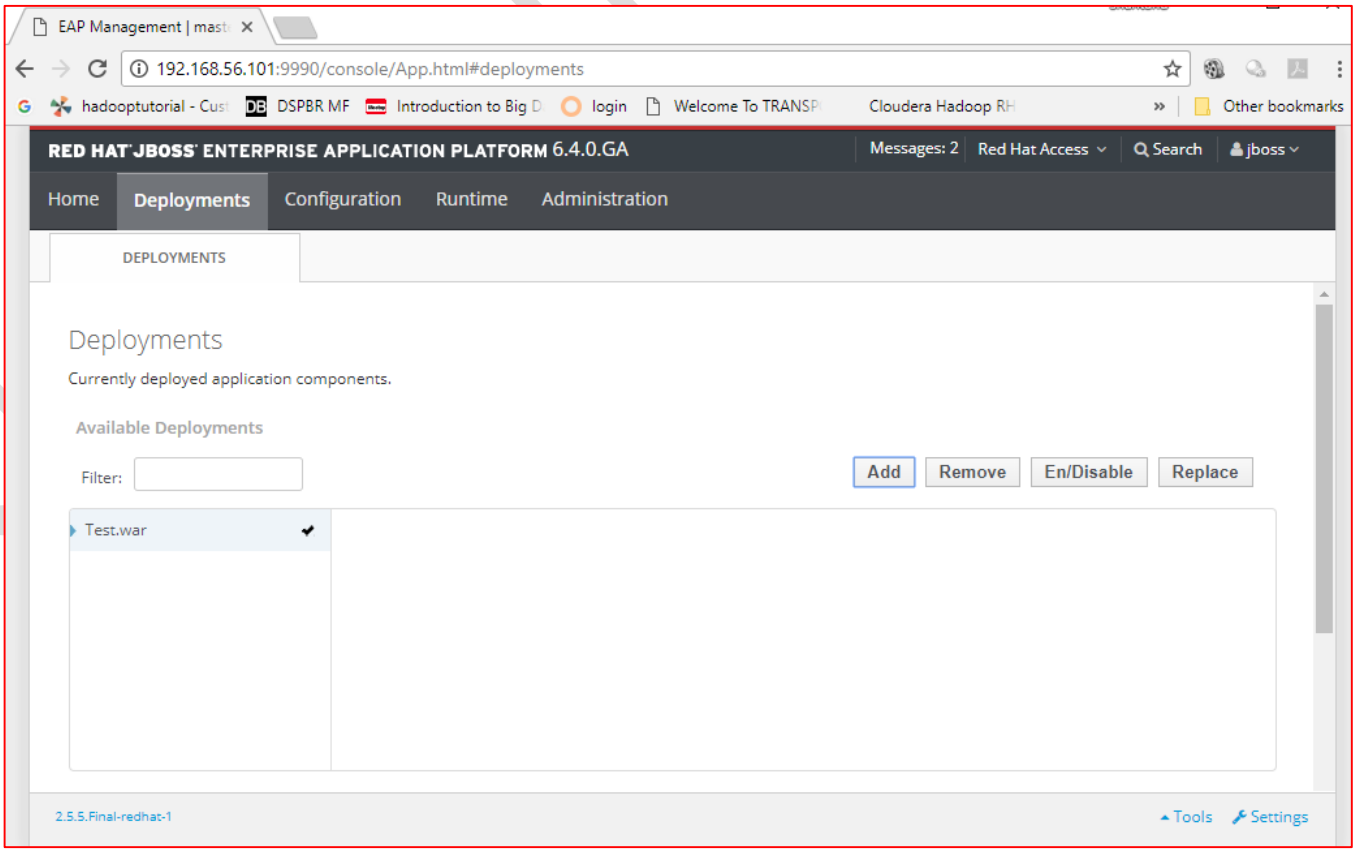
1. Start JBossEAP Server (If already not started)
2. Open the AdminConsole using a browser and typing the url http://192.168.56.101:9990 and login to the Admin Console.

3. Select Deployments Tab from the Admin Console and click on Add button in the right Pane
4. Browse to the folder and select Test.war in the next screen and press Next button.
5. Check enable option and press Save button. Your Application is now deployed.


EAP Management | mast
192.168.56.101:9990/console/App.html#deployments
hadooptutorial - Cust
DSPBR MF
Introduction to Big D
login
Welcome To TRANSP
Cloudera Hadoop RH
Other bookmarks
RED HAT JBOSS ENTERPRISE APPLICATION PLATFORM 6.4.0.GA
Messages: 1
Red Hat Access
Search
jboss
Home
Deployments
Configuration
Runtime
Administration
DEPLOYMENTS
Deployments
Currently deployed application components.
Available Deployments
Filter:
Add
Remove
En/Disable
Replace
2.5.5.Final-redhat-1
Tools
Settings


192.168.56.101:9990/console/App.html#deployments
hadooptutorial - Cust
DSPBR MF
Introduction to Big D
login
Welcome To TRANSP
Cloudera Hadoop RH
RED HAT JBOSS ENTERP
Home
Deployments
DEPLOYMENTS
Deployments
Currently deployed applicatio
Available Deployments
Filter:
Managed
Unmanaged
Step1/2: Deployment Selection
Please choose a file that you want to deploy.
Choose File
Test.war
Cancel
Next ››
2.5.5.Final-redhat-1


192.168.56.101:9990/console/App.html#deployments
RED HAT JBOSS ENTERPR
Home
Deployments
DEPLOYMENTS
Deployments
Currently deployed applicatio
Available Deployments
Filter:
2.5.5.Final-redhat-1
Step 2/2: Verify Deployment Names
Need Help?
Name:
Test.war
Runtime Name:
Test.war
Enable:
Cancel
Save


EAP Management | mast
192.168.56.101:9990/console/App.html#deployments
RED HAT JBOSS ENTERPRISE APPLICATION PLATFORM 6.4.0.GA
Messages: 2
Red Hat Access
Search
jboss
Home
Deployments
Configuration
Runtime
Administration
DEPLOYMENTS
Deployments
Currently deployed application components.
Available Deployments
Filter:
Add
Remove
En/Disable
Replace
Test.war
2.5.5.Final-redhat-1
Tools
Settings

5. Deployment using JBoss CLI

Use the following commands to start CLI and connect to the server and then deploy the application. List the deployments.

```
[training@master ~]$ cd /opt/production/jboss-eap-6.4/bin/
[training@master bin]$
[training@master bin]$ ./jboss-cli.sh
You are disconnected at the moment. Type 'connect' to connect to the server or 'help' for the l
ist of supported commands.
[disconnected /]
[disconnected /] connect 192.168.56.101:9999
[standalone@192.168.56.101:9999 /]
[standalone@192.168.56.101:9999 /] deploy /home/training/JBossClass/Test.war
[standalone@192.168.56.101:9999 /]
[standalone@192.168.56.101:9999 /]
[standalone@192.168.56.101:9999 /] deployment-info
NAME     RUNTIME-NAME PERSISTENT ENABLED STATUS
Test.war Test.war     true       true    OK
[standalone@192.168.56.101:9999 /]
```

To Undeploy you may use:

```
[standalone@192.168.56.101:9999 /] deployment-info
NAME     RUNTIME-NAME PERSISTENT ENABLED STATUS
Test.war Test.war     true       true    OK
[standalone@192.168.56.101:9999 /]
[standalone@192.168.56.101:9999 /] undeploy Test.war
[standalone@192.168.56.101:9999 /]
[standalone@192.168.56.101:9999 /] deployment-info
[standalone@192.168.56.101:9999 /]
```

6. Exploded Deployment in JBoss

- Unzip the Test.war file as Test1.war folder

```
[training@master ~]$ unzip JBossClass/Test.war -d JBossClass/Test1.war/
Archive:  JBossClass/Test.war
   creating: JBossClass/Test1.war/META-INF/
 extracting: JBossClass/Test1.war/META-INF/MANIFEST.MF
 extracting: JBossClass/Test1.war/Hello.html
 extracting: JBossClass/Test1.war/Hello.jsp
   creating: JBossClass/Test1.war/WEB-INF/
   creating: JBossClass/Test1.war/WEB-INF/classes/
   creating: JBossClass/Test1.war/WEB-INF/lib/
 extracting: JBossClass/Test1.war/WEB-INF/web.xml
  inflating: JBossClass/Test1.war/WEB-INF/weblogic.xml
[training@master ~]$
```

- Copy the Folder “Test1.war” to $JBOSS_HOME/standalone/deployments/ folder
- The Exploded folder will be detected by the JBoss Server but it will not be deployed automatically. We need to trigger the deployment with a file named as **“Test1.war.dodeploy”.**

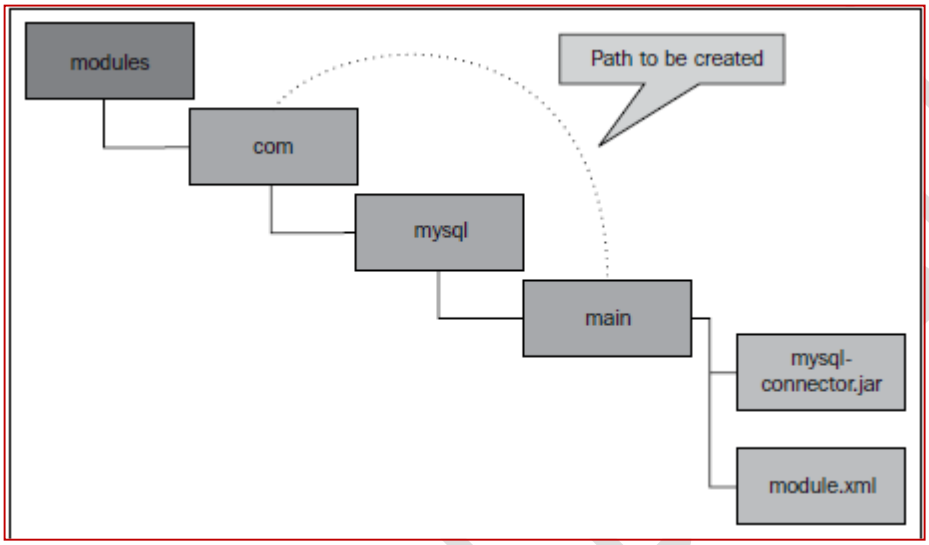
```
18:57:57,694 INFO  [org.jboss.as] (Controller Boot Thread) JBAS015874: JBoss EAP 6.4.0.GA (AS 7.5.0.Final-
redhat-21) started in 25985ms - Started 153 of 191 services (57 services are lazy, passive or on-demand)
18:58:56,448 INFO  [org.jboss.as.server.deployment.scanner] (DeploymentScanner-threads - 1) JBAS015003: Fo
und Test1.war in deployment directory. To trigger deployment create a file called Test1.war.dodeploy
```

```
[training@master ~]$ cp -r JBossClass/Test1.war /opt/production/jboss-eap-6.4/standalone/deployments/
[training@master ~]$ touch /opt/production/jboss-eap-6.4/standalone/deployments/Test1.war.dodeploy
[training@master ~]$
```

```
19:00:22,639 INFO  [org.jboss.as.server.deployment] (MSC service thread 1-2) JBAS015876: Starting deployme
nt of "Test1.war" (runtime-name: "Test1.war")
19:00:24,389 INFO  [org.jboss.web] (ServerService Thread Pool -- 55) JBAS018210: Register web context: /Te
st1
19:00:25,747 INFO  [org.jboss.as.server] (DeploymentScanner-threads - 1) JBAS015859: Deployed "Test1.war"
(runtime-name : "Test1.war")
```

LAB 7: Create a DataSource

a. We will configure mysql datasource with JBoss 7(EAP6)
b. We will add the driver as a module in JBoss Server
c. Modules are added to jboss as
   <JBOSS_HOME>/ modules/system/layers/base/**YourModule**/main
d. Create a folder structure as **`<JBOSS_HOME>/modules/com/mysql/main`**



e. Our module will be "**com.mysql**"
f. Copy the driver file for mysql to
   `<JBOSS_HOME>/ modules/system/layers/base/com/mysql/main`
g. Create an xml file named "**`module.xml`**" in the same folder

```
[training@master ~]$ cd /opt/production/jboss-eap-6.4/
[training@master jboss-eap-6.4]$ pwd
/opt/production/jboss-eap-6.4
[training@master jboss-eap-6.4]$ mkdir -p  modules/system/layers/base/com/mysql/main
[training@master jboss-eap-6.4]$ cp /home/training/mysql-connector-java-5.1.26.jar  modules/system/layers/
base/com/mysql/main/
[training@master jboss-eap-6.4]$ ^C
[training@master jboss-eap-6.4]$ vi modules/system/layers/base/com/mysql/main/module.xml
[training@master jboss-eap-6.4]$
```

h. Add the following entries in the **`module.xml`** file and save the file

```
<?xml version="1.0" encoding="UTF-8"?>
<module xmlns="urn:jboss:module:1.1" name="com.mysql">
  <properties>
    <property name="jboss.api" value="unsupported"/>
  </properties>
  <resources>
    <resource-root path="mysql-connector-java-5.1.26.jar"/>
  </resources>
  <dependencies>
    <module name="javax.api"/>
    <module name="javax.transaction.api"/>
    <module name="javax.servlet.api" optional="true"/>
  </dependencies>
</module>
```

i. Open **`$JBOSS_HOME/standalone/standalone.xml`** and locate the **subsystem** for **datasources**

j. Add the following xml snippet in the marked location as shown below, between **`<drivers></drivers>`** tag.

```
<driver name="mysql" module="com.mysql">
   <driver-class>com.mysql.jdbc.Driver</driver-class>
</driver>
```

```
<subsystem xmlns="urn:jboss:domain:datasources:1.2">
    <datasources>
        <datasource jndi-name="java:jboss/datasources/ExampleDS" pool-name="ExampleDS" enabled="true"
        use-java-context="true">
            <connection-url>jdbc:h2:mem:test;DB_CLOSE_DELAY=-1;DB_CLOSE_ON_EXIT=FALSE</connection-url>
            <driver>h2</driver>
            <security>
                <user-name>sa</user-name>
                <password>sa</password>
            </security>
        </datasource>
        <drivers>
            <driver name="h2" module="com.h2database.h2">
                <xa-datasource-class>org.h2.jdbcx.JdbcDataSource</xa-datasource-class>
            </driver>
        </drivers>
    </datasources>
</subsystem>
```

Insert the driver xml snippet here

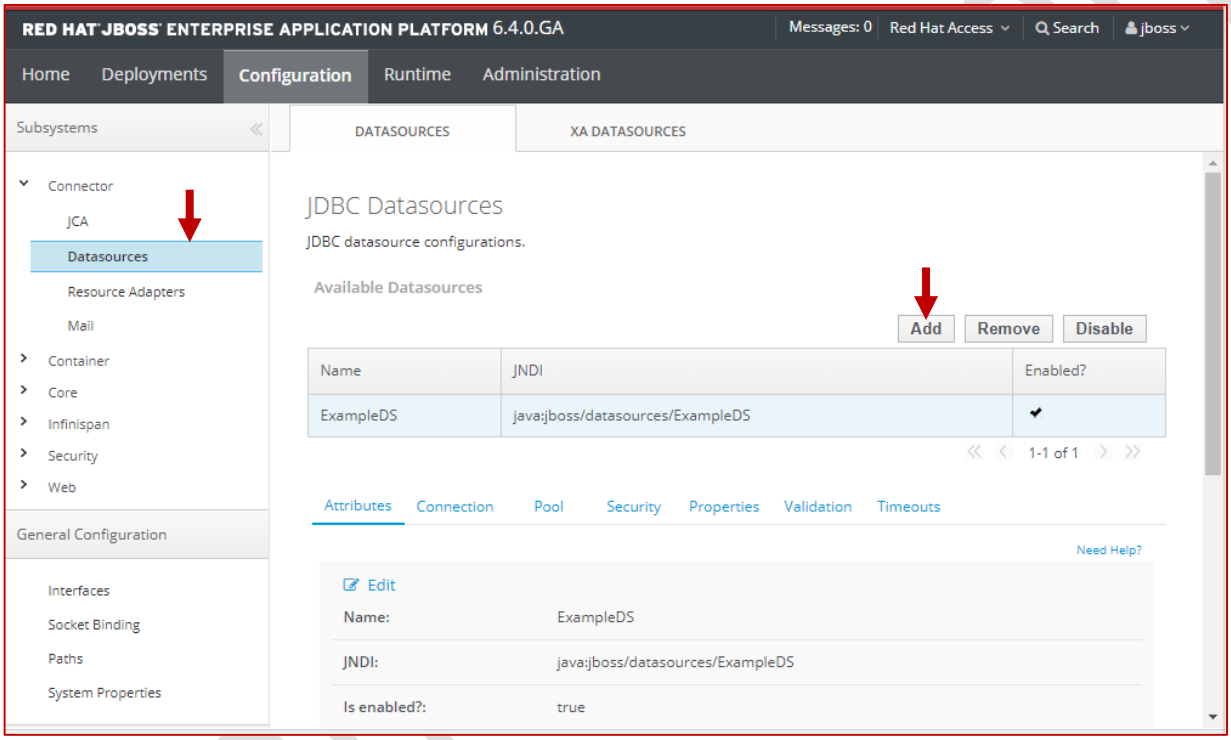
Now your added driver and module are ready to be used.

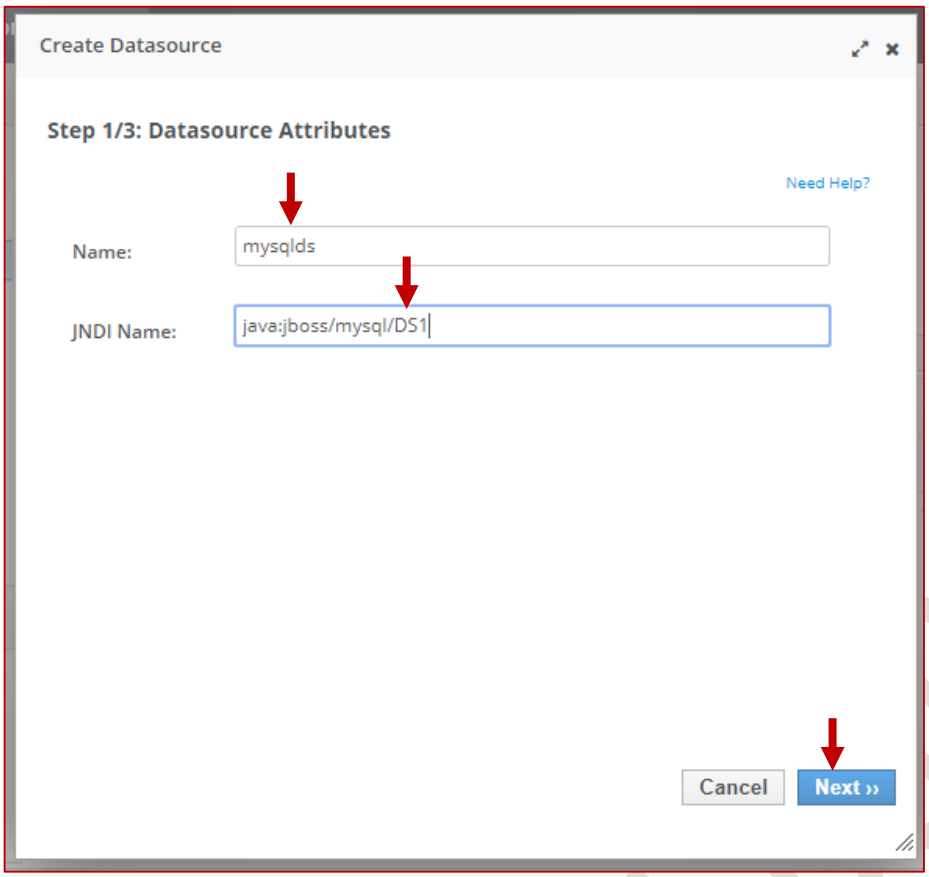
7.1 As the driver is ready to be used. We have 3 different ways to create a Datasource.

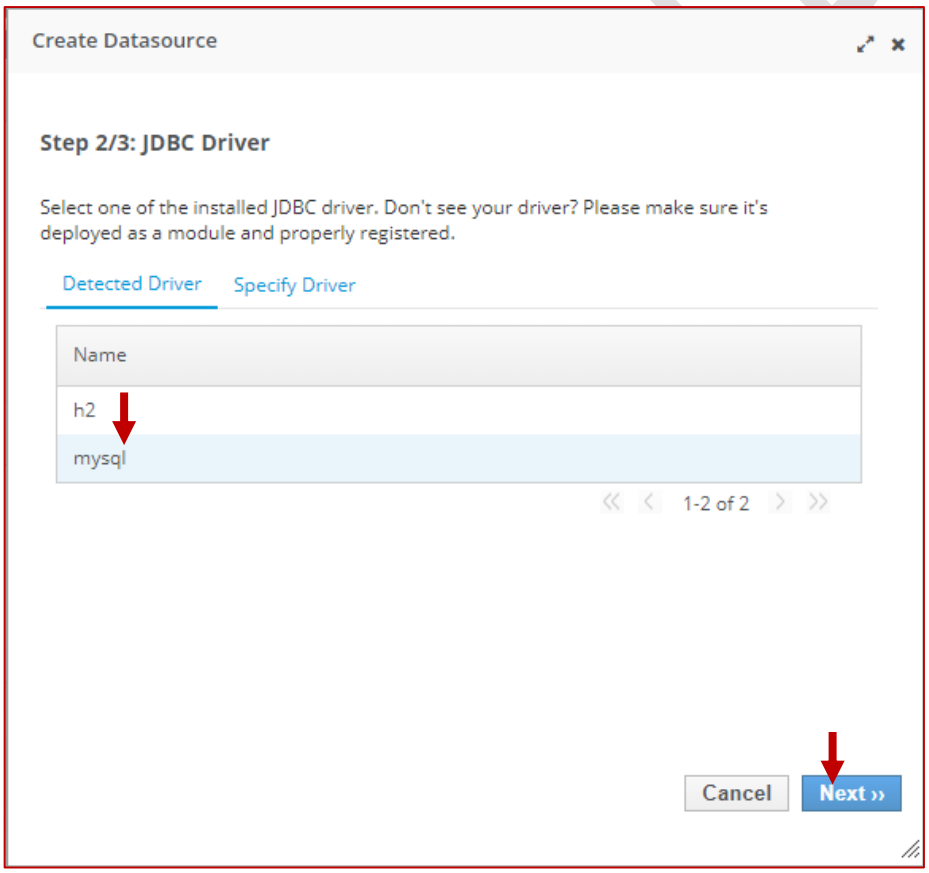
- Using the Server admin Console
- Using the Server's Configuration file (standalone-*.xml or domain.xml)
- Using JBoss CLI

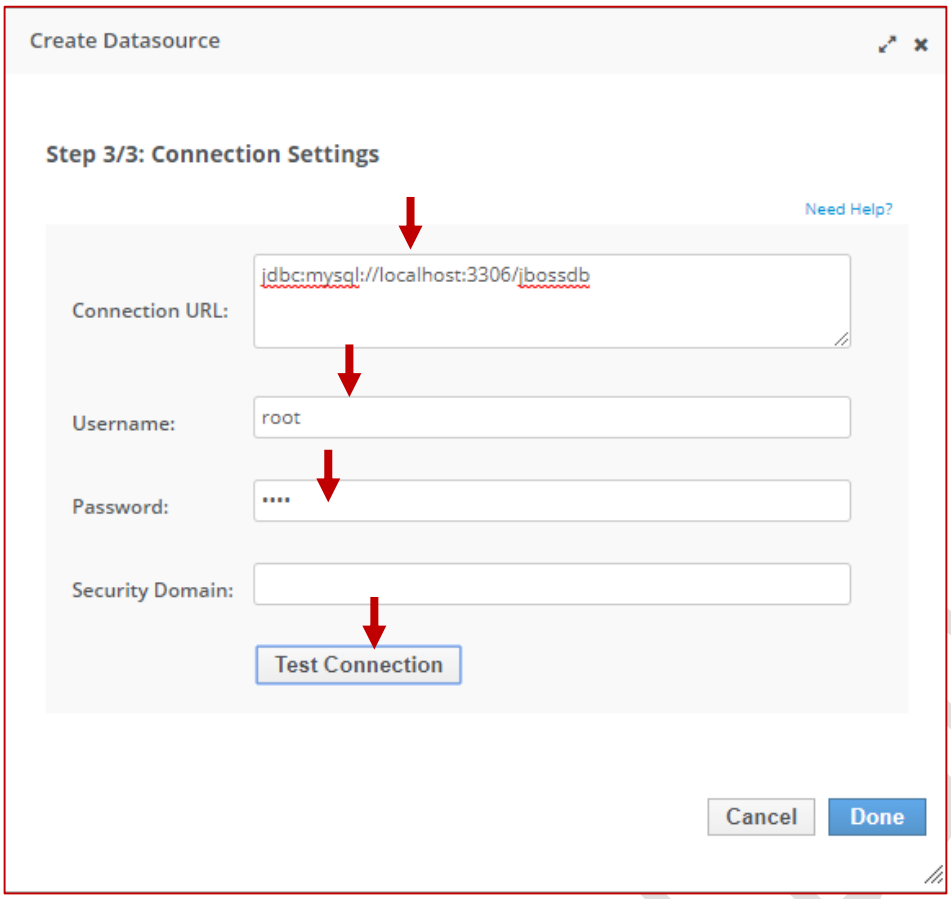
7.2 Create a Datasource Using Server's Admin Console

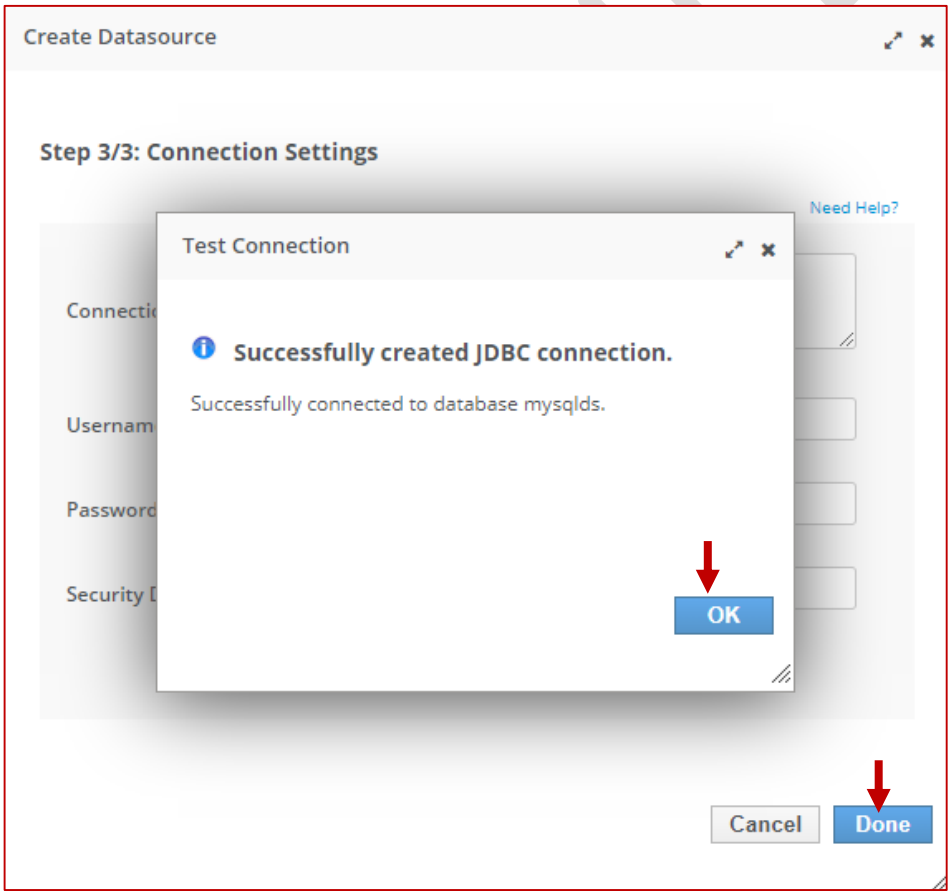
1. Open the admin console using a browser at http://192.168.56.101:9990 and login.
2. Select the **configuration** tab in the Admin Console
3. Select Connector/datasources from left pane and click on **add** button in the right pane to start the process
4. Follow the screens below:

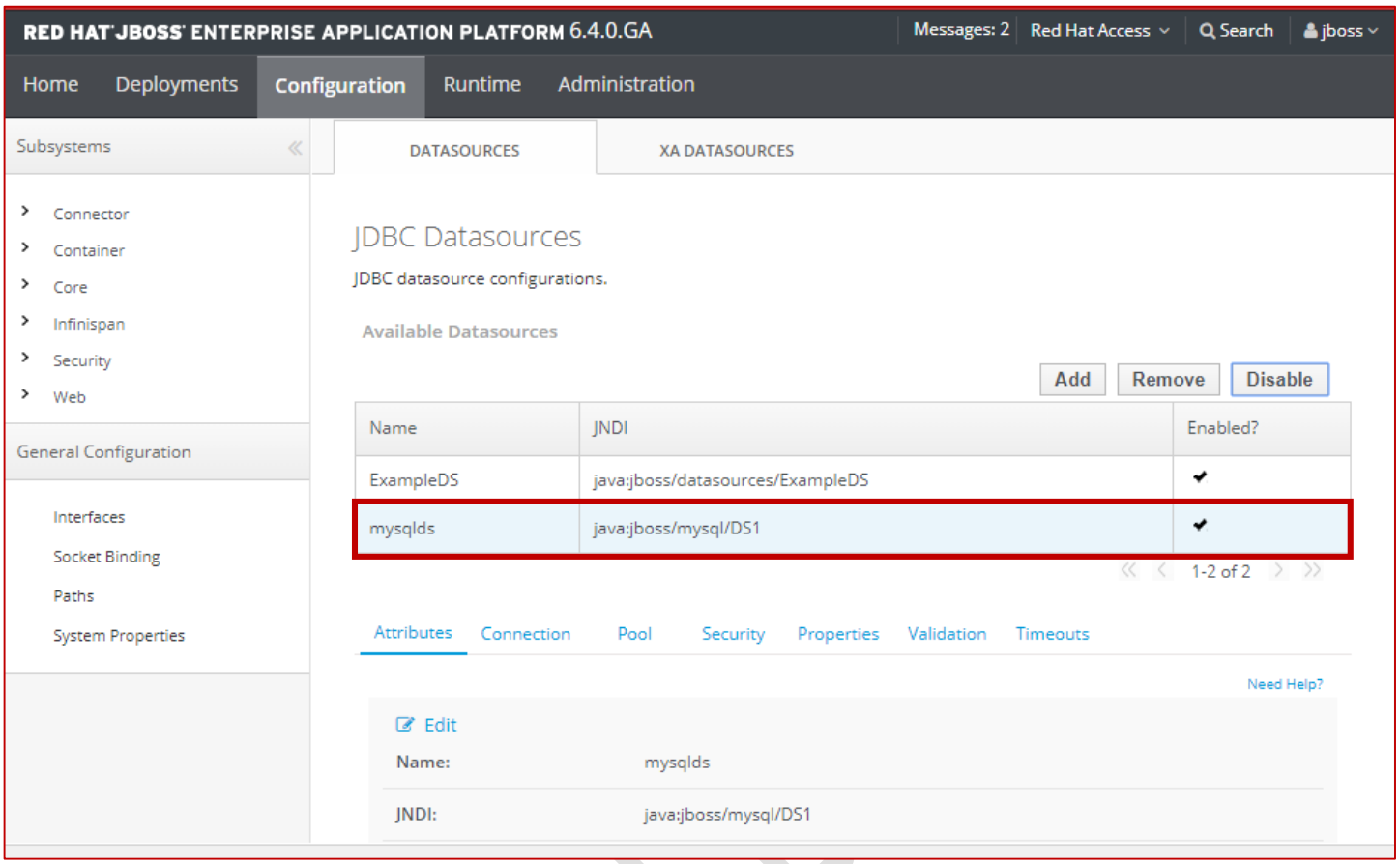



Create Datasource
Step 1/3: Datasource Attributes
Need Help?
Name:
mysqlds
JNDI Name:
java:jboss/mysql/DS1
Cancel
Next ››


Create Datasource
Step 2/3: JDBC Driver
Select one of the installed JDBC driver. Don't see your driver? Please make sure it's deployed as a module and properly registered.
Detected Driver
Specify Driver
Name
h2
mysql
1-2 of 2
Cancel
Next ››


Create Datasource
Step 3/3: Connection Settings
Need Help?
Connection URL:
jdbc:mysql://localhost:3306/jbossdb
Username:
root
Password:
Security Domain:
Test Connection
Cancel
Done


Create Datasource
Step 3/3: Connection Settings
Need Help?
Test Connection
Successfully created JDBC connection.
Successfully connected to database mysqlds.
OK
Cancel
Done


RED HAT JBOSS ENTERPRISE APPLICATION PLATFORM 6.4.0.GA
Messages: 2
Red Hat Access
Search
jboss
Home
Deployments
Configuration
Runtime
Administration
Subsystems
Connector
Container
Core
Infinispan
Security
Web
General Configuration
Interfaces
Socket Binding
Paths
System Properties
DATASOURCES
XA DATASOURCES
JDBC Datasources
JDBC datasource configurations.
Available Datasources
Add
Remove
Disable
Name
JNDI
Enabled?
ExampleDS
java:jboss/datasources/ExampleDS
mysqlds
java:jboss/mysql/DS1
1-2 of 2
Attributes
Connection
Pool
Security
Properties
Validation
Timeouts
Need Help?
Edit
Name:
mysqlds
JNDI:
java:jboss/mysql/DS1

7.3 Create a Datasource using the Server's Configuration file (standalone-*.xml or domain.xml)

Modify your server's config file "standalone.xml" or "domain.xml"
Modify the section <subsystem xmlns="urn:jboss:domain:datasources:1.0">
Insert the following xml after <datasources> element

```
<datasource jta="false" jndi-name="java:jboss/mysql/DS1" pool-name="mysqlds" enabled="true" use-ccm="false">
            <connection-url>jdbc:mysql://localhost:3306/jbossdb</connection-url>
            <driver-class>com.mysql.jdbc.Driver</driver-class>
            <driver>mysql</driver>
            <security>
              <user-name>root</user-name>
              <password>root</password>
            </security>
            <validation>
              <validate-on-match>false</validate-on-match>
              <background-validation>false</background-validation>
            </validation>
            <statement>
              <share-prepared-statements>false</share-prepared-statements>
            </statement>
          </datasource>
```

- Restart your Server.

8. JMS Configuration: (JMS is supported in standalone-full*.xml configuration)

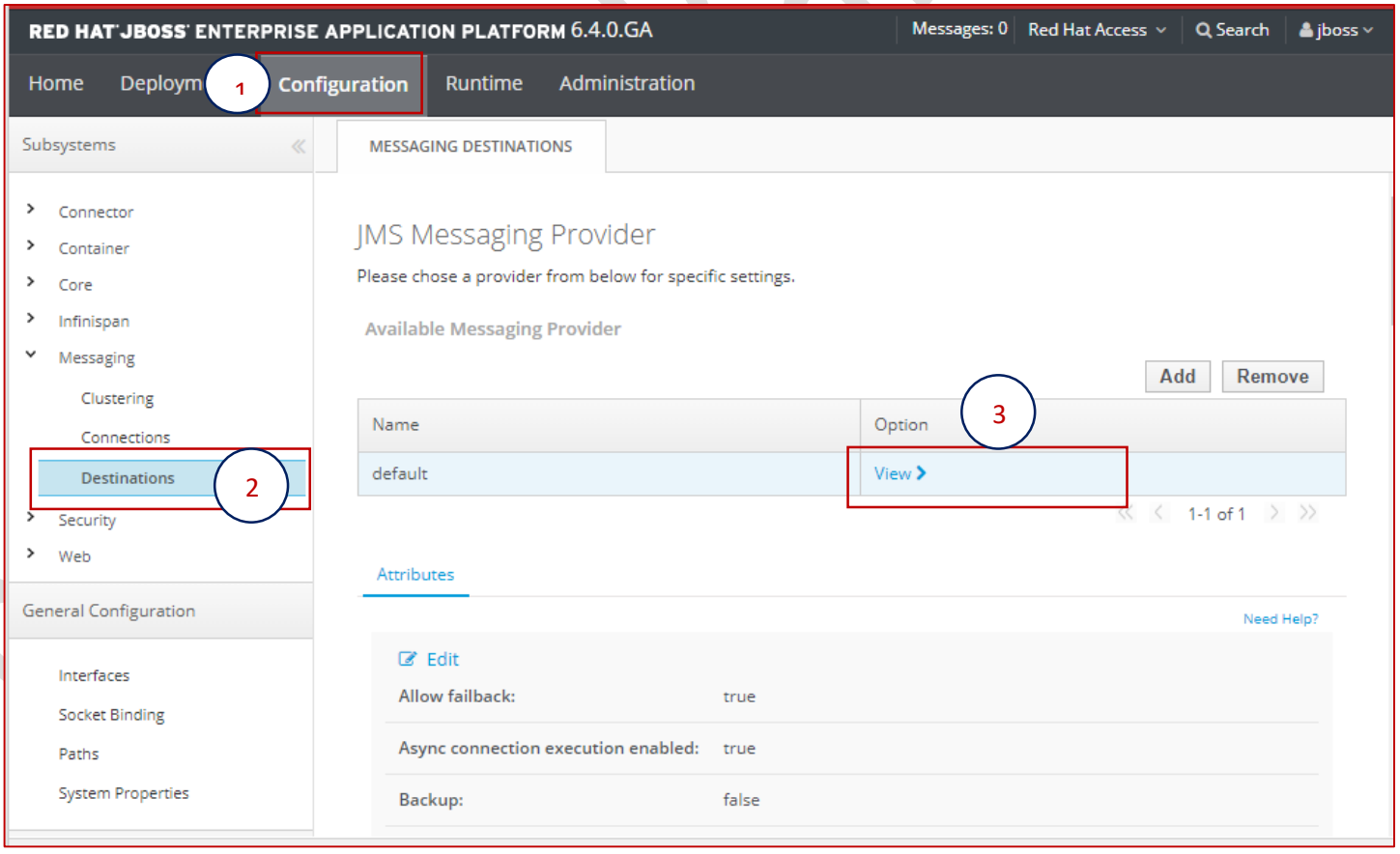
8.1 Configure HornetQ Server

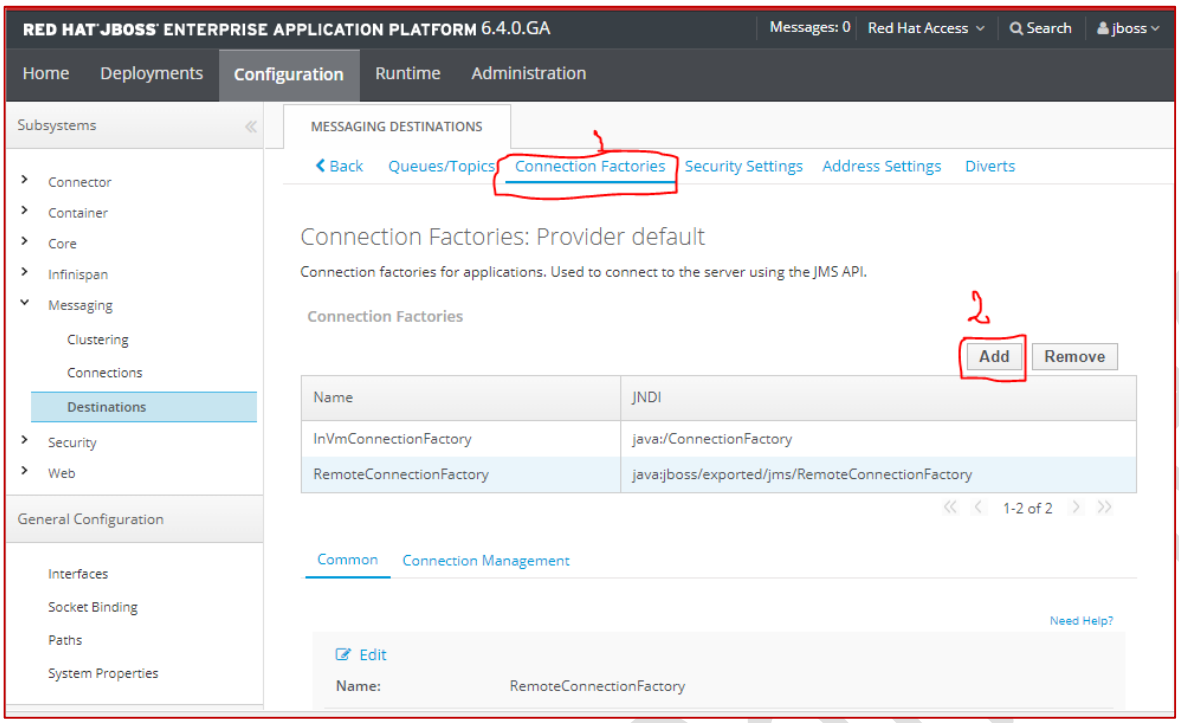
1. By default Security is enabled in HornetQ and it raises an exception as `Failed to create session : HornetQException[errorCode=105 message=Unable to validate user: null]` if any JMS resource is accessed without proper security setup.
2. To correct this problem you need to add the following

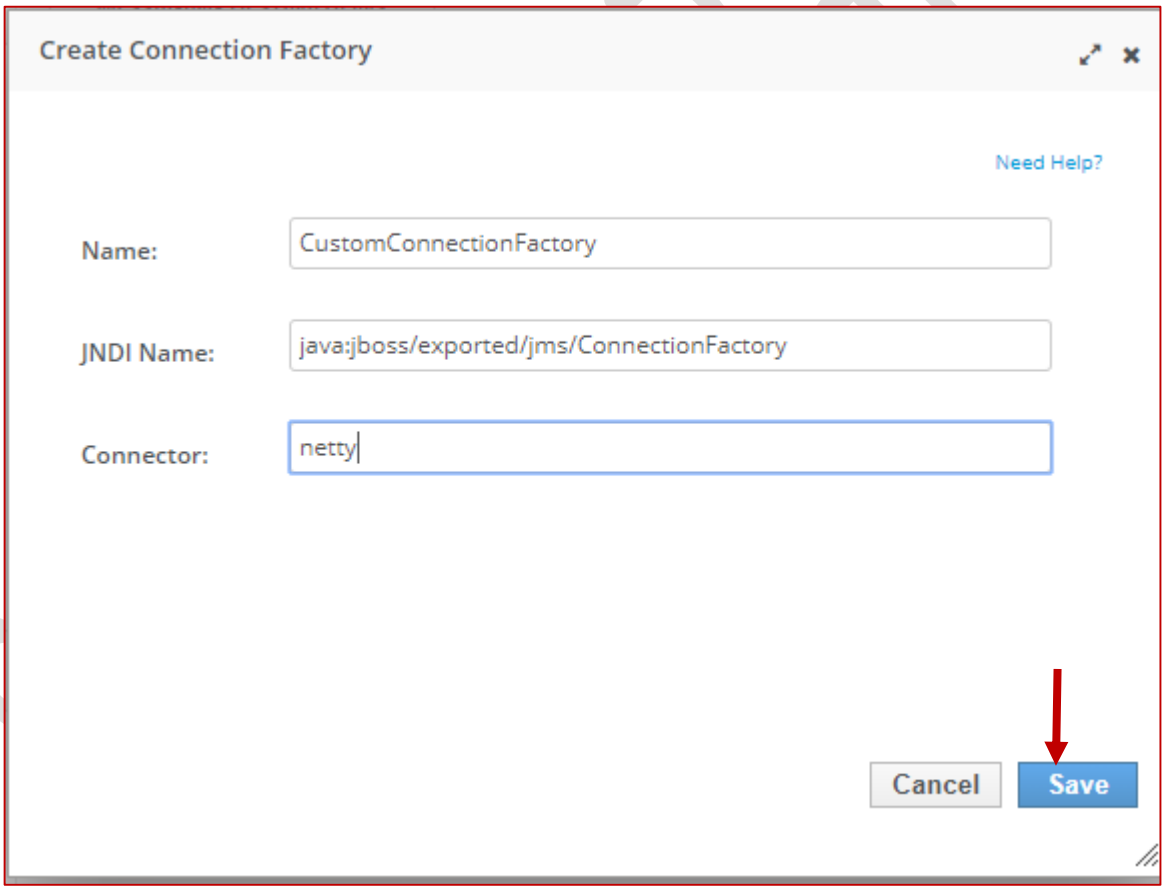
```
<subsystem xmlns="urn:jboss:domain:messaging:1.1">
 <hornetq-server>
 <persistence-enabled>true</persistence-enabled>
<journal-file-size>102400</journal-file-size>
<journal-min-files>2</journal-min-files>
<security-enabled>false</security-enabled>
```

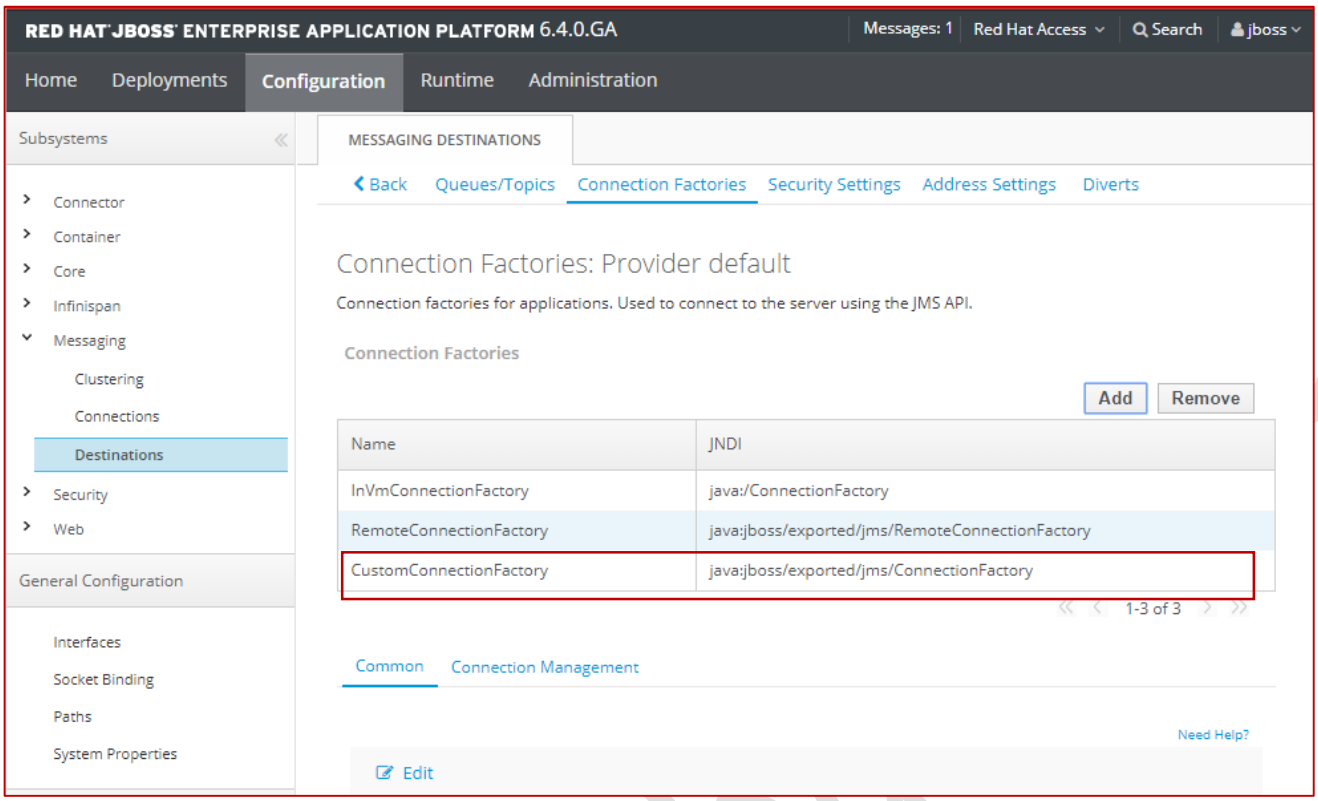
8.2 Create Connection Factory and JMS Destinations

1. **Create Connection Factory:**

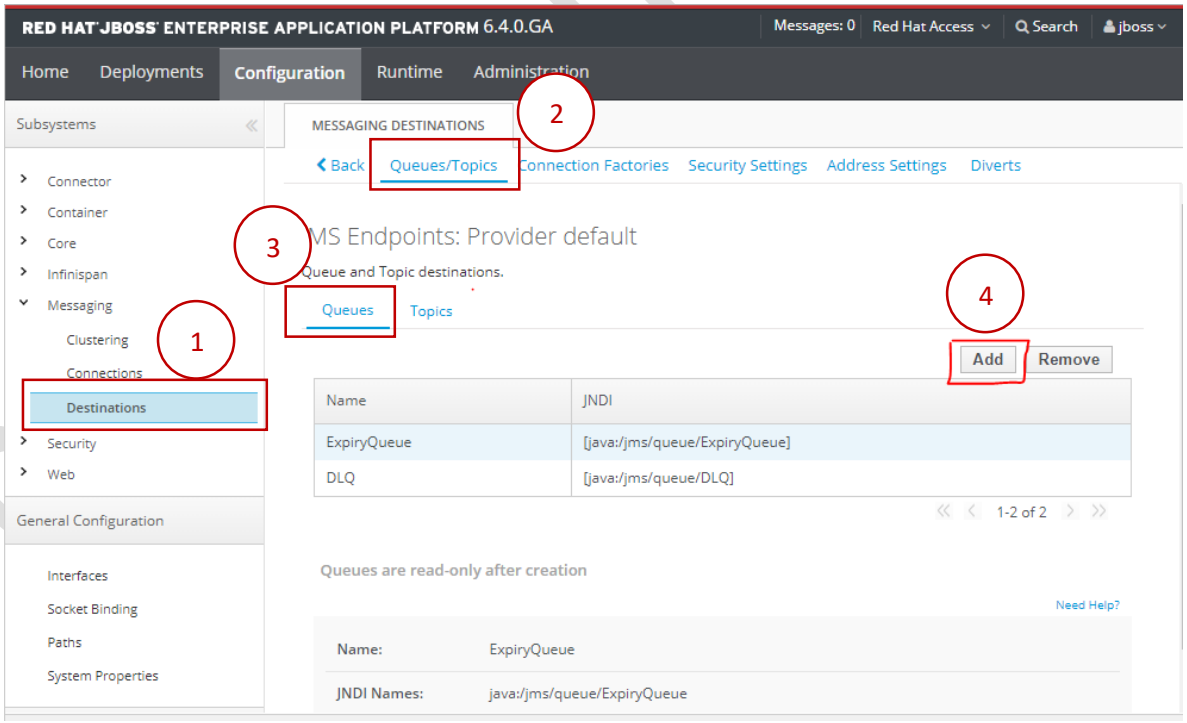


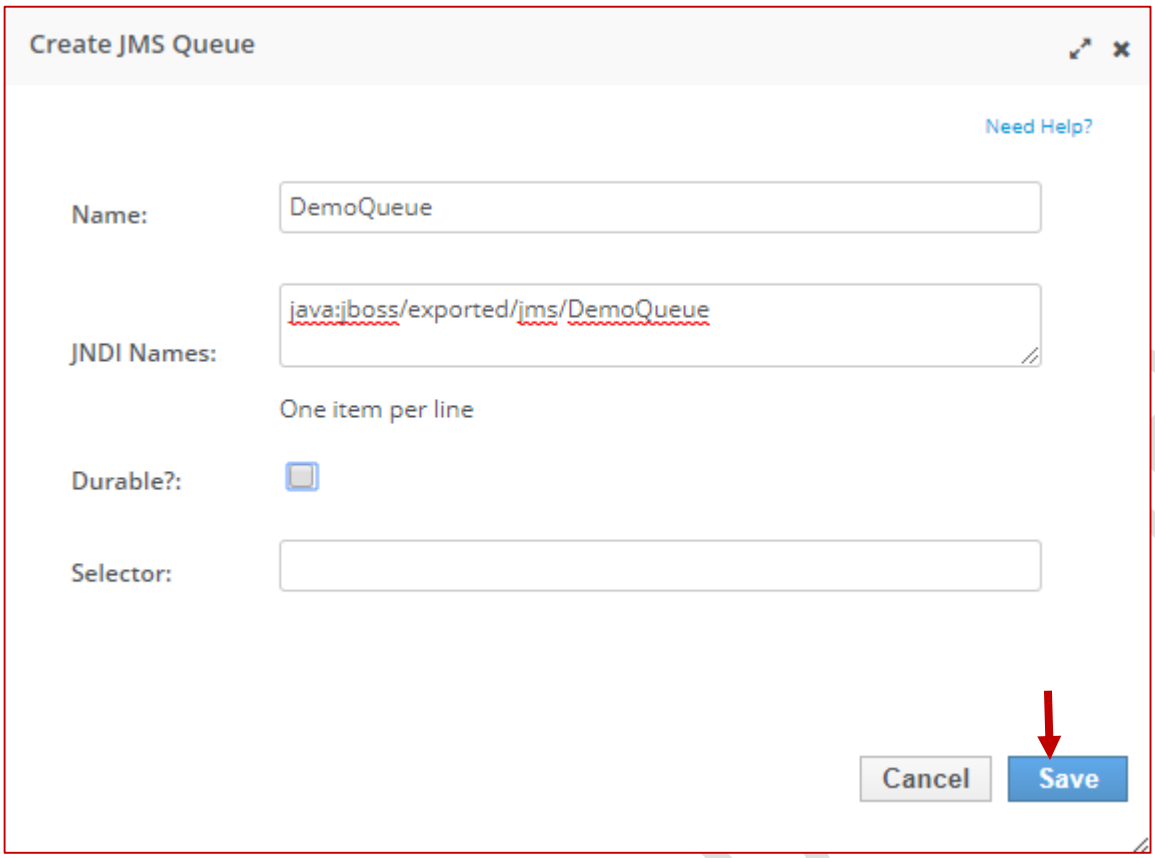

RED HAT JBOSS ENTERPRISE APPLICATION PLATFORM 6.4.0.GA
Messages: 0
Red Hat Access
Search
jboss
Home
Deployments
Configuration
Runtime
Administration
Subsystems
Connector
Container
Core
Infinispan
Messaging
Clustering
Connections
Destinations
Security
Web
General Configuration
Interfaces
Socket Binding
Paths
System Properties
MESSAGING DESTINATIONS
Back
Queues/Topics
Connection Factories
Security Settings
Address Settings
Diverts
Connection Factories: Provider default
Connection factories for applications. Used to connect to the server using the JMS API.
Connection Factories
Add
Remove
Name
JNDI
InVmConnectionFactory
java:/ConnectionFactory
RemoteConnectionFactory
java:jboss/exported/jms/RemoteConnectionFactory
1-2 of 2
Common
Connection Management
Need Help?
Edit
Name:
RemoteConnectionFactory

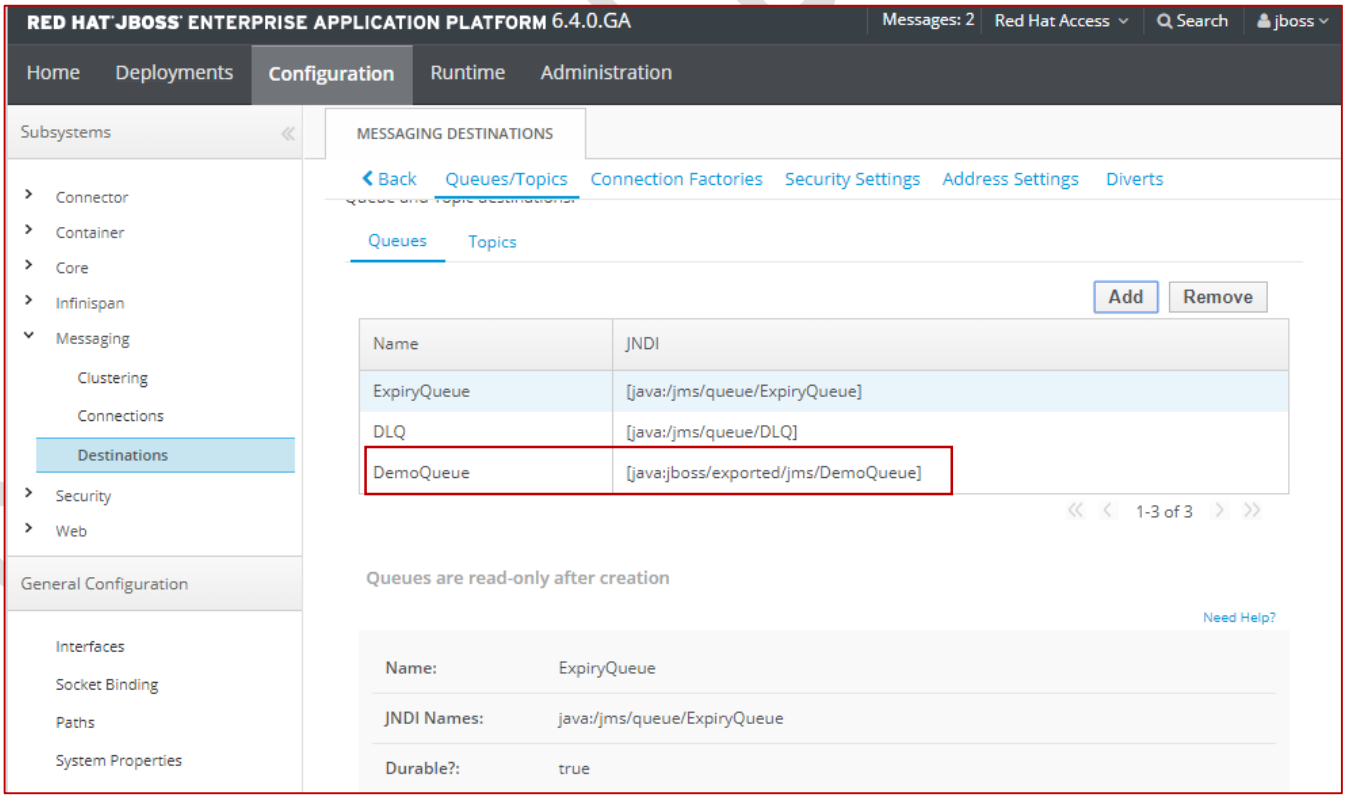

Create Connection Factory
Need Help?
Name:
CustomConnectionFactory
JNDI Name:
java:jboss/exported/jms/ConnectionFactory
Connector:
netty
Cancel
Save



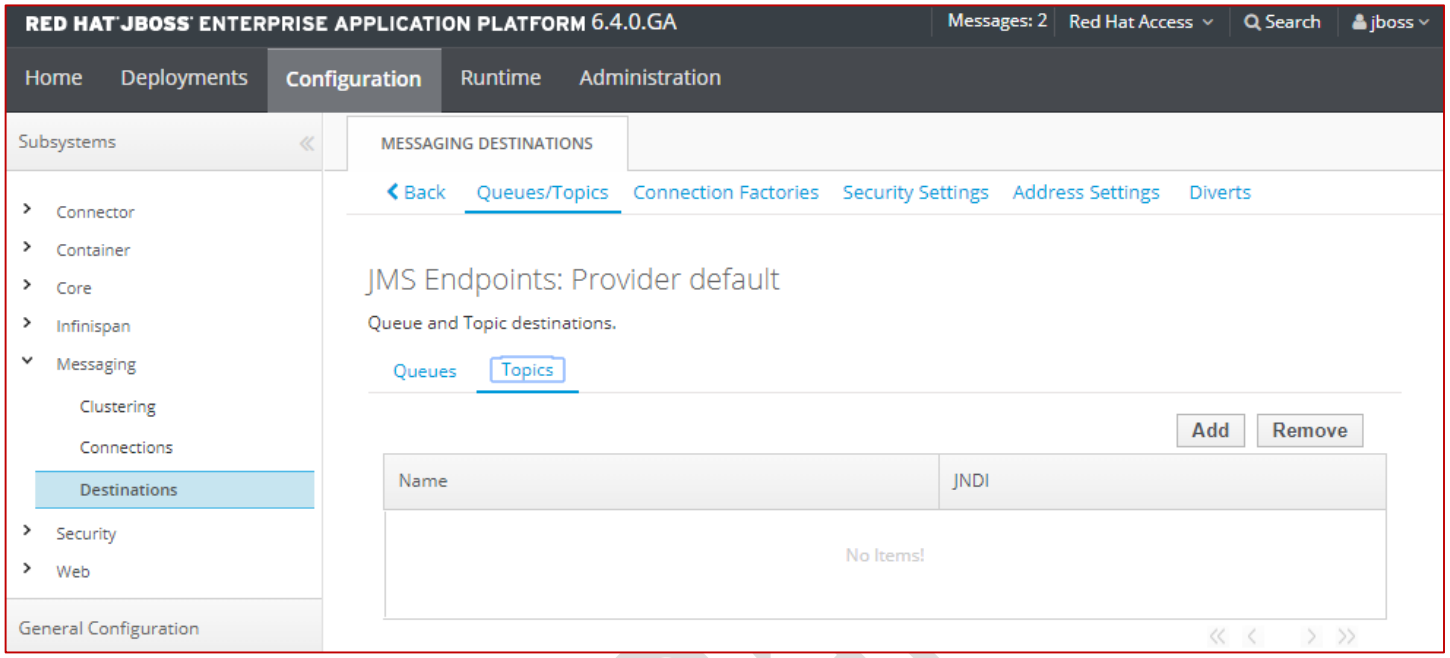
8.3. Create a Queue

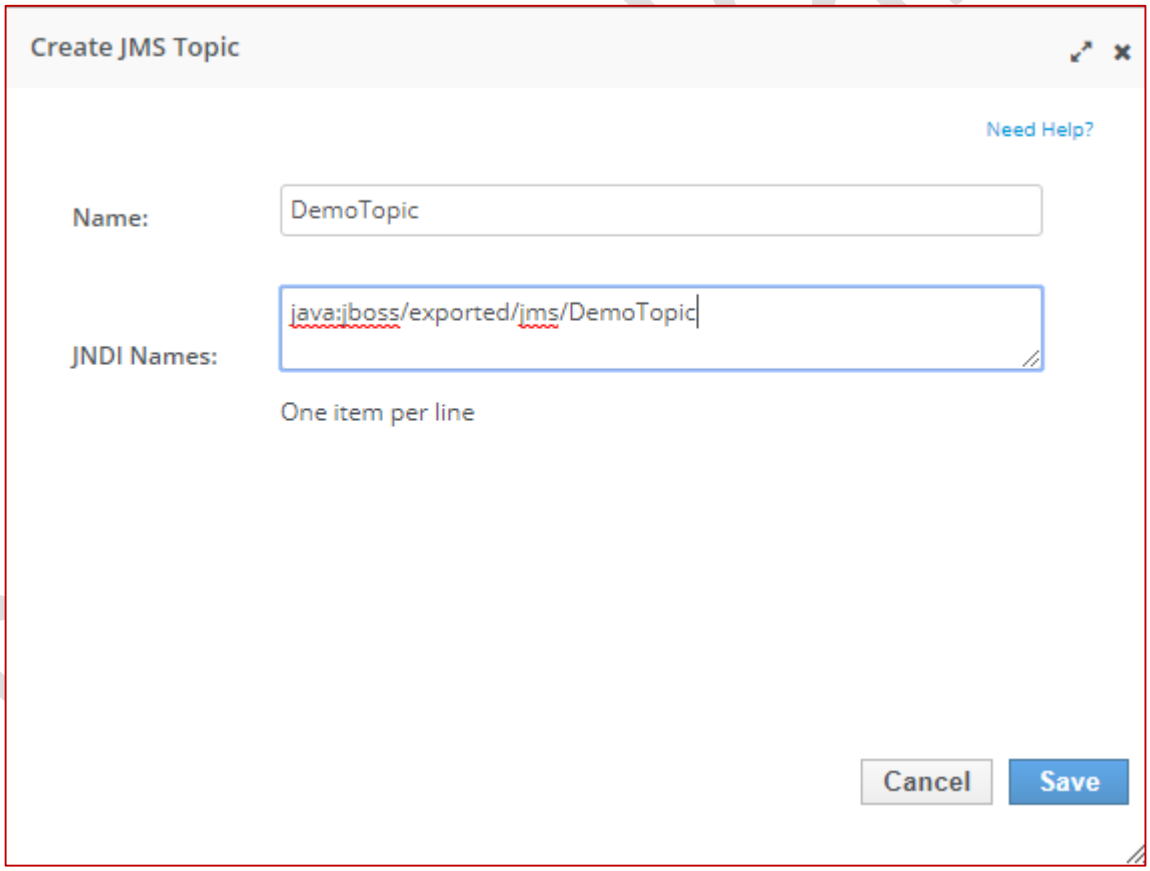


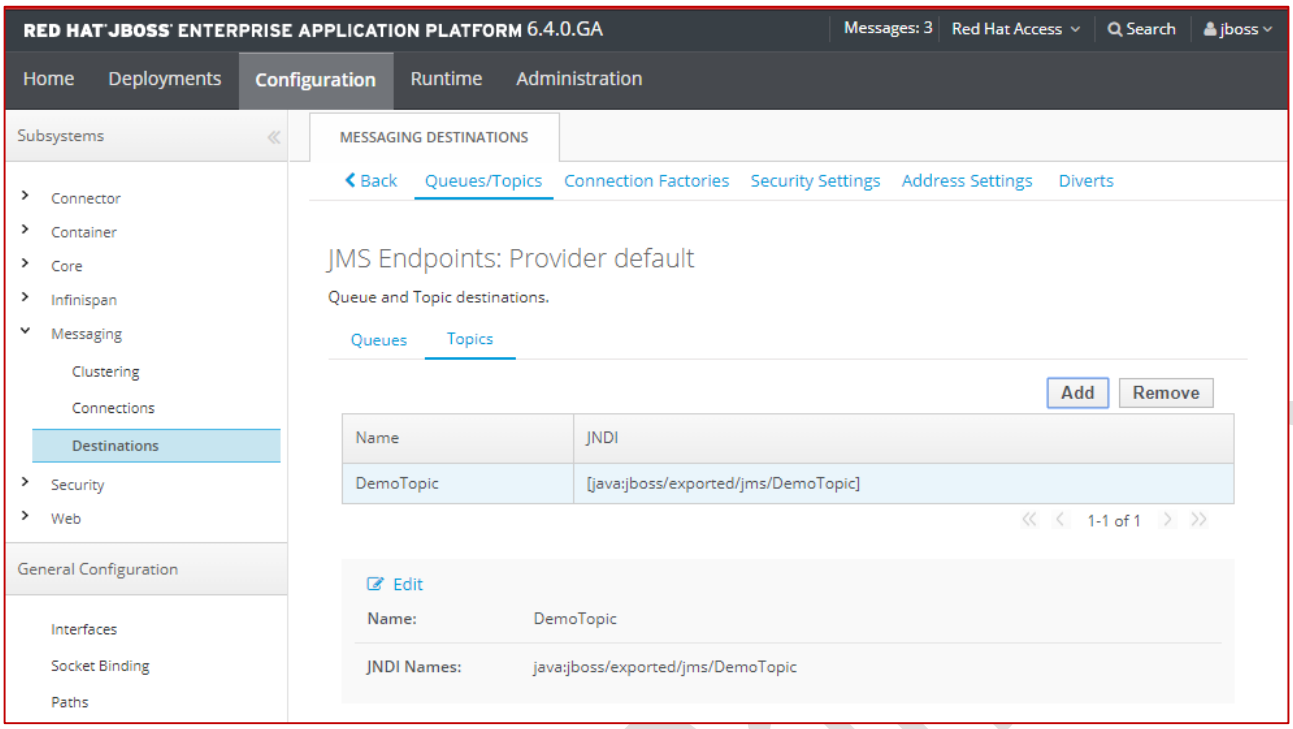

Create JMS Queue
Need Help?
Name:
DemoQueue
JNDI Names:
java:jboss/exported/jms/DemoQueue
One item per line
Durable?:
Selector:
Cancel
Save


RED HAT JBOSS ENTERPRISE APPLICATION PLATFORM 6.4.0.GA
Messages: 2
Red Hat Access
Search
jboss
Home
Deployments
Configuration
Runtime
Administration
Subsystems
Connector
Container
Core
Infinispan
Messaging
Clustering
Connections
Destinations
Security
Web
General Configuration
Interfaces
Socket Binding
Paths
System Properties
MESSAGING DESTINATIONS
Back
Queues/Topics
Connection Factories
Security Settings
Address Settings
Diverts
Queues
Topics
Add
Remove
Name
JNDI
ExpiryQueue
[java:/jms/queue/ExpiryQueue]
DLQ
[java:/jms/queue/DLQ]
DemoQueue
[java:jboss/exported/jms/DemoQueue]
1-3 of 3
Queues are read-only after creation
Need Help?
Name:
ExpiryQueue
JNDI Names:
java:/jms/queue/ExpiryQueue
Durable?:
true

8.4. Create a Topic







8.5 Alternative JMS Configuration

Note: Alternatively you may create a JMS Destination with an independent file as follows:

Just add this file to deployment folder

File name: `test-jms.xml`

```
<?xml version="1.0" encoding="UTF-8"?>
<messaging-deployment xmlns="urn:jboss:messaging-deployment:1.0">
    <hornetq-server>
        <jms-destinations>
            <jms-queue name="QueueOne">
                <entry name="java:jboss/exported/TestQueueOne"/>
                <durable>true</durable>
            </jms-queue>
            <jms-topic name="TopicOne">
                <entry name="java:jboss/exported/TestTopicOne"/>
            </jms-topic>
        </jms-destinations>
    </hornetq-server>
</messaging-deployment>
```

9. LAB 9: Security Configuration

9.1 Configure SSL on JBoss 7:

1. Follow the Instructors guidance to create the Self Signed Certificate and the keystore.
2. Open <JBOSS_HOME><your config><config-file>
3. Navigate to the web subsystem configuration
4. In the connector section add the following xml snippet (Update the key store file location)

```
<connector name="https" protocol="HTTP/1.1" socket-binding="https" scheme="https"
secure="true">

 <ssl name="https" key-alias ="mykey" password="welcome1" certificate-key-
file="C:\jboss-as-7.1.1.Final\ssl\mykeys.jks"/>

 </connector>
```

Note: Follow the Web Subsystem xsd for further configuration.

9.2 Security Domain Configuration for Applications and resources

Every security domain configuration is available in JBoss Server with the following JNDI name pattern:

`java:/jaas/<name of the domain in config file>`

`e.g.`

`java:/jaas/mydomain`

9.2.1 Security domain based on .properties files

UserRoles Login Module (please configure properties files required)

myusers.properties file:

```
#username=password mapping
scott=scott123
arun=arun123
shantanu=shan123
```

myroles.properties file:

```
#username=role mapping
scott=manager
arun=user
shantanu=manager
```

Add the following entry in security-domains subsystem:

```
<security-domain name="mydomain" cache-type="default">
   <authentication>
     <login-module code="UsersRoles" flag="required">
     <module-option name="usersProperties"
     value="${jboss.server.config.dir}/myusers.properties"/>
     <module-option name="rolesProperties"
     value="${jboss.server.config.dir}/myroles.properties"/>
      </login-module>
    </authentication>
 </security-domain>
```

9.2.2 Security domain based on Database

Note In order to get working with this configuration, you first have to create the required tables and insert some sample data in it:

```
create table users(username varchar(32) primary key,password varchar(32));
create table roles(username varchar(32),role varchar(20));
insert into users(username,password) values('scott','scott123');
insert into users(username,password) values('pavan','pavan123');
insert into users(username,password) values('shantanu','shan123');
insert into roles(username,role) values('scott','manager');
insert into roles(username,role) values('pavan','user');
insert into roles(username,role) values('shantanu','manager');
```

Database Server Login Module:

```
<subsystem xmlns="urn:jboss:domain:security:1.0">
 <security-domains>
   <security-domain name="mydbdomain">
    <authentication>
          <login-module code="Database" flag="required">
               <module-option name="dsJndiName" value="<Your Datasource
JNDI Name"/>
               <module-option name="principalsQuery"
               value="select password from users where username=?"/>
               <module-option name="rolesQuery">
                 select role, 'Roles' from roles where username=?
               </module-option>
          </login-module>
     </authentication>
  </security-domain>
 </security-domains>
</subsystem>
```

9.2.3 Security domain based on LDAP Server (refer to the associated document)

```
<security-domain name="ldapdomain" cache-type="default">
<authentication>
<login-module code="LdapExtended" flag="required">
<module-option name="java.naming.factory.initial"
value="com.sun. jndi.ldap.LdapCtxFactory"/>
<module-option name="java.naming.provider.url"
value="ldap://localhost:10389"/>
<module-option name="java.naming.security.authentication"
value="simple"/>
<module-option name="bindDN" value="uid=admin,ou=system"/>
<module-option name="bindCredential" value="secret"/>
<module-option name="baseCtxDN" value="ou=People,dc=example,dc=com"/>
<module-option name="baseFilter" value="(uid={0})"/>
<module-option name="rolesCtxDN" value="ou=Roles,dc=example,dc=com"/>
<module-option name="roleFilter" value="(member={1})"/>
<module-option name="roleAttributeID" value="cn"/>
<module-option name="searchScope" value="ONELEVEL_SCOPE"/>
<module-option name="allowEmptyPasswords" value="true"/>
</login-module>
```

10. LAB 10: Creating a cluster in Standalone Mode

10.1 Cluster in the same Box

1. **Create 2 copies of standalone folder as**
   i. **Standalone-node1**
   ii. **Standalone-node2**
2. **Start JBoss node1 as**

```
./standalone.sh -c standalone-ha.xml -b <IP> -bmanagement <IP> -u 230.0.0.4 -
Djboss.server.base.dir=../standalone-node1 -Djboss.node.name=node1 -
Djboss.socket.binding.port-offset=100
```

3. **Start JBoss node2 as :**

```
./standalone.sh -c standalone-ha.xml -b <IP> -bmanagement <IP>  -u 230.0.0.4 -
Djboss.server.base.dir=../standalone-node2 -Djboss.node.name=node2 -
Djboss.socket.binding.port-offset=200
```

4. As JBoss7 cluster is on-demand, you will not see any indication that a cluster is formed. You will be able to get information from the cluster when you deploy a clustered application.

11. LAB 11: Configure Apache Web Server as Load Balancer

1. **Assumptions**
2. We have already started 2 JBoss nodes with ha /full-ha profiles having port offsets 100 and 200 respectively
3. The "**`shoppingcart.war`**" application is deployed in both the JBoss Nodes
4. JBoss Node1: name=node1, ajp port=8109
5. JBoss Node2: name=node2, ajp port=8209
6. IP address of the system: 192.168.56.101
7. Apache Web Server is already installed
8. We are configuring mod_jk as load balancer

Copy the necessary files:

```
$ cd /home/training/JBossClass/cluster/
$ pwd
/home/training/JBossClass/cluster
$ sudo cp mod-jk-config/mod-jk.conf /etc/httpd/conf/
$ sudo cp mod-jk-config/workers.properties /etc/httpd/conf/
$ sudo cp mod-jk-32bit_apache2.2/mod_jk.so /etc/httpd/modules/
$ sudo vi /etc/httpd/conf/workers.properties
```

The edited “workers.properties file should look like the following:

```
worker.list=loadbalancer,status

worker.node1.port=8109
worker.node1.host=192.168.56.101
worker.node1.type=ajp13
worker.node1.lbfactor=1

worker.node2.port=8209
worker.node2.host=192.168.56.101
worker.node2.type=ajp13
worker.node2.lbfactor=1

worker.loadbalancer.type=lb
worker.loadbalancer.balance_workers=node1,node2

# Status worker for managing load balancer
worker.status.type=status
```

Edit mod-jk.conf file using vi

$sudo vi /etc/httpd/conf/mod-jk.conf

The edited file should look like the following:

```
# Load mod_jk module
# Specify the filename of the mod_jk lib
LoadModule jk_module modules/mod_jk.so
# Where to find workers.properties
JkWorkersFile conf/workers.properties
# Where to put jk logs
JkLogFile logs/mod_jk.log
# Set the jk log level [debug/error/info]
JkLogLevel info
# Select the log format
JkLogStampFormat "[%a %b %d %H:%M:%S %Y]"
# JkOptions indicates to send SSK KEY SIZE
#JkOptions +ForwardKeySize +ForwardURICompat -
#ForwardDirectories
# JkRequestLogFormat
JkRequestLogFormat "%w %V %T
JkMount /shoppingcart/* loadbalancer
```

We have changed only the application context in JkMount part

Open **/etc/httpd/conf/httpd.conf** file using vi and go to the end of the file(**Shift+g**) and make the following entry

Include conf/mod-jk.conf

Restart Apache Web Server and access the clustered application at

http://192.168.56.101/shoppingcart/

-:END:-

mod_cluster as load balancer

!! Optional !!

Configure mod_cluster with the above cluster: (Mod cluster in JBoss.7.1.1 contains a bug bug JBPAPP-7516 and automatic advertise mode will not work and you need to provide proxy-list to Jboss node)

1. **Setup at httpd side:**
   a. Download, install and configure your httpd server according to your platform
   b. Get the shared object library from mod cluster download site http://www.jboss.org/mod_cluster
   c. We are using mod cluster 1.2.0.Final version
   d. Copy the required .so files (as per the docs) to httpd/modules folder.
   e. Copy the following text at the bottom of the conf/httpd.conf file
   f. Our apache server is listening on 8888 port, please update IP address as per system IP.

```
############### mod_cluster Setting - STARTED ###############
LoadModule slotmem_module modules/mod_slotmem.so
LoadModule manager_module modules/mod_manager.so
LoadModule proxy_cluster_module modules/mod_proxy_cluster.so
LoadModule advertise_module modules/mod_advertise.so

#Listen 1.1.1.1:80

<VirtualHost *:8888>
  <Directory />
         Order deny,allow
         Allow from all
  </Directory>
  <Location /mod_cluster-manager>
         SetHandler mod_cluster-manager
         Order deny,allow
         Allow from all
  </Location>
  EnableMCPMReceive
          KeepAliveTimeout 60
          ManagerBalancerName mycluster
  #AdvertiseGroup 224.0.1.105:23364
```

```
  AdvertiseFrequency 2
          ServerAdvertise On
</VirtualHost>
############### mod_cluster Setting - ENDED ###############
```

g. Start apache server
h. You are done!

2. **JBoss setup:**
   a. Open <JBOSS_HOME>/standalone-node1/standalone-ha.xml
   b. Update the <server> element with node name as standalone-node1

```
<server name="standalone-node1" xmlns="urn:jboss:domain:1.2">
```

   c. Set proxy-list="your apahce IP:apacheport" in modcluster subsystem as

```
<subsystem xmlns="urn:jboss:domain:modcluster:1.0">
            <mod-cluster-config advertise-socket="modcluster" proxy-
list="192.168.135.134:8888">
                <dynamic-load-provider>
                    <load-metric type="busyness"/>
                </dynamic-load-provider>
            </mod-cluster-config>
 </subsystem>
```

   d. Update web subsystem with instance id as

```
<subsystem xmlns="urn:jboss:domain:web:1.1" default-virtual-server="default-
host" instance-id="${jboss.node.name}" native="false">
```

Repeat the steps a-d for node2 also.
Restart JBoss nodes. Enjoy!