Apache Tomcat (Linux) Cluster Lab

In a production Tomcat environment, you might have hundreds of web requests per second on a routine basis. With so much volume assaulting your Tomcat server, you'll probably discover that memory resources in one Tomcat JVM (Java Virtual Machine) can become overwhelmed. To help prevent this situation from becoming reality you can place two or more Tomcat servers in a cluster. A cluster is a group of servers that communicate with one another. Now you have multiple JVMs to handle the work load coming in from the network. Session data can be shared among the cluster members to achieve high availability, i.e., recovery of a web session should a server crash occur. In this topic, I will walk you through the steps to turn on clustering in a Linux environment and to start the first member of the cluster. I will use Ubuntu as the Linux distribution.

To learn how to cluster in Apache Tomcat in Linux, follow these 15 steps:

1. Stop the Tomcat server.

2. Create a directory under the /etc directory of your file system drive named tomcat7A.

3. Copy the contents of CATALINA_BASE/conf, e.g., /var/lib/tomcat7/conf to your new directory. NOTE: conf is a symbolic link to /etc/tomcat7.

4. Open an edit session on /etc/tomcat7A/server.xml. Locate the cluster entry:

```
<!--
<Cluster
className="org.apache.catalina.ha.tcp.SimpleTcpCluster
"/>
-->
```

5. Remove the comment tags:

```
<Cluster className="org.apache.catalina.ha.tcp.SimpleTcpCluster"/>
```

6. Now locate the Connector element for HTTP:

```
<Connector port="8080" protocol="HTTP/1.1"
      connectionTimeout="20000"
      redirectPort="8443" />
```

7. Change the port number to "8181":

```
<Connector port="8181" protocol="HTTP/1.1"
      connectionTimeout="20000"
      redirectPort="8443" />
```

We want to change the HTTP port so that there will be no contention for the port when we start our customized Tomcat.

8. Locate the Server element:

```
<Server port="8005" shutdown="SHUTDOWN">
```

9. Change the port number to "8001":

```
<Server port="8001" shutdown="SHUTDOWN">
```

We also want to change the shutdown port so that there will be no contention for the port.

10. Save your changes.

11. Start a terminal window and navigate to CATALINA_HOME/bin e.g., /usr/share/tomcat7/bin.

12. You will need to unlink the current symbolic link:

```
sudo unlink /var/lib/tomcat7/conf
```

13. Next, you will create a symbolic link to your customized configuration:
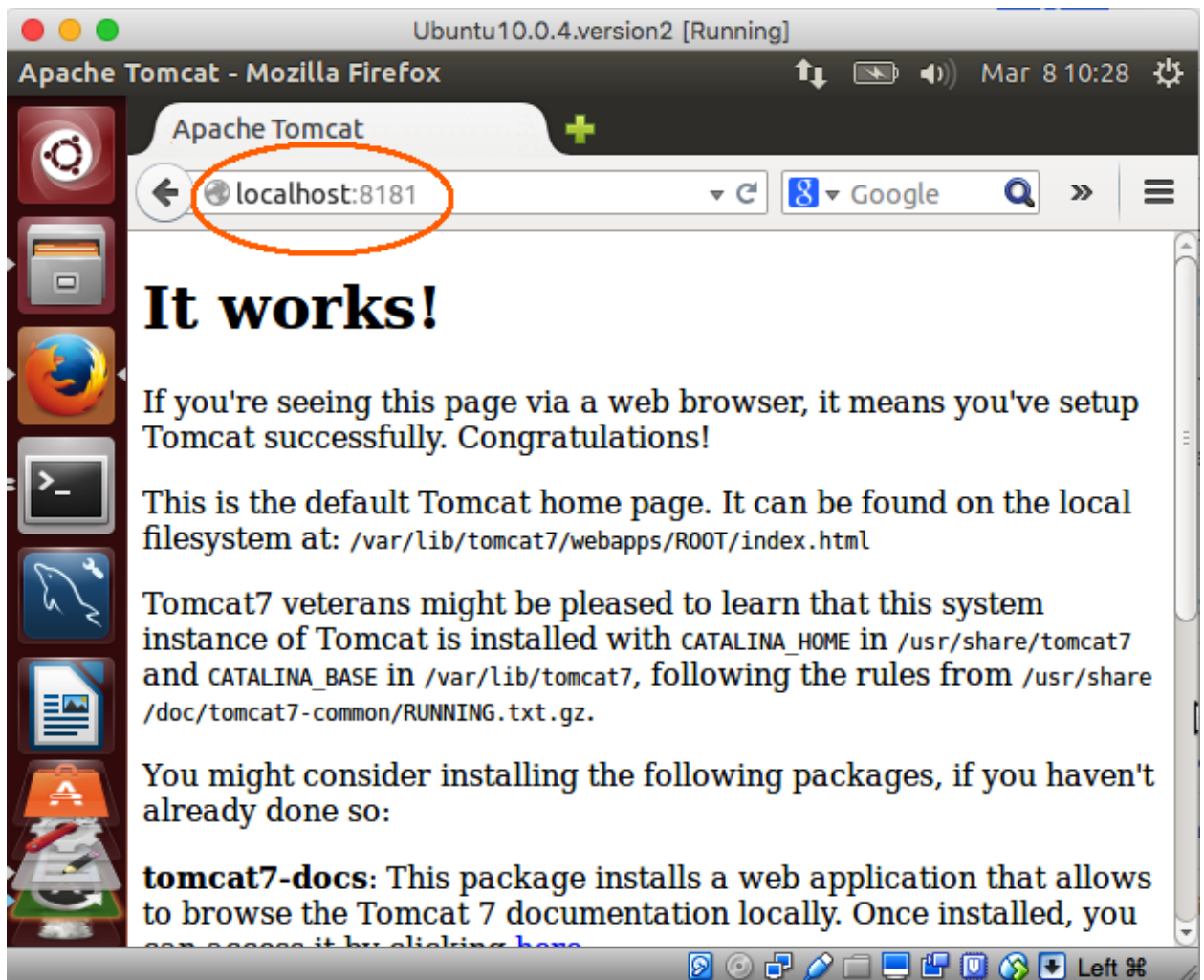
```
sudo ln -s /etc/tomcat7A /var/lib/tomcat7/conf
```

14. Now when we start the server, Tomcat will pick up our new configuration, including the updated server.xml.

15. Start Tomcat:

```
sudo ./startup.sh
```

16. In your browser, enter the URL that includes the new HTTP port number, http://localhost:8181:

The welcome page will display, indicating the new configuration that includes clustering has been installed by Tomcat.